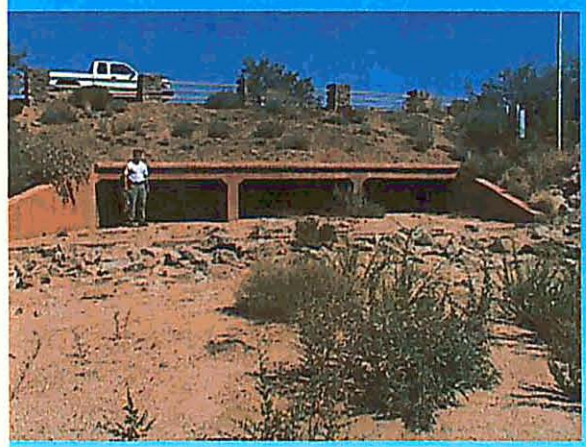

# NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY

**Report and Technical Data Notebook**

**MAIN REPORT**

**VOLUME 1 of 4**

FCD CONTRACT NO. 2003C008

Submitted April 2005

PREPARED FOR:

Flood Control District of Maricopa County
2801 W. Durango Street
Phoenix, AZ 85009
(602) 506-1501

A FEMA Cooperative Technical Partner

IN CONJUNCTION WITH:

City of Scottsdale
3939 N. Drinkwater Boulevard
Scottsdale, AZ 85251

and

Town of Carefree
100 Easy St.
Carefree, AZ 85377

PREPARED BY:

DEI Professional Services, LLC
6225 North 24th Street, Suite 200
Phoenix, AZ 85016

DEI Professional Services, LLC

Civil Engineering
Land Surveying
Project Management

# TECHNICAL DATA NOTEBOOK
# for
# NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
# FCD 2003C008

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Phoenix, AZ 85009

# MAIN REPORT

Hydrology Submitted: May 08, 2002
Final Report - September 2003
Revised: April 2005

*Prepared for:*

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY**
2801 W. Durango
Phoenix, AZ 85009
(602) 506-1501

*Prepared by:*

**DEI PROFESSIONAL SERVICES, LLC**
6225 N. 24th Street, Suite 200
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Registered Professional Engineer (Civil)
CERTIFICATE NO. 19879
HAL E. MARRON
Date Signed
ARIZONA, U.S.A.

\\MAIN\DATA\PROJECTS\03062\REPORTS\FINAL\03062MAINREPORT.DOC

**Technical Data Notebook**
**for**
**North Scottsdale**
**Floodplain Delineation Study**
**FCD 2003C008**
**Main Report**

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 4-7-04 ARIZONA, U.S.A.

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Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 4-13-0 ARIZONA, U.S.A.

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Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed ARIZONA, U.S.A.

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Registered Professional Engineer (Civil)
CERTIFICATE NO. 16379
HAL E. MARRON
Date Signed
ARIZONA, U.S.A.

# 1 Introduction

DEI Professional Services, LLC ("Consultant") has been contracted by the Flood Control District of Maricopa County ("District") with financial assistance under FEMA Grant No. EMF-2001-GR-0127 to prepare a floodplain delineation study for portions of several washes in the North Scottsdale area. These washes include:

Stage Coach Pass Wash
Upper Boulder Wash
Fan 6C
Fan 6A plus north and south tributaries
Upper Fan 5

Although Fan 6C, Fan 6 and its tributaries, and Upper Fan 5 represent riverine drainage within the study area they contribute to their respective alluvial fans located downstream of the study area. The scope of work, located in **APPENDIX B.5**, refers to these streams as "fans." All wash names are subsequently presented as named within the scope of work.

The North Scottsdale Washes lie downstream of Wildcat Hill near the intersection of Bartlett Dam Road and Cave Creek Road, and contribute runoff flows to Cave Creek Wash. The proposed hydrology boundary delineation, for this project, covers a total of approximately 15.2 square miles. This number does not include the delineated area for the breakthrough flow from the adjacent Rawhide Wash. The proposed hydraulic delineation covers a total of approximately 24.1 river miles. The study effort includes field reconnaissance, data collection, topographic survey, hydrology, hydraulic analysis, and floodplain delineation tasks. Results of the study will be documented in this final technical data report. This report will be considered for submittal to the Federal Emergency

Management Agency (FEMA) for inclusion of delineated 100-year floodplains on updated Flood Insurance Rate Maps (FIRM).

## 1.1 Purpose of Study

The purpose of the study to determine the 100-year, 6-hour flows and the 100-year floodplain and floodway delineation for the area described above. This report describes the hydrologic and hydraulic analysis for the reaches of the North Scottsdale Washes under study.

The hydrologic analysis defines specific discharges to be used in the hydraulic analysis phase of the study. The hydraulic analysis results delineate the floodplains and floodways for the study.

## 1.2 Study Location

The hydrologic study area covers approximately 15.2 square miles, and is located in the northern limits of the City of Scottsdale. The study area is within Sections 2-9 and 18-17 of Township 5 North, Range 5 East, and Sections 21, 22, 27-29 and 31-35 of Township 6 North, Range 5 East, and Sections 1-3 and 10-13 of Township 5 North, Range 4 East, of the Gila and Salt River Base and Meridian.

## 1.3 Description of Watershed

The sub-basin boundaries extend to the divide between the Upper ACDC and Lower Verde Watersheds, with elevations ranging from 2,260 feet at Scottsdale and

Westland Road, to over 3,280 feet at the divide near Bartlett Dam Road and Cave Creek Road. The total drainage area of these sub-basins is approximately 15.2 square miles. Slopes range between 1.8 percent 4.5 percent from the northeast to southwest. Tributaries to the North Scottsdale Washes have well defined and incised channels in the upper reaches, and become less confined in the lower reaches where numerous channel braids occur.

Several Master Planned Communities located within the watersheds are in various stages of development. Development within the watershed is typically very low density residential. Very low density residential is defined as a residential development in which the lots are one (1) acre or larger in size.

## 1.4 Previous Studies

Studies within the area include hydrologic and design studies performed by:

- Collar, Williams & White Engineering, *Master Drainage Plan for Desert Ranch*, April 15, 1998.
  This report summarizes the proposed drainage concepts and plans for the Desert Ranch development, now known as Legend Trail. Upper Boulders Wash, Fan 6C, Fan 6A North, Fan 6A South, Fan 6A, and Upper Fan 5 travel through Legend Trails.

- Coe & Van Loo Consultants, Inc, *Terravita Master Drainage Report*, June 11, 1993.
  This report summarizes the proposed drainage concepts and plans for the Terravita development located west of Scottsdale Road. Stage Coach Pass Wash and Upper Boulders Wash travel through Terravita.

- KVL Consultants, Inc. and Gilbertson Associates Inc., *Drainage Study: Winfield by Stone Ridge Builders*, March 28, 1997.

This report summarizes the proposed drainage concepts and plans for the Winfield development located on the southwest corner of Hayden Road and Westland Road. Upper Boulders Wash is diverted through Winfield.

- Erie and Associates, Inc., *Terravita Master Drainage Study Addendum*, September 1997.
  The study addresses the following issues that developed after the build out of Terravita: whether the present system flow splits are in accordance with the original study, and whether any modifications should be made to the retention basins to improve performance.

- Pacific Advanced Civil Engineering, Final Drainage Master Plan for Whisper Rock Development, February 2000.
  This report addresses the drainage issues associated with the planned Whisper Rock Development. Whisper Rock is a master planned development consisting of low density single family residential homes, 27-hole golf course, and an industrial/commercial area. Three main washes enter the site. The site lies partially within Fan 6.

- Gilbertson Associates Inc., *Stonehaven Master Drainage Study*, March 1999.
  The Stonehaven Master Drainage Study provides hydraulic and hydrologic analysis of the proposed subdivision. Stonehaven is located between Cave Creek Road and Stage Coach Pass, east of the 96th Street alignment and consists of single family residences, a golf course, clubhouse, community center and open space.

- Kimley-Horn and Associates, Upper Rawhide Wash Floodplain Delineation Study, June 2001.
  A previous study, which generated the FEMA 100-yr flood plain for Rawhide Wash, was completed in June 2001. Rawhide Wash is adjacent to Upper Fan 5. A portion of the Rawhide Wash splits to the west and enters Upper Fan 5. This split is detailed within this study.

- Ward, *North Scottsdale Flood Insurance Study*,1992
  A previous study which generated the FEMA 100-yr flood plains south of the study area identified in this report for Fan 6C, Fan 6A, and Upper Fan 5 was completed in 1992 by Ward. DEI has requested the work maps and report in order to coordinate the water surface elevation and location with the existing published FEMA flood plains.

# 2 ADWR/FEMA FORMS

## 2.1 Study Documentation Abstract for FEMA Submittals

| **Study Documentation Abstract for FEMA Submittals** | **Initial Study** | | **Restudy** | | **CLOMR** | | **LOMR** | | **Other** | |
|---|---|---|---|---|---|---|---|---|---|---|

| **Section 2.1: Study Documentation Abstract for FEMA Submittals** | | |
|---|---|---|
| 2.1.1 | Date Study Accepted | |
| 2.1.2 | Study Contractor<br>Contact(s)<br>Address<br><br>Phone<br>Internal Reference Number | DEI Professional Services, LLC<br>Hal Marron, P.E., Brian Rahal, P.E.<br>6225 N 24th St, Suite 200<br>Phoenix, AZ 85016<br>(602) 954-0038<br>03062 |
| 2.1.3 | FEMA Technical Review Contractor<br>Contact(s)<br>Address<br><br>Phone<br>Internal Reference Number | MAP IX-Mainland<br>Elliot Silverston, PhD, P.E.<br>7720 N 16th St, Suite 100<br>Phoenix, AZ 85020<br>(602) 648-2478<br>Stagecoach Pass Wash, Upper Boulders Wash, Fan 6A, Fan 6C, Upper Fan 5 |
| 2.1.4 | FEMA Regional Reviewer<br>Phone | MAP IX-Mainland<br>(602) 648-2478 |
| 2.1.5 | State Technical Reviewer<br>Phone | |
| 2.1.6 | Local Technical Reviewer<br>Phone | Flood Control District of Maricopa County (FCDMC)<br>(602) 506-1501 |
| 2.1.7 | Reach Description | FIRM Panel No.: 0413C0850E, 0413C0820F, 0413C0809H |
| 2.1.8 | USGS Quad Sheet(s) with original photo date & latest photo revision date | Cave Creek 1965/1981, Wildcat Hill 1965/1981 |
| 2.1.9 | Unique Conditions and Problems | |
| 2.1.10 | Coordination of Q's Discharges (Agency, Date, Comments) | Flood Control District of Maricopa County |

## 2.2 FEMA Forms

FEMA forms are located on the following pages.

FEDERAL EMERGENCY MANAGEMENT AGENCY

# OVERVIEW & CONCURRENCE FORM

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

## 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, 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.**

## A. REQUESTED RESPONSE FROM FEMA

This request is for a (check one):

☐ CLOMR: A letter from 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 FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See Parts 60 & 65 of the NFIP Regulations.)

## 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 |
|---|---|---|---|---|---|
| 040037 | MARICOPA CO. UNINCORPORATED AREAS | AZ | 04013C | 0550E | 7/19/01 |
| 045012 | City of Scottsdale, Maricopa County | AZ | 04013C | 0820F | 7/19/01 |
| 040126 | Town of Carefree, Maricopa County | AZ | 04013C | 0809H | 7/19/01 |

2. Flooding Source: Stage Coach Pass Wash, Upper Boulder Wash, Fan 6C, Fan 6A North and South, Upper Fan 5

3. Project Name/Identifier: North Scottsdale Floodplain Delineation Study

4. FEMA zone designations affected: A, AE, X (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 ☑ Other (Attach Description) NEW STUDY

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 types of flooding and structures (check all that apply)

| | | | |
|---|---|---|---|
| Types of Flooding: | ☑ Riverine | ☐ Coastal | ☐ Shallow Flooding (e.g., Zones AO and AH) |
| | ☐ Alluvial fan | ☐ Lakes | ☐ Other (Attach Description) |
| 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: $ Ø

☑ No, Attach Explanation CTP FEMA FUNDED

**Please see the FEMA Web site at http://www.fema.gov/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: TIMOTHY S. PHILLIPS | Company: FLOOD CONTROL DISTRICT MARICOPA Co. |
| Mailing Address: 2801 W. DURANGO ST. PHOENIX, AZ 85009 | Daytime Telephone No.: 602 506-1501 / Fax No.: 602 506-4601 / E-Mail Address: |
| Signature of Requester (required): SP DEPUTY | Date: 9/24/03 |

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: William Crickson Floodplain Administrator | | Telephone No.: (480) 312-7652 |
| Community Name: City of Scottsdale Arizona | Community Official's Signature (required): | Date: 9/24/03 |

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

| | | |
|---|---|---|
| Certifier's Name: Hal E. Marron | License No.: AZ 16379 | Expiration Date: 09/30/06 |
| Company Name: DEI Professional Services | Telephone No.: 602 954-0038 | Fax No.: 602 944-8605 |
| Signature: Hal E. Marron | | Date: 09/24/03 |

**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 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 9-24-03 ARIZONA, U.S.A.

## C. REVIEW FEE

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

☑ No, Attach Explanation CTP FEMA FUNDED

**Please see the FEMA Web site at http://www.fema.gov/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: TIMOTHY S. PHILLIPS | Company: FLOOD CONTROL DISTRICT OF MARICOPA CO. | |
| Mailing Address: 2801 W. DURANGO ST. PHOENIX, AZ 85009 | Daytime Telephone No.: 602 506-1501 | Fax No.: 602 506-4601 |
| | E-Mail Address: | |
| Signature of Requester (required): S D DEOUY | | Date: 9/24/03 |

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: Jonathan H Pearson, Town Administrator | | Telephone No.: 480-488-3686 |
| Community Name: Town of Carefree, AZ | Community Official's Signature (required): Jonathan H Pearson | Date: 9/24/03 |

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

| | | |
|---|---|---|
| Certifier's Name: Hal E. Marron | License No.: AZ 16379 | Expiration Date: 09/30/06 |
| Company Name: DEI Professional Services | Telephone No.: 602 954-0038 | Fax No.: 602 944-8605 |
| Signature: Hal E. Marron | | Date: 09/24/03 |

**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 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 9-24-03 ARIZONA, U.S.A.

## C. REVIEW FEE

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

☑ No, Attach Explanation CTP FEMA FUNDED

Please see the FEMA Web site at http://www.fema.gov/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: William Erickson, Floodplain Admin | Company: City of Scottsdale Arizona | |
| Mailing Address: 7447 E Indian School Road Scottsdale AZ 85251 | Daytime Telephone No.: (480) 312-7652 | Fax No.: (480) 312-4000 |
| | E-Mail Address: berickson@scottsdaleaz.gov | |
| Signature of Requester (required): | | Date: 9/24/03 |

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: William Erickson Floodplain Administrator | | Telephone No.: (480) 312-7652 |
| Community Name: City of Scottsdale Arizona | Community Official's Signature (required): | Date: 9/24/03 |

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

| | | |
|---|---|---|
| Certifier's Name: Hal E. Marron | License No.: AZ 16379 | Expiration Date: 09/30/06 |
| Company Name: DEI Professional Services | Telephone No.: 602 954-0038 | Fax No.: 602 944-8605 |
| Signature: Hal E. Marron | | Date: 09/24/03 |

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 |

Certified Professional Engineer CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 9-24-03 ARIZONA, U.S.A.

# 3 Survey and Mapping Information

## 3.1 Field Survey Information

DEI Professional Services, LLC surveyed the existing drainage structures along major roads, within the washes. These structures will be used as part of the floodplain analysis in HEC-RAS. **APPENDIX C** contains the field notes and locations for these structures.

Due to severe differences between the mapping provided to the Consultant by the District and the City of Scottsdale in the Sand Flower and Legend Trail Areas, the City of Scottsdale provided field survey of new cross section locations within these developments. The differences in elevations and stream locations were a result of recent development in the area. DEI Professional Services, LLC used the City of Scottsdale provided cross section data to re-compute the floodplains in these areas. Where the new cross sections were provided, topographic contours were not used. These new cross sections were included for portions of Stage Coach Pass Wash, Fan 6C and Fan 6A. Topographic contour lines are not shown on the work maps in areas where they were superceded by field survey data.

## 3.2 Mapping

The District provided all mapping to the Consultant. The Scottsdale mapping covered the City of Scottsdale Limits at a 2-ft contour interval. Mapping was also obtained from the District from the Carefree ADMS study concurrently in progress, for

the portion of Carefree that lies within the study watershed. Below is a list indicating pertinent information about the Scottsdale mapping used for this study.

SCOTTSDALE MAPPING, IGA 93-07
FCD CONTRACT No.: FCD XX-XX
PROJECT TYPE: Topographic Mapping
PROJECT MANAGER (FCD): John Rodriguez
PROJECT CONTRACTOR (Prime): Michael Baker Jr., Inc.
STARTING DATE: 1/14/1994
ENDING DATE: 1/14/1997
VERTICAL DATUM: NAVD88
MAPPING SCALE (inch-feet): 1:200
TOPOGRAPHY ORIGINATION DATE: 9/1/1993
DIGITAL TERRAIN MODEL (0 = no 1 = yes): 1
ORIGINAL COORDINATE SYSTEM/PROJECTION: Stateplane, Zone 3176, Units Ft GRS 1980, Nad83

### 3.3 Establishing of Project Elevation Reference Monuments

Mapping for the project was provided for the project by the City of Scottsdale to the Flood Control District of Maricopa County. Data for this mapping was obtained in the 1993 to 1994 time period. The survey control points in the area of this study that served as the basis for this mapping were obtained as part of the records search. Points from the survey were compared to City of Scottsdale record survey monuments.

The survey control points referenced as Elevation Reference Monuments for this study reflected agreement in elevation between the original aerial control survey and current record. Points within the current records that did not agree with aerial survey control were not considered. Elevation Reference Monuments were also checked in the field to verify their elevation.

# 4 Hydrology

## 4.1 Method Description

Peak discharges were determined using the HEC-1 Flood Hydrograph Package program, version 4.1. (June 1998). Analyses were conducted in accordance with the "Drainage Design Manual for Maricopa County-Volume I Hydrology" (Drainage Design Manual) (FCDMC, 1995).

## 4.2 Parameter Estimation

Procedures used in the hydrologic analysis follow the guidelines provided in the Drainage Design Manual. The District's Drainage Design Management System (DDMSW) software (Version 1.8) was used to compute the sub-basin parameters. Results from DDMSW are included in **APPENDIX D**.

### 4.2.1 Drainage Area Boundaries

Sub-basin boundaries were delineated using a combination of aerial topography provided by the District at a scale of 1 inch equals 200 feet with 2-foot contour intervals, and aerial photography provided by the District. The watershed sub-basin boundaries are presented on two sets of drawings. Each set shows the basin boundaries, concentrations points, routes and longest watercourse lengths. One set shows the aforementioned information with aerial and 10-ft contours, while the second set shows the 2 and 10-ft contours without

the aerial photography. Topographic mapping from the adjacent Carefree ADMS study concurrently in progress contains mapping for a portion of Stagecoach Pass Wash was obtained through the District. **FIGURE 1** indicates basin boundaries, sub-basin names, and major concentration points. **FIGURE 1** is located on the following page.

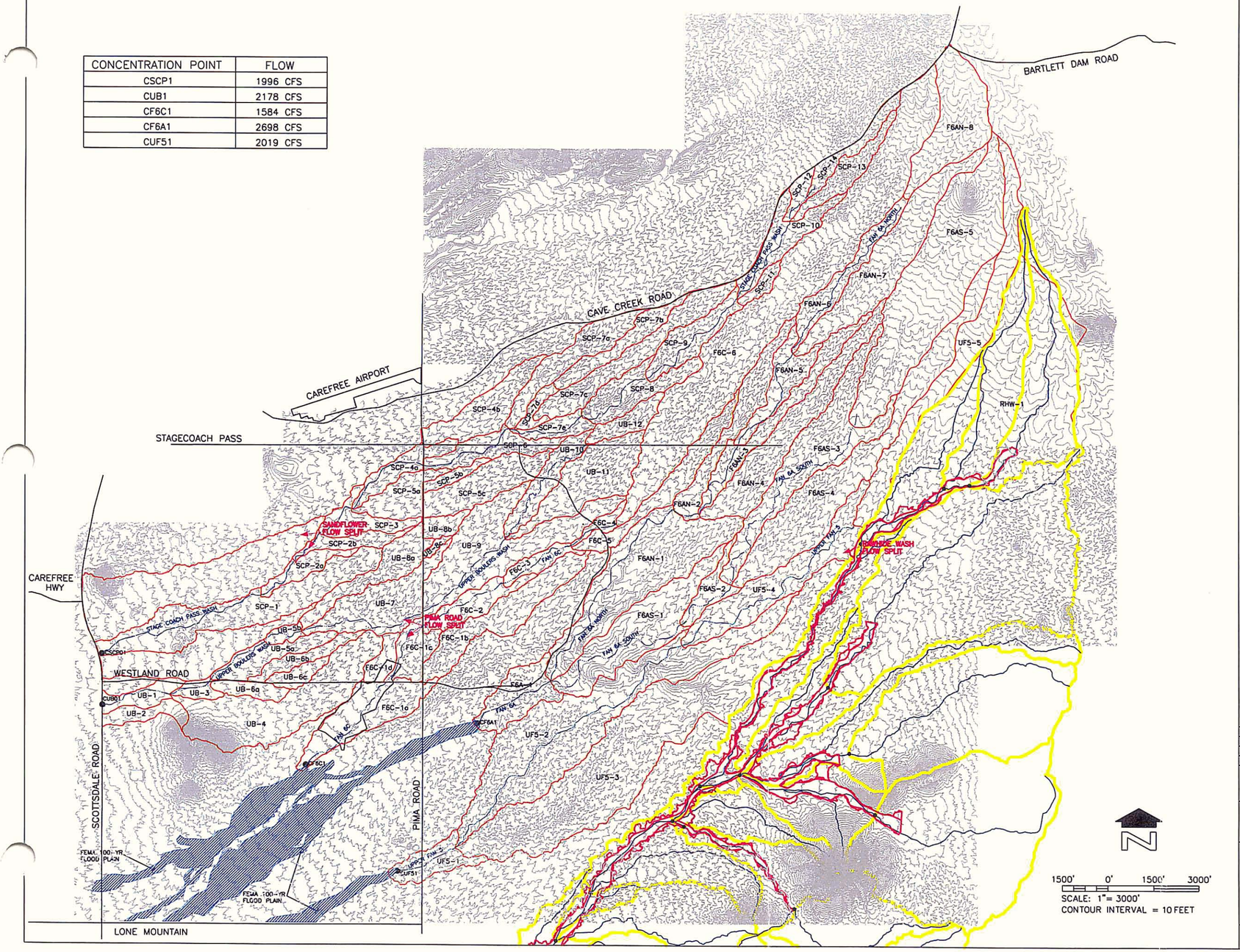
### 4.2.2 Watershed Work Maps

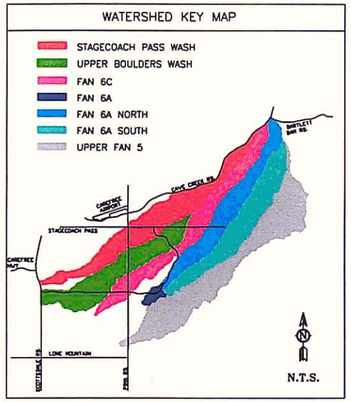
Work maps are located in the pockets at the end of this report.

### 4.2.3 Gauge Data

No gauge data is available for this watershed.

| CONCENTRATION POINT | FLOW |
|---|---|
| CSCP1 | 1996 CFS |
| CUB1 | 2178 CFS |
| CF6C1 | 1584 CFS |
| CF6A1 | 2698 CFS |
| CUF51 | 2019 CFS |




## LEGEND

- SUB-BASIN BOUNDARY
- STUDY WASH
- FLOW CONCENTRATION POINT
- F6AN-2 SUB-BASIN DESIGNATION I.E. F6AN-2 = FAN 6A NORTH SUB-BASIN 2

## SUB-BASIN ABBREVIATIONS

| | |
|---|---|
| SCP | STAGECOACH PASS WASH |
| UBW | UPPER BOULDERS WASH |
| F6C | FAN 6C |
| F6A | FAN 6A |
| F6AN | FAN 6A NORTH |
| F6AS | FAN 6A SOUTH |
| UF5 | UPPER FAN 5 |
| RHW | RAWHIDE WASH |

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/12/02 |
| DRAWN | PMM | 09/12/02 |
| CHECKED | HEM | 09/12/02 |

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 16379 HAL E. MARRON ARIZONA, U.S.A.

DRAWING NO. 01131Basins.dwg

DRAINAGE AREA BOUNDARIES

FIGURE 1

### 4.2.4 Statistical Parameters

No gauge data records are available for the North Scottsdale Study Washes or its tributaries. However, an analysis was performed for the overall watershed using the following two sets of regional regression equations. Descriptions of the USGS Roeske and ADWR Methods are shown in the following two subsections.

#### 4.2.4.1 USGS Roeske Method

Regional regression equations have been developed by the USGS as a means to estimate the flood magnitudes at sites without gauging. The equations, which have been developed for six different regions within the state, utilize the variables of drainage area, mean basin elevation, and mean annual precipitation. The methodology is described in detail in the report entitled "Methods for Estimating the Magnitude and Frequency of Floods in Arizona," (USGS, September 1978).

The North Scottsdale Washes watershed lies within the Central Mountain area for which the regression equations in **TABLE 1** may be applied:

**TABLE 1: USGS Roeske Method Equations and Errors**

| Equation | Standard Error in Percent |
|---|---|
| $Q_2 = 5.66\ A^{0.673}\ E^{-0.605}\ p^{1.03}$ | 81 |
| $Q_5 = 31.6\ A^{0.650}\ E^{-0.868}\ p^{0.987}$ | 64 |
| $Q_{10} = 74.7\ A^{0.638}\ E^{-1.00}\ p^{0.971}$ | 58 |
| $Q_{25} = 186\ A^{0.626}\ E^{-1.14}\ p^{0.944}$ | 58 |
| $Q_{50} = 329\ A^{0.617}\ E^{-1.22}\ p^{0.933}$ | 61 |
| $Q_{100} = 553\ A^{0.610}\ E^{-1.30}\ p^{0.915}$ | 66 |
| $Q_{500} = 1{,}530\ A^{0.595}\ E^{-1.45}\ p^{0.886}$ | 78 |

Where: Q = Flood Magnitude in cfs
A = Drainage Area in $mi^2$
E = Mean Basin Elevation in feet above MSL/1000
p = Mean Annual Precipitation in inches

For the entire study area of 15.2 square miles, a mean basin elevation of 2,771 feet, and an annual precipitation of 12 inches were used for the entire watershed area, resulting in a 100-year estimated peak discharge of 6,230-cfs. Detailed regression data results for each wash at specified concentration points are listed in TABLE 5.

4.2.4.2 ADWR Method Developed by USGS

The Arizona Department of Water Resources (ADWR) conducted a literature search and review of various methodologies for estimating flood frequencies throughout Arizona. Results are documented in the report, "*Requirement for Floodplain and Floodway Delineation in Riverine Environments*, State Standard Attachment 2-96" (ADWR, July

1996). That report recommends the use of the equations shown in **TABLE 2** for use within Region 12, the region this watershed lies within.

**TABLE 2: ADWR Method Equations and Errors**

| Equation | Average Standard Error % |
|---|---|
| $Q_2 = 41.1\ A^{0.629}$ | 105 |
| $Q_5 = 238\ A^{0.687}\ El^{-0.358}$ | 68 |
| $Q_{10} = 479\ A^{0.661}\ El^{-0.398}$ | 52 |
| $Q_{25} = 942\ A^{0.630}\ El^{-0.383}$ | 40 |
| $Q_{50} = 10^{(7.36 - 4.17\ A^{\wedge}0.08)}\ El^{-0.440}$ | 37 |
| $Q_{100} = 10^{(6.55 - 3.17\ A^{\wedge}-0.11)}\ El^{-0.454}$ | 39 |

Where: Q = Flood Magnitude in cfs
A = Drainage Area in $mi^2$
E = Mean Basin Elevation in feet above MSL/1000

For the entire study area of 11.2 square miles, a mean basin elevation of 2771 feet (El = 2.8) yields a 100-year peak discharge estimate of 8,290-cfs. The average standard error is given as plus or minus 39 per cent. Detailed regression data results for each wash at specified concentration points are listed for comparison in TABLE 5.

### 4.2.5 Precipitation

Point precipitation depths for the 100-year, 6-hour return period were estimated using isopluvial maps presented in the Drainage Design Manual. Uniform point precipitation depths were assumed throughout the watershed. The 6-hour local storm was selected because the entire watershed area is less

than 20 square miles. Depth-area reduction factors are in accordance with Table 2.2 of the *Drainage Design Manual.*

The MCUHP2 program was used to convert the point rainfall depth into the appropriate storm pattern based upon the cumulative drainage area. JD records were used per the District's request.

### 4.2.6 Physical Parameters

#### 4.2.6.1 Clark Unit Hydrograph

The Clark Unit Hydrograph was used in this study to distribute the point precipitation for each of the sub-basins. The watershed delineation for each wash were all below five (5) square miles; therefore the Clark Unit Hydrograph was selected per section 5.2 of the *Drainage Design Manual for Maricopa County, Arizona Volume I Hydrology.*

#### 4.2.6.2 Time of Concentration

Time of Concentration was computed using the equation:

$$T_C = 11.4 L^{0.5} Kb^{0.52} S^{-0.31} i^{-0.38}$$

Where:

Tc = Time of concentration (hrs.)
L = Length of longest watercourse (mi.)
Kb = Representative watershed resistance coefficient
S = Watercourse slope (ft./mi.)
i = Average rainfall excess intensity, during the time Tc, (in/hr)

Basin lengths and slopes were determined using aerial topography provided for this study. The slope was computed as the difference between the minimum elevation and the maximum elevation along the longest flow path, divided by the length of the longest flow path. Time of Concentration calculations can be located in **APPENDIX D.2** of this report.

#### 4.2.6.3 Basin Roughness

DDMSW calculated the appropriate Kb, watershed resistance factor, for each of the sub-basins areas. Kb is based on the watershed size and the roughness characteristics. It can be further described as:

$Kb = m\log A + b$

Where:
m and b = equation coefficients
A = drainage area, acres

Each land use type is associated with one of the following degrees of roughness: minimal, low, high, and maximum. The City of Scottsdale has indicated the roughness type to be used per land use type. An e-mail dated 04-09-02 addressed to Elisa Canez of DEI, and Richard Harris of FCDMC, states the roughness types which are to be used. The roughness types indicated by City of Scottsdale are consistent with the

roughness types per land use that are described within the *Drainage Design Manual for Maricopa County, Arizona Volume I Hydrology.*

Minimal roughness includes commercial, industrial, residential, parks and golf course areas. Low roughness includes agricultural, pastures, desert rangelands, and undeveloped urban lands. High roughness includes hillslopes, brushy alluvial fans, and hilly rangelands. Maximum roughness includes mountains and some wetlands. **TABLE 3** below indicates the value of the equation coefficients m and b in relation to the roughness.

**TABLE 3: Kb Coefficients**

| Roughness | m | b |
|---|---|---|
| Minimum | -0.00625 | 0.04 |
| Low | -0.01375 | 0.08 |
| High | -0.02500 | 0.015 |
| Maximum | -0.03000 | 0.200 |

Table 5.1 in the *Drainage Design Manual for Maricopa County, Arizona Volume I Hydrology* describes the typical applications, and equation parameters that are associated with each of the degrees of roughness.

4.2.6.4 Loss Rates

The Green-Ampt Method was used to compute watershed losses in accordance with the *Drainage Design Manual for Maricopa County,*

*Arizona Volume I.* Soil types for the study watershed area were obtained using maps from the County's Hydrologic Information System (HIS) as recreated for the study watershed in the **SOIL BOUNDARY EXHIBIT** located in the back pocket of this report. The eastern most portion of the study is part of the Tonto National Forest. The adjoining National Forest does not have a soil survey associated with it and thus estimations of soil type in the area were done. These estimations were performed with the aide of the aerial photography and historical soil surveys in the surrounding area. The soil composition for each sub-basin area was computed using this soils information overlaid on the sub-basin boundaries. Results are summarized in **APPENDIX D** and in the **SOIL BOUNDARY EXHIBIT**.

The information was then converted into Green-Ampt soil loss parameters using the District's DDMSW.

Future land use mapping was also obtained from the City of Scottsdale's GIS program, as presented in the **LAND USE BOUNDARY EXHBIT** located in the back pocket of this report. This information was also used as input to the DDMSW. The vegetation coverage, DTHETA, RTIMP, and IA for each land use was estimated, based upon City of Scottsdale requirements and recommendations. These recommendations are outlined in an email dated 04-09-02

addressed to Elisa Canez of DEI, and Richard Harris of FCDMC from Collis Lovely of the City of Scottsdale. **TABLE 4** summarizes the land use parameters used within the HEC-1 model.

**TABLE 4: Land Use Coefficients**

| LAND USE DESIGNATION | DTHETA | VEG COVER% | RTIMP % | IA (in) | Kb TYPE |
|---|---|---|---|---|---|
| R1-190 | Normal | 20 | 6 | 0.30 | Min |
| R1-130 | Normal | 20 | 8.5 | 0.30 | Min |
| R1-43 | Normal | 20 | 17 | 0.30 | Min |
| R1-35 | Normal | 50 | 20.5 | 0.30 | Min |
| R1-18 | Normal | 50 | 27 | 0.30 | Min |
| R1-10 | Normal | 50 | 36 | 0.25 | Min |
| R1-7 | Normal | 50 | 42.5 | 0.25 | Min |
| R-4 | Normal | 50 | 65 | 0.25 | Min |
| R-4R | Normal | 50 | 65 | 0.25 | Min |
| Commercial | Normal | 75 | 85 | 0.10 | Min |
| Open Space | Dry | 10 | 0 | 0.10 | Min |
| Golf Course | Normal | 60 | 0 | 0.44 | Min |
| Desert | Dry | 25 | 0 | 0.35 | Low |
| Parks | Normal | 70 | 10 | 0.50 | Min |

Typical coverage values were assumed based upon the topographic conditions. Results are presented in **APPENDIX D.**

4.2.6.5 Hydrograph Routing

Routing of flow along stream reaches was based upon normal depth routing. This included the establishment of typical eight-point channel cross-sections. Reach lengths and routes are depicted on plan sheets with the basin delineation. Topographic and aerial photography formats have been prepared.

#### 4.2.6.6 Flow Diversion

In the upper reaches of the watershed, flow remains well confined within the existing channel network due to the topographic relief and incised nature of the washes. As the channel slopes of the washes lessen, the channel cross-sections widen and a reduction in the flow depth occurs. In the lower reaches, some of the washes lose their confinement and become a network of braided channels. Four flow splits have been identified during the hydrologic portion of this study. Each split is described further in the **APPENIDX B** and in **APPENDIX D** of this report.

In larger flow events, the flow in some of the washes may have the capability to leave the channel banks and enter an adjacent sub-basin. Areas of potential flow breakout are shown on the **HEC-1 SCHEMATIC** located in the back pocket of this report. Estimates were made as to the percent of flow breakout at various discharges and will be further refined in the hydraulic portion of this study.

For the purpose of adding hydrographs at concentration points downstream of diversions, 100 percent of the area above the diversion was manually input into the HEC-1 model at hydrograph combination points. This was performed for both the diversion hydrographs and the remainder hydrographs and their respective downstream concentration

points. This will correctly model the areal distribution of a storm pattern, as it would apply to the larger area in both cases. The HEC-1 model typically associates zero area with a diversion hydrograph. Special care was taken to assure that, when a divert hydrograph rejoins a previous remainder hydrograph, no double addition of areas would occur.

## 4.3 Problems encountered during the Hydrologic Analysis

### 4.3.1 Special Problems/Solutions

The following are the special problems associated with this study:

- There are four major flow splits within this study. A portion of Rawhide wash splits and enters Upper Fan 5. A flow split occurs when a portion of Fan 6C enters Upper Boulders Wash at Pima Road. A flow split historically occurs within the Sand Flower Subdivision in the area, which now contains a diversion dike. A possible flow split occurs in the northern areas of Fan 6A North.

