Sonoqui Wash Channelization
Queen Creek to Chandler Heights Road

Letter of Map Revision
(LOMR)

Prepared by:
Flood Control District of Maricopa County
2801 W Durango Street
Phoenix, Arizona 85009

July 2008

February 2009

Federal Emergency Management Agency

Washington, D.C. 20472

April 8, 2009

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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

IN REPLY REFER TO:

Case No.:	08-09-1488P
Follows Conditional Case No.:	06-09-B379R and 07-09-0729R
Community Name:	Maricopa County, AZ
Community No.:	040037
Effective Date of This Revision:	**April 8, 2009**

Dear Mr. Kunasek:

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

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Oakland, California, at (510) 627-7175, or the FEMA Map Assistance Center 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,

Dahlia Kasperski

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

For: William R. Blanton Jr., CFM, Chief
Engineering Management Branch
Mitigation Directorate

List of Enclosures:

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

cc: (see attached list)

Mr. Ted Collins, CFM
Principal Floodplain Administrator
Flood Control District of Maricopa County

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

Mr. Tim Murphy, P.E., CFM
Floodplain Delineation Branch Manager
Flood Control District of Maricopa County

Mr. Kevin LaVallee
GIS Analyst
Flood Control District of Maricopa County

Mr. Lynn M. Thomas, P.E., CFM
Flood Control District of Maricopa County

Ms. Catherine Regester, P.E.
Flood Control District of Maricopa County

Mr. Brian Cosson, CFM
NFIP State Manager
Arizona Department of Water Resources
Flood Mitigation Section

Follows Conditional Case No.: 06-09-B379R
07-09-0729R

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Maricopa County Arizona (Unincorporated Areas) COMMUNITY NO.: 040037	BRIDGE CHANNELIZATION CULVERT DETENTION BASIN EXCAVATION FILL	HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
IDENTIFIER	Sonoqui Wash Channelization	APPROXIMATE LATITUDE & LONGITUDE: 33.249, -111.722 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES			ANNOTATED STUDY ENCLOSURES
TYPE: FIRM*	NO.: 04013C3075 H	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005
TYPE: FIRM*	NO.: 04013C3060 H	DATE: September 30, 2005	PROFILE(S): 1280P, 1281P, 1282P

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

FLOODING SOURCE(S) & REVISED REACH(ES)

Sonoqui Wash - from approximately 1,000 feet downstream of Higley Road to approximately 1,000 feet upstream of Chandler Heights Road

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Sonoqui Wash	Zone AE	Zone AE	YES	YES
	Zone AE	Zone X (shaded)	NONE	YES
	BFEs*	BFEs	NONE	YES

* BFEs - Base Flood Elevations

DETERMINATION

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

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

OTHER COMMUNITIES AFFECTED BY THIS REVISION

CID Number: 040044 **Name:** Town of Gilbert, Arizona

AFFECTED MAP PANELS			AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT
TYPE: FIRM*	NO.: 04013C2690 H	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005
TYPE: FIRM*	NO.: 04013C3060 H	DATE: September 30, 2005	PROFILE(S): 1280P, 1281P, 1282P
TYPE: FIRM*	NO.: 04013C3075 H	DATE: September 30, 2005	

CID Number: 040132 **Name:** Town Of Queen Creek, Arizona

AFFECTED MAP PANELS			AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT
TYPE: FIRM*	NO.: 04013C3060 H	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005
TYPE: FIRM*	NO.: 04013C3075 H	DATE: September 30, 2005	PROFILE(S): 1280P, 1281P, 1282P

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

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

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

COMMUNITY REMINDERS

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

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

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

This revision has met our criteria for removing an area from the base floodplain to reflect the placement of fill. However, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to or above the Base Flood Elevation.

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

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

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

STATUS OF THE COMMUNITY NFIP MAPS

We are preparing a revised FIRM and FIS report for Maricopa County in our countywide format; therefore, we will not physically revise and republish the FIRM and FIS report for your community to incorporate the modifications made by this LOMR at this time. Preliminary copies of the countywide FIRM and FIS report, which will present information from the effective FIRMs and FIS reports for your community and incorporated communities in Maricopa County, will be distributed for review in approximately 6 months. We will incorporate the modifications made by this LOMR into the Preliminary countywide FIRM before it is distributed, and the modifications will be included when the countywide FIRM becomes effective.

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD 29)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Sonoqui Wash	Approximately 2,900 feet upstream of Higley Road	1,325	1,321	04013C3075 H
	Just upstream of Chandler Heights Road bridge	1,372	1,368	04013C3060 H

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

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

LOCAL NEWSPAPER Name: *Arizona Business Gazette*
Dates: 04/23/2009 04/30/2009

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

Dahlia Kasperski

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

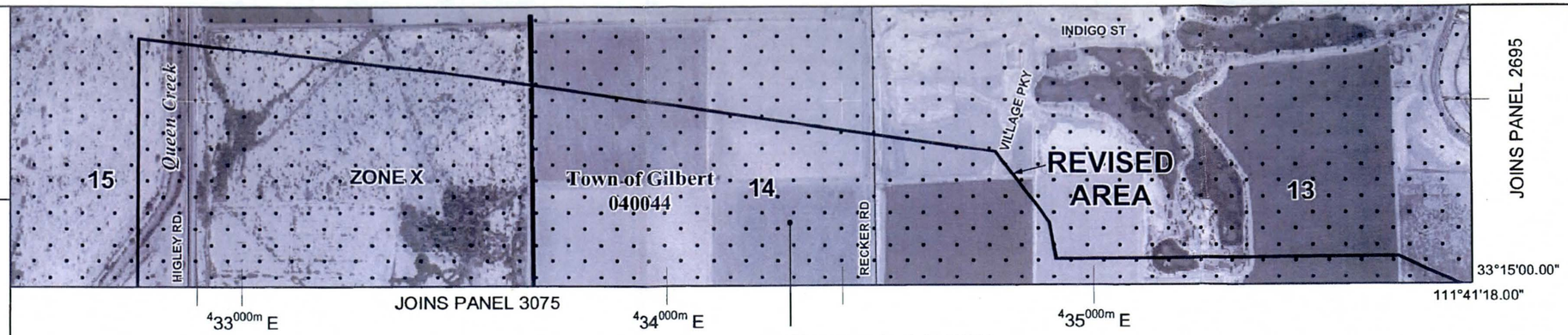
Legend

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

MAP SCALE 1" = 1000'

500 0 1000 FEET

300 0 300 METERS



NOTE: MAP AREA SHOWN ON THIS PANEL IS LCOATED WITHIN TOWNSHIP 1 SOUTH, RANGE 6 EAST AND TOWNSHP 2 SOUTH, RANGE 6 EAST

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2690H

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 2690 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2690	H
GILBERT, TOWN OF	040044	2690	H
MESA, CITY OF	040048	2690	H

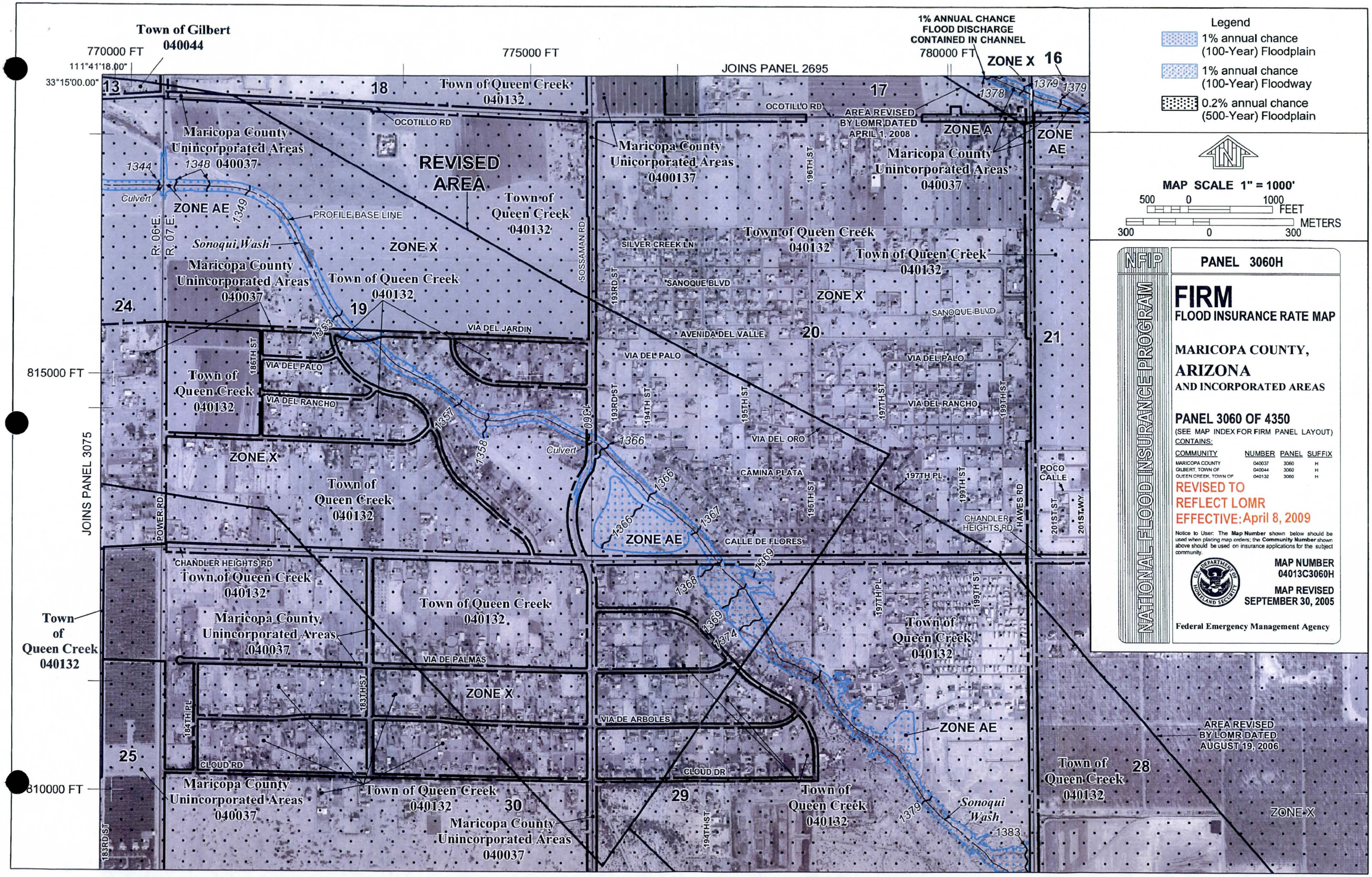
REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009

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
04013C2690H

MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency


Town of Gilbert
040044
770000 FT
111°41'18.00"
33°15'00.00"
775000 FT
JOINS PANEL 2695
780000 FT
1% ANNUAL CHANCE
FLOOD DISCHARGE
CONTAINED IN CHANNEL
ZONE X
Town of Queen Creek
040132
Maricopa County
Unincorporated Areas
040037
Maricopa County
Unicorporated Areas
0400137
REVISED
AREA
OCOTILLO RD
AREA REVISED
BY LOMR DATED
APRIL 1, 2008
ZONE A
ZONE AE
PROFILE BASE LINE
Sonoqui Wash
Culvert
R. 06 E.
R. 07 E.
SOSSAMAN RD
SILVER CREEK LN
SANOQUE BLVD
AVENIDA DEL VALLE
VIA DEL JARDIN
VIA DEL PALO
VIA DEL RANCHO
VIA DEL ORO
CAMINA PLATA
CALLE DE FLORES
CHANDLER HEIGHTS RD
VIA DE PALMAS
VIA DE ARBOLES
CLOUD RD
CLOUD DR
POCO CALLE
HAWES RD
POWER RD
JOINS PANEL 3075
815000 FT
810000 FT
AREA REVISED
BY LOMR DATED
AUGUST 19, 2006
Legend
1% annual chance
(100-Year) Floodplain
1% annual chance
(100-Year) Floodway
0.2% annual chance
(500-Year) Floodplain
MAP SCALE 1" = 1000'
500 0 1000 FEET
300 0 300 METERS
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 3060H
FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY,
ARIZONA
AND INCORPORATED AREAS
PANEL 3060 OF 4350
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
MARICOPA COUNTY 040037 3060 H
GILBERT, TOWN OF 040044 3060 H
QUEEN CREEK, TOWN OF 040132 3060 H
REVISED TO
REFLECT LOMR
EFFECTIVE: April 8, 2009
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
04013C3060H
MAP REVISED
SEPTEMBER 30, 2005
Federal Emergency Management Agency

Legend

1% annual chance (100-Year) Floodplain

1% annual chance (100-Year) Floodway

0.2% annual chance (500-Year) Floodplain

MAP SCALE 1" = 2000'

1000 0 2000 FEET

600 0 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 3075H

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 3075 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	3075	H
GILBERT, TOWN OF	040044	3075	H
QUEEN CREEK, TOWN OF	040132	3075	H

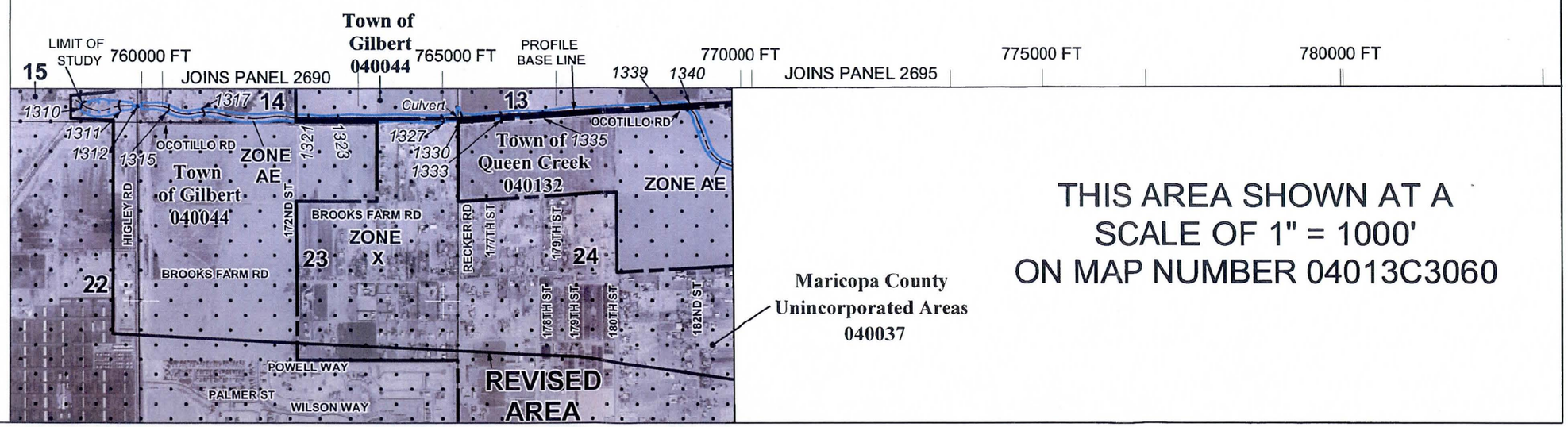
REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009

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.

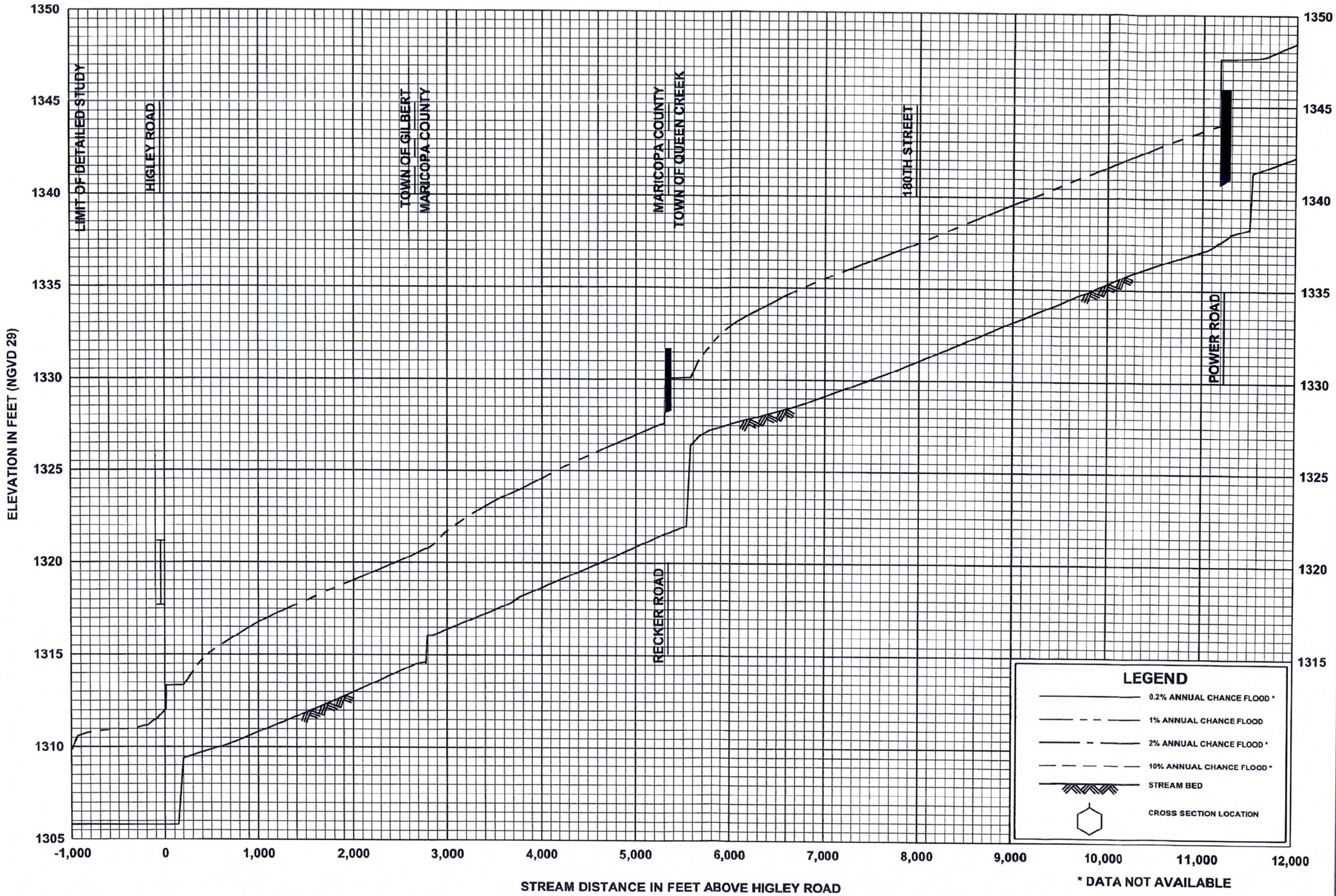
MAP NUMBER 04013C3075H

MAP REVISED SEPTEMBER 30, 2005

Federal Emergency Management Agency



THIS AREA SHOWN AT A SCALE OF 1" = 1000' ON MAP NUMBER 04013C3060



FLOOD PROFILES

REVISED TO REFLECT LOMR
EFFECTIVE: April 8, 2009

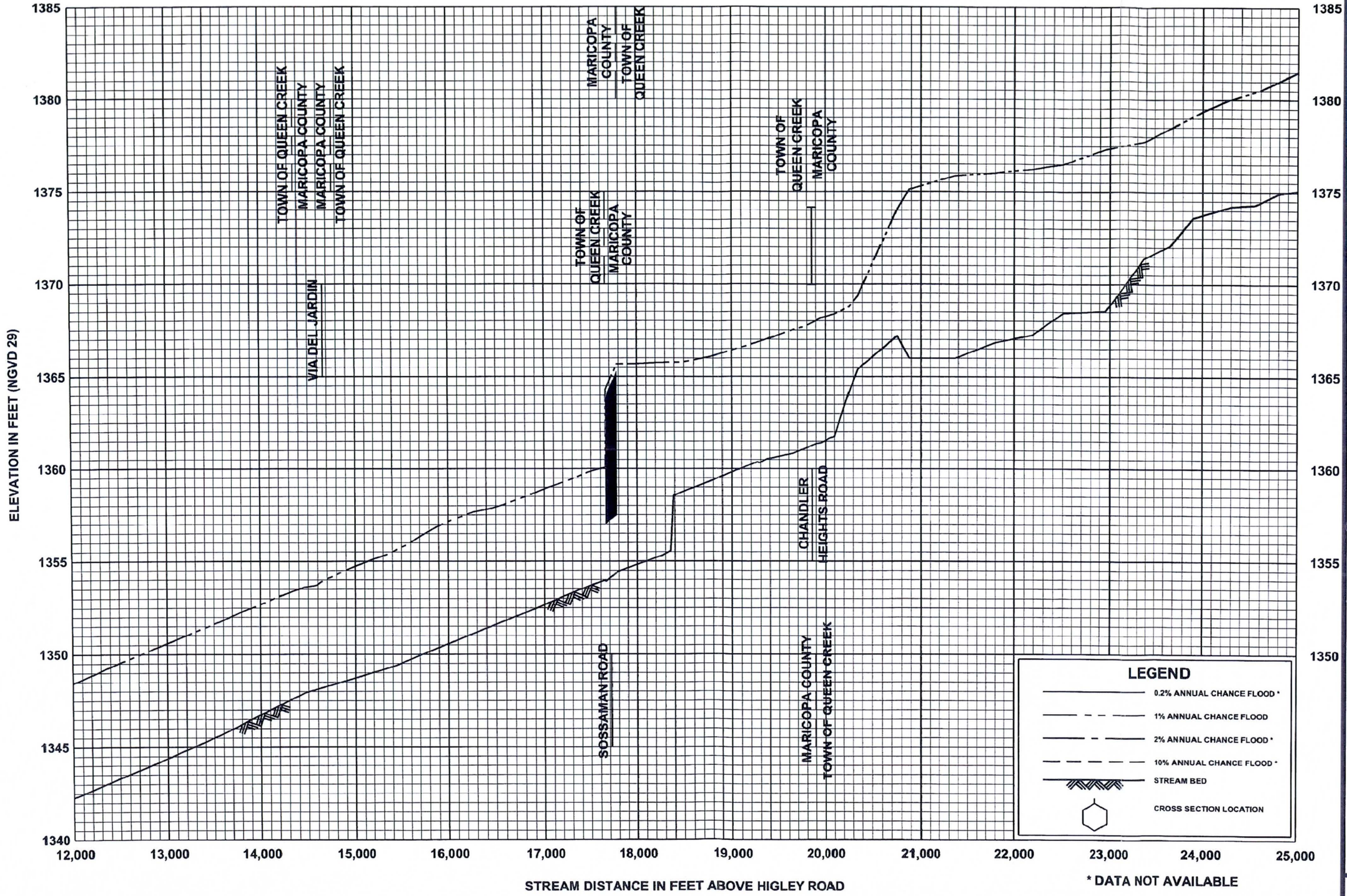
SONOQUI WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1280P



FLOOD PROFILES

REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009

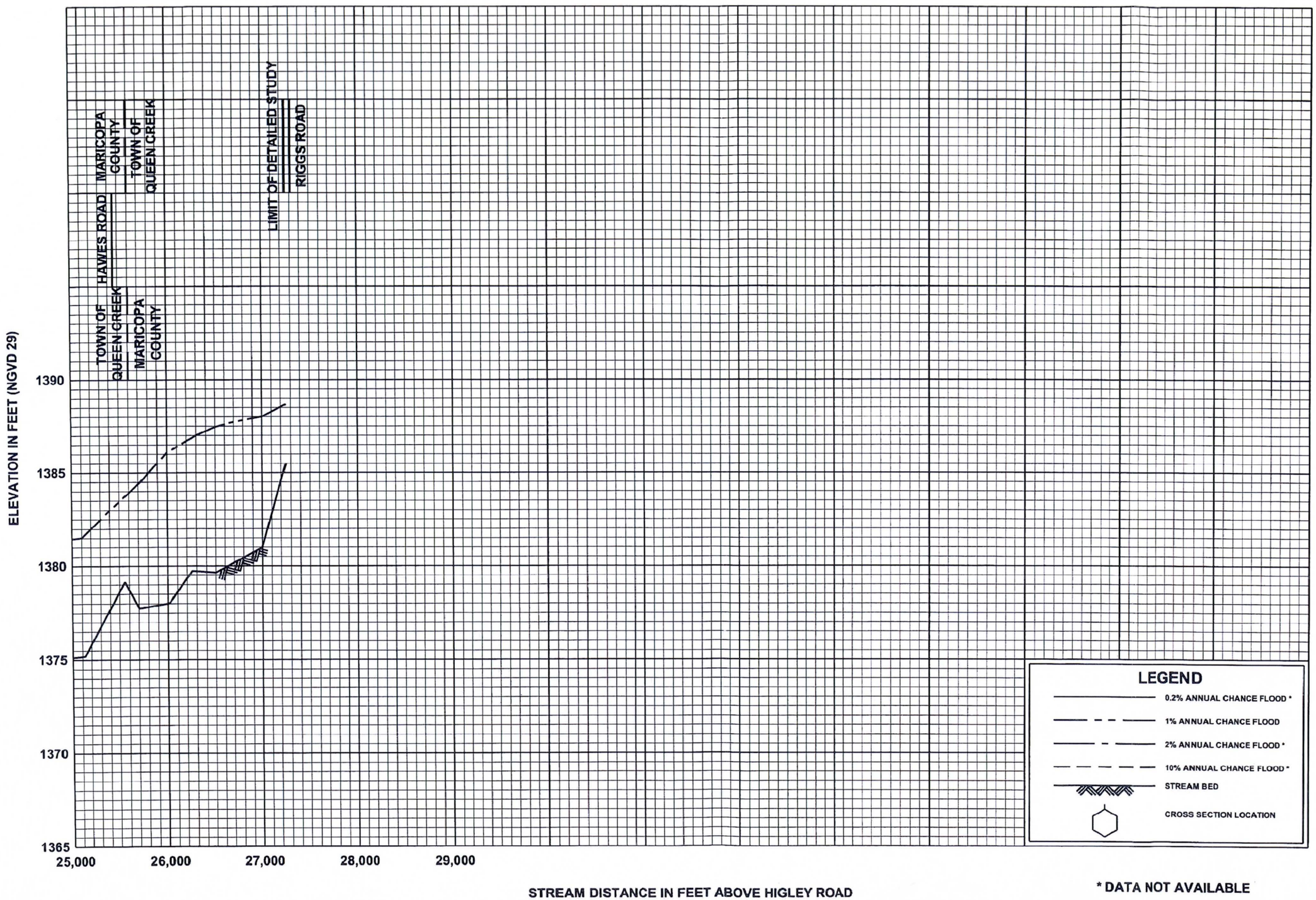
SONOQUI WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1281P



FLOOD PROFILES

REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009

SONOQUI WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1282P

Federal Emergency Management Agency

Washington, D.C. 20472

April 8, 2009

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Steven M. Berman
Mayor, Town of Gilbert
50 East Civic Center Drive
Gilbert, AZ 85296

IN REPLY REFER TO:

Case No.:	08-09-1488P
Follows Conditional Case No.:	06-09-B379R and 07-09-0729R
Community Name:	Town of Gilbert, AZ
Community No.:	040044
Effective Date of This Revision:	**April 8, 2009**

Dear Mayor Berman:

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

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Oakland, California, at (510) 627-7175, or the FEMA Map Assistance Center 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,

Dahlia Kasperski

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

For: William R. Blanton Jr., CFM, Chief
Engineering Management Branch
Mitigation Directorate

List of Enclosures:

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

cc: (see attached list)

Mr. Lonnie K. Frost
Director
Public Works Department
Town of Gilbert

Mr. Ted Collins, CFM
Principal Floodplain Administrator
Flood Control District of Maricopa County

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

Mr. Tim Murphy, P.E., CFM
Floodplain Delineation Branch Manager
Flood Control District of Maricopa County

Mr. Kevin LaVallee
GIS Analyst
Flood Control District of Maricopa County

Mr. Lynn M. Thomas, P.E., CFM
Flood Control District of Maricopa County

Ms. Catherine Regester, P.E.
Flood Control District of Maricopa County

Mr. Brian Cosson, CFM
NFIP State Manager
Arizona Department of Water Resources
Flood Mitigation Section

Follows Conditional Case No.: 06-09-B379R
07-09-0729R

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Town of Gilbert Maricopa County Arizona	BRIDGE CHANNELIZATION CULVERT DETENTION BASIN EXCAVATION FILL	HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 040044		
IDENTIFIER	Sonoqui Wash Channelization	APPROXIMATE LATITUDE & LONGITUDE: 33.249, -111.722 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES			ANNOTATED STUDY ENCLOSURES
TYPE: FIRM*	NO.: 04013C3075 H	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005
TYPE: FIRM*	NO.: 04013C3060 H	DATE: September 30, 2005	PROFILE(S): 1280P, 1281P, 1282P
TYPE: FIRM*	NO.: 04013C2690 H	DATE: September 30, 2005	

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

FLOODING SOURCE(S) & REVISED REACH(ES)

Sonoqui Wash - from approximately 1,000 feet downstream of Higley Road bridge to approximately 1,000 feet upstream of Chandler Heights Road bridge

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Sonoqui Wash	Zone AE	Zone AE	YES	YES
	Zone AE	Zone X (shaded)	NONE	YES
	BFEs*	BFEs	YES	YES

* BFEs - Base Flood Elevations

DETERMINATION

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

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

OTHER COMMUNITIES AFFECTED BY THIS REVISION

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

AFFECTED MAP PANELS			AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT
TYPE: FIRM*	NO.: 04013C3060 H	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005
TYPE: FIRM*	NO.: 04013C3075 H	DATE: September 30, 2005	PROFILE(S): 1280P, 1281P, 1282P

CID Number: 040132 **Name:** Town of Queen Creek, Arizona

AFFECTED MAP PANELS			AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT
TYPE: FIRM*	NO.: 04013C3060 H	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005
TYPE: FIRM*	NO.: 04013C3075 H	DATE: September 30, 2005	PROFILE(S): 1280P, 1281P, 1282P

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

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

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

COMMUNITY REMINDERS

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

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

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

This revision has met our criteria for removing an area from the base floodplain to reflect the placement of fill. However, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to or above the Base Flood Elevation.

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

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

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

STATUS OF THE COMMUNITY NFIP MAPS

We are preparing a revised FIRM and FIS report for Maricopa County in our countywide format; therefore, we will not physically revise and republish the FIRM and FIS report for your community to incorporate the modifications made by this LOMR at this time. Preliminary copies of the countywide FIRM and FIS report, which will present information from the effective FIRMs and FIS reports for your community and incorporated communities in Maricopa County, will be distributed for review in approximately 6 months. We will incorporate the modifications made by this LOMR into the Preliminary countywide FIRM before it is distributed, and the modifications will be included when the countywide FIRM becomes effective.

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD 29)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Sonoqui Wash	Approximately 1,000 feet downstream of Higley Road Bridge	None	1,310	04013C3075 H
	Approximately 2,600 feet upstream of Higley Road Bridge	1,324	1,320	04013C3075 H

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

A notice of changes will be published in the *Federal Register*. A short notice also will be published in your local newspaper on or about the dates listed below. Please refer to FEMA's website at https://www.floodmaps.fema.gov/fhm7Scripts/bfe_main.asp for a more detailed description of proposed BFE changes, which will be posted within a week of the date of this letter.

LOCAL NEWSPAPER Name: *Arizona Business Gazette*
Dates: 04/23/2009 04/30/2009

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

Dahlia Kasperski

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

Legend

1% annual chance (100-Year) Floodplain

1% annual chance (100-Year) Floodway

0.2% annual chance (500-Year) Floodplain

MAP SCALE 1" = 1000'

500 0 1000 FEET

300 0 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2690H

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY,
ARIZONA
AND INCORPORATED AREAS

PANEL 2690 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2690	H
GILBERT, TOWN OF	040044	2690	H
MESA, CITY OF	040048	2690	H

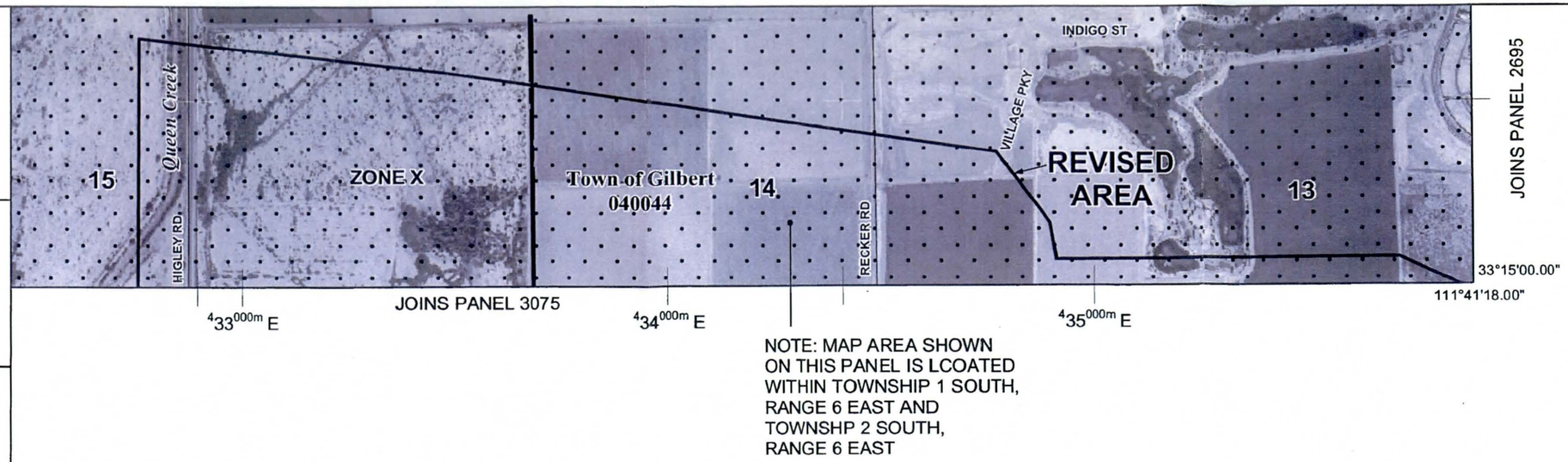
REVISED TO
REFLECT LOMR
EFFECTIVE: April 8, 2009

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.

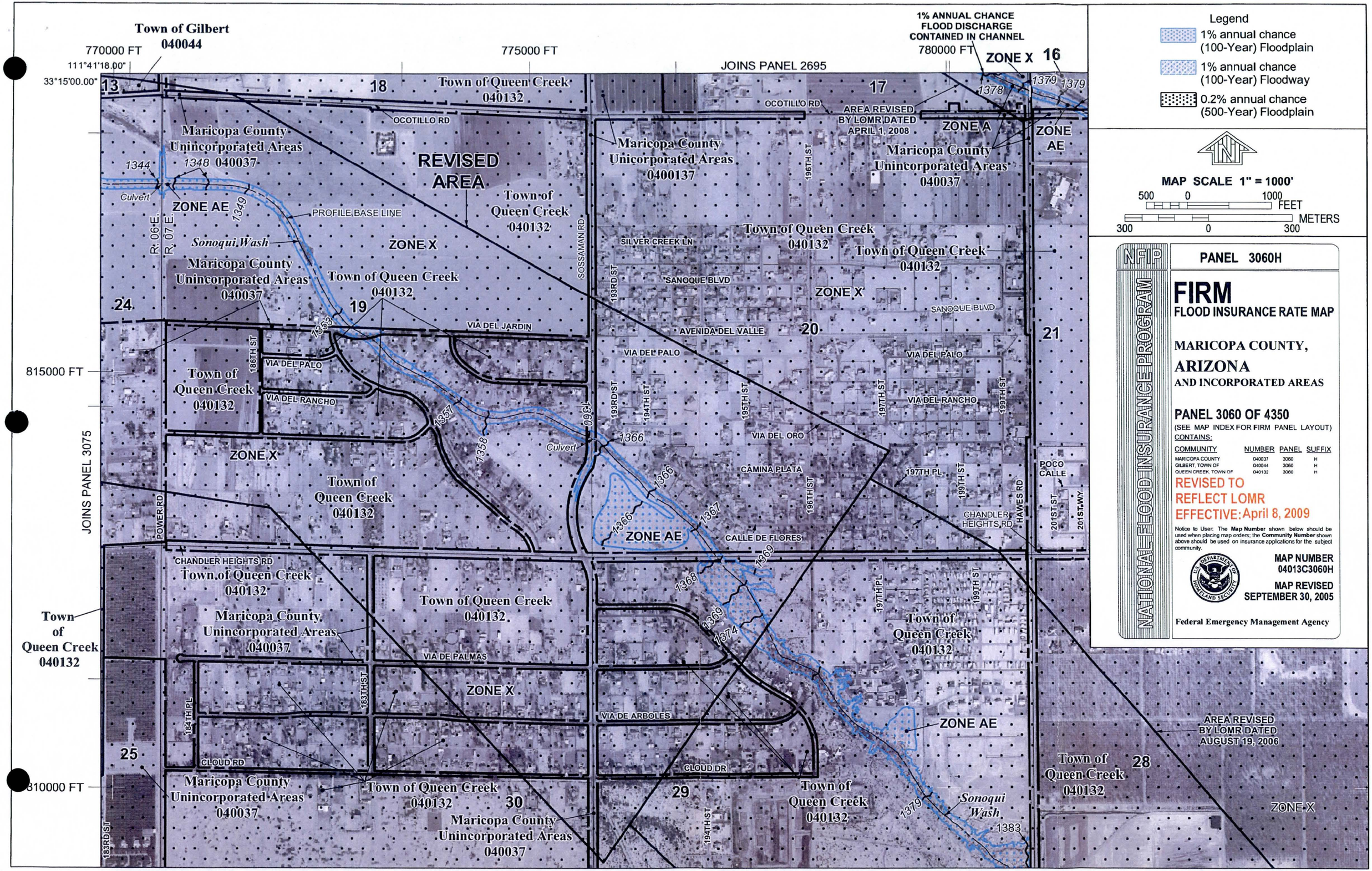
MAP NUMBER
04013C2690H

MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency



NOTE: MAP AREA SHOWN ON THIS PANEL IS LCOATED WITHIN TOWNSHIP 1 SOUTH, RANGE 6 EAST AND TOWNSHP 2 SOUTH, RANGE 6 EAST


Town of Gilbert
040044
770000 FT
775000 FT
780000 FT
111°41'18.00"
33°15'00.00"
JOINS PANEL 2695
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
ZONE X
16
17
18
13
Town of Queen Creek
040132
OCOTILLO RD
AREA REVISED BY LOMR DATED APRIL 1, 2008
ZONE A
ZONE AE
Maricopa County Unincorporated Areas 040037
Maricopa County Unincorporated Areas 0400137
REVISED AREA
1344
1348
1349
1378
1379
Culvert
ZONE AE
PROFILE BASE LINE
Sonoqui Wash
R. 06 E.
R. 07 E.
ZONE X
SOSSAMAN RD
SILVER CREEK LN
SANOQUE BLVD
193RD ST
196TH ST
24
19
20
21
VIA DEL JARDIN
AVENIDA DEL VALLE
VIA DEL PALO
VIA DEL RANCHO
VIA DEL ORO
CAMINA PLATA
CALLE DE FLORES
186TH ST
194TH ST
195TH ST
197TH ST
199TH ST
197TH PL
199TH PL
POCO CALLE
HAWES RD
CHANDLER HEIGHTS RD
201ST ST
201ST WY
815000 FT
JOINS PANEL 3075
POWER RD
1353
1357
1356
1360
1366
1367
1368
1369
1374
1383
VIA DE PALMAS
VIA DE ARBOLES
CLOUD RD
CLOUD DR
183TH ST
184TH PL
183RD ST
25
29
30
28
810000 FT
Town of Queen Creek 040132
AREA REVISED BY LOMR DATED AUGUST 19, 2006
Legend
1% annual chance (100-Year) Floodplain
1% annual chance (100-Year) Floodway
0.2% annual chance (500-Year) Floodplain
MAP SCALE 1" = 1000'
500 0 1000 FEET
300 0 300 METERS
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 3060H
FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS
PANEL 3060 OF 4350
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
MARICOPA COUNTY 040037 3060 H
GILBERT, TOWN OF 040044 3060 H
QUEEN CREEK, TOWN OF 040132 3060 H
REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009
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 04013C3060H
MAP REVISED SEPTEMBER 30, 2005
Federal Emergency Management Agency

Legend

1% annual chance (100-Year) Floodplain

1% annual chance (100-Year) Floodway

0.2% annual chance (500-Year) Floodplain

MAP SCALE 1" = 2000'

1000 0 2000 FEET

600 0 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 3075H

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 3075 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	3075	H
GILBERT, TOWN OF	040044	3075	H
QUEEN CREEK, TOWN OF	040132	3075	H

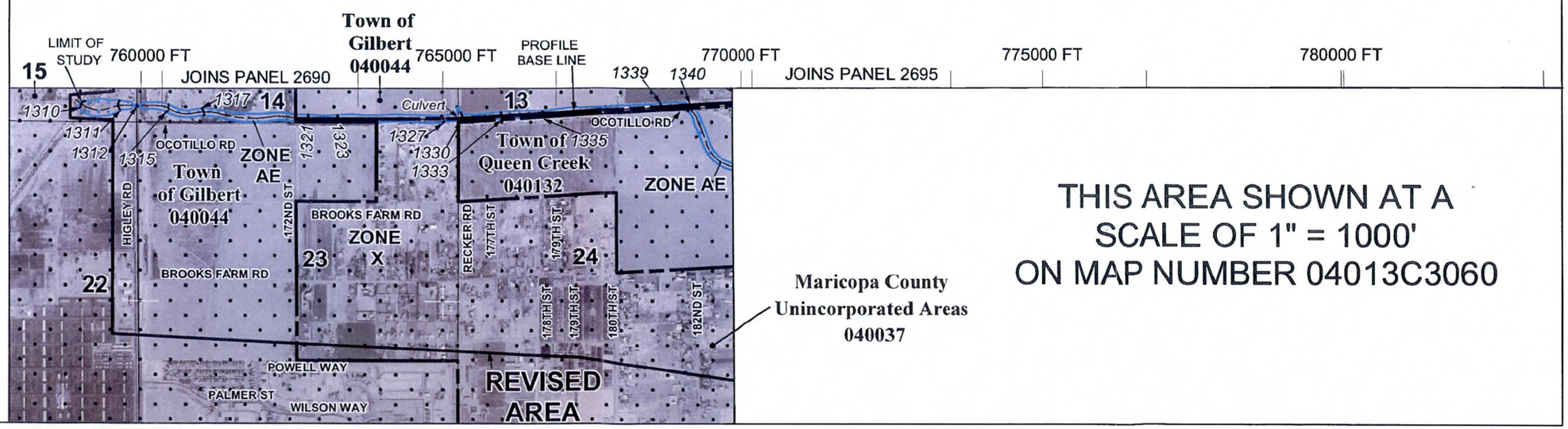
REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009

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.

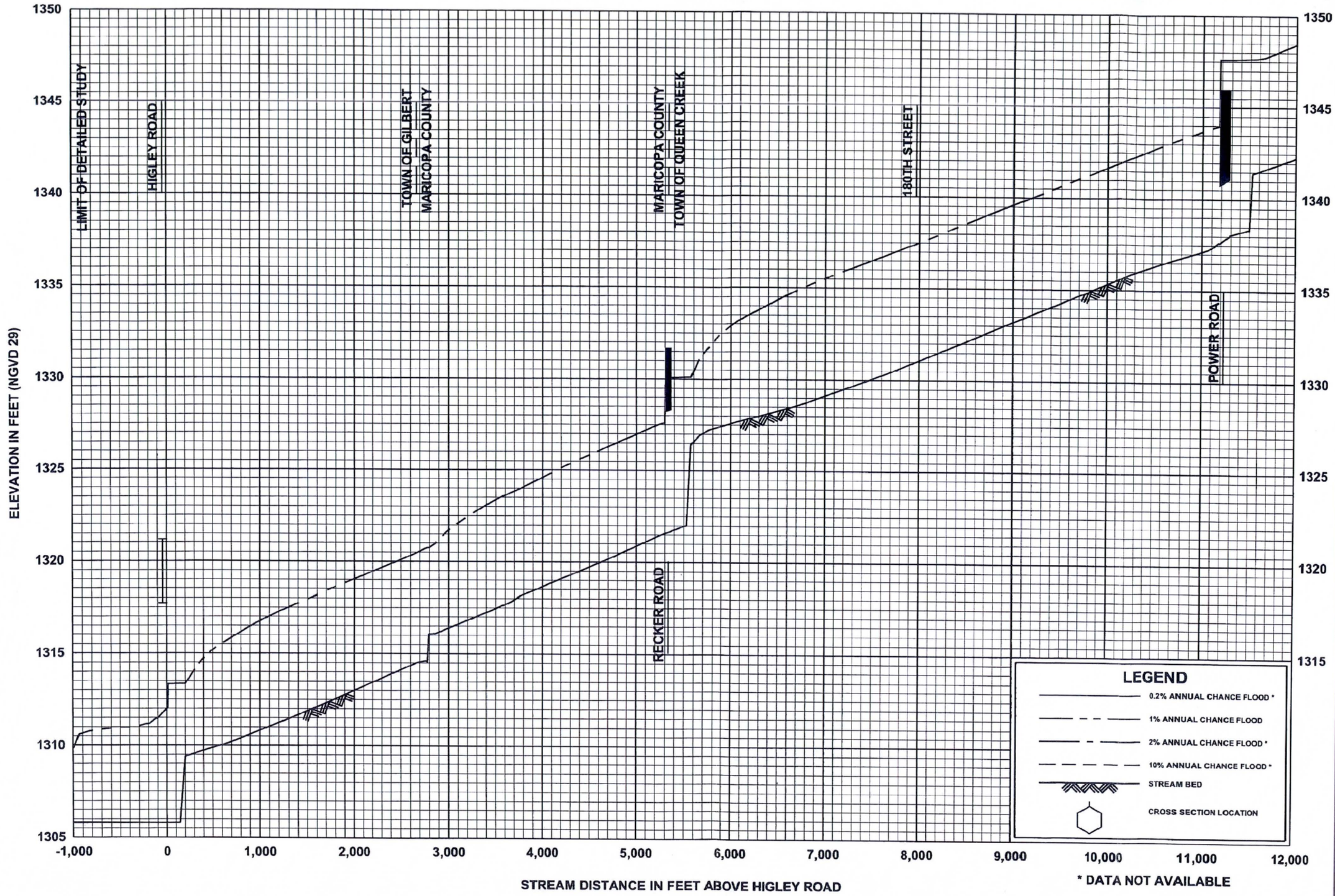
MAP NUMBER 04013C3075H

MAP REVISED SEPTEMBER 30, 2005

Federal Emergency Management Agency



THIS AREA SHOWN AT A SCALE OF 1" = 1000' ON MAP NUMBER 04013C3060



FLOOD PROFILES

REVISED TO REFLECT LOMR
EFFECTIVE: April 8, 2009

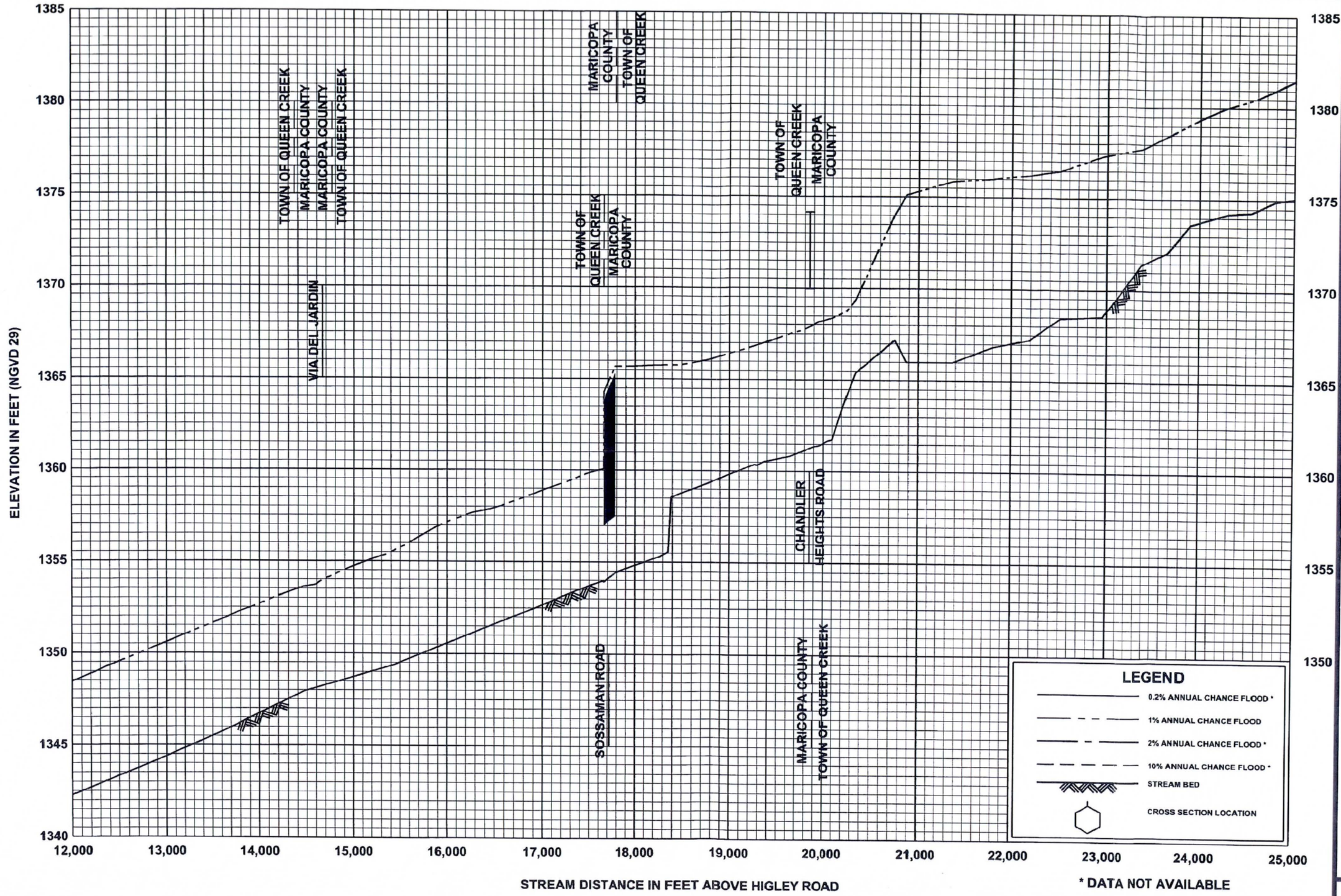
SONOQUI WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1280P



FLOOD PROFILES

REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009

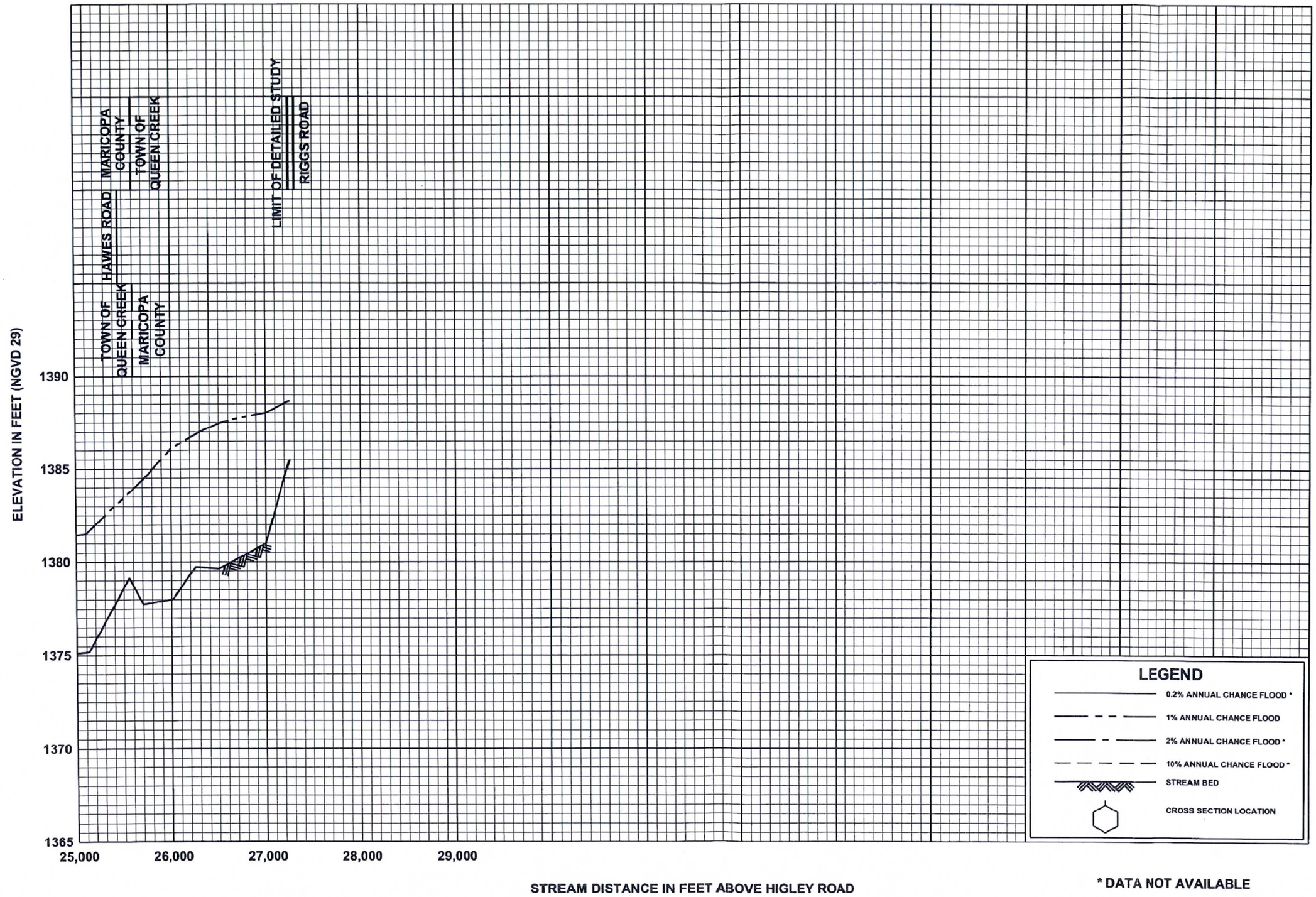
SONOQUI WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1281P



FLOOD PROFILES

REVISED TO REFLECT LOMR
EFFECTIVE: April 8, 2009

SONOQUI WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1282P

Federal Emergency Management Agency

Washington, D.C. 20472

April 8, 2009

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Art Sanders
Mayor, Town of Queen Creek
22350 South Ellsworth Road
Queen Creek, AZ 85242

IN REPLY REFER TO:

Case No.:	08-09-1488P
Follows Conditional Case No.:	06-09-B379R and 07-09-0729R
Community Name:	Town of Queen Creek, AZ
Community No.:	040132
Effective Date of This Revision:	**April 8, 2009**

Dear Mayor Sanders:

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

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Oakland, California, at (510) 627-7175, or the FEMA Map Assistance Center 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,

Dahlia Kasperski

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

For: William R. Blanton Jr., CFM, Chief
Engineering Management Branch
Mitigation Directorate

List of Enclosures:

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

cc: (list of courtesy copies)

Mr. Richard L. Schaner, P.E.
Director
Public Works Department
Town of Queen Creek

Mr. Ted Collins, CFM
Principal Floodplain Administrator
Flood Control District of Maricopa County

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

Mr. Tim Murphy, P.E., CFM
Floodplain Delineation Branch Manager
Flood Control District of Maricopa County

Mr. Kevin LaVallee
GIS Analyst
Flood Control District of Maricopa County

Mr. Lynn M. Thomas, P.E., CFM
Flood Control District of Maricopa County

Ms. Catherine Regester, P.E.
Flood Control District of Maricopa County

Mr. Brian Cosson, CFM
NFIP State Manager
Arizona Department of Water Resources
Flood Mitigation Section

Follows Conditional Case No.: 06-09-B379R
07-09-0729R

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Town of Queen Creek Maricopa County Arizona	BRIDGE CHANNELIZATION CULVERT DETENTION BASIN EXCAVATION FILL	HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 040132		
IDENTIFIER	Sonoqui Wash Channelization	APPROXIMATE LATITUDE & LONGITUDE: 33.249, -111.722 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES			ANNOTATED STUDY ENCLOSURES
TYPE: FIRM*	NO.: 04013C3075 H	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005
TYPE: FIRM*	NO.: 04013C3060 H	DATE: September 30, 2005	PROFILE(S): 1280P, 1281P, 1282P

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

FLOODING SOURCE(S) & REVISED REACH(ES)

Sonoqui Wash - from approximately 1,000 feet downstream of Higley Road to approximately 1,000 feet upstream of Chandler Heights Road

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Sonoqui Wash	Zone AE	Zone AE	YES	YES
	Zone AE	Zone X (shaded)	NONE	YES
	BFEs*	BFEs	NONE	YES

* BFEs - Base Flood Elevations

DETERMINATION

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

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

OTHER COMMUNITIES AFFECTED BY THIS REVISION

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

AFFECTED MAP PANELS			AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT
TYPE: FIRM*	NO.: 04013C3060 H	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005
TYPE: FIRM*	NO.: 04013C3075 H	DATE: September 30, 2005	PROFILE(S): 1280P, 1281P, 1282P

CID Number: 040044 **Name:** Town of Gilbert, Arizona

AFFECTED MAP PANELS			AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT
TYPE: FIRM*	NO.: 04013C2690 H	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005
TYPE: FIRM*	NO.: 04013C3060 H	DATE: September 30, 2005	PROFILE(S): 1280P, 1281P, 1282P
TYPE: FIRM*	NO.: 04013C3075 H	DATE: September 30, 2005	

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

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

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

COMMUNITY REMINDERS

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

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

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

This revision has met our criteria for removing an area from the base floodplain to reflect the placement of fill. However, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to or above the Base Flood Elevation.

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

Dahlia Kasperski

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

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

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

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

STATUS OF THE COMMUNITY NFIP MAPS

We are preparing a revised FIRM and FIS report for Maricopa County in our countywide format; therefore, we will not physically revise and republish the FIRM and FIS report for your community to incorporate the modifications made by this LOMR at this time. Preliminary copies of the countywide FIRM and FIS report, which will present information from the effective FIRMs and FIS reports for your community and incorporated communities in Maricopa County, will be distributed for review in approximately 6 months. We will incorporate the modifications made by this LOMR into the Preliminary countywide FIRM before it is distributed, and the modifications will be included when the countywide FIRM becomes effective.

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

Dahlia Kasperski

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

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD 29)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Sonoqui Wash	Just upstream of Recker Road	1,333	1,330	04013C3075 H
	Just downstream of Chandler Heights Road	1,372	1,368	04013C3060 H

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

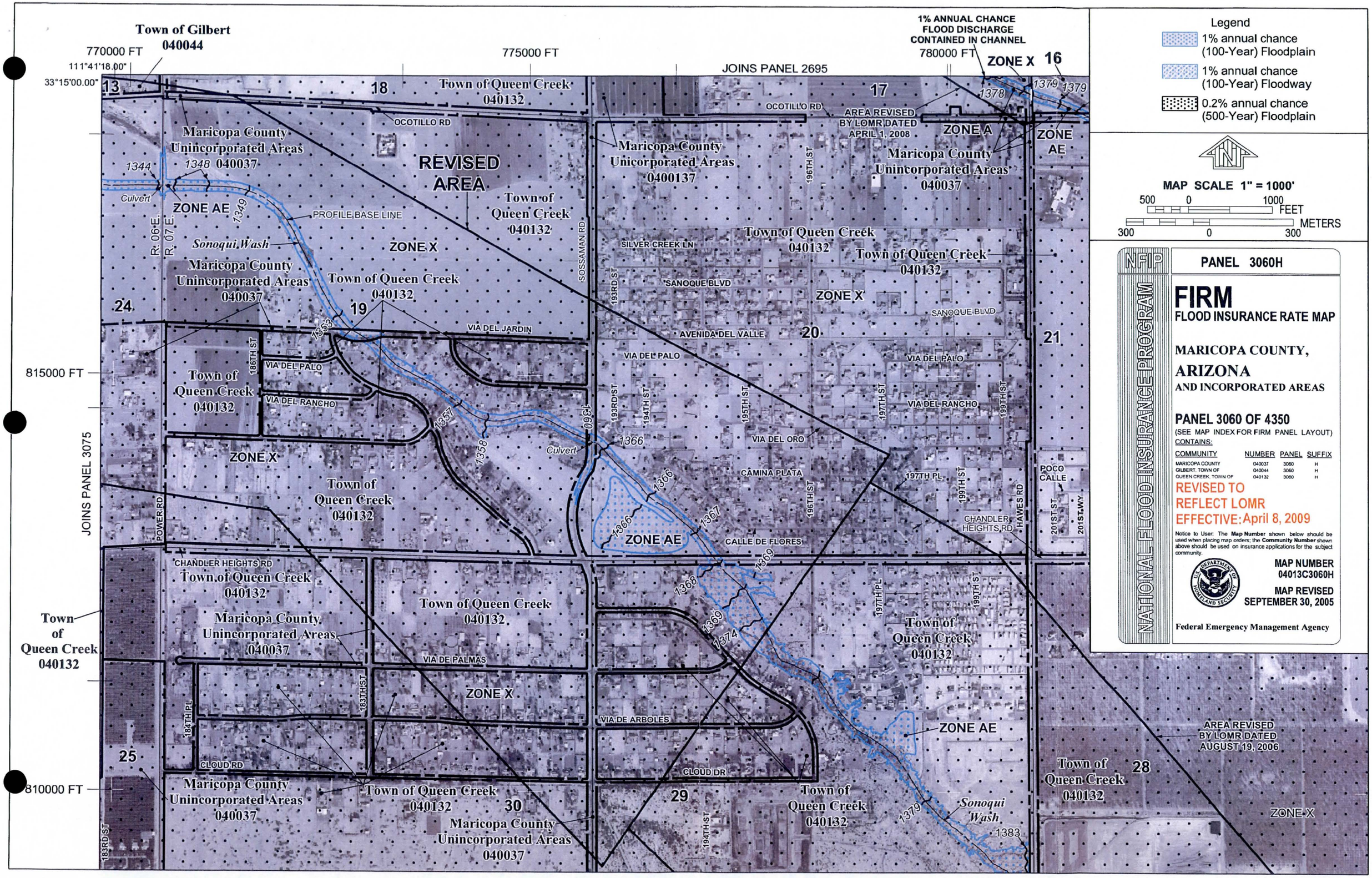
A notice of changes will be published in the *Federal Register*. A short notice also will be published in your local newspaper on or about the dates listed below. Please refer to FEMA's website at https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp for a more detailed description of proposed BFE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

LOCAL NEWSPAPER Name: *Arizona Business Gazette*
Dates: 04/23/2009 04/30/2009

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

Dahlia Kasperski

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


Town of Gilbert
040044
770000 FT
111°41'18.00"
33°15'00.00"
775000 FT
780000 FT
JOINS PANEL 2695
1% ANNUAL CHANCE
FLOOD DISCHARGE
CONTAINED IN CHANNEL
ZONE X
Town of Queen Creek
040132
Maricopa County
Unincorporated Areas
040037
REVISED
AREA
OCOTILLO RD
AREA REVISED
BY LOMR DATED
APRIL 1, 2008
ZONE A
ZONE AE
Maricopa County
Unincorporated Areas
0400137
PROFILE BASE LINE
Sonoqui Wash
Culvert
R. 06 E.
R. 07 E.
SOSSAMAN RD
SILVER CREEK LN
SANOQUE BLVD
AVENIDA DEL VALLE
VIA DEL JARDIN
VIA DEL PALO
VIA DEL RANCHO
VIA DEL ORO
CAMINA PLATA
CALLE DE FLORES
CHANDLER HEIGHTS RD
VIA DE PALMAS
VIA DE ARBOLES
CLOUD RD
CLOUD DR
POCO CALLE
JOINS PANEL 3075
815000 FT
810000 FT
Town of Queen Creek 040132
AREA REVISED
BY LOMR DATED
AUGUST 19, 2006
Legend
1% annual chance (100-Year) Floodplain
1% annual chance (100-Year) Floodway
0.2% annual chance (500-Year) Floodplain
MAP SCALE 1" = 1000'
500 0 1000 FEET
300 0 300 METERS
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 3060H
FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY,
ARIZONA
AND INCORPORATED AREAS
PANEL 3060 OF 4350
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
MARICOPA COUNTY 040037 3060 H
GILBERT, TOWN OF 040044 3060 H
QUEEN CREEK, TOWN OF 040132 3060 H
REVISED TO
REFLECT LOMR
EFFECTIVE: April 8, 2009
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
04013C3060H
MAP REVISED
SEPTEMBER 30, 2005
Federal Emergency Management Agency

Legend

1% annual chance (100-Year) Floodplain

1% annual chance (100-Year) Floodway

0.2% annual chance (500-Year) Floodplain

MAP SCALE 1" = 2000'

1000 0 2000 FEET

600 0 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 3075H

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 3075 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	3075	H
GILBERT, TOWN OF	040044	3075	H
QUEEN CREEK, TOWN OF	040132	3075	H

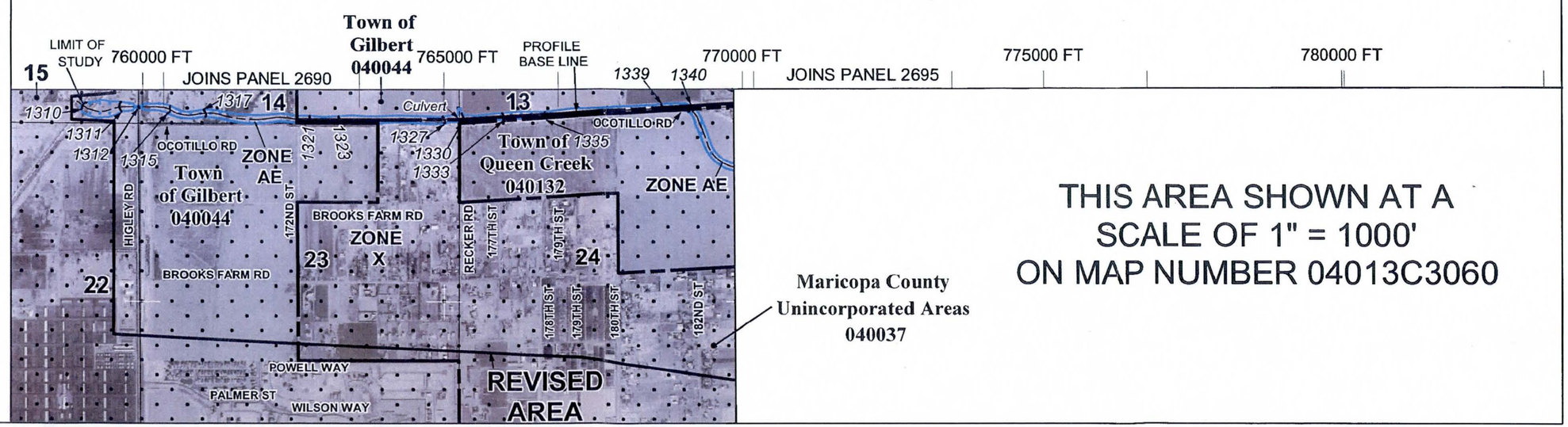
REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009

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.

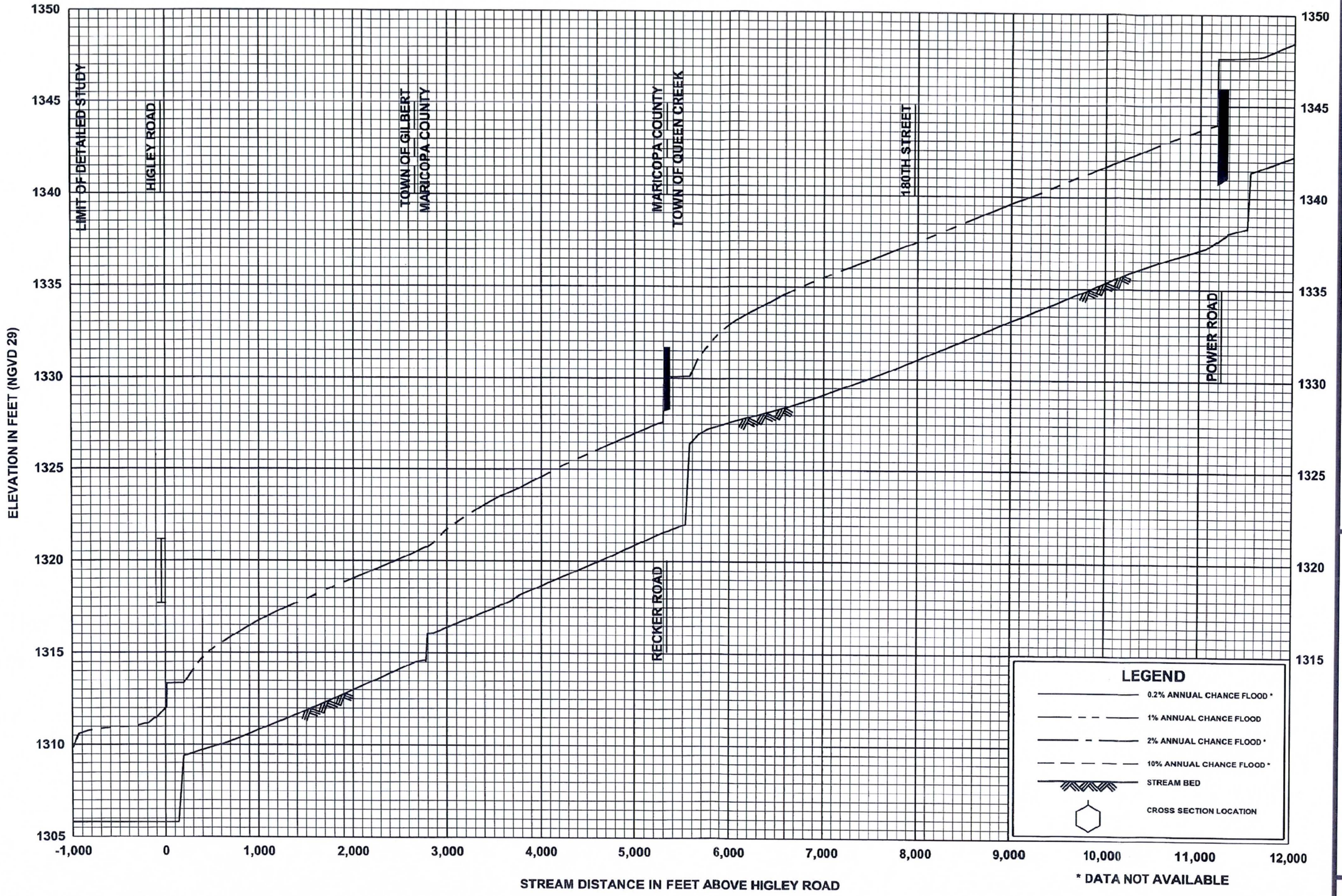
MAP NUMBER 04013C3075H

MAP REVISED SEPTEMBER 30, 2005

Federal Emergency Management Agency



THIS AREA SHOWN AT A SCALE OF 1" = 1000' ON MAP NUMBER 04013C3060



FLOOD PROFILES

REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009

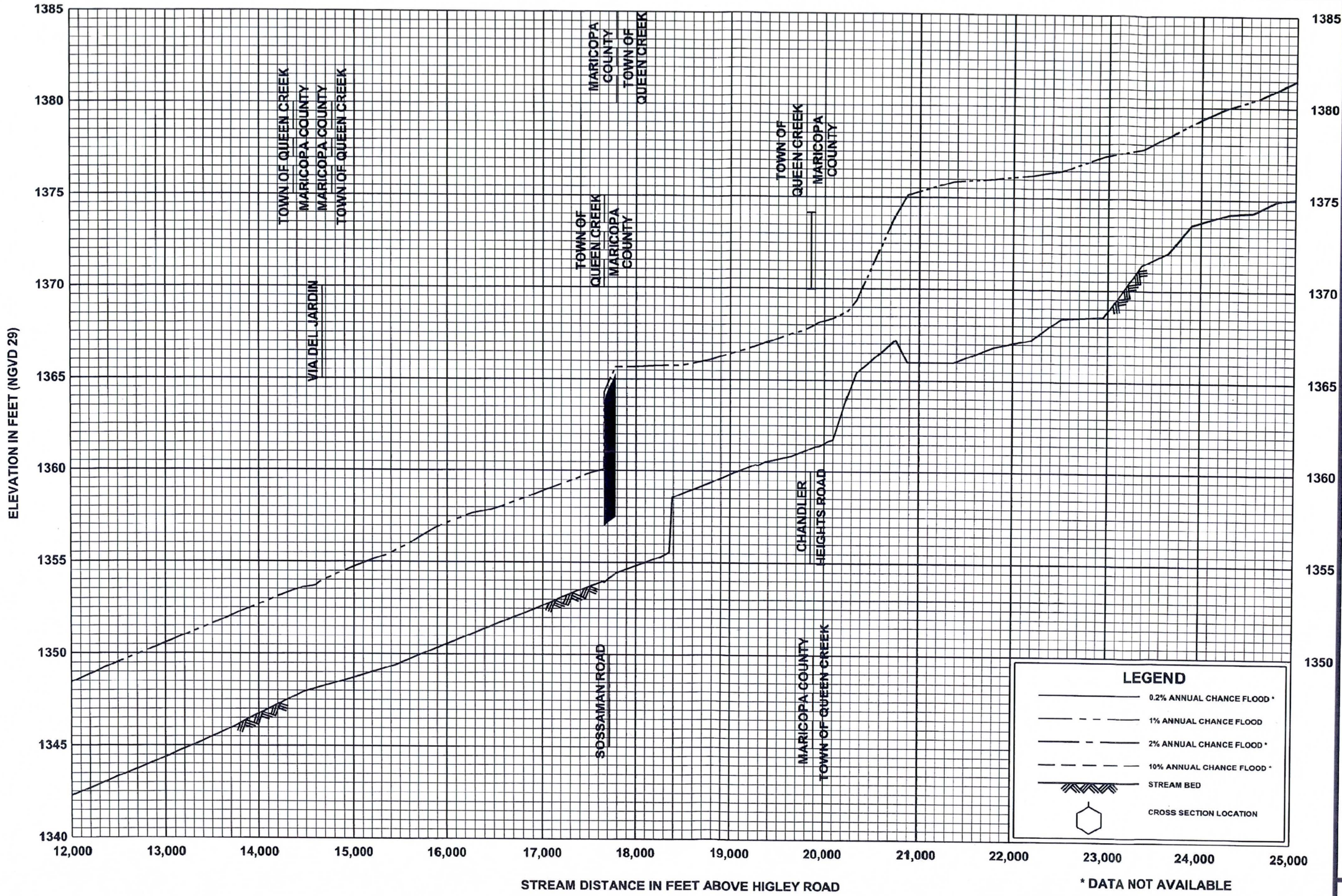
SONOQUI WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1280P



FLOOD PROFILES

REVISED TO REFLECT LOMR EFFECTIVE: April 8, 2009

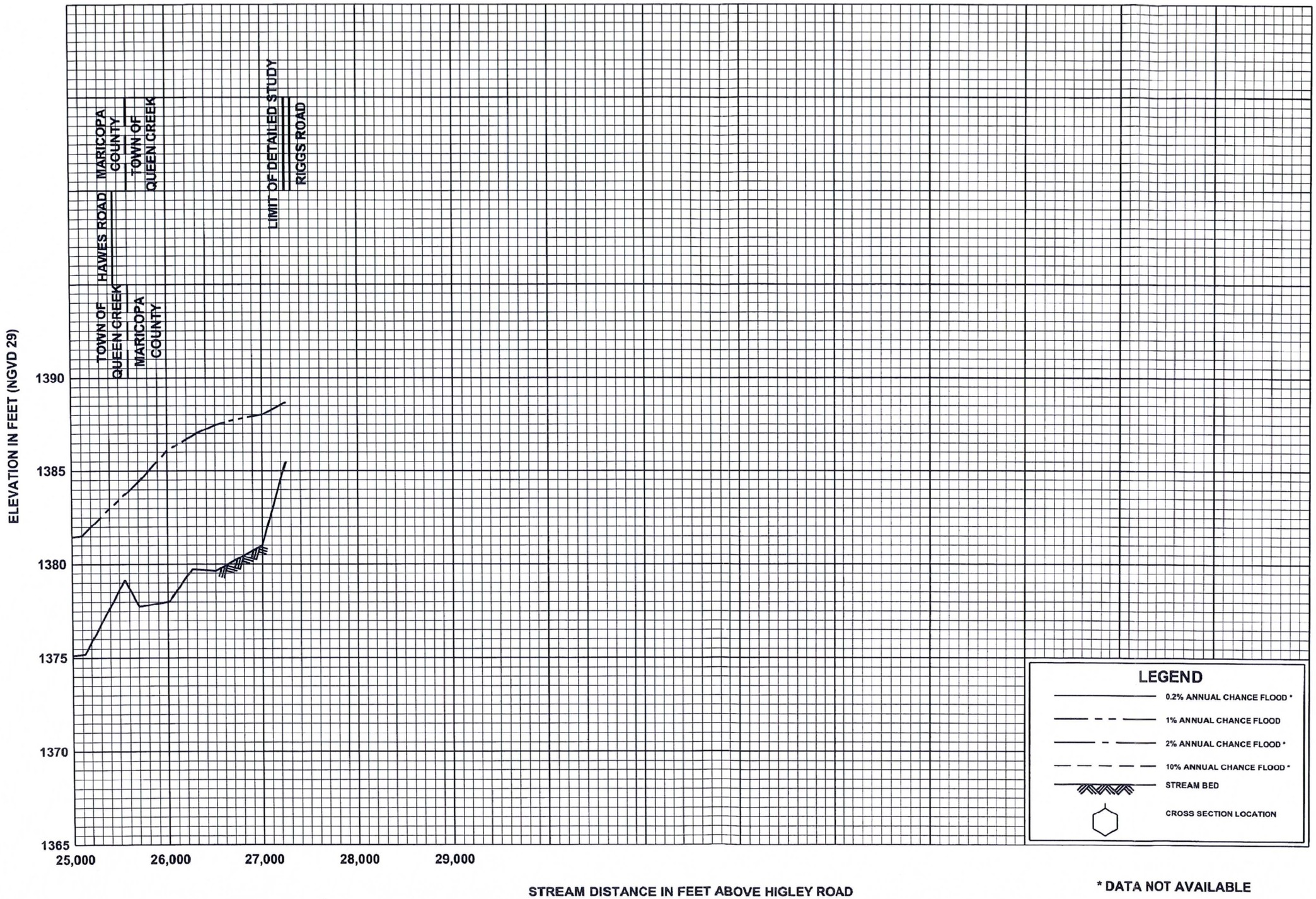
SONOQUI WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1281P



FLOOD PROFILES

REVISED TO REFLECT LOMR
EFFECTIVE: April 8, 2009

SONOQUI WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1282P

Catherine Regester - FCDX

From: Catherine Regester - FCDX
Sent: Thursday, April 09, 2009 1:45 PM
To: 'Kishore Sirvole'
Subject: RE: Sonoqui - Complete Floodplain - FEMA Case Number 08-09-1488P

Thank you, Kishore!! That's wonderful news!! Thank you for all your help with this project. I look forward to working with you again soon.

Cathy

From: Kishore Sirvole [mailto:KishoreSirvole@mapmodteam.com]
Sent: Thursday, April 09, 2009 1:35 PM
To: Catherine Regester - FCDX
Subject: RE: Sonoqui - Complete Floodplain - FEMA Case Number 08-09-1488P

Hi Cathy,

The LOMR for Sonoqui Wash has been approved by FEMA. You should be receiving the final letters sometime next week.

Thank you,
kishore

From: Catherine Regester - FCDX [mailto:cwr@mail.maricopa.gov]
Sent: Wednesday, April 08, 2009 4:51 PM
To: Kishore Sirvole
Subject: RE: Sonoqui - Complete Floodplain - FEMA Case Number 08-09-1488P

Hi, Kishore,

I was just curious as to the status of the LOMR. And, if you need any additonal info from me, please do not hesitate to ask.

Thank you and have a good day,

Cathy

From: Kishore Sirvole [mailto:KishoreSirvole@mapmodteam.com]
Sent: Monday, March 16, 2009 2:53 PM
To: Catherine Regester - FCDX
Subject: RE: Sonoqui - Complete Floodplain - FEMA Case Number 08-09-1488P

Hi Cathy,

Thank you for the quick response. The shape files look good.

Regards
kishore

From: Catherine Regester - FCDX [mailto:cwr@mail.maricopa.gov]
Sent: Monday, March 16, 2009 5:42 PM
To: Kishore Sirvole
Subject: Sonoqui - Complete Floodplain - FEMA Case Number 08-09-1488P

Kishore,

Please find attached the shape files for the complete LOMR delineation ("femafloodplainexhibit-combo.*"). I also attached "FEMAfloodplainexhibit-GRID.dxf". This dxf shows the delineation, cross section locations, baseline, and stationing.

Please let me know if anything is not in the format you require; or, if you need any additional information. Also, if you could please let me know that you received this e-mail with the files, I would much appreciate it.

Thank you,

Cathy

Catherine W. Regester, P.E., CFM
Flood Control District of Maricopa County
Engineering Division, Hydrology/Hydraulics Branch
2801 West Durango Street
Phoenix, AZ 85009
Phone: (602) 506-4001
Fax: (602) 506-4601
cwr@mail.maricopa.gov

<<femafloodplainexhibit-combo.sbx>> <<femafloodplainexhibit-combo.shp>> <<femafloodplainexhibit-combo.shx>> <<femafloodplainexhibit-combo.dbf>> <<femafloodplainexhibit-combo.sbn>> <<FEMAfloodplainexhibit-GRID.dxf>>

Catherine Regester - FCDX

From: Catherine Regester - FCDX
Sent: Monday, March 16, 2009 1:50 PM
To: 'Kishore Sirvole'
Subject: Sonoqui - FEMA Case Number 08-09-1488P

Attachments: floodplain w-higley.shx; floodplain w-higley.shp; floodplain w-higley.sbx; floodplain w-higley.sbn; floodplain w-higley.dbf

Kishore,

Please find attached the shape files for the delineation in the sediment basin west of Higley Road. We are currently working to combine the entire delineation into one overall shape file. I will send that to you as soon as we have that file prepared.

Thank you,

Cathy

Catherine W. Regester, P.E., CFM
Flood Control District of Maricopa County
Engineering Division, Hydrology/Hydraulics Branch
2801 West Durango Street
Phoenix, AZ 85009
Phone: (602) 506-4001
Fax: (602) 506-4601
cwr@mail.maricopa.gov

floodplain w-higley.shx (4 KB). floodplain w-higley.shp (6 KB). floodplain w-higley.sbx (4 KB). floodplain w-higley.sbn (4 KB). floodplain w-higley.dbf (4 KB)..

Catherine Regester - FCDX

From: Catherine Regester - FCDX
Sent: Monday, March 16, 2009 11:19 AM
To: 'Kishore Sirvole'
Subject: RE: Sonoqui Wash Corrected Profiles

Kishore,

We do not have a file already made. But I will meet with our CADD supervisor at 1:00 PM today and, at that time, we will make the shape file for the downstream portion for you. I will e-mail it to you today as soon as we have it prepared. Thank you,

Cathy

From: Kishore Sirvole [mailto:KishoreSirvole@mapmodteam.com]
Sent: Monday, March 16, 2009 10:19 AM
To: Catherine Regester - FCDX
Subject: RE: Sonoqui Wash Corrected Profiles

Thank you very much Cathy. Please let me know if you have the shape file for that downstream portion too.

Regards,
Kishore.

From: Catherine Regester - FCDX [mailto:cwr@mail.maricopa.gov]
Sent: Monday, March 16, 2009 1:14 PM
To: Kishore Sirvole
Subject: Sonoqui Wash Corrected Profiles

Kishore,

Please find attached a PDF of the LOMR letter for FEMA case number 06-09-BE67X which was sent to the Town of Gilbert. This PDF contains the corrected (and final) profiles which were prepared for the original study of Sonoqui Wash performed by Entellus. These profiles are the effective profiles for Sonoqui Wash.

If you have any questions, please feel free to contact me. Thank you,

Cathy

Catherine W. Regester, P.E., CFM
Flood Control District of Maricopa County
Engineering Division, Hydrology/Hydraulics Branch
2801 West Durango Street
Phoenix, AZ 85009
Phone: (602) 506-4001
Fax: (602) 506-4601
cwr@mail.maricopa.gov

<<06-09-BE67X.pdf>>

Catherine Regester - FCDX

From: Catherine Regester - FCDX
Sent: Friday, February 27, 2009 10:01 AM
To: 'Kishore Sirvole'
Cc: dschaner@queencreek.org; 'lonnief@ci.gilbert.az.us'; Buchanan, Scott; Amir Motamedi - FCDX; Gary Wesch - FCDX
Subject: FEMA Case Number 08-09-1488P (Sonoqui Wash Channelization), REVISION Request - Town of Gilbert,Town of Queen Creek, Maricopa County, AZ

Attachments: Letter to Baker (Sonoqui) LOMR 3.pdf

Hi, Kishore,

Just letting you know that we are submitting our response to FEMA's December 18, 2008 comments regarding the Sonoqui LOMR to Baker today. The package should be delivered, via Fed Ex, on Monday March 2. It is being sent to Mounir's attention. I have attached a copy of the response letter for your information.

If you have any questions on the submittal, please do not hesitate to contact me.

Thank you,

Cathy

Catherine W. Regester, P.E., CFM
Flood Control District of Maricopa County
Engineering Division, Hydrology/Hydraulics Branch
2801 West Durango Street
Phoenix, AZ 85009
Phone: (602) 506-4001
Fax: (602) 506-4601
cwr@mail.maricopa.gov

Letter to Baker (Sonoqui) LOMR...

Catherine Regester - FCDX

From: Catherine Regester - FCDX
Sent: Friday, December 19, 2008 4:03 PM
To: Kishore Sirvole
Subject: FEMA Case Number 08-09-1488P (Sonoqui Wash Channelization), REVISION Request – Town of Gilbert,Town of Queen Creek, Maricopa County, AZ

Attachments: sonoqui_fp.shx; sonoqui_fp.dbf; sonoqui_fp.prj; sonoqui_fp.sbn; sonoqui_fp.sbx; sonoqui_fp.shp

Hi, Kishore,

Please find attached the shape files for the subject LOMR floodplain delineation as you requested in our phone conversation of Wednesday December 17. I believe these tie-in with the effective floodplain. Please feel free to contact me if you have any problems with the files.

Thank you,

Cathy

Catherine W. Regester, P.E., CFM
Flood Control District of Maricopa County
Engineering Division, Hydrology/Hydraulics Branch
2801 West Durango Street
Phoenix, AZ 85009
Phone: (602) 506-4001
Fax: (602) 506-4601
cwr@mail.maricopa.gov

sonoqui_fp.shx (366 B) | sonoqui_fp.dbf (4 KB) | sonoqui_fp.prj (4 KB) | sonoqui_fp.sbn (4 KB) | sonoqui_fp.sbx (4 KB) | sonoqui_fp.shp (101 KB)

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

December 18, 2008

Ms. Catherine W. Regester, P.E., CFM
Maricopa County Flood Control District
2801 West Durango Street
Phoenix, AZ 85009

IN REPLY REFER TO:
Case No.: 08-09-1488P
Communities: Town of Gilbert,
Town of Queen Creek, and
Maricopa County, AZ
Community Nos.: 040044, 040132, and 040037

316-AD

Dear Ms. Regester:

This is in regard to your request received on July 21, 2008, that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a revision to the Flood Insurance Rate Map (FIRM) for the above-referenced community. Pertinent information about the request is listed below.

Identifier:	Sonoqui Wash Channelization
Flooding Source:	Sonoqui Wash
FIRM Panel(s) Affected:	04013C2690 H, 2695 H, 3060 H, and 3075 H

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

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register,* is enclosed for your information.

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

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please contact your case reviewer, Mr. Kishore Sirvole,

by e-mail at kishore.sirvole@mapmodteam.com or by telephone at (703) 960-8800, extension 5201, or the Revisions Coordinator for your State, Mounir Boudjemaa, M.S., by email at mounir.boudjemaa@mapmodteam.com or by phone at (703) 317-6295.

Sincerely,

Syed Qayum

Syed Qayum, CFM
National LOMR Technical Manager
Michael Baker Jr., Inc.

Enclosures

cc: Mr. Lonnie K. Frost
Director
Public Works
Town of Gilbert

Mr. Richard L. Schaner, P.E.
Director
Public Works
Town of Queen Creek

Mr. Tim Phillips, P.E.
Maricopa County Flood Control District

Federal Emergency Management Agency

Washington, D.C. 20472

FEE SCHEDULE FOR PROCESSING REQUESTS FOR MAP CHANGES

This notice contains the fee schedule for processing certain types of requests for changes to National Flood Insurance Program (NFIP) maps. The fee schedule allows FEMA to further reduce the expenses to the NFIP by more fully recovering the costs associated with processing conditional and final map change requests. The fee schedule for map changes is effective for all requests dated October 1, 2007, or later and supersedes the fee schedule that was established on October 30, 2005.

To develop the fee schedule for conditional and final map change requests, FEMA evaluated the actual costs of reviewing and processing requests for Conditional Letters of Map Amendment (CLOMAs), Conditional Letters of Map Revision – Based on Fill (CLOMR-Fs), Conditional Letters of Map Revision (CLOMRs), Letters of Map Revision – Based on Fill (LOMR-Fs), and Letters of Map Revision (LOMRs).

Based on our review of actual cost data for Fiscal Years 2005 and 2006, FEMA has maintained the following review and processing fees, which are to be submitted with all requests that are not otherwise exempted under 44 CFR 72.5.

Fee Schedule for Requests for CLOMAs, CLOMR-Fs, and LOMR-Fs

Request for single-lot/single-structure CLOMA and CLOMR-F	$500
Request for single-lot/single structure LOMR-F	$425
Request for single-lot/single-structure LOMR-F based on as-built information (CLOMR-F previously issued by FEMA)	$325
Request for multiple-lot/multiple-structure CLOMA	$700
Request for multiple-lot/multiple-structure CLOMR-F and LOMR-F	$800
Request for multiple-lot/multiple-structure LOMR-F based on as-built information (CLOMR-F previously issued by FEMA)	$700

Based on our review of actual cost data for Fiscal Years 2005 and 2006, FEMA has established the following review and processing fees, which are to be submitted with all requests that are not otherwise exempted.

Fee Schedule for Requests for CLOMRs

Request based on new hydrology, bridge, culvert, channel, or combination of any of these	$4,400
Request based on levee, berm, or other structural measure	$5,500

Fee Schedule for Requests for Map Revisions

Requesters must submit the review and processing fees shown below with requests for LOMRs that are not based on structural measures or alluvial fans.

Request based on bridge, culvert, channel, or combination of these	$4,800
Request based on levee, berm, or other structural measure	$6,500
Request based on as-built information submitted as follow-up to CLOMR	$4,800

Fees for CLOMRs, LOMRs, and PMRs Based on Structural Measures on Alluvial Fans

FEMA has maintained the initial fee for requests for CLOMRs and LOMRs based on structural measures on alluvial fans to $5,600. FEMA will also continue to recover the remainder of the review and processing costs by invoicing the requester before issuing a determination letter, consistent with current practice. The prevailing private-sector labor rate charged to FEMA ($60 per hour) will be used to calculate the total reimbursable fees.

Payment Submission Requirements

Requesters must make fee payments for non-exempt requests before we render services. This payment must be in the form of a check or money order or by credit card payment. Please make all checks and money orders in U.S. funds payable to the *National Flood Insurance Program*. FEMA will deposit all fees collected to the National Flood Insurance Fund, which is the source of funding for providing these services.

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

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016
Expires: xxxxxxxxxx

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3.25 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, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. Please do not send your completed survey to the above address.

Flooding Source:
Note: Fill out one form for each flooding source studied

A. HYDROLOGY

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

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

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

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

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

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

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

4. Review/Approval of Analysis

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

5. Impacts of Sediment Transport on Hydrology

Was sediment transport considered? ☐ 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.

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.)	
			Effective	Proposed/Revised
Downstream Limit				
Upstream Limit				

2. Hydraulic Method/Model Used

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

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

Case No.: 08-09-1488P

Requester: Ms. Catherine W. Regester, P.E., CFM

Communities: Town of Gilbert,
Town of Queen Creek,
and Maricopa County, AZ

Community Nos.: 040044, 040132, and 040037

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

1. Please provide a topographic work map, certified by a registered professional engineer, for the entire requested area of revision, that reflects all applicable items listed on page 2, Section C, of MT-2 Application/Certification Form 2, entitled "Riverine Hydrology & Hydraulics Form." Please show this information on a map of suitable scale and topographic definition to provide reasonable accuracy. All items should be labeled for easy cross-referencing to the submitted "as-built" hydraulic model. Please ensure that the topographic maps are referenced to the National Geodetic Vertical Datum of 1929.

2. Please provide information that shows that the increase in width and/or shifting of the base (1-percent-annual-chance) floodplain and/or increase in Base Flood Elevations (BFEs) occurs on property belonging to the requestor, or provide documentation of the individual legal notice sent from each community to all affected property owners explaining the increase in BFEs and/or the width of the Special Flood Hazard Area, the area subject to inundation by the base flood, on their property.

3. Please provide GIS data for the above-referenced topographic work map showing tie-ins with the effective floodplain at the downstream and upstream ends. Please ensure the digital data are spatially referenced and cite what projection (coordinate system, example: UTM/State Plane) was used, so that the data may be used for accurate mapping.

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

3601 Eisenhower Avenue, Alexandria, VA 22304-6425 PH:1-877-FEMA MAP FX: 703.960.9125

Board of Directors
Fulton Brock, District 1
Don Stapley, District 2
Andrew Kunasek, District 3
Max Wilson, District 4
Mary Rose Wilcox, District 5

Flood Control District
of Maricopa County

www.fcd.maricopa.gov
2801 West Durango Street
Phoenix, Arizona 85009
Phone: 602-506-1501
Fax: 602-506-4601
TT: 602-505-5897

February 27, 2009

Michael Baker, Jr. Inc.
3601 Eisenhower Avenue, #600
Alexandria, VA 22304-6425

ATTN: Mounir Boudjemaa

RE: Sonoqui Wash Channelization, Queen Creek to Chandler Heights Road
Request for a Letter of Map Revision (LOMR)
FEMA Case No. 08-09-1488P

Dear Mr. Boudjemaa:

In response to FEMA's letter of December 18, 2008 regarding a request for additional information, please find attached a CD containing the requested GIS data and the digital HEC-RAS model. The District offers the following responses to FEMA's three comments:

1. Topographic work maps for the entire requested area of revision are enclosed. The work maps used for the CLOMR are provided for the majority of the reach. For the upstream end of the project, a new work map has been prepared showing the MCDOT Bridge at Chandler Heights Road and the cross section locations shown in the HEC-RAS model. The work maps are all on the NAVD 1988 datum as are the design drawings. The effective floodplain delineation was prepared on the NAVD 1988 datum. FEMA converted the elevations to the NGVD 1929 datum using the VERTCON. (Using VERTCON, the Datum Conversion Equation is: NAVD 1988 Elevation – 1.6 ft = NGVD 1929 Elevation)

2. The channelization project is all located within properties belonging to the requestors. The FCDMC owns the property downstream of Higley Road. From Higley Road to the crossing of the Ocotillo Road alignment (approx. 1400 ft west of Power Road) is owned by the Town of Gilbert. From the crossing of the Ocotillo Road alignment to south of Chandler Heights Road is owned by the Town of Queen Creek.

South of Chandler Heights Road, a floodplain delineation is still shown beyond the limits of the channelization project. This area may be subject to flooding from backwater through the constructed culverts, and, therefore, remains in the floodplain. (The second phase of the Sonoqui Wash Channelization Project is currently under design and, eventually, will confine flooding in this area to the channel.) The floodplain beyond the channelization falls, primarily, on private property. A spreadsheet entitled *Comparison of Effective to Post-Project (LOMR) Water Surface Elevations* is attached to compare the effective to post-project water surface elevations along the entire channelization project. As may be seen in the spreadsheet, the channelization project decreased the water surface elevations at all locations. And, for the private property south of Chandler Heights Rd, the effect of the project was to decrease water surface elevations approximately 4 ft.

A revised HEC-RAS model is included on the enclosed CD. The HEC-RAS cross sections upstream (south) of the Chandler Heights Road Bridge were extended to cover the entire flood limits. Areas beyond the constructed channel were modeled as ineffective flow areas and, therefore, water surface elevations were not impacted by this change in the modeling. The previously submitted model was run in HEC-RAS version 3.1.3. The enclosed model was run on version 4.0. The change in the versions resulted in a maximum change of 0.04 ft increase in water surface elevations at some cross sections upstream of Sossaman Road.

3. Shape files of the floodplain limits (sonoqui_fp.shp) showing the corrected tie-ins with the effective floodplain are included on the enclosed CD. These files were also submitted to FEMA on December 19, 2008 via e-mail from Catherine Regester (FCDMC) to Kishore Sirvole (Baker – FEMA). The file FEMAfloodplainexhibit-GRID.dxf containing cross section locations and the proposed LOMR delineation is also included on the CD for information purposes. All files are on the **Arizona State Plane Coordinate System**.

If you have any questions or require additional information, please feel free to call me at 602-506-4001 or contact me by e-mail at cwr@mail.maricopa.gov.

Yours truly,

Catherine W. Regester

Catherine W. Regester, P.E., CFM
Senior Engineer

Enclosures: CD
Spreadsheet
Work Maps (10 sheets)

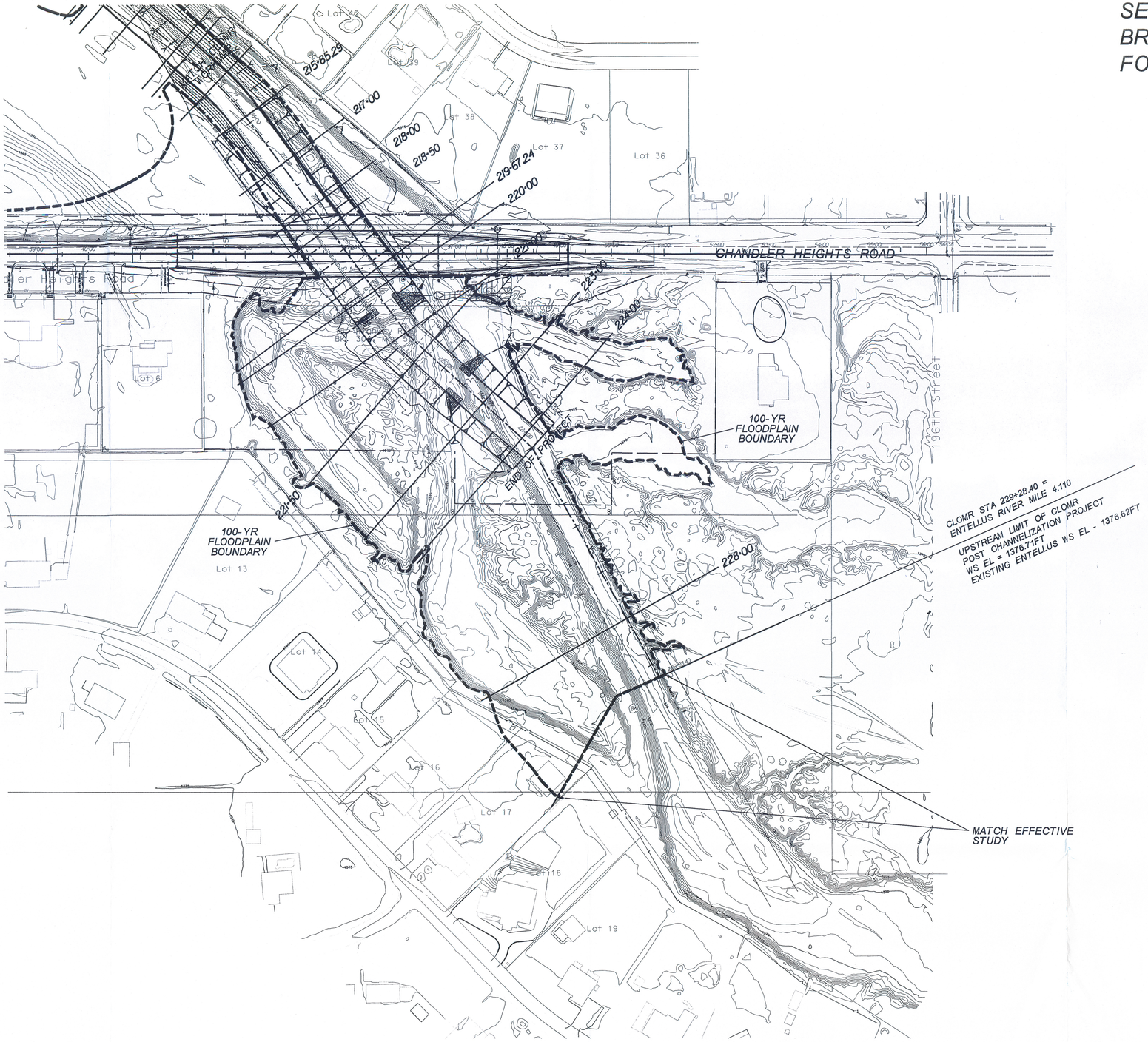
Comparison of Effective to Post-Project (LOMR) Water Surface Elevations

Entellus Study (Basis of Effective FIS)		LOMR HEC-RAS version 4.0			
River Mile ID	WSEL (ft) NAVD 1988	Construction Station	River Mile ID	WSEL (ft) NAVD 1988	Change in WSEL (ft)
0.222	1319.58	21+53	0.218	1314.92	-4.66
0.244	1319.63	22+82	0.243	1314.95	-4.68
0.344	1319.87	28+00	0.341	1317.33	-2.54
0.426	1320.65	33+00	0.436	1318.78	-1.87
0.517	1322.51	37+00	0.511	1319.69	-2.82
0.608	1324.09	42+00	0.606	1320.77	-3.32
0.699	1325.48	47+00	0.701	1321.84	-3.64
0.717	1325.85	48+00	0.720	1322.07	-3.78
0.730	1326.01	49+00	0.739	1322.33	-3.68
0.790	1326.51	52+00	0.795	1323.59	-2.92
0.880	1327.87	57+00	0.890	1325.14	-2.73
0.973	1329.48	62+00	0.985	1326.36	-3.12
1.062	1331.51	66+00	1.061	1327.36	-4.15
1.155	1333.12	71+00	1.155	1328.48	-4.64
1.200	1334.06	73+00	1.193	1328.96	-5.10
1.219	1334.66	74+34	1.219	1329.19	-5.47
1.231	1335.14	75+06	1.232	1331.67	-3.47
1.278	1335.73	78+00	1.288	1332.72	-3.01
1.369	1336.93	82+00	1.364	1334.72	-2.21
1.446	1338.56	86+00	1.439	1335.84	-2.72
1.454	1338.70	87+00	1.458	1336.11	-2.59
1.519	1340.07	90+00	1.515	1336.82	-3.25
1.611	1341.66	95+00	1.610	1337.82	-3.84
1.722	1343.60	101+00	1.723	1339.02	-4.58
1.741	1344.52	102+00	1.742	1339.23	-5.29
1.791	1345.20	105+00	1.799	1339.87	-5.33
1.883	1346.44	110+00	1.894	1340.92	-5.52
1.970	1348.02	115+00	1.989	1341.95	-6.07
2.057	1349.40	124+00	2.159	1343.81	-5.59
2.145	1350.50	128+00	2.235	1344.61	-5.89
2.212	1351.73	131+00	2.292	1345.21	-6.52
2.241	1352.26	133+00	2.330	1345.56	-6.70
2.252	1352.60	134+26.40	2.353	1349.20	-3.40
2.268	1352.60	134+26.40	2.353	1349.20	-3.40
2.347	1353.58	138+00	2.424	1349.34	-4.24
2.437	1354.24	142+00	2.500	1350.18	-4.06
2.528	1354.86	147+00	2.595	1351.27	-3.59
2.566	1355.26	149+00	2.633	1351.69	-3.57
2.629	1355.80	152+00	2.689	1352.33	-3.47
2.692	1356.30	156+00	2.765	1353.15	-3.15
2.743	1357.14	158+00	2.803	1353.58	-3.56
2.792	1357.71	161+00	2.860	1354.20	-3.51

Comparison of Effective to Post-Project (LOMR) Water Surface Elevations

Entellus Study (Basis of Effective FIS)		**LOMR** HEC-RAS version 4.0			
River Mile ID	WSEL (ft) NAVD 1988	Construction Station	River Mile ID	WSEL (ft) NAVD 1988	Change in WSEL (ft)
2.874	1358.83	165+00	2.936	1355.03	-3.80
2.948	1359.42	169+00	3.011	1355.80	-3.62
3.025	1359.70	173+00	3.087	1356.66	-3.04
3.087	1361.31	176+00	3.144	1357.28	-4.03
3.159	1362.06	180+00	3.220	1358.42	-3.64
3.207	1362.56	182+00	3.258	1358.88	-3.68
3.240	1362.69	184+00	3.295	1359.26	-3.43
3.288	1362.81	186+00	3.333	1359.48	-3.33
3.347	1364.93	189+00	3.390	1360.03	-4.90
3.404	1366.10	192+00	3.447	1360.63	-5.47
3.478	1367.04	196+00	3.523	1361.41	-5.63
3.514	1367.56	197+90	3.559	1361.67	-5.89
3.529	1368.21	199+21	3.584	1367.31	-0.90
3.536	1368.43	199+21	3.584	1367.31	-1.12
3.601	1369.08	203+00	3.655	1367.37	-1.71
3.660	1369.97	206+00	3.712	1367.39	-2.58
3.718	1370.55	209+00	3.769	1367.72	-2.83
3.793	1371.66	213+00	3.845	1368.30	-3.36
3.850	1372.57	215+85.29	3.899	1368.76	-3.81
3.897	1373.19	218+50	3.949	1369.36	-3.83
3.927	1373.51	219+67.24	3.969	1369.69	-3.82
3.936	1373.55	219+67.24	3.969	1369.69	-3.86
3.948	1373.82	220+00	3.977	1369.77	-4.05
3.958	1374.20	221+00	3.996	1369.90	-4.30
4.016	1374.99	224+00	4.053	1370.97	-4.02

SEE MCDOT AS-BUILT
BRIDGE/CHANNEL PLANS
FOR AS-BUILT ELEVATIONS



N

50 0 50 100
Scale in Feet

ELEVATION REFERECNE MARKS

NORTH AMERICAN VETICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEV. (FT)	DESC. LOCATION
RM 001	1354.4703	BCHH @ CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC @ CORNER OF SOSSAMAN RD & CHANDLER HTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD

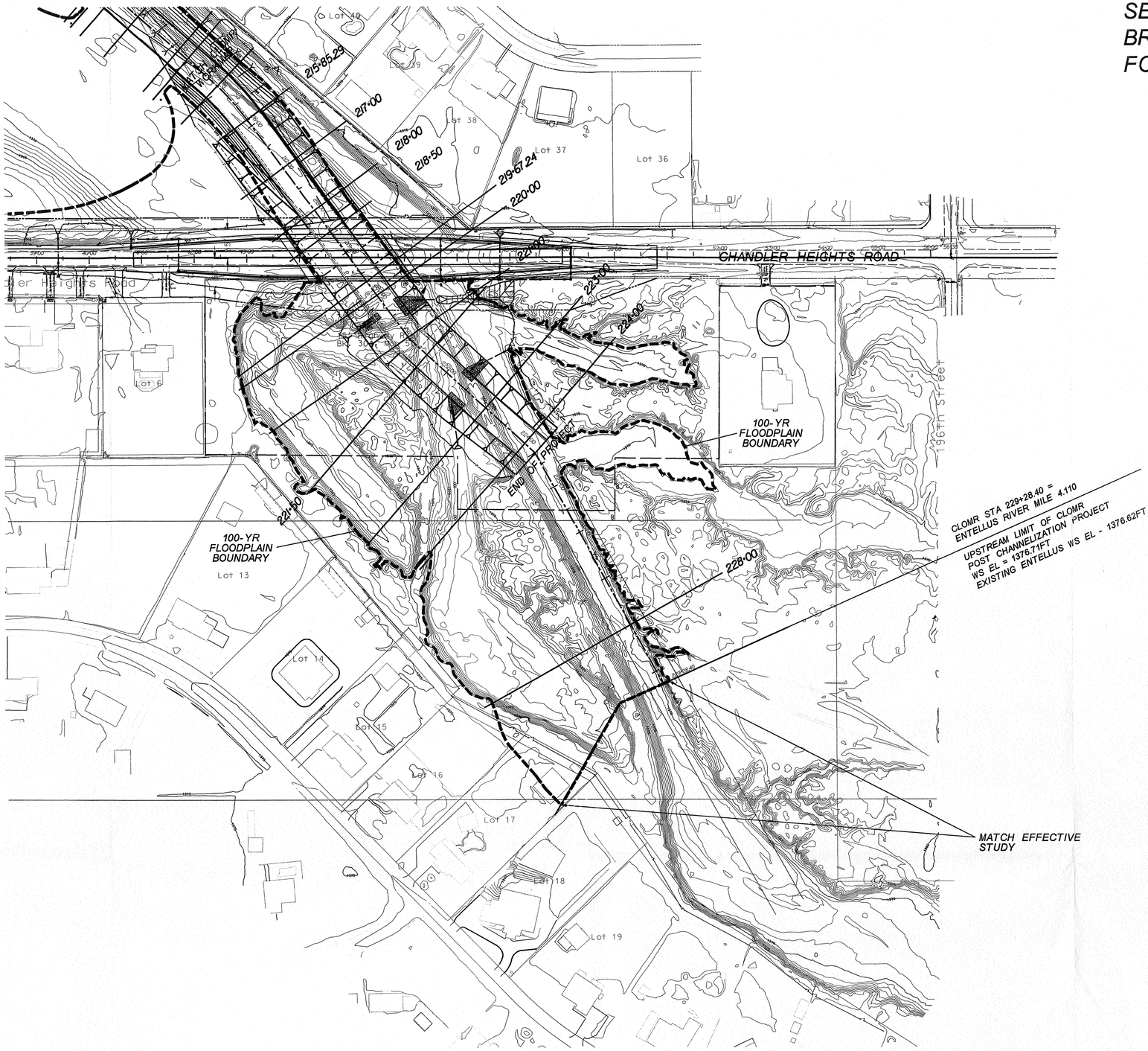
NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

TO FEMA
2/27/09

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

SEE MCDOT AS-BUILT
BRIDGE/CHANNEL PLANS
FOR AS-BUILT ELEVATIONS



N

50 0 50 100
Scale in Feet

ELEVATION REFERECNE MARKS

NORTH AMERICAN VETICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEV. (FT)	DESC. LOCATION
RM 001	1354.4703	BCHH ● CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC ● CORNER OF SOSSAMAN RD & CHANDLER HTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HTS RD
LOMR

	BY	DATE
DESIGNED		2/09
DRAWN		
CHECKED		

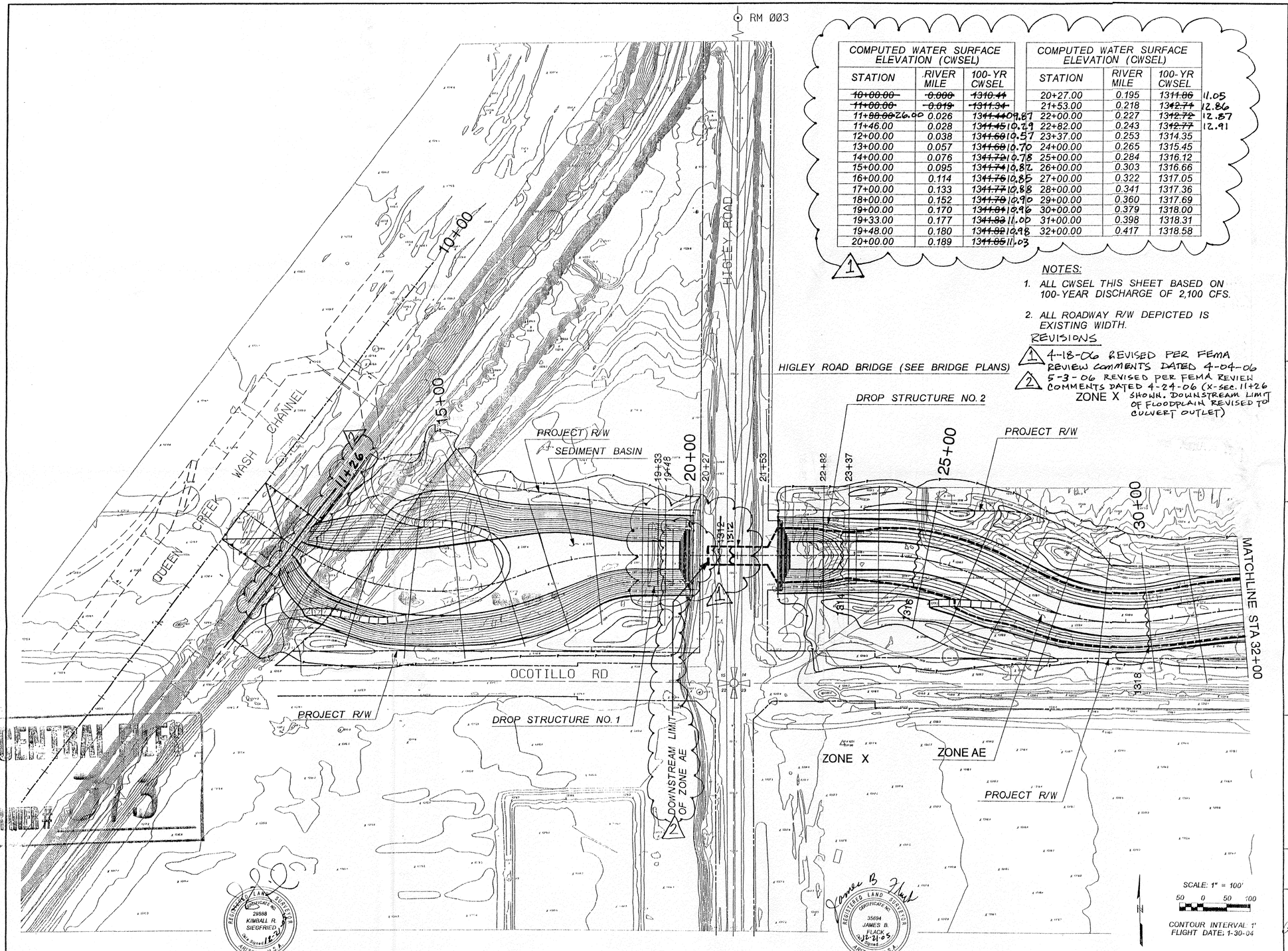
Registered Professional Engineer (Civil) CERTIFICATE NO. 37883 CATHERINE WEDIG REGESTER Date Signed 2/23/09 ARIZONA U.S.A.

Expires 9/30/11

SONOQUI WASH CHANNELIZATION LOMR

SHEET 1 OF 1

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



COMPUTED WATER SURFACE ELEVATION (CWSEL)			COMPUTED WATER SURFACE ELEVATION (CWSEL)			
STATION	RIVER MILE	100-YR CWSEL	STATION	RIVER MILE	100-YR CWSEL	
~~10+00.00~~	~~0.000~~	~~1310.41~~	20+27.00	0.195	1311.86	11.05
~~11+00.00~~	~~0.019~~	~~1311.34~~	21+53.00	0.218	1312.74	12.86
~~11+88.00~~ 26.00	0.026	~~1311.44~~ 09.87	22+00.00	0.227	1312.72	12.57
11+46.00	0.028	~~1311.45~~ 10.79	22+82.00	0.243	1312.77	12.91
12+00.00	0.038	~~1311.60~~ 10.57	23+37.00	0.253	1314.35	
13+00.00	0.057	~~1311.60~~ 10.70	24+00.00	0.265	1315.45	
14+00.00	0.076	~~1311.72~~ 10.78	25+00.00	0.284	1316.12	
15+00.00	0.095	~~1311.74~~ 10.82	26+00.00	0.303	1316.66	
16+00.00	0.114	~~1311.76~~ 10.85	27+00.00	0.322	1317.05	
17+00.00	0.133	~~1311.77~~ 10.88	28+00.00	0.341	1317.36	
18+00.00	0.152	~~1311.79~~ 10.90	29+00.00	0.360	1317.69	
19+00.00	0.170	~~1311.81~~ 10.96	30+00.00	0.379	1318.00	
19+33.00	0.177	~~1311.83~~ 11.00	31+00.00	0.398	1318.31	
19+48.00	0.180	~~1311.82~~ 10.98	32+00.00	0.417	1318.58	
20+00.00	0.189	~~1311.85~~ 11.03				

1

NOTES:

1. ALL CWSEL THIS SHEET BASED ON 100-YEAR DISCHARGE OF 2,100 CFS.
2. ALL ROADWAY R/W DEPICTED IS EXISTING WIDTH.

REVISIONS

1 4-18-06 REVISED PER FEMA REVIEW COMMENTS DATED 4-04-06

2 5-3-06 REVISED PER FEMA REVIEW COMMENTS DATED 4-24-06 (X-sec. 11+26 SHOWN. DOWNSTREAM LIMIT OF FLOODPLAIN REVISED TO CULVERT OUTLET)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH
THE TOWN OF GILBERT AND
THE TOWN OF QUEEN CREEK

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS RD
FCD CONSTRUCTION CONTRACT 2004C074

CLOMR

LEGEND

POST PROJECT 100-YR FLOODPLAIN BOUNDARY

HYDRAULIC BASE LINE WITH RIVER STATIONING (25+00, 30+00)

CROSS SECTION

ELEVATION REFERENCE MARK — RM 001

BASE FLOOD ELEVATION — 1350

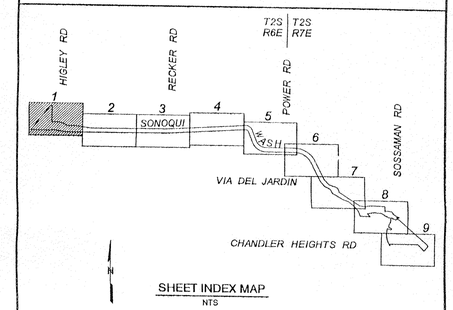
FLOOD INSURANCE ZONE — ZONE AE

SECTION CORNER — 15 14 22 23

ELEVATION REFERENCE MARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 001	1354.4703	BCHH AT CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC AT CORNER OF SOSSAMAN RD & CHANDLER HEIGHTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD



SHEET INDEX MAP
NTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

TOWN OF QUEEN CREEK — TOWN OF GILBERT

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
CLOMR

	BY	DATE
DESIGNED	NDV	10/05
DRAWN	LRj	10/05
CHECKED	GSB	10/05

Stanley Consultants INC. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com (602) 912-6500

EXHIBIT A | SONOQUI WASH CHANNELIZATION CLOMR | SHEET 1 OF 9

COOPER AERIAL SURVEY CO. I, KIMBALL R.SIEGFRIED, ARIZONA REGISTERED LAND SURVEYOR #29888 CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR 1 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=40'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY STANLEY CONSULTANTS.

STANLEY CONSULTANTS I, JAMES B.FLACK, ARIZONA REGISTERED LAND SURVEYOR #35694 CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS PROJECT IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

Q:\176955\CAD\DGN\CHANNEL\CLOMR\exhibit1.dgn

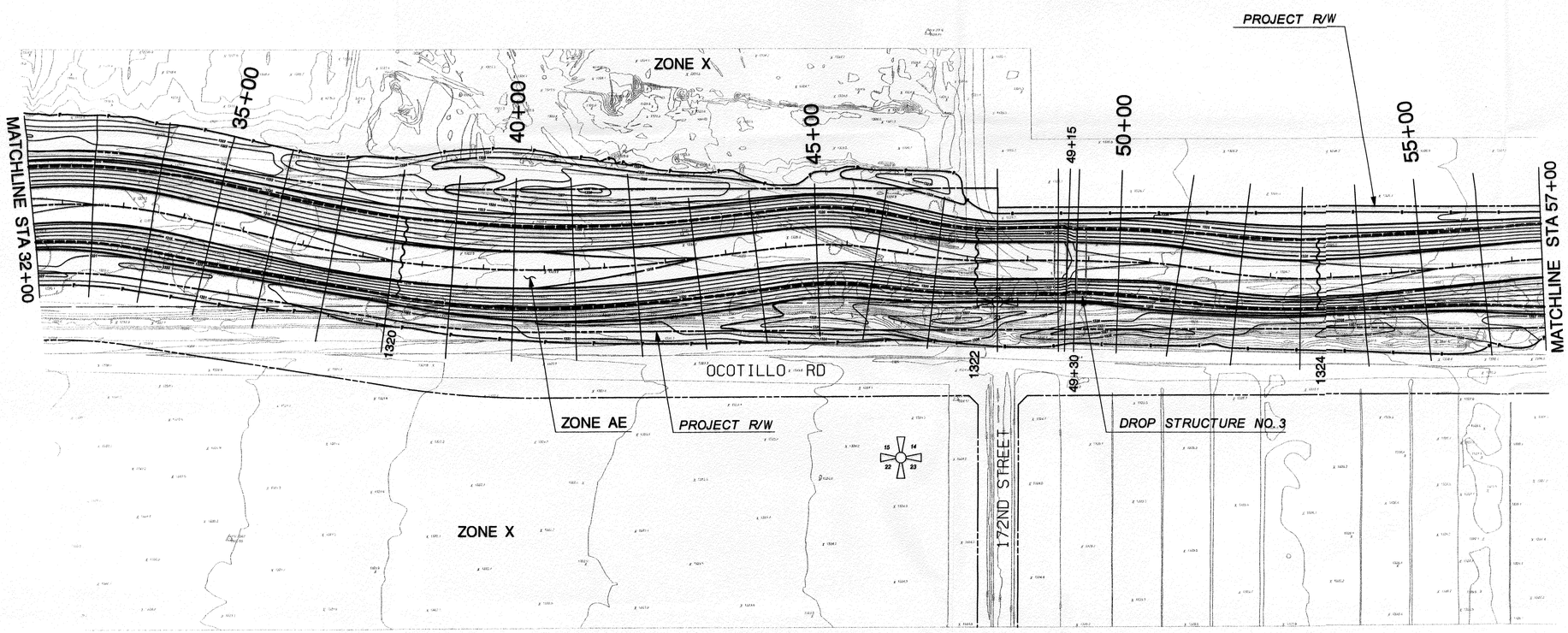
REVISED 4-18-06

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH
THE TOWN OF GILBERT AND
THE TOWN OF QUEEN CREEK

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS RD
FCD CONSTRUCTION CONTRACT 2004C074

CLOMR



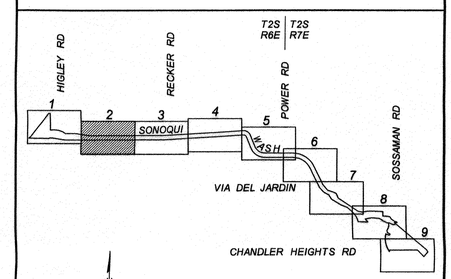
LEGEND

POST PROJECT 100-YR FLOODPLAIN BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER STATIONING	25+00 30+00
CROSS SECTION	
ELEVATION REFERENCE MARK	RM 001
BASE FLOOD ELEVATION	1350
FLOOD INSURANCE ZONE	ZONE AE
SECTION CORNER	15 14 22 23

ELEVATION REFERENCE MARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 001	1354.4703	BCHH AT CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC AT CORNER OF SOSSAMAN RD & CHANDLER HEIGHTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD



SHEET INDEX MAP
NTS

COMPUTED WATER SURFACE ELEVATION (CWSEL)		
STATION	RIVER MILE	100-YR CWSEL
32+00.00	0.417	1318.58
33+00.00	0.436	1318.84
34+00.00	0.455	1319.08
35+00.00	0.473	1319.31
36+00.00	0.492	1319.52
37+00.00	0.511	1319.74
38+00.00	0.530	1319.97
39+00.00	0.549	1320.19
40+00.00	0.568	1320.40
41+00.00	0.587	1320.61
42+00.00	0.606	1320.81
43+00.00	0.625	1321.02
44+00.00	0.644	1321.23
45+00.00	0.663	1321.43

COMPUTED WATER SURFACE ELEVATION (CWSEL)		
STATION	RIVER MILE	100-YR CWSEL
46+00.00	0.682	1321.64
47+00.00	0.701	1321.85
48+00.00	0.720	1322.07
49+00.00	0.739	1322.27
49+15.00	0.741	1322.28
49+30.00	0.744	1322.06
50+00.00	0.758	1322.46
51+00.00	0.777	1323.01
52+00.00	0.795	1323.50
53+00.00	0.814	1323.89
54+00.00	0.833	1324.25
55+00.00	0.852	1324.57
56+00.00	0.871	1324.87
57+00.00	0.890	1325.15

NOTES:

1. ALL CWSEL THIS SHEET BASED ON 100-YEAR DISCHARGE OF 2,100 CFS.
2. ALL ROADWAY R/W DEPICTED IS EXISTING WIDTH.

SCALE: 1" = 100'
50 0 50 100

CONTOUR INTERVAL: 1'
FLIGHT DATE: 1-30-04

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

TOWN OF QUEEN CREEK — TOWN OF GILBERT

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
CLOMR

	BY	DATE
DESIGNED	NDV	10/05
DRAWN	LRj	10/05
CHECKED	GSB	10/05

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 26837 G. SCOTT BUCHANAN Date Signed 12-14-05 ARIZONA, U.S.A.