- There are no survey monuments associated with the generation of the City of Scottsdale topographic mapping, on record.

- The Carefree topography is on a different datum. The Carefree mapping was based on 1929 NGVD datum while the Scottsdale mapping datum is 1988 NAVD. The reported adjustment factor is 2.23-ft. Reasonable adjustments were made by the District in order to continue floodplain delineation within these areas.

- Soil type assumptions were made for the study area that lies within the Tonto National Forest.

- In September 2004, an error was discovered in the HEC-1 analysis consisting of soil type parameters incorrectly entered into the analysis

software. Soil types were verified for the area and entered into the model correctly. End results were most significant in the Fan 6A, Fan 6A North and Fan 6A South washes. 100-yr flood discharges were replaced with the new discharge values in Fan 6A, only. Reductions in the other washes can be considered statistically insignificant, therefore no changes were made to Stagecoach Pass Wash, Upper Boulders Wash, Fan 6C, or Upper Fan 5.

- Extra concentration points were added to the HEC-1 model after the FEMA approval, which raised the flow in concentration point CF6A1 from 2981 to 3002 cfs. However, after rectifying soils parameters for the model, the flow was reduced to 2698 cfs.

These special problems are further described and analyzed in **APPENDIX B** of this report.

### 4.3.2 Model Warning and Error Messages

WARNING: Excess Ponding less than zero for period. Excess set to zero.

WARNING: Modified Pulse Routing may be numerically unstable for outflows between X to Y. The routed hydrograph should be examined for oscillations or outflows greater than peak inflows. This can be corrected by decreasing the time interval or increasing storage (use a longer reach).

## 4.4 Calibration

Results were compared with those produced from the regional regression equations.

A comparison of results at selected locations is shown in **TABLE 5.**

**TABLE 5: Comparison of HEC-1 Model Results to Regression Equations**

| HEC-1 C.P. | 100-yr, 6-hr Flow Rate (cfs) | | | |
|---|---|---|---|---|
| | HEC-1 100-year, 6-hour | FEMA 100-year, 6-hour | USGS Equations | ADWR Equations |
| CSCP01 | 1996 | N/A | 2281 | 2697 |
| CUB01 | 2178 | N/A | 2301 | 2469 |
| CF6C1 | 1584 | 1475 | 1908 | 2241 |
| CF6A1 | 2698 | 3382 | 2920 | 3813 |
| CUF51 | 2019 | 2849 | 2273 | 2686 |

4.5 Final Results/Computer Runs

The HEC-1 model was used to develop estimates of the 100-year, 6-hour discharges throughout the study watershed. The input and output for the model are located in **APPENDIX D.6**. Results for a few selected sub-basins within the study area are summarized in **TABLE 6**.

**TABLE 6: Summary of HEC-1 Model Flow Rates per Square Mile**

| HEC-1 ID | Drainage Area ($mile^2$) | Computed 100-Year, 6-Hour | |
|---|---|---|---|
| | | Flow (cfs) | ($cfs/mile^2$) |
| CSCP01 | 2.109 | 1996 | 946.4 |
| CUB01 | 1.777 | 2178 | 1225.7 |
| CF6C1 | 1.677 | 1584 | 944.5 |
| CF6A1 | 3.527 | 2698 | 765.0 |
| CUF51 | 2.098 | 2019 | 962.3 |

The Hydrology for this study was approved by FEMA on July 26, 2002. The approval letter is located in **APPENDIX B.4** of this report. A full output of data results from the HEC-1 model for the 100-yr, 6-hour storm event is presented on the following pages. Results are shown in both HEC-1 operating order and alphabetically.

**Summary**
Page 1

02/11/05

| Major Basin ID | ID | Type | Area (sq mi) | (cfs) | 2 Year (cfs) | 5 Year (cfs) | 10 Year (cfs) | 25 Year (cfs) | 50 Year (cfs) | 100 Year |
|---|---|---|---|---|---|---|---|---|---|---|
| **NS** | | | | | | | | | | |
| | SCP-14 | Hydrograph | 0.06 | 51 | 75 | 92 | 118 | 139 | 157 |
| | RSCP14 | Routed | 0.06 | 47 | 70 | 87 | 113 | 132 | 150 |
| | SCP-13 | Hydrograph | 0.08 | 75 | 110 | 136 | 170 | 198 | 227 |
| | SCP-12 | Hydrograph | 0.03 | 29 | 43 | 54 | 69 | 80 | 91 |
| | CSCP12 | Combined | 0.17 | 145 | 215 | 267 | 340 | 398 | 453 |
| | RSCP12 | Routed | 0.17 | 125 | 192 | 241 | 308 | 366 | 419 |
| | SCP-10 | Hydrograph | 0.11 | 75 | 124 | 159 | 207 | 248 | 286 |
| | CSCP10 | Combined | 0.28 | 175 | 276 | 352 | 456 | 547 | 631 |
| | SCP-11 | Hydrograph | 0.03 | 22 | 35 | 44 | 58 | 67 | 78 |
| | CSCP11 | Combined | 0.3 | 185 | 293 | 375 | 486 | 584 | 676 |
| | RSCP10 | Routed | 0.3 | 157 | 263 | 341 | 447 | 546 | 635 |
| | SCP-09 | Hydrograph | 0.11 | 77 | 127 | 162 | 212 | 250 | 289 |
| | CSCP09 | Combined | 0.41 | 180 | 303 | 393 | 517 | 646 | 758 |
| | RSCP09 | Routed | 0.41 | 159 | 288 | 377 | 499 | 618 | 737 |
| | SCP-08 | Hydrograph | 0.13 | 82 | 139 | 179 | 235 | 278 | 326 |
| | CSCP08 | Combined | 0.54 | 176 | 322 | 423 | 561 | 702 | 844 |
| | RSCP08 | Routed | 0.54 | 173 | 309 | 411 | 552 | 685 | 824 |
| | SCP-7E | Hydrograph | 0.05 | 32 | 54 | 70 | 93 | 111 | 130 |
| | CSCP7E | Combined | 0.59 | 173 | 310 | 414 | 559 | 695 | 836 |
| | SCP-7B | Hydrograph | 0.09 | 39 | 66 | 87 | 120 | 147 | 173 |
| | RSCP7B | Routed | 0.09 | 37 | 62 | 82 | 113 | 139 | 164 |
| | SCP-7C | Hydrograph | 0.18 | 68 | 115 | 154 | 212 | 263 | 315 |
| | RSCP7C | Routed | 0.18 | 67 | 112 | 150 | 206 | 255 | 306 |
| | SCP-7D | Hydrograph | 0.03 | 21 | 33 | 42 | 56 | 66 | 76 |
| | CSCP7D | Combined | 0.29 | 114 | 192 | 256 | 350 | 433 | 517 |
| | RSCP7D | Routed | 0.29 | 114 | 192 | 256 | 350 | 433 | 517 |
| | CSCP07 | Combined | 0.88 | 231 | 388 | 531 | 738 | 924 | 1,116 |
| | SCP-7A | Hydrograph | 0.14 | 58 | 99 | 131 | 180 | 222 | 263 |
| | CSCP7A | Combined | 1.01 | 266 | 436 | 580 | 819 | 1,027 | 1,243 |
| | RSCP07 | Routed | 1.01 | 262 | 429 | 576 | 812 | 1,019 | 1,234 |
| | SCP-06 | Hydrograph | 0.1 | 63 | 101 | 131 | 172 | 205 | 237 |
| | CSCP06 | Combined | 1.11 | 289 | 472 | 620 | 858 | 1,079 | 1,308 |
| | SSCP06 | Routed | 1.11 | 289 | 472 | 620 | 858 | 1,079 | 1,308 |
| | RSCP06 | Routed | 1.11 | 287 | 468 | 617 | 857 | 1,076 | 1,305 |
| | SCP-4B | Hydrograph | 0.14 | 81 | 139 | 182 | 244 | 292 | 343 |
| | SSCP4B | Routed | 0.14 | 81 | 139 | 182 | 244 | 292 | 343 |
| | RSCP4B | Routed | 0.14 | 73 | 127 | 165 | 223 | 269 | 317 |
| | SCP-4A | Hydrograph | 0.08 | 45 | 75 | 97 | 128 | 153 | 178 |
| | CSCP4A | Combined | 1.33 | 338 | 555 | 734 | 1,002 | 1,235 | 1,487 |
| | SCP-5C | Hydrograph | 0.15 | 103 | 166 | 214 | 281 | 337 | 389 |
| | SSCP5C | Routed | 0.15 | 103 | 166 | 214 | 281 | 337 | 389 |
| | RSCP5C | Routed | 0.15 | 90 | 146 | 188 | 249 | 301 | 350 |
| | SCP-5B | Hydrograph | 0.03 | 21 | 32 | 40 | 51 | 60 | 69 |
| | SSCP5B | Routed | 0.03 | 4 | 4 | 4 | 4 | 4 | 4 |
| | RSCP5B | Routed | 0.03 | 4 | 4 | 4 | 4 | 4 | 4 |
| | SCP-5A | Hydrograph | 0.09 | 65 | 108 | 137 | 182 | 215 | 250 |
| | CSCP04 | Combined | 1.6 | 406 | 666 | 884 | 1,205 | 1,473 | 1,752 |
| | RSCP04 | Routed | 1.6 | 404 | 662 | 881 | 1,199 | 1,468 | 1,746 |
| | SCP-03 | Hydrograph | 0.08 | 45 | 80 | 105 | 140 | 169 | 198 |
| | CSCP03 | Combined | 1.68 | 410 | 676 | 903 | 1,232 | 1,509 | 1,792 |
| | RSCP03 | Routed | 1.68 | 409 | 674 | 901 | 1,229 | 1,506 | 1,788 |
| | SCP-2B | Hydrograph | 0.05 | 20 | 36 | 49 | 70 | 85 | 102 |
| | CSCP2B | Combined | 1.73 | 414 | 686 | 919 | 1,257 | 1,540 | 1,828 |
| | SSCP2B | Routed | 1.73 | 415 | 686 | 919 | 1,256 | 1,540 | 1,828 |
| | RSCP2B | Routed | 1.73 | 412 | 683 | 915 | 1,251 | 1,533 | 1,821 |
| | SCP-2A | Hydrograph | 0.05 | 29 | 52 | 67 | 90 | 110 | 128 |

**Summary**
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| Major Basin ID | ID | Type | Area (sq mi) | (cfs) | 2 Year (cfs) | 5 Year (cfs) | 10 Year (cfs) | 25 Year (cfs) | 50 Year (cfs) | 100 Year |
|---|---|---|---|---|---|---|---|---|---|---|
| | CSCP02 | | Combined | 1.79 | 416 | 692 | 929 | 1,272 | 1,559 | 1,851 |
| | SSCP02 | | Routed | 1.79 | 416 | 692 | 929 | 1,272 | 1,559 | 1,851 |
| | RSCP02 | | Routed | 1.79 | 410 | 680 | 911 | 1,244 | 1,523 | 1,813 |
| | SCP-01 | | Hydrograph | 0.32 | 117 | 207 | 285 | 398 | 491 | 583 |
| | CSCP01 | | Combined | 2.11 | 449 | 754 | 1,017 | 1,387 | 1,687 | 1,996 |
| | SSCP01 | | Routed | 2.11 | 449 | 754 | 1,017 | 1,387 | 1,687 | 1,996 |
| | F6C-6 | | Hydrograph | 0.89 | 224 | 410 | 574 | 829 | 1,041 | 1,251 |
| | RF6C6 | | Routed | 0.89 | 224 | 408 | 572 | 824 | 1,032 | 1,236 |
| | F6C-4 | | Hydrograph | 0.03 | 17 | 28 | 36 | 47 | 56 | 65 |
| | CF6C4 | | Combined | 0.91 | 229 | 417 | 585 | 842 | 1,054 | 1,261 |
| | F6C-5 | | Hydrograph | 0.14 | 46 | 80 | 106 | 148 | 184 | 222 |
| | CF6C5 | | Combined | 1.05 | 256 | 467 | 653 | 936 | 1,169 | 1,399 |
| | RF6C4 | | Routed | 1.05 | 250 | 452 | 617 | 874 | 1,095 | 1,317 |
| | F6C-3 | | Hydrograph | 0.05 | 24 | 42 | 55 | 74 | 89 | 103 |
| | CF6C3 | | Combined | 1.1 | 257 | 464 | 631 | 892 | 1,118 | 1,346 |
| | RF6C3 | | Routed | 1.1 | 253 | 458 | 624 | 879 | 1,101 | 1,324 |
| | F6C-2 | | Hydrograph | 0.09 | 78 | 118 | 147 | 184 | 217 | 248 |
| | CF6C2 | | Combined | 1.18 | 263 | 476 | 647 | 909 | 1,137 | 1,369 |
| | SF6C2 | | Routed | 1.18 | 263 | 476 | 647 | 909 | 1,137 | 1,369 |
| | DCUB09 | | Diversion | 1.18 | 1 | 8 | 24 | | | |
| | DCF6C2 | | Hydrograph | 1.18 | 263 | 476 | 647 | 907 | 1,128 | 1,345 |
| | RF6C2 | | Routed | 1.18 | 261 | 474 | 645 | 904 | 1,123 | 1,338 |
| | F6C-1C | | Hydrograph | 0.08 | 91 | 132 | 159 | 197 | 229 | 260 |
| | CF6C1C | | Combined | 1.26 | 261 | 476 | 650 | 909 | 1,131 | 1,349 |
| | F6C-1B | | Hydrograph | 0.19 | 98 | 163 | 213 | 282 | 81 | 402 |
| | SF6C1B | | Routed | 0.19 | 98 | 163 | 213 | 282 | 81 | 402 |
| | RF6C1B | | Routed | 0.19 | 96 | 160 | 208 | 276 | 81 | 394 |
| | CF6C1B | | Combined | 1.46 | 302 | 547 | 745 | 1,023 | 1,169 | 1,513 |
| | SF6C1C | | Routed | 1.46 | 302 | 547 | 745 | 1,023 | 1,169 | 1,513 |
| | RF6C1C | | Routed | 1.46 | 300 | 544 | 742 | 1,020 | 1,163 | 1,500 |
| | F6C-1D | | Hydrograph | 0.04 | 51 | 73 | 87 | 108 | 123 | 140 |
| | SF6C1D | | Routed | 0.04 | 51 | 73 | 87 | 108 | 123 | 140 |
| | RF6C1D | | Routed | 0.04 | 42 | 61 | 75 | 94 | 109 | 125 |
| | F6C-1A | | Hydrograph | 0.18 | 163 | 250 | 313 | 400 | 465 | 529 |
| | CF6C1 | | Combined | 1.68 | 315 | 580 | 798 | 1,086 | 1,223 | 1,584 |
| | UB-12 | | Hydrograph | 0.06 | 39 | 63 | 81 | 105 | 127 | 146 |
| | RUB12 | | Routed | 0.06 | 27 | 41 | 53 | 77 | 95 | 112 |
| | UB-10 | | Hydrograph | 0.09 | 52 | 84 | 109 | 146 | 176 | 206 |
| | CUB10 | | Combined | 0.15 | 60 | 95 | 121 | 161 | 200 | 238 |
| | UB-11 | | Hydrograph | 0.21 | 136 | 216 | 274 | 364 | 434 | 508 |
| | CUB11 | | Combined | 0.36 | 195 | 309 | 395 | 523 | 626 | 735 |
| | RUB10 | | Routed | 0.36 | 182 | 287 | 366 | 489 | 586 | 691 |
| | UB-09 | | Hydrograph | 0.34 | 219 | 355 | 458 | 606 | 728 | 848 |
| | CUB09 | | Combined | 0.7 | 328 | 523 | 672 | 900 | 1,080 | 1,270 |
| | SUB09 | | Routed | 0.7 | 328 | 523 | 672 | 900 | 1,080 | 1,270 |
| | DCUB09 | | Hydrograph | 1.18 | 1 | 8 | 24 | | | |
| | DCUB09 | | Combined | 0.7 | 328 | 523 | 672 | 900 | 1,080 | 1,270 |
| | RUB09 | | Routed | 0.7 | 323 | 507 | 645 | 857 | 1,034 | 1,217 |
| | UB-07 | | Hydrograph | 0.19 | 144 | 225 | 284 | 368 | 435 | 496 |
| | CUB07 | | Combined | 0.89 | 401 | 625 | 786 | 1,032 | 1,242 | 1,459 |
| | UB-08C | | Hydrograph | 0.01 | 10 | 15 | 19 | 24 | 28 | 32 |
| | RUB08C | | Routed | 0.01 | 6 | 8 | 10 | 12 | 14 | 16 |
| | UB-08B | | Hydrograph | 0.03 | 38 | 54 | 66 | 81 | 94 | 108 |
| | RUB08B | | Routed | 0.03 | 20 | 33 | 42 | 53 | 64 | 75 |
| | UB-08A | | Hydrograph | 0.12 | 50 | 88 | 119 | 164 | 201 | 238 |
| | CUB08 | | Combined | 1.06 | 437 | 689 | 874 | 1,152 | 1,388 | 1,629 |
| | RUB07 | | Routed | 1.06 | 433 | 684 | 869 | 1,145 | 1,377 | 1,617 |
| | UB-05B | | Hydrograph | 0.02 | 27 | 39 | 47 | 58 | 67 | 76 |

**Summary**
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| Major Basin ID | ID | Type | Area (sq mi) | (cfs) | 2 Year (cfs) | 5 Year (cfs) | 10 Year (cfs) | 25 Year (cfs) | 50 Year (cfs) | 100 Year |
|---|---|---|---|---|---|---|---|---|---|---|
| | CUB05B | Combined | | 1.08 | 436 | 689 | 875 | 1,153 | 1,387 | 1,628 |
| | SUB05B | Routed | | 1.08 | 436 | 689 | 875 | 1,153 | 1,387 | 1,628 |
| | RUB05B | Routed | | 1.08 | 434 | 686 | 870 | 1,140 | 1,368 | 1,603 |
| | UB-05A | Hydrograph | | 0.09 | 74 | 113 | 140 | 177 | 208 | 237 |
| | CUB05 | Combined | | 1.17 | 457 | 721 | 911 | 1,189 | 1,424 | 1,667 |
| | SUB05 | Routed | | 1.17 | 457 | 721 | 911 | 1,189 | 1,424 | 1,667 |
| | RUB05 | Routed | | 1.17 | 455 | 719 | 909 | 1,187 | 1,421 | 1,663 |
| | UB-06C | Hydrograph | | 0.04 | 39 | 57 | 70 | 87 | 100 | 114 |
| | SUB06C | Routed | | 0.04 | 39 | 57 | 70 | 87 | 100 | 114 |
| | RUB06C | Routed | | 0.04 | 32 | 49 | 61 | 76 | 88 | 102 |
| | UB-06B | Hydrograph | | 0.05 | 39 | 60 | 74 | 95 | 111 | 127 |
| | SUB06B | Routed | | 0.05 | 39 | 60 | 74 | 95 | 111 | 127 |
| | RUB06B | Routed | | 0.05 | 35 | 55 | 69 | 88 | 104 | 119 |
| | UB-06A | Hydrograph | | 0.04 | 42 | 61 | 75 | 94 | 109 | 125 |
| | CUB06 | Combined | | 0.13 | 99 | 153 | 190 | 241 | 283 | 326 |
| | RUB06 | Routed | | 0.13 | 97 | 149 | 185 | 236 | 276 | 318 |
| | UB-03 | Hydrograph | | 0.03 | 26 | 40 | 49 | 62 | 73 | 84 |
| | CUB03 | Combined | | 1.33 | 506 | 799 | 1,004 | 1,301 | 1,552 | 1,810 |
| | UB-04 | Hydrograph | | 0.35 | 229 | 365 | 465 | 605 | 722 | 836 |
| | CUB04 | Combined | | 1.68 | 622 | 994 | 1,252 | 1,605 | 1,891 | 2,178 |
| | RUB03 | Routed | | 1.68 | 613 | 978 | 1,232 | 1,583 | 1,868 | 2,152 |
| | UB-01 | Hydrograph | | 0.05 | 47 | 71 | 87 | 112 | 131 | 151 |
| | CUB01 | Combined | | 1.73 | 621 | 992 | 1,250 | 1,606 | 1,894 | 2,178 |
| | SUB01 | Routed | | 1.73 | 621 | 992 | 1,250 | 1,606 | 1,894 | 2,178 |
| | UB-02 | Hydrograph | | 0.05 | 57 | 81 | 98 | 123 | 143 | 162 |
| | F6AN-8 | Hydrograph | | 0.23 | 195 | 319 | 406 | 525 | 624 | 716 |
| | RF6AN8 | Routed | | 0.23 | 158 | 271 | 355 | 470 | 564 | 653 |
| | F6AN-6 | Hydrograph | | 0.11 | 36 | 73 | 104 | 148 | 183 | 215 |
| | CF6AN6 | Combined | | 0.34 | 187 | 324 | 429 | 572 | 694 | 809 |
| | F6AN-7 | Hydrograph | | 0.28 | 95 | 185 | 265 | 379 | 99 | 565 |
| | CF6AN7 | Combined | | 0.63 | 254 | 459 | 621 | 850 | 696 | 1,227 |
| | RF6AN6 | Routed | | 0.63 | 221 | 411 | 570 | 793 | 632 | 1,164 |
| | F6AN-5 | Hydrograph | | 0.1 | 46 | 90 | 124 | 170 | 207 | 246 |
| | CF6AN5 | Combined | | 0.73 | 225 | 425 | 592 | 826 | 676 | 1,225 |
| | RF6AN5 | Routed | | 0.73 | 203 | 385 | 539 | 769 | 616 | 1,138 |
| | F6AN-3 | Hydrograph | | 0.14 | 38 | 69 | 96 | 138 | 171 | 206 |
| | CF6AN3 | Combined | | 0.87 | 213 | 410 | 576 | 825 | 691 | 1,228 |
| | F6AN-4 | Hydrograph | | 0.25 | 84 | 150 | 207 | 296 | 366 | 438 |
| | CF6AN4 | Combined | | 1.12 | 237 | 467 | 662 | 954 | 853 | 1,435 |
| | RF6AN3 | Routed | | 1.12 | 235 | 464 | 659 | 951 | 849 | 1,430 |
| | F6AN-2 | Hydrograph | | 0.15 | 45 | 85 | 121 | 174 | 219 | 265 |
| | CF6AN2 | Combined | | 1.27 | 242 | 486 | 695 | 1,009 | 925 | 1,527 |
| | RF6AN2 | Routed | | 1.27 | 237 | 473 | 674 | 925 | 897 | 1,514 |
| | F6AN-1 | Hydrograph | | 0.41 | 181 | 319 | 435 | 609 | 751 | 892 |
| | CF6AN1 | Combined | | 1.68 | 243 | 492 | 702 | 986 | 955 | 1,678 |
| | F6AS-5 | Hydrograph | | 0.63 | 168 | 348 | 510 | 753 | 948 | 1145 |
| | RF6AS5 | Routed | | 0.63 | 114 | 263 | 392 | 612 | 782 | 963 |
| | F6AS-3 | Hydrograph | | 0.32 | 120 | 211 | 288 | 404 | 499 | 593 |
| | CF6AS3 | Combined | | 0.95 | 132 | 304 | 464 | 726 | 937 | 1,154 |
| | F6AS-4 | Hydrograph | | 0.43 | 84 | 158 | 224 | 338 | 437 | 537 |
| | CF6AS4 | Combined | | 1.38 | 157 | 370 | 573 | 899 | 1,175 | 1,450 |
| | RF6AS3 | Routed | | 1.38 | 155 | 361 | 559 | 885 | 1,155 | 1,427 |
| | F6AS-2 | Hydrograph | | 0.06 | 38 | 63 | 81 | 106 | 127 | 147 |
| | CF6AS2 | Combined | | 1.44 | 154 | 361 | 562 | 891 | 1,165 | 1,442 |
| | RF6AS2 | Routed | | 1.44 | 151 | 346 | 539 | 848 | 1,118 | 1,395 |
| | F6AS-1 | Hydrograph | | 0.28 | 163 | 262 | 337 | 441 | 526 | 616 |
| | CF6AS1 | Combined | | 1.72 | 177 | 359 | 565 | 898 | 1,189 | 1,493 |
| | CF6ASN | Combined | | 3.4 | 323 | 697 | 1064 | 1,678 | 1,935 | 2,709 |

**Summary**
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| Major Basin ID | ID | Type | Area (sq mi) | (cfs) | 2 Year (cfs) | 5 Year (cfs) | 10 Year (cfs) | 25 Year (cfs) | 50 Year (cfs) | 100 Year |
|---|---|---|---|---|---|---|---|---|---|---|
| | RF6AN1 | | Routed | 3.4 | 323 | 695 | 1062 | 1670 | 1,923 | 2,696 |
| | F6A-1 | | Hydrograph | 0.13 | 99 | 164 | 210 | 272 | 322 | 371 |
| | CF6A1 | | Combined | 3.53 | 322 | 695 | 1062 | 1,668 | 1,920 | 2,698 |
| | RHW-1 | | Hydrograph | 1.05 | 317 | 628 | 877 | 1,245 | 1,544 | 1,822 |
| | DRHOUT | | Diversion | 1.05 | 270 | 418 | 527 | 707 | 862 | 1,006 |
| | DRHW1 | | Hydrograph | 1.05 | 47 | 210 | 349 | 538 | 682 | 815 |
| | RRHW1 | | Routed | 1.05 | 34 | 151 | 261 | 406 | 523 | 645 |
| | UF5-5 | | Hydrograph | 0.29 | 68 | 127 | 180 | 266 | 335 | 404 |
| | RUF55 | | Routed | 0.29 | 60 | 109 | 151 | 216 | 269 | 320 |
| | UF5-4 | | Hydrograph | 0.25 | 128 | 205 | 268 | 362 | 441 | 522 |
| | CUF54 | | Combined | 1.6 | 103 | 275 | 429 | 642 | 806 | 979 |
| | RUF54 | | Routed | 1.6 | 98 | 259 | 413 | 623 | 786 | 954 |
| | UF5-2 | | Hydrograph | 0.62 | 277 | 455 | 590 | 783 | 940 | 1,094 |
| | CUF52 | | Combined | 2.22 | 249 | 421 | 555 | 805 | 1,023 | 1,242 |
| | UF5-3 | | Hydrograph | 0.84 | 300 | 485 | 624 | 832 | 1,001 | 1,171 |
| | CUF53 | | Combined | 3.07 | 485 | 801 | 1,043 | 1,400 | 1,684 | 1,976 |
| | RUF52 | | Routed | 3.07 | 482 | 796 | 1,038 | 1,394 | 1,680 | 1,971 |
| | UF5-1 | | Hydrograph | 0.08 | 89 | 129 | 158 | 199 | 231 | 260 |
| | CUF51 | | Combined | 3.15 | 489 | 810 | 1,061 | 1,427 | 1,721 | 2,019 |

**Summary**
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| Major Basin ID | ID | Type | Area (sq mi) | (cfs) | 2 Year (cfs) | 5 Year (cfs) | 10 Year (cfs) | 25 Year (cfs) | 50 Year (cfs) | 100 Year |
|---|---|---|---|---|---|---|---|---|---|---|
| **NS** | | | | | | | | | | |
| | CF6A1 | Combined | 3.53 | 322 | 695 | 1062 | 1,668 | 1,920 | 2,698 |
| | CF6AN1 | Combined | 1.68 | 243 | 492 | 702 | 986 | 955 | 1,678 |
| | CF6AN2 | Combined | 1.27 | 242 | 486 | 695 | 1,009 | 925 | 1,527 |
| | CF6AN3 | Combined | 0.87 | 213 | 410 | 576 | 825 | 691 | 1,228 |
| | CF6AN4 | Combined | 1.12 | 237 | 467 | 662 | 954 | 853 | 1,435 |
| | CF6AN5 | Combined | 0.73 | 225 | 425 | 592 | 826 | 676 | 1,225 |
| | CF6AN6 | Combined | 0.34 | 187 | 324 | 429 | 572 | 694 | 809 |
| | CF6AN7 | Combined | 0.63 | 254 | 459 | 621 | 850 | 696 | 1,227 |
| | CF6AS1 | Combined | 1.72 | 177 | 359 | 565 | 898 | 1,189 | 1,493 |
| | CF6AS2 | Combined | 1.44 | 154 | 361 | 562 | 891 | 1,165 | 1,442 |
| | CF6AS3 | Combined | 0.95 | 132 | 304 | 464 | 726 | 937 | 1,154 |
| | CF6AS4 | Combined | 1.38 | 157 | 370 | 573 | 899 | 1,175 | 1,450 |
| | CF6ASN | Combined | 3.4 | 323 | 697 | 1064 | 1,678 | 1,935 | 2,709 |
| | CF6C1 | Combined | 1.68 | 315 | 580 | 798 | 1,086 | 1,223 | 1,584 |
| | CF6C1B | Combined | 1.46 | 302 | 547 | 745 | 1,023 | 1,169 | 1,513 |
| | CF6C1C | Combined | 1.26 | 261 | 476 | 650 | 909 | 1,131 | 1,349 |
| | CF6C2 | Combined | 1.18 | 263 | 476 | 647 | 909 | 1,137 | 1,369 |
| | CF6C3 | Combined | 1.1 | 257 | 464 | 631 | 892 | 1,118 | 1,346 |
| | CF6C4 | Combined | 0.91 | 229 | 417 | 585 | 842 | 1,054 | 1,261 |
| | CF6C5 | Combined | 1.05 | 256 | 467 | 653 | 936 | 1,169 | 1,399 |
| | CSCP01 | Combined | 2.11 | 449 | 754 | 1,017 | 1,387 | 1,687 | 1,996 |
| | CSCP02 | Combined | 1.79 | 416 | 692 | 929 | 1,272 | 1,559 | 1,851 |
| | CSCP03 | Combined | 1.68 | 410 | 676 | 903 | 1,232 | 1,509 | 1,792 |
| | CSCP04 | Combined | 1.6 | 406 | 666 | 884 | 1,205 | 1,473 | 1,752 |
| | CSCP06 | Combined | 1.11 | 289 | 472 | 620 | 858 | 1,079 | 1,308 |
| | CSCP07 | Combined | 0.88 | 231 | 388 | 531 | 738 | 924 | 1,116 |
| | CSCP08 | Combined | 0.54 | 176 | 322 | 423 | 561 | 702 | 844 |
| | CSCP09 | Combined | 0.41 | 180 | 303 | 393 | 517 | 646 | 758 |
| | CSCP10 | Combined | 0.28 | 175 | 276 | 352 | 456 | 547 | 631 |
| | CSCP11 | Combined | 0.3 | 185 | 293 | 375 | 486 | 584 | 676 |
| | CSCP12 | Combined | 0.17 | 145 | 215 | 267 | 340 | 398 | 453 |
| | CSCP2B | Combined | 1.73 | 414 | 686 | 919 | 1,257 | 1,540 | 1,828 |
| | CSCP4A | Combined | 1.33 | 338 | 555 | 734 | 1,002 | 1,235 | 1,487 |
| | CSCP7A | Combined | 1.01 | 266 | 436 | 580 | 819 | 1,027 | 1,243 |
| | CSCP7D | Combined | 0.29 | 114 | 192 | 256 | 350 | 433 | 517 |
| | CSCP7E | Combined | 0.59 | 173 | 310 | 414 | 559 | 695 | 836 |
| | CUB01 | Combined | 1.73 | 621 | 992 | 1,250 | 1,606 | 1,894 | 2,178 |
| | CUB03 | Combined | 1.33 | 506 | 799 | 1,004 | 1,301 | 1,552 | 1,810 |
| | CUB04 | Combined | 1.68 | 622 | 994 | 1,252 | 1,605 | 1,891 | 2,178 |
| | CUB05 | Combined | 1.17 | 457 | 721 | 911 | 1,189 | 1,424 | 1,667 |
| | CUB05B | Combined | 1.08 | 436 | 689 | 875 | 1,153 | 1,387 | 1,628 |
| | CUB06 | Combined | 0.13 | 99 | 153 | 190 | 241 | 283 | 326 |
| | CUB07 | Combined | 0.89 | 401 | 625 | 786 | 1,032 | 1,242 | 1,459 |
| | CUB08 | Combined | 1.06 | 437 | 689 | 874 | 1,152 | 1,388 | 1,629 |
| | CUB09 | Combined | 0.7 | 328 | 523 | 672 | 900 | 1,080 | 1,270 |
| | CUB10 | Combined | 0.15 | 60 | 95 | 121 | 161 | 200 | 238 |
| | CUB11 | Combined | 0.36 | 195 | 309 | 395 | 523 | 626 | 735 |
| | CUF51 | Combined | 3.15 | 489 | 810 | 1,061 | 1,427 | 1,721 | 2,019 |
| | CUF52 | Combined | 2.22 | 249 | 421 | 555 | 805 | 1,023 | 1,242 |
| | CUF53 | Combined | 3.07 | 485 | 801 | 1,043 | 1,400 | 1,684 | 1,976 |
| | CUF54 | Combined | 1.6 | 103 | 275 | 429 | 642 | 806 | 979 |
| | DCF6C2 | Hydrograph | 1.18 | 263 | 476 | 647 | 907 | 1,128 | 1,345 |
| | DCUB09 | Diversion | 1.18 | 1 | 8 | 24 | | | |
| | DCUB09 | Hydrograph | 1.18 | 1 | 8 | 24 | | | |
| | DCUB09 | Combined | 0.7 | 328 | 523 | 672 | 900 | 1,080 | 1,270 |
| | DRHOUT | Diversion | 1.05 | 270 | 418 | 527 | 707 | 862 | 1,006 |

**Summary**
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| Major Basin ID | ID | Type | Area (sq mi) | (cfs) | 2 Year (cfs) | 5 Year (cfs) | 10 Year (cfs) | 25 Year (cfs) | 50 Year (cfs) | 100 Year |
|---|---|---|---|---|---|---|---|---|---|---|
| | DRHW1 | | Hydrograph | 1.05 | 47 | 210 | 349 | 538 | 682 | 815 |
| | F6A-1 | | Hydrograph | 0.13 | 99 | 164 | 210 | 272 | 322 | 371 |
| | F6AN-1 | | Hydrograph | 0.41 | 181 | 319 | 435 | 609 | 751 | 892 |
| | F6AN-2 | | Hydrograph | 0.15 | 45 | 85 | 121 | 174 | 219 | 265 |
| | F6AN-3 | | Hydrograph | 0.14 | 38 | 69 | 96 | 138 | 171 | 206 |
| | F6AN-4 | | Hydrograph | 0.25 | 84 | 150 | 207 | 296 | 366 | 438 |
| | F6AN-5 | | Hydrograph | 0.1 | 46 | 90 | 124 | 170 | 207 | 246 |
| | F6AN-6 | | Hydrograph | 0.11 | 36 | 73 | 104 | 148 | 183 | 215 |
| | F6AN-7 | | Hydrograph | 0.28 | 95 | 185 | 265 | 379 | 99 | 565 |
| | F6AN-8 | | Hydrograph | 0.23 | 195 | 319 | 406 | 525 | 624 | 716 |
| | F6AS-1 | | Hydrograph | 0.28 | 163 | 262 | 337 | 441 | 526 | 616 |
| | F6AS-2 | | Hydrograph | 0.06 | 38 | 63 | 81 | 106 | 127 | 147 |
| | F6AS-3 | | Hydrograph | 0.32 | 120 | 211 | 288 | 404 | 499 | 593 |
| | F6AS-4 | | Hydrograph | 0.43 | 84 | 158 | 224 | 338 | 437 | 537 |
| | F6AS-5 | | Hydrograph | 0.63 | 168 | 348 | 510 | 753 | 948 | 1145 |
| | F6C-1A | | Hydrograph | 0.18 | 163 | 250 | 313 | 400 | 465 | 529 |
| | F6C-1B | | Hydrograph | 0.19 | 98 | 163 | 213 | 282 | 81 | 402 |
| | F6C-1C | | Hydrograph | 0.08 | 91 | 132 | 159 | 197 | 229 | 260 |
| | F6C-1D | | Hydrograph | 0.04 | 51 | 73 | 87 | 108 | 123 | 140 |
| | F6C-2 | | Hydrograph | 0.09 | 78 | 118 | 147 | 184 | 217 | 248 |
| | F6C-3 | | Hydrograph | 0.05 | 24 | 42 | 55 | 74 | 89 | 103 |
| | F6C-4 | | Hydrograph | 0.03 | 17 | 28 | 36 | 47 | 56 | 65 |
| | F6C-5 | | Hydrograph | 0.14 | 46 | 80 | 106 | 148 | 184 | 222 |
| | F6C-6 | | Hydrograph | 0.89 | 224 | 410 | 574 | 829 | 1,041 | 1,251 |
| | RF6AN1 | | Routed | 3.4 | 323 | 695 | 1062 | 1670 | 1,923 | 2,696 |
| | RF6AN2 | | Routed | 1.27 | 237 | 473 | 674 | 925 | 897 | 1,514 |
| | RF6AN3 | | Routed | 1.12 | 235 | 464 | 659 | 951 | 849 | 1,430 |
| | RF6AN5 | | Routed | 0.73 | 203 | 385 | 539 | 769 | 616 | 1,138 |
| | RF6AN6 | | Routed | 0.63 | 221 | 411 | 570 | 793 | 632 | 1,164 |
| | RF6AN8 | | Routed | 0.23 | 158 | 271 | 355 | 470 | 564 | 653 |
| | RF6AS2 | | Routed | 1.44 | 151 | 346 | 539 | 848 | 1,118 | 1,395 |
| | RF6AS3 | | Routed | 1.38 | 155 | 361 | 559 | 885 | 1,155 | 1,427 |
| | RF6AS5 | | Routed | 0.63 | 114 | 263 | 392 | 612 | 782 | 963 |
| | RF6C1B | | Routed | 0.19 | 96 | 160 | 208 | 276 | 81 | 394 |
| | RF6C1C | | Routed | 1.46 | 300 | 544 | 742 | 1,020 | 1,163 | 1,500 |
| | RF6C1D | | Routed | 0.04 | 42 | 61 | 75 | 94 | 109 | 125 |
| | RF6C2 | | Routed | 1.18 | 261 | 474 | 645 | 904 | 1,123 | 1,338 |
| | RF6C3 | | Routed | 1.1 | 253 | 458 | 624 | 879 | 1,101 | 1,324 |
| | RF6C4 | | Routed | 1.05 | 250 | 452 | 617 | 874 | 1,095 | 1,317 |
| | RF6C6 | | Routed | 0.89 | 224 | 408 | 572 | 824 | 1,032 | 1,236 |
| | RHW-1 | | Hydrograph | 1.05 | 317 | 628 | 877 | 1,245 | 1,544 | 1,822 |
| | RRHW1 | | Routed | 1.05 | 34 | 151 | 261 | 406 | 523 | 645 |
| | RSCP02 | | Routed | 1.79 | 410 | 680 | 911 | 1,244 | 1,523 | 1,813 |
| | RSCP03 | | Routed | 1.68 | 409 | 674 | 901 | 1,229 | 1,506 | 1,788 |
| | RSCP04 | | Routed | 1.6 | 404 | 662 | 881 | 1,199 | 1,468 | 1,746 |
| | RSCP06 | | Routed | 1.11 | 287 | 468 | 617 | 857 | 1,076 | 1,305 |
| | RSCP07 | | Routed | 1.01 | 262 | 429 | 576 | 812 | 1,019 | 1,234 |
| | RSCP08 | | Routed | 0.54 | 173 | 309 | 411 | 552 | 685 | 824 |
| | RSCP09 | | Routed | 0.41 | 159 | 288 | 377 | 499 | 618 | 737 |
| | RSCP10 | | Routed | 0.3 | 157 | 263 | 341 | 447 | 546 | 635 |
| | RSCP12 | | Routed | 0.17 | 125 | 192 | 241 | 308 | 366 | 419 |
| | RSCP14 | | Routed | 0.06 | 47 | 70 | 87 | 113 | 132 | 150 |
| | RSCP2B | | Routed | 1.73 | 412 | 683 | 915 | 1,251 | 1,533 | 1,821 |
| | RSCP4B | | Routed | 0.14 | 73 | 127 | 165 | 223 | 269 | 317 |
| | RSCP5B | | Routed | 0.03 | 4 | 4 | 4 | 4 | 4 | 4 |
| | RSCP5C | | Routed | 0.15 | 90 | 146 | 188 | 249 | 301 | 350 |
| | RSCP7B | | Routed | 0.09 | 37 | 62 | 82 | 113 | 139 | 164 |
| | RSCP7C | | Routed | 0.18 | 67 | 112 | 150 | 206 | 255 | 306 |

**Summary**
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| Major Basin ID | ID | Type | Area (sq mi) | (cfs) | 2 Year (cfs) | 5 Year (cfs) | 10 Year (cfs) | 25 Year (cfs) | 50 Year (cfs) | 100 Year |
|---|---|---|---|---|---|---|---|---|---|---|
| | RSCP7D | Routed | 0.29 | 114 | 192 | 256 | 350 | 433 | 517 |
| | RUB03 | Routed | 1.68 | 613 | 978 | 1,232 | 1,583 | 1,868 | 2,152 |
| | RUB05 | Routed | 1.17 | 455 | 719 | 909 | 1,187 | 1,421 | 1,663 |
| | RUB05B | Routed | 1.08 | 434 | 686 | 870 | 1,140 | 1,368 | 1,603 |
| | RUB06 | Routed | 0.13 | 97 | 149 | 185 | 236 | 276 | 318 |
| | RUB06B | Routed | 0.05 | 35 | 55 | 69 | 88 | 104 | 119 |
| | RUB06C | Routed | 0.04 | 32 | 49 | 61 | 76 | 88 | 102 |
| | RUB07 | Routed | 1.06 | 433 | 684 | 869 | 1,145 | 1,377 | 1,617 |
| | RUB08B | Routed | 0.03 | 20 | 33 | 42 | 53 | 64 | 75 |
| | RUB08C | Routed | 0.01 | 6 | 8 | 10 | 12 | 14 | 16 |
| | RUB09 | Routed | 0.7 | 323 | 507 | 645 | 857 | 1,034 | 1,217 |
| | RUB10 | Routed | 0.36 | 182 | 287 | 366 | 489 | 586 | 691 |
| | RUB12 | Routed | 0.06 | 27 | 41 | 53 | 77 | 95 | 112 |
| | RUF52 | Routed | 3.07 | 482 | 796 | 1,038 | 1,394 | 1,680 | 1,971 |
| | RUF54 | Routed | 1.6 | 98 | 259 | 413 | 623 | 786 | 954 |
| | RUF55 | Routed | 0.29 | 60 | 109 | 151 | 216 | 269 | 320 |
| | SCP-01 | Hydrograph | 0.32 | 117 | 207 | 285 | 398 | 491 | 583 |
| | SCP-03 | Hydrograph | 0.08 | 45 | 80 | 105 | 140 | 169 | 198 |
| | SCP-06 | Hydrograph | 0.1 | 63 | 101 | 131 | 172 | 205 | 237 |
| | SCP-08 | Hydrograph | 0.13 | 82 | 139 | 179 | 235 | 278 | 326 |
| | SCP-09 | Hydrograph | 0.11 | 77 | 127 | 162 | 212 | 250 | 289 |
| | SCP-10 | Hydrograph | 0.11 | 75 | 124 | 159 | 207 | 248 | 286 |
| | SCP-11 | Hydrograph | 0.03 | 22 | 35 | 44 | 58 | 67 | 78 |
| | SCP-12 | Hydrograph | 0.03 | 29 | 43 | 54 | 69 | 80 | 91 |
| | SCP-13 | Hydrograph | 0.08 | 75 | 110 | 136 | 170 | 198 | 227 |
| | SCP-14 | Hydrograph | 0.06 | 51 | 75 | 92 | 118 | 139 | 157 |
| | SCP-2A | Hydrograph | 0.05 | 29 | 52 | 67 | 90 | 110 | 128 |
| | SCP-2B | Hydrograph | 0.05 | 20 | 36 | 49 | 70 | 85 | 102 |
| | SCP-4A | Hydrograph | 0.08 | 45 | 75 | 97 | 128 | 153 | 178 |
| | SCP-4B | Hydrograph | 0.14 | 81 | 139 | 182 | 244 | 292 | 343 |
| | SCP-5A | Hydrograph | 0.09 | 65 | 108 | 137 | 182 | 215 | 250 |
| | SCP-5B | Hydrograph | 0.03 | 21 | 32 | 40 | 51 | 60 | 69 |
| | SCP-5C | Hydrograph | 0.15 | 103 | 166 | 214 | 281 | 337 | 389 |
| | SCP-7A | Hydrograph | 0.14 | 58 | 99 | 131 | 180 | 222 | 263 |
| | SCP-7B | Hydrograph | 0.09 | 39 | 66 | 87 | 120 | 147 | 173 |
| | SCP-7C | Hydrograph | 0.18 | 68 | 115 | 154 | 212 | 263 | 315 |
| | SCP-7D | Hydrograph | 0.03 | 21 | 33 | 42 | 56 | 66 | 76 |
| | SCP-7E | Hydrograph | 0.05 | 32 | 54 | 70 | 93 | 111 | 130 |
| | SF6C1B | Routed | 0.19 | 98 | 163 | 213 | 282 | 81 | 402 |
| | SF6C1C | Routed | 1.46 | 302 | 547 | 745 | 1,023 | 1,169 | 1,513 |
| | SF6C1D | Routed | 0.04 | 51 | 73 | 87 | 108 | 123 | 140 |
| | SF6C2 | Routed | 1.18 | 263 | 476 | 647 | 909 | 1,137 | 1,369 |
| | SSCP01 | Routed | 2.11 | 449 | 754 | 1,017 | 1,387 | 1,687 | 1,996 |
| | SSCP02 | Routed | 1.79 | 416 | 692 | 929 | 1,272 | 1,559 | 1,851 |
| | SSCP06 | Routed | 1.11 | 289 | 472 | 620 | 858 | 1,079 | 1,308 |
| | SSCP2B | Routed | 1.73 | 415 | 686 | 919 | 1,256 | 1,540 | 1,828 |
| | SSCP4B | Routed | 0.14 | 81 | 139 | 182 | 244 | 292 | 343 |
| | SSCP5B | Routed | 0.03 | 4 | 4 | 4 | 4 | 4 | 4 |
| | SSCP5C | Routed | 0.15 | 103 | 166 | 214 | 281 | 337 | 389 |
| | SUB01 | Routed | 1.73 | 621 | 992 | 1,250 | 1,606 | 1,894 | 2,178 |
| | SUB05 | Routed | 1.17 | 457 | 721 | 911 | 1,189 | 1,424 | 1,667 |
| | SUB05B | Routed | 1.08 | 436 | 689 | 875 | 1,153 | 1,387 | 1,628 |
| | SUB06B | Routed | 0.05 | 39 | 60 | 74 | 95 | 111 | 127 |
| | SUB06C | Routed | 0.04 | 39 | 57 | 70 | 87 | 100 | 114 |
| | SUB09 | Routed | 0.7 | 328 | 523 | 672 | 900 | 1,080 | 1,270 |
| | UB-01 | Hydrograph | 0.05 | 47 | 71 | 87 | 112 | 131 | 151 |
| | UB-02 | Hydrograph | 0.05 | 57 | 81 | 98 | 123 | 143 | 162 |
| | UB-03 | Hydrograph | 0.03 | 26 | 40 | 49 | 62 | 73 | 84 |

**Summary**
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| Major Basin ID | ID | Type | Area (sq mi) | (cfs) | 2 Year (cfs) | 5 Year (cfs) | 10 Year (cfs) | 25 Year (cfs) | 50 Year (cfs) | 100 Year |
|---|---|---|---|---|---|---|---|---|---|---|
| | UB-04 | Hydrograph | 0.35 | 229 | 365 | 465 | 605 | 722 | 836 |
| | UB-05A | Hydrograph | 0.09 | 74 | 113 | 140 | 177 | 208 | 237 |
| | UB-05B | Hydrograph | 0.02 | 27 | 39 | 47 | 58 | 67 | 76 |
| | UB-06A | Hydrograph | 0.04 | 42 | 61 | 75 | 94 | 109 | 125 |
| | UB-06B | Hydrograph | 0.05 | 39 | 60 | 74 | 95 | 111 | 127 |
| | UB-06C | Hydrograph | 0.04 | 39 | 57 | 70 | 87 | 100 | 114 |
| | UB-07 | Hydrograph | 0.19 | 144 | 225 | 284 | 368 | 435 | 496 |
| | UB-08A | Hydrograph | 0.12 | 50 | 88 | 119 | 164 | 201 | 238 |
| | UB-08B | Hydrograph | 0.03 | 38 | 54 | 66 | 81 | 94 | 108 |
| | UB-08C | Hydrograph | 0.01 | 10 | 15 | 19 | 24 | 28 | 32 |
| | UB-09 | Hydrograph | 0.34 | 219 | 355 | 458 | 606 | 728 | 848 |
| | UB-10 | Hydrograph | 0.09 | 52 | 84 | 109 | 146 | 176 | 206 |
| | UB-11 | Hydrograph | 0.21 | 136 | 216 | 274 | 364 | 434 | 508 |
| | UB-12 | Hydrograph | 0.06 | 39 | 63 | 81 | 105 | 127 | 146 |
| | UF5-1 | Hydrograph | 0.08 | 89 | 129 | 158 | 199 | 231 | 260 |
| | UF5-2 | Hydrograph | 0.62 | 277 | 455 | 590 | 783 | 940 | 1,094 |
| | UF5-3 | Hydrograph | 0.84 | 300 | 485 | 624 | 832 | 1,001 | 1,171 |
| | UF5-4 | Hydrograph | 0.25 | 128 | 205 | 268 | 362 | 441 | 522 |
| | UF5-5 | Hydrograph | 0.29 | 68 | 127 | 180 | 266 | 335 | 404 |

# 5 Hydraulics

## 5.1 Method Description

The washes for the North Scottsdale Delineation Study lie downstream of Wildcat Hill near the intersection of Bartlett Dam Road and Cave Creek Road, and contribute runoff flows to Cave Creek Wash. The delineation covers a total of approximately 24.1 river miles. The entire study area covers approximately 11.2 square miles and lies within Sections 2-9 and 18-17 of Township 5 North, Range 5 East, and Sections 21, 22, 27-29 and 31-35 of Township 6 North, Range 5 East, and Sections 1-3 and 10-13 of Township 5 North, Range 4 East, of the Gila and Salt River Base and Meridian.

The washes are comprised of sandy to sand/cobble bottoms typical of desert washes in central Arizona. The banks and overbank areas are comprised of fairly lush desert brush, mesquite, and palo verde trees in the upper wash reaches to sparser vegetation comprised predominately of salt cedar, mesquite trees, palo verde trees and creosote brush in the lower reaches of the washes. The general slope of the land ranges from 1.8% to 4.5% . Tributaries to the North Scottsdale Washes have well defined and incised channels in the upper reaches, and became less confined in the lower reaches where numerous channel braids occur.

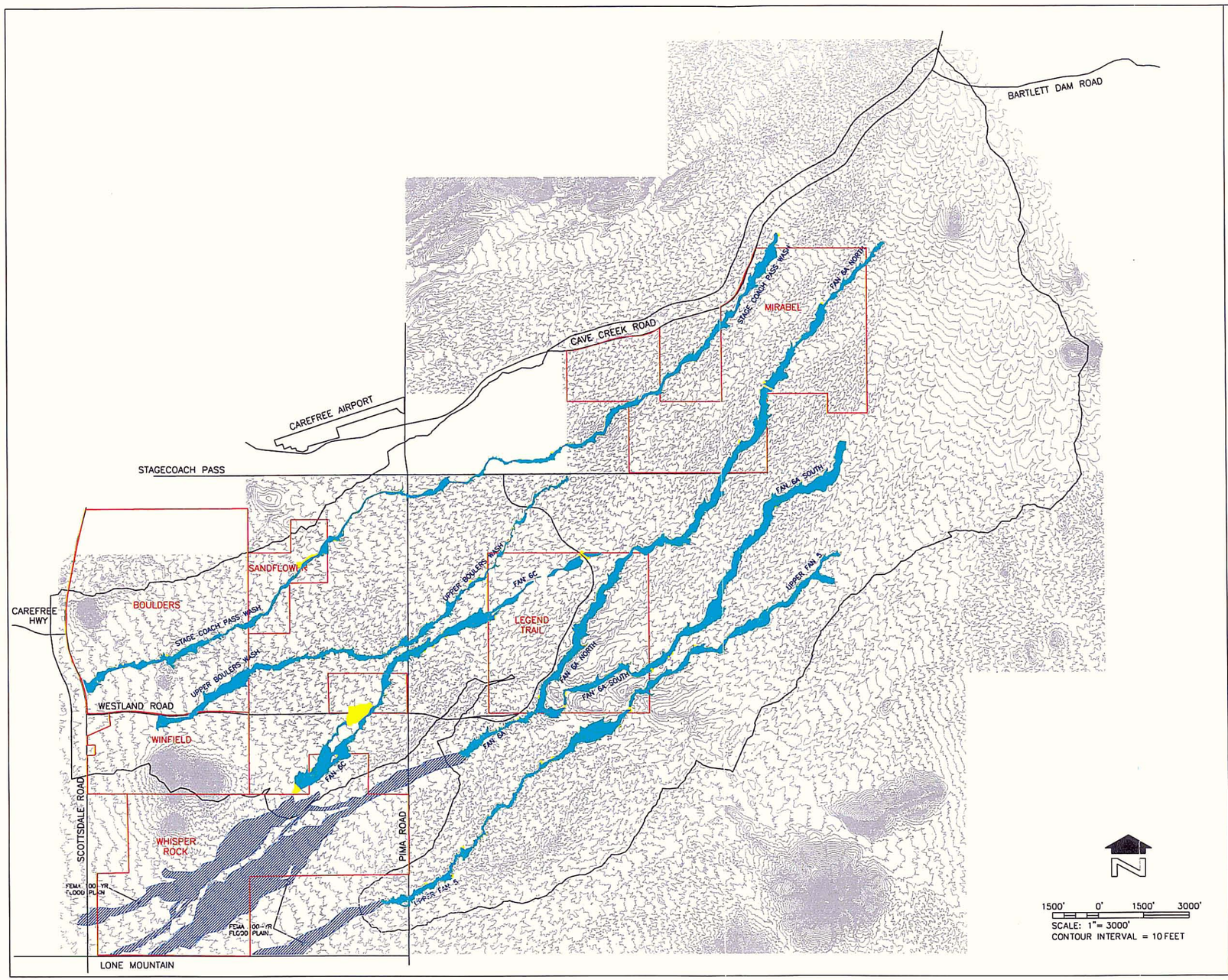
The hydraulic analysis of the riverine portion of the study was prepared utilizing the U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS River Analysis System. The computer model is Version 3.0.1 dated March 2001.

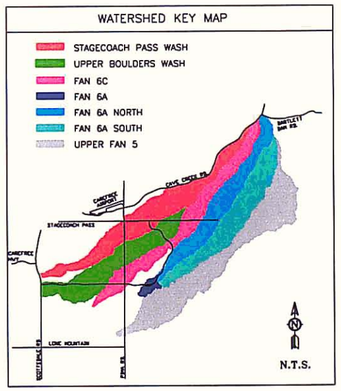
## 5.2 Work Study Maps

Floodplain Maps were prepared from the aerial mapping and topography provided by the FCDMC IGA #93-07, mapping date January 1997, ortho photograph 2001.The full size maps are at a scale of 1" = 200' with a contour interval of 2-feet. **FIGURE 2** indicates the floodplain boundaries for the entire study area. A half size map is included on the following page.

The work-study maps followed basic FEMA format for floodplain and floodway delineation. Cross section identifiers are based on river miles above the start of the detailed delineation and correspond to the length along the thalweg. Water surface elevations for both the floodplain and floodway delineation are shown on the cross section identifiers. The peak 100-year, 6-hour discharge is shown at cross sections where there is a flow change.

The topography contours were removed from the Work Study Maps in some areas where additional field survey was collected by the City of Scottsdale. Additional field survey was needed in some areas where the topography had recent changes due to local development and construction activities since the original topography contours were created. The additional field survey points were primarily for the purposes of creating representative cross-sections in the HEC-RAS model. However, the extent of the local field survey was insufficient to alter the provided topography contours to reflect current conditions. Therefore, topography contours are not shown in those areas.




## LEGEND

- PROPOSED ZONE A
- PROPOSED ZONE AE
- SUBDIVISION BOUNDARY
- BOULDERS — SUBDIVISION NAME

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/12/02 |
| DRAWN | PMM | 09/12/02 |
| CHECKED | HEM | 09/12/02 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed ARIZONA, U.S.A.

DBI Professional Engineers, Inc.

DRAWING NO. 01131Floodplain.dwg

FLOODPLAIN BOUNDARIES

FIGURE 2

## 5.3 Parameter Estimations

### 5.3.1 Roughness Coefficients

The procedure presented in the report entitled *Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona* (USGS, 1991) was used for the estimation of Manning's "n" values. The procedure consists of selecting a base "n" for both the channel and overbank areas, and applying an adjustment factor to account for the roughness associated with channel irregularity, obstructions, vegetation, and channel meandering. Tables 1 and 2 of that report give a range of base "n" and adjustment factors (USGS, 1991). These tables were used to prepare a summary of values for use in this study, based upon the physical conditions observed and documented in the photographs, which follow. The composite Manning's "n" value can be computed as follows:

$$n = (n_b + n_1 + n_2 + n_3) \times m_f$$

Where: $n$ = composite "n"
$n_b$ = base "n" for a straight uniform channel
$n_1$ = surface irregularities component
$n_2$ = obstruction component
$n_3$ = vegetation component
$m_f$ = meandering factor

Photographs were taken at representative cross-section locations. It is assumed that the computed composite "n" value may be applied to an entire river reach. At each cross-section, estimates were made for the above

parameters for the left overbank, the main channel, and the right overbank. For overbank areas with non-uniform vegetation, roughness parameters were estimated at more than one location and a weighted average roughness parameter computed based upon the estimated flow width.

### 5.3.2 Expansion and Contraction Coefficients

Normal expansion and contraction coefficients of 0.1 and 0.3 are used throughout each of the study washes and reaches. These coefficients were adjusted to 0.3 and 0.5, respectively, in the area of culverts and other drainage structures. There are no unusual conditions that would warrant significant changes to these coefficient assumptions.

## 5.4 Cross Section Description

Cross sections for the study were generally placed approximately 500-ft apart. Additional cross sections were added where abrupt flow changes and major roadways occurred. Cross sections were oriented at or near perpendicular to the flow direction. In most cases, the washes are fairly well defined and this precluded the aspect of providing "angled" cross sections to cover flow divergence. There are, however, several locations where exceptions were made and angled or deflected cross-sections were used.

Cross section geometry was initially obtained from the FCDMC provided topography. A routine within BOSS RMS was used to obtain the initial cross section geometry. This geometry was imported into HEC-RAS and was updated as necessary.

Following the initial draft report review, it was determined that the changes in topography due to development in the study area that had occurred since the 1994 mapping date, would limit the validity of the study in some areas. The City of Scottsdale agreed to provide new elevation and cross section data to reflect the results of development and construction activities. This information included new cross section survey data and final elevation certificates on buildings adjacent to the study area. The survey data was incorporated into the floodplain delineation analysis. The building certificates were used to determine if a unit was within or outside of the floodplain boundary.

## 5.5 Modeling Considerations

### 5.5.1 Hydraulic Jump and Drop Analysis

There are no considerations for hydraulic jump within the washes studied.

### 5.5.2 Bridges and Culverts

There are numerous culverts located within the studied washes. DEI surveyed the culverts to determine the inverts, types and amount of culverts located below major roadways. In addition to the survey AS-BUILT plans were researched. The survey and plans were used together to determine the nature of

the culverts in the area. The table located in **APPENDIX E.4** illustrates the culverts located within each wash and whether the plans, survey or both were used to determine the roadway deck and invert elevations. AS-BUILT plans used can also be found within this appendix.

### 5.5.3 Levees and Dikes

A diversion structure was constructed within the Sandflower Subdivision. This structure was designed and constructed to eliminate a flow split condition. This flow historically split from the main wash and traveled through the northern part of Sandflower and the Boulders. The design and construction of the diversion dike was a joint venture between the Boulders and Stardust Development, Inc. also known as Sandflower. This diversion structure was constructed mainly to prevent flooding within the Boulders subdivision.

At the time of this study, the diversion structure was privately owned and maintained by the Sandflower Subdivision. A review of the structure and its constructed condition yielded the opinion that the structure did not meet FEMA design guidelines. If a structure can not be certified, the FEMA design guidelines require analysis for the structure using two scenarios: in place and failed. Certification of the structure per FEMA design guideline requirements would eliminate the failed condition analysis. This flow split occurs after concentration point CSCP03 in the HEC-1. This subject structure can be found

on study map sheet 3 of 24 between sections 2.70 and 2.86 of Stage Coach Pass Wash.

### 5.5.4 Ineffective Flow Areas

Ineffective flow areas were added on cross sections located directly upstream and directly downstream of the culverts. These ineffective areas were used to model the correct amount of active flow area just upstream and just downstream of the culverts. The placement of the ineffective flow areas are consistent with the placement indicated within the *HEC-RAS Hydraulic Reference Manual*. If the placement of ineffective flow areas lie within the channel banks the ineffective flow area was moved to the bank station. This was done to allow water to pond up to the bank stations for the floodway calculations.

### 5.5.5 Supercritical Flow

No assumptions for supercritical flow were made in this study. Washes were modeled with critical depth as the final control to make a conservative determination of water surface elevation.

## 5.6 Floodway Modeling

The floodways for this study were modeled initially using Method 4 with target elevation increases of 1 and 0.8-feet and equal encroachment on both sides of the wash.

After the initial encroachment run was completed, Method 1 was utilized to set the floodway stations on the right and left sides. The change in water surface elevation was maintained under 1-ft.

## 5.7 Problems Encountered During the Hydraulic Study

### 5.7.1 Special Problems and Solutions

The following are special problems associated with this study:

- The culverts under Westland Road at the intersection of Fan 6C and Westland Road were designed for a flow of 605 cfs. The computed flow in this study for the same area is 1,513 cfs. The amount of flow traveling towards those culverts is more than double; therefore the possibility of having flow breakout to the west is possible. An adjacent Zone A has been delineated to compensate for this possible breakout flow. This problem is further described in **APPENDIX B.1** of this report.

- Within some areas the topography does not appear to reflect current developments. The topography was prepared in 1997 and does not appear to reflect the grading changes since that time. Such areas include the following sub-divisions: Boulders, Winfield, Mirabel, Sandflower, and Legend Trail. Below is a list of river miles, per wash in which the topography does not appear to reflect current developments:

  Stagecoach Pass Wash: 1.13-1.53 (Boulders), 1.88-2.15 (Boulders), 2.23-2.92 (Sandflower), 3.16-3.31 and 6.50-6.55 (Mirabel)
  Upper Boulders Wash: 0.47-0.71 (Winfield), 0.75 (Boulders), 0.88 (Boulders), 1.36-1.42, and 2.98-3.24 (Legend Trail)
  Fan 6C: 0.38(Winfield), 0.43-0.94, and 1.78-2.70 (Legend Trail)

  The City of Scottsdale provided cross sections prepared by their survey department within Sandflower and Legend Trail in order to model the current conditions. In addition, elevation certificates were provided for most homes within the floodplain and floodway in order to determine

whether or not these homes are in affected flood zone boundaries. These homes are designated as blocked obstructions in the HEC-RAS models.

- A levee was constructed by the developer of the Legend Trail development along the golf course between sections 1.88 and 1.93 of Wash Fan 6C. This levee does not meet FEMA criteria. At the direction of FEMA's project officer, analysis was made with the levee remaining in place and the levee in a failed condition. Failure of the levee would result in a potential breakout of the flows into constructed residential units.

- Construction of the Sand Flower development has resulted in an encroachment of on the floodplain of Stage Coach Pass Wash. A potential flow split has been noted at cross section location 2.23. Water at this location has the potential to be diverted out of the floodplain and into another watershed area. The amount of flow that could be potentially diverted was not computed due to a lack of available elevation data outside of the City of Scottsdale supplied cross sections. In addition, a residence at this location has a finished floor elevation that is approximately equal to the calculated water surface elevation without flows being diverted from the floodplain. As the diversion of flows would lower the calculated floodplain water surface the residential unit was not included in the floodplain boundary. This assumption was discussed on September 26, 2003 with representatives of the FCDMC and City of Scottsdale. It was agreed that the City would send a letter to the owner that related the conditions with a suggestion that flood insurance be purchased.

These special problems are further described and analyzed in **APPENDIX B** of this report.

### 5.7.2 Modeling Warnings and Error Messages

There are a number of warning messages associated with the profile runs. These messages are mainly due to the steep nature of the watershed and the inability of the program to calculate water surface elevations within the

specified number of iterations. Below is a list of WARNING messages from the HEC-RAS Models.

- WARNING: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

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

- WARNING: During the standard step iterations, when the assumed water surface was set equal to the critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical depth answer. The program defaulted to critical depth.

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

- WARNING: Divided flow computed for this cross section.

- WARNING: The velocity head has changed by more than 0.5-ft (0.15 m). This may indicate the need for additional cross sections.

- WARNING: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.

- WARNING: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

- 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.

Computed Water Surface Elevations (CWSEL) as calculated within the HEC-1 models were tested by adding additional cross sections to the model at

various locations. The models were re-run once the additional sections were added. The results for the CWSEL for these tested cross sections remained unchanged. Therefore, the reported results are considered to be accurate within acceptable tolerances.

## 5.8 Calibration

There were no special calibration efforts made with the exception of the encroachment runs. There are no gage data or physical flow or depth measurements to compare to the HEC-RAS model results.

## 5.9 Final Results

### 5.9.1 Hydraulic Analysis Results

The Hydraulic Modeling and Culvert tables (**TABLES 8 through 21**) on the following pages shows the hydraulic model results of each of the riverine studies conducted for the North Scottsdale Delineation Study.

### 5.9.2 Verification of Results

The results obtained from the North Scottsdale Delineation Study seem to be reasonable with the assumption of critical depth for the initial water surface elevation, providing the most conservative answer for floodplain administration purposes. Upper Fan 5, Fan 6A and Fan 6C tie into existing Zone AO's located directly downstream of our study areas. **TABLE 7** shows a comparison of the

existing Zone AO and the proposed Zone AE depths and velocities for these three (3) washes.

**TABLE 7: Existing Zone AO and Proposed Zone AE**

| Wash | Zone AO | | Zone AE | |
|---|---|---|---|---|
| | Depth | Velocity | Depth | Velocity |
| Upper Fan 5 | 3 | 7 | 2 | 8.6 |
| Fan 6A | 3 | 7 | 2 | 8.8 |
| Fan 6C | 2 | 6 | 1 | 6.2 |

The results obtained from this study are within a reasonable range when compared with the Zone AO directly downstream of this study.