Stanley Consultants INC. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com (602) 912-6500

REGISTERED LAND SURVEYOR CERTIFICATE NO. 29888 KIMBALL R. SIEGFRIED Date Signed 12-14-05 ARIZONA, U.S.A.

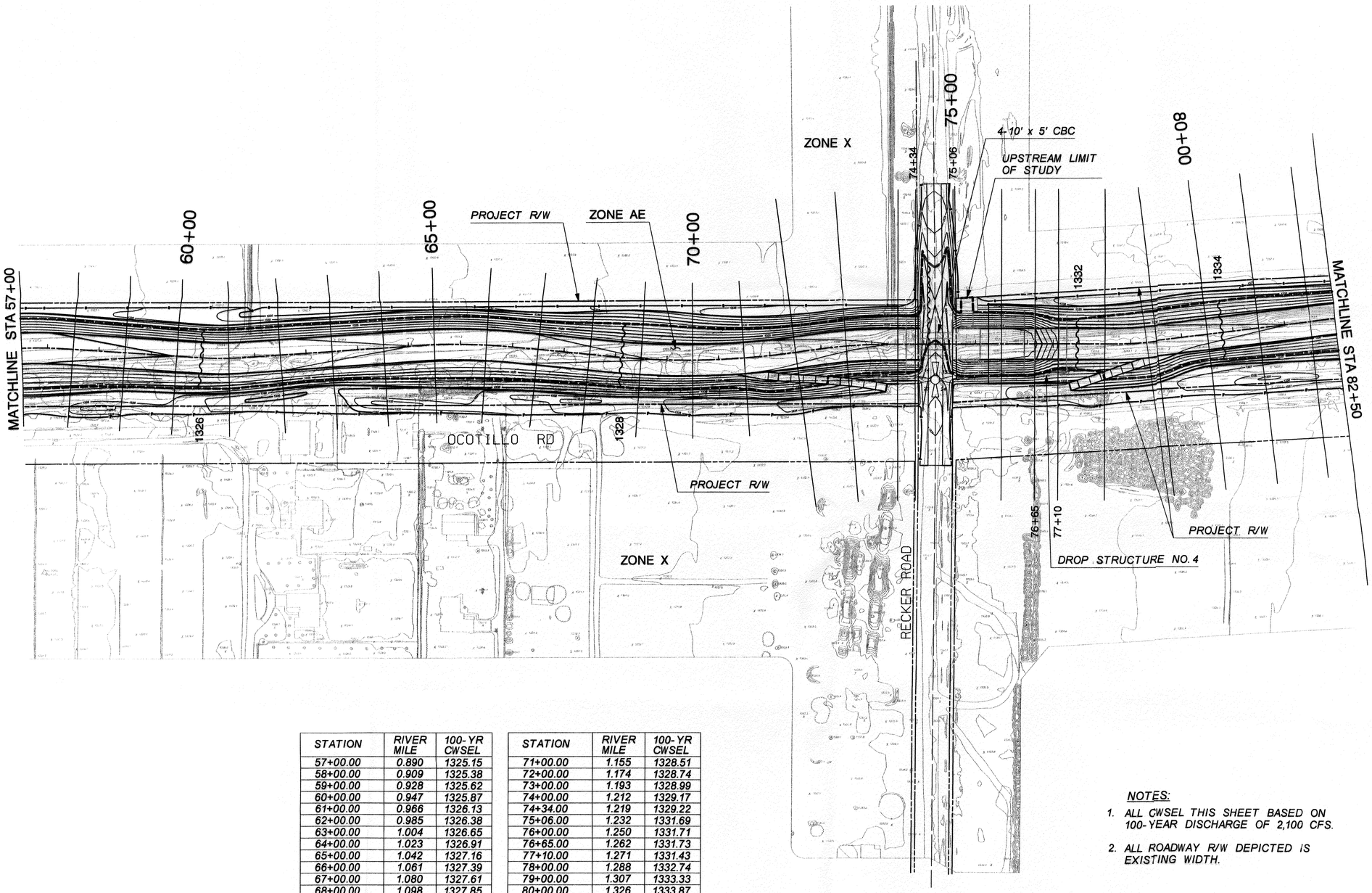
COOPER AERIAL SURVEY CO. I, KIMBALL R.SIEGFRIED, ARIZONA REGISTERED LAND SURVEYOR #29888 CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR 1 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=40'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY STANLEY CONSULTANTS.

REGISTERED LAND SURVEYOR CERTIFICATE NO. 35694 JAMES B. FLACK Date Signed 12-14-05 ARIZONA, U.S.A.

STANLEY CONSULTANTS I, JAMES B.FLACK, ARIZONA REGISTERED LAND SURVEYOR #35694 CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS PROJECT IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

EXHIBIT A | SONOQUI WASH CHANNELIZATION CLOMR | SHEET 2 OF 9

12/14/2005 q:\16955\cadd\dgn\channel\clomrexhibit2.dgn



STATION	RIVER MILE	100-YR CWSEL
57+00.00	0.890	1325.15
58+00.00	0.909	1325.38
59+00.00	0.928	1325.62
60+00.00	0.947	1325.87
61+00.00	0.966	1326.13
62+00.00	0.985	1326.38
63+00.00	1.004	1326.65
64+00.00	1.023	1326.91
65+00.00	1.042	1327.16
66+00.00	1.061	1327.39
67+00.00	1.080	1327.61
68+00.00	1.098	1327.85
69+00.00	1.117	1328.08
70+00.00	1.136	1328.29

STATION	RIVER MILE	100-YR CWSEL
71+00.00	1.155	1328.51
72+00.00	1.174	1328.74
73+00.00	1.193	1328.99
74+00.00	1.212	1329.17
74+34.00	1.219	1329.22
75+06.00	1.232	1331.69
76+00.00	1.250	1331.71
76+65.00	1.262	1331.73
77+10.00	1.271	1331.43
78+00.00	1.288	1332.74
79+00.00	1.307	1333.33
80+00.00	1.326	1333.87
81+00.00	1.345	1334.29
82+00.00	1.364	1334.65

NOTES:

1. ALL CWSEL THIS SHEET BASED ON 100-YEAR DISCHARGE OF 2,100 CFS.
2. ALL ROADWAY R/W DEPICTED IS EXISTING WIDTH.

SCALE: 1" = 100'

50 0 50 100

CONTOUR INTERVAL: 1'
FLIGHT DATE: 1-30-04

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH
THE TOWN OF GILBERT AND
THE TOWN OF QUEEN CREEK

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS RD
FCD CONSTRUCTION CONTRACT 2004C074

CLOMR

LEGEND

POST PROJECT 100-YR FLOODPLAIN BOUNDARY

HYDRAULIC BASE LINE WITH RIVER STATIONING (25+00, 30+00)

CROSS SECTION

ELEVATION REFERENCE MARK — RM 001

BASE FLOOD ELEVATION — 1350

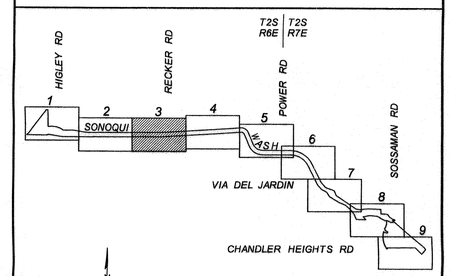
FLOOD INSURANCE ZONE — ZONE AE

SECTION CORNER — 15 14 22 23

ELEVATION REFERENCE MARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 001	1354.4703	BCHH AT CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC AT CORNER OF SOSSAMAN RD & CHANDLER HEIGHTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD



SHEET INDEX MAP
NTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

TOWN OF QUEEN CREEK — TOWN OF GILBERT

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
CLOMR

	BY	DATE
DESIGNED	NDV	10/05
DRAWN	LRj	10/05
CHECKED	GSB	10/05

Registered Professional Engineer (Civil) CERTIFICATE NO. 26837 G. SCOTT BUCHANAN Date Signed 12-14-05 ARIZONA, U.S.A.

Stanley Consultants INC. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com (602) 912-6500

REGISTERED LAND SURVEYOR CERTIFICATE NO. 29888 KIMBALL R. SIEGFRIED Date Signed 12-13-05 ARIZONA, U.S.A.

REGISTERED LAND SURVEYOR CERTIFICATE NO. 35694 JAMES B. FLACK Date Signed 12-14-05 ARIZONA, U.S.A.

COOPER AERIAL SURVEY CO. I. KIMBALL R.SIEGFRIED, ARIZONA REGISTERED LAND SURVEYOR #29888 CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR 1 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=40'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY STANLEY CONSULTANTS.

STANLEY CONSULTANTS I. JAMES B.FLACK, ARIZONA REGISTERED LAND SURVEYOR #35694 CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS PROJECT IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

EXHIBIT A | SONOQUI WASH CHANNELIZATION CLOMR | SHEET 3 OF 9

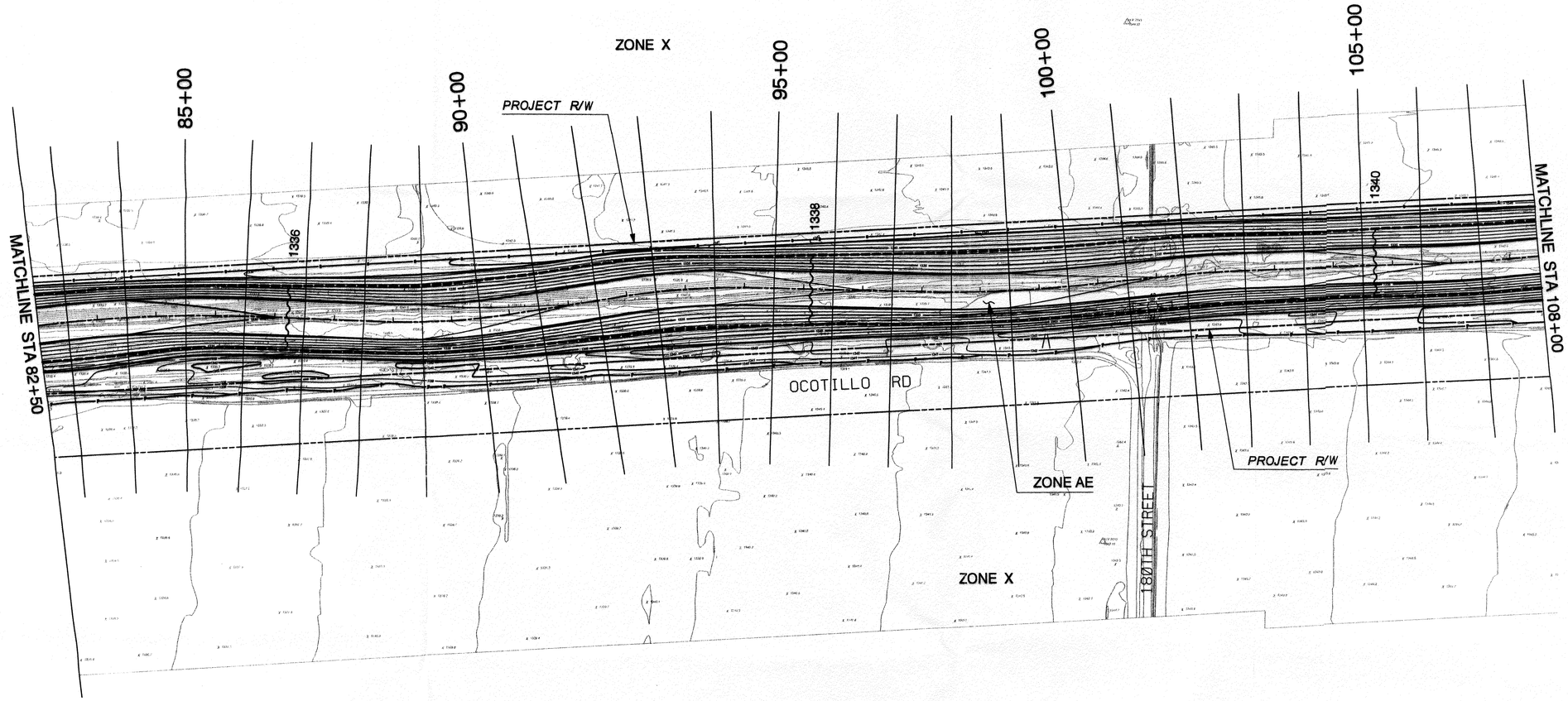
12/14/2005 Q:\169955\CADD\DGN\CHANNEL\CLOMRexhibit3.dgn

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH
THE TOWN OF GILBERT AND
THE TOWN OF QUEEN CREEK

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS RD
FCD CONSTRUCTION CONTRACT 2004C074

CLOMR



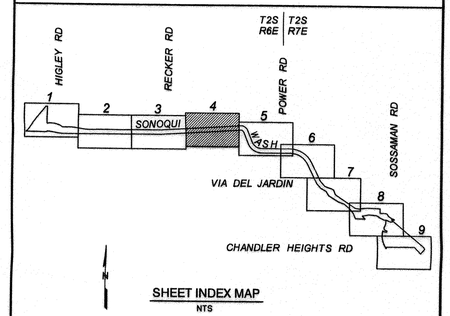
LEGEND

POST PROJECT 100-YR FLOODPLAIN BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER STATIONING	25+00 30+00
CROSS SECTION	
ELEVATION REFERENCE MARK	RM 001
BASE FLOOD ELEVATION	1350
FLOOD INSURANCE ZONE	ZONE AE
SECTION CORNER	15 14 22 23

ELEVATION REFERENCE MARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 001	1354.4703	BCHH AT CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC AT CORNER OF SOSSAMAN RD & CHANDLER HEIGHTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD



SHEET INDEX MAP
NTS

STATION	RIVER MILE	100-YR CWSEL
83+00.00	1.383	1334.96
84+00.00	1.402	1335.24
85+00.00	1.420	1335.51
86+00.00	1.439	1335.80
87+00.00	1.458	1336.07
88+00.00	1.477	1336.33
89+00.00	1.496	1336.59
90+00.00	1.515	1336.82
91+00.00	1.534	1337.04
92+00.00	1.553	1337.25
93+00.00	1.572	1337.47
94+00.00	1.591	1337.66
95+00.00	1.610	1337.87

STATION	RIVER MILE	100-YR CWSEL
96+00.00	1.629	1338.07
97+00.00	1.648	1338.28
98+00.00	1.667	1338.49
99+00.00	1.686	1338.69
100+00.00	1.705	1338.90
101+00.00	1.723	1339.09
102+00.00	1.742	1339.31
103+00.00	1.761	1339.52
104+00.00	1.780	1339.73
105+00.00	1.799	1339.95
106+00.00	1.818	1340.17
107+00.00	1.837	1340.38
108+00.00	1.856	1340.59

NOTES:

1. ALL CWSEL THIS SHEET BASED ON 100-YEAR DISCHARGE OF 2,100 CFS.
2. ALL ROADWAY R/W DEPICTED IS EXISTING WIDTH.

SCALE: 1" = 100'
50 0 50 100
CONTOUR INTERVAL: 1'
FLIGHT DATE: 1-30-04

REGISTERED LAND SURVEYOR CERTIFICATE NO. 29888 KIMBALL R. SIEGFRIED Date Signed 12-21-05 ARIZONA, U.S.A.

REGISTERED LAND SURVEYOR CERTIFICATE NO. 35694 JAMES B. FLACK Date Signed 12-21-05 ARIZONA, U.S.A.

COOPER AERIAL SURVEY CO. I, KIMBALL R.SIEGFRIED, ARIZONA REGISTERED LAND SURVEYOR #29888 CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR 1 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=40'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY STANLEY CONSULTANTS.

STANLEY CONSULTANTS I, JAMES B.FLACK, ARIZONA REGISTERED LAND SURVEYOR #35694 CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS PROJECT IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

TOWN OF QUEEN CREEK

TOWN OF GILBERT

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
CLOMR

	BY	DATE
DESIGNED	NDV	10/05
DRAWN	LRj	10/05
CHECKED	GSB	10/05

REGISTERED Professional Engineer (Civil) CERTIFICATE NO. 26837 G. SCOTT BUCHANAN Date Signed 12-21-05 ARIZONA, U.S.A.

Stanley Consultants INC. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com (602) 912-6600

EXHIBIT A | SONOQUI WASH CHANNELIZATION CLOMR | SHEET 4 OF 9

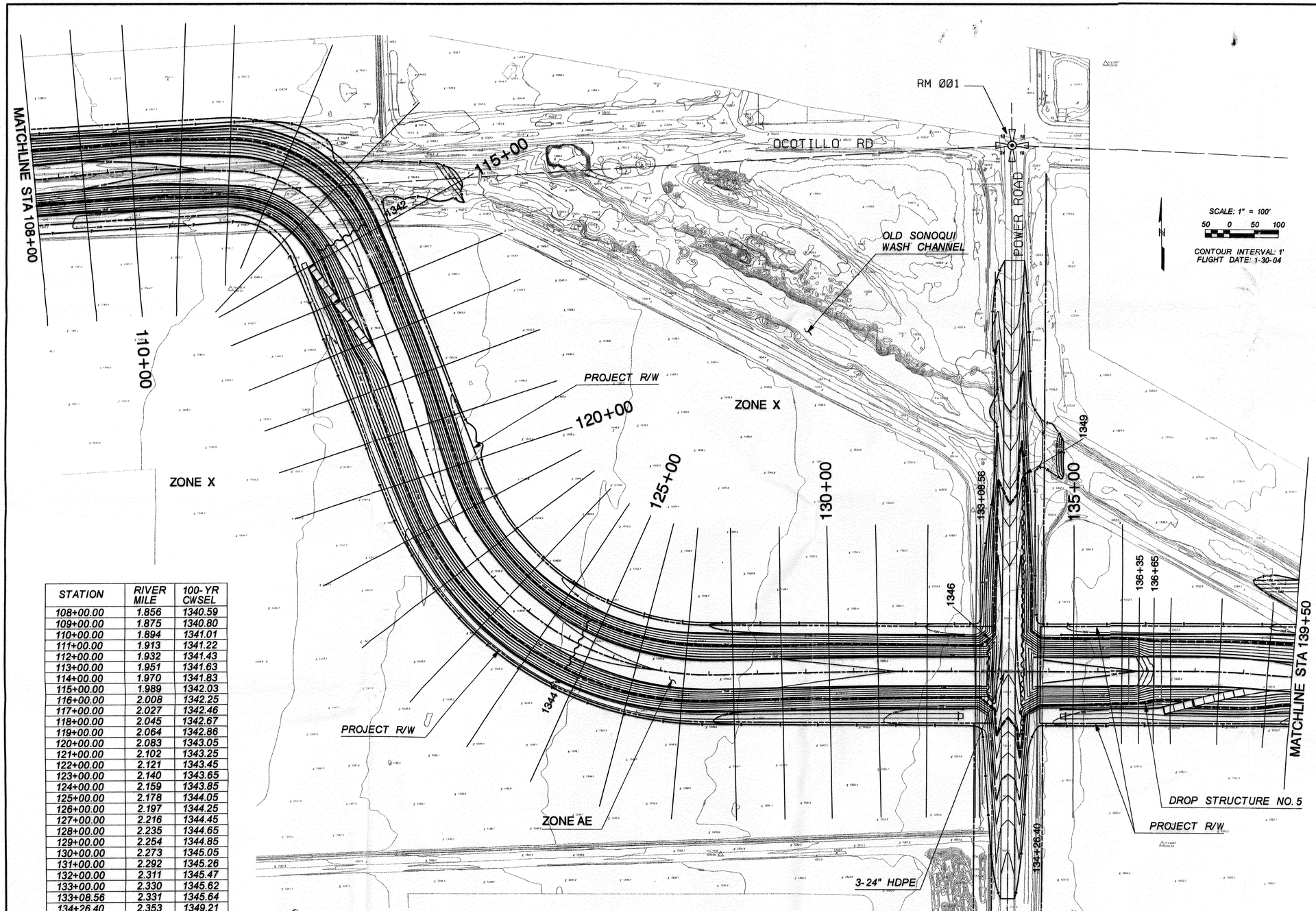
12/14/2005 q:\16955\cadd\dgn\channel\clomr\exhibit4.dgn

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH
THE TOWN OF GILBERT AND
THE TOWN OF QUEEN CREEK

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS RD
FCD CONSTRUCTION CONTRACT 2004C074

CLOMR



STATION	RIVER MILE	100-YR CWSEL
108+00.00	1.856	1340.59
109+00.00	1.875	1340.80
110+00.00	1.894	1341.01
111+00.00	1.913	1341.22
112+00.00	1.932	1341.43
113+00.00	1.951	1341.63
114+00.00	1.970	1341.83
115+00.00	1.989	1342.03
116+00.00	2.008	1342.25
117+00.00	2.027	1342.46
118+00.00	2.045	1342.67
119+00.00	2.064	1342.86
120+00.00	2.083	1343.05
121+00.00	2.102	1343.25
122+00.00	2.121	1343.45
123+00.00	2.140	1343.65
124+00.00	2.159	1343.85
125+00.00	2.178	1344.05
126+00.00	2.197	1344.25
127+00.00	2.216	1344.45
128+00.00	2.235	1344.65
129+00.00	2.254	1344.85
130+00.00	2.273	1345.05
131+00.00	2.292	1345.26
132+00.00	2.311	1345.47
133+00.00	2.330	1345.62
133+08.56	2.331	1345.64
134+26.40	2.353	1349.21
135+00.00	2.367	1349.22
136+00.00	2.386	1349.24
136+35.00	2.393	1349.25
136+65.00	2.399	1349.16
137+00.00	2.405	1349.20
138+00.00	2.424	1349.35
139+00.00	2.443	1349.56

NOTES:

1. ALL CWSEL THIS SHEET BASED ON 100-YEAR DISCHARGE OF 2,100 CFS.
2. ALL ROADWAY R/W DEPICTED IS EXISTING WIDTH.

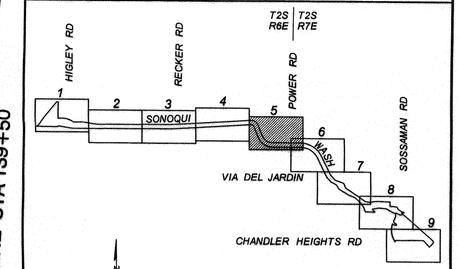
LEGEND

POST PROJECT 100-YR FLOODPLAIN BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER STATIONING	25+00 30+00
CROSS SECTION	
ELEVATION REFERENCE MARK	RM 001
BASE FLOOD ELEVATION	1350
FLOOD INSURANCE ZONE	ZONE AE
SECTION CORNER	15 14 22 23

ELEVATION REFERENCE MARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 001	1354.4703	BCHH AT CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC AT CORNER OF SOSSAMAN RD & CHANDLER HEIGHTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD



SHEET INDEX MAP
NTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

TOWN OF QUEEN CREEK

TOWN OF GILBERT

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
CLOMR

	BY	DATE
DESIGNED	NDV	10/05
DRAWN	LRj	10/05
CHECKED	GSB	10/05

REGISTERED PROFESSIONAL ENGINEER (Civil) 26837 G. SCOTT BUCHANAN Date Signed 12-20-05 ARIZONA, U.S.A.

Stanley Consultants INC. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com (602) 912-6500

EXHIBIT A | SONOQUI WASH CHANNELIZATION CLOMR | SHEET 5 OF 9

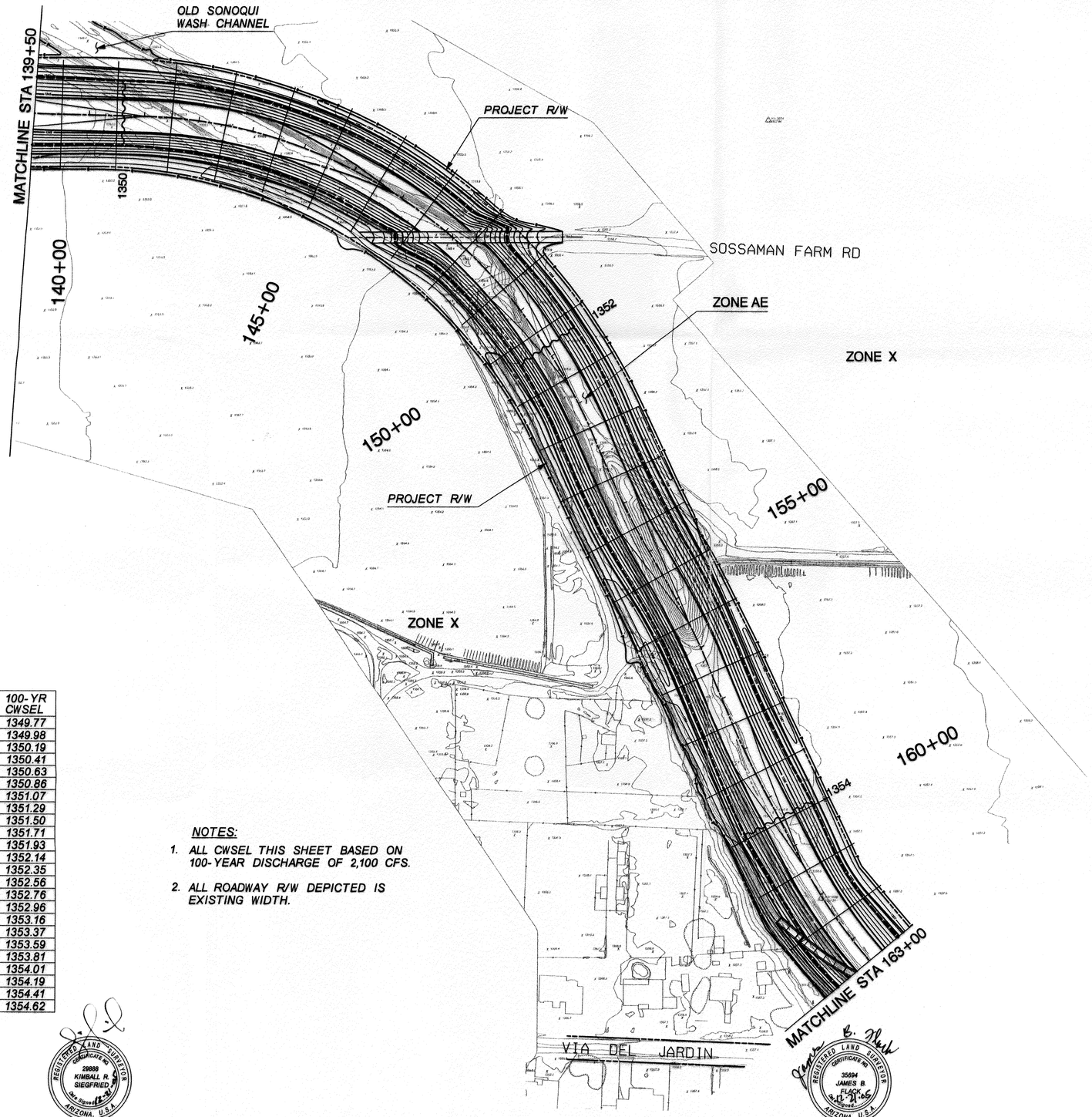
COOPER AERIAL SURVEY CO. I, KIMBALL R.SIEGFRIED, ARIZONA REGISTERED LAND SURVEYOR #29888 CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR 1 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=40'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY STANLEY CONSULTANTS.

REGISTERED LAND SURVEYOR CERTIFICATE NO. 29888 KIMBALL R. SIEGFRIED Date Signed 12-20-05 ARIZONA, U.S.A.

STANLEY CONSULTANTS I, JAMES B.FLACK, ARIZONA REGISTERED LAND SURVEYOR #35694 CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS PROJECT IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

REGISTERED LAND SURVEYOR CERTIFICATE NO. 35694 JAMES B. FLACK Date Signed 12-19-05 ARIZONA, U.S.A.

12/20/2005 Q:\169555\CADD\DGN\channel\CLOMRexhibit5.dgn



STATION	RIVER MILE	100-YR CWSEL
140+00.00	2.462	1349.77
141+00.00	2.481	1349.98
142+00.00	2.500	1350.19
143+00.00	2.519	1350.41
144+00.00	2.538	1350.63
145+00.00	2.557	1350.86
146+00.00	2.576	1351.07
147+00.00	2.595	1351.29
148+00.00	2.614	1351.50
149+00.00	2.633	1351.71
150+00.00	2.652	1351.93
151+00.00	2.670	1352.14
152+00.00	2.689	1352.35
153+00.00	2.708	1352.56
154+00.00	2.727	1352.76
155+00.00	2.746	1352.96
156+00.00	2.765	1353.16
157+00.00	2.784	1353.37
158+00.00	2.803	1353.59
159+00.00	2.822	1353.81
160+00.00	2.841	1354.01
161+00.00	2.860	1354.19
162+00.00	2.879	1354.41
163+00.00	2.898	1354.62

NOTES:

1. ALL CWSEL THIS SHEET BASED ON 100-YEAR DISCHARGE OF 2,100 CFS.
2. ALL ROADWAY R/W DEPICTED IS EXISTING WIDTH.

SCALE: 1" = 100'

50 0 50 100

CONTOUR INTERVAL: 1'
FLIGHT DATE: 1-30-04

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH
THE TOWN OF GILBERT AND
THE TOWN OF QUEEN CREEK

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS RD
FCD CONSTRUCTION CONTRACT 2004C074

CLOMR

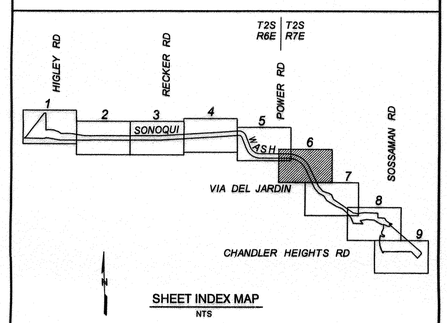
LEGEND

POST PROJECT 100-YR FLOODPLAIN BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER STATIONING	25+00 30+00
CROSS SECTION	
ELEVATION REFERENCE MARK	RM 001
BASE FLOOD ELEVATION	1350
FLOOD INSURANCE ZONE	ZONE AE
SECTION CORNER	15 14 22 23

ELEVATION REFERENCE MARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 001	1354.4703	BCHH AT CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC AT CORNER OF SOSSAMAN RD & CHANDLER HEIGHTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD



SHEET INDEX MAP
NTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

TOWN OF QUEEN CREEK

TOWN OF GILBERT

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
CLOMR

	BY	DATE
DESIGNED	NDV	10/05
DRAWN	LRj	10/05
CHECKED	GSB	10/05

Registered Professional Engineer (Civil) 26837 G. SCOTT BUCHANAN Date Signed 12-14-05 ARIZONA, U.S.A.

Stanley Consultants INC. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com (602) 912-6600

REGISTERED LAND SURVEYOR CERTIFICATE NO. 29888 KIMBALL R. SIEGFRIED Date Signed 12-14-05 ARIZONA, U.S.A.

REGISTERED LAND SURVEYOR CERTIFICATE NO. 35694 JAMES B. FLACK Date Signed 12-13-05 ARIZONA, U.S.A.

COOPER AERIAL SURVEY CO. I, KIMBALL R.SIEGFRIED, ARIZONA REGISTERED LAND SURVEYOR #29888 CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR 1 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=40'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY STANLEY CONSULTANTS.

STANLEY CONSULTANTS I, JAMES B.FLACK, ARIZONA REGISTERED LAND SURVEYOR #35694 CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS PROJECT IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

EXHIBIT A

SONOQUI WASH CHANNELIZATION CLOMR

SHEET 6 OF 9

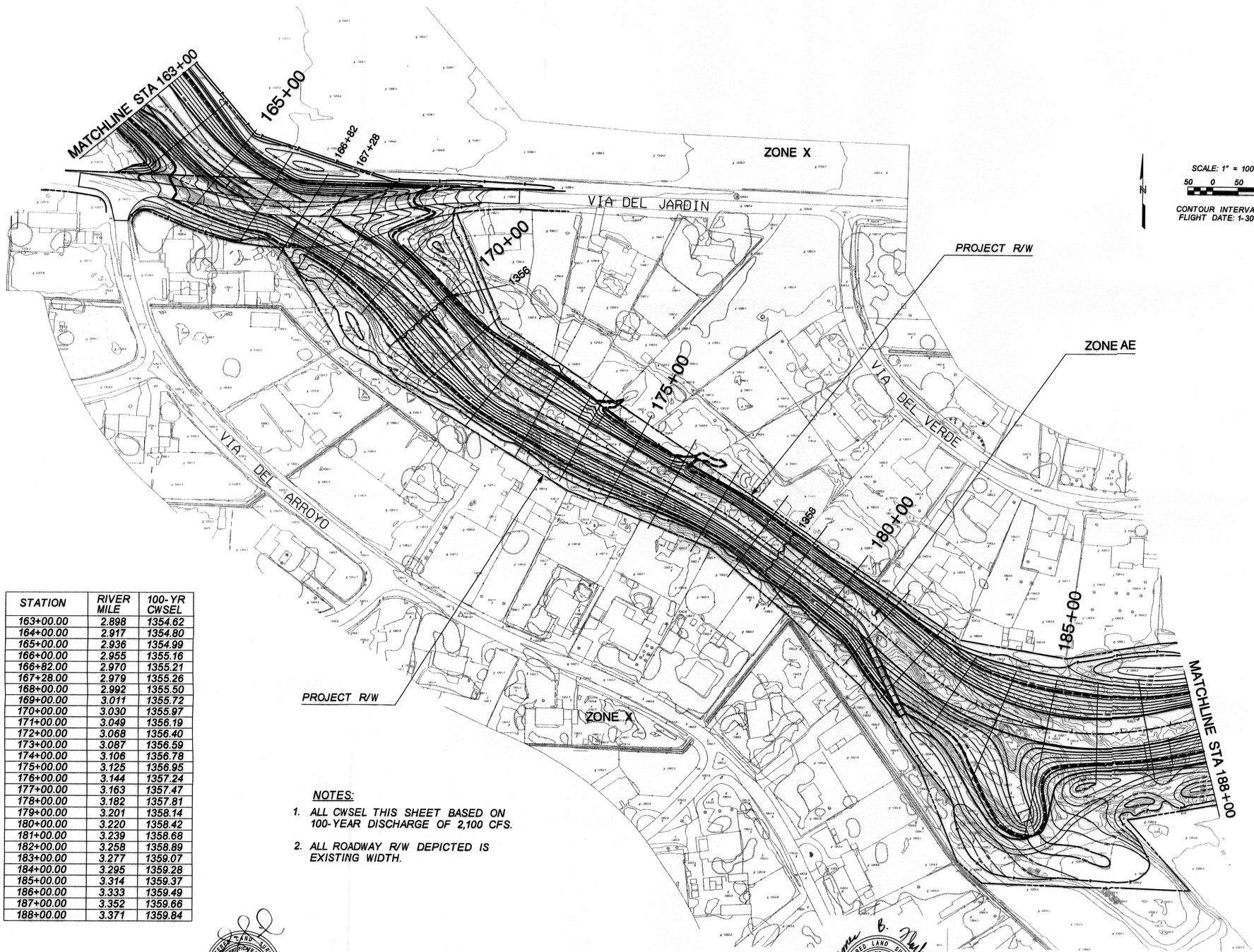
12/14/2005 q:\169955\cadd\dgn\channel\clomrexhibit6.dgn

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH
THE TOWN OF GILBERT AND
THE TOWN OF QUEEN CREEK

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS RD
FCD CONSTRUCTION CONTRACT 2004C074

CLOMR



STATION	RIVER MILE	100-YR CWSEL
163+00.00	2.898	1354.62
164+00.00	2.917	1354.80
165+00.00	2.936	1354.99
166+00.00	2.955	1355.16
166+82.00	2.970	1355.21
167+28.00	2.979	1355.26
168+00.00	2.992	1355.50
169+00.00	3.011	1355.72
170+00.00	3.030	1355.97
171+00.00	3.049	1356.19
172+00.00	3.068	1356.40
173+00.00	3.087	1356.59
174+00.00	3.106	1356.78
175+00.00	3.125	1356.95
176+00.00	3.144	1357.24
177+00.00	3.163	1357.47
178+00.00	3.182	1357.81
179+00.00	3.201	1358.14
180+00.00	3.220	1358.42
181+00.00	3.239	1358.68
182+00.00	3.258	1358.89
183+00.00	3.277	1359.07
184+00.00	3.295	1359.28
185+00.00	3.314	1359.37
186+00.00	3.333	1359.49
187+00.00	3.352	1359.66
188+00.00	3.371	1359.84

NOTES:

1. ALL CWSEL THIS SHEET BASED ON 100-YEAR DISCHARGE OF 2,100 CFS.
2. ALL ROADWAY R/W DEPICTED IS EXISTING WIDTH.

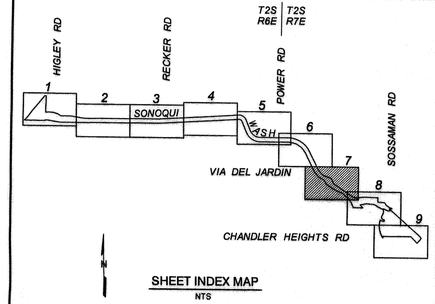
LEGEND

POST PROJECT 100-YR FLOODPLAIN BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER STATIONING	25+00 30+00
CROSS SECTION	
ELEVATION REFERENCE MARK	RM 001
BASE FLOOD ELEVATION	1350
FLOOD INSURANCE ZONE	ZONE AE
SECTION CORNER	15 14 22 23

ELEVATION REFERENCE MARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 001	1354.4703	BCHH AT CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC AT CORNER OF SOSSAMAN RD & CHANDLER HEIGHTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD



SHEET INDEX MAP
NTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

TOWN OF QUEEN CREEK

TOWN OF GILBERT

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
CLOMR

	BY	DATE
DESIGNED	NDV	10/05
DRAWN	LRj	10/05
CHECKED	GSB	10/05

Registered Professional Engineer (Civil) CERTIFICATE NO. 26837 G. SCOTT BUCHANAN Date Signed 12-12-05 ARIZONA, U.S.A.

Stanley Consultants INC. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com (602) 912-6500

REGISTERED LAND SURVEYOR CERTIFICATE NO. 29889 KIMBALL R. SIEGFRIED Date Signed 12-12-05 ARIZONA, U.S.A.

REGISTERED LAND SURVEYOR CERTIFICATE NO. 35694 JAMES B. FLACK Date Signed 12-12-05 ARIZONA, U.S.A.

COOPER AERIAL SURVEY CO.

I, KIMBALL R.SIEGFRIED, ARIZONA REGISTERED LAND SURVEYOR #29889 CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR 1 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=40'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY STANLEY CONSULTANTS.

STANLEY CONSULTANTS

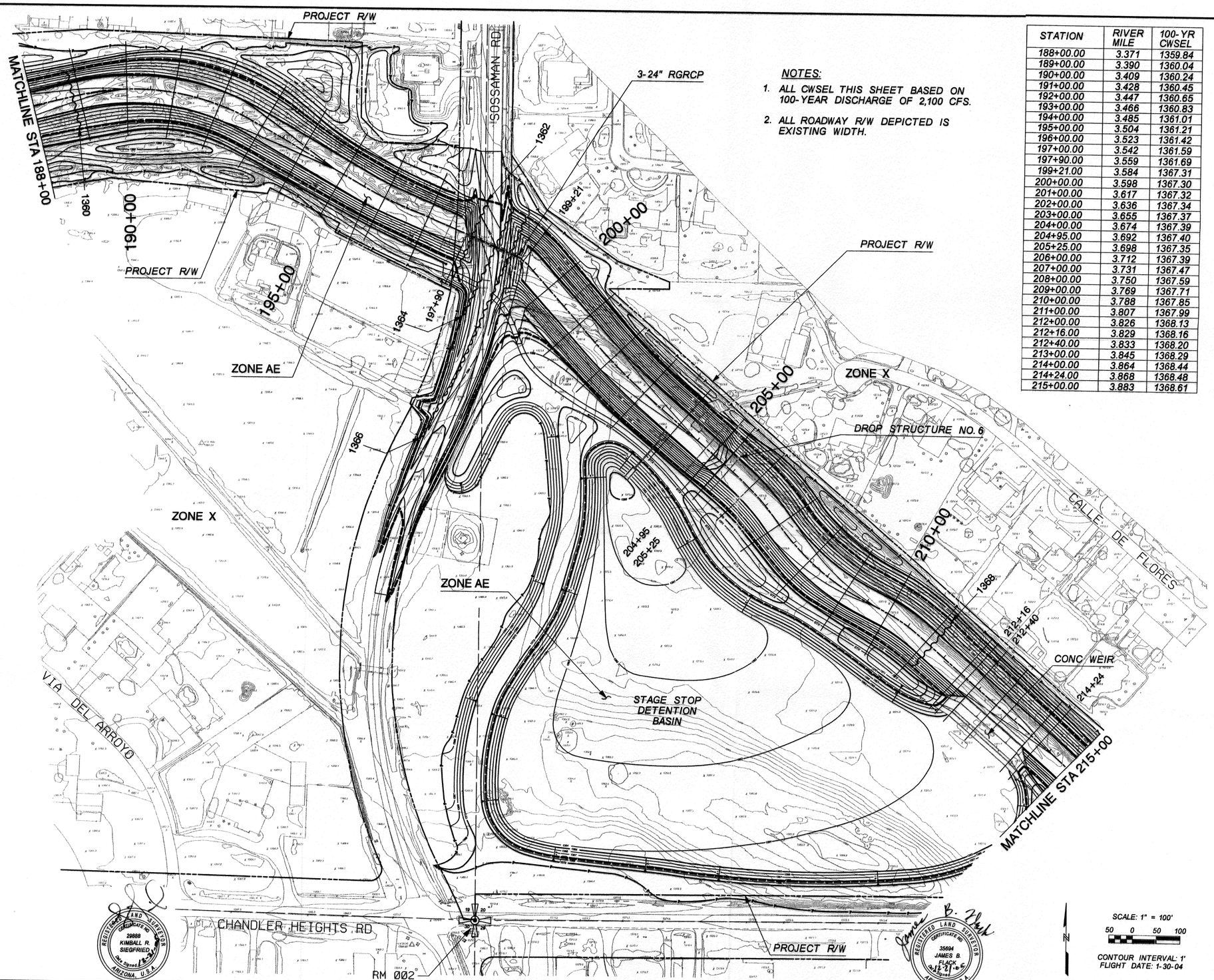
I, JAMES B.FLACK, ARIZONA REGISTERED LAND SURVEYOR #35694 CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS PROJECT IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

EXHIBIT A

SONOQUI WASH CHANNELIZATION CLOMR

SHEET 7 OF 9

12/14/2005 q:\16985\cadd\dgn\channel\clomrexhibit7.dgn



NOTES:

1. ALL CWSEL THIS SHEET BASED ON 100-YEAR DISCHARGE OF 2,100 CFS.
2. ALL ROADWAY R/W DEPICTED IS EXISTING WIDTH.

STATION	RIVER MILE	100-YR CWSEL
188+00.00	3.371	1359.84
189+00.00	3.390	1360.04
190+00.00	3.409	1360.24
191+00.00	3.428	1360.45
192+00.00	3.447	1360.65
193+00.00	3.466	1360.83
194+00.00	3.485	1361.01
195+00.00	3.504	1361.21
196+00.00	3.523	1361.42
197+00.00	3.542	1361.59
197+90.00	3.559	1361.69
199+21.00	3.584	1367.31
200+00.00	3.598	1367.30
201+00.00	3.617	1367.32
202+00.00	3.636	1367.34
203+00.00	3.655	1367.37
204+00.00	3.674	1367.39
204+95.00	3.692	1367.40
205+25.00	3.698	1367.35
206+00.00	3.712	1367.39
207+00.00	3.731	1367.47
208+00.00	3.750	1367.59
209+00.00	3.769	1367.71
210+00.00	3.788	1367.85
211+00.00	3.807	1367.99
212+00.00	3.826	1368.13
212+16.00	3.829	1368.16
212+40.00	3.833	1368.20
213+00.00	3.845	1368.29
214+00.00	3.864	1368.44
214+24.00	3.868	1368.48
215+00.00	3.883	1368.61

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH
THE TOWN OF GILBERT AND
THE TOWN OF QUEEN CREEK

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS RD
FCD CONSTRUCTION CONTRACT 2004C074

CLOMR

LEGEND

POST PROJECT 100-YR FLOODPLAIN BOUNDARY

HYDRAULIC BASE LINE WITH RIVER STATIONING — 25+00, 30+00

CROSS SECTION

ELEVATION REFERENCE MARK — RM 001

BASE FLOOD ELEVATION — 1350

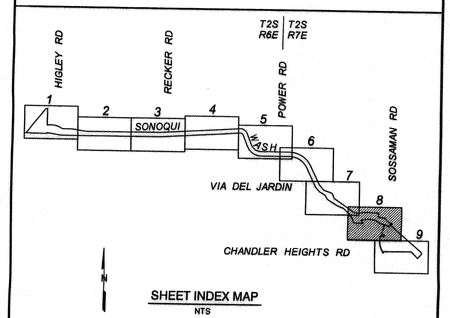
FLOOD INSURANCE ZONE — ZONE AE

SECTION CORNER — 15 14 22 23

ELEVATION REFERENCE MARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 001	1354.4703	BCHH AT CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC AT CORNER OF SOSSAMAN RD & CHANDLER HEIGHTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD



SHEET INDEX MAP
NTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

TOWN OF QUEEN CREEK — TOWN OF GILBERT

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
CLOMR

	BY	DATE
DESIGNED	NDV	10/05
DRAWN	LRj	10/05
CHECKED	GSB	10/05

Registered Professional Engineer (Civil) 26837 G. SCOTT BUCHANAN Date Signed 12-14-05 ARIZONA, U.S.A.

Stanley Consultants INC. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com (602) 912-6500

SCALE: 1" = 100'
50 0 50 100
CONTOUR INTERVAL: 1'
FLIGHT DATE: 1-30-04

Registered Land Surveyor Certificate No. 29888 KIMBALL R. SIEGFRIED Date Signed 12-14-05 ARIZONA, U.S.A.

Registered Land Surveyor Certificate No. 35694 JAMES B. FLACK Date Signed 12-21-05 ARIZONA, U.S.A.

COOPER AERIAL SURVEY CO.

I, KIMBALL R.SIEGFRIED, ARIZONA REGISTERED LAND SURVEYOR #29888 CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR 1 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=40'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY STANLEY CONSULTANTS.

STANLEY CONSULTANTS

I, JAMES B.FLACK, ARIZONA REGISTERED LAND SURVEYOR #35694 CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS PROJECT IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

EXHIBIT A — SONOQUI WASH CHANNELIZATION CLOMR — SHEET 8 OF 9

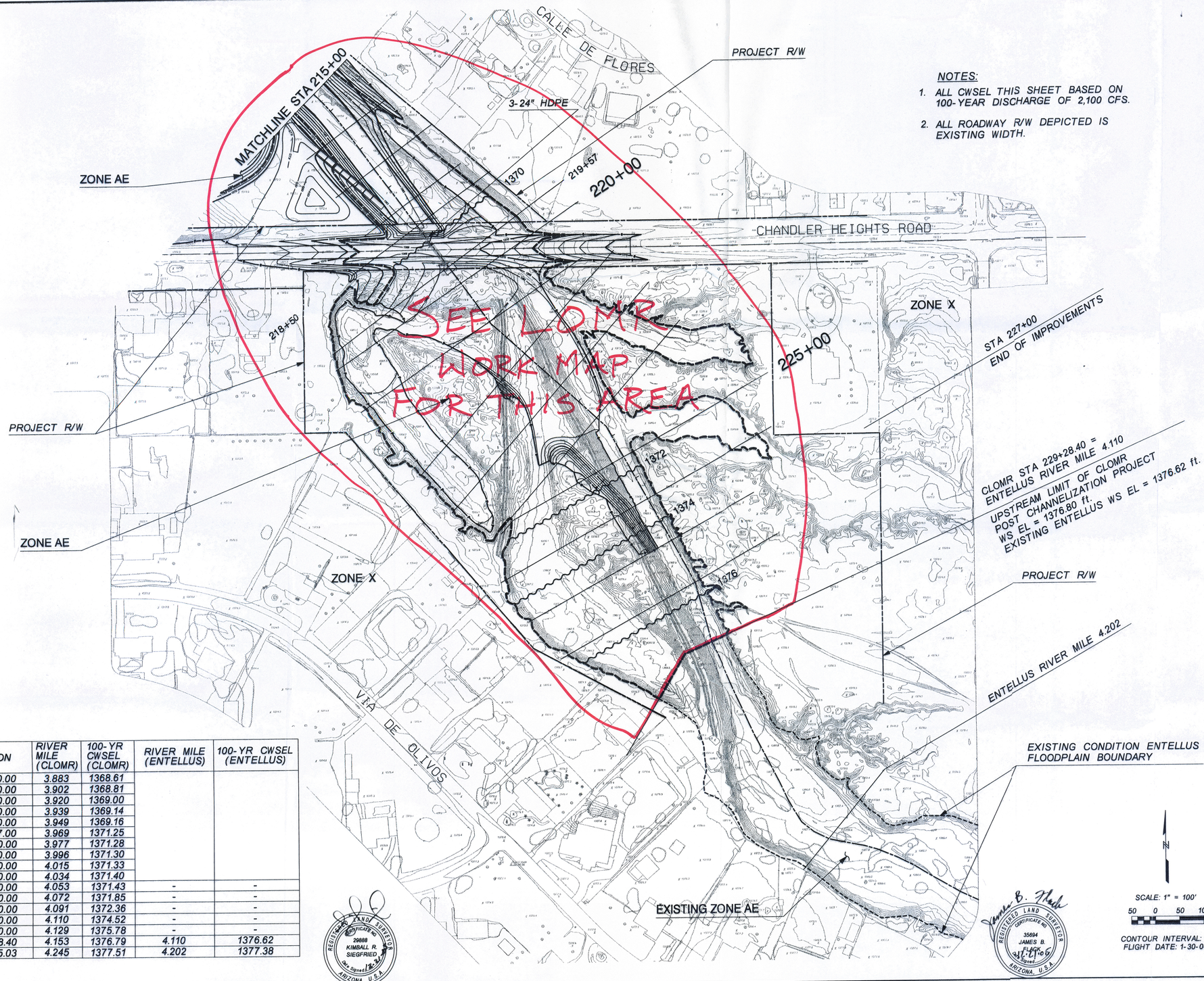
12/14/2005 q:\16955\cadd\dgn\channel\clomr\exhibit8.dgn

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH
THE TOWN OF GILBERT AND
THE TOWN OF QUEEN CREEK

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS RD
FCD CONSTRUCTION CONTRACT 2004C074

CLOMR



NOTES:

1. ALL CWSEL THIS SHEET BASED ON 100-YEAR DISCHARGE OF 2,100 CFS.
2. ALL ROADWAY R/W DEPICTED IS EXISTING WIDTH.

STATION	RIVER MILE (CLOMR)	100-YR CWSEL (CLOMR)	RIVER MILE (ENTELLUS)	100-YR CWSEL (ENTELLUS)
215+00.00	3.883	1368.61		
216+00.00	3.902	1368.81		
217+00.00	3.920	1369.00		
218+00.00	3.939	1369.14		
218+50.00	3.949	1369.16		
219+57.00	3.969	1371.25		
220+00.00	3.977	1371.28		
221+00.00	3.996	1371.30		
222+00.00	4.015	1371.33		
223+00.00	4.034	1371.40		
224+00.00	4.053	1371.43	-	-
225+00.00	4.072	1371.85	-	-
226+00.00	4.091	1372.36	-	-
227+00.00	4.110	1374.52	-	-
228+00.00	4.129	1375.78	-	-
229+28.40	4.153	1376.79	4.110	1376.62
234+15.03	4.245	1377.51	4.202	1377.38

REGISTERED LAND SURVEYOR CERTIFICATE NO. 29888 KIMBALL R. SIEGFRIED Date Signed 12-8-05 ARIZONA, U.S.A.

REGISTERED LAND SURVEYOR CERTIFICATE NO. 35694 JAMES B. FLACK Date Signed 12-7-05 ARIZONA, U.S.A.

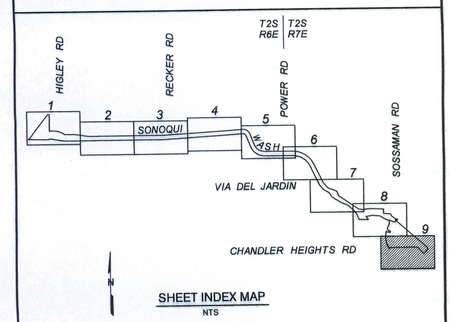
LEGEND

POST PROJECT 100-YR FLOODPLAIN BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER STATIONING	25+00 30+00
CROSS SECTION	
ELEVATION REFERENCE MARK	RM 001
BASE FLOOD ELEVATION	1350
FLOOD INSURANCE ZONE	ZONE AE
SECTION CORNER	15 14 22 23

ELEVATION REFERENCE MARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 001	1354.4703	BCHH AT CORNER OF OCOTILLO RD & POWER RD
RM 002	1370.6092	BC AT CORNER OF SOSSAMAN RD & CHANDLER HEIGHTS RD
RM 003	1328.2496	FD BC HIGLEY RD 1/2 MI NORTH OF OCOTILLO RD



SHEET INDEX MAP
NTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

TOWN OF QUEEN CREEK

TOWN OF GILBERT

SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
CLOMR

	BY	DATE
DESIGNED	NDV	10/05
DRAWN	LRj	10/05
CHECKED	GSB	10/05

Registered Professional Engineer (Civil) 26837 G. SCOTT BUCHANAN Date Signed 12-9-05 ARIZONA, U.S.A.

Stanley Consultants INC. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com (602) 912-6500

COOPER AERIAL SURVEY CO.

I, KIMBALL R.SIEGFRIED, ARIZONA REGISTERED LAND SURVEYOR #29888 CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR 1 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=40'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY STANLEY CONSULTANTS.

STANLEY CONSULTANTS

I, JAMES B.FLACK, ARIZONA REGISTERED LAND SURVEYOR #35694 CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS PROJECT IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

EXHIBIT A | SONOQUI WASH CHANNELIZATION CLOMR | SHEET 9 OF 9

12/20/2005 Q:\16955\CADD\DGN\channel\CLOMRexhibit9.dgn

Catherine Regester - FCDX

From: Catherine Regester - FCDX

Sent: Monday, November 17, 2008 3:55 PM

To: Kishore Sirvole

Subject: RE: FEMA Case Number 08-09-1488P (Sonoqui Wash Channelization), REVISION Request - Town of Gilbert,Town of Queen Creek, Maricopa County, AZ

Kishore,

Thank you for checking on the CD and getting back to me so quickly. Please do not hesitate to contact me if you have any questions.

Thank you again,
Cathy

From: Kishore Sirvole [mailto:KishoreSirvole@mapmodteam.com]
Sent: Monday, November 17, 2008 3:20 PM
To: Catherine Regester - FCDX
Subject: RE: FEMA Case Number 08-09-1488P (Sonoqui Wash Channelization), REVISION Request - Town of Gilbert,Town of Queen Creek, Maricopa County, AZ

Hi Cathy,

Yes, we received the CD you sent. Sorry for not communicating earlier. We are still processing this case and will contact you if anymore information is needed.

Thank you
Kishore

From: Catherine Regester - FCDX [mailto:cwr@mail.maricopa.gov]
Sent: Monday, November 17, 2008 11:47 AM
To: Kishore Sirvole
Subject: FEMA Case Number 08-09-1488P (Sonoqui Wash Channelization), REVISION Request - Town of Gilbert,Town of Queen Creek, Maricopa County, AZ

Hi, Kishore,

I'm just checking to see if you received the CD with the digital files you requested for the subject LOMR. The CD was sent to Mounir Boudjemaa in your Alexandria office. Per FedEx records, it was delivered on October 23. As of this time, I have not received an acknowledgement of receipt from FEMA. I'm sorry to bother you about this but I'm starting to get concerned. If you could please let me know.

Thank you for your time,

Cathy

Catherine W. Regester, P.E., CFM
Flood Control District of Maricopa County
Engineering Division, Hydrology/Hydraulics Branch
2801 West Durango Street

Phoenix, AZ 85009
Phone: (602) 506-4001
Fax: (602) 506-4601
cwr@mail.maricopa.gov

Catherine Regester - FCDX

From: Catherine Regester - FCDX
Sent: Wednesday, September 24, 2008 4:00 PM
To: 'Kishore Sirvole'
Subject: LOMR Case Number 08-09-1488P, Town of Gilbert,Town of Queen Creek, Maricopa County, AZ

Kishore,

Thank you for your phone call today. We are preparing the delineation file in the Arizona State Plane coordinate system, as you requested. We should have that file to you early next week.

If you need any additional information, please do not hesitate to contact me. Thank you,

Cathy

Catherine W. Regester, P.E., CFM
Flood Control District of Maricopa County
Engineering Division, Hydrology/Hydraulics Branch
2801 West Durango Street
Phoenix, AZ 85009
Phone: (602) 506-4001
Fax: (602) 506-4601
cwr@mail.maricopa.gov

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

September 24, 2008

Ms. Catherine W. Regester, P.E., CFM
Maricopa County Flood Control District
2801 West Durango Street
Phoenix, AZ 85009

IN REPLY REFER TO:
Case No.: 08-09-1488P
Communities: Town of Gilbert,
Town of Queen Creek, and
Maricopa County, AZ
Community Nos.: 040044, 040132, and 040037

316-AD

Dear Ms. Regester:

This is in regard to your request received on July 21, 2008, that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a revision to the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	Sonoqui Wash Channelization
Flooding Source:	Sonoqui Wash
FIRM Panel(s) Affected:	04013C2690 H, 2695 H, 3060 H, and 3075 H

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

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register,* is enclosed for your information.

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

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please contact your case reviewer, Mr. Kishore Sirvole,

by e-mail at kishore.sirvole@mapmodteam.com or by telephone at (703) 960-8800, extension 5201, or the Revisions Coordinator for your State, Mounir Boudjemaa, M.S., by email at mounir.boudjemaa@mapmodteam.com or by phone at (703) 317-6295.

Sincerely,

Syed Qayum

Syed Qayum, CFM
National LOMR Technical Manager
Michael Baker Jr., Inc.

Enclosures

cc: Mr. Lonnie K. Frost
Director
Public Works Department
Town of Gilbert

Mr. Richard L. Schaner, P.E.
Director
Public Works Department
Town of Queen Creek

Mr. Tim Phillips, P.E.
Maricopa County Flood Control District

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

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

Case No.: 08-09-1488P

Requester: Ms. Catherine W. Regester, P.E., CFM

Communities: Town of Gilbert, Town of Queen Creek, and Maricopa County, AZ

Community Nos.: 040044, 040132 and 040037

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

The submitted topographic work map, entitled "Sonoqui Wash Channelization: Queen Creek Wash to Chandler Heights Road CLOMR," prepared by your district, dated May 3, 2006, was submitted in hard copy format only. Please provide digital CAD or GIS data for the above–referenced topographic work map. Please ensure the digital data are spatially referenced and cite what projection coordinate system (example: UTM/State Plane) was used, so that the data may be used for accurate mapping.

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

3601 Eisenhower Avenue, Alexandria, VA 22304-6425 PH:1-877-FEMA MAP FX: 703.960.9125

Federal Emergency Management Agency

Washington, D.C. 20472

FEE SCHEDULE FOR PROCESSING REQUESTS FOR MAP CHANGES

This notice contains the fee schedule for processing certain types of requests for changes to National Flood Insurance Program (NFIP) maps. The fee schedule allows FEMA to further reduce the expenses to the NFIP by more fully recovering the costs associated with processing conditional and final map change requests. The fee schedule for map changes is effective for all requests dated October 1, 2007, or later and supersedes the fee schedule that was established on October 30, 2005.

To develop the fee schedule for conditional and final map change requests, FEMA evaluated the actual costs of reviewing and processing requests for Conditional Letters of Map Amendment (CLOMAs), Conditional Letters of Map Revision – Based on Fill (CLOMR-Fs), Conditional Letters of Map Revision (CLOMRs), Letters of Map Revision – Based on Fill (LOMR-Fs), and Letters of Map Revision (LOMRs).

Based on our review of actual cost data for Fiscal Years 2005 and 2006, FEMA has maintained the following review and processing fees, which are to be submitted with all requests that are not otherwise exempted under 44 CFR 72.5.

Fee Schedule for Requests for CLOMAs, CLOMR-Fs, and LOMR-Fs

Request for single-lot/single-structure CLOMA and CLOMR-F	$500
Request for single-lot/single structure LOMR-F	$425
Request for single-lot/single-structure LOMR-F based on as-built information (CLOMR-F previously issued by FEMA)	$325
Request for multiple-lot/multiple-structure CLOMA	$700
Request for multiple-lot/multiple-structure CLOMR-F and LOMR-F	$800
Request for multiple-lot/multiple-structure LOMR-F based on as-built information (CLOMR-F previously issued by FEMA)	$700

Based on our review of actual cost data for Fiscal Years 2005 and 2006, FEMA has established the following review and processing fees, which are to be submitted with all requests that are not otherwise exempted.

Fee Schedule for Requests for CLOMRs

Request based on new hydrology, bridge, culvert, channel, or combination of any of these	$4,400
Request based on levee, berm, or other structural measure	$5,500

Fee Schedule for Requests for Map Revisions

Requesters must submit the review and processing fees shown below with requests for LOMRs that are not based on structural measures or alluvial fans.

Request based on bridge, culvert, channel, or combination of these	$4,800
Request based on levee, berm, or other structural measure	$6,500
Request based on as-built information submitted as follow-up to CLOMR	$4,800

Fees for CLOMRs, LOMRs, and PMRs Based on Structural Measures on Alluvial Fans

FEMA has maintained the initial fee for requests for CLOMRs and LOMRs based on structural measures on alluvial fans to $5,600. FEMA will also continue to recover the remainder of the review and processing costs by invoicing the requester before issuing a determination letter, consistent with current practice. The prevailing private-sector labor rate charged to FEMA ($60 per hour) will be used to calculate the total reimbursable fees.

Payment Submission Requirements

Requesters must make fee payments for non-exempt requests before we render services. This payment must be in the form of a check or money order or by credit card payment. Please make all checks and money orders in U.S. funds payable to the *National Flood Insurance Program.* FEMA will deposit all fees collected to the National Flood Insurance Fund, which is the source of funding for providing these services.

Flood Control District
of Maricopa County

www.fcd.maricopa.gov
2801 West Durango Street
Phoenix, Arizona 85009
Phone: 602-506-1501
Fax: 602-506-4601
TT: 602-505-5897

Board of Directors
Fulton Brock, District 1
Don Stapley, District 2
Andrew Kunasek, District 3
Max Wilson, District 4
Mary Rose Wilcox, District 5

October 22, 2008

Michael Baker, Jr. Inc.
3601 Eisenhower Avenue, # 600
Alexandria, VA 22304-6425

ATTN: Mounir Boudjemaa

RE: Sonoqui Wash Channelization, Queen Creek to Chandler Heights Road
Request for a Letter of Map Revision (LOMR)
FEMA Case No. 08-09-1488P

Dear Mr. Boudjemaa:

In response to FEMA's letter of September 24, 2008 regarding a request for additional information, please find enclosed a CD containing the following Microstation files:

- FEMAfloodplainexhibit-GRID.dgn: File containing LOMR floodplain delineation boundary, HEC-RAS cross section locations, and channel stationing.
- OV-2DNEWFeet.dgn: File containing topographic and planimetric data for Sonoqui Wash Channelization Project.

Both files are provided on the **Arizona State Plane Coordinate System**.

If you have any questions or require additional information, please feel free to call me at 602-506-4001 or contact me by e-mail at cwr@mail.maricopa.gov.

Yours truly,

Catherine W. Regester

Catherine W. Regester, P.E., CFM
Senior Engineer

Enclosure: 1 CD

Catherine Regester - FCDX

From: Catherine Regester - FCDX
Sent: Wednesday, July 30, 2008 1:12 PM
To: 'Kishore Sirvole'
Cc: Tim Phillips - FCDX; lonnief@ci.gilbert.az.us; dschaner@queencreek.org
Subject: RE: REVISION Request Received – Town of Gilbert,Town of Queen Creek, Maricopa County, AZ (Case Number 08-09-1488P) – Response Required

Thank you for your e-mail, Kishore. If you have any questions on the submittal, please do not hesitate to contact me.

Cathy Regester

Catherine W. Regester, P.E., CFM
Flood Control District of Maricopa County
Engineering Division, Hydrology/Hydraulics Branch
2801 West Durango Street
Phoenix, AZ 85009
Phone: (602) 506-4001
Fax: (602) 506-4601
cwr@mail.maricopa.gov

From: Kishore Sirvole [mailto:KishoreSirvole@mapmodteam.com]
Sent: Wednesday, July 30, 2008 12:16 PM
To: Catherine Regester - FCDX
Cc: Tim Phillips - FCDX; lonnief@ci.gilbert.az.us; dschaner@queencreek.org
Subject: REVISION Request Received – Town of Gilbert,Town of Queen Creek, Maricopa County, AZ (Case Number 08-09-1488P) – Response Required

Dear Ms. Regester:

We have received your request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a revision to the flood hazard information on the applicable National Flood Insurance Program (NFIP) map for Town of Gilbert, Town of Queen Creek, Maricopa County, AZ. This e-mail is being sent to officially acknowledge the receipt of your request and replaces the paper copy acknowledgement letters previously issued by FEMA. We ask that you please respond directly to this e-mail to verify that it has been received.

The case number assigned to your request is 08-09-1488P, and the project identifier is Sonoqui Wash Channelization.

We are reviewing your submitted data and will contact you if additional information is required to process your request.

If additional information is not required, we will issue a final letter of determination within 90 days of receiving your request.

If you have general questions about your request, FEMA policy, or the NFIP, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, the case reviewer's contact information is listed below, or please contact the Revisions Coordinator for your State, Mounir Boudjemaa, M.S., at Mounir.Boudjemaa@mapmodteam.com or at (703) 317-6295.

Please be assured we will do our best to respond to all inquiries in a timely manner.

Thank you,

Kishore Sirvole
FEMA Map Mod Team
3601 Eisenhower Ave,
Alexandria, VA 22304
703 960 8800 Ex: 5201
kishore.sirvole@mapmodteam.com

Confidentiality Notice: This e-mail transmission may contain confidential or legally privileged information that is intended only for the individual or entity named in the e-mail address. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or reliance upon the contents of this e-mail is strictly prohibited.

If you have received this e-mail transmission in error, please reply to the sender, so that we can arrange for proper delivery, and then please delete the message from your inbox. Thank you.

FLOOD CONTROL DISTRICT of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399
(602) 506-1501
FAX: (602) 506-4601
TT: (602) 506-5897

LETTER OF TRANSMITTAL

TO: Lonnie Frost
Town of Gilbert
90 E Civic Center Dr
Gilbert, AZ 85296

July 1, 2008

SUBJECT: **Sonoqui Wash Channelization LOMR**
Submittal to FEMA

WE ARE SENDING YOU THE FOLLOWING ITEMS: ☒ Enclosed ☐ Under separate cover

☐ Shop Drawings ☐ Prints ☐ Legal Description ☐ Samples ☒ Reports
☐ Specification ☐ Change Order ☐ Copy of Letter ☐ Plans ☐ Other

COPIES	DATE	NO.	DESCRIPTION
1	July 1, 2008		*Sonoqui Wash Channelization, Queen Creek to Chandler Heights Road, Letter of Map Revision, LOMR,* Technical Data Notebook for submittal to FEMA

THESE ARE TRANSMITTED:

☐ For approval
☒ For your records
☐ As requested
☐ Resubmit copies for approval
☐ Submit copies for distribution
☐ FOR ESTIMATE DUE:

☐ Approved as submitted
☐ Approved as noted
☐ Returned for corrections
☐ For review and comments
☐ Return corrected prints
☐ Borrowed prints being returned

Remarks:

SIGNED: Catherine W. Regester
Catherine W. Regester, P.E., CFM

Flood Control District
of Maricopa County

INTEROFFICE MEMORANDUM

Date: July 1, 2008

To: Tim Phillips, P.E, Chief Engineer & General Manager

From: Raju Shah, P.E.
Project Manager

Subject: Sonoqui Wash Channelization, Phase I, LOMR Package

PCN 480.04.31

The Sonoqui Wash Channelization project is completed. The District "In-house" staff has completed the Letter of Map Revision (LOMR) package to be submitted to Federal Emergency Management Agency (FEMA).

The revised floodplain will remove approximately 800 acres of land and 200 properties out of the floodplain. Please provide your signature on attached community form so we can submit the package to FEMA.

Let me know if you have any questions.

Thanks.

July 15, 2008

Michael Baker, Jr. Inc.
3601 Eisenhower Avenue, #600
Alexandria, VA 22304-6425

ATTN: Mounir Boudjemaa

RE: Sonoqui Wash Channelization, Queen Creek to Chandler Heights Road to Letter of Map Revision (LOMR)

Dear Mr. Boudjemaa:

Please find enclosed a LOMR request for the subject wash from Higley Road to just upstream of Chandler Heights Road. The project addresses the flooding identified in the *Sonoqui Wash Floodplain Delineation Study* (FEMA Case No. 04-09-1717P). CLOMRs for the project were previously issued under FEMA case numbers 06-09-B379R and 07-09-0729R. The following items are included in this submittal:

- *Sonoqui Wash Channelization, Queen Creek to Chandler Heights Road, Letter of Map Revision (LOMR)*, Notebook, dated July 2008. (Note: The FEMA forms, annotated FIRM panels, project narrative, and hydraulic models (in digital format on CD and hard copy print-outs) are included in the notebook.)
- *Sonoqui Wash Channelization, Queen Creek Wash to Chandler Heights Road*, as-built construction drawings, dated April 2008, full size plan set, sheets 1 – 147 of 147.
- *Chandler Heights Road Bridge at Sonoqui Wash*, as-built constructions drawings, dated April 2008, full size plan sheets 1, 2, 6, 7, 8, 23, 24, 25, 29, 30, 31, and 36. Complete plan set in PDF format on CD in the notebook.
- *Higley Road Bridge*, as-built constructions drawings, dated July 2007, full size plan set, sheets 1 – 47 of 47.
- Check for $4,800 to cover FEMA's required fees for the processing of the LOMR.

The channelization project was a joint project between the Towns of Gilbert and Queen Creek and the Flood Control District of Maricopa County. If you have any questions or require additional information, please feel free to call me at 602-506-4001 or contact me by e-mail at cwr@mail.maricopa.gov.

Yours truly,

Catherine W. Regester, P.E., CFM
Senior Engineer

Enclosures: Listed above

Copies to (w/o enclosures):

Max Yuan, P.E., Project Engineer
Mitigation Division
Federal Emergency Management Agency
500 C Street SW
Washington, D.C. 20472-0001

Ray Lenaburg
Department of Homeland Security, FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA 94607

Brian Cosson
NFIP State Coordinator
Arizona Department of Water Resources
Office of Dam Safety and Flood Mitigation
3550 N. Central Avenue
Phoenix, AZ 85012

Lonnie Frost
Town of Gilbert
525 North Lindsay Road
Gilbert, AZ 85234

Dick Schaner, P.E.
Town of Queen Creek
22350 S Ellsworth Road
Queen Creek, AZ 85242

G. Scott Buchanan
Stanley Consultants
1661 East Camelback Road, Suite 400
Phoenix, AZ 85016

Sonoqui Wash Channelization
Queen Creek to Chandler Heights Road

Letter of Map Revision
(LOMR)

Prepared by:
Flood Control District of Maricopa County
2801 W Durango Street
Phoenix, Arizona 85009

Registered Professional Engineer (Civil)
CERTIFICATE NO.
37883
CATHERINE WEDIG
REGESTER
Date Signed 7/1/08
ARIZONA, U.S.A.
Catherine Wedig
EXPIRES 9/30/08

July 2008

Sonoqui Wash Channelization
Queen Creek to Chandler Heights Road

Letter of Map Revision
(LOMR)

1.0 INTRODUCTION

This request for a Letter of Map Revision (LOMR) combines two (2) projects previously submitted to and approved by FEMA as Conditional Letters of Map Revision (CLOMRs); FEMA case numbers 06-09-B379R (dated May 26, 2006) and 07-09-0729R (dated April 25, 2007). Case number 06-09-B379R was submitted by the Flood Control District of Maricopa County (the District) and the Towns of Gilbert and Queen Creek. The project included channelization of the Sonoqui Wash from the confluence with Queen Creek, west of Higley Road, to just upstream of Chandler Heights Road, a distance of approximately 4.25 miles. Case number 07-09-0729R was submitted by the Maricopa County Department of Transportation (MCDOT) and the Town of Queen Creek and was for the construction of a bridge at Chandler Heights Road over Sonoqui Wash. Both projects were constructed and completed in March 2008.

2.0 CHANGES FROM CLOMR

2.1 Sediment Basin Downstream of Higley Road

Construction of the sediment basin downstream of Higley Road and the construction of the remainder of the Sonoqui Wash Channelization Project were performed by two different contractors. There was some confusion for the basin's contractor regarding the vertical datum and the basin was constructed approximately 2 ft higher than intended. The constructed basin was surveyed and the changes in elevation were incorporated into the as-built HEC-RAS analysis. (The results of this analysis are included in this report.) The analysis shows a maximum increase in water surface elevation (WSEL) of 2.06 ft. This increase occurs between the upstream edge of the Higley Road Bridge (sta. 21+53) and drop structure #2 (sta. 22+82). It equates to approximately a 16.5 ft increase in the overall width of the floodplain between the bridge and the drop structure. At a scale of 1" = 2000' for the effective FIRM in this area, a 16.5 ft change in floodplain width will not be discernable. Additionally, this increase is contained within the project property. Therefore, a revised delineation is not provided. The backwater impacts of the basin end at drop structure #2.

Downstream of Higley Road, all elevations within the project area, (weir, channel invert, and top of banks) were constructed proportionally. Therefore, in this area, there is no change in the floodplain width from that submitted in the CLOMR. All flooding is contained within the project property.

2.2 Chandler Heights Road

Under the Sonoqui Wash Channelization Project (06-09-B379R), a dip crossing with 3 – 24" HDPE culverts was to be constructed at Chandler Heights Road. Coordination between all agencies allowed for the timely construction of the bridge, as presented in the MCDOT CLOMR (07-09-0729R.), thereby, eliminating the need for the dip crossing presented in the District's plans. The dip crossing has been removed from the as-built HEC-RAS model and MCDOT's bridge and channelization work has been incorporated into the model.

3.0 AS-BUILT HYDRAULIC ANALYSIS

An as-built hydraulic analysis is included in this report. The analysis incorporates the elevation changes at the sediment basin downstream of Higley Road, very minor adjustments to channel invert elevations throughout the project reach based on the as-built plans, and the construction of MCDOT's Chandler Heights Road Bridge.

FEMA Forms

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

OVERVIEW & CONCURRENCE FORM

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

PAPERWORK BURDEN DISCLOSURE NOTICE

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

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

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

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

B. OVERVIEW

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

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301	City of Katy	TX	480301	0005D	02/08/83
480287	Harris County	TX	48201C	0220G	09/28/90
	See Attached				

2. a. Flooding Source: Sonoqui 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: Sonoqui Wash Channelization

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

5. Basis for Request and Type of Revision:

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

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

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

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

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

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $4800

☐ No, Attach Explanation

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

D. SIGNATURE

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

Name: Catherine W. Regester, P.E., CFM	Company: Flood Control District of Maricopa Co.	
Mailing Address: 2801 W Durango St Phoenix, AZ 85009	Daytime Telephone No.: 602-506-4001	Fax No.: 602-506-4601
	E-Mail Address: cwr@mail.maricopa.gov	
Signature of Requester (required): Catherine W. Regester	Date: 7/1/08	

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

Community Official's Name and Title: Timothy S. Phillips, P.E., Chief Engineer & General Manager	Community Name: Maricopa County	
Mailing Address: 2801 W Durango St Phoenix, AZ 85009	Daytime Telephone No.: 602-506-1501	Fax No.: 602-506-4601
	E-Mail Address: tsp@mail.maricopa.gov	
Community Official's Signature (required):	Date: 7/2/08	

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

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

Certifier's Name: Catherine W. Regester, P.E., CFM	License No.: 37883	Expiration Date: 9/30/08
Company Name: Flood Control District of Maricopa Co.	Telephone No.: 602-506-4001	Fax No.: 602-506-4601
Signature: Catherine W. Regester		Date: 7/1/08

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

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

Seal (Optional)

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $4800

☐ No, Attach Explanation

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

D. SIGNATURE

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

Name: Catherine W. Regester, P.E., CFM	Company: Flood Control District of Maricopa Co.	
Mailing Address: 2801 W Durango St Phoenix, AZ 85009	Daytime Telephone No.: 602-506-4001	Fax No.: 602-506-4601
	E-Mail Address: cwr@mail.maricopa.gov	
Signature of Requester (required): Catherine W. Regester	Date: 7/1/08	

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

Community Official's Name and Title: Lonnie Frost, Public Works Director	Community Name: Town of Gilbert	
Mailing Address: 525 North Lindsay Road Gilbert, AZ 85234	Daytime Telephone No.: 480-503-6842	Fax No.: 480-503-6404
	E-Mail Address: lonnief@ci.gilbert.az.us	
Community Official's Signature (required): Lonnie W. Frost	Date: 1 Jul 08	

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

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

Certifier's Name: Catherine W. Regester, P.E., CFM	License No.: 37883	Expiration Date: 9/30/08
Company Name: Flood Control District of Maricopa Co.	Telephone No.: 602-506-4001	Fax No.: 602-506-4601
Signature: Catherine W. Regester		Date: 7/1/08

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

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

Seal (Optional)

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $4800

☐ No, Attach Explanation

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

D. SIGNATURE

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

Name: Catherine W. Regester, P.E., CFM	Company: Flood Control District of Maricopa Co.	
Mailing Address: 2801 W Durango St Phoenix, AZ 85009	Daytime Telephone No.: 602-506-4001	Fax No.: 602-506-4601
	E-Mail Address: cwr@mail.maricopa.gov	
Signature of Requester (required): Catherine W. Regester	Date: 7/1/08	

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

Community Official's Name and Title: Richard L. Schaner, P.E., Public Works Director	Community Name: Town of Queen Creek	
Mailing Address: 22350 S. Ellsworth Road Queen Creek, AZ 85242	Daytime Telephone No.: 480-987-9887	Fax No.: 480-987-3890
	E-Mail Address: dschaner@queencreek.org	
Community Official's Signature (required): Richard L. Schaner	Date: 7-1-08	

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

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

Certifier's Name: Catherine W. Regester, P.E., CFM	License No.: 37883	Expiration Date: 9/30/08
Company Name: Flood Control District of Maricopa Co.	Telephone No.: 602-506-4001	Fax No.: 602-506-4601
Signature: Catherine W. Regester		Date: 7/1/08

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

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

Seal (Optional)

To Be Attached to MT-2 OVERVIEW & CONCURRENCE FORM for Sonoqui Wash Channelization, Queen Creek Wash to Chandler Heights Road

Response to B.1. The NFIP maps panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No	Effective Date
040044 040037	Town of Gilbert Maricopa County	AZ	04013C	3075G	09/30/05
040132 040044 040037	Town of Queen Creek Town of Gilbert Maricopa County	AZ	04013C	3060G	09/30/05
040044 040037 040048	Town of Gilbert Maricopa County City of Mesa	AZ	04013C	2690H	09/30/05
040132 040044 040037 040048	Town of Queen Creek Town of Gilbert Maricopa County City of Mesa	AZ	04013C	2695H	09/30/05

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 3067-0148
Expires September 30, 2005

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3 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, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). 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.**

Flooding Source: Sonoqui Wash
Note: Fill out one form for each flooding source studied

A. HYDROLOGY

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

☒ Not revised (skip to section 2) ☐ No existing analysis ☐ Improved data
☐ Alternative methodology ☐ Proposed Conditions (CLOMR) ☐ Changed physical condition of watershed

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

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

Methodology for New Hydrologic Analysis (check all that apply)

☐ Statistical Analysis of Gage Records ☐ Precipitation/Runoff Model [TR-20, HEC-1, HEC-HMS etc.]
☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters) and documentation to support the new analysis. The document, "Numerical Models Accepted by FEMA for NFIP Usage" lists the models accepted by FEMA. This document can be found at: http://www.fema.gov/fhm/en_modl.shtm.

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

Was sediment transport considered? ☐ 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.

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.) Effective	Proposed/Revised
Downstream Limit	Sta 19+48	Trapezoidal	n/a	131~~1.82~~ 12.79
Upstream Limit	Sta 229+28.40	Trapezoidal	1376.62	1376.~~80~~ 72

4.110 (EFFECTIVE)

2. Hydraulic Method Used

Hydraulic Analysis HEC-RAS [HEC-2 , HEC-RAS, Other (Attach description)]

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

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. These review programs verify that the hydraulic estimates and assumptions in the model data are in accordance with NFIP requirements, and that the data are comparable with the assumptions and limitations of HEC-2/HEC-RAS. CHECK-2 and CHECK-RAS identify areas of potential error or concern. These tools do not replace engineering judgment. CHECK-2 and CHECK-RAS can be downloaded from http://www.fema.gov/fhm/frm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. If you disagree with a message, please attach an explanation of why the message is not valid in this case. Review of your submittal and resolution of valid modeling discrepancies will result in reduced review time.

HEC-2/HEC-RAS models reviewed with CHECK-2/CHECK-RAS? ☒ Yes ☐ No

4. Models Submitted

Duplicate Effective Model*	Natural File Name: see attachment	Floodway File Name: n/a
Corrected Effective Model*	Natural File Name: n/a	Floodway File Name: n/a
Existing or Pre-Project Conditions Model	Natural File Name: see attachment	Floodway File Name: n/a
Revised or Post-Project Conditions Model	Natural File Name: see attachment	Floodway File Name: n/a
Other - (attach description)	Natural File Name: n/a	Floodway File Name: n/a

*Not required for revisions to approximate 1%-annual-chance floodplains (Zone A) – for details, refer to the corresponding section of the instructions.

The document "Numerical Models Accepted by FEMA for NFIP Usage" lists the models accepted by FEMA. This document can be found at: http://www.fema.gov/fhm/en_modl.shtm.

C. MAPPING REQUIREMENTS

A **certified topographic 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.).

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,** annotated 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 of revision.

D. COMMON REGULATORY REQUIREMENTS

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

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.
- The proposed project encroaches upon a SFHA with BFEs established and would result in increases above 1.00 foot.

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 added. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)

4. For LOMR requests, does this request require property owner notification and acceptance of BFE increases? ☐ Yes ☒ No

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

To Be Attached to MT-2 RIVERINE HYDROLOGY & HYDRAULICS FORM for Sonoqui Wash Channelization, Queen Creek Wash to Chandler Heights Road

Response to B.4. Models Submitted:

Duplicate Effective Model	Natural File Name: FINAL_SONOQUIWASH.PRJ and FINAL_SONOQUIWASHSPLIT.PRJ
Corrected Effective Model	Natural File Name: n/a
Existing or Pre-Project Conditions Model	Natural File Name: FINAL_SONOQUIWASH.PRJ and FINAL_SONOQUIWASHSPLIT.PRJ
Revised or Post-Project Conditions Model	Natural File Name: ~~CLOMR.PRJ~~ reCLOMR.PRJ
Other – (attach description) As-Built	Natural File Name: n/a AsBuiltLOMR.PRJ

FINAL_SONOQUIWASH.PRJ and FINAL_SONOQUIWASHSPLIT.PRJ were previously submitted to FEMA by the by Entellus on behalf of the Flood Control District of Maricopa County. Both of these models together serve as the effective and existing conditions models.

No floodways were modeled.

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

O.M.B. No. 3067-0148
Expires September 30, 2005

PAPERWORK REDUCTION ACT

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, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). 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.**

Flooding Source: Sonoqui 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 Structure

1. **Name of Structure: Sonoqui Wash Channelization**

   Type (check one): ☒ Channelization ☐ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: From Chandler Heights Rd to Queen Creek Wash

   Downstream Limit/Cross Section: 19+48

   Upstream Limit/Cross Section: 227+00

2. **Name of Structure: Higley Road Bridge**

   Type (check one): ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Intersection of Higley Road and Sonoqui Wash

   Downstream Limit/Cross Section: Sta 20+27

   Upstream Limit/Cross Section: Sta 21+53

3. **Name of Structure: Chandler Heights Road Culverts**

   Type (check one) ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Intersection of Chandler Heights Rd and Sonoqui Wash

   Downstream Limit/Cross Section: Sta 219+60

   Upstream Limit/Cross Section: Sta 218+55

NOTE: For more structures, attach additional pages as needed.

B. CHANNELIZATION

Flooding Source: Sonoqui Wash

Name of Structure: Sonoqui Wash Channelization

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☒ Debris basin/detention basin
- ☒ Other (Describe): Lateral Diversion Weir
- ☒ Drop structures
- ☐ Transitions in cross sectional geometry
- ☐ Energy dissipator

2. Drawing Checklist

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

3. Hydraulic Considerations

The channel was designed to carry 2100 (cfs) and/or the 100-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):

4. 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.

C. BRIDGE/CULVERT

Flooding Source: Sonoqui Wash

Name of Structure: Higley Road Bridge

1. This revision reflects (check one):

- ☒ New bridge/culvert not modeled in the FIS
- ☐ Modified bridge/culvert previously modeled in the FIS
- ☐ New 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
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)
- ☐ Shape (culverts only)
- ☒ Material
- ☐ Beveling or Rounding
- ☐ Wing Wall Angle
- ☒ Skew Angle
- ☒ Distances Between Cross Sections
- ☒ Erosion Protection
- ☒ Low Chord Elevations – Upstream and Downstream
- ☒ Top of Road Elevations – Upstream and Downstream
- ☒ Structure Invert Elevations – Upstream and Downstream
- ☒ Stream Invert Elevations – Upstream and Downstream
- ☒ Cross-Section Locations

4. 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.

D. DAM

Flooding Source:

Name of Structure:

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

   ☐ Private organization Name of the agency or organization:
3. Does the project involve revised hydrology? ☐ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).
4. 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.
5. Does the Base Flood Elevation behind the dam or downstream of the dam change?

   ☐ Yes ☐ No If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2) and complete the table below.

   Stillwater Elevation Behind the Dam

FREQUENCY (% annual chance)	FIS	REVISED
10-year (10%)		
50-year (2%)		
100-year (1%)		
500-year (0.2%)		
Normal Pool Elevation		

6. 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	☐ Yes	☐ No
3.5 feet or more at the upstream end	☐ Yes	☐ No
4.0 feet within 100 feet upstream of all structures and/or constrictions	☐ Yes	☐ 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).	☐ Yes	☐ No
2.0 feet above the 1%-annual-chance stillwater surge elevation	☐ Yes	☐ No

E. LEVEE/FLOODWALL (CONTINUED)

2. Freeboard (continued)

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 landside is:

b. The maximum levee slope floodside 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)

4. Embankment Protection (continued)

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:

Sta. , depth to

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:

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.

E. LEVEE/FLOODWALL (CONTINUED)

Floodwall And Foundation Stability

a. Describe analysis submittal based on Code (check one):

☐ UBC (1988) or ☐ 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. 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.

f. 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.

E. LEVEE/FLOODWALL (CONTINUED)

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.

11. Maintenance Plan

a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☐ No
If No, please attach supporting documentation.

12. Operations and Maintenance Plan

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

F. SEDIMENT TRANSPORT

Flooding Source: Sonoqui Wash

Name of Structure: Sonoqui Wash Channelization

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 12.14 acre-feet

Debris load associated with the base flood discharge: Volume n/a acre-feet

Sediment transport rate 3.6% (percent concentration by volume)

Method used to estimate sediment transport: Yang's Stream Power

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: HEC-18 Methods, USBR Method, Lacey Equation, and Blench Equation

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.

See attachment

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.

To Be Attached to MT-2 RIVERINE STRUCTURES FORM for Sonoqui Wash Channelization, Queen Creek Wash to Chandler Heights Road

Section A

4. Name of Structure: Sossaman Road Culverts

   Type (check one) Channelization [X]Bridge/Culvert Levee/Floodwall Dam

   Location of Structure: Intersection of Sossaman Road and Sonoqui Wash

   Downstream Limit/Cross Section: Sta 197+90

   Upstream Limit/Cross Section: Sta 199+21

5. Name of Structure: Power Road Culverts

   Type (check one) Channelization [X]Bridge/Culvert Levee/Floodwall Dam

   Location of Structure: Intersection of Power Road and Sonoqui Wash

   Downstream Limit/Cross Section: Sta 133+09

   Upstream Limit/Cross Section: Sta 134+26

6. Name of Structure: Recker Road Culverts

   Type (check one) Channelization [X]Bridge/Culvert Levee/Floodwall Dam

   Location of Structure: Intersection of Recker Road and Sonoqui Wash

   Downstream Limit/Cross Section: Sta 74+34

   Upstream Limit/Cross Section: Sta 75+06

Section B.3 Explanation

Hydraulic jumps potentially form at multiple locations in the Sonoqui Wash Channelization project.

Drop Structures

HEC-RAS analysis shows hydraulic jump formation or potential jump formation in several areas; generally, these areas may be described as near drop structure toes. Analysis for the 1% -annual-chance flow event showed some "drowning" of jumps by backwater so the 10%-annual-chance flow event was also modeled. Results from both events reflect similar jump locations with Froude number magnitudes varying between the events. To prevent channel degradation beyond the anticipated general scour, grouted riprap spillways with dumped riprap aprons have been designed on and below the structures, respectively. Velocity based design procedures following Arizona Department of Transportation Roadway Design Guidelines and the Federal Highway Administration's "Hydraulic Engineering Circular No. 11 – Design of Riprap Revetment". Dumped riprap aprons extend 20 feet beyond the toe of the drop structures and are separated from the grouted riprap by concrete cutoff walls which extend for a depth of 5 feet. Analysis by a subconsultant using methods established by Arizona Department of Transportation research indicate a maximum equilibrium scour depth of 3.4 feet at downstream aprons of the drop structures for the size of dumped riprap selected.

Transitions/Channel Outlet

The channel outlet/confluence intersects Queen Creek Wash. Due to the size of the respective watersheds, coincidence of flow during major events, such as the 1%-annual-chance flow event, is assumed at the confluence and hydraulic jump potential is minimized. For minor events, a dumped riprap apron extends below the weir located at the confluence of the streams and a cutoff wall prevents degradation of the structure's foundation.

Section C. Additional Bridges/Culverts

Flooding Source: Sonoqui Wash

Name of Structure: Chandler Heights Road Culverts

NOT CONSTRUCTED

1. This revision reflects:
   - [x] New bridge/culvert not modeled in the FIS
   - [ ] Modified bridge/culvert previously modeled in the FIS
   - [ ] New analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure: HEC-RAS

3. Attach plans of the structures certified by a registered professional engineer. The plan detail an information should include the following:

[x] Dimensions
[x] Shape (culverts only)
[x] Material
[x] Beveling or Rounding
[x] Wing Wall Angle
[ ] Skew Angle
[x] Distances Between Cross Sections

[x] Erosion Protection
[ ] Low Chord Elevations – Upstream and Downstream
[x] Top of Road Elevations – Upstream and Downstream
[x] Structure Invert Elevations – Upstream and Downstream
[ ] Stream Invert Elevations – Upstream and Downstream
[x] Cross-Section Locations

4. Sediment Transport Considerations

Was Sediment Transport Considered? [X] Yes [ ] No If yes, then fill out Section F (Sediment Transport. If No, then attach your explanation for why sediment transport was not considered.

Section C. Additional Bridges/Culverts (continued)

Flooding Source: Sonoqui Wash

Name of Structure: Sossaman Rd Culverts

1. This revision reflects:
   - [ ] New bridge/culvert not modeled in the FIS
   - [x] Modified bridge/culvert previously modeled in the FIS
   - [ ] New analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure: HEC-RAS

3. Attach plans of the structures certified by a registered professional engineer. The plan detail an information should include the following:

[x] Dimensions
[x] Shape (culverts only)
[x] Material
[x] Beveling or Rounding
[x] Wing Wall Angle
[ ] Skew Angle
[x] Distances Between Cross Sections

[x] Erosion Protection
[ ] Low Chord Elevations – Upstream and Downstream
[x] Top of Road Elevations – Upstream and Downstream
[x] Structure Invert Elevations – Upstream and Downstream
[ ] Stream Invert Elevations – Upstream and Downstream
[x] Cross-Section Locations

4. Sediment Transport Considerations

Was Sediment Transport Considered? [X] Yes [ ] No If yes, then fill out Section F (Sediment Transport. If No, then attach your explanation for why sediment transport was not considered.

Section C. Additional Bridges/Culverts (continued)

Flooding Source: Sonoqui Wash

Name of Structure: Power Rd Culverts

1. This revision reflects:
   [ ] New bridge/culvert not modeled in the FIS
   [x] Modified bridge/culvert previously modeled in the FIS
   [ ] New analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure: HEC-RAS

3. Attach plans of the structures certified by a registered professional engineer. The plan detail an information should include the following:

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

4. Sediment Transport Considerations

Was Sediment Transport Considered? [X] Yes [ ] No If yes, then fill out Section F (Sediment Transport. If No, then attach your explanation for why sediment transport was not considered.

Section C. Additional Bridges/Culverts (continued)

Flooding Source: Sonoqui Wash

Name of Structure: Recker Rd Culverts

1. This revision reflects:
   [x] New bridge/culvert not modeled in the FIS
   [ ] Modified bridge/culvert previously modeled in the FIS
   [ ] New analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure: HEC-RAS

3. Attach plans of the structures certified by a registered professional engineer. The plan detail an information should include the following:

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

4. Sediment Transport Considerations

Was Sediment Transport Considered? [X] Yes [ ] No If yes, then fill out Section F (Sediment Transport. If No, then attach your explanation for why sediment transport was not considered.

B. CHANNELIZATION

Flooding Source:

Name of Structure:

1. Accessory Structures

The channelization includes (check one):

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

2. Drawing Checklist

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

3. 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):

4. 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.

C. BRIDGE/CULVERT

looding Source: SONOQUI WASH

Name of Structure: CHANDLER HEIGHTS ROAD BRIDGE

1. This revision reflects (check one):

- ☒ New bridge/culvert not modeled in the FIS
- ☐ Modified bridge/culvert previously modeled in the FIS
- ☐ New 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
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)
- ☐ Shape (culverts only)
- ☒ Material
- ☐ Beveling or Rounding
- ☐ Wing Wall Angle
- ☒ Skew Angle
- ☒ Distances Between Cross Sections
- ☒ Erosion Protection
- ☒ Low Chord Elevations – Upstream and Downstream
- ☒ Top of Road Elevations – Upstream and Downstream
- ☒ Structure Invert Elevations – Upstream and Downstream
- ☒ Stream Invert Elevations – Upstream and Downstream
- ☒ Cross-Section Locations

4. 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.

Section F. Sediment Transport Addendum

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

As specified, bulked flows were not used to determine BFEs. Due to the low volumetric sediment concentration (3.6%), flow bulking was not considered during analysis. Additionally, the sediment transport rate is an average rate based upon an inflow hydrograph, not the steady-flow conditions considered for the CLOMR delineation.

Available sediment primarily falls within the silt/clay size-fraction and is transported as suspended load; the permissible erosive velocity for these soils has been estimated at 2 ft/s which is below the minimum velocity allowed in culverts. From this, sedimentation at roadway crossings is not anticipated.

The sedimentation basin located at the downstream limit of the project was modeled as sediment filled for the CLOMR analysis based upon high capture efficiencies observed during the sediment transport study. Although technically a future-condition, the BFE is conservatively based upon the "filled" condition.

CLOMRs

Federal Emergency Management Agency

Washington, D.C. 20472

MAY 26 2006

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 06-09-B379R

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

Community: Maricopa County, AZ
Community No.: 040037

104

Dear Mr. Wilson:

This responds to a request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) comment on the effects that a proposed project would have on the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Maricopa County, Arizona and Incorporated Areas, in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated February 8, 2006, Ms. Catherine W. Regester, P.E., CFM, Senior Engineer, Flood Control District of Maricopa County, requested that FEMA evaluate the effects that a new hydraulic analysis and proposed project along Sonoqui Wash from just upstream of Higley Road to approximately 1,000 feet upstream of Chandler Heights Road would have on the flood hazard information shown on the effective FIRM and FIS report. The proposed project will consist of channelization from approximately 1,000 feet downstream of Higley Road to just downstream of Chandler Heights Road and construction of four 10-foot by 5-foot concrete box culverts at Recker Road; three 2-foot-diameter concrete pipe culverts at Power Road, Sossaman Road, and Chandler Heights Road; a bridge at Higley Road; and a detention basin just downstream of Chandler Heights Road.

All data required to complete our review of this request for a Conditional Letter of Map Revision (CLOMR) were submitted with letters from Ms. Regester.

Because this revision request also affects the Towns of Gilbert and Queen Creek, separate CLOMRs for those communities were issued on the same date as this CLOMR.

We reviewed the submitted data and the data used to prepare the effective FIRM for your community and determined that the proposed project meets the minimum floodplain management criteria of the NFIP. We believe that, if the proposed project is constructed as shown on the topographic work maps entitled "Sonoqui Wash Channelization: Queen Creek Wash to Chandler Heights Road CLOMR," prepared by the Flood Control District of Maricopa County, revised May 3, 2006, and the data listed below are received, a revision to the FIRM would be warranted.

As a result of the proposed project, the elevations of the flood having 1-percent chance of being equaled or exceeded in any given year (base flood) decreased compared to the effective Base Flood Elevations (BFEs) for Sonoqui Wash from approximately 1,500 feet downstream of Recker Road to just upstream of Chandler Heights Road. The maximum decrease in BFE, 4.6 feet, will occur just downstream of Recker Road. The entire base flood along Sonoqui Wash will be contained in the concrete-lined channel and culverts from approximately 1,500 feet downstream of Recker Road to just downstream of Chandler Heights Road.

As a result of the proposed project, the width of the Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, will decrease compared to the effective SFHA width along the revised reach of Sonoqui Wash. The maximum decrease in SFHA width, approximately 3,400 feet, will occur approximately 1,500 feet downstream of Recker Road.

Upon completion of the project, your community may submit the data listed below and request that we make a final determination on revising the effective FIRM and FIS report.

- Detailed application and certification forms, which were used in processing this request, 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, entitled "Overview & Concurrence Form," must be included. (A copy of this form is enclosed.)

- 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 (copies of which are enclosed) 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, together with a topographic work map showing the revised floodplain boundaries, must be submitted with Form 2.

- Effective October 30, 2005, FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. In accordance with this schedule, the current fee for this map revision request is $4,000 and must be received before we can begin processing the request. Please note, however, that the fee schedule is subject to change, and requesters are required to submit the fee in effect at the time of the submittal. Payment of this fee shall be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card. The payment must be forwarded to the following address:

  Federal Emergency Management Agency
  Fee-Charge System Administrator
  P.O. Box 22787
  Alexandria, VA 22304

- As-built plans, certified by a registered professional engineer, of all proposed project elements

- Community acknowledgment of the map revision request

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 BFEs would change as a result of the project, a 90-day appeal period would be initiated, during which community officials and interested persons may appeal the revised BFEs based on scientific or technical data.

The basis of this CLOMR is, in whole or in part, a channel-modification/culvert project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities assure 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 regulations. Consequently, the ultimate responsibility for maintenance of the modified channel and culverts rests with your community.

This CLOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by calling the Director, Federal Insurance and Mitigation Division of FEMA in Oakland, California, at (510) 627-7175. If you have any questions regarding this CLOMR, please call our Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,

Michael B. Godesky, Project Engineer
Engineering Management Section
Mitigation Division

For: William R. Blanton Jr., CFM, Acting Chief
Engineering Management Section
Mitigation Division

Enclosures

cc: The Honorable Steven M. Berman
Mayor, Town of Gilbert

The Honorable Wendy Feldman-Kerr
Mayor, Town of Queen Creek

Mr. Ted Collins, CFM
Principal Floodplain Administrator
Flood Control District of Maricopa County

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

Ms. Catherine W. Regester, P.E., CFM
Senior Engineer
Flood Control District of Maricopa County

Mr. Lonnie K. Frost
Floodplain Administrator
Town of Gilbert

Mr. Richard L. Schaner
Public Works Director
Town of Queen Creek

Mr. Brian Cosson, CFM
NFIP Coordinator
Office of Dam Safety and Flood Mitigation
Arizona Department of Water Resources

Federal Emergency Management Agency

Washington, D.C. 20472

MAY 26 2006

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 06-09-B379R

The Honorable Steven M. Berman
Mayor, Town of Gilbert
50 East Civic Center Drive
Gilbert, AZ 85296

Community: Town of Gilbert, AZ
Community No.: 040044

104

Dear Mayor Berman:

This responds to a request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) comment on the effects that a proposed project would have on the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Maricopa County, Arizona and Incorporated Areas (the effective FIRM and FIS report for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated February 8, 2006, Ms. Catherine W. Regester, P.E., CFM, Senior Engineer, Flood Control District of Maricopa County, requested that FEMA evaluate the effects that a new hydraulic analysis and proposed project along Sonoqui Wash from just upstream of Higley Road to approximately 1,000 feet upstream of Chandler Heights Road would have on the flood hazard information shown on the effective FIRM and FIS report. The proposed project will consist of channelization from approximately 1,000 feet downstream of Higley Road to just downstream of Chandler Heights Road and construction of four 10-foot by 5-foot concrete box culverts at Recker Road; three 2-foot-diameter concrete pipe culverts at Power Road, Sossaman Road, and Chandler Heights Road; a bridge at Higley Road; and a detention basin just downstream of Chandler Heights Road.

All data required to complete our review of this request for a Conditional Letter of Map Revision (CLOMR) were submitted with letters from Ms. Regester.

Because this revision request also affects the Town of Queen Creek and the unincorporated areas of Maricopa County, separate CLOMRs for those communities were issued on the same date as this CLOMR.

We reviewed the submitted data and the data used to prepare the effective FIRM for your community and determined that the proposed project meets the minimum floodplain management criteria of the NFIP. We believe that, if the proposed project is constructed as shown on the topographic work maps entitled "Sonoqui Wash Channelization: Queen Creek Wash to Chandler Heights Road CLOMR," prepared by the Flood Control District of Maricopa County, revised May 3, 2006, and the data listed below are received, a revision to the FIRM would be warranted.

As a result of the proposed project, the elevations of the flood having 1-percent chance of being equaled or exceeded in any given year (base flood) decreased compared to the effective Base Flood Elevations (BFEs) for Sonoqui Wash from just upstream of Higley Road to just downstream of Recker Road. The maximum decrease in BFE, 12.5 feet, will occur just upstream of Higley Road. The entire base flood along Sonoqui Wash will be contained in the concrete-lined channel and culverts from approximately 1,000 feet downstream of Higley Road to just downstream of Recker Road.

As a result of the proposed project, the width of the Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, will decrease compared to the effective SFHA width along the revised reach of Sonoqui Wash. The maximum decrease in SFHA width, approximately 4,000 feet, will occur approximately 200 feet upstream of Higley Road.

Upon completion of the project, your community may submit the data listed below and request that we make a final determination on revising the effective FIRM and FIS report.

- Detailed application and certification forms, which were used in processing this request, 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, entitled "Overview & Concurrence Form," must be included. (A copy of this form is enclosed.)

- 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 (copies of which are enclosed) 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, together with a topographic work map showing the revised floodplain boundaries, must be submitted with Form 2.

- Effective October 30, 2005, FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. In accordance with this schedule, the current fee for this map revision request is $4,000 and must be received before we can begin processing the request. Please note, however, that the fee schedule is subject to change, and requesters are required to submit the fee in effect at the time of the submittal. Payment of this fee shall be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card. The payment must be forwarded to the following address:

  Federal Emergency Management Agency
  Fee-Charge System Administrator
  P.O. Box 22787
  Alexandria, VA 22304

- As-built plans, certified by a registered professional engineer, of all proposed project elements

- Community acknowledgment of the map revision request

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 BFEs would change as a result of the project, a 90-day appeal period would be initiated, during which community officials and interested persons may appeal the revised BFEs based on scientific or technical data.

The basis of this CLOMR is, in whole or in part, a channel-modification/culvert/bridge project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities assure 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 regulations. Consequently, the ultimate responsibility for maintenance of the modified channel, culverts, and bridge rests with your community.

This CLOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by calling the Director, Federal Insurance and Mitigation Division of FEMA in Oakland, California, at (510) 627-7175. If you have any questions regarding this CLOMR, please call our Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,

Michael B. Godesky, Project Engineer
Engineering Management Section
Mitigation Division

For: William R. Blanton Jr., CFM, Acting Chief
Engineering Management Section
Mitigation Division

Enclosures

cc: The Honorable Max W. Wilson
Chairman, Maricopa County
Board of Supervisors

The Honorable Wendy Feldman-Kerr
Mayor, Town of Queen Creek

Mr. Lonnie K. Frost
Floodplain Administrator
Town of Gilbert

Mr. Ted Collins, CFM
Principal Floodplain Administrator
Flood Control District of Maricopa County

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

Ms. Catherine W. Regester, P.E., CFM
Senior Engineer
Flood Control District of Maricopa County

Mr. Richard L. Schaner
Public Works Director
Town of Queen Creek

Mr. Brian Cosson, CFM
NFIP Coordinator
Office of Dam Safety and Flood Mitigation
Arizona Department of Water Resources

Federal Emergency Management Agency

Washington, D.C. 20472

MAY 26 2006

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 06-09-B379R

The Honorable Wendy Feldman-Kerr
Mayor, Town of Queen Creek
22350 South Ellsworth Road
Queen Creek, AZ 85242

Community: Town of Queen Creek, AZ
Community No.: 040132

104

Dear Mayor Feldman-Kerr:

This responds to a request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) comment on the effects that a proposed project would have on the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Maricopa County, Arizona and Incorporated Areas (the effective FIRM and FIS report for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated February 8, 2006, Ms. Catherine W. Regester, P.E., CFM, Senior Engineer, Flood Control District of Maricopa County, requested that FEMA evaluate the effects that a new hydraulic analysis and proposed project along Sonoqui Wash from just upstream of Higley Road to approximately 1,000 feet upstream of Chandler Heights Road would have on the flood hazard information shown on the effective FIRM and FIS report. The proposed project will consist of channelization from approximately 1,000 feet downstream of Higley Road to just downstream of Chandler Heights Road and construction of four 10-foot by 5-foot concrete box culverts at Recker Road; three 2-foot-diameter concrete pipe culverts at Power Road, Sossaman Road, and Chandler Heights Road; a bridge at Higley Road; and a detention basin just downstream of Chandler Heights Road.

All data required to complete our review of this request for a Conditional Letter of Map Revision (CLOMR) were submitted with letters from Ms. Regester.

Because this revision request also affects the Town of Gilbert and the unincorporated areas of Maricopa County, separate CLOMRs for those communities were issued on the same date as this CLOMR.

We reviewed the submitted data and the data used to prepare the effective FIRM for your community and determined that the proposed project meets the minimum floodplain management criteria of the NFIP. We believe that, if the proposed project is constructed as shown on the topographic work maps entitled "Sonoqui Wash Channelization: Queen Creek Wash to Chandler Heights Road CLOMR," prepared by the Flood Control District of Maricopa County, revised May 3, 2006, and the data listed below are received, a revision to the FIRM would be warranted.

As a result of the proposed project, the elevations of the flood having 1-percent chance of being equaled or exceeded in any given year (base flood) decreased compared to the effective Base Flood Elevations (BFEs) for Sonoqui Wash from just upstream of Recker Road to approximately 2,000 feet upstream of Chandler Heights Road. The maximum decrease in BFE, 9.1 feet, will occur just downstream of Power Road. The entire base flood along Sonoqui Wash will be contained in the concrete-lined channel and culverts from just upstream of Recker Road to just downstream of Chandler Heights Road.

As a result of the proposed project, the width of the Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, will decrease compared to the effective SFHA width along the revised reach of Sonoqui Wash. The maximum decrease in SFHA width, approximately 2,600 feet, will occur approximately 1,500 feet downstream of Power Road.

Upon completion of the project, your community may submit the data listed below and request that we make a final determination on revising the effective FIRM and FIS report.

- Detailed application and certification forms, which were used in processing this request, 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, entitled "Overview & Concurrence Form," must be included. (A copy of this form is enclosed.)

- 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 (copies of which are enclosed) 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, together with a topographic work map showing the revised floodplain boundaries, must be submitted with Form 2.

- Effective October 30, 2005, FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. In accordance with this schedule, the current fee for this map revision request is $4,000 and must be received before we can begin processing the request. Please note, however, that the fee schedule is subject to change, and requesters are required to submit the fee in effect at the time of the submittal. Payment of this fee shall be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card. The payment must be forwarded to the following address:

  Federal Emergency Management Agency
  Fee-Charge System Administrator
  P.O. Box 22787
  Alexandria, VA 22304

- As-built plans, certified by a registered professional engineer, of all proposed project elements

- Community acknowledgment of the map revision request

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 BFEs would change as a result of the project, a 90-day appeal period would be initiated, during which community officials and interested persons may appeal the revised BFEs based on scientific or technical data.

The basis of this CLOMR is, in whole or in part, a channel-modification/culvert/detention basin project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities assure 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 regulations. Consequently, the ultimate responsibility for maintenance of the modified channel and culverts rests with your community.

This CLOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by calling the Director, Federal Insurance and Mitigation Division of FEMA in Oakland, California, at (510) 627-7175. If you have any questions regarding this CLOMR, please call our Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,

Michael B. Godesky, Project Engineer
Engineering Management Section
Mitigation Division

For: William R. Blanton Jr., CFM, Acting Chief
Engineering Management Section
Mitigation Division

Enclosures

cc: The Honorable Max W. Wilson
Chairman, Maricopa County
Board of Supervisors

The Honorable Steven M. Berman
Mayor, Town of Gilbert

Mr. Richard L. Schaner
Public Works Director
Town of Queen Creek

Mr. Ted Collins, CFM
Principal Floodplain Administrator
Flood Control District of Maricopa County

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

Ms. Catherine W. Regester, P.E., CFM
Senior Engineer
Flood Control District of Maricopa County

Mr. Lonnie K. Frost
Floodplain Administrator
Town of Gilbert

Mr. Brian Cosson, CFM
NFIP Coordinator
Office of Dam Safety and Flood Mitigation
Arizona Department of Water Resources

Federal Emergency Management Agency

Washington, D.C. 20472

APR 2 5 2007

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 07-09-0729R

The Honorable Art Sanders
Mayor, Town of Queen Creek
22350 South Ellsworth Road
Queen Creek, AZ 85242

Community: Town of Queen Creek, AZ
Community No.: 040132

104

Dear Mayor Sanders:

This responds to a request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) comment on the effects that a proposed project would have on the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Maricopa County, Arizona and Incorporated Areas (the effective FIRM and FIS report for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated January 22, 2007, Mr. Andrzej Wojakiewicz, P.E., Department of Transportation, Maricopa County, requested that FEMA evaluate the effects that proposed construction of a three-span bridge at Chandler Heights Road and a new hydraulic analysis along Sonoqui Wash from approximately 400 feet downstream to approximately 1,000 feet upstream of Chandler Heights Road would have on the flood hazard information shown on the effective FIRM and FIS report.

All data required to complete our review of this request for a Conditional Letter of Map Revision (CLOMR) were submitted with letters from Mr. Wojakiewicz.

Because this revision request also affects the Town of Queen Creek, a separate CLOMR for that community was issued on the same date as this CLOMR.

We reviewed the submitted data and the data used to prepare the effective FIRM for your community and determined that the proposed project meets the minimum floodplain management criteria of the NFIP. We believe that, if the proposed project is constructed as shown on the undated plans entitled "Chandler Heights Road Bridge," prepared by the Maricopa County Department of Transportation, and the data listed below are received, a revision to the FIRM would be warranted.

As a result of the proposed project, the Base (1-percent-annual-chance) Flood Elevations (BFEs) will decrease compared to the effective BFEs. The maximum decrease in BFE, 3.9 feet, will occur approximately 400 feet downstream of Chandler Heights Road.

As a result of the proposed project, the width of the Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, will decrease compared to the effective SFHA width. The maximum decrease in SFHA width, approximately 1,700 feet, will occur approximately 400 feet downstream of Chandler Heights Road.

Upon completion of the project, your community may submit the data listed below and request that we make a final determination on revising the effective FIRM and FIS report.

- Detailed application and certification forms, which were used in processing this request, 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, entitled "Overview & Concurrence Form," must be included. (A copy of this form is enclosed.)

- 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 (copies of which are enclosed) 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, together with a topographic work map showing the revised floodplain boundaries, must be submitted with Form 2.

- Effective October 30, 2005, FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. In accordance with this schedule, the current fee for this map revision request is $4,000 and must be received before we can begin processing the request. Please note, however, that the fee schedule is subject to change, and requesters are required to submit the fee in effect at the time of the submittal. Payment of this fee shall be made in the form of 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). The payment, along with the revision application, must be forwarded to the following address:

  FEMA National Service Provider
  3601 Eisenhower Avenue
  Alexandria, VA 22304-6425

- As-built plans, certified by a registered professional engineer, of all proposed project elements

- Community acknowledgment of the map revision request

- The upstream and downstream ends of the proposed revision for Sonoqui Wash are tied into a reach reviewed for a CLOMR dated May 26, 2006, (Case No. 06-09-B379R). If a Letter of Map Revision (LOMR) to follow this CLOMR is issued prior to issuance of a LOMR to follow Case No. 06-09-B379R, all models and SFHA boundary delineations must be modified to tie into the effective information.

- Evidence of notification of all property owners who will be affected by any increase in width and/or shifting or the base floodplain and/or increases in BFE

After receiving appropriate documentation to show that the project has been completed, FEMA will initiate a revision to the FIRM. Because the BFEs would change as a result of the project, a 90-day appeal period would be initiated, during which community officials and interested persons may appeal the revised BFEs based on scientific or technical data.

This CLOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in theSFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by calling the Director, Federal Insurance and Mitigation Division of FEMA in Oakland, California, at (510) 627-7175. If you have any questions regarding this CLOMR, please call our Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,

Max H. Yuan, P.E., Project Engineer
Engineering Management Section
Mitigation Division

For: William R. Blanton Jr., CFM, Chief
Engineering Management Section
Mitigation Division

Enclosures

cc: The Honorable Fulton Brock
Chairman, Maricopa County
Board of Supervisors

Mr. Dick Schaner
Public Works Director
Town of Queen Creek

Mr. Ted Collins, CFM
Principal Floodplain Administrator
Flood Control District of Maricopa County

Ms. Lynn M. Thomas, P.E., CFM
Technical Supervisor
Flood Control District of Maricopa County

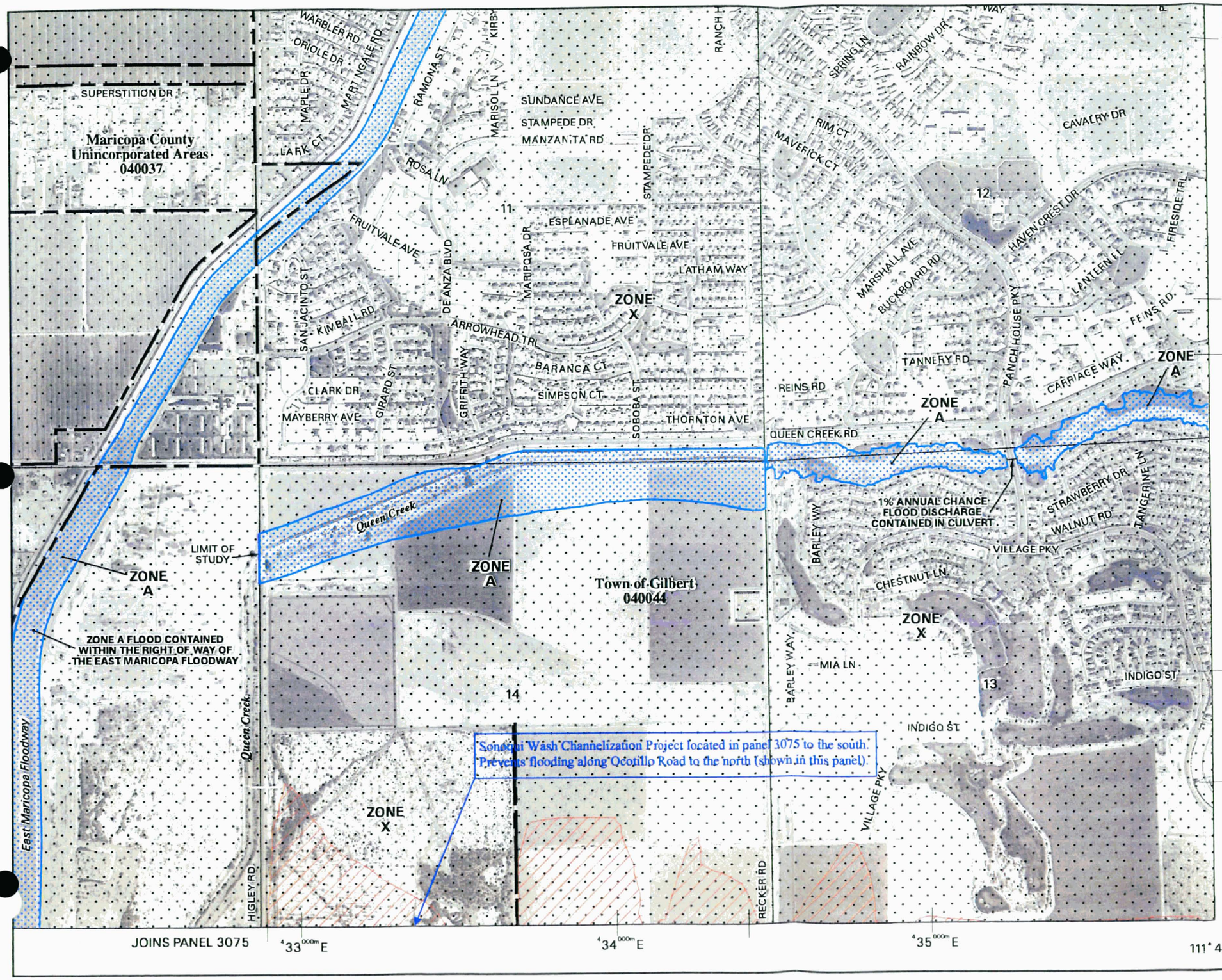
Mr. Andrzej Wojakiewicz, P.E.
Department of Transportation
Maricopa County

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

Mr. Brian Cosson, CFM
NFIP Coordinator
Office of Dam Safety and Flood Mitigation
Arizona Department of Water Resources

Mr. Kofi Awumah, P.E.
Prestige Engineering Consultants, L.L.C.