## TABLE 8: Hydraulic Modeling Output Table Stagecoach Pass Wash w/ Levee Failed

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.93 | 100-yr 6-yr | 453 | 2962.45 | 2962.45 | 5.90 | 138.28 | 0.87 | 0.71 | 9935.70 | 10073.98 |
| StagecoachPass-2 | 6.93 | Method 1 | 453 | 2962.40 | 2962.40 | 8.02 | 28.80 | 1.96 | 1.01 | 9995.82 | 10024.62 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.88 | 100-yr 6-yr | 453 | 2955.50 | 2955.50 | 5.77 | 140.22 | 0.74 | 0.89 | 9876.20 | 10016.42 |
| StagecoachPass-2 | 6.88 | Method 1 | 453 | 2955.46 | 2955.46 | 6.82 | 47.41 | 1.40 | 1.02 | 9966.96 | 10014.37 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.85 | 100-yr 6-yr | 453 | 2948.94 | 2948.94 | 5.89 | 164.42 | 0.64 | 0.95 | 9978.73 | 10155.92 |
| StagecoachPass-2 | 6.85 | Method 1 | 453 | 2949.67 | 2949.67 | 6.92 | 43.70 | 1.50 | 1.00 | 9985.36 | 10029.06 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.8 | 100-yr 6-yr | 631 | 2942.27 | 2942.27 | 4.79 | 455.24 | 0.48 | 0.73 | 9762.58 | 10217.82 |
| StagecoachPass-2 | 6.8 | Method 1 | 631 | 2942.44 | 2942.44 | 6.49 | 75.18 | 1.29 | 1.00 | 9947.60 | 10022.78 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.73 | 100-yr 6-yr | 631 | 2930.63 | 2930.63 | 4.97 | 264.77 | 0.58 | 0.96 | 9873.16 | 10142.18 |
| StagecoachPass-2 | 6.73 | Method 1 | 631 | 2930.88 | 2930.82 | 4.85 | 142.62 | 0.91 | 0.89 | 9899.99 | 10042.61 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.63 | 100-yr 6-yr | 631 | 2916.97 | 2916.97 | 2.69 | 341.25 | 0.81 | 0.45 | 9979.55 | 10320.80 |
| StagecoachPass-2 | 6.63 | Method 1 | 631 | 2917.00 | 2917.00 | 5.02 | 159.49 | 0.79 | 1.00 | 9979.33 | 10138.82 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.59 | 100-yr 6-yr | 631 | 2910.62 | 2910.62 | 4.95 | 168.24 | 0.76 | 1.00 | 9977.51 | 10145.75 |
| StagecoachPass-2 | 6.59 | Method 1 | 631 | 2910.61 | 2910.61 | 5.00 | 163.54 | 0.77 | 1.00 | 9978.48 | 10142.02 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.55 | 100-yr 6-yr | 631 | 2906.18 | 2903.37 | 0.90 | 477.46 | 1.98 | 0.08 | 9729.37 | 10206.83 |
| StagecoachPass-2 | 6.55 | Method 1 | 631 | 2906.22 | 2903.37 | 1.09 | 168.93 | 3.44 | 0.10 | 9909.36 | 10078.29 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.545 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.54 | 100-yr 6-yr | 631 | 2902.28 | 2902.28 | 5.70 | 245.43 | 0.96 | 1.01 | 9910.71 | 10028.20 |
| StagecoachPass-2 | 6.54 | Method 1 | 631 | 2902.29 | 2902.29 | 5.66 | 119.29 | 0.97 | 1.00 | 9910.71 | 10028.20 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.51 | 100-yr 6-yr | 631 | 2901.30 | 2899.50 | 1.55 | 298.66 | 1.67 | 0.17 | 9827.11 | 10125.77 |
| StagecoachPass-2 | 6.51 | Method 1 | 631 | 2901.68 | 2899.50 | 1.54 | 137.69 | 2.97 | 0.16 | 9898.55 | 10036.24 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.505 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.5 | 100-yr 6-yr | 631 | 2897.51 | 2897.51 | 6.06 | 127.60 | 1.13 | 1.00 | 9941.45 | 10033.73 |
| StagecoachPass-2 | 6.5 | Method 1 | 631 | 2897.52 | 2897.51 | 6.00 | 92.28 | 1.14 | 0.99 | 9941.45 | 10033.73 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.45 | 100-yr 6-yr | 631 | 2890.87 | 2890.87 | 7.09 | 94.04 | 1.13 | 0.98 | 9968.75 | 10062.79 |
| StagecoachPass-2 | 6.45 | Method 1 | 631 | 2890.79 | 2890.79 | 7.70 | 50.00 | 1.73 | 0.98 | 9975.00 | 10025.00 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.37 | 100-yr 6-yr | 631 | 2879.09 | 2879.09 | 5.78 | 111.54 | 0.98 | 1.03 | 9933.86 | 10045.39 |
| StagecoachPass-2 | 6.37 | Method 1 | 631 | 2879.08 | 2879.08 | 5.80 | 107.89 | 1.01 | 1.02 | 9935.12 | 10043.01 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.31 | 100-yr 6-yr | 631 | 2870.15 | 2870.15 | 5.45 | 211.18 | 0.77 | 0.79 | 9966.93 | 10178.11 |
| StagecoachPass-2 | 6.31 | Method 1 | 631 | 2870.18 | 2870.13 | 6.60 | 64.22 | 1.49 | 0.95 | 9969.43 | 10033.65 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.23 | 100-yr 6-yr | 631 | 2860.20 | 2860.20 | 6.13 | 140.88 | 0.82 | 1.06 | 9887.46 | 10028.34 |
| StagecoachPass-2 | 6.23 | Method 1 | 631 | 2860.12 | 2860.12 | 6.59 | 96.84 | 1.03 | 1.10 | 9930.00 | 10026.84 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.17 | 100-yr 6-yr | 758 | 2850.66 | 2850.57 | 4.84 | 246.64 | 0.77 | 0.80 | 9914.01 | 10160.64 |
| StagecoachPass-2 | 6.17 | Method 1 | 758 | 2851.01 | 2850.98 | 5.90 | 113.03 | 1.14 | 0.98 | 9916.42 | 10029.45 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.07 | 100-yr 6-yr | 758 | 2837.86 | 2837.86 | 6.07 | 137.86 | 0.98 | 1.00 | 9913.83 | 10051.69 |
| StagecoachPass-2 | 6.07 | Method 1 | 758 | 2837.84 | 2837.84 | 6.38 | 95.00 | 1.25 | 1.01 | 9930.00 | 10025.00 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.98 | 100-yr 6-yr | 758 | 2823.78 | 2823.78 | 6.08 | 144.86 | 0.96 | 0.98 | 9960.30 | 10105.16 |
| StagecoachPass-2 | 5.98 | Method 1 | 758 | 2823.76 | 2823.76 | 6.47 | 90.72 | 1.29 | 1.00 | 9977.45 | 10068.17 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.91 | 100-yr 6-yr | 758 | 2817.76 | 2813.43 | 0.89 | 292.78 | 3.96 | 0.06 | 9906.13 | 10198.91 |
| StagecoachPass-2 | 5.91 | Method 1 | 758 | 2817.96 | 2813.43 | 1.28 | 103.50 | 5.71 | 0.09 | 9964.42 | 10067.92 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.9 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.89 | 100-yr 6-yr | 758 | 2811.29 | 2811.23 | 5.62 | 131.94 | 1.12 | 0.94 | 9930.77 | 10051.25 |
| StagecoachPass-2 | 5.89 | Method 1 | 758 | 2811.30 | 2811.23 | 5.56 | 120.48 | 1.13 | 0.92 | 9930.77 | 10051.25 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.81 | 100-yr 6-yr | 758 | 2801.39 | 2801.39 | 6.08 | 122.95 | 1.04 | 1.03 | 9890.87 | 10013.83 |
| StagecoachPass-2 | 5.81 | Method 1 | 758 | 2801.39 | 2801.38 | 6.12 | 105.13 | 1.18 | 0.99 | 9907.58 | 10012.71 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.72 | 100-yr 6-yr | 758 | 2789.27 | 2789.19 | 5.85 | 112.01 | 1.17 | 0.94 | 9965.71 | 10077.72 |
| StagecoachPass-2 | 5.72 | Method 1 | 758 | 2789.28 | 2789.18 | 5.82 | 99.60 | 1.31 | 0.90 | 9967.70 | 10067.30 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.64 | 100-yr 6-yr | 758 | 2780.15 | 2780.15 | 6.83 | 82.66 | 1.35 | 1.03 | 9940.27 | 10022.94 |
| StagecoachPass-2 | 5.64 | Method 1 | 758 | 2780.15 | 2780.15 | 6.85 | 78.04 | 1.42 | 1.01 | 9943.30 | 10021.34 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.61 | 100-yr 6-yr | 758 | 2776.19 | 2776.14 | 5.86 | 114.56 | 1.13 | 0.97 | 9948.78 | 10063.34 |
| StagecoachPass-2 | 5.61 | Method 1 | 758 | 2776.18 | 2776.13 | 5.91 | 108.94 | 1.18 | 0.96 | 9951.60 | 10060.54 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.55 | 100-yr 6-yr | 758 | 2768.75 | 2768.67 | 5.04 | 155.75 | 0.97 | 0.90 | 9970.15 | 10125.91 |
| StagecoachPass-2 | 5.55 | Method 1 | 758 | 2768.76 | 2768.68 | 4.99 | 152.27 | 1.00 | 0.88 | 9971.53 | 10123.80 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.51 | 100-yr 6-yr | 758 | 2763.26 | 2763.26 | 6.19 | 113.33 | 1.09 | 1.03 | 9942.04 | 10055.37 |
| StagecoachPass-2 | 5.51 | Method 1 | 758 | 2763.25 | 2763.25 | 6.24 | 102.12 | 1.19 | 1.01 | 9948.16 | 10050.28 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.46 | 100-yr 6-yr | 758 | 2757.13 | 2757.01 | 5.44 | 116.87 | 1.19 | 0.88 | 9941.89 | 10058.76 |
| StagecoachPass-2 | 5.46 | Method 1 | 758 | 2757.13 | 2757.01 | 5.44 | 113.96 | 1.22 | 0.87 | 9944.29 | 10058.25 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.43 | 100-yr 6-yr | 758 | 2752.96 | 2752.96 | 6.61 | 86.30 | 1.33 | 1.01 | 9939.66 | 10025.96 |
| StagecoachPass-2 | 5.43 | Method 1 | 758 | 2752.96 | 2752.96 | 6.60 | 86.36 | 1.33 | 1.01 | 9939.61 | 10025.97 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.37 | 100-yr 6-yr | 758 | 2744.20 | 2743.91 | 4.96 | 176.72 | 1.06 | 0.69 | 9987.37 | 10164.09 |
| StagecoachPass-2 | 5.37 | Method 1 | 758 | 2744.72 | 2744.65 | 6.73 | 71.51 | 1.57 | 0.95 | 9988.38 | 10059.89 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.27 | 100-yr 6-yr | 844 | 2732.16 | 2732.16 | 5.63 | 158.45 | 0.95 | 1.01 | 9944.46 | 10102.91 |
| StagecoachPass-2 | 5.27 | Method 1 | 844 | 2732.14 | 2732.14 | 5.71 | 151.26 | 0.98 | 1.02 | 9950.19 | 10101.45 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.18 | 100-yr 6-yr | 844 | 2720.94 | 2720.83 | 4.47 | 212.28 | 0.90 | 0.83 | 9848.52 | 10060.80 |
| StagecoachPass-2 | 5.18 | Method 1 | 844 | 2720.94 | 2720.83 | 4.45 | 203.90 | 0.93 | 0.81 | 9855.50 | 10059.40 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.12 | 100-yr 6-yr | 844 | 2713.26 | 2713.26 | 6.69 | 95.20 | 1.33 | 1.02 | 9922.50 | 10017.70 |
| StagecoachPass-2 | 5.12 | Method 1 | 844 | 2713.26 | 2713.26 | 6.72 | 91.10 | 1.38 | 1.01 | 9925.40 | 10016.50 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.08 | 100-yr 6-yr | 844 | 2706.26 | 2706.26 | 6.33 | 116.95 | 1.15 | 1.03 | 9945.22 | 10062.16 |
| StagecoachPass-2 | 5.08 | Method 1 | 844 | 2706.33 | 2706.25 | 6.03 | 107.26 | 1.31 | 0.93 | 9945.99 | 10053.25 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.02 | 100-yr 6-yr | 844 | 2699.22 | 2699.11 | 5.64 | 124.10 | 1.21 | 0.90 | 9937.32 | 10061.42 |
| StagecoachPass-2 | 5.02 | Method 1 | 844 | 2699.12 | 2699.11 | 6.17 | 116.93 | 1.17 | 1.00 | 9943.62 | 10060.55 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.94 | 100-yr 6-yr | 844 | 2689.43 | 2689.43 | 6.36 | 124.79 | 1.10 | 1.04 | 9931.65 | 10056.45 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.94 | Method 1 | 844 | 2689.57 | 2689.41 | 5.81 | 100.22 | 1.45 | 0.85 | 9945.13 | 10045.35 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.84 | 100-yr 6-yr | 844 | 2678.49 | 2678.49 | 6.37 | 145.57 | 1.06 | 0.93 | 9984.61 | 10130.17 |
| StagecoachPass-2 | 4.84 | Method 1 | 844 | 2678.44 | 2678.44 | 7.09 | 76.32 | 1.56 | 1.00 | 9985.93 | 10062.25 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.81 | 100-yr 6-yr | 844 | 2676.36 | 2675.73 | 5.53 | 84.59 | 1.92 | 0.66 | 9965.49 | 10050.08 |
| StagecoachPass-2 | 4.81 | Method 1 | 844 | 2676.41 | 2675.70 | 5.53 | 60.12 | 2.54 | 0.61 | 9980.08 | 10040.20 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.77 | 100-yr 6-yr | 836 | 2672.81 | 2672.81 | 8.89 | 42.97 | 2.23 | 1.03 | 9991.21 | 10034.18 |
| StagecoachPass-2 | 4.77 | Method 1 | 836 | 2672.84 | 2672.77 | 8.83 | 36.89 | 2.57 | 0.97 | 9991.21 | 10028.10 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.72 | 100-yr 6-yr | 836 | 2666.49 | 2666.49 | 6.56 | 109.79 | 1.22 | 0.99 | 9982.10 | 10091.89 |
| StagecoachPass-2 | 4.72 | Method 1 | 836 | 2666.48 | 2666.47 | 6.83 | 87.03 | 1.41 | 1.01 | 9983.24 | 10070.27 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.62 | 100-yr 6-yr | 836 | 2655.74 | 2655.67 | 6.07 | 129.45 | 1.14 | 0.94 | 9974.38 | 10103.83 |
| StagecoachPass-2 | 4.62 | Method 1 | 836 | 2655.79 | 2655.64 | 6.01 | 91.72 | 1.52 | 0.86 | 9977.93 | 10069.65 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.53 | 100-yr 6-yr | 836 | 2644.79 | 2644.76 | 6.17 | 119.32 | 1.18 | 0.97 | 9961.33 | 10080.65 |
| StagecoachPass-2 | 4.53 | Method 1 | 836 | 2644.79 | 2644.75 | 6.27 | 101.26 | 1.32 | 0.96 | 9968.59 | 10069.85 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.43 | 100-yr 6-yr | 836 | 2634.13 | 2633.99 | 6.87 | 75.03 | 1.63 | 0.95 | 9972.17 | 10047.20 |
| StagecoachPass-2 | 4.43 | Method 1 | 836 | 2634.15 | 2634.00 | 6.77 | 67.81 | 1.82 | 0.88 | 9978.68 | 10046.49 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.34 | 100-yr 6-yr | 836 | 2624.31 | 2624.31 | 7.35 | 74.08 | 1.55 | 1.03 | 9977.96 | 10052.04 |
| StagecoachPass-2 | 4.34 | Method 1 | 836 | 2624.30 | 2624.30 | 7.42 | 66.00 | 1.71 | 1.00 | 9979.50 | 10045.50 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.3 | 100-yr 6-yr | 1116 | 2618.31 | 2617.82 | 9.45 | 108.80 | 1.35 | 1.15 | 9981.72 | 10090.52 |
| StagecoachPass-2 | 4.3 | Method 1 | 1116 | 2618.49 | | 9.51 | 28.47 | 4.12 | 0.83 | 9988.24 | 10016.71 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.24 | 100-yr 6-yr | 1308 | 2613.53 | 2613.41 | 9.70 | 47.57 | 2.93 | 0.97 | 9969.43 | 10017.01 |
| StagecoachPass-2 | 4.24 | Method 1 | 1308 | 2613.75 | 2613.38 | 9.19 | 39.56 | 3.60 | 0.85 | 9974.00 | 10013.56 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.19 | 100-yr 6-yr | 1308 | 2609.73 | 2609.73 | 9.51 | 73.19 | 2.21 | 0.96 | 9945.36 | 10018.55 |
| StagecoachPass-2 | 4.19 | Method 1 | 1308 | 2609.67 | 2609.67 | 9.76 | 54.44 | 2.74 | 0.93 | 9960.00 | 10014.44 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.09 | 100-yr 6-yr | 1308 | 2600.62 | 2600.62 | 9.87 | 48.75 | 2.75 | 1.04 | 9970.11 | 10018.86 |
| StagecoachPass-2 | 4.09 | Method 1 | 1308 | 2600.59 | 2600.59 | 9.99 | 42.41 | 3.09 | 1.00 | 9975.55 | 10017.96 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-2 | 4.01 | 100-yr 6-yr | 1308 | 2592.85 | 2592.85 | 9.49 | 58.56 | 2.42 | 1.04 | 9975.59 | 10034.15 |
| StagecoachPass-2 | 4.01 | Method 1 | 1308 | 2592.89 | 2592.81 | 9.42 | 47.55 | 2.92 | 0.97 | 9977.41 | 10024.96 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.96 | 100-yr 6-yr | 1308 | 2588.22 | 2588.22 | 10.92 | 43.15 | 2.96 | 1.05 | 9971.74 | 10014.89 |
| StagecoachPass-2 | 3.96 | Method 1 | 1308 | 2588.20 | 2588.20 | 11.18 | 30.14 | 3.88 | 1.00 | 9976.41 | 10006.55 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.9 | 100-yr 6-yr | 1308 | 2582.31 | 2582.31 | 6.64 | 238.94 | 1.10 | 0.84 | 9912.67 | 10151.61 |
| StagecoachPass-2 | 3.9 | Method 1 | 1308 | 2582.29 | 2582.29 | 7.57 | 97.75 | 1.77 | 1.00 | 9913.92 | 10011.67 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.82 | 100-yr 6-yr | 1308 | 2572.96 | 2572.96 | 7.79 | 152.20 | 1.32 | 1.00 | 9940.23 | 10092.42 |
| StagecoachPass-2 | 3.82 | Method 1 | 1308 | 2572.90 | 2572.82 | 8.44 | 64.33 | 2.41 | 0.96 | 9957.88 | 10022.21 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.72 | 100-yr 6-yr | 1308 | 2563.42 | 2563.42 | 8.07 | 87.59 | 1.87 | 1.03 | 9970.96 | 10058.55 |
| StagecoachPass-2 | 3.72 | Method 1 | 1308 | 2563.41 | 2563.41 | 8.12 | 80.88 | 1.99 | 1.01 | 9971.80 | 10052.68 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.66 | 100-yr 6-yr | 1308 | 2556.76 | 2556.76 | 8.37 | 79.04 | 2.01 | 1.02 | 9947.57 | 10026.61 |
| StagecoachPass-2 | 3.66 | Method 1 | 1308 | 2556.73 | 2556.73 | 8.51 | 69.78 | 2.20 | 1.01 | 9947.81 | 10017.59 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.64 | 100-yr 6-yr | 1308 | 2554.87 | 2553.54 | 4.97 | 102.40 | 2.65 | 0.52 | 9936.76 | 10039.16 |
| StagecoachPass-2 | 3.64 | Method 1 | 1308 | 2554.98 | 2553.54 | 4.80 | 90.05 | 3.09 | 0.47 | 9939.71 | 10029.76 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.63 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.62 | 100-yr 6-yr | 1308 | 2550.95 | 2550.95 | 8.90 | 59.90 | 2.45 | 1.00 | 9967.89 | 10027.79 |
| StagecoachPass-2 | 3.62 | Method 1 | 1308 | 2551.07 | 2550.96 | 8.49 | 60.38 | 2.55 | 0.94 | 9967.63 | 10028.01 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.57 | 100-yr 6-yr | 1487 | 2547.22 | 2547.22 | 8.91 | 89.64 | 2.02 | 1.02 | 9961.93 | 10051.57 |
| StagecoachPass-2 | 3.57 | Method 1 | 1487 | 2547.17 | 2547.17 | 9.29 | 60.41 | 2.65 | 1.01 | 9966.90 | 10027.31 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.53 | 100-yr 6-yr | 1487 | 2543.70 | 2543.66 | 7.59 | 115.69 | 1.73 | 1.00 | 9936.15 | 10051.84 |
| StagecoachPass-2 | 3.53 | Method 1 | 1487 | 2543.65 | 2543.65 | 7.82 | 102.53 | 1.86 | 1.01 | 9937.26 | 10039.79 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.44 | 100-yr 6-yr | 1487 | 2535.32 | 2535.13 | 9.66 | 48.11 | 3.26 | 0.93 | 9979.98 | 10028.08 |
| StagecoachPass-2 | 3.44 | Method 1 | 1487 | 2535.59 | 2535.10 | 9.05 | 42.62 | 3.85 | 0.81 | 9981.61 | 10024.23 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.35 | 100-yr 6-yr | 1487 | 2527.37 | 2527.37 | 10.25 | 51.10 | 2.94 | 1.02 | 9967.98 | 10019.08 |
| StagecoachPass-2 | 3.35 | Method 1 | 1487 | 2527.32 | 2527.32 | 10.52 | 41.23 | 3.43 | 1.00 | 9975.84 | 10017.07 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.31 | 100-yr 6-yr | 1487 | 2522.79 | 2522.35 | 7.60 | 70.76 | 2.78 | 0.80 | 9965.65 | 10036.40 |
| StagecoachPass-2 | 3.31 | Method 1 | 1487 | 2522.91 | 2522.35 | 7.30 | 67.26 | 3.03 | 0.74 | 9967.32 | 10034.58 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.25 | 100-yr 6-yr | 1487 | 2517.21 | 2517.21 | 10.22 | 50.25 | 2.98 | 1.01 | 9972.33 | 10022.57 |
| StagecoachPass-2 | 3.25 | Method 1 | 1487 | 2517.17 | 2517.17 | 10.44 | 41.64 | 3.42 | 0.99 | 9974.89 | 10016.53 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.16 | 100-yr 6-yr | 1487 | 2506.63 | 2506.63 | 9.12 | 66.65 | 2.46 | 1.02 | 9970.09 | 10036.75 |
| StagecoachPass-2 | 3.16 | Method 1 | 1487 | 2506.62 | 2506.62 | 9.17 | 62.96 | 2.58 | 1.01 | 9971.90 | 10034.86 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.06 | 100-yr 6-yr | 1487 | 2498.34 | 2497.93 | 7.88 | 104.69 | 1.94 | 0.93 | 9951.25 | 10055.94 |
| StagecoachPass-2 | 3.06 | Method 1 | 1487 | 2498.96 | 2497.91 | 6.66 | 60.01 | 3.72 | 0.61 | 9960.86 | 10020.87 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.03 | 100-yr 6-yr | 1792 | 2495.53 | 2495.53 | 9.08 | 116.06 | 2.12 | 0.88 | 9967.93 | 10083.99 |
| StagecoachPass-2 | 3.03 | Method 1 | 1792 | 2495.57 | 2495.57 | 10.32 | 52.05 | 3.34 | 1.00 | 9971.17 | 10023.22 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 2.97 | 100-yr 6-yr | 1792 | 2492.29 | 2488.72 | 2.63 | 258.59 | 3.51 | 0.19 | 9799.20 | 10057.79 |
| StagecoachPass-2 | 2.97 | Method 1 | 1792 | 2493.18 | 2488.72 | 2.84 | 114.48 | 5.77 | 0.20 | 9937.10 | 10051.58 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 2.96 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-2 | 2.95 | 100-yr 6-yr | 1792 | 2487.21 | 2485.62 | 5.17 | 92.67 | 3.91 | 0.46 | 9962.96 | 10051.58 |
| StagecoachPass-2 | 2.95 | Method 1 | 1792 | 2487.21 | 2485.62 | 5.17 | 88.62 | 3.91 | 0.46 | 9962.96 | 10051.58 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 2.92 | 100-yr 6-yr | 1792 | 2483.89 | 2483.89 | 9.21 | 129.97 | 1.93 | 0.90 | 9974.60 | 10104.57 |
| StagecoachPass-2 | 2.92 | Method 1 | 1792 | 2483.99 | 2483.99 | 10.44 | 49.80 | 3.45 | 0.99 | 9992.47 | 10042.27 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 2.86 | 100-yr 6-yr | 1792 | 2478.53 | 2478.53 | 9.39 | 79.71 | 2.45 | 1.04 | 9983.22 | 10062.93 |
| StagecoachPass-2 | 2.86 | Method 1 | 1792 | 2478.49 | 2478.49 | 9.53 | 66.39 | 2.83 | 1.00 | 9984.99 | 10051.38 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 2.8 | 100-yr 6-yr | 1792 | 2472.38 | 2472.38 | 8.17 | 158.73 | 1.44 | 1.16 | 9996.01 | 10154.74 |
| StagecoachPass-2 | 2.8 | Method 1 | 1792 | 2472.30 | 2472.30 | 8.50 | 95.53 | 2.21 | 1.01 | 9996.92 | 10092.45 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 2.76 | 100-yr 6-yr | 1792 | 2468.38 | 2468.02 | 6.13 | 193.39 | 1.87 | 0.64 | 9922.58 | 10115.96 |
| StagecoachPass-2 | 2.76 | Method 1 | 1792 | 2468.44 | 2468.05 | 6.61 | 119.89 | 2.30 | 0.75 | 9924.01 | 10043.90 |
| | | | | | | | | | | | |

## TABLE 9: Culvert Table Stagecoach Pass Wash w/ Levee Failed

| Reach | River Sta | Profile | Culv WS Inlet | Culv WS Outlet | Culv EG Inlet | Q Total | Culv Q | Q Weir | Culv Vel US | Culv Vel DS | Culv Frctn Ls |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.545 CULVERT#1 | 100-yr 6-yr | 2904.12 | 2901.86 | 2905.50 | 631 | 631 | 240.72 | 9.46 | 14.00 | 0.60 |
| StagecoachPass-2 | 6.545 CULVERT#1 | Method 1 | 2904.13 | 2901.87 | 2905.53 | 631 | 631 | 3.02 | 9.50 | 14.03 | 0.60 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 6.505 CULVERT#1 | 100-yr 6-yr | 2899.47 | 2897.93 | 2900.78 | 631 | 631 | 43.46 | 9.18 | 12.02 | 0.61 |
| StagecoachPass-2 | 6.505 CULVERT#1 | Method 1 | 2899.56 | 2898.02 | 2900.97 | 631 | 631 | | 9.52 | 12.28 | 0.61 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 5.9 CULVERT#1 | 100-yr 6-yr | 2815.31 | 2813.68 | 2817.25 | 758 | 758 | 429.23 | 9.13 | 13.31 | 0.82 |
| StagecoachPass-2 | 5.9 CULVERT#1 | Method 1 | 2815.31 | 2814.62 | 2817.23 | 758 | 758 | 360.97 | 11.03 | 11.03 | 0.72 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 3.63 CULVERT#1 | 100-yr 6-yr | 2552.49 | 2550.22 | 2554.65 | 1308 | 1308 | 679.75 | 9.82 | 15.20 | 0.84 |
| StagecoachPass-2 | 3.63 CULVERT#1 | Method 1 | 2552.49 | 2550.25 | 2554.73 | 1308 | 1308 | 671.18 | 9.95 | 15.27 | 0.86 |
| | | | | | | | | | | | |
| StagecoachPass-2 | 2.96 CULVERT#1 | 100-yr 6-yr | 2490.30 | 2486.60 | 2491.90 | 1792 | 1792 | 735.90 | 8.80 | 16.08 | 1.28 |
| StagecoachPass-2 | 2.96 CULVERT#1 | Method 1 | 2490.30 | 2486.82 | 2492.66 | 1792 | 1792 | 567.95 | 10.20 | 16.96 | 1.38 |

## TABLE 10: Hydraulic Modeling Output Table Stagecoach Pass Wash w/ Levee in Place

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.93 | 100-yr 6-yr | 453 | 2962.45 | 2962.45 | 5.90 | 138.28 | 0.87 | 0.71 | 9935.70 | 10073.98 |
| StagecoachPass-1 | 6.93 | Method 1 | 453 | 2962.40 | 2962.40 | 8.02 | 28.80 | 1.96 | 1.01 | 9995.82 | 10024.62 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.88 | 100-yr 6-yr | 453 | 2955.50 | 2955.50 | 5.77 | 140.22 | 0.74 | 0.89 | 9876.20 | 10016.42 |
| StagecoachPass-1 | 6.88 | Method 1 | 453 | 2955.46 | 2955.46 | 6.82 | 47.41 | 1.40 | 1.02 | 9966.96 | 10014.37 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.85 | 100-yr 6-yr | 453 | 2948.94 | 2948.94 | 5.89 | 164.42 | 0.64 | 0.95 | 9978.73 | 10155.92 |
| StagecoachPass-1 | 6.85 | Method 1 | 453 | 2949.67 | 2949.67 | 6.92 | 43.70 | 1.50 | 1.00 | 9985.36 | 10029.06 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.8 | 100-yr 6-yr | 631 | 2942.27 | 2942.27 | 4.79 | 455.24 | 0.48 | 0.73 | 9762.58 | 10217.82 |
| StagecoachPass-1 | 6.8 | Method 1 | 631 | 2942.44 | 2942.44 | 6.49 | 75.18 | 1.29 | 1.00 | 9947.60 | 10022.78 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.73 | 100-yr 6-yr | 631 | 2930.63 | 2930.63 | 4.97 | 264.77 | 0.58 | 0.96 | 9873.16 | 10142.18 |
| StagecoachPass-1 | 6.73 | Method 1 | 631 | 2930.88 | 2930.82 | 4.85 | 142.62 | 0.91 | 0.89 | 9899.99 | 10042.61 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.63 | 100-yr 6-yr | 631 | 2916.97 | 2916.97 | 2.69 | 341.25 | 0.81 | 0.45 | 9979.55 | 10320.80 |
| StagecoachPass-1 | 6.63 | Method 1 | 631 | 2917.00 | 2917.00 | 5.02 | 159.49 | 0.79 | 1.00 | 9979.33 | 10138.82 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.59 | 100-yr 6-yr | 631 | 2910.62 | 2910.62 | 4.95 | 168.24 | 0.76 | 1.00 | 9977.51 | 10145.75 |
| StagecoachPass-1 | 6.59 | Method 1 | 631 | 2910.61 | 2910.61 | 5.00 | 163.54 | 0.77 | 1.00 | 9978.48 | 10142.02 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.55 | 100-yr 6-yr | 631 | 2906.18 | 2903.37 | 0.90 | 477.46 | 1.98 | 0.08 | 9729.37 | 10206.83 |
| StagecoachPass-1 | 6.55 | Method 1 | 631 | 2906.22 | 2903.37 | 1.09 | 168.93 | 3.44 | 0.10 | 9909.36 | 10078.29 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.545 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.54 | 100-yr 6-yr | 631 | 2902.28 | 2902.28 | 5.70 | 245.43 | 0.96 | 1.01 | 9910.71 | 10028.20 |
| StagecoachPass-1 | 6.54 | Method 1 | 631 | 2902.29 | 2902.29 | 5.66 | 119.29 | 0.97 | 1.00 | 9910.71 | 10028.20 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.51 | 100-yr 6-yr | 631 | 2901.30 | 2899.50 | 1.55 | 298.66 | 1.67 | 0.17 | 9827.11 | 10125.77 |
| StagecoachPass-1 | 6.51 | Method 1 | 631 | 2901.68 | 2899.50 | 1.54 | 137.69 | 2.97 | 0.16 | 9898.55 | 10036.24 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.505 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.5 | 100-yr 6-yr | 631 | 2897.51 | 2897.51 | 6.06 | 127.60 | 1.13 | 1.00 | 9941.45 | 10033.73 |
| StagecoachPass-1 | 6.5 | Method 1 | 631 | 2897.52 | 2897.51 | 6.00 | 92.28 | 1.14 | 0.99 | 9941.45 | 10033.73 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.45 | 100-yr 6-yr | 631 | 2890.87 | 2890.87 | 7.09 | 94.04 | 1.13 | 0.98 | 9968.75 | 10062.79 |
| StagecoachPass-1 | 6.45 | Method 1 | 631 | 2890.79 | 2890.79 | 7.70 | 50.00 | 1.73 | 0.98 | 9975.00 | 10025.00 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.37 | 100-yr 6-yr | 631 | 2879.09 | 2879.09 | 5.78 | 111.54 | 0.98 | 1.03 | 9933.86 | 10045.39 |
| StagecoachPass-1 | 6.37 | Method 1 | 631 | 2879.08 | 2879.08 | 5.80 | 107.89 | 1.01 | 1.02 | 9935.12 | 10043.01 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.31 | 100-yr 6-yr | 631 | 2870.15 | 2870.15 | 5.45 | 211.18 | 0.77 | 0.79 | 9966.93 | 10178.11 |
| StagecoachPass-1 | 6.31 | Method 1 | 631 | 2870.18 | 2870.13 | 6.60 | 64.22 | 1.49 | 0.95 | 9969.43 | 10033.65 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.23 | 100-yr 6-yr | 631 | 2860.20 | 2860.20 | 6.13 | 140.88 | 0.82 | 1.06 | 9887.46 | 10028.34 |
| StagecoachPass-1 | 6.23 | Method 1 | 631 | 2860.12 | 2860.12 | 6.59 | 96.84 | 1.03 | 1.10 | 9930.00 | 10026.84 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.17 | 100-yr 6-yr | 758 | 2850.66 | 2850.57 | 4.84 | 246.64 | 0.77 | 0.80 | 9914.01 | 10160.64 |
| StagecoachPass-1 | 6.17 | Method 1 | 758 | 2851.01 | 2850.98 | 5.90 | 113.03 | 1.14 | 0.98 | 9916.42 | 10029.45 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.07 | 100-yr 6-yr | 758 | 2837.86 | 2837.86 | 6.07 | 137.86 | 0.98 | 1.00 | 9913.83 | 10051.69 |
| StagecoachPass-1 | 6.07 | Method 1 | 758 | 2837.84 | 2837.84 | 6.38 | 95.00 | 1.25 | 1.01 | 9930.00 | 10025.00 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.98 | 100-yr 6-yr | 758 | 2823.78 | 2823.78 | 6.08 | 144.86 | 0.96 | 0.98 | 9960.30 | 10105.16 |
| StagecoachPass-1 | 5.98 | Method 1 | 758 | 2823.76 | 2823.76 | 6.47 | 90.72 | 1.29 | 1.00 | 9977.45 | 10068.17 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.91 | 100-yr 6-yr | 758 | 2817.76 | 2813.43 | 0.89 | 292.78 | 3.96 | 0.06 | 9906.13 | 10198.91 |
| StagecoachPass-1 | 5.91 | Method 1 | 758 | 2817.96 | 2813.43 | 1.28 | 103.50 | 5.71 | 0.09 | 9964.42 | 10067.92 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.9 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.89 | 100-yr 6-yr | 758 | 2811.29 | 2811.23 | 5.62 | 131.94 | 1.12 | 0.94 | 9930.77 | 10051.25 |
| StagecoachPass-1 | 5.89 | Method 1 | 758 | 2811.30 | 2811.23 | 5.56 | 120.48 | 1.13 | 0.92 | 9930.77 | 10051.25 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.81 | 100-yr 6-yr | 758 | 2801.39 | 2801.39 | 6.08 | 122.95 | 1.04 | 1.03 | 9890.87 | 10013.83 |
| StagecoachPass-1 | 5.81 | Method 1 | 758 | 2801.39 | 2801.38 | 6.12 | 105.13 | 1.18 | 0.99 | 9907.58 | 10012.71 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.72 | 100-yr 6-yr | 758 | 2789.27 | 2789.19 | 5.85 | 112.01 | 1.17 | 0.94 | 9965.71 | 10077.72 |
| StagecoachPass-1 | 5.72 | Method 1 | 758 | 2789.28 | 2789.18 | 5.82 | 99.60 | 1.31 | 0.90 | 9967.70 | 10067.30 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.64 | 100-yr 6-yr | 758 | 2780.15 | 2780.15 | 6.83 | 82.66 | 1.35 | 1.03 | 9940.27 | 10022.94 |
| StagecoachPass-1 | 5.64 | Method 1 | 758 | 2780.15 | 2780.15 | 6.85 | 78.04 | 1.42 | 1.01 | 9943.30 | 10021.34 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.61 | 100-yr 6-yr | 758 | 2776.19 | 2776.14 | 5.86 | 114.56 | 1.13 | 0.97 | 9948.78 | 10063.34 |
| StagecoachPass-1 | 5.61 | Method 1 | 758 | 2776.18 | 2776.13 | 5.91 | 108.94 | 1.18 | 0.96 | 9951.60 | 10060.54 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.55 | 100-yr 6-yr | 758 | 2768.75 | 2768.67 | 5.04 | 155.75 | 0.97 | 0.90 | 9970.15 | 10125.91 |
| StagecoachPass-1 | 5.55 | Method 1 | 758 | 2768.76 | 2768.68 | 4.99 | 152.27 | 1.00 | 0.88 | 9971.53 | 10123.80 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.51 | 100-yr 6-yr | 758 | 2763.26 | 2763.26 | 6.19 | 113.33 | 1.09 | 1.03 | 9942.04 | 10055.37 |
| StagecoachPass-1 | 5.51 | Method 1 | 758 | 2763.25 | 2763.25 | 6.24 | 102.12 | 1.19 | 1.01 | 9948.16 | 10050.28 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.46 | 100-yr 6-yr | 758 | 2757.13 | 2757.01 | 5.44 | 116.87 | 1.19 | 0.88 | 9941.89 | 10058.76 |
| StagecoachPass-1 | 5.46 | Method 1 | 758 | 2757.13 | 2757.01 | 5.44 | 113.96 | 1.22 | 0.87 | 9944.29 | 10058.25 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.43 | 100-yr 6-yr | 758 | 2752.96 | 2752.96 | 6.61 | 86.30 | 1.33 | 1.01 | 9939.66 | 10025.96 |
| StagecoachPass-1 | 5.43 | Method 1 | 758 | 2752.96 | 2752.96 | 6.60 | 86.36 | 1.33 | 1.01 | 9939.61 | 10025.97 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.37 | 100-yr 6-yr | 758 | 2744.20 | 2743.91 | 4.96 | 176.72 | 1.06 | 0.69 | 9987.37 | 10164.09 |
| StagecoachPass-1 | 5.37 | Method 1 | 758 | 2744.72 | 2744.65 | 6.73 | 71.51 | 1.57 | 0.95 | 9988.38 | 10059.89 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.27 | 100-yr 6-yr | 844 | 2732.16 | 2732.16 | 5.63 | 158.45 | 0.95 | 1.01 | 9944.46 | 10102.91 |
| StagecoachPass-1 | 5.27 | Method 1 | 844 | 2732.14 | 2732.14 | 5.71 | 151.26 | 0.98 | 1.02 | 9950.19 | 10101.45 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.18 | 100-yr 6-yr | 844 | 2720.94 | 2720.83 | 4.47 | 212.28 | 0.90 | 0.83 | 9848.52 | 10060.80 |
| StagecoachPass-1 | 5.18 | Method 1 | 844 | 2720.94 | 2720.83 | 4.45 | 203.90 | 0.93 | 0.81 | 9855.50 | 10059.40 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.12 | 100-yr 6-yr | 844 | 2713.26 | 2713.26 | 6.69 | 95.20 | 1.33 | 1.02 | 9922.50 | 10017.70 |
| StagecoachPass-1 | 5.12 | Method 1 | 844 | 2713.26 | 2713.26 | 6.72 | 91.10 | 1.38 | 1.01 | 9925.40 | 10016.50 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.08 | 100-yr 6-yr | 844 | 2706.26 | 2706.26 | 6.34 | 116.91 | 1.15 | 1.03 | 9945.22 | 10062.13 |
| StagecoachPass-1 | 5.08 | Method 1 | 844 | 2706.29 | 2706.25 | 6.20 | 107.26 | 1.27 | 0.97 | 9945.99 | 10053.25 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.02 | 100-yr 6-yr | 844 | 2699.21 | 2699.11 | 5.81 | 123.50 | 1.20 | 0.92 | 9937.85 | 10061.35 |
| StagecoachPass-1 | 5.02 | Method 1 | 844 | 2699.13 | 2699.13 | 6.17 | 120.28 | 1.15 | 1.00 | 9940.69 | 10060.97 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.94 | 100-yr 6-yr | 844 | 2689.43 | 2689.43 | 6.36 | 124.79 | 1.10 | 1.04 | 9931.65 | 10056.45 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.94 | Method 1 | 844 | 2689.57 | 2689.41 | 5.81 | 100.22 | 1.45 | 0.85 | 9945.13 | 10045.35 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.84 | 100-yr 6-yr | 844 | 2678.49 | 2678.49 | 6.37 | 145.57 | 1.06 | 0.93 | 9984.61 | 10130.17 |
| StagecoachPass-1 | 4.84 | Method 1 | 844 | 2678.44 | 2678.44 | 7.09 | 76.32 | 1.56 | 1.00 | 9985.93 | 10062.25 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.81 | 100-yr 6-yr | 844 | 2676.36 | 2675.73 | 5.53 | 84.59 | 1.92 | 0.66 | 9965.49 | 10050.08 |
| StagecoachPass-1 | 4.81 | Method 1 | 844 | 2676.41 | 2675.70 | 5.53 | 60.12 | 2.54 | 0.61 | 9980.08 | 10040.20 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.77 | 100-yr 6-yr | 836 | 2672.81 | 2672.81 | 8.89 | 42.97 | 2.23 | 1.03 | 9991.21 | 10034.18 |
| StagecoachPass-1 | 4.77 | Method 1 | 836 | 2672.84 | 2672.77 | 8.83 | 36.89 | 2.57 | 0.97 | 9991.21 | 10028.10 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.72 | 100-yr 6-yr | 836 | 2666.49 | 2666.49 | 6.56 | 109.79 | 1.22 | 0.99 | 9982.10 | 10091.89 |
| StagecoachPass-1 | 4.72 | Method 1 | 836 | 2666.48 | 2666.47 | 6.83 | 87.03 | 1.41 | 1.01 | 9983.24 | 10070.27 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.62 | 100-yr 6-yr | 836 | 2655.74 | 2655.67 | 6.07 | 129.45 | 1.14 | 0.94 | 9974.38 | 10103.83 |
| StagecoachPass-1 | 4.62 | Method 1 | 836 | 2655.79 | 2655.64 | 6.01 | 91.72 | 1.52 | 0.86 | 9977.93 | 10069.65 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.53 | 100-yr 6-yr | 836 | 2644.79 | 2644.76 | 6.17 | 119.32 | 1.18 | 0.97 | 9961.33 | 10080.65 |
| StagecoachPass-1 | 4.53 | Method 1 | 836 | 2644.79 | 2644.75 | 6.27 | 101.26 | 1.32 | 0.96 | 9968.59 | 10069.85 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.43 | 100-yr 6-yr | 836 | 2634.13 | 2633.99 | 6.87 | 75.03 | 1.63 | 0.95 | 9972.17 | 10047.20 |
| StagecoachPass-1 | 4.43 | Method 1 | 836 | 2634.15 | 2634.00 | 6.77 | 67.81 | 1.82 | 0.88 | 9978.68 | 10046.49 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.34 | 100-yr 6-yr | 836 | 2624.31 | 2624.31 | 7.35 | 74.08 | 1.55 | 1.03 | 9977.96 | 10052.04 |
| StagecoachPass-1 | 4.34 | Method 1 | 836 | 2624.30 | 2624.30 | 7.42 | 66.00 | 1.71 | 1.00 | 9979.50 | 10045.50 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.3 | 100-yr 6-yr | 1116 | 2618.31 | 2617.82 | 9.45 | 108.80 | 1.35 | 1.15 | 9981.72 | 10090.52 |
| StagecoachPass-1 | 4.3 | Method 1 | 1116 | 2618.49 | | 9.51 | 28.47 | 4.12 | 0.83 | 9988.24 | 10016.71 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.24 | 100-yr 6-yr | 1308 | 2613.53 | 2613.41 | 9.70 | 47.57 | 2.93 | 0.97 | 9969.43 | 10017.01 |
| StagecoachPass-1 | 4.24 | Method 1 | 1308 | 2613.75 | 2613.38 | 9.19 | 39.56 | 3.60 | 0.85 | 9974.00 | 10013.56 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.19 | 100-yr 6-yr | 1308 | 2609.73 | 2609.73 | 9.51 | 73.19 | 2.21 | 0.96 | 9945.36 | 10018.55 |
| StagecoachPass-1 | 4.19 | Method 1 | 1308 | 2609.67 | 2609.67 | 9.76 | 54.44 | 2.74 | 0.93 | 9960.00 | 10014.44 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.09 | 100-yr 6-yr | 1308 | 2600.62 | 2600.62 | 9.87 | 48.75 | 2.75 | 1.04 | 9970.11 | 10018.86 |
| StagecoachPass-1 | 4.09 | Method 1 | 1308 | 2600.59 | 2600.59 | 9.99 | 42.41 | 3.09 | 1.00 | 9975.55 | 10017.96 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 4.01 | 100-yr 6-yr | 1308 | 2592.85 | 2592.85 | 9.49 | 58.56 | 2.42 | 1.04 | 9975.59 | 10034.15 |
| StagecoachPass-1 | 4.01 | Method 1 | 1308 | 2592.89 | 2592.81 | 9.42 | 47.55 | 2.92 | 0.97 | 9977.41 | 10024.96 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.96 | 100-yr 6-yr | 1308 | 2588.22 | 2588.22 | 10.92 | 43.15 | 2.96 | 1.05 | 9971.74 | 10014.89 |
| StagecoachPass-1 | 3.96 | Method 1 | 1308 | 2588.20 | 2588.20 | 11.18 | 30.14 | 3.88 | 1.00 | 9976.41 | 10006.55 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.9 | 100-yr 6-yr | 1308 | 2582.31 | 2582.31 | 6.64 | 238.94 | 1.10 | 0.84 | 9912.67 | 10151.61 |
| StagecoachPass-1 | 3.9 | Method 1 | 1308 | 2582.29 | 2582.29 | 7.57 | 97.75 | 1.77 | 1.00 | 9913.92 | 10011.67 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.82 | 100-yr 6-yr | 1308 | 2572.96 | 2572.96 | 7.79 | 152.20 | 1.32 | 1.00 | 9940.23 | 10092.42 |
| StagecoachPass-1 | 3.82 | Method 1 | 1308 | 2572.90 | 2572.82 | 8.44 | 64.33 | 2.41 | 0.96 | 9957.88 | 10022.21 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.72 | 100-yr 6-yr | 1308 | 2563.42 | 2563.42 | 8.07 | 87.59 | 1.87 | 1.03 | 9970.96 | 10058.55 |
| StagecoachPass-1 | 3.72 | Method 1 | 1308 | 2563.41 | 2563.41 | 8.12 | 80.88 | 1.99 | 1.01 | 9971.80 | 10052.68 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.66 | 100-yr 6-yr | 1308 | 2556.76 | 2556.76 | 8.37 | 79.04 | 2.01 | 1.02 | 9947.57 | 10026.61 |
| StagecoachPass-1 | 3.66 | Method 1 | 1308 | 2556.73 | 2556.73 | 8.51 | 69.78 | 2.20 | 1.01 | 9947.81 | 10017.59 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.64 | 100-yr 6-yr | 1308 | 2554.87 | 2553.54 | 4.97 | 102.40 | 2.65 | 0.52 | 9936.76 | 10039.16 |
| StagecoachPass-1 | 3.64 | Method 1 | 1308 | 2554.98 | 2553.54 | 4.80 | 90.05 | 3.09 | 0.47 | 9939.71 | 10029.76 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.63 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.62 | 100-yr 6-yr | 1308 | 2550.95 | 2550.95 | 8.90 | 59.90 | 2.45 | 1.00 | 9967.89 | 10027.79 |
| StagecoachPass-1 | 3.62 | Method 1 | 1308 | 2551.07 | 2550.96 | 8.49 | 60.38 | 2.55 | 0.94 | 9967.63 | 10028.01 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.57 | 100-yr 6-yr | 1487 | 2547.22 | 2547.22 | 8.91 | 89.64 | 2.02 | 1.02 | 9961.93 | 10051.57 |
| StagecoachPass-1 | 3.57 | Method 1 | 1487 | 2547.17 | 2547.17 | 9.29 | 60.41 | 2.65 | 1.01 | 9966.90 | 10027.31 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.53 | 100-yr 6-yr | 1487 | 2543.70 | 2543.66 | 7.59 | 115.69 | 1.73 | 1.00 | 9936.15 | 10051.84 |
| StagecoachPass-1 | 3.53 | Method 1 | 1487 | 2543.65 | 2543.65 | 7.82 | 102.53 | 1.86 | 1.01 | 9937.26 | 10039.79 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.44 | 100-yr 6-yr | 1487 | 2535.32 | 2535.13 | 9.66 | 48.11 | 3.26 | 0.93 | 9979.98 | 10028.08 |
| StagecoachPass-1 | 3.44 | Method 1 | 1487 | 2535.59 | 2535.10 | 9.05 | 42.62 | 3.85 | 0.81 | 9981.61 | 10024.23 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.35 | 100-yr 6-yr | 1487 | 2527.37 | 2527.37 | 10.25 | 51.10 | 2.94 | 1.02 | 9967.98 | 10019.08 |
| StagecoachPass-1 | 3.35 | Method 1 | 1487 | 2527.32 | 2527.32 | 10.52 | 41.23 | 3.43 | 1.00 | 9975.84 | 10017.07 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.31 | 100-yr 6-yr | 1487 | 2522.79 | 2522.35 | 7.60 | 70.76 | 2.78 | 0.80 | 9965.65 | 10036.40 |
| StagecoachPass-1 | 3.31 | Method 1 | 1487 | 2522.91 | 2522.35 | 7.30 | 67.26 | 3.03 | 0.74 | 9967.32 | 10034.58 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.25 | 100-yr 6-yr | 1487 | 2517.21 | 2517.21 | 10.22 | 50.25 | 2.98 | 1.01 | 9972.33 | 10022.57 |
| StagecoachPass-1 | 3.25 | Method 1 | 1487 | 2517.17 | 2517.17 | 10.44 | 41.64 | 3.42 | 0.99 | 9974.89 | 10016.53 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.16 | 100-yr 6-yr | 1487 | 2506.63 | 2506.63 | 9.12 | 66.65 | 2.46 | 1.02 | 9970.09 | 10036.75 |
| StagecoachPass-1 | 3.16 | Method 1 | 1487 | 2506.62 | 2506.62 | 9.17 | 62.96 | 2.58 | 1.01 | 9971.90 | 10034.86 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.06 | 100-yr 6-yr | 1487 | 2498.34 | 2497.93 | 7.88 | 104.69 | 1.94 | 0.93 | 9951.25 | 10055.94 |
| StagecoachPass-1 | 3.06 | Method 1 | 1487 | 2498.96 | 2497.91 | 6.66 | 60.01 | 3.72 | 0.61 | 9960.86 | 10020.87 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.03 | 100-yr 6-yr | 1792 | 2495.53 | 2495.53 | 9.08 | 116.06 | 2.12 | 0.88 | 9967.93 | 10083.99 |
| StagecoachPass-1 | 3.03 | Method 1 | 1792 | 2495.57 | 2495.57 | 10.32 | 52.05 | 3.34 | 1.00 | 9971.17 | 10023.22 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.97 | 100-yr 6-yr | 1792 | 2492.29 | 2488.72 | 2.63 | 258.59 | 3.51 | 0.19 | 9799.20 | 10057.79 |
| StagecoachPass-1 | 2.97 | Method 1 | 1792 | 2493.18 | 2488.72 | 2.84 | 114.48 | 5.77 | 0.20 | 9937.10 | 10051.58 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.96 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.95 | 100-yr 6-yr | 1792 | 2487.21 | 2485.62 | 5.17 | 92.67 | 3.91 | 0.46 | 9962.96 | 10051.58 |
| StagecoachPass-1 | 2.95 | Method 1 | 1792 | 2487.21 | 2485.62 | 5.17 | 88.62 | 3.91 | 0.46 | 9962.96 | 10051.58 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.92 | 100-yr 6-yr | 1792 | 2483.89 | 2483.89 | 9.21 | 129.97 | 1.93 | 0.90 | 9974.60 | 10104.57 |
| StagecoachPass-1 | 2.92 | Method 1 | 1792 | 2483.99 | 2483.99 | 10.44 | 49.80 | 3.45 | 0.99 | 9992.47 | 10042.27 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.86 | 100-yr 6-yr | 1792 | 2478.53 | 2478.53 | 9.39 | 79.71 | 2.45 | 1.04 | 9983.22 | 10062.93 |
| StagecoachPass-1 | 2.86 | Method 1 | 1792 | 2478.49 | 2478.49 | 9.53 | 66.39 | 2.83 | 1.00 | 9984.99 | 10051.38 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.8 | 100-yr 6-yr | 1792 | 2472.32 | 2472.32 | 8.42 | 96.64 | 2.20 | 1.00 | 9996.15 | 10092.79 |
| StagecoachPass-1 | 2.8 | Method 1 | 1792 | 2472.31 | 2472.31 | 8.46 | 95.53 | 2.22 | 1.00 | 9996.92 | 10092.45 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.76 | 100-yr 6-yr | 1792 | 2468.45 | 2468.07 | 6.52 | 123.92 | 2.22 | 0.77 | 9922.34 | 10046.26 |
| StagecoachPass-1 | 2.76 | Method 1 | 1792 | 2468.56 | 2468.07 | 6.20 | 119.89 | 2.41 | 0.70 | 9924.01 | 10043.90 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.7 | 100-yr 6-yr | 1828 | 2464.00 | 2464.00 | 10.47 | 60.94 | 3.05 | 0.99 | 9975.27 | 10036.21 |
| StagecoachPass-1 | 2.7 | Method 1 | 1828 | 2463.92 | 2463.92 | 10.89 | 46.26 | 3.65 | 1.00 | 9984.74 | 10031.00 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.61 | 100-yr 6-yr | 1828 | 2454.35 | 2454.35 | 9.04 | 104.07 | 2.24 | 0.92 | 9965.70 | 10069.77 |
| StagecoachPass-1 | 2.61 | Method 1 | 1828 | 2454.40 | 2454.40 | 9.81 | 63.35 | 2.94 | 1.01 | 9974.66 | 10038.01 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.58 | 100-yr 6-yr | 1828 | 2451.36 | 2451.36 | 8.38 | 132.79 | 1.84 | 0.97 | 9946.69 | 10079.48 |
| StagecoachPass-1 | 2.58 | Method 1 | 1828 | 2451.31 | 2451.31 | 8.99 | 80.62 | 2.52 | 1.00 | 9959.45 | 10040.07 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.5 | 100-yr 6-yr | 1828 | 2443.86 | 2443.86 | 10.32 | 82.49 | 2.28 | 1.13 | 9957.83 | 10040.32 |
| StagecoachPass-1 | 2.5 | Method 1 | 1828 | 2444.41 | 2443.67 | 9.10 | 45.47 | 4.42 | 0.76 | 9980.27 | 10025.74 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.495 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.49 | 100-yr 6-yr | 1851 | 2439.27 | 2439.27 | 11.52 | 40.08 | 4.07 | 1.01 | 9983.95 | 10023.42 |
| StagecoachPass-1 | 2.49 | Method 1 | 1851 | 2439.27 | 2439.27 | 11.52 | 39.50 | 4.07 | 1.01 | 9983.95 | 10023.42 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.41 | 100-yr 6-yr | 1851 | 2430.77 | 2430.77 | 8.56 | 96.68 | 2.25 | 1.00 | 9919.43 | 10016.12 |
| StagecoachPass-1 | 2.41 | Method 1 | 1851 | 2430.75 | 2430.75 | 8.67 | 92.05 | 2.32 | 1.00 | 9924.06 | 10016.11 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.36 | 100-yr 6-yr | 1851 | 2425.71 | 2425.71 | 9.20 | 91.00 | 2.36 | 0.99 | 9976.17 | 10067.16 |
| StagecoachPass-1 | 2.36 | Method 1 | 1851 | 2425.65 | 2425.65 | 9.63 | 66.74 | 2.88 | 1.00 | 9983.18 | 10049.92 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.3 | 100-yr 6-yr | 1851 | 2419.20 | 2419.20 | 8.97 | 90.71 | 2.31 | 1.02 | 9957.62 | 10048.33 |
| StagecoachPass-1 | 2.3 | Method 1 | 1851 | 2419.18 | 2419.18 | 9.07 | 78.65 | 2.60 | 0.99 | 9967.34 | 10045.99 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.23 | 100-yr 6-yr | 1851 | 2411.81 | 2411.81 | 8.80 | 176.99 | 1.98 | 0.66 | 9982.73 | 10159.71 |
| StagecoachPass-1 | 2.23 | Method 1 | 1851 | 2411.81 | 2411.81 | 8.77 | 175.28 | 1.99 | 0.66 | 9984.43 | 10159.71 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.15 | 100-yr 6-yr | 1996 | 2401.66 | 2399.14 | 4.26 | 231.91 | 2.42 | 0.40 | 9896.00 | 10127.91 |
| StagecoachPass-1 | 2.15 | Method 1 | 1996 | 2401.75 | 2399.13 | 4.41 | 91.32 | 4.95 | 0.35 | 9948.00 | 10039.32 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.145 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.14 | 100-yr 6-yr | 1996 | 2398.69 | 2398.69 | 8.70 | 120.41 | 1.98 | 1.05 | 9934.23 | 10054.64 |
| StagecoachPass-1 | 2.14 | Method 1 | 1996 | 2398.63 | 2398.63 | 9.00 | 88.90 | 2.50 | 1.00 | 9942.46 | 10031.36 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.08 | 100-yr 6-yr | 1996 | 2391.35 | 2391.35 | 9.67 | 88.27 | 2.49 | 1.01 | 9954.61 | 10042.88 |
| StagecoachPass-1 | 2.08 | Method 1 | 1996 | 2391.30 | 2391.30 | 10.05 | 62.32 | 3.19 | 0.99 | 9973.02 | 10035.34 |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.02 | 100-yr 6-yr | 1996 | 2383.06 | 2383.06 | 9.23 | 87.76 | 2.50 | 1.01 | 9959.72 | 10047.49 |
| StagecoachPass-1 | 2.02 | Method 1 | 1996 | 2383.04 | 2383.04 | 9.33 | 79.77 | 2.68 | 1.00 | 9961.45 | 10041.22 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.94 | 100-yr 6-yr | 1996 | 2373.92 | 2373.92 | 10.44 | 127.02 | 2.52 | 0.69 | 9982.76 | 10109.78 |
| StagecoachPass-1 | 1.94 | Method 1 | 1996 | 2374.19 | 2374.19 | 12.99 | 36.40 | 4.82 | 0.91 | 9987.82 | 10024.22 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.92 | 100-yr 6-yr | 1996 | 2369.53 | 2369.53 | 10.40 | 70.02 | 2.90 | 1.02 | 9960.46 | 10030.48 |
| StagecoachPass-1 | 1.92 | Method 1 | 1996 | 2369.45 | 2369.45 | 10.84 | 50.53 | 3.64 | 1.00 | 9965.96 | 10016.49 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.88 | 100-yr 6-yr | 1996 | 2365.40 | 2365.40 | 9.73 | 137.27 | 2.16 | 0.81 | 9967.43 | 10104.70 |
| StagecoachPass-1 | 1.88 | Method 1 | 1996 | 2366.18 | 2366.18 | 11.76 | 40.06 | 4.24 | 1.01 | 9977.19 | 10017.25 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.81 | 100-yr 6-yr | 1996 | 2357.08 | 2357.08 | 8.60 | 161.14 | 1.67 | 1.01 | 9888.20 | 10049.34 |
| StagecoachPass-1 | 1.81 | Method 1 | 1996 | 2357.01 | 2357.01 | 8.94 | 105.00 | 2.29 | 0.96 | 9925.00 | 10030.00 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.76 | 100-yr 6-yr | 1996 | 2350.59 | 2350.59 | 7.40 | 259.20 | 1.33 | 0.89 | 9783.21 | 10042.41 |
| StagecoachPass-1 | 1.76 | Method 1 | 1996 | 2350.51 | 2350.51 | 8.25 | 133.66 | 1.95 | 0.97 | 9900.00 | 10033.66 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.72 | 100-yr 6-yr | 1996 | 2345.55 | 2345.55 | 6.96 | 226.61 | 1.35 | 0.99 | 9903.16 | 10129.77 |
| StagecoachPass-1 | 1.72 | Method 1 | 1996 | 2345.54 | 2345.54 | 7.22 | 171.64 | 1.61 | 1.00 | 9946.89 | 10118.53 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.66 | 100-yr 6-yr | 1996 | 2338.80 | 2338.80 | 7.44 | 199.16 | 1.48 | 0.98 | 9890.58 | 10105.19 |
| StagecoachPass-1 | 1.66 | Method 1 | 1996 | 2338.81 | 2338.81 | 7.75 | 135.64 | 1.90 | 0.99 | 9896.41 | 10032.05 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.57 | 100-yr 6-yr | 1996 | 2331.16 | 2331.16 | 7.84 | 135.54 | 1.88 | 1.01 | 9949.34 | 10084.88 |
| StagecoachPass-1 | 1.57 | Method 1 | 1996 | 2331.16 | 2331.16 | 7.84 | 132.27 | 1.93 | 1.00 | 9949.89 | 10082.16 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.53 | 100-yr 6-yr | 1996 | 2324.47 | 2324.47 | 8.64 | 112.99 | 2.07 | 1.04 | 9922.25 | 10035.24 |
| StagecoachPass-1 | 1.53 | Method 1 | 1996 | 2324.45 | 2324.45 | 8.77 | 96.95 | 2.35 | 1.01 | 9934.44 | 10031.39 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.47 | 100-yr 6-yr | 1996 | 2316.45 | 2316.45 | 8.38 | 112.71 | 2.12 | 1.01 | 9929.57 | 10042.28 |
| StagecoachPass-1 | 1.47 | Method 1 | 1996 | 2316.56 | 2316.43 | 7.99 | 106.38 | 2.35 | 0.92 | 9931.44 | 10037.82 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.44 | 100-yr 6-yr | 1996 | 2313.81 | 2313.81 | 8.13 | 276.92 | 1.57 | 0.65 | 9941.38 | 10218.30 |
| StagecoachPass-1 | 1.44 | Method 1 | 1996 | 2313.92 | 2313.92 | 10.27 | 90.00 | 2.75 | 0.86 | 9980.00 | 10070.00 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.36 | 100-yr 6-yr | 1996 | 2305.74 | 2305.74 | 7.97 | 162.43 | 1.76 | 0.92 | 9943.65 | 10106.08 |
| StagecoachPass-1 | 1.36 | Method 1 | 1996 | 2305.75 | 2305.75 | 8.65 | 98.19 | 2.35 | 0.99 | 9965.04 | 10063.23 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.29 | 100-yr 6-yr | 1996 | 2297.18 | 2297.18 | 9.63 | 86.03 | 2.52 | 1.02 | 9964.90 | 10050.92 |
| StagecoachPass-1 | 1.29 | Method 1 | 1996 | 2297.11 | 2297.11 | 9.98 | 65.27 | 3.06 | 1.01 | 9973.19 | 10038.46 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.19 | 100-yr 6-yr | 1996 | 2287.73 | 2287.73 | 8.98 | 137.99 | 1.96 | 0.93 | 9956.43 | 10094.42 |
| StagecoachPass-1 | 1.19 | Method 1 | 1996 | 2287.66 | 2287.66 | 9.28 | 100.00 | 2.46 | 0.91 | 9963.00 | 10063.00 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.13 | 100-yr 6-yr | 1996 | 2280.58 | | 5.25 | 339.99 | 1.60 | 0.51 | 9784.93 | 10124.92 |
| StagecoachPass-1 | 1.13 | Method 1 | 1996 | 2281.18 | | 6.04 | 105.56 | 3.13 | 0.60 | 9936.18 | 10041.74 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.1 | 100-yr 6-yr | 1996 | 2278.99 | 2278.99 | 7.89 | 216.21 | 1.57 | 0.82 | 9860.68 | 10076.89 |
| StagecoachPass-1 | 1.1 | Method 1 | 1996 | 2278.95 | 2278.95 | 9.58 | 73.75 | 2.83 | 1.00 | 9981.63 | 10055.38 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.07 | 100-yr 6-yr | 1996 | 2275.71 | 2275.71 | 7.84 | 273.96 | 1.37 | 0.80 | 9819.18 | 10093.14 |
| StagecoachPass-1 | 1.07 | Method 1 | 1996 | 2276.06 | 2276.06 | 9.40 | 76.55 | 2.78 | 0.99 | 9973.69 | 10050.24 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 1.01 | 100-yr 6-yr | 1996 | 2269.55 | 2269.55 | 11.49 | 521.09 | 3.76 | 0.95 | 9978.94 | 10029.72 |
| StagecoachPass-1 | 1.01 | Method 1 | 1996 | 2269.58 | 2269.58 | 11.41 | 107.64 | 3.79 | 0.94 | 9978.94 | 10029.72 |

## TABLE 11: Culvert Table Stagecoach Pass Wash w/ Levee in Place

| Reach | River Sta | Profile | Culv WS Inlet | Culv WS Outlet | Culv EG Inlet | Q Total | Culv Q | Q Weir | Culv Vel US | Culv Vel DS | Culv Frctn Ls |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (ft) |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.545 CULVERT#1 | 100-yr 6-yr | 2904.12 | 2901.86 | 2905.50 | 631 | 631 | 240.72 | 9.46 | 14.00 | 0.60 |
| StagecoachPass-1 | 6.545 CULVERT#1 | Method 1 | 2904.13 | 2901.87 | 2905.53 | 631 | 631 | 3.02 | 9.50 | 14.03 | 0.60 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 6.505 CULVERT#1 | 100-yr 6-yr | 2899.47 | 2897.93 | 2900.78 | 631 | 631 | 43.46 | 9.18 | 12.02 | 0.61 |
| StagecoachPass-1 | 6.505 CULVERT#1 | Method 1 | 2899.56 | 2898.02 | 2900.97 | 631 | 631 | | 9.52 | 12.28 | 0.61 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 5.9 CULVERT#1 | 100-yr 6-yr | 2815.31 | 2813.68 | 2817.25 | 758 | 758 | 429.23 | 9.13 | 13.31 | 0.82 |
| StagecoachPass-1 | 5.9 CULVERT#1 | Method 1 | 2815.31 | 2814.62 | 2817.23 | 758 | 758 | 360.97 | 11.03 | 11.03 | 0.72 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 3.63 CULVERT#1 | 100-yr 6-yr | 2552.49 | 2550.22 | 2554.65 | 1308 | 1308 | 679.75 | 9.82 | 15.20 | 0.84 |
| StagecoachPass-1 | 3.63 CULVERT#1 | Method 1 | 2552.49 | 2550.25 | 2554.73 | 1308 | 1308 | 671.18 | 9.95 | 15.27 | 0.86 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.96 CULVERT#1 | 100-yr 6-yr | 2490.30 | 2486.60 | 2491.90 | 1792 | 1792 | 735.90 | 8.80 | 16.08 | 1.28 |
| StagecoachPass-1 | 2.96 CULVERT#1 | Method 1 | 2490.30 | 2486.82 | 2492.66 | 1792 | 1792 | 567.95 | 10.20 | 16.96 | 1.38 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.495 CULVERT#1 | 100-yr 6-yr | 2442.05 | 2440.26 | 2444.62 | 1828 | 1828 | 566.81 | 10.51 | 15.11 | 0.81 |
| StagecoachPass-1 | 2.495 CULVERT#1 | Method 1 | 2442.05 | 2441.48 | 2444.70 | 1828 | 1828 | 301.85 | 12.72 | 12.72 | 0.71 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 2.145 CULVERT#1 | 100-yr 6-yr | 2399.84 | 2398.65 | 2401.36 | 1996 | 1996 | 457.32 | 9.62 | 9.62 | 1.23 |
| StagecoachPass-1 | 2.145 CULVERT#1 | Method 1 | 2399.84 | 2396.82 | 2401.54 | 1996 | 1996 | 545.80 | 9.06 | 16.71 | 0.38 |
| | | | | | | | | | | | |
| StagecoachPass-1 | 0.99 CULVERT#1 | 100-yr 6-yr | 2269.83 | 2264.72 | 2272.25 | 1996 | 1996 | | 12.48 | 12.48 | 3.38 |
| StagecoachPass-1 | 0.99 CULVERT#1 | Method 1 | 2269.83 | 2264.72 | 2272.25 | 1996 | 1996 | | 12.48 | 12.48 | 3.34 |