Annotated FIRM Panels



MAP SCALE 1" = 1000'

0 1000 2000 FEET

0 300 600 METERS

Existing Condition Floodplain
Zone AE (Entellus Study)

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2690H

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

PANEL 2690 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

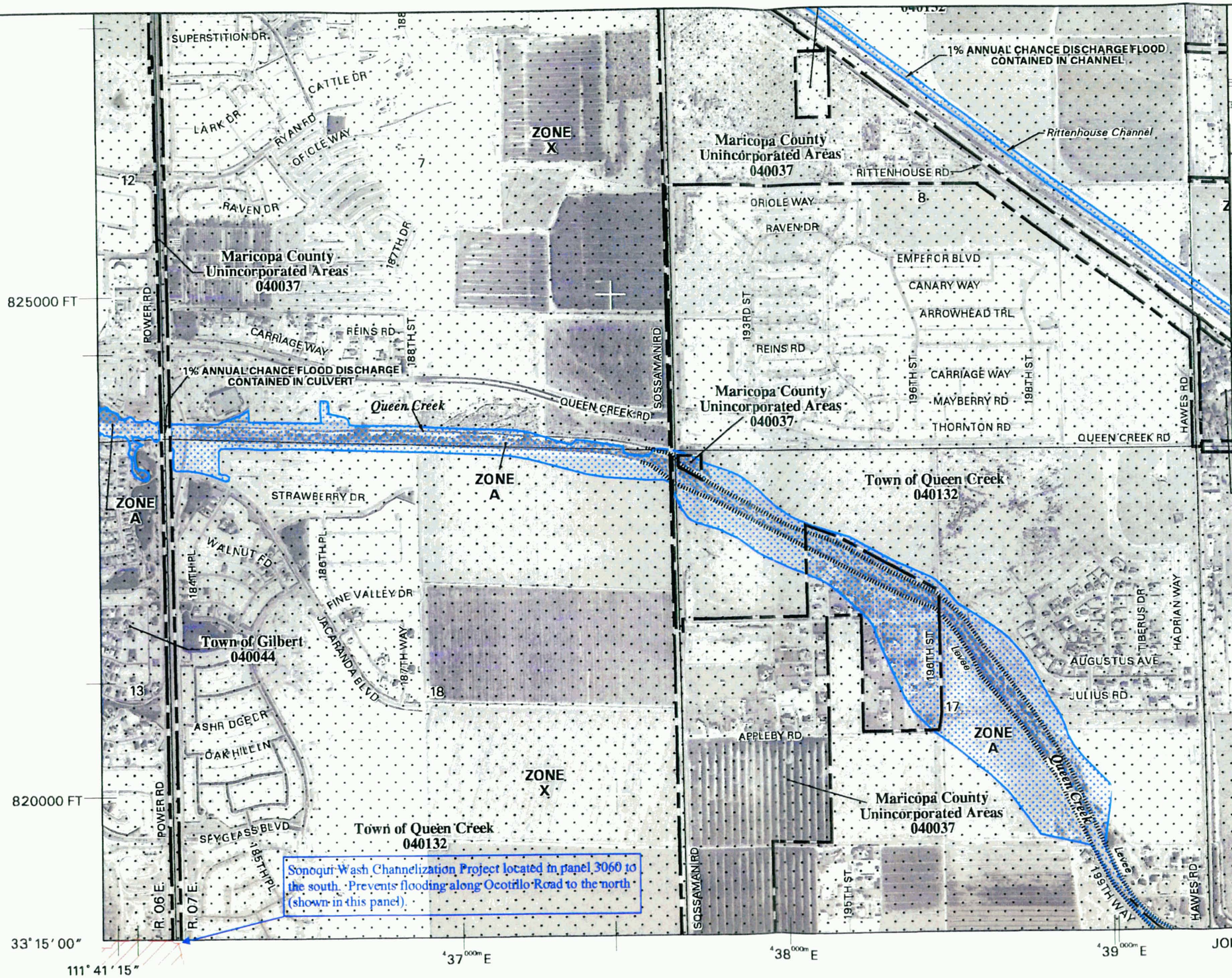
COMMUNITY	NUMBER	PANEL	SUFFIX
GILBERT, TOWN OF	040044	2690	H
MARICOPA COUNTY	040037	2690	H
MESA, CITY OF	040048	2690	H

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

MAP NUMBER
04013C2690H
MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency

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



MAP SCALE 1" = 1000'

0 1000 2000 FEET

0 300 600 METERS

Existing Condition Floodplain Zone AE (Entellus Study)

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2695H

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

PANEL 2695 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GILBERT, TOWN OF	040044	2695	H
MARICOPA COUNTY	040037	2695	H
MESA, CITY OF	040048	2695	H
QUEEN CREEK, TOWN OF	040132	2695	H

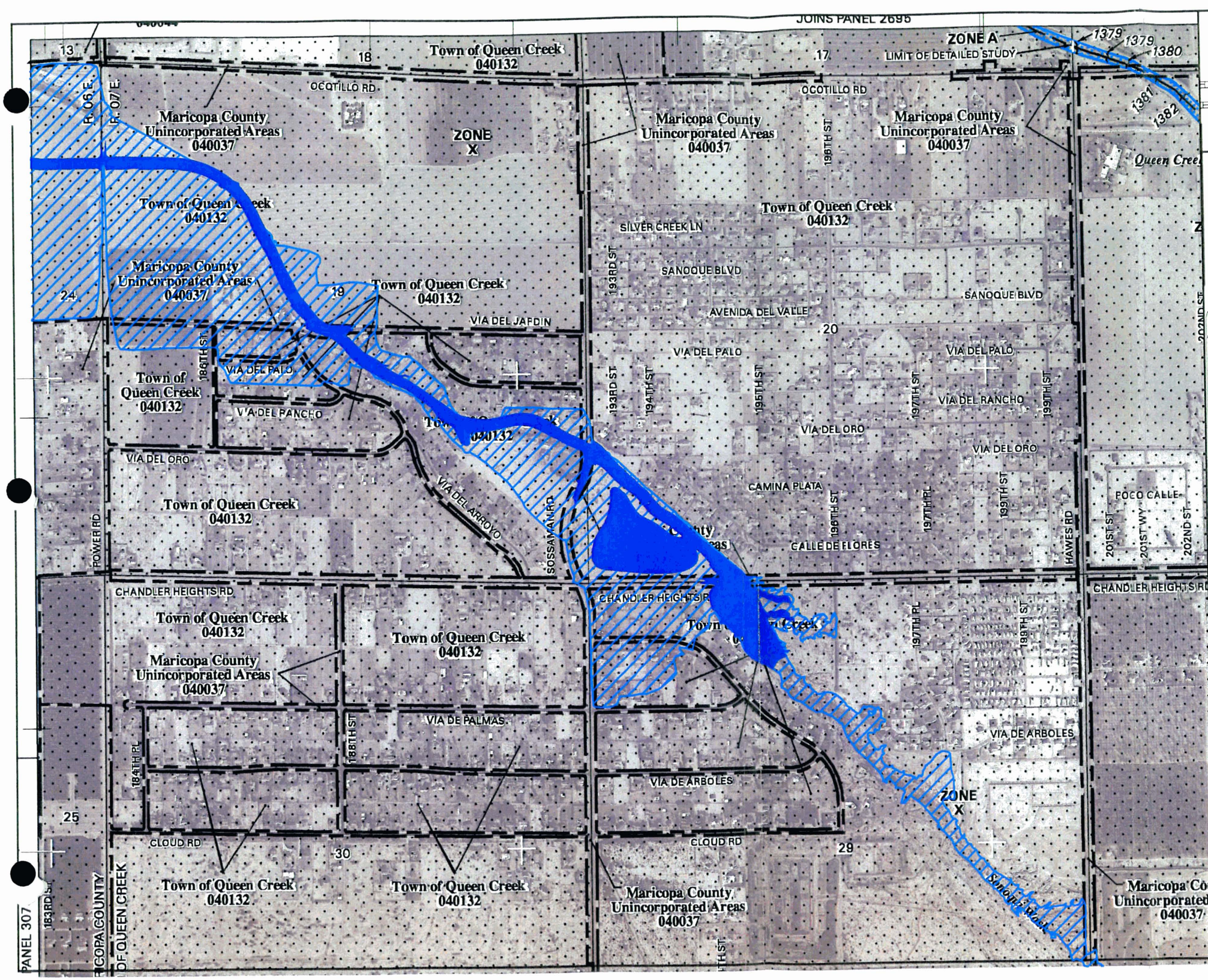
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C2695H

MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency

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



MAP SCALE 1" = 1000'

0 1000 2000 FEET

0 300 600 METERS

REVISED FLOODPLAIN ZONE AE

EXISTING CONDITION FLOODPLAIN ZONE AE

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 3060H

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 3060 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GILBERT, TOWN OF	040044	3060	H
MARICOPA COUNTY	040037	3060	H
QUEEN CREEK, TOWN OF	040132	3060	H

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

MAP NUMBER

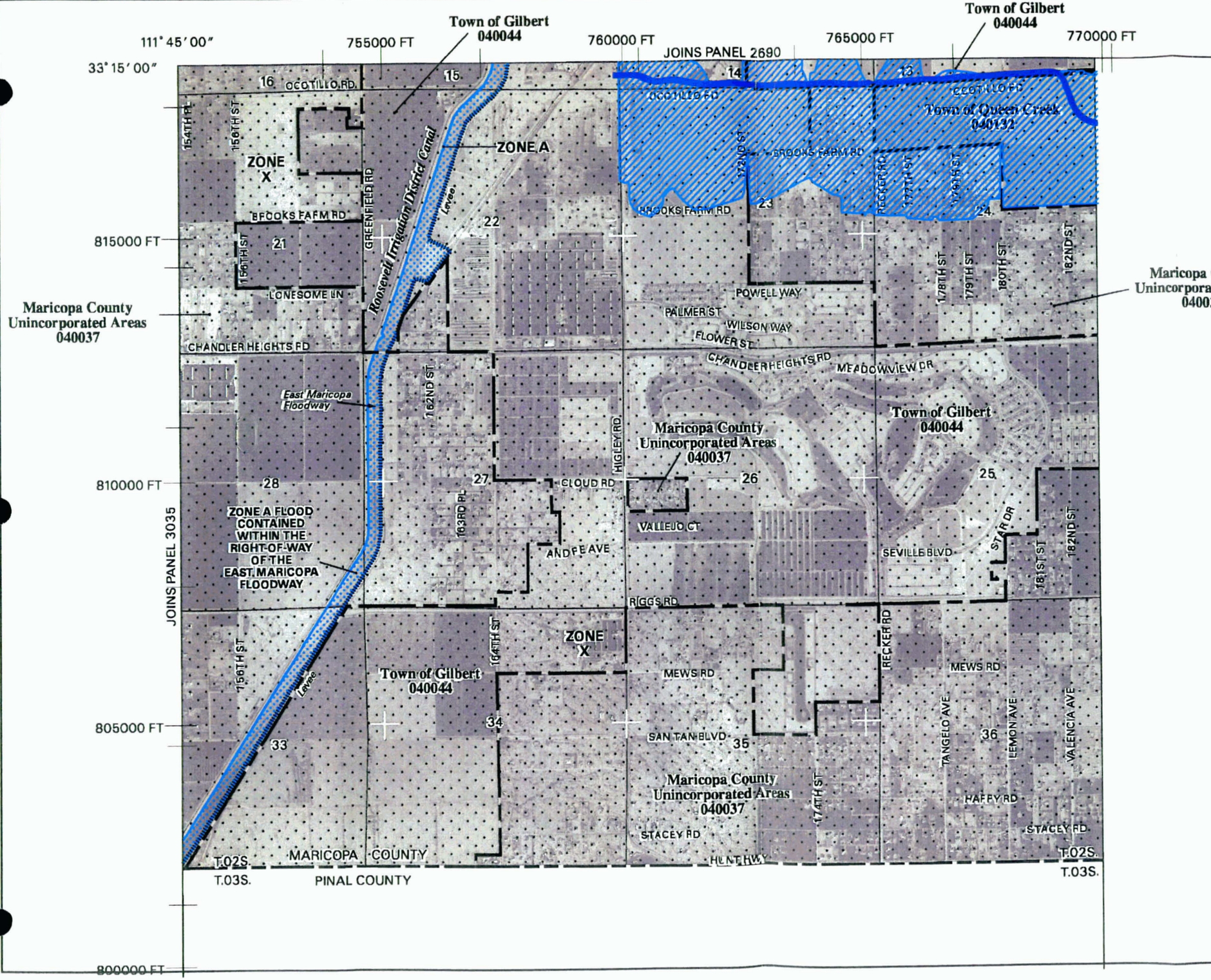
04013C3060H

MAP REVISED

SEPTEMBER 30, 2005

Federal Emergency Management Agency

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



MAP SCALE 1" = 2000'

0 2000 4000 FEET

0 600 1200 METERS

REVISED FLOODPLAIN ZONE AE

EXISTING CONDITION FLOODPLAIN ZONE AE

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 3075H

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 3075 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GILBERT, TOWN OF	040044	3075	H
MARICOPA COUNTY	040037	3075	H
QUEEN CREEK, TOWN OF	040132	3075	H

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

MAP NUMBER

04013C3075H

MAP REVISED

SEPTEMBER 30, 2005

Federal Emergency Management Agency

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

HEC-RAS

(AsBuiltLOMR.prj)

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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

PROJECT DATA
Project Title: LOMR - Sonoqui Wash
Project File : AsBuiltLOMR.prj
Run Date and Time: 6/27/2008 2:36:39 PM

Project in English units

Project Description:
Sonoqui Wash Channelization LOMR
Prepared by: Flood Control District of
Maricopa County
Date: June 2008
Executable Software: HEC-RAS Version
3.1.3

This model takes the Stanley model described below and incorporates the MCDOT bridge at Chandler Heights Road and the as-built channel invert elevations for the channelization project from Drop Structure #2 to Chandler Heights Road. Cross sections within the project area upstream of the Chandler Heights Bridge were modified based on topographic survey performed by the District in June
2008.

****
****

Sonoqui Wash Channelization - FCD
2002C037 (PCN 480-04-31)
Prepared by: Stanley Consultants, Inc.
Date: April
2007
Executable Software: HEC-RAS Version 3.1.3

Plan for CLOMR Submittal:

(CLOMR Analysis)
The geometry represents the most recently submitted CLOMR model coupled with post-construction (Queen Creek) survey downstream from Higley Road.
Channel n-values are 0.45.
Discharges are based upon those used in the design model.

The original HEC-RAS models were developed using the Queen Creek WSE as a starting downstream condition. Per comments by FEMA reviewer, the downstream boundary condition has been modified to normal depth with a starting slope of 0.0012. The new boundary condition location is station 11+26.

The model was run assuming the sediment basin from 11+46 to Higley road is silted in to the top of weir elevation (1307.4).

Culvert
positions and Higley Road Bridge updated per comments by FEMA reviewer on 4/5/06 by NDV.

The final CLOMR model was updated on 3/27/07 with sections cut from as-built topography.

PLAN DATA

Plan Title: AS-BUILT
Plan File : h:\MyDocuments\East Mesa\Sonoqui Wash Chan\To FEMA\LOMR\HEC-RAS\AsBuiltLOMR.p02

Geometry Title: As-Built LOMR/Design (n=0.045)
Geometry File : h:\MyDocuments\East Mesa\Sonoqui Wash Chan\To FEMA\LOMR\HEC-RAS\AsBuiltLOMR.g03

Flow Title : CLOMR Q's
Flow File : h:\MyDocuments\East Mesa\Sonoqui Wash Chan\To FEMA\LOMR\HEC-RAS\AsBuiltLOMR.f01

Plan Description:
This model is documents solutions to as-built conditions.

Plan Summary Information:

Number of:	Cross Sections	= 241	Multiple Openings	=	0
	Culverts	= 3	Inline Structures	=	0
	Bridges	= 2	Lateral Structures	=	0

Computational Information

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

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

FLOW DATA

Flow Title: CLOMR Q's
Flow File : h:\MyDocuments\East Mesa\Sonoqui Wash Chan\To FEMA\LOMR\HEC-RAS\AsBuiltLOMR.f01

Flow Data (cfs)

River	Reach	RS	As-Built
Sonoqui Wash	Sonoqui Wash	25622.81	2100

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Sonoqui Wash	Sonoqui Wash	As-Built	Normal S = 0.002	Normal S = 0.0012

Changes in WS and EG

River	Reach	RS	Profile	Type	Value

Sonoqui Wash	Sonoqui Wash	2500.000As-Built	Known WS	1316.12
Sonoqui Wash	Sonoqui Wash	2337.000As-Built	Known WS	1314.35

GEOMETRY DATA

Geometry Title: As-Built LOMR/Design (n=0.045)
Geometry File : h:\MyDocuments\East Mesa\Sonoqui Wash Chan\To FEMA\LOMR\HEC-RAS\AsBuiltLOMR.g03

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 25622.81

INPUT
Description: Entellus Station 4.639
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-611.28	1383.22	-603.66	1382.66	-433.5	1382.31	-77.2	1382.31	222.91	1383.12
225.37	1382.31	231.82	1380.31	237.58	1378.31	243.13	1376.31	247.47	1374.74
265.36	1374.31	290.05	1373.68	295.79	1374.31	311.01	1375.5	335.13	1375.76
337.73	1376.31	347.1	1378.31	353.89	1379.76	373.57	1379.67	377.84	1380.31
394.01	1382.31	402.28	1383.27	492.34	1383.85	524.53	1382.47	535.78	1383.98
596.81	1384.31	1550.13	1386.31						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-611.28	.047	222.91	.056	402.28	.047

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.91	402.28	267.78	292.8	328.48	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1380.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.056	
W.S. Elev (ft)	1380.04	Reach Len. (ft)	267.78	292.80	328.48
Crit W.S. (ft)		Flow Area (sq ft)		555.85	
E.G. Slope (ft/ft)	0.003376	Area (sq ft)		555.85	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	143.44	Top Width (ft)		143.44	
Vel Total (ft/s)	3.78	Avg. Vel. (ft/s)		3.78	
Max Chl Dpth (ft)	6.36	Hydr. Depth (ft)		3.88	
Conv. Total (cfs)	36142.4	Conv. (cfs)		36142.4	
Length Wtd. (ft)	292.80	Wetted Per. (ft)		144.90	
Min Ch El (ft)	1373.68	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		3.05	
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	16.76	333.23	4.60
C & E Loss (ft)	0.02	Cum SA (acres)	4.63	71.22	5.37

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 25330.01

INPUT
Description: Entellus Station 4.583
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-395.74	1382.94	-388.65	1382.31	-384.3	1381.9	81.49	1382.31	123.83	1382.81
128.38	1382.31	155.66	1382.31	156.97	1382.53	165.04	1382.31	183.19	1381.97
190.54	1380.31	209.5	1378.31	225.18	1376.31	225.33	1376.3	287.8	1374.46
289.01	1374.31	299.25	1372.99	334.02	1374.31	359.43	1375.41	363.99	1376.31
374.18	1378.31	384.8	1380.31	390.44	1381.36	413.61	1380.31	455.18	1380.31
476.93	1382.31	508.37	1384.39	699.13	1384.31	1736.61	1386.31		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-395.74	.047	183.19	.056	390.44	.047

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
183.19	390.44	410.28	422.65	439.27	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1379.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.056	
W.S. Elev (ft)	1379.32	Reach Len. (ft)	410.28	422.65	439.27
Crit W.S. (ft)		Flow Area (sq ft)		696.40	
E.G. Slope (ft/ft)	0.002132	Area (sq ft)		696.40	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	179.62	Top Width (ft)		179.62	
Vel Total (ft/s)	3.02	Avg. Vel. (ft/s)		3.02	
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)		3.88	
Conv. Total (cfs)	45481.4	Conv. (cfs)		45481.4	
Length Wtd. (ft)	422.79	Wetted Per. (ft)		180.34	
Min Ch El (ft)	1372.99	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		1.55	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	16.76	329.02	4.60
C & E Loss (ft)	0.03	Cum SA (acres)	4.63	70.13	5.37

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 24907.36

INPUT
Description: Entellus Station 4.503
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-145.29	1381.33	60.31	1380.31	64.96	1378.31	71.84	1376.31	71.94	1376.28
73.23	1376.27	73.46	1376.31	86.95	1378.31	107.28	1380.31	115.18	1380.31
137.8	1380.31	143.37	1380.92	145.56	1380.31	216.25	1378.65	217.34	1378.31
224.02	1376.31	231.09	1374.31	232.5	1373.91	246.68	1373.44	249.69	1372.31
254.13	1370.38	276.82	1370.15	318.38	1372.31	327.21	1372.74	360.81	1374.31
396.1	1375.99	398.62	1376.31	410.35	1377.69	795.64	1378.31	832.92	1378.77
856.31	1380.31	883.96	1382	885.95	1382.31	899.58	1384.26	1092.06	1384.31
1451.69	1385.07	1478.53	1385.76	1556.76	1385.32	1590.35	1384.31	1592.95	1384.23

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-145.29	.068	217.34	.065	410.35	.056

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
217.34	410.35	446.94	454.29	514.27	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-145.29	145	1387	F
450	1592.95	1387	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1378.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.068	0.065	0.056
W.S. Elev (ft)	1378.90	Reach Len. (ft)	446.94	454.29	514.27
Crit W.S. (ft)	1374.06	Flow Area (sq ft)	1.76	1081.24	46.63
E.G. Slope (ft/ft)	0.000707	Area (sq ft)	40.51	1081.24	359.38
Q Total (cfs)	2100.00	Flow (cfs)	0.29	2063.05	36.66
Top Width (ft)	658.49	Top Width (ft)	40.97	193.01	424.51
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)	0.16	1.91	0.79

Max Chl Dpth (ft)	8.75	Hydr. Depth (ft)	0.15	5.60	1.18
Conv. Total (cfs)	78956.7	Conv. (cfs)	10.9	77567.4	1378.4
Length Wtd. (ft)	454.81	Wetted Per. (ft)	11.70	194.50	39.65
Min Ch El (ft)	1370.15	Shear (lb/sq ft)	0.01	0.25	0.05
Alpha	1.04	Stream Power (lb/ft s)	0.00	0.47	0.04
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	16.57	320.40	2.79
C & E Loss (ft)	0.02	Cum SA (acres)	4.44	68.32	3.23

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 24453.07

INPUT
Description: Entellus Station 4.417
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
124.85	1380.39	125.57	1380.31	133.44	1379.52	208.52	1380.31	243.54	1380.73
244.75	1380.31	250.56	1378.31	256.33	1376.31	262.05	1374.31	267.72	1372.31
269.96	1371.5	311.07	1370.31	320.33	1370.03	321.12	1370.31	326.74	1372.31
332.48	1374.31	338.17	1376.31	343.85	1378.31	349.54	1380.31	350.45	1380.63
389.66	1380.31	428.8	1379.69	533.75	1380.31	887.11	1382.31	1467.86	1383.16

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
124.85	.068	243.54	.065	350.45	.056

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
243.54	350.45	322.19	312.9	311.95	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1378.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.065	
W.S. Elev (ft)	1378.09	Reach Len. (ft)	322.19	312.90	311.95
Crit W.S. (ft)		Flow Area (sq ft)		522.17	
E.G. Slope (ft/ft)	0.003170	Area (sq ft)		522.17	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	92.03	Top Width (ft)		92.03	
Vel Total (ft/s)	4.02	Avg. Vel. (ft/s)		4.02	
Max Chl Dpth (ft)	8.06	Hydr. Depth (ft)		5.67	
Conv. Total (cfs)	37296.9	Conv. (cfs)		37296.9	
Length Wtd. (ft)	312.90	Wetted Per. (ft)		94.55	
Min Ch El (ft)	1370.03	Shear (lb/sq ft)		1.09	
Alpha	1.00	Stream Power (lb/ft s)		4.40	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	16.37	312.04	0.66
C & E Loss (ft)	0.06	Cum SA (acres)	4.23	66.84	0.72

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 24140.17

INPUT
Description: Entellus Station 4.358
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-194.66	1379.82	-177.98	1378.77	198.23	1379.83	202.39	1378.31	207.86	1376.31
213.32	1374.31	218.74	1372.31	224.26	1370.31	226.36	1369.54	257.65	1370.31
267.02	1371.23	277.2	1371.34	281.55	1370.31	287.74	1368.84	294.97	1370.31
299.94	1371.33	358.25	1372.07	358.95	1372.31	364.53	1374.31	370.06	1376.31
375.56	1378.31	380.57	1380.31	391.67	1380.68	442.98	1380.46	495.42	1380.31
519.25	1380.23	528.05	1378.98	543.11	1380.07	573.02	1380.31	620.28	1380.42
621.36	1380.31	633.7	1378.85	648.91	1380.31	655.29	1380.78	773.82	1382.16
787.68	1382.31	1199.86	1383.03	1210.85	1383.91	1217.04	1382.9	1289.14	1382.31
1314.87	1381.68	1327.27	1381.49	1423.45	1380.31	1506.04	1378.82	1576.01	1380.31
1683.91	1381.22	1693.21	1382.31	1696.89	1382.61	1804.11	1382.71	1855	1384.06
1891.1	1384.1	1897.54	1383.04	1906.47	1383.82	2006.33	1383.18	2023.66	1383.7
2042.68	1383.67	2224.19	1383.3	2236.09	1383.58	2253.39	1383.63	2595.13	1383.36

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-194.66	.068	198.23	.065	391.67	.056

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
198.23	391.67	373.47	397.3	414.38	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1377.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.065	
W.S. Elev (ft)	1377.82	Reach Len. (ft)	373.47	397.30	414.38
Crit W.S. (ft)		Flow Area (sq ft)		1052.32	
E.G. Slope (ft/ft)	0.000689	Area (sq ft)		1052.32	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	170.48	Top Width (ft)		170.48	
Vel Total (ft/s)	2.00	Avg. Vel. (ft/s)		2.00	
Max Chl Dpth (ft)	8.98	Hydr. Depth (ft)		6.17	
Conv. Total (cfs)	79988.7	Conv. (cfs)		79988.7	
Length Wtd. (ft)	397.30	Wetted Per. (ft)		173.56	
Min Ch El (ft)	1368.84	Shear (lb/sq ft)		0.26	
Alpha	1.00	Stream Power (lb/ft s)		0.52	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	16.37	306.38	0.66
C & E Loss (ft)	0.00	Cum SA (acres)	4.23	65.89	0.72

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 23742.87

INPUT
Description: Entellus Station 4.283
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
161.21	1379.46	193.07	1379.48	196.38	1378.31	202.06	1376.31	207.77	1374.31
213.54	1372.31	217.13	1371.05	243.23	1370.56	247.98	1370.31	292.2	1368.42
317.55	1369.94	330.34	1370.31	355.65	1371.27	360.65	1372.31	369.87	1374.31
379	1376.31	388.34	1378.31	390.33	1378.6	433.5	1380.31	450.15	1380.31
469.37	1380.31								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
161.21	.068	193.07	.065	390.33	.056

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
193.07	390.33	437.04	426.93	420.2	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1377.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.065	
W.S. Elev (ft)	1377.60	Reach Len. (ft)	437.04	426.93	420.20
Crit W.S. (ft)		Flow Area (sq ft)		1212.62	
E.G. Slope (ft/ft)	0.000480	Area (sq ft)		1212.62	

Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	186.66	Top Width (ft)		186.66	
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)		1.73	
Max Chl Dpth (ft)	9.18	Hydr. Depth (ft)		6.50	
Conv. Total (cfs)	95861.2	Conv. (cfs)		95861.2	
Length Wtd. (ft)	426.93	Wetted Per. (ft)		188.57	
Min Ch El (ft)	1368.42	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.33	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	16.37	296.05	0.66
C & E Loss (ft)	0.00	Cum SA (acres)	4.23	64.26	0.72

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 23415.03

INPUT
Description: Entellus Floodplain Delineation Study (FDS) Station 4.202

FDS
WSEL 1377.38 NAVD 1988
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
217.48	1377.81	222.87	1377.85	226.42	1376.31	230.67	1374.31	235.16	1372.31
240.58	1370.31	245.17	1368.71	259.79	1368.31	285.83	1367.6	301.98	1368.31
322.21	1369.19	371.38	1368.69	377.5	1370.31	384.85	1372.31	392.87	1374.31
400.75	1376.31	408.63	1378.31	410.53	1378.79	482.66	1378.75		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
217.48	.068	222.87	.065	410.53	.056

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.87	410.53	544.56	486.67	449.25	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
410.9	482.66	1382	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1377.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.065	
W.S. Elev (ft)	1377.45	Reach Len. (ft)	544.56	486.67	449.25
Crit W.S. (ft)	1370.56	Flow Area (sq ft)		1370.88	
E.G. Slope (ft/ft)	0.000309	Area (sq ft)		1370.88	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	181.44	Top Width (ft)		181.44	
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)		1.53	
Max Chl Dpth (ft)	9.85	Hydr. Depth (ft)		7.56	
Conv. Total (cfs)	119395.9	Conv. (cfs)		119395.9	
Length Wtd. (ft)	486.67	Wetted Per. (ft)		184.35	
Min Ch El (ft)	1367.60	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.22	
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	16.37	283.39	0.66
C & E Loss (ft)	0.03	Cum SA (acres)	4.23	62.46	0.72

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 22928.40

INPUT
Description: Entellus Floodplain Delineation Study (FDS) Station 4.110

FDS
WSEL 1376.62 NAVD 1988
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-6.19	1377.33	18.67	1376.61	119.67	1376.31	125.26	1376.17	130.46	1374.31
135.76	1372.31	141.24	1370.31	146.58	1368.31	148.73	1367.5	154.22	1368.31
166.91	1370.31	168.32	1370.55	209.85	1370.31	212.86	1370.29	218.32	1372.31
223.93	1374.31	229.47	1376.31	235.04	1378.31	238.34	1379.65	262.92	1378.76
263.88	1378.31	268.09	1376.31	272.27	1374.31	276.25	1372.31	280.62	1370.31
284.79	1368.31	284.9	1368.25	295.19	1367.6	303.75	1368.31	320.41	1369.69
322.06	1370.31	327.31	1372.31	332.63	1374.31	337.91	1376.31	342.22	1377.94
559.32	1378.31								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-6.19	.068	262.92	.065	342.22	.056

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
262.92	342.22	128.403	128.403	128.403	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
-6.19	262.92	1380	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1377.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.065	
W.S. Elev (ft)	1376.72	Reach Len. (ft)	128.40	128.40	128.40
Crit W.S. (ft)	1372.90	Flow Area (sq ft)		434.20	
E.G. Slope (ft/ft)	0.004310	Area (sq ft)	630.64	434.20	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	287.30	Top Width (ft)	215.56	71.74	
Vel Total (ft/s)	4.84	Avg. Vel. (ft/s)		4.84	
Max Chl Dpth (ft)	9.22	Hydr. Depth (ft)		6.05	
Conv. Total (cfs)	31985.9	Conv. (cfs)		31985.9	
Length Wtd. (ft)	128.40	Wetted Per. (ft)		75.06	
Min Ch El (ft)	1367.60	Shear (lb/sq ft)		1.56	
Alpha	1.00	Stream Power (lb/ft s)		7.53	
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	12.42	273.31	0.66
C & E Loss (ft)	0.03	Cum SA (acres)	2.88	61.05	0.72

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 22800.00

INPUT
Description:
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-20	1377.1	-4	1376	0	1373.94	1.58	1373.31	14.18	1367.15
19.1	1367.03	26.51	1367.48	34.69	1366.93	54.93	1366.98	61.64	1366.84
67.03	1366.88	73.68	1366.67	75.46	1366.82	90.84	1367.24	92.53	1367.37
96.41	1367.4	104.63	1367.25	107.07	1367.37	138.97	1367.83	144.55	1368.06
160.69	1369.32	168.22	1372.57	175.62	1374.43	177.62	1374.84	178.66	1374.85
182.63	1375.63	185.68	1375.92	189.42	1376.08	192.51	1375.6	196.45	1375.24
198.85	1375.64	204.85	1376.29	207.45	1376.45	219.35	1380.59	226.91	1379.72

233.83	1378.45	234.46	1378.78	236.19	1379.37	241.38	1377.46	241.97	1377.06
248.27	1375.07	256.07	1372.07	256.22	1371.66	257.25	1370.92	258.02	1370.8
260.24	1369.92	260.95	1369.51	263.76	1369.14	271.43	1368.78	284.7	1369.34
287.94	1368.93	294.94	1369.35	300.01	1370.5	305.11	1371.8	308.33	1373.53
309.03	1373.7	311.01	1374.58	311.43	1375.36	312.35	1376.55	312.76	1377.2
313.96	1377.9	315.93	1377.94	322.65	1377.39	323.79	1377.09	327.54	1377.29
330.19	1377.7	333.16	1377.14	337.15	1376.01	348.31	1376.17	354.16	1376.98
390.73	1377.19	395.14	1376.83	398.45	1377.15	405.69	1377.03	416.89	1377.1
423.93	1376.94	434.31	1377.04	440.76	1376.68	444.73	1376.93	450.78	1377.1
457.65	1376.98	478.76	1377.03	479.63	1376.95	500	1376.93		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-20	.068	236.19	.065	315.93	.056

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
236.19	315.93	400	400	400	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-20	236	1380	F
315	500	1380	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1376.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.		0.065	
W.S. Elev (ft)	1375.63	Reach Len. (ft)	400.00	400.00	400.00
Crit W.S. (ft)	1373.46	Flow Area (sq ft)		329.83	
E.G. Slope (ft/ft)	0.009488	Area (sq ft)	1338.09	329.83	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	257.59	Top Width (ft)	192.44	65.15	
Vel Total (ft/s)	6.37	Avg. Vel. (ft/s)		6.37	
Max Chl Dpth (ft)	8.96	Hydr. Depth (ft)		5.06	
Conv. Total (cfs)	21558.6	Conv. (cfs)		21558.6	
Length Wtd. (ft)	400.00	Wetted Per. (ft)		68.22	
Min Ch El (ft)	1368.78	Shear (lb/sq ft)		2.86	
Alpha	1.00	Stream Power (lb/ft s)		18.23	
Frctn Loss (ft)	4.34	Cum Volume (acre-ft)	9.52	272.18	0.66
C & E Loss (ft)	0.03	Cum SA (acres)	2.28	60.84	0.72

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 22400.00

INPUT
Description: End Channel Improvements
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1373	20	1373	22.5	1373	36	1372	43.5	1371
50	1370.581	59	1370	69	1369	94	1368	116	1367
139	1367	145.612	1368	152.403	1369	156.18	1370	159.697	1371
163.976	1372	173.028	1373	187.876	1373.5	187.88	1373.5	201.97	1373
205.98	1372	210.268	1371	214.538	1370	219.067	1369	235	1374.79
240	1374.79	270	1367	300	1367.42	330	1367.5	360	1374.79
369	1374	375.5	1374	410.5	1375	455	1375	465	1374
473	1374	476	1374	478	1373	480	1372	483	1371
498	1370	520	1369	522	1369	540	1370	548	1371
550	1371.333	554	1372	558	1373	561.5	1374	565	1375

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	240	.045	360	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
240	360	100	100	100	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	240	1375	F
410.5	565	1375	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1371.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.045	
W.S. Elev (ft)	1370.96	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1370.41	Flow Area (sq ft)		272.42	
E.G. Slope (ft/ft)	0.012524	Area (sq ft)	311.16	272.42	72.99
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	283.09	Top Width (ft)	129.49	89.50	64.10
Vel Total (ft/s)	7.71	Avg. Vel. (ft/s)		7.71	
Max Chl Dpth (ft)	3.96	Hydr. Depth (ft)		3.04	
Conv. Total (cfs)	18764.6	Conv. (cfs)		18764.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		90.42	
Min Ch El (ft)	1367.00	Shear (lb/sq ft)		2.36	
Alpha	1.00	Stream Power (lb/ft s)		18.16	
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	1.95	269.42	0.33
C & E Loss (ft)	0.10	Cum SA (acres)	0.80	60.13	0.43

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 22300.00

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-46	1374	-40	1373	-37	1372	-34	1371	-32	1370
-30.5	1369	-28.5	1368	-25	1367	-22	1366	-12.5	1365
-1	1365	8	1366	50	1367	63	1368	66.5	1369
72.5	1370	74.5	1371	79	1372	81	1373	86	1374
139	1375	147.5	1375	151	1374	154.7	1373	162	1372
163	1371	175.5	1370	235	1374.79	240	1374.79	270	1366
300	1365.79	330	1365.7	360	1374.79	403	1373	418	1373
427	1373	442	1373	446	1372	449	1371	465	1370
479	1370	482	1370	486	1369	496	1369	501	1370
510	1370	518	1371	526	1372	530	1373	533	1374
540	1374	550	1374	553	1374	581	1375		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-46	.045	240	.045	360	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
240	360	160	150	140	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-46	147.5	1375	F
418	581	1375	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1370.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.	0.045	0.045	
W.S. Elev (ft)	1370.34	Reach Len. (ft)	160.00	150.00	140.00
Crit W.S. (ft)	1369.00	Flow Area (sq ft)	1.47	339.16	
E.G. Slope (ft/ft)	0.006119	Area (sq ft)	389.07	339.16	31.36
Q Total (cfs)	2100.00	Flow (cfs)	1.17	2098.83	
Top Width (ft)	257.81	Top Width (ft)	114.43	90.15	53.24
Vel Total (ft/s)	6.17	Avg. Vel. (ft/s)	0.80	6.19	
Max Chl Dpth (ft)	5.34	Hydr. Depth (ft)	0.17	3.76	
Conv. Total (cfs)	26846.5	Conv. (cfs)	14.9	26831.5	
Length Wtd. (ft)	150.00	Wetted Per. (ft)	8.58	91.46	
Min Ch El (ft)	1365.70	Shear (lb/sq ft)	0.07	1.42	
Alpha	1.01	Stream Power (lb/ft s)	0.05	8.77	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	1.15	268.71	0.21
C & E Loss (ft)	0.09	Cum SA (acres)	0.52	59.93	0.29

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 22150

INPUT
Description:
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
190	1373.5	232	1373.35	270	1364.8	300	1363.35	330	1364.9
368	1373.35	398	1373.35						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
190	.045	232	.045	368	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
232	368	50	50	50	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1370.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	1369.98	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		470.31	
E.G. Slope (ft/ft)	0.002542	Area (sq ft)		470.31	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	105.86	Top Width (ft)		105.86	
Vel Total (ft/s)	4.47	Avg. Vel. (ft/s)		4.47	
Max Chl Dpth (ft)	6.63	Hydr. Depth (ft)		4.44	
Conv. Total (cfs)	41654.3	Conv. (cfs)		41654.3	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		107.06	
Min Ch El (ft)	1363.35	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		3.11	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.43	267.32	0.16
C & E Loss (ft)	0.01	Cum SA (acres)	0.31	59.59	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 22100

INPUT
Description:
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1374.7	232	1373.25	270	1364.3	300	1363.25	330	1364.3
368	1373.25	383	1373.25						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	232	.045	368	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
232	368	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1370.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1369.89	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		499.19	
E.G. Slope (ft/ft)	0.002128	Area (sq ft)		499.19	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.44	Top Width (ft)		107.44	
Vel Total (ft/s)	4.21	Avg. Vel. (ft/s)		4.21	
Max Chl Dpth (ft)	6.64	Hydr. Depth (ft)		4.65	
Conv. Total (cfs)	45521.3	Conv. (cfs)		45521.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		108.77	
Min Ch El (ft)	1363.25	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		2.57	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.43	266.76	0.16
C & E Loss (ft)	0.02	Cum SA (acres)	0.31	59.47	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 22000

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
220	1373.05	232	1373.05	270	1363	300	1363.05	330	1363.2
368	1373.05	387.99	1373.05	388	1375.86				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
220	.045	232	.045	368	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
232	368	32.76	32.76	32.76	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1369.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.045	
W.S. Elev (ft)	1369.76	Reach Len. (ft)	32.76	32.76	32.76
Crit W.S. (ft)		Flow Area (sq ft)		570.37	
E.G. Slope (ft/ft)	0.001429	Area (sq ft)		570.37	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	110.86	Top Width (ft)		110.86	
Vel Total (ft/s)	3.68	Avg. Vel. (ft/s)		3.68	
Max Chl Dpth (ft)	6.76	Hydr. Depth (ft)		5.15	
Conv. Total (cfs)	55558.3	Conv. (cfs)		55558.3	
Length Wtd. (ft)	32.76	Wetted Per. (ft)		112.57	
Min Ch El (ft)	1363.00	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.66	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.43	265.54	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	59.22	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21967.24

INPUT
Description: u/s Chandler Heights Rd Bridge
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
206.95	1375.84	212	1375.86	212.01	1372.98	232	1372.98	270	1363.48
300	1362.98	330	1363.48	368	1372.98	387.99	1372.98	388	1375.86
393.05	1375.84								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
206.95	.045	232	.045	368	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
232	368	117.24	117.24	117.24	.3	.5

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1369.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	
W.S. Elev (ft)	1369.68	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)	1366.40	Flow Area (sq ft)		541.12	
E.G. Slope (ft/ft)	0.001674	Area (sq ft)		541.12	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	109.63	Top Width (ft)		109.63	
Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)		3.88	
Max Chl Dpth (ft)	6.70	Hydr. Depth (ft)		4.94	
Conv. Total (cfs)	51321.2	Conv. (cfs)		51321.2	
Length Wtd. (ft)	5.00	Wetted Per. (ft)		111.16	
Min Ch El (ft)	1362.98	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		1.97	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.43	265.12	0.16
C & E Loss (ft)	0.01	Cum SA (acres)	0.31	59.13	0.21

BRIDGE

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21912.24

INPUT
Description: Chandler Heights Road Bridge

Bridge elevations shown on the
MCDOT As-Built plans were increased by 0.14 ft in this HEC-RAS model to account for the datum difference between the MCDOT and FCD projects. The FCD project, as is this model, is on NAVD 1988 datum

Distance from Upstream XS = 5
Deck/Roadway Width = 110.03
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
206.95	1379.96	1375.84	210	1379.98	1375.86	266	1380.17	1376.05
334	1380.17	1376.05	390	1379.98	1375.86	393.05	1379.96	1375.84

Upstream Bridge Cross Section Data
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
206.95	1375.84	212	1375.86	212.01	1372.98	232	1372.98	270	1363.48
300	1362.98	330	1363.48	368	1372.98	387.99	1372.98	388	1375.86

```
 393.05 1375.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  206.95    .045     232    .045     368    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
           232     368             .3       .5

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  206.95 1379.96 1375.84     210 1379.98 1375.86     266 1380.17 1376.05
     334 1380.17 1376.05     390 1379.98 1375.86  393.05 1379.96 1375.84

Downstream Bridge Cross Section Data
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  206.95 1375.86     212 1375.86  212.01 1372.75     232 1372.75     270 1363.25
     300 1362.75     330 1363.25     368 1372.75  387.99 1372.75     388 1375.86
  393.05 1375.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  206.95    .045     232    .045     368    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
           232     368             .3       .5

Upstream Embankment side slope              =       3 horiz. to 1.0 vertical
Downstream Embankment side slope            =       3 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =    1380
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  2

Pier Data
Pier Station     Upstream=     266    Downstream=     266
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1360       3    1380
Downstream     num=       2
    Width   Elev    Width   Elev
       3    1360       3    1380

Pier Data
Pier Station     Upstream=     334    Downstream=     334
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1360       3    1380
Downstream     num=       2
    Width   Elev    Width   Elev
       3    1360       3    1380

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
```

inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21850.00

INPUT
Description: d/s Chandler Heights Rd Bridge
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
206.95	1375.86	212	1375.86	212.01	1372.75	232	1372.75	270	1363.25
300	1362.75	330	1363.25	368	1372.75	387.99	1372.75	388	1375.86
393.05	1375.84								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
206.95	.045	232	.045	368	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
232	368	50	50	50	.3	.5

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1369.60	Element			
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1369.35	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		530.12	
E.G. Slope (ft/ft)	0.001775	Area (sq ft)		530.12	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	108.82	Top Width (ft)		108.82	
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	
Max Chl Dpth (ft)	6.60	Hydr. Depth (ft)		4.87	
Conv. Total (cfs)	49842.8	Conv. (cfs)		49842.8	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		110.33	
Min Ch El (ft)	1362.75	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.11	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.43	263.77	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	58.86	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21800.00

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1372.82	201.91	1372.96	204.14	1373.2	205.25	1373.34	206.35	1373.47
208.93	1373.79	210.19	1373.98	211.4	1373.84	215.61	1373.12	216.56	1373.11
217.73	1373.11	220.5	1373.11	223.01	1373.13	232	1372.65	270	1363.15
300	1362.65	330	1363.15	362	1372.65	442.46	1372.23	445.28	1373.5
450	1375.65								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	232	.045	362	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
232	362	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1369.50	Element			
Vel Head (ft)	0.26	Wt. n-Val.		0.045	

W.S. Elev (ft)	1369.25	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		517.84	
E.G. Slope (ft/ft)	0.001833	Area (sq ft)		517.84	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	104.93	Top Width (ft)		104.93	
Vel Total (ft/s)	4.06	Avg. Vel. (ft/s)		4.06	
Max Chl Dpth (ft)	6.60	Hydr. Depth (ft)		4.94	
Conv. Total (cfs)	49054.2	Conv. (cfs)		49054.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		106.58	
Min Ch El (ft)	1362.65	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.25	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	0.43	263.16	0.16
C & E Loss (ft)	0.01	Cum SA (acres)	0.31	58.73	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21700.00

INPUT
Description: Check Sta 230.76 - May be appropriate to remove.
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1372.35	201.01	1372.25	216.54	1373.11	230.76	1372.79	270	1362.95
300	1362.45	330	1362.95	349.27	1365.66	368	1372.45	421.25	1372.29
425.19	1374.43	428.04	1376.01	431.84	1376.1	449.89	1376.29	450	1376.32

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	230.76	.045	425.19	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
230.76	425.19	200	200	200	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1369.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.045	
W.S. Elev (ft)	1369.12	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)		569.84	
E.G. Slope (ft/ft)	0.001474	Area (sq ft)		569.84	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.39	Top Width (ft)		113.39	
Vel Total (ft/s)	3.69	Avg. Vel. (ft/s)		3.69	
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)		5.03	
Conv. Total (cfs)	54704.8	Conv. (cfs)		54704.8	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		114.95	
Min Ch El (ft)	1362.45	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		1.68	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	0.43	261.92	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	58.48	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21585.29

INPUT
Description:
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
235	1370.07	237	1369.42	270	1362.72	300	1362.22	330	1362.72
364	1373.63	412	1376						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

235	.045	235	.045	364	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
235	364	84	85.29	87	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1368.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1368.74	Reach Len. (ft)	84.00	85.29	87.00
Crit W.S. (ft)		Flow Area (sq ft)		521.96	
E.G. Slope (ft/ft)	0.001861	Area (sq ft)		521.96	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	108.41	Top Width (ft)		108.41	
Vel Total (ft/s)	4.02	Avg. Vel. (ft/s)		4.02	
Max Chl Dpth (ft)	6.52	Hydr. Depth (ft)		4.81	
Conv. Total (cfs)	48677.5	Conv. (cfs)		48677.5	
Length Wtd. (ft)	85.29	Wetted Per. (ft)		109.97	
Min Ch El (ft)	1362.22	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.22	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.43	259.41	0.16
C & E Loss (ft)	0.01	Cum SA (acres)	0.31	57.97	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21500.00

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1372.339	200.59	1372.34	205.34	1372.27	219.42	1372.21	227.56	1372.3
269.97	1362.6	300	1362.13	329.99	1362.58	370.36	1370.03	383.69	1369.73
386.28	1371.15	386.45	1371.2	386.81	1371.23	388.84	1371.93	389.19	1371.98
390.53	1372.59	390.82	1372.6	392.38	1373.48	392.76	1373.4	393.87	1373.83
394.71	1373.4	395.05	1373.28	395.58	1373.91	395.82	1373.85	397.1	1374.24
399.69	1375.41	400	1375.417						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	227.56	.045	390.53	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.56	390.53	76	76	76	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1368.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.045	
W.S. Elev (ft)	1368.61	Reach Len. (ft)	76.00	76.00	76.00
Crit W.S. (ft)		Flow Area (sq ft)		552.08	
E.G. Slope (ft/ft)	0.001737	Area (sq ft)		552.08	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	118.93	Top Width (ft)		118.93	
Vel Total (ft/s)	3.80	Avg. Vel. (ft/s)		3.80	
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)		4.64	
Conv. Total (cfs)	50380.9	Conv. (cfs)		50380.9	
Length Wtd. (ft)	76.00	Wetted Per. (ft)		120.17	
Min Ch El (ft)	1362.13	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		1.90	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.43	258.36	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	57.75	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21424.00

INPUT
Description: u\s top of weir
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1371.929	206.22	1371.91	215.49	1371.87	218.36	1371.89	220.21	1371.89
230.77	1372.1	270	1362.4	300	1361.93	330	1362.42	373.01	1370.21
376.73	1369.03	378.29	1368.79	379.54	1368.87	386.05	1371.28	389.49	1372.82
391.49	1373.81	392.86	1373.94	394.28	1374.09	400	1375.414		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	230.77	.045	389.49	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
230.77	389.49	24	24	24	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1368.70	Element			
Vel Head (ft)	0.22	Wt. n-Val.		0.045	
W.S. Elev (ft)	1368.48	Reach Len. (ft)	24.00	24.00	24.00
Crit W.S. (ft)		Flow Area (sq ft)		554.29	
E.G. Slope (ft/ft)	0.001698	Area (sq ft)		554.29	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	118.01	Top Width (ft)		118.01	
Vel Total (ft/s)	3.79	Avg. Vel. (ft/s)		3.79	
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)		4.70	
Conv. Total (cfs)	50961.7	Conv. (cfs)		50961.7	
Length Wtd. (ft)	24.00	Wetted Per. (ft)		119.30	
Min Ch El (ft)	1361.93	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		1.87	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.43	257.39	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	57.55	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21400.00

INPUT
Description: u\s toe of weir
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1371.882	201.76	1371.87	208	1371.86	218.89	1371.9	219.94	1371.87
230.7	1372.01	270	1362.35	300	1361.98	330	1362.37	374.01	1370.26
377.44	1369.47	379.85	1368.79	383.76	1369.97	384.28	1370.11	392.04	1373.28
395.65	1374.62	396.89	1374.92	400	1375.585				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	230.7	.045	392.04	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
230.7	392.04	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1368.66	Element			
Vel Head (ft)	0.22	Wt. n-Val.		0.045	
W.S. Elev (ft)	1368.44	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		553.82	
E.G. Slope (ft/ft)	0.001714	Area (sq ft)		553.82	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	118.59	Top Width (ft)		118.59	
Vel Total (ft/s)	3.79	Avg. Vel. (ft/s)		3.79	

Max Chl Dpth (ft)	6.46	Hydr. Depth (ft)		4.67	
Conv. Total (cfs)	50729.4	Conv. (cfs)		50729.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.87	
Min Ch El (ft)	1361.98	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		1.87	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.43	257.09	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	57.48	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21300.00

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1371.868	201.37	1371.78	203.28	1371.82	215.39	1372.13	220.22	1372.23
229.77	1371.78	270	1362.15	299.99	1361.77	300	1361.77	330	1362.16
378.13	1370.49	391.14	1371.65	392.61	1372.34	396.09	1373.99	400	1375.151

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	229.77	.045	392.61	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.77	392.61	60	60	60	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1368.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.045	
W.S. Elev (ft)	1368.27	Reach Len. (ft)	60.00	60.00	60.00
Crit W.S. (ft)		Flow Area (sq ft)		564.93	
E.G. Slope (ft/ft)	0.001645	Area (sq ft)		564.93	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	120.90	Top Width (ft)		120.90	
Vel Total (ft/s)	3.72	Avg. Vel. (ft/s)		3.72	
Max Chl Dpth (ft)	6.50	Hydr. Depth (ft)		4.67	
Conv. Total (cfs)	51781.1	Conv. (cfs)		51781.1	
Length Wtd. (ft)	60.00	Wetted Per. (ft)		122.16	
Min Ch El (ft)	1361.77	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		1.77	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.43	255.80	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	57.21	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21240.00

INPUT
Description: d/s toe of weir
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1371.606	203.26	1371.57	210.18	1371.53	210.75	1371.54	216.11	1371.54
229.12	1371.62	270	1362.03	300	1361.64	330	1362.04	380.61	1370.62
383.4	1370.56	387.85	1370.41	389.7	1371.04	396.81	1373.57	400	1374.482

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	229.12	.045	396.81	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.12	396.81	24	24	24	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1368.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.045	
W.S. Elev (ft)	1368.18	Reach Len. (ft)	24.00	24.00	24.00
Crit W.S. (ft)		Flow Area (sq ft)		572.33	
E.G. Slope (ft/ft)	0.001601	Area (sq ft)		572.33	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	122.43	Top Width (ft)		122.43	
Vel Total (ft/s)	3.67	Avg. Vel. (ft/s)		3.67	
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)		4.67	
Conv. Total (cfs)	52483.6	Conv. (cfs)		52483.6	
Length Wtd. (ft)	24.00	Wetted Per. (ft)		123.67	
Min Ch El (ft)	1361.64	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		1.70	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.43	255.02	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	57.04	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21216.00

INPUT
Description: d/s top weir
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1371.614	204.68	1371.56	208.32	1371.63	223.1	1371.68	228.87	1371.56
270	1361.98	300	1361.59	330	1361.99	353.35	1365.92	381.61	1368.64
381.73	1368.05	384.42	1368.99	388.81	1370.41	389.53	1370.63	394.96	1372.37
398.17	1373.47	400	1373.968						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	228.87	.045	394.96	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.87	394.96	16	16	16	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1368.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.045	
W.S. Elev (ft)	1368.15	Reach Len. (ft)	16.00	16.00	16.00
Crit W.S. (ft)		Flow Area (sq ft)		586.97	
E.G. Slope (ft/ft)	0.001646	Area (sq ft)		586.97	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	133.27	Top Width (ft)		133.27	
Vel Total (ft/s)	3.58	Avg. Vel. (ft/s)		3.58	
Max Chl Dpth (ft)	6.56	Hydr. Depth (ft)		4.40	
Conv. Total (cfs)	51754.5	Conv. (cfs)		51754.5	
Length Wtd. (ft)	16.00	Wetted Per. (ft)		134.52	
Min Ch El (ft)	1361.59	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.60	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.43	254.70	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	56.97	0.21

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21200.00

INPUT
Description:

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1371.61	205.85	1371.54	214.01	1371.83	215.29	1371.85	216.47	1371.84
228.69	1371.52	270	1361.95	300	1361.56	330	1361.96	382.26	1370.71
383.31	1370.25	386.2	1369.18	389.97	1370.03	391.46	1370.39	392	1370.56
399.73	1373	400	1373.089						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	228.69	.045	399.73	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.69	399.73	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1368.32	Element			
Vel Head (ft)	0.21	Wt. n-Val.		0.045	
W.S. Elev (ft)	1368.11	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		576.52	
E.G. Slope (ft/ft)	0.001578	Area (sq ft)		576.52	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	123.37	Top Width (ft)		123.37	
Vel Total (ft/s)	3.64	Avg. Vel. (ft/s)		3.64	
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)		4.67	
Conv. Total (cfs)	52864.3	Conv. (cfs)		52864.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		124.59	
Min Ch El (ft)	1361.56	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		1.66	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.43	254.49	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	56.92	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21100.00

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1371.433	200.17	1371.44	204.19	1371.38	211.89	1371.47	217.29	1371.46
225.34	1371.4	227.56	1371.29	270	1361.75	300	1361.35	330	1361.75
386.75	1370.93	387	1371.16	387.09	1371.18	387.97	1371.31	388.6	1371.43
389.06	1371.54	389.8	1371.61	391.84	1372.42	394.31	1373.33	396.63	1373.82
400	1374.543								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	227.56	.045	391.84	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.56	391.84	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1368.16	Element			
Vel Head (ft)	0.20	Wt. n-Val.		0.045	
W.S. Elev (ft)	1367.97	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		590.48	
E.G. Slope (ft/ft)	0.001499	Area (sq ft)		590.48	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	126.09	Top Width (ft)		126.09	
Vel Total (ft/s)	3.56	Avg. Vel. (ft/s)		3.56	
Max Chl Dpth (ft)	6.62	Hydr. Depth (ft)		4.68	
Conv. Total (cfs)	54234.0	Conv. (cfs)		54234.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		127.29	
Min Ch El (ft)	1361.35	Shear (lb/sq ft)		0.43	

Alpha	1.00	Stream Power (lb/ft s)		1.54	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.43	253.15	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	56.63	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 21000.00

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1371.394	204.04	1371.36	210.56	1371.55	214.18	1371.67	226.92	1371.09
235.72	1369.16	269.99	1361.56	300	1361.14	330	1361.53	388.26	1371.2
400	1371.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	226.92	.045	388.26	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.92	388.26	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1368.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.045	
W.S. Elev (ft)	1367.82	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		596.56	
E.G. Slope (ft/ft)	0.001450	Area (sq ft)		596.56	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	126.16	Top Width (ft)		126.16	
Vel Total (ft/s)	3.52	Avg. Vel. (ft/s)		3.52	
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)		4.73	
Conv. Total (cfs)	55144.0	Conv. (cfs)		55144.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		127.37	
Min Ch El (ft)	1361.14	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.49	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	0.43	251.79	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	56.34	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20900.00

INPUT
Description:
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1370.976	212.73	1370.92	228.59	1370.87	231.33	1370.58	234.48	1369.84
270.01	1361.35	300	1360.93	330.03	1361.33	392.42	1371.41	400	1371.41

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	228.59	.045	392.42	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.59	392.42	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.045	
W.S. Elev (ft)	1367.68	Reach Len. (ft)	100.00	100.00	100.00

Crit W.S. (ft)		Flow Area (sq ft)		601.71	
E.G. Slope (ft/ft)	0.001405	Area (sq ft)		601.71	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	125.83	Top Width (ft)		125.83	
Vel Total (ft/s)	3.49	Avg. Vel. (ft/s)		3.49	
Max Chl Dpth (ft)	6.75	Hydr. Depth (ft)		4.78	
Conv. Total (cfs)	56020.3	Conv. (cfs)		56020.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		127.10	
Min Ch El (ft)	1360.93	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.45	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.43	250.41	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	56.06	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20800.00

INPUT
Description:
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1371.086	202.68	1371.07	208.58	1371.09	216.33	1371.09	219.14	1371.09
229.78	1369.81	230.87	1369	270.03	1361.13	300	1360.72	330.02	1361.13
395.39	1371.59	400	1371.59						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	219.14	.045	395.39	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
219.14	395.39	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.045	
W.S. Elev (ft)	1367.56	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		630.00	
E.G. Slope (ft/ft)	0.001285	Area (sq ft)		630.00	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	132.16	Top Width (ft)		132.16	
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)		3.33	
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		4.77	
Conv. Total (cfs)	58581.3	Conv. (cfs)		58581.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		133.32	
Min Ch El (ft)	1360.72	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		1.26	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.43	249.00	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	55.76	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20700.00

INPUT
Description:
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1370.767	219.63	1370.72	219.78	1370.71	230.5	1369	270.01	1360.92
299.99	1360.52	300	1360.52	330.01	1360.94	397.68	1371.77	400	1370.728

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	219.78	.045	397.68	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
219.78	397.68	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.045	
W.S. Elev (ft)	1367.44	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		638.39	
E.G. Slope (ft/ft)	0.001234	Area (sq ft)		638.39	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	132.46	Top Width (ft)		132.46	
Vel Total (ft/s)	3.29	Avg. Vel. (ft/s)		3.29	
Max Chl Dpth (ft)	6.92	Hydr. Depth (ft)		4.82	
Conv. Total (cfs)	59790.6	Conv. (cfs)		59790.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		133.64	
Min Ch El (ft)	1360.52	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.21	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.43	247.54	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	55.46	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20600.00

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1370.00	1	219.37	1370.12	224.22	1369.61	226.71	1369	269.97	1360.75
300	1360.31	330	1360.75	395	1371.89	395.99	1372	396.57	1372.07	
400	1372.50	5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.035	219.37	.035	400	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
219.37	400	75	75	75	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.035	
W.S. Elev (ft)	1367.35	Reach Len. (ft)	75.00	75.00	75.00
Crit W.S. (ft)		Flow Area (sq ft)		650.64	
E.G. Slope (ft/ft)	0.000705	Area (sq ft)		650.64	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	133.14	Top Width (ft)		133.14	
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)		3.23	
Max Chl Dpth (ft)	7.04	Hydr. Depth (ft)		4.89	
Conv. Total (cfs)	79074.3	Conv. (cfs)		79074.3	
Length Wtd. (ft)	75.00	Wetted Per. (ft)		134.34	
Min Ch El (ft)	1360.31	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.69	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.43	246.06	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	55.15	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20525.00

INPUT

Description: Top of Drop
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1369.893	202.27	1369.88	215.76	1369.76	220.78	1369.7	222.4	1369.5
226.06	1369	270	1360.6	300	1360.15	330	1360.6	366.16	1367.29
383.17	1370.48	400	1370.788						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.03	222.4	.03	383.17	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.4	383.17	30	30	30	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1367.47	Element			
Vel Head (ft)	0.16	Wt. n-Val.		0.030	
W.S. Elev (ft)	1367.31	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)		Flow Area (sq ft)		655.16	
E.G. Slope (ft/ft)	0.000498	Area (sq ft)		655.16	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	131.34	Top Width (ft)		131.34	
Vel Total (ft/s)	3.21	Avg. Vel. (ft/s)		3.21	
Max Chl Dpth (ft)	7.16	Hydr. Depth (ft)		4.99	
Conv. Total (cfs)	94140.0	Conv. (cfs)		94140.0	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		132.59	
Min Ch El (ft)	1360.15	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.49	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.43	244.94	0.16
C & E Loss (ft)	0.03	Cum SA (acres)	0.31	54.92	0.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20495.00

INPUT
Description: Toe of Drop
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1369.86	201.38	1369.86	220.08	1369.62	225.94	1368.95	270	1357.6
300	1357.17	330	1357.6	361.17	1365.46	379.39	1369.96	400	1370.344

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.03	225.94	.03	379.39	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.94	379.39	95	95	95	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1367.43	Element			
Vel Head (ft)	0.07	Wt. n-Val.		0.030	
W.S. Elev (ft)	1367.36	Reach Len. (ft)	95.00	95.00	95.00
Crit W.S. (ft)		Flow Area (sq ft)		972.54	
E.G. Slope (ft/ft)	0.000142	Area (sq ft)		972.54	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	136.76	Top Width (ft)		136.76	
Vel Total (ft/s)	2.16	Avg. Vel. (ft/s)		2.16	
Max Chl Dpth (ft)	10.19	Hydr. Depth (ft)		7.11	
Conv. Total (cfs)	176039.2	Conv. (cfs)		176039.2	
Length Wtd. (ft)	95.00	Wetted Per. (ft)		139.21	
Min Ch El (ft)	1357.17	Shear (lb/sq ft)		0.06	

Alpha	1.00	Stream Power (lb/ft s)		0.13	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.43	244.38	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	54.83	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20400.00

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1369.653	216.21	1369.51	221.63	1369.46	225.21	1368.95	225.53	1368.68
235.41	1366.19	270	1357.45	300	1356.91	330	1357.44	365.08	1366.55
372.83	1368.56	373.25	1368.11	373.44	1368.03	400.3	1370.07		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.035	221.63	.035	400.3	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
221.63	400.3	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.035	
W.S. Elev (ft)	1367.35	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		993.07	
E.G. Slope (ft/ft)	0.000182	Area (sq ft)		993.07	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	137.34	Top Width (ft)		137.34	
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)		2.11	
Max Chl Dpth (ft)	10.44	Hydr. Depth (ft)		7.23	
Conv. Total (cfs)	155762.7	Conv. (cfs)		155762.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		139.84	
Min Ch El (ft)	1356.91	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.17	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.43	242.23	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	54.53	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20300.00

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1369.081	203.85	1369.16	211.61	1369.23	213.46	1369.26	216.9	1369.28
219.41	1369.32	221.95	1368.96	224.7	1368.39	246.87	1362.94	270.01	1357.24
300	1356.73	330.01	1357.24	346.44	1361.44	373.05	1368.26	398.85	1370.27
400	1370.471								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	219.41	.045	398.85	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
219.41	398.85	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.39	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.07	Wt. n-Val.		0.045	
W.S. Elev (ft)	1367.33	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		1026.18	
E.G. Slope (ft/ft)	0.000277	Area (sq ft)		1026.18	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	140.40	Top Width (ft)		140.40	
Vel Total (ft/s)	2.05	Avg. Vel. (ft/s)		2.05	
Max Chl Dpth (ft)	10.60	Hydr. Depth (ft)		7.31	
Conv. Total (cfs)	126124.5	Conv. (cfs)		126124.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		142.90	
Min Ch El (ft)	1356.73	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.25	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.43	239.91	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	54.21	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20200.00

INPUT
Description:
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1369	226.5	1368.5	270.01	1357.03	300	1356.55	329.99	1357.03
374.05	1367.96	390.59	1368.05	393.2	1368.46	400	1369.658		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	226.5	.045	374.05	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.5	374.05	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.045	
W.S. Elev (ft)	1367.30	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		1043.44	
E.G. Slope (ft/ft)	0.000262	Area (sq ft)		1043.44	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	140.36	Top Width (ft)		140.36	
Vel Total (ft/s)	2.01	Avg. Vel. (ft/s)		2.01	
Max Chl Dpth (ft)	10.75	Hydr. Depth (ft)		7.43	
Conv. Total (cfs)	129646.9	Conv. (cfs)		129646.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		142.96	
Min Ch El (ft)	1356.55	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.24	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.43	237.54	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	53.89	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20100.00

INPUT
Description:
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1369	225.61	1368.5	270	1356.82	300	1356.37	330	1356.83
374.8	1367.64	384.47	1369.02	390.04	1369.79	390.42	1369.83	392.99	1370.12
396.49	1370.52	400	1370.654						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	225.61	.045	384.47	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.61	384.47	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.045	
W.S. Elev (ft)	1367.28	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		1075.19	
E.G. Slope (ft/ft)	0.000243	Area (sq ft)		1075.19	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	143.06	Top Width (ft)		143.06	
Vel Total (ft/s)	1.95	Avg. Vel. (ft/s)		1.95	
Max Chl Dpth (ft)	10.91	Hydr. Depth (ft)		7.52	
Conv. Total (cfs)	134591.0	Conv. (cfs)		134591.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		145.67	
Min Ch El (ft)	1356.37	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.22	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.43	235.11	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	53.57	0.21

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 20000.00

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
169	1368	193.2	1367	210.3	1366	236.3	1365	240.4	1364
244.4	1363	248.4	1362	252.4	1361	256.4	1360	260.4	1359
264.4	1358	268.4	1357	300	1356.19	331.7	1357	335.96	1358
340.22	1359	344.48	1360	348.74	1361	353	1362	357.26	1363
361.52	1364	365.78	1365	370.04	1366	374.3	1367	381.5	1368
388.7	1369								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
169	.045	236.3	.045	365.78	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
236.3	365.78	79	79	79	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.045	0.045	0.045
W.S. Elev (ft)	1367.26	Reach Len. (ft)	79.00	79.00	79.00
Crit W.S. (ft)		Flow Area (sq ft)	59.65	1089.24	11.00
E.G. Slope (ft/ft)	0.000196	Area (sq ft)	59.65	1089.24	11.00
Q Total (cfs)	2100.00	Flow (cfs)	31.25	2063.55	5.19
Top Width (ft)	189.31	Top Width (ft)	49.43	129.48	10.40
Vel Total (ft/s)	1.81	Avg. Vel. (ft/s)	0.52	1.89	0.47
Max Chl Dpth (ft)	11.07	Hydr. Depth (ft)	1.21	8.41	1.06
Conv. Total (cfs)	149914.0	Conv. (cfs)	2231.1	147312.1	370.8
Length Wtd. (ft)	79.00	Wetted Per. (ft)	49.48	131.41	10.65
Min Ch El (ft)	1356.19	Shear (lb/sq ft)	0.01	0.10	0.01
Alpha	1.08	Stream Power (lb/ft s)	0.01	0.19	0.01
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.36	232.62	0.15
C & E Loss (ft)	0.01	Cum SA (acres)	0.26	53.25	0.20

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19921.00

INPUT
Description: u/s sossaman rd
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
108.3	1368	144.5	1367	165	1366	196.3	1365	216.2	1364
250.7	1359	270.5	1358	290.3	1357	300	1356.04	300.01	1356.04
330.01	1356.35	366.99	1364.28	374.1	1365.81	374.52	1365.98	375.74	1366.4
382.3	1368.65	383.58	1368.66	387.08	1368.65	392.57	1368.65	397.84	1368.65
399.17	1368.7	403.69	1368.85	406.34	1368.95	408.73	1369.03	412.5	1369.15
413.15	1369.18	414.92	1369.24	416.72	1369.39	420.35	1369.71	422.3	1369.86
425.06	1370.07	426.22	1370.16	431.28	1370.55	437.12	1371.1	440.29	1370.81
444.93	1370.44	446.08	1370.35	447.76	1370.26	448.99	1370.17	451.57	1369.95
452.15	1369.9	455.69	1369.88	457.51	1369.91	460.52	1369.91	480.84	1370
506.88	1369.99	509.73	1369.98	511.22	1369.98	535.15	1369.5	535.99	1369.43

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
108.3	.025	216.2	.025	382.3	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
216.2	382.3	131	131	131	.4	.6

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1367.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.025	0.025	
W.S. Elev (ft)	1367.27	Reach Len. (ft)	131.00	131.00	131.00
Crit W.S. (ft)	1359.79	Flow Area (sq ft)	127.36	1278.28	
E.G. Slope (ft/ft)	0.000046	Area (sq ft)	127.36	1278.28	
Q Total (cfs)	2100.00	Flow (cfs)	69.29	2030.71	
Top Width (ft)	243.42	Top Width (ft)	81.36	162.07	
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)	0.54	1.59	
Max Chl Dpth (ft)	11.23	Hydr. Depth (ft)	1.57	7.89	
Conv. Total (cfs)	309146.2	Conv. (cfs)	10200.4	298945.8	
Length Wtd. (ft)	131.00	Wetted Per. (ft)	81.42	163.78	
Min Ch El (ft)	1356.04	Shear (lb/sq ft)	0.00	0.02	
Alpha	1.10	Stream Power (lb/ft s)	0.00	0.04	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.19	230.48	0.14
C & E Loss (ft)		Cum SA (acres)	0.14	52.99	0.19

CULVERT

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19842.36

INPUT
Description: Sossaman Road - 24" culverts constructed, modeled as 18" to account for sediment build up.
Distance from Upstream XS = 2.08
Deck/Roadway Width = 124
Weir Coefficient = 3.05
Upstream Deck/Roadway Coordinates
num= 11

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
31	1364.02	1353	81	1363.84	1353	131	1363.82	1353
181	1363.93	1353	231	1364.31	1353	281	1364.97	1353
307	1365.43	1353	331	1365.89	1353	381	1366.97	1353
431	1367.7	1353	451	1367.86	1353			

Upstream Bridge Cross Section Data
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
108.3	1368	144.5	1367	165	1366	196.3	1365	216.2	1364
250.7	1359	270.5	1358	290.3	1357	300	1356.04	300.01	1356.04
330.01	1356.35	366.99	1364.28	374.1	1365.81	374.52	1365.98	375.74	1366.4
382.3	1368.65	383.58	1368.66	387.08	1368.65	392.57	1368.65	397.84	1368.65
399.17	1368.7	403.69	1368.85	406.34	1368.95	408.73	1369.03	412.5	1369.15
413.15	1369.18	414.92	1369.24	416.72	1369.39	420.35	1369.71	422.3	1369.86
425.06	1370.07	426.22	1370.16	431.28	1370.55	437.12	1371.1	440.29	1370.81
444.93	1370.44	446.08	1370.35	447.76	1370.26	448.99	1370.17	451.57	1369.95
452.15	1369.9	455.69	1369.88	457.51	1369.91	460.52	1369.91	480.84	1370
506.88	1369.99	509.73	1369.98	511.22	1369.98	535.15	1369.5	535.99	1369.43

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
108.3	.025	216.2	.025	382.3	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
216.2	382.3	.4	.6

Downstream Deck/Roadway Coordinates
num= 11

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
16	1363.43	1353	66	1362.8	1353	116	1362.48	1353
166	1362.51	1353	216	1362.81	1353	266	1363.37	1353
292	1363.79	1353	316	1364.21	1353	366	1365.25	1353
416	1366.2	1353	436	1366.57	1353			

Downstream Bridge Cross Section Data
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
187	1366.1	192.7	1365	196.7	1364	225.8	1363	237	1362
242.5	1361	248.2	1360	253.9	1359	259.6	1358	265.3	1357
291	1356	300	1355.68	338.4	1357	343.7	1358	349.9	1359
354.8	1360	360.1	1361	365.4	1362	370.6	1363	375.8	1364
381.9	1365	402.2	1366	432.5	1367				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
187	.025	225.8	.025	370.6	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
225.8	370.6	.1	.6

Upstream Embankment side slope = 4 horiz. to 1.0 vertical
Downstream Embankment side slope = 4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 1363.12
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	Circular	1.5	

FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG

Culvert Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
5.5	124	.012	.012	0	.5	1

Number of Barrels = 3
Upstream Elevation = 1356.04
Centerline Stations

Sta.	Sta.	Sta.
297	300	303

Downstream Elevation = 1355.59
Centerline Stations

Sta.	Sta.	Sta.
297	300	303

CULVERT OUTPUT Profile #As-Built Culv Group: Culvert #1

Q Culv Group (cfs)	54.55	Culv Full Len (ft)	124.00
# Barrels	3	Culv Vel US (ft/s)	10.29
Q Barrel (cfs)	18.18	Culv Vel DS (ft/s)	10.29
E.G. US. (ft)	1367.31	Culv Inv El Up (ft)	1356.04
W.S. US. (ft)	1367.27	Culv Inv El Dn (ft)	1355.59
E.G. DS (ft)	1361.93	Culv Frctn Ls (ft)	3.17
W.S. DS (ft)	1361.67	Culv Exit Loss (ft)	1.39
Delta EG (ft)	5.37	Culv Entr Loss (ft)	0.82
Delta WS (ft)	5.59	Q Weir (cfs)	2045.45
E.G. IC (ft)	1367.32	Weir Sta Lft (ft)	131.99
E.G. OC (ft)	1367.31	Weir Sta Rgt (ft)	378.50
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	1357.54	Weir Max Depth (ft)	3.17
Culv WS Outlet (ft)	1357.09	Weir Avg Depth (ft)	1.85
Culv Nml Depth (ft)	1.50	Weir Flow Area (sq ft)	455.31
Culv Crt Depth (ft)	1.50	Min El Weir Flow (ft)	1364.18

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.
Note: Culvert critical depth exceeds the height of the culvert.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19790.00

INPUT
Description: d/s sossaman rd
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
187	1366	192.7	1365	196.7	1364	225.8	1363	237	1362
242.5	1361	248.2	1360	253.9	1359	259.6	1358	265.3	1357
291	1356	300	1355.59	338.4	1357	343.7	1358	349.9	1359
354.8	1360	360.1	1361	365.4	1362	370.6	1363	375.8	1364
381.9	1365	402.2	1366	432.5	1367				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
187	.025	225.8	.025	370.6	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.8	370.6	90	90	90	.1	.6

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1361.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.025	
W.S. Elev (ft)	1361.67	Reach Len. (ft)	90.00	90.00	90.00
Crit W.S. (ft)		Flow Area (sq ft)		514.36	
E.G. Slope (ft/ft)	0.000721	Area (sq ft)		514.36	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	124.86	Top Width (ft)		124.86	
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		4.08	
Max Chl Dpth (ft)	6.08	Hydr. Depth (ft)		4.12	
Conv. Total (cfs)	78188.1	Conv. (cfs)		78188.1	
Length Wtd. (ft)	90.00	Wetted Per. (ft)		125.76	
Min Ch El (ft)	1355.59	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.75	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.00	227.78	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	52.56	0.19

CROSS SECTION

RIVER: Sonoqui Wash

REACH: Sonoqui Wash RS: 19700.00

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1366.351	204.16	1365.16	210.64	1363.58	216.67	1363.08	222.02	1362.74
224.06	1363.49	224.68	1363.75	225.69	1364.6	270.01	1356.01	300	1355.42
330	1355.98	366.85	1364.42	369.91	1365.24	374.36	1367.96	376.13	1367.85
378.67	1367.8	379.4	1367.72	386.51	1367.16	386.92	1367.1	387.69	1367.02
388.96	1366.99	389.76	1367	395.33	1366.94	395.75	1366.92	400	1366.848

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.035	225.69	.035	369.91	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.69	369.91	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1361.84	Element			
Vel Head (ft)	0.27	Wt. n-Val.		0.035	
W.S. Elev (ft)	1361.57	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		499.43	
E.G. Slope (ft/ft)	0.001372	Area (sq ft)		499.43	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.06	Top Width (ft)		113.06	
Vel Total (ft/s)	4.20	Avg. Vel. (ft/s)		4.20	
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)		4.42	
Conv. Total (cfs)	56689.5	Conv. (cfs)		56689.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		114.24	
Min Ch El (ft)	1355.42	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.57	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.00	226.73	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	52.31	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19600.00

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1363.947	202.46	1363.24	224.84	1364.21	224.87	1364.22	270.01	1355.8
300	1355.24	330	1355.77	341.58	1358.25	368.53	1364.72	370.18	1365.01
371.19	1365.22	372.79	1365.33	374.42	1365.5	374.96	1365.6	376.61	1365.81
378.36	1366.19	378.83	1366.26	379.52	1366.45	380.32	1366.26	381.23	1365.94
385	1366.04	389.93	1365.71	391.71	1365.71	392.85	1365.96	394.5	1366.34
395.44	1366.63	396.51	1367.04	399.67	1368.18	400	1368.157		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	224.87	.045	368.53	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.87	368.53	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1361.67	Element			
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1361.41	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		509.36	
E.G. Slope (ft/ft)	0.002166	Area (sq ft)		509.36	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	

Top Width (ft)	114.76	Top Width (ft)		114.76	
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)		4.12	
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)		4.44	
Conv. Total (cfs)	45119.4	Conv. (cfs)		45119.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		115.93	
Min Ch El (ft)	1355.24	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.45	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	225.58	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	52.05	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19500.00

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1365.814	224.77	1363.86	270	1355.59	300	1355.05	300.01	1355.05
330	1355.57	366.29	1363.62	369.88	1366.31	372.01	1366.85	374.22	1367.35
375.29	1367.17	381.86	1366.92	382.58	1366.8	383.19	1366.78	384.8	1366.51
385.14	1366.53	387.28	1366.26	388.74	1366.15	392.51	1365.7	393.22	1365.64
395.22	1365.4	396.44	1365.17	396.66	1365.18	400	1364.861		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	224.77	.045	366.29	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.77	366.29	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1361.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1361.19	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		509.09	
E.G. Slope (ft/ft)	0.002198	Area (sq ft)		509.09	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	115.93	Top Width (ft)		115.93	
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)		4.12	
Max Chl Dpth (ft)	6.14	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	44787.9	Conv. (cfs)		44787.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.06	
Min Ch El (ft)	1355.05	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.46	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	224.41	0.14
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	51.78	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19400.00

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1366.028	210.54	1365.8	211.45	1365.83	212.71	1365.78	213.55	1365.87
214.38	1365.89	219.36	1365.81	220.51	1365.76	223.89	1364.82	224.57	1364.48
226.35	1363.5	270	1355.38	300	1354.84	300.01	1354.84	330.01	1355.36
375.66	1363.21	375.97	1363.92	378.91	1364.17	380.46	1364.2	384.13	1364.03
388.04	1364.76	389.09	1364.72	398.9	1364.02	400	1364.099		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	223.89	.045	378.91	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.89	378.91	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1361.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1360.99	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		529.57	
E.G. Slope (ft/ft)	0.002079	Area (sq ft)		529.57	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	122.88	Top Width (ft)		122.88	
Vel Total (ft/s)	3.97	Avg. Vel. (ft/s)		3.97	
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)		4.31	
Conv. Total (cfs)	46059.2	Conv. (cfs)		46059.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		123.88	
Min Ch El (ft)	1354.84	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.20	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	223.21	0.14
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	51.51	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19300.00

INPUT
Description:
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1365	225.84	1363.15	270	1355.17	300	1354.63	330	1355.16
391.24	1363	400	1363						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	225.84	.045	391.24	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.84	391.24	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
200	225.84	1365	T

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1361.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.045	
W.S. Elev (ft)	1360.81	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		567.74	
E.G. Slope (ft/ft)	0.001871	Area (sq ft)		567.74	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	135.37	Top Width (ft)		135.37	
Vel Total (ft/s)	3.70	Avg. Vel. (ft/s)		3.70	
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)		4.19	
Conv. Total (cfs)	48545.1	Conv. (cfs)		48545.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		136.25	
Min Ch El (ft)	1354.63	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		1.80	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	221.95	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	51.21	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19200.00

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1365	225.33	1363	269.98	1354.97	300	1354.41	300.01	1354.41
329.98	1354.94	392.87	1363	397.15	1363.03	398.04	1363.07	399.18	1363.08
400	1363.066								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	225.33	.045	392.87	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.33	392.87	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
200	225.33	1365	T

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1360.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.045	
W.S. Elev (ft)	1360.63	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		572.15	
E.G. Slope (ft/ft)	0.001832	Area (sq ft)		572.15	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	135.86	Top Width (ft)		135.86	
Vel Total (ft/s)	3.67	Avg. Vel. (ft/s)		3.67	
Max Chl Dpth (ft)	6.22	Hydr. Depth (ft)		4.21	
Conv. Total (cfs)	49057.1	Conv. (cfs)		49057.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		136.74	
Min Ch El (ft)	1354.41	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		1.76	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	220.65	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	50.90	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19100.00

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1365	218.11	1362.57	218.33	1362.58	220.45	1363	269.99	1354.78
299.99	1354.2	300	1354.2	329.99	1354.72	345.12	1357.15	350.96	1357.8
377.6	1361.71	386.59	1363	387.18	1363.7	387.45	1363.75	391.64	1363.95
399.9	1364.46	400	1364.465						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	220.45	.045	387.18	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.45	387.18	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1360.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.045	
W.S. Elev (ft)	1360.44	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		563.15	
E.G. Slope (ft/ft)	0.001879	Area (sq ft)		563.15	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	

Top Width (ft)	133.02	Top Width (ft)		133.02	
Vel Total (ft/s)	3.73	Avg. Vel. (ft/s)		3.73	
Max Chl Dpth (ft)	6.24	Hydr. Depth (ft)		4.23	
Conv. Total (cfs)	48446.1	Conv. (cfs)		48446.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		133.92	
Min Ch El (ft)	1354.20	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		1.84	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	219.34	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	50.59	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 19000.00

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1365	210.65	1363	226.54	1360.78	269.99	1354.58	300	1353.99
329.98	1354.5	356.92	1360.92	359.43	1361.47	373.31	1364.42	374.17	1364.2
376.8	1363.93	377.49	1363.88	387.95	1364.36	388.39	1364.42	397.1	1365.52
398.24	1365.59	399.79	1365.75	400	1365.761				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	210.65	.045	373.31	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
210.65	373.31	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1360.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1360.22	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		537.29	
E.G. Slope (ft/ft)	0.001996	Area (sq ft)		537.29	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	123.51	Top Width (ft)		123.51	
Vel Total (ft/s)	3.91	Avg. Vel. (ft/s)		3.91	
Max Chl Dpth (ft)	6.23	Hydr. Depth (ft)		4.35	
Conv. Total (cfs)	47003.1	Conv. (cfs)		47003.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		124.59	
Min Ch El (ft)	1353.99	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.10	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	218.08	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	50.30	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18900.00

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1364	205.98	1363	244.11	1357.86	269.97	1354.39	300	1353.78
329.99	1354.28	366.02	1363	367.64	1363.54	368.9	1364.2	369.6	1364.53
373.44	1364.35	379.07	1364.2	380.19	1364.27	383.42	1364.18	387.08	1364.42
390.35	1364.79	393.41	1365.12	395.01	1365.2	399.82	1365.36	400	1365.365

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	205.98	.045	369.6	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
205.98	369.6	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1360.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	
W.S. Elev (ft)	1360.03	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		544.79	
E.G. Slope (ft/ft)	0.001950	Area (sq ft)		544.79	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	125.70	Top Width (ft)		125.70	
Vel Total (ft/s)	3.85	Avg. Vel. (ft/s)		3.85	
Max Chl Dpth (ft)	6.25	Hydr. Depth (ft)		4.33	
Conv. Total (cfs)	47551.1	Conv. (cfs)		47551.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		126.77	
Min Ch El (ft)	1353.78	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		2.02	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	216.84	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	50.01	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18800.00

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1365	211.27	1363	241.13	1358.5	270.01	1354.18	300	1353.57
330.01	1354.08	370.83	1363	380.78	1363.22	388.68	1363.18	390.22	1363.19
393.3	1363.29	399	1363.45	400	1363.594				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	211.27	.045	370.83	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
211.27	370.83	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1360.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	
W.S. Elev (ft)	1359.83	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		540.73	
E.G. Slope (ft/ft)	0.001963	Area (sq ft)		540.73	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	123.98	Top Width (ft)		123.98	
Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)		3.88	
Max Chl Dpth (ft)	6.26	Hydr. Depth (ft)		4.36	
Conv. Total (cfs)	47394.3	Conv. (cfs)		47394.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		125.04	
Min Ch El (ft)	1353.57	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.06	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	215.59	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	49.73	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18700.00

INPUT

Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1362.5	210.13	1363.6	210.72	1363.67	211.55	1363.88	219.53	1362.65
269.99	1353.96	300	1353.35	329.97	1353.87	365.52	1359.75	386.07	1363
389.51	1363.69	392.64	1363.94	400	1363.93				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	211.55	.045	389.51	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
211.55	389.51	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1359.87	Element			
Vel Head (ft)	0.22	Wt. n-Val.		0.045	
W.S. Elev (ft)	1359.64	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		555.10	
E.G. Slope (ft/ft)	0.001873	Area (sq ft)		555.10	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	127.89	Top Width (ft)		127.89	
Vel Total (ft/s)	3.78	Avg. Vel. (ft/s)		3.78	
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)		4.34	
Conv. Total (cfs)	48527.3	Conv. (cfs)		48527.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		128.86	
Min Ch El (ft)	1353.35	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		1.91	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.00	214.33	0.14
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	49.44	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18600.00

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1360.47	202.4	1360.6	203.08	1360.67	204.05	1360.68	205	1360.73
208.1	1360.98	211.12	1361	219.56	1361.14	221.04	1361.19	223.17	1361.21
224.44	1361.52	225.37	1361.5	252.93	1356.76	269.97	1353.75	300	1353.14
300.01	1353.14	329.89	1353.68	352.65	1356.64	400	1362.653	402.73	1363

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	224.44	.045	400	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.44	400	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1359.68	Element			
Vel Head (ft)	0.20	Wt. n-Val.		0.045	
W.S. Elev (ft)	1359.48	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		586.26	
E.G. Slope (ft/ft)	0.001723	Area (sq ft)		586.26	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	137.90	Top Width (ft)		137.90	
Vel Total (ft/s)	3.58	Avg. Vel. (ft/s)		3.58	
Max Chl Dpth (ft)	6.34	Hydr. Depth (ft)		4.25	
Conv. Total (cfs)	50588.5	Conv. (cfs)		50588.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		138.78	
Min Ch El (ft)	1353.14	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.63	

Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.00	213.02	0.14
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	49.13	0.19

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18500.00

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
78.8	1360	85	1359	91.1	1358	97.4	1357	102.8	1356
109.8	1355	134.7	1355	146.1	1356	159.1	1357	179.9	1358
212.2	1358	233.8	1357	250.9	1356	259.3	1355	267.3	1354
300	1352.93	334	1354	342.1	1355	350.3	1356	358.5	1357
366.7	1358	374.9	1359	383.1	1360	391.3	1361	399.5	1362

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
78.8	.045	85	.045	374.9	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
85	374.9	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
78.8	212.2	1360	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1359.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.045	0.045
W.S. Elev (ft)	1359.36	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1356.44	Flow Area (sq ft)		670.33	0.53
E.G. Slope (ft/ft)	0.001368	Area (sq ft)	0.40	1002.11	0.53
Q Total (cfs)	2100.00	Flow (cfs)		2099.79	0.21
Top Width (ft)	295.08	Top Width (ft)	2.23	289.90	2.95
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)		3.13	0.39
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		4.12	0.18
Conv. Total (cfs)	56772.7	Conv. (cfs)		56767.2	5.6
Length Wtd. (ft)	100.00	Wetted Per. (ft)		163.21	2.97
Min Ch El (ft)	1352.93	Shear (lb/sq ft)		0.35	0.02
Alpha	1.00	Stream Power (lb/ft s)		1.10	0.01
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.00	211.20	0.14
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	48.64	0.18

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18400.00

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
154.5	1360	170.7	1359	190.4	1358	211.2	1357	231.3	1356
249.4	1355	261.9	1354	287.1	1353	300	1352.72	313.1	1353
334.9	1354	342.2	1355	349.5	1356	356.8	1357	364.1	1358
371.5	1359	378.9	1360	386.3	1361	393.7	1362		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

154.5	.045	170.7	.045	371.5	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
170.7	371.5	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1359.38	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.045	0.045	0.045
W.S. Elev (ft)	1359.26	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)	0.56	773.07	0.26
E.G. Slope (ft/ft)	0.001125	Area (sq ft)	0.56	773.07	0.26
Q Total (cfs)	2100.00	Flow (cfs)	0.16	2099.77	0.07
Top Width (ft)	207.00	Top Width (ft)	4.25	200.80	1.94
Vel Total (ft/s)	2.71	Avg. Vel. (ft/s)	0.29	2.72	0.28
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)	0.13	3.85	0.13
Conv. Total (cfs)	62601.4	Conv. (cfs)	4.8	62594.5	2.2
Length Wtd. (ft)	100.00	Wetted Per. (ft)	4.26	201.33	1.96
Min Ch El (ft)	1352.72	Shear (lb/sq ft)	0.01	0.27	0.01
Alpha	1.00	Stream Power (lb/ft s)	0.00	0.73	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.00	209.16	0.13
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	48.08	0.18

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18300.00

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
216.6	1360	226	1359	233.2	1358	240.6	1357	248.2	1356
255.9	1355	263.4	1354	274.6	1353	300	1352.51	324.5	1353
335.2	1354	341.3	1355	347.4	1356	353.6	1357	359.8	1358
366.2	1359	372.4	1360	375.6	1361	384.8	1362		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
216.6	.045	216.6	.045	372.4	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
216.6	372.4	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1359.24	Element			
Vel Head (ft)	0.18	Wt. n-Val.		0.045	
W.S. Elev (ft)	1359.06	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		611.12	
E.G. Slope (ft/ft)	0.001546	Area (sq ft)		611.12	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	141.07	Top Width (ft)		141.07	
Vel Total (ft/s)	3.44	Avg. Vel. (ft/s)		3.44	
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)		4.33	
Conv. Total (cfs)	53413.1	Conv. (cfs)		53413.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		141.91	
Min Ch El (ft)	1352.51	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.43	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	0.00	207.57	0.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	47.69	0.17

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18200.00

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1360.08	230.52	1360	241.59	1357.97	269.8	1352.87	300	1352.3
329.53	1352.9	343.69	1355.26	368.47	1359.36	370.93	1360.53	374.82	1360.83
377.31	1360.7	387.43	1363.14	389.75	1363.15	400	1362.91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	230.52	.045	374.82	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
230.52	374.82	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1359.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.045	
W.S. Elev (ft)	1358.88	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		582.71	
E.G. Slope (ft/ft)	0.001611	Area (sq ft)		582.71	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	128.92	Top Width (ft)		128.92	
Vel Total (ft/s)	3.60	Avg. Vel. (ft/s)		3.60	
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)		4.52	
Conv. Total (cfs)	52319.0	Conv. (cfs)		52319.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		129.96	
Min Ch El (ft)	1352.30	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.63	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.00	206.20	0.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	47.38	0.17

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18100.00

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1361.67	207.28	1361.54	209.11	1361.56	212.51	1361.52	216.77	1361.52
225.66	1362.09	231.26	1360.03	233.54	1359.23	234.71	1359.52	236.25	1360
270.06	1352.66	300	1352.1	329.37	1352.69	340.58	1355.15	357.94	1358.86
358.98	1359	359.78	1359.18	360.78	1359.31	363.97	1359.77	366.44	1360.74
371.91	1362.82	373.09	1363.34	376.36	1363.14	379.32	1363.11	382.35	1363.1
391.33	1362.99	393.36	1362.95	399.37	1362.93	400	1362.94		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	225.66	.045	373.09	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.66	373.09	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1358.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1358.67	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		537.97	
E.G. Slope (ft/ft)	0.001806	Area (sq ft)		537.97	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	114.67	Top Width (ft)		114.67	
Vel Total (ft/s)	3.90	Avg. Vel. (ft/s)		3.90	
Max Chl Dpth (ft)	6.57	Hydr. Depth (ft)		4.69	

Conv. Total (cfs)	49411.6	Conv. (cfs)		49411.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		115.96	
Min Ch El (ft)	1352.10	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		2.04	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	204.92	0.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	47.10	0.17

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 18000.00

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1361.8	206.93	1361.63	223.49	1361.68	228.49	1361.63	230.88	1361.75
237.02	1361.46	238.25	1361.51	238.68	1360	272.53	1352.46	300	1351.89
327.29	1352.48	345.68	1357.1	351.95	1358.62	352.61	1358.68	361.44	1358.36
362.83	1358.51	363.94	1358.8	364.59	1358.93	371.08	1360.73	376.65	1359.42
398.22	1359.05	400	1359.05						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	238.25	.045	352.61	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
238.25	352.61	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
352.61	400	1360	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1358.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.045	
W.S. Elev (ft)	1358.42	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1355.52	Flow Area (sq ft)		491.83	
E.G. Slope (ft/ft)	0.002181	Area (sq ft)		491.83	0.07
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.58	Top Width (ft)		105.36	2.23
Vel Total (ft/s)	4.27	Avg. Vel. (ft/s)		4.27	
Max Chl Dpth (ft)	6.53	Hydr. Depth (ft)		4.67	
Conv. Total (cfs)	44966.8	Conv. (cfs)		44966.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		106.75	
Min Ch El (ft)	1351.89	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		2.68	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	0.00	203.74	0.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	46.84	0.17

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17900.00

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1362.49	204.07	1362.54	207.14	1362.56	211.43	1362.79	214.21	1362.98
223.1	1362.31	233.67	1360.35	241.63	1359.41	262.06	1354.98	274.95	1352.25

300	1351.68	325.05	1352.27	350.7	1358.51	353.65	1358.74	358.49	1359.03
358.9	1359.1	359.6	1359.13	362.56	1359.38	364.77	1359.62	365	1359.6
365.89	1359.59	366.29	1359.65	366.47	1359.66	366.79	1359.73	368.35	1359.92
370.05	1359.36	370.22	1359.28	372.85	1359.18	379.11	1358.99	385.24	1359.07
389.84	1359.08	395.45	1359.15	399.51	1359.12	400	1359		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	223.1	.045	368.35	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.1	368.35	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1358.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.045	
W.S. Elev (ft)	1358.14	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		461.50	
E.G. Slope (ft/ft)	0.002573	Area (sq ft)		461.50	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	101.71	Top Width (ft)		101.71	
Vel Total (ft/s)	4.55	Avg. Vel. (ft/s)		4.55	
Max Chl Dpth (ft)	6.46	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	41402.7	Conv. (cfs)		41402.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		103.05	
Min Ch El (ft)	1351.68	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		3.27	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	0.00	202.64	0.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	46.61	0.17

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17800.00

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1362.54	206.88	1362.61	215.9	1362.8	220.26	1362.98	222.92	1362.68
226.42	1362.44	229.45	1362.27	230.85	1362.03	232.26	1361.81	243.92	1359.8
244.58	1359.96	262.87	1355.15	274.52	1352.04	300	1351.47	300.01	1351.47
324.69	1352.06	343.05	1356.71	347.03	1358.38	349.46	1359.04	350.62	1358.99
351.95	1358.8	356.07	1358.85	360.28	1359.78	367.02	1359.02	370.06	1359.01
375.02	1358.96	381.89	1358.99	389.06	1358.99	390.03	1359.01	400	1359.07

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	232.26	.045	360.28	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
232.26	360.28	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1358.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.045	
W.S. Elev (ft)	1357.82	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		431.32	
E.G. Slope (ft/ft)	0.002873	Area (sq ft)		431.32	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	92.98	Top Width (ft)		92.98	
Vel Total (ft/s)	4.87	Avg. Vel. (ft/s)		4.87	
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)		4.64	
Conv. Total (cfs)	39175.7	Conv. (cfs)		39175.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		94.55	
Min Ch El (ft)	1351.47	Shear (lb/sq ft)		0.82	

Alpha	1.00	Stream Power (lb/ft s)		3.98	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	0.00	201.62	0.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	46.38	0.17

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17700.00

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1361.94	213.28	1361.83	213.96	1361.84	218.6	1362.52	220.28	1362.71
221.54	1362.29	225.35	1361.91	231.2	1361.76	240.86	1359.91	244.74	1359.03
244.93	1359.01	245.39	1359	274.74	1351.84	300	1351.26	300.01	1351.26
324.35	1351.85	348.03	1358.15	354.1	1358.54	355.47	1358.54	360.25	1358.6
361.28	1358.65	365.78	1357.92	370.2	1357.26	376.07	1357.29	390.63	1357.48
397.02	1358.19	400	1359.19						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	231.2	.045	361.28	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.2	361.28	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
360.25	400	1360	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1357.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.045	
W.S. Elev (ft)	1357.50	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1355.10	Flow Area (sq ft)		420.42	
E.G. Slope (ft/ft)	0.003170	Area (sq ft)		420.42	3.12
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.19	Top Width (ft)		94.02	22.17
Vel Total (ft/s)	5.00	Avg. Vel. (ft/s)		5.00	
Max Chl Dpth (ft)	6.24	Hydr. Depth (ft)		4.47	
Conv. Total (cfs)	37300.6	Conv. (cfs)		37300.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		95.46	
Min Ch El (ft)	1351.26	Shear (lb/sq ft)		0.87	
Alpha	1.00	Stream Power (lb/ft s)		4.35	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	0.00	200.64	0.13
C & E Loss (ft)	0.03	Cum SA (acres)	0.00	46.17	0.14

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17600.00

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1362.03	206.29	1362.13	209.92	1362.41	215.74	1361.82	218.21	1360.81
219.66	1360.84	221.74	1360.38	222.79	1360.08	224.22	1359.87	225.58	1359.72
229.71	1359.01	232.28	1358.72	237.56	1358.96	238.9	1359	274.98	1351.63
300	1351.05	300.01	1351.05	325.02	1351.64	331.03	1352.51	350.97	1355.43

353.4	1355.68	353.73	1355.68	357.61	1356.23	358.17	1356.28	361	1356.81
363.11	1357.04	364.05	1357.16	367.19	1357.69	368.4	1357.72	374.26	1357.91
375.83	1357.86	376.42	1357.86	382.4	1358.06	386.53	1358.3	393.44	1358.05
398.55	1358.44	399.09	1358.44	399.31	1358.46	400	1358.41		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	238.9	.045	374.26	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
238.9	374.26	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1357.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.045	
W.S. Elev (ft)	1357.28	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		485.77	
E.G. Slope (ft/ft)	0.002610	Area (sq ft)		485.77	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.42	Top Width (ft)		117.42	
Vel Total (ft/s)	4.32	Avg. Vel. (ft/s)		4.32	
Max Chl Dpth (ft)	6.23	Hydr. Depth (ft)		4.14	
Conv. Total (cfs)	41106.0	Conv. (cfs)		41106.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.41	
Min Ch El (ft)	1351.05	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		2.89	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	0.00	199.60	0.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	45.93	0.12

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17500.00

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1361.64	206.14	1361.55	207.63	1361.53	209.48	1361.45	211.28	1361.36
212.78	1361.18	214.97	1361.02	216.97	1360.81	218.36	1360.69	219.84	1360.57
221.21	1360.46	223.54	1360.19	227.03	1359.19	227.6	1359.08	227.68	1359.07
262.63	1353.3	272.5	1351.42	300	1350.88	327.5	1351.44	334.32	1353.06
355.02	1358	357.83	1358.46	364.01	1358.56	373.44	1358.37	376.02	1358.3
383.1	1358.28	384.86	1358.26	386.22	1358.27	387.39	1358.26	388.75	1358.26
389.48	1358.29	395.63	1358.37	399	1358.51	400	1358.57		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	227.68	.045	357.83	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.68	357.83	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1357.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	1357.00	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		473.58	
E.G. Slope (ft/ft)	0.002630	Area (sq ft)		473.58	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	110.61	Top Width (ft)		110.61	
Vel Total (ft/s)	4.43	Avg. Vel. (ft/s)		4.43	
Max Chl Dpth (ft)	6.12	Hydr. Depth (ft)		4.28	
Conv. Total (cfs)	40952.3	Conv. (cfs)		40952.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		111.75	
Min Ch El (ft)	1350.88	Shear (lb/sq ft)		0.70	

Alpha	1.00	Stream Power (lb/ft s)		3.08	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	198.50	0.13
C & E Loss (ft)	0.03	Cum SA (acres)	0.00	45.66	0.12

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17400.00

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1362.55	202	1362.47	212.25	1362.24	212.94	1362.25	214.35	1362.18
215.44	1362.22	218.46	1361.91	219.18	1361.8	219.87	1361.66	219.95	1361.63
220.87	1361.46	221.06	1361.41	221.81	1359.83	222.07	1359.95	222.13	1359.59
222.23	1359.66	270.03	1351.21	300	1350.73	329.97	1351.23	347.19	1353.46
370.06	1356.47	370.82	1356.47	370.95	1356.48	378.04	1356.66	380.26	1356.84
381.85	1356.94	388.6	1356.61	394.86	1357.69	397.72	1357.82	400	1357.78

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	222.07	.045	370.82	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.07	370.82	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
381.85	400	1359	F

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1357.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.045	0.045
W.S. Elev (ft)	1356.84	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1354.05	Flow Area (sq ft)		561.85	2.17
E.G. Slope (ft/ft)	0.001883	Area (sq ft)		561.85	2.86
Q Total (cfs)	2100.00	Flow (cfs)		2098.84	1.16
Top Width (ft)	148.14	Top Width (ft)		132.64	15.50
Vel Total (ft/s)	3.72	Avg. Vel. (ft/s)		3.74	0.54
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)		4.24	0.23
Conv. Total (cfs)	48391.1	Conv. (cfs)		48364.3	26.8
Length Wtd. (ft)	100.00	Wetted Per. (ft)		133.48	9.46
Min Ch El (ft)	1350.73	Shear (lb/sq ft)		0.49	0.03
Alpha	1.01	Stream Power (lb/ft s)		1.85	0.01
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	197.31	0.12
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	45.38	0.10

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17300.00

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1362.11	207.83	1361.6	209.04	1361.52	210.09	1361.41	214.3	1360.98
220.16	1361.07	226.7	1359	270.01	1351	300	1350.58	330.01	1351.02
351.05	1353.89	373.42	1355.62	386.46	1357	386.67	1357.13	386.74	1357.16
389.29	1358.78	390.74	1358.81	392.2	1358.8	393.03	1358.83	394.7	1359.01

396.11	1359.02	396.71	1359	397.63	1359.01	398.12	1358.97	399.09	1358.97
400	1358.73								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	220.16	.045	389.29	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.16	389.29	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1356.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.045	
W.S. Elev (ft)	1356.66	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		574.10	
E.G. Slope (ft/ft)	0.001953	Area (sq ft)		574.10	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	143.81	Top Width (ft)		143.81	
Vel Total (ft/s)	3.66	Avg. Vel. (ft/s)		3.66	
Max Chl Dpth (ft)	6.08	Hydr. Depth (ft)		3.99	
Conv. Total (cfs)	47521.7	Conv. (cfs)		47521.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		144.65	
Min Ch El (ft)	1350.58	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		1.77	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	196.01	0.12
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	45.07	0.08

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17200.00

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1361.64	207.81	1361.63	210.63	1361.5	212.91	1361.47	216.67	1361.35
218.69	1361.26	224.4	1360.92	224.49	1360.95	226.36	1360	228.12	1359.74
228.46	1359	241.87	1356.37	270.04	1350.79	300	1350.43	330.06	1350.83
353.94	1353.35	389.41	1357	390.11	1357.4	390.46	1357.55	399.36	1358.04
400	1357.63								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	224.49	.045	399.36	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.49	399.36	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1356.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.045	
W.S. Elev (ft)	1356.47	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		584.67	
E.G. Slope (ft/ft)	0.001823	Area (sq ft)		584.67	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	142.92	Top Width (ft)		142.92	
Vel Total (ft/s)	3.59	Avg. Vel. (ft/s)		3.59	
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)		4.09	
Conv. Total (cfs)	49185.5	Conv. (cfs)		49185.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		143.78	
Min Ch El (ft)	1350.43	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		1.66	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	194.67	0.12
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	44.74	0.08

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17100.00

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1358.12	204.11	1358.07	215.71	1357.87	270	1350.56	300	1350.28
330	1350.63	367.41	1357	368.89	1357.15	376.15	1357.1	379.92	1357.13
387.1	1357.37	393.73	1357.66	395.31	1357.65	395.55	1357.63	398.19	1357.58
400	1357.56								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	215.71	.045	368.89	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
215.71	368.89	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1356.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.045	
W.S. Elev (ft)	1356.27	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		564.28	
E.G. Slope (ft/ft)	0.001912	Area (sq ft)		564.28	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	135.52	Top Width (ft)		135.52	
Vel Total (ft/s)	3.72	Avg. Vel. (ft/s)		3.72	
Max Chl Dpth (ft)	5.99	Hydr. Depth (ft)		4.16	
Conv. Total (cfs)	48022.3	Conv. (cfs)		48022.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		136.38	
Min Ch El (ft)	1350.28	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		1.84	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	193.36	0.12
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	44.42	0.08

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 17000.00

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356.72	205.62	1356.8	206.98	1356.86	207.6	1356.84	212.52	1356.89
213.14	1356.96	214.24	1357.02	216.08	1357.04	216.48	1357.07	217.48	1357.08
270	1350.36	300	1350.13	300.01	1350.13	330.01	1350.43	358.25	1357
364.16	1357.45	367.79	1357.76	369.69	1357.79	377.75	1357.81	388.82	1358.01
389.84	1358.01	392.74	1357.65	394.6	1357.46	396.52	1357.69	398.73	1357.9
400	1357.86								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	217.48	.045	364.16	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
217.48	364.16	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1356.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	

W.S. Elev (ft)	1356.05	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		541.87	
E.G. Slope (ft/ft)	0.002046	Area (sq ft)		541.87	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	128.65	Top Width (ft)		128.65	
Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)		3.88	
Max Chl Dpth (ft)	5.92	Hydr. Depth (ft)		4.21	
Conv. Total (cfs)	46422.8	Conv. (cfs)		46422.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		129.66	
Min Ch El (ft)	1350.13	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.07	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	192.09	0.12
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	44.12	0.08

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16900.00

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1361.37	226.03	1357	242.18	1354.53	269.98	1350.16	300	1349.98
300.01	1349.98	329.99	1350.21	358.1	1357.02	370.99	1356.62	377.95	1356.62
383.87	1356.55	385.9	1356.63	387.37	1356.59	390.43	1356.36	400	1356.26

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	226.03	.045	358.1	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.03	358.1	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1356.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1355.80	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		509.07	
E.G. Slope (ft/ft)	0.002280	Area (sq ft)		509.07	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	119.20	Top Width (ft)		119.20	
Vel Total (ft/s)	4.13	Avg. Vel. (ft/s)		4.13	
Max Chl Dpth (ft)	5.82	Hydr. Depth (ft)		4.27	
Conv. Total (cfs)	43976.5	Conv. (cfs)		43976.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		120.31	
Min Ch El (ft)	1349.98	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.48	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.00	190.88	0.12
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	43.83	0.08

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16800.00

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1358	237.18	1357	265.22	1351.01	270.01	1349.96	300	1349.83
330	1349.99	358.26	1357	360.6	1356.25	372.12	1353.73	372.29	1353.67
388.74	1353.81	400.07	1354.07	405.59	1355.56	411.18	1356.97	412.46	1357.37
414.18	1357.94	416.41	1358.64	419.78	1359.77	423.54	1361.07	426.72	1361.03
427.29	1361	434.67	1360.82	440.04	1360.64	441.56	1360.63	446.47	1359.73

450 1358.61

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.035	237.18	.035	358.26	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
237.18	358.26	72	72	72	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
358.26	450	1358	F

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1355.88	Element			
Vel Head (ft)	0.30	Wt. n-Val.		0.035	
W.S. Elev (ft)	1355.58	Reach Len. (ft)	72.00	72.00	72.00
Crit W.S. (ft)	1353.04	Flow Area (sq ft)		476.36	
E.G. Slope (ft/ft)	0.001527	Area (sq ft)		476.36	61.02
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	150.63	Top Width (ft)		108.67	41.97
Vel Total (ft/s)	4.41	Avg. Vel. (ft/s)		4.41	
Max Chl Dpth (ft)	5.75	Hydr. Depth (ft)		4.38	
Conv. Total (cfs)	53748.4	Conv. (cfs)		53748.4	
Length Wtd. (ft)	72.00	Wetted Per. (ft)		109.95	
Min Ch El (ft)	1349.83	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		1.82	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.00	189.75	0.05
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	43.57	0.03

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16728.00

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1355.74	249.02	1357	274.04	1349.81	300	1349.72	325.95	1349.84
351.39	1357.27	352.26	1356.68	353.33	1356.56	354.19	1356.5	356.98	1356
359.2	1356.61	365.25	1358.4	366.4	1358.72	370.36	1359.93	374.38	1361.24
375.83	1361.01	377.46	1360.81	378.26	1360.74	385.88	1360.24	387.66	1360.41
392.23	1358.92	396.31	1358.57	400.59	1358.41				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.025	249.02	.025	351.39	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
249.02	351.39	46	46	46	.4	.6

Skew Angle = 30.1

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1355.77	Element			
Vel Head (ft)	0.44	Wt. n-Val.		0.025	
W.S. Elev (ft)	1355.32	Reach Len. (ft)	46.00	46.00	46.00
Crit W.S. (ft)		Flow Area (sq ft)		392.45	
E.G. Slope (ft/ft)	0.001162	Area (sq ft)		392.45	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	89.87	Top Width (ft)		89.87	
Vel Total (ft/s)	5.35	Avg. Vel. (ft/s)		5.35	

Max Chl Dpth (ft)	5.60	Hydr. Depth (ft)		4.37	
Conv. Total (cfs)	61610.2	Conv. (cfs)		61610.2	
Length Wtd. (ft)	46.00	Wetted Per. (ft)		91.43	
Min Ch El (ft)	1349.72	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.67	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.00	189.03	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	43.40	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16682.00

INPUT
Description: u/s Via Del Jardin
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	248.64	1356.95	274.04	1349.71	300	1349.65	325.95	1349.75
352.03	1357.56	352.62	1358.81	353.03	1361.07	354.66	1361.02	359.43	1360.91
365.55	1360.8	367.23	1360.19	370.22	1358.96	373.95	1358.43	375.1	1358.31
377.12	1358.31	380.85	1358.25	381.16	1358.26	382.9	1358.39	384.12	1357.92
387.7	1357.86	389.61	1358.02	391.84	1358.18	394.67	1358.91	398.64	1358.44
400	1358.32								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.025	248.64	.025	352.03	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
248.64	352.03	82	82	82	.4	.6

Skew Angle = 30.1

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1355.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.		0.025	
W.S. Elev (ft)	1355.27	Reach Len. (ft)	82.00	82.00	82.00
Crit W.S. (ft)		Flow Area (sq ft)		394.92	
E.G. Slope (ft/ft)	0.001138	Area (sq ft)		394.92	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	89.86	Top Width (ft)		89.86	
Vel Total (ft/s)	5.32	Avg. Vel. (ft/s)		5.32	
Max Chl Dpth (ft)	5.62	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	62246.4	Conv. (cfs)		62246.4	
Length Wtd. (ft)	82.00	Wetted Per. (ft)		91.45	
Min Ch El (ft)	1349.65	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.63	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	0.00	188.62	0.00
C & E Loss (ft)	0.08	Cum SA (acres)	0.00	43.31	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16600.00

INPUT
Description: d/s Via Del Jardin
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	239.87	1356.77	270	1349.54	300	1349.53	330	1349.58
350.22	1354.82	361.48	1357.79	363.52	1357.99	365.43	1358.43	366.75	1358.75
370.79	1358.1	371.66	1358.09	372.12	1358.1	378.54	1358.11	400	1358.02

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.035	239.87	.035	361.48	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
239.87	361.48	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1355.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.035	
W.S. Elev (ft)	1355.21	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		468.48	
E.G. Slope (ft/ft)	0.001552	Area (sq ft)		468.48	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	105.36	Top Width (ft)		105.36	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		4.48	
Max Chl Dpth (ft)	5.68	Hydr. Depth (ft)		4.45	
Conv. Total (cfs)	53313.3	Conv. (cfs)		53313.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		106.75	
Min Ch El (ft)	1349.53	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		1.91	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	187.80	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	43.13	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16500.00

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	239.96	1356.53	253.67	1353.26	270.02	1349.33	300	1349.27
330.02	1349.38	354.61	1355.35	364.19	1357.62	373.31	1357.7	388.45	1357.84
400	1357.89								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	239.96	.045	364.19	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
239.96	364.19	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
200	239.96	1358	T

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1355.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.045	
W.S. Elev (ft)	1355.03	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		476.20	
E.G. Slope (ft/ft)	0.002478	Area (sq ft)		476.20	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.02	Top Width (ft)		107.02	
Vel Total (ft/s)	4.41	Avg. Vel. (ft/s)		4.41	
Max Chl Dpth (ft)	5.76	Hydr. Depth (ft)		4.45	
Conv. Total (cfs)	42183.3	Conv. (cfs)		42183.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		108.37	
Min Ch El (ft)	1349.27	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		3.00	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.00	186.72	0.00
C & E Loss (ft)	0.02	Cum SA (acres)	0.00	42.88	0.00

CROSS SECTION

RIVER: Sonoqui Wash

REACH: Sonoqui Wash RS: 16400.00

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	229.3	1356.27	265.21	1349.94	270	1349.11	299.99	1349.02
300	1349.02	330.01	1349.19	333.58	1349.84	375.99	1357.51	381.58	1357.5
400	1357.47								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	229.3	.045	375.99	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.3	375.99	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1355.08	Element			
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1354.84	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		526.61	
E.G. Slope (ft/ft)	0.002139	Area (sq ft)		526.61	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	123.77	Top Width (ft)		123.77	
Vel Total (ft/s)	3.99	Avg. Vel. (ft/s)		3.99	
Max Chl Dpth (ft)	5.82	Hydr. Depth (ft)		4.25	
Conv. Total (cfs)	45411.0	Conv. (cfs)		45411.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		124.78	
Min Ch El (ft)	1349.02	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.25	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	185.57	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	42.62	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16300.00

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	220.92	1356.05	270	1348.9	299.99	1348.76	300	1348.76
330	1348.98	380.33	1357.38	398.59	1357.49	399.28	1357.42	399.34	1357.43
400	1357.42								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	220.92	.045	380.33	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.92	380.33	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1354.87	Element			
Vel Head (ft)	0.22	Wt. n-Val.		0.045	
W.S. Elev (ft)	1354.65	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		557.97	
E.G. Slope (ft/ft)	0.001946	Area (sq ft)		557.97	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	133.46	Top Width (ft)		133.46	
Vel Total (ft/s)	3.76	Avg. Vel. (ft/s)		3.76	
Max Chl Dpth (ft)	5.89	Hydr. Depth (ft)		4.18	
Conv. Total (cfs)	47604.5	Conv. (cfs)		47604.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		134.35	

Min Ch El (ft)	1348.76	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		1.90	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	184.32	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	42.32	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16200.00

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	219.61	1356.84	254.36	1351.24	270.02	1348.68	300	1348.51
300.01	1348.51	330.02	1348.78	351.39	1352.98	372.82	1357.26	375.85	1357.26
400	1357.29								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	219.61	.045	372.82	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
219.61	372.82	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1354.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1354.42	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		530.50	
E.G. Slope (ft/ft)	0.002092	Area (sq ft)		530.50	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	124.01	Top Width (ft)		124.01	
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	
Max Chl Dpth (ft)	5.91	Hydr. Depth (ft)		4.28	
Conv. Total (cfs)	45911.5	Conv. (cfs)		45911.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		125.03	
Min Ch El (ft)	1348.51	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.19	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	183.07	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	42.03	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16100.00

INPUT
Description:
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	219.31	1357	237.26	1353.98	270.02	1348.47	300	1348.25
330.01	1348.58	344.73	1351.64	370.98	1357.14	375.17	1357.16	400	1357.22

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	219.31	.045	370.98	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
219.31	370.98	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1354.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	

W.S. Elev (ft)	1354.20	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		522.68	
E.G. Slope (ft/ft)	0.002130	Area (sq ft)		522.68	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	121.04	Top Width (ft)		121.04	
Vel Total (ft/s)	4.02	Avg. Vel. (ft/s)		4.02	
Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)		4.32	
Conv. Total (cfs)	45501.1	Conv. (cfs)		45501.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		122.11	
Min Ch El (ft)	1348.25	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.29	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	181.86	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	41.75	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 16000.00

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	218.54	1356.05	255.11	1350.52	270	1348.26	298.97	1348
300	1348	330	1348.38	335.22	1349.33	377.02	1357.02	385.62	1357.05
400	1357.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	218.54	.045	377.02	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
218.54	377.02	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1354.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	
W.S. Elev (ft)	1354.02	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		547.22	
E.G. Slope (ft/ft)	0.001980	Area (sq ft)		547.22	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	128.68	Top Width (ft)		128.68	
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)		3.84	
Max Chl Dpth (ft)	6.01	Hydr. Depth (ft)		4.25	
Conv. Total (cfs)	47196.1	Conv. (cfs)		47196.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		129.63	
Min Ch El (ft)	1348.00	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		2.00	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	180.64	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	41.46	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15900.00

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	224.71	1355.84	257.7	1350.15	270	1348.05	300	1347.74
330	1348.17	379.24	1356.89	400	1357.11				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

200	.045	224.71	.045	379.24	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.71	379.24	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1354.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1353.81	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		539.41	
E.G. Slope (ft/ft)	0.002007	Area (sq ft)		539.41	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	125.34	Top Width (ft)		125.34	
Vel Total (ft/s)	3.89	Avg. Vel. (ft/s)		3.89	
Max Chl Dpth (ft)	6.07	Hydr. Depth (ft)		4.30	
Conv. Total (cfs)	46877.1	Conv. (cfs)		46877.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		126.33	
Min Ch El (ft)	1347.74	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.08	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	179.39	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	41.17	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15800.00

INPUT
Description:
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1355.18	229.55	1355.67	270.01	1347.84	300	1347.49	330.01	1347.97
369.27	1355.43	376.45	1356.77	384.57	1356.9	386.25	1356.91	400	1357

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	229.55	.045	376.45	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.55	376.45	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1353.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1353.58	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		521.31	
E.G. Slope (ft/ft)	0.002107	Area (sq ft)		521.31	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	119.22	Top Width (ft)		119.22	
Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)		4.03	
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		4.37	
Conv. Total (cfs)	45752.5	Conv. (cfs)		45752.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		120.31	
Min Ch El (ft)	1347.49	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.30	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	178.17	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	40.89	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15700.00

INPUT

Description:
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	230.43	1355.51	270	1347.63	300	1347.25	329.99	1347.76
373.6	1356.65	377.02	1356.68	384.88	1356.79	400	1356.89		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	230.43	.045	373.6	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
230.43	373.6	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1353.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1353.36	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		512.61	
E.G. Slope (ft/ft)	0.002156	Area (sq ft)		512.61	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.24	Top Width (ft)		116.24	
Vel Total (ft/s)	4.10	Avg. Vel. (ft/s)		4.10	
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)		4.41	
Conv. Total (cfs)	45225.0	Conv. (cfs)		45225.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.38	
Min Ch El (ft)	1347.25	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.41	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	176.98	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	40.62	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15600.00

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	231.01	1355.36	269.99	1347.42	300	1347.03	330	1347.55
377.42	1356.52	396.65	1356.89	400	1356.96				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	231.01	.045	377.42	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.01	377.42	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1353.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1353.15	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		516.99	
E.G. Slope (ft/ft)	0.002131	Area (sq ft)		516.99	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.74	Top Width (ft)		117.74	
Vel Total (ft/s)	4.06	Avg. Vel. (ft/s)		4.06	
Max Chl Dpth (ft)	6.12	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	45492.0	Conv. (cfs)		45492.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.85	
Min Ch El (ft)	1347.03	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.35	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	175.80	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	40.35	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15500.00

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	228.63	1355.2	249.99	1351.09	270	1347.22	300	1346.8
330	1347.34	348.14	1350.46	382.53	1356.39	385.91	1357.1	387.19	1357.23
389.02	1357.38	392.48	1357.84	395.85	1358.28	396.56	1358.31	400	1358.42

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	228.63	.045	385.91	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.63	385.91	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1353.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1352.95	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		530.91	
E.G. Slope (ft/ft)	0.002048	Area (sq ft)		530.91	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	122.25	Top Width (ft)		122.25	
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)		4.34	
Conv. Total (cfs)	46402.2	Conv. (cfs)		46402.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		123.29	
Min Ch El (ft)	1346.80	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.18	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	174.60	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	40.07	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15400.00

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	226.41	1355.03	270.01	1347.01	300	1346.58	330	1347.14
339.69	1348.78	383.84	1356.26	384.65	1357.07	385.72	1357.34	386.68	1357.61
387.95	1357.75	389.53	1357.91	392.3	1357.83	394.81	1357.88	400	1357.94

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	226.41	.045	385.72	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.41	385.72	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1352.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1352.75	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		537.93	
E.G. Slope (ft/ft)	0.002004	Area (sq ft)		537.93	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	

Top Width (ft)	124.33	Top Width (ft)		124.33	
Vel Total (ft/s)	3.90	Avg. Vel. (ft/s)		3.90	
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)		4.33	
Conv. Total (cfs)	46911.1	Conv. (cfs)		46911.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		125.33	
Min Ch El (ft)	1346.58	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.10	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	173.37	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	39.79	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15300.00

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1355.67	225.69	1355.18	270.01	1346.79	300	1346.36	330.01	1346.93
377.88	1355.43	381.92	1356.14	382.13	1356.33	384.34	1356.76	385.3	1356.76
385.97	1356.77	390.06	1356.77	400	1356.77				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	225.69	.045	384.34	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.69	384.34	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1352.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1352.54	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		532.21	
E.G. Slope (ft/ft)	0.002026	Area (sq ft)		532.21	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	122.01	Top Width (ft)		122.01	
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)		3.95	
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)		4.36	
Conv. Total (cfs)	46650.9	Conv. (cfs)		46650.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		123.05	
Min Ch El (ft)	1346.36	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.16	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	172.14	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	39.51	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15200.00

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	226.34	1355.05	234.7	1353.42	254.16	1349.65	270	1346.59
300	1346.14	330	1346.73	349.9	1350.48	379.29	1356.02	395.41	1356.51
400	1356.72								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	226.34	.045	379.29	.045

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

226.34	379.29	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1352.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1352.33	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		524.28	
E.G. Slope (ft/ft)	0.002071	Area (sq ft)		524.28	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	119.39	Top Width (ft)		119.39	
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)		4.01	
Max Chl Dpth (ft)	6.19	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	46145.3	Conv. (cfs)		46145.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		120.47	
Min Ch El (ft)	1346.14	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.25	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	170.93	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	39.23	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15100.00

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	228.67	1354.93	249.05	1350.71	269.99	1346.38	299.36	1345.91
300	1345.91	329.99	1346.51	349.65	1350.11	381.2	1355.88	381.58	1356.13
381.74	1356.12	382.02	1356.11	382.27	1356.11	382.41	1356.1	397.85	1356.84
398.03	1356.84	398.98	1356.83	399.81	1356.84	400	1356.84		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	228.67	.045	381.58	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.67	381.58	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1352.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1352.12	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		522.41	
E.G. Slope (ft/ft)	0.002074	Area (sq ft)		522.41	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	118.41	Top Width (ft)		118.41	
Vel Total (ft/s)	4.02	Avg. Vel. (ft/s)		4.02	
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		4.41	
Conv. Total (cfs)	46116.5	Conv. (cfs)		46116.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.52	
Min Ch El (ft)	1345.91	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.27	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	169.73	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	38.96	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 15000.00

INPUT
Description:

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1356	228.03	1354.81	243.68	1351.59	269.99	1346.18	300	1345.69
329.99	1346.3	358.44	1351.7	379.65	1355.96	380.21	1356.14	382.81	1356.15
387.67	1356.41	389.08	1356.41	390.94	1356.4	391.64	1356.41	397.13	1356.42
399.54	1356.44	400	1356.45						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	228.03	.045	380.21	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.03	380.21	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1352.16	Element			
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1351.91	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		519.30	
E.G. Slope (ft/ft)	0.002091	Area (sq ft)		519.30	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.35	Top Width (ft)		117.35	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	6.22	Hydr. Depth (ft)		4.43	
Conv. Total (cfs)	45926.9	Conv. (cfs)		45926.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.47	
Min Ch El (ft)	1345.69	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.31	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	168.53	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	38.69	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14900.00

INPUT
Description:
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1354.725	200.75	1354.68	202.72	1354.72	210.76	1354.89	218.55	1355.03
222.59	1355.13	225.04	1354.77	225.93	1354.66	270	1345.98	300	1345.48
329.99	1346.09	376.91	1355.81	377.37	1355.76	381.16	1356.36	381.53	1356.36
382.42	1356.4	382.79	1356.4	383.1	1356.42	383.46	1356.42	384.24	1356.46
384.56	1356.47	385.74	1356.53	388.57	1356.61	388.75	1356.63	388.81	1356.62
390.7	1356.65	396.35	1356.65	400	1356.666				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	222.59	.045	381.53	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.59	381.53	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1351.95	Element			
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1351.69	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		514.76	
E.G. Slope (ft/ft)	0.002122	Area (sq ft)		514.76	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.05	Top Width (ft)		116.05	
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		4.08	
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		4.44	
Conv. Total (cfs)	45588.8	Conv. (cfs)		45588.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.19	

Min Ch El (ft)	1345.48	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.37	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	167.35	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	38.42	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14800.00

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1354.604	200.28	1354.56	201.31	1354.4	202.29	1354.46	204.06	1354.58
206.79	1354.52	208.1	1354.59	211.5	1354.77	213.85	1354.86	215.45	1354.92
216.75	1354.87	219.47	1354.77	220.55	1354.79	223.67	1354.6	224.37	1354.47
238.3	1351.82	269.99	1345.78	300	1345.27	330	1345.88	375	1355.34
375.03	1355.35	375.22	1355.38	375.26	1355.4	378.94	1356.11	380.4	1356.09
381.32	1356.08	384.11	1356.05	385.14	1356.04	386.88	1356.03	388.83	1356.02
389.02	1356.02	392.5	1355.99	393.01	1355.98	394.99	1355.98	397.14	1356
400	1356.011								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	224.37	.045	378.94	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.37	378.94	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1351.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1351.48	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		515.95	
E.G. Slope (ft/ft)	0.002118	Area (sq ft)		515.95	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.58	Top Width (ft)		116.58	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07	
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		4.43	
Conv. Total (cfs)	45630.0	Conv. (cfs)		45630.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.71	
Min Ch El (ft)	1345.27	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.36	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	166.16	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	38.15	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14700.00

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1354.283	200.06	1354.29	201.79	1354.52	204.65	1354.59	208.81	1354.7
211.64	1354.68	214.15	1354.66	216	1354.65	217.16	1354.59	219.68	1354.46
223.41	1354.28	239.6	1351.26	264.37	1346.63	269.98	1345.58	300	1345.06
300.52	1345.06	329.99	1345.66	361.76	1352.49	373.94	1355.11	382.24	1355.41
400	1355.791								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	223.41	.045	373.94	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.41	373.94	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1351.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1351.27	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		515.81	
E.G. Slope (ft/ft)	0.002119	Area (sq ft)		515.81	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.54	Top Width (ft)		116.54	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07	
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		4.43	
Conv. Total (cfs)	45618.2	Conv. (cfs)		45618.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.68	
Min Ch El (ft)	1345.06	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.36	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	164.98	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	37.88	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14600.00

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1354.634	200.59	1354.65	206.8	1354.54	209.91	1354.48	210.58	1354.47
211.17	1354.45	213.82	1354.41	213.88	1354.41	214.17	1354.4	216.47	1354.37
218.46	1354.27	223.06	1354.09	270	1345.37	300	1344.85	329.99	1345.45
373.78	1354.89	378.94	1355.07	387.62	1355.53	395.6	1355.53	400	1355.543

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	223.06	.045	373.78	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.06	373.78	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1351.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1351.06	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		515.65	
E.G. Slope (ft/ft)	0.002123	Area (sq ft)		515.65	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.62	Top Width (ft)		116.62	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07	
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		4.42	
Conv. Total (cfs)	45573.8	Conv. (cfs)		45573.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.75	
Min Ch El (ft)	1344.85	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.36	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	163.80	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	37.62	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14500.00

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1354.428	201.8	1354.51	203.22	1354.57	204.24	1354.57	208.49	1354.58
210.23	1354.58	218.12	1354.67	220.51	1354.69	220.83	1354.58	223.3	1353.9
257.35	1347.53	264.01	1346.29	269.99	1345.17	299.1	1344.64	300	1344.64
330	1345.24	336.6	1346.63	374.47	1354.67	374.62	1354.81	374.8	1354.81
375.09	1354.83	375.38	1354.84	375.56	1354.86	376.46	1354.92	376.74	1354.95
377.14	1354.98	377.78	1355	387.49	1355.11	393.95	1355.11	400	1355.139

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	220.83	.045	375.09	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.83	375.09	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1351.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1350.85	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		516.15	
E.G. Slope (ft/ft)	0.002121	Area (sq ft)		516.15	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.83	Top Width (ft)		116.83	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07	
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		4.42	
Conv. Total (cfs)	45597.1	Conv. (cfs)		45597.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.96	
Min Ch El (ft)	1344.64	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.36	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	162.61	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	37.35	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14400.00

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1354.206	200.4	1354.3	201.62	1354.05	201.88	1353.99	205.05	1353.89
206.6	1353.84	207.59	1354.08	208.26	1354.24	214.62	1354.39	215.61	1354.41
215.82	1354.4	224.14	1353.71	243.25	1350.07	273.99	1344.91	300	1344.43
329.99	1345.02	355.4	1350.23	376.02	1354.51	382.53	1354.54	399.5	1354.74
400	1354.741								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	224.14	.045	376.02	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.14	376.02	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1350.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1350.61	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		504.07	
E.G. Slope (ft/ft)	0.002294	Area (sq ft)		504.07	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.83	Top Width (ft)		116.83	
Vel Total (ft/s)	4.17	Avg. Vel. (ft/s)		4.17	

Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)		4.31	
Conv. Total (cfs)	43847.3	Conv. (cfs)		43847.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.89	
Min Ch El (ft)	1344.43	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		2.55	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	161.44	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	37.08	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14300.00

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1353.355	217.33	1353.32	217.84	1353.32	218.17	1353.32	218.22	1353.32
218.35	1353.32	219.4	1353.31	220.16	1353.31	220.59	1353.41	224.17	1354.23
224.49	1354.17	225.58	1353.6	244.38	1349.82	262.22	1346.3	262.99	1346.15
270	1344.77	300	1344.22	300.02	1344.22	329.99	1344.81	341.63	1347.07
341.68	1347.08	341.72	1347.09	358.13	1350.28	378.45	1354.22	380.79	1354.4
382.74	1354.58	388.38	1354.68	389.7	1354.7	390.01	1354.71	393.53	1354.77
394.63	1354.78	395.92	1354.81	396.73	1354.73	399.32	1354.52	400	1354.528

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	224.49	.045	380.79	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.49	380.79	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1350.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1350.40	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		514.07	
E.G. Slope (ft/ft)	0.002159	Area (sq ft)		514.07	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.22	Top Width (ft)		117.22	
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)		4.09	
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	45197.7	Conv. (cfs)		45197.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.32	
Min Ch El (ft)	1344.22	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.39	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	160.27	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	36.81	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14200.00

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1353.239	200.76	1353.23	201.74	1353.21	202.13	1353.19	202.61	1353.17
207.21	1353.17	209.37	1353.17	210.38	1353.17	225.37	1353.32	227.6	1353.33
236.97	1351.39	239.97	1350.77	241.04	1350.55	269.99	1344.57	299.17	1344.01
300	1344.01	329.99	1344.6	377.16	1353.18	381.69	1354	400	1354

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

200	.045	227.6	.045	381.69	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.6	381.69	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1350.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1350.18	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		515.13	
E.G. Slope (ft/ft)	0.002159	Area (sq ft)		515.13	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.85	Top Width (ft)		117.85	
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		4.08	
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)		4.37	
Conv. Total (cfs)	45195.6	Conv. (cfs)		45195.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.94	
Min Ch El (ft)	1344.01	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.38	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	159.09	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	36.54	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14100.00

INPUT
Description:
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2001353.189		211.82	1353.15	223.1	1353.15	228.9	1353.14	229.49	1353.13
245.66	1349.64	270	1344.36	299.54	1343.8	300	1343.8	330	1344.38
351.93	1348.09	385.46	1353.78	400	1353				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	229.49	.045	385.46	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.49	385.46	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1350.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1349.97	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		517.89	
E.G. Slope (ft/ft)	0.002145	Area (sq ft)		517.89	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	118.86	Top Width (ft)		118.86	
Vel Total (ft/s)	4.05	Avg. Vel. (ft/s)		4.05	
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)		4.36	
Conv. Total (cfs)	45344.8	Conv. (cfs)		45344.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.94	
Min Ch El (ft)	1343.80	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.34	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	157.91	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	36.27	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 14000.00

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
200	1352.979	226.85	1352.94	227.84	1352.93	244.5	1349.45	270	1344.16
299.54	1343.62	299.99	1343.62	300	1343.62	330	1344.18	352.92	1347.88
387.84	1353.54	392.53	1353.62	399.19	1353.77	400	1353.78		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
200	.045	227.84	.045	387.84	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.84	387.84	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1350.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1349.76	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		523.87	
E.G. Slope (ft/ft)	0.002124	Area (sq ft)		523.87	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	121.49	Top Width (ft)		121.49	
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)		4.01	
Max Chl Dpth (ft)	6.14	Hydr. Depth (ft)		4.31	
Conv. Total (cfs)	45569.1	Conv. (cfs)		45569.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		122.52	
Min Ch El (ft)	1343.62	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.27	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	156.71	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	35.99	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13900.00

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1352.67	163.53	1352.71	167.61	1352.71	174.59	1352.71	189.04	1352.74
192.42	1352.76	197.21	1352.76	212.73	1352.74	221.94	1352.7	225.39	1352.08
270	1343.95	300	1343.43	330	1343.97	337.86	1345.3	384.4	1353.13
391.04	1352.76	392.87	1352.67	399.38	1352.73	402.47	1352.75	411.28	1352.83
415.6	1353.61	417.52	1353.09	418.07	1353.07	418.65	1353.08	419.41	1353.08
421.54	1353.12	422.75	1353.12	423.75	1353.45	424.34	1353.66	425.38	1353.38
425.92	1353.27	428.36	1353.31	432.37	1353.37	438.11	1353.47	445.37	1353.57
447.32	1353.64	450	1353.87						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	221.94	.045	384.4	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
221.94	384.4	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1349.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1349.55	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		529.88	
E.G. Slope (ft/ft)	0.002096	Area (sq ft)		529.88	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	123.87	Top Width (ft)		123.87	
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	

Max Chl Dpth (ft)	6.12	Hydr. Depth (ft)		4.28	
Conv. Total (cfs)	45865.1	Conv. (cfs)		45865.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		124.85	
Min Ch El (ft)	1343.43	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.20	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	155.50	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	35.71	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13800.00

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1352.57	157.14	1352.57	160.27	1352.57	179.57	1352.57	183.83	1352.57
190.99	1352.57	195.53	1352.57	212.25	1352.57	213.98	1352.54	216.84	1352.54
218.3	1352.46	235.3	1349.59	269.99	1343.74	300	1343.25	330	1343.77
345.54	1346.5	377.48	1352.11	380.59	1352.31	385.98	1352.5	411.25	1352.45
416.24	1352.46	432.47	1352.42	440.27	1352.43	450	1352.52		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	216.84	.045	380.59	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
216.84	380.59	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1349.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1349.34	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		532.10	
E.G. Slope (ft/ft)	0.002091	Area (sq ft)		532.10	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	124.97	Top Width (ft)		124.97	
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)		3.95	
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		4.26	
Conv. Total (cfs)	45919.4	Conv. (cfs)		45919.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		125.94	
Min Ch El (ft)	1343.25	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.18	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	0.00	154.28	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	35.43	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13700.00

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1352.41	153.19	1352.41	160.99	1352.38	177.01	1352.35	182.75	1352.33
188.09	1352.33	210.44	1352.37	216.57	1352.27	220.22	1352.21	248.16	1347.35
270	1343.53	300	1343.06	330	1343.56	357.86	1348.55	376.18	1351.83
382.97	1352.32	384.81	1352.44	389.09	1352.42	410.59	1352.25	412.46	1352.31
431.74	1352.31	436.55	1352.26	443.83	1352.26	450	1352.17		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.035	220.22	.035	384.81	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.22	384.81	35	35	35	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1349.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.035	
W.S. Elev (ft)	1349.19	Reach Len. (ft)	35.00	35.00	35.00
Crit W.S. (ft)		Flow Area (sq ft)		532.86	
E.G. Slope (ft/ft)	0.001244	Area (sq ft)		532.86	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	123.81	Top Width (ft)		123.81	
Vel Total (ft/s)	3.94	Avg. Vel. (ft/s)		3.94	
Max Chl Dpth (ft)	6.13	Hydr. Depth (ft)		4.30	
Conv. Total (cfs)	59537.6	Conv. (cfs)		59537.6	
Length Wtd. (ft)	35.00	Wetted Per. (ft)		124.80	
Min Ch El (ft)	1343.06	Shear (lb/sq ft)		0.33	
Alpha	1.00	Stream Power (lb/ft s)		1.31	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.00	153.06	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	35.14	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13665.00

INPUT
Description: Top of Drop
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1352.36	154.44	1352.34	156.5	1352.34	167.38	1352.34	179.22	1352.33
193.98	1352.33	207.64	1352.33	208.67	1352.33	211.48	1352.33	211.63	1352.33
212.28	1352.33	220.83	1352.13	221.22	1352.13	270	1343.5	300	1343
330	1343.5	376.32	1351.72	378.68	1351.87	378.79	1351.88	382.31	1352.35
393.95	1352.34	410.2	1352.35	412.96	1352.35	414.5	1352.35	431.66	1352.32
450	1352.26								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.03	220.83	.03	376.32	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.83	376.32	30	30	30	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1349.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.030	
W.S. Elev (ft)	1349.15	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)		Flow Area (sq ft)		534.06	
E.G. Slope (ft/ft)	0.000907	Area (sq ft)		534.06	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	123.76	Top Width (ft)		123.76	
Vel Total (ft/s)	3.93	Avg. Vel. (ft/s)		3.93	
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)		4.32	
Conv. Total (cfs)	69736.1	Conv. (cfs)		69736.1	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		124.77	
Min Ch El (ft)	1343.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		0.95	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	152.63	0.00
C & E Loss (ft)	0.04	Cum SA (acres)	0.00	35.04	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13635.00

INPUT
Description: Toe of Drop
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1352.25	161.55	1352.2	164.31	1352.2	186.36	1352.24	208.95	1352.21
211.07	1352.21	213.06	1352.18	213.08	1352.18	222.09	1352.04	224.1	1351.6
270	1340.5	300	1339.95	330	1340.5	376.3	1351.65	376.32	1351.65
381.36	1351.93	381.51	1351.94	384.67	1352.12	386.09	1352.2	409.13	1352.22
410.78	1352.22	434.32	1352.17	435.38	1352.16	436.63	1352.16	450	1352.14

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.03	222.09	.03	376.32	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.09	376.32	35	35	35	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1349.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.030	
W.S. Elev (ft)	1349.24	Reach Len. (ft)	35.00	35.00	35.00
Crit W.S. (ft)		Flow Area (sq ft)		857.52	
E.G. Slope (ft/ft)	0.000207	Area (sq ft)		857.52	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	132.44	Top Width (ft)		132.44	
Vel Total (ft/s)	2.45	Avg. Vel. (ft/s)		2.45	
Max Chl Dpth (ft)	9.29	Hydr. Depth (ft)		6.47	
Conv. Total (cfs)	146016.5	Conv. (cfs)		146016.5	
Length Wtd. (ft)	35.00	Wetted Per. (ft)		134.53	
Min Ch El (ft)	1339.95	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.20	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	152.15	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	34.95	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13600.00

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1352.2	11.18	1352.19	18.87	1352.21	35.89	1352.23	44.03	1352.21
50	1352.192	60.62	1352.16	69.14	1352.16	85.34	1352.16	94.27	1352.15
110.31	1352.16	129.17	1352.2	137.05	1352.21	143.57	1352.21	161.55	1352.19
179.07	1352.21	186.34	1352.23	203.65	1352.21	211.23	1352.19	217.98	1352.05
222.71	1351.95	245.69	1346.37	270	1340.47	300	1339.9	330	1340.47
357.68	1347.17	375.87	1351.57	378.21	1351.7	378.22	1351.7	386.19	1352.16
403.29	1352.19	411.16	1352.17	419.07	1352.16	435.7	1352.12	442.97	1352.09
448.49	1352.09	460.41	1352.13	469.4	1352.11	486.49	1352.11	503.66	1352.1
508.81	1352.12	517.14	1352.12	535.9	1352.08	542.82	1352.08	550	1352.095
561.42	1352.12	572.7	1352.16	573.06	1352.16	573.85	1352.31	577.76	1353.01
577.97	1352.93	579.49	1352.33	580.31	1352.33	581.08	1352.33	583.45	1352.34
585.81	1352.34	586.08	1352.48	586.9	1352.87	587.6	1352.81	589.86	1352.68
591.46	1352.67	592.22	1352.67	600	1352.62				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	222.71	.035	378.21	.035

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

222.71	378.21	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1349.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	
W.S. Elev (ft)	1349.23	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		859.64	
E.G. Slope (ft/ft)	0.000279	Area (sq ft)		859.64	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	132.31	Top Width (ft)		132.31	
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)		2.44	
Max Chl Dpth (ft)	9.33	Hydr. Depth (ft)		6.50	
Conv. Total (cfs)	125748.2	Conv. (cfs)		125748.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		134.41	
Min Ch El (ft)	1339.90	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.27	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.00	151.46	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	34.85	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13500.00

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1351.99	1.14	1351.99	10.15	1352	28.91	1351.96	36.32	1351.94
501	1351.948	53.44	1351.95	61.67	1351.93	64.99	1351.96	83.32	1351.95
86.45	1351.92	93.87	1351.94	111.19	1351.93	128.35	1351.93	136.12	1351.91
144.03	1351.93	160.71	1351.96	169.19	1351.94	185.34	1351.9	201	1351.91
210.09	1351.95	218.08	1351.78	222.68	1351.69	245.68	1346.14	270	1340.27
300	1339.76	330	1340.27	357.72	1346.93	375.94	1351.31	377.68	1351.45
377.7	1351.45	385.64	1351.97	404.83	1351.95	411.72	1351.96	418.83	1351.94
436.42	1351.96	444	1351.97	461.25	1352.01	469.06	1352.04	486.09	1352.02
494.15	1351.98	510.87	1351.88	519.26	1351.82	535.56	1351.79	550	1351.721
554.39	1351.7	561.53	1351.66	578.93	1351.66	586.91	1351.65	595.26	1351.61
596.4	1351.64	598.14	1351.63	599.64	1351.64	600	1351.65		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	222.68	.035	377.7	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.68	377.7	73.6	73.6	73.6	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1349.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	
W.S. Elev (ft)	1349.21	Reach Len. (ft)	73.60	73.60	73.60
Crit W.S. (ft)		Flow Area (sq ft)		883.47	
E.G. Slope (ft/ft)	0.000260	Area (sq ft)		883.47	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	134.24	Top Width (ft)		134.24	
Vel Total (ft/s)	2.38	Avg. Vel. (ft/s)		2.38	
Max Chl Dpth (ft)	9.45	Hydr. Depth (ft)		6.58	
Conv. Total (cfs)	130346.5	Conv. (cfs)		130346.5	
Length Wtd. (ft)	73.60	Wetted Per. (ft)		136.37	
Min Ch El (ft)	1339.76	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.25	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	149.46	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	34.54	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13426.40

INPUT
Description: u/s power - 24" culverts constructed, modeled as 18" to account for sediment build up.
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1351.79	6.73	1351.78	16.23	1351.81	36.05	1351.84	42.17	1351.82
56.43	1351.82	59.13	1351.84	61.31	1351.91	81.06	1351.92	83.82	1351.9
93.3	1351.9	95.99	1351.91	102.45	1351.91	109.95	1351.93	124.98	1351.92
136.84	1351.94	139.59	1351.94	151.9	1351.97	153.72	1351.98	170.57	1351.96
172.5	1351.97	177.01	1351.97	178.84	1352.01	181.56	1352	182.5	1352.01
196.11	1352	197.7	1351.95	206.68	1351.96	212.8	1351.94	218.28	1351.94
221.5	1351.65	221.97	1351.65	222.66	1351.49	270	1340.11	300	1339.65
330	1340.12	376	1351.11	377.41	1351.3	378	1351.3	381.02	1351.78
393.49	1351.76	396.86	1351.77	398.48	1351.8	399.44	1351.8	401.14	1351.82
404.73	1351.82	412.48	1351.86	420.77	1351.84	428.31	1351.85	438.19	1351.82
443.76	1351.83	449.22	1351.86	458.03	1351.88	461.23	1351.91	466.3	1351.9
470.82	1351.87	474.51	1351.8	478.61	1351.79	484.3	1351.84	485.35	1351.82
486.74	1351.77	490.92	1351.76	502.08	1351.75	505.66	1351.62	514.3	1351.62
517.88	1351.59	519.21	1351.57	521.95	1351.55	522.57	1351.56	524.92	1351.54
527.68	1351.54	532.8	1351.52	536.47	1351.46	539.36	1351.45	545.52	1351.4
548.67	1351.42	553.58	1351.42	555	1351.37	556.09	1351.36	558.33	1351.31
561.06	1351.31	562.22	1351.32	563.74	1351.32	566.59	1351.36	567.77	1351.35
570.99	1351.39	572.95	1351.38	575.6	1351.4	579	1351.4	582.37	1351.46
585.41	1351.46	588.47	1351.48	589.39	1351.52	590.79	1351.52	591.71	1351.54
593.09	1351.54	596.62	1351.59	597.84	1351.64	600	1351.64		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	221.5	.025	381.02	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
221.5	381.02	117.84	117.84	117.84	.4	.6

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1349.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.025	
W.S. Elev (ft)	1349.20	Reach Len. (ft)	117.84	117.84	117.84
Crit W.S. (ft)	1343.05	Flow Area (sq ft)		903.32	
E.G. Slope (ft/ft)	0.000125	Area (sq ft)		903.32	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	135.81	Top Width (ft)		135.81	
Vel Total (ft/s)	2.32	Avg. Vel. (ft/s)		2.32	
Max Chl Dpth (ft)	9.55	Hydr. Depth (ft)		6.65	
Conv. Total (cfs)	187908.2	Conv. (cfs)		187908.2	
Length Wtd. (ft)	117.84	Wetted Per. (ft)		137.96	
Min Ch El (ft)	1339.65	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.12	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00	147.95	0.00
C & E Loss (ft)		Cum SA (acres)	0.00	34.31	0.00

CULVERT

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13367.48

INPUT
Description: Power Road - 24" culverts constructed, modeled as 18" to account for sediment build up.
Distance from Upstream XS = 2

Deck/Roadway Width = 107
Weir Coefficient = 3.05
Upstream Deck/Roadway Coordinates
num= 9

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
65	1350.76	1338	165	1348.47	1338	265	1346.52	1338
300	1346.01	1338	365	1345.51	1338	416	1345.38	1338
465	1345.51	1338	565	1346.67	1338	665	1347.75	1338

Upstream Bridge Cross Section Data
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1351.79	6.73	1351.78	16.23	1351.81	36.05	1351.84	42.17	1351.82
56.43	1351.82	59.13	1351.84	61.31	1351.91	81.06	1351.92	83.82	1351.9
93.3	1351.9	95.99	1351.91	102.45	1351.91	109.95	1351.93	124.98	1351.92
136.84	1351.94	139.59	1351.94	151.9	1351.97	153.72	1351.98	170.57	1351.96
172.5	1351.97	177.01	1351.97	178.84	1352.01	181.56	1352	182.5	1352.01
196.11	1352	197.7	1351.95	206.68	1351.96	212.8	1351.94	218.28	1351.94
221.5	1351.65	221.97	1351.65	222.66	1351.49	270	1340.11	300	1339.65
330	1340.12	376	1351.11	377.41	1351.3	378	1351.3	381.02	1351.78
393.49	1351.76	396.86	1351.77	398.48	1351.8	399.44	1351.8	401.14	1351.82
404.73	1351.82	412.48	1351.86	420.77	1351.84	428.31	1351.85	438.19	1351.82
443.76	1351.83	449.22	1351.86	458.03	1351.88	461.23	1351.91	466.3	1351.9
470.82	1351.87	474.51	1351.8	478.61	1351.79	484.3	1351.84	485.35	1351.82
486.74	1351.77	490.92	1351.76	502.08	1351.75	505.66	1351.62	514.3	1351.62
517.88	1351.59	519.21	1351.57	521.95	1351.55	522.57	1351.56	524.92	1351.54
527.68	1351.54	532.8	1351.52	536.47	1351.46	539.36	1351.45	545.52	1351.4
548.67	1351.42	553.58	1351.42	555	1351.37	556.09	1351.36	558.33	1351.31
561.06	1351.31	562.22	1351.32	563.74	1351.32	566.59	1351.36	567.77	1351.35
570.99	1351.39	572.95	1351.38	575.6	1351.4	579	1351.4	582.37	1351.46
585.41	1351.46	588.47	1351.48	589.39	1351.52	590.79	1351.52	591.71	1351.54
593.09	1351.54	596.62	1351.59	597.84	1351.64	600	1351.64		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	221.5	.025	381.02	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
221.5	381.02	.4	.6

Downstream Deck/Roadway Coordinates
num= 9

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
65	1350.76	1338	165	1348.47	1338	265	1346.52	1338
300	1346.01	1338	365	1345.51	1338	416	1345.38	1338
465	1345.51	1338	565	1346.67	1338	665	1347.75	1338

Downstream Bridge Cross Section Data
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1352.58	3.46	1352.85	3.68	1352.74	3.83	1352.69	3.97	1352.67
4.72	1352.4	5.66	1352.39	8.63	1352.43	12.17	1352.41	17.81	1352.43
20.46	1352.36	22.59	1352.21	29.58	1352.05	37.46	1352	42.95	1352.02
46	1351.97	51.42	1351.95	59.85	1351.95	68.07	1351.84	82.56	1351.86
92.59	1351.85	96.63	1351.88	102.2	1351.95	110.97	1351.98	113.87	1351.95
118.33	1351.95	121.14	1351.91	134.98	1351.91	136.83	1351.88	142.47	1351.89
143.71	1351.86	154.74	1351.84	164.27	1351.85	166.52	1351.88	170.74	1351.88
171.55	1351.9	173.74	1351.89	174.65	1351.91	197.37	1351.87	207.59	1351.92
220.09	1351.93	221.88	1351.59	222.62	1351.23	270	1339.9	300	1339.23
330	1339.91	376.06	1350.85	376.27	1351.02	376.52	1351.05	379.64	1352.28
397.65	1352.34	403.77	1352.39	406.14	1352.45	412.04	1352.46	413.46	1352.41
421.25	1352.29	425.15	1352.14	429.04	1352.1	433.82	1352.1	440.3	1352.17
444.8	1352.17	447.16	1352.09	449.85	1352.1	455.31	1352.01	460.44	1352.02
464.93	1352.01	470.83	1351.89	477.01	1351.83	479.8	1351.85	480.39	1351.88
481.6	1351.87	498.92	1351.95	503.94	1351.94	505.68	1351.96	506.67	1351.94
515.59	1352.03	517.01	1352.06	521.5	1352.07	523.99	1352.1	526.86	1352.11
529.9	1352.14	536.03	1352.16	539.98	1352.22	546.94	1352.24	548.34	1352.28
549.2	1352.28	550.45	1352.32	554.85	1352.35	559.14	1352.34	565.46	1352.37
569.92	1352.48	574.62	1352.49	576.59	1352.52	580.2	1352.51	582.19	1352.56
587.75	1352.58	593.62	1352.56	596.05	1352.59	600	1352.55		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	220.09	.025	379.64	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
220.09	379.64	.4	.6

Upstream Embankment side slope = 4 horiz. to 1.0 vertical
Downstream Embankment side slope = 4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 1345.61
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	Circular	1.5	

FHWA Chart # 55- Circular Culvert
FHWA Scale # 1 - Smooth tapered inlet throat
Solution Criteria = Highest U.S. EG

Culvert Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
5.42	107	.011	.011	0	.5	1

Number of Barrels = 3
Upstream Elevation = 1339.65
Centerline Stations

Sta.	Sta.	Sta.
297	300	303

Downstream Elevation = 1339.25
Centerline Stations

Sta.	Sta.	Sta.
297	300	303

CULVERT OUTPUT Profile #As-Built Culv Group: Culvert #1

Q Culv Group (cfs)	48.16	Culv Full Len (ft)	107.00
# Barrels	3	Culv Vel US (ft/s)	9.09
Q Barrel (cfs)	16.05	Culv Vel DS (ft/s)	9.09
E.G. US. (ft)	1349.28	Culv Inv El Up (ft)	1339.65
W.S. US. (ft)	1349.20	Culv Inv El Dn (ft)	1339.25
E.G. DS (ft)	1345.85	Culv Frctn Ls (ft)	1.79
W.S. DS (ft)	1345.57	Culv Exit Loss (ft)	1.00
Delta EG (ft)	3.43	Culv Entr Loss (ft)	0.64
Delta WS (ft)	3.63	Q Weir (cfs)	2050.09
E.G. IC (ft)	1349.23	Weir Sta Lft (ft)	231.84
E.G. OC (ft)	1349.28	Weir Sta Rgt (ft)	368.35
Culvert Control	Inlet	Weir Submerg	0.00
Culv WS Inlet (ft)	1341.15	Weir Max Depth (ft)	3.68
Culv WS Outlet (ft)	1340.75	Weir Avg Depth (ft)	2.85
Culv Nml Depth (ft)	1.50	Weir Flow Area (sq ft)	388.85
Culv Crt Depth (ft)	1.50	Min El Weir Flow (ft)	1345.61

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.
Note: Culvert critical depth exceeds the height of the culvert.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13308.56

INPUT
Description: d/s power - 24" culverts constructed, modeled as 18" to account for sediment build up.
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	1352.58	3.46	1352.85	3.68	1352.74	3.83	1352.69	3.97	1352.67
4.72	1352.4	5.66	1352.39	8.63	1352.43	12.17	1352.41	17.81	1352.43
20.46	1352.36	22.59	1352.21	29.58	1352.05	37.46	1352	42.95	1352.02
46	1351.97	51.42	1351.95	59.85	1351.95	68.07	1351.84	82.56	1351.86
92.59	1351.85	96.63	1351.88	102.2	1351.95	110.97	1351.98	113.87	1351.95
118.33	1351.95	121.14	1351.91	134.98	1351.91	136.83	1351.88	142.47	1351.89
143.71	1351.86	154.74	1351.84	164.27	1351.85	166.52	1351.88	170.74	1351.88
171.55	1351.9	173.74	1351.89	174.65	1351.91	197.37	1351.87	207.59	1351.92
220.09	1351.93	221.88	1351.59	222.62	1351.23	270	1339.9	300	1339.23
330	1339.91	376.06	1350.85	376.27	1351.02	376.52	1351.05	379.64	1352.28
397.65	1352.34	403.77	1352.39	406.14	1352.45	412.04	1352.46	413.46	1352.41
421.25	1352.29	425.15	1352.14	429.04	1352.1	433.82	1352.1	440.3	1352.17
444.8	1352.17	447.16	1352.09	449.85	1352.1	455.31	1352.01	460.44	1352.02
464.93	1352.01	470.83	1351.89	477.01	1351.83	479.8	1351.85	480.39	1351.88
481.6	1351.87	498.92	1351.95	503.94	1351.94	505.68	1351.96	506.67	1351.94
515.59	1352.03	517.01	1352.06	521.5	1352.07	523.99	1352.1	526.86	1352.11
529.9	1352.14	536.03	1352.16	539.98	1352.22	546.94	1352.24	548.34	1352.28
549.2	1352.28	550.45	1352.32	554.85	1352.35	559.14	1352.34	565.46	1352.37
569.92	1352.48	574.62	1352.49	576.59	1352.52	580.2	1352.51	582.19	1352.56
587.75	1352.58	593.62	1352.56	596.05	1352.59	600	1352.55		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	220.09	.025	379.64	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.09	379.64	8.56	8.56	8.56	.4	.6

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1345.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.025	
W.S. Elev (ft)	1345.57	Reach Len. (ft)	8.56	8.56	8.56
Crit W.S. (ft)		Flow Area (sq ft)		494.93	
E.G. Slope (ft/ft)	0.000677	Area (sq ft)		494.93	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.55	Top Width (ft)		107.55	
Vel Total (ft/s)	4.24	Avg. Vel. (ft/s)		4.24	
Max Chl Dpth (ft)	6.34	Hydr. Depth (ft)		4.60	
Conv. Total (cfs)	80715.1	Conv. (cfs)		80715.1	
Length Wtd. (ft)	8.56	Wetted Per. (ft)		108.90	
Min Ch El (ft)	1339.23	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.81	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	146.06	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	33.98	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13300.00

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1351.6	4.29	1351.58	11.57	1351.61	18.84	1351.66	29.2	1351.61
30.74	1351.56	36.75	1351.46	41.5	1351.52	50	1351.491	53.36	1351.48
56.31	1351.48	58.01	1351.45	65.85	1351.44	80.89	1351.45	82.66	1351.46
87.74	1351.46	91.12	1351.43	114.23	1351.44	117.28	1351.42	132.57	1351.41
134.16	1351.41	137.64	1351.4	139.83	1351.35	143.68	1351.35	145.41	1351.32
153.6	1351.29	180.83	1351.27	182.58	1351.28	196.82	1351.28	214.04	1351.3
216	1351.28	222.62	1351.28	231.28	1349.21	270	1339.87	300	1339.2
330	1339.87	369.93	1349.95	376.08	1351.46	376.09	1351.52	386.35	1351.57
392.39	1351.57	399.18	1351.55	408.09	1351.55	409.77	1351.59	417.35	1351.6
426.82	1351.6	428.13	1351.62	432.99	1351.63	438.72	1351.61	441.98	1351.61
442.49	1351.59	443.37	1351.6	443.79	1351.59	446.06	1351.59	448.34	1351.56
449.3	1351.51	453.92	1351.46	460.5	1351.46	462.98	1351.48	463.73	1351.5
466.79	1351.51	469.96	1351.55	484.31	1351.56	488.33	1351.68	489.47	1351.69

500.87	1351.69	501.83	1351.67	503.83	1351.67	509.17	1351.62	513.02	1351.62
517.89	1351.59	519.35	1351.62	520.48	1351.62	522.18	1351.77	523.12	1351.77
524.09	1351.79	524.76	1351.79	526.2	1351.76	535.13	1351.81	537.24	1351.8
548.16	1351.86	550	1351.855	551.81	1351.85	553.71	1351.88	556.31	1351.86
557.84	1351.87	559.43	1351.84	560.28	1351.85	563.7	1351.8	569.95	1351.74
570.81	1351.82	572.28	1351.89	575.97	1351.79	579.2	1351.8	580.02	1351.77
588.5	1351.77	592.23	1351.8	592.71	1351.81	595.05	1351.79	598.02	1351.79
600	1351.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	222.62	.035	376.09	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.62	376.09	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1345.84	Element			
Vel Head (ft)	0.28	Wt. n-Val.		0.035	
W.S. Elev (ft)	1345.56	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		492.58	
E.G. Slope (ft/ft)	0.001325	Area (sq ft)		492.58	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	106.12	Top Width (ft)		106.12	
Vel Total (ft/s)	4.26	Avg. Vel. (ft/s)		4.26	
Max Chl Dpth (ft)	6.36	Hydr. Depth (ft)		4.64	
Conv. Total (cfs)	57686.0	Conv. (cfs)		57686.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		107.51	
Min Ch El (ft)	1339.20	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		1.62	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	0.00	145.96	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	33.96	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13200.00

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1351.13	5.66	1351.12	9.7	1351.13	17.78	1351.14	18.16	1351.14
25.34	1351.14	38.49	1351.15	49.57	1351.16	50	1351.159	54.82	1351.15
57.43	1351.15	63.83	1351.15	66.99	1351.16	67.18	1351.16	67.34	1351.16
71.55	1351.16	85.32	1351.17	85.42	1351.17	87.07	1351.17	87.35	1351.17
87.69	1351.17	89.36	1351.17	89.75	1351.16	98.8	1351.15	101.48	1351.14
103.55	1351.13	119.86	1351.11	121.33	1351.11	132.41	1351.09	135.74	1351.09
137.23	1351.08	145.78	1351.07	154.49	1351.06	155.68	1351.05	156.34	1351.05
158.6	1351.05	164.01	1351.05	167.76	1351.05	174.55	1351.06	176.9	1351.05
196.53	1351.06	199.29	1351.06	204.62	1351.07	208.23	1351.07	208.71	1351.07
208.75	1351.07	208.85	1351.07	208.89	1351.07	208.93	1351.07	212.05	1351.07
212.09	1351.07	212.13	1351.07	212.19	1351.07	213.89	1351.07	214.73	1351.07
215.08	1351.07	215.12	1351.07	216.06	1351.07	217.9	1351.05	217.92	1351.05
219.78	1351.05	221.66	1351.05	221.75	1351.05	221.77	1351.05	222.15	1351.05
222.58	1351.05	232.9	1348.6	270	1339.67	300	1338.83	330	1339.67
357.85	1346.23	376.16	1350.54	378.39	1350.61	388.32	1350.84	403.01	1350.82
409.97	1350.81	410.37	1350.81	412.98	1350.81	416.25	1350.8	430.62	1350.79
442.55	1350.78	458.37	1350.77	464.33	1350.77	472.56	1350.75	473.88	1350.75
476.07	1350.75	485.65	1350.79	493.7	1350.78	510.32	1350.78	513.4	1350.77
516.54	1350.77	532.72	1350.75	535.74	1350.78	541.03	1350.74	550	1350.735
558.29	1350.73	569.29	1350.79	587.02	1350.91	588.62	1350.9	593.84	1350.89
600	1350.89								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	222.58	.045	378.39	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.58	378.39	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1345.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1345.41	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		507.76	
E.G. Slope (ft/ft)	0.002031	Area (sq ft)		507.76	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	108.20	Top Width (ft)		108.20	
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)		4.14	
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)		4.69	
Conv. Total (cfs)	46603.3	Conv. (cfs)		46603.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		109.57	
Min Ch El (ft)	1338.83	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	144.81	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	33.72	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13100.00

INPUT
Description:
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1350.86	1.07	1350.86	9.24	1350.87	10.7	1350.87	11.49	1350.87
11.54	1350.87	11.71	1350.87	11.93	1350.87	11.98	1350.87	36.89	1350.83
37.2	1350.83	37.42	1350.83	50	1350.836	59.88	1350.84	62.57	1350.84
84.95	1350.77	86.25	1350.77	86.39	1350.77	90.17	1350.75	103.35	1350.75
109.12	1350.77	114.41	1350.77	134.42	1350.81	134.88	1350.81	135.19	1350.81
135.21	1350.81	135.24	1350.81	135.27	1350.81	138.5	1350.81	138.87	1350.81
139.29	1350.81	159.8	1350.73	159.82	1350.73	159.89	1350.73	159.98	1350.73
160.35	1350.72	162.87	1350.72	163.14	1350.71	163.83	1350.71	182.15	1350.74
183.92	1350.74	183.97	1350.74	187.09	1350.72	190.14	1350.71	209.45	1350.61
210.96	1350.61	211	1350.61	211.03	1350.61	211.04	1350.61	211.05	1350.61
212.02	1350.6	212.04	1350.6	212.06	1350.6	212.13	1350.6	216.12	1350.62
222.53	1350.67	237.82	1347.06	270.01	1339.47	300.01	1338.66	330	1339.47
371.93	1349.27	376.25	1350.28	376.62	1350.29	376.64	1350.29	385.74	1350.42
400.16	1350.4	411.44	1350.5	426.23	1350.47	437.2	1350.45	447.83	1350.45
461.27	1350.58	475.45	1350.54	487.38	1350.54	499.14	1350.57	511.14	1350.56
523.03	1350.57	536.95	1350.56	550	1350.589	550.64	1350.59	561.64	1350.61
575.96	1350.59	586.5	1350.61	597.26	1350.59	600.01	1350.58		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	222.53	.045	376.64	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.53	376.64	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1345.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1345.21	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		508.45	
E.G. Slope (ft/ft)	0.002037	Area (sq ft)		508.45	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	108.85	Top Width (ft)		108.85	
Vel Total (ft/s)	4.13	Avg. Vel. (ft/s)		4.13	
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)		4.67	
Conv. Total (cfs)	46531.3	Conv. (cfs)		46531.3	

Length Wtd. (ft)	100.00	Wetted Per. (ft)		110.20	
Min Ch El (ft)	1338.66	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.42	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	143.65	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	33.47	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 13000.00

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1350.62	14.6	1350.6	18.59	1350.59	38.49	1350.55	50	1350.56
62.56	1350.57	64.17	1350.56	65.74	1350.57	89.87	1350.55	91.04	1350.55
113.9	1350.55	117.16	1350.55	138.05	1350.49	159.09	1350.48	163.82	1350.47
185.04	1350.36	189.49	1350.35	193.88	1350.33	213.54	1350.38	217.67	1350.4
222.73	1350.41	237.95	1346.82	270	1339.26	300	1338.49	300.46	1338.49
330	1339.27	373.39	1349.04	377.72	1350.02	378.17	1350.04	378.18	1350.04
388.86	1350.35	404.84	1350.35	414.82	1350.38	424.58	1350.35	438.85	1350.38
453.52	1350.3	464.71	1350.3	475.94	1350.31	488.69	1350.35	501.62	1350.34
514.47	1350.36	527.44	1350.33	538.35	1350.34	549.22	1350.32	550	1350.318
564.12	1350.29	578.91	1350.33	588.78	1350.33	600	1350.29		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	222.73	.045	378.18	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.73	378.18	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1345.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1345.00	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		510.64	
E.G. Slope (ft/ft)	0.002031	Area (sq ft)		510.64	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	109.81	Top Width (ft)		109.81	
Vel Total (ft/s)	4.11	Avg. Vel. (ft/s)		4.11	
Max Chl Dpth (ft)	6.51	Hydr. Depth (ft)		4.65	
Conv. Total (cfs)	46601.5	Conv. (cfs)		46601.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		111.14	
Min Ch El (ft)	1338.49	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.40	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	142.48	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	33.22	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12900.00

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1350.28	1.98	1350.28	15.98	1350.28	40.82	1350.25	41.69	1350.25
42.55	1350.25	50	1350.256	65.78	1350.27	88.84	1350.26	91.38	1350.25
94.01	1350.24	114.11	1350.17	115.5	1350.19	137.37	1350.21	141.38	1350.22
164.05	1350.21	167.32	1350.2	170.56	1350.2	191.04	1350.18	212.1	1350.16
217.05	1350.16	219.28	1350.15	219.31	1350.15	222.93	1350.16	238.09	1346.59
270	1339.06	300	1338.32	330	1339.06	376.82	1348.9	380.92	1349.76

381.35	1349.78	381.36	1349.78	392.04	1350.13	401.56	1350.1	416.18	1350.09
431.05	1350.09	442.07	1350.07	452.9	1350.1	466.05	1350.12	469.97	1350.08
477.06	1350.1	491.84	1350.15	504.33	1350.17	515.72	1350.15	527.51	1350.11
541.77	1350.08	550	1350.06	553.9	1350.05	567.58	1350	580.94	1349.99
591.66	1349.96	600	1349.96						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	222.93	.045	381.36	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.93	381.36	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1345.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1344.80	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		515.28	
E.G. Slope (ft/ft)	0.002014	Area (sq ft)		515.28	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	111.67	Top Width (ft)		111.67	
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		4.08	
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)		4.61	
Conv. Total (cfs)	46798.9	Conv. (cfs)		46798.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.96	
Min Ch El (ft)	1338.32	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.34	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	141.30	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	32.96	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12800.00

INPUT
Description:
Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1350.01	25.27	1349.98	25.38	1349.98	27.43	1349.98	27.45	1349.98
37.57	1350	38.21	1350.01	45.35	1350.03	46.41	1350.04	46.84	1350.04
50	1350.047	51.18	1350.05	53.73	1350.03	54.41	1350.03	58.54	1350.05
67.51	1350.07	73.47	1350.09	76.68	1350.07	83.19	1350.08	84.62	1350.08
85.66	1350.08	90.77	1350.09	97.09	1350.09	98.65	1350.08	104.54	1350.06
110.68	1350.09	112.6	1350.09	131.95	1350.07	144.18	1350.04	152.67	1350.02
174.38	1349.98	174.9	1349.98	174.92	1349.98	175.41	1349.98	186.13	1349.96
189.25	1349.95	191.71	1349.95	196.62	1349.94	203.67	1349.94	214.61	1349.94
214.67	1349.94	214.69	1349.94	214.78	1349.94	214.84	1349.94	218.12	1349.94
221.26	1349.91	221.28	1349.91	221.31	1349.91	221.35	1349.91	222.48	1349.91
223.03	1349.91	223.13	1349.91	223.15	1349.91	238.22	1346.35	270	1338.86
300	1338.16	300.46	1338.16	330	1338.86	380.86	1348.79	384.52	1349.51
384.79	1349.52	395.15	1349.82	399.99	1349.85	403.27	1349.85	411.02	1349.8
421.42	1349.79	432.1	1349.77	446.6	1349.77	447.39	1349.76	448.24	1349.76
460.52	1349.73	464.52	1349.73	470.64	1349.73	483.59	1349.76	495.68	1349.75
499.44	1349.75	511.21	1349.74	519	1349.77	521.78	1349.74	534.47	1349.72
543.87	1349.75	546.91	1349.71	550	1349.71	550.24	1349.71	562.1	1349.67
564.19	1349.67	568.99	1349.67	584.75	1349.67	592.25	1349.67	599.48	1349.68
600	1349.68								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	221.31	.045	384.79	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
221.31	384.79	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1344.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1344.61	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		520.71	
E.G. Slope (ft/ft)	0.001993	Area (sq ft)		520.71	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.83	Top Width (ft)		113.83	
Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)		4.03	
Max Chl Dpth (ft)	6.45	Hydr. Depth (ft)		4.57	
Conv. Total (cfs)	47040.7	Conv. (cfs)		47040.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		115.07	
Min Ch El (ft)	1338.16	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.27	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	140.11	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	32.70	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12700.00

INPUT
Description:
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1349.75	16.3	1349.8	23.35	1349.84	42.05	1349.78	46.04	1349.76
50	1349.771	68.07	1349.82	68.81	1349.83	92.23	1349.85	92.27	1349.85
95	1349.85	115.8	1349.83	116.19	1349.83	138.55	1349.85	141.99	1349.83
146.4	1349.83	167.86	1349.79	184.79	1349.71	191.76	1349.72	200.68	1349.76
217.03	1349.64	217.35	1349.64	221.15	1349.64	221.59	1349.62	235.28	1346.53
239.24	1345.63	240.23	1345.4	270.02	1338.65	299.13	1337.99	299.18	1337.99
300	1337.99	330	1338.67	383.93	1349.04	385.17	1349.27	386.32	1349.32
386.37	1349.32	386.43	1349.32	392.61	1349.55	393.39	1349.58	415.83	1349.55
417.63	1349.55	419.95	1349.56	443.4	1349.67	447.4	1349.67	465.26	1349.7
468	1349.7	484.78	1349.63	493.44	1349.6	508.19	1349.6	518.58	1349.6
530.95	1349.58	543.41	1349.54	550	1349.548	559.47	1349.56	569.44	1349.55
577.15	1349.54	593.32	1349.58	599.99	1349.58				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	221.15	.045	386.43	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
221.15	386.43	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1344.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1344.41	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		524.31	
E.G. Slope (ft/ft)	0.001979	Area (sq ft)		524.31	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	115.27	Top Width (ft)		115.27	
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)		4.01	
Max Chl Dpth (ft)	6.42	Hydr. Depth (ft)		4.55	
Conv. Total (cfs)	47200.3	Conv. (cfs)		47200.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.47	
Min Ch El (ft)	1337.99	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.23	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	138.91	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	32.44	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12600.00

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1349.29	16.74	1349.39	18.41	1349.39	23.95	1349.38	43.04	1349.37
50	1349.37	59.45	1349.37	67.83	1349.4	83.35	1349.41	94.38	1349.41
100.47	1349.43	119.15	1349.4	127.77	1349.39	141.42	1349.37	145.89	1349.35
153.68	1349.37	172.24	1349.4	182.54	1349.43	197.01	1349.47	210.08	1349.39
210.17	1349.39	218.55	1349.33	256.51	1341.29	270.02	1338.44	300	1337.82
300.77	1337.82	300.82	1337.82	330.02	1338.48	361.84	1345.01	381.67	1349.05
391.76	1349.21	403.23	1349.4	420.79	1349.37	430.81	1349.34	449.1	1349.35
455.73	1349.36	468.19	1349.4	482.33	1349.44	490.07	1349.43	507.07	1349.37
523.65	1349.39	533.47	1349.4	550	1349.364	551.85	1349.36	558.41	1349.36
570.62	1349.34	585.02	1349.37	600.01	1349.35				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	218.55	.045	381.67	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
218.55	381.67	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1344.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1344.21	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		523.55	
E.G. Slope (ft/ft)	0.001988	Area (sq ft)		523.55	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	115.24	Top Width (ft)		115.24	
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)		4.01	
Max Chl Dpth (ft)	6.39	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	47095.3	Conv. (cfs)		47095.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.44	
Min Ch El (ft)	1337.82	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.24	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	137.71	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	32.18	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12500.00

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1348.87	9.93	1348.86	19.11	1348.86	19.2	1348.86	20.14	1348.86
36.34	1348.85	37.68	1348.86	41.57	1348.87	47.3	1348.89	50	1348.907
56.98	1348.95	67.98	1348.99	72.2	1348.99	86.56	1348.94	99.86	1348.96
117.56	1348.95	127.91	1348.93	137.88	1348.94	155.95	1348.96	162.16	1348.98
179	1348.99	181.33	1348.99	182.18	1348.99	184.6	1348.99	208.27	1348.94
210.15	1348.97	216.17	1349.03	216.38	1349.04	225.91	1347.11	270.02	1338.23
299.17	1337.65	299.21	1337.65	300	1337.65	330.01	1338.29	335.46	1339.47
378.65	1348.83	381.53	1348.88	401.28	1349.1	405.69	1349.13	422.92	1349.13
429.38	1349.15	446.27	1349.19	455.69	1349.18	482.41	1349.29	483.66	1349.3
484.1	1349.3	484.95	1349.3	501.64	1349.2	508.5	1349.18	523.62	1349.21
537.58	1349.23	538.81	1349.24	539.74	1349.24	540.4	1349.24	545.64	1349.29
550	1349.307	566.45	1349.37	578.74	1349.35	592.61	1349.35	600	1349.34

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	216.17	.045	381.53	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
216.17	381.53	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1344.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1344.01	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		522.08	
E.G. Slope (ft/ft)	0.002004	Area (sq ft)		522.08	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	115.11	Top Width (ft)		115.11	
Vel Total (ft/s)	4.02	Avg. Vel. (ft/s)		4.02	
Max Chl Dpth (ft)	6.36	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	46910.0	Conv. (cfs)		46910.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.31	
Min Ch El (ft)	1337.65	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.26	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	136.51	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	31.91	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12400.00

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1348.44	8.01	1348.45	15.99	1348.42	22.91	1348.46	34.75	1348.47
50	1348.495	52.66	1348.5	52.97	1348.5	53.16	1348.5	54.33	1348.5
84.07	1348.58	88.87	1348.57	97.54	1348.58	107.18	1348.57	113.27	1348.58
124.83	1348.57	142.48	1348.53	143.08	1348.53	143.43	1348.53	145.43	1348.54
174.17	1348.65	179.04	1348.66	187.64	1348.61	197.29	1348.61	202.77	1348.65
210.5	1348.7	210.64	1348.7	215.21	1348.75	258.97	1340.18	270.01	1338.02
299.99	1337.48	300.74	1337.48	300.79	1337.48	330.02	1338.09	372.6	1347.78
372.75	1347.81	374.25	1348.16	376.23	1348.61	376.43	1348.61	395.59	1348.98
412.44	1348.98	414.19	1348.98	416.93	1348.99	447.21	1349.06	452.73	1349.06
459.57	1349.07	485.65	1349.05	502.41	1349.02	504.4	1349.03	521.84	1349.07
532.91	1349.07	549.64	1349.07	550	1349.069	555.49	1349.06	563.7	1349.1
576.04	1349.09	584.61	1349.08	593.4	1349.15	593.67	1349.15	600	1349.11

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	215.21	.045	376.43	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
215.21	376.43	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1344.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1343.81	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		520.12	
E.G. Slope (ft/ft)	0.002020	Area (sq ft)		520.12	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	114.70	Top Width (ft)		114.70	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)		4.53	
Conv. Total (cfs)	46723.2	Conv. (cfs)		46723.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		115.91	
Min Ch El (ft)	1337.48	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.28	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	135.31	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	31.65	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12300.00

INPUT
Description:
Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1348.12	2.69	1348.12	16.13	1348.15	32.52	1348.16	36.39	1348.16
45.67	1348.14	48.44	1348.13	50	1348.141	63.11	1348.23	67.86	1348.25
69.18	1348.26	70.49	1348.25	103.16	1348.21	105.62	1348.22	122.33	1348.32
138.16	1348.27	142.05	1348.27	157.48	1348.3	173.08	1348.3	176.91	1348.31
186.96	1348.33	205.68	1348.41	208.29	1348.42	212.37	1348.44	212.41	1348.44
215.04	1348.45	256.53	1340.42	270.02	1337.81	299.19	1337.27	299.99	1337.27
300	1337.27	330.01	1337.9	342.14	1340.76	342.18	1340.77	354.05	1343.56
374.53	1348.38	377.16	1348.46	377.18	1348.46	395.78	1348.76	406.13	1348.75
414.42	1348.75	422.74	1348.75	433.05	1348.79	440.68	1348.83	446.86	1348.85
469.74	1348.89	475.85	1348.89	482.07	1348.9	493.75	1348.91	505.14	1348.92
517.14	1348.93	525	1348.86	543.47	1348.93	546.85	1348.93	549.67	1348.94
550	1348.941	579.19	1349.04	584.83	1349.02	600	1348.93		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	215.04	.045	377.16	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
215.04	377.16	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1343.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1343.60	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		518.31	
E.G. Slope (ft/ft)	0.002031	Area (sq ft)		518.31	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	114.15	Top Width (ft)		114.15	
Vel Total (ft/s)	4.05	Avg. Vel. (ft/s)		4.05	
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	46596.2	Conv. (cfs)		46596.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		115.38	
Min Ch El (ft)	1337.27	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.31	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	134.12	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	31.38	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12200.00

INPUT
Description:
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1347.79	.84	1347.79	3.77	1347.79	7.82	1347.79	23.48	1347.9
28.43	1347.92	40.48	1347.91	50	1347.895	59.18	1347.88	62.06	1347.9
66.21	1347.9	91.45	1348.03	107.28	1348.03	115.47	1348.02	121.31	1348.03
133.49	1348.06	147.62	1348.11	154.27	1348.13	155.95	1348.08	161.33	1347.95
169.72	1348.02	184.72	1348.14	190.05	1348.14	191.19	1348.14	209.62	1348.16
215.89	1348.16	220.89	1347.18	270.01	1337.59	300	1337.06	300.75	1337.06
330.02	1337.71	342.99	1340.82	373.56	1348.15	376.35	1348.25	395.38	1348.6
405.43	1348.65	416.85	1348.53	426.05	1348.51	435.27	1348.66	435.79	1348.67
437.59	1348.66	441.72	1348.64	449.45	1348.66	466.72	1348.7	479.65	1348.71

490.17	1348.7	499.33	1348.71	508.24	1348.73	518.76	1348.8	531.25	1348.84
543.62	1348.83	550	1348.819	561.04	1348.8	561.42	1348.8	562.02	1348.81
564.76	1348.81	592.93	1348.9	600	1348.91				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	215.89	.045	373.56	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
215.89	373.56	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1343.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1343.40	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		516.68	
E.G. Slope (ft/ft)	0.002037	Area (sq ft)		516.68	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.48	Top Width (ft)		113.48	
Vel Total (ft/s)	4.06	Avg. Vel. (ft/s)		4.06	
Max Chl Dpth (ft)	6.34	Hydr. Depth (ft)		4.55	
Conv. Total (cfs)	46528.4	Conv. (cfs)		46528.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		114.72	
Min Ch El (ft)	1337.06	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.33	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	132.93	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	31.12	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12100.00

INPUT
Description:
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1347.25	3.5	1347.25	8.26	1347.28	11.99	1347.27	29.88	1347.37
30.82	1347.38	31.88	1347.38	50	1347.393	59.07	1347.4	83.57	1347.43
86.03	1347.44	87.32	1347.43	89.32	1347.43	106.78	1347.56	115.58	1347.71
123.05	1347.65	137.27	1347.6	141.56	1347.57	143.82	1347.57	160.07	1347.69
172.07	1347.67	190.98	1347.65	197.09	1347.67	200.31	1347.68	206.46	1347.75
206.55	1347.75	217.77	1347.87	253.36	1340.72	270.02	1337.38	299.23	1336.85
300	1336.85	300.02	1336.85	330.01	1337.52	334.92	1338.7	373.36	1347.93
385.52	1348.09	385.54	1348.09	385.56	1348.09	397.89	1348.28	406.15	1348.26
425.74	1348.27	446.98	1348.46	453.89	1348.51	457.11	1348.5	458.29	1348.49
462.27	1348.42	469.15	1348.39	471.23	1348.42	482.88	1348.54	493.36	1348.57
511.49	1348.65	512.28	1348.66	530.14	1348.77	539.12	1348.82	548.81	1348.81
550	1348.81	565.95	1348.81	568.15	1348.8	570.49	1348.8	596.34	1348.8
600.01	1348.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	217.77	.045	373.36	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
217.77	373.36	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1343.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1343.19	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		513.54	
E.G. Slope (ft/ft)	0.002057	Area (sq ft)		513.54	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	112.55	Top Width (ft)		112.55	

Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)		4.09	
Max Chl Dpth (ft)	6.34	Hydr. Depth (ft)		4.56	
Conv. Total (cfs)	46304.9	Conv. (cfs)		46304.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		113.81	
Min Ch El (ft)	1336.85	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.37	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	131.75	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	30.86	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 12000.00

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1346.93	2.99	1346.95	11.77	1346.98	12.38	1346.98	17.69	1346.99
20.86	1346.99	23.1	1346.99	24.31	1346.99	37.58	1346.99	48.97	1347.02
50	1347.021	63.9	1347.03	68.77	1347.06	83.55	1347.17	88.57	1347.21
90.23	1347.22	93.51	1347.19	116.54	1347.08	133.34	1347.12	141.38	1347.27
163.45	1347.46	167.77	1347.48	169.19	1347.48	172	1347.49	195.51	1347.58
212.77	1347.57	216.32	1347.58	241.11	1342.76	270	1337.17	299.99	1336.64
300.68	1336.64	300.72	1336.64	330	1337.33	361.35	1344.74	361.53	1344.78
366.14	1345.87	373.92	1347.7	374.82	1347.74	374.83	1347.74	378.88	1347.88
403.14	1348.04	406.08	1348.05	407.54	1348.05	433.27	1348.19	444.83	1348.19
458.92	1348.31	464.86	1348.35	481.47	1348.32	485.71	1348.33	486.54	1348.33
494.38	1348.37	502.5	1348.37	512.07	1348.38	524.01	1348.4	537.39	1348.53
543.95	1348.56	550	1348.553	561.26	1348.54	564.83	1348.55	566.55	1348.55
585.36	1348.64	590.7	1348.65	599.99	1348.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	216.32	.045	378.88	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
216.32	378.88	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1343.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1342.99	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		517.99	
E.G. Slope (ft/ft)	0.002032	Area (sq ft)		517.99	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	114.00	Top Width (ft)		114.00	
Vel Total (ft/s)	4.05	Avg. Vel. (ft/s)		4.05	
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	46589.2	Conv. (cfs)		46589.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		115.23	
Min Ch El (ft)	1336.64	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.31	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	130.57	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	30.60	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11900.00

INPUT
Description:
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	1346.71	16.99	1346.76	17.89	1346.77	18.6	1346.77	37.54	1346.82
40.6	1346.82	41.24	1346.82	41.74	1346.83	46.5	1346.85	48.78	1346.86
50	1346.867	70.53	1346.99	95.5	1347	96.85	1347	99.62	1347.02
117.33	1347.11	123.17	1347.13	137.14	1347.18	149.5	1347.19	174.01	1347.38
175.82	1347.39	179.52	1347.4	203.14	1347.42	207.47	1347.35	207.57	1347.35
209.17	1347.32	234.67	1342.97	270.01	1336.97	300	1336.43	300.68	1336.43
300.73	1336.43	330	1337.13	361.64	1344.51	361.73	1344.53	366.38	1345.62
374.2	1347.45	375.49	1347.49	375.52	1347.49	386.4	1347.99	409.52	1348
412.72	1347.99	419.21	1348	434.12	1348.01	439.04	1348	448.79	1348.02
465.36	1348.05	473.72	1348.08	491.68	1348.17	499.07	1348.2	520.78	1348.3
521.74	1348.3	522.67	1348.3	524.51	1348.31	526.94	1348.32	544.32	1348.39
550	1348.417	552.87	1348.43	571.65	1348.52	572.95	1348.52	576.53	1348.51
597.94	1348.47	600	1348.48						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	209.17	.045	375.52	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
209.17	375.52	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1343.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1342.80	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		532.61	
E.G. Slope (ft/ft)	0.001950	Area (sq ft)		532.61	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	118.62	Top Width (ft)		118.62	
Vel Total (ft/s)	3.94	Avg. Vel. (ft/s)		3.94	
Max Chl Dpth (ft)	6.37	Hydr. Depth (ft)		4.49	
Conv. Total (cfs)	47557.0	Conv. (cfs)		47557.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.78	
Min Ch El (ft)	1336.43	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.13	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	129.36	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	30.34	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11800.00

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1346.59	22.67	1346.65	42.02	1346.69	49.31	1346.7	50	1346.702
53.78	1346.71	54.45	1346.71	55.3	1346.71	56.8	1346.71	59.09	1346.72
64.14	1346.72	66.92	1346.73	69.54	1346.76	71.39	1346.78	72.4	1346.79
72.89	1346.79	84.15	1346.83	95.6	1346.89	102.6	1346.99	126.34	1347.08
129.22	1347.08	130.56	1347.09	134.2	1347.08	150.05	1347.05	155.86	1347.03
169.52	1347.05	182.5	1347.06	197.92	1347.07	198.01	1347.07	206.83	1347.07
260.13	1338.38	270	1336.77	299.99	1336.22	300	1336.22	301.22	1336.22
301.31	1336.22	329.99	1336.93	341.45	1339.63	373.5	1347.22	380.39	1347.32
395.6	1347.7	421.23	1347.88	422.23	1347.88	422.69	1347.88	423.95	1347.89
442.17	1347.94	448.87	1347.95	463.36	1347.92	475.51	1347.92	481.12	1347.93
496.39	1348.04	502.15	1348.09	505.5	1348.09	528.79	1348.15	546.8	1348.2
549.66	1348.21	550	1348.21	553.42	1348.21	554.54	1348.21	554.68	1348.19
568.8	1348.17	577	1348.25	582.06	1348.28	597.97	1348.28	600	1348.28

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	206.83	.045	373.5	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
206.83	373.5	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1342.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1342.61	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		537.63	
E.G. Slope (ft/ft)	0.001915	Area (sq ft)		537.63	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	119.83	Top Width (ft)		119.83	
Vel Total (ft/s)	3.91	Avg. Vel. (ft/s)		3.91	
Max Chl Dpth (ft)	6.39	Hydr. Depth (ft)		4.49	
Conv. Total (cfs)	47985.8	Conv. (cfs)		47985.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		120.98	
Min Ch El (ft)	1336.22	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.08	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	128.13	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	30.06	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11700.00

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1346.49	4.07	1346.5	13	1346.51	31.08	1346.54	32.17	1346.54
34.84	1346.54	501	1346.566	58.09	1346.58	74.18	1346.62	85.1	1346.64
89.99	1346.65	90.78	1346.65	91.94	1346.66	93.07	1346.66	96.19	1346.66
98.27	1346.66	101.6	1346.68	104.71	1346.71	106.32	1346.72	107.32	1346.72
108.02	1346.73	108.61	1346.73	112.11	1346.75	119.88	1346.81	139.12	1346.96
147.19	1346.97	166.13	1347.03	166.36	1347.03	166.94	1347.03	193.13	1347.06
208.68	1346.9	210.36	1346.88	269.99	1336.57	300	1336.01	330	1336.72
374.19	1348.75	376.43	1348.3	382.21	1347.64	396.41	1347.61	409.21	1347.58
415.58	1347.61	431.18	1347.63	434.76	1347.64	436.22	1347.64	453.92	1347.78
463.23	1347.85	485.41	1347.9	490.23	1347.91	492.26	1347.92	497.22	1347.93
511.43	1347.97	517.25	1347.98	531.1	1348.01	544.25	1348.03	549.77	1348.04
550	1348.041	563.29	1348.08	568.95	1348.09	571.26	1348.1	581.91	1348.12
588.99	1348.14	591.83	1348.14	592.04	1348.14	598.27	1348.18	600	1348.19

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	208.68	.045	374.19	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
208.68	374.19	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1342.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1342.40	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		521.53	
E.G. Slope (ft/ft)	0.002000	Area (sq ft)		521.53	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	114.56	Top Width (ft)		114.56	
Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)		4.03	
Max Chl Dpth (ft)	6.39	Hydr. Depth (ft)		4.55	
Conv. Total (cfs)	46956.8	Conv. (cfs)		46956.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		115.83	
Min Ch El (ft)	1336.01	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.26	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	126.92	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	29.79	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11600.00

INPUT
Description:
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1346.22	2.04	1346.23	4.07	1346.23	5.49	1346.24	17.43	1346.29
29.15	1346.34	44.49	1346.38	50	1346.401	57.44	1346.43	71.56	1346.48
86.56	1346.53	98.62	1346.56	105.69	1346.58	122.73	1346.63	125.67	1346.64
126.64	1346.64	126.9	1346.64	127.77	1346.65	133.06	1346.66	136.8	1346.68
139.31	1346.69	140.62	1346.7	152.75	1346.77	174.02	1346.82	179.81	1346.84
187.98	1346.89	201.33	1346.98	206.87	1347	209.6	1346.88	215.68	1346.72
260.91	1338.1	270.03	1336.37	300	1335.8	329.96	1336.52	329.98	1336.53
373.99	1348.59	382.3	1348.08	385.84	1347.9	385.86	1347.9	393.28	1347.5
393.7	1347.51	394.05	1347.51	394.58	1347.51	394.78	1347.51	394.8	1347.51
400.74	1347.54	402.37	1347.55	403.44	1347.55	423.39	1347.67	430.91	1347.65
449.09	1347.66	450.05	1347.66	450.45	1347.66	469.18	1347.68	477.52	1347.75
497.65	1347.9	504.58	1347.95	507.45	1347.95	514.36	1347.95	526.58	1347.92
531.64	1347.92	543.89	1347.98	550	1348.009	558.71	1348.05	579.62	1348.09
584.17	1348.11	584.37	1348.11	584.71	1348.11	585.06	1348.11	585.38	1348.11
585.76	1348.11	585.77	1348.11	585.81	1348.11	586.52	1348.11	587.78	1348.11
590.54	1348.11	592.41	1348.11	593.83	1348.35	594.09	1348.39	594.14	1348.39
594.71	1348.48	595.9	1348.67	597.77	1348.98	597.85	1348.95	600	1348.48

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	215.68	.045	373.99	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
215.68	373.99	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1342.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1342.18	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		510.23	
E.G. Slope (ft/ft)	0.002068	Area (sq ft)		510.23	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	111.10	Top Width (ft)		111.10	
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)		4.12	
Max Chl Dpth (ft)	6.38	Hydr. Depth (ft)		4.59	
Conv. Total (cfs)	46182.6	Conv. (cfs)		46182.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.43	
Min Ch El (ft)	1335.80	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.41	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	125.73	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	29.54	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11499.99

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1346.11	16.86	1346.14	30.05	1346.22	34.85	1346.28	43.1	1346.28
47.91	1346.26	50	1346.266	96.73	1346.4	160.8	1346.65	162.66	1346.65
192.71	1346.81	220.79	1346.62	223.93	1346.68	224.15	1346.58	246.51	1341.51
270.21	1336.18	299.99	1335.58	329.76	1336.31	342.88	1339.65	376.9	1348.42
377.01	1347.61	377.02	1347.58	381.21	1347.88	382.8	1347.75	384.48	1347.58
389.47	1347.33	391.17	1347.26	391.91	1347.2	394.94	1347.07	403.46	1346.94

406.2	1347.27	407.24	1347.36	410.31	1347.2	413.52	1347.43	416.68	1347.73
427.38	1347.81	428.68	1347.83	430.42	1347.83	432.44	1347.86	437.51	1347.83
440.26	1347.82	442.5	1347.8	449.11	1347.77	453.45	1347.78	457.48	1347.96
461.48	1348.18	463.44	1348.27	469.19	1348.48	475.78	1348.21	477.16	1348.16
478.29	1348.09	479.47	1348.06	480.49	1347.97	485.2	1347.7	487.19	1347.48
489.76	1347.28	490.76	1347.21	493.31	1347.08	494.67	1347.02	497.08	1346.82
504.57	1346.42	507.17	1346.29	508.31	1346.16	509.39	1346.07	511.66	1345.98
513.52	1345.87	514.05	1345.86	515.7	1345.83	519.25	1345.86	520.89	1345.81
524.69	1345.66	525.15	1345.59	526.82	1345.44	527.79	1345.3	528.81	1345.21
530.15	1345.04	532.07	1344.75	536.97	1344.58	539.99	1344.54	544.8	1344.41
548.81	1344.37	550	1344.366	551.93	1344.36	555.45	1344.33	556.62	1344.34
559.7	1344.33	563.97	1344.28	565.07	1344.28	569.5	1344.32	571.38	1344.32
573.24	1344.38	580.61	1344.38	586.35	1344.44	586.82	1344.44	587.07	1344.42
589.06	1344.39	592.77	1344.41	593.77	1344.44	595.62	1344.41	597.27	1344.42
599.99	1344.41								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	223.93	.045	376.9	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.93	376.9	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1342.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.045	
W.S. Elev (ft)	1341.95	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		496.20	
E.G. Slope (ft/ft)	0.002167	Area (sq ft)		496.20	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.26	Top Width (ft)		107.26	
Vel Total (ft/s)	4.23	Avg. Vel. (ft/s)		4.23	
Max Chl Dpth (ft)	6.37	Hydr. Depth (ft)		4.63	
Conv. Total (cfs)	45109.3	Conv. (cfs)		45109.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		108.62	
Min Ch El (ft)	1335.58	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.62	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	124.58	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	29.28	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11400.00

INPUT
Description: Old channel on right to be filled
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1346.1	23.55	1346.12	30.87	1346.14	45.5	1346.22	48.05	1346.49
50	1346.32	50.34	1346.29	68.8	1346.17	72.54	1346.18	98.01	1346.29
105.72	1346.28	125.07	1346.41	140.83	1346.47	180.31	1346.73	201.67	1346.76
209.01	1346.74	212.73	1346.76	213.79	1346.75	214.56	1346.76	219.84	1346.62
224.42	1346.64	225.08	1346.46	246.38	1341.51	270.01	1335.99	300	1335.37
329.98	1336.09	387.42	1348.23	436.56	1348.89	443.2	1348.94	445.64	1349.48
447.05	1349.83	447.19	1349.85	448.73	1350.24	453.56	1350.75	456.82	1350.39
458.41	1350.19	461.18	1350.09	462.55	1349.94	466.85	1349.99	471.88	1350.07
473.87	1350.16	477.23	1350.41	478.94	1350.38	481.36	1350.1	485.79	1349.51
486.59	1349.38	486.69	1349.42	488.09	1349.48	489.85	1349.6	491.53	1349.88
497.38	1350.19	499.29	1350.21	499.62	1350.2	503.25	1350.3	503.95	1350.31
505.45	1350.28	508.1	1350.28	509.9	1350.29	514.01	1350.77	515.03	1350.99
523.75	1351.19	525.24	1351.2	527.52	1351.26	529.86	1351.26	540.26	1351.02
541.42	1351.03	544.81	1350.82	548.03	1350.66	550	1350.495	551.62	1350.36
553.18	1350.21	555.52	1350.02	558.62	1349.78	564.31	1349.31	568.37	1349.28
573.68	1349.19	576.58	1349.13	582.85	1349.06	600	1349.03		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	224.42	.045	387.42	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.42	387.42	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1342.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1341.75	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		509.32	
E.G. Slope (ft/ft)	0.002086	Area (sq ft)		509.32	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	111.41	Top Width (ft)		111.41	
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)		4.12	
Max Chl Dpth (ft)	6.38	Hydr. Depth (ft)		4.57	
Conv. Total (cfs)	45975.9	Conv. (cfs)		45975.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.68	
Min Ch El (ft)	1335.37	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	123.42	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	29.03	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11300.00

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	1346.21	118.81	1346.36	131.63	1346.44	145.77	1346.55	163.39	1346.72
172.73	1346.78	177.03	1346.82	181.75	1346.87	184.78	1347.48	185.66	1347.66
187.43	1346.82	193.11	1346.76	196.12	1346.85	198.38	1346.93	202.29	1347.06
202.81	1347.02	203.65	1346.96	206.12	1346.98	208.4	1347.02	210.09	1347.02
212.38	1346.94	224.31	1346.35	269.95	1335.81	300	1335.15	329.98	1335.87
347.06	1339.2	392.12	1349.07	398.91	1350.09	404.98	1350.28	407.02	1350.62
408.05	1350.58	408.6	1350.54	414.26	1350.16	416.06	1350.03	419.7	1349.54
422.51	1349.17	426.26	1348.67	426.81	1348.61	427.78	1348.46	436.99	1348.14
440.65	1348.01	440.93	1348.01	450.41	1347.82	456.67	1347.84	469.27	1347.92
477.38	1347.96	496.69	1348.03	496.83	1348.03	509.37	1348.06	510.31	1348.06
513.05	1348.05	523.18	1348.03	535	1348.02	550	1348.01	550.14	1348.01
564.29	1348.01	577.1	1348.02	589.16	1348.1	590.37	1348.09	591.53	1348.08
593.68	1348.07	595.49	1348.09	597.31	1348.08	598.51	1348.09	600	1348.08

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.045	224.31	.045	408.05	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.31	408.05	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1341.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1341.55	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		515.87	
E.G. Slope (ft/ft)	0.002029	Area (sq ft)		515.87	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	112.68	Top Width (ft)		112.68	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07	
Max Chl Dpth (ft)	6.40	Hydr. Depth (ft)		4.58	
Conv. Total (cfs)	46621.6	Conv. (cfs)		46621.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		113.93	
Min Ch El (ft)	1335.15	Shear (lb/sq ft)		0.57	

Alpha	1.00	Stream Power (lb/ft s)		2.33	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	122.25	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	28.78	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11200.00

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1346.14	27.26	1346.14	50	1346.148	56	1346.15	58.24	1346.16
59.28	1346.16	61.13	1346.15	62.97	1346.16	64.58	1346.16	65.9	1346.16
67.52	1346.17	72.18	1346.17	74.3	1346.16	78.13	1346.17	79.33	1346.22
81.15	1346.24	86.13	1346.22	88.61	1346.22	89.76	1346.23	97.77	1346.23
98.53	1346.22	100.73	1346.21	101.46	1346.2	102.94	1346.21	103.7	1346.19
105.06	1346.19	105.89	1346.18	107.47	1346.17	112.1	1346.17	112.91	1346.17
113.65	1346.17	116.41	1346.17	119.41	1346.17	120.61	1346.16	136.62	1346.24
140.41	1346.24	162.51	1346.41	163.25	1346.41	164.33	1346.44	164.92	1346.45
168.42	1346.52	171.92	1347.39	174	1346.41	178.07	1346.47	185.61	1346.71
187.43	1346.55	196.29	1346.45	201.26	1346.5	205.43	1346.48	208.93	1346.21
212.45	1345.86	212.98	1345.81	214.07	1345.68	214.44	1345.62	218.33	1345.01
221.61	1344.8	221.86	1344.78	223.73	1345.26	226.85	1346.24	270	1335.63
300	1334.93	330	1335.65	371.49	1343.55	393.95	1347.82	407.79	1347.55
410.87	1347.54	438.61	1347.64	459.63	1347.69	460.32	1347.69	461.21	1347.69
488.64	1347.65	491.53	1347.72	505.19	1347.7	513.66	1347.63	542.27	1347.58
543.43	1347.59	544.64	1347.57	545.67	1347.57	549.24	1347.59	549.81	1347.59
550	1347.591	551.71	1347.6	552.1	1347.61	552.88	1347.61	555.04	1347.63
555.25	1347.62	556.07	1347.63	556.36	1347.62	556.8	1347.62	558.19	1347.62
559.21	1347.63	559.59	1347.62	559.76	1347.62	560.23	1347.62	560.27	1347.6
560.45	1347.6	560.81	1347.61	561.45	1347.61	563.46	1347.56	569.17	1347.42
576.77	1347.45								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	226.85	.045	393.95	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.85	393.95	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1341.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1341.34	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		515.02	
E.G. Slope (ft/ft)	0.002051	Area (sq ft)		515.02	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.14	Top Width (ft)		113.14	
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		4.08	
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)		4.55	
Conv. Total (cfs)	46371.3	Conv. (cfs)		46371.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		114.39	
Min Ch El (ft)	1334.93	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.35	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	121.06	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	28.52	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11100.00

INPUT

Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1345.97	5.07	1345.96	8.74	1345.94	9.62	1345.94	10.6	1345.93
11.46	1345.93	13.18	1345.93	31.66	1345.84	32.42	1345.83	33.16	1345.82
35.01	1345.81	38.02	1345.81	50	1345.822	57.84	1345.83	58.34	1345.83
110.21	1345.84	111.22	1345.83	133.87	1345.85	134.7	1345.85	160.04	1345.89
162.67	1345.9	165.85	1346.94	167.96	1346.03	170.69	1345.92	172.46	1345.86
184.86	1345.88	192.02	1345.94	196.84	1345.89	198.91	1345.87	208.25	1344.98
210.71	1344.77	211.06	1344.76	212.28	1344.71	212.94	1344.6	213.69	1344.5
214.69	1344.76	219.6	1346.09	250.23	1339.65	269.99	1335.43	300	1334.71
330	1335.44	371.21	1344.7	384.28	1347.6	388.08	1347.55	395.68	1347.46
400.25	1347.47	402.13	1347.48	403.9	1347.48	417.05	1347.51	435.34	1347.57
448.29	1347.59	453.68	1347.56	460.34	1347.54	476.98	1347.5	485.35	1347.47
493.97	1347.45	509.96	1347.43	511	1347.42	512.88	1347.43	514.19	1347.43
520.76	1347.44	523.06	1347.44	527.12	1347.45	531.42	1347.45	537.65	1347.45
537.66	1347.45	539.97	1347.45	540.21	1347.44	541.1	1347.46	542.79	1347.46
543.8	1347.47	543.97	1347.47	545.34	1347.44	545.81	1347.45	545.98	1347.46
546.41	1347.46	547.1	1347.44	547.22	1347.44	547.47	1347.43	547.72	1347.44
547.85	1347.39	547.96	1347.4	548.21	1347.39	548.42	1347.4	548.52	1347.39
548.83	1347.4	548.94	1347.39	549.4	1347.41	549.49	1347.4	549.57	1347.41
549.66	1347.41	549.74	1347.41	549.83	1347.42	549.9	1347.41	550	1347.415
550.11	1347.42	550.24	1347.41	552.17	1347.4	559.56	1347.21	565.12	1347.08
576.23	1347.13								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	219.6	.045	384.28	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
219.6	384.28	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1341.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1341.13	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		512.20	
E.G. Slope (ft/ft)	0.002065	Area (sq ft)		512.20	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	112.17	Top Width (ft)		112.17	
Vel Total (ft/s)	4.10	Avg. Vel. (ft/s)		4.10	
Max Chl Dpth (ft)	6.42	Hydr. Depth (ft)		4.57	
Conv. Total (cfs)	46207.4	Conv. (cfs)		46207.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		113.42	
Min Ch El (ft)	1334.71	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.39	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	119.88	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	28.26	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 11000.00

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1345.79	3.97	1345.78	11.24	1345.77	11.77	1345.76	12.38	1345.76
36.84	1345.66	50	1345.69	54.43	1345.7	58.24	1345.7	61.9	1345.66
86.97	1345.66	112.03	1345.66	137.1	1345.71	158.23	1345.74	162.32	1345.75
163.43	1346.09	165.2	1346.62	166.58	1346.15	167.77	1345.77	169.95	1345.74
172.31	1345.71	176.2	1345.72	177.12	1345.72	177.38	1345.73	178.63	1345.79
184.07	1345.77	189.43	1345.75	193.97	1345.93	199.53	1346.16	207.16	1345.59
213.32	1345.13	213.73	1345.01	215.49	1345.25	215.78	1345.36	216.01	1345.45
217.42	1345.95	238.88	1341.58	243.61	1340.62	243.62	1340.62	244.08	1340.52
269.99	1335.24	300	1334.5	300.41	1334.5	300.45	1334.5	329.99	1335.24

361.55	1342.92	379.33	1347.26	383.71	1347.38	388.79	1347.45	389.53	1347.42
389.8	1347.41	391.66	1347.4	397.99	1347.37	401.42	1347.35	403.5	1347.33
404.88	1347.32	412.83	1347.27	424.81	1347.22	440.23	1347.14	440.8	1347.13
441.67	1347.12	443.05	1347.11	447.09	1347.12	450	1347.12	462.96	1347.16
471.85	1347.17	488.02	1347.19	498.88	1347.19	513.09	1347.2	536.68	1347.22
539.39	1347.17	539.5	1347.13	539.7	1347.15	539.94	1347.14	540.17	1347.14
540.38	1347.14	540.57	1347.15	540.76	1347.13	540.95	1347.13	541.34	1347.14
541.54	1347.14	541.7	1347.14	541.89	1347.14	542.08	1347.15	542.24	1347.15
542.39	1347.16	542.57	1347.15	542.74	1347.16	542.89	1347.16	543.05	1347.16
543.22	1347.18	543.35	1347.17	543.51	1347.17	543.64	1347.18	543.74	1347.18
543.99	1347.17	547.63	1347.16	550	1347.098	561.66	1346.79	567.02	1346.66
582.6	1346.72								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	217.42	.045	379.33	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
217.42	379.33	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1341.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1340.92	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		508.97	
E.G. Slope (ft/ft)	0.002087	Area (sq ft)		508.97	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	111.23	Top Width (ft)		111.23	
Vel Total (ft/s)	4.13	Avg. Vel. (ft/s)		4.13	
Max Chl Dpth (ft)	6.42	Hydr. Depth (ft)		4.58	
Conv. Total (cfs)	45971.6	Conv. (cfs)		45971.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.50	
Min Ch El (ft)	1334.50	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	118.71	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	28.00	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10900.00

INPUT
Description:
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1345.51	2.83	1345.51	20.53	1345.5	26.13	1345.45	41.44	1345.43
45.65	1345.44	48.66	1345.44	50	1345.439	70.76	1345.42	80.09	1345.43
95.88	1345.43	97.56	1345.43	120.99	1345.48	125.34	1345.49	146.11	1345.51
157.84	1345.58	160.68	1345.59	167.27	1345.64	167.89	1345.64	168.2	1345.74
170.36	1346.44	171.57	1345.94	172.62	1345.51	175.91	1345.53	177.43	1345.54
178.77	1345.54	183.07	1345.54	184.41	1345.6	184.9	1345.63	192.19	1345.57
193.98	1345.56	197.97	1345.55	204.28	1345.54	213.77	1344.6	214.21	1344.56
214.29	1344.57	221.73	1344.82	256.91	1337.93	270	1335.04	297.71	1334.28
300	1334.28	300.55	1334.28	300.61	1334.28	330	1335.03	373.11	1344.92
381.83	1346.93	384.61	1346.89	387.86	1346.84	393.25	1346.75	394.15	1346.8
394.9	1346.84	403.68	1346.79	407.07	1346.8	422.37	1346.86	438.61	1346.84
442.52	1346.83	444.65	1346.83	446.33	1346.84	449.71	1346.86	472.6	1346.97
484.08	1346.98	497.71	1346.99	507	1347	522.83	1346.99	536.12	1347
538.52	1346.99	541.88	1347	546.32	1346.99	546.84	1347	547.2	1346.99
547.44	1346.99	547.6	1346.99	547.71	1346.99	547.8	1346.99	547.87	1346.99
547.93	1346.99	547.98	1346.99	548.02	1346.98	548.05	1346.99	548.07	1346.98
548.09	1346.98	548.41	1346.94	548.44	1346.94	548.59	1346.97	548.68	1346.96
550	1346.949	551.2	1346.94	570.87	1346.43	576.08	1346.3	595.42	1346.37

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

0	.045	221.73	.045	381.83	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
221.73	381.83	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1340.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1340.72	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		510.17	
E.G. Slope (ft/ft)	0.002091	Area (sq ft)		510.17	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	112.09	Top Width (ft)		112.09	
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)		4.12	
Max Chl Dpth (ft)	6.44	Hydr. Depth (ft)		4.55	
Conv. Total (cfs)	45924.6	Conv. (cfs)		45924.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		113.34	
Min Ch El (ft)	1334.28	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.42	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	117.54	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	27.75	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10800.00

INPUT
Description:
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1345.18	5.01	1345.18	24.32	1345.18	30.13	1345.18	50	1345.171
52.11	1345.17	55.24	1345.17	57.83	1345.17	80.36	1345.16	80.75	1345.16
84.89	1345.16	103.67	1345.15	105.47	1345.15	107.65	1345.15	130.59	1345.22
135.44	1345.23	155.7	1345.19	166.26	1345.33	169.28	1345.37	173.03	1345.42
174.91	1345.45	176.34	1345.96	176.88	1346.14	177.33	1345.92	178.79	1345.26
183.73	1345.13	183.86	1345.12	185.43	1345.14	200.49	1345.32	208.91	1345.52
210.19	1345.55	210.97	1345.48	212.35	1345.37	220.54	1344.69	221.38	1344.82
224.46	1345.36	257.57	1337.71	270	1334.83	300	1334.06	300.56	1334.06
300.62	1334.06	330.01	1334.83	375.63	1344.67	384.59	1346.62	387.65	1346.64
391.04	1346.68	396.43	1346.73	398.69	1346.71	400.57	1346.7	401.71	1346.7
402.46	1346.7	406.85	1346.68	424.5	1346.63	431.96	1346.6	442.11	1346.54
444.27	1346.53	447.53	1346.52	448.52	1346.51	448.86	1346.52	457.08	1346.69
468.79	1346.65	482.19	1346.65	496.57	1346.66	507.32	1346.7	516.17	1346.68
532.42	1346.69	541.5	1346.65	543.76	1346.63	547.29	1346.62	548.35	1346.62
548.56	1346.63	550	1346.673	550.22	1346.68	550.94	1346.68	551.12	1346.68
551.28	1346.68	551.97	1346.68	552.21	1346.69	552.29	1346.69	552.35	1346.69
552.39	1346.66	552.41	1346.66	552.43	1346.66	554.53	1346.68	554.73	1346.69
554.89	1346.68	555.04	1346.71	555.17	1346.7	555.28	1346.71	555.39	1346.72
555.49	1346.74	555.57	1346.71	557.58	1346.67	579.87	1346.09	584.91	1345.96
600	1346.02								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	224.46	.045	384.59	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.46	384.59	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1340.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1340.50	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		507.86	
E.G. Slope (ft/ft)	0.002092	Area (sq ft)		507.86	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	

Top Width (ft)	110.83	Top Width (ft)		110.83	
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)		4.14	
Max Chl Dpth (ft)	6.44	Hydr. Depth (ft)		4.58	
Conv. Total (cfs)	45914.6	Conv. (cfs)		45914.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.10	
Min Ch El (ft)	1334.06	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.45	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	116.37	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	27.49	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10700.00

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1344.91	4.39	1344.9	6.1	1344.9	7.83	1344.9	10.15	1344.9
32.28	1344.89	34.74	1344.9	39.85	1344.89	45.53	1344.88	50	1344.88
58.02	1344.88	64.94	1344.88	71.67	1344.88	81.03	1344.87	85.15	1344.87
86.31	1344.86	94.67	1344.86	96.38	1344.87	104.12	1344.87	105.64	1344.87
108.75	1344.85	110.95	1344.84	116.29	1344.84	118.18	1344.83	128.23	1344.82
130.21	1344.81	134.36	1344.81	136.87	1344.79	138.71	1344.79	140.82	1344.8
141.28	1344.81	143.37	1344.79	145.35	1344.79	147.92	1344.78	150.48	1344.78
152.89	1344.75	153.72	1344.76	155.98	1344.73	162.76	1344.73	163.21	1344.72
165.3	1344.72	165.46	1344.71	167.57	1344.71	167.83	1344.7	169.98	1344.69
171.96	1344.48	178.72	1345.09	181.56	1345.24	183.3	1345.66	185.95	1344.91
187.83	1344.82	190.47	1344.72	199.03	1344.96	201.93	1345.05	215.31	1344.87
222	1344.51	224.18	1344.75	227	1345.04	254.8	1338.31	270	1334.63
299.99	1333.85	330	1334.63	372.56	1343.31	387.21	1346.3	388.77	1346.48
394.97	1346.63	399.5	1346.52	406.35	1346.44	413.39	1346.36	414.01	1346.37
425.83	1346.31	441.32	1346.27	446.4	1346.21	447.55	1346.24	449.33	1346.22
450.9	1346.21	452.79	1346.22	455.09	1346.23	466.41	1346.22	476.66	1346.24
491.51	1346.29	504	1346.26	531.56	1346.31	550	1346.329	551.36	1346.33
551.43	1346.32	551.88	1346.29	552.72	1346.29	557.27	1346.34	557.86	1346.37
558.38	1346.33	558.85	1346.43	559.26	1346.42	559.64	1346.45	559.98	1346.47
560.29	1346.54	560.57	1346.44	566.91	1346.32	588.51	1345.76	593.41	1345.64
599.99	1345.66								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	227	.045	388.77	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227	388.77	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1340.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1340.29	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		508.08	
E.G. Slope (ft/ft)	0.002097	Area (sq ft)		508.08	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	111.16	Top Width (ft)		111.16	
Vel Total (ft/s)	4.13	Avg. Vel. (ft/s)		4.13	
Max Chl Dpth (ft)	6.44	Hydr. Depth (ft)		4.57	
Conv. Total (cfs)	45858.5	Conv. (cfs)		45858.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.43	
Min Ch El (ft)	1333.85	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.45	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	115.21	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	27.23	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10600.00

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1344.41	21.67	1344.43	46.69	1344.4	50	1344.4	56.99	1344.4
71.71	1344.4	80.41	1344.51	92.32	1344.5	96.73	1344.37	109.37	1344.41
121.75	1344.44	146.76	1344.42	150.03	1344.35	163.28	1344.38	175.72	1344.32
175.94	1344.31	178.54	1344.53	183.07	1344.92	184.47	1345.29	184.92	1345.41
185.27	1345.29	187.4	1344.6	191.42	1344.39	191.49	1344.39	204.86	1344.82
216.38	1344.78	220.97	1344.72	223.17	1344.68	226.59	1344.7	227.04	1344.7
227.72	1344.71	227.92	1344.71	228.69	1344.52	270	1334.43	299.99	1333.64
330	1334.43	357.02	1339.96	386.5	1346	394.46	1346.16	397.62	1346.17
398.3	1346.14	399.15	1346.1	412.08	1346.12	420.81	1346.06	421.38	1346.06
421.78	1346.05	422.66	1346.05	429.09	1346.03	447.21	1345.95	447.28	1345.95
447.41	1345.94	447.69	1345.94	448.53	1345.92	451.18	1345.85	459.83	1345.99
471.11	1346.15	471.87	1346.16	493.6	1346.11	497.04	1346.11	518.53	1346.13
522.06	1346.13	529.09	1346.13	530.76	1346.13	533.46	1346.15	538.45	1346.16
547.74	1346.17	547.88	1346.16	548	1346.16	548.11	1346.15	548.21	1346.16
548.3	1346.16	548.45	1346.18	548.88	1346.18	548.98	1346.17	549.54	1346.15
549.61	1346.15	550	1346.15	550.14	1346.15	550.85	1346.11	550.94	1346.12
551.43	1346.09	551.49	1346.09	551.56	1346.09	551.94	1346.12	552.01	1346.12
552.31	1346.08	553.39	1346	553.91	1346	556.75	1346.03	557.71	1346.08
558.55	1346.02	559.3	1346.18	559.98	1346.17	560.58	1346.21	561.13	1346.24
561.63	1346.36	562.08	1346.19	572.31	1346.01	593.26	1345.46	598.01	1345.35
600	1345.35								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	227.72	.045	386.5	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.72	386.5	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1340.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1340.08	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		506.10	
E.G. Slope (ft/ft)	0.002114	Area (sq ft)		506.10	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	110.74	Top Width (ft)		110.74	
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)		4.15	
Max Chl Dpth (ft)	6.44	Hydr. Depth (ft)		4.57	
Conv. Total (cfs)	45672.0	Conv. (cfs)		45672.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.02	
Min Ch El (ft)	1333.64	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.47	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	114.04	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	26.98	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10500.00

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1344.11	.6	1344.11	16.97	1344.1	25.62	1344.1	50	1344.071
50.64	1344.07	65.11	1344.07	75.66	1344.06	89.18	1344.05	100.68	1344.05
113.13	1344.06	125.7	1344.07	139.18	1344.05	150.72	1344.02	171.56	1344

175.66	1344	181.99	1344.33	182.56	1344.36	182.73	1344.44	183.94	1344.94
185.53	1344.49	186.08	1344.34	187.16	1344.29	191.35	1344.08	193.38	1344.17
198.64	1344.39	199.77	1344.44	200.28	1344.44	214.88	1344.44	215.65	1344.44
218.61	1344.36	221.41	1344.28	226.2	1344.37	226.57	1344.38	227	1344.38
227.09	1344.39	227.19	1344.38	227.21	1344.39	228.02	1344.2	270	1334.23
300	1333.43	300.3	1333.43	330	1334.23	355.51	1339.69	383.64	1345.73
392.75	1345.78	397.2	1345.8	398.73	1345.8	400.05	1345.79	402.56	1345.78
403.7	1345.78	409.09	1345.77	409.18	1345.76	424.53	1345.65	425.21	1345.65
425.45	1345.64	425.57	1345.64	425.64	1345.64	425.93	1345.64	426.16	1345.64
429.87	1345.61	448.8	1345.45	450.31	1345.59	450.61	1345.61	450.7	1345.62
470.6	1345.62	471.73	1345.63	475.97	1345.67	498.34	1345.72	501	1345.72
507.7	1345.85	509.77	1345.86	526.01	1345.83	532.72	1345.85	534.58	1345.86
537.97	1345.87	545.56	1345.88	546.05	1345.88	546.15	1345.88	547.75	1345.83
548.54	1345.8	549.04	1345.79	550	1345.761	551.03	1345.73	551.85	1345.8
551.86	1345.8	552.66	1345.7	552.99	1345.67	553.16	1345.67	554.05	1345.68
555.42	1345.75	556.63	1345.67	557.7	1345.9	558.67	1345.88	559.54	1345.94
560.32	1345.98	561.03	1346.15	561.68	1345.91	576.35	1345.66	596.63	1345.12
600	1345.04								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	227.09	.045	383.64	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.09	383.64	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1340.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1339.87	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		503.22	
E.G. Slope (ft/ft)	0.002137	Area (sq ft)		503.22	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	110.05	Top Width (ft)		110.05	
Vel Total (ft/s)	4.17	Avg. Vel. (ft/s)		4.17	
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		4.57	
Conv. Total (cfs)	45426.8	Conv. (cfs)		45426.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		111.33	
Min Ch El (ft)	1333.43	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.52	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	112.88	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	26.73	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10400.00

INPUT
Description:
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1343.76	4.55	1343.76	20.85	1343.76	29.57	1343.76	50	1343.769
53.34	1343.77	56.23	1343.76	59.49	1343.76	79.61	1343.73	91.12	1343.73
104.63	1343.72	117.12	1343.72	129.65	1343.71	143.2	1343.81	154.67	1343.89
178.92	1344.06	182.37	1344.09	184.04	1344.59	184.26	1344.66	184.56	1344.57
186.89	1343.84	194.23	1343.95	199.36	1344.02	199.73	1344.01	209.36	1344.07
214.55	1344.13	220.6	1343.62	224.96	1343.27	226.46	1344.05	226.48	1344.06
226.5	1344.08	227.34	1343.88	270	1334.02	299.99	1333.22	300.29	1333.22
330	1334.03	355.06	1339.48	383	1345.55	393.41	1345.35	396.68	1345.28
400.13	1345.29	402.56	1345.29	403.51	1345.29	403.91	1345.3	404.11	1345.3
406.58	1345.3	406.96	1345.3	407.58	1345.3	408.66	1345.3	411.11	1345.3
422.39	1345.31	422.45	1345.31	422.7	1345.31	429.46	1345.31	429.67	1345.31
429.75	1345.31	429.79	1345.31	429.81	1345.31	430.1	1345.31	430.13	1345.31
430.24	1345.31	430.38	1345.31	431.09	1345.31	448.47	1345.32	451.56	1345.32
453.49	1345.32	454.03	1345.32	454.26	1345.32	454.38	1345.32	454.91	1345.32
455.8	1345.32	479.93	1345.34	484.4	1345.38	498.7	1345.41	504.95	1345.37

507.9	1345.37	529.97	1345.39	535.04	1345.39	536.31	1345.4	538.25	1345.4
541.53	1345.4	546.6	1345.4	548.66	1345.38	550	1345.371	550.12	1345.37
551.05	1345.36	554.98	1345.37	556.11	1345.62	557.36	1345.59	558.5	1345.67
559.51	1345.73	560.44	1345.95	561.29	1345.63	580.39	1345.3	599.99	1344.78
600	1344.78								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	226.48	.045	383	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.48	383	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1339.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1339.65	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		503.00	
E.G. Slope (ft/ft)	0.002144	Area (sq ft)		503.00	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	110.20	Top Width (ft)		110.20	
Vel Total (ft/s)	4.17	Avg. Vel. (ft/s)		4.17	
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		4.56	
Conv. Total (cfs)	45354.0	Conv. (cfs)		45354.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		111.47	
Min Ch El (ft)	1333.22	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.52	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	111.73	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	26.47	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10300.00

INPUT
Description:
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1343.77	2.28	1343.77	8.47	1343.74	26.22	1343.75	33.49	1343.78
41.45	1343.79	50	1343.82	58.52	1343.85	74.11	1343.85	83.55	1343.83
93.89	1343.84	108.57	1343.91	120.1	1343.86	133.6	1343.78	146.32	1343.8
158.62	1343.74	180.97	1344.69	185.43	1344.89	186	1344.73	188.25	1344.09
192.25	1343.78	193.19	1343.7	194.14	1343.74	195.03	1343.77	197.04	1343.82
201.52	1343.92	209.11	1343.9	216.19	1343.86	220.39	1343.96	221.19	1343.97
221.81	1343.75	223.54	1343.13	225.29	1343.72	225.45	1343.78	225.56	1343.81
225.61	1343.82	225.64	1343.82	225.69	1343.86	228.16	1343.3	228.89	1343.13
228.93	1343.12	229.87	1342.91	270	1333.82	300	1333.01	300.32	1333.01
330	1333.83	353.37	1338.81	384.25	1345.37	390.12	1345.95	391.3	1346.04
392.37	1345.97	408.38	1345.66	408.5	1345.66	408.88	1345.66	409.33	1345.66
410.54	1345.66	410.74	1345.66	417.9	1345.61	433.91	1345.52	441.83	1345.5
446.33	1345.49	458.93	1345.34	481.1	1345.42	483.96	1345.42	486.59	1345.41
487.24	1345.42	488.27	1345.44	490.19	1345.48	494.35	1345.53	499.12	1345.49
501.77	1345.45	503.34	1345.43	504.37	1345.42	508.98	1345.44	510.48	1345.44
510.87	1345.44	531.69	1345.44	532.1	1345.44	537.49	1345.47	537.97	1345.48
539.31	1345.5	543.61	1345.49	545.28	1345.49	550	1345.507	559.04	1345.54
559.89	1345.74	560.93	1345.35	584.55	1344.94	600	1344.53		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	225.69	.045	390.12	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.69	390.12	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1339.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1339.44	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		504.77	
E.G. Slope (ft/ft)	0.002142	Area (sq ft)		504.77	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	111.12	Top Width (ft)		111.12	
Vel Total (ft/s)	4.16	Avg. Vel. (ft/s)		4.16	
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	45379.0	Conv. (cfs)		45379.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.36	
Min Ch El (ft)	1333.01	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.50	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	110.57	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	26.22	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10200.00

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1343.55	5.87	1343.56	14.5	1343.56	33.64	1343.58	39.61	1343.58
50	1343.604	61.41	1343.63	64.72	1343.63	96.03	1343.62	114.55	1343.62
114.95	1343.6	115.33	1343.62	139.19	1343.67	140.29	1343.63	141.12	1343.67
142.43	1343.66	165.54	1343.67	179.23	1344.23	183.45	1344.51	187.44	1344.69
189.43	1344.05	190.62	1343.67	191.78	1343.61	195.02	1343.45	198.43	1343.61
200.76	1343.94	205.44	1343.68	220.27	1343.79	224.98	1343.69	257.74	1336.37
270	1333.63	300	1332.8	330	1333.63	379.45	1343.4	388.39	1345.18
389.12	1345.52	390.38	1346.41	402.44	1346.26	402.65	1346.26	409.2	1346.16
414.09	1346.09	414.7	1346.05	416.32	1345.93	431.8	1345.72	432.35	1345.71
433.11	1345.69	434.23	1345.67	436.52	1345.64	438.73	1345.61	440.27	1345.56
441.99	1345.52	443.61	1345.49	446.21	1345.47	447.57	1345.44	452.2	1345.49
454	1345.48	457.55	1345.34	459.26	1345.33	465.61	1345.31	467.11	1345.32
472.6	1345.32	474.04	1345.34	483.37	1345.5	484.99	1345.5	486.8	1345.52
488.29	1345.52	489.75	1345.55	491.35	1345.56	492.75	1345.58	494.58	1345.61
496.7	1345.62	498.67	1345.66	500.78	1345.66	502.7	1345.7	507.47	1345.76
509.29	1345.81	511.3	1345.87	513.29	1345.88	514.53	1345.89	515.38	1345.93
516.16	1345.94	517.94	1345.92	520.08	1345.91	521.82	1345.91	522.04	1345.9
536.78	1345.76	537.78	1345.69	538.82	1345.65	539.68	1345.66	543.99	1345.64
548.39	1345.56	549.67	1345.55	550	1345.557	554.2	1345.64	558.09	1345.45
559.11	1345.13	562.02	1344.9	562.35	1344.92	567.72	1344.97	592.71	1344.53
600	1344.34								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	224.98	.045	390.38	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.98	390.38	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1339.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1339.23	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		510.24	
E.G. Slope (ft/ft)	0.002120	Area (sq ft)		510.24	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.39	Top Width (ft)		113.39	
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)		4.12	
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		4.50	
Conv. Total (cfs)	45605.0	Conv. (cfs)		45605.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		114.58	
Min Ch El (ft)	1332.80	Shear (lb/sq ft)		0.59	

Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	109.41	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	25.96	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10100.00

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1343.38	1.51	1343.35	2.8	1343.29	3.41	1343.23	6.28	1343.2
6.76	1343.15	7.15	1343.14	11.46	1343.13	15.7	1343.13	20.22	1343.03
34.63	1342.99	44.92	1342.95	47.94	1342.92	50	1342.914	68.19	1342.86
70.01	1342.86	72.81	1342.84	74.28	1342.83	77.21	1342.8	81.96	1342.77
82.94	1342.78	86.51	1342.75	87.24	1342.76	95.05	1342.71	95.32	1342.72
101.32	1342.68	105.49	1342.66	112.82	1342.68	125.59	1342.8	142.59	1342.76
145.68	1342.71	146.75	1342.72	150.06	1342.63	150.36	1342.63	152.21	1342.69
153.81	1342.78	154.86	1342.83	156.76	1342.87	157.88	1342.88	159.47	1342.91
159.87	1342.91	166.13	1343.02	168.05	1343.05	169.93	1343.06	173.04	1343.09
175.89	1342.99	177.96	1343.01	178.71	1343.03	183.63	1343.01	185.86	1343.02
205.88	1343.56	207.71	1343.6	211.38	1343.72	212.31	1343.72	213.32	1343.77
214.64	1343.79	216.27	1343.94	216.87	1344.04	217.4	1344.1	218.62	1344.21
221.33	1344.47	222.14	1344.38	223.44	1344.26	226.81	1343.51	270	1333.42
300	1332.59	330	1333.43	392.37	1345	402.39	1345.13	422.72	1345.32
424.7	1345.24	434.64	1345.21	437.43	1345.14	439.68	1345.1	452.12	1344.94
456.62	1344.91	459.59	1344.81	468.72	1344.87	471.85	1344.87	475.88	1344.9
477.4	1344.91	478.59	1344.94	480.88	1344.96	495.84	1344.97	497.19	1344.98
508.26	1344.97	523.37	1344.89	528.68	1344.89	531.81	1344.86	550	1344.806
552.09	1344.8	554.15	1344.8	557.29	1344.85	558.25	1344.81	558.72	1344.79
559.2	1344.88	559.43	1344.88	565.33	1344.41	566.14	1344.47	579.43	1344.58
600	1344.22								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	222.14	.045	392.37	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.14	392.37	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1339.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1339.02	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		511.83	
E.G. Slope (ft/ft)	0.002115	Area (sq ft)		511.83	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	114.08	Top Width (ft)		114.08	
Vel Total (ft/s)	4.10	Avg. Vel. (ft/s)		4.10	
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		4.49	
Conv. Total (cfs)	45658.8	Conv. (cfs)		45658.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		115.26	
Min Ch El (ft)	1332.59	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.41	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	108.23	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	25.70	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 10000.00

INPUT

Description:
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1342.08	9.97	1342.07	24.69	1342.02	35.11	1342.01	43.57	1342.02
50	1342.02	60.25	1342.02	66.31	1342.03	85.39	1342.02	89.07	1342.02
110.52	1341.99	124.2	1342	134.56	1342.01	135.66	1342.01	137	1342
160.8	1341.88	165.17	1341.87	166.32	1341.87	168.03	1341.87	170.94	1341.86
175.81	1341.85	176.83	1342.2	177.14	1342.3	178.64	1341.65	178.91	1341.54
185.5	1341.51	186.1	1341.51	193.32	1341.64	214.22	1342.23	214.47	1342.24
216.06	1342.36	228.72	1343.33	261.42	1335.33	270	1333.22	299.99	1332.38
300.65	1332.38	300.7	1332.38	330	1333.22	394.59	1342.75	396.31	1343
396.83	1343.03	396.85	1343.03	396.87	1343.03	403.12	1343.34	414.02	1343.87
426.75	1343.99	434.34	1344.06	434.41	1344.05	435.12	1343.98	440.21	1343.95
443.91	1343.88	462.44	1343.71	475.85	1343.78	487.58	1343.74	493.49	1343.88
494.03	1343.89	495.98	1343.87	512.71	1343.71	530.13	1343.88	537.85	1343.9
542.67	1343.95	543.65	1343.94	545.02	1343.92	547.19	1343.91	548.06	1343.91
549.99	1343.9	550	1343.9	554.08	1343.9	556.22	1343.91	557.61	1343.91
562.99	1343.85	563.25	1343.89	564.5	1344.15	565.37	1344.14	566.04	1344.14
568.64	1343.94	569.93	1344.03	590.94	1344.21	600	1344.05		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	228.72	.045	396.85	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.72	396.85	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1339.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1338.83	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		532.35	
E.G. Slope (ft/ft)	0.002001	Area (sq ft)		532.35	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	120.86	Top Width (ft)		120.86	
Vel Total (ft/s)	3.94	Avg. Vel. (ft/s)		3.94	
Max Chl Dpth (ft)	6.45	Hydr. Depth (ft)		4.40	
Conv. Total (cfs)	46946.0	Conv. (cfs)		46946.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		121.97	
Min Ch El (ft)	1332.38	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.15	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	107.03	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	25.43	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 9900.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1341.69	14.2	1341.73	18.82	1341.71	19.77	1341.71	19.98	1341.71
20.15	1341.71	20.41	1341.71	42.34	1341.68	42.71	1341.68	44.62	1341.68
44.96	1341.67	45.39	1341.67	45.74	1341.67	46.6	1341.67	50	1341.665
66.67	1341.64	70.68	1341.64	71.42	1341.64	72.01	1341.65	72.63	1341.65
90.76	1341.71	91.51	1341.72	92.13	1341.72	96.01	1341.72	98.42	1341.72
114.7	1341.68	116.21	1341.68	117.22	1341.68	120.64	1341.68	122.52	1341.68
124.11	1341.68	138.67	1341.65	140.01	1341.64	141.1	1341.62	141.94	1341.6
144.64	1341.56	154.05	1341.51	169.68	1341.39	179.68	1341.47	180.8	1341.47
182.02	1341.83	182.5	1341.96	182.75	1341.82	184.19	1341.05	187.62	1341.07
190.99	1341.07	193.76	1341.64	193.9	1341.67	202.69	1341.59	214.29	1341.49
215.82	1341.48	217.55	1341.7	224.57	1342.6	228.87	1343.15	240.4	1340.31
243.17	1339.63	243.18	1339.62	243.69	1339.5	270.01	1333.02	300	1332.17
300.35	1332.17	300.39	1332.17	330.02	1333.02	354.27	1336.52	398.1	1342.84
414.67	1343.72	417.64	1343.87	420.1	1343.79	420.28	1343.79	420.7	1343.79

436.49	1343.76	437.62	1343.82	437.84	1343.83	438.3	1343.83	439.02	1343.82
442.04	1343.66	445.16	1343.6	446.76	1343.59	470.21	1343.44	473.36	1343.47
495.25	1343.46	497.59	1343.55	498.33	1343.6	499.66	1343.67	501.35	1343.77
509.3	1343.72	511.59	1343.7	520.29	1343.63	538.36	1343.58	545.34	1343.53
548.87	1343.54	549.8	1343.52	550	1343.523	551.1	1343.54	552.29	1343.57
554.56	1343.53	557.07	1343.51	570.38	1343.57	571.46	1343.65	599.12	1343.88
600	1343.87								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	228.87	.045	398.1	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.87	398.1	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1338.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1338.63	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		535.04	
E.G. Slope (ft/ft)	0.001985	Area (sq ft)		535.04	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	121.66	Top Width (ft)		121.66	
Vel Total (ft/s)	3.92	Avg. Vel. (ft/s)		3.92	
Max Chl Dpth (ft)	6.46	Hydr. Depth (ft)		4.40	
Conv. Total (cfs)	47139.3	Conv. (cfs)		47139.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		122.76	
Min Ch El (ft)	1332.17	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.12	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	105.81	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	25.15	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 9800.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1341.32	4.06	1341.32	18.56	1341.31	22.33	1341.31	25.14	1341.31
28.32	1341.31	43.01	1341.31	48.84	1341.31	50	1341.31	50.9	1341.31
53.67	1341.31	68.49	1341.28	71.64	1341.28	72.5	1341.28	74.33	1341.28
78.19	1341.28	93.1	1341.32	95.39	1341.32	98.04	1341.32	99.98	1341.32
103.38	1341.32	118.45	1341.31	127.27	1341.31	127.84	1341.31	143.04	1341.29
148.29	1341.27	156.65	1341.23	173.29	1341.15	179.2	1341.18	182.08	1341.21
183.18	1341.53	183.39	1341.6	183.59	1341.57	188.47	1340.81	193.68	1340.93
196.69	1340.99	203.62	1340.94	206.38	1340.93	207.31	1341.28	207.9	1341.5
208.64	1341.75	209.16	1341.8	210.07	1341.17	210.52	1341.11	210.64	1341.12
210.74	1341.15	211.03	1341.17	212.97	1341.26	214.12	1341.31	218.02	1341.45
221.98	1342.06	226.91	1342.87	227.81	1342.96	240.51	1339.92	270.01	1332.81
300	1331.97	330.01	1332.83	387.65	1341.54	395.14	1342.67	395.15	1342.69
395.44	1342.69	415.35	1343.05	420.33	1343.13	422.09	1343.16	422.2	1343.16
423.1	1343.17	423.87	1343.16	428.94	1343.14	432.62	1343.13	447.39	1343.21
448.3	1343.19	467.68	1343.29	473.3	1343.29	478.83	1343.31	498.3	1343.35
500.8	1343.49	501.49	1343.54	502.98	1343.62	503.78	1343.67	506.74	1343.61
512.11	1343.51	514.62	1343.45	523.3	1343.3	528.4	1343.28	548.3	1343.29
549.93	1343.29	550	1343.289	555.76	1343.24	559.26	1343.2	561.6	1343.28
563.27	1343.27	564.52	1343.32	565.5	1343.29	566.28	1343.34	566.92	1343.24
567.45	1343.27	567.9	1343.3	568.28	1343.34	568.62	1343.31	574.88	1343.32
600	1343.54								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	227.81	.045	395.44	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.81	395.44	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1338.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1338.42	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		530.69	
E.G. Slope (ft/ft)	0.002010	Area (sq ft)		530.69	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	120.31	Top Width (ft)		120.31	
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	
Max Chl Dpth (ft)	6.45	Hydr. Depth (ft)		4.41	
Conv. Total (cfs)	46842.9	Conv. (cfs)		46842.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		121.43	
Min Ch El (ft)	1331.97	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.17	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	104.59	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	24.88	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 9700.000

INPUT
Description:
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1340.95	21.19	1340.98	21.38	1340.98	22.17	1340.98	22.96	1340.98
23.13	1340.98	46.09	1340.94	46.29	1340.94	47.18	1340.93	48.15	1340.94
48.4	1340.94	50	1340.94	70.9	1340.94	71.12	1340.94	72.18	1340.94
73.21	1340.94	73.47	1340.94	95.53	1340.92	95.78	1340.92	96.15	1340.92
97.19	1340.91	98.32	1340.92	98.69	1340.92	98.96	1340.92	120.57	1340.9
120.99	1340.9	122.19	1340.9	123.42	1340.9	123.81	1340.9	124.17	1340.9
145.22	1340.86	145.6	1340.86	145.65	1340.86	147.19	1340.86	159.57	1340.86
174.19	1340.82	174.8	1340.82	175.86	1340.83	176.3	1340.83	176.98	1340.97
178.19	1341.2	179.88	1340.63	180.55	1340.39	182.07	1340.43	191.11	1340.68
195.18	1340.65	199.96	1340.59	201.36	1340.66	210.51	1341.08	212.33	1341.35
222.25	1342.78	246.41	1337.66	270	1332.61	299.73	1331.78	299.75	1331.78
300	1331.78	330	1332.63	366.98	1338.72	367.05	1338.73	367.1	1338.74
373.09	1339.72	387.79	1342.13	392.64	1342.36	407.9	1342.79	412.21	1342.9
415.26	1342.9	429.43	1342.93	437.31	1342.86	437.85	1342.84	439.91	1342.93
441.05	1342.97	441.72	1342.96	442.82	1342.94	443.64	1342.92	447.24	1342.87
457.14	1342.9	472.25	1342.92	486.83	1342.89	497.25	1342.83	501.79	1343.06
502.65	1343.1	505.73	1343.07	522.25	1342.94	533.51	1342.88	547.26	1342.87
548.91	1342.86	550	1342.905	551.83	1342.98	554.11	1342.92	555.93	1343.01
557.41	1342.8	558.65	1342.85	559.7	1342.92	560.6	1343.02	561.38	1342.96
575.92	1342.99	600	1343.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	222.25	.045	392.64	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.25	392.64	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1338.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1338.22	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		529.97	
E.G. Slope (ft/ft)	0.002016	Area (sq ft)		529.97	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	120.20	Top Width (ft)		120.20	
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	

Max Chl Dpth (ft)	6.44	Hydr. Depth (ft)		4.41	
Conv. Total (cfs)	46776.3	Conv. (cfs)		46776.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		121.28	
Min Ch El (ft)	1331.78	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.18	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	103.37	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	24.60	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 9600.000

INPUT
Description:
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1340.54	20.4	1340.59	42.84	1340.54	45.41	1340.54	501	340.525
67.41	1340.47	70.41	1340.48	91.97	1340.59	95.42	1340.59	116.55	1340.57
120.42	1340.56	141.11	1340.52	145.42	1340.52	154.91	1340.52	156.45	1340.52
163.97	1340.53	168.91	1340.54	169.89	1340.95	170.35	1341.15	171.89	1340.41
172.2	1340.27	174.26	1340.26	182.17	1340.2	187.54	1340.15	194.15	1340.08
194.44	1340.1	203.43	1340.8	206.65	1341.25	216.03	1342.6	243.94	1337.36
270	1332.41	299.74	1331.59	299.76	1331.59	300.01	1331.59	330	1332.43
364.32	1338.47	364.38	1338.48	364.44	1338.49	369.2	1339.32	380.11	1341.24
401.72	1342.87	407.78	1342.74	420.47	1342.45	435.93	1342.38	445.47	1342.37
460.5	1342.54	470.47	1342.65	496.82	1342.96	499.2	1342.97	499.58	1342.99
501.4	1342.94	520.48	1342.5	531.72	1342.53	545.49	1342.47	546.53	1342.32
548.54	1342.4	550	1342.504	550.23	1342.52	551.67	1342.68	552.93	1342.58
576.4	1342.63	600	1342.84						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	216.03	.045	380.11	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
216.03	380.11	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1338.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1338.02	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		533.05	
E.G. Slope (ft/ft)	0.002002	Area (sq ft)		533.05	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	121.38	Top Width (ft)		121.38	
Vel Total (ft/s)	3.94	Avg. Vel. (ft/s)		3.94	
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	46935.9	Conv. (cfs)		46935.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		122.41	
Min Ch El (ft)	1331.59	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.14	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	102.15	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	24.32	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 9500.000

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1340.17	16.51	1340.16	18.62	1340.16	20.82	1340.16	43.63	1340.18

501	340.265	51.11	1340.28	55.4	1340.26	68.63	1340.16	90.21	1340.11
93.63	1340.1	114.78	1340.09	118.64	1340.09	139.34	1340.03	143.64	1340.02
149.96	1340.03	151.24	1340.03	153.57	1340.05	157.41	1340.07	160.98	1340.09
161.66	1340.34	162.37	1340.59	164.45	1339.84	164.58	1339.8	164.64	1339.77
174.81	1339.89	175.37	1339.9	177.58	1339.88	186.99	1339.81	187.99	1339.88
193.91	1340.38	199.07	1340.8	206.37	1342.43	207.53	1342.69	207.6	1342.67
209.27	1342.18	241.42	1336.93	270	1332.21	299.73	1331.4	299.75	1331.4
300	1331.4	330	1332.22	361.24	1338.55	361.3	1338.56	361.36	1338.57
364.9	1339.29	372.45	1340.8	379.67	1341.27	392.79	1342.1	397.19	1342.09
418.69	1342.02	426.91	1342.19	428.54	1342.24	429.44	1342.27	430.67	1342.24
432.88	1342.18	443.69	1342	453.56	1341.99	468.69	1341.97	491.65	1342.26
496.78	1342.32	498.12	1342.33	498.36	1342.34	499.36	1342.34	518.7	1342.14
529.92	1342.19	543.71	1342.26	544.48	1342.2	550	1342.212	576.86	1342.27
599.99	1342.47								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	207.53	.045	379.67	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
207.53	379.67	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1338.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1337.82	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		534.04	
E.G. Slope (ft/ft)	0.001997	Area (sq ft)		534.04	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	121.71	Top Width (ft)		121.71	
Vel Total (ft/s)	3.93	Avg. Vel. (ft/s)		3.93	
Max Chl Dpth (ft)	6.42	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	46994.1	Conv. (cfs)		46994.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		122.75	
Min Ch El (ft)	1331.40	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.13	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	100.92	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	24.04	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 9400.000

INPUT
Description:
Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1339.99	9.86	1339.98	18.25	1339.99	27.22	1339.97	43.26	1339.92
501	339.863	68.1	1339.71	71.43	1339.7	74.33	1339.7	93.29	1339.86
104.79	1339.87	118.3	1339.85	130.64	1339.77	143.32	1339.71	154.83	1339.62
155.04	1339.62	156.83	1340.19	157.01	1340.25	157.2	1340.17	159.01	1339.4
162.44	1339.43	168.66	1339.45	173.82	1339.56	176.72	1339.63	178.22	1339.67
188.24	1340.5	190.4	1340.81	196.03	1341.34	198.08	1341.72	201.82	1342.41
204.21	1341.77	204.23	1341.77	204.55	1341.72	269.99	1332.01	300	1331.21
300.28	1331.21	329.99	1332.02	351.99	1336.98	367.01	1340.36	367.54	1340.5
382.6	1341.25	386.89	1341.41	388.77	1341.38	390.94	1341.36	391.77	1341.35
393.45	1341.34	415.05	1341.4	418.46	1341.42	420.02	1341.5	420.29	1341.51
420.69	1341.53	421.9	1341.59	423.33	1341.68	430.83	1341.59	436.2	1341.54
437.83	1341.53	438.96	1341.52	439.85	1341.51	443.48	1341.46	445.89	1341.45
468.49	1341.3	471.91	1341.32	472.63	1341.32	493.85	1341.39	493.94	1341.39
494.16	1341.4	494.76	1341.42	497.94	1341.54	518.08	1341.34	518.33	1341.33
518.4	1341.33	518.43	1341.33	518.45	1341.33	518.52	1341.33	518.53	1341.33
523.5	1341.48	526.81	1341.79	529.19	1341.82	530.98	1341.83	532.36	1341.82
533.48	1341.77	534.39	1341.77	535.16	1341.81	535.8	1341.77	536.35	1341.82
536.83	1341.79	537.25	1341.82	547.49	1341.8	550	1341.804	579.26	1341.85
600	1342.03								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	201.82	.045	367.54	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
201.82	367.54	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1337.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1337.63	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		537.00	
E.G. Slope (ft/ft)	0.001982	Area (sq ft)		537.00	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	122.73	Top Width (ft)		122.73	
Vel Total (ft/s)	3.91	Avg. Vel. (ft/s)		3.91	
Max Chl Dpth (ft)	6.42	Hydr. Depth (ft)		4.38	
Conv. Total (cfs)	47165.5	Conv. (cfs)		47165.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		123.79	
Min Ch El (ft)	1331.21	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.10	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	99.69	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	23.76	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 9300.000

INPUT
Description:
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1339.84	14.58	1339.81	23.97	1339.81	35.85	1339.84	49.14	1339.87
50	1339.872	59.64	1339.89	74.32	1339.88	79.33	1339.86	88.27	1339.86
99.49	1339.91	121.4	1339.72	124.66	1339.71	149.3	1339.72	149.85	1339.72
149.87	1339.72	149.9	1339.72	150.07	1339.72	154.17	1339.72	155.92	1340.31
155.97	1340.32	156	1340.3	157.74	1339.17	164.04	1339.26	168	1339.32
170.83	1339.35	171.44	1339.36	176.09	1339.4	179.99	1339.41	182.26	1339.44
188	1339.58	196.82	1341.06	202.59	1342.09	204.63	1341.68	206.16	1341.37
263.82	1332.74	269.99	1331.81	299.99	1331.03	300	1331.03	300.82	1331.03
300.89	1331.03	329.99	1331.81	335.22	1332.86	370.99	1339.91	373.75	1340.45
373.77	1340.46	375.68	1340.84	377.91	1340.99	379.66	1341.03	386.63	1341.2
392.44	1341.21	395.87	1341.23	401.53	1341.23	412.5	1341.19	416.18	1341.18
424.87	1341.13	426.2	1341.13	426.79	1341.13	431.83	1341.17	434.83	1341.19
451.88	1341.27	465.22	1341.26	477.05	1341.24	487.75	1341.24	502.23	1341.21
510.92	1341.19	512.19	1341.2	514.16	1341.2	517.64	1341.2	520.49	1341.27
521.85	1341.31	527.4	1341.43	528.06	1341.42	530.49	1341.31	532.47	1341.3
534.13	1341.39	535.53	1341.31	536.74	1341.42	537.79	1341.35	538.7	1341.41
550	1341.385	561.39	1341.36	591.34	1341.4	600	1341.48		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	202.59	.045	377.91	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
202.59	377.91	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1337.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	
W.S. Elev (ft)	1337.44	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		546.73	
E.G. Slope (ft/ft)	0.001932	Area (sq ft)		546.73	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	

Top Width (ft)	126.00	Top Width (ft)		126.00	
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)		3.84	
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)		4.34	
Conv. Total (cfs)	47777.0	Conv. (cfs)		47777.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		126.99	
Min Ch El (ft)	1331.03	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		1.99	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	98.45	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	23.48	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 9200.000

INPUT
Description:
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1339.63	6.85	1339.62	11.99	1339.6	37.01	1339.62	37.31	1339.62
38.85	1339.62	501	1339.614	57.39	1339.61	62.63	1339.61	67.18	1339.61
87.95	1339.61	102.97	1339.57	113.27	1339.56	127.51	1339.57	138.6	1339.54
141.42	1339.51	156.25	1339.61	159.5	1339.63	160.73	1340.22	162.77	1339.04
163.1	1339.06	170.53	1339.16	173.33	1339.18	177.23	1339.26	179.65	1339.32
180.83	1339.3	183.09	1339.27	186.84	1339.3	188.1	1339.31	190.4	1339.34
190.69	1339.34	191.16	1339.35	192.49	1339.37	197.87	1339.45	199.66	1339.48
204.57	1340.35	211.91	1341.67	213.53	1341.2	214.35	1340.96	221.77	1339.73
255.32	1334.08	255.33	1334.08	255.87	1333.99	270	1331.61	297.79	1330.84
299.99	1330.84	300	1330.84	330	1331.61	353.67	1336.21	373.94	1340.15
383.98	1340.6	395.26	1340.92	397.32	1340.92	402.34	1340.93	417.13	1340.94
429.2	1340.93	442.45	1340.94	458.13	1340.89	460.5	1340.91	464.31	1340.92
466.07	1340.92	466.28	1340.92	472.32	1340.97	480.63	1341.02	483.83	1341.04
493.09	1341.12	493.77	1341.12	511.63	1340.89	517.47	1340.81	518.41	1340.81
519.9	1340.8	520.38	1340.79	521.46	1340.78	524.19	1340.76	532.18	1340.7
534.78	1340.75	537.06	1340.79	538.57	1340.82	539.46	1340.84	543.73	1340.92
545.16	1341.04	546.74	1340.95	548.11	1341.04	550	1341.036	582.43	1340.96
600	1340.98								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	211.91	.045	373.94	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
211.91	373.94	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1337.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1337.23	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		536.45	
E.G. Slope (ft/ft)	0.001980	Area (sq ft)		536.45	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	122.32	Top Width (ft)		122.32	
Vel Total (ft/s)	3.91	Avg. Vel. (ft/s)		3.91	
Max Chl Dpth (ft)	6.39	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	47194.7	Conv. (cfs)		47194.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		123.35	
Min Ch El (ft)	1330.84	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.10	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	97.21	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	23.19	0.00

CROSS SECTION

RIVER: Sonoqui Wash

REACH: Sonoqui Wash RS: 9100.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1339.44	2.73	1339.43	24.46	1339.42	28.06	1339.42	46.85	1339.4
50	1339.4	53.04	1339.4	53.16	1339.4	53.28	1339.4	53.55	1339.39
54.08	1339.39	75.98	1339.32	81.6	1339.32	98.73	1339.36	103.23	1339.36
111.45	1339.41	111.94	1339.41	112.2	1339.41	112.54	1339.42	112.85	1339.42
113.15	1339.42	113.93	1339.41	114.06	1339.41	126.25	1339.28	129.34	1339.29
139.74	1339.3	154.66	1339.25	162.2	1339.25	163.7	1339.25	165.86	1339.24
168.11	1339.21	169.74	1339.52	169.97	1339.57	171.22	1338.86	171.65	1338.59
174.19	1338.66	180.82	1338.82	187.91	1339.08	189.22	1339.12	205.37	1339.15
205.41	1339.15	205.84	1339.14	210.33	1339.12	212.07	1339.47	212.6	1339.58
218.87	1340.16	222.92	1340.59	222.93	1340.53	227.75	1339.61	254.7	1334.38
255.39	1334.25	270	1331.41	300	1330.65	330	1331.41	354.93	1335.84
376.99	1339.75	378.19	1339.91	379.73	1340.12	380.82	1340.15	381.57	1340.16
393.33	1340.5	411.68	1340.61	413.16	1340.48	417.42	1340.51	433.19	1340.56
445.16	1340.59	458.51	1340.64	470.13	1340.63	472.7	1340.61	475.62	1340.61
475.98	1340.61	476.26	1340.61	478.34	1340.61	479.8	1340.63	483.83	1340.64
488.78	1340.68	509.15	1340.66	519.62	1340.65	532.41	1340.65	534.47	1340.65
537.08	1340.63	546.94	1340.55	547.51	1340.56	548.88	1340.59	550	1340.619
550.03	1340.62	550.41	1340.62	550.88	1340.63	551.27	1340.65	551.69	1340.66
552.35	1340.7	552.51	1340.69	553.42	1340.62	553.55	1340.63	553.69	1340.64
553.82	1340.64	554.29	1340.66	554.71	1340.68	557.35	1340.65	561.88	1340.69
600	1340.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	222.93	.045	381.57	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.93	381.57	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1337.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1337.03	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		529.58	
E.G. Slope (ft/ft)	0.002028	Area (sq ft)		529.58	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	120.54	Top Width (ft)		120.54	
Vel Total (ft/s)	3.97	Avg. Vel. (ft/s)		3.97	
Max Chl Dpth (ft)	6.37	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	46635.7	Conv. (cfs)		46635.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		121.60	
Min Ch El (ft)	1330.65	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.19	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	95.98	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	22.91	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 9000.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1338.97	3.09	1338.96	9.93	1338.94	10.42	1338.94	19.31	1339.02
27.79	1339.02	44.47	1338.98	50	1339.013	52.95	1339.03	63.82	1339.04
69.63	1338.99	80.36	1338.95	94.79	1338.91	112.92	1338.87	119.95	1338.87
125.56	1338.85	145.11	1338.75	152.74	1338.74	158.05	1338.74	170.27	1338.69
170.54	1338.7	170.6	1338.7	170.67	1338.7	170.78	1338.71	171.15	1338.72
175.41	1338.83	175.94	1338.84	176.19	1338.93	177.43	1339.34	177.95	1339.09