## TABLE 12: Hydraulic Modeling Output Table Upper Boulders Wash

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperBoulders-1 | 4.03 | 100-yr 6-hr | 238 | 2666.75 | 2666.71 | 5.11 | 54.50 | 0.86 | 0.96 | 9967.12 | 10021.62 |
| UpperBoulders-1 | 4.03 | Meth 1 | 238 | 2666.71 | 2666.70 | 5.37 | 50.06 | 0.89 | 1.01 | 9968.86 | 10018.92 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.94 | 100-yr 6-hr | 238 | 2658.73 | | 4.02 | 62.29 | 0.96 | 0.72 | 9958.55 | 10020.84 |
| UpperBoulders-1 | 3.94 | Meth 1 | 238 | 2658.77 | | 3.86 | 57.05 | 1.08 | 0.65 | 9962.47 | 10019.52 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.87 | 100-yr 6-hr | 238 | 2651.62 | 2651.62 | 5.93 | 45.84 | 0.94 | 1.00 | 9993.09 | 10038.93 |
| UpperBoulders-1 | 3.87 | Meth 1 | 238 | 2651.60 | 2651.60 | 6.23 | 31.16 | 1.23 | 0.99 | 9994.70 | 10025.86 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.80 | 100-yr 6-hr | 238 | 2644.91 | 2644.55 | 3.36 | 80.00 | 0.92 | 0.59 | 9971.21 | 10051.21 |
| UpperBoulders-1 | 3.80 | Meth 1 | 238 | 2644.94 | | 3.32 | 61.67 | 1.16 | 0.54 | 9976.50 | 10038.17 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.77 | 100-yr 6-hr | 238 | 2642.27 | 2642.24 | 5.35 | 47.55 | 0.94 | 0.97 | 9970.58 | 10018.14 |
| UpperBoulders-1 | 3.77 | Meth 1 | 238 | 2642.24 | 2642.24 | 5.53 | 47.06 | 0.92 | 1.02 | 9970.85 | 10017.91 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.67 | 100-yr 6-hr | 238 | 2632.30 | | 3.68 | 83.47 | 0.79 | 0.72 | 9950.62 | 10034.09 |
| UpperBoulders-1 | 3.67 | Meth 1 | 238 | 2633.19 | | 1.80 | 76.04 | 1.74 | 0.24 | 9955.10 | 10031.14 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.66 | 100-yr 6-hr | 238 | 2632.20 | 2631.30 | 2.14 | 138.15 | 1.16 | 0.24 | 9969.92 | 10108.06 |
| UpperBoulders-1 | 3.66 | Meth 1 | 238 | 2633.05 | 2631.39 | 2.47 | 34.19 | 2.82 | 0.26 | 9992.13 | 10026.32 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.64 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.62 | 100-yr 6-hr | 238 | 2627.44 | 2627.18 | 4.53 | 159.53 | 1.27 | 0.69 | 9984.50 | 10027.03 |
| UpperBoulders-1 | 3.62 | Meth 1 | 238 | 2627.50 | 2627.20 | 4.52 | 38.26 | 1.38 | 0.68 | 9988.77 | 10027.03 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.58 | 100-yr 6-hr | 238 | 2623.55 | 2623.54 | 6.43 | 32.77 | 1.17 | 1.01 | 9975.41 | 10008.19 |
| UpperBoulders-1 | 3.58 | Meth 1 | 238 | 2623.59 | 2623.51 | 6.38 | 25.44 | 1.47 | 0.93 | 9981.51 | 10006.95 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.50 | 100-yr 6-hr | 238 | 2617.26 | 2616.96 | 3.26 | 103.00 | 0.79 | 0.57 | 9981.31 | 10085.78 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.50 | Meth 1 | 238 | 2617.43 | 2617.08 | 3.50 | 65.01 | 1.05 | 0.60 | 9983.56 | 10048.57 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.43 | 100-yr 6-hr | 238 | 2611.38 | 2611.33 | 6.09 | 35.02 | 1.14 | 0.98 | 9977.31 | 10012.34 |
| UpperBoulders-1 | 3.43 | Meth 1 | 238 | 2611.33 | 2611.33 | 6.37 | 28.96 | 1.29 | 0.99 | 9981.73 | 10010.69 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.37 | 100-yr 6-hr | 238 | 2605.51 | 2605.20 | 6.07 | 22.55 | 1.76 | 0.80 | 9987.13 | 10009.68 |
| UpperBoulders-1 | 3.37 | Meth 1 | 238 | 2605.65 | 2605.20 | 5.66 | 20.45 | 2.06 | 0.70 | 9988.13 | 10008.58 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.29 | 100-yr 6-hr | 238 | 2597.84 | 2597.84 | 7.25 | 23.97 | 1.45 | 1.00 | 9996.59 | 10020.56 |
| UpperBoulders-1 | 3.29 | Meth 1 | 238 | 2597.82 | 2597.82 | 7.55 | 17.63 | 1.79 | 0.99 | 9997.72 | 10015.35 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.23 | 100-yr 6-hr | 238 | 2592.63 | 2592.30 | 4.94 | 36.21 | 1.37 | 0.72 | 9981.95 | 10018.16 |
| UpperBoulders-1 | 3.23 | Meth 1 | 238 | 2592.68 | 2592.29 | 4.85 | 29.68 | 1.65 | 0.66 | 9987.32 | 10017.00 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.14 | 100-yr 6-hr | 238 | 2584.19 | 2584.19 | 7.11 | 22.79 | 1.47 | 1.03 | 9998.92 | 10021.71 |
| UpperBoulders-1 | 3.14 | Meth 1 | 238 | 2584.19 | 2584.19 | 7.14 | 21.51 | 1.55 | 1.01 | 9999.54 | 10021.05 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.11 | 100-yr 6-hr | 238 | 2580.68 | | 4.75 | 35.92 | 1.57 | 0.59 | 9976.89 | 10012.80 |
| UpperBoulders-1 | 3.11 | Meth 1 | 238 | 2580.65 | | 5.39 | 22.04 | 2.00 | 0.67 | 9984.36 | 10006.40 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.05 | 100-yr 6-hr | 735 | 2579.80 | 2576.99 | 4.74 | 37.83 | 5.59 | 0.35 | 9986.09 | 10013.85 |
| UpperBoulders-1 | 3.05 | Meth 1 | 735 | 2579.80 | 2576.99 | 4.74 | 37.83 | 5.59 | 0.35 | 9986.09 | 10013.85 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.05 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.04 | 100-yr 6-hr | 735 | 2575.96 | 2575.60 | 8.01 | 56.66 | 2.93 | 0.82 | 9992.57 | 10023.89 |
| UpperBoulders-1 | 3.04 | Meth 1 | 735 | 2575.95 | 2575.60 | 8.05 | 31.28 | 2.92 | 0.83 | 9992.61 | 10023.89 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.97 | 100-yr 6-hr | 1270 | 2570.25 | 2570.25 | 8.98 | 73.13 | 2.05 | 1.04 | 9960.04 | 10033.18 |
| UpperBoulders-1 | 2.97 | Meth 1 | 1270 | 2570.35 | 2570.08 | 8.84 | 44.57 | 3.22 | 0.87 | 9978.80 | 10023.37 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.88 | 100-yr 6-hr | 1270 | 2563.42 | 2563.42 | 7.64 | 176.27 | 1.38 | 0.79 | 9853.57 | 10029.84 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.88 | Meth 1 | 1270 | 2563.64 | 2563.04 | 9.00 | 34.64 | 4.07 | 0.79 | 9984.55 | 10019.19 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.85 | 100-yr 6-hr | 1270 | 2559.72 | 2559.72 | 9.27 | 71.69 | 2.30 | 0.90 | 9950.88 | 10022.57 |
| UpperBoulders-1 | 2.85 | Meth 1 | 1270 | 2559.86 | 2559.86 | 10.87 | 32.21 | 3.63 | 1.01 | 9975.66 | 10007.87 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.80 | 100-yr 6-hr | 1270 | 2555.82 | 2555.82 | 8.49 | 127.83 | 1.62 | 0.85 | 9959.73 | 10087.56 |
| UpperBoulders-1 | 2.80 | Meth 1 | 1270 | 2555.74 | 2555.74 | 8.85 | 83.00 | 2.18 | 0.84 | 9972.00 | 10055.00 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.75 | 100-yr 6-hr | 1270 | 2549.59 | 2549.59 | 7.23 | 191.61 | 1.35 | 0.74 | 9836.16 | 10027.77 |
| UpperBoulders-1 | 2.75 | Meth 1 | 1270 | 2549.86 | 2549.68 | 9.45 | 40.59 | 3.31 | 0.92 | 9983.93 | 10024.52 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.71 | 100-yr 6-hr | 1270 | 2545.33 | 2545.33 | 8.07 | 124.95 | 1.56 | 0.92 | 9935.69 | 10060.63 |
| UpperBoulders-1 | 2.71 | Meth 1 | 1270 | 2545.33 | 2545.33 | 9.46 | 48.94 | 2.74 | 1.01 | 9985.91 | 10034.85 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.64 | 100-yr 6-hr | 1270 | 2537.43 | 2537.43 | 6.30 | 222.01 | 1.02 | 0.98 | 9831.37 | 10053.38 |
| UpperBoulders-1 | 2.64 | Meth 1 | 1270 | 2538.01 | 2538.01 | 7.27 | 102.83 | 1.70 | 0.98 | 9942.25 | 10045.08 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.55 | 100-yr 6-hr | 1270 | 2527.28 | 2527.28 | 8.31 | 104.39 | 1.68 | 0.98 | 9945.67 | 10050.06 |
| UpperBoulders-1 | 2.55 | Meth 1 | 1270 | 2527.54 | 2527.21 | 7.91 | 57.43 | 2.79 | 0.83 | 9986.67 | 10044.10 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.50 | 100-yr 6-hr | 1270 | 2523.02 | 2523.02 | 7.99 | 160.93 | 1.45 | 0.79 | 9985.34 | 10146.27 |
| UpperBoulders-1 | 2.50 | Meth 1 | 1270 | 2523.60 | 2523.60 | 9.67 | 45.33 | 2.90 | 1.00 | 9988.20 | 10033.53 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.44 | 100-yr 6-hr | 1270 | 2517.26 | 2517.26 | 7.62 | 243.65 | 1.27 | 0.64 | 9976.64 | 10220.29 |
| UpperBoulders-1 | 2.44 | Meth 1 | 1270 | 2517.79 | 2517.79 | 10.44 | 41.30 | 3.19 | 0.95 | 9987.17 | 10028.47 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.38 | 100-yr 6-hr | 1270 | 2511.24 | 2511.24 | 8.22 | 129.19 | 1.58 | 0.87 | 9939.72 | 10068.90 |
| UpperBoulders-1 | 2.38 | Meth 1 | 1270 | 2511.27 | 2511.27 | 9.67 | 45.89 | 2.86 | 1.01 | 9983.98 | 10029.87 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.31 | 100-yr 6-hr | 1270 | 2503.71 | 2503.71 | 6.56 | 158.85 | 1.25 | 1.01 | 9864.33 | 10023.18 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.31 | Meth 1 | 1270 | 2503.93 | | 5.68 | 139.88 | 1.60 | 0.79 | 9880.42 | 10020.30 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.29 | 100-yr 6-hr | 1459 | 2501.35 | 2501.35 | 7.47 | 234.26 | 1.23 | 0.81 | 9892.84 | 10270.88 |
| UpperBoulders-1 | 2.29 | Meth 1 | 1459 | 2501.42 | 2501.42 | 9.15 | 61.49 | 2.59 | 1.00 | 9947.81 | 10009.30 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.24 | 100-yr 6-hr | 1459 | 2495.72 | 2495.72 | 8.50 | 87.11 | 2.01 | 1.03 | 9950.46 | 10037.56 |
| UpperBoulders-1 | 2.24 | Meth 1 | 1459 | 2496.29 | 2495.70 | 6.84 | 74.87 | 2.85 | 0.71 | 9959.78 | 10034.65 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.17 | 100-yr 6-hr | 1459 | 2490.20 | 2490.20 | 9.31 | 129.74 | 1.95 | 0.73 | 9903.16 | 10032.90 |
| UpperBoulders-1 | 2.17 | Meth 1 | 1459 | 2490.58 | 2490.58 | 11.82 | 28.28 | 4.37 | 1.00 | 9984.44 | 10012.72 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 2.08 | 100-yr 6-hr | 1459 | 2481.46 | 2481.46 | 7.48 | 126.77 | 1.57 | 1.03 | 9950.61 | 10077.37 |
| UpperBoulders-1 | 2.08 | Meth 1 | 1459 | 2481.43 | 2481.43 | 7.64 | 106.46 | 1.79 | 1.00 | 9959.06 | 10065.52 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.98 | 100-yr 6-hr | 1459 | 2471.76 | 2471.76 | 6.74 | 198.31 | 1.18 | 1.01 | 9904.09 | 10102.40 |
| UpperBoulders-1 | 1.98 | Meth 1 | 1459 | 2471.83 | 2471.74 | 6.65 | 135.44 | 1.62 | 0.92 | 9938.90 | 10074.34 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.92 | 100-yr 6-hr | 1459 | 2465.89 | 2465.89 | 7.40 | 142.65 | 1.48 | 1.01 | 9925.34 | 10067.99 |
| UpperBoulders-1 | 1.92 | Meth 1 | 1459 | 2465.85 | 2465.85 | 7.70 | 103.37 | 1.83 | 1.00 | 9953.42 | 10056.79 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.87 | 100-yr 6-hr | 1459 | 2461.67 | 2461.67 | 7.43 | 133.48 | 1.52 | 1.02 | 9900.73 | 10034.21 |
| UpperBoulders-1 | 1.87 | Meth 1 | 1459 | 2461.69 | 2461.64 | 7.43 | 106.77 | 1.84 | 0.97 | 9919.81 | 10026.58 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.78 | 100-yr 6-hr | 1459 | 2453.26 | 2453.26 | 7.93 | 128.00 | 1.61 | 0.98 | 9981.12 | 10109.13 |
| UpperBoulders-1 | 1.78 | Meth 1 | 1459 | 2453.24 | 2453.24 | 8.38 | 80.03 | 2.18 | 1.00 | 9985.08 | 10065.11 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.72 | 100-yr 6-hr | 1459 | 2447.46 | 2447.46 | 7.65 | 109.91 | 1.74 | 1.02 | 9955.20 | 10065.11 |
| UpperBoulders-1 | 1.72 | Meth 1 | 1459 | 2447.45 | 2447.45 | 7.68 | 106.08 | 1.79 | 1.01 | 9957.50 | 10063.58 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.65 | 100-yr 6-hr | 1459 | 2440.00 | 2440.00 | 7.83 | 127.00 | 1.60 | 1.00 | 9933.36 | 10060.37 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.65 | Meth 1 | 1459 | 2439.95 | 2439.95 | 8.24 | 84.37 | 2.10 | 1.00 | 9954.06 | 10038.43 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.58 | 100-yr 6-hr | 1459 | 2432.20 | 2431.95 | 6.95 | 133.61 | 1.61 | 0.94 | 9956.84 | 10090.45 |
| UpperBoulders-1 | 1.58 | Meth 1 | 1459 | 2432.43 | | 6.29 | 97.51 | 2.38 | 0.72 | 9965.76 | 10063.27 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.55 | 100-yr 6-hr | 1459 | 2429.49 | 2429.49 | 9.12 | 107.38 | 1.83 | 0.96 | 9946.23 | 10053.61 |
| UpperBoulders-1 | 1.55 | Meth 1 | 1459 | 2429.60 | 2429.31 | 9.47 | 43.27 | 3.56 | 0.88 | 9973.19 | 10016.46 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.48 | 100-yr 6-hr | 1459 | 2423.78 | 2423.78 | 8.42 | 190.99 | 1.51 | 0.72 | 9899.38 | 10090.37 |
| UpperBoulders-1 | 1.48 | Meth 1 | 1459 | 2424.24 | 2424.24 | 10.82 | 37.57 | 3.59 | 1.01 | 9982.30 | 10019.87 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.41 | 100-yr 6-hr | 1628 | 2417.57 | 2417.57 | 7.66 | 207.32 | 1.36 | 0.87 | 9824.99 | 10032.31 |
| UpperBoulders-1 | 1.41 | Meth 1 | 1628 | 2418.05 | 2418.05 | 8.49 | 87.59 | 2.19 | 1.01 | 9942.20 | 10029.79 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.36 | 100-yr 6-hr | 1628 | 2411.65 | 2411.65 | 8.60 | 151.66 | 1.65 | 0.89 | 9957.19 | 10108.85 |
| UpperBoulders-1 | 1.36 | Meth 1 | 1628 | 2411.57 | 2411.57 | 9.00 | 95.00 | 2.27 | 0.88 | 9960.00 | 10055.00 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.30 | 100-yr 6-hr | 1628 | 2405.83 | 2405.83 | 7.16 | 229.55 | 1.23 | 0.92 | 9779.58 | 10009.13 |
| UpperBoulders-1 | 1.30 | Meth 1 | 1628 | 2405.86 | 2405.86 | 7.68 | 117.92 | 1.80 | 1.01 | 9887.59 | 10005.51 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.23 | 100-yr 6-hr | 1628 | 2397.95 | 2397.95 | 8.01 | 147.22 | 1.51 | 1.05 | 9909.56 | 10056.78 |
| UpperBoulders-1 | 1.23 | Meth 1 | 1628 | 2397.96 | 2397.96 | 8.12 | 98.25 | 2.04 | 1.00 | 9949.43 | 10047.68 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.18 | 100-yr 6-hr | 1628 | 2397.07 | 2393.72 | 2.87 | 260.54 | 3.79 | 0.15 | 9899.61 | 10160.15 |
| UpperBoulders-1 | 1.18 | Meth 1 | 1628 | 2397.31 | 2393.74 | 3.69 | 93.27 | 5.66 | 0.23 | 9946.66 | 10039.93 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.17 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.16 | 100-yr 6-hr | 1667 | 2391.17 | 2391.17 | 8.74 | 363.50 | 2.43 | 0.99 | 9936.87 | 10015.36 |
| UpperBoulders-1 | 1.16 | Meth 1 | 1667 | 2391.17 | 2391.17 | 8.74 | 146.23 | 2.43 | 0.99 | 9936.87 | 10015.36 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.14 | 100-yr 6-hr | 1667 | 2387.90 | 2387.90 | 6.78 | 386.78 | 0.95 | 0.82 | 9803.92 | 10190.71 |
| UpperBoulders-1 | 1.14 | Meth 1 | 1667 | 2388.36 | 2388.33 | 7.53 | 119.46 | 1.85 | 0.98 | 9927.49 | 10046.95 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.05 | 100-yr 6-hr | 1667 | 2379.57 | 2379.57 | 3.97 | 436.08 | 1.40 | 0.41 | 9781.72 | 10217.80 |
| UpperBoulders-1 | 1.05 | Meth 1 | 1667 | 2380.44 | 2380.44 | 8.07 | 100.03 | 2.06 | 0.99 | 9947.56 | 10047.59 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.97 | 100-yr 6-hr | 1667 | 2369.64 | 2369.64 | 8.29 | 321.33 | 1.31 | 0.61 | 9746.46 | 10088.41 |
| UpperBoulders-1 | 0.97 | Meth 1 | 1667 | 2370.10 | 2370.10 | 11.03 | 40.38 | 3.74 | 1.01 | 9989.30 | 10029.68 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.87 | 100-yr 6-hr | 1667 | 2359.89 | 2359.89 | 8.53 | 304.83 | 1.33 | 0.63 | 9948.25 | 10253.08 |
| UpperBoulders-1 | 0.87 | Meth 1 | 1667 | 2360.40 | 2360.40 | 11.06 | 40.11 | 3.76 | 1.01 | 9979.57 | 10019.68 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.79 | 100-yr 6-hr | 1667 | 2351.14 | 2351.14 | 8.30 | 215.74 | 1.62 | 0.66 | 9810.27 | 10026.01 |
| UpperBoulders-1 | 0.79 | Meth 1 | 1667 | 2351.47 | 2351.47 | 10.42 | 47.50 | 3.37 | 1.00 | 9972.78 | 10020.28 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.75 | 100-yr 6-hr | 1667 | 2348.32 | 2346.47 | 3.10 | 336.58 | 2.38 | 0.24 | 9769.95 | 10106.53 |
| UpperBoulders-1 | 0.75 | Meth 1 | 1667 | 2349.21 | 2346.38 | 3.16 | 110.66 | 4.76 | 0.26 | 9924.35 | 10035.01 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.73 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.71 | 100-yr 6-hr | 1810 | 2339.21 | 2339.21 | 9.31 | 124.89 | 2.68 | 1.00 | 9963.45 | 10035.98 |
| UpperBoulders-1 | 0.71 | Meth 1 | 1810 | 2339.21 | 2339.21 | 9.31 | 72.53 | 2.68 | 1.00 | 9963.45 | 10035.98 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.66 | 100-yr 6-hr | 1810 | 2332.90 | 2332.90 | 8.44 | 111.93 | 1.98 | 1.02 | 9969.49 | 10081.42 |
| UpperBoulders-1 | 0.66 | Meth 1 | 1810 | 2332.88 | 2332.88 | 8.57 | 93.81 | 2.25 | 1.01 | 9983.30 | 10077.11 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.57 | 100-yr 6-hr | 1810 | 2325.32 | 2325.32 | 6.95 | 183.51 | 1.42 | 1.02 | 9906.49 | 10090.00 |
| UpperBoulders-1 | 0.57 | Meth 1 | 1810 | 2325.44 | 2325.32 | 6.42 | 176.56 | 1.60 | 0.90 | 9911.36 | 10087.92 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.50 | 100-yr 6-hr | 1810 | 2318.20 | 2317.92 | 6.22 | 459.67 | 1.08 | 0.62 | 9863.81 | 10323.48 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.50 | Meth 1 | 1810 | 2318.51 | 2318.51 | 8.52 | 98.44 | 2.22 | 0.98 | 9965.00 | 10063.44 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.49 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.48 | 100-yr 6-hr | 1810 | 2316.69 | 2316.69 | 6.28 | 236.43 | 1.64 | 0.64 | 9917.41 | 10153.84 |
| UpperBoulders-1 | 0.48 | Meth 1 | 1810 | 2316.69 | 2316.69 | 8.17 | 102.44 | 2.16 | 0.98 | 9972.59 | 10075.03 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.47 | 100-yr 6-hr | 2178 | 2314.80 | 2314.80 | 8.12 | 192.14 | 1.53 | 1.05 | 9897.97 | 10090.11 |
| UpperBoulders-1 | 0.47 | Meth 1 | 2178 | 2314.74 | 2314.74 | 8.47 | 114.07 | 2.25 | 0.99 | 9912.25 | 10026.32 |

## TABLE 13: Culvert Table Upper Boulders Wash

| Reach | River Sta | Profile | Culv WS Inlet | Culv WS Outlet | Culv EG Inlet | Q Total | Culv Q | Q Weir | Culv Vel US | Culv Vel DS | Culv Frctn Ls |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (ft) |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.64 Culvert #1 | 100-yr 6-hr | 2630.00 | 2626.10 | 2631.53 | 238 | 238 | 103.37 | 9.60 | 9.60 | 2.66 |
| UpperBoulders-1 | 3.64 Culvert #1 | Meth 1 | 2630.00 | 2626.10 | 2632.31 | 238 | 238 | 90.90 | 10.41 | 10.41 | 3.13 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 3.045 Culvert #1 | 100-yr 6-hr | 2577.77 | 2576.64 | 2579.82 | 735 | 735 | | 11.48 | 11.48 | 1.13 |
| UpperBoulders-1 | 3.045 Culvert #1 | Meth 1 | 2577.77 | 2576.64 | 2579.82 | 735 | 735 | | 11.48 | 11.48 | 1.13 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 1.17 CULVERT#1 | 100-yr 6-hr | 2394.00 | 2391.77 | 2396.49 | 1628 | 1628 | 816.17 | 10.40 | 15.00 | 1.22 |
| UpperBoulders-1 | 1.17 Culvert #2 | 100-yr 6-hr | 2394.00 | 2392.62 | 2396.57 | 1628 | 1628 | 816.17 | 9.77 | 10.80 | 2.14 |
| UpperBoulders-1 | 1.17 CULVERT#1 | Meth 1 | 2394.00 | 2393.00 | 2396.52 | 1628 | 1628 | 701.29 | 12.58 | 12.58 | 1.06 |
| UpperBoulders-1 | 1.17 Culvert #2 | Meth 1 | 2394.00 | 2392.70 | 2396.87 | 1628 | 1628 | 701.29 | 10.09 | 10.91 | 2.32 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.73 CULVERT#1 | 100-yr 6-hr | 2347.00 | 2341.50 | 2349.76 | 1667 | 1667 | 466.95 | 13.33 | 13.33 | 5.50 |
| UpperBoulders-1 | 0.73 CULVERT#1 | Meth 1 | 2347.00 | 2341.50 | 2350.13 | 1667 | 1667 | 389.85 | 14.19 | 14.19 | 5.50 |
| | | | | | | | | | | | |
| UpperBoulders-1 | 0.49 CULVERT#1 | 100-yr 6-hr | 2316.73 | 2316.69 | 2317.93 | 1810 | 1810 | 538.62 | 8.80 | 7.39 | 0.40 |
| UpperBoulders-1 | 0.49 CULVERT#1 | Meth 1 | 2317.32 | 2316.82 | 2318.93 | 1810 | 1810 | 14.82 | 9.97 | 9.97 | 0.57 |

## TABLE 14: Hydraulic Modeling Output Table Fan 6C w/Levee Failed and North Branch Flow Split

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 2.69 | 100-yr 6-hr | 1261 | 2646.97 | 2646.97 | 7.96 | 82.39 | 1.93 | 1.01 | 9945.52 | 10027.91 |
| Fan6C-1 | 2.69 | Method 1 | 1261 | 2646.95 | 2646.95 | 8.04 | 78.37 | 2.00 | 1.00 | 9945.75 | 10024.12 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.63 | 100-yr 6-hr | 1261 | 2641.68 | 2641.68 | 7.49 | 106.08 | 1.62 | 1.01 | 9968.66 | 10074.73 |
| Fan6C-1 | 2.63 | Method 1 | 1261 | 2641.66 | 2641.66 | 7.63 | 89.79 | 1.84 | 0.99 | 9971.62 | 10061.41 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.58 | 100-yr 6-hr | 1261 | 2639.93 | 2636.45 | 4.96 | 304.38 | 6.71 | 0.34 | 9990.48 | 10028.42 |
| Fan6C-1 | 2.58 | Method 1 | 1261 | 2639.93 | 2636.45 | 4.96 | 72.16 | 6.71 | 0.34 | 9990.48 | 10028.42 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.56 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan6C-1 | 2.55 | 100-yr 6-hr | 1261 | 2631.34 | 2631.34 | 9.10 | 53.50 | 2.59 | 1.00 | 9987.20 | 10040.69 |
| Fan6C-1 | 2.55 | Method 1 | 1261 | 2631.34 | 2631.34 | 9.10 | 53.50 | 2.59 | 1.00 | 9987.20 | 10040.69 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.51 | 100-yr 6-hr | 1261 | 2629.35 | 2629.35 | 0.95 | 339.43 | 2.24 | 0.20 | 9692.73 | 10032.16 |
| Fan6C-1 | 2.51 | Method 1 | 1261 | 2629.35 | 2629.35 | 1.40 | 185.71 | 2.61 | 0.28 | 9828.70 | 10014.41 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.43 | 100-yr 6-hr | 1261 | 2621.07 | 2619.34 | 1.71 | 186.26 | 2.35 | 0.33 | 9840.73 | 10026.99 |
| Fan6C-1 | 2.43 | Method 1 | 1261 | 2621.13 | 2621.13 | 5.39 | 85.37 | 2.01 | 0.92 | 9926.05 | 10011.42 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.40 | 100-yr 6-hr | 1261 | 2620.01 | 2619.43 | 8.06 | 65.22 | 2.64 | 0.80 | 9974.62 | 10039.84 |
| Fan6C-1 | 2.40 | Method 1 | 1261 | 2619.93 | 2619.38 | 8.53 | 39.78 | 3.72 | 0.78 | 9990.19 | 10029.97 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.39 | 100-yr 6-hr | 1261 | 2618.52 | 2618.52 | 10.60 | 59.89 | 2.35 | 1.03 | 9977.46 | 10037.35 |
| Fan6C-1 | 2.39 | Method 1 | 1261 | 2618.49 | 2618.49 | 10.61 | 43.03 | 3.14 | 0.93 | 9991.18 | 10034.21 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.31 | 100-yr 6-hr | 1346 | 2611.39 | 2611.39 | 9.30 | 94.03 | 2.03 | 0.87 | 9967.65 | 10061.69 |
| Fan6C-1 | 2.31 | Method 1 | 1346 | 2611.36 | 2611.36 | 10.97 | 33.19 | 3.70 | 1.01 | 9995.43 | 10028.62 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.30 | 100-yr 6-hr | 1346 | 2607.25 | 2607.25 | 10.04 | 46.45 | 3.16 | 0.98 | 9980.81 | 10023.78 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 2.30 | Method 1 | 1346 | 2607.26 | 2607.26 | 10.12 | 41.27 | 3.22 | 0.99 | 9982.51 | 10023.78 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.28 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan6C-1 | 2.26 | 100-yr 6-hr | 1346 | 2605.58 | 2605.58 | 10.88 | 34.02 | 3.65 | 1.00 | 9991.68 | 10025.70 |
| Fan6C-1 | 2.26 | Method 1 | 1346 | 2605.58 | 2605.58 | 10.87 | 33.28 | 3.72 | 0.99 | 9992.16 | 10025.44 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.23 | 100-yr 6-hr | 1346 | 2602.36 | 2602.36 | 10.98 | 33.19 | 3.70 | 1.01 | 9988.77 | 10021.95 |
| Fan6C-1 | 2.23 | Method 1 | 1346 | 2602.36 | 2602.36 | 10.98 | 33.19 | 3.70 | 1.01 | 9988.77 | 10021.95 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.22 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan6C-1 | 2.20 | 100-yr 6-hr | 1346 | 2599.32 | 2599.32 | 9.01 | 58.48 | 2.57 | 0.99 | 9981.83 | 10040.07 |
| Fan6C-1 | 2.20 | Method 1 | 1346 | 2599.32 | 2599.32 | 9.01 | 58.24 | 2.57 | 0.99 | 9981.83 | 10040.07 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.17 | 100-yr 6-hr | 1346 | 2596.87 | 2596.52 | 7.97 | 123.49 | 1.75 | 0.83 | 9920.83 | 10044.32 |
| Fan6C-1 | 2.17 | Method 1 | 1346 | 2597.15 | 2596.52 | 8.27 | 44.24 | 3.68 | 0.76 | 9987.60 | 10031.84 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.13 | 100-yr 6-hr | 1346 | 2593.94 | 2593.94 | 11.02 | 41.31 | 3.22 | 0.99 | 9982.80 | 10024.11 |
| Fan6C-1 | 2.13 | Method 1 | 1346 | 2593.88 | 2593.88 | 11.58 | 27.51 | 4.22 | 0.99 | 9993.55 | 10021.06 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.03 | 100-yr 6-hr | 1346 | 2582.99 | 2582.99 | 7.56 | 164.78 | 1.25 | 1.03 | 9859.48 | 10048.87 |
| Fan6C-1 | 2.03 | Method 1 | 1346 | 2583.79 | 2583.79 | 8.48 | 72.01 | 2.20 | 1.01 | 9953.68 | 10025.69 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.99 | 100-yr 6-hr | 1346 | 2579.13 | 2579.13 | 7.47 | 162.03 | 1.35 | 0.94 | 9868.74 | 10090.71 |
| Fan6C-1 | 1.99 | Method 1 | 1346 | 2579.35 | 2579.35 | 8.03 | 82.76 | 2.03 | 0.99 | 9985.22 | 10067.98 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.93 | 100-yr 6-hr | 1346 | 2572.65 | 2572.65 | 8.44 | 107.31 | 1.74 | 0.96 | 9979.37 | 10086.68 |
| Fan6C-1 | 1.93 | Method 1 | 1346 | 2572.72 | 2572.72 | 9.08 | 57.93 | 2.56 | 1.00 | 9990.20 | 10048.13 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.88 | 100-yr 6-hr | 1346 | 2570.44 | 2566.96 | 4.82 | 104.94 | 3.26 | 0.38 | 9986.26 | 10091.20 |
| Fan6C-1 | 1.88 | Method 1 | 1346 | 2570.55 | 2566.96 | 5.09 | 43.56 | 6.22 | 0.35 | 9987.67 | 10031.23 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 1.875 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan6C-1 | 1.87 | 100-yr 6-hr | 1346 | 2566.04 | 2566.04 | 10.03 | 202.13 | 2.83 | 1.03 | 9986.44 | 10035.12 |
| Fan6C-1 | 1.87 | Method 1 | 1346 | 2565.96 | 2565.96 | 10.32 | 39.04 | 3.34 | 0.99 | 9987.67 | 10026.71 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.83 | 100-yr 6-hr | 1369 | 2560.60 | 2560.60 | 7.92 | 150.61 | 1.52 | 0.86 | 9909.19 | 10059.80 |
| Fan6C-1 | 1.83 | Method 1 | 1369 | 2561.32 | 2561.32 | 9.14 | 56.89 | 2.63 | 0.99 | 9992.69 | 10049.58 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.79 | 100-yr 6-hr | 1369 | 2555.05 | 2554.96 | 5.42 | 423.16 | 0.78 | 0.83 | 9800.06 | 10316.61 |
| Fan6C-1 | 1.79 | Method 1 | 1369 | 2555.93 | 2555.93 | 7.53 | 105.23 | 1.73 | 1.01 | 9985.87 | 10091.10 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.73 | 100-yr 6-hr | 1369 | 2549.62 | 2549.62 | 5.07 | 378.17 | 0.95 | 0.69 | 9779.00 | 10220.63 |
| Fan6C-1 | 1.73 | Method 1 | 1369 | 2550.19 | 2550.19 | 7.31 | 113.97 | 1.64 | 1.00 | 9910.96 | 10024.93 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.64 | 100-yr 6-hr | 1369 | 2539.48 | 2539.48 | 6.74 | 258.53 | 1.01 | 0.92 | 9867.44 | 10125.98 |
| Fan6C-1 | 1.64 | Method 1 | 1369 | 2540.34 | 2540.17 | 7.06 | 94.40 | 2.05 | 0.87 | 9965.35 | 10059.75 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.55 | 100-yr 6-hr | 1369 | 2531.71 | | 5.78 | 277.92 | 1.27 | 0.61 | 9964.76 | 10242.68 |
| Fan6C-1 | 1.55 | Method 1 | 1369 | 2532.33 | 2532.31 | 9.57 | 80.68 | 2.14 | 0.95 | 9977.86 | 10058.54 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.49 | 100-yr 6-hr | 1369 | 2526.53 | 2526.53 | 7.47 | 148.59 | 1.32 | 1.07 | 9918.42 | 10067.02 |
| Fan6C-1 | 1.49 | Method 1 | 1369 | 2526.51 | 2526.51 | 7.54 | 124.00 | 1.55 | 1.01 | 9940.00 | 10064.00 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.44 | 100-yr 6-hr | 1369 | 2521.47 | 2521.47 | 7.05 | 138.96 | 1.42 | 1.02 | 9899.27 | 10038.23 |
| Fan6C-1 | 1.44 | Method 1 | 1369 | 2521.45 | 2521.45 | 7.19 | 119.51 | 1.59 | 1.00 | 9912.18 | 10031.69 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.39 | 100-yr 6-hr | 1369 | 2515.90 | 2515.75 | 6.64 | 204.88 | 1.30 | 0.79 | 9930.32 | 10135.20 |
| Fan6C-1 | 1.39 | Method 1 | 1369 | 2516.35 | 2516.35 | 8.13 | 83.60 | 2.02 | 1.01 | 9957.32 | 10040.92 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.33 | 100-yr 6-hr | 1369 | 2510.92 | 2510.92 | 6.55 | 263.65 | 1.06 | 0.84 | 9795.17 | 10058.82 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 1.33 | Method 1 | 1369 | 2511.19 | 2511.12 | 7.02 | 108.66 | 1.80 | 0.92 | 9908.65 | 10017.31 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.26 | 100-yr 6-hr | 1369 | 2504.18 | | 5.60 | 318.05 | 1.19 | 0.59 | 9881.92 | 10199.97 |
| Fan6C-1 | 1.26 | Method 1 | 1369 | 2504.79 | 2504.79 | 8.83 | 71.22 | 2.29 | 0.98 | 9968.51 | 10039.73 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.23 | 100-yr 6-hr | 1349 | 2502.41 | 2502.41 | 5.97 | 334.03 | 0.86 | 0.89 | 9907.56 | 10241.59 |
| Fan6C-1 | 1.23 | Method 1 | 1349 | 2502.34 | 2502.34 | 6.83 | 160.00 | 1.29 | 1.01 | 9950.00 | 10110.00 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.16 | 100-yr 6-hr | 1349 | 2493.01 | 2493.01 | 7.23 | 165.26 | 1.34 | 0.92 | 9912.94 | 10078.20 |
| Fan6C-1 | 1.16 | Method 1 | 1349 | 2493.02 | 2493.02 | 7.97 | 88.00 | 1.92 | 1.01 | 9942.06 | 10030.06 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.07 | 100-yr 6-hr | 1349 | 2483.81 | 2483.81 | 7.80 | 145.27 | 1.49 | 0.90 | 9964.19 | 10168.01 |
| Fan6C-1 | 1.07 | Method 1 | 1349 | 2483.99 | 2483.99 | 8.65 | 67.29 | 2.32 | 1.00 | 9971.92 | 10039.21 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.02 | 100-yr 6-hr | 1349 | 2478.48 | 2478.13 | 5.81 | 220.41 | 1.27 | 0.75 | 9932.09 | 10152.49 |
| Fan6C-1 | 1.02 | Method 1 | 1349 | 2479.16 | 2479.16 | 7.64 | 99.92 | 1.77 | 1.01 | 9931.87 | 10031.79 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.94 | 100-yr 6-hr | 1349 | 2471.65 | 2471.65 | 9.05 | 82.36 | 2.08 | 0.96 | 9975.75 | 10058.11 |
| Fan6C-1 | 0.94 | Method 1 | 1349 | 2471.88 | | 8.43 | 67.81 | 2.62 | 0.83 | 9985.19 | 10053.00 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.91 | 100-yr 6-hr | 1349 | 2468.10 | 2468.10 | 10.01 | 77.34 | 2.34 | 0.86 | 9969.70 | 10047.04 |
| Fan6C-1 | 0.91 | Method 1 | 1349 | 2468.29 | 2468.15 | 11.34 | 26.89 | 4.42 | 0.95 | 9987.03 | 10013.92 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.82 | 100-yr 6-hr | 1513 | 2461.20 | 2461.20 | 9.15 | 101.13 | 2.21 | 0.80 | 9980.28 | 10081.41 |
| Fan6C-1 | 0.82 | Method 1 | 1513 | 2461.13 | 2461.13 | 11.15 | 34.72 | 3.91 | 0.99 | 9984.53 | 10019.25 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.78 | 100-yr 6-hr | 600 | 2460.90 | | 1.19 | 148.30 | 4.00 | 0.09 | 9936.21 | 10084.51 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.775 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1* | 0.77 | 100-yr 6-hr | 600 | 2455.09 | 2454.34 | 4.61 | 107.94 | 1.78 | 0.41 | 10010.70 | 10118.64 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.73 | 100-yr 6-hr | 600 | 2451.87 | 2451.87 | 7.86 | 57.64 | 1.47 | 1.02 | 9964.73 | 10022.37 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.63 | 100-yr 6-hr | 984 | 2443.01 | 2443.01 | 6.56 | 318.86 | 0.89 | 0.65 | 10268.84 | 10612.49 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.59 | 100-yr 6-hr | 984 | 2439.44 | 2439.08 | 8.58 | 134.07 | 1.23 | 0.95 | 10377.86 | 10511.93 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.50 | 100-yr 6-hr | 984 | 2429.81 | 2429.81 | 8.88 | 90.01 | 1.79 | 0.81 | 10404.74 | 10494.74 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.44 | 100-yr 6-hr | 984 | 2424.33 | 2424.33 | 9.13 | 104.07 | 1.84 | 0.67 | 10553.38 | 10657.45 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.39 | 100-yr 6-hr | 984 | 2420.41 | 2420.41 | 6.88 | 486.30 | 0.79 | 0.51 | 10164.08 | 10650.38 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.30 | 100-yr 6-hr | 1584 | 2412.61 | | 6.28 | 376.12 | 1.17 | 0.58 | 9935.86 | 10639.32 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.25 | 100-yr 6-hr | 1584 | 2406.42 | 2406.42 | 13.53 | 126.59 | 1.39 | 1.34 | 9974.98 | 10333.25 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.15 | 100-yr 6-hr | 1584 | 2397.04 | 2397.04 | 2.23 | 620.37 | 1.41 | 0.27 | 9966.89 | 10587.51 |
| | | | | | | | | | | | |
| Fan6C-1* | 0.06 | 100-yr 6-hr | 1584 | 2389.31 | 2389.31 | 6.18 | 310.65 | 1.00 | 0.90 | 9933.14 | 10243.78 |

* Due to complex hydraulic conditions, Floodway Elevations are not determined downstream of cross-section 0.82. See Appendix B.1, Special Problems Report for details.