179.78	1338.17	181.51	1338.23	187.19	1338.4	190.01	1338.43	192.37	1338.44
195.16	1338.73	195.88	1338.8	195.95	1338.81	199.6	1338.81	200.11	1338.79
205.35	1338.51	205.78	1338.49	205.83	1338.49	205.85	1338.49	207.82	1339.05
208.39	1338.9	209.28	1338.6	211.32	1338.67	217.65	1338.95	222.35	1339.16
223.14	1339.43	224.13	1339.81	225.8	1339.86	229.53	1340.09	230.66	1340.09
265.56	1332.22	270.01	1331.21	300	1330.46	300.73	1330.46	330.01	1331.21
337.45	1332.4	381.25	1339.36	385.36	1339.59	389.48	1339.83	396.69	1339.96
396.79	1339.97	396.83	1339.97	397.45	1339.98	414.85	1340.44	417.17	1340.41
418.73	1340.39	419.5	1340.38	419.91	1340.38	429.77	1340.28	436.18	1340.22
440.25	1340.29	442.89	1340.35	444.04	1340.37	445.1	1340.39	447.04	1340.41
464.54	1340.38	472.2	1340.41	483.5	1340.37	486.96	1340.36	487.29	1340.35
487.44	1340.36	489.17	1340.37	497.36	1340.38	510.18	1340.38	522.52	1340.39
538.56	1340.4	547.68	1340.36	550	1340.345	552.44	1340.33	553.54	1340.33
554.45	1340.33	554.59	1340.32	555.51	1340.29	563.56	1340.2	580.72	1340.37
600	1340.32								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	230.66	.045	385.36	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
230.66	385.36	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1337.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1336.82	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		527.70	
E.G. Slope (ft/ft)	0.002043	Area (sq ft)		527.70	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	120.10	Top Width (ft)		120.10	
Vel Total (ft/s)	3.98	Avg. Vel. (ft/s)		3.98	
Max Chl Dpth (ft)	6.36	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	46465.7	Conv. (cfs)		46465.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		121.18	
Min Ch El (ft)	1330.46	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.21	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	94.77	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	22.64	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 8900.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1338.57	3.63	1338.56	10.17	1338.57	16.96	1338.58	23.84	1338.6
27.17	1338.6	28.06	1338.6	28.95	1338.6	50	1338.591	52.53	1338.59
53.07	1338.6	53.93	1338.59	77.35	1338.59	78.08	1338.57	78.67	1338.59
81.66	1338.59	101.12	1338.58	101.94	1338.57	102.73	1338.57	103.09	1338.56
103.41	1338.57	105.19	1338.57	106.79	1338.56	107.57	1338.54	124.14	1338.45
125.09	1338.44	128.47	1338.44	130.11	1338.43	146.54	1338.41	153.11	1338.39
160.01	1338.4	167.79	1338.48	169.43	1338.54	170.77	1338.56	175.4	1338.63
175.97	1338.76	176.45	1338.85	177.56	1338.51	179.68	1337.77	186.63	1337.86
187.82	1337.88	201.17	1338.44	202.91	1338.53	212.96	1338.75	223.52	1339.39
231.05	1339.84	233.73	1340.09	233.81	1339.88	233.85	1339.74	245.95	1336.75
270.01	1331	300.01	1330.27	330.02	1331.01	369.42	1337.8	380.79	1339.78
382.53	1339.62	386.18	1339.33	391.16	1338.94	394.48	1339.13	411.68	1340.07
413.96	1340.22	420.98	1340.16	422.62	1340.15	426.98	1340.15	427.87	1340.13
430.86	1340.15	432.61	1340.15	433.51	1340.12	434.86	1340.11	437.07	1340.11
440.59	1340.11	448.77	1340.04	461.22	1340.04	471.49	1340.07	478.8	1340.07
491.84	1340.05	493.6	1340.05	495.57	1340.04	500.8	1340.06	501.31	1340.05
501.55	1340.04	506.57	1340.03	515.95	1340.03	519.23	1340	523.23	1340
527.26	1340.04	529.92	1340.04	531.49	1340.04	536.31	1340	538.08	1340

544.51	1340.01	550	1340.047	550.54	1340.05	556.64	1340.04	559.72	1339.96
560.43	1339.97	561.65	1339.82	561.82	1339.82	563.03	1339.8	591.1	1340.09
600	1340.07								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	233.73	.045	380.79	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
233.73	380.79	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1336.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1336.60	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		513.57	
E.G. Slope (ft/ft)	0.002133	Area (sq ft)		513.57	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	115.83	Top Width (ft)		115.83	
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)		4.09	
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)		4.43	
Conv. Total (cfs)	45465.2	Conv. (cfs)		45465.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.99	
Min Ch El (ft)	1330.27	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.39	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	93.57	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	22.37	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 8800.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1338.2	7.33	1338.2	17.17	1338.17	25.83	1338.22	25.87	1338.22
26.04	1338.22	26.17	1338.22	26.58	1338.22	26.91	1338.21	27.24	1338.22
50	1338.22	51.29	1338.22	51.92	1338.21	52.51	1338.22	52.95	1338.22
76.1	1338.22	76.94	1338.22	77.89	1338.22	78.18	1338.22	78.43	1338.22
99.91	1338.18	100.23	1338.18	101.02	1338.18	101.95	1338.17	102.99	1338.18
103.36	1338.18	103.81	1338.18	124.9	1338.18	125.39	1338.18	125.87	1338.18
126.97	1338.15	128.19	1338.18	128.59	1338.18	148.28	1338.1	151.99	1338.07
163.91	1337.69	172.2	1337.47	173.51	1337.43	174.29	1337.46	180.64	1337.73
183.39	1337.75	189.36	1337.8	207.08	1338.09	208.52	1338.04	209.17	1338.03
209.88	1338.23	210.22	1338.18	215.92	1338.8	216.82	1338.89	217.04	1338.8
217.8	1338.49	222.55	1339.21	227.57	1339.97	231.01	1339.63	235.42	1339.19
249.12	1335.87	270	1330.8	299.69	1330.11	300	1330.11	330	1330.82
347.25	1334.16	375.08	1339.52	383.08	1339.03	384.08	1338.97	385.3	1339.02
401.95	1339.68	409	1339.74	410.77	1339.77	414.19	1339.76	427.16	1339.75
443.5	1339.74	452.18	1339.75	461.93	1339.74	464.4	1339.73	467.87	1339.72
468.57	1339.72	468.95	1339.72	470.78	1339.73	477.19	1339.73	495.37	1339.63
502.21	1339.6	508.58	1339.61	527.22	1339.68	535.38	1339.61	536.74	1339.6
538.82	1339.6	542.64	1339.6	547.22	1339.61	548.44	1339.59	549.39	1339.58
549.91	1339.58	550	1339.582	552.24	1339.64	554.2	1339.6	555.66	1339.5
556.61	1339.56	557.26	1339.51	557.74	1339.57	566.91	1339.5	595.34	1339.79
600	1339.79								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	231.01	.045	375.08	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.01	375.08	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1336.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.045	
W.S. Elev (ft)	1336.36	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		496.65	
E.G. Slope (ft/ft)	0.002271	Area (sq ft)		496.65	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	111.54	Top Width (ft)		111.54	
Vel Total (ft/s)	4.23	Avg. Vel. (ft/s)		4.23	
Max Chl Dpth (ft)	6.25	Hydr. Depth (ft)		4.45	
Conv. Total (cfs)	44068.0	Conv. (cfs)		44068.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.75	
Min Ch El (ft)	1330.11	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.64	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.00	92.42	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	22.11	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 8700.000

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1337.78	2.38	1337.79	22.69	1337.66	23.36	1337.66	24.9	1337.66
48.38	1337.7	501	1337.682	59.14	1337.58	59.18	1337.58	73.4	1337.65
76.77	1337.65	98.41	1337.73	102.7	1337.71	123.43	1337.65	128.65	1337.66
148.44	1337.55	154.47	1337.76	156.01	1337.81	158.43	1337.81	159.17	1337.81
159.47	1337.89	160.61	1338.1	161.85	1337.4	162.45	1337.06	164.83	1337.08
171.69	1337.17	177.42	1337.14	177.87	1337.14	178.89	1337.78	179.14	1337.93
181.07	1337.84	181.19	1337.82	182.66	1337.72	183.6	1337.67	199.49	1337.19
199.59	1337.18	199.63	1337.18	199.88	1337.18	200.96	1337.31	206.31	1338.01
209.34	1338.43	210.59	1338.02	210.89	1337.91	220.12	1339.1	221.08	1339.23
222.34	1339.22	233.38	1339.18	234	1338.97	234.73	1338.76	248.72	1335.53
270	1330.59	299.7	1329.97	299.73	1329.97	300.01	1329.97	330.01	1330.62
345.53	1334	369.44	1339.19	374.38	1339.21	376.09	1339.21	385.82	1339.29
402.69	1339.43	406.62	1339.38	423.62	1339.14	429.43	1339.06	430.61	1339.05
432.24	1339.03	432.56	1339.03	433.17	1339.04	436.25	1339.09	448.63	1339.29
456.75	1339.25	463.53	1339.23	473.65	1339.12	479.35	1339.08	496.94	1339.03
498.66	1339.08	505.1	1339.09	523.68	1339.23	529.81	1339.22	531.11	1339.22
533.18	1339.22	536.88	1339.22	539.02	1339.21	540.54	1339.21	542.93	1339.21
544.09	1339.2	548.7	1339.21	549.62	1339.34	550	1339.337	572.02	1339.16
598.28	1339.43	600	1339.43						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	233.38	.045	369.44	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
233.38	369.44	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1336.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.045	
W.S. Elev (ft)	1336.11	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		484.00	
E.G. Slope (ft/ft)	0.002402	Area (sq ft)		484.00	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	109.01	Top Width (ft)		109.01	
Vel Total (ft/s)	4.34	Avg. Vel. (ft/s)		4.34	
Max Chl Dpth (ft)	6.14	Hydr. Depth (ft)		4.44	
Conv. Total (cfs)	42849.0	Conv. (cfs)		42849.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		110.25	
Min Ch El (ft)	1329.97	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		2.86	

Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.00	91.29	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	21.85	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 8600.000

INPUT
Description:
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1337.28	4.74	1337.26	6.4	1337.25	19.84	1337.36	41.95	1337.38
44.85	1337.38	47.96	1337.38	50	1337.383	69.87	1337.41	73.82	1337.4
94.88	1337.36	98.29	1337.34	118.52	1337.27	119.89	1337.27	125.54	1337.27
144.91	1337.21	148	1337.22	148.83	1337.23	150.35	1337.24	150.74	1337.24
152.23	1337.77	152.52	1337.87	153.98	1337.07	154.8	1336.62	159.33	1336.88
165.61	1336.91	170.46	1337.31	171.17	1337.38	171.34	1337.35	175.23	1337.29
183.71	1337.13	192.09	1336.97	194	1337.25	198.34	1337.98	199.13	1338.11
199.19	1338.08	200.37	1337.55	201.84	1337.8	209.38	1339.08	217.9	1338.96
225.36	1338.84	229.08	1338.64	234.04	1338.4	247.43	1335.42	270	1330.39
299.7	1329.83	299.73	1329.83	299.99	1329.83	300	1329.83	330	1330.41
344.88	1333.97	365.47	1338.86	366.48	1338.75	392.73	1338.76	396.12	1338.87
399.57	1338.8	424.44	1338.77	425.4	1338.77	426.31	1338.77	428.99	1338.76
445.07	1338.73	453.02	1338.81	457.32	1338.83	470.08	1338.86	477.28	1338.86
479.15	1338.85	481.44	1338.85	482.45	1338.85	483.51	1338.86	485.81	1338.88
495.1	1338.95	502.12	1338.97	520.11	1338.95	525.43	1338.9	526.59	1338.91
528.88	1338.9	531.17	1338.89	531.19	1338.89	531.22	1338.9	531.23	1338.9
531.32	1338.9	532.52	1338.94	532.8	1338.95	533.57	1338.98	533.77	1338.99
534.42	1339.01	534.66	1339.02	538.9	1338.99	539.35	1339.02	550	1338.998
553.68	1338.99	553.79	1339.01	577.16	1338.81	600	1339.05		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	234.04	.045	365.47	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
234.04	365.47	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1336.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	1335.84	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		472.19	
E.G. Slope (ft/ft)	0.002552	Area (sq ft)		472.19	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.24	Top Width (ft)		107.24	
Vel Total (ft/s)	4.45	Avg. Vel. (ft/s)		4.45	
Max Chl Dpth (ft)	6.01	Hydr. Depth (ft)		4.40	
Conv. Total (cfs)	41565.9	Conv. (cfs)		41565.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		108.49	
Min Ch El (ft)	1329.83	Shear (lb/sq ft)		0.69	
Alpha	1.00	Stream Power (lb/ft s)		3.08	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	0.00	90.19	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	21.60	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 8500.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	1336.93	11.89	1336.93	13.85	1336.94	18.32	1336.94	22.65	1336.96
29.97	1336.96	34.66	1336.96	40.17	1336.96	42.01	1336.97	50	1336.97
53.61	1336.97	58.71	1336.97	69.97	1336.96	71.6	1336.95	79.21	1336.95
84.76	1336.94	86.34	1336.91	88.08	1336.91	90.21	1336.92	95.78	1336.92
97.5	1336.91	99.7	1336.9	101.89	1336.87	103.98	1336.86	109.76	1336.83
115.14	1336.83	121.2	1336.76	121.38	1336.76	121.63	1336.75	122.26	1336.75
144	1336.65	152.48	1336.79	152.7	1336.79	153.14	1336.84	154.36	1336.96
155.04	1336.64	156.15	1336.16	159.38	1336.29	166.29	1336.56	166.48	1336.6
183.46	1336.88	187.19	1336.87	187.67	1336.87	192.43	1338.52	194.1	1337.61
199.06	1338.23	202.27	1338.63	208.62	1338.65	218.3	1338.67	220.98	1338.24
221.94	1338.09	229.9	1338.09	231.39	1338.09	237.31	1336.87	269.99	1330.19
300	1329.69	330	1330.21	360.3	1338.02	362.27	1338.53	362.43	1338.51
374.3	1338.43	389.41	1338.31	390.36	1338.32	420.91	1338.3	425.87	1338.32
444.03	1338.37	453.37	1338.47	469.03	1338.55	474.56	1338.54	475.33	1338.54
481.62	1338.51	494.03	1338.47	517.47	1338.39	518.29	1338.38	518.39	1338.39
518.85	1338.44	519.17	1338.47	519.35	1338.47	519.58	1338.47	519.67	1338.47
519.74	1338.48	519.89	1338.48	520.93	1338.46	521.08	1338.45	521.47	1338.47
521.65	1338.48	522.5	1338.54	522.58	1338.57	523.02	1338.56	523.1	1338.55
523.84	1338.49	524.05	1338.47	524.63	1338.55	525.07	1338.6	529.3	1338.57
530.35	1338.64	550	1338.6	564.48	1338.57	564.76	1338.61	585.85	1338.43
600	1338.57								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	231.39	.045	362.43	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.39	362.43	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1335.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.045	
W.S. Elev (ft)	1335.57	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		463.90	
E.G. Slope (ft/ft)	0.002703	Area (sq ft)		463.90	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.11	Top Width (ft)		107.11	
Vel Total (ft/s)	4.53	Avg. Vel. (ft/s)		4.53	
Max Chl Dpth (ft)	5.88	Hydr. Depth (ft)		4.33	
Conv. Total (cfs)	40392.3	Conv. (cfs)		40392.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		108.34	
Min Ch El (ft)	1329.69	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		3.27	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	0.00	89.12	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	21.36	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 8400.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1336.64	2.28	1336.64	4.13	1336.63	17.64	1336.59	18.4	1336.59
21.67	1336.58	23.44	1336.58	24.15	1336.58	24.86	1336.58	25.44	1336.58
45.52	1336.5	45.83	1336.5	46.53	1336.49	46.88	1336.49	47.17	1336.49
47.51	1336.49	48.79	1336.49	50	1336.486	70.89	1336.42	72.24	1336.42
97.28	1336.31	98.7	1336.31	120.41	1336.2	122.32	1336.18	143.09	1336.24
147.37	1336.26	157.7	1336.17	164.63	1336.1	168.53	1336.05	172.9	1336
176.48	1336.23	178.99	1336.44	180.76	1337.13	181.92	1337.55	186.99	1336.63
187.31	1336.56	187.65	1336.68	190.42	1337.64	191.05	1337.37	192.02	1336.96
196.83	1337.88	200.64	1338.6	209.14	1338.41	216.4	1338.23	217.88	1338.04
220.93	1337.65	221.93	1338.22	222.62	1338.48	250.33	1333.2	269.99	1330
300	1329.55	300.34	1329.55	330	1330.01	347.24	1334.48	361.58	1338.19
364.54	1338.13	372.76	1337.93	385.52	1337.9	393.07	1337.84	395.22	1337.97

408.9	1338.3	411.4	1338.35	420.14	1338.51	423.49	1338.58	423.62	1338.57
429.63	1338.44	439.48	1338.24	441.47	1338.19	447.89	1338.06	452.57	1338.01
453.65	1338	454.95	1337.99	457.29	1337.96	460.67	1337.93	472.66	1337.8
478.07	1337.87	479.12	1337.87	479.77	1337.88	480.09	1337.88	480.34	1337.89
482.24	1337.9	495.51	1337.75	497.98	1337.72	498.24	1337.72	498.3	1337.72
498.4	1337.72	501.14	1337.73	511.38	1337.77	515.22	1337.86	520.3	1337.98
520.81	1337.99	521.21	1338	523.03	1338.04	524.08	1338.16	524.81	1338.15
526.47	1338.27	550	1338.218	580.59	1338.15	581.05	1338.2	599.84	1338.04
600	1338.04								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	222.62	.045	361.58	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.62	361.58	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1335.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	1335.30	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		470.12	
E.G. Slope (ft/ft)	0.002711	Area (sq ft)		470.12	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	111.13	Top Width (ft)		111.13	
Vel Total (ft/s)	4.47	Avg. Vel. (ft/s)		4.47	
Max Chl Dpth (ft)	5.75	Hydr. Depth (ft)		4.23	
Conv. Total (cfs)	40329.9	Conv. (cfs)		40329.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.27	
Min Ch El (ft)	1329.55	Shear (lb/sq ft)		0.71	
Alpha	1.00	Stream Power (lb/ft s)		3.17	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	0.00	88.05	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	21.11	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 8300.000

INPUT
Description:
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1336.34	3.34	1336.32	4	1336.54	4.2	1336.5	20.43	1336.26
29.34	1336.25	40.35	1336.29	50	1336.304	54.48	1336.31	68.46	1336.23
79.62	1336.25	96.57	1336.2	104.76	1336.17	124.67	1336.17	129.9	1336.17
134.12	1336.18	155.04	1336.19	157.42	1336.19	158.16	1336.19	159.97	1336.21
170.09	1336.32	170.27	1336.35	175.23	1336.36	178.07	1336.38	179.86	1336.38
181.63	1336.38	185.21	1336.36	188.81	1336.35	189.5	1336.53	191.77	1337.15
193.03	1336.76	193.51	1336.61	201.14	1338.25	202.19	1338.46	203.61	1338.47
205.86	1338.46	215.28	1338.51	216.12	1338.53	217.48	1338.55	217.77	1338.2
217.94	1338.01	218.36	1337.46	262.7	1330.88	269.99	1329.8	300	1329.41
300.62	1329.41	300.67	1329.41	329.99	1329.8	337.87	1331.63	365.03	1337.85
375.33	1337.92	381.29	1337.95	385.06	1338.01	385.73	1338.02	388.7	1338.07
395.24	1338.17	404.55	1338.23	405.61	1338.23	405.79	1338.24	406.02	1338.24
406.43	1338.24	407.44	1338.24	407.6	1338.24	407.9	1338.24	408.34	1338.24
409.02	1338.25	411.41	1338.25	429.6	1338.29	429.64	1338.29	431.61	1338.36
443.83	1338.26	456.7	1338.16	475.21	1338.02	481.84	1337.98	490.04	1337.96
506.98	1337.92	515.53	1337.81	516.28	1337.8	517.29	1337.82	532.12	1337.99
534.62	1337.96	539.34	1337.84	543.79	1337.85	550	1337.836	600	1337.72

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	218.36	.045	365.03	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
218.36	365.03	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1335.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.045	
W.S. Elev (ft)	1335.04	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		477.74	
E.G. Slope (ft/ft)	0.002778	Area (sq ft)		477.74	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	118.04	Top Width (ft)		118.04	
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)		4.40	
Max Chl Dpth (ft)	5.63	Hydr. Depth (ft)		4.05	
Conv. Total (cfs)	39841.1	Conv. (cfs)		39841.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.03	
Min Ch El (ft)	1329.41	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		3.06	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	0.00	86.96	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	20.84	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 8200.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1336.15	5.09	1336.15	13.57	1336.11	14.5	1336.08	15.5	1336.16
15.66	1336.15	18	1336.15	40.86	1336.14	46.82	1336.15	50	1336.145
66.06	1336.12	80.99	1336.11	91.25	1336.1	103.39	1336.07	116.45	1336.01
134.03	1335.97	138.52	1335.97	140.51	1336.56	140.64	1336.59	140.87	1336.63
142.32	1336.82	145.14	1337.37	145.39	1337.42	149.88	1336.1	151.89	1336.06
153.91	1336.02	155.16	1336.04	155.95	1336.06	156.99	1336.05	159.57	1336
169.05	1335.88	176.81	1335.88	178.38	1335.87	180.45	1335.95	190.34	1336.31
190.37	1336.31	190.42	1336.31	192.34	1336.22	194.46	1335.92	194.76	1335.87
196.79	1336.49	196.91	1336.51	197	1336.5	198.57	1336.2	201.65	1336.87
207.49	1338.14	210.33	1338.12	215.23	1338.09	218.65	1338.01	220.02	1337.94
223.41	1337.78	224.34	1337.36	224.85	1337.13	267.11	1330.09	270	1329.6
299.99	1329.27	300.99	1329.27	330	1329.6	335.08	1330.6	370.78	1337.52
391.16	1337.56	393.44	1337.56	394.37	1337.57	402.86	1337.65	412.65	1337.82
415.3	1337.86	416.4	1337.88	418.81	1337.92	423.19	1337.9	437.38	1337.83
440.99	1337.85	444.01	1337.84	461.52	1337.9	469.2	1337.9	482.58	1337.97
494.17	1337.97	502.31	1337.92	511.96	1337.87	523.38	1337.8	524.3	1337.82
524.99	1337.82	526.8	1337.77	528.36	1337.83	529.74	1337.92	530.42	1337.93
531.27	1337.94	532.07	1337.89	532.72	1337.9	533.74	1337.89	534.16	1337.9
534.31	1337.89	534.73	1337.84	534.87	1337.84	536.5	1337.89	550	1337.854
559.35	1337.83	564.02	1337.58	568.39	1337.52	572.47	1337.42	576.3	1337.43
599.99	1337.37								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	223.41	.045	370.78	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.41	370.78	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1335.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.045	
W.S. Elev (ft)	1334.72	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		463.45	
E.G. Slope (ft/ft)	0.003038	Area (sq ft)		463.45	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.07	Top Width (ft)		117.07	
Vel Total (ft/s)	4.53	Avg. Vel. (ft/s)		4.53	
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)		3.96	

Conv. Total (cfs)	38097.2	Conv. (cfs)		38097.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.99	
Min Ch El (ft)	1329.27	Shear (lb/sq ft)		0.75	
Alpha	1.00	Stream Power (lb/ft s)		3.38	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.00	85.88	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	20.57	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 8100.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1335.71	22.04	1335.77	24.82	1335.77	25.65	1335.76	27.47	1335.8
31.1	1335.8	47.81	1335.78	50	1335.778	72.24	1335.76	72.66	1335.76
78.71	1335.76	80.34	1335.75	81.83	1335.72	83.71	1335.7	85.81	1335.71
89.76	1335.7	94	1335.7	96.11	1335.71	98.14	1335.73	100.4	1335.8
102.52	1335.81	104.65	1335.81	106.61	1335.82	108.13	1335.82	108.91	1335.82
113.06	1335.86	114.88	1335.85	116.04	1335.86	118.4	1335.86	119.1	1335.87
129.02	1335.74	139.65	1335.82	141.31	1335.84	143.9	1335.81	145.15	1335.82
149.61	1336.35	152.04	1336.57	153.61	1335.92	154.67	1335.55	157.49	1335.7
159.8	1335.84	161.72	1335.92	162.28	1335.93	171.5	1335.76	173.31	1335.74
173.99	1335.71	181.48	1335.4	181.86	1335.38	191.43	1335.53	200.59	1335.67
203.4	1336.65	203.96	1336.84	204.56	1336.72	205.22	1336.48	206.54	1336
212.11	1336.84	216.39	1337.48	217.69	1337.46	222	1337.37	231.47	1337.14
231.59	1337.14	231.71	1337.1	232.51	1336.89	232.81	1336.81	267.54	1329.89
270	1329.39	300	1329.13	330	1329.4	335.71	1330.36	376.86	1337.19
379.85	1336.86	405.95	1337.18	406.2	1337.18	406.25	1337.18	410.55	1337.11
415.44	1337.22	424.22	1337.42	426.35	1337.47	431.38	1337.56	434.73	1337.57
435.71	1337.56	437.4	1337.58	444.56	1337.62	446.49	1337.62	448.75	1337.63
450.3	1337.63	456.57	1337.66	463.75	1337.64	498.82	1337.48	500.41	1337.48
500.77	1337.47	506.97	1337.48	529.13	1337.4	533.49	1337.4	533.51	1337.41
533.62	1337.41	536.78	1337.51	550	1337.475	593.49	1337.36	597.43	1337.15
599.99	1337.12								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	231.47	.045	376.86	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.47	376.86	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1334.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.045	
W.S. Elev (ft)	1334.37	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		441.92	
E.G. Slope (ft/ft)	0.003467	Area (sq ft)		441.92	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	114.76	Top Width (ft)		114.76	
Vel Total (ft/s)	4.75	Avg. Vel. (ft/s)		4.75	
Max Chl Dpth (ft)	5.23	Hydr. Depth (ft)		3.85	
Conv. Total (cfs)	35664.8	Conv. (cfs)		35664.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		115.66	
Min Ch El (ft)	1329.13	Shear (lb/sq ft)		0.83	
Alpha	1.00	Stream Power (lb/ft s)		3.93	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	0.00	84.84	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	20.31	0.00

CROSS SECTION

RIVER: Sonoqui Wash

REACH: Sonoqui Wash RS: 8000.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1335.27	36.08	1335.33	36.22	1335.35	40.19	1335.4	40.37	1335.41
40.83	1335.41	41.38	1335.42	43.8	1335.36	50	1335.322	63.29	1335.24
64.43	1335.24	67.3	1335.34	68.64	1335.34	68.98	1335.33	84.69	1335.38
85.27	1335.37	85.66	1335.37	88.95	1335.31	97.43	1335.32	98.13	1335.32
98.4	1335.31	101.39	1335.34	101.76	1335.34	102.46	1335.34	103.21	1335.35
104.11	1335.38	105.87	1335.42	106.52	1335.43	107.27	1335.45	110.6	1335.46
115.46	1335.33	116.15	1335.41	116.46	1335.42	117.96	1335.57	118.9	1335.57
120.4	1335.64	122.66	1335.68	122.99	1335.69	125.54	1335.71	125.55	1335.72
125.58	1335.71	127.13	1335.72	127.91	1335.72	128.37	1335.71	130.85	1335.74
131.76	1335.75	141.99	1336.07	145.1	1335.96	150.57	1335.59	155.27	1335.21
156.58	1335.28	157.8	1335.38	158.52	1335.45	159.63	1335.56	161.52	1335.23
168.47	1335.44	169.54	1335.5	175.04	1335.8	184.26	1335.85	189.16	1335.87
194.46	1335.84	199.61	1335.72	208.46	1335.51	210.22	1335.73	211.78	1335.93
214.31	1335.24	216.72	1335.71	218.4	1336	224.08	1336.94	233.86	1336.62
237.76	1336.48	270	1329.19	300	1328.99	330	1329.2	336.3	1330.12
382.56	1336.87	390.97	1336.83	393.55	1336.8	397.27	1336.86	412.95	1337.08
418.86	1337.15	419.12	1337.16	433.02	1337.12	436.75	1337.13	443.95	1337.18
451.77	1337.2	456.65	1337.24	469.14	1337.3	497.22	1337.28	516.1	1337.26
519.54	1337.29	538.37	1337.22	543.36	1337.21	543.82	1337.19	544.04	1337.19
550	1337.215	551.13	1337.22	563.96	1337.07	565.46	1337.09	569.57	1337.04
600	1336.97								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	237.76	.045	382.56	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
237.76	382.56	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1334.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.045	
W.S. Elev (ft)	1333.94	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		417.98	
E.G. Slope (ft/ft)	0.004113	Area (sq ft)		417.98	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.51	Top Width (ft)		113.51	
Vel Total (ft/s)	5.02	Avg. Vel. (ft/s)		5.02	
Max Chl Dpth (ft)	4.95	Hydr. Depth (ft)		3.68	
Conv. Total (cfs)	32743.2	Conv. (cfs)		32743.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		114.39	
Min Ch El (ft)	1328.99	Shear (lb/sq ft)		0.94	
Alpha	1.00	Stream Power (lb/ft s)		4.71	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	0.00	83.85	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	20.05	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7900.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1335.83	47.78	1335.98	48.45	1335.87	49.26	1336.13	50	1336.261
50.79	1336.4	51.94	1336.46	52.39	1336.53	53.78	1336.38	57	1335.82
57.82	1335.62	60.64	1337.13	61.64	1337.33	62.63	1337.93	63.32	1338.02
63.86	1338.14	64.82	1338.11	65.81	1337.91	67.99	1337.22	68.25	1337
70.37	1336.28	70.54	1336.17	71.15	1335.92	72.58	1335.67	74.08	1335.56
74.99	1335.77	75.53	1335.83	76.6	1336.14	78.09	1336.66	80.01	1336.88

80.45	1337.05	81.85	1337.28	82.94	1337.33	84.04	1336.84	85.75	1336.25
89.85	1338.39	90.55	1338.61	95.07	1338.56	99.74	1336.21	100.61	1336.44
100.95	1336.67	102.79	1337.21	103.81	1337.68	104.75	1337.82	106.63	1337.55
109.27	1336.53	109.99	1336.54	110.51	1336.44	113.31	1336.27	115.94	1337.41
118.1	1338.24	120.37	1338.33	124.95	1336.51	127.23	1337.48	128.77	1338.23
129.84	1338.69	130.65	1338.77	131.11	1338.77	132.3	1338.62	132.88	1338.45
133.67	1338.31	136.85	1336.92	137.96	1337.14	138.73	1337.4	140.41	1337.55
142.14	1337.87	144.22	1337.87	146.12	1337.57	151.85	1335.9	163.38	1335.65
166.26	1335.85	170.54	1335.61	179.68	1335.47	201.3	1336.22	203.81	1336.11
207.26	1335.87	217.07	1335.4	219.63	1336.01	221.58	1335.07	230.46	1336.59
235.27	1336.15	270.01	1328.99	299.99	1328.85	330.01	1329	380.55	1336.54
390.17	1336.1	406.05	1336.57	409.25	1336.59	430.6	1336.94	457.67	1337.04
481.6	1336.98	494.53	1336.88	500.06	1336.77	505.23	1336.88	531.96	1336.98
549.55	1336.94	550	1336.945	557.15	1337.03	565.13	1336.92	594.57	1336.65
600	1336.67								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	230.46	.045	380.55	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
230.46	380.55	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1333.85	Element			
Vel Head (ft)	0.48	Wt. n-Val.		0.045	
W.S. Elev (ft)	1333.37	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		377.07	
E.G. Slope (ft/ft)	0.005589	Area (sq ft)		377.07	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	110.51	Top Width (ft)		110.51	
Vel Total (ft/s)	5.57	Avg. Vel. (ft/s)		5.57	
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		3.41	
Conv. Total (cfs)	28089.2	Conv. (cfs)		28089.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		111.28	
Min Ch El (ft)	1328.85	Shear (lb/sq ft)		1.18	
Alpha	1.00	Stream Power (lb/ft s)		6.58	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	0.00	82.94	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	19.79	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7800.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1335.32	50	1336.002	55.71	1336.08	59.49	1337.38	62.31	1338.52
63.68	1338.52	70.85	1335.32	76.02	1337.87	76.75	1338.3	77.29	1338.38
78.05	1338.21	78.91	1337.85	79.95	1337.57	82.47	1336.45	84.15	1335.86
85.16	1336.18	89.8	1338.67	92.35	1338.59	95.78	1337.2	97.2	1336.5
98.37	1335.79	100.96	1335.09	102.04	1335.63	102.33	1335.66	103.77	1336.55
105.42	1337.32	107.01	1337.77	107.95	1337.87	108.88	1337.89	111.5	1337.42
113.81	1336.31	118.22	1337.2	119.69	1337.4	120.3	1337.57	120.4	1337.48
120.72	1337.55	121.49	1337.36	122.51	1337.3	125.7	1335.71	127.33	1336.06
130.07	1336.32	132.22	1336.11	134.64	1335.52	137.89	1335.04	139.19	1335.14
148.73	1335.01	156.13	1335	160.17	1335.26	165.49	1335.45	167.41	1335.33
175.29	1335.4	180.58	1335.27	181.55	1335.74	182.89	1335.75	185.19	1336.88
186.1	1337.24	187.02	1338.1	188.98	1339	191.42	1338.83	193.08	1338.29
194.04	1338.14	195.52	1337.4	197.67	1336.79	198.63	1336.35	199.18	1336.5
200.29	1336.57	202.43	1337.13	202.82	1337.08	204.54	1337.21	204.75	1337.15
205.53	1336.73	206.37	1336.67	207.15	1336.42	208.93	1336.23	212.39	1335.52
215.92	1335.25	218.58	1335.93	220.19	1335.14	227.69	1335.8	270	1328.78
300	1328.52	330	1328.8	374.5	1336.24	376.35	1336.13	382.59	1336.17
390.83	1336.08	410.26	1336.52	426.9	1336.37	435.26	1336.62	498.71	1337.19

501.12	1337.01	505.53	1336.9	508.67	1337	513.89	1337.06	535.26	1336.98
548.67	1336.8	550	1336.814	555.17	1336.87	555.87	1336.81	579.15	1336.75
600	1336.53								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	227.69	.035	374.5	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.69	374.5	90	90	90	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1333.32	Element			
Vel Head (ft)	0.61	Wt. n-Val.		0.035	
W.S. Elev (ft)	1332.72	Reach Len. (ft)	90.00	90.00	90.00
Crit W.S. (ft)		Flow Area (sq ft)		336.09	
E.G. Slope (ft/ft)	0.004755	Area (sq ft)		336.09	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.13	Top Width (ft)		107.13	
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)		6.25	
Max Chl Dpth (ft)	4.19	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	30454.9	Conv. (cfs)		30454.9	
Length Wtd. (ft)	90.00	Wetted Per. (ft)		107.78	
Min Ch El (ft)	1328.52	Shear (lb/sq ft)		0.93	
Alpha	1.00	Stream Power (lb/ft s)		5.78	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	0.00	82.12	0.00
C & E Loss (ft)	0.06	Cum SA (acres)	0.00	19.54	0.00

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

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7710.000

INPUT
Description: Top of Drop
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1337.34	53.63	1334.43	54.41	1334.44	55.03	1334.43	55.87	1334.43
60.32	1334.42	70.49	1334.62	72.6	1335.11	73.68	1335.34	75.14	1335.25
76.27	1335.21	78.05	1335.12	80.55	1335.06	80.9	1335.21	82.57	1335.8
83.95	1335.81	84.81	1335.88	85.28	1335.89	85.69	1335.88	86.12	1335.83
87.24	1335.54	89.3	1335.09	91.71	1334.47	96.58	1334.46	97.79	1334.44
102.51	1334.41	105.74	1334.38	107.23	1334.53	109.71	1334.9	110.4	1335
113.85	1335.2	114.96	1335.31	116.2	1335.33	117.19	1335.42	118.61	1335.43
120.94	1335.5	121.56	1335.53	123.16	1335.56	124.7	1335.68	127.01	1335.77
127.59	1335.82	129.06	1335.81	129.63	1335.85	132.14	1335.33	132.36	1335.34
135.22	1335.9	135.39	1335.9	138.01	1335.7	140.78	1335.57	142.04	1335.52
142.53	1335.49	146.32	1335.09	148.07	1334.95	160.14	1334.87	166.07	1334.74
172.91	1334.78	175.52	1334.8	185.23	1335.71	192.09	1335.79	193.76	1336.69
194.46	1336.66	197.5	1336.5	200.89	1336.29	203.18	1336.17	203.99	1336.56
205.02	1337.11	206.44	1336.51	208.89	1335.58	210.1	1335.36	210.47	1335.3
211.37	1335.22	213.96	1335.73	216.09	1334.85	224.94	1335.5	229.72	1334.72
229.73	1334.718	270	1328.6	300	1328.04	330	1328.6	372.3	1335.95
372.31	1335.95	384.65	1336.05	385.31	1336.13	388.93	1335.95	410.3	1336.33
424.82	1336.29	435.36	1336.43	455.94	1336.74	460.28	1336.77	485.3	1336.65
494.66	1336.51	501.19	1336.32	510.3	1336.43	535.34	1336.44	540.23	1336.38
547.09	1336.35	554.06	1336.4	556.21	1336.43	566.69	1336.36	600	1336.24

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	229.72	.03	372.3	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.72	372.3	45	45	45	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1332.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.25	Wt. n-Val.		0.030	
W.S. Elev (ft)	1331.41	Reach Len. (ft)	45.00	45.00	45.00
Crit W.S. (ft)	1331.41	Flow Area (sq ft)		233.82	
E.G. Slope (ft/ft)	0.009907	Area (sq ft)		233.82	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	94.63	Top Width (ft)		94.63	
Vel Total (ft/s)	8.98	Avg. Vel. (ft/s)		8.98	
Max Chl Dpth (ft)	3.37	Hydr. Depth (ft)		2.47	
Conv. Total (cfs)	21098.3	Conv. (cfs)		21098.3	
Length Wtd. (ft)	45.00	Wetted Per. (ft)		95.10	
Min Ch El (ft)	1328.04	Shear (lb/sq ft)		1.52	
Alpha	1.00	Stream Power (lb/ft s)		13.66	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.00	81.53	0.00
C & E Loss (ft)	0.33	Cum SA (acres)	0.00	19.33	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7665.000

INPUT
Description: Toe of Drop
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1334.11	51.71	1335.03	53.06	1335.16	53.76	1335.15	55.1	1335.3
55.9	1335.3	57.18	1335.43	58.1	1335.42	58.99	1335.46	61.11	1335.43
62.4	1335.35	63.37	1335.34	64.74	1335.24	65.62	1335.24	67.13	1335.17
67.76	1335.18	68.08	1335.14	68.48	1335.18	69.3	1335.42	70.76	1335.67
71.79	1335.91	73.26	1336.04	74.08	1336.06	75.87	1336.2	77.49	1336.41
78.19	1336.62	79.49	1336.74	80.47	1336.74	81.16	1336.67	82.07	1336.48
82.46	1336.52	84.31	1336.18	85.49	1336.09	87.83	1335.84	88.68	1335.95
94	1337.01	95.27	1336.86	100.93	1334.8	101.32	1334.78	108.91	1334.69
112.04	1334.73	115.08	1334.83	119.09	1334.89	121.31	1334.99	123.45	1335.05
135.33	1335.05	155.19	1334.94	160.33	1334.97	164.66	1334.86	174.73	1334.83
184.54	1335.18	192.99	1335.12	193.77	1335.33	195.1	1335.91	196.54	1336.36
197.32	1336.34	198.37	1336.54	198.98	1336.45	199.59	1336.48	200.16	1336.41
201.12	1336.12	201.83	1336.03	202.63	1335.85	203.91	1335.5	205.67	1334.88
207.62	1334.95	210.08	1335.15	212.52	1335.4	214.73	1335.13	223.12	1336.49
224.37	1336.52	270	1324.1	300	1323.63	330	1324.1	373.5	1335.79
373.52	1335.8	383.07	1335.97	392.45	1335.9	410.33	1336.2	416.65	1336.17
435.33	1336.3	447.77	1336.3	456.38	1336.58	458.44	1336.69	473.79	1336.64
488.1	1336.65	489.91	1336.52	506.75	1336.38	510.33	1336.4	530.1	1336.3
540.67	1336.39	552.99	1336.09	556.24	1336.06	562.43	1336.13	578.03	1336.09
589.5	1336.01	596.57	1336.08	600	1336.05				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	224.37	.03	373.5	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.37	373.5	65	65	65	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1331.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.030	
W.S. Elev (ft)	1331.71	Reach Len. (ft)	65.00	65.00	65.00
Crit W.S. (ft)		Flow Area (sq ft)		684.77	
E.G. Slope (ft/ft)	0.000369	Area (sq ft)		684.77	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.27	Top Width (ft)		116.27	
Vel Total (ft/s)	3.07	Avg. Vel. (ft/s)		3.07	
Max Chl Dpth (ft)	8.08	Hydr. Depth (ft)		5.89	
Conv. Total (cfs)	109342.6	Conv. (cfs)		109342.6	
Length Wtd. (ft)	65.00	Wetted Per. (ft)		118.30	
Min Ch El (ft)	1323.63	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.41	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.00	81.06	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	19.22	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7600.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1334.89	501	334.137	55.8	1334.05	60.36	1333.95	70.18	1333.9
85.36	1333.84	95.86	1333.86	97.73	1333.85	100.75	1334.61	101.63	1334.82
103.15	1334.8	108.56	1334.71	109.86	1334.78	113.02	1334.94	116.16	1334.94
119.89	1335.02	120.64	1335.03	121.25	1335.03	125.92	1335.18	136.43	1335.49
142.55	1335.65	144.71	1335.55	147.45	1335.42	160.36	1335.13	168.59	1334.84
169.96	1334.8	183.75	1334.76	192.18	1334.98	195.77	1335.07	198.54	1335.24
200.97	1335.41	205.2	1335.27	208.28	1335.16	209.88	1335.52	210.42	1335.65
210.62	1335.56	211.73	1335.03	212.2	1335.12	213.84	1335.45	223.08	1336.58
223.82	1335.64	223.85	1335.6	224.09	1335.29	224.23	1335.14	270	1324.05
300	1323.5	330	1324.08	375.03	1335.59	377.15	1335.68	379.22	1335.81
386.91	1335.83	388.85	1335.84	391.91	1336.12	394.47	1336.34	398.12	1336.35
403.43	1336.37	415.59	1336.42	417.25	1336.42	435.36	1336.42	441.5	1336.31
449.94	1336.47	450.04	1336.47	451.58	1336.51	452.22	1336.52	453.65	1336.54
460.36	1336.6	475.33	1336.7	485.36	1336.73	510.05	1336.69	511.44	1336.7
513.33	1336.65	513.52	1336.65	515.6	1336.63	515.85	1336.63	517.81	1336.62
520.53	1336.61	522.32	1336.61	524.92	1336.61	527.18	1336.61	529.1	1336.62
529.57	1336.62	531.07	1336.61	531.69	1336.62	533.25	1336.62	533.85	1336.63
535.62	1336.63	536.35	1336.65	537.96	1336.67	538.61	1336.69	538.82	1336.69
539.45	1336.69	540.75	1336.69	542.5	1336.97	544.39	1336.98	549.97	1336.91
550	1336.913	550.63	1336.98	550.83	1336.89	552.57	1336.9	554.14	1336.92
600	1335.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	223.08	.035	377.15	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.08	377.15	94	94	94	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1331.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.035	
W.S. Elev (ft)	1331.69	Reach Len. (ft)	94.00	94.00	94.00
Crit W.S. (ft)		Flow Area (sq ft)		708.06	
E.G. Slope (ft/ft)	0.000474	Area (sq ft)		708.06	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	

Top Width (ft)	121.30	Top Width (ft)		121.30	
Vel Total (ft/s)	2.97	Avg. Vel. (ft/s)		2.97	
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)		5.84	
Conv. Total (cfs)	96462.6	Conv. (cfs)		96462.6	
Length Wtd. (ft)	94.00	Wetted Per. (ft)		123.18	
Min Ch El (ft)	1323.50	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.50	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.00	80.02	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	19.04	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7506

INPUT
Description: u/s Recker
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1335.01	11.41	1334.89	12.65	1334.84	17.97	1334.8	19.24	1334.68
21.09	1334.59	23.2	1334.55	24.28	1334.49	25.46	1334.49	26.55	1334.44
33.09	1334.39	34.36	1334.42	36.47	1334.57	38.75	1334.62	42.01	1334.55
49.51	1334.57	52.48	1334.65	58.91	1334.57	62.65	1334.46	73.3	1334.32
77.1	1334.13	79.49	1334.07	92.37	1334.39	93.69	1334.38	95.02	1334.47
97.21	1334.34	104.57	1334.18	116.27	1334.16	120.21	1334.38	123.76	1334.44
136.85	1334.43	141.54	1334.55	160.99	1334.52	163.13	1334.55	164.26	1334.62
170.63	1334.63	174.43	1335.34	175.47	1335.49	176.23	1335.53	177.65	1335.52
178.93	1335.46	179.83	1335.32	183.13	1335.23	184.65	1334.97	185.42	1334.94
188.09	1335.09	197.46	1334.94	203.84	1334.96	207.9	1334.86	208.5	1334.8
220.82	1336.46	221.07	1336.42	224.28	1334.87	243.99	1330.8	270	1323.77
300	1323.32	330	1323.75	376.58	1335.27	379.87	1335.15	391.05	1334.94
399.61	1335.02	401.27	1334.92	409.85	1334.9	419.77	1335.02	423.39	1335.15
429.77	1335.14	431.43	1335.23	434.53	1335.17	435.36	1335.1	436.78	1335.11
437.12	1335.06	438.69	1335.11	439.46	1335.08	441.38	1335.13	451.83	1335.2
455.86	1335.3	463.57	1335.32	470	1335.47	474.9	1335.51	476.59	1335.57
479.61	1335.61	481.06	1335.7	492.74	1335.71	494.37	1335.64	512.49	1335.75
514.76	1335.72	519.11	1335.5	521.47	1335.44	528.56	1335.41	533.11	1335.33
535.39	1335.25	544.8	1335.04	547.14	1335.02	551.56	1334.87	563.27	1334.89
578.83	1335	590.18	1334.96	593.73	1334.78	600	1334.76		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	224.28	.025	376.58	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.28	376.58	72	72	72	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1331.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.025	
W.S. Elev (ft)	1331.67	Reach Len. (ft)	72.00	72.00	72.00
Crit W.S. (ft)	1326.71	Flow Area (sq ft)		729.92	
E.G. Slope (ft/ft)	0.000221	Area (sq ft)		729.92	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	122.20	Top Width (ft)		122.20	
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)		2.88	
Max Chl Dpth (ft)	8.35	Hydr. Depth (ft)		5.97	
Conv. Total (cfs)	141289.6	Conv. (cfs)		141289.6	
Length Wtd. (ft)	72.00	Wetted Per. (ft)		124.20	
Min Ch El (ft)	1323.32	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.23	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00	78.47	0.00
C & E Loss (ft)		Cum SA (acres)	0.00	18.78	0.00

CULVERT

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7472.21

INPUT
Description: Recker Road
Distance from Upstream XS = .079
Deck/Roadway Width = 66
Weir Coefficient = 3.05
Upstream Deck/Roadway Coordinates
num= 19

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	1333.59	1323	52.5	1333.59	1323	112.5	1334.5	1323
148.5	1334.32	1323	188.8	1334.12	1323	212	1333.5	1323
237.5	1333.1	1323	262.5	1332	1323	287.5	1331.75	1323
300	1331.7	1323	312.5	1331.5	1323	337.5	1331.1	1323
358.37	1330.98	1323	387.5	1331.1	1323	412.5	1331.5	1323
437.5	1331.7	1323	488.5	1332.98	1323	500.5	1333.17	1323
590.5	1334.52	1323						

Upstream Bridge Cross Section Data
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1335.01	11.41	1334.89	12.65	1334.84	17.97	1334.8	19.24	1334.68
21.09	1334.59	23.2	1334.55	24.28	1334.49	25.46	1334.49	26.55	1334.44
33.09	1334.39	34.36	1334.42	36.47	1334.57	38.75	1334.62	42.01	1334.55
49.51	1334.57	52.48	1334.65	58.91	1334.57	62.65	1334.46	73.3	1334.32
77.1	1334.13	79.49	1334.07	92.37	1334.39	93.69	1334.38	95.02	1334.47
97.21	1334.34	104.57	1334.18	116.27	1334.16	120.21	1334.38	123.76	1334.44
136.85	1334.43	141.54	1334.55	160.99	1334.52	163.13	1334.55	164.26	1334.62
170.63	1334.63	174.43	1335.34	175.47	1335.49	176.23	1335.53	177.65	1335.52
178.93	1335.46	179.83	1335.32	183.13	1335.23	184.65	1334.97	185.42	1334.94
188.09	1335.09	197.46	1334.94	203.84	1334.96	207.9	1334.86	208.5	1334.8
220.82	1336.46	221.07	1336.42	224.28	1334.87	243.99	1330.8	270	1323.77
300	1323.32	330	1323.75	376.58	1335.27	379.87	1335.15	391.05	1334.94
399.61	1335.02	401.27	1334.92	409.85	1334.9	419.77	1335.02	423.39	1335.15
429.77	1335.14	431.43	1335.23	434.53	1335.17	435.36	1335.1	436.78	1335.11
437.12	1335.06	438.69	1335.11	439.46	1335.08	441.38	1335.13	451.83	1335.2
455.86	1335.3	463.57	1335.32	470	1335.47	474.9	1335.51	476.59	1335.57
479.61	1335.61	481.06	1335.7	492.74	1335.71	494.37	1335.64	512.49	1335.75
514.76	1335.72	519.11	1335.5	521.47	1335.44	528.56	1335.41	533.11	1335.33
535.39	1335.25	544.8	1335.04	547.14	1335.02	551.56	1334.87	563.27	1334.89
578.83	1335	590.18	1334.96	593.73	1334.78	600	1334.76		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	224.28	.025	376.58	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
224.28	376.58	.1	.3

Downstream Deck/Roadway Coordinates
num= 19

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	1333.59	1323	52.5	1333.59	1323	112.5	1334.5	1323
148.5	1334.32	1323	188.8	1334.12	1323	212	1333.5	1323
237.5	1333.1	1323	262.5	1332	1323	287.5	1331.75	1323
300	1331.7	1323	312.5	1331.5	1323	337.5	1331.1	1323
358.37	1330.98	1323	387.5	1331.1	1323	412.5	1331.5	1323
437.5	1331.7	1323	488.5	1332.98	1323	500.5	1333.17	1323
590.5	1334.52	1323						

Downstream Bridge Cross Section Data
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1333.4	8.41	1333.51	10.85	1333.51	16.6	1333.44	31.01	1333.42
34.7	1333.49	64.77	1333.51	71.47	1333.47	79.55	1333.56	81.91	1333.61

107.15	1333.64	127.12	1333.56	144.42	1333.67	159.17	1333.57	159.53	1333.61
164.62	1333.88	170.1	1333.77	181.88	1333.72	182.94	1333.88	183.42	1333.9
185.95	1334.21	188.89	1333.84	192.88	1333.87	204.77	1334.04	208.33	1334.46
212.44	1334.75	213.27	1334.75	215.05	1334.88	215.64	1334.89	217.85	1335.09
221	1335.08	222.18	1335.21	223.8	1334.98	224.26	1335.04	224.31	1334.65
265.74	1324.82	270	1323.63	300	1323.19	330	1323.61	376.38	1335.05
377.64	1333.65	378.55	1333.29	380.22	1333.27	384.84	1333.31	388.52	1333.37
390.54	1333.38	397.91	1333.2	399.78	1333.18	409.06	1333.43	413.77	1333.62
416.19	1333.64	418.36	1333.6	420.96	1333.6	422.21	1333.57	429.44	1333.78
432.3	1333.76	436.32	1333.85	440.75	1334.07	451.28	1334.2	452.34	1334.24
454.71	1334.28	456.02	1334.27	459.01	1334.11	461.49	1334.11	464.21	1334.3
467.9	1334.31	471.08	1334.26	480.51	1334.22	483.69	1334.16	486.84	1334.17
489.82	1334.23	491.47	1334.22	497.56	1334.11	504.31	1334.08	505.47	1334.09
509.15	1334.04	511.16	1334.04	515.78	1334.09	517.01	1334.14	518.35	1334.17
519.48	1334.24	521.8	1334.3	529.71	1334.31	533.8	1334.24	534.84	1334.28
541.73	1334.23	543.12	1334.28	545.07	1334.24	546.18	1334.29	547.21	1334.29
549.47	1334.24	552.24	1334.24	559.28	1334.1	562.54	1334.06	567.53	1334.1
576.55	1334.04	583.17	1333.89	591.43	1333.93	600	1333.91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	224.31	.025	376.38	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
224.31	376.38	.1	.3

Upstream Embankment side slope = 4 horiz. to 1.0 vertical
Downstream Embankment side slope = 4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 1331
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	5	10

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 3 - Wingwall flared 0 deg. (sides extended straight)
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
	.29	66	.012	.012	0	.5	1

Number of Barrels = 4
Upstream Elevation = 1323.32
Centerline Stations

Sta.	Sta.	Sta.	Sta.
280.5	293.5	306.5	319.5

Downstream Elevation = 1323.2
Centerline Stations

Sta.	Sta.	Sta.	Sta.
280.5	293.5	306.5	319.5

CULVERT OUTPUT Profile #As-Built Culv Group: Culvert #1

Q Culv Group (cfs)	2022.45	Culv Full Len (ft)	66.00
# Barrels	4	Culv Vel US (ft/s)	10.11
Q Barrel (cfs)	505.61	Culv Vel DS (ft/s)	10.11
E.G. US. (ft)	1331.80	Culv Inv El Up (ft)	1323.32
W.S. US. (ft)	1331.67	Culv Inv El Dn (ft)	1323.20
E.G. DS (ft)	1329.50	Culv Frctn Ls (ft)	0.22
W.S. DS (ft)	1329.19	Culv Exit Loss (ft)	1.28
Delta EG (ft)	2.30	Culv Entr Loss (ft)	0.79
Delta WS (ft)	2.47	Q Weir (cfs)	77.55
E.G. IC (ft)	1331.77	Weir Sta Lft (ft)	282.70
E.G. OC (ft)	1331.80	Weir Sta Rgt (ft)	362.54
Culvert Control	Outlet	Weir Submerg	0.00
Culv WS Inlet (ft)	1328.32	Weir Max Depth (ft)	0.82
Culv WS Outlet (ft)	1328.20	Weir Avg Depth (ft)	0.42
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	33.83

Culv Crt Depth (ft) 4.30 Min El Weir Flow (ft) 1331.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7434

INPUT
Description: d/s Recker
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1333.4	8.41	1333.51	10.85	1333.51	16.6	1333.44	31.01	1333.42
34.7	1333.49	64.77	1333.51	71.47	1333.47	79.55	1333.56	81.91	1333.61
107.15	1333.64	127.12	1333.56	144.42	1333.67	159.17	1333.57	159.53	1333.61
164.62	1333.88	170.1	1333.77	181.88	1333.72	182.94	1333.88	183.42	1333.9
185.95	1334.21	188.89	1333.84	192.88	1333.87	204.77	1334.04	208.33	1334.46
212.44	1334.75	213.27	1334.75	215.05	1334.88	215.64	1334.89	217.85	1335.09
221	1335.08	222.18	1335.21	223.8	1334.98	224.26	1335.04	224.31	1334.65
265.74	1324.82	270	1323.63	300	1323.19	330	1323.61	376.38	1335.05
377.64	1333.65	378.55	1333.29	380.22	1333.27	384.84	1333.31	388.52	1333.37
390.54	1333.38	397.91	1333.2	399.78	1333.18	409.06	1333.43	413.77	1333.62
416.19	1333.64	418.36	1333.6	420.96	1333.6	422.21	1333.57	429.44	1333.78
432.3	1333.76	436.32	1333.85	440.75	1334.07	451.28	1334.2	452.34	1334.24
454.71	1334.28	456.02	1334.27	459.01	1334.11	461.49	1334.11	464.21	1334.3
467.9	1334.31	471.08	1334.26	480.51	1334.22	483.69	1334.16	486.84	1334.17
489.82	1334.23	491.47	1334.22	497.56	1334.11	504.31	1334.08	505.47	1334.09
509.15	1334.04	511.16	1334.04	515.78	1334.09	517.01	1334.14	518.35	1334.17
519.48	1334.24	521.8	1334.3	529.71	1334.31	533.8	1334.24	534.84	1334.28
541.73	1334.23	543.12	1334.28	545.07	1334.24	546.18	1334.29	547.21	1334.29
549.47	1334.24	552.24	1334.24	559.28	1334.1	562.54	1334.06	567.53	1334.1
576.55	1334.04	583.17	1333.89	591.43	1333.93	600	1333.91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	224.31	.025	376.38	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.31	376.38	34	34	34	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1329.50	Element			
Vel Head (ft)	0.31	Wt. n-Val.		0.025	
W.S. Elev (ft)	1329.19	Reach Len. (ft)	34.00	34.00	34.00
Crit W.S. (ft)		Flow Area (sq ft)		471.68	
E.G. Slope (ft/ft)	0.000773	Area (sq ft)		471.68	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	105.31	Top Width (ft)		105.31	
Vel Total (ft/s)	4.45	Avg. Vel. (ft/s)		4.45	
Max Chl Dpth (ft)	6.00	Hydr. Depth (ft)		4.48	
Conv. Total (cfs)	75531.3	Conv. (cfs)		75531.3	
Length Wtd. (ft)	34.00	Wetted Per. (ft)		106.66	
Min Ch El (ft)	1323.19	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.95	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.00	77.47	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	18.59	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7400.000

INPUT

Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1333.16	48.91	1332.96	501	332.953	54.72	1332.92	65.06	1332.91
69.72	1332.88	78.58	1332.87	81.33	1332.79	82.51	1332.78	84.54	1332.79
86.89	1332.57	98.49	1332.86	106.87	1332.82	107.98	1332.83	109.94	1332.8
118.77	1332.81	119.59	1332.83	125.25	1332.85	125.77	1332.89	128.93	1332.9
129.49	1332.94	130.63	1332.94	136.38	1333.04	138.16	1333.1	139.7	1333.18
142.28	1333.24	148.67	1333.32	151.49	1333.33	155.01	1333.4	157.64	1333.39
159.55	1333.35	174.67	1333.5	183.16	1334.36	186.95	1333.98	193.59	1333.72
204.16	1333.97	205.72	1334.35	206.56	1334.6	207.36	1334.59	207.5	1334.6
208.78	1334.65	209.03	1334.69	210.69	1334.83	211.45	1334.98	212.31	1335.04
213.16	1335.28	215.36	1335.48	217.2	1335.92	222.31	1336.43	223.22	1336.44
224.04	1335.48	224.33	1334.49	270	1323.61	300	1323.11	330	1323.64
355.9	1330.59	372.1	1335.04	372.34	1335.01	374.52	1335.07	375.14	1335.03
375.81	1335.03	376.45	1335	376.84	1335	377.29	1334.98	379.57	1334.97
379.83	1334.96	380.8	1334.96	381.8	1334.93	390.87	1334.92	393.32	1334.88
395.54	1334.79	396	1334.79	397.67	1334.71	400.13	1334.68	408.33	1334.66
411.8	1334.6	444.9	1334.59	451.8	1334.6	453.48	1334.62	459.24	1334.63
462.84	1334.64	512.06	1334.65	515.73	1334.71	525.11	1334.56	526.2	1334.64
526.82	1334.74	527.31	1334.76	528.59	1334.82	529.17	1334.82	529.94	1334.88
531.01	1334.88	531.85	1334.87	533.34	1334.81	533.96	1334.7	536.13	1334.59
536.46	1334.54	537.13	1334.53	550	1334.586	557.87	1334.62	593.88	1334.62
600	1334.59								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	223.22	.035	372.1	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.22	372.1	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1329.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.035	
W.S. Elev (ft)	1329.15	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		467.85	
E.G. Slope (ft/ft)	0.001528	Area (sq ft)		467.85	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	103.78	Top Width (ft)		103.78	
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)		4.49	
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)		4.51	
Conv. Total (cfs)	53725.9	Conv. (cfs)		53725.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		105.17	
Min Ch El (ft)	1323.11	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.90	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.00	77.11	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	18.51	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7300.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1332.63	501	332.825	53.77	1332.84	55.54	1332.82	58.15	1332.8
58.4	1332.77	58.73	1332.74	59.62	1332.7	61.33	1332.7	64	1332.68
64.11	1332.67	65.23	1332.67	67.4	1332.68	69.5	1332.72	76.64	1332.7
77.03	1332.71	78.12	1332.71	78.45	1332.73	80.18	1332.74	82.46	1332.75
84.93	1332.81	96.91	1332.76	115.08	1332.57	116.45	1332.51	123.21	1332.6
126.73	1332.59	129.32	1332.62	130.84	1332.67	131.52	1332.68	133.59	1332.85
133.83	1332.85	135.19	1332.97	136.32	1333.03	138.17	1333.08	139.77	1333.16
141.13	1333.19	144	1333.38	146.03	1333.42	148.82	1333.49	150	1333.51
150.88	1333.55	157.59	1333.54	161.08	1333.52	162.35	1333.54	163.26	1333.52

167.4	1333.5	173.06	1333.43	174.28	1333.47	175.57	1333.53	176.93	1333.57
177.99	1333.62	180.23	1333.66	181.58	1333.82	184.82	1334.3	186.54	1333.84
188.43	1333.36	188.77	1333.33	200.73	1334.12	204.49	1335.02	209.17	1335.07
215.74	1335.31	218.89	1335.56	219.82	1335.33	224.28	1334.18	257.82	1326.26
269.99	1323.4	300	1322.87	330	1323.42	346.56	1327.81	371.71	1333.95
373.81	1333.88	377.18	1333.85	383.92	1333.14	391.04	1333.14	395.05	1333.21
397.21	1333.21	399.29	1333.24	403.03	1333.26	404.53	1333.27	406.26	1333.26
413.99	1333.26	416.09	1333.28	428.97	1333.3	432.93	1333.32	435.24	1333.32
437.59	1333.35	439.83	1333.36	454.45	1333.36	460.83	1333.39	464.25	1333.39
475.97	1333.42	489.31	1333.43	507.16	1333.42	514.37	1333.43	522.08	1333.41
531.5	1333.43	539.45	1333.46	550	1333.458	583.95	1333.45	589.61	1333.46
600	1333.45								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	218.89	.045	373.81	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
218.89	373.81	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1329.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	1328.96	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		473.37	
E.G. Slope (ft/ft)	0.002463	Area (sq ft)		473.37	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	104.91	Top Width (ft)		104.91	
Vel Total (ft/s)	4.44	Avg. Vel. (ft/s)		4.44	
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		4.51	
Conv. Total (cfs)	42315.1	Conv. (cfs)		42315.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		106.28	
Min Ch El (ft)	1322.87	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		3.04	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.00	76.03	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	18.27	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7200.000

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1332.52	50	1332.52	69.77	1332.52	72.92	1332.57	73.56	1332.54
78.04	1332.54	98.79	1332.37	107.21	1332.35	124.01	1332.13	148.65	1332.48
152.21	1332.56	152.99	1332.61	157.01	1332.84	169	1333.49	181.35	1333.51
183.46	1333.41	189.04	1333.61	193.02	1334.1	195.73	1333.46	197.84	1333.36
207.93	1333.49	208.37	1333.56	210.12	1333.79	210.84	1333.84	214.8	1334.19
215.72	1334.28	217.01	1334.42	223.51	1333.99	225.14	1334.15	225.21	1333.87
268.52	1323.54	269.99	1323.18	300	1322.63	330	1323.19	333.73	1324.14
372.56	1333.9	375.69	1333.4	377.18	1333.38	383.75	1333.34	386.82	1333.04
390.49	1333.05	411.65	1333.05	413.28	1333.05	420.24	1333.05	423.43	1333.09
424.53	1333.08	428.84	1333.1	431.52	1333.09	432.23	1333.09	434.73	1333.09
436.9	1333.12	438.98	1333.13	442.14	1333.13	444.85	1333.15	447.27	1333.18
458.53	1333.16	460.47	1333.17	462.55	1333.17	466.07	1333.17	472.97	1333.16
474.89	1333.15	477.06	1333.12	484.37	1333.12	486.34	1333.14	493.01	1333.13
501.88	1333.12	505.03	1333.13	511.01	1333.12	521.31	1333.13	526.29	1333.12
527.58	1333.13	538.52	1333.11	541.69	1333.16	545.39	1333.16	546.25	1333.16
547.41	1333.16	548.17	1333.17	549.82	1333.17	550	1333.17	550.61	1333.17
554.29	1333.17	555.46	1333.17	557.3	1333.17	557.95	1333.18	559.86	1333.18
560.49	1333.18	562.22	1333.18	565.1	1333.19	566.86	1333.21	569.3	1333.22
571.43	1333.22	571.96	1333.22	573.88	1333.22	576.52	1333.23	577.92	1333.21
587.16	1333.2	588.9	1333.22	592.83	1333.22	593.26	1333.22	595.4	1333.21
600	1333.21								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	225.14	.045	372.56	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.14	372.56	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1329.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	1328.72	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		473.09	
E.G. Slope (ft/ft)	0.002474	Area (sq ft)		473.09	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	105.12	Top Width (ft)		105.12	
Vel Total (ft/s)	4.44	Avg. Vel. (ft/s)		4.44	
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		4.50	
Conv. Total (cfs)	42223.7	Conv. (cfs)		42223.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		106.46	
Min Ch El (ft)	1322.63	Shear (lb/sq ft)		0.69	
Alpha	1.00	Stream Power (lb/ft s)		3.05	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	0.00	74.94	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	18.03	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7100.000

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1332.06	151.24	1332.41	154.11	1332.48	155.91	1332.51	158.19	1332.55
159.14	1332.56	163.31	1332.72	165.16	1332.8	169.33	1332.98	171.99	1333.1
180.39	1333.4	180.62	1333.41	180.69	1333.4	183.26	1333.05	185.92	1333.04
186.03	1333.04	186.05	1333.04	186.21	1333.04	186.29	1333.04	198.18	1333.17
199.69	1333.32	200.71	1333.43	201.76	1333.34	204.29	1333.15	208.78	1333.18
209.65	1333.19	210.35	1333.11	214.2	1333.05	214.92	1333.03	215.22	1333.06
215.7	1333.12	218.44	1333.44	225.73	1333.4	225.75	1333.4	226.57	1333.35
257.44	1325.96	270.01	1322.96	300.01	1322.39	300.4	1322.39	330.01	1322.98
351.4	1327.49	358.24	1328.94	379.54	1333.36	381.25	1333.25	386.65	1332.82
395.93	1332.83	411.72	1332.82	414.08	1332.86	431.04	1332.88	436.79	1332.86
450	1332.88								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	226.57	.045	381.25	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.57	381.25	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1328.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.045	
W.S. Elev (ft)	1328.48	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		483.74	
E.G. Slope (ft/ft)	0.002411	Area (sq ft)		483.74	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	109.17	Top Width (ft)		109.17	
Vel Total (ft/s)	4.34	Avg. Vel. (ft/s)		4.34	
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		4.43	
Conv. Total (cfs)	42771.1	Conv. (cfs)		42771.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		110.40	
Min Ch El (ft)	1322.39	Shear (lb/sq ft)		0.66	

Alpha	1.00	Stream Power (lb/ft s)		2.86	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.00	73.84	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	17.79	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 7000.000

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1331.67	152.05	1331.93	154.65	1332	157.98	1332.08	163.66	1332.2
166.06	1332.28	176.75	1332.67	178.48	1332.78	181.1	1332.94	183.44	1332.68
184.62	1332.54	189.78	1332.84	193.23	1333.04	195.18	1332.84	196.22	1332.73
199.01	1332.84	204.38	1333.03	206.73	1333.1	207.79	1333.08	211.2	1333
211.81	1332.99	217.81	1332.84	220.06	1333.17	220.81	1333.27	224.26	1332.96
224.61	1332.92	225.88	1332.81	226.08	1332.79	226.33	1332.76	228.56	1332.25
228.58	1332.24	229.25	1332.09	270	1322.73	299.99	1322.16	330	1322.76
369.35	1329.43	389.13	1332.82	391.23	1332.67	393.11	1332.54	396.58	1332.51
415.61	1332.59	431.05	1332.59	440.61	1332.61	450	1332.63		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	226.33	.045	389.13	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.33	389.13	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1328.53	Element			
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1328.26	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		504.61	
E.G. Slope (ft/ft)	0.002280	Area (sq ft)		504.61	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.55	Top Width (ft)		116.55	
Vel Total (ft/s)	4.16	Avg. Vel. (ft/s)		4.16	
Max Chl Dpth (ft)	6.10	Hydr. Depth (ft)		4.33	
Conv. Total (cfs)	43983.8	Conv. (cfs)		43983.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.66	
Min Ch El (ft)	1322.16	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		2.54	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	72.71	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	17.53	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6900.000

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1331.19	151.1	1331.47	154.68	1331.53	159.56	1331.62	159.98	1331.63
161.14	1331.68	174.03	1332.25	177.84	1332.54	178.03	1332.56	178.06	1332.55
180.8	1332.23	181.96	1332.23	202.72	1332.33	203.85	1332.32	205.1	1332.34
207.55	1332.37	211.8	1332.44	216.14	1332.51	217.73	1332.8	218.89	1333.02
221.18	1333.06	223.78	1333.09	224.04	1332.88	224.62	1332.17	252.44	1326.26
270.01	1322.51	299.66	1321.92	299.68	1321.92	300	1321.92	330.01	1322.55
341.15	1324.26	393.53	1332.29	409.68	1332.22	413.33	1332.22	438.01	1332.21
438.39	1332.21	438.77	1332.21	438.87	1332.21	438.98	1332.21	439.25	1332.21
439.71	1332.22	442.1	1332.24	450	1332.35				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	223.78	.045	393.53	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.78	393.53	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1328.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1328.05	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		520.27	
E.G. Slope (ft/ft)	0.002182	Area (sq ft)		520.27	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	121.87	Top Width (ft)		121.87	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	6.13	Hydr. Depth (ft)		4.27	
Conv. Total (cfs)	44959.5	Conv. (cfs)		44959.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		122.89	
Min Ch El (ft)	1321.92	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.33	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	71.53	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	17.25	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6800.000

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1331.02	151.17	1331.2	154.84	1331.25	155.42	1331.27	155.87	1331.29
160.46	1331.31	168.28	1331.36	171.65	1331.38	178.98	1331.42	183.94	1331.49
185.2	1331.54	187.12	1331.6	187.38	1331.61	192.38	1331.61	200.69	1331.62
201.71	1331.62	202.82	1331.62	215.37	1331.59	220.26	1331.63	220.41	1331.63
221.91	1331.59	261.16	1324.01	270	1322.29	299.42	1321.69	299.46	1321.69
300.01	1321.69	330.01	1322.33	332.17	1322.72	347.78	1325.48	367.82	1329.02
367.96	1329.04	378.89	1330.98	383.38	1331.75	400.72	1331.9	405.07	1331.94
425.83	1331.93	430.19	1331.94	435.39	1331.97	436.91	1331.98	439.74	1332.01
441.97	1332.04	443.82	1332.02	446.6	1331.98	448.33	1331.97	450	1331.91

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	221.91	.045	383.38	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
221.91	383.38	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1328.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1327.82	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		513.77	
E.G. Slope (ft/ft)	0.002220	Area (sq ft)		513.77	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	119.64	Top Width (ft)		119.64	
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)		4.09	
Max Chl Dpth (ft)	6.13	Hydr. Depth (ft)		4.29	
Conv. Total (cfs)	44566.9	Conv. (cfs)		44566.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		120.66	
Min Ch El (ft)	1321.69	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.41	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.00	70.34	0.00

C & E Loss (ft)	0.00	Cum SA (acres)	0.00	16.98	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6700.000

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1330.67	152.42	1330.83	153.52	1330.84	169.13	1331.1	178.66	1331.12
180.83	1331.13	184.66	1331.13	191.27	1331.14	193.23	1331.15	196.58	1331.1
196.99	1331.09	210.21	1330.9	211.89	1331.2	213.07	1331.41	217.27	1332.16
217.99	1331.85	218.74	1331.46	219.83	1331.03	260.8	1323.72	270	1322.07
299.41	1321.48	299.46	1321.48	300	1321.48	330	1322.11	357.36	1328.05
367.7	1330.3	367.78	1330.31	367.87	1330.33	371.78	1331.18	391.49	1331.49
395.22	1331.55	416.42	1331.5	420.34	1331.49	423.18	1331.59	423.91	1331.61
425.47	1331.63	425.96	1331.64	427.16	1331.64	431.89	1331.65	434.92	1331.65
435.4	1331.65	437.13	1331.63	445.46	1331.57	450	1331.57		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	217.27	.045	371.78	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
217.27	371.78	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1327.86	Element			
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1327.59	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		502.17	
E.G. Slope (ft/ft)	0.002304	Area (sq ft)		502.17	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.08	Top Width (ft)		116.08	
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)		4.18	
Max Chl Dpth (ft)	6.10	Hydr. Depth (ft)		4.33	
Conv. Total (cfs)	43753.0	Conv. (cfs)		43753.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.16	
Min Ch El (ft)	1321.48	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.58	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.00	69.18	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	16.71	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6600.000

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1330.82	152.46	1330.82	155.54	1330.82	155.62	1330.82	156.84	1330.82
159.01	1330.8	159.36	1330.8	169.23	1330.86	185.87	1330.83	195.19	1331.12
198.2	1331.17	198.89	1331.14	199.21	1331.1	199.72	1331.1	200.1	1331.07
201.34	1331	201.98	1330.98	203.45	1330.88	203.75	1330.86	205.01	1331.23
207.64	1332.02	209.05	1331.88	215.66	1330.48	247.26	1325.47	269.99	1321.85
300.01	1321.26	330	1321.89	337.56	1323.62	367.97	1330.6	381.63	1331.07
386.16	1331.23	391.13	1331.25	392.44	1331.27	411.5	1331.24	411.6	1331.25
411.83	1331.27	413.98	1331.4	435.78	1331.21	436.24	1331.2	450	1331.23

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

150	.045	207.64	.045	381.63	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
207.64	381.63	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1327.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1327.36	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		508.47	
E.G. Slope (ft/ft)	0.002271	Area (sq ft)		508.47	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	118.52	Top Width (ft)		118.52	
Vel Total (ft/s)	4.13	Avg. Vel. (ft/s)		4.13	
Max Chl Dpth (ft)	6.10	Hydr. Depth (ft)		4.29	
Conv. Total (cfs)	44065.1	Conv. (cfs)		44065.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.59	
Min Ch El (ft)	1321.26	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.49	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.00	68.02	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	16.44	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6500.000

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1330.11	154.78	1330.39	155.78	1330.4	158.21	1330.44	160.77	1330.44
181.06	1330.47	186.43	1330.53	186.85	1330.54	187.57	1330.56	188.84	1330.59
192.23	1330.67	192.36	1330.67	192.92	1330.75	201.81	1332.01	201.91	1331.95
218.03	1329.96	240.03	1326.45	243.27	1325.93	243.56	1325.88	270	1321.64
300	1321.04	329.99	1321.67	360.31	1328.33	367.88	1330	369.59	1330.08
386.03	1330.85	410.11	1330.85	410.95	1330.85	411.61	1330.84	415.11	1330.81
435.14	1330.73	447.91	1330.74	450	1330.73				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	218.03	.045	369.59	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
218.03	369.59	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1327.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1327.13	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		509.12	
E.G. Slope (ft/ft)	0.002276	Area (sq ft)		509.12	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	119.12	Top Width (ft)		119.12	
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)		4.12	
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		4.27	
Conv. Total (cfs)	44019.6	Conv. (cfs)		44019.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		120.16	
Min Ch El (ft)	1321.04	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.48	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.00	66.85	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	16.16	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6400.000

INPUT
Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1329.16	163.8	1329.22	164.21	1329.22	164.63	1329.22	165.03	1329.22
165.35	1329.22	165.58	1329.22	165.75	1329.22	165.85	1329.22	170.36	1329.21
172.13	1329.22	174.46	1329.24	183.31	1329.25	189.55	1329.32	190.11	1329.31
190.44	1329.32	190.57	1329.32	191.84	1329.34	192.1	1329.34	192.55	1329.34
193.39	1329.35	196.02	1329.36	204.27	1329.42	205.5	1329.92	206.13	1330.16
208.49	1329.91	211.59	1329.59	214.01	1329.51	215.34	1329.48	217.88	1329.44
226.75	1329.41	257.42	1323.77	270.01	1321.42	300.01	1320.83	300.35	1320.83
300.38	1320.83	330.01	1321.44	356.2	1326.92	356.23	1326.93	368.16	1329.42
370.45	1329.56	391.53	1330.76	414.47	1330.69	417.3	1330.69	420.96	1330.7
441.65	1330.76	450	1330.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	226.75	.045	370.45	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.75	370.45	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1327.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.045	
W.S. Elev (ft)	1326.89	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		496.87	
E.G. Slope (ft/ft)	0.002373	Area (sq ft)		496.87	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	115.57	Top Width (ft)		115.57	
Vel Total (ft/s)	4.23	Avg. Vel. (ft/s)		4.23	
Max Chl Dpth (ft)	6.06	Hydr. Depth (ft)		4.30	
Conv. Total (cfs)	43112.1	Conv. (cfs)		43112.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.65	
Min Ch El (ft)	1320.83	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		2.67	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	0.00	65.69	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	15.89	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6300.000

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1329.65	150.78	1329.64	152.15	1329.66	153.3	1329.66	154.49	1329.68
155.58	1329.68	156.84	1329.7	157.94	1329.7	160.18	1329.71	163.55	1329.7
166.04	1329.71	167.43	1329.72	168.41	1329.72	171.87	1329.74	177.21	1329.74
179.78	1329.76	181.19	1329.78	183.68	1329.79	191.5	1329.78	193.97	1329.78
198.16	1329.75	200.57	1329.76	202.62	1329.76	203.69	1329.79	205.16	1329.79
205.39	1329.79	208.9	1329.8	209.23	1329.79	209.8	1329.8	210.11	1329.79
210.56	1329.8	217.85	1329.27	218.28	1329.25	219.1	1329.19	222.07	1329.1
225.47	1329.01	233.63	1328.78	259.32	1323.55	270.01	1321.2	300.01	1320.61
330.01	1321.22	366.81	1328.86	367.46	1329	373.39	1330.47	385.85	1330.44
418.3	1330.42	424	1330.39	431.16	1330.42	448.57	1330.43	450	1330.49

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	233.63	.045	373.39	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
233.63	373.39	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1326.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.045	
W.S. Elev (ft)	1326.62	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		481.72	
E.G. Slope (ft/ft)	0.002520	Area (sq ft)		481.72	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	111.81	Top Width (ft)		111.81	
Vel Total (ft/s)	4.36	Avg. Vel. (ft/s)		4.36	
Max Chl Dpth (ft)	6.01	Hydr. Depth (ft)		4.31	
Conv. Total (cfs)	41834.8	Conv. (cfs)		41834.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.94	
Min Ch El (ft)	1320.61	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		2.92	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	0.00	64.57	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	15.63	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6200.000

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1329.63	153.69	1329.58	153.82	1329.58	154.28	1329.58	157.43	1329.57
157.64	1329.57	157.91	1329.57	159.03	1329.57	170.09	1329.5	170.49	1329.5
174.71	1329.49	174.99	1329.49	175.37	1329.49	180.21	1329.48	181.14	1329.48
181.5	1329.49	181.89	1329.49	204.82	1329.57	205.02	1329.57	222.31	1329.22
222.58	1329.2	222.59	1329.2	226.99	1328.91	230.58	1328.71	231.66	1328.73
234.73	1328.62	234.95	1328.28	249.24	1325.6	270	1320.98	300	1320.4
300.34	1320.4	330	1321	354.21	1325.99	365.43	1328.3	366.21	1328.46
366.82	1328.48	380.31	1330.28	382.97	1330.27	386.32	1330.27	399.33	1330.25
400.34	1330.25	401.63	1330.24	405.37	1330.24	408.66	1330.23	410.03	1330.22
412.74	1330.22	423.98	1330.24	426.69	1330.24	430.43	1330.24	433.67	1330.24
438.22	1330.24	447.63	1330.23	450	1330.23				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	234.73	.045	380.31	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
234.73	380.31	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1326.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.045	
W.S. Elev (ft)	1326.36	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		474.67	
E.G. Slope (ft/ft)	0.002615	Area (sq ft)		474.67	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	110.79	Top Width (ft)		110.79	
Vel Total (ft/s)	4.42	Avg. Vel. (ft/s)		4.42	
Max Chl Dpth (ft)	5.96	Hydr. Depth (ft)		4.28	
Conv. Total (cfs)	41065.4	Conv. (cfs)		41065.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		111.93	
Min Ch El (ft)	1320.40	Shear (lb/sq ft)		0.69	
Alpha	1.00	Stream Power (lb/ft s)		3.06	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	0.00	63.47	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	15.38	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6100.000

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1328.82	150.4	1328.77	156.12	1328.7	158.13	1328.67	158.92	1328.65
164.28	1328.59	165.88	1328.57	169.54	1328.52	175.07	1328.45	178.9	1328.58
181.67	1328.66	186.31	1328.77	194.64	1328.73	196.76	1328.69	200.21	1328.63
205.63	1328.59	207.61	1328.58	207.86	1328.58	208.76	1328.57	209.46	1328.6
222.76	1328.32	229.1	1328.18	231.15	1327.93	232.93	1327.7	245.1	1325.41
270.02	1320.76	300	1320.18	330.02	1320.79	353.32	1325.73	363.99	1327.99
368.13	1328.09	386.35	1328.52	403.01	1328.4	411.36	1328.38	419.72	1328.3
427.43	1328.32	436.37	1328.43	450	1328.41				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	229.1	.045	368.13	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.1	368.13	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1326.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.045	
W.S. Elev (ft)	1326.10	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		480.45	
E.G. Slope (ft/ft)	0.002595	Area (sq ft)		480.45	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.65	Top Width (ft)		113.65	
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)		4.37	
Max Chl Dpth (ft)	5.92	Hydr. Depth (ft)		4.23	
Conv. Total (cfs)	41220.1	Conv. (cfs)		41220.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		114.72	
Min Ch El (ft)	1320.18	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		2.97	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	0.00	62.38	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	15.12	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 6000.000

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1328.01	154.87	1328.09	161.33	1328.15	162.44	1328.21	184.05	1327.91
188.32	1327.87	194.59	1327.56	198.34	1327.38	204.93	1327.06	208.37	1326.89
218.22	1326.48	220.16	1326.61	229.13	1327.35	253.78	1323.16	270.01	1320.53
299.64	1319.96	299.67	1319.96	300	1319.96	330	1320.58	335.45	1321.74
363.57	1327.79	380.78	1328.06	382.15	1328.09	391.35	1328.1	407.21	1328.14
408.17	1328.13	408.39	1328.13	408.89	1328.13	410.05	1328.13	413.62	1328.11
416.99	1328.1	419.57	1328.1	424.54	1328.12	427.07	1328.12	428.4	1328.12
429.1	1328.12	432.26	1328.13	435.18	1328.14	450	1328.14		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	229.13	.045	363.57	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.13	363.57	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1326.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.045	
W.S. Elev (ft)	1325.85	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		486.53	
E.G. Slope (ft/ft)	0.002572	Area (sq ft)		486.53	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.58	Top Width (ft)		116.58	
Vel Total (ft/s)	4.32	Avg. Vel. (ft/s)		4.32	
Max Chl Dpth (ft)	5.89	Hydr. Depth (ft)		4.17	
Conv. Total (cfs)	41404.0	Conv. (cfs)		41404.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.59	
Min Ch El (ft)	1319.96	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		2.87	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	0.00	61.27	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	14.86	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5900.000

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1327.39	154.9	1327.21	155.15	1327.19	155.99	1327.22	161.05	1327.37
175.07	1327.9	191.71	1328.3	192.42	1328.33	200.12	1327.18	204.63	1326.5
225.9	1327.24	252.72	1322.93	270	1320.31	300	1319.75	330.01	1320.36
335.6	1321.53	364.47	1327.59	374.45	1327.81	375.51	1327.83	376.29	1327.83
388.09	1327.83	400.56	1327.83	401.12	1327.82	401.47	1327.82	401.97	1327.81
404.1	1327.79	407.81	1327.76	412.53	1327.8	418.3	1327.85	420.4	1327.87
421.61	1327.88	422.22	1327.89	425.62	1327.92	446.76	1327.89	450	1327.9

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	225.9	.045	364.47	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.9	364.47	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1325.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.045	
W.S. Elev (ft)	1325.59	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		489.05	
E.G. Slope (ft/ft)	0.002591	Area (sq ft)		489.05	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	118.80	Top Width (ft)		118.80	
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)		4.29	
Max Chl Dpth (ft)	5.84	Hydr. Depth (ft)		4.12	
Conv. Total (cfs)	41255.4	Conv. (cfs)		41255.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.77	
Min Ch El (ft)	1319.75	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		2.84	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.00	60.15	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	14.58	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5800.000

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1326.93	168.91	1327.44	172.22	1327.51	180.18	1327.97	184.28	1328.2
189.42	1327.16	215.03	1327.03	246.31	1322.98	250.21	1322.51	250.39	1322.49
270	1320.09	299.64	1319.42	299.66	1319.42	300	1319.42	330	1320.14
335.74	1321.31	365.38	1327.38	368.49	1327.6	384.73	1327.61	393.4	1327.6
394.13	1327.6	394.19	1327.6	394.31	1327.6	394.69	1327.61	397.25	1327.66
407.43	1327.66	411.7	1327.66	413.56	1327.66	414.61	1327.66	415.38	1327.65
418.96	1327.66	421.4	1327.65	444.02	1327.68	450	1327.67		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	215.03	.045	368.49	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
215.03	368.49	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1325.62	Element			
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1325.36	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		515.16	
E.G. Slope (ft/ft)	0.002393	Area (sq ft)		515.16	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	127.63	Top Width (ft)		127.63	
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		4.08	
Max Chl Dpth (ft)	5.94	Hydr. Depth (ft)		4.04	
Conv. Total (cfs)	42927.2	Conv. (cfs)		42927.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		128.51	
Min Ch El (ft)	1319.42	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.44	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	0.00	58.99	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	14.30	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5700.000

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1327.62	159.33	1327.17	166.38	1326.97	166.49	1326.99	166.85	1327.05
169.36	1327.14	173.66	1327.38	209.89	1326.55	242.72	1322.91	269.99	1319.88
300.01	1319.21	300.25	1319.21	329.99	1319.91	363.11	1326.31	367.55	1327.17
370.76	1327.22	374.04	1327.26	391.08	1327.49	393.95	1327.47	397.52	1327.44
416.52	1327.37	426.5	1327.37	441.53	1327.31	450	1327.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	209.89	.045	367.55	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
209.89	367.55	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1325.38	Element			
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1325.14	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		530.35	
E.G. Slope (ft/ft)	0.002325	Area (sq ft)		530.35	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	134.41	Top Width (ft)		134.41	

Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	
Max Chl Dpth (ft)	5.93	Hydr. Depth (ft)		3.95	
Conv. Total (cfs)	43553.5	Conv. (cfs)		43553.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		135.22	
Min Ch El (ft)	1319.21	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.25	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	0.00	57.79	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	14.00	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5600.000

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1326.39	151.08	1326.99	151.49	1327.2	160.44	1326.68	169.45	1326.23
169.88	1326.17	218.6	1326.06	221.98	1326.35	264.03	1320.52	270	1319.66
299.99	1318.99	300	1318.99	300.52	1318.99	300.57	1318.99	330	1319.69
342.32	1321.87	342.33	1321.87	371.83	1327.05	393.84	1327.07	394.68	1327.07
394.82	1327.07	395.97	1327.07	400.22	1327.05	409.03	1327.07	425.35	1327.13
431.84	1327.14	450	1327.18						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	221.98	.045	371.83	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
221.98	371.83	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1325.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1324.87	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		505.01	
E.G. Slope (ft/ft)	0.002532	Area (sq ft)		505.01	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	126.73	Top Width (ft)		126.73	
Vel Total (ft/s)	4.16	Avg. Vel. (ft/s)		4.16	
Max Chl Dpth (ft)	5.88	Hydr. Depth (ft)		3.98	
Conv. Total (cfs)	41732.2	Conv. (cfs)		41732.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		127.56	
Min Ch El (ft)	1318.99	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		2.60	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	0.00	56.61	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	13.70	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5500.000

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1326.31	160.04	1326.43	160.91	1326.86	161.86	1327.31	162.95	1327.36
163.6	1327.4	164.99	1327.78	166.58	1328.22	169.56	1328.5	173.41	1328.86
180.32	1330.82	181.89	1331.26	182.42	1331.16	188.89	1329.98	190.16	1329.45
193.68	1328	198.97	1326.93	232.51	1326.18	265.04	1320.35	269.99	1319.44
300	1318.78	300.52	1318.78	300.55	1318.78	330	1319.47	343.64	1321.62
343.66	1321.62	377.7	1326.94	379.85	1326.92	399.35	1326.72	401.79	1326.7
403.34	1326.73	410.42	1326.88	428.17	1326.87	435.55	1326.89	450	1326.89

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	232.51	.045	379.85	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
232.51	379.85	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1324.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.045	
W.S. Elev (ft)	1324.58	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		484.02	
E.G. Slope (ft/ft)	0.002749	Area (sq ft)		484.02	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	121.14	Top Width (ft)		121.14	
Vel Total (ft/s)	4.34	Avg. Vel. (ft/s)		4.34	
Max Chl Dpth (ft)	5.80	Hydr. Depth (ft)		4.00	
Conv. Total (cfs)	40051.3	Conv. (cfs)		40051.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		122.01	
Min Ch El (ft)	1318.78	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		2.95	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	0.00	55.47	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	13.42	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5400.000

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1326.64	151.76	1326.66	153.35	1325.85	153.8	1325.63	155.53	1325.65
168.17	1325.87	172.15	1325.94	172.21	1325.94	172.4	1326.05	174.08	1327.05
175.67	1327.48	176.61	1327.74	178.18	1328.03	181.53	1328.66	185.16	1329.74
190.22	1331.35	196.57	1330.28	197.26	1330.17	197.98	1329.94	209.38	1326.45
239.27	1326.07	263.3	1320.73	270.01	1319.22	300	1318.56	330.02	1319.25
362.77	1323.91	383.41	1326.83	385.41	1326.8	395.07	1326.66	409.26	1326.67
409.82	1326.68	410.17	1326.67	420.15	1326.66	430.53	1326.67	445.23	1326.7
450	1326.67								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	239.27	.045	385.41	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
239.27	385.41	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1324.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	1324.27	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		467.99	
E.G. Slope (ft/ft)	0.002971	Area (sq ft)		467.99	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.95	Top Width (ft)		117.95	
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)		4.49	
Max Chl Dpth (ft)	5.71	Hydr. Depth (ft)		3.97	
Conv. Total (cfs)	38529.0	Conv. (cfs)		38529.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.87	
Min Ch El (ft)	1318.56	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.28	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	0.00	54.38	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	13.14	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5300.000

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1326.47	150.9	1326.23	151.73	1326.19	152.36	1326.31	155.73	1326.98
156.79	1326.49	158.43	1325.76	163.15	1325.83	176.43	1325.75	177.19	1325.69
178.34	1326.08	179.3	1326.41	180.52	1326.5	182.22	1326.63	189.12	1329.35
193.11	1330.87	193.45	1331.01	193.68	1331.08	193.79	1331.08	194.01	1331.06
199.67	1330.32	201.77	1330.05	239.7	1325.95	245.42	1324.63	270.01	1319
299.77	1318.35	300	1318.35	330.01	1319.04	349.71	1321.76	385.69	1326.72
394.05	1326.54	398.04	1326.45	401.12	1326.44	401.85	1326.45	403.04	1326.45
405.3	1326.45	411.99	1326.45	417.67	1326.45	419.45	1326.44	420.37	1326.44
420.88	1326.44	423.05	1326.44	425.26	1326.44	448.05	1326.44	450	1326.44

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	239.7	.045	385.69	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
239.7	385.69	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1324.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.045	
W.S. Elev (ft)	1323.94	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		455.94	
E.G. Slope (ft/ft)	0.003210	Area (sq ft)		455.94	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.12	Top Width (ft)		117.12	
Vel Total (ft/s)	4.61	Avg. Vel. (ft/s)		4.61	
Max Chl Dpth (ft)	5.59	Hydr. Depth (ft)		3.89	
Conv. Total (cfs)	37064.8	Conv. (cfs)		37064.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.03	
Min Ch El (ft)	1318.35	Shear (lb/sq ft)		0.77	
Alpha	1.00	Stream Power (lb/ft s)		3.57	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	0.00	53.32	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	12.87	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5200.000

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1326.48	150.73	1326.18	152.31	1325.5	155.39	1325.57	159.16	1325.64
169.89	1325.74	172.61	1325.72	173.15	1325.71	173.37	1325.8	173.88	1325.99
174.54	1326.24	175.04	1326.27	176.68	1326.37	185.4	1328.53	195.54	1331.03
196.2	1330.87	198.07	1330.45	203.73	1328.48	206.78	1327.38	234.13	1325.82
262.12	1320.34	270.01	1318.77	299.38	1318.13	300	1318.13	330.01	1318.82
331.71	1319.07	349.15	1321.63	383.45	1326.62	387.8	1326.41	400.1	1326.23
402.9	1326.22	405.07	1326.22	406.6	1326.22	408.82	1326.24	417.51	1326.24
431.93	1326.26	442.66	1326.28	450	1326.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	234.13	.045	383.45	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
234.13	383.45	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1323.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.045	
W.S. Elev (ft)	1323.59	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		443.92	
E.G. Slope (ft/ft)	0.003504	Area (sq ft)		443.92	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.07	Top Width (ft)		117.07	
Vel Total (ft/s)	4.73	Avg. Vel. (ft/s)		4.73	
Max Chl Dpth (ft)	5.46	Hydr. Depth (ft)		3.79	
Conv. Total (cfs)	35477.3	Conv. (cfs)		35477.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.90	
Min Ch El (ft)	1318.13	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		3.90	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	0.00	52.28	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	12.60	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5100.000

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1325.29	150.96	1325.22	158.68	1325.19	163.84	1326.26	164.9	1326.27
166.54	1326.32	168.28	1326.85	170.71	1327.57	172.12	1327.98	180.11	1329.96
181.67	1330.3	182.97	1330.57	185.17	1330.26	186.44	1330.07	190.5	1328.78
195.07	1327.31	205.11	1325.24	225.12	1325.71	268.91	1318.72	269.99	1318.55
300	1317.92	330	1318.61	334.69	1319.42	376.19	1326.51	386.78	1326.12
389.96	1326.01	391.15	1326.01	403.59	1325.99	418.74	1326.03	428.87	1326.05
443.84	1326.09	447.24	1326.11	450	1326.12				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	225.12	.045	376.19	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.12	376.19	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1323.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.045	
W.S. Elev (ft)	1323.17	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		423.13	
E.G. Slope (ft/ft)	0.004042	Area (sq ft)		423.13	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	115.64	Top Width (ft)		115.64	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)		4.96	
Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)		3.66	
Conv. Total (cfs)	33030.6	Conv. (cfs)		33030.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.41	
Min Ch El (ft)	1317.92	Shear (lb/sq ft)		0.92	
Alpha	1.00	Stream Power (lb/ft s)		4.55	
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	0.00	51.29	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	12.34	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 5000.000

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1325.31	153.68	1325.16	155.49	1325.1	161.24	1326.15	165.01	1326.15
165.95	1326.46	177.12	1330.12	178.14	1330.42	180.2	1330.08	180.97	1329.96
183.49	1329.22	189.77	1327.31	226.81	1325.42	227.79	1325.53	228.33	1325.6
232.61	1324.87	269.99	1318.34	300	1317.7	329.99	1318.38	368.89	1325.31
370.78	1325.64	371.23	1325.65	378.08	1325.64	379.28	1325.63	379.47	1325.63
395.2	1325.64	420.42	1325.66	424.19	1325.66	446.33	1325.69	450	1325.68

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	228.33	.045	370.78	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.33	370.78	70	70	70	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1323.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.49	Wt. n-Val.		0.045	
W.S. Elev (ft)	1322.59	Reach Len. (ft)	70.00	70.00	70.00
Crit W.S. (ft)		Flow Area (sq ft)		374.75	
E.G. Slope (ft/ft)	0.005529	Area (sq ft)		374.75	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.93	Top Width (ft)		107.93	
Vel Total (ft/s)	5.60	Avg. Vel. (ft/s)		5.60	
Max Chl Dpth (ft)	4.89	Hydr. Depth (ft)		3.47	
Conv. Total (cfs)	28243.1	Conv. (cfs)		28243.1	
Length Wtd. (ft)	70.00	Wetted Per. (ft)		108.68	
Min Ch El (ft)	1317.70	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		6.67	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	0.00	50.37	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	12.08	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4930.000

INPUT
Description: Top of Drop
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1325.26	152.98	1325.19	154.14	1325.18	154.67	1325.29	157	1325.79
163.24	1326	166.64	1327.08	167.27	1327.29	170.41	1328.27	171.45	1328.6
172.96	1329.05	176.46	1330.06	176.59	1330.05	179.37	1329.94	187.47	1326.98
189.9	1326.26	199.72	1323.31	210.97	1323.45	216.09	1324.42	222.65	1325.64
228.24	1325.56	231.69	1325.52	235.35	1324.83	270	1318.22	300	1317.66
330	1318.22	366.96	1325.33	367.55	1325.38	373.59	1325.55	373.97	1325.55
386.44	1325.51	393.61	1325.5	399.27	1325.5	418.63	1325.53	434.76	1325.54
444.31	1325.54	450	1325.53						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.03	231.69	.03	366.96	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.69	366.96	15	15	15	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1322.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.		0.030	

W.S. Elev (ft)	1322.15	Reach Len. (ft)	15.00	15.00	15.00
Crit W.S. (ft)		Flow Area (sq ft)		332.87	
E.G. Slope (ft/ft)	0.003341	Area (sq ft)		332.87	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	100.99	Top Width (ft)		100.99	
Vel Total (ft/s)	6.31	Avg. Vel. (ft/s)		6.31	
Max Chl Dpth (ft)	4.49	Hydr. Depth (ft)		3.30	
Conv. Total (cfs)	36333.8	Conv. (cfs)		36333.8	
Length Wtd. (ft)	15.00	Wetted Per. (ft)		101.75	
Min Ch El (ft)	1317.66	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		4.30	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.00	49.80	0.00
C & E Loss (ft)	0.10	Cum SA (acres)	0.00	11.91	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4915.000

INPUT
Description: toe of drop
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1325.34	154.03	1325.2	157.21	1325.79	160.04	1325.85	162.99	1326.02
168.22	1327.64	175.4	1329.87	179.02	1329.65	186.51	1327.13	186.93	1326.98
200.64	1323.31	210.94	1323.38	220.23	1325.34	221.99	1325.72	222.23	1325.71
231.37	1325.51	269.99	1316.72	299.94	1316.16	329.98	1316.72	357.13	1323.33
366.15	1325.31	366.18	1325.31	372.89	1325.41	377.86	1325.43	393.14	1325.47
409.11	1325.49	418.15	1325.48	434.2	1325.49	443.69	1325.46	450	1325.48

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.03	231.37	.03	366.18	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.37	366.18	15	15	15	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1322.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.030	
W.S. Elev (ft)	1322.35	Reach Len. (ft)	15.00	15.00	15.00
Crit W.S. (ft)		Flow Area (sq ft)		489.60	
E.G. Slope (ft/ft)	0.001014	Area (sq ft)		489.60	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	107.88	Top Width (ft)		107.88	
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)		4.29	
Max Chl Dpth (ft)	6.19	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	65937.7	Conv. (cfs)		65937.7	
Length Wtd. (ft)	15.00	Wetted Per. (ft)		109.20	
Min Ch El (ft)	1316.16	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		1.22	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.00	49.66	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	11.88	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4900.000

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1325.24	154.32	1325.2	157.17	1325.79	160.37	1326.1	163.4	1326.29
164.68	1326.88	166.11	1327.54	170.05	1328.96	171.1	1329.2	173.99	1329.85
174.2	1329.9	178.5	1329.48	179.08	1329.41	181.05	1328.77	186.51	1326.98
194.11	1325.08	201.15	1323.31	211.39	1323.38	214.72	1324.13	222.17	1325.79
231.5	1325.49	270	1316.68	300	1316.22	330	1316.72	365.7	1325.29
367.28	1325.36	370.59	1325.4	372.26	1325.41	388.67	1325.44	393.06	1325.43
415.6	1325.39	418.05	1325.4	419.53	1325.38	433.05	1325.41	443.47	1325.42
450	1325.42								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	231.5	.045	365.7	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.5	365.7	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1322.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.045	
W.S. Elev (ft)	1322.33	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		487.13	
E.G. Slope (ft/ft)	0.002325	Area (sq ft)		487.13	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	108.03	Top Width (ft)		108.03	
Vel Total (ft/s)	4.31	Avg. Vel. (ft/s)		4.31	
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)		4.51	
Conv. Total (cfs)	43551.6	Conv. (cfs)		43551.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		109.34	
Min Ch El (ft)	1316.22	Shear (lb/sq ft)		0.65	
Alpha	1.00	Stream Power (lb/ft s)		2.79	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	0.00	49.50	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	11.84	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4800.000

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1325.36	156.8	1325.21	157.41	1325.51	158.63	1326.16	159.69	1326.2
160.8	1326.21	166.05	1326.78	166.47	1326.81	167.17	1326.95	167.89	1327.06
171.02	1327.59	174.41	1328.23	176.6	1328.68	177.6	1328.91	178.1	1329.05
178.34	1329.09	178.63	1329.01	181.41	1328.42	183.68	1327.9	188.32	1326.66
190.58	1325.99	196.57	1324.49	200.38	1323.31	210.09	1323.38	215.08	1324.41
215.55	1324.46	216.51	1324.64	217.44	1324.7	218.7	1324.95	219.63	1325.01
220.94	1325.15	223.97	1325.44	225.29	1325.52	226.17	1325.56	227.46	1325.58
228.33	1325.66	229.53	1325.66	230.26	1325.72	232.52	1325.38	270	1316.48
300	1316.11	330	1316.52	347.24	1320.9	364.22	1325.18	366.9	1325.31
384.05	1325.27	390.73	1325.36	395.51	1325.33	418.06	1325.43	441.76	1325.27
450	1325.26								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	230.26	.045	366.9	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
230.26	366.9	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1322.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	1322.07	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		471.78	
E.G. Slope (ft/ft)	0.002505	Area (sq ft)		471.78	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	105.38	Top Width (ft)		105.38	
Vel Total (ft/s)	4.45	Avg. Vel. (ft/s)		4.45	
Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)		4.48	
Conv. Total (cfs)	41958.8	Conv. (cfs)		41958.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		106.73	
Min Ch El (ft)	1316.11	Shear (lb/sq ft)		0.69	
Alpha	1.00	Stream Power (lb/ft s)		3.08	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	0.00	48.39	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	11.59	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4700.000

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1323.83	153.61	1323.48	154.92	1324.38	155.36	1324.68	161.79	1325.01
175.53	1329.58	178.33	1329.65	178.5	1329.66	179.04	1329.48	186.44	1326.99
203.27	1323.31	210.42	1323.38	211.48	1323.52	226.21	1325.26	257.3	1318.91
270.01	1316.27	300	1315.88	330.01	1316.32	371.25	1325.08	373.49	1325.19
384.46	1325.59	386.98	1325.65	388.8	1325.6	400	1325.39		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	226.21	.045	373.49	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.21	373.49	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1322.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.045	
W.S. Elev (ft)	1321.84	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		491.57	
E.G. Slope (ft/ft)	0.002389	Area (sq ft)		491.57	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.01	Top Width (ft)		113.01	
Vel Total (ft/s)	4.27	Avg. Vel. (ft/s)		4.27	
Max Chl Dpth (ft)	5.96	Hydr. Depth (ft)		4.35	
Conv. Total (cfs)	42960.6	Conv. (cfs)		42960.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		114.17	
Min Ch El (ft)	1315.88	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		2.74	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.00	47.29	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	11.34	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4600.000

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1323.21	157.67	1323.61	161.53	1324.18	163.79	1324.41	175.52	1325.38

177.43	1325.56	182.27	1326.56	186.61	1327.64	189.29	1327.55	192.95	1326.46
198.14	1324.99	203.2	1323.31	211.47	1323.38	216.82	1325.14	270	1316.07
300	1315.65	330	1316.12	353.16	1320.63	378.53	1325.44	379.63	1325.38
382.84	1325.44	386.95	1325.37	390.84	1325.01	395.12	1325	400	1325.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	216.82	.045	378.53	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
216.82	378.53	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1321.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1321.62	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		512.98	
E.G. Slope (ft/ft)	0.002263	Area (sq ft)		512.98	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	120.93	Top Width (ft)		120.93	
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)		4.09	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		4.24	
Conv. Total (cfs)	44143.1	Conv. (cfs)		44143.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		121.94	
Min Ch El (ft)	1315.65	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	46.14	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	11.08	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4500.000

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1323	157.93	1323.49	162.6	1324.17	172.12	1324.92	181.43	1327.34
186.38	1327.67	199.34	1323.82	201.09	1323.31	208.38	1323.38	210.18	1323.89
214.03	1325.04	269.98	1315.88	300.01	1315.43	329.98	1315.91	382.19	1324.85
392.38	1324.67	400	1324.87						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	214.03	.045	382.19	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
214.03	382.19	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1321.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1321.41	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		526.21	
E.G. Slope (ft/ft)	0.002190	Area (sq ft)		526.21	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	125.86	Top Width (ft)		125.86	
Vel Total (ft/s)	3.99	Avg. Vel. (ft/s)		3.99	
Max Chl Dpth (ft)	5.98	Hydr. Depth (ft)		4.18	
Conv. Total (cfs)	44874.1	Conv. (cfs)		44874.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		126.79	
Min Ch El (ft)	1315.43	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.26	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	44.94	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	10.79	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4400.000

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1322.64	150.66	1323.15	154.24	1322.58	161.12	1323.01	171.47	1323.13
174.97	1323.66	176.53	1323.8	179.28	1324.02	182.43	1324.96	188.54	1326.85
191.8	1327.7	194.18	1327.48	201.93	1325.77	211.46	1324.11	262.74	1316.83
270	1315.68	300	1315.2	329.99	1315.7	382.55	1324.73	382.79	1325.05
391.19	1325	400	1324.88						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	191.8	.045	382.79	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
191.8	382.79	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1321.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1321.20	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		535.98	
E.G. Slope (ft/ft)	0.002149	Area (sq ft)		535.98	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	130.00	Top Width (ft)		130.00	
Vel Total (ft/s)	3.92	Avg. Vel. (ft/s)		3.92	
Max Chl Dpth (ft)	6.00	Hydr. Depth (ft)		4.12	
Conv. Total (cfs)	45302.2	Conv. (cfs)		45302.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		130.88	
Min Ch El (ft)	1315.20	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.15	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	43.72	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	10.50	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4300.000

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1323.15	161.69	1322.25	165.74	1322.68	169.11	1322.28	177.13	1322.83
185.67	1322.86	189.73	1323.3	196.03	1325.32	201.27	1327.03	206.54	1326.76
207.12	1326.48	209.73	1324.83	270	1315.48	300	1314.97	329.99	1315.5
336.97	1316.64	384.27	1324.33	385.49	1325.12	386.7	1325.7	387.31	1326
389.59	1325.53	392.7	1324.79	399.66	1324.77	400	1324.77		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	201.27	.045	387.31	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
201.27	387.31	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1321.22	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1320.98	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		534.65	
E.G. Slope (ft/ft)	0.002147	Area (sq ft)		534.65	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	129.12	Top Width (ft)		129.12	
Vel Total (ft/s)	3.93	Avg. Vel. (ft/s)		3.93	
Max Chl Dpth (ft)	6.01	Hydr. Depth (ft)		4.14	
Conv. Total (cfs)	45319.4	Conv. (cfs)		45319.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		130.00	
Min Ch El (ft)	1314.97	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.17	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	42.49	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	10.20	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4200.000

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1323.72	151.71	1322.8	174.23	1321.98	177.46	1322.23	188.95	1322.41
196.37	1322.67	201.03	1323.42	208	1324.34	210.89	1324.7	270.01	1315.28
299.99	1314.74	330	1315.3	350.64	1318.37	387.76	1323.87	395.96	1324.39
402.2	1324.57	402.96	1324.64	405	1324.77	408.75	1324.6	418.7	1324.57
430.26	1324.44	448.65	1324.04	450	1324.59				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	210.89	.045	395.96	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
210.89	395.96	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1321.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	
W.S. Elev (ft)	1320.77	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		540.54	
E.G. Slope (ft/ft)	0.002116	Area (sq ft)		540.54	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	131.29	Top Width (ft)		131.29	
Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)		3.88	
Max Chl Dpth (ft)	6.03	Hydr. Depth (ft)		4.12	
Conv. Total (cfs)	45654.1	Conv. (cfs)		45654.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		132.14	
Min Ch El (ft)	1314.74	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.10	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	41.26	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	9.90	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4100.000

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1322.71	157.08	1323.41	159.85	1322.63	175.94	1321.86	181.92	1321.56
185.95	1321.83	188.75	1321.71	203.95	1322.31	205.87	1322.98	212.22	1325.15

212.7	1324.87	213.87	1324.2	250.49	1318.26	270.01	1315.08	299.99	1314.52
330.01	1315.11	390.2	1323.41	403.22	1324.28	406.72	1324.36	410.66	1324.15
415.07	1325.04	420.98	1324.68	428.46	1324.58	440.38	1324.41	447.66	1324.32
450	1324.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	212.22	.045	390.2	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
212.22	390.2	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1320.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	
W.S. Elev (ft)	1320.56	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		545.49	
E.G. Slope (ft/ft)	0.002093	Area (sq ft)		545.49	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	133.26	Top Width (ft)		133.26	
Vel Total (ft/s)	3.85	Avg. Vel. (ft/s)		3.85	
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)		4.09	
Conv. Total (cfs)	45901.2	Conv. (cfs)		45901.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		134.09	
Min Ch El (ft)	1314.52	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.05	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	40.01	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	9.60	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 4000.000

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1322.37	153.12	1322.66	160.06	1322.99	162.58	1322.31	177.71	1321.55
181.59	1321.33	183.6	1321.2	187.88	1321.32	205.23	1321.98	205.52	1322.04
208.83	1323.21	212.74	1324.7	216.52	1324.07	218.47	1323.7	270.01	1314.87
300	1314.29	330.01	1314.91	391.4	1322.95	393.85	1323.15	397.14	1323.27
397.7	1323.27	399.07	1323.33	402.08	1323.4	403.62	1323.4	404.58	1323.42
415.35	1323.44	419.83	1323.43	424.82	1324.74	429.5	1324.22	450	1324.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	212.74	.045	391.4	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
212.74	391.4	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1320.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	
W.S. Elev (ft)	1320.36	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		546.89	
E.G. Slope (ft/ft)	0.002082	Area (sq ft)		546.89	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	133.59	Top Width (ft)		133.59	
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)		3.84	
Max Chl Dpth (ft)	6.06	Hydr. Depth (ft)		4.09	
Conv. Total (cfs)	46021.5	Conv. (cfs)		46021.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		134.42	
Min Ch El (ft)	1314.29	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.03	

Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	38.76	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	9.29	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3900.000

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1322.01	155.14	1322.67	158.1	1321.99	178.79	1320.77	182.29	1321.14
188.82	1321.33	200.22	1321.51	207.73	1324.44	212.32	1324.48	220.54	1324.58
222.21	1323.95	224.66	1323.2	248.53	1318.7	270	1314.67	300	1314.06
330	1314.71	391.36	1322.49	401.16	1323.24	415.62	1323.41	418.92	1323.44
421.81	1323.45	423.86	1323.83	427.28	1324.41	428.65	1324.15	431.5	1323.69
450	1323.46								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	220.54	.045	401.16	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.54	401.16	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1320.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.045	
W.S. Elev (ft)	1320.14	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		541.90	
E.G. Slope (ft/ft)	0.002112	Area (sq ft)		541.90	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	131.94	Top Width (ft)		131.94	
Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)		3.88	
Max Chl Dpth (ft)	6.08	Hydr. Depth (ft)		4.11	
Conv. Total (cfs)	45691.8	Conv. (cfs)		45691.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		132.81	
Min Ch El (ft)	1314.06	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.09	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.00	37.51	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	8.99	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3800.000

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1321.36	167.3	1320.59	171.52	1320.68	178.27	1321	182.76	1321.01
188.52	1321.02	193.3	1322.57	196.92	1323.76	203.5	1323.8	208.57	1323.79
210.81	1323.1	219.58	1320.52	224.59	1321.39	231.3	1322.7	270	1314.46
299.99	1313.84	300	1313.84	330	1314.51	390.09	1322.04	414.36	1322.79
417.82	1322.9	421.51	1323.27	425.4	1323.67	429.74	1323.38	432.46	1323.18
436.58	1323.1	445.26	1322.92	448.98	1322.89	450	1322.72		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	231.3	.045	390.09	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.3	390.09	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1320.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1319.92	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		531.74	
E.G. Slope (ft/ft)	0.002180	Area (sq ft)		531.74	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	128.77	Top Width (ft)		128.77	
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)		3.95	
Max Chl Dpth (ft)	6.08	Hydr. Depth (ft)		4.13	
Conv. Total (cfs)	44979.2	Conv. (cfs)		44979.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		129.69	
Min Ch El (ft)	1313.84	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.20	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	36.28	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	8.69	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3700.000

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1321.11	150.71	1320.32	153.51	1320.59	156.94	1320.12	160.82	1320.52
171.11	1320.57	179.44	1323.54	181.48	1323.5	190.51	1323.4	204.4	1320.15
211.85	1320.94	221.29	1321.9	233.02	1322.18	234.86	1321.81	270	1314.26
300	1313.63	330	1314.32	387.56	1321.58	406.46	1322.57	413.72	1322.81
417.48	1322.94	421.18	1322.34	425.69	1322.3	436.69	1322.28	449.22	1322.37
450	1322.64								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	233.02	.045	387.56	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
233.02	387.56	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1319.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.045	
W.S. Elev (ft)	1319.69	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		526.87	
E.G. Slope (ft/ft)	0.002227	Area (sq ft)		526.87	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	127.86	Top Width (ft)		127.86	
Vel Total (ft/s)	3.99	Avg. Vel. (ft/s)		3.99	
Max Chl Dpth (ft)	6.06	Hydr. Depth (ft)		4.12	
Conv. Total (cfs)	44500.0	Conv. (cfs)		44500.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		128.79	
Min Ch El (ft)	1313.63	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		2.27	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	35.06	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	8.39	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3600.000

INPUT

Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1320.83	153.05	1322.52	155	1323.45	167.15	1323.58	173.9	1321.96
181.99	1320.05	196.94	1321.44	197.27	1321.44	198.57	1321.48	208.26	1321.67
216.91	1321.86	221.24	1321.82	229.37	1321.71	270.01	1314.06	300.01	1313.42
330.01	1314.12	383.93	1321.19	386.79	1321.47	389.44	1321.54	393.5	1321.73
403.58	1321.94	406.31	1321.91	416.43	1322.04	426.71	1321.75	429.79	1321.67
432.61	1321.65	433.54	1321.7	435.46	1321.63	436.41	1321.64	437.9	1321.7
439.87	1321.75	442.82	1321.76	445.4	1321.8	447.81	1321.82	450	1322.32

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	229.37	.045	393.5	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.37	393.5	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1319.71	Element			
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1319.47	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		529.85	
E.G. Slope (ft/ft)	0.002222	Area (sq ft)		529.85	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	129.55	Top Width (ft)		129.55	
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)		4.09	
Conv. Total (cfs)	44545.9	Conv. (cfs)		44545.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		130.42	
Min Ch El (ft)	1313.42	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.23	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	33.85	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	8.10	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3500.000

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1321.85	155.71	1319.8	171.38	1320.78	178.9	1320.96	183.58	1321.01
188.75	1321.08	203.64	1321.2	207.73	1321.2	209.1	1321.19	210.46	1321.2
217.06	1321.2	220.49	1321.21	224.39	1321.24	263.34	1314.93	270.01	1313.86
300.01	1313.2	330.01	1313.92	339.9	1315.3	380.27	1320.95	382.34	1321.24
384.96	1321.33	386.44	1321.34	398.37	1321.65	412.12	1321.31	414.28	1321.41
418.36	1321.75	418.67	1321.76	430.14	1321.65	447.27	1321.99	450	1321.84

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	224.39	.045	382.34	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.39	382.34	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1319.49	Element			
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1319.25	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		534.15	
E.G. Slope (ft/ft)	0.002205	Area (sq ft)		534.15	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	131.47	Top Width (ft)		131.47	

Vel Total (ft/s)	3.93	Avg. Vel. (ft/s)		3.93	
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)		4.06	
Conv. Total (cfs)	44723.0	Conv. (cfs)		44723.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		132.29	
Min Ch El (ft)	1313.20	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.18	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	0.00	32.63	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	7.80	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3400.000

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1319.97	155.44	1320.6	158.16	1320.61	192.88	1320.81	194.25	1320.83
197.17	1320.86	207.64	1320.91	209.19	1320.95	211.99	1320.99	220.35	1321.02
269.99	1313.66	300	1312.99	329.99	1313.71	376.58	1320.71	381.3	1321.09
385.46	1321.2	386.95	1321.17	392.76	1320.98	400.77	1321.08	414.09	1320.93
428.05	1321	435.77	1320.86	449.22	1320.47	450	1320.04		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	220.35	.045	381.3	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.35	381.3	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1319.27	Element			
Vel Head (ft)	0.24	Wt. n-Val.		0.045	
W.S. Elev (ft)	1319.03	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		532.81	
E.G. Slope (ft/ft)	0.002226	Area (sq ft)		532.81	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	131.61	Top Width (ft)		131.61	
Vel Total (ft/s)	3.94	Avg. Vel. (ft/s)		3.94	
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)		4.05	
Conv. Total (cfs)	44508.0	Conv. (cfs)		44508.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		132.42	
Min Ch El (ft)	1312.99	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.20	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.00	31.40	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	7.50	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3300.000

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1320.35	159.9	1320.48	167.49	1320.56	170.02	1320.57	171.06	1320.56
171.69	1320.56	192.06	1320.54	194.96	1320.53	202.21	1320.46	211.56	1320.7
219.12	1320.87	223.7	1320.81	227.95	1320.14	269.99	1313.47	300	1312.78
329.99	1313.5	374.57	1320.46	381.15	1320.52	389.16	1320.53	391.65	1320.73
392.99	1320.64	416.73	1320.13	419.72	1320.08	428.73	1320.26	429.83	1320.27
441.97	1320.42	445.97	1320.39	446.92	1320.36	447.41	1320.35	450	1320.25

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	223.7	.045	374.57	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.7	374.57	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1319.04	Element			
Vel Head (ft)	0.26	Wt. n-Val.		0.045	
W.S. Elev (ft)	1318.78	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		517.54	
E.G. Slope (ft/ft)	0.002349	Area (sq ft)		517.54	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	127.34	Top Width (ft)		127.34	
Vel Total (ft/s)	4.06	Avg. Vel. (ft/s)		4.06	
Max Chl Dpth (ft)	6.00	Hydr. Depth (ft)		4.06	
Conv. Total (cfs)	43330.2	Conv. (cfs)		43330.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		128.19	
Min Ch El (ft)	1312.78	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.40	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	0.00	30.20	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	7.20	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3200.000

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1320.3	169.06	1320.3	174.89	1320.34	182.57	1320.32	188.49	1320.07
190.95	1320.13	194.91	1320.19	198.64	1320.3	199.56	1320.3	200.93	1320.34
202.34	1320.34	206.91	1320.42	210.01	1320.45	211.07	1320.44	228.15	1320.6
269.99	1313.28	299.99	1312.57	329.98	1313.29	375.02	1320.2	379.24	1320.39
385.84	1320.22	396.76	1320.41	399.08	1320.38	412.03	1320.38	425.83	1320.88
447.4	1320.14	447.72	1320.22	449.81	1320.26	450	1320.22		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	228.15	.045	379.24	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.15	379.24	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1318.80	Element			
Vel Head (ft)	0.27	Wt. n-Val.		0.045	
W.S. Elev (ft)	1318.53	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		504.08	
E.G. Slope (ft/ft)	0.002480	Area (sq ft)		504.08	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	124.13	Top Width (ft)		124.13	
Vel Total (ft/s)	4.17	Avg. Vel. (ft/s)		4.17	
Max Chl Dpth (ft)	5.96	Hydr. Depth (ft)		4.06	
Conv. Total (cfs)	42171.0	Conv. (cfs)		42171.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		125.00	
Min Ch El (ft)	1312.57	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.60	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.00	29.03	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	6.91	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3100.000

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1320.07	158.82	1320.07	159.24	1320.08	169.86	1320.11	187.97	1320.18
197.8	1320.24	209.49	1319.97	216.07	1320.17	221.9	1320.23	232.55	1320.38
270	1313.08	300	1312.35	329.99	1313.09	376.81	1319.96	385.27	1319.93
400.39	1319.77	409.05	1320.17	413.39	1320.58	416.6	1320.52	418.15	1320.54
419.98	1320.54	423.96	1320.59	429.44	1320.48	450	1320.21		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	232.55	.045	376.81	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
232.55	376.81	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1318.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.045	
W.S. Elev (ft)	1318.26	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		492.20	
E.G. Slope (ft/ft)	0.002619	Area (sq ft)		492.20	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	121.78	Top Width (ft)		121.78	
Vel Total (ft/s)	4.27	Avg. Vel. (ft/s)		4.27	
Max Chl Dpth (ft)	5.91	Hydr. Depth (ft)		4.04	
Conv. Total (cfs)	41037.7	Conv. (cfs)		41037.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		122.67	
Min Ch El (ft)	1312.35	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		2.80	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	0.00	27.88	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	6.63	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 3000.000

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1321.16	150.83	1320.01	157.38	1318.45	158.32	1318.35	171.94	1319.92
176.74	1320.04	181.71	1320.11	189.81	1320.18	190.73	1320.2	204.72	1320.06
206.17	1320.06	230.89	1319.9	235.76	1320.14	270.02	1312.88	300	1312.14
330.03	1312.89	374.88	1319.73	376.97	1319.74	385.96	1319.8	390.01	1319.86
405.11	1319.66	408.13	1319.69	417.78	1319.85	423.31	1320.02	427.7	1320.14
430.39	1320.04	434.34	1320.02	443.09	1320.02	450	1320.31		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	235.76	.045	376.97	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
235.76	376.97	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1318.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	1317.96	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		471.72	

E.G. Slope (ft/ft)	0.002869	Area (sq ft)		471.72	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.19	Top Width (ft)		117.19	
Vel Total (ft/s)	4.45	Avg. Vel. (ft/s)		4.45	
Max Chl Dpth (ft)	5.82	Hydr. Depth (ft)		4.03	
Conv. Total (cfs)	39206.1	Conv. (cfs)		39206.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.13	
Min Ch El (ft)	1312.14	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		3.18	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	0.00	26.78	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	6.35	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2900.000

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1320.51	153.43	1318.42	160.21	1318.33	164.17	1318.74	168.52	1319.13
177.91	1319.84	178.52	1319.86	184.31	1319.74	192.74	1319.47	201.05	1319.46
205.33	1319.34	207.84	1319.35	213.81	1319.54	217.2	1319.62	219.08	1319.63
233.12	1319.44	234.14	1319.76	234.67	1319.87	270.02	1312.66	300	1311.93
330	1312.7	375.65	1319.54	379.06	1319.52	393.05	1319.53	402	1319.39
406.08	1319.37	423.7	1319.37	427.35	1319.85	430.8	1319.77	435.15	1319.81
442.48	1319.95	450	1320.57						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	234.67	.045	375.65	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
234.67	375.65	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1317.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.045	
W.S. Elev (ft)	1317.65	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		463.17	
E.G. Slope (ft/ft)	0.003057	Area (sq ft)		463.17	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	117.46	Top Width (ft)		117.46	
Vel Total (ft/s)	4.53	Avg. Vel. (ft/s)		4.53	
Max Chl Dpth (ft)	5.72	Hydr. Depth (ft)		3.94	
Conv. Total (cfs)	37981.5	Conv. (cfs)		37981.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.35	
Min Ch El (ft)	1311.93	Shear (lb/sq ft)		0.75	
Alpha	1.00	Stream Power (lb/ft s)		3.39	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	0.00	25.70	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	6.08	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2800.000

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1319.17	153.77	1319.24	158.43	1319.17	159.48	1319.13	166.74	1318.98
171.56	1319.22	175.93	1319.26	180.17	1318.96	205.37	1318.87	213.78	1319.38
226.73	1319.52	230.92	1319.61	251.89	1315.75	270.02	1312.45	300	1311.74

330.03	1312.51	378.64	1319.34	383.56	1319.09	386.45	1319.03	396.85	1319
405.81	1319.27	410.46	1319.63	423.7	1320.04	439.87	1320.07	441.18	1320.05
447.04	1320.05	450	1319.98						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	230.92	.045	378.64	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
230.92	378.64	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1317.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.045	
W.S. Elev (ft)	1317.33	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		461.45	
E.G. Slope (ft/ft)	0.003218	Area (sq ft)		461.45	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	121.05	Top Width (ft)		121.05	
Vel Total (ft/s)	4.55	Avg. Vel. (ft/s)		4.55	
Max Chl Dpth (ft)	5.59	Hydr. Depth (ft)		3.81	
Conv. Total (cfs)	37021.9	Conv. (cfs)		37021.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		121.85	
Min Ch El (ft)	1311.74	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		3.46	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.00	24.64	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	5.81	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2700.000

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1318.59	152.09	1318.6	154.18	1318.62	182.37	1318.63	189.35	1318.72
197.32	1318.88	208.44	1319.04	210.93	1319.1	217.54	1318.85	268.29	1312.48
270	1312.24	300	1311.58	330	1312.32	381.71	1319.14	385.76	1319.75
387.12	1319.88	400.96	1320.02	408.14	1319.73	425.76	1318.8	450	1318.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	217.54	.045	387.12	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
217.54	387.12	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1317.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.045	
W.S. Elev (ft)	1317.03	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		480.24	
E.G. Slope (ft/ft)	0.003206	Area (sq ft)		480.24	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	133.63	Top Width (ft)		133.63	
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)		4.37	
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)		3.59	
Conv. Total (cfs)	37088.8	Conv. (cfs)		37088.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		134.26	
Min Ch El (ft)	1311.58	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		3.13	
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	0.00	23.56	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	5.52	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2600.000

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1318.26	151.02	1318.21	151.63	1318.22	161.67	1318.68	177.41	1318.48
182.24	1318.45	190.72	1318.62	200.39	1318.59	210.43	1318.61	212.79	1319.04
213.53	1319.13	269.99	1312.05	300	1311.43	329.99	1312.12	380.87	1318.89
386.13	1318.8	400	1319	412	1320	450	1320		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	213.53	.045	380.87	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
213.53	380.87	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1316.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.045	
W.S. Elev (ft)	1316.64	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		454.09	
E.G. Slope (ft/ft)	0.003747	Area (sq ft)		454.09	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	130.62	Top Width (ft)		130.62	
Vel Total (ft/s)	4.62	Avg. Vel. (ft/s)		4.62	
Max Chl Dpth (ft)	5.21	Hydr. Depth (ft)		3.48	
Conv. Total (cfs)	34305.3	Conv. (cfs)		34305.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		131.22	
Min Ch El (ft)	1311.43	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		3.74	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	0.00	22.49	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	5.21	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2500.000

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1318.22	158.5	1318.46	164.98	1318.25	170.3	1318.38	173.51	1318.7
191.65	1318.48	206.07	1318.55	217.45	1318.94	270.03	1311.86	300	1311.27
330	1311.9	379.9	1318.62	379.96	1318.56	380.04	1318.56	450	1318.51

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.045	217.45	.045	379.9	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
217.45	379.9	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1316.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.		0.045	
W.S. Elev (ft)	1316.12	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		406.07	
E.G. Slope (ft/ft)	0.005018	Area (sq ft)		406.07	

Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	122.94	Top Width (ft)		122.94	
Vel Total (ft/s)	5.17	Avg. Vel. (ft/s)		5.17	
Max Chl Dpth (ft)	4.85	Hydr. Depth (ft)		3.30	
Conv. Total (cfs)	29644.7	Conv. (cfs)		29644.7	
Length Wtd. (ft)		Wetted Per. (ft)		123.52	
Min Ch El (ft)	1311.27	Shear (lb/sq ft)		1.03	
Alpha	1.00	Stream Power (lb/ft s)		5.33	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00	21.50	0.00
C & E Loss (ft)		Cum SA (acres)	0.00	4.92	0.00

Note: The user has entered a known water surface elevation at this cross section.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2400.000

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1318.52	150.86	1318.51	151.99	1318.43	156.17	1318.08	164.71	1318.3
171.26	1318.46	171.4	1318.46	176.31	1318.38	181.06	1318.32	182.43	1318.3
186.73	1318.25	187.66	1318.24	187.95	1318.24	190.06	1318.2	192.14	1318.19
194.14	1318.18	195.54	1318.17	200.12	1318.21	204.54	1318.29	205.72	1318.32
210.6	1318.45	217.5	1318.64	220.77	1318.7	221.17	1318.74	227.71	1317.8
270.04	1311.67	300	1311.11	330.03	1311.69	349.89	1314.35	379.72	1318.35
386.94	1318.25	387.41	1318.25	391.41	1318.26	415.26	1318.28	419.13	1318.17
419.69	1318.16	420.49	1318.14	422.11	1318.11	424	1318.07	424.91	1318.05
435.53	1318.15	437.24	1318.17	438.11	1318.18	438.53	1318.18	440.09	1318.23
440.94	1318.19	441.18	1318.19	444.89	1318.24	450	1318.27		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.035	221.17	.035	379.72	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
221.17	379.72	63	63	63	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1316.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.035	
W.S. Elev (ft)	1315.43	Reach Len. (ft)	63.00	63.00	63.00
Crit W.S. (ft)	1314.45	Flow Area (sq ft)		342.88	
E.G. Slope (ft/ft)	0.004814	Area (sq ft)		342.88	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	113.84	Top Width (ft)		113.84	
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12	
Max Chl Dpth (ft)	4.32	Hydr. Depth (ft)		3.01	
Conv. Total (cfs)	30265.7	Conv. (cfs)		30265.7	
Length Wtd. (ft)	63.00	Wetted Per. (ft)		114.37	
Min Ch El (ft)	1311.11	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		5.52	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	0.00	20.64	0.00
C & E Loss (ft)	0.06	Cum SA (acres)	0.00	4.65	0.00

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2337.000

INPUT
Description: Top of Drop
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1318.21	150.21	1318.22	150.3	1318.23	154.7	1318.26	159.76	1318.31
162.88	1318.33	164.04	1318.33	165.03	1318.34	165.78	1318.33	167	1318.34
190.21	1318.28	194.07	1318.29	194.94	1318.29	215.62	1318.35	215.87	1318.34
218.11	1318.29	219.49	1318.47	220.34	1318.6	270.06	1311.56	300	1311.01
330.04	1311.56	380.2	1318.21	380.22	1318.21	384.18	1318.12	386.45	1318.07
389.53	1318.01	389.61	1318.09	389.75	1318.14	405.5	1318.03	409.99	1318.05
415.26	1318.04	415.71	1318.03	439.05	1318.08	440.26	1318.1	441.58	1318.1
443.44	1318.13	450	1318.24						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.03	220.34	.03	380.22	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
220.34	380.22	55	55	55	.1	.3

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1315.53	Element			
Vel Head (ft)	1.18	Wt. n-Val.		0.030	
W.S. Elev (ft)	1314.35	Reach Len. (ft)	55.00	55.00	55.00
Crit W.S. (ft)	1314.34	Flow Area (sq ft)		240.68	
E.G. Slope (ft/ft)	0.009765	Area (sq ft)		240.68	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	100.73	Top Width (ft)		100.73	
Vel Total (ft/s)	8.73	Avg. Vel. (ft/s)		8.73	
Max Chl Dpth (ft)	3.34	Hydr. Depth (ft)		2.39	
Conv. Total (cfs)	21250.9	Conv. (cfs)		21250.9	
Length Wtd. (ft)		Wetted Per. (ft)		101.12	
Min Ch El (ft)	1311.01	Shear (lb/sq ft)		1.45	
Alpha	1.00	Stream Power (lb/ft s)		12.66	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00	20.22	0.00
C & E Loss (ft)		Cum SA (acres)	0.00	4.50	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: The user has entered a known water surface elevation at this cross section.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2282.000

INPUT
Description: Toe of Drop
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1318.06	152.11	1318.08	153.84	1318.13	158.03	1318.22	159.93	1318.27
163.07	1318.05	169.61	1317.66	170.86	1317.75	172.68	1317.91	174.06	1318
174.94	1318.06	177.41	1318.2	180.21	1318.17	182.39	1318.11	183.56	1318.11
187.59	1318.08	189.13	1318.09	190.9	1318.05	210.63	1318.2	212.08	1318.23
212.87	1318.23	214.54	1318.25	215.12	1318.25	217.64	1318.39	219.59	1318.47
270.08	1306.1	300	1305.6	330.06	1306.1	380.98	1318.08	381	1318.08
383.3	1317.98	390.19	1317.83	392.34	1317.81	394.16	1317.81	394.7	1317.82
406.33	1317.78	410.97	1317.82	411.79	1317.8	414.82	1317.8	417.72	1317.83
426.7	1317.78	441.29	1317.87	449.51	1317.88	450	1317.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.03	219.59	.03	381	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
219.59	381	82	82	82	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1315.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.030	
W.S. Elev (ft)	1314.95	Reach Len. (ft)	82.00	82.00	82.00
Crit W.S. (ft)		Flow Area (sq ft)		772.15	
E.G. Slope (ft/ft)	0.000296	Area (sq ft)		772.15	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	133.72	Top Width (ft)		133.72	
Vel Total (ft/s)	2.72	Avg. Vel. (ft/s)		2.72	
Max Chl Dpth (ft)	7.55	Hydr. Depth (ft)		5.77	
Conv. Total (cfs)	122009.2	Conv. (cfs)		122009.2	
Length Wtd. (ft)	82.00	Wetted Per. (ft)		135.51	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.29	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.00	19.58	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	4.35	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2200.000

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1317.98	164.04	1317.87	167.96	1317.9	181.85	1317.9	185.45	1317.91
190.23	1317.95	193.05	1317.95	201.14	1318.02	205.48	1318.08	210.5	1317.35
216.73	1317.85	217.98	1318.05	218.45	1318.1	226.4	1316.36	270	1305.94
300	1305.391	330	1305.94	382.12	1317.89	382.13	1318.29	387.48	1318.31
389.68	1318.3	391.86	1318.28	400.83	1318.26	402.15	1318.42	404.85	1318.69
407.58	1318.89	412.35	1318.61	414.27	1318.42	414.93	1318.37	416.38	1318.22
417.47	1318.18	418.64	1318.08	419.9	1318.02	420.79	1317.96	422.83	1317.86
425.33	1317.72	428.61	1317.66	450	1317.58				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.035	218.45	.035	382.13	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
218.45	382.13	47	47	47	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1315.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.035	
W.S. Elev (ft)	1314.93	Reach Len. (ft)	47.00	47.00	47.00
Crit W.S. (ft)		Flow Area (sq ft)		787.45	
E.G. Slope (ft/ft)	0.000389	Area (sq ft)		787.45	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	136.79	Top Width (ft)		136.79	
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)		2.67	
Max Chl Dpth (ft)	7.53	Hydr. Depth (ft)		5.76	
Conv. Total (cfs)	106480.9	Conv. (cfs)		106480.9	
Length Wtd. (ft)	47.00	Wetted Per. (ft)		138.53	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.37	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	18.11	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	4.09	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2153.000

INPUT
Description: u/s Higley
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1318.04	159.13	1317.87	162.88	1317.87	164.82	1317.82	180.61	1317.81
183.16	1317.83	184.45	1317.81	185.31	1317.82	185.59	1317.81	186.49	1317.82
191.05	1316.87	197.45	1317.72	203.64	1317.71	205.46	1317.7	212.91	1317.94
216.31	1317.91	240.4	1312.24	270.11	1305.77	300	1305.27	330.08	1305.77
346.55	1309.36	383.54	1317.92	387.34	1317.9	388.88	1317.94	393.43	1317.94
395.56	1317.93	399.93	1317.93	405.88	1317.96	409.79	1318.04	417.69	1318.09
431.17	1318.12	431.85	1318.14	433.58	1318.14	434.24	1318.17	434.91	1318.17
435.12	1318.16	435.7	1318.14	450	1317.41				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.025	216.31	.025	383.54	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
216.31	383.54	126	126	126	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1315.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.025	
W.S. Elev (ft)	1314.92	Reach Len. (ft)	1.60	1.60	1.60
Crit W.S. (ft)	1310.12	Flow Area (sq ft)		817.59	
E.G. Slope (ft/ft)	0.000183	Area (sq ft)		817.59	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	141.56	Top Width (ft)		141.56	
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)		2.57	
Max Chl Dpth (ft)	7.52	Hydr. Depth (ft)		5.78	
Conv. Total (cfs)	155207.9	Conv. (cfs)		155207.9	
Length Wtd. (ft)	1.60	Wetted Per. (ft)		143.23	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.07	
Alpha	1.00	Stream Power (lb/ft s)		0.17	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	17.25	0.00
C & E Loss (ft)	0.11	Cum SA (acres)	0.00	3.94	0.00

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

BRIDGE

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2090

INPUT
Description: Higley Road - Low Chord Elevation Established at US and DS boundaries of structure. High chord elevation represents roadway CL PGL.
Distance from Upstream XS = 1.595
Deck/Roadway Width = 114.45
Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
150	1320.52	0	278	1321.07	1317.61	281.25	1321.08	1317.62
318.75	1321.24	1317.78	322	1321.25	1317.79	450	1321.8	0

Upstream Bridge Cross Section Data
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1318.04	159.13	1317.87	162.88	1317.87	164.82	1317.82	180.61	1317.81
183.16	1317.83	184.45	1317.81	185.31	1317.82	185.59	1317.81	186.49	1317.82
191.05	1316.87	197.45	1317.72	203.64	1317.71	205.46	1317.7	212.91	1317.94
216.31	1317.91	240.4	1312.24	270.11	1305.187	300	1305.187	330.08	1305.187
346.55	1309.36	383.54	1317.92	387.34	1317.9	388.88	1317.94	393.43	1317.94
395.56	1317.93	399.93	1317.93	405.88	1317.96	409.79	1318.04	417.69	1318.09
431.17	1318.12	431.85	1318.14	433.58	1318.14	434.24	1318.17	434.91	1318.17
435.12	1318.16	435.7	1318.14	450	1317.41				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.025	216.31	.025	383.54	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
216.31	383.54	.1	.3

Sediment Elevation = 1307.4

Downstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
150	1320.52	0	278	1321.07	1317.61	281.25	1321.08	1317.62
318.75	1321.24	1317.78	322	1321.25	1317.79	450	1321.8	0

Downstream Bridge Cross Section Data
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1316.64	161.67	1316.66	164.85	1316.64	169.49	1316.65	170.68	1316.63
171.61	1316.65	176.18	1316.66	178.43	1316.59	183.37	1316.6	188.16	1316.74
194.51	1316.81	198.5	1316.75	201.84	1316.8	203.19	1316.79	213.26	1317.84
213.83	1317.84	217.19	1317.13	270.16	1304.903	300	1304.903	330.11	1304.903
385.78	1317.48	386.01	1317.71	388	1317.7	388.22	1317.72	391.98	1317.69
393.76	1317.75	400.16	1318.07	402.15	1318.21	409.55	1318.83	410.74	1318.75
412.89	1318.68	413.19	1318.64	415.29	1318.51	417.65	1318.27	418.27	1318.18
419.14	1318	420.7	1317.79	421.97	1317.58	423.27	1317.4	424.75	1317.13
427.65	1316.65	431.9	1316.09	435.12	1316.6	437.15	1316.92	438.33	1317.02
439.22	1317.16	441.43	1317.42	442.88	1317.55	443.82	1317.49	448.23	1317.43
450	1317.56								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.025	213.83	.025	385.78	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
213.83	385.78	.1	.3

Sediment Elevation = 1307.4

Upstream Embankment side slope = 4 horiz. to 1.0 vertical
Downstream Embankment side slope = 4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 1321.06
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data
Upstream num= 2

Sta	Elev	Sta	Elev
215	1317.6	281.25	1321.09

Downstream num= 2

Sta	Elev	Sta	Elev
215	1317.6	281.25	1321.09

Abutment Data
Upstream num= 2

Sta	Elev	Sta	Elev
318.75	1321.22	385	1317.6

Downstream num= 2

Sta	Elev	Sta	Elev
318.75	1321.22	385	1317.6

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2027.000

INPUT
Description: d/s Higley
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150	1316.64	161.67	1316.66	164.85	1316.64	169.49	1316.65	170.68	1316.63
171.61	1316.65	176.18	1316.66	178.43	1316.59	183.37	1316.6	188.16	1316.74
194.51	1316.81	198.5	1316.75	201.84	1316.8	203.19	1316.79	213.26	1317.84
213.83	1317.84	217.19	1317.13	270.16	1305.55	300	1304.95	330.11	1305.55
385.78	1317.48	386.01	1317.71	388	1317.7	388.22	1317.72	391.98	1317.69
393.76	1317.75	400.16	1318.07	402.15	1318.21	409.55	1318.83	410.74	1318.75
412.89	1318.68	413.19	1318.64	415.29	1318.51	417.65	1318.27	418.27	1318.18
419.14	1318	420.7	1317.79	421.97	1317.58	423.27	1317.4	424.75	1317.13
427.65	1316.65	431.9	1316.09	435.12	1316.6	437.15	1316.92	438.33	1317.02
439.22	1317.16	441.43	1317.42	442.88	1317.55	443.82	1317.49	448.23	1317.43
450	1317.56								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150	.025	213.83	.025	385.78	.025

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
213.83	385.78	27	27	27	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1313.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.025	
W.S. Elev (ft)	1313.07	Reach Len. (ft)	27.00	27.00	27.00
Crit W.S. (ft)		Flow Area (sq ft)		585.94	
E.G. Slope (ft/ft)	0.000492	Area (sq ft)		585.94	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	129.48	Top Width (ft)		129.48	
Vel Total (ft/s)	3.58	Avg. Vel. (ft/s)		3.58	
Max Chl Dpth (ft)	5.67	Hydr. Depth (ft)		4.53	
Conv. Total (cfs)	94691.5	Conv. (cfs)		94691.5	
Length Wtd. (ft)	27.00	Wetted Per. (ft)		130.69	

Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.49	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.00	16.60	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	3.82	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 2000

INPUT
Description:
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
212.9	1319.5	258.8	1309.4	300	1306.2	320	1306.5	345.7	1308.7
391.8	1320.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
212.9	.035	212.9	.035	391.8	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
212.9	391.8	52	52	52	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1313.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.035	
W.S. Elev (ft)	1312.99	Reach Len. (ft)	52.00	52.00	52.00
Crit W.S. (ft)		Flow Area (sq ft)		516.05	
E.G. Slope (ft/ft)	0.001333	Area (sq ft)		516.05	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	120.27	Top Width (ft)		120.27	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07	
Max Chl Dpth (ft)	5.59	Hydr. Depth (ft)		4.29	
Conv. Total (cfs)	57515.4	Conv. (cfs)		57515.4	
Length Wtd. (ft)	52.00	Wetted Per. (ft)		121.32	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.35	
Alpha	1.00	Stream Power (lb/ft s)		1.44	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.00	16.26	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	3.75	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1948.000

INPUT
Description: Top of Drop
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
209.3	1319.7	279.5	1307	299.05	1307	299.05	1306	309.05	1306
309.05	1307.127	328.6	1307.4	393.7	1320.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
209.3	.03	209.3	.03	393.7	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
209.3	393.7	15	15	15	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1313.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.030	
W.S. Elev (ft)	1312.79	Reach Len. (ft)	15.00	15.00	15.00
Crit W.S. (ft)		Flow Area (sq ft)		429.60	
E.G. Slope (ft/ft)	0.001567	Area (sq ft)		429.60	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	108.10	Top Width (ft)		108.10	
Vel Total (ft/s)	4.89	Avg. Vel. (ft/s)		4.89	
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)		3.97	
Conv. Total (cfs)	53056.4	Conv. (cfs)		53056.4	
Length Wtd. (ft)	15.00	Wetted Per. (ft)		109.11	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		1.88	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.00	15.70	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	3.61	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1933.000

INPUT
Description: Toe of Drop
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
210	1319.6	279.9	1306.8	300	1306.4	329.8	1307.1	394.2	1320.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
210	.03	210	.03	394.2	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
210	394.2	33	33	33	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1313.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.030	
W.S. Elev (ft)	1312.78	Reach Len. (ft)	33.00	33.00	33.00
Crit W.S. (ft)		Flow Area (sq ft)		443.27	
E.G. Slope (ft/ft)	0.001446	Area (sq ft)		443.27	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	110.08	Top Width (ft)		110.08	
Vel Total (ft/s)	4.74	Avg. Vel. (ft/s)		4.74	
Max Chl Dpth (ft)	5.38	Hydr. Depth (ft)		4.03	
Conv. Total (cfs)	55222.9	Conv. (cfs)		55222.9	
Length Wtd. (ft)	33.00	Wetted Per. (ft)		111.12	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.71	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.00	15.55	0.00
C & E Loss (ft)	0.02	Cum SA (acres)	0.00	3.57	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1900

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
210.6	1319.5	279.6	1306.3	300	1305.6	332.2	1306	396.6	1320.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
210.6	.045	210.6	.045	396.6	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
210.6	396.6	100	100	100	.1	.5

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1313.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.045	
W.S. Elev (ft)	1312.76	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		485.72	
E.G. Slope (ft/ft)	0.002590	Area (sq ft)		485.72	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	116.61	Top Width (ft)		116.61	
Vel Total (ft/s)	4.32	Avg. Vel. (ft/s)		4.32	
Max Chl Dpth (ft)	5.36	Hydr. Depth (ft)		4.17	
Conv. Total (cfs)	41262.4	Conv. (cfs)		41262.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.71	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		2.88	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.00	15.20	0.00
C & E Loss (ft)	0.05	Cum SA (acres)	0.00	3.49	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1800

INPUT
Description:
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
192.7	1318.6	205.9	1318.2	272.9	1305.4	300	1305.4	344.3	1305.2
408.6	1320.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
192.7	.045	192.7	.045	408.6	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
192.7	408.6	100	100	100	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1312.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.045	
W.S. Elev (ft)	1312.61	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		602.82	
E.G. Slope (ft/ft)	0.001610	Area (sq ft)		602.82	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	140.28	Top Width (ft)		140.28	
Vel Total (ft/s)	3.48	Avg. Vel. (ft/s)		3.48	
Max Chl Dpth (ft)	5.21	Hydr. Depth (ft)		4.30	
Conv. Total (cfs)	52337.9	Conv. (cfs)		52337.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		141.39	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		1.49	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.00	13.95	0.00
C & E Loss (ft)	0.03	Cum SA (acres)	0.00	3.19	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1700

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
172.5	1318	257	1305.2	300	1305.2	371.1	1305	447.8	1319.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
172.5	.045	172.5	.045	447.8	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
172.5	447.8	100	100	100	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1312.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.045	
W.S. Elev (ft)	1312.58	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		889.37	
E.G. Slope (ft/ft)	0.000714	Area (sq ft)		889.37	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	202.35	Top Width (ft)		202.35	
Vel Total (ft/s)	2.36	Avg. Vel. (ft/s)		2.36	
Max Chl Dpth (ft)	5.18	Hydr. Depth (ft)		4.40	
Conv. Total (cfs)	78570.7	Conv. (cfs)		78570.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		203.23	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.46	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.00	12.23	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	2.80	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1600

INPUT
Description:
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
167.1	1320	245.7	1305.1	300	1305	393.9	1305	413.2	1305.7
494.6	1320.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
167.1	.045	167.1	.045	494.6	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
167.1	494.6	100	100	100	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1312.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.045	
W.S. Elev (ft)	1312.55	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		1113.42	
E.G. Slope (ft/ft)	0.000433	Area (sq ft)		1113.42	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	243.92	Top Width (ft)		243.92	
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)		1.89	

Max Chl Dpth (ft)	5.15	Hydr. Depth (ft)		4.56	
Conv. Total (cfs)	100905.1	Conv. (cfs)		100905.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		244.88	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.23	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.00	9.94	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	2.29	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1500

INPUT
Description:
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
187.1	1319.6	244.1	1305	300	1305	399.4	1304.7	434.6	1309
449.5	1309	514.2	1320.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
187.1	.045	187.1	.045	514.2	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
187.1	514.2	100	100	100	.1	.3

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1312.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.045	
W.S. Elev (ft)	1312.51	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		1147.57	
E.G. Slope (ft/ft)	0.000414	Area (sq ft)		1147.57	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	254.42	Top Width (ft)		254.42	
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)		1.83	
Max Chl Dpth (ft)	5.11	Hydr. Depth (ft)		4.51	
Conv. Total (cfs)	103162.1	Conv. (cfs)		103162.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		255.47	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.21	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.00	7.34	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	1.71	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1400

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
188.8	1319.2	232	1305.5	238.6	1305.1	300	1304.8	390.4	1304.7
442.7	1312.7	456.2	1312.7	518.6	1320.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
188.8	.045	188.8	.045	518.6	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
188.8	518.6	100	100	100	.3	.5

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1312.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.045	
W.S. Elev (ft)	1312.45	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		1042.31	
E.G. Slope (ft/ft)	0.000503	Area (sq ft)		1042.31	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	230.96	Top Width (ft)		230.96	
Vel Total (ft/s)	2.01	Avg. Vel. (ft/s)		2.01	
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)		4.51	
Conv. Total (cfs)	93676.5	Conv. (cfs)		93676.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		232.12	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.28	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.00	4.83	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	1.16	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1300

INPUT
Description:
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
113	1318	195.7	1313.1	212.3	1310.7	222.6	1310.4	250.8	1304.6
300	1304.6	369	1304.6	449.6	1316	492.4	1318.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
113	.045	113	.045	492.4	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
113	492.4	100	100	100	.3	.5

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1312.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.045	
W.S. Elev (ft)	1312.36	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		918.43	
E.G. Slope (ft/ft)	0.000730	Area (sq ft)		918.43	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	223.10	Top Width (ft)		223.10	
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)		2.29	
Max Chl Dpth (ft)	4.96	Hydr. Depth (ft)		4.12	
Conv. Total (cfs)	77718.2	Conv. (cfs)		77718.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		223.88	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.43	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.00	2.58	0.00
C & E Loss (ft)	0.02	Cum SA (acres)	0.00	0.64	0.00

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1200

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
207.2	1315.5	250.3	1304.6	300	1304.6	353	1304.3	416.8	1318.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
207.2	.045	207.2	.045	416.8	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
207.2	416.8	54	54	54	.3	.5

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1312.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.045	
W.S. Elev (ft)	1312.20	Reach Len. (ft)	54.00	54.00	54.00
Crit W.S. (ft)		Flow Area (sq ft)		710.48	
E.G. Slope (ft/ft)	0.001184	Area (sq ft)		710.48	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	168.26	Top Width (ft)		168.26	
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)		2.96	
Max Chl Dpth (ft)	4.80	Hydr. Depth (ft)		4.22	
Conv. Total (cfs)	61018.4	Conv. (cfs)		61018.4	
Length Wtd. (ft)	54.00	Wetted Per. (ft)		169.38	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		0.92	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.00	0.71	0.00
C & E Loss (ft)	0.16	Cum SA (acres)	0.00	0.19	0.00

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

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1146

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
235	1315.6	282.7	1304.7	300	1304.5	320.8	1304.5	371.5	1315.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
235	.045	235	.045	371.5	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
235	371.5	8	8	8	.3	.5

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

E.G. Elev (ft)	1312.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.045	
W.S. Elev (ft)	1311.39	Reach Len. (ft)	8.00	8.00	8.00
Crit W.S. (ft)		Flow Area (sq ft)		323.57	
E.G. Slope (ft/ft)	0.008046	Area (sq ft)		323.57	
Q Total (cfs)	2100.00	Flow (cfs)		2100.00	
Top Width (ft)	98.88	Top Width (ft)		98.88	
Vel Total (ft/s)	6.49	Avg. Vel. (ft/s)		6.49	
Max Chl Dpth (ft)	3.99	Hydr. Depth (ft)		3.27	
Conv. Total (cfs)	23410.9	Conv. (cfs)		23410.9	
Length Wtd. (ft)	8.00	Wetted Per. (ft)		99.76	
Min Ch El (ft)	1307.40	Shear (lb/sq ft)		1.63	
Alpha	1.00	Stream Power (lb/ft s)		10.57	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.00	0.07	0.00

C & E Loss (ft)	0.10	Cum SA (acres)	0.00	0.02	0.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Sonoqui Wash
REACH: Sonoqui Wash RS: 1126

INPUT
Description: Upstream Cross Section of Weir
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
186.5	1320.1	242	1311	270	1307.5	302.2	1307.4	330	1307.5
367	1311	406.4	1319.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
186.5	.02	242	.02	367	.02

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
242	367	0	0	0	.3	.5

Sediment Elevation = 1307.4

CROSS SECTION OUTPUT Profile #As-Built

			Left OB	Channel	Right OB
E.G. Elev (ft)	1311.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.020	0.020	0.020
W.S. Elev (ft)	1311.47	Reach Len. (ft)			
Crit W.S. (ft)	1310.33	Flow Area (sq ft)	0.68	385.59	0.50
E.G. Slope (ft/ft)	0.001200	Area (sq ft)	0.68	385.59	0.50
Q Total (cfs)	2100.00	Flow (cfs)	0.66	2098.86	0.48
Top Width (ft)	129.98	Top Width (ft)	2.87	125.00	2.11
Vel Total (ft/s)	5.43	Avg. Vel. (ft/s)	0.97	5.44	0.97
Max Chl Dpth (ft)	4.07	Hydr. Depth (ft)	0.24	3.08	0.24
Conv. Total (cfs)	60614.7	Conv. (cfs)	19.0	60581.9	13.8
Length Wtd. (ft)		Wetted Per. (ft)	2.91	125.38	2.16
Min Ch El (ft)	1307.40	Shear (lb/sq ft)	0.02	0.23	0.02
Alpha	1.00	Stream Power (lb/ft s)	0.02	1.25	0.02
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:Sonoqui Wash

Reach	River Sta.	n1	n2	n3
Sonoqui Wash	25622.81	.047	.056	.047
Sonoqui Wash	25330.01	.047	.056	.047
Sonoqui Wash	24907.36	.068	.065	.056
Sonoqui Wash	24453.07	.068	.065	.056
Sonoqui Wash	24140.17	.068	.065	.056
Sonoqui Wash	23742.87	.068	.065	.056
Sonoqui Wash	23415.03	.068	.065	.056
Sonoqui Wash	22928.40	.068	.065	.056
Sonoqui Wash	22800.00	.068	.065	.056
Sonoqui Wash	22400.00	.045	.045	.045
Sonoqui Wash	22300.00	.045	.045	.045
Sonoqui Wash	22150	.045	.045	.045
Sonoqui Wash	22100	.045	.045	.045
Sonoqui Wash	22000	.045	.045	.045
Sonoqui Wash	21967.24	.045	.045	.045
Sonoqui Wash	21912.24	Bridge		

Sonoqui Wash	21850.00	.045	.045	.045
Sonoqui Wash	21800.00	.045	.045	.045
Sonoqui Wash	21700.00	.045	.045	.045
Sonoqui Wash	21585.29	.045	.045	.045
Sonoqui Wash	21500.00	.045	.045	.045
Sonoqui Wash	21424.00	.045	.045	.045
Sonoqui Wash	21400.00	.045	.045	.045
Sonoqui Wash	21300.00	.045	.045	.045
Sonoqui Wash	21240.00	.045	.045	.045
Sonoqui Wash	21216.00	.045	.045	.045
Sonoqui Wash	21200.00	.045	.045	.045
Sonoqui Wash	21100.00	.045	.045	.045
Sonoqui Wash	21000.00	.045	.045	.045
Sonoqui Wash	20900.00	.045	.045	.045
Sonoqui Wash	20800.00	.045	.045	.045
Sonoqui Wash	20700.00	.045	.045	.045
Sonoqui Wash	20600.00	.035	.035	.035
Sonoqui Wash	20525.00	.03	.03	.03
Sonoqui Wash	20495.00	.03	.03	.03
Sonoqui Wash	20400.00	.035	.035	.035
Sonoqui Wash	20300.00	.045	.045	.045
Sonoqui Wash	20200.00	.045	.045	.045
Sonoqui Wash	20100.00	.045	.045	.045
Sonoqui Wash	20000.00	.045	.045	.045
Sonoqui Wash	19921.00	.025	.025	.025
Sonoqui Wash	19842.36	Culvert		
Sonoqui Wash	19790.00	.025	.025	.025
Sonoqui Wash	19700.00	.035	.035	.035
Sonoqui Wash	19600.00	.045	.045	.045
Sonoqui Wash	19500.00	.045	.045	.045
Sonoqui Wash	19400.00	.045	.045	.045
Sonoqui Wash	19300.00	.045	.045	.045
Sonoqui Wash	19200.00	.045	.045	.045
Sonoqui Wash	19100.00	.045	.045	.045
Sonoqui Wash	19000.00	.045	.045	.045
Sonoqui Wash	18900.00	.045	.045	.045
Sonoqui Wash	18800.00	.045	.045	.045
Sonoqui Wash	18700.00	.045	.045	.045
Sonoqui Wash	18600.00	.045	.045	.045
Sonoqui Wash	18500.00	.045	.045	.045
Sonoqui Wash	18400.00	.045	.045	.045
Sonoqui Wash	18300.00	.045	.045	.045
Sonoqui Wash	18200.00	.045	.045	.045
Sonoqui Wash	18100.00	.045	.045	.045
Sonoqui Wash	18000.00	.045	.045	.045
Sonoqui Wash	17900.00	.045	.045	.045
Sonoqui Wash	17800.00	.045	.045	.045
Sonoqui Wash	17700.00	.045	.045	.045
Sonoqui Wash	17600.00	.045	.045	.045
Sonoqui Wash	17500.00	.045	.045	.045
Sonoqui Wash	17400.00	.045	.045	.045
Sonoqui Wash	17300.00	.045	.045	.045
Sonoqui Wash	17200.00	.045	.045	.045
Sonoqui Wash	17100.00	.045	.045	.045
Sonoqui Wash	17000.00	.045	.045	.045
Sonoqui Wash	16900.00	.045	.045	.045
Sonoqui Wash	16800.00	.035	.035	.035
Sonoqui Wash	16728.00	.025	.025	.025
Sonoqui Wash	16682.00	.025	.025	.025
Sonoqui Wash	16600.00	.035	.035	.035
Sonoqui Wash	16500.00	.045	.045	.045
Sonoqui Wash	16400.00	.045	.045	.045
Sonoqui Wash	16300.00	.045	.045	.045
Sonoqui Wash	16200.00	.045	.045	.045
Sonoqui Wash	16100.00	.045	.045	.045
Sonoqui Wash	16000.00	.045	.045	.045
Sonoqui Wash	15900.00	.045	.045	.045
Sonoqui Wash	15800.00	.045	.045	.045
Sonoqui Wash	15700.00	.045	.045	.045
Sonoqui Wash	15600.00	.045	.045	.045

Sonoqui Wash	15500.00	.045	.045	.045
Sonoqui Wash	15400.00	.045	.045	.045
Sonoqui Wash	15300.00	.045	.045	.045
Sonoqui Wash	15200.00	.045	.045	.045
Sonoqui Wash	15100.00	.045	.045	.045
Sonoqui Wash	15000.00	.045	.045	.045
Sonoqui Wash	14900.00	.045	.045	.045
Sonoqui Wash	14800.00	.045	.045	.045
Sonoqui Wash	14700.00	.045	.045	.045
Sonoqui Wash	14600.00	.045	.045	.045
Sonoqui Wash	14500.00	.045	.045	.045
Sonoqui Wash	14400.00	.045	.045	.045
Sonoqui Wash	14300.00	.045	.045	.045
Sonoqui Wash	14200.00	.045	.045	.045
Sonoqui Wash	14100.00	.045	.045	.045
Sonoqui Wash	14000.00	.045	.045	.045
Sonoqui Wash	13900.00	.045	.045	.045
Sonoqui Wash	13800.00	.045	.045	.045
Sonoqui Wash	13700.00	.035	.035	.035
Sonoqui Wash	13665.00	.03	.03	.03
Sonoqui Wash	13635.00	.03	.03	.03
Sonoqui Wash	13600.00	.035	.035	.035
Sonoqui Wash	13500.00	.035	.035	.035
Sonoqui Wash	13426.40	.025	.025	.025
Sonoqui Wash	13367.48	Culvert		
Sonoqui Wash	13308.56	.025	.025	.025
Sonoqui Wash	13300.00	.035	.035	.035
Sonoqui Wash	13200.00	.045	.045	.045
Sonoqui Wash	13100.00	.045	.045	.045
Sonoqui Wash	13000.00	.045	.045	.045
Sonoqui Wash	12900.00	.045	.045	.045
Sonoqui Wash	12800.00	.045	.045	.045
Sonoqui Wash	12700.00	.045	.045	.045
Sonoqui Wash	12600.00	.045	.045	.045
Sonoqui Wash	12500.00	.045	.045	.045
Sonoqui Wash	12400.00	.045	.045	.045
Sonoqui Wash	12300.00	.045	.045	.045
Sonoqui Wash	12200.00	.045	.045	.045
Sonoqui Wash	12100.00	.045	.045	.045
Sonoqui Wash	12000.00	.045	.045	.045
Sonoqui Wash	11900.00	.045	.045	.045
Sonoqui Wash	11800.00	.045	.045	.045
Sonoqui Wash	11700.00	.045	.045	.045
Sonoqui Wash	11600.00	.045	.045	.045
Sonoqui Wash	11499.99	.045	.045	.045
Sonoqui Wash	11400.00	.045	.045	.045
Sonoqui Wash	11300.00	.045	.045	.045
Sonoqui Wash	11200.00	.045	.045	.045
Sonoqui Wash	11100.00	.045	.045	.045
Sonoqui Wash	11000.00	.045	.045	.045
Sonoqui Wash	10900.00	.045	.045	.045
Sonoqui Wash	10800.00	.045	.045	.045
Sonoqui Wash	10700.00	.045	.045	.045
Sonoqui Wash	10600.00	.045	.045	.045
Sonoqui Wash	10500.00	.045	.045	.045
Sonoqui Wash	10400.00	.045	.045	.045
Sonoqui Wash	10300.00	.045	.045	.045
Sonoqui Wash	10200.00	.045	.045	.045
Sonoqui Wash	10100.00	.045	.045	.045
Sonoqui Wash	10000.00	.045	.045	.045
Sonoqui Wash	9900.000	.045	.045	.045
Sonoqui Wash	9800.000	.045	.045	.045
Sonoqui Wash	9700.000	.045	.045	.045
Sonoqui Wash	9600.000	.045	.045	.045
Sonoqui Wash	9500.000	.045	.045	.045
Sonoqui Wash	9400.000	.045	.045	.045
Sonoqui Wash	9300.000	.045	.045	.045
Sonoqui Wash	9200.000	.045	.045	.045
Sonoqui Wash	9100.000	.045	.045	.045
Sonoqui Wash	9000.000	.045	.045	.045

Sonoqui Wash	8900.000	.045	.045	.045
Sonoqui Wash	8800.000	.045	.045	.045
Sonoqui Wash	8700.000	.045	.045	.045
Sonoqui Wash	8600.000	.045	.045	.045
Sonoqui Wash	8500.000	.045	.045	.045
Sonoqui Wash	8400.000	.045	.045	.045
Sonoqui Wash	8300.000	.045	.045	.045
Sonoqui Wash	8200.000	.045	.045	.045
Sonoqui Wash	8100.000	.045	.045	.045
Sonoqui Wash	8000.000	.045	.045	.045
Sonoqui Wash	7900.000	.045	.045	.045
Sonoqui Wash	7800.000	.035	.035	.035
Sonoqui Wash	7710.000	.03	.03	.03
Sonoqui Wash	7665.000	.03	.03	.03
Sonoqui Wash	7600.000	.035	.035	.035
Sonoqui Wash	7506	.025	.025	.025
Sonoqui Wash	7472.21	Culvert		
Sonoqui Wash	7434	.025	.025	.025
Sonoqui Wash	7400.000	.035	.035	.035
Sonoqui Wash	7300.000	.045	.045	.045
Sonoqui Wash	7200.000	.045	.045	.045
Sonoqui Wash	7100.000	.045	.045	.045
Sonoqui Wash	7000.000	.045	.045	.045
Sonoqui Wash	6900.000	.045	.045	.045
Sonoqui Wash	6800.000	.045	.045	.045
Sonoqui Wash	6700.000	.045	.045	.045
Sonoqui Wash	6600.000	.045	.045	.045
Sonoqui Wash	6500.000	.045	.045	.045
Sonoqui Wash	6400.000	.045	.045	.045
Sonoqui Wash	6300.000	.045	.045	.045
Sonoqui Wash	6200.000	.045	.045	.045
Sonoqui Wash	6100.000	.045	.045	.045
Sonoqui Wash	6000.000	.045	.045	.045
Sonoqui Wash	5900.000	.045	.045	.045
Sonoqui Wash	5800.000	.045	.045	.045
Sonoqui Wash	5700.000	.045	.045	.045
Sonoqui Wash	5600.000	.045	.045	.045
Sonoqui Wash	5500.000	.045	.045	.045
Sonoqui Wash	5400.000	.045	.045	.045
Sonoqui Wash	5300.000	.045	.045	.045
Sonoqui Wash	5200.000	.045	.045	.045
Sonoqui Wash	5100.000	.045	.045	.045
Sonoqui Wash	5000.000	.045	.045	.045
Sonoqui Wash	4930.000	.03	.03	.03
Sonoqui Wash	4915.000	.03	.03	.03
Sonoqui Wash	4900.000	.045	.045	.045
Sonoqui Wash	4800.000	.045	.045	.045
Sonoqui Wash	4700.000	.045	.045	.045
Sonoqui Wash	4600.000	.045	.045	.045
Sonoqui Wash	4500.000	.045	.045	.045
Sonoqui Wash	4400.000	.045	.045	.045
Sonoqui Wash	4300.000	.045	.045	.045
Sonoqui Wash	4200.000	.045	.045	.045
Sonoqui Wash	4100.000	.045	.045	.045
Sonoqui Wash	4000.000	.045	.045	.045
Sonoqui Wash	3900.000	.045	.045	.045
Sonoqui Wash	3800.000	.045	.045	.045
Sonoqui Wash	3700.000	.045	.045	.045
Sonoqui Wash	3600.000	.045	.045	.045
Sonoqui Wash	3500.000	.045	.045	.045
Sonoqui Wash	3400.000	.045	.045	.045
Sonoqui Wash	3300.000	.045	.045	.045
Sonoqui Wash	3200.000	.045	.045	.045
Sonoqui Wash	3100.000	.045	.045	.045
Sonoqui Wash	3000.000	.045	.045	.045
Sonoqui Wash	2900.000	.045	.045	.045
Sonoqui Wash	2800.000	.045	.045	.045
Sonoqui Wash	2700.000	.045	.045	.045
Sonoqui Wash	2600.000	.045	.045	.045
Sonoqui Wash	2500.000	.045	.045	.045

Sonoqui Wash	2400.000	.035	.035	.035
Sonoqui Wash	2337.000	.03	.03	.03
Sonoqui Wash	2282.000	.03	.03	.03
Sonoqui Wash	2200.000	.035	.035	.035
Sonoqui Wash	2153.000	.025	.025	.025
Sonoqui Wash	2090	Bridge		
Sonoqui Wash	2027.000	.025	.025	.025
Sonoqui Wash	2000	.035	.035	.035
Sonoqui Wash	1948.000	.03	.03	.03
Sonoqui Wash	1933.000	.03	.03	.03
Sonoqui Wash	1900	.045	.045	.045
Sonoqui Wash	1800	.045	.045	.045
Sonoqui Wash	1700	.045	.045	.045
Sonoqui Wash	1600	.045	.045	.045
Sonoqui Wash	1500	.045	.045	.045
Sonoqui Wash	1400	.045	.045	.045
Sonoqui Wash	1300	.045	.045	.045
Sonoqui Wash	1200	.045	.045	.045
Sonoqui Wash	1146	.045	.045	.045
Sonoqui Wash	1126	.02	.02	.02

SUMMARY OF REACH LENGTHS

River: Sonoqui Wash

Reach	River Sta.	Left	Channel	Right
Sonoqui Wash	25622.81	267.78	292.8	328.48
Sonoqui Wash	25330.01	410.28	422.65	439.27
Sonoqui Wash	24907.36	446.94	454.29	514.27
Sonoqui Wash	24453.07	322.19	312.9	311.95
Sonoqui Wash	24140.17	373.47	397.3	414.38
Sonoqui Wash	23742.87	437.04	426.93	420.2
Sonoqui Wash	23415.03	544.56	486.67	449.25
Sonoqui Wash	22928.40	128.403	128.403	128.403
Sonoqui Wash	22800.00	400	400	400
Sonoqui Wash	22400.00	100	100	100
Sonoqui Wash	22300.00	160	150	140
Sonoqui Wash	22150	50	50	50
Sonoqui Wash	22100	100	100	100
Sonoqui Wash	22000	32.76	32.76	32.76
Sonoqui Wash	21967.24	117.24	117.24	117.24
Sonoqui Wash	21912.24	Bridge		
Sonoqui Wash	21850.00	50	50	50
Sonoqui Wash	21800.00	100	100	100
Sonoqui Wash	21700.00	200	200	200
Sonoqui Wash	21585.29	84	85.29	87
Sonoqui Wash	21500.00	76	76	76
Sonoqui Wash	21424.00	24	24	24
Sonoqui Wash	21400.00	100	100	100
Sonoqui Wash	21300.00	60	60	60
Sonoqui Wash	21240.00	24	24	24
Sonoqui Wash	21216.00	16	16	16
Sonoqui Wash	21200.00	100	100	100
Sonoqui Wash	21100.00	100	100	100
Sonoqui Wash	21000.00	100	100	100
Sonoqui Wash	20900.00	100	100	100
Sonoqui Wash	20800.00	100	100	100
Sonoqui Wash	20700.00	100	100	100
Sonoqui Wash	20600.00	75	75	75
Sonoqui Wash	20525.00	30	30	30
Sonoqui Wash	20495.00	95	95	95
Sonoqui Wash	20400.00	100	100	100
Sonoqui Wash	20300.00	100	100	100
Sonoqui Wash	20200.00	100	100	100
Sonoqui Wash	20100.00	100	100	100
Sonoqui Wash	20000.00	79	79	79

Sonoqui Wash	19921.00	131	131	131
Sonoqui Wash	19842.36	Culvert		
Sonoqui Wash	19790.00	90	90	90
Sonoqui Wash	19700.00	100	100	100
Sonoqui Wash	19600.00	100	100	100
Sonoqui Wash	19500.00	100	100	100
Sonoqui Wash	19400.00	100	100	100
Sonoqui Wash	19300.00	100	100	100
Sonoqui Wash	19200.00	100	100	100
Sonoqui Wash	19100.00	100	100	100
Sonoqui Wash	19000.00	100	100	100
Sonoqui Wash	18900.00	100	100	100
Sonoqui Wash	18800.00	100	100	100
Sonoqui Wash	18700.00	100	100	100
Sonoqui Wash	18600.00	100	100	100
Sonoqui Wash	18500.00	100	100	100
Sonoqui Wash	18400.00	100	100	100
Sonoqui Wash	18300.00	100	100	100
Sonoqui Wash	18200.00	100	100	100
Sonoqui Wash	18100.00	100	100	100
Sonoqui Wash	18000.00	100	100	100
Sonoqui Wash	17900.00	100	100	100
Sonoqui Wash	17800.00	100	100	100
Sonoqui Wash	17700.00	100	100	100
Sonoqui Wash	17600.00	100	100	100
Sonoqui Wash	17500.00	100	100	100
Sonoqui Wash	17400.00	100	100	100
Sonoqui Wash	17300.00	100	100	100
Sonoqui Wash	17200.00	100	100	100
Sonoqui Wash	17100.00	100	100	100
Sonoqui Wash	17000.00	100	100	100
Sonoqui Wash	16900.00	100	100	100
Sonoqui Wash	16800.00	72	72	72
Sonoqui Wash	16728.00	46	46	46
Sonoqui Wash	16682.00	82	82	82
Sonoqui Wash	16600.00	100	100	100
Sonoqui Wash	16500.00	100	100	100
Sonoqui Wash	16400.00	100	100	100
Sonoqui Wash	16300.00	100	100	100
Sonoqui Wash	16200.00	100	100	100
Sonoqui Wash	16100.00	100	100	100
Sonoqui Wash	16000.00	100	100	100
Sonoqui Wash	15900.00	100	100	100
Sonoqui Wash	15800.00	100	100	100
Sonoqui Wash	15700.00	100	100	100
Sonoqui Wash	15600.00	100	100	100
Sonoqui Wash	15500.00	100	100	100
Sonoqui Wash	15400.00	100	100	100
Sonoqui Wash	15300.00	100	100	100
Sonoqui Wash	15200.00	100	100	100
Sonoqui Wash	15100.00	100	100	100
Sonoqui Wash	15000.00	100	100	100
Sonoqui Wash	14900.00	100	100	100
Sonoqui Wash	14800.00	100	100	100
Sonoqui Wash	14700.00	100	100	100
Sonoqui Wash	14600.00	100	100	100
Sonoqui Wash	14500.00	100	100	100
Sonoqui Wash	14400.00	100	100	100
Sonoqui Wash	14300.00	100	100	100
Sonoqui Wash	14200.00	100	100	100
Sonoqui Wash	14100.00	100	100	100
Sonoqui Wash	14000.00	100	100	100
Sonoqui Wash	13900.00	100	100	100
Sonoqui Wash	13800.00	100	100	100
Sonoqui Wash	13700.00	35	35	35
Sonoqui Wash	13665.00	30	30	30
Sonoqui Wash	13635.00	35	35	35
Sonoqui Wash	13600.00	100	100	100
Sonoqui Wash	13500.00	73.6	73.6	73.6
Sonoqui Wash	13426.40	117.84	117.84	117.84

Sonoqui Wash	13367.48	Culvert			
Sonoqui Wash	13308.56		8.56	8.56	8.56
Sonoqui Wash	13300.00		100	100	100
Sonoqui Wash	13200.00		100	100	100
Sonoqui Wash	13100.00		100	100	100
Sonoqui Wash	13000.00		100	100	100
Sonoqui Wash	12900.00		100	100	100
Sonoqui Wash	12800.00		100	100	100
Sonoqui Wash	12700.00		100	100	100
Sonoqui Wash	12600.00		100	100	100
Sonoqui Wash	12500.00		100	100	100
Sonoqui Wash	12400.00		100	100	100
Sonoqui Wash	12300.00		100	100	100
Sonoqui Wash	12200.00		100	100	100
Sonoqui Wash	12100.00		100	100	100
Sonoqui Wash	12000.00		100	100	100
Sonoqui Wash	11900.00		100	100	100
Sonoqui Wash	11800.00		100	100	100
Sonoqui Wash	11700.00		100	100	100
Sonoqui Wash	11600.00		100	100	100
Sonoqui Wash	11499.99		100	100	100
Sonoqui Wash	11400.00		100	100	100
Sonoqui Wash	11300.00		100	100	100
Sonoqui Wash	11200.00		100	100	100
Sonoqui Wash	11100.00		100	100	100
Sonoqui Wash	11000.00		100	100	100
Sonoqui Wash	10900.00		100	100	100
Sonoqui Wash	10800.00		100	100	100
Sonoqui Wash	10700.00		100	100	100
Sonoqui Wash	10600.00		100	100	100
Sonoqui Wash	10500.00		100	100	100
Sonoqui Wash	10400.00		100	100	100
Sonoqui Wash	10300.00		100	100	100
Sonoqui Wash	10200.00		100	100	100
Sonoqui Wash	10100.00		100	100	100
Sonoqui Wash	10000.00		100	100	100
Sonoqui Wash	9900.000		100	100	100
Sonoqui Wash	9800.000		100	100	100
Sonoqui Wash	9700.000		100	100	100
Sonoqui Wash	9600.000		100	100	100
Sonoqui Wash	9500.000		100	100	100
Sonoqui Wash	9400.000		100	100	100
Sonoqui Wash	9300.000		100	100	100
Sonoqui Wash	9200.000		100	100	100
Sonoqui Wash	9100.000		100	100	100
Sonoqui Wash	9000.000		100	100	100
Sonoqui Wash	8900.000		100	100	100
Sonoqui Wash	8800.000		100	100	100
Sonoqui Wash	8700.000		100	100	100
Sonoqui Wash	8600.000		100	100	100
Sonoqui Wash	8500.000		100	100	100
Sonoqui Wash	8400.000		100	100	100
Sonoqui Wash	8300.000		100	100	100
Sonoqui Wash	8200.000		100	100	100
Sonoqui Wash	8100.000		100	100	100
Sonoqui Wash	8000.000		100	100	100
Sonoqui Wash	7900.000		100	100	100
Sonoqui Wash	7800.000		90	90	90
Sonoqui Wash	7710.000		45	45	45
Sonoqui Wash	7665.000		65	65	65
Sonoqui Wash	7600.000		94	94	94
Sonoqui Wash	7506		72	72	72
Sonoqui Wash	7472.21	Culvert			
Sonoqui Wash	7434		34	34	34
Sonoqui Wash	7400.000		100	100	100
Sonoqui Wash	7300.000		100	100	100
Sonoqui Wash	7200.000		100	100	100
Sonoqui Wash	7100.000		100	100	100
Sonoqui Wash	7000.000		100	100	100
Sonoqui Wash	6900.000		100	100	100

Sonoqui Wash	6800.000	100	100	100
Sonoqui Wash	6700.000	100	100	100
Sonoqui Wash	6600.000	100	100	100
Sonoqui Wash	6500.000	100	100	100
Sonoqui Wash	6400.000	100	100	100
Sonoqui Wash	6300.000	100	100	100
Sonoqui Wash	6200.000	100	100	100
Sonoqui Wash	6100.000	100	100	100
Sonoqui Wash	6000.000	100	100	100
Sonoqui Wash	5900.000	100	100	100
Sonoqui Wash	5800.000	100	100	100
Sonoqui Wash	5700.000	100	100	100
Sonoqui Wash	5600.000	100	100	100
Sonoqui Wash	5500.000	100	100	100
Sonoqui Wash	5400.000	100	100	100
Sonoqui Wash	5300.000	100	100	100
Sonoqui Wash	5200.000	100	100	100
Sonoqui Wash	5100.000	100	100	100
Sonoqui Wash	5000.000	70	70	70
Sonoqui Wash	4930.000	15	15	15
Sonoqui Wash	4915.000	15	15	15
Sonoqui Wash	4900.000	100	100	100
Sonoqui Wash	4800.000	100	100	100
Sonoqui Wash	4700.000	100	100	100
Sonoqui Wash	4600.000	100	100	100
Sonoqui Wash	4500.000	100	100	100
Sonoqui Wash	4400.000	100	100	100
Sonoqui Wash	4300.000	100	100	100
Sonoqui Wash	4200.000	100	100	100
Sonoqui Wash	4100.000	100	100	100
Sonoqui Wash	4000.000	100	100	100
Sonoqui Wash	3900.000	100	100	100
Sonoqui Wash	3800.000	100	100	100
Sonoqui Wash	3700.000	100	100	100
Sonoqui Wash	3600.000	100	100	100
Sonoqui Wash	3500.000	100	100	100
Sonoqui Wash	3400.000	100	100	100
Sonoqui Wash	3300.000	100	100	100
Sonoqui Wash	3200.000	100	100	100
Sonoqui Wash	3100.000	100	100	100
Sonoqui Wash	3000.000	100	100	100
Sonoqui Wash	2900.000	100	100	100
Sonoqui Wash	2800.000	100	100	100
Sonoqui Wash	2700.000	100	100	100
Sonoqui Wash	2600.000	100	100	100
Sonoqui Wash	2500.000	100	100	100
Sonoqui Wash	2400.000	63	63	63
Sonoqui Wash	2337.000	55	55	55
Sonoqui Wash	2282.000	82	82	82
Sonoqui Wash	2200.000	47	47	47
Sonoqui Wash	2153.000	126	126	126
Sonoqui Wash	2090	Bridge		
Sonoqui Wash	2027.000	27	27	27
Sonoqui Wash	2000	52	52	52
Sonoqui Wash	1948.000	15	15	15
Sonoqui Wash	1933.000	33	33	33
Sonoqui Wash	1900	100	100	100
Sonoqui Wash	1800	100	100	100
Sonoqui Wash	1700	100	100	100
Sonoqui Wash	1600	100	100	100
Sonoqui Wash	1500	100	100	100
Sonoqui Wash	1400	100	100	100
Sonoqui Wash	1300	100	100	100
Sonoqui Wash	1200	54	54	54
Sonoqui Wash	1146	8	8	8
Sonoqui Wash	1126	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Sonoqui Wash

Reach	River Sta.	Contr.	Expan.
Sonoqui Wash	25622.81	.1	.3
Sonoqui Wash	25330.01	.1	.3
Sonoqui Wash	24907.36	.1	.3
Sonoqui Wash	24453.07	.1	.3
Sonoqui Wash	24140.17	.1	.3
Sonoqui Wash	23742.87	.1	.3
Sonoqui Wash	23415.03	.1	.3
Sonoqui Wash	22928.40	.1	.3
Sonoqui Wash	22800.00	.1	.3
Sonoqui Wash	22400.00	.1	.3
Sonoqui Wash	22300.00	.1	.3
Sonoqui Wash	22150	.1	.3
Sonoqui Wash	22100	.1	.3
Sonoqui Wash	22000	.1	.3
Sonoqui Wash	21967.24	.3	.5
Sonoqui Wash	21912.24 Bridge		
Sonoqui Wash	21850.00	.3	.5
Sonoqui Wash	21800.00	.1	.3
Sonoqui Wash	21700.00	.1	.3
Sonoqui Wash	21585.29	.1	.3
Sonoqui Wash	21500.00	.1	.3
Sonoqui Wash	21424.00	.1	.3
Sonoqui Wash	21400.00	.1	.3
Sonoqui Wash	21300.00	.1	.3
Sonoqui Wash	21240.00	.1	.3
Sonoqui Wash	21216.00	.1	.3
Sonoqui Wash	21200.00	.1	.3
Sonoqui Wash	21100.00	.1	.3
Sonoqui Wash	21000.00	.1	.3
Sonoqui Wash	20900.00	.1	.3
Sonoqui Wash	20800.00	.1	.3
Sonoqui Wash	20700.00	.1	.3
Sonoqui Wash	20600.00	.1	.3
Sonoqui Wash	20525.00	.1	.3
Sonoqui Wash	20495.00	.1	.3
Sonoqui Wash	20400.00	.1	.3
Sonoqui Wash	20300.00	.1	.3
Sonoqui Wash	20200.00	.1	.3
Sonoqui Wash	20100.00	.1	.3
Sonoqui Wash	20000.00	.1	.3
Sonoqui Wash	19921.00	.4	.6
Sonoqui Wash	19842.36 Culvert		
Sonoqui Wash	19790.00	.1	.6
Sonoqui Wash	19700.00	.1	.3
Sonoqui Wash	19600.00	.1	.3
Sonoqui Wash	19500.00	.1	.3
Sonoqui Wash	19400.00	.1	.3
Sonoqui Wash	19300.00	.1	.3
Sonoqui Wash	19200.00	.1	.3
Sonoqui Wash	19100.00	.1	.3
Sonoqui Wash	19000.00	.1	.3
Sonoqui Wash	18900.00	.1	.3
Sonoqui Wash	18800.00	.1	.3
Sonoqui Wash	18700.00	.1	.3
Sonoqui Wash	18600.00	.1	.3
Sonoqui Wash	18500.00	.1	.3
Sonoqui Wash	18400.00	.1	.3
Sonoqui Wash	18300.00	.1	.3
Sonoqui Wash	18200.00	.1	.3
Sonoqui Wash	18100.00	.1	.3
Sonoqui Wash	18000.00	.1	.3
Sonoqui Wash	17900.00	.1	.3
Sonoqui Wash	17800.00	.1	.3
Sonoqui Wash	17700.00	.1	.3

Sonoqui Wash	17600.00		.1	.3
Sonoqui Wash	17500.00		.1	.3
Sonoqui Wash	17400.00		.1	.3
Sonoqui Wash	17300.00		.1	.3
Sonoqui Wash	17200.00		.1	.3
Sonoqui Wash	17100.00		.1	.3
Sonoqui Wash	17000.00		.1	.3
Sonoqui Wash	16900.00		.1	.3
Sonoqui Wash	16800.00		.1	.3
Sonoqui Wash	16728.00		.4	.6
Sonoqui Wash	16682.00		.4	.6
Sonoqui Wash	16600.00		.1	.3
Sonoqui Wash	16500.00		.1	.3
Sonoqui Wash	16400.00		.1	.3
Sonoqui Wash	16300.00		.1	.3
Sonoqui Wash	16200.00		.1	.3
Sonoqui Wash	16100.00		.1	.3
Sonoqui Wash	16000.00		.1	.3
Sonoqui Wash	15900.00		.1	.3
Sonoqui Wash	15800.00		.1	.3
Sonoqui Wash	15700.00		.1	.3
Sonoqui Wash	15600.00		.1	.3
Sonoqui Wash	15500.00		.1	.3
Sonoqui Wash	15400.00		.1	.3
Sonoqui Wash	15300.00		.1	.3
Sonoqui Wash	15200.00		.1	.3
Sonoqui Wash	15100.00		.1	.3
Sonoqui Wash	15000.00		.1	.3
Sonoqui Wash	14900.00		.1	.3
Sonoqui Wash	14800.00		.1	.3
Sonoqui Wash	14700.00		.1	.3
Sonoqui Wash	14600.00		.1	.3
Sonoqui Wash	14500.00		.1	.3
Sonoqui Wash	14400.00		.1	.3
Sonoqui Wash	14300.00		.1	.3
Sonoqui Wash	14200.00		.1	.3
Sonoqui Wash	14100.00		.1	.3
Sonoqui Wash	14000.00		.1	.3
Sonoqui Wash	13900.00		.1	.3
Sonoqui Wash	13800.00		.1	.3
Sonoqui Wash	13700.00		.1	.3
Sonoqui Wash	13665.00		.1	.3
Sonoqui Wash	13635.00		.1	.3
Sonoqui Wash	13600.00		.1	.3
Sonoqui Wash	13500.00		.1	.3
Sonoqui Wash	13426.40		.4	.6
Sonoqui Wash	13367.48	Culvert		
Sonoqui Wash	13308.56		.4	.6
Sonoqui Wash	13300.00		.1	.3
Sonoqui Wash	13200.00		.1	.3
Sonoqui Wash	13100.00		.1	.3
Sonoqui Wash	13000.00		.1	.3
Sonoqui Wash	12900.00		.1	.3
Sonoqui Wash	12800.00		.1	.3
Sonoqui Wash	12700.00		.1	.3
Sonoqui Wash	12600.00		.1	.3
Sonoqui Wash	12500.00		.1	.3
Sonoqui Wash	12400.00		.1	.3
Sonoqui Wash	12300.00		.1	.3
Sonoqui Wash	12200.00		.1	.3
Sonoqui Wash	12100.00		.1	.3
Sonoqui Wash	12000.00		.1	.3
Sonoqui Wash	11900.00		.1	.3
Sonoqui Wash	11800.00		.1	.3
Sonoqui Wash	11700.00		.1	.3
Sonoqui Wash	11600.00		.1	.3
Sonoqui Wash	11499.99		.1	.3
Sonoqui Wash	11400.00		.1	.3
Sonoqui Wash	11300.00		.1	.3
Sonoqui Wash	11200.00		.1	.3

Sonoqui Wash	11100.00		.1	.3
Sonoqui Wash	11000.00		.1	.3
Sonoqui Wash	10900.00		.1	.3
Sonoqui Wash	10800.00		.1	.3
Sonoqui Wash	10700.00		.1	.3
Sonoqui Wash	10600.00		.1	.3
Sonoqui Wash	10500.00		.1	.3
Sonoqui Wash	10400.00		.1	.3
Sonoqui Wash	10300.00		.1	.3
Sonoqui Wash	10200.00		.1	.3
Sonoqui Wash	10100.00		.1	.3
Sonoqui Wash	10000.00		.1	.3
Sonoqui Wash	9900.000		.1	.3
Sonoqui Wash	9800.000		.1	.3
Sonoqui Wash	9700.000		.1	.3
Sonoqui Wash	9600.000		.1	.3
Sonoqui Wash	9500.000		.1	.3
Sonoqui Wash	9400.000		.1	.3
Sonoqui Wash	9300.000		.1	.3
Sonoqui Wash	9200.000		.1	.3
Sonoqui Wash	9100.000		.1	.3
Sonoqui Wash	9000.000		.1	.3
Sonoqui Wash	8900.000		.1	.3
Sonoqui Wash	8800.000		.1	.3
Sonoqui Wash	8700.000		.1	.3
Sonoqui Wash	8600.000		.1	.3
Sonoqui Wash	8500.000		.1	.3
Sonoqui Wash	8400.000		.1	.3
Sonoqui Wash	8300.000		.1	.3
Sonoqui Wash	8200.000		.1	.3
Sonoqui Wash	8100.000		.1	.3
Sonoqui Wash	8000.000		.1	.3
Sonoqui Wash	7900.000		.1	.3
Sonoqui Wash	7800.000		.1	.3
Sonoqui Wash	7710.000		.1	.3
Sonoqui Wash	7665.000		.1	.3
Sonoqui Wash	7600.000		.1	.3
Sonoqui Wash	7506		.1	.3
Sonoqui Wash	7472.21	Culvert		
Sonoqui Wash	7434		.1	.3
Sonoqui Wash	7400.000		.1	.3
Sonoqui Wash	7300.000		.1	.3
Sonoqui Wash	7200.000		.1	.3
Sonoqui Wash	7100.000		.1	.3
Sonoqui Wash	7000.000		.1	.3
Sonoqui Wash	6900.000		.1	.3
Sonoqui Wash	6800.000		.1	.3
Sonoqui Wash	6700.000		.1	.3
Sonoqui Wash	6600.000		.1	.3
Sonoqui Wash	6500.000		.1	.3
Sonoqui Wash	6400.000		.1	.3
Sonoqui Wash	6300.000		.1	.3
Sonoqui Wash	6200.000		.1	.3
Sonoqui Wash	6100.000		.1	.3
Sonoqui Wash	6000.000		.1	.3
Sonoqui Wash	5900.000		.1	.3
Sonoqui Wash	5800.000		.1	.3
Sonoqui Wash	5700.000		.1	.3
Sonoqui Wash	5600.000		.1	.3
Sonoqui Wash	5500.000		.1	.3
Sonoqui Wash	5400.000		.1	.3
Sonoqui Wash	5300.000		.1	.3
Sonoqui Wash	5200.000		.1	.3
Sonoqui Wash	5100.000		.1	.3
Sonoqui Wash	5000.000		.1	.3
Sonoqui Wash	4930.000		.1	.3
Sonoqui Wash	4915.000		.1	.3
Sonoqui Wash	4900.000		.1	.3
Sonoqui Wash	4800.000		.1	.3
Sonoqui Wash	4700.000		.1	.3

Sonoqui Wash	4600.000		.1	.3
Sonoqui Wash	4500.000		.1	.3
Sonoqui Wash	4400.000		.1	.3
Sonoqui Wash	4300.000		.1	.3
Sonoqui Wash	4200.000		.1	.3
Sonoqui Wash	4100.000		.1	.3
Sonoqui Wash	4000.000		.1	.3
Sonoqui Wash	3900.000		.1	.3
Sonoqui Wash	3800.000		.1	.3
Sonoqui Wash	3700.000		.1	.3
Sonoqui Wash	3600.000		.1	.3
Sonoqui Wash	3500.000		.1	.3
Sonoqui Wash	3400.000		.1	.3
Sonoqui Wash	3300.000		.1	.3
Sonoqui Wash	3200.000		.1	.3
Sonoqui Wash	3100.000		.1	.3
Sonoqui Wash	3000.000		.1	.3
Sonoqui Wash	2900.000		.1	.3
Sonoqui Wash	2800.000		.1	.3
Sonoqui Wash	2700.000		.1	.3
Sonoqui Wash	2600.000		.1	.3
Sonoqui Wash	2500.000		.1	.3
Sonoqui Wash	2400.000		.1	.3
Sonoqui Wash	2337.000		.1	.3
Sonoqui Wash	2282.000		.1	.3
Sonoqui Wash	2200.000		.1	.3
Sonoqui Wash	2153.000		.1	.3
Sonoqui Wash	2090	Bridge		
Sonoqui Wash	2027.000		.1	.3
Sonoqui Wash	2000		.1	.3
Sonoqui Wash	1948.000		.1	.3
Sonoqui Wash	1933.000		.1	.3
Sonoqui Wash	1900		.1	.5
Sonoqui Wash	1800		.1	.3
Sonoqui Wash	1700		.1	.3
Sonoqui Wash	1600		.1	.3
Sonoqui Wash	1500		.1	.3
Sonoqui Wash	1400		.3	.5
Sonoqui Wash	1300		.3	.5
Sonoqui Wash	1200		.3	.5
Sonoqui Wash	1146		.3	.5
Sonoqui Wash	1126		.3	.5

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Sonoqui Wash	25622.81	As-Built	2100.00	1373.68	1380.04		1380.26	0.003376	3.78	555.85	143.44	0.34
Sonoqui Wash	25330.01	As-Built	2100.00	1372.99	1379.32		1379.46	0.002132	3.02	696.40	179.62	0.27
Sonoqui Wash	24907.36	As-Built	2100.00	1370.15	1378.90	1374.06	1378.95	0.000707	1.91	1129.63	658.49	0.14
Sonoqui Wash	24453.07	As-Built	2100.00	1370.03	1378.09		1378.34	0.003170	4.02	522.17	92.03	0.30
Sonoqui Wash	24140.17	As-Built	2100.00	1368.84	1377.82		1377.88	0.000689	2.00	1052.32	170.48	0.14
Sonoqui Wash	23742.87	As-Built	2100.00	1368.42	1377.60		1377.65	0.000480	1.73	1212.62	186.66	0.12
Sonoqui Wash	23415.03	As-Built	2100.00	1367.60	1377.45	1370.56	1377.49	0.000309	1.53	1370.88	181.44	0.10
Sonoqui Wash	22928.40	As-Built	2100.00	1367.60	1376.72	1372.90	1377.08	0.004310	4.84	434.20	287.30	0.35
Sonoqui Wash	22800.00	As-Built	2100.00	1368.78	1375.63	1373.46	1376.26	0.009488	6.37	329.83	257.59	0.50
Sonoqui Wash	22400.00	As-Built	2100.00	1367.00	1370.96	1370.41	1371.88	0.012524	7.71	272.42	283.09	0.78
Sonoqui Wash	22300.00	As-Built	2100.00	1365.70	1370.34	1369.00	1370.94	0.006119	6.19	340.63	257.81	0.56
Sonoqui Wash	22150	As-Built	2100.00	1363.35	1369.98		1370.29	0.002542	4.47	470.31	105.86	0.37
Sonoqui Wash	22100	As-Built	2100.00	1363.25	1369.89		1370.16	0.002128	4.21	499.19	107.44	0.34
Sonoqui Wash	22000	As-Built	2100.00	1363.00	1369.76		1369.97	0.001429	3.68	570.37	110.86	0.29
Sonoqui Wash	21967.24	As-Built	2100.00	1362.98	1369.68	1366.40	1369.92	0.001674	3.88	541.12	109.63	0.31
Sonoqui Wash	21912.24		Bridge									
Sonoqui Wash	21850.00	As-Built	2100.00	1362.75	1369.35		1369.60	0.001775	3.96	530.12	108.82	0.32
Sonoqui Wash	21800.00	As-Built	2100.00	1362.65	1369.25		1369.50	0.001833	4.06	517.84	104.93	0.32
Sonoqui Wash	21700.00	As-Built	2100.00	1362.45	1369.12		1369.33	0.001474	3.69	569.84	113.39	0.29
Sonoqui Wash	21585.29	As-Built	2100.00	1362.22	1368.74		1368.99	0.001861	4.02	521.96	108.41	0.32
Sonoqui Wash	21500.00	As-Built	2100.00	1362.13	1368.61		1368.83	0.001737	3.80	552.08	118.93	0.31
Sonoqui Wash	21424.00	As-Built	2100.00	1361.93	1368.48		1368.70	0.001698	3.79	554.29	118.01	0.31
Sonoqui Wash	21400.00	As-Built	2100.00	1361.98	1368.44		1368.66	0.001714	3.79	553.82	118.59	0.31
Sonoqui Wash	21300.00	As-Built	2100.00	1361.77	1368.27		1368.49	0.001645	3.72	564.93	120.90	0.30
Sonoqui Wash	21240.00	As-Built	2100.00	1361.64	1368.18		1368.39	0.001601	3.67	572.33	122.43	0.30
Sonoqui Wash	21216.00	As-Built	2100.00	1361.59	1368.15		1368.35	0.001646	3.58	586.97	133.27	0.30
Sonoqui Wash	21200.00	As-Built	2100.00	1361.56	1368.11		1368.32	0.001578	3.64	576.52	123.37	0.30
Sonoqui Wash	21100.00	As-Built	2100.00	1361.35	1367.97		1368.16	0.001499	3.56	590.48	126.09	0.29
Sonoqui Wash	21000.00	As-Built	2100.00	1361.14	1367.82		1368.02	0.001450	3.52	596.56	126.16	0.29
Sonoqui Wash	20900.00	As-Built	2100.00	1360.93	1367.68		1367.87	0.001405	3.49	601.71	125.83	0.28
Sonoqui Wash	20800.00	As-Built	2100.00	1360.72	1367.56		1367.73	0.001285	3.33	630.00	132.16	0.27
Sonoqui Wash	20700.00	As-Built	2100.00	1360.52	1367.44		1367.61	0.001234	3.29	638.39	132.46	0.26
Sonoqui Wash	20600.00	As-Built	2100.00	1360.31	1367.35		1367.51	0.000705	3.23	650.64	133.14	0.26
Sonoqui Wash	20525.00	As-Built	2100.00	1360.15	1367.31		1367.47	0.000498	3.21	655.16	131.34	0.25
Sonoqui Wash	20495.00	As-Built	2100.00	1357.17	1367.36		1367.43	0.000142	2.16	972.54	136.76	0.14
Sonoqui Wash	20400.00	As-Built	2100.00	1356.91	1367.35		1367.42	0.000182	2.11	993.07	137.34	0.14
Sonoqui Wash	20300.00	As-Built	2100.00	1356.73	1367.33		1367.39	0.000277	2.05	1026.18	140.40	0.13
Sonoqui Wash	20200.00	As-Built	2100.00	1356.55	1367.30		1367.37	0.000262	2.01	1043.44	140.36	0.13
Sonoqui Wash	20100.00	As-Built	2100.00	1356.37	1367.28		1367.34	0.000243	1.95	1075.19	143.06	0.13
Sonoqui Wash	20000.00	As-Built	2100.00	1356.19	1367.26		1367.32	0.000196	1.89	1159.89	189.31	0.12
Sonoqui Wash	19921.00	As-Built	2100.00	1356.04	1367.27	1359.79	1367.31	0.000046	1.59	1405.64	243.42	0.10
Sonoqui Wash	19842.36		Culvert									
Sonoqui Wash	19790.00	As-Built	2100.00	1355.59	1361.67		1361.93	0.000721	4.08	514.36	124.86	0.35
Sonoqui Wash	19700.00	As-Built	2100.00	1355.42	1361.57		1361.84	0.001372	4.20	499.43	113.06	0.35
Sonoqui Wash	19600.00	As-Built	2100.00	1355.24	1361.41		1361.67	0.002166	4.12	509.36	114.76	0.34
Sonoqui Wash	19500.00	As-Built	2100.00	1355.05	1361.19		1361.45	0.002198	4.12	509.09	115.93	0.35
Sonoqui Wash	19400.00	As-Built	2100.00	1354.84	1360.99		1361.23	0.002079	3.97	529.57	122.88	0.34
Sonoqui Wash	19300.00	As-Built	2100.00	1354.63	1360.81		1361.03	0.001871	3.70	567.74	135.37	0.32
Sonoqui Wash	19200.00	As-Built	2100.00	1354.41	1360.63		1360.84	0.001832	3.67	572.15	135.86	0.32
Sonoqui Wash	19100.00	As-Built	2100.00	1354.20	1360.44		1360.65	0.001879	3.73	563.15	133.02	0.32
Sonoqui Wash	19000.00	As-Built	2100.00	1353.99	1360.22		1360.46	0.001996	3.91	537.29	123.51	0.33
Sonoqui Wash	18900.00	As-Built	2100.00	1353.78	1360.03		1360.26	0.001950	3.85	544.79	125.70	0.33
Sonoqui Wash	18800.00	As-Built	2100.00	1353.57	1359.83		1360.06	0.001963	3.88	540.73	123.98	0.33
Sonoqui Wash	18700.00	As-Built	2100.00	1353.35	1359.64		1359.87	0.001873	3.78	555.10	127.89	0.32
Sonoqui Wash	18600.00	As-Built	2100.00	1353.14	1359.48		1359.68	0.001723	3.58	586.26	137.90	0.31
Sonoqui Wash	18500.00	As-Built	2100.00	1352.93	1359.36	1356.44	1359.51	0.001368	3.13	670.86	295.08	0.27
Sonoqui Wash	18400.00	As-Built	2100.00	1352.72	1359.26		1359.38	0.001125	2.72	773.88	207.00	0.24
Sonoqui Wash	18300.00	As-Built	2100.00	1352.51	1359.06		1359.24	0.001546	3.44	611.12	141.07	0.29
Sonoqui Wash	18200.00	As-Built	2100.00	1352.30	1358.88		1359.08	0.001611	3.60	582.71	128.92	0.30
Sonoqui Wash	18100.00	As-Built	2100.00	1352.10	1358.67		1358.91	0.001806	3.90	537.97	114.67	0.32
Sonoqui Wash	18000.00	As-Built	2100.00	1351.89	1358.42	1355.52	1358.70	0.002181	4.27	491.83	107.58	0.35
Sonoqui Wash	17900.00	As-Built	2100.00	1351.68	1358.14		1358.46	0.002573	4.55	461.50	101.71	0.38
Sonoqui Wash	17800.00	As-Built	2100.00	1351.47	1357.82		1358.19	0.002873	4.87	431.32	92.98	0.40

Sonoqui Wash	17700.00	As-Built	2100.00	1351.26	1357.50	1355.10	1357.88	0.003170	5.00	420.42	116.19	0.42
Sonoqui Wash	17600.00	As-Built	2100.00	1351.05	1357.28		1357.57	0.002610	4.32	485.77	117.42	0.37
Sonoqui Wash	17500.00	As-Built	2100.00	1350.88	1357.00		1357.31	0.002630	4.43	473.58	110.61	0.38
Sonoqui Wash	17400.00	As-Built	2100.00	1350.73	1356.84	1354.05	1357.06	0.001883	3.74	564.01	148.14	0.32
Sonoqui Wash	17300.00	As-Built	2100.00	1350.58	1356.66		1356.86	0.001953	3.66	574.10	143.81	0.32
Sonoqui Wash	17200.00	As-Built	2100.00	1350.43	1356.47		1356.67	0.001823	3.59	584.67	142.92	0.31
Sonoqui Wash	17100.00	As-Built	2100.00	1350.28	1356.27		1356.48	0.001912	3.72	564.28	135.52	0.32
Sonoqui Wash	17000.00	As-Built	2100.00	1350.13	1356.05		1356.29	0.002046	3.88	541.87	128.65	0.33
Sonoqui Wash	16900.00	As-Built	2100.00	1349.98	1355.80		1356.07	0.002280	4.13	509.07	119.20	0.35
Sonoqui Wash	16800.00	As-Built	2100.00	1349.83	1355.58	1353.04	1355.88	0.001527	4.41	476.36	150.63	0.37
Sonoqui Wash	16728.00	As-Built	2100.00	1349.72	1355.32		1355.77	0.001162	5.35	392.45	89.87	0.45
Sonoqui Wash	16682.00	As-Built	2100.00	1349.65	1355.27		1355.71	0.001138	5.32	394.92	89.86	0.45
Sonoqui Wash	16600.00	As-Built	2100.00	1349.53	1355.21		1355.53	0.001552	4.48	468.48	105.36	0.37
Sonoqui Wash	16500.00	As-Built	2100.00	1349.27	1355.03		1355.33	0.002478	4.41	476.20	107.02	0.37
Sonoqui Wash	16400.00	As-Built	2100.00	1349.02	1354.84		1355.08	0.002139	3.99	526.61	123.77	0.34
Sonoqui Wash	16300.00	As-Built	2100.00	1348.76	1354.65		1354.87	0.001946	3.76	557.97	133.46	0.32
Sonoqui Wash	16200.00	As-Built	2100.00	1348.51	1354.42		1354.67	0.002092	3.96	530.50	124.01	0.34
Sonoqui Wash	16100.00	As-Built	2100.00	1348.25	1354.20		1354.46	0.002130	4.02	522.68	121.04	0.34
Sonoqui Wash	16000.00	As-Built	2100.00	1348.00	1354.02		1354.24	0.001980	3.84	547.22	128.68	0.33
Sonoqui Wash	15900.00	As-Built	2100.00	1347.74	1353.81		1354.04	0.002007	3.89	539.41	125.34	0.33
Sonoqui Wash	15800.00	As-Built	2100.00	1347.49	1353.58		1353.84	0.002107	4.03	521.31	119.22	0.34
Sonoqui Wash	15700.00	As-Built	2100.00	1347.25	1353.36		1353.62	0.002156	4.10	512.61	116.24	0.34
Sonoqui Wash	15600.00	As-Built	2100.00	1347.03	1353.15		1353.41	0.002131	4.06	516.99	117.74	0.34
Sonoqui Wash	15500.00	As-Built	2100.00	1346.80	1352.95		1353.19	0.002048	3.96	530.91	122.25	0.33
Sonoqui Wash	15400.00	As-Built	2100.00	1346.58	1352.75		1352.99	0.002004	3.90	537.93	124.33	0.33
Sonoqui Wash	15300.00	As-Built	2100.00	1346.36	1352.54		1352.79	0.002026	3.95	532.21	122.01	0.33
Sonoqui Wash	15200.00	As-Built	2100.00	1346.14	1352.33		1352.58	0.002071	4.01	524.28	119.39	0.34
Sonoqui Wash	15100.00	As-Built	2100.00	1345.91	1352.12		1352.37	0.002074	4.02	522.41	118.41	0.34
Sonoqui Wash	15000.00	As-Built	2100.00	1345.69	1351.91		1352.16	0.002091	4.04	519.30	117.35	0.34
Sonoqui Wash	14900.00	As-Built	2100.00	1345.48	1351.69		1351.95	0.002122	4.08	514.76	116.05	0.34
Sonoqui Wash	14800.00	As-Built	2100.00	1345.27	1351.48		1351.74	0.002118	4.07	515.95	116.58	0.34
Sonoqui Wash	14700.00	As-Built	2100.00	1345.06	1351.27		1351.53	0.002119	4.07	515.81	116.54	0.34
Sonoqui Wash	14600.00	As-Built	2100.00	1344.85	1351.06		1351.32	0.002123	4.07	515.65	116.62	0.34
Sonoqui Wash	14500.00	As-Built	2100.00	1344.64	1350.85		1351.10	0.002121	4.07	516.15	116.83	0.34
Sonoqui Wash	14400.00	As-Built	2100.00	1344.43	1350.61		1350.88	0.002294	4.17	504.07	116.83	0.35
Sonoqui Wash	14300.00	As-Built	2100.00	1344.22	1350.40		1350.66	0.002159	4.09	514.07	117.22	0.34
Sonoqui Wash	14200.00	As-Built	2100.00	1344.01	1350.18		1350.44	0.002159	4.08	515.13	117.85	0.34
Sonoqui Wash	14100.00	As-Built	2100.00	1343.80	1349.97		1350.22	0.002145	4.05	517.89	118.86	0.34
Sonoqui Wash	14000.00	As-Built	2100.00	1343.62	1349.76		1350.01	0.002124	4.01	523.87	121.49	0.34
Sonoqui Wash	13900.00	As-Built	2100.00	1343.43	1349.55		1349.80	0.002096	3.96	529.88	123.87	0.34
Sonoqui Wash	13800.00	As-Built	2100.00	1343.25	1349.34		1349.59	0.002091	3.95	532.10	124.97	0.34
Sonoqui Wash	13700.00	As-Built	2100.00	1343.06	1349.19		1349.43	0.001244	3.94	532.86	123.81	0.33
Sonoqui Wash	13665.00	As-Built	2100.00	1343.00	1349.15		1349.39	0.000907	3.93	534.06	123.76	0.33
Sonoqui Wash	13635.00	As-Built	2100.00	1339.95	1349.24		1349.33	0.000207	2.45	857.52	132.44	0.17
Sonoqui Wash	13600.00	As-Built	2100.00	1339.90	1349.23		1349.33	0.000279	2.44	859.64	132.31	0.17
Sonoqui Wash	13500.00	As-Built	2100.00	1339.76	1349.21		1349.30	0.000260	2.38	883.47	134.24	0.16
Sonoqui Wash	13426.40	As-Built	2100.00	1339.65	1349.20	1343.05	1349.28	0.000125	2.32	903.32	135.81	0.16
Sonoqui Wash	13367.48		Culvert									
Sonoqui Wash	13308.56	As-Built	2100.00	1339.23	1345.57		1345.85	0.000677	4.24	494.93	107.55	0.35
Sonoqui Wash	13300.00	As-Built	2100.00	1339.20	1345.56		1345.84	0.001325	4.26	492.58	106.12	0.35
Sonoqui Wash	13200.00	As-Built	2100.00	1338.83	1345.41		1345.67	0.002031	4.14	507.76	108.20	0.34
Sonoqui Wash	13100.00	As-Built	2100.00	1338.66	1345.21		1345.47	0.002037	4.13	508.45	108.85	0.34
Sonoqui Wash	13000.00	As-Built	2100.00	1338.49	1345.00		1345.27	0.002031	4.11	510.64	109.81	0.34
Sonoqui Wash	12900.00	As-Built	2100.00	1338.32	1344.80		1345.06	0.002014	4.08	515.28	111.67	0.33
Sonoqui Wash	12800.00	As-Built	2100.00	1338.16	1344.61		1344.86	0.001993	4.03	520.71	113.83	0.33
Sonoqui Wash	12700.00	As-Built	2100.00	1337.99	1344.41		1344.66	0.001979	4.01	524.31	115.27	0.33
Sonoqui Wash	12600.00	As-Built	2100.00	1337.82	1344.21		1344.46	0.001988	4.01	523.55	115.24	0.33
Sonoqui Wash	12500.00	As-Built	2100.00	1337.65	1344.01		1344.26	0.002004	4.02	522.08	115.11	0.33
Sonoqui Wash	12400.00	As-Built	2100.00	1337.48	1343.81		1344.06	0.002020	4.04	520.12	114.70	0.33
Sonoqui Wash	12300.00	As-Built	2100.00	1337.27	1343.60		1343.86	0.002031	4.05	518.31	114.15	0.34
Sonoqui Wash	12200.00	As-Built	2100.00	1337.06	1343.40		1343.65	0.002037	4.06	516.68	113.48	0.34
Sonoqui Wash	12100.00	As-Built	2100.00	1336.85	1343.19		1343.45	0.002057	4.09	513.54	112.55	0.34
Sonoqui Wash	12000.00	As-Built	2100.00	1336.64	1342.99		1343.24	0.002032	4.05	517.99	114.00	0.34
Sonoqui Wash	11900.00	As-Built	2100.00	1336.43	1342.80		1343.04	0.001950	3.94	532.61	118.62	0.33
Sonoqui Wash	11800.00	As-Built	2100.00	1336.22	1342.61		1342.85	0.001915	3.91	537.63	119.83	0.32
Sonoqui Wash	11700.00	As-Built	2100.00	1336.01	1342.40		1342.65	0.002000	4.03	521.53	114.56	0.33
Sonoqui Wash	11600.00	As-Built	2100.00	1335.80	1342.18		1342.44	0.002068	4.12	510.23	111.10	0.34
Sonoqui Wash	11499.99	As-Built	2100.00	1335.58	1341.95		1342.23	0.002167	4.23	496.20	107.26	0.35

Sonoqui Wash	11400.00	As-Built	2100.00	1335.37	1341.75		1342.01	0.002086	4.12	509.32	111.41	0.34
Sonoqui Wash	11300.00	As-Built	2100.00	1335.15	1341.55		1341.81	0.002029	4.07	515.87	112.68	0.34
Sonoqui Wash	11200.00	As-Built	2100.00	1334.93	1341.34		1341.60	0.002051	4.08	515.02	113.14	0.34
Sonoqui Wash	11100.00	As-Built	2100.00	1334.71	1341.13		1341.40	0.002065	4.10	512.20	112.17	0.34
Sonoqui Wash	11000.00	As-Built	2100.00	1334.50	1340.92		1341.19	0.002087	4.13	508.97	111.23	0.34
Sonoqui Wash	10900.00	As-Built	2100.00	1334.28	1340.72		1340.98	0.002091	4.12	510.17	112.09	0.34
Sonoqui Wash	10800.00	As-Built	2100.00	1334.06	1340.50		1340.77	0.002092	4.14	507.86	110.83	0.34
Sonoqui Wash	10700.00	As-Built	2100.00	1333.85	1340.29		1340.56	0.002097	4.13	508.08	111.16	0.34
Sonoqui Wash	10600.00	As-Built	2100.00	1333.64	1340.08		1340.35	0.002114	4.15	506.10	110.74	0.34
Sonoqui Wash	10500.00	As-Built	2100.00	1333.43	1339.87		1340.14	0.002137	4.17	503.22	110.05	0.34
Sonoqui Wash	10400.00	As-Built	2100.00	1333.22	1339.65		1339.92	0.002144	4.17	503.00	110.20	0.34
Sonoqui Wash	10300.00	As-Built	2100.00	1333.01	1339.44		1339.71	0.002142	4.16	504.77	111.12	0.34
Sonoqui Wash	10200.00	As-Built	2100.00	1332.80	1339.23		1339.49	0.002120	4.12	510.24	113.39	0.34
Sonoqui Wash	10100.00	As-Built	2100.00	1332.59	1339.02		1339.28	0.002115	4.10	511.83	114.08	0.34
Sonoqui Wash	10000.00	As-Built	2100.00	1332.38	1338.83		1339.07	0.002001	3.94	532.35	120.86	0.33
Sonoqui Wash	9900.000	As-Built	2100.00	1332.17	1338.63		1338.87	0.001985	3.92	535.04	121.66	0.33
Sonoqui Wash	9800.000	As-Built	2100.00	1331.97	1338.42		1338.67	0.002010	3.96	530.69	120.31	0.33
Sonoqui Wash	9700.000	As-Built	2100.00	1331.78	1338.22		1338.47	0.002016	3.96	529.97	120.20	0.33
Sonoqui Wash	9600.000	As-Built	2100.00	1331.59	1338.02		1338.26	0.002002	3.94	533.05	121.38	0.33
Sonoqui Wash	9500.000	As-Built	2100.00	1331.40	1337.82		1338.06	0.001997	3.93	534.04	121.71	0.33
Sonoqui Wash	9400.000	As-Built	2100.00	1331.21	1337.63		1337.86	0.001982	3.91	537.00	122.73	0.33
Sonoqui Wash	9300.000	As-Built	2100.00	1331.03	1337.44		1337.67	0.001932	3.84	546.73	126.00	0.32
Sonoqui Wash	9200.000	As-Built	2100.00	1330.84	1337.23		1337.47	0.001980	3.91	536.45	122.32	0.33
Sonoqui Wash	9100.000	As-Built	2100.00	1330.65	1337.03		1337.27	0.002028	3.97	529.58	120.54	0.33
Sonoqui Wash	9000.000	As-Built	2100.00	1330.46	1336.82		1337.07	0.002043	3.98	527.70	120.10	0.33
Sonoqui Wash	8900.000	As-Built	2100.00	1330.27	1336.60		1336.86	0.002133	4.09	513.57	115.83	0.34
Sonoqui Wash	8800.000	As-Built	2100.00	1330.11	1336.36		1336.63	0.002271	4.23	496.65	111.54	0.35
Sonoqui Wash	8700.000	As-Built	2100.00	1329.97	1336.11		1336.40	0.002402	4.34	484.00	109.01	0.36
Sonoqui Wash	8600.000	As-Built	2100.00	1329.83	1335.84		1336.15	0.002552	4.45	472.19	107.24	0.37
Sonoqui Wash	8500.000	As-Built	2100.00	1329.69	1335.57		1335.89	0.002703	4.53	463.90	107.11	0.38
Sonoqui Wash	8400.000	As-Built	2100.00	1329.55	1335.30		1335.61	0.002711	4.47	470.12	111.13	0.38
Sonoqui Wash	8300.000	As-Built	2100.00	1329.41	1335.04		1335.34	0.002778	4.40	477.74	118.04	0.39
Sonoqui Wash	8200.000	As-Built	2100.00	1329.27	1334.72		1335.04	0.003038	4.53	463.45	117.07	0.40
Sonoqui Wash	8100.000	As-Built	2100.00	1329.13	1334.37		1334.72	0.003467	4.75	441.92	114.76	0.43
Sonoqui Wash	8000.000	As-Built	2100.00	1328.99	1333.94		1334.33	0.004113	5.02	417.98	113.51	0.46
Sonoqui Wash	7900.000	As-Built	2100.00	1328.85	1333.37		1333.85	0.005589	5.57	377.07	110.51	0.53
Sonoqui Wash	7800.000	As-Built	2100.00	1328.52	1332.72		1333.32	0.004755	6.25	336.09	107.13	0.62
Sonoqui Wash	7710.000	As-Built	2100.00	1328.04	1331.41	1331.41	1332.66	0.009907	8.98	233.82	94.63	1.01
Sonoqui Wash	7665.000	As-Built	2100.00	1323.63	1331.71		1331.86	0.000369	3.07	684.77	116.27	0.22
Sonoqui Wash	7600.000	As-Built	2100.00	1323.50	1331.69		1331.83	0.000474	2.97	708.06	121.30	0.22
Sonoqui Wash	7506	As-Built	2100.00	1323.32	1331.67	1326.71	1331.79	0.000221	2.88	729.92	122.20	0.21
Sonoqui Wash	7472.21		Culvert									
Sonoqui Wash	7434	As-Built	2100.00	1323.19	1329.19		1329.50	0.000773	4.45	471.68	105.31	0.37
Sonoqui Wash	7400.000	As-Built	2100.00	1323.11	1329.15		1329.46	0.001528	4.49	467.85	103.78	0.37
Sonoqui Wash	7300.000	As-Built	2100.00	1322.87	1328.96		1329.27	0.002463	4.44	473.37	104.91	0.37
Sonoqui Wash	7200.000	As-Built	2100.00	1322.63	1328.72		1329.02	0.002474	4.44	473.09	105.12	0.37
Sonoqui Wash	7100.000	As-Built	2100.00	1322.39	1328.48		1328.77	0.002411	4.34	483.74	109.17	0.36
Sonoqui Wash	7000.000	As-Built	2100.00	1322.16	1328.26		1328.53	0.002280	4.16	504.61	116.55	0.35
Sonoqui Wash	6900.000	As-Built	2100.00	1321.92	1328.05		1328.30	0.002182	4.04	520.27	121.87	0.34
Sonoqui Wash	6800.000	As-Built	2100.00	1321.69	1327.82		1328.08	0.002220	4.09	513.77	119.64	0.35
Sonoqui Wash	6700.000	As-Built	2100.00	1321.48	1327.59		1327.86	0.002304	4.18	502.17	116.08	0.35
Sonoqui Wash	6600.000	As-Built	2100.00	1321.26	1327.36		1327.63	0.002271	4.13	508.47	118.52	0.35
Sonoqui Wash	6500.000	As-Built	2100.00	1321.04	1327.13		1327.40	0.002276	4.12	509.12	119.12	0.35
Sonoqui Wash	6400.000	As-Built	2100.00	1320.83	1326.89		1327.16	0.002373	4.23	496.87	115.57	0.36
Sonoqui Wash	6300.000	As-Built	2100.00	1320.61	1326.62		1326.92	0.002520	4.36	481.72	111.81	0.37
Sonoqui Wash	6200.000	As-Built	2100.00	1320.40	1326.36		1326.66	0.002615	4.42	474.67	110.79	0.38
Sonoqui Wash	6100.000	As-Built	2100.00	1320.18	1326.10		1326.40	0.002595	4.37	480.45	113.65	0.37
Sonoqui Wash	6000.000	As-Built	2100.00	1319.96	1325.85		1326.14	0.002572	4.32	486.53	116.58	0.37
Sonoqui Wash	5900.000	As-Built	2100.00	1319.75	1325.59		1325.88	0.002591	4.29	489.05	118.80	0.37
Sonoqui Wash	5800.000	As-Built	2100.00	1319.42	1325.36		1325.62	0.002393	4.08	515.16	127.63	0.36
Sonoqui Wash	5700.000	As-Built	2100.00	1319.21	1325.14		1325.38	0.002325	3.96	530.35	134.41	0.35
Sonoqui Wash	5600.000	As-Built	2100.00	1318.99	1324.87		1325.14	0.002532	4.16	505.01	126.73	0.37
Sonoqui Wash	5500.000	As-Built	2100.00	1318.78	1324.58		1324.87	0.002749	4.34	484.02	121.14	0.38
Sonoqui Wash	5400.000	As-Built	2100.00	1318.56	1324.27		1324.58	0.002971	4.49	467.99	117.95	0.40
Sonoqui Wash	5300.000	As-Built	2100.00	1318.35	1323.94		1324.27	0.003210	4.61	455.94	117.12	0.41
Sonoqui Wash	5200.000	As-Built	2100.00	1318.13	1323.59		1323.94	0.003504	4.73	443.92	117.07	0.43
Sonoqui Wash	5100.000	As-Built	2100.00	1317.92	1323.17		1323.56	0.004042	4.96	423.13	115.64	0.46
Sonoqui Wash	5000.000	As-Built	2100.00	1317.70	1322.59		1323.08	0.005529	5.60	374.75	107.93	0.53

Sonoqui Wash	4930.000	As-Built	2100.00	1317.66	1322.15		1322.77	0.003341	6.31	332.87	100.99	0.61
Sonoqui Wash	4915.000	As-Built	2100.00	1316.16	1322.35		1322.64	0.001014	4.29	489.60	107.88	0.35
Sonoqui Wash	4900.000	As-Built	2100.00	1316.22	1322.33		1322.62	0.002325	4.31	487.13	108.03	0.36
Sonoqui Wash	4800.000	As-Built	2100.00	1316.11	1322.07		1322.37	0.002505	4.45	471.78	105.38	0.37
Sonoqui Wash	4700.000	As-Built	2100.00	1315.88	1321.84		1322.12	0.002389	4.27	491.57	113.01	0.36
Sonoqui Wash	4600.000	As-Built	2100.00	1315.65	1321.62		1321.88	0.002263	4.09	512.98	120.93	0.35
Sonoqui Wash	4500.000	As-Built	2100.00	1315.43	1321.41		1321.65	0.002190	3.99	526.21	125.86	0.34
Sonoqui Wash	4400.000	As-Built	2100.00	1315.20	1321.20		1321.44	0.002149	3.92	535.98	130.00	0.34
Sonoqui Wash	4300.000	As-Built	2100.00	1314.97	1320.98		1321.22	0.002147	3.93	534.65	129.12	0.34
Sonoqui Wash	4200.000	As-Built	2100.00	1314.74	1320.77		1321.01	0.002116	3.88	540.54	131.29	0.34
Sonoqui Wash	4100.000	As-Built	2100.00	1314.52	1320.56		1320.79	0.002093	3.85	545.49	133.26	0.34
Sonoqui Wash	4000.000	As-Built	2100.00	1314.29	1320.36		1320.58	0.002082	3.84	546.89	133.59	0.33
Sonoqui Wash	3900.000	As-Built	2100.00	1314.06	1320.14		1320.37	0.002112	3.88	541.90	131.94	0.34
Sonoqui Wash	3800.000	As-Built	2100.00	1313.84	1319.92		1320.16	0.002180	3.95	531.74	128.77	0.34
Sonoqui Wash	3700.000	As-Built	2100.00	1313.63	1319.69		1319.94	0.002227	3.99	526.87	127.86	0.35
Sonoqui Wash	3600.000	As-Built	2100.00	1313.42	1319.47		1319.71	0.002222	3.96	529.85	129.55	0.35
Sonoqui Wash	3500.000	As-Built	2100.00	1313.20	1319.25		1319.49	0.002205	3.93	534.15	131.47	0.34
Sonoqui Wash	3400.000	As-Built	2100.00	1312.99	1319.03		1319.27	0.002226	3.94	532.81	131.61	0.35
Sonoqui Wash	3300.000	As-Built	2100.00	1312.78	1318.78		1319.04	0.002349	4.06	517.54	127.34	0.35
Sonoqui Wash	3200.000	As-Built	2100.00	1312.57	1318.53		1318.80	0.002480	4.17	504.08	124.13	0.36
Sonoqui Wash	3100.000	As-Built	2100.00	1312.35	1318.26		1318.54	0.002619	4.27	492.20	121.78	0.37
Sonoqui Wash	3000.000	As-Built	2100.00	1312.14	1317.96		1318.27	0.002869	4.45	471.72	117.19	0.39
Sonoqui Wash	2900.000	As-Built	2100.00	1311.93	1317.65		1317.97	0.003057	4.53	463.17	117.46	0.40
Sonoqui Wash	2800.000	As-Built	2100.00	1311.74	1317.33		1317.65	0.003218	4.55	461.45	121.05	0.41
Sonoqui Wash	2700.000	As-Built	2100.00	1311.58	1317.03		1317.32	0.003206	4.37	480.24	133.63	0.41
Sonoqui Wash	2600.000	As-Built	2100.00	1311.43	1316.64		1316.98	0.003747	4.62	454.09	130.62	0.44
Sonoqui Wash	2500.000	As-Built	2100.00	1311.27	1316.12		1316.54	0.005018	5.17	406.07	122.94	0.50
Sonoqui Wash	2400.000	As-Built	2100.00	1311.11	1315.43	1314.45	1316.01	0.004814	6.12	342.88	113.84	0.62
Sonoqui Wash	2337.000	As-Built	2100.00	1311.01	1314.35	1314.34	1315.53	0.009765	8.73	240.68	100.73	0.99
Sonoqui Wash	2282.000	As-Built	2100.00	1307.40	1314.95		1315.07	0.000296	2.72	772.15	133.72	0.20
Sonoqui Wash	2200.000	As-Built	2100.00	1307.40	1314.93		1315.04	0.000389	2.67	787.45	136.79	0.20
Sonoqui Wash	2153.000	As-Built	2100.00	1307.40	1314.92	1310.12	1315.02	0.000183	2.57	817.59	141.56	0.19
Sonoqui Wash	2090		Bridge									
Sonoqui Wash	2027.000	As-Built	2100.00	1307.40	1313.07		1313.27	0.000492	3.58	585.94	129.48	0.30
Sonoqui Wash	2000	As-Built	2100.00	1307.40	1312.99		1313.25	0.001333	4.07	516.05	120.27	0.35
Sonoqui Wash	1948.000	As-Built	2100.00	1307.40	1312.79		1313.16	0.001567	4.89	429.60	108.10	0.43
Sonoqui Wash	1933.000	As-Built	2100.00	1307.40	1312.78		1313.13	0.001446	4.74	443.27	110.08	0.42
Sonoqui Wash	1900	As-Built	2100.00	1307.40	1312.76		1313.05	0.002590	4.32	485.72	116.61	0.37
Sonoqui Wash	1800	As-Built	2100.00	1307.40	1312.61		1312.80	0.001610	3.48	602.82	140.28	0.30
Sonoqui Wash	1700	As-Built	2100.00	1307.40	1312.58		1312.67	0.000714	2.36	889.37	202.35	0.20
Sonoqui Wash	1600	As-Built	2100.00	1307.40	1312.55		1312.60	0.000433	1.89	1113.42	243.92	0.16
Sonoqui Wash	1500	As-Built	2100.00	1307.40	1312.51		1312.56	0.000414	1.83	1147.57	254.42	0.15
Sonoqui Wash	1400	As-Built	2100.00	1307.40	1312.45		1312.51	0.000503	2.01	1042.31	230.96	0.17
Sonoqui Wash	1300	As-Built	2100.00	1307.40	1312.36		1312.45	0.000730	2.29	918.43	223.10	0.20
Sonoqui Wash	1200	As-Built	2100.00	1307.40	1312.20		1312.34	0.001184	2.96	710.48	168.26	0.25
Sonoqui Wash	1146	As-Built	2100.00	1307.40	1311.39		1312.05	0.008046	6.49	323.57	98.88	0.63
Sonoqui Wash	1126	As-Built	2100.00	1307.40	1311.47	1310.33	1311.93	0.001200	5.44	386.76	129.98	0.55

Profile Output Table - Standard Table 2

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Sonoqui Wash	25622.81	As-Built	1380.26	1380.04	0.22	0.78	0.02		2100.00		143.44
Sonoqui Wash	25330.01	As-Built	1379.46	1379.32	0.14	0.48	0.03		2100.00		179.62
Sonoqui Wash	24907.36	As-Built	1378.95	1378.90	0.06	0.59	0.02	0.29	2063.05	36.66	658.49
Sonoqui Wash	24453.07	As-Built	1378.34	1378.09	0.25	0.40	0.06		2100.00		92.03
Sonoqui Wash	24140.17	As-Built	1377.88	1377.82	0.06	0.23	0.00		2100.00		170.48
Sonoqui Wash	23742.87	As-Built	1377.65	1377.60	0.05	0.16	0.00		2100.00		186.66
Sonoqui Wash	23415.03	As-Built	1377.49	1377.45	0.04	0.37	0.03		2100.00		181.44
Sonoqui Wash	22928.40	As-Built	1377.08	1376.72	0.36	0.79	0.03		2100.00		287.30
Sonoqui Wash	22800.00	As-Built	1376.26	1375.63	0.63	4.34	0.03		2100.00		257.59
Sonoqui Wash	22400.00	As-Built	1371.88	1370.96	0.92	0.85	0.10		2100.00		283.09
Sonoqui Wash	22300.00	As-Built	1370.94	1370.34	0.59	0.56	0.09	1.17	2098.83		257.81

Sonoqui Wash	22150	As-Built	1370.29	1369.98	0.31	0.12	0.01		2100.00		105.86
Sonoqui Wash	22100	As-Built	1370.16	1369.89	0.27	0.17	0.02		2100.00		107.44
Sonoqui Wash	22000	As-Built	1369.97	1369.76	0.21	0.05	0.00		2100.00		110.86
Sonoqui Wash	21967.24	As-Built	1369.92	1369.68	0.23	0.01	0.01		2100.00		109.63
Sonoqui Wash	21912.24		Bridge								
Sonoqui Wash	21850.00	As-Built	1369.60	1369.35	0.24	0.09	0.00		2100.00		108.82
Sonoqui Wash	21800.00	As-Built	1369.50	1369.25	0.26	0.16	0.01		2100.00		104.93
Sonoqui Wash	21700.00	As-Built	1369.33	1369.12	0.21	0.33	0.00		2100.00		113.39
Sonoqui Wash	21585.29	As-Built	1368.99	1368.74	0.25	0.15	0.01		2100.00		108.41
Sonoqui Wash	21500.00	As-Built	1368.83	1368.61	0.22	0.13	0.00		2100.00		118.93
Sonoqui Wash	21424.00	As-Built	1368.70	1368.48	0.22	0.04	0.00		2100.00		118.01
Sonoqui Wash	21400.00	As-Built	1368.66	1368.44	0.22	0.17	0.00		2100.00		118.59
Sonoqui Wash	21300.00	As-Built	1368.49	1368.27	0.21	0.10	0.00		2100.00		120.90
Sonoqui Wash	21240.00	As-Built	1368.39	1368.18	0.21	0.04	0.00		2100.00		122.43
Sonoqui Wash	21216.00	As-Built	1368.35	1368.15	0.20	0.03	0.00		2100.00		133.27
Sonoqui Wash	21200.00	As-Built	1368.32	1368.11	0.21	0.15	0.00		2100.00		123.37
Sonoqui Wash	21100.00	As-Built	1368.16	1367.97	0.20	0.15	0.00		2100.00		126.09
Sonoqui Wash	21000.00	As-Built	1368.02	1367.82	0.19	0.14	0.00		2100.00		126.16
Sonoqui Wash	20900.00	As-Built	1367.87	1367.68	0.19	0.13	0.00		2100.00		125.83
Sonoqui Wash	20800.00	As-Built	1367.73	1367.56	0.17	0.13	0.00		2100.00		132.16
Sonoqui Wash	20700.00	As-Built	1367.61	1367.44	0.17	0.09	0.00		2100.00		132.46
Sonoqui Wash	20600.00	As-Built	1367.51	1367.35	0.16	0.04	0.00		2100.00		133.14
Sonoqui Wash	20525.00	As-Built	1367.47	1367.31	0.16	0.01	0.03		2100.00		131.34
Sonoqui Wash	20495.00	As-Built	1367.43	1367.36	0.07	0.02	0.00		2100.00		136.76
Sonoqui Wash	20400.00	As-Built	1367.42	1367.35	0.07	0.02	0.00		2100.00		137.34
Sonoqui Wash	20300.00	As-Built	1367.39	1367.33	0.07	0.03	0.00		2100.00		140.40
Sonoqui Wash	20200.00	As-Built	1367.37	1367.30	0.06	0.03	0.00		2100.00		140.36
Sonoqui Wash	20100.00	As-Built	1367.34	1367.28	0.06	0.02	0.00		2100.00		143.06
Sonoqui Wash	20000.00	As-Built	1367.32	1367.26	0.05	0.01	0.01	31.25	2063.55	5.19	189.31
Sonoqui Wash	19921.00	As-Built	1367.31	1367.27	0.04			69.29	2030.71		243.42
Sonoqui Wash	19842.36		Culvert								
Sonoqui Wash	19790.00	As-Built	1361.93	1361.67	0.26	0.09	0.00		2100.00		124.86
Sonoqui Wash	19700.00	As-Built	1361.84	1361.57	0.27	0.17	0.00		2100.00		113.06
Sonoqui Wash	19600.00	As-Built	1361.67	1361.41	0.26	0.22	0.00		2100.00		114.76
Sonoqui Wash	19500.00	As-Built	1361.45	1361.19	0.26	0.21	0.01		2100.00		115.93
Sonoqui Wash	19400.00	As-Built	1361.23	1360.99	0.24	0.20	0.01		2100.00		122.88
Sonoqui Wash	19300.00	As-Built	1361.03	1360.81	0.21	0.19	0.00		2100.00		135.37
Sonoqui Wash	19200.00	As-Built	1360.84	1360.63	0.21	0.19	0.00		2100.00		135.86
Sonoqui Wash	19100.00	As-Built	1360.65	1360.44	0.22	0.19	0.00		2100.00		133.02
Sonoqui Wash	19000.00	As-Built	1360.46	1360.22	0.24	0.20	0.00		2100.00		123.51
Sonoqui Wash	18900.00	As-Built	1360.26	1360.03	0.23	0.20	0.00		2100.00		125.70
Sonoqui Wash	18800.00	As-Built	1360.06	1359.83	0.23	0.19	0.00		2100.00		123.98
Sonoqui Wash	18700.00	As-Built	1359.87	1359.64	0.22	0.18	0.01		2100.00		127.89
Sonoqui Wash	18600.00	As-Built	1359.68	1359.48	0.20	0.15	0.01		2100.00		137.90
Sonoqui Wash	18500.00	As-Built	1359.51	1359.36	0.15	0.12	0.01		2099.79	0.21	295.08
Sonoqui Wash	18400.00	As-Built	1359.38	1359.26	0.11	0.13	0.01	0.16	2099.77	0.07	207.00
Sonoqui Wash	18300.00	As-Built	1359.24	1359.06	0.18	0.16	0.00		2100.00		141.07
Sonoqui Wash	18200.00	As-Built	1359.08	1358.88	0.20	0.17	0.00		2100.00		128.92
Sonoqui Wash	18100.00	As-Built	1358.91	1358.67	0.24	0.20	0.00		2100.00		114.67
Sonoqui Wash	18000.00	As-Built	1358.70	1358.42	0.28	0.24	0.00		2100.00		107.58
Sonoqui Wash	17900.00	As-Built	1358.46	1358.14	0.32	0.27	0.00		2100.00		101.71
Sonoqui Wash	17800.00	As-Built	1358.19	1357.82	0.37	0.30	0.00		2100.00		92.98
Sonoqui Wash	17700.00	As-Built	1357.88	1357.50	0.39	0.29	0.03		2100.00		116.19
Sonoqui Wash	17600.00	As-Built	1357.57	1357.28	0.29	0.26	0.00		2100.00		117.42
Sonoqui Wash	17500.00	As-Built	1357.31	1357.00	0.31	0.22	0.03		2100.00		110.61
Sonoqui Wash	17400.00	As-Built	1357.06	1356.84	0.22	0.19	0.00		2098.84	1.16	148.14
Sonoqui Wash	17300.00	As-Built	1356.86	1356.66	0.21	0.19	0.00		2100.00		143.81
Sonoqui Wash	17200.00	As-Built	1356.67	1356.47	0.20	0.19	0.00		2100.00		142.92
Sonoqui Wash	17100.00	As-Built	1356.48	1356.27	0.22	0.20	0.00		2100.00		135.52

Sonoqui Wash	17000.00	As-Built	1356.29	1356.05	0.23	0.22	0.00	2100.00	128.65
Sonoqui Wash	16900.00	As-Built	1356.07	1355.80	0.26	0.18	0.00	2100.00	119.20
Sonoqui Wash	16800.00	As-Built	1355.88	1355.58	0.30	0.10	0.01	2100.00	150.63
Sonoqui Wash	16728.00	As-Built	1355.77	1355.32	0.44	0.05	0.00	2100.00	89.87
Sonoqui Wash	16682.00	As-Built	1355.71	1355.27	0.44	0.11	0.08	2100.00	89.86
Sonoqui Wash	16600.00	As-Built	1355.53	1355.21	0.31	0.19	0.00	2100.00	105.36
Sonoqui Wash	16500.00	As-Built	1355.33	1355.03	0.30	0.23	0.02	2100.00	107.02
Sonoqui Wash	16400.00	As-Built	1355.08	1354.84	0.25	0.20	0.01	2100.00	123.77
Sonoqui Wash	16300.00	As-Built	1354.87	1354.65	0.22	0.20	0.00	2100.00	133.46
Sonoqui Wash	16200.00	As-Built	1354.67	1354.42	0.24	0.21	0.00	2100.00	124.01
Sonoqui Wash	16100.00	As-Built	1354.46	1354.20	0.25	0.21	0.01	2100.00	121.04
Sonoqui Wash	16000.00	As-Built	1354.24	1354.02	0.23	0.20	0.00	2100.00	128.68
Sonoqui Wash	15900.00	As-Built	1354.04	1353.81	0.24	0.21	0.00	2100.00	125.34
Sonoqui Wash	15800.00	As-Built	1353.84	1353.58	0.25	0.21	0.00	2100.00	119.22
Sonoqui Wash	15700.00	As-Built	1353.62	1353.36	0.26	0.21	0.00	2100.00	116.24
Sonoqui Wash	15600.00	As-Built	1353.41	1353.15	0.26	0.21	0.00	2100.00	117.74
Sonoqui Wash	15500.00	As-Built	1353.19	1352.95	0.24	0.20	0.00	2100.00	122.25
Sonoqui Wash	15400.00	As-Built	1352.99	1352.75	0.24	0.20	0.00	2100.00	124.33
Sonoqui Wash	15300.00	As-Built	1352.79	1352.54	0.24	0.20	0.00	2100.00	122.01
Sonoqui Wash	15200.00	As-Built	1352.58	1352.33	0.25	0.21	0.00	2100.00	119.39
Sonoqui Wash	15100.00	As-Built	1352.37	1352.12	0.25	0.21	0.00	2100.00	118.41
Sonoqui Wash	15000.00	As-Built	1352.16	1351.91	0.25	0.21	0.00	2100.00	117.35
Sonoqui Wash	14900.00	As-Built	1351.95	1351.69	0.26	0.21	0.00	2100.00	116.05
Sonoqui Wash	14800.00	As-Built	1351.74	1351.48	0.26	0.21	0.00	2100.00	116.58
Sonoqui Wash	14700.00	As-Built	1351.53	1351.27	0.26	0.21	0.00	2100.00	116.54
Sonoqui Wash	14600.00	As-Built	1351.32	1351.06	0.26	0.21	0.00	2100.00	116.62
Sonoqui Wash	14500.00	As-Built	1351.10	1350.85	0.26	0.22	0.00	2100.00	116.83
Sonoqui Wash	14400.00	As-Built	1350.88	1350.61	0.27	0.22	0.00	2100.00	116.83
Sonoqui Wash	14300.00	As-Built	1350.66	1350.40	0.26	0.22	0.00	2100.00	117.22
Sonoqui Wash	14200.00	As-Built	1350.44	1350.18	0.26	0.22	0.00	2100.00	117.85
Sonoqui Wash	14100.00	As-Built	1350.22	1349.97	0.26	0.21	0.00	2100.00	118.86
Sonoqui Wash	14000.00	As-Built	1350.01	1349.76	0.25	0.21	0.00	2100.00	121.49
Sonoqui Wash	13900.00	As-Built	1349.80	1349.55	0.24	0.21	0.00	2100.00	123.87
Sonoqui Wash	13800.00	As-Built	1349.59	1349.34	0.24	0.16	0.00	2100.00	124.97
Sonoqui Wash	13700.00	As-Built	1349.43	1349.19	0.24	0.04	0.00	2100.00	123.81
Sonoqui Wash	13665.00	As-Built	1349.39	1349.15	0.24	0.01	0.04	2100.00	123.76
Sonoqui Wash	13635.00	As-Built	1349.33	1349.24	0.09	0.01	0.00	2100.00	132.44
Sonoqui Wash	13600.00	As-Built	1349.33	1349.23	0.09	0.03	0.00	2100.00	132.31
Sonoqui Wash	13500.00	As-Built	1349.30	1349.21	0.09	0.01	0.00	2100.00	134.24
Sonoqui Wash	13426.40	As-Built	1349.28	1349.20	0.08			2100.00	135.81
Sonoqui Wash	13367.48		Culvert						
Sonoqui Wash	13308.56	As-Built	1345.85	1345.57	0.28	0.01	0.00	2100.00	107.55
Sonoqui Wash	13300.00	As-Built	1345.84	1345.56	0.28	0.16	0.00	2100.00	106.12
Sonoqui Wash	13200.00	As-Built	1345.67	1345.41	0.27	0.20	0.00	2100.00	108.20
Sonoqui Wash	13100.00	As-Built	1345.47	1345.21	0.26	0.20	0.00	2100.00	108.85
Sonoqui Wash	13000.00	As-Built	1345.27	1345.00	0.26	0.20	0.00	2100.00	109.81
Sonoqui Wash	12900.00	As-Built	1345.06	1344.80	0.26	0.20	0.00	2100.00	111.67
Sonoqui Wash	12800.00	As-Built	1344.86	1344.61	0.25	0.20	0.00	2100.00	113.83
Sonoqui Wash	12700.00	As-Built	1344.66	1344.41	0.25	0.20	0.00	2100.00	115.27
Sonoqui Wash	12600.00	As-Built	1344.46	1344.21	0.25	0.20	0.00	2100.00	115.24
Sonoqui Wash	12500.00	As-Built	1344.26	1344.01	0.25	0.20	0.00	2100.00	115.11
Sonoqui Wash	12400.00	As-Built	1344.06	1343.81	0.25	0.20	0.00	2100.00	114.70
Sonoqui Wash	12300.00	As-Built	1343.86	1343.60	0.25	0.20	0.00	2100.00	114.15
Sonoqui Wash	12200.00	As-Built	1343.65	1343.40	0.26	0.20	0.00	2100.00	113.48
Sonoqui Wash	12100.00	As-Built	1343.45	1343.19	0.26	0.20	0.00	2100.00	112.55
Sonoqui Wash	12000.00	As-Built	1343.24	1342.99	0.26	0.20	0.00	2100.00	114.00
Sonoqui Wash	11900.00	As-Built	1343.04	1342.80	0.24	0.19	0.00	2100.00	118.62
Sonoqui Wash	11800.00	As-Built	1342.85	1342.61	0.24	0.20	0.00	2100.00	119.83
Sonoqui Wash	11700.00	As-Built	1342.65	1342.40	0.25	0.20	0.00	2100.00	114.56

Sonoqui Wash	11600.00	As-Built	1342.44	1342.18	0.26	0.21	0.00	2100.00	111.10
Sonoqui Wash	11499.99	As-Built	1342.23	1341.95	0.28	0.21	0.00	2100.00	107.26
Sonoqui Wash	11400.00	As-Built	1342.01	1341.75	0.26	0.21	0.00	2100.00	111.41
Sonoqui Wash	11300.00	As-Built	1341.81	1341.55	0.26	0.20	0.00	2100.00	112.68
Sonoqui Wash	11200.00	As-Built	1341.60	1341.34	0.26	0.21	0.00	2100.00	113.14
Sonoqui Wash	11100.00	As-Built	1341.40	1341.13	0.26	0.21	0.00	2100.00	112.17
Sonoqui Wash	11000.00	As-Built	1341.19	1340.92	0.26	0.21	0.00	2100.00	111.23
Sonoqui Wash	10900.00	As-Built	1340.98	1340.72	0.26	0.21	0.00	2100.00	112.09
Sonoqui Wash	10800.00	As-Built	1340.77	1340.50	0.27	0.21	0.00	2100.00	110.83
Sonoqui Wash	10700.00	As-Built	1340.56	1340.29	0.27	0.21	0.00	2100.00	111.16
Sonoqui Wash	10600.00	As-Built	1340.35	1340.08	0.27	0.21	0.00	2100.00	110.74
Sonoqui Wash	10500.00	As-Built	1340.14	1339.87	0.27	0.21	0.00	2100.00	110.05
Sonoqui Wash	10400.00	As-Built	1339.92	1339.65	0.27	0.21	0.00	2100.00	110.20
Sonoqui Wash	10300.00	As-Built	1339.71	1339.44	0.27	0.21	0.00	2100.00	111.12
Sonoqui Wash	10200.00	As-Built	1339.49	1339.23	0.26	0.21	0.00	2100.00	113.39
Sonoqui Wash	10100.00	As-Built	1339.28	1339.02	0.26	0.21	0.01	2100.00	114.08
Sonoqui Wash	10000.00	As-Built	1339.07	1338.83	0.24	0.20	0.00	2100.00	120.86
Sonoqui Wash	9900.000	As-Built	1338.87	1338.63	0.24	0.20	0.00	2100.00	121.66
Sonoqui Wash	9800.000	As-Built	1338.67	1338.42	0.24	0.20	0.00	2100.00	120.31
Sonoqui Wash	9700.000	As-Built	1338.47	1338.22	0.24	0.20	0.00	2100.00	120.20
Sonoqui Wash	9600.000	As-Built	1338.26	1338.02	0.24	0.20	0.00	2100.00	121.38
Sonoqui Wash	9500.000	As-Built	1338.06	1337.82	0.24	0.20	0.00	2100.00	121.71
Sonoqui Wash	9400.000	As-Built	1337.86	1337.63	0.24	0.20	0.00	2100.00	122.73
Sonoqui Wash	9300.000	As-Built	1337.67	1337.44	0.23	0.20	0.00	2100.00	126.00
Sonoqui Wash	9200.000	As-Built	1337.47	1337.23	0.24	0.20	0.00	2100.00	122.32
Sonoqui Wash	9100.000	As-Built	1337.27	1337.03	0.24	0.20	0.00	2100.00	120.54
Sonoqui Wash	9000.000	As-Built	1337.07	1336.82	0.25	0.21	0.00	2100.00	120.10
Sonoqui Wash	8900.000	As-Built	1336.86	1336.60	0.26	0.22	0.00	2100.00	115.83
Sonoqui Wash	8800.000	As-Built	1336.63	1336.36	0.28	0.23	0.00	2100.00	111.54
Sonoqui Wash	8700.000	As-Built	1336.40	1336.11	0.29	0.25	0.00	2100.00	109.01
Sonoqui Wash	8600.000	As-Built	1336.15	1335.84	0.31	0.26	0.00	2100.00	107.24
Sonoqui Wash	8500.000	As-Built	1335.89	1335.57	0.32	0.27	0.00	2100.00	107.11
Sonoqui Wash	8400.000	As-Built	1335.61	1335.30	0.31	0.27	0.00	2100.00	111.13
Sonoqui Wash	8300.000	As-Built	1335.34	1335.04	0.30	0.29	0.00	2100.00	118.04
Sonoqui Wash	8200.000	As-Built	1335.04	1334.72	0.32	0.32	0.00	2100.00	117.07
Sonoqui Wash	8100.000	As-Built	1334.72	1334.37	0.35	0.38	0.00	2100.00	114.76
Sonoqui Wash	8000.000	As-Built	1334.33	1333.94	0.39	0.48	0.01	2100.00	113.51
Sonoqui Wash	7900.000	As-Built	1333.85	1333.37	0.48	0.51	0.01	2100.00	110.51
Sonoqui Wash	7800.000	As-Built	1333.32	1332.72	0.61	0.60	0.06	2100.00	107.13
Sonoqui Wash	7710.000	As-Built	1332.66	1331.41	1.25	0.05	0.33	2100.00	94.63
Sonoqui Wash	7665.000	As-Built	1331.86	1331.71	0.15	0.03	0.00	2100.00	116.27
Sonoqui Wash	7600.000	As-Built	1331.83	1331.69	0.14	0.03	0.00	2100.00	121.30
Sonoqui Wash	7506	As-Built	1331.79	1331.67	0.13			2100.00	122.20
Sonoqui Wash	7472.21		Culvert						
Sonoqui Wash	7434	As-Built	1329.50	1329.19	0.31	0.04	0.00	2100.00	105.31
Sonoqui Wash	7400.000	As-Built	1329.46	1329.15	0.31	0.19	0.00	2100.00	103.78
Sonoqui Wash	7300.000	As-Built	1329.27	1328.96	0.31	0.25	0.00	2100.00	104.91
Sonoqui Wash	7200.000	As-Built	1329.02	1328.72	0.31	0.24	0.00	2100.00	105.12
Sonoqui Wash	7100.000	As-Built	1328.77	1328.48	0.29	0.23	0.01	2100.00	109.17
Sonoqui Wash	7000.000	As-Built	1328.53	1328.26	0.27	0.22	0.00	2100.00	116.55
Sonoqui Wash	6900.000	As-Built	1328.30	1328.05	0.25	0.22	0.00	2100.00	121.87
Sonoqui Wash	6800.000	As-Built	1328.08	1327.82	0.26	0.23	0.00	2100.00	119.64
Sonoqui Wash	6700.000	As-Built	1327.86	1327.59	0.27	0.23	0.00	2100.00	116.08
Sonoqui Wash	6600.000	As-Built	1327.63	1327.36	0.26	0.23	0.00	2100.00	118.52
Sonoqui Wash	6500.000	As-Built	1327.40	1327.13	0.26	0.23	0.00	2100.00	119.12
Sonoqui Wash	6400.000	As-Built	1327.16	1326.89	0.28	0.24	0.00	2100.00	115.57
Sonoqui Wash	6300.000	As-Built	1326.92	1326.62	0.30	0.26	0.00	2100.00	111.81
Sonoqui Wash	6200.000	As-Built	1326.66	1326.36	0.30	0.26	0.00	2100.00	110.79
Sonoqui Wash	6100.000	As-Built	1326.40	1326.10	0.30	0.26	0.00	2100.00	113.65