## TABLE 15: Culvert Table Fan 6C w/Levee Failed and North Branch Flow Split

| Reach | River Sta | | Profile | Culv WS Inlet | Culv WS Outlet | Culv EG Inlet | Q Total | Culv Q | Q Weir | Culv Vel US | Culv Vel DS | Culv Frctn Ls |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (ft) |
| | | | | | | | | | | | | |
| Fan6C-1 | 2.56 | Culvert #1 | 100-yr 6-hr | 2637.13 | 2629.99 | 2639.63 | 1261 | 1261 | | 10.51 | 21.45 | 2.5 |
| Fan6C-1 | 2.56 | Culvert #1 | Method 1 | 2637.13 | 2629.99 | 2639.63 | 1261 | 1261 | | 10.51 | 21.45 | 2.5 |
| | | | | | | | | | | | | |
| Fan6C-1 | 2.28 | Culvert #1 | 100-yr 6-hr | 2608.98 | 2606.55 | 2609.85 | 1346 | 1346 | | 7.48 | 7.48 | 2.43 |
| Fan6C-1 | 2.28 | Culvert #1 | Method 1 | 2608.98 | 2606.55 | 2609.85 | 1346 | 1346 | | 7.48 | 7.48 | 2.43 |
| | | | | | | | | | | | | |
| Fan6C-1 | 2.22 | Culvert #1 | 100-yr 6-hr | 2601.4 | 2599.6 | 2603.15 | 1346 | 1346 | | 10.64 | 13.08 | 0.9 |
| Fan6C-1 | 2.22 | Culvert #1 | Method 1 | 2601.4 | 2599.6 | 2603.15 | 1346 | 1346 | | 10.64 | 13.08 | 0.9 |
| | | | | | | | | | | | | |
| Fan6C-1 | 1.875 | Culvert #1 | 100-yr 6-hr | 2567.3 | 2565.18 | 2569.63 | 1346 | 1346 | 3630.12 | 10.1 | 15.6 | 0.67 |
| Fan6C-1 | 1.875 | Culvert #1 | Method 1 | 2567.3 | 2565.27 | 2570.18 | 1346 | 1346 | 23.56 | 11.02 | 16.42 | 0.72 |
| | | | | | | | | | | | | |
| Fan6C-1 | 0.775 | CULVERT#1 | 100-yr 6-hr | 2457.74 | 2455.3 | 2459.25 | 600 | 600 | | 9.89 | 14.64 | 0.62 |
| Fan6C-1 | 0.775 | CULVERT#1 | Method 1 | 2457.74 | 2455.3 | 2459.25 | 600 | 600 | | 9.89 | 14.64 | 0.62 |

## TABLE 16: Hydraulic Modeling Output Table Fan 6C w/Levee In Place and South Branch Flow Split

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 2.69 | 100-yr 6-hr | 1261 | 2646.97 | 2646.97 | 7.96 | 82.39 | 1.93 | 1.01 | 9945.52 | 10027.91 |
| Fan6C-1 | 2.69 | Method 1 | 1261 | 2646.95 | 2646.95 | 8.04 | 78.37 | 2.00 | 1.00 | 9945.75 | 10024.12 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.63 | 100-yr 6-hr | 1261 | 2641.68 | 2641.68 | 7.49 | 106.08 | 1.62 | 1.01 | 9968.66 | 10074.73 |
| Fan6C-1 | 2.63 | Method 1 | 1261 | 2641.66 | 2641.66 | 7.63 | 89.79 | 1.84 | 0.99 | 9971.62 | 10061.41 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.58 | 100-yr 6-hr | 1261 | 2639.93 | 2636.45 | 4.96 | 304.38 | 6.71 | 0.34 | 9990.48 | 10028.42 |
| Fan6C-1 | 2.58 | Method 1 | 1261 | 2639.93 | 2636.45 | 4.96 | 72.16 | 6.71 | 0.34 | 9990.48 | 10028.42 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.56 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan6C-1 | 2.55 | 100-yr 6-hr | 1261 | 2631.34 | 2631.34 | 9.10 | 53.50 | 2.59 | 1.00 | 9987.20 | 10040.69 |
| Fan6C-1 | 2.55 | Method 1 | 1261 | 2631.34 | 2631.34 | 9.10 | 53.50 | 2.59 | 1.00 | 9987.20 | 10040.69 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.51 | 100-yr 6-hr | 1261 | 2629.35 | 2629.35 | 0.95 | 339.43 | 2.24 | 0.20 | 9692.73 | 10032.16 |
| Fan6C-1 | 2.51 | Method 1 | 1261 | 2629.35 | 2629.35 | 1.40 | 185.71 | 2.61 | 0.28 | 9828.70 | 10014.41 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.43 | 100-yr 6-hr | 1261 | 2621.07 | 2619.34 | 1.71 | 186.26 | 2.35 | 0.33 | 9840.73 | 10026.99 |
| Fan6C-1 | 2.43 | Method 1 | 1261 | 2621.13 | 2621.13 | 5.39 | 85.37 | 2.01 | 0.92 | 9926.05 | 10011.42 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.40 | 100-yr 6-hr | 1261 | 2620.01 | 2619.43 | 8.06 | 65.22 | 2.64 | 0.80 | 9974.62 | 10039.84 |
| Fan6C-1 | 2.40 | Method 1 | 1261 | 2619.93 | 2619.38 | 8.53 | 39.78 | 3.72 | 0.78 | 9990.19 | 10029.97 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.39 | 100-yr 6-hr | 1261 | 2618.52 | 2618.52 | 10.60 | 59.89 | 2.35 | 1.03 | 9977.46 | 10037.35 |
| Fan6C-1 | 2.39 | Method 1 | 1261 | 2618.49 | 2618.49 | 10.61 | 43.03 | 3.14 | 0.93 | 9991.18 | 10034.21 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.31 | 100-yr 6-hr | 1346 | 2611.39 | 2611.39 | 9.30 | 94.03 | 2.03 | 0.87 | 9967.65 | 10061.69 |
| Fan6C-1 | 2.31 | Method 1 | 1346 | 2611.36 | 2611.36 | 10.97 | 33.19 | 3.70 | 1.01 | 9995.43 | 10028.62 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.30 | 100-yr 6-hr | 1346 | 2607.25 | 2607.25 | 10.04 | 46.45 | 3.16 | 0.98 | 9980.81 | 10023.78 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 2.30 | Method 1 | 1346 | 2607.26 | 2607.26 | 10.12 | 41.27 | 3.22 | 0.99 | 9982.51 | 10023.78 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.280 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan6C-1 | 2.26 | 100-yr 6-hr | 1346 | 2605.58 | 2605.58 | 10.88 | 34.02 | 3.65 | 1.00 | 9991.68 | 10025.70 |
| Fan6C-1 | 2.26 | Method 1 | 1346 | 2605.58 | 2605.58 | 10.87 | 33.28 | 3.72 | 0.99 | 9992.16 | 10025.44 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.23 | 100-yr 6-hr | 1346 | 2602.36 | 2602.36 | 10.98 | 33.19 | 3.70 | 1.01 | 9988.77 | 10021.95 |
| Fan6C-1 | 2.23 | Method 1 | 1346 | 2602.36 | 2602.36 | 10.98 | 33.19 | 3.70 | 1.01 | 9988.77 | 10021.95 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.22 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan6C-1 | 2.20 | 100-yr 6-hr | 1346 | 2599.32 | 2599.32 | 9.01 | 58.48 | 2.57 | 0.99 | 9981.83 | 10040.07 |
| Fan6C-1 | 2.20 | Method 1 | 1346 | 2599.32 | 2599.32 | 9.01 | 58.24 | 2.57 | 0.99 | 9981.83 | 10040.07 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.17 | 100-yr 6-hr | 1346 | 2596.87 | 2596.52 | 7.97 | 123.49 | 1.75 | 0.83 | 9920.83 | 10044.32 |
| Fan6C-1 | 2.17 | Method 1 | 1346 | 2597.15 | 2596.52 | 8.27 | 44.24 | 3.68 | 0.76 | 9987.60 | 10031.84 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.13 | 100-yr 6-hr | 1346 | 2593.94 | 2593.94 | 11.02 | 41.31 | 3.22 | 0.99 | 9982.80 | 10024.11 |
| Fan6C-1 | 2.13 | Method 1 | 1346 | 2593.88 | 2593.88 | 11.58 | 27.51 | 4.22 | 0.99 | 9993.55 | 10021.06 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.03 | 100-yr 6-hr | 1346 | 2582.99 | 2582.99 | 7.56 | 164.78 | 1.25 | 1.03 | 9859.48 | 10048.87 |
| Fan6C-1 | 2.03 | Method 1 | 1346 | 2583.79 | 2583.79 | 8.48 | 72.01 | 2.20 | 1.01 | 9953.68 | 10025.69 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.99 | 100-yr 6-hr | 1346 | 2579.13 | 2579.13 | 7.47 | 162.03 | 1.35 | 0.94 | 9868.74 | 10090.71 |
| Fan6C-1 | 1.99 | Method 1 | 1346 | 2579.35 | 2579.35 | 8.03 | 82.76 | 2.03 | 0.99 | 9985.22 | 10067.98 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.93 | 100-yr 6-hr | 1346 | 2572.65 | 2572.65 | 8.44 | 107.31 | 1.74 | 0.96 | 9979.37 | 10086.68 |
| Fan6C-1 | 1.93 | Method 1 | 1346 | 2572.72 | 2572.72 | 9.08 | 57.93 | 2.56 | 1.00 | 9990.20 | 10048.13 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.88 | 100-yr 6-hr | 1346 | 2570.44 | 2566.96 | 4.82 | 104.94 | 3.26 | 0.38 | 9986.26 | 10091.20 |
| Fan6C-1 | 1.88 | Method 1 | 1346 | 2570.55 | 2566.96 | 5.09 | 43.56 | 6.22 | 0.35 | 9987.67 | 10031.23 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 1.875 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan6C-1 | 1.87 | 100-yr 6-hr | 1346 | 2566.04 | 2566.04 | 10.03 | 62.33 | 2.82 | 1.03 | 9986.44 | 10035.12 |
| Fan6C-1 | 1.87 | Method 1 | 1346 | 2565.95 | 2565.95 | 10.33 | 39.04 | 3.34 | 1.00 | 9987.67 | 10026.71 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.83 | 100-yr 6-hr | 1369 | 2560.60 | 2560.60 | 7.92 | 150.61 | 1.52 | 0.86 | 9909.19 | 10059.80 |
| Fan6C-1 | 1.83 | Method 1 | 1369 | 2561.32 | 2561.32 | 9.14 | 56.89 | 2.63 | 0.99 | 9992.69 | 10049.58 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.79 | 100-yr 6-hr | 1369 | 2555.05 | 2554.96 | 5.42 | 423.16 | 0.78 | 0.83 | 9800.06 | 10316.61 |
| Fan6C-1 | 1.79 | Method 1 | 1369 | 2555.93 | 2555.93 | 7.53 | 105.23 | 1.73 | 1.01 | 9985.87 | 10091.10 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.73 | 100-yr 6-hr | 1369 | 2549.62 | 2549.62 | 5.07 | 378.17 | 0.95 | 0.69 | 9779.00 | 10220.63 |
| Fan6C-1 | 1.73 | Method 1 | 1369 | 2550.19 | 2550.19 | 7.31 | 113.97 | 1.64 | 1.00 | 9910.96 | 10024.93 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.64 | 100-yr 6-hr | 1369 | 2539.48 | 2539.48 | 6.74 | 258.53 | 1.01 | 0.92 | 9867.44 | 10125.98 |
| Fan6C-1 | 1.64 | Method 1 | 1369 | 2540.34 | 2540.17 | 7.06 | 94.40 | 2.05 | 0.87 | 9965.35 | 10059.75 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.55 | 100-yr 6-hr | 1369 | 2531.71 | | 5.78 | 277.92 | 1.27 | 0.61 | 9964.76 | 10242.68 |
| Fan6C-1 | 1.55 | Method 1 | 1369 | 2532.33 | 2532.31 | 9.57 | 80.68 | 2.14 | 0.95 | 9977.86 | 10058.54 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.49 | 100-yr 6-hr | 1369 | 2526.53 | 2526.53 | 7.47 | 148.59 | 1.32 | 1.07 | 9918.42 | 10067.02 |
| Fan6C-1 | 1.49 | Method 1 | 1369 | 2526.51 | 2526.51 | 7.54 | 124.00 | 1.55 | 1.01 | 9940.00 | 10064.00 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.44 | 100-yr 6-hr | 1369 | 2521.47 | 2521.47 | 7.05 | 138.96 | 1.42 | 1.02 | 9899.27 | 10038.23 |
| Fan6C-1 | 1.44 | Method 1 | 1369 | 2521.45 | 2521.45 | 7.19 | 119.51 | 1.59 | 1.00 | 9912.18 | 10031.69 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.39 | 100-yr 6-hr | 1369 | 2515.90 | 2515.75 | 6.64 | 204.88 | 1.30 | 0.79 | 9930.32 | 10135.20 |
| Fan6C-1 | 1.39 | Method 1 | 1369 | 2516.35 | 2516.35 | 8.13 | 83.60 | 2.02 | 1.01 | 9957.32 | 10040.92 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.33 | 100-yr 6-hr | 1369 | 2510.92 | 2510.92 | 6.55 | 263.65 | 1.06 | 0.84 | 9795.17 | 10058.82 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 1.33 | Method 1 | 1369 | 2511.19 | 2511.12 | 7.02 | 108.66 | 1.80 | 0.92 | 9908.65 | 10017.31 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.26 | 100-yr 6-hr | 1369 | 2504.18 | | 5.60 | 318.05 | 1.19 | 0.59 | 9881.92 | 10199.97 |
| Fan6C-1 | 1.26 | Method 1 | 1369 | 2504.79 | 2504.79 | 8.83 | 71.22 | 2.29 | 0.98 | 9968.51 | 10039.73 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.23 | 100-yr 6-hr | 1349 | 2502.41 | 2502.41 | 5.97 | 334.03 | 0.86 | 0.89 | 9907.56 | 10241.59 |
| Fan6C-1 | 1.23 | Method 1 | 1349 | 2502.34 | 2502.34 | 6.83 | 160.00 | 1.29 | 1.01 | 9950.00 | 10110.00 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.16 | 100-yr 6-hr | 1349 | 2493.01 | 2493.01 | 7.23 | 165.26 | 1.34 | 0.92 | 9912.94 | 10078.20 |
| Fan6C-1 | 1.16 | Method 1 | 1349 | 2493.02 | 2493.02 | 7.97 | 88.00 | 1.92 | 1.01 | 9942.06 | 10030.06 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.07 | 100-yr 6-hr | 1349 | 2483.81 | 2483.81 | 7.80 | 145.27 | 1.49 | 0.90 | 9964.19 | 10168.01 |
| Fan6C-1 | 1.07 | Method 1 | 1349 | 2483.99 | 2483.99 | 8.65 | 67.29 | 2.32 | 1.00 | 9971.92 | 10039.21 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.02 | 100-yr 6-hr | 1349 | 2478.48 | 2478.13 | 5.81 | 220.41 | 1.27 | 0.75 | 9932.09 | 10152.49 |
| Fan6C-1 | 1.02 | Method 1 | 1349 | 2479.16 | 2479.16 | 7.64 | 99.92 | 1.77 | 1.01 | 9931.87 | 10031.79 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.94 | 100-yr 6-hr | 1349 | 2471.65 | 2471.65 | 9.05 | 82.36 | 2.08 | 0.96 | 9975.75 | 10058.11 |
| Fan6C-1 | 0.94 | Method 1 | 1349 | 2471.88 | | 8.43 | 67.81 | 2.62 | 0.83 | 9985.19 | 10053.00 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.91 | 100-yr 6-hr | 1349 | 2468.10 | 2468.10 | 10.01 | 77.34 | 2.34 | 0.86 | 9969.70 | 10047.04 |
| Fan6C-1 | 0.91 | Method 1 | 1349 | 2468.29 | 2468.15 | 11.35 | 26.83 | 4.43 | 0.95 | 9987.09 | 10013.92 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.82 | 100-yr 6-hr | 1513 | 2461.20 | 2461.20 | 9.15 | 101.13 | 2.21 | 0.80 | 9980.28 | 10081.41 |
| Fan6C-1 | 0.82 | Method 1 | 1513 | 2461.13 | 2461.13 | 11.15 | 34.72 | 3.91 | 0.99 | 9984.53 | 10019.25 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.78 | 100-yr 6-hr | 600 | 2460.90 | | 1.19 | 148.30 | 4.00 | 0.09 | 9936.21 | 10084.51 |
| Fan6C-1 | 0.78 | Method 1 | 600 | 2460.90 | | 1.41 | 92.29 | 5.29 | 0.09 | 9975.66 | 10067.95 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.775 | | Culvert | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 0.77 | 100-yr 6-hr | 600 | 2455.09 | 2454.34 | 4.61 | 107.93 | 1.78 | 0.41 | 10010.71 | 10118.64 |
| Fan6C-1 | 0.77 | Method 1 | 600 | 2455.21 | 2454.95 | 7.08 | 53.33 | 1.88 | 0.77 | 10009.57 | 10062.90 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.73 | 100-yr 6-hr | 600 | 2451.87 | 2451.87 | 7.86 | 57.64 | 1.47 | 1.02 | 9964.73 | 10022.37 |
| Fan6C-1 | 0.73 | Method 1 | 600 | 2451.79 | 2451.79 | 8.32 | 34.88 | 2.11 | 0.99 | 9984.12 | 10019.00 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.63 | 100-yr 6-hr | 600 | 2442.40 | 2442.12 | 7.05 | 38.33 | 2.22 | 0.83 | 9987.10 | 10025.43 |
| Fan6C-1 | 0.63 | Method 1 | 600 | 2442.49 | 2442.10 | 6.76 | 39.01 | 2.28 | 0.79 | 9986.96 | 10025.98 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.59 | 100-yr 6-hr | 600 | 2439.83 | 2439.69 | 7.31 | 57.19 | 1.50 | 1.01 | 9965.55 | 10022.73 |
| Fan6C-1 | 0.59 | Method 1 | 600 | 2439.77 | 2439.64 | 7.58 | 36.75 | 2.15 | 0.91 | 9981.67 | 10018.42 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.50 | 100-yr 6-hr | 600 | 2430.42 | 2430.42 | 6.36 | 153.58 | 0.77 | 1.01 | 9927.46 | 10138.29 |
| Fan6C-1 | 0.50 | Method 1 | 600 | 2431.16 | 2431.16 | 7.35 | 48.36 | 1.69 | 0.99 | 9927.44 | 9975.80 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.44 | 100-yr 6-hr | 600 | 2425.05 | 2424.62 | 3.57 | 429.64 | 0.78 | 0.36 | 9766.07 | 10351.32 |
| Fan6C-1 | 0.44 | Method 1 | 600 | 2425.56 | 2425.56 | 6.86 | 96.35 | 1.26 | 0.77 | 9980.06 | 10076.41 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.39 | 100-yr 6-hr | 600 | 2419.61 | 2419.61 | 13.01 | 133.60 | 0.54 | 1.97 | 9918.05 | 10052.84 |
| Fan6C-1 | 0.39 | Method 1 | 600 | 2420.56 | 2420.56 | 8.33 | 64.00 | 1.64 | 0.79 | 9975.00 | 10039.00 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.30 | 100-yr 6-hr | 1584 | 2412.61 | | 6.28 | 376.12 | 1.17 | 0.58 | 9935.86 | 10639.32 |
| Fan6C-1 | 0.30 | Method 1 | 1584 | 2413.20 | | 6.78 | 131.46 | 2.25 | 0.63 | 9960.82 | 10092.28 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.25 | 100-yr 6-hr | 1584 | 2406.42 | 2406.42 | 13.53 | 126.59 | 1.39 | 1.34 | 9974.98 | 10333.25 |
| Fan6C-1 | 0.25 | Method 1 | 1584 | 2407.03 | 2407.03 | 14.56 | 156.29 | 0.90 | 2.11 | 9974.56 | 10134.33 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.15 | 100-yr 6-hr | 1584 | 2397.04 | 2397.04 | 2.23 | 620.37 | 1.41 | 0.27 | 9966.89 | 10587.51 |
| Fan6C-1 | 0.15 | Method 1 | 1584 | 2397.38 | 2397.04 | 5.24 | 333.51 | 1.29 | 0.57 | 9968.96 | 10302.47 |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 0.06 | 100-yr 6-hr | 1584 | 2389.31 | 2389.31 | 6.18 | 310.65 | 1.00 | 0.90 | 9933.14 | 10243.78 |
| Fan6C-1 | 0.06 | Method 1 | 1584 | 2389.44 | 2389.44 | 6.66 | 173.39 | 1.37 | 1.00 | 9945.48 | 10118.87 |

## TABLE 17: Culvert Table Fan 6C w/Levee In Place and South Branch Flow Split

| Reach | River Sta | Profile | Culv WS Inlet | Culv WS Outlet | Culv EG Inlet | Q Total | Culv Q | Q Weir | Culv Vel US | Culv Vel DS | Culv Frctn Ls |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (ft) |
| | | | | | | | | | | | |
| Fan6C-1 | 2.56 Culvert #1 | 100-yr 6-hr | 2637.13 | 2629.99 | 2639.63 | 1261 | 1261 | | 10.51 | 21.45 | 2.5 |
| Fan6C-1 | 2.56 Culvert #1 | Method 1 | 2637.13 | 2629.99 | 2639.63 | 1261 | 1261 | | 10.51 | 21.45 | 2.5 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.28 Culvert #1 | 100-yr 6-hr | 2608.98 | 2606.55 | 2609.85 | 1346 | 1346 | | 7.48 | 7.48 | 2.43 |
| Fan6C-1 | 2.28 Culvert #1 | Method 1 | 2608.98 | 2606.55 | 2609.85 | 1346 | 1346 | | 7.48 | 7.48 | 2.43 |
| | | | | | | | | | | | |
| Fan6C-1 | 2.22 Culvert #1 | 100-yr 6-hr | 2601.4 | 2599.6 | 2603.15 | 1346 | 1346 | | 10.64 | 13.08 | 0.9 |
| Fan6C-1 | 2.22 Culvert #1 | Method 1 | 2601.4 | 2599.6 | 2603.15 | 1346 | 1346 | | 10.64 | 13.08 | 0.9 |
| | | | | | | | | | | | |
| Fan6C-1 | 1.875 Culvert #1 | 100-yr 6-hr | 2567.3 | 2565.27 | 2570.04 | 1346 | 1346 | 51.11 | 10.79 | 16.12 | 0.73 |
| Fan6C-1 | 1.875 Culvert #1 | Method 1 | 2567.3 | 2565.27 | 2570.18 | 1346 | 1346 | 23.56 | 11.02 | 16.42 | 0.72 |
| | | | | | | | | | | | |
| Fan6C-1 | 0.775 CULVERT#1 | 100-yr 6-hr | 2457.74 | 2455.3 | 2459.25 | 600 | 600 | | 9.89 | 14.64 | 0.62 |
| Fan6C-1 | 0.775 CULVERT#1 | Method 1 | 2457.74 | 2455.3 | 2459.25 | 600 | 600 | | 9.89 | 14.64 | 0.62 |