Sonoqui Wash	6000.000	As-Built	1326.14	1325.85	0.29	0.26	0.00		2100.00		116.58
Sonoqui Wash	5900.000	As-Built	1325.88	1325.59	0.29	0.25	0.01		2100.00		118.80
Sonoqui Wash	5800.000	As-Built	1325.62	1325.36	0.26	0.24	0.00		2100.00		127.63
Sonoqui Wash	5700.000	As-Built	1325.38	1325.14	0.24	0.24	0.00		2100.00		134.41
Sonoqui Wash	5600.000	As-Built	1325.14	1324.87	0.27	0.26	0.00		2100.00		126.73
Sonoqui Wash	5500.000	As-Built	1324.87	1324.58	0.29	0.29	0.00		2100.00		121.14
Sonoqui Wash	5400.000	As-Built	1324.58	1324.27	0.31	0.31	0.00		2100.00		117.95
Sonoqui Wash	5300.000	As-Built	1324.27	1323.94	0.33	0.34	0.00		2100.00		117.12
Sonoqui Wash	5200.000	As-Built	1323.94	1323.59	0.35	0.38	0.00		2100.00		117.07
Sonoqui Wash	5100.000	As-Built	1323.56	1323.17	0.38	0.47	0.01		2100.00		115.64
Sonoqui Wash	5000.000	As-Built	1323.08	1322.59	0.49	0.30	0.01		2100.00		107.93
Sonoqui Wash	4930.000	As-Built	1322.77	1322.15	0.62	0.03	0.10		2100.00		100.99
Sonoqui Wash	4915.000	As-Built	1322.64	1322.35	0.29	0.02	0.00		2100.00		107.88
Sonoqui Wash	4900.000	As-Built	1322.62	1322.33	0.29	0.24	0.00		2100.00		108.03
Sonoqui Wash	4800.000	As-Built	1322.37	1322.07	0.31	0.24	0.01		2100.00		105.38
Sonoqui Wash	4700.000	As-Built	1322.12	1321.84	0.28	0.23	0.01		2100.00		113.01
Sonoqui Wash	4600.000	As-Built	1321.88	1321.62	0.26	0.22	0.00		2100.00		120.93
Sonoqui Wash	4500.000	As-Built	1321.65	1321.41	0.25	0.22	0.00		2100.00		125.86
Sonoqui Wash	4400.000	As-Built	1321.44	1321.20	0.24	0.21	0.00		2100.00		130.00
Sonoqui Wash	4300.000	As-Built	1321.22	1320.98	0.24	0.21	0.00		2100.00		129.12
Sonoqui Wash	4200.000	As-Built	1321.01	1320.77	0.23	0.21	0.00		2100.00		131.29
Sonoqui Wash	4100.000	As-Built	1320.79	1320.56	0.23	0.21	0.00		2100.00		133.26
Sonoqui Wash	4000.000	As-Built	1320.58	1320.36	0.23	0.21	0.00		2100.00		133.59
Sonoqui Wash	3900.000	As-Built	1320.37	1320.14	0.23	0.21	0.00		2100.00		131.94
Sonoqui Wash	3800.000	As-Built	1320.16	1319.92	0.24	0.22	0.00		2100.00		128.77
Sonoqui Wash	3700.000	As-Built	1319.94	1319.69	0.25	0.22	0.00		2100.00		127.86
Sonoqui Wash	3600.000	As-Built	1319.71	1319.47	0.24	0.22	0.00		2100.00		129.55
Sonoqui Wash	3500.000	As-Built	1319.49	1319.25	0.24	0.22	0.00		2100.00		131.47
Sonoqui Wash	3400.000	As-Built	1319.27	1319.03	0.24	0.23	0.00		2100.00		131.61
Sonoqui Wash	3300.000	As-Built	1319.04	1318.78	0.26	0.24	0.00		2100.00		127.34
Sonoqui Wash	3200.000	As-Built	1318.80	1318.53	0.27	0.25	0.00		2100.00		124.13
Sonoqui Wash	3100.000	As-Built	1318.54	1318.26	0.28	0.27	0.00		2100.00		121.78
Sonoqui Wash	3000.000	As-Built	1318.27	1317.96	0.31	0.30	0.00		2100.00		117.19
Sonoqui Wash	2900.000	As-Built	1317.97	1317.65	0.32	0.31	0.00		2100.00		117.46
Sonoqui Wash	2800.000	As-Built	1317.65	1317.33	0.32	0.32	0.01		2100.00		121.05
Sonoqui Wash	2700.000	As-Built	1317.32	1317.03	0.30	0.35	0.00		2100.00		133.63
Sonoqui Wash	2600.000	As-Built	1316.98	1316.64	0.33	0.43	0.01		2100.00		130.62
Sonoqui Wash	2500.000	As-Built	1316.54	1316.12	0.42				2100.00		122.94
Sonoqui Wash	2400.000	As-Built	1316.01	1315.43	0.58	0.42	0.06		2100.00		113.84
Sonoqui Wash	2337.000	As-Built	1315.53	1314.35	1.18				2100.00		100.73
Sonoqui Wash	2282.000	As-Built	1315.07	1314.95	0.11	0.03	0.00		2100.00		133.72
Sonoqui Wash	2200.000	As-Built	1315.04	1314.93	0.11	0.01	0.00		2100.00		136.79
Sonoqui Wash	2153.000	As-Built	1315.02	1314.92	0.10	0.00	0.11		2100.00		141.56
Sonoqui Wash	2090		Bridge								
Sonoqui Wash	2027.000	As-Built	1313.27	1313.07	0.20	0.02	0.01		2100.00		129.48
Sonoqui Wash	2000	As-Built	1313.25	1312.99	0.26	0.08	0.01		2100.00		120.27
Sonoqui Wash	1948.000	As-Built	1313.16	1312.79	0.37	0.02	0.01		2100.00		108.10
Sonoqui Wash	1933.000	As-Built	1313.13	1312.78	0.35	0.06	0.02		2100.00		110.08
Sonoqui Wash	1900	As-Built	1313.05	1312.76	0.29	0.20	0.05		2100.00		116.61
Sonoqui Wash	1800	As-Built	1312.80	1312.61	0.19	0.10	0.03		2100.00		140.28
Sonoqui Wash	1700	As-Built	1312.67	1312.58	0.09	0.05	0.01		2100.00		202.35
Sonoqui Wash	1600	As-Built	1312.60	1312.55	0.06	0.04	0.00		2100.00		243.92
Sonoqui Wash	1500	As-Built	1312.56	1312.51	0.05	0.05	0.00		2100.00		254.42
Sonoqui Wash	1400	As-Built	1312.51	1312.45	0.06	0.06	0.01		2100.00		230.96
Sonoqui Wash	1300	As-Built	1312.45	1312.36	0.08	0.09	0.02		2100.00		223.10
Sonoqui Wash	1200	As-Built	1312.34	1312.20	0.14	0.13	0.16		2100.00		168.26
Sonoqui Wash	1146	As-Built	1312.05	1311.39	0.65	0.02	0.10		2100.00		98.88
Sonoqui Wash	1126	As-Built	1311.93	1311.47	0.46			0.66	2098.86	0.48	129.98

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : As-Built

River: Sonoqui Wash Reach: Sonoqui Wash RS: 25330.01 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 24907.36 Profile: As-Built
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 24453.07 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 23415.03 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 22928.40 Profile: As-Built
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 22800.00 Profile: As-Built
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 22400.00 Profile: As-Built
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 22300.00 Profile: As-Built
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 21216.00 Profile: As-Built
Warning:Divided flow computed for this cross-section.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 20525.00 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 20000.00 Profile: As-Built

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 19842.36 Profile: As-Built Culv: Culvert #1
Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height
of the culvert.
Note: Culvert critical depth exceeds the height of the culvert.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 18500.00 Profile: As-Built
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 18000.00 Profile: As-Built
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 17700.00 Profile: As-Built
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 17400.00 Profile: As-Built
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 16800.00 Profile: As-Built
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 13665.00 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 13500.00 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 13367.48 Profile: As-Built Culv: Culvert #1
Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height
of the culvert.
Note: Culvert critical depth exceeds the height of the culvert.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 7800.000 Profile: As-Built
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 7710.000 Profile: As-Built
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 7600.000 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 7434 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 4930.000 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 4915.000 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 2500.000 Profile: As-Built
Note: The user has entered a known water surface elevation at this cross section.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 2400.000 Profile: As-Built
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 2337.000 Profile: As-Built
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: The user has entered a known water surface elevation at this cross section.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 2200.000 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 2153.000 Profile: As-Built
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 2090 Profile: As-Built
Warning:For the final momentum answer at the bridge, the upstream energy was computed lower than the downstream energy. This
is not physically possible, the momentum answer has been disregarded.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 2090 Profile: As-Built Upstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 2090 Profile: As-Built Downstream
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 2027.000 Profile: As-Built
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Sonoqui Wash Reach: Sonoqui Wash RS: 1800 Profile: As-Built

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

River: Sonoqui Wash Reach: Sonoqui Wash RS: 1200 Profile: As-Built

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

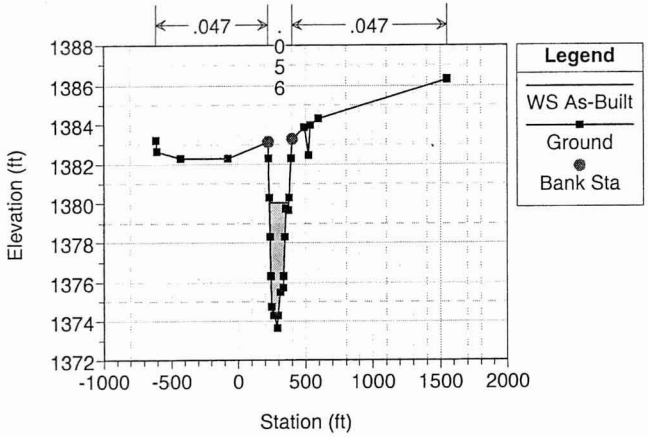
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

River: Sonoqui Wash Reach: Sonoqui Wash RS: 1146 Profile: As-Built

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

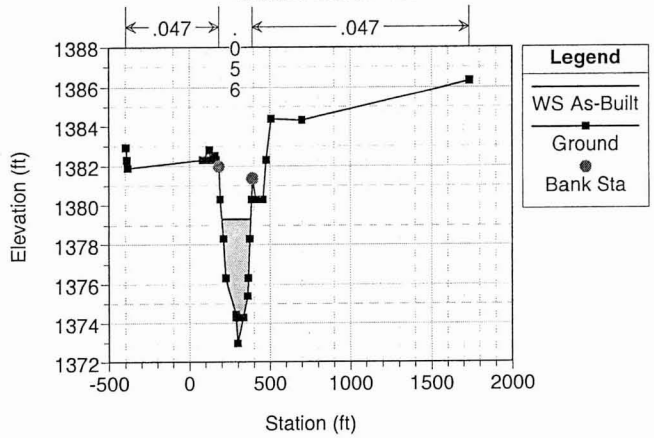
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Entellus Station 4.639



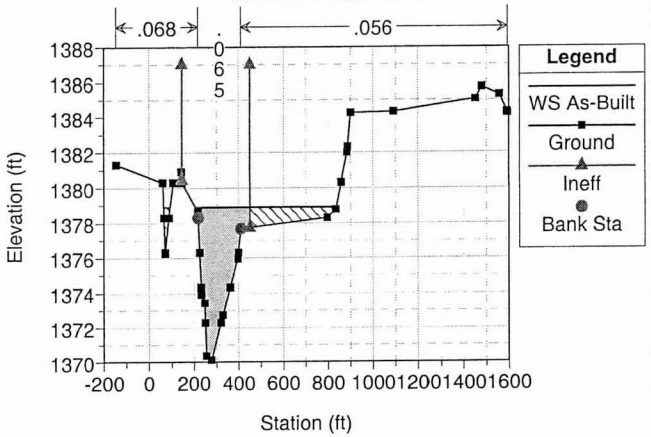
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Entellus Station 4.583



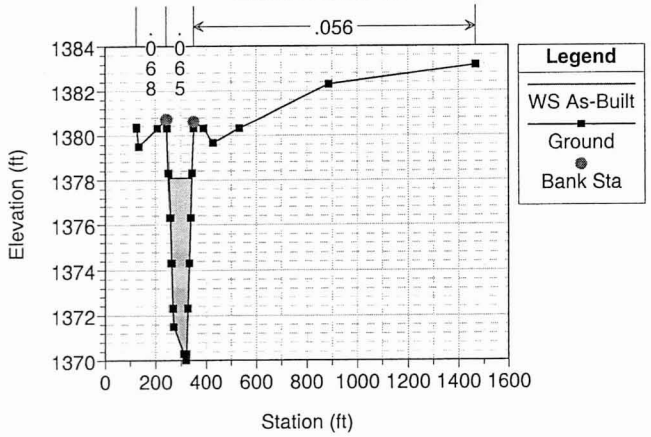
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Entellus Station 4.503



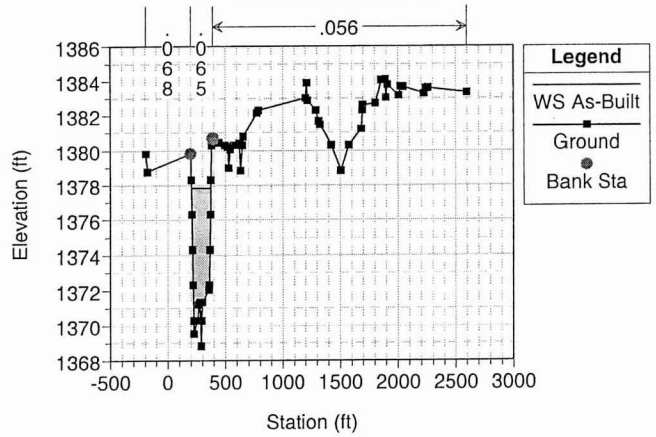
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Entellus Station 4.417



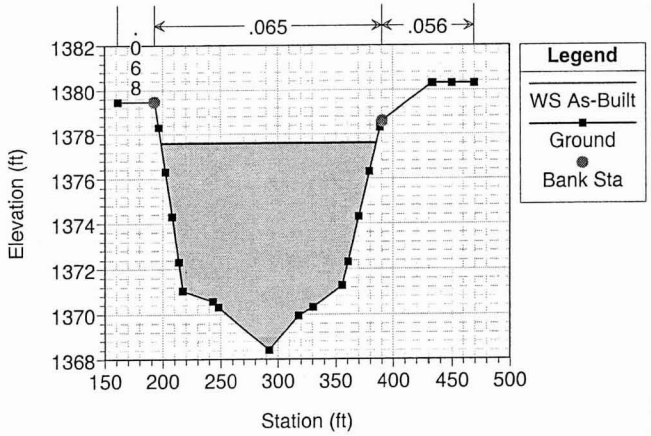
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Entellus Station 4.358



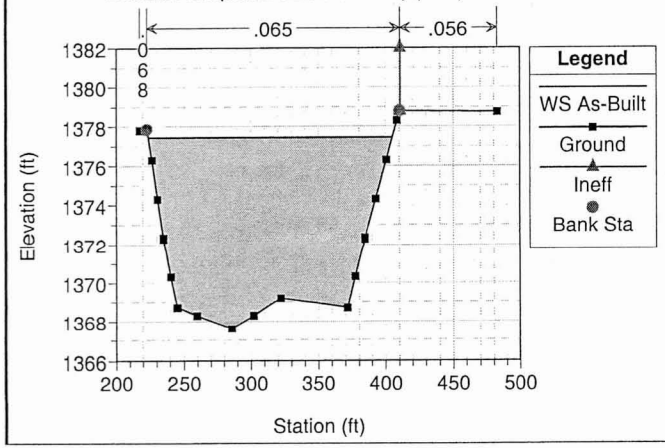
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Entellus Station 4.283



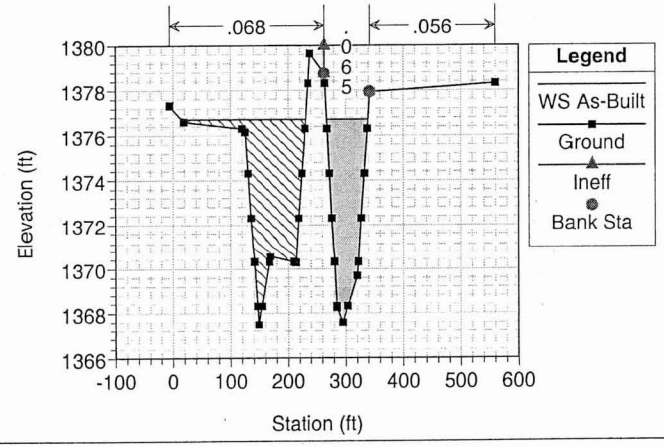
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Entellus Floodplain Delineation Study (FDS) Station 4.202

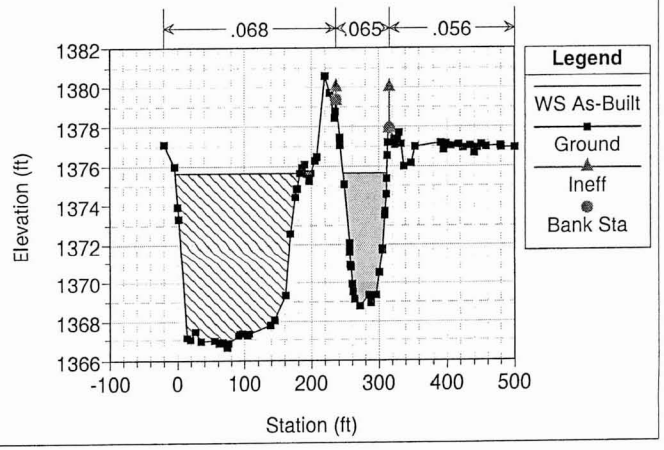


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Entellus Floodplain Delineation Study (FDS) Station 4.110

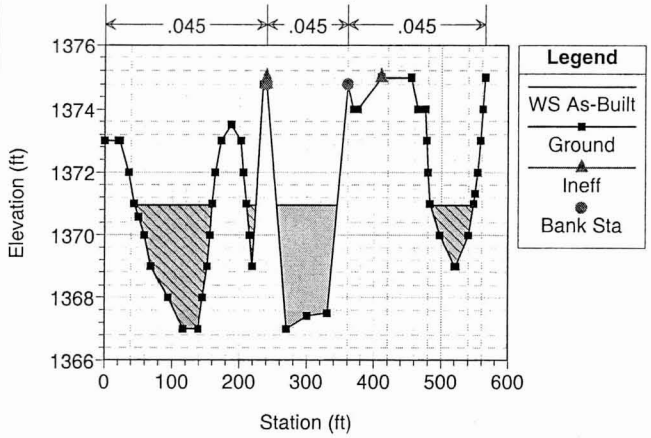


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

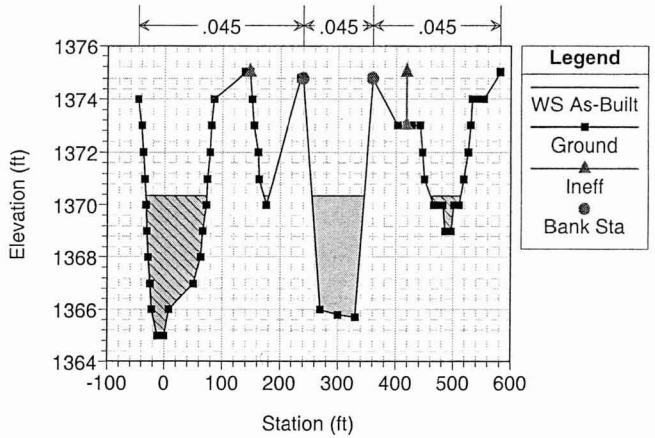


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

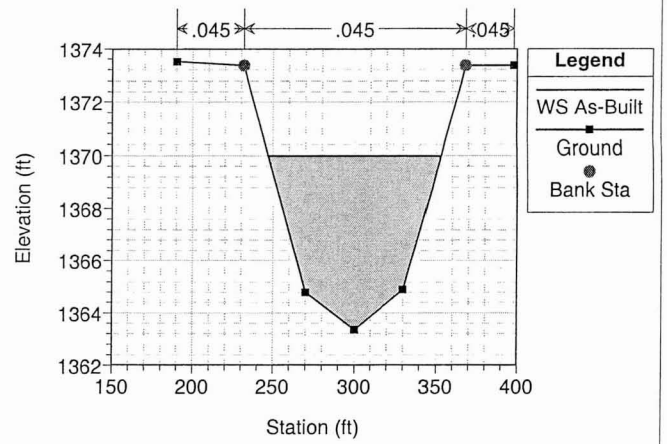
End Channel Improvements



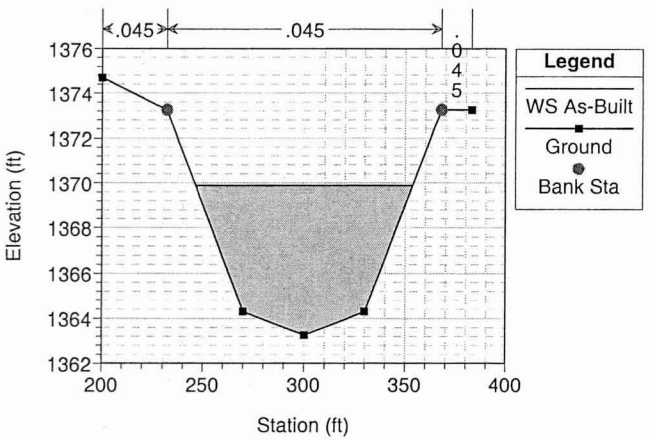
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



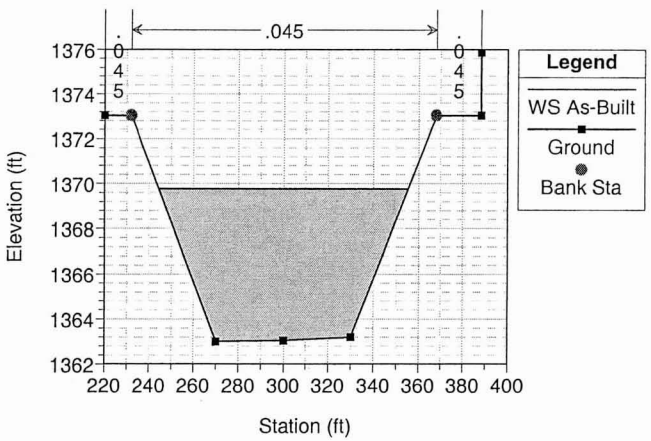
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

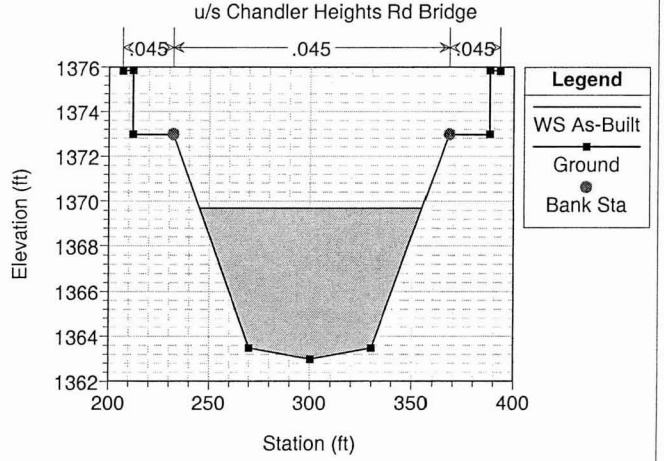


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



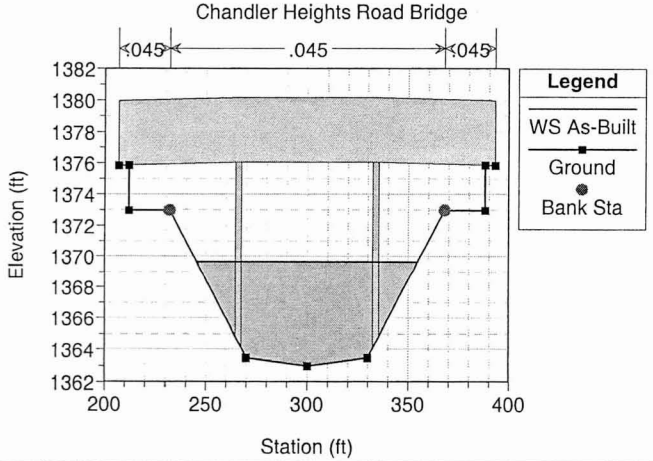
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

u/s Chandler Heights Rd Bridge



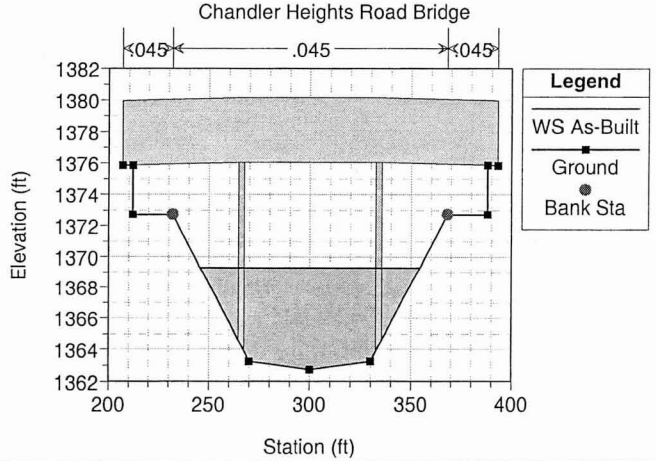
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Chandler Heights Road Bridge



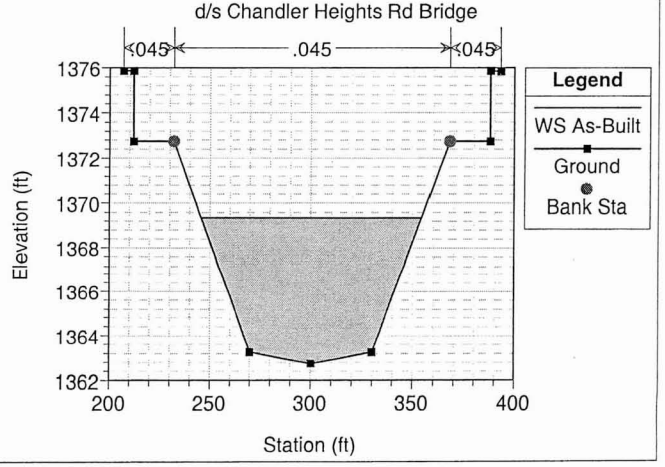
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Chandler Heights Road Bridge

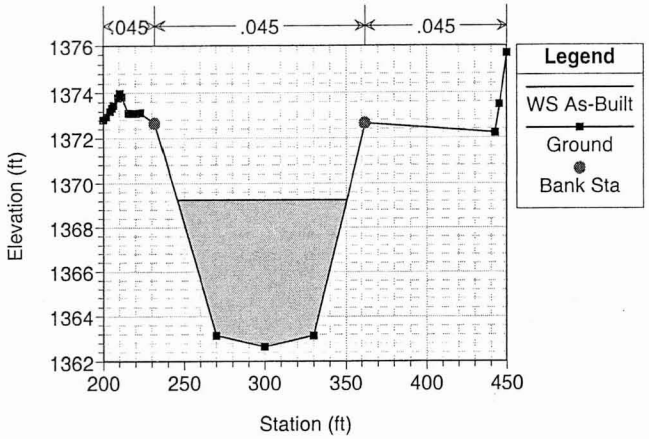


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

d/s Chandler Heights Rd Bridge

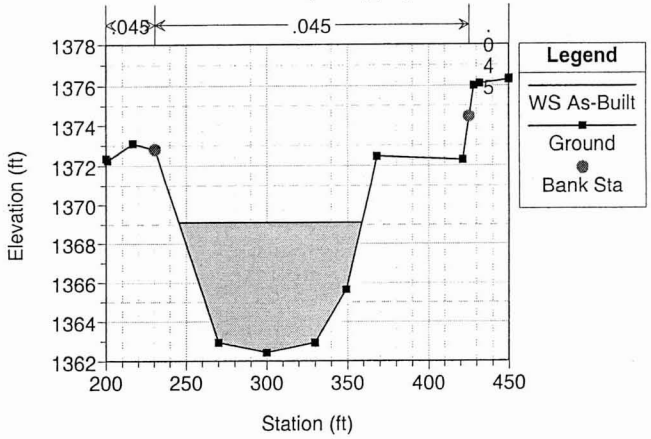


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

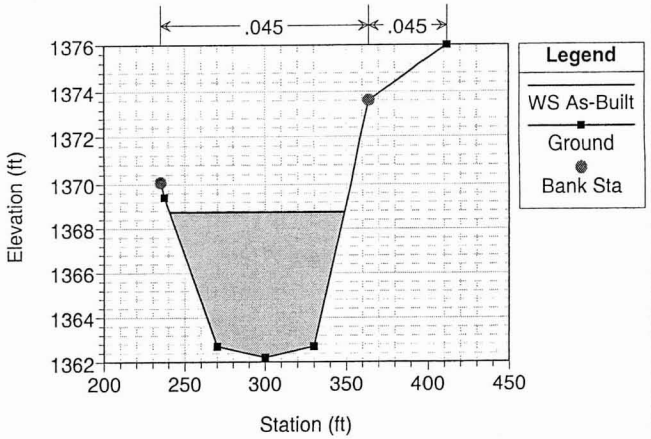


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

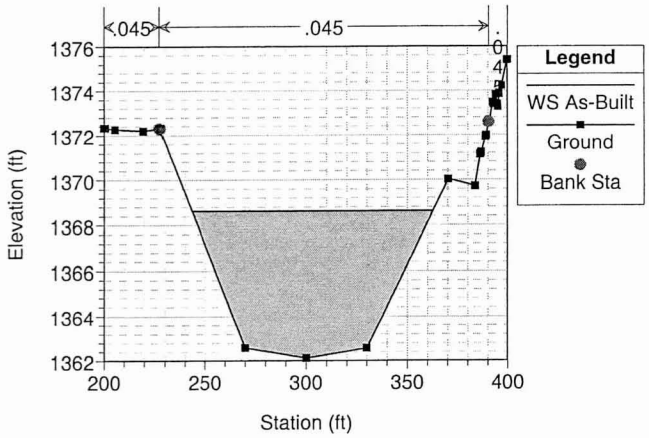
Check Sta 230.76 - May be appropriate to remove.



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

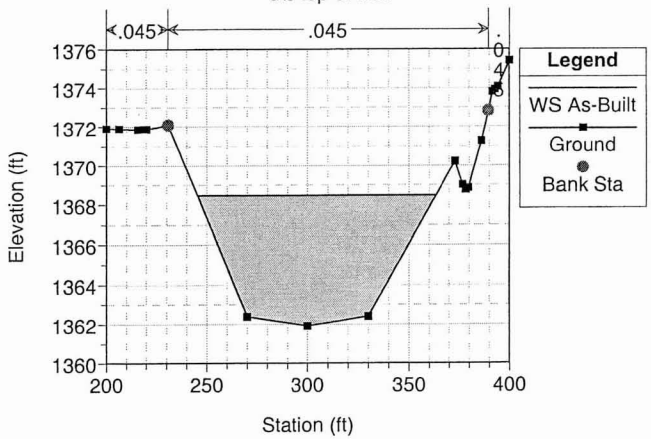


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



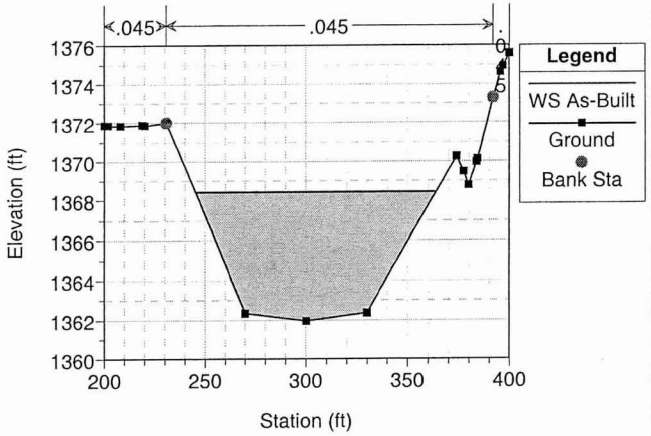
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

u\s top of weir

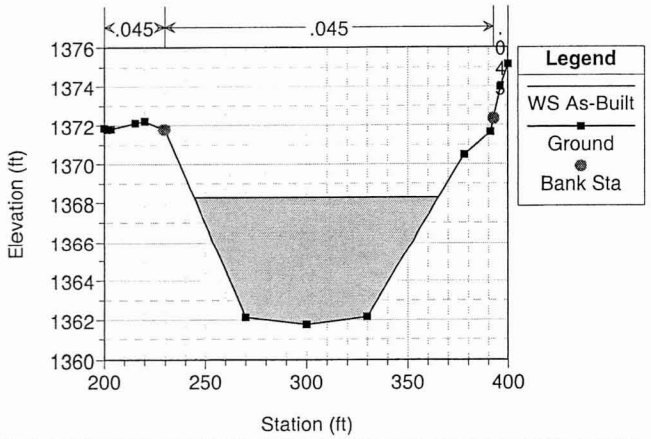


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

u\s toe of weir

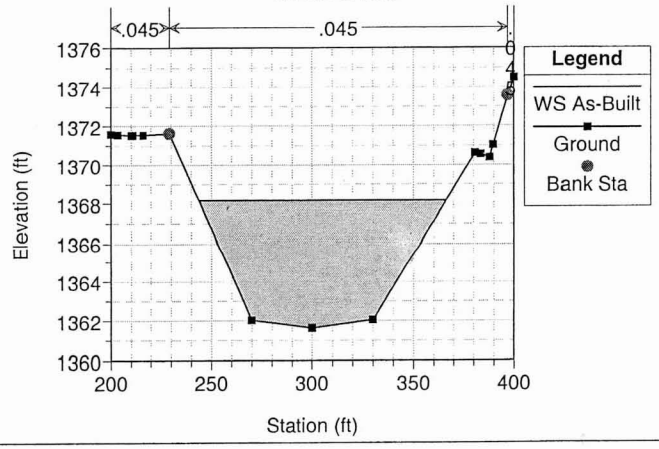


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



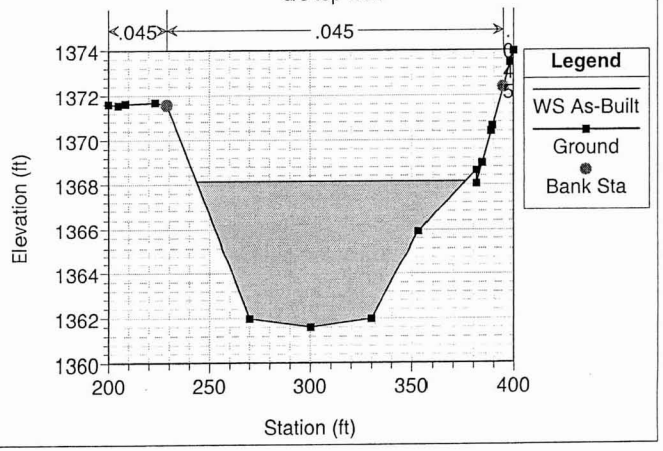
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

d/s toe of weir

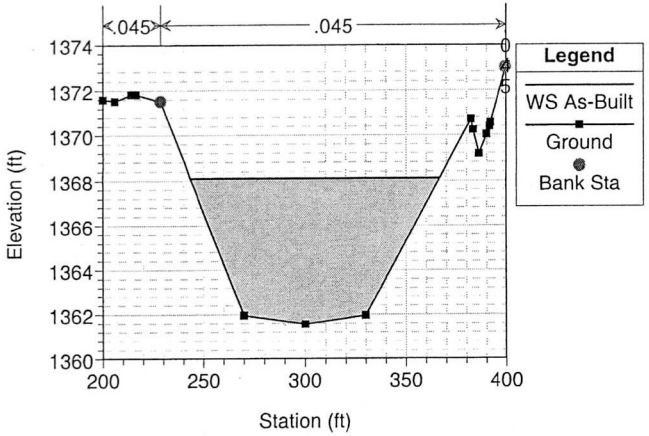


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

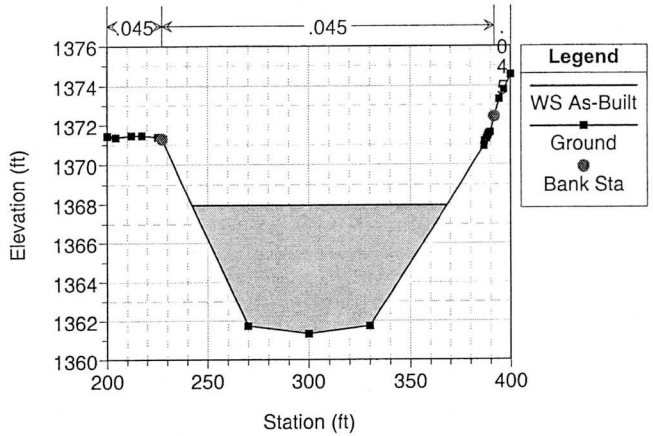
d/s top weir



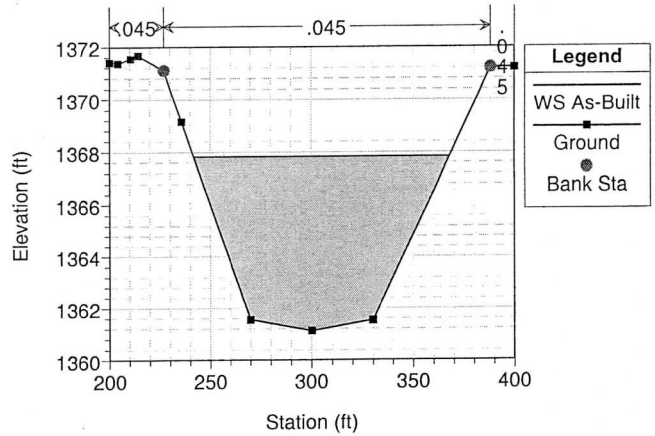
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



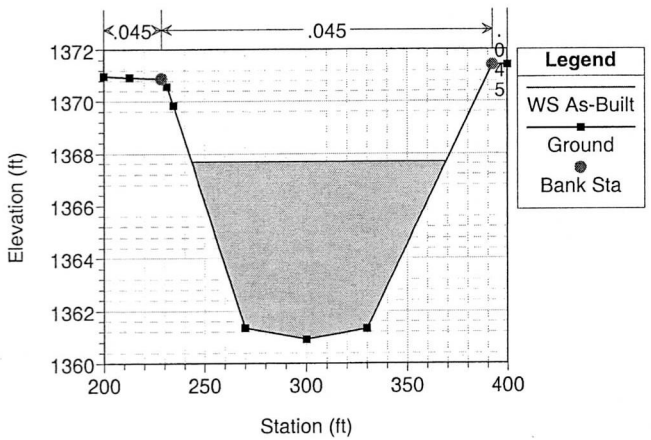
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



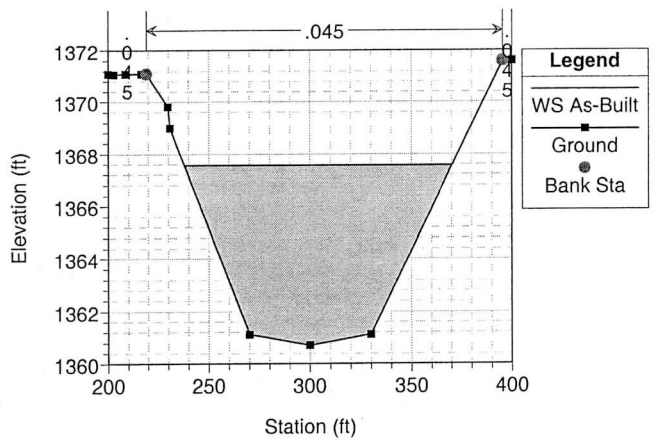
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



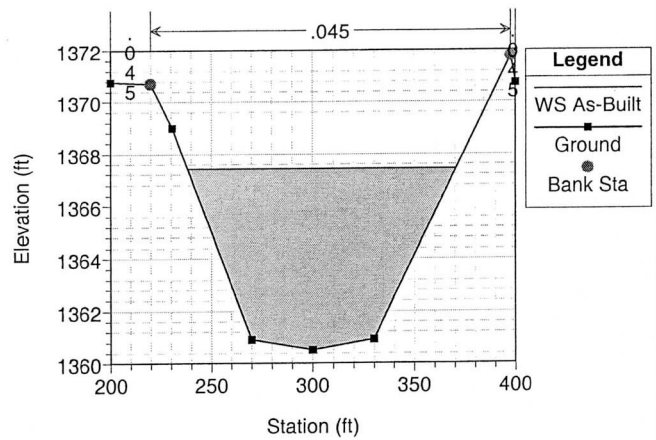
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



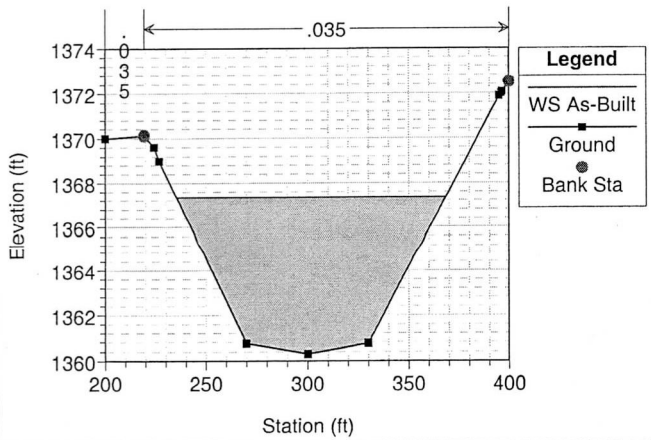
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

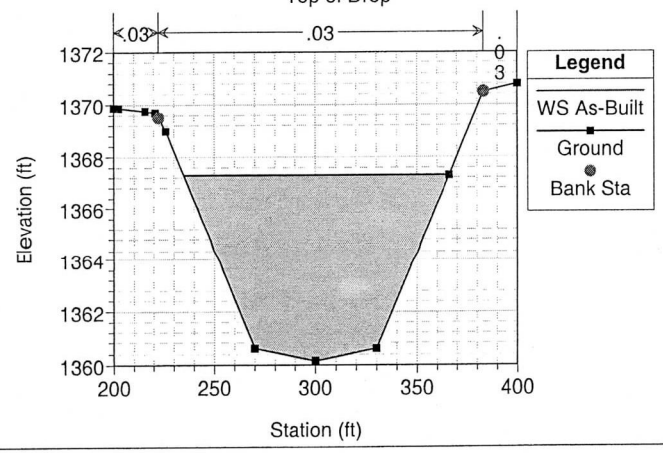


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



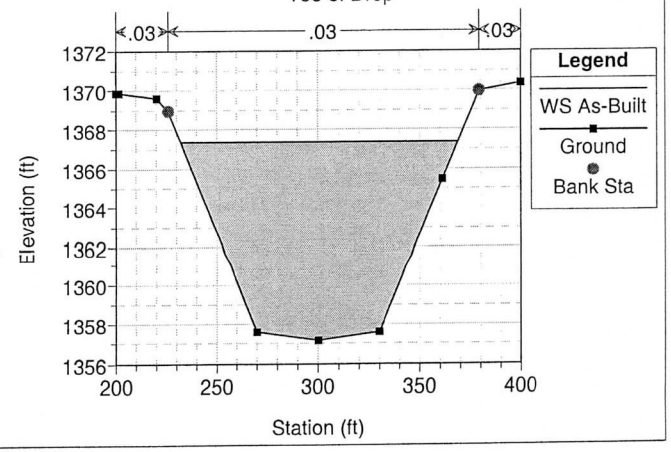
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Top of Drop

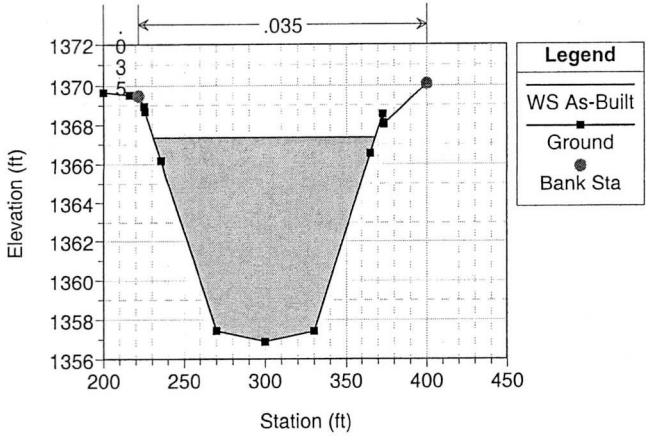


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

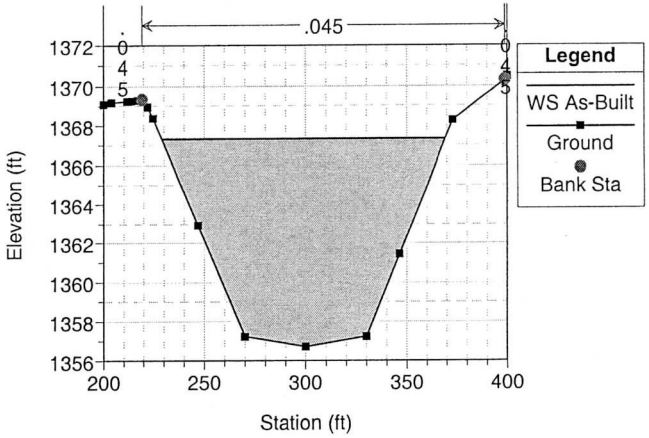
Toe of Drop



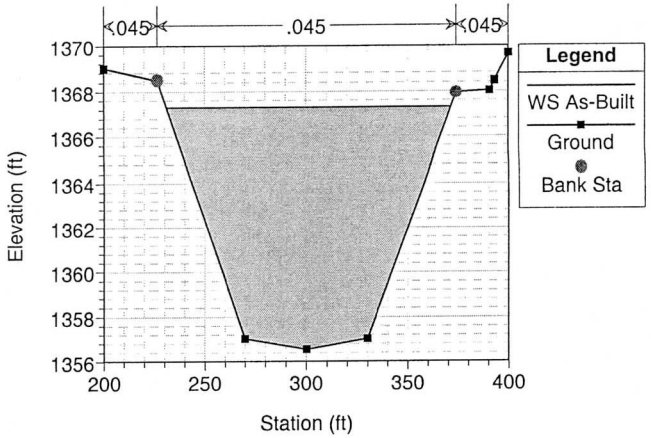
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



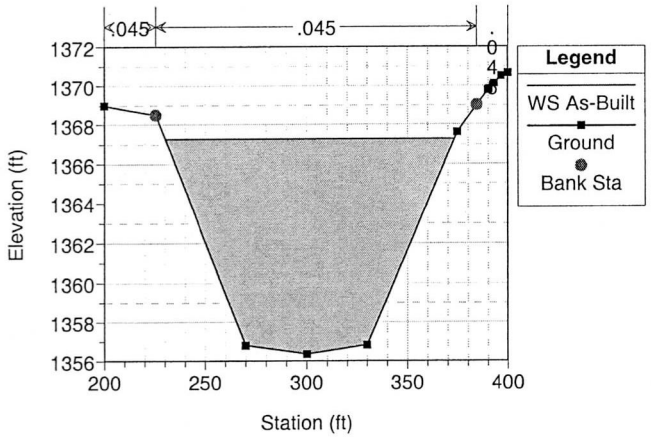
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



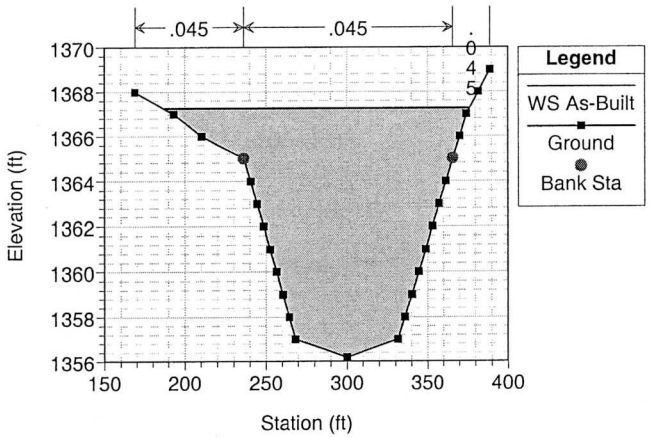
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

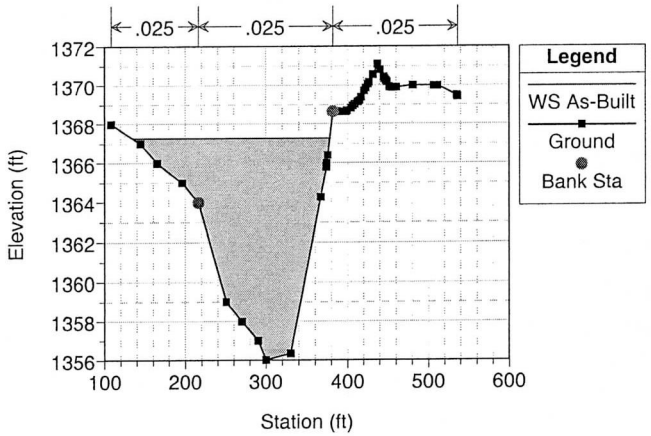


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



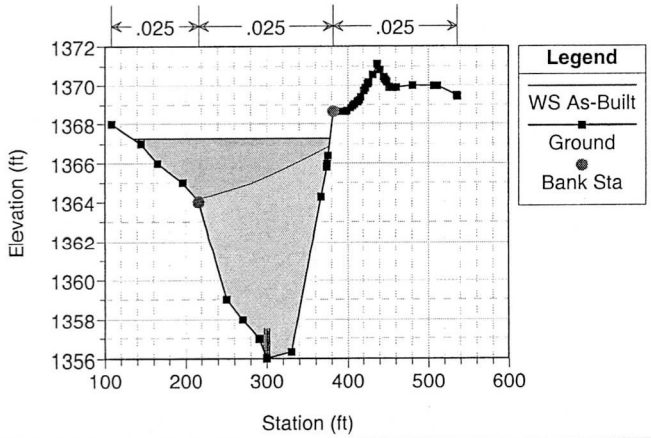
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

u/s sossaman rd



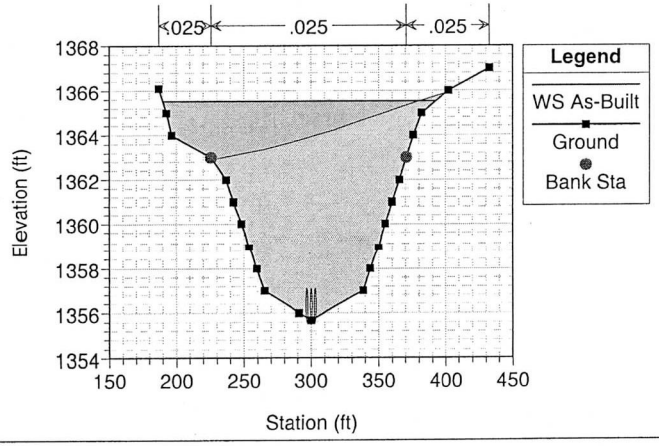
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Sossaman Road - 24" culverts constructed, modeled as 18" to acco



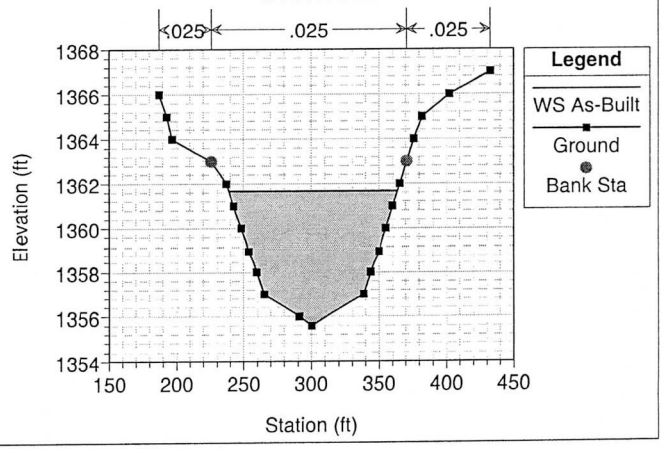
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Sossaman Road - 24" culverts constructed, modeled as 18" to acco

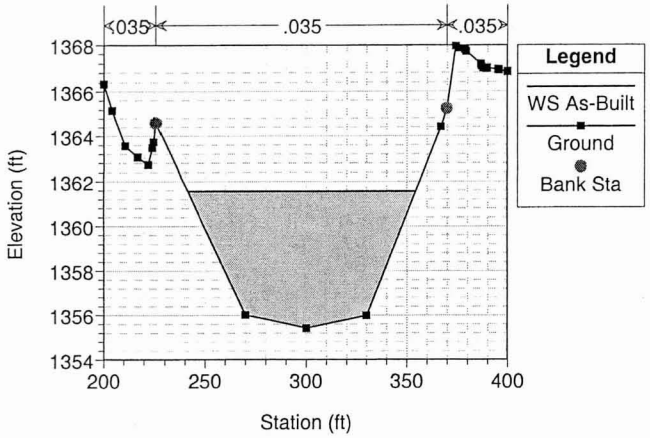


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

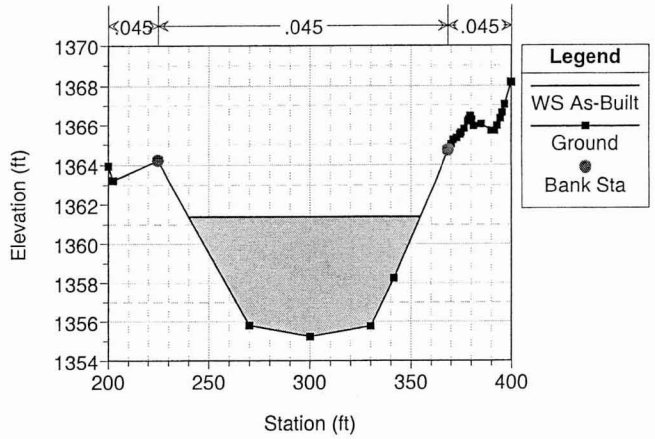
d/s sossaman rd



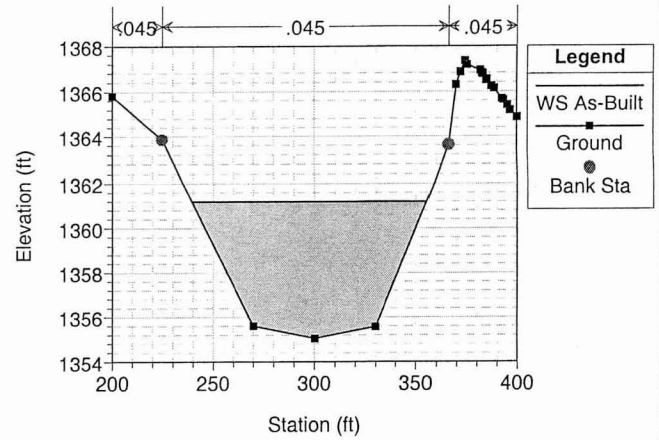
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



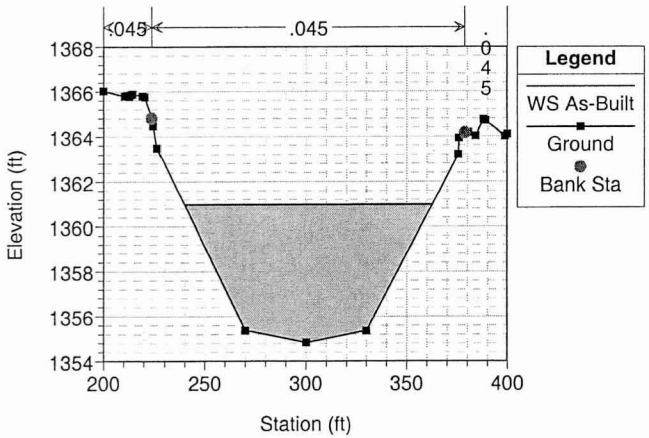
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



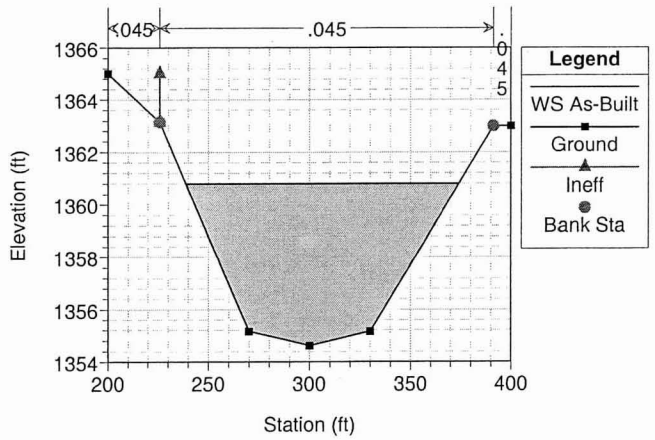
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



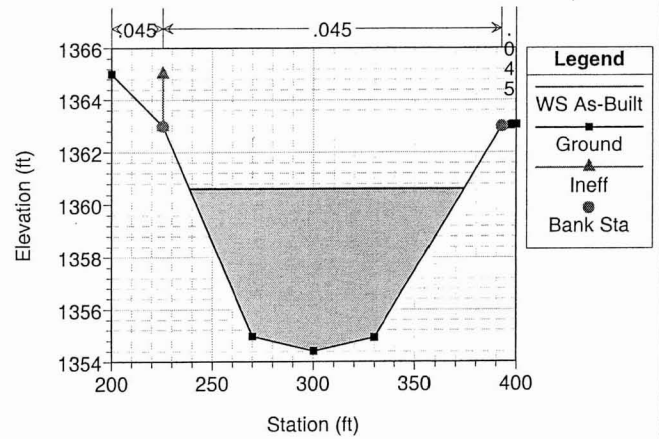
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



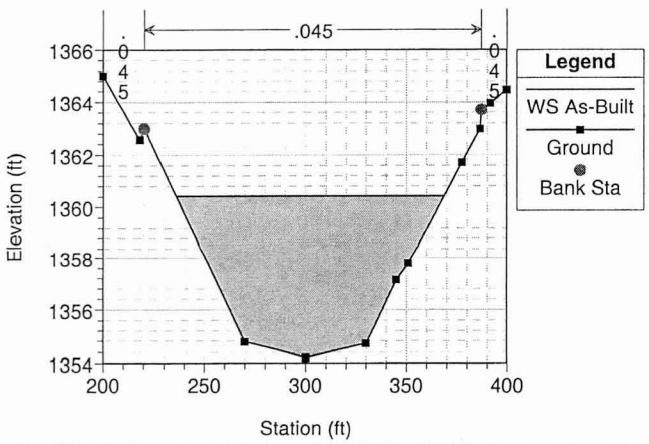
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



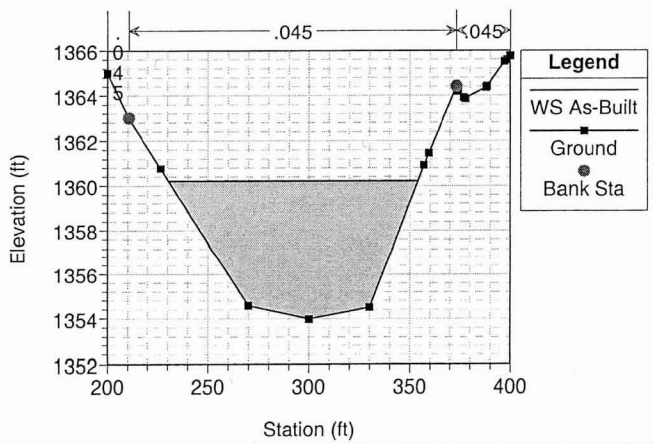
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



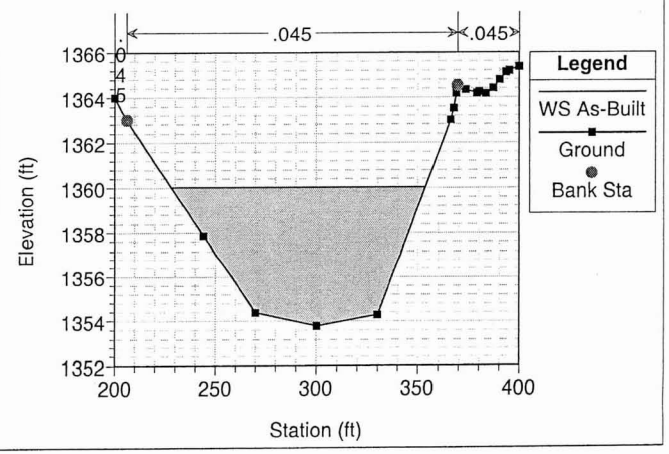
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



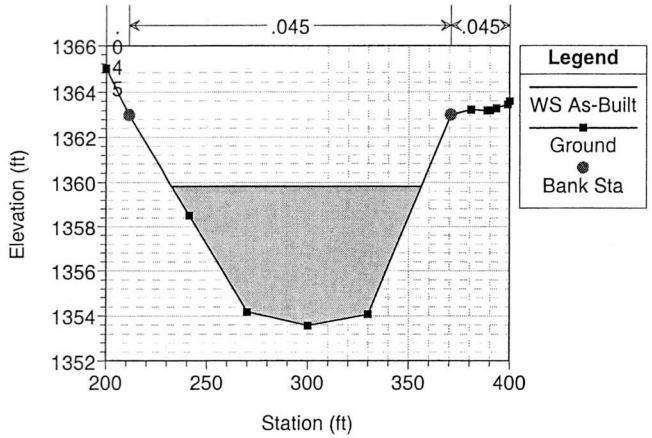
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



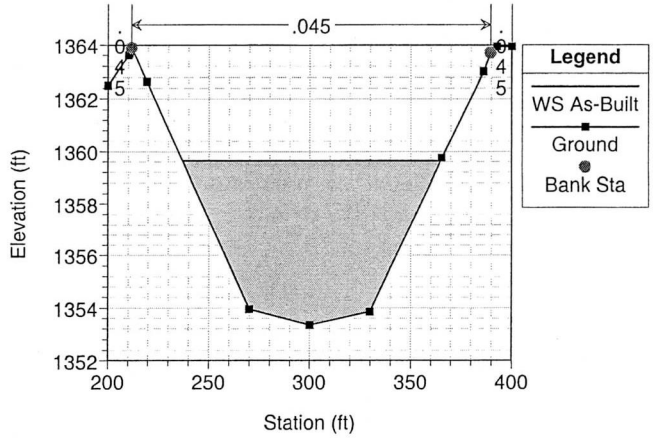
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



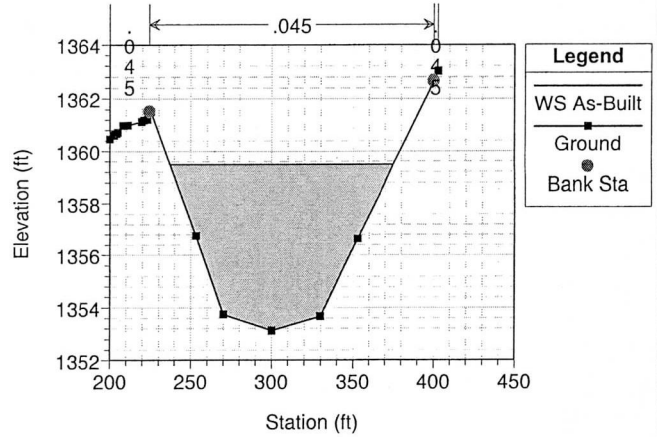
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



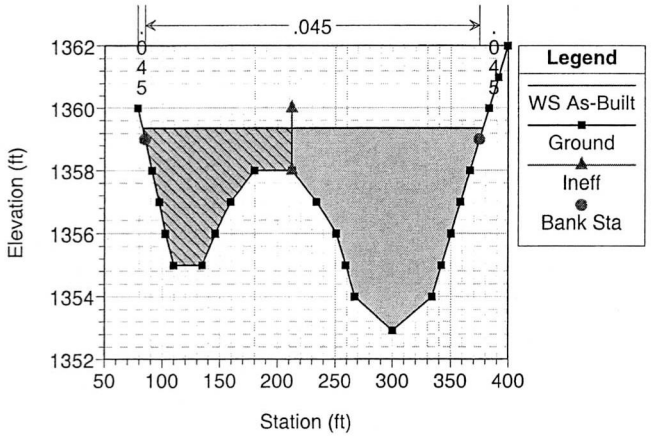
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



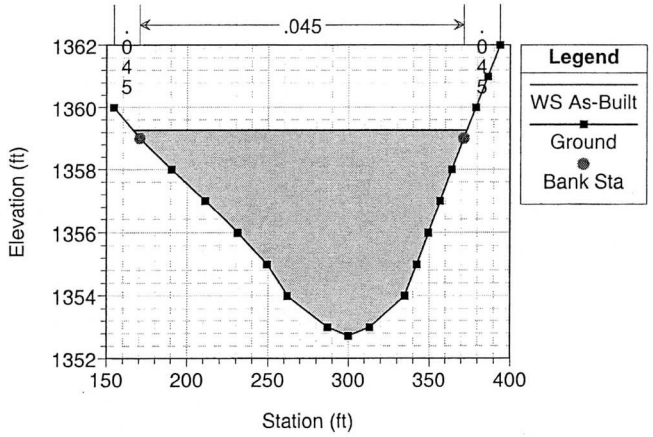
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



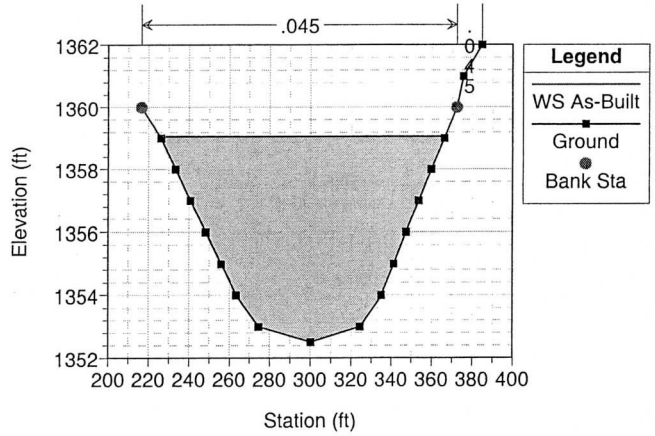
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



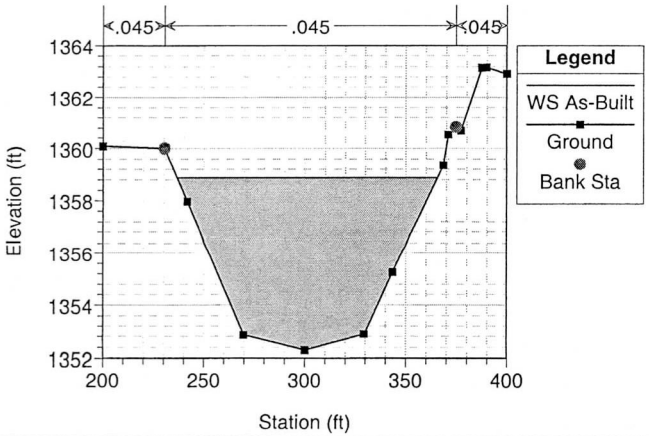
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



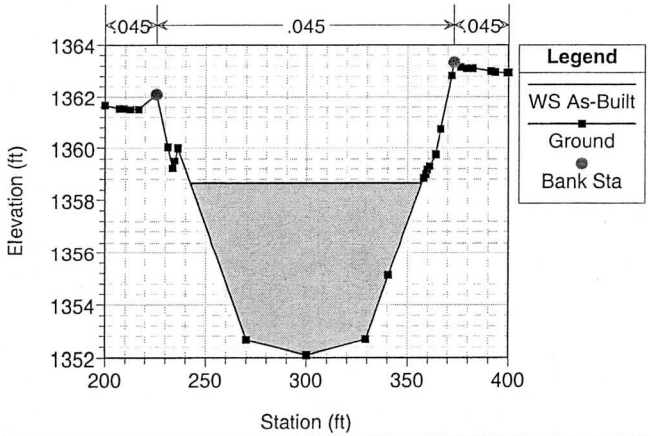
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



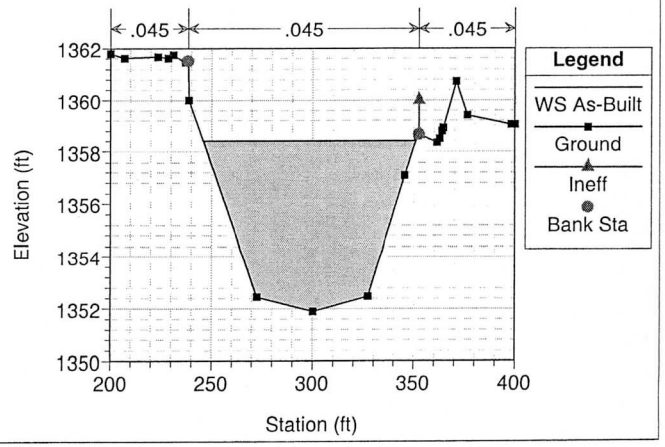
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



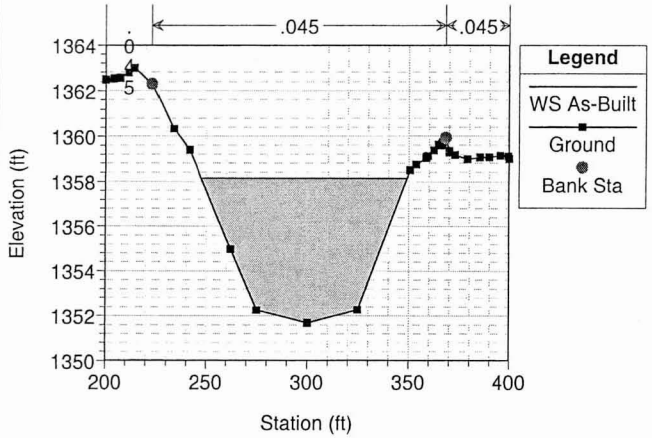
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



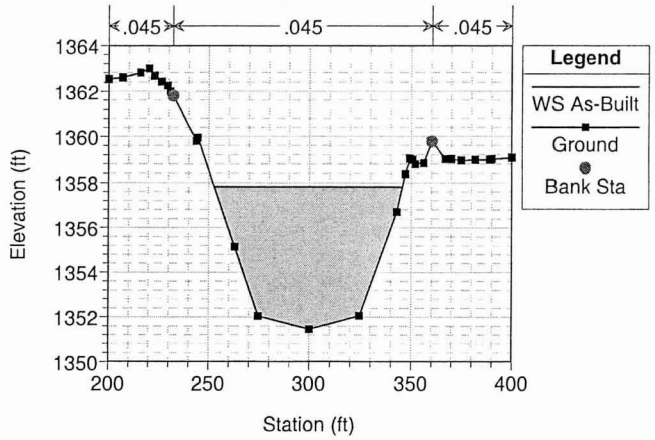
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



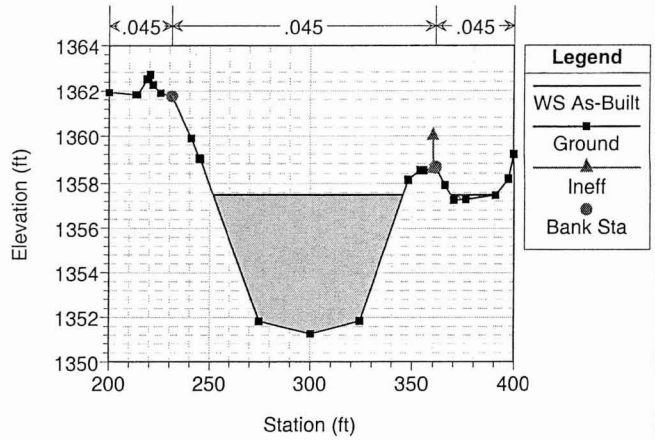
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



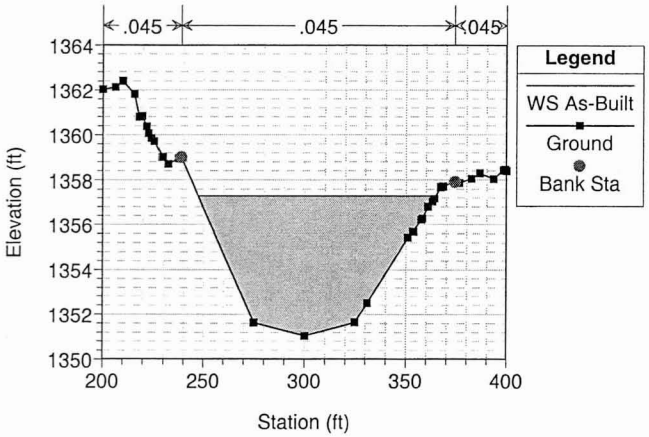
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



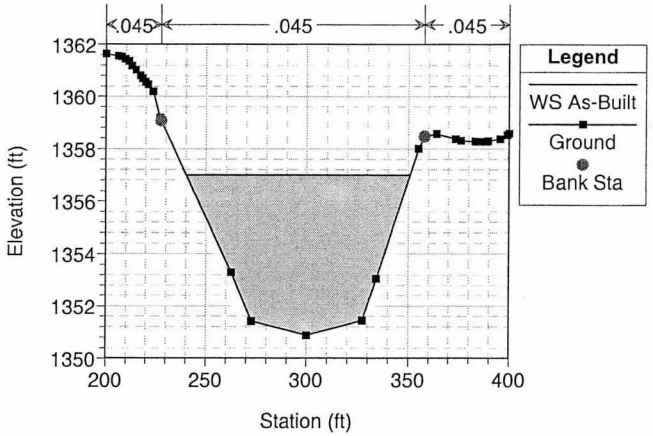
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



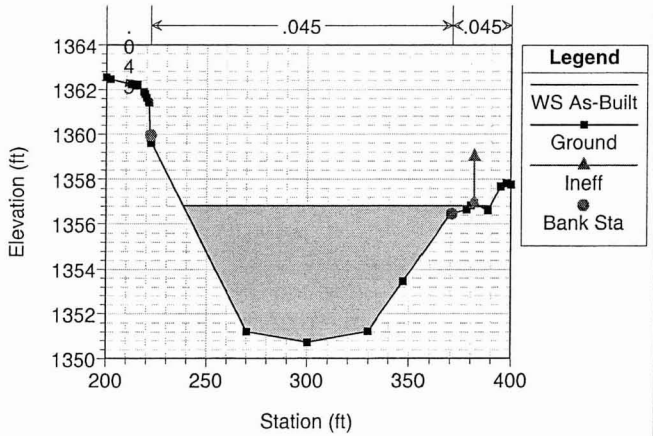
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



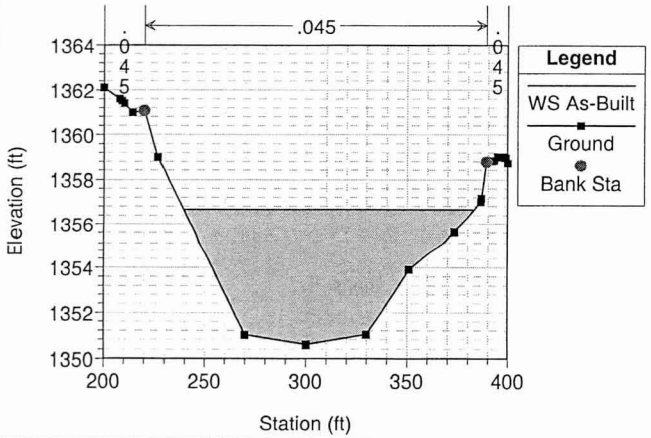
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



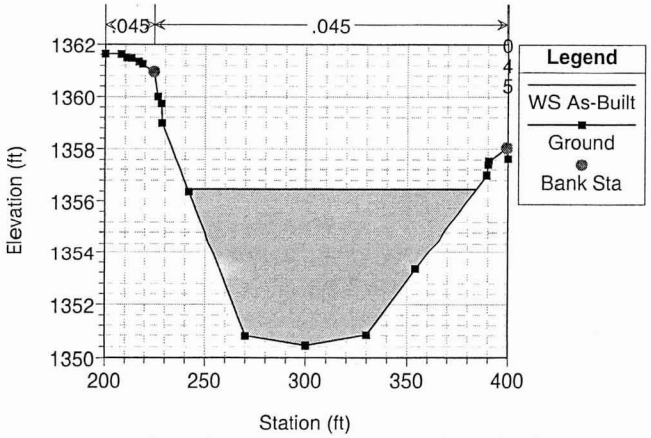
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



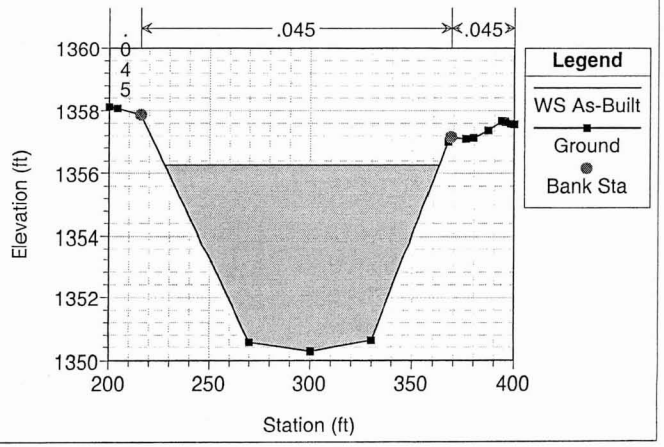
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



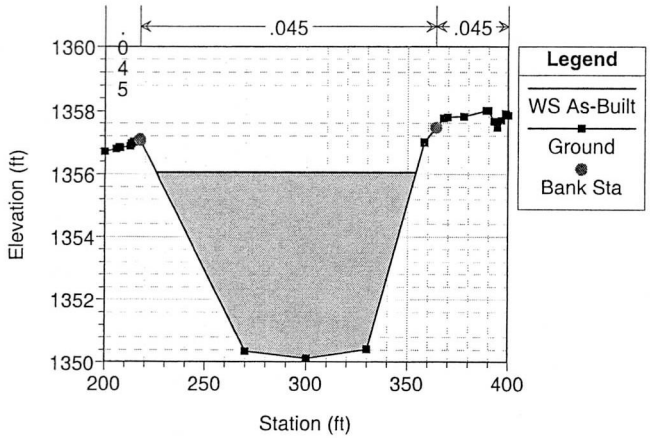
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



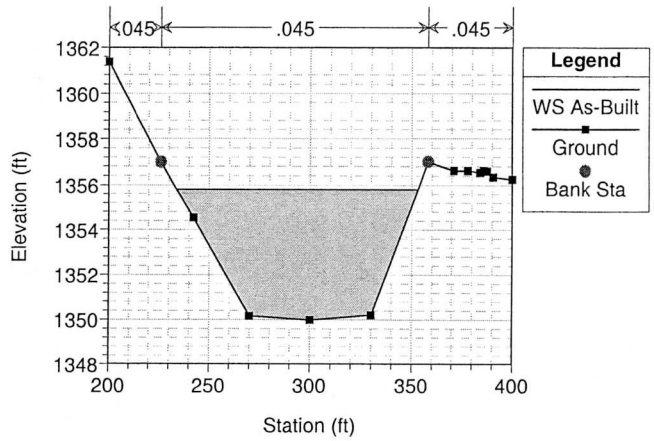
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



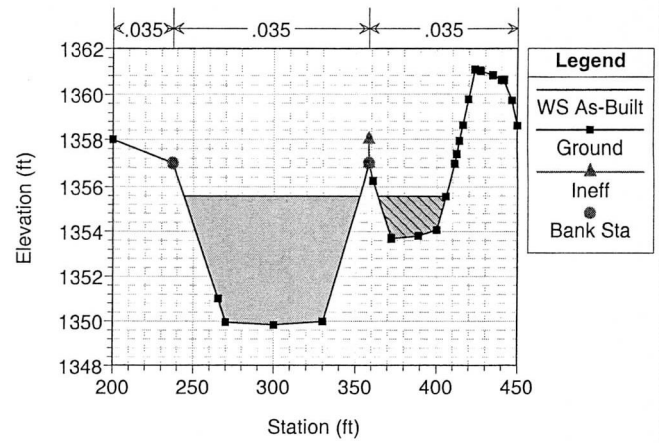
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



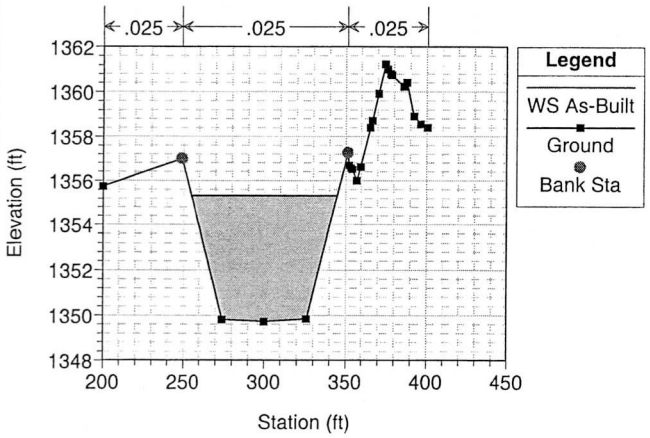
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



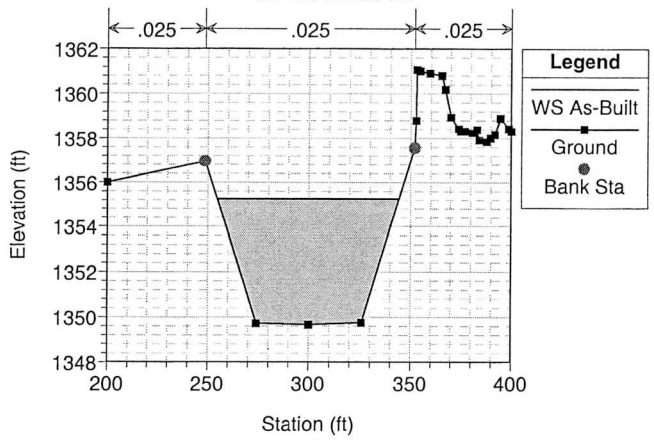
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



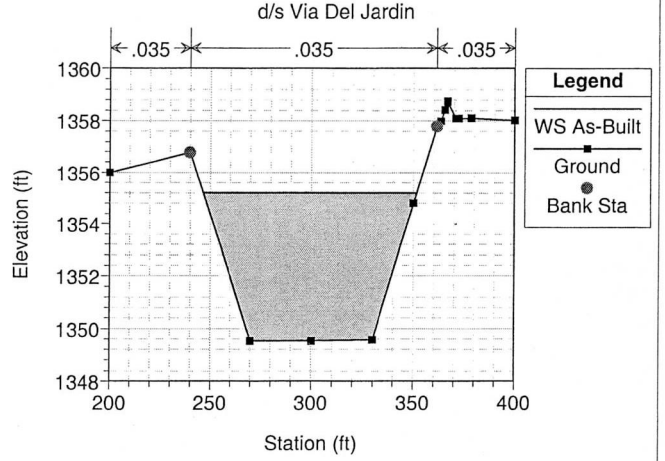
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



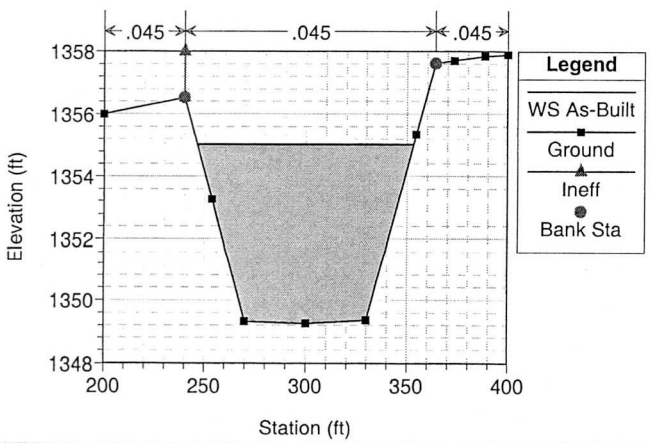
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008
u/s Via Del Jardin



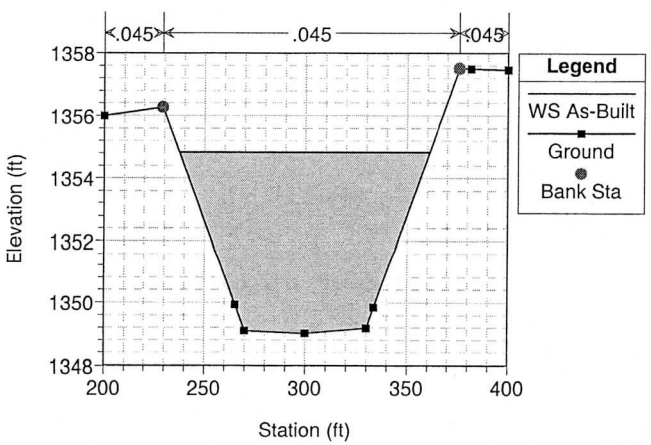
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008
d/s Via Del Jardin



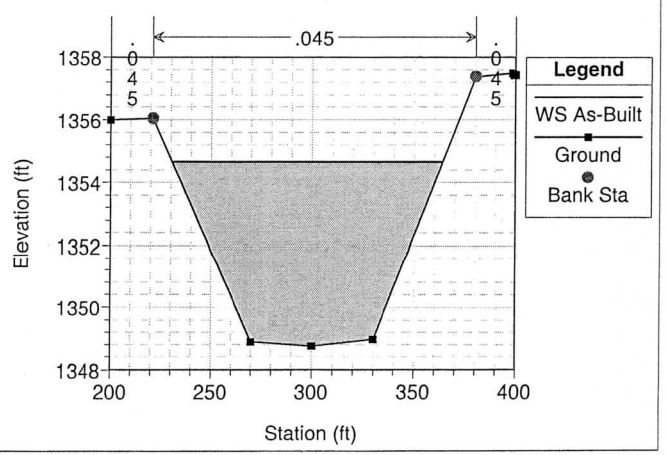
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



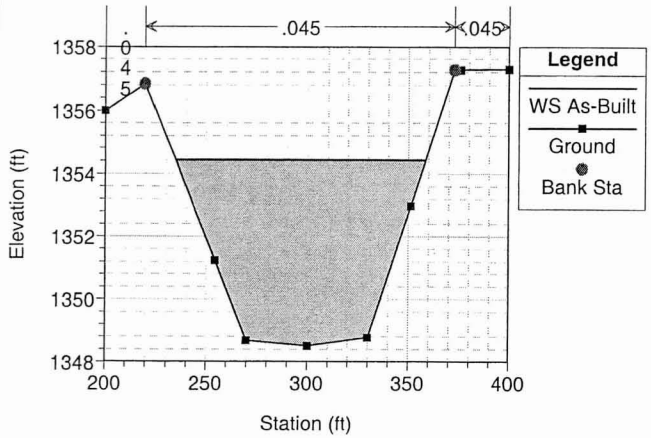
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



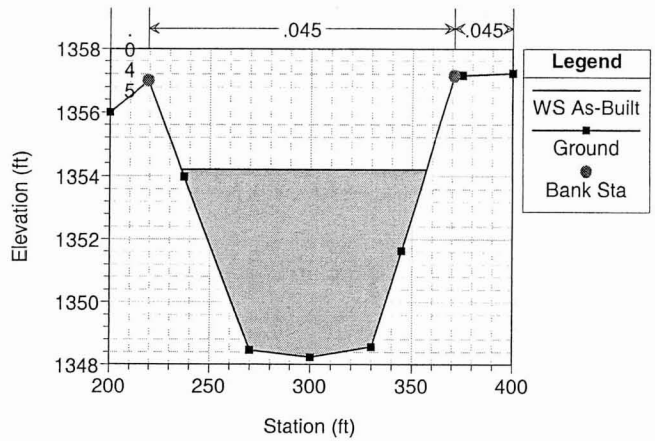
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



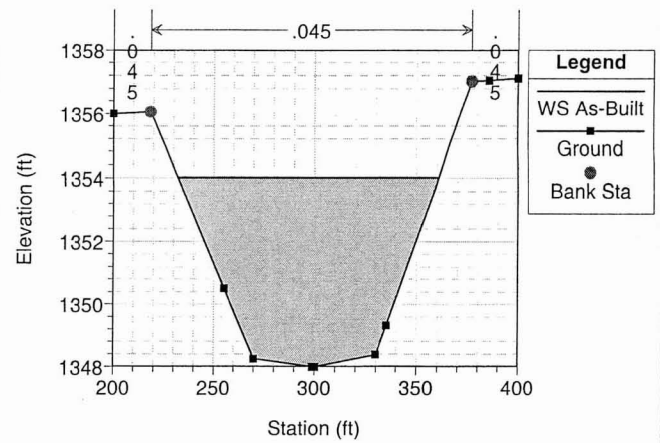
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



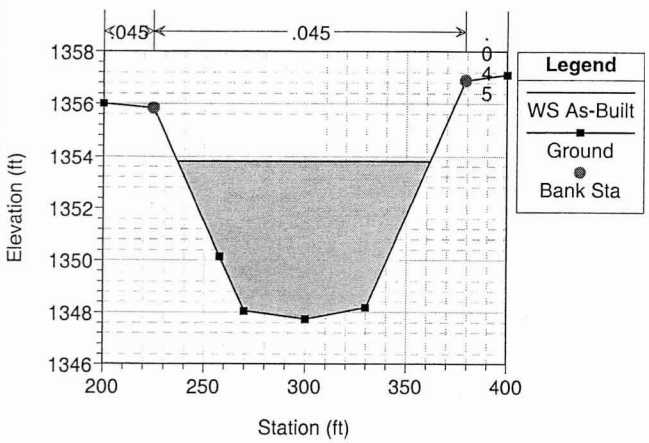
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



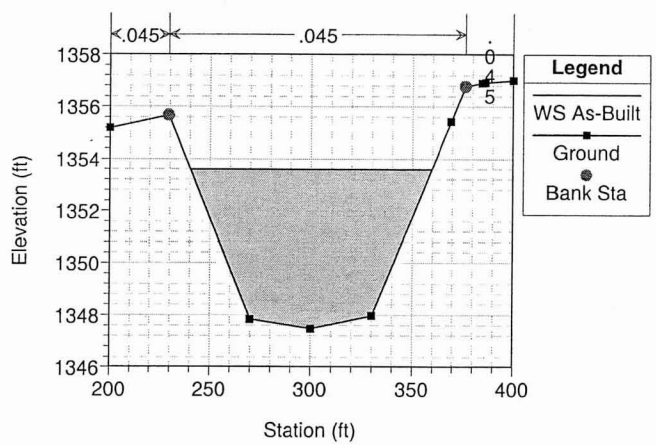
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



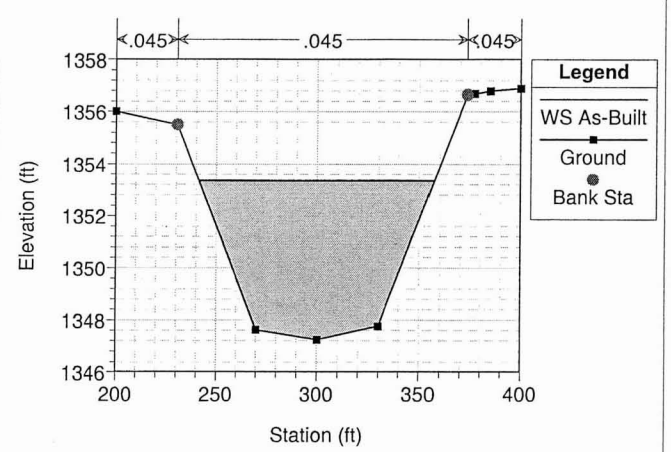
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



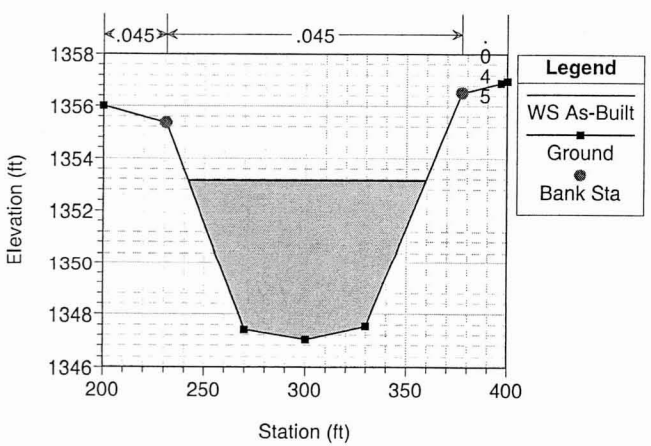
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



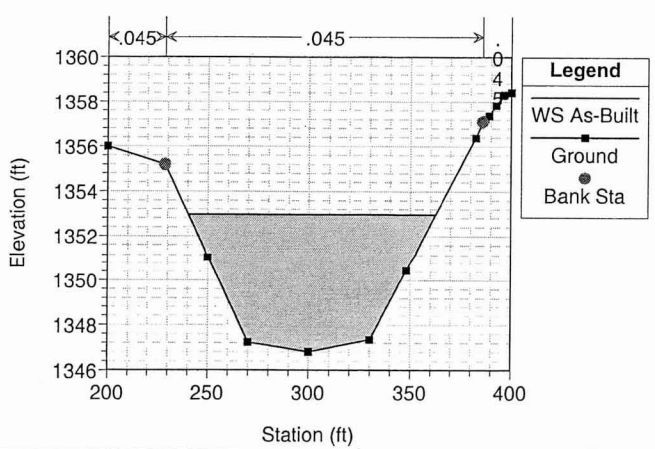
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



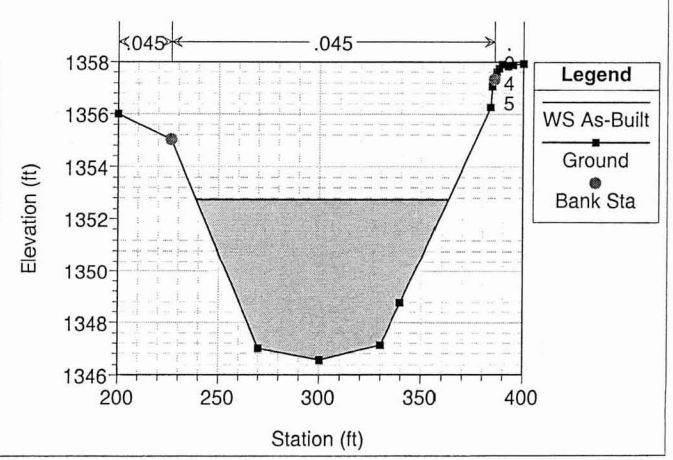
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



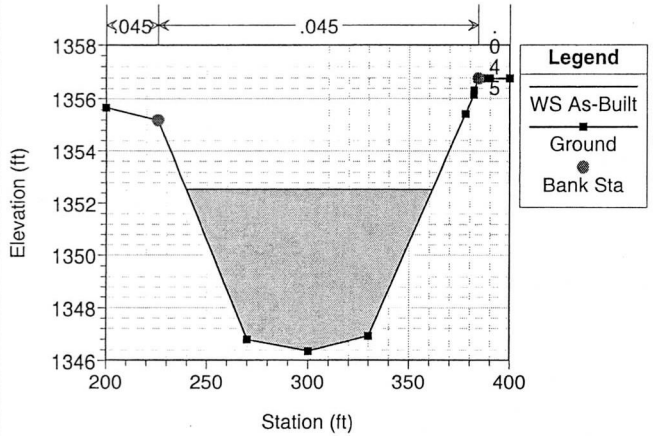
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



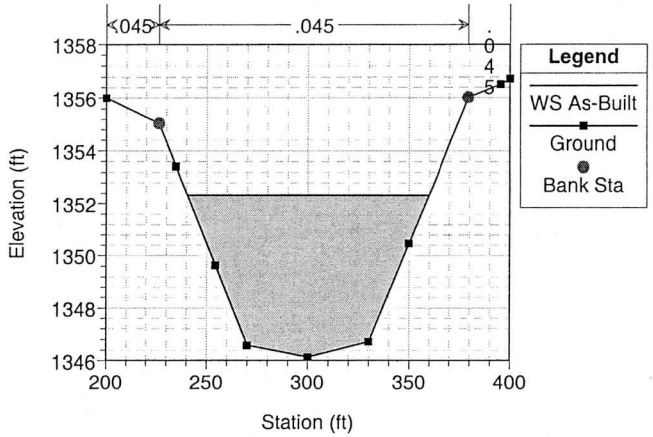
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



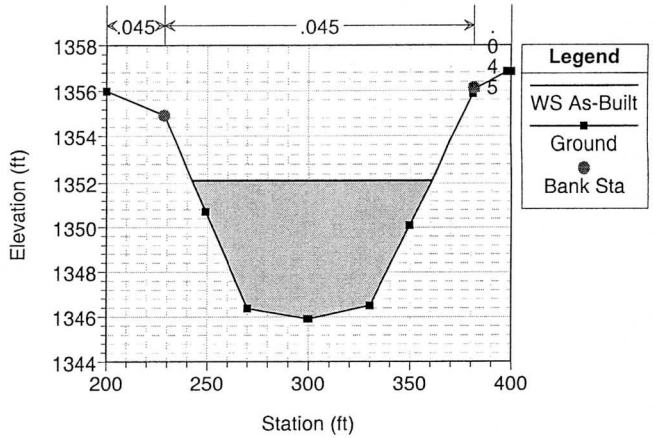
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



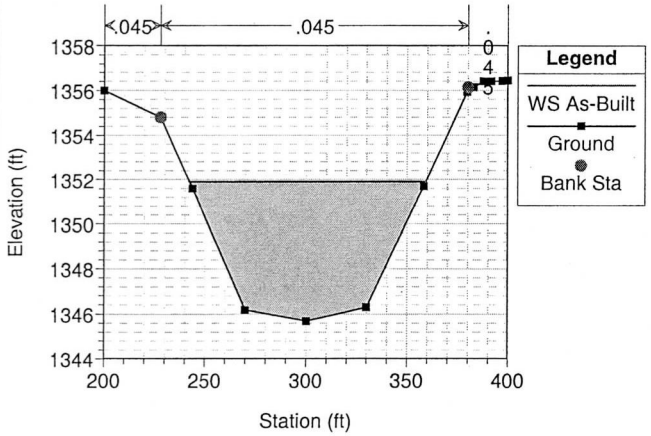
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



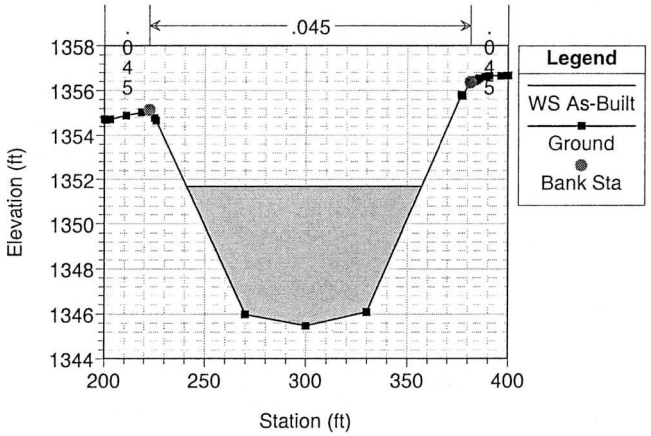
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



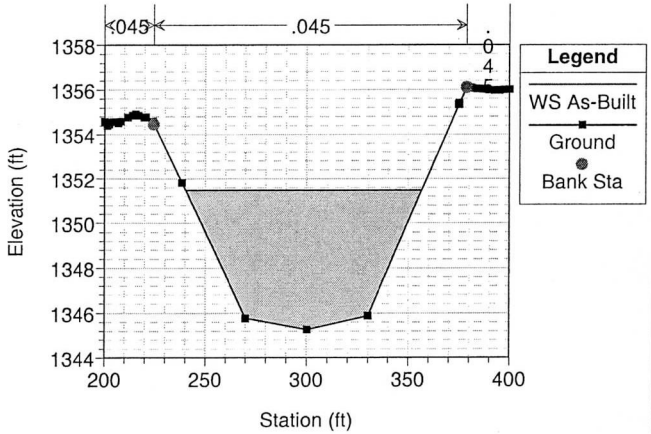
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



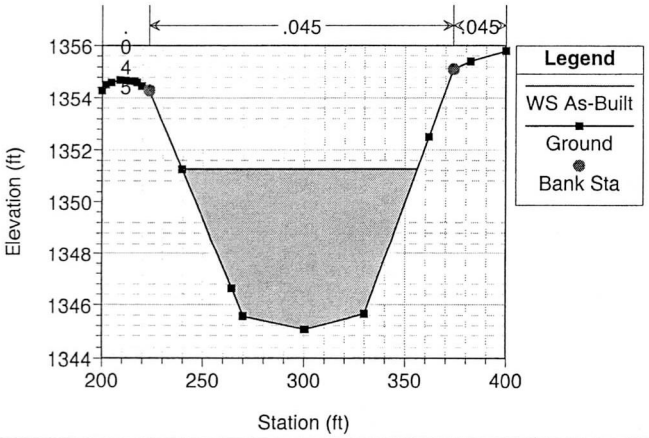
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



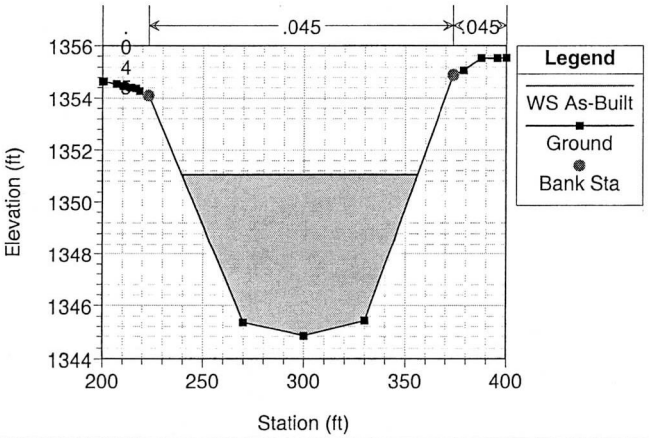
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



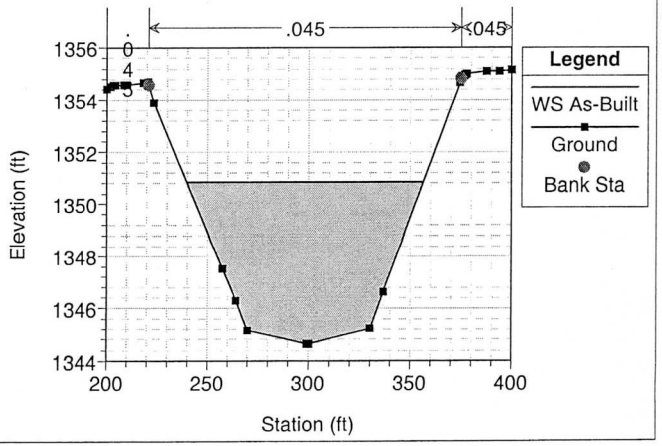
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



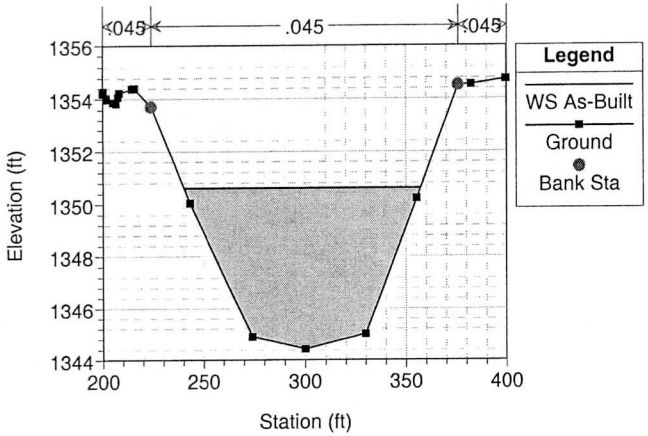
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



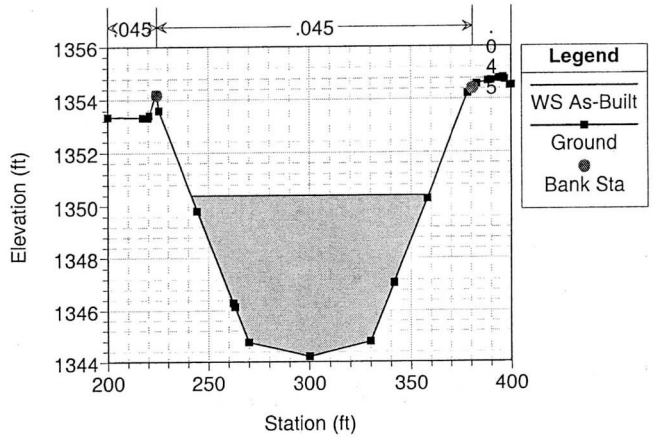
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



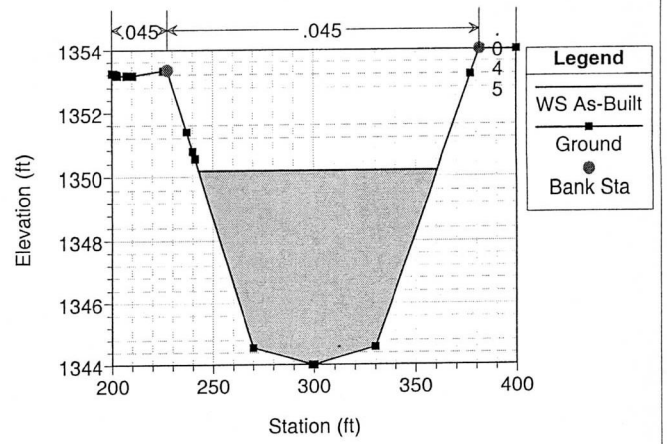
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



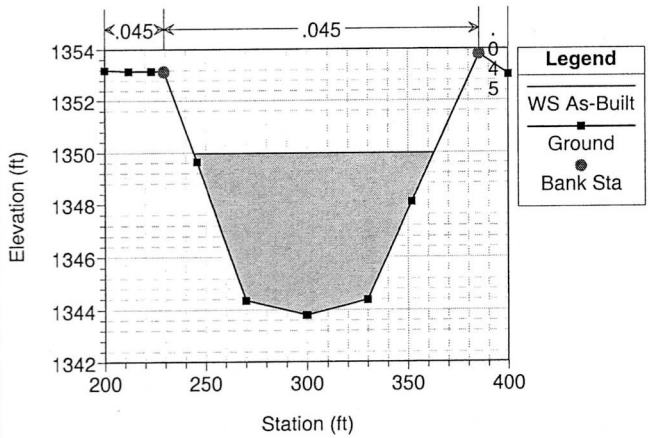
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



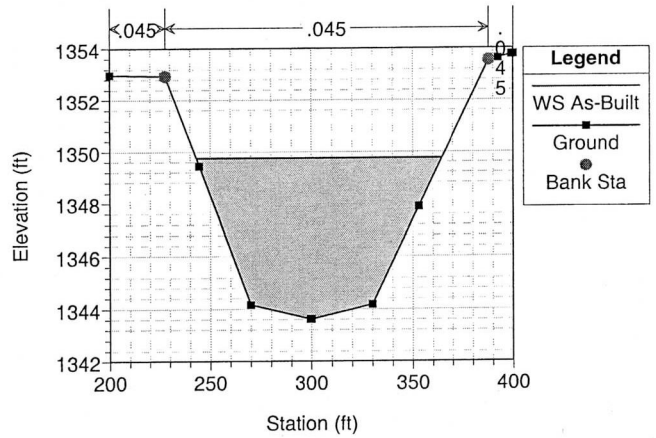
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



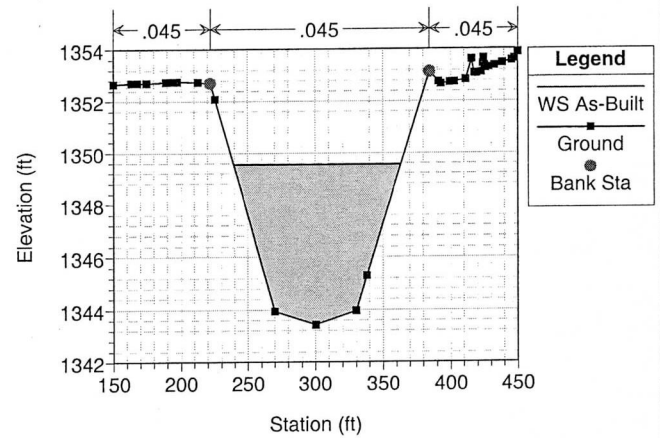
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



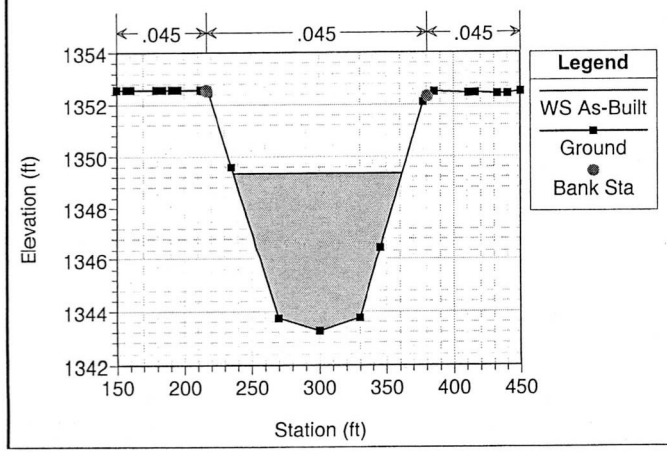
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



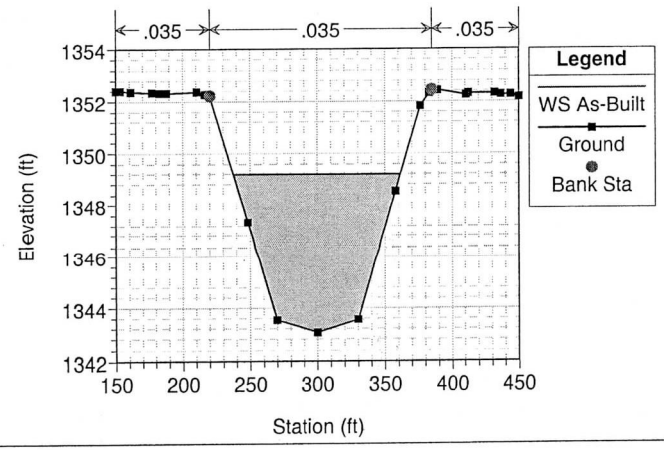
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

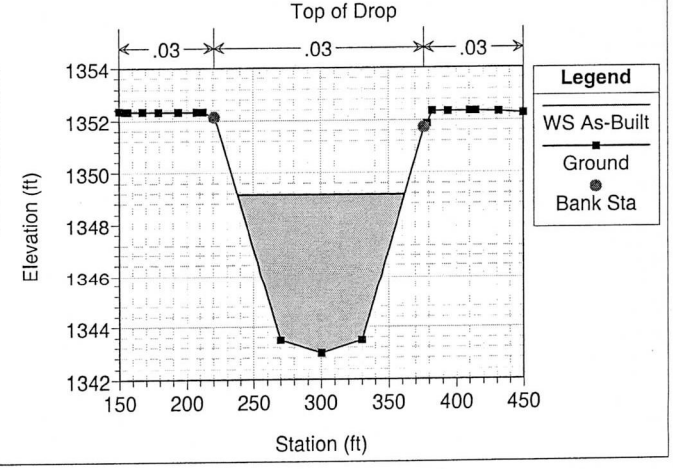


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



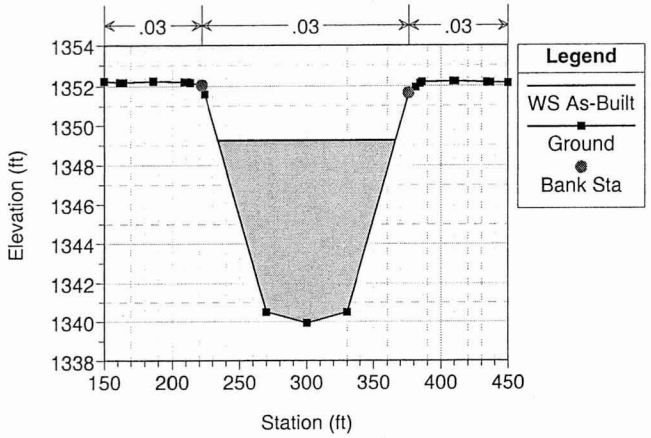
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Top of Drop

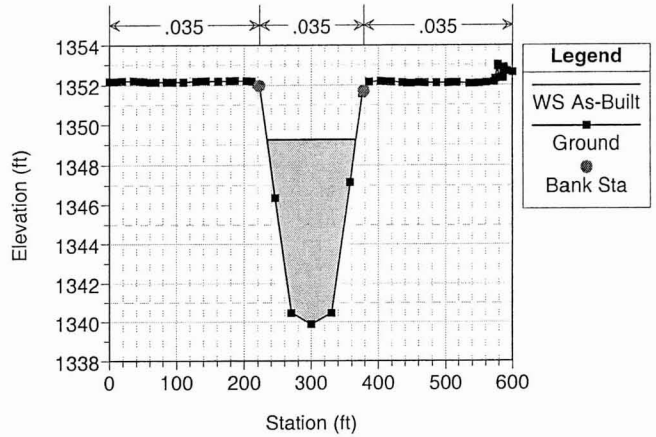


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

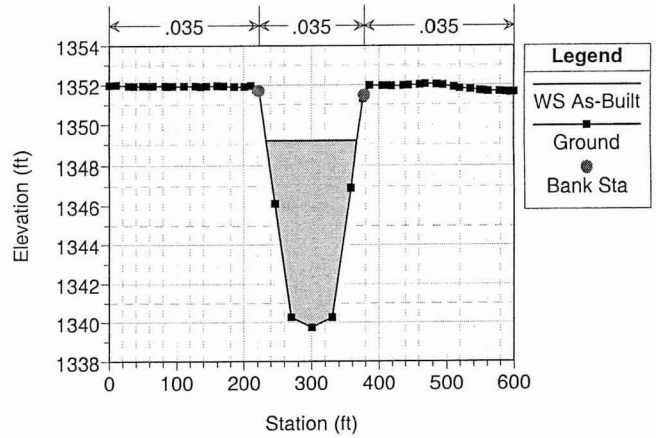
Toe of Drop



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

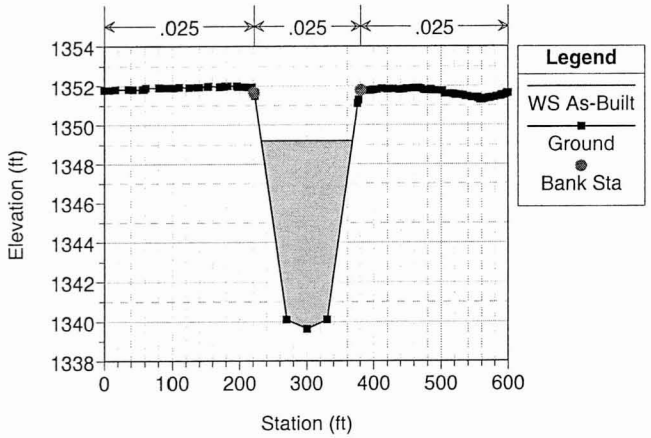


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



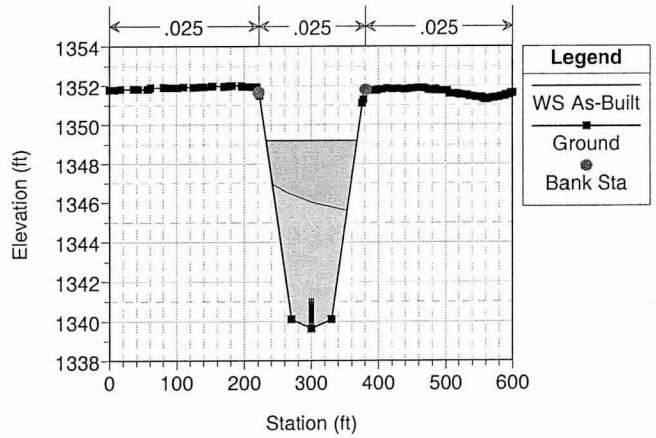
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

u/s power - 24" culverts constructed, modeled as 18" to account



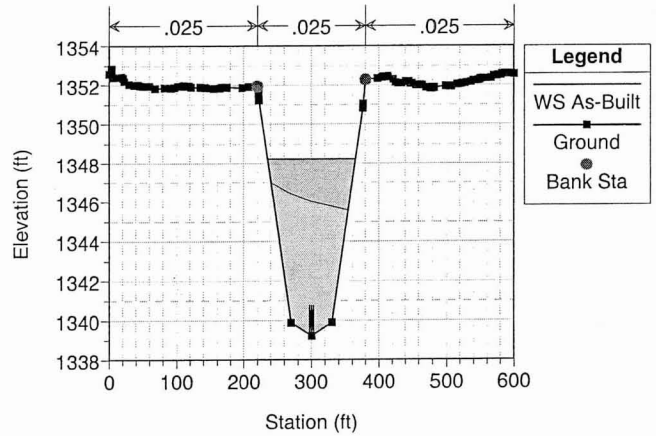
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Power Road - 24" culverts constructed, modeled as 18" to account



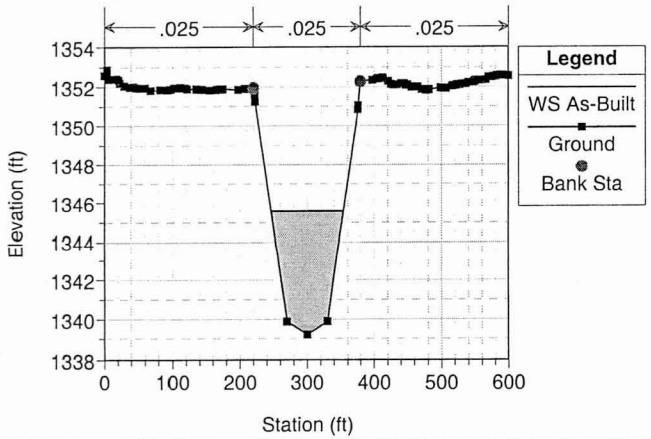
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Power Road - 24" culverts constructed, modeled as 18" to account

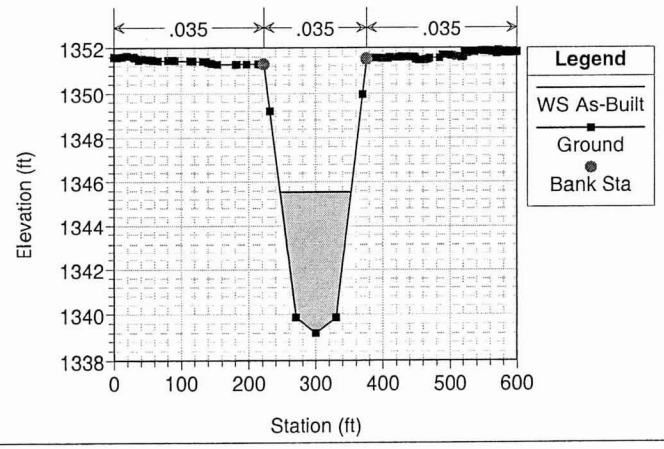


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

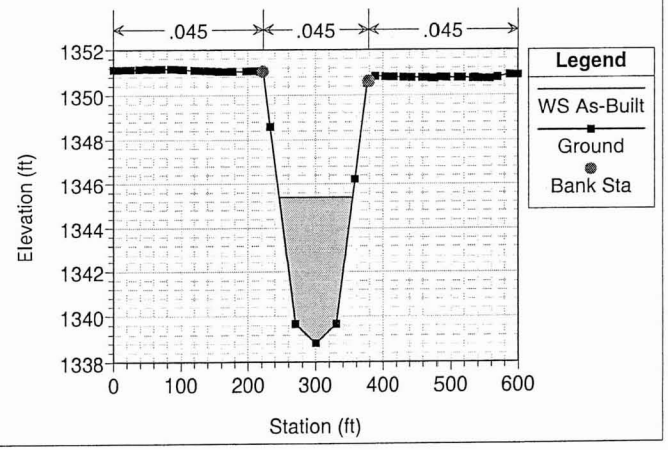
d/s power - 24" culverts constructed, modeled as 18" to account



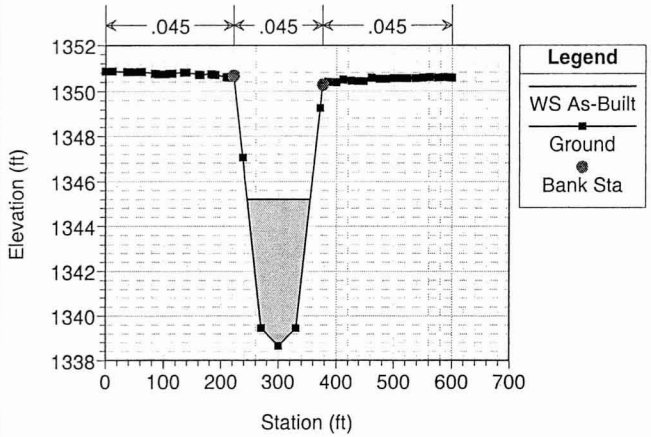
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



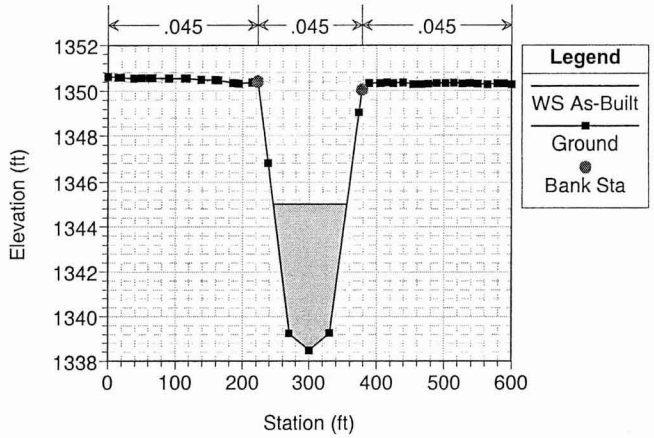
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



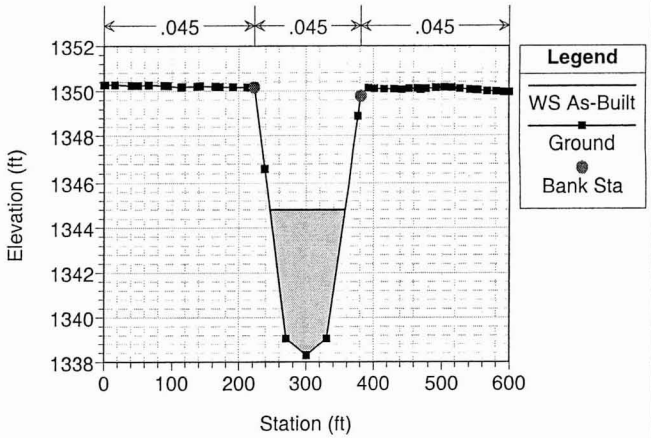
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



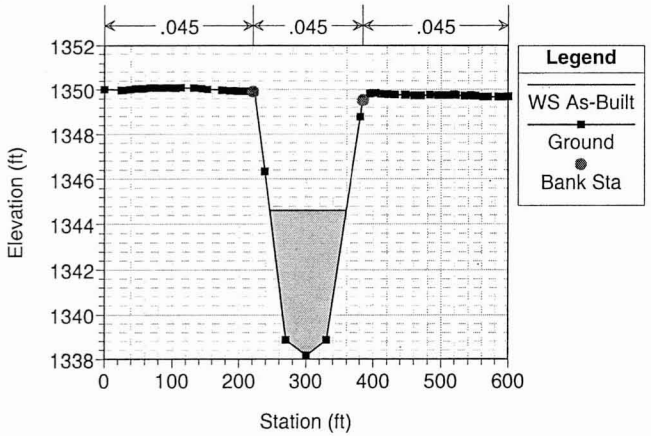
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



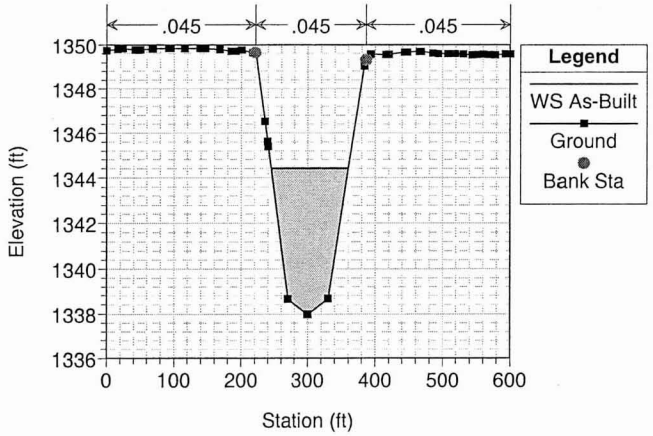
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



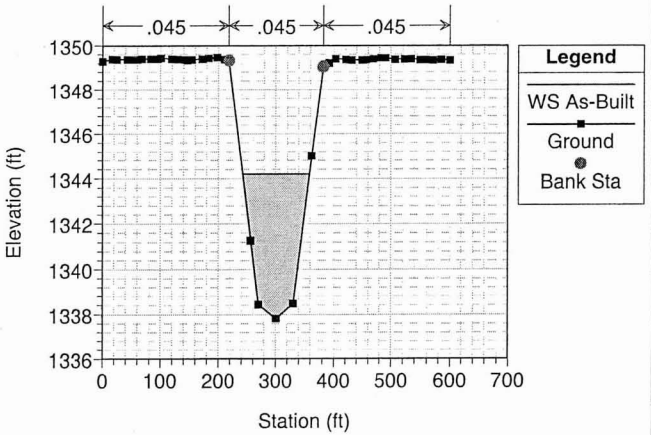
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



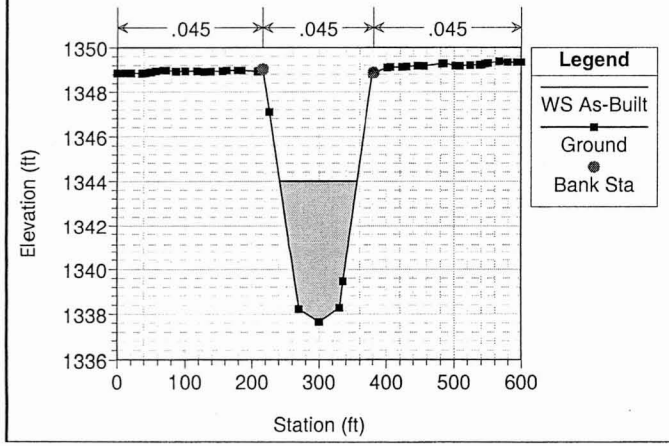
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



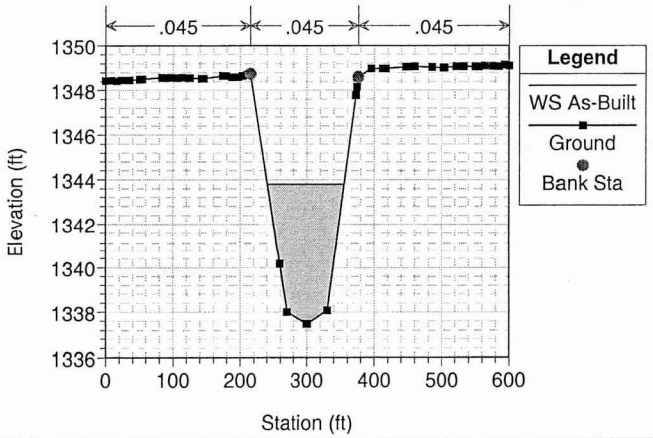
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



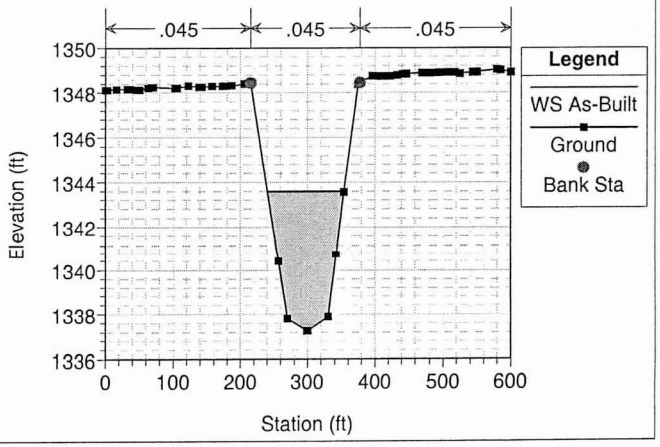
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



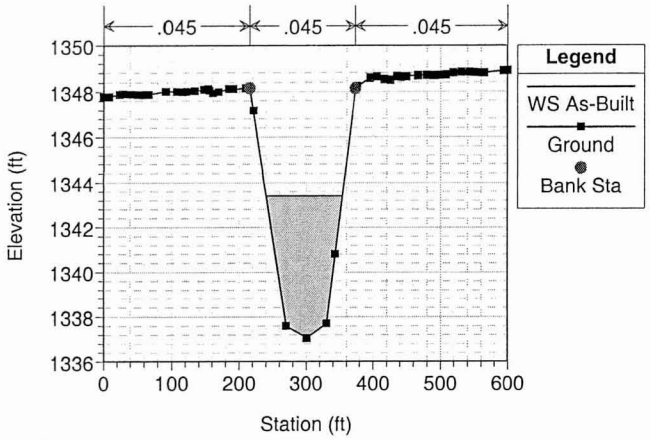
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



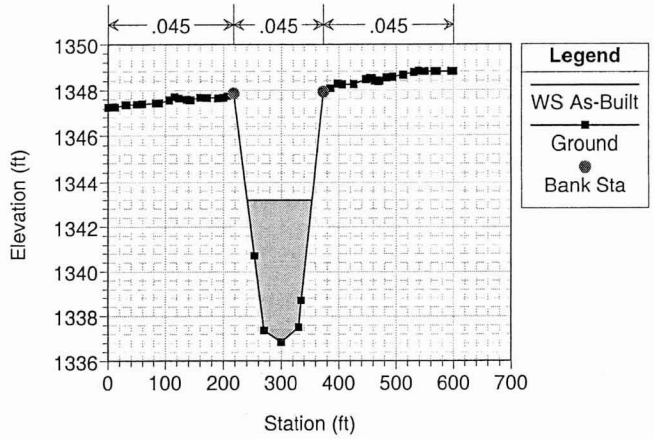
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



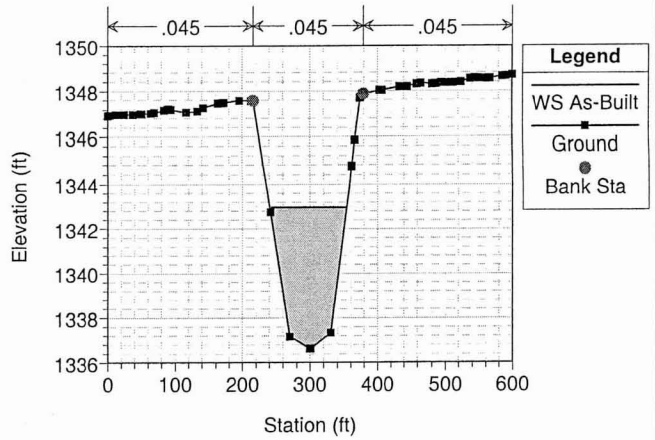
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



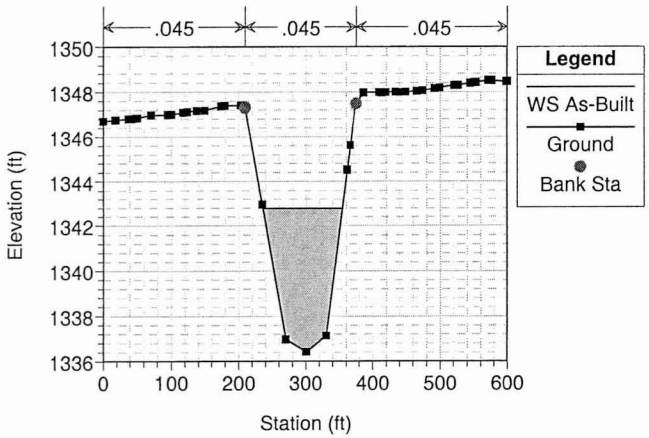
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



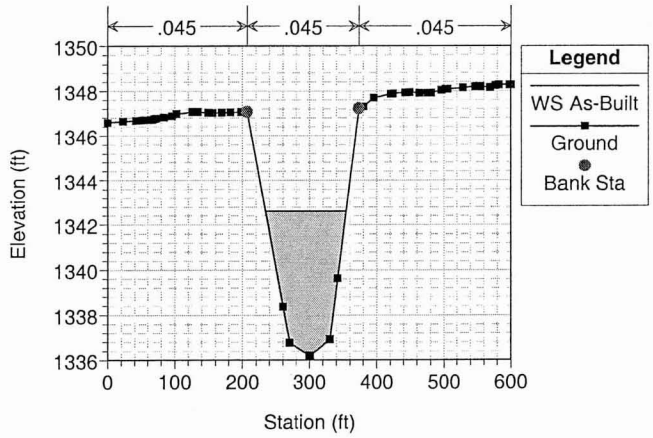
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



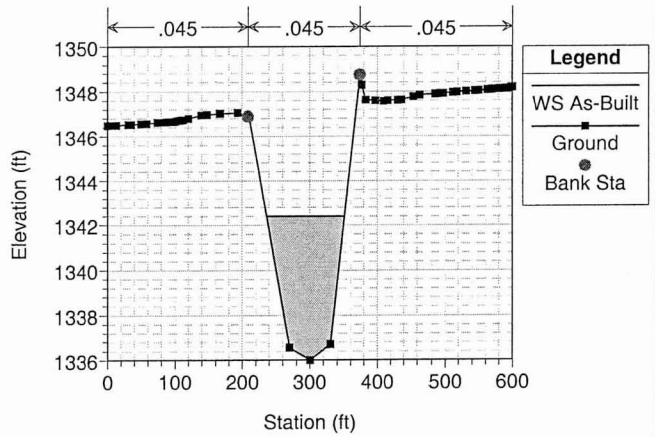
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



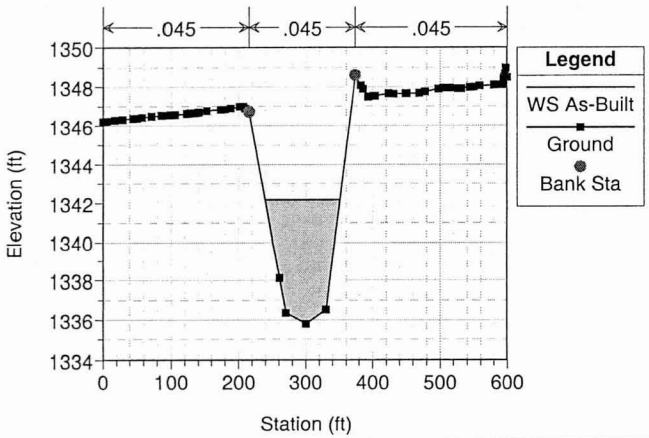
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



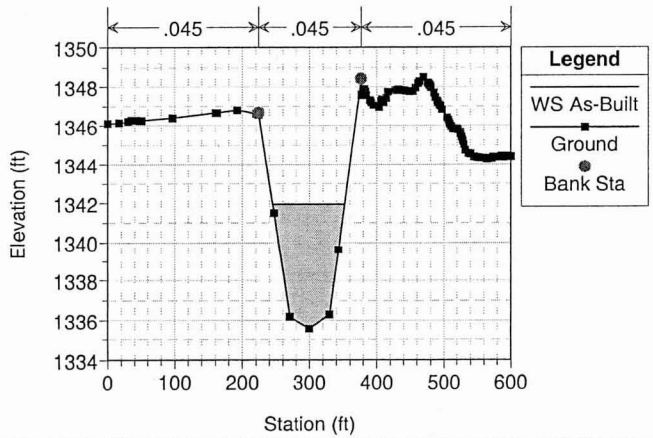
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

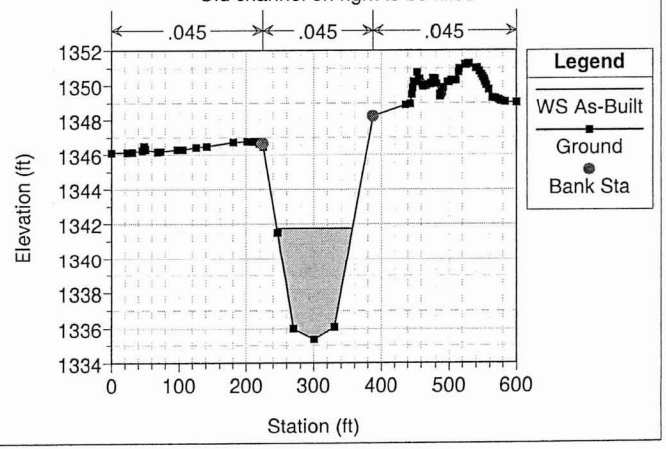


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

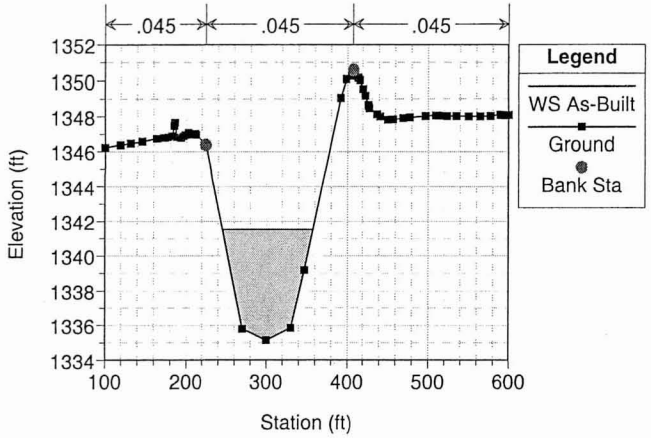


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

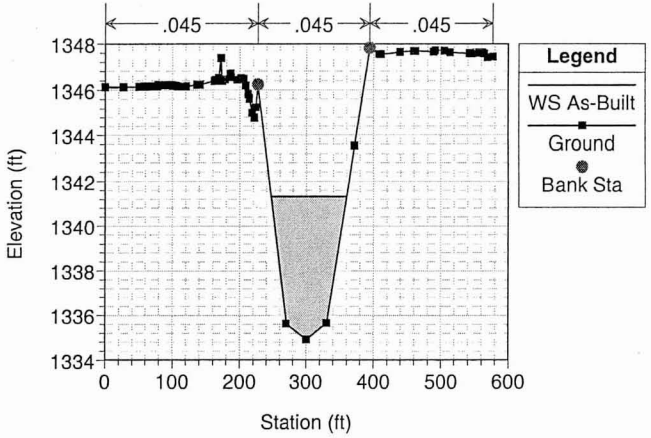
Old channel on right to be filled



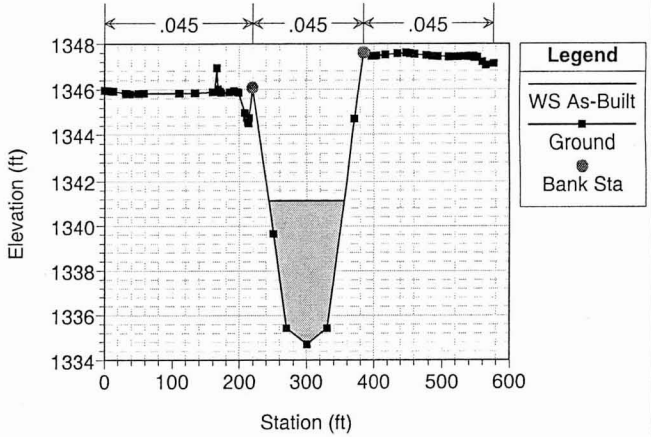
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



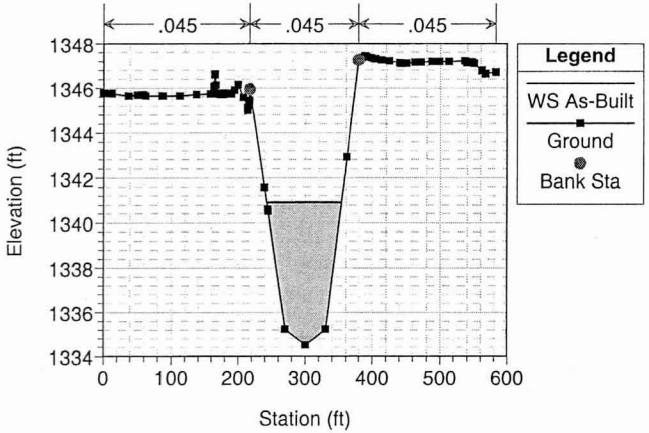
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



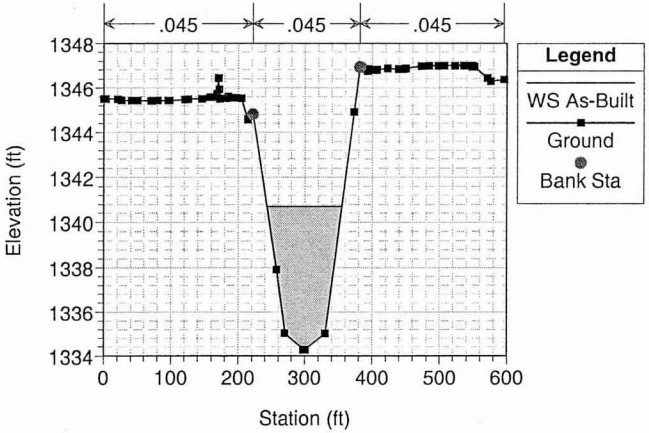
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



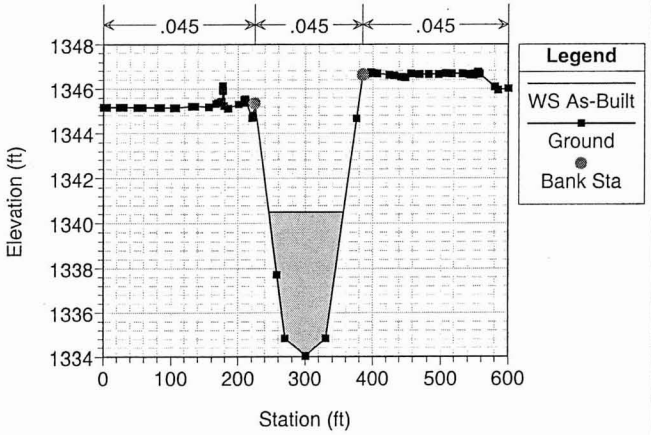
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



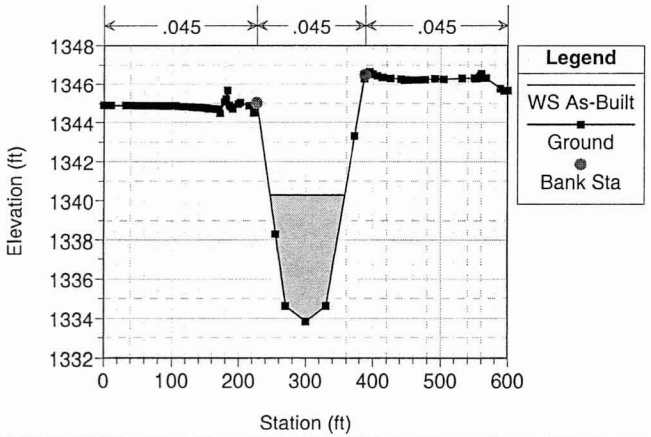
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



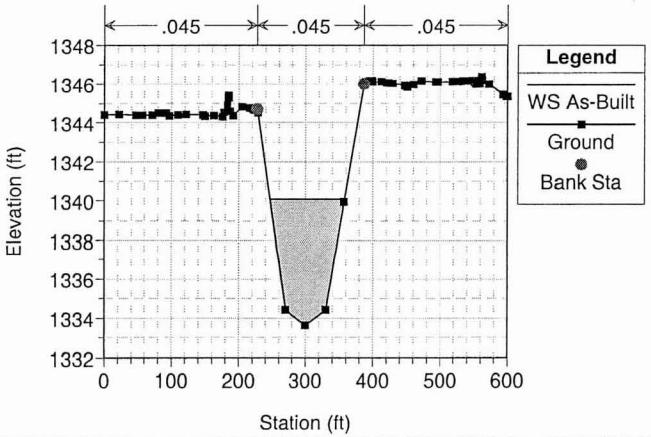
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



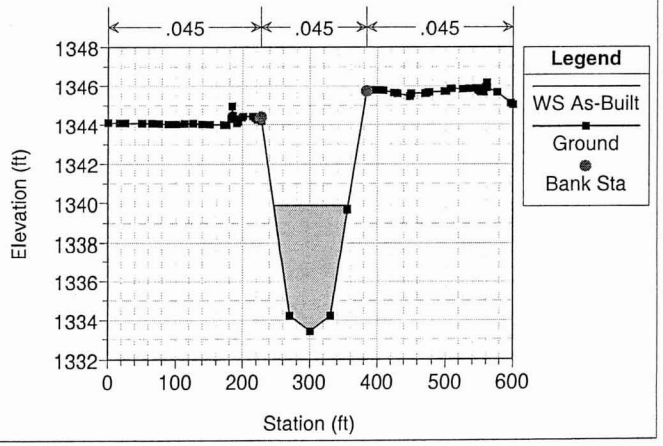
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



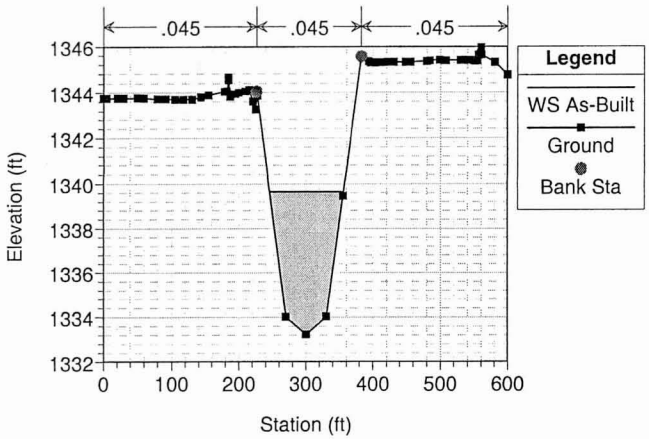
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



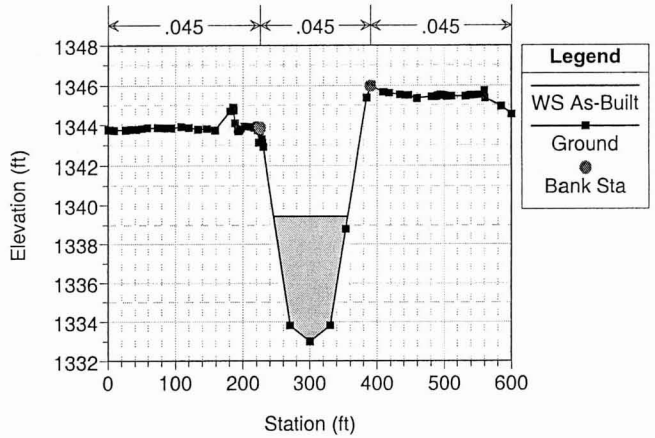
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



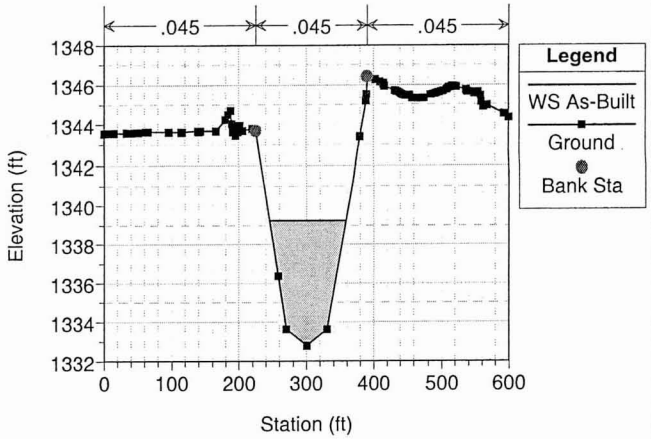
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



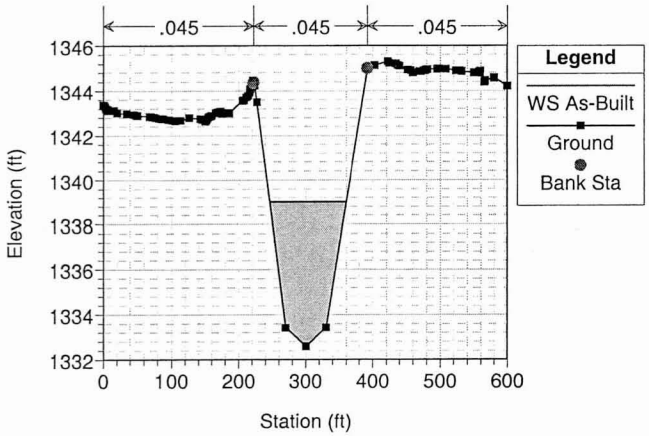
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



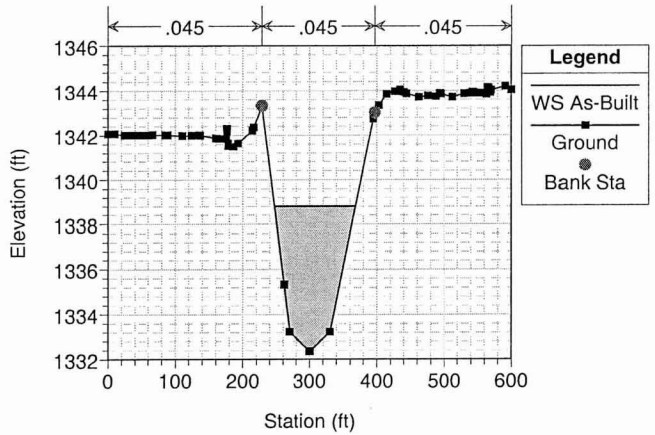
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



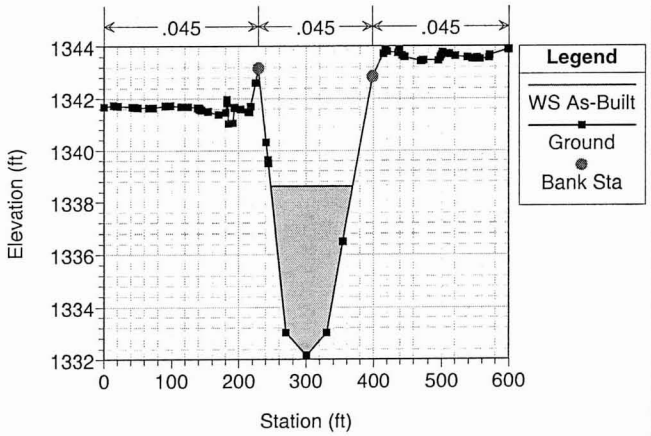
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



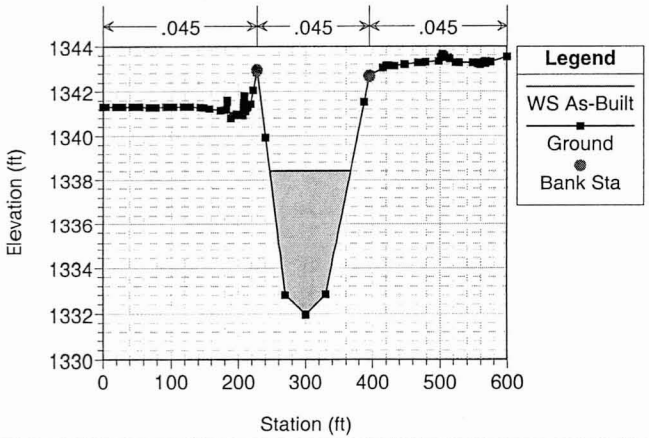
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



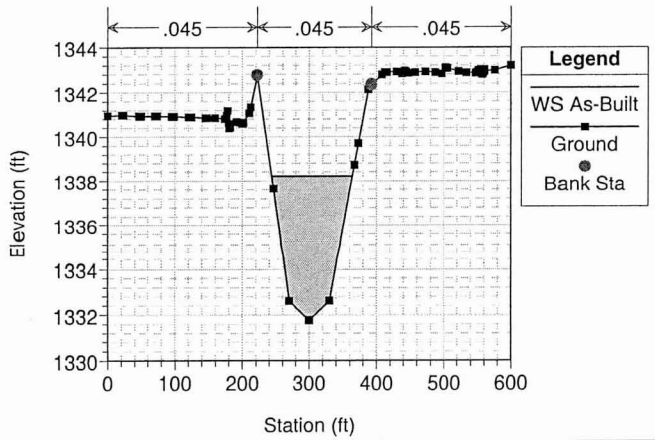
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



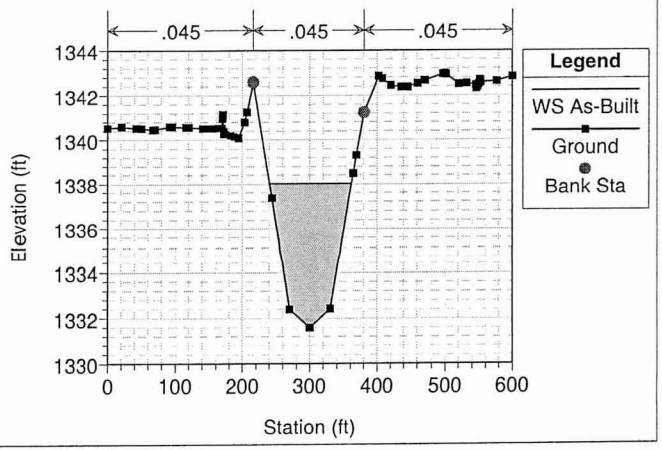
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



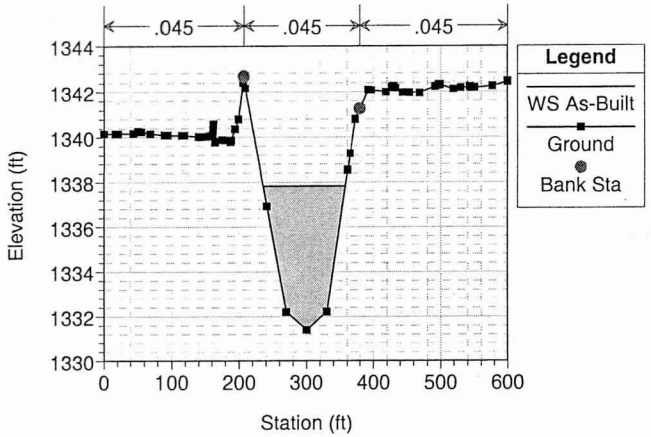
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



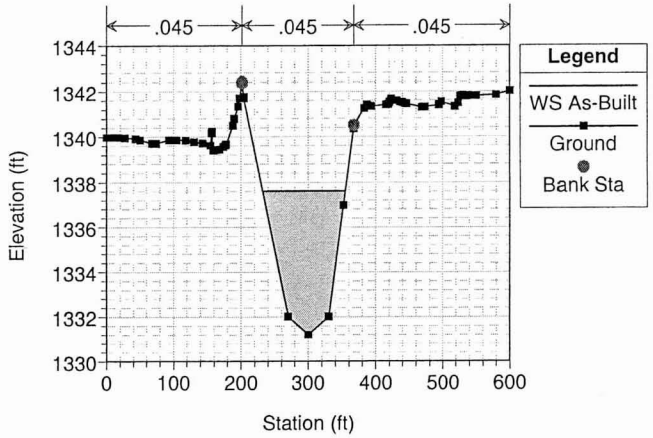
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



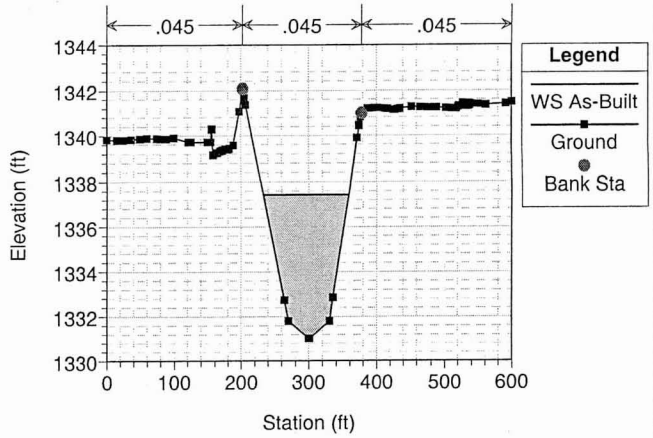
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



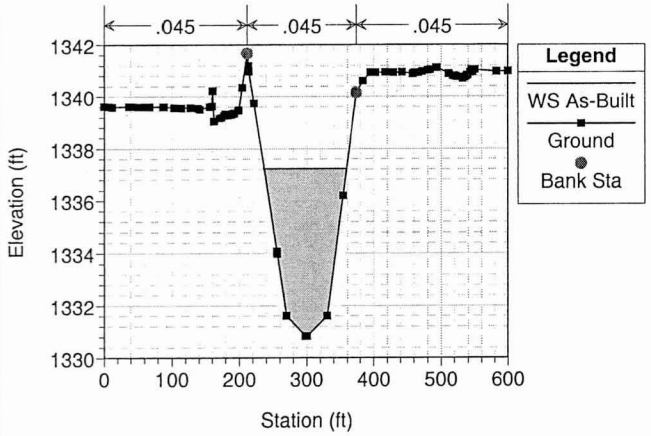
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



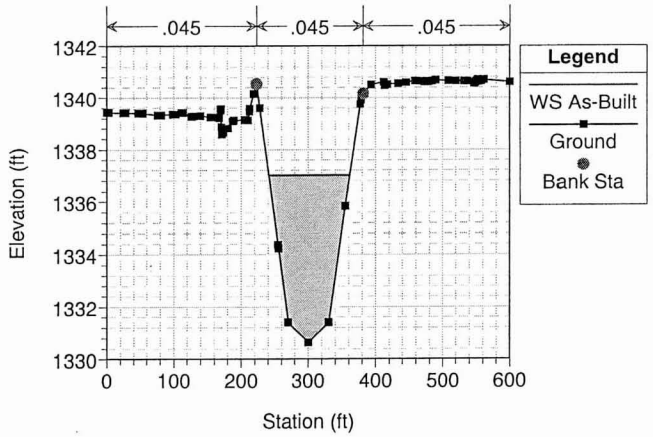
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



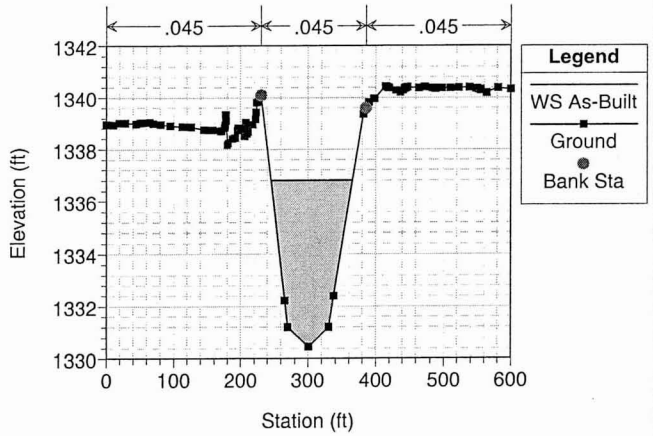
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



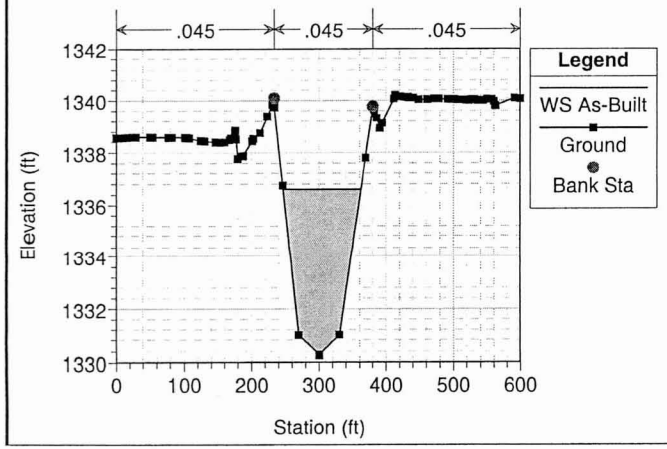
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



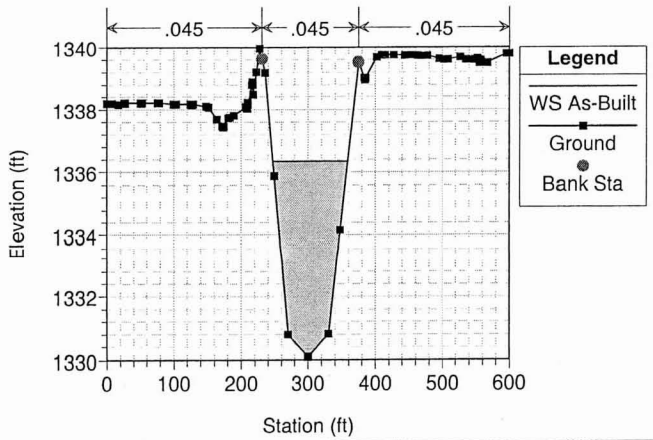
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



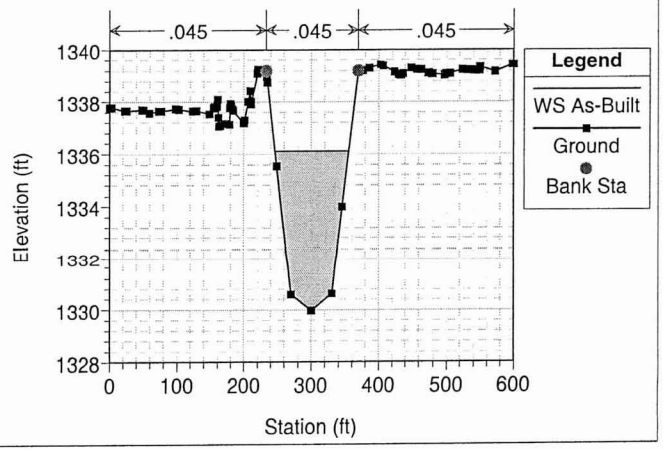
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



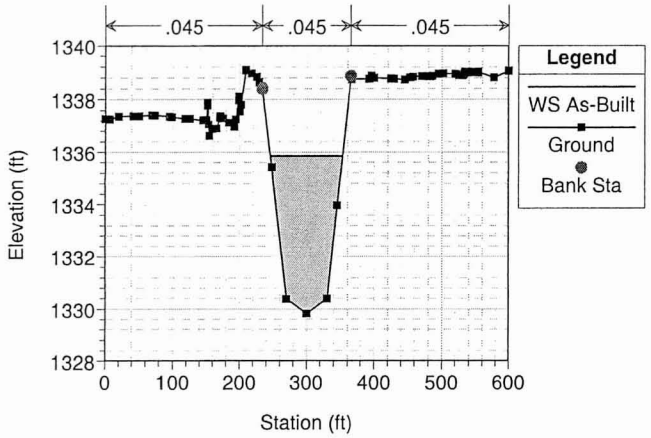
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



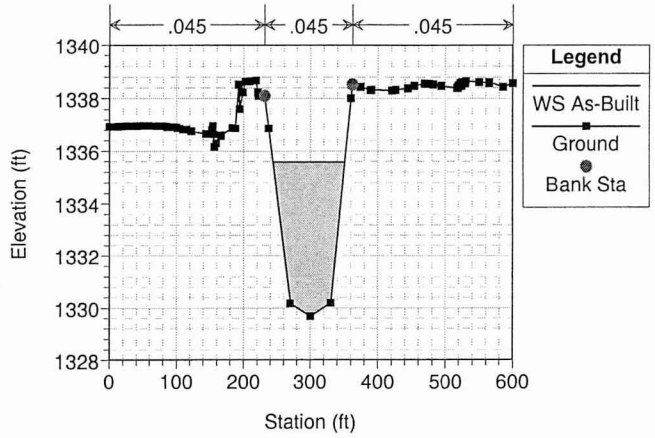
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



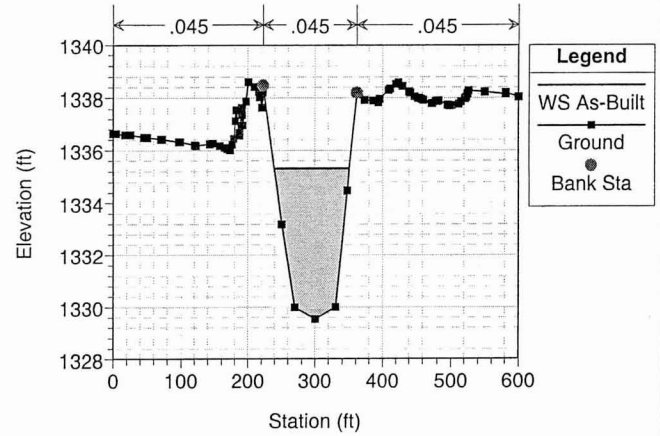
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



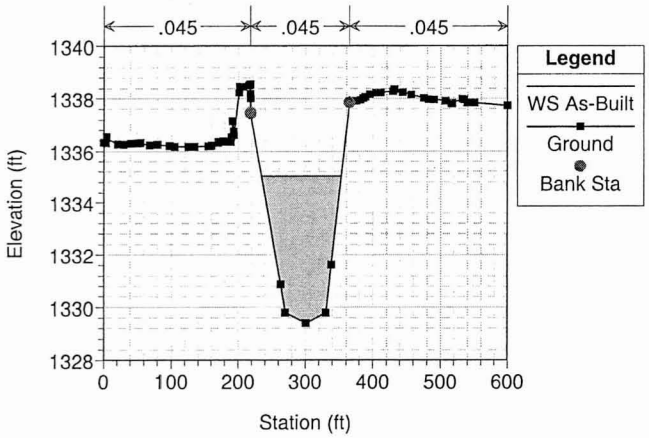
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



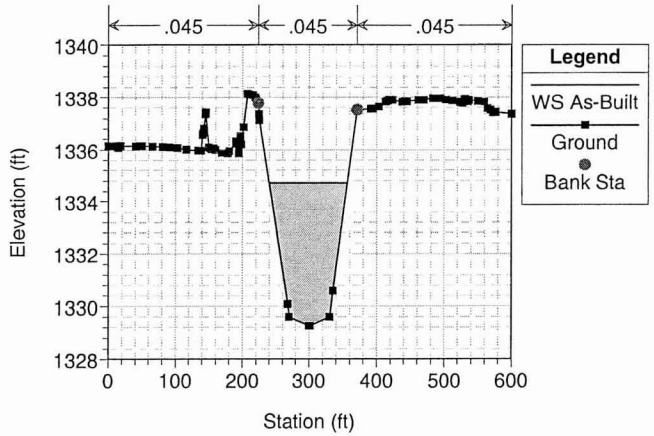
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



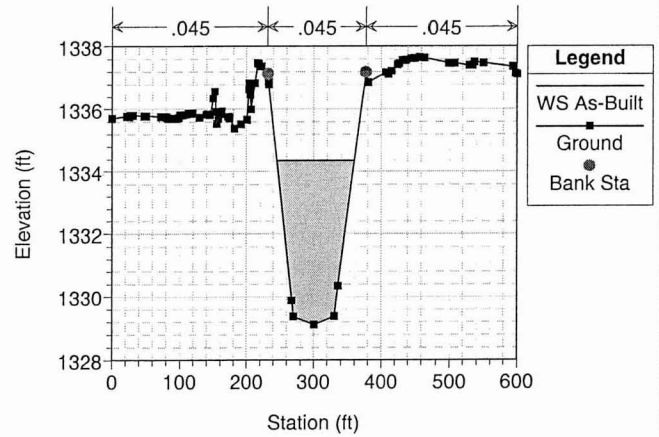
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



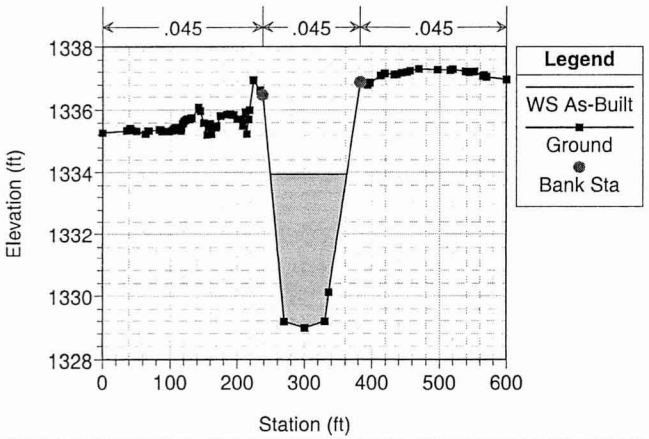
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



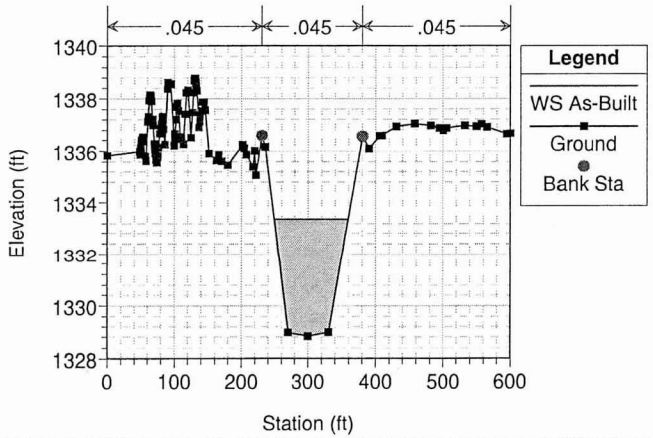
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



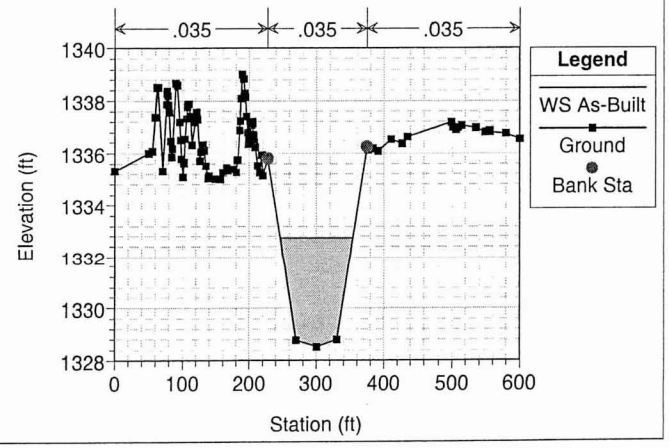
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

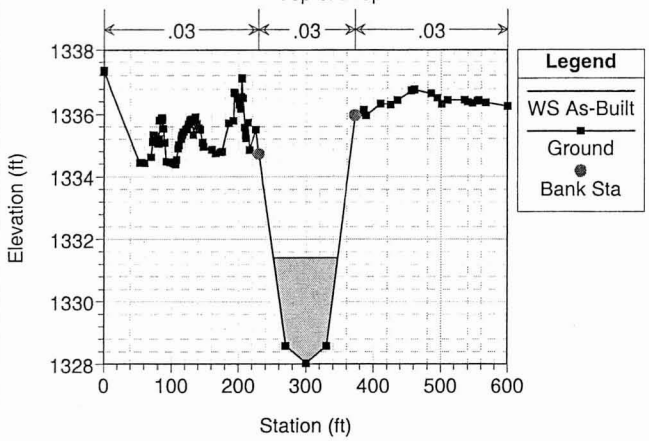


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



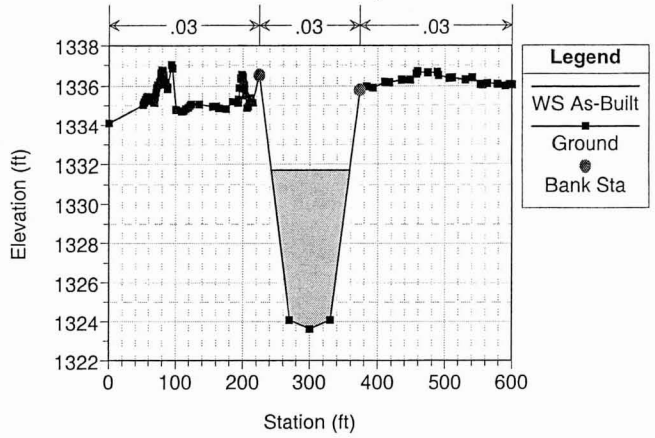
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Top of Drop

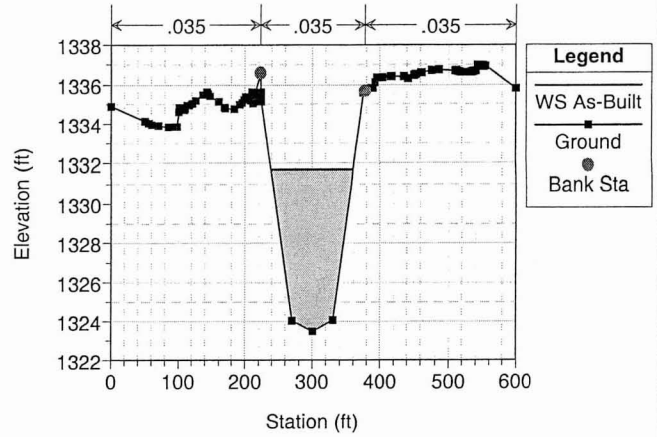


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Toe of Drop

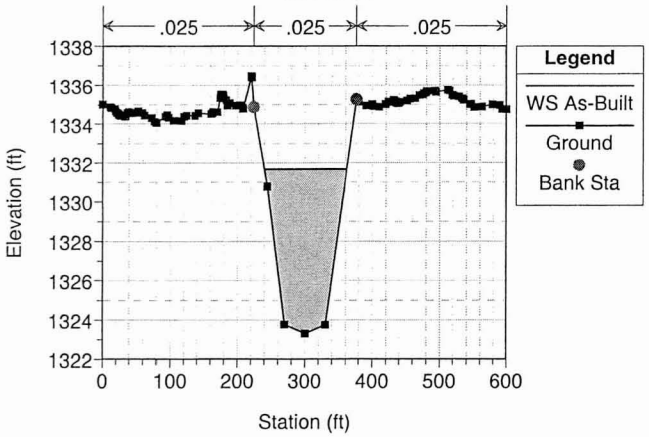


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



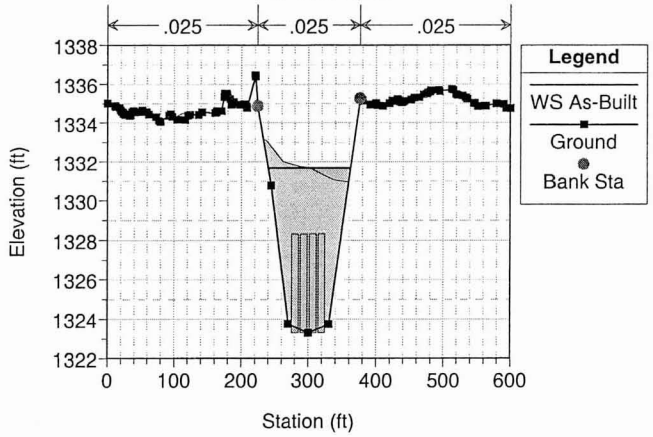
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

u/s Recker



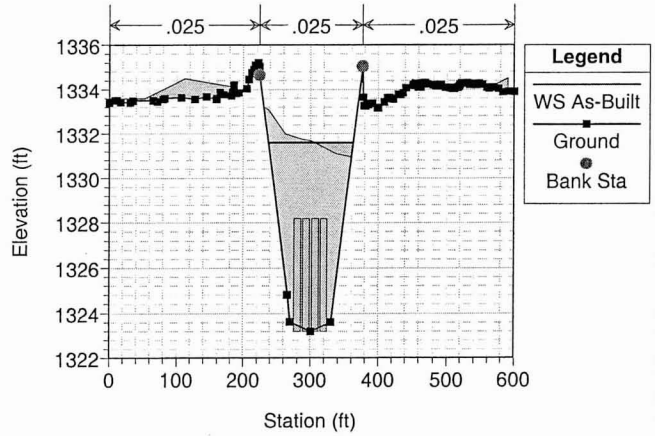
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Recker Road



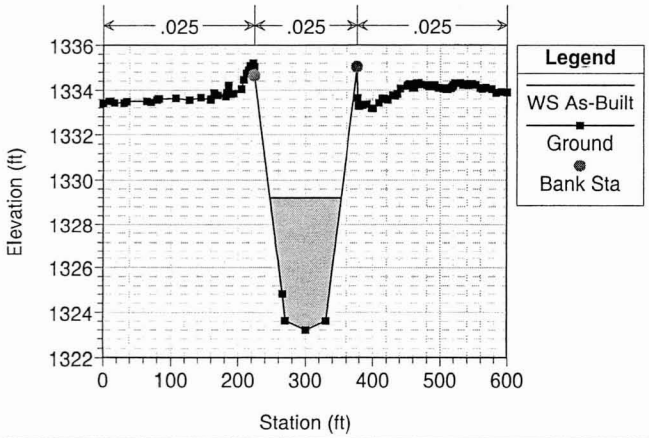
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Recker Road

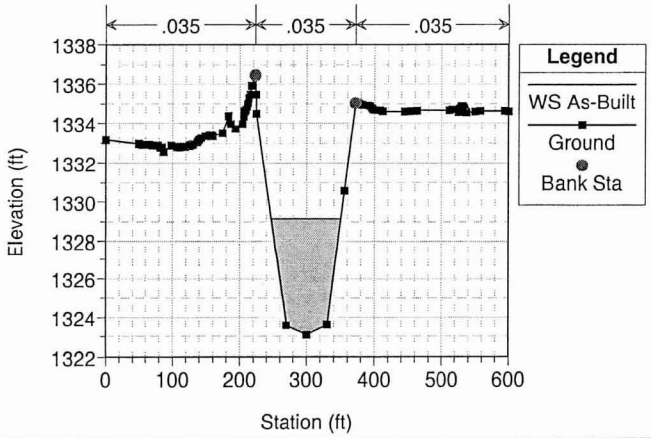


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

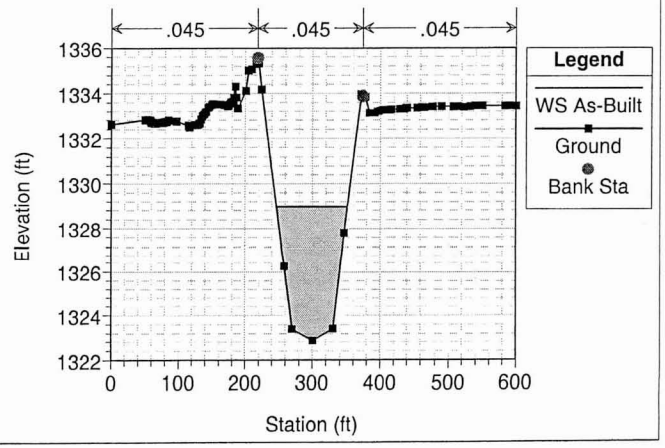
d/s Recker



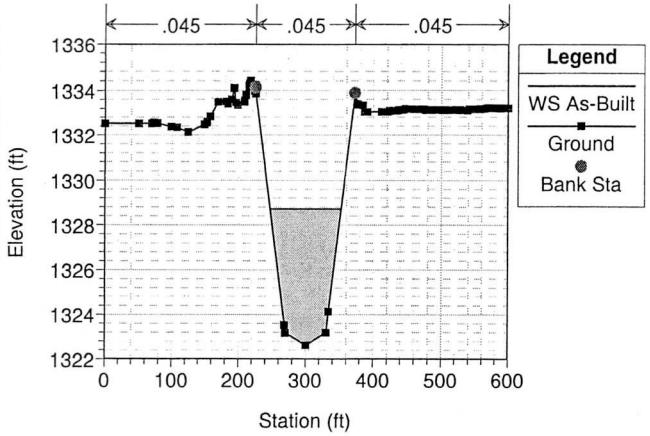
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



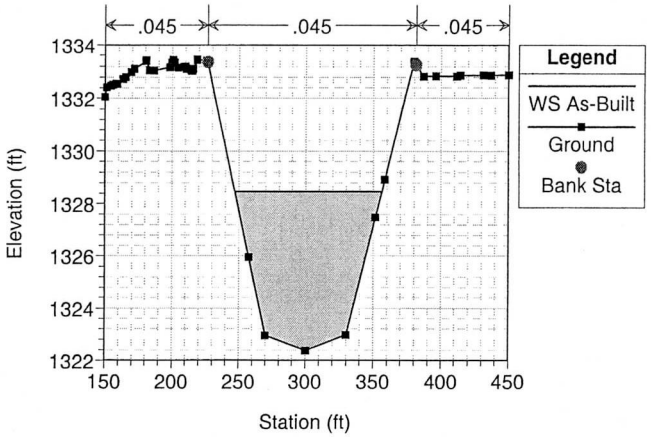
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



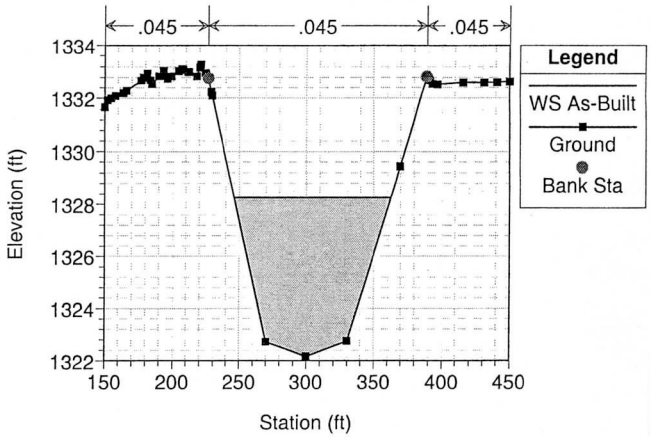
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



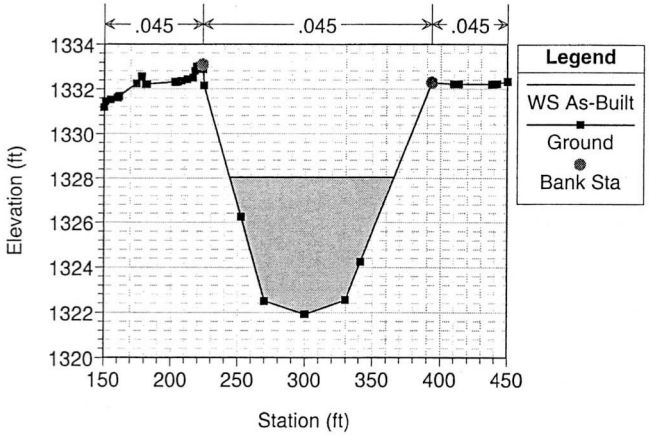
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



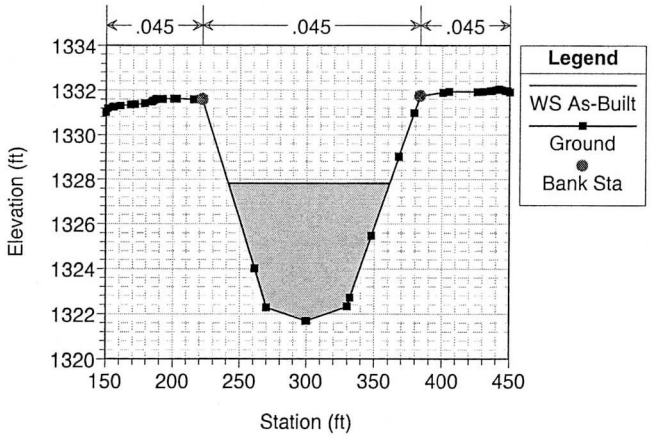
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



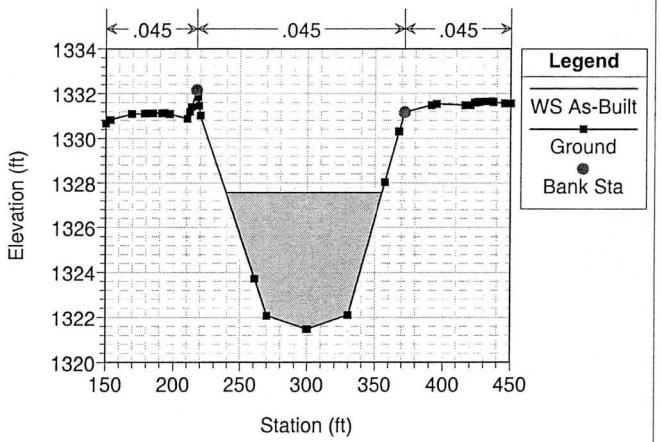
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



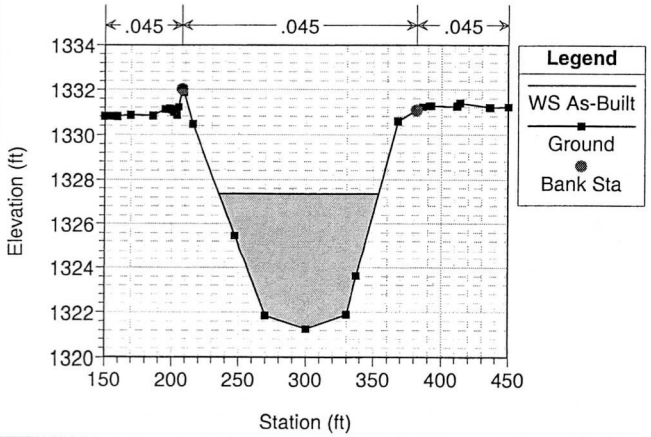
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



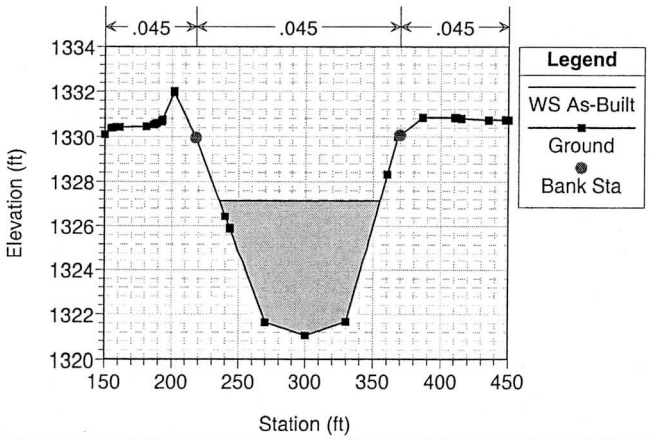
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



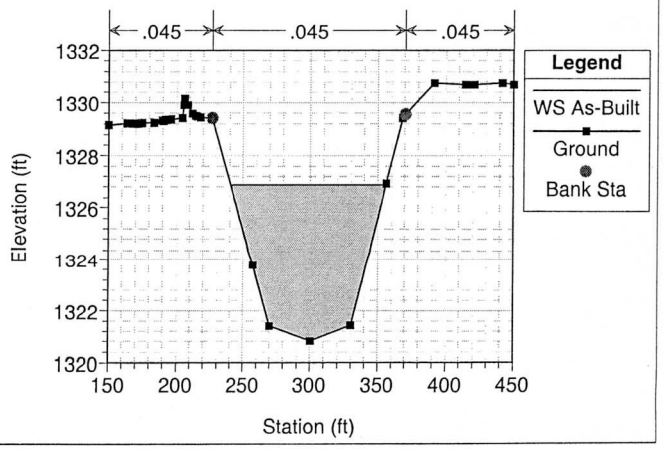
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



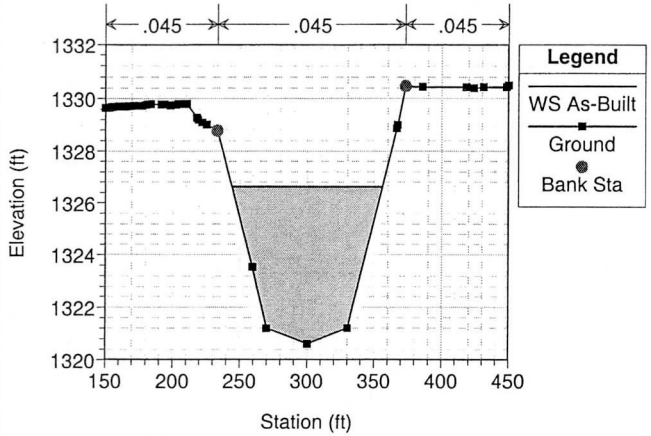
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



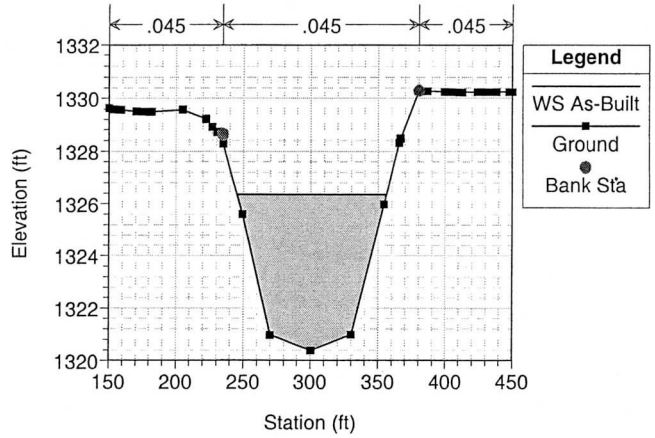
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



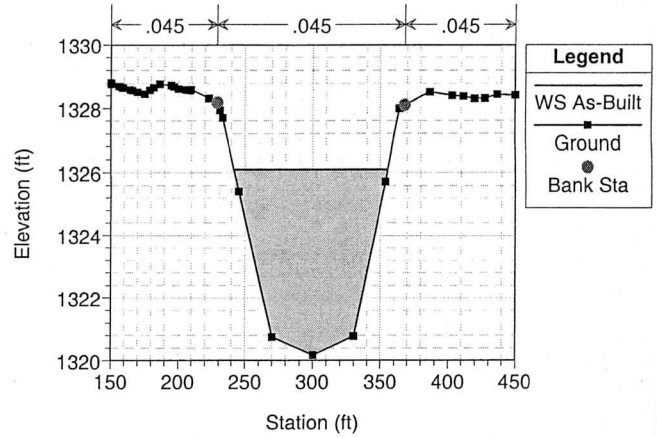
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



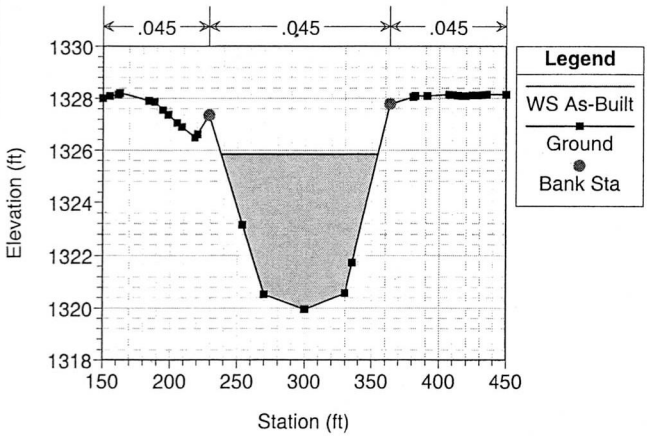
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



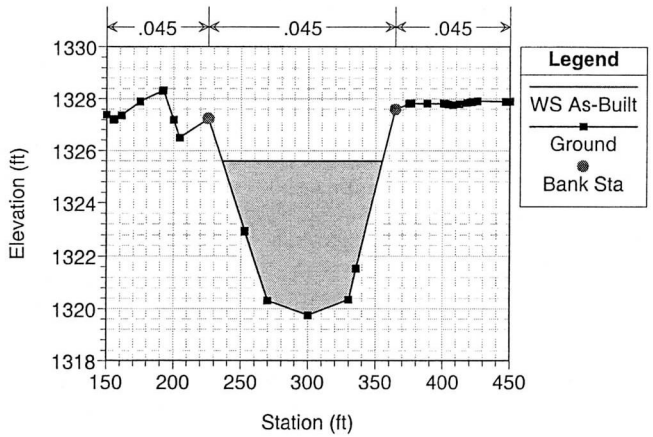
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



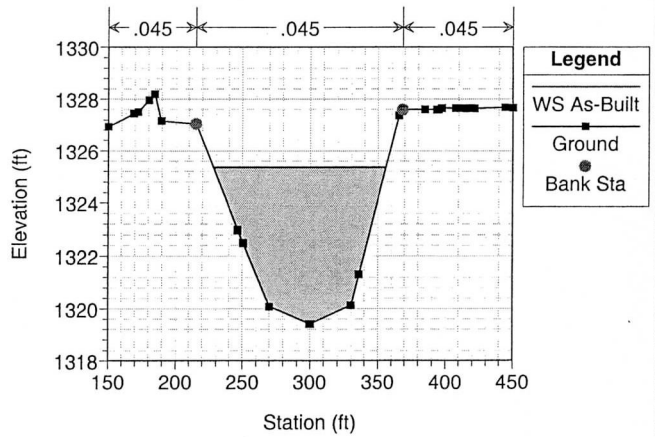
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



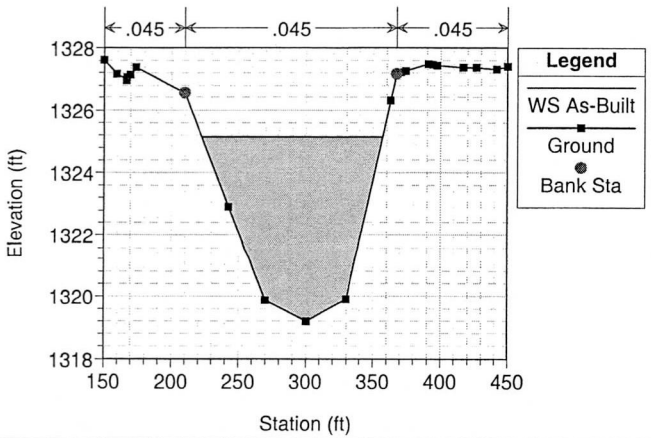
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



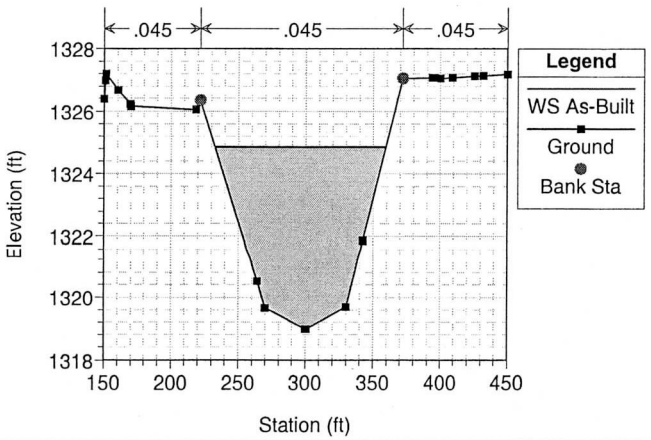
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



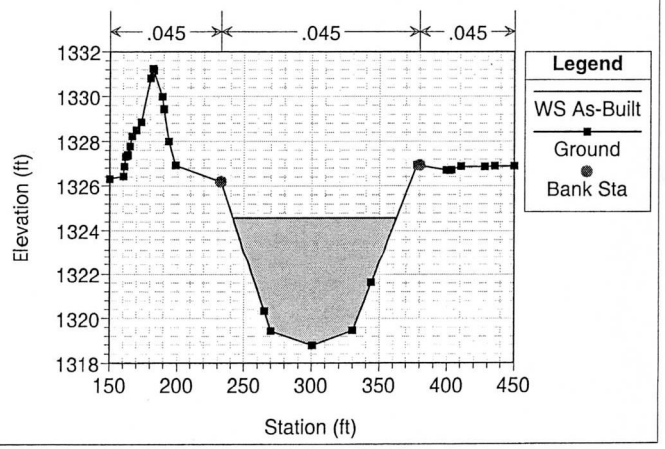
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



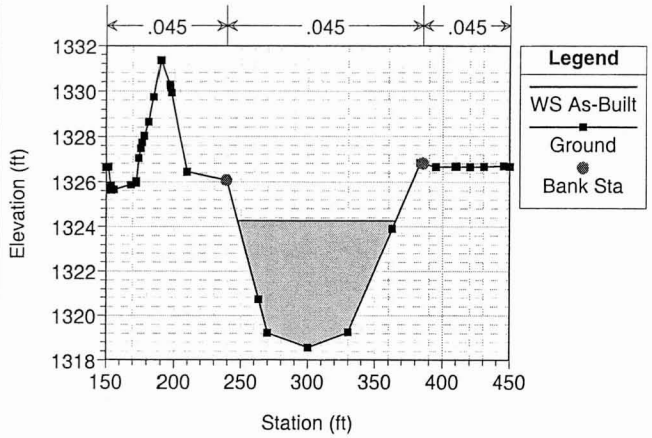
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



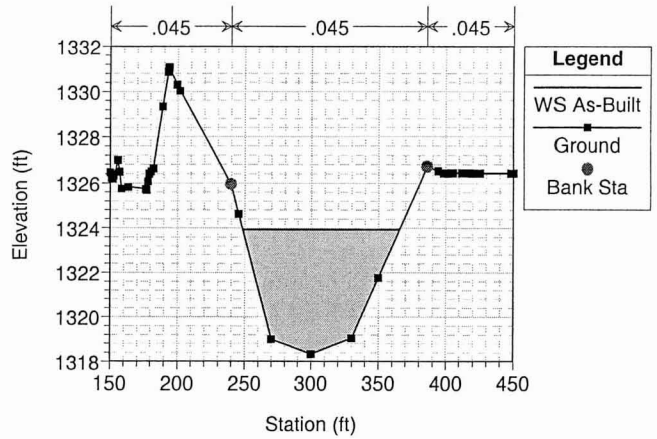
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



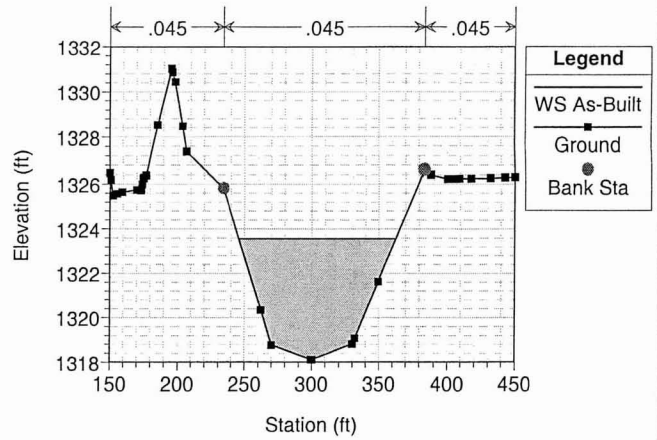
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



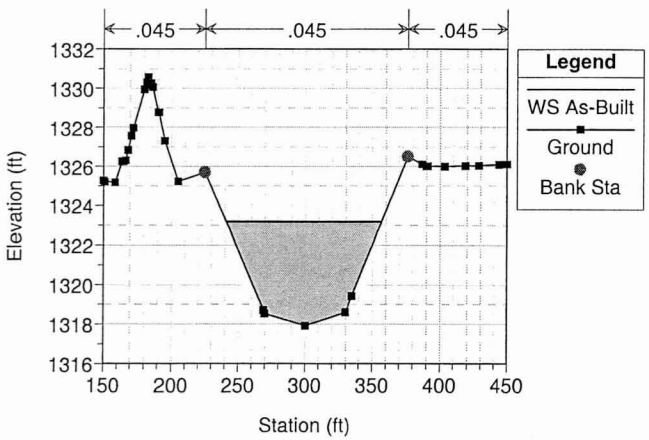
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



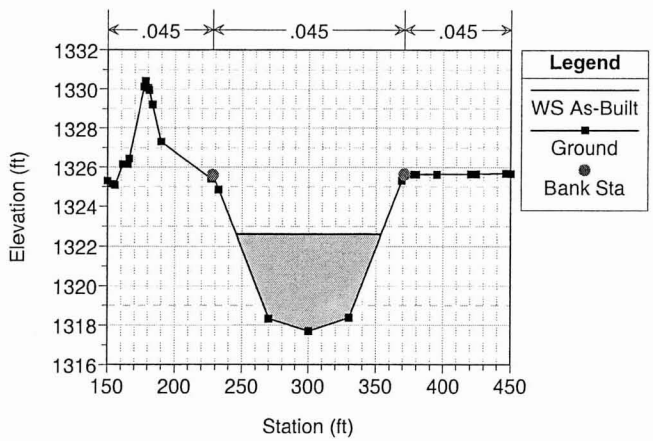
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

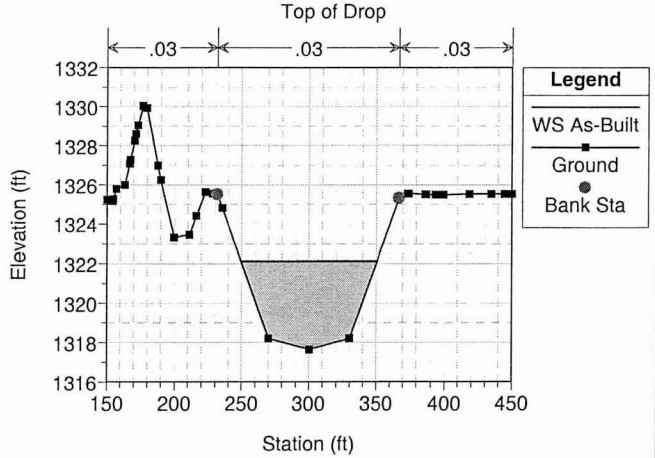


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



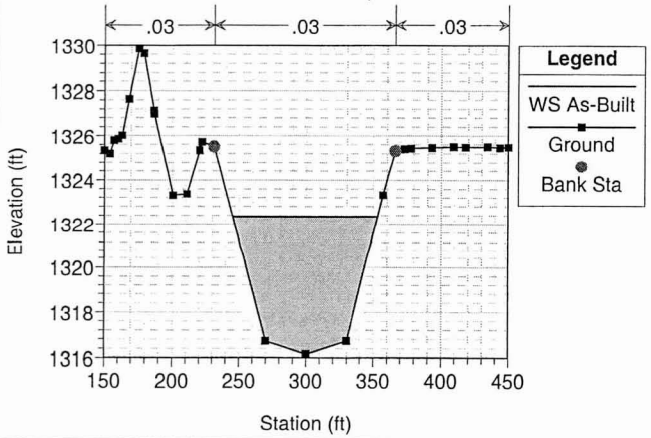
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Top of Drop

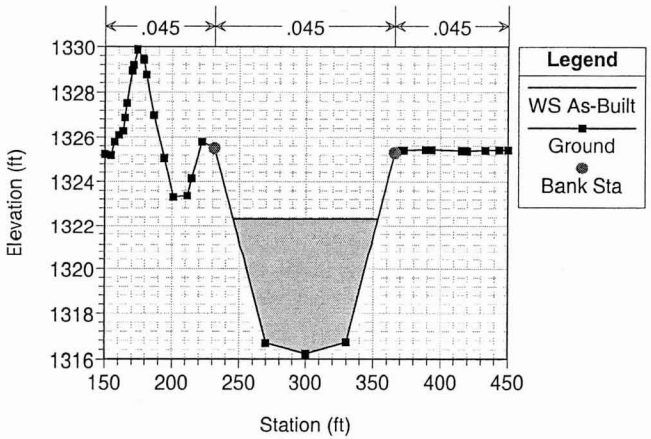


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

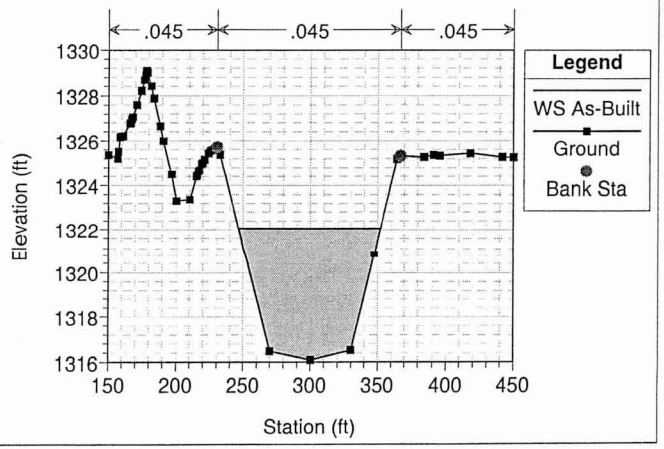
toe of drop



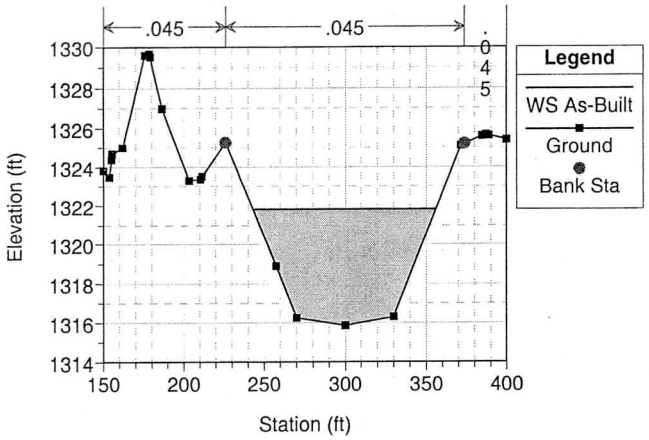
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



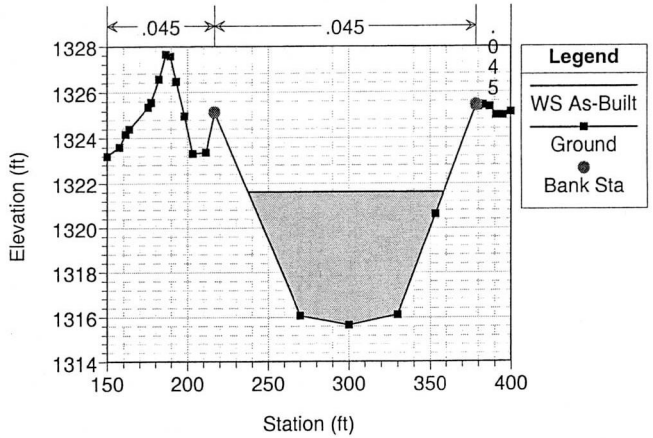
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



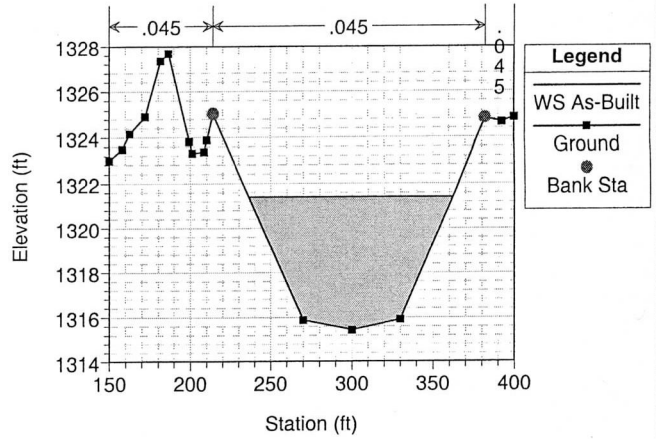
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



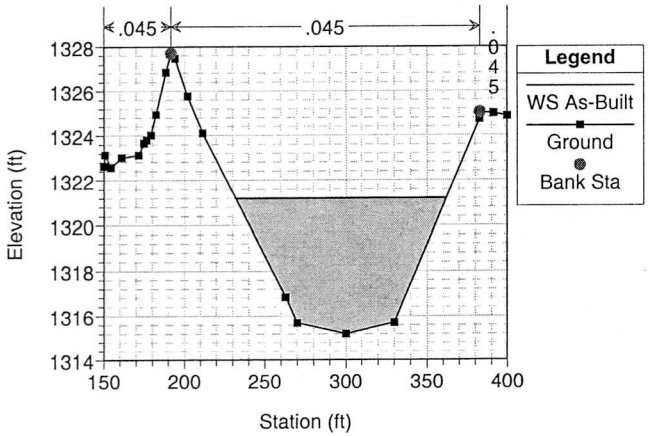
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



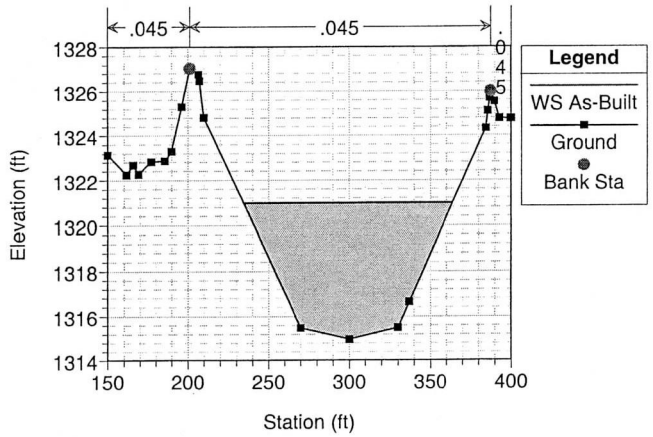
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



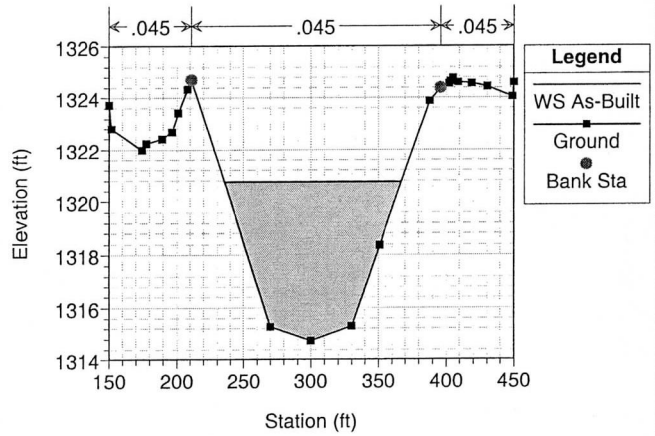
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



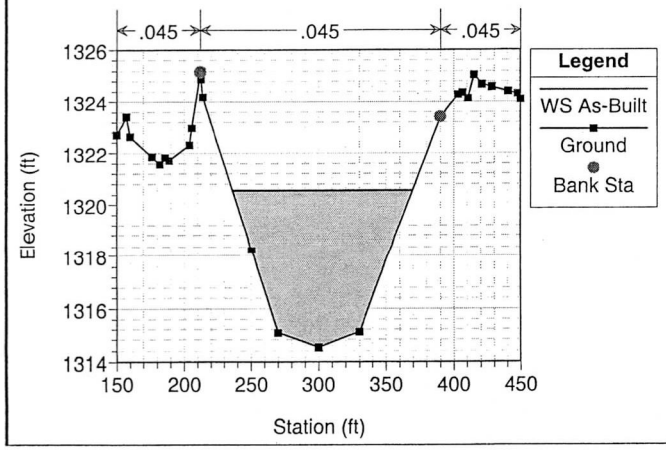
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



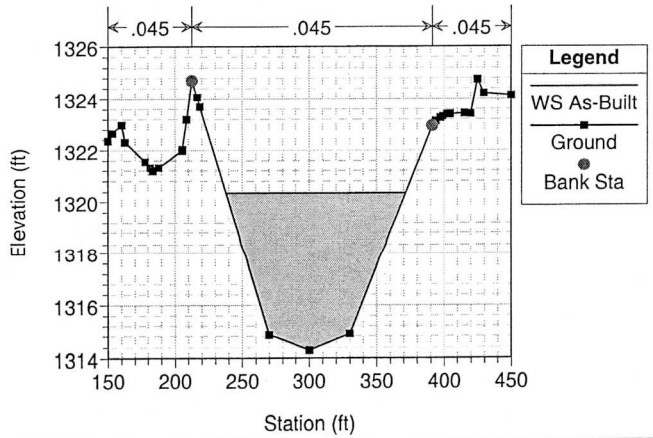
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



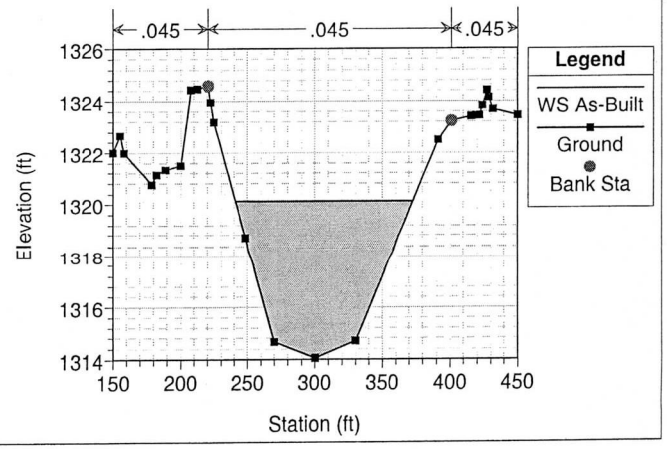
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



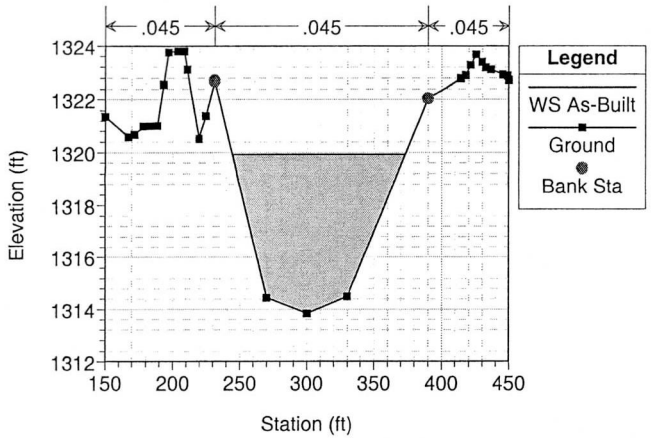
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



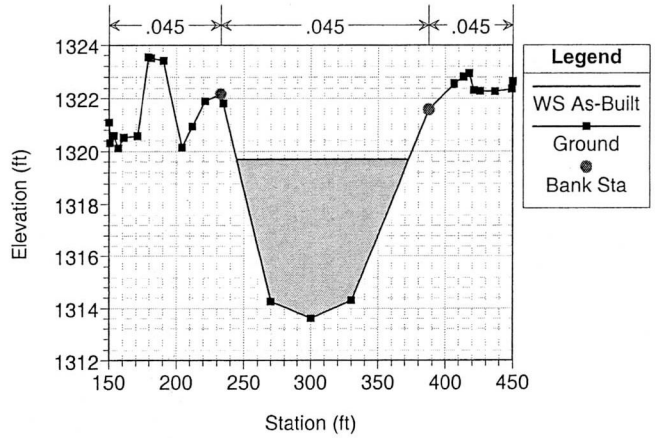
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



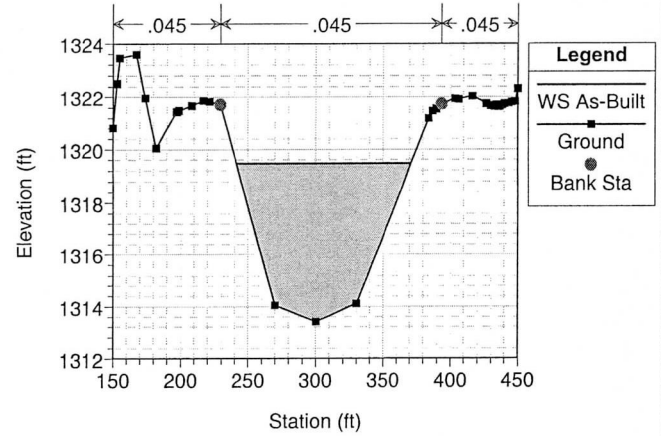
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



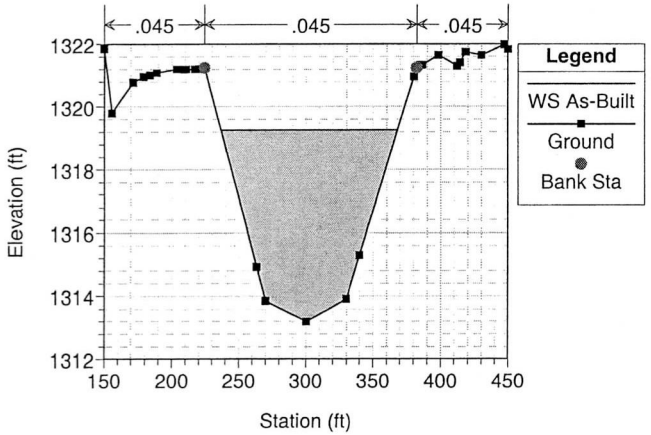
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



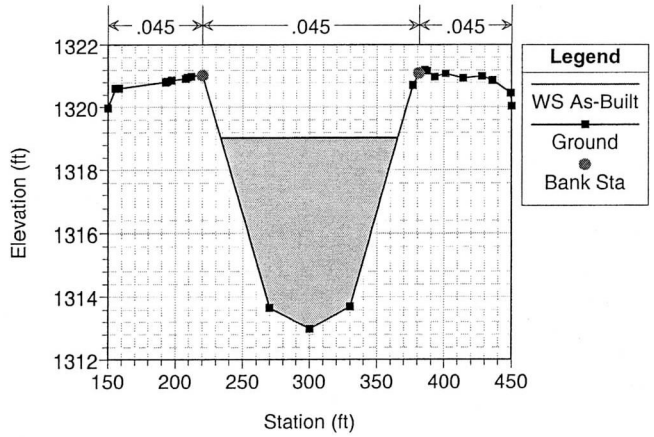
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



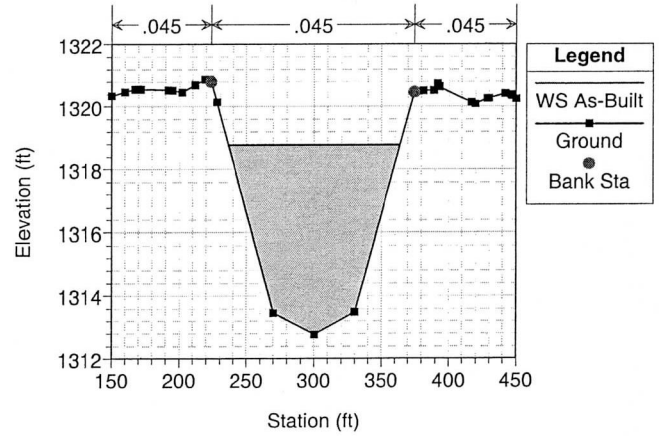
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



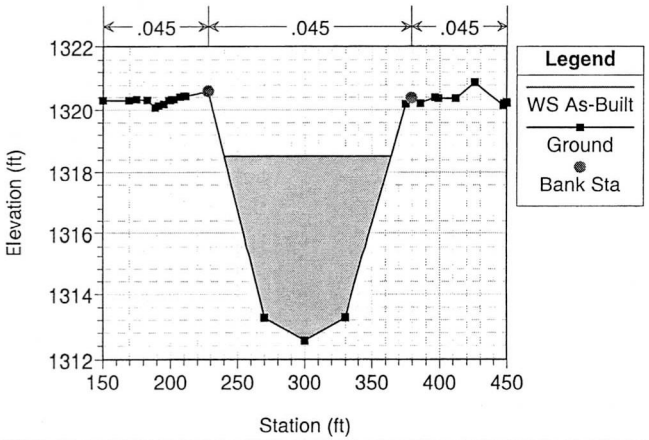
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



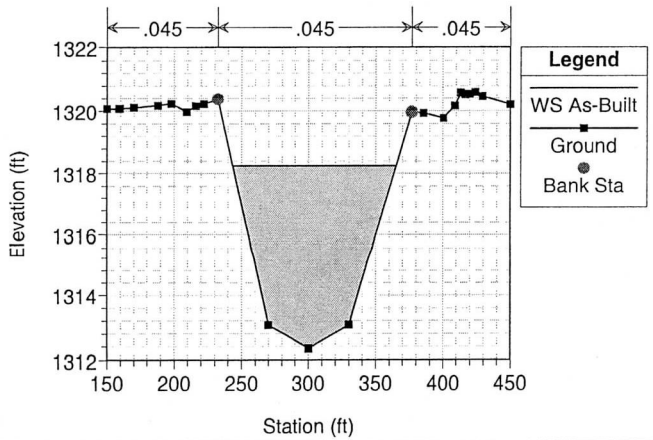
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



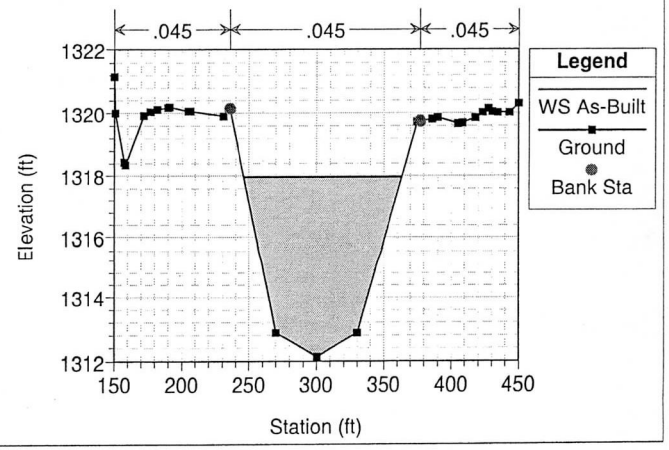
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



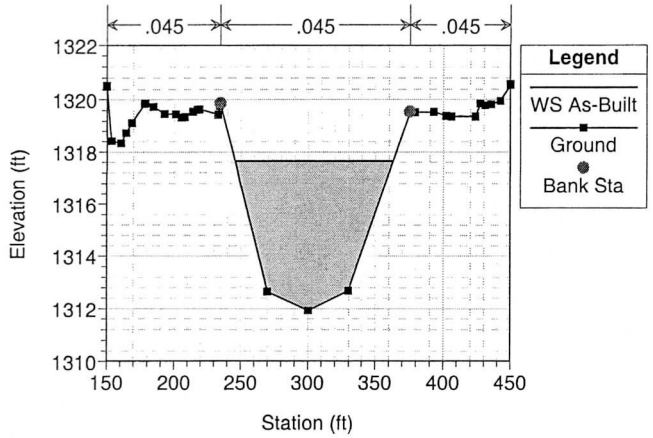
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



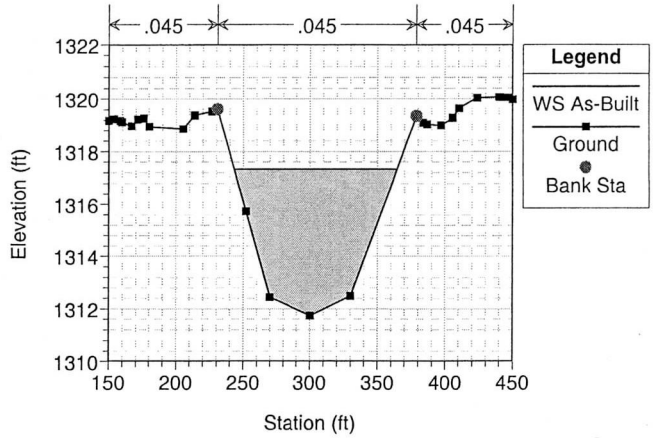
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



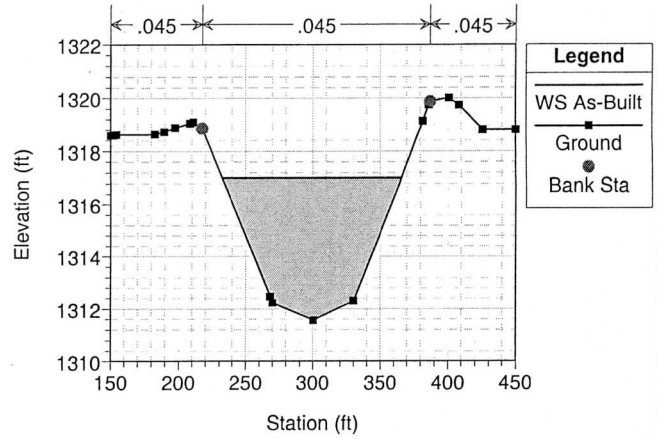
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



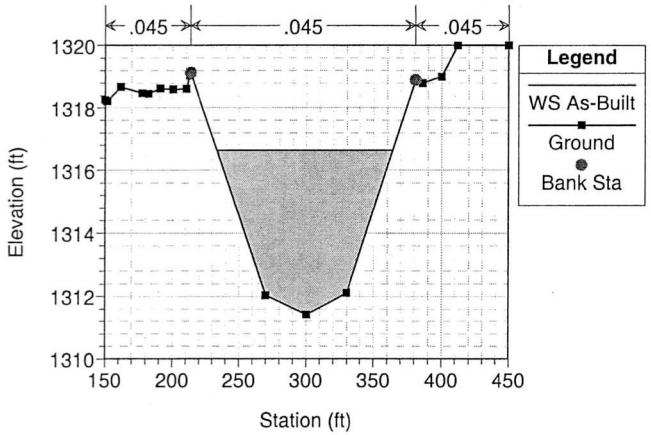
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



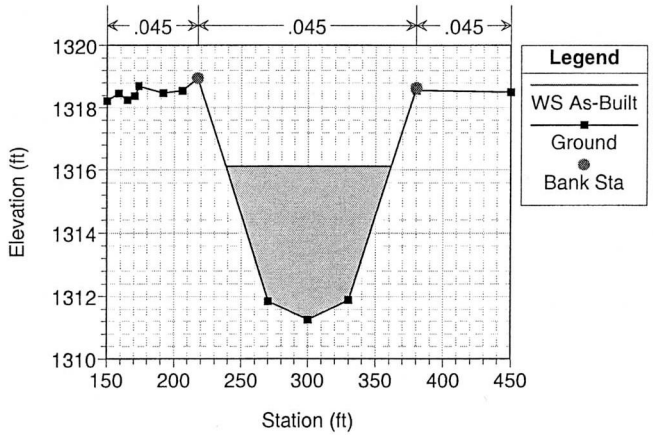
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



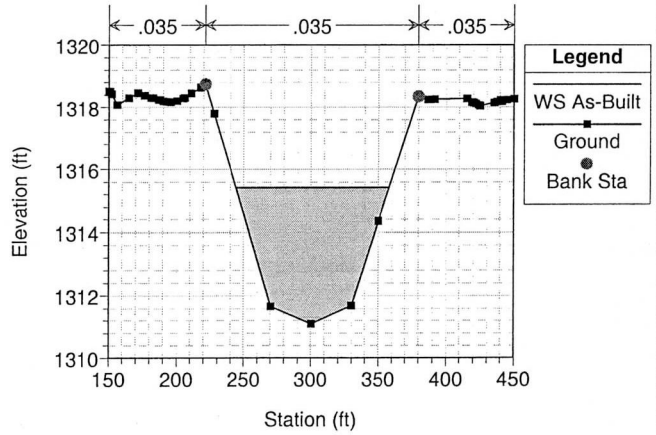
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

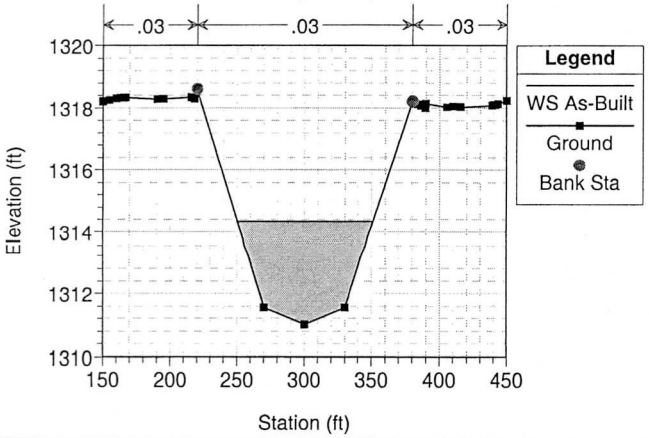


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



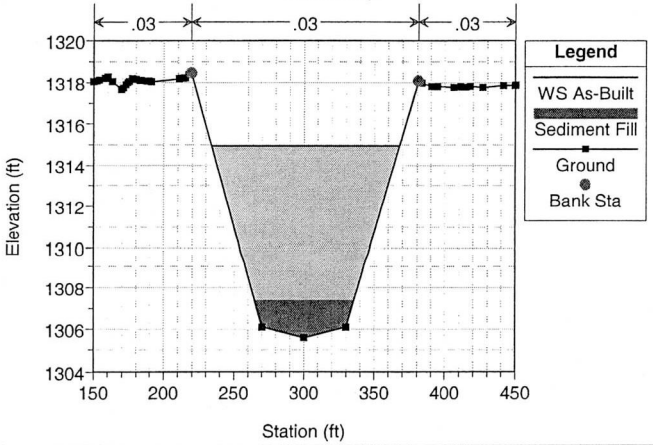
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Top of Drop

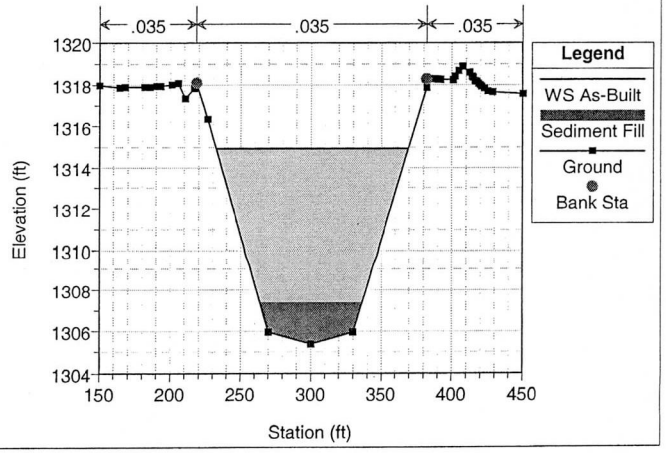


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Toe of Drop

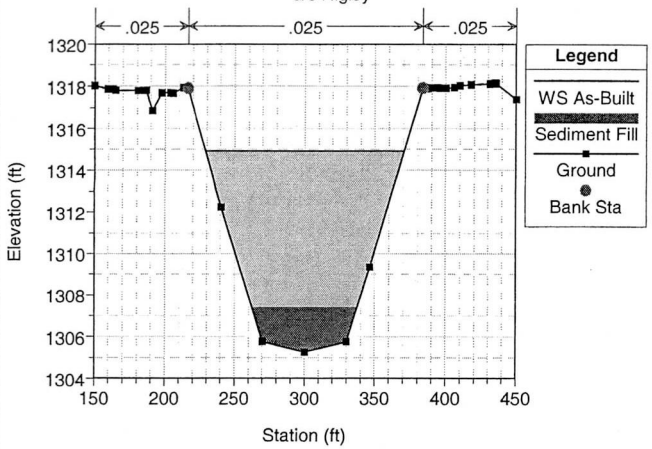


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



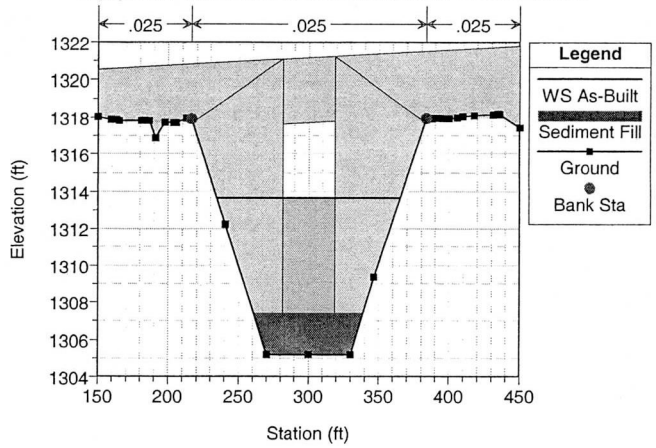
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

u/s Higley



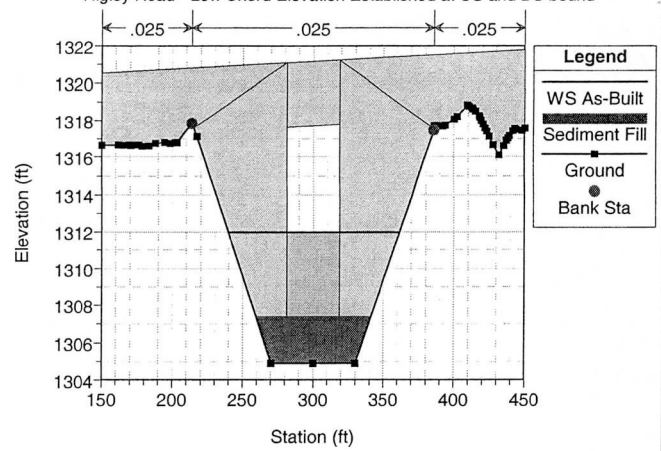
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Higley Road - Low Chord Elevation Established at US and DS bound



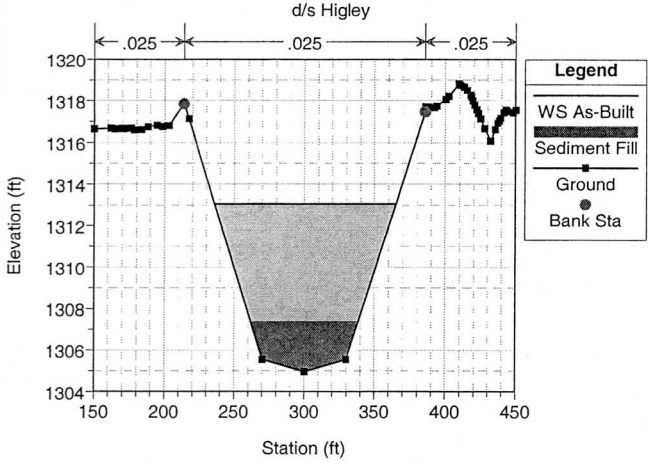
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Higley Road - Low Chord Elevation Established at US and DS bound

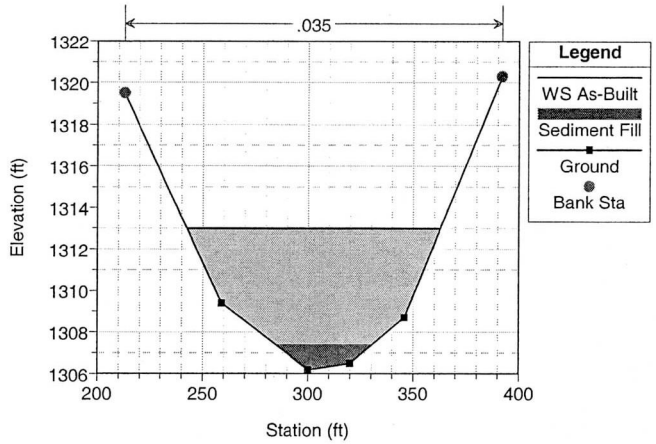


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

d/s Higley

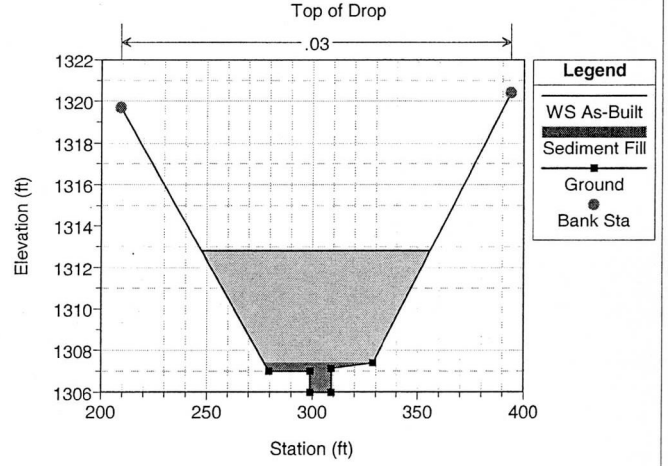


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



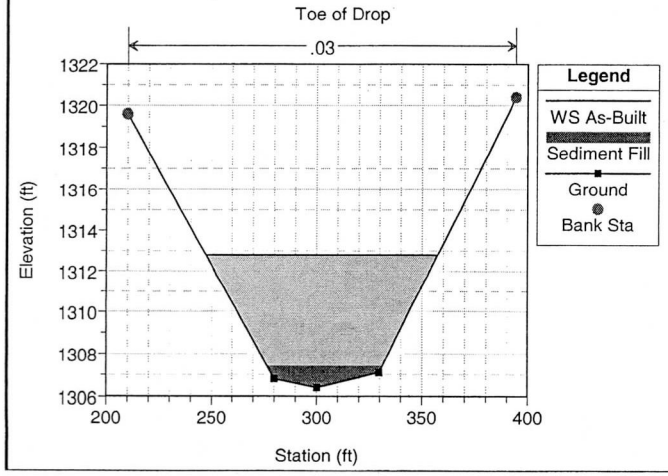
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Top of Drop

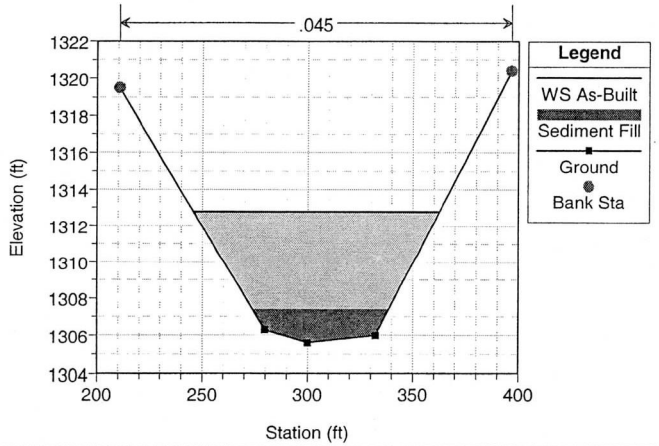


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

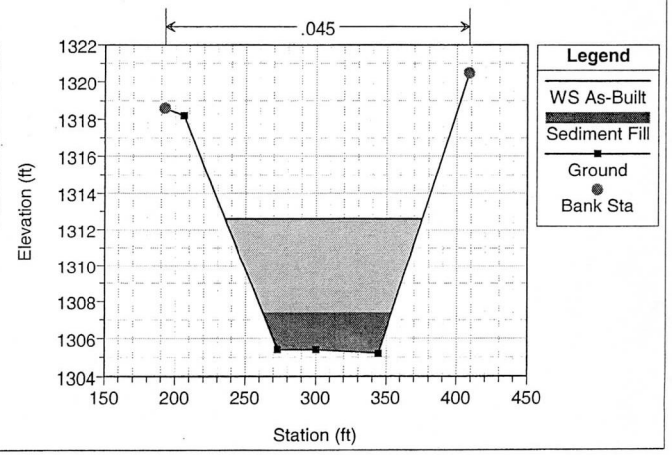
Toe of Drop



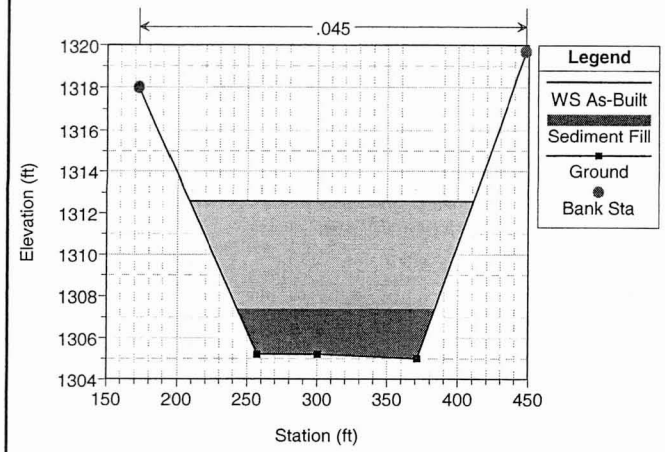
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



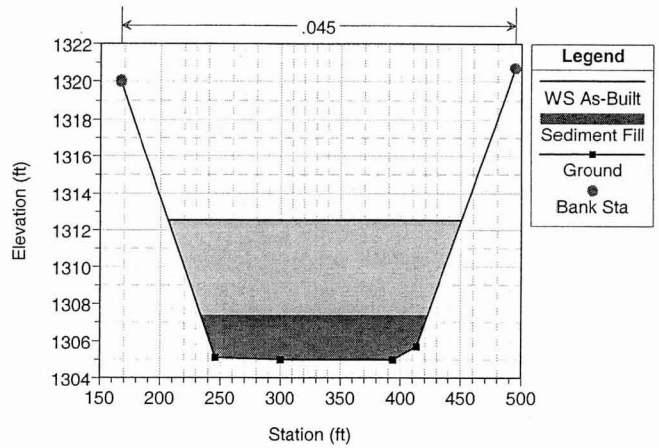
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



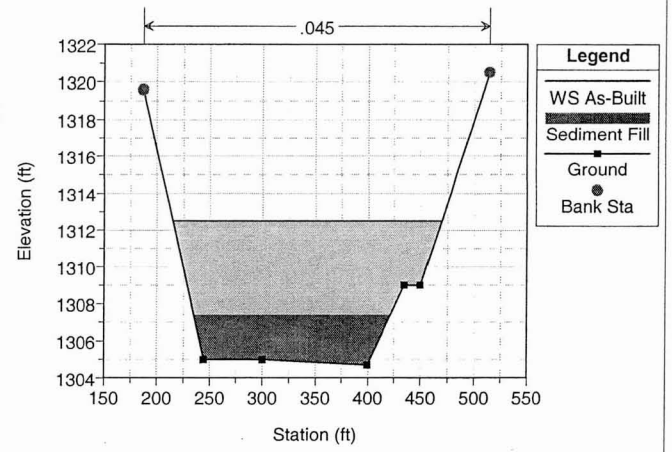
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



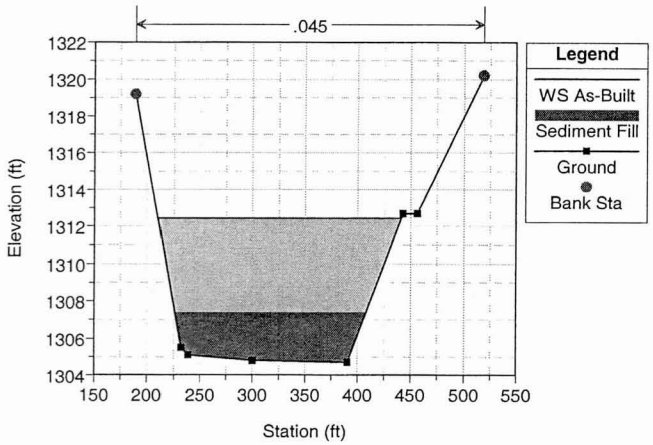
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



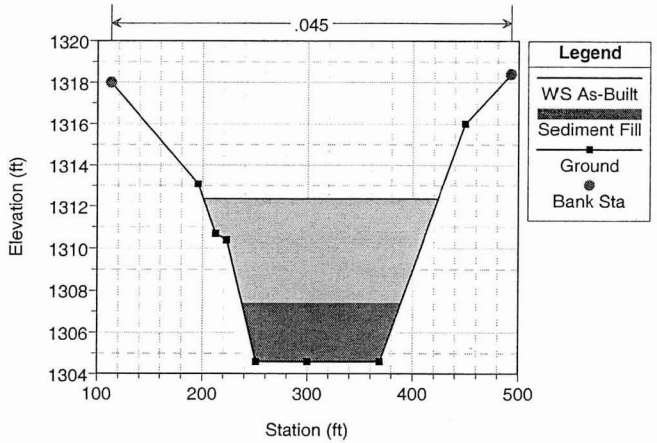
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



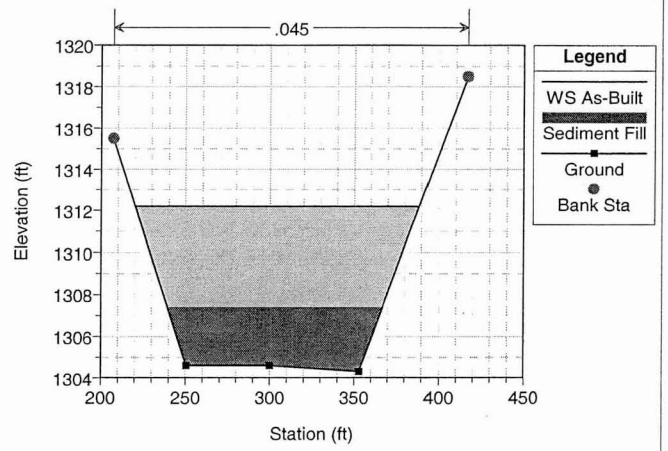
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



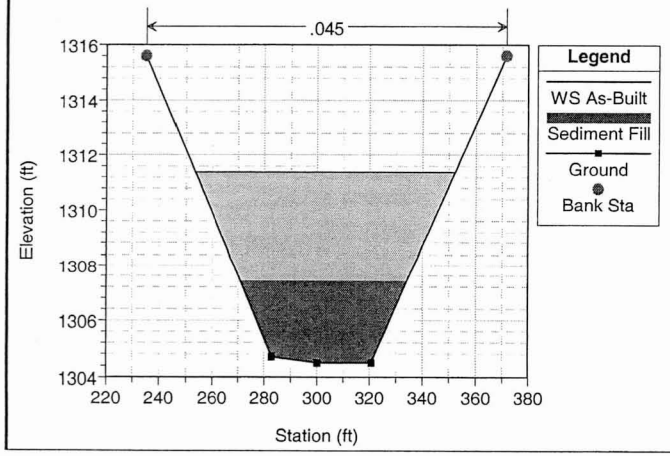
LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

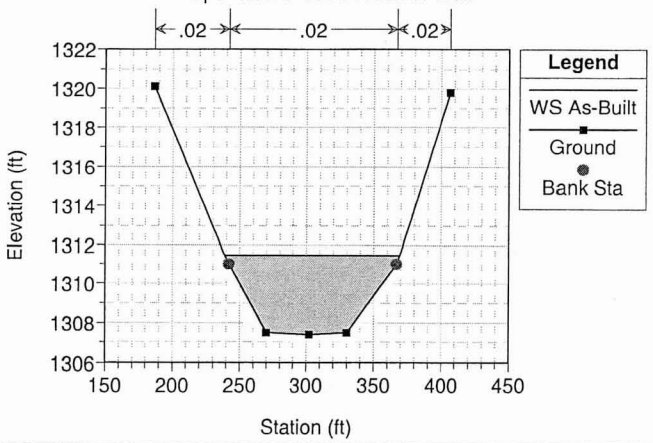


LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008



LOMR - Sonoqui Wash Plan: AS-BUILT 6/27/2008

Upstream Cross Section of Weir