## TABLE 18: Hydraulic Modeling Output Table Fan 6A, Fan 6A North, Fan 6A South

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AN-1 | 5.17 | 100-`yr 6-hr | 809 | 3059.38 | 3059.38 | 7.97 | 119.34 | 1.33 | 0.78 | 9900.08 | 10019.41 |
| Fan 6AN-1 | 5.17 | Method 1 | 809 | 3059.48 | 3059.48 | 10.18 | 24.39 | 3.26 | 0.99 | 9985.77 | 10010.16 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 5.07 | 100-yr 6-hr | 809 | 3038.18 | 3038.18 | 6.29 | 128.93 | 1.03 | 1.05 | 9859.47 | 10036.31 |
| Fan 6AN-1 | 5.07 | Method 1 | 809 | 3038.12 | 3038.12 | 6.63 | 91.73 | 1.33 | 1.01 | 9943.02 | 10034.75 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 5.00 | 100-yr 6-hr | 809 | 3023.2 | 3023.2 | 6.36 | 131.03 | 1.09 | 0.95 | 9928.02 | 10059.05 |
| Fan 6AN-1 | 5.00 | Method 1 | 809 | 3023.25 | 3023.25 | 6.75 | 85.31 | 1.4 | 1 | 9971.91 | 10057.22 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.95 | 100-yr 6-hr | 809 | 3013.15 | 3013.15 | 5.55 | 161.08 | 0.91 | 1.02 | 9923.57 | 10084.65 |
| Fan 6AN-1 | 4.95 | Method 1 | 809 | 3013.15 | 3013.15 | 5.58 | 151.96 | 0.95 | 1.01 | 9930.25 | 10082.21 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.91 | 100-yr 6-hr | 809 | 3005.22 | 3005.22 | 5.82 | 136.32 | 1.02 | 1.01 | 9937.29 | 10073.61 |
| Fan 6AN-1 | 4.91 | Method 1 | 809 | 3005.2 | 3005.2 | 5.9 | 128.58 | 1.07 | 1.01 | 9938.65 | 10067.23 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.84 | 100-yr 6-hr | 809 | 2993.1 | 2993.1 | 5.51 | 164.77 | 0.89 | 1.02 | 9956.26 | 10121.02 |
| Fan 6AN-1 | 4.84 | Method 1 | 809 | 2993.1 | 2993.1 | 5.49 | 159.24 | 0.93 | 1.01 | 9959.69 | 10118.93 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.77 | 100-yr 6-hr | 809 | 2977.84 | 2977.84 | 5.81 | 144.43 | 0.99 | 1 | 9981.92 | 10126.35 |
| Fan 6AN-1 | 4.77 | Method 1 | 809 | 2977.84 | 2977.84 | 5.92 | 127.97 | 1.07 | 1.01 | 9981.91 | 10109.88 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.69 | 100-yr 6-hr | 809 | 2963.73 | 2963.73 | 7 | 152.57 | 0.98 | 0.97 | 9869.73 | 10070.47 |
| Fan 6AN-1 | 4.69 | Method 1 | 809 | 2964.44 | 2964.44 | 7.93 | 52.4 | 1.95 | 1 | 9988.45 | 10040.85 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.59 | 100-yr 6-hr | 809 | 2945.42 | 2945.42 | 6.9 | 89.57 | 1.33 | 1.03 | 9944.63 | 10034.21 |
| Fan 6AN-1 | 4.59 | Method 1 | 809 | 2945.4 | 2945.4 | 7.01 | 76.83 | 1.5 | 1.01 | 9952.41 | 10029.24 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.50 | 100-yr 6-hr | 809 | 2928.97 | 2928.97 | 6.1 | 134.33 | 1.06 | 0.97 | 9775.97 | 10044.98 |
| Fan 6AN-1 | 4.50 | Method 1 | 809 | 2929.03 | 2929.03 | 6.3 | 107.45 | 1.19 | 1.02 | 9937.76 | 10045.21 |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.40 | 100-yr 6-hr | 809 | 2913.09 | 2913.09 | 6.09 | 247.41 | 0.81 | 0.79 | 9980.4 | 10232.51 |
| Fan 6AN-1 | 4.40 | Method 1 | 809 | 2913.73 | 2913.73 | 7.55 | 59.25 | 1.81 | 0.99 | 9981.13 | 10040.38 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.31 | 100-yr 6-hr | 809 | 2899.31 | 2899.31 | 6.02 | 128.27 | 1.06 | 1.02 | 9946.06 | 10074.33 |
| Fan 6AN-1 | 4.31 | Method 1 | 809 | 2899.3 | 2899.3 | 6.1 | 116.7 | 1.14 | 1.01 | 9951.7 | 10068.4 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.21 | 100-yr 6-hr | 809 | 2885.21 | 2885.21 | 6.27 | 183.88 | 0.88 | 0.94 | 9963.83 | 10147.71 |
| Fan 6AN-1 | 4.21 | Method 1 | 809 | 2885.76 | 2885.76 | 6.9 | 76.96 | 1.52 | 0.99 | 9967.4 | 10044.36 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.13 | 100-yr 6-hr | 809 | 2875.13 | 2875 | 5.55 | 211.03 | 0.92 | 0.77 | 9906.87 | 10117.9 |
| Fan 6AN-1 | 4.13 | Method 1 | 809 | 2875.8 | 2875.8 | 7.43 | 64.07 | 1.7 | 1 | 9955.06 | 10019.13 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.08 | 100-yr 6-hr | 809 | 2866.63 | 2866.63 | 4.79 | 200.67 | 0.79 | 1.01 | 9983.77 | 10206.17 |
| Fan 6AN-1 | 4.08 | Method 1 | 809 | 2867.58 | 2867.58 | 6.72 | 109.65 | 1.25 | 0.93 | 9986.04 | 10095.69 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 4.02 | 100-yr 6-hr | 1227 | 2859.65 | 2859.4 | 4.16 | 342.71 | 0.95 | 0.68 | 9750.17 | 10111.05 |
| Fan 6AN-1 | 4.02 | Method 1 | 1227 | 2859.99 | 2859.96 | 5.78 | 190.06 | 1.12 | 0.96 | 9925.54 | 10115.6 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.96 | 100-yr 6-hr | 1225 | 2852.49 | 2852.49 | 7.12 | 284.25 | 0.85 | 0.96 | 9974.78 | 10259.02 |
| Fan 6AN-1 | 3.96 | Method 1 | 1225 | 2853.4 | 2853.4 | 8.48 | 130.89 | 1.52 | 0.88 | 9973.52 | 10104.41 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.92 | 100-yr 6-hr | 1225 | 2851.39 | 2847.02 | 1.27 | 401.9 | 5.36 | 0.08 | 9964.23 | 10189.95 |
| Fan 6AN-1 | 3.92 | Method 1 | 1225 | 2851.39 | 2847 | 1.23 | 235.77 | 5.36 | 0.08 | 9964.23 | 10189.95 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.92 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.91 | 100-yr 6-hr | 1225 | 2845.14 | 2845.04 | 6.3 | 272.78 | 1.12 | 0.86 | 9981.92 | 10195.32 |
| Fan 6AN-1 | 3.91 | Method 1 | 1225 | 2845.25 | 2845.05 | 5.71 | 218.08 | 1.23 | 0.74 | 9981.92 | 10195.32 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.81 | 100-yr 6-hr | 1225 | 2835.7 | 2835.7 | 6.53 | 235.1 | 1.08 | 0.82 | 9788.18 | 10023.28 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.81 | Method 1 | 1225 | 2835.95 | 2835.95 | 7.64 | 87.05 | 1.84 | 0.99 | 9931.07 | 10018.12 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.72 | 100-yr 6-hr | 1225 | 2824.18 | 2824.18 | 7.21 | 229.94 | 0.93 | 1.05 | 9923.03 | 10152.96 |
| Fan 6AN-1 | 3.72 | Method 1 | 1225 | 2824.94 | 2824.94 | 8.8 | 57.35 | 2.43 | 1 | 9973.22 | 10030.57 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.63 | 100-yr 6-hr | 1225 | 2814.01 | 2814.01 | 3.33 | 480.38 | 1.17 | 0.35 | 9983.41 | 10463.78 |
| Fan 6AN-1 | 3.63 | Method 1 | 1225 | 2814.12 | 2814.12 | 7.17 | 124.41 | 1.51 | 0.94 | 9986.17 | 10110.58 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.57 | 100-yr 6-hr | 1225 | 2807.64 | 2807.5 | 6.07 | 269.22 | 1.03 | 0.77 | 9956.6 | 10269.75 |
| Fan 6AN-1 | 3.57 | Method 1 | 1225 | 2808.15 | 2808.15 | 7.91 | 80.73 | 1.92 | 1.01 | 9971.47 | 10052.2 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.53 | 100-yr 6-hr | 1225 | 2802.74 | 2801.92 | 10.07 | 241.13 | 0.97 | 0.93 | 9980.73 | 10221.87 |
| Fan 6AN-1 | 3.53 | Method 1 | 1225 | 2803.4 | 2803.4 | 9.53 | 83.58 | 2.14 | 0.82 | 9987.3 | 10070.88 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.48 | 100-yr 6-hr | 1225 | 2797.73 | 2797.73 | 7.12 | 210.2 | 1.06 | 0.95 | 9985.87 | 10196.08 |
| Fan 6AN-1 | 3.48 | Method 1 | 1225 | 2798.51 | 2798.51 | 8.08 | 75.66 | 2 | 1.01 | 9987.07 | 10062.73 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.43 | 100-yr 6-hr | 1225 | 2790.87 | 2790.87 | 4.64 | 324.55 | 1.38 | 0.41 | 9983.42 | 10307.97 |
| Fan 6AN-1 | 3.43 | Method 1 | 1225 | 2791.39 | 2791.39 | 8.16 | 178.01 | 1.43 | 0.71 | 9985.52 | 10163.53 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.39 | 100-yr 6-hr | 1225 | 2786 | 2786 | 8.63 | 165.61 | 1.27 | 0.92 | 9988.88 | 10252.18 |
| Fan 6AN-1 | 3.39 | Method 1 | 1225 | 2786.9 | 2786.9 | 7.92 | 199.7 | 1.34 | 0.7 | 9988.88 | 10188.58 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.32 | 100-yr 6-hr | 1225 | 2778.61 | 2778.61 | 7.19 | 210.91 | 1.23 | 0.75 | 9848.83 | 10059.75 |
| Fan 6AN-1 | 3.32 | Method 1 | 1225 | 2778.57 | 2778.57 | 9.35 | 47.7 | 2.75 | 0.99 | 9983.25 | 10030.95 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.24 | 100-yr 6-hr | 1225 | 2769.35 | 2769.35 | 7.06 | 237.03 | 1.09 | 0.8 | 9788.37 | 10025.4 |
| Fan 6AN-1 | 3.24 | Method 1 | 1225 | 2770.09 | 2770.09 | 8.7 | 60.27 | 2.34 | 1 | 9963.89 | 10024.16 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.15 | 100-yr 6-hr | 1228 | 2757.28 | 2757.28 | 6.66 | 228.62 | 1.11 | 0.81 | 9835.13 | 10063.75 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.15 | Method 1 | 1228 | 2757.4 | 2757.4 | 7.93 | 77.52 | 2 | 0.99 | 9984.01 | 10061.53 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 3.07 | 100-yr 6-hr | 1228 | 2745.38 | 2745.32 | 6.17 | 342.01 | 0.83 | 0.84 | 9704.57 | 10046.59 |
| Fan 6AN-1 | 3.07 | Method 1 | 1228 | 2746.34 | 2746.34 | 7.96 | 131.3 | 1.54 | 0.86 | 9903.45 | 10034.75 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.98 | 100-yr 6-hr | 1228 | 2734.98 | 2734.98 | 7.92 | 258.53 | 1.05 | 0.78 | 9869.92 | 10128.44 |
| Fan 6AN-1 | 2.98 | Method 1 | 1228 | 2735.84 | 2735.84 | 9.6 | 81.82 | 2.13 | 0.85 | 9955.25 | 10037.07 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.95 | 100-yr 6-hr | 1228 | 2729.73 | 2729.42 | 4.19 | 326.04 | 1.02 | 0.64 | 9986.16 | 10312.2 |
| Fan 6AN-1 | 2.95 | Method 1 | 1228 | 2730.22 | 2730.06 | 5.61 | 151.04 | 1.45 | 0.82 | 9990.84 | 10141.88 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.88 | 100-yr 6-hr | 1228 | 2723.14 | 2723.14 | 6.77 | 313.08 | 0.89 | 0.83 | 9751.86 | 10064.94 |
| Fan 6AN-1 | 2.88 | Method 1 | 1228 | 2723.96 | 2723.96 | 8.12 | 85.85 | 1.94 | 0.93 | 9944.51 | 10030.36 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.79 | 100-yr 6-hr | 1228 | 2715.02 | 2715.02 | 7.07 | 204.91 | 1.18 | 0.82 | 9897.17 | 10102.08 |
| Fan 6AN-1 | 2.79 | Method 1 | 1228 | 2715.08 | 2715.08 | 8.63 | 61.13 | 2.33 | 1 | 9950.41 | 10011.54 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.69 | 100-yr 6-hr | 1228 | 2705.62 | 2705.62 | 7.65 | 198.79 | 1.21 | 0.82 | 9965.16 | 10163.95 |
| Fan 6AN-1 | 2.69 | Method 1 | 1228 | 2706.45 | 2706.45 | 9.23 | 57.1 | 2.51 | 0.96 | 9972.52 | 10029.62 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.60 | 100-yr 6-hr | 1527 | 2695.95 | 2695.95 | 7.26 | 166.03 | 1.4 | 0.98 | 9946 | 10112.04 |
| Fan 6AN-1 | 2.60 | Method 1 | 1527 | 2696.02 | 2695.9 | 7.29 | 103.74 | 2.02 | 0.9 | 9959.44 | 10063.18 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.55 | 100-yr 6-hr | 1527 | 2690.94 | 2690.87 | 7.25 | 246.04 | 1.27 | 0.76 | 9958.48 | 10204.52 |
| Fan 6AN-1 | 2.55 | Method 1 | 1527 | 2691.75 | 2691.75 | 8.99 | 89.8 | 2.23 | 0.9 | 9958.32 | 10048.12 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.51 | 100-yr 6-hr | 1527 | 2687.15 | 2687.15 | 7.68 | 153.8 | 1.49 | 0.96 | 9989.46 | 10143.26 |
| Fan 6AN-1 | 2.51 | Method 1 | 1527 | 2687.24 | 2687.08 | 7.86 | 80.45 | 2.41 | 0.89 | 9991.88 | 10072.33 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.44 | 100-yr 6-hr | 1678 | 2682.05 | 2682.05 | 6.8 | 317.83 | 1.19 | 0.71 | 9723.52 | 10041.36 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.44 | Method 1 | 1678 | 2682.1 | 2682.02 | 8.8 | 73.01 | 2.61 | 0.96 | 9959.14 | 10032.15 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.39 | 100-yr 6-hr | 1678 | 2677.43 | 2677.43 | 8.62 | 159.53 | 1.65 | 0.88 | 9873.88 | 10033.41 |
| Fan 6AN-1 | 2.39 | Method 1 | 1678 | 2677.37 | 2677.37 | 10.21 | 51.2 | 3.21 | 1 | 9965.8 | 10017 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.32 | 100-yr 6-hr | 1678 | 2670.88 | 2670.88 | 7.31 | 268.82 | 1.29 | 0.75 | 9926.09 | 10194.91 |
| Fan 6AN-1 | 2.32 | Method 1 | 1678 | 2671.29 | 2670.91 | 8.46 | 60.4 | 3.28 | 0.82 | 9963.39 | 10023.79 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.28 | 100-yr 6-hr | 1678 | 2667.7 | 2667.7 | 8.98 | 174.12 | 1.63 | 0.82 | 9964.28 | 10138.4 |
| Fan 6AN-1 | 2.28 | Method 1 | 1678 | 2667.63 | 2667.63 | 11.36 | 36.4 | 4.06 | 0.99 | 9973.15 | 10009.55 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.20 | 100-yr 6-hr | 1678 | 2659.6 | 2659.6 | 9.58 | 100.51 | 2.14 | 0.94 | 9931.92 | 10032.43 |
| Fan 6AN-1 | 2.20 | Method 1 | 1678 | 2659.53 | 2659.53 | 10.77 | 43.2 | 3.61 | 1 | 9979.95 | 10023.15 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.14 | 100-yr 6-hr | 1678 | 2654.36 | 2654.36 | 7.54 | 133.4 | 1.68 | 1.02 | 9918.24 | 10051.64 |
| Fan 6AN-1 | 2.14 | Method 1 | 1678 | 2654.36 | 2654.36 | 7.56 | 121.87 | 1.82 | 0.99 | 9920.5 | 10042.37 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.06 | 100-yr 6-hr | 1678 | 2650.95 | 2647.39 | 1.84 | 274.64 | 4.59 | 0.11 | 9912.57 | 10187.22 |
| Fan 6AN-1 | 2.06 | Method 1 | 1678 | 2650.87 | 2647.39 | 3.81 | 73.4 | 6.01 | 0.27 | 9966.11 | 10039.51 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.05 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan 6AN-1 | 2.04 | 100-yr 6-hr | 1678 | 2645.72 | 2645.72 | 8.26 | 225.19 | 2.13 | 1 | 9934.46 | 10029.6 |
| Fan 6AN-1 | 2.04 | Method 1 | 1678 | 2645.72 | 2645.72 | 8.26 | 95.14 | 2.13 | 1 | 9934.46 | 10029.6 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.97 | 100-yr 6-hr | 1678 | 2638.11 | 2638.11 | 7.58 | 252.87 | 1.32 | 0.77 | 9964.03 | 10216.89 |
| Fan 6AN-1 | 1.97 | Method 1 | 1678 | 2638.73 | 2638.73 | 9.67 | 60.51 | 2.87 | 1.01 | 9964.35 | 10024.86 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.90 | 100-yr 6-hr | 1678 | 2632.61 | 2632.61 | 7.35 | 236.77 | 1.33 | 0.82 | 9975.45 | 10212.22 |
| Fan 6AN-1 | 1.90 | Method 1 | 1678 | 2632.67 | 2632.67 | 8.93 | 74.37 | 2.53 | 0.99 | 9977.77 | 10052.14 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.83 | 100-yr 6-hr | 1678 | 2625.09 | 2625 | 5.59 | 349.26 | 1 | 0.85 | 9676.25 | 10025.5 |
| Fan 6AN-1 | 1.83 | Method 1 | 1678 | 2625.79 | 2625.51 | 5.54 | 183.07 | 1.66 | 0.76 | 9841.53 | 10024.6 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.78 | 100-yr 6-hr | 1678 | 2620.99 | 2620.99 | 7.5 | 413.28 | 0.97 | 0.75 | 9754.4 | 10167.68 |
| Fan 6AN-1 | 1.78 | Method 1 | 1678 | 2621.72 | 2621.69 | 10.11 | 71.68 | 2.72 | 0.92 | 9968.17 | 10039.85 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.72 | 100-yr 6-hr | 1678 | 2615.32 | 2615.32 | 8.26 | 279.39 | 1.21 | 0.79 | 9970.76 | 10250.14 |
| Fan 6AN-1 | 1.72 | Method 1 | 1678 | 2616.13 | 2616.13 | 9.94 | 88.76 | 2.39 | 0.9 | 9975.12 | 10063.88 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.65 | 100-yr 6-hr | 1678 | 2608.65 | | 6.21 | 205.07 | 1.56 | 0.74 | 9933.39 | 10138.46 |
| Fan 6AN-1 | 1.65 | Method 1 | 1678 | 2609.26 | | 6.15 | 111.05 | 2.46 | 0.69 | 9945.73 | 10056.78 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.62 | 100-yr 6-hr | 1678 | 2606.74 | 2606.74 | 7.19 | 251.77 | 1.28 | 0.81 | 9841.73 | 10093.51 |
| Fan 6AN-1 | 1.62 | Method 1 | 1678 | 2606.99 | 2606.99 | 8.68 | 83.63 | 2.31 | 1.01 | 9926.76 | 10010.39 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.56 | 100-yr 6-hr | 1678 | 2605.24 | 2601.57 | 0.95 | 541.25 | 5.35 | 0.04 | 9698.77 | 10240.02 |
| Fan 6AN-1 | 1.56 | Method 1 | 1678 | 2605.2 | 2601.57 | 2.83 | 115.45 | 6.91 | 0.14 | 9954.04 | 10069.49 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.55 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.54 | 100-yr 6-hr | 1678 | 2599.74 | 2599.74 | 9.01 | 404.8 | 2.48 | 0.99 | 9940 | 10016.12 |
| Fan 6AN-1 | 1.54 | Method 1 | 1678 | 2599.78 | 2599.78 | 9.07 | 164.95 | 2.54 | 1 | 9940 | 10012.71 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.48 | 100-yr 6-hr | 1678 | 2590.2 | 2590.2 | 7.33 | 252.85 | 1.29 | 0.8 | 9798.64 | 10051.49 |
| Fan 6AN-1 | 1.48 | Method 1 | 1678 | 2590.58 | 2590.58 | 8.22 | 123.97 | 1.89 | 0.92 | 9925.7 | 10049.67 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.42 | 100-yr 6-hr | 1678 | 2584.87 | 2584.85 | 6.21 | 296.16 | 1.08 | 0.89 | 9964.04 | 10260.2 |
| Fan 6AN-1 | 1.42 | Method 1 | 1678 | 2585.07 | 2585.01 | 6.71 | 159.89 | 1.56 | 0.95 | 9989.11 | 10149 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.32 | 100-yr 6-hr | 1678 | 2575.81 | 2575.81 | 7.05 | 202.98 | 1.34 | 0.94 | 9970.39 | 10173.37 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.32 | Method 1 | 1678 | 2576.03 | 2576.03 | 7.62 | 123.84 | 1.78 | 1.01 | 9974.6 | 10098.44 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.23 | 100-yr 6-hr | 1678 | 2569.07 | | 2.86 | 288.22 | 2.7 | 0.23 | 9849.41 | 10137.63 |
| Fan 6AN-1 | 1.23 | Method 1 | 1678 | 2569.33 | | 3.88 | 125.41 | 3.76 | 0.32 | 9953.03 | 10078.44 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.20 | 100-yr 6-hr | 1678 | 2569.06 | 2565.02 | 1.52 | 298.83 | 5.01 | 0.09 | 9883.35 | 10182.17 |
| Fan 6AN-1 | 1.20 | Method 1 | 1678 | 2569.19 | 2565.02 | 3.49 | 70.94 | 6.78 | 0.24 | 9956.41 | 10027.35 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.19 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.18 | 100-yr 6-hr | 1678 | 2564.45 | 2564.45 | 8.9 | 189.1 | 2.48 | 1 | 9958.31 | 10034.36 |
| Fan 6AN-1 | 1.18 | Method 1 | 1678 | 2564.45 | 2564.45 | 8.9 | 92.49 | 2.48 | 1 | 9958.31 | 10034.36 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.12 | 100-yr 6-hr | 1678 | 2557.88 | 2557.88 | 8.03 | 154.66 | 1.59 | 0.96 | 9884.5 | 10052.56 |
| Fan 6AN-1 | 1.12 | Method 1 | 1678 | 2557.97 | 2557.97 | 8.49 | 89.33 | 2.21 | 1.01 | 9960.6 | 10049.93 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.04 | 100-yr 6-hr | 1678 | 2555.5 | 2550.33 | 1.38 | 296.14 | 5.71 | 0.07 | 9781.34 | 10077.48 |
| Fan 6AN-1 | 1.04 | Method 1 | 1678 | 2555.46 | 2550.33 | 2.13 | 111.69 | 7.04 | 0.14 | 9917.62 | 10029.31 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.03 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan 6AN-1 | 1.02 | 100-yr 6-hr | 1678 | 2548.22 | 2548.03 | 6.17 | 274.56 | 1.72 | 0.83 | 9897.55 | 10055.5 |
| Fan 6AN-1 | 1.02 | Method 1 | 1678 | 2548.39 | 2548.03 | 5.62 | 157.95 | 1.89 | 0.72 | 9897.55 | 10055.5 |
| | | | | | | | | | | | |
| Fan 6AN-1 | 0.99 | 100-yr 6-hr | 1678 | 2545.82 | 2545.82 | 7.08 | 212.74 | 1.29 | 0.95 | 9805.03 | 10041.96 |
| Fan 6AN-1 | 0.99 | Method 1 | 1678 | 2545.79 | 2545.79 | 7.66 | 121.84 | 1.8 | 1.01 | 9908.07 | 10029.91 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 4.13 | 100-yr 6-hr | 1154 | 2843.15 | 2843.15 | 6.96 | 225.08 | 1.04 | 0.86 | 9861.65 | 10086.73 |
| Fan 6AS-1 | 4.13 | Method 1 | 1154 | 2843.75 | 2843.75 | 8.15 | 69.46 | 2.04 | 1.01 | 9981.25 | 10050.71 |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AS-1 | 4.03 | 100-yr 6-hr | 1154 | 2831.34 | 2831.28 | 5.65 | 247.19 | 0.95 | 0.89 | 9853.56 | 10100.74 |
| Fan 6AS-1 | 4.03 | Method 1 | 1154 | 2831.65 | 2831.26 | 4.91 | 143.82 | 1.63 | 0.68 | 9897.55 | 10041.37 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.93 | 100-yr 6-hr | 1154 | 2821.84 | 2821.63 | 6.88 | 243.85 | 1.16 | 0.66 | 9807.71 | 10051.56 |
| Fan 6AS-1 | 3.93 | Method 1 | 1154 | 2822.58 | 2822.58 | 9.69 | 62.61 | 2.32 | 0.92 | 9956.35 | 10018.96 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.85 | 100-yr 6-hr | 1154 | 2811.09 | 2811.01 | 4.96 | 447.75 | 0.69 | 0.79 | 9805.7 | 10253.45 |
| Fan 6AS-1 | 3.85 | Method 1 | 1154 | 2811.95 | 2811.89 | 6.78 | 106.8 | 1.59 | 0.95 | 9988.6 | 10095.4 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.75 | 100-yr 6-hr | 1154 | 2799.84 | 2799.72 | 5.68 | 306.38 | 0.95 | 0.71 | 9964.6 | 10270.98 |
| Fan 6AS-1 | 3.75 | Method 1 | 1154 | 2799.97 | 2799.92 | 7.23 | 91.35 | 1.75 | 0.96 | 9986.02 | 10077.37 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.68 | 100-yr 6-hr | 1154 | 2793.12 | 2792.98 | 5.97 | 277.15 | 0.95 | 0.8 | 9962.86 | 10240.01 |
| Fan 6AS-1 | 3.68 | Method 1 | 1154 | 2794.06 | 2793.69 | 6.42 | 104.34 | 1.97 | 0.7 | 9975.62 | 10079.96 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.62 | 100-yr 6-hr | 1154 | 2785.59 | 2785.22 | 4.54 | 239.55 | 1.22 | 0.63 | 9977.11 | 10216.66 |
| Fan 6AS-1 | 3.62 | Method 1 | 1154 | 2786.1 | 2786.1 | 8.91 | 104.7 | 1.57 | 0.99 | 9992.66 | 10097.36 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.55 | 100-yr 6-hr | 1154 | 2776.37 | 2776.31 | 6.1 | 242.8 | 1 | 0.84 | 9905.15 | 10147.94 |
| Fan 6AS-1 | 3.55 | Method 1 | 1154 | 2777.19 | | 6.06 | 96.07 | 1.98 | 0.76 | 9912.1 | 10008.17 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.52 | 100-yr 6-hr | 1154 | 2772.8 | 2772.7 | 6.38 | 248.93 | 1.11 | 0.7 | 9963.83 | 10212.76 |
| Fan 6AS-1 | 3.52 | Method 1 | 1154 | 2773.61 | 2773.61 | 8.87 | 53.86 | 2.42 | 1.01 | 9975.17 | 10029.03 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.45 | 100-yr 6-hr | 1154 | 2764.75 | 2764.61 | 6.09 | 348.41 | 0.89 | 0.7 | 9936.26 | 10284.67 |
| Fan 6AS-1 | 3.45 | Method 1 | 1154 | 2765.7 | 2765.42 | 7.38 | 103.94 | 1.97 | 0.71 | 9987.17 | 10091.11 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.35 | 100-yr 6-hr | 1154 | 2754.96 | 2754.59 | 3.81 | 356.4 | 0.99 | 0.58 | 9685.97 | 10042.37 |
| Fan 6AS-1 | 3.35 | Method 1 | 1154 | 2755.78 | 2755.77 | 7.02 | 131.07 | 1.43 | 0.91 | 9911.41 | 10042.48 |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.26 | 100-yr 6-hr | 1154 | 2747.5 | 2747.5 | 7.94 | 226.78 | 1.19 | 0.69 | 9731.69 | 10012.8 |
| Fan 6AS-1 | 3.26 | Method 1 | 1154 | 2748.4 | 2748.4 | 8.21 | 113.27 | 1.77 | 0.76 | 9898.12 | 10011.39 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.18 | 100-yr 6-hr | 1154 | 2740.47 | 2740.47 | 6.4 | 242.88 | 0.98 | 0.87 | 9962.4 | 10205.28 |
| Fan 6AS-1 | 3.18 | Method 1 | 1154 | 2740.5 | 2740.25 | 7.01 | 74.56 | 2.21 | 0.83 | 9969.31 | 10043.87 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.09 | 100-yr 6-hr | 1154 | 2730.3 | | 3.66 | 277.54 | 1.32 | 0.48 | 9986.3 | 10263.84 |
| Fan 6AS-1 | 3.09 | Method 1 | 1154 | 2730.88 | 2730.65 | 6.92 | 151.86 | 1.46 | 0.76 | 9983.1 | 10134.96 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 3.04 | 100-yr 6-hr | 1154 | 2725.58 | 2725.58 | 6.23 | 249.11 | 0.94 | 0.9 | 9832.69 | 10081.8 |
| Fan 6AS-1 | 3.04 | Method 1 | 1154 | 2726.02 | 2725.64 | 5.59 | 110.43 | 1.87 | 0.72 | 9926.07 | 10036.5 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.96 | 100-yr 6-hr | 1154 | 2718.88 | 2718.88 | 7.64 | 222.97 | 1.11 | 0.77 | 9746.71 | 10029.16 |
| Fan 6AS-1 | 2.96 | Method 1 | 1154 | 2719.17 | 2719.17 | 9.68 | 45.85 | 2.76 | 0.97 | 9976.35 | 10022.2 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.90 | 100-yr 6-hr | 1154 | 2712.71 | 2712.38 | 5.4 | 236.6 | 1.26 | 0.61 | 9773.25 | 10009.85 |
| Fan 6AS-1 | 2.90 | Method 1 | 1154 | 2713.62 | | 6.1 | 107.52 | 2.13 | 0.61 | 9901.02 | 10008.54 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.80 | 100-yr 6-hr | 1154 | 2705.37 | 2705.11 | 4.53 | 287.49 | 1.09 | 0.62 | 9975.22 | 10262.7 |
| Fan 6AS-1 | 2.80 | Method 1 | 1154 | 2705.53 | 2705.53 | 6.61 | 130.07 | 1.34 | 1 | 9976.58 | 10106.65 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.74 | 100-yr 6-hr | 1154 | 2698.78 | 2698.56 | 5.36 | 207.98 | 1.17 | 0.77 | 9959.75 | 10167.73 |
| Fan 6AS-1 | 2.74 | Method 1 | 1154 | 2699.69 | | 5.33 | 125.96 | 2.02 | 0.56 | 9969.07 | 10095.03 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.68 | 100-yr 6-hr | 1154 | 2694.28 | 2693.69 | 5.14 | 249.52 | 1.39 | 0.5 | 9766.64 | 10016.16 |
| Fan 6AS-1 | 2.68 | Method 1 | 1154 | 2694.6 | 2694.42 | 8.4 | 74.04 | 2.19 | 0.85 | 9940.94 | 10014.98 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.61 | 100-yr 6-hr | 1154 | 2687.98 | 2687.98 | 7.43 | 150.23 | 1.23 | 0.99 | 9931.27 | 10104.69 |
| Fan 6AS-1 | 2.61 | Method 1 | 1154 | 2688.56 | 2688.16 | 6.39 | 78.8 | 2.29 | 0.74 | 9977.75 | 10056.55 |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.54 | 100-yr 6-hr | 1450 | 2680.97 | 2680.74 | 4.51 | 606.79 | 0.8 | 0.58 | 9768.33 | 10378.72 |
| Fan 6AS-1 | 2.54 | Method 1 | 1450 | 2681.72 | 2681.72 | 7.64 | 105.88 | 1.79 | 1 | 9970.65 | 10076.53 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.48 | 100-yr 6-hr | 1442 | 2675.36 | 2675.08 | 4.5 | 397.09 | 0.97 | 0.67 | 9895.06 | 10391.5 |
| Fan 6AS-1 | 2.48 | Method 1 | 1442 | 2676.29 | 2676.16 | 6.04 | 259.64 | 1.28 | 0.68 | 9979.87 | 10239.51 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.41 | 100-yr 6-hr | 1442 | 2669.73 | 2669.24 | 4.91 | 268.19 | 1.46 | 0.54 | 9974.21 | 10242.41 |
| Fan 6AS-1 | 2.41 | Method 1 | 1442 | 2670.54 | 2670.24 | 7.14 | 102.65 | 2.21 | 0.76 | 9978.01 | 10080.66 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.34 | 100-yr 6-hr | 1442 | 2663.66 | 2663.44 | 5.91 | 241.16 | 1.26 | 0.74 | 9898.7 | 10139.86 |
| Fan 6AS-1 | 2.34 | Method 1 | 1442 | 2664.59 | 2664.24 | 7.54 | 98.12 | 2.26 | 0.76 | 9974.83 | 10072.95 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.26 | 100-yr 6-hr | 1442 | 2657.32 | | 4.29 | 308.78 | 1.4 | 0.49 | 9959.87 | 10268.66 |
| Fan 6AS-1 | 2.26 | Method 1 | 1442 | 2658.16 | 2657.69 | 6.43 | 127.27 | 2.12 | 0.65 | 9966.83 | 10094.1 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.17 | 100-yr 6-hr | 1442 | 2648.99 | 2648.99 | 7.43 | 133.52 | 1.53 | 1.01 | 9888.19 | 10021.71 |
| Fan 6AS-1 | 2.17 | Method 1 | 1442 | 2648.98 | 2648.98 | 7.64 | 105 | 1.8 | 1 | 9913.97 | 10018.97 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.13 | 100-yr 6-hr | 1442 | 2645.91 | 2645.53 | 5.74 | 148.19 | 1.75 | 0.74 | 9974.69 | 10122.88 |
| Fan 6AS-1 | 2.13 | Method 1 | 1442 | 2646.19 | | 5.08 | 124.25 | 2.28 | 0.59 | 9976.79 | 10101.04 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.07 | 100-yr 6-hr | 1442 | 2641.28 | 2641.24 | 7.79 | 152.09 | 1.55 | 0.87 | 9933.26 | 10085.35 |
| Fan 6AS-1 | 2.07 | Method 1 | 1442 | 2641.34 | 2641.34 | 9 | 64.17 | 2.5 | 1 | 9985.15 | 10049.32 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 2.03 | 100-yr 6-hr | 1493 | 2637.57 | 2637.46 | 6.34 | 190.11 | 1.37 | 0.86 | 9901.32 | 10091.43 |
| Fan 6AS-1 | 2.03 | Method 1 | 1493 | 2637.96 | | 5.77 | 133.61 | 1.94 | 0.73 | 9910.42 | 10044.03 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.97 | 100-yr 6-hr | 1493 | 2633.18 | 2633.18 | 7.27 | 245.82 | 1.24 | 0.78 | 9968.71 | 10214.54 |
| Fan 6AS-1 | 1.97 | Method 1 | 1493 | 2633.1 | 2633.1 | 8.59 | 92.78 | 2.08 | 0.95 | 9972.22 | 10065 |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.87 | 100-yr 6-hr | 1493 | 2625.24 | 2625.24 | 8.57 | 260.55 | 1.37 | 0.63 | 9817.74 | 10078.29 |
| Fan 6AS-1 | 1.87 | Method 1 | 1493 | 2626.15 | 2626.15 | 9.53 | 108.54 | 2.26 | 0.71 | 9905.71 | 10014.25 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.85 | 100-yr 6-hr | 1493 | 2623.2 | 2623.2 | 8.02 | 226.39 | 1.41 | 0.7 | 9802.5 | 10028.89 |
| Fan 6AS-1 | 1.85 | Method 1 | 1493 | 2623.15 | 2623.15 | 9.3 | 91.03 | 2.26 | 0.85 | 9935 | 10026.03 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.78 | 100-yr 6-hr | 1493 | 2617.19 | 2614.43 | 4.25 | 191.49 | 5.26 | 0.33 | 9954.08 | 10021.13 |
| Fan 6AS-1 | 1.78 | Method 1 | 1493 | 2617.19 | 2614.43 | 4.27 | 66.32 | 5.28 | 0.33 | 9954.08 | 10020.4 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.77 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.76 | 100-yr 6-hr | 1493 | 2613.36 | 2613.36 | 9.81 | 58.41 | 2.9 | 0.99 | 9969.29 | 10023.19 |
| Fan 6AS-1 | 1.76 | Method 1 | 1493 | 2613.34 | 2613.34 | 9.98 | 47.77 | 3.13 | 0.99 | 9971.01 | 10018.78 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.70 | 100-yr 6-hr | 1493 | 2608.55 | 2608.44 | 7.44 | 151.22 | 1.67 | 0.8 | 9967.23 | 10118.45 |
| Fan 6AS-1 | 1.70 | Method 1 | 1493 | 2609.15 | 2608.78 | 7.39 | 76.08 | 2.66 | 0.8 | 9974.06 | 10050.14 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.64 | 100-yr 6-hr | 1493 | 2603.59 | 2603.59 | 8.84 | 134.16 | 1.79 | 0.82 | 9942.24 | 10076.39 |
| Fan 6AS-1 | 1.64 | Method 1 | 1493 | 2604.34 | 2604.34 | 10.05 | 47.98 | 3.1 | 1.01 | 9973.78 | 10021.76 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.58 | 100-yr 6-hr | 1493 | 2598.01 | 2598.01 | 7.35 | 147.57 | 1.48 | 0.99 | 9889.37 | 10036.94 |
| Fan 6AS-1 | 1.58 | Method 1 | 1493 | 2597.98 | 2597.98 | 7.68 | 107.62 | 1.81 | 1.01 | 9918.85 | 10026.47 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.49 | 100-yr 6-hr | 1493 | 2590.51 | 2589.77 | 4.71 | 206.54 | 1.86 | 0.5 | 9975.66 | 10182.2 |
| Fan 6AS-1 | 1.49 | Method 1 | 1493 | 2591.41 | 2590.76 | 6.86 | 125.61 | 2.34 | 0.58 | 9982.55 | 10108.16 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.40 | 100-yr 6-hr | 1493 | 2584.16 | 2584.13 | 6.37 | 257.33 | 1.17 | 0.81 | 9776.17 | 10033.5 |
| Fan 6AS-1 | 1.40 | Method 1 | 1493 | 2584.31 | 2584.27 | 7.11 | 122.87 | 1.71 | 0.96 | 9908.04 | 10030.91 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.31 | 100-yr 6-hr | 1493 | 2576.16 | 2576.16 | 7.23 | 133.86 | 1.54 | 1.02 | 9966.73 | 10100.59 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.31 | Method 1 | 1493 | 2576.17 | 2576.17 | 7.22 | 128.92 | 1.6 | 1.01 | 9968.33 | 10097.25 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.24 | 100-yr 6-hr | 1493 | 2567.98 | 2567.98 | 10.03 | 63.58 | 2.61 | 0.98 | 9970.05 | 10033.62 |
| Fan 6AS-1 | 1.24 | Method 1 | 1493 | 2567.92 | 2567.92 | 10.61 | 40.58 | 3.47 | 1 | 9980.59 | 10021.17 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.21 | 100-yr 6-hr | 1493 | 2564.59 | 2564.59 | 9.15 | 67.88 | 2.42 | 1.03 | 9945.1 | 10012.98 |
| Fan 6AS-1 | 1.21 | Method 1 | 1493 | 2564.58 | 2564.58 | 9.22 | 62.57 | 2.59 | 1.01 | 9949.11 | 10011.68 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.17 | 100-yr 6-hr | 1493 | 2563.69 | 2560.92 | 3.61 | 130.05 | 4.83 | 0.28 | 9974.1 | 10061.79 |
| Fan 6AS-1 | 1.17 | Method 1 | 1493 | 2563.68 | 2560.92 | 3.68 | 82.06 | 4.95 | 0.29 | 9979.73 | 10061.79 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.16 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.15 | 100-yr 6-hr | 1493 | 2559.42 | 2559.42 | 8.63 | 216.99 | 2.23 | 0.99 | 9975.36 | 10055.36 |
| Fan 6AS-1 | 1.15 | Method 1 | 1493 | 2559.48 | 2559.48 | 8.65 | 73.41 | 2.35 | 0.99 | 9975.36 | 10048.77 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.11 | 100-yr 6-hr | 1493 | 2555.52 | 2555.4 | 6.03 | 180.09 | 1.39 | 0.9 | 9977.04 | 10157.13 |
| Fan 6AS-1 | 1.11 | Method 1 | 1493 | 2555.52 | 2555.4 | 6.03 | 169.55 | 1.46 | 0.88 | 9983.49 | 10153.04 |
| | | | | | | | | | | | |
| Fan 6AS-1 | 1.03 | 100-yr 6-hr | 1493 | 2548.56 | 2548.56 | 5.3 | 327.41 | 0.86 | 1.01 | 9956.74 | 10284.15 |
| Fan 6AS-1 | 1.03 | Method 1 | 1493 | 2548.56 | 2548.56 | 5.3 | 325.11 | 0.87 | 1 | 9957.04 | 10282.15 |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.93 | 100-yr 6-hr | 2698 | 2541.49 | | 7.32 | 145.57 | 2.62 | 0.77 | 9922.4 | 10067.97 |
| Fan 6A-1 | 0.93 | Method 1 | 2698 | 2542.08 | | 6.17 | 122.66 | 3.57 | 0.58 | 9928.65 | 10051.31 |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.87 | 100-yr 6-hr | 2698 | 2538.07 | 2538.07 | 9.85 | 151 | 2.39 | 0.85 | 9894.27 | 10045.27 |
| Fan 6A-1 | 0.87 | Method 1 | 2698 | 2538.06 | 2538.06 | 11.4 | 59.09 | 4.01 | 1 | 9974.07 | 10033.16 |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.81 | 100-yr 6-hr | 2698 | 2531.1 | 2531.1 | 9.92 | 96.22 | 2.87 | 1.02 | 9971.71 | 10067.93 |
| Fan 6A-1 | 0.81 | Method 1 | 2698 | 2531.08 | 2531.08 | 10.02 | 86.81 | 3.1 | 1 | 9972.92 | 10059.73 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.78 | 100-yr 6-hr | 2698 | 2528.11 | 2528.11 | 11 | 88.08 | 3.06 | 1.01 | 9973.65 | 10061.73 |
| Fan 6A-1 | 0.78 | Method 1 | 2698 | 2528.46 | 2528.04 | 10.49 | 57 | 4.51 | 0.87 | 9981.15 | 10038.15 |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.69 | 100-yr 6-hr | 2698 | 2521.09 | 2521.09 | 12.14 | 86.63 | 3.26 | 0.93 | 9964.23 | 10050.86 |
| Fan 6A-1 | 0.69 | Method 1 | 2698 | 2521.15 | 2521.15 | 13.32 | 36.29 | 5.58 | 0.99 | 9987.93 | 10024.22 |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.63 | 100-yr 6-hr | 2698 | 2516.09 | 2516.09 | 10.22 | 118.73 | 2.59 | 0.96 | 9974.15 | 10092.88 |
| Fan 6A-1 | 0.63 | Method 1 | 2698 | 2516.28 | 2515.97 | 10.34 | 63.36 | 4.12 | 0.9 | 9986.23 | 10049.59 |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.58 | 100-yr 6-hr | 2698 | 2512 | 2512 | 10.42 | 153.49 | 2.34 | 0.87 | 9974.96 | 10147.83 |
| Fan 6A-1 | 0.58 | Method 1 | 2698 | 2512.37 | 2512.37 | 11.61 | 54.59 | 4.26 | 0.99 | 9982.26 | 10036.85 |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.52 | 100-yr 6-hr | 2698 | 2506.8 | 2506.8 | 8.22 | 247.4 | 1.69 | 0.88 | 9800.81 | 10048.21 |
| Fan 6A-1 | 0.52 | Method 1 | 2698 | 2506.92 | 2506.7 | 8.8 | 103.37 | 2.96 | 0.9 | 9938.82 | 10042.19 |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.42 | 100-yr 6-hr | 2698 | 2499.43 | 2499.43 | 9.5 | 219.2 | 1.9 | 0.83 | 9846.2 | 10065.4 |
| Fan 6A-1 | 0.42 | Method 1 | 2698 | 2499.48 | 2499.48 | 11.27 | 60.24 | 3.97 | 1 | 9976.6 | 10036.84 |
| | | | | | | | | | | | |
| Fan 6A-1 | 0.38 | 100-yr 6-hr | 2698 | 2495.19 | 2495.19 | 8.8 | 232.57 | 1.9 | 0.78 | 9957.43 | 10190 |
| Fan 6A-1 | 0.38 | Method 1 | 2698 | 2495.55 | 2495.55 | 10.38 | 76.31 | 3.41 | 0.99 | 9968.96 | 10045.27 |

## TABLE 19: Culvert Table Fan 6A, Fan 6A North, Fan 6A South

| Reach | River Sta | | Profile | Culv WS Inlet | Culv WS Outlet | Culv EG Inlet | Q Total | Culv Q | Q Weir | Culv Vel US | Culv Vel DS | Culv Frctn Ls |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (ft) |
| | | | | | | | | | | | | |
| Fan 6AN-1 | 3.915 | Culvert #1 | 100-yr 6-hr | 2849.05 | 2846.92 | 2850.74 | 1225 | 1225 | | 10.42 | 14.62 | 0.5 |
| Fan 6AN-1 | 3.915 | Culvert #1 | Method 1 | 2849.05 | 2846.92 | 2850.74 | 1225 | 1225 | | 10.42 | 14.62 | 0.5 |
| | | | | | | | | | | | | |
| Fan 6AN-1 | 2.05 | CULVERT#1 | 100-yr 6-hr | 2648.26 | 2646.02 | 2650.39 | 1678 | 1678 | 115.05 | 9.77 | 15.32 | 0.73 |
| Fan 6AN-1 | 2.05 | CULVERT#1 | Method 1 | 2648.26 | 2646.04 | 2650.48 | 1678 | 1678 | 89.27 | 9.93 | 15.44 | 0.74 |
| | | | | | | | | | | | | |
| Fan 6AN-1 | 1.55 | CULVERT#1 | 100-yr 6-hr | 2602.07 | 2598.69 | 2604.56 | 1678 | 1678 | 7.51 | 10.44 | 17.81 | 0.95 |
| Fan 6AN-1 | 1.55 | CULVERT#1 | Method 1 | 2602.07 | 2598.69 | 2604.59 | 1678 | 1678 | 0.16 | 10.49 | 17.85 | 0.95 |
| | | | | | | | | | | | | |
| Fan 6AN-1 | 1.19 | CULVERT#1 | 100-yr 6-hr | 2566.37 | 2563.64 | 2568.5 | 1678 | 1678 | 115.84 | 9.76 | 15.86 | 0.95 |
| Fan 6AN-1 | 1.19 | CULVERT#1 | Method 1 | 2566.37 | 2563.7 | 2568.74 | 1678 | 1678 | 47.14 | 10.19 | 16.18 | 0.97 |
| | | | | | | | | | | | | |
| Fan 6AN-1 | 1.03 | CULVERT#1 | 100-yr 6-hr | 2552.3 | 2549.8 | 2554.84 | 1678 | 1678 | 2.7 | 10.47 | 16.15 | 0.98 |
| Fan 6AN-1 | 1.03 | CULVERT#1 | Method 1 | 2552.3 | 2549.81 | 2554.85 | 1678 | 1678 | | 10.49 | 16.16 | 0.99 |
| | | | | | | | | | | | | |
| Fan 6AS-1 | 1.77 | CULVERT#1 | 100-yr 6-hr | 2615.04 | 2613 | 2616.94 | 1493 | 1493 | | 9.33 | 14.61 | 0.63 |
| Fan 6AS-1 | 1.77 | CULVERT#1 | Method 1 | 2615.04 | 2613 | 2616.94 | 1493 | 1493 | | 9.33 | 14.61 | 0.63 |
| | | | | | | | | | | | | |
| Fan 6AS-1 | 1.16 | CULVERT#1 | 100-yr 6-hr | 2561.78 | 2559.77 | 2563.29 | 1493 | 1493 | | 9.87 | 13.75 | 0.58 |
| Fan 6AS-1 | 1.16 | CULVERT#1 | Method 1 | 2561.78 | 2559.77 | 2563.29 | 1493 | 1493 | | 9.87 | 13.75 | 0.58 |

## TABLE 20: Hydraulic Modeling Output Table Upper Fan 5

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.95 | 100-yr 6-hr | 404 | 2769.78 | 2769.77 | 6.50 | 84.91 | 1.00 | 0.84 | 9950.95 | 10035.87 |
| UpperFan5-1 | 4.95 | Method1 | 404 | 2770.25 | 2769.89 | 6.20 | 31.24 | 2.09 | 0.76 | 9981.67 | 10012.91 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.88 | 100-yr 6-hr | 404 | 2763.16 | 2763.16 | 6.65 | 80.31 | 1.02 | 0.86 | 9941.19 | 10021.51 |
| UpperFan5-1 | 4.88 | Method1 | 404 | 2763.18 | 2763.18 | 7.71 | 28.63 | 1.83 | 1.00 | 9984.83 | 10013.46 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.80 | 100-yr 6-hr | 404 | 2754.81 | 2754.72 | 5.27 | 84.69 | 0.93 | 0.94 | 9938.84 | 10023.53 |
| UpperFan5-1 | 4.80 | Method1 | 404 | 2755.22 | 2754.71 | 3.88 | 67.47 | 1.54 | 0.55 | 9951.39 | 10018.86 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.76 | 100-yr 6-hr | 404 | 2751.85 | 2751.64 | 5.36 | 122.76 | 0.98 | 0.60 | 9984.22 | 10106.99 |
| UpperFan5-1 | 4.76 | Method1 | 404 | 2751.96 | 2751.96 | 7.66 | 28.75 | 1.83 | 1.00 | 9995.15 | 10023.90 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.67 | 100-yr 6-hr | 979 | 2743.87 | 2743.80 | 6.39 | 142.39 | 1.19 | 0.93 | 9928.24 | 10070.63 |
| UpperFan5-1 | 4.67 | Method1 | 979 | 2744.45 | 2743.77 | 4.92 | 89.90 | 2.22 | 0.58 | 9953.12 | 10043.02 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.62 | 100-yr 6-hr | 979 | 2739.58 | 2739.32 | 5.75 | 228.18 | 1.19 | 0.59 | 9797.20 | 10025.38 |
| UpperFan5-1 | 4.62 | Method1 | 979 | 2740.24 | 2740.24 | 8.68 | 48.45 | 2.33 | 1.00 | 9972.57 | 10021.02 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.52 | 100-yr 6-hr | 979 | 2731.31 | 2731.21 | 6.07 | 191.93 | 1.09 | 0.79 | 9884.97 | 10076.90 |
| UpperFan5-1 | 4.52 | Method1 | 979 | 2731.81 | 2731.52 | 6.15 | 81.86 | 1.95 | 0.78 | 9953.31 | 10035.17 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.42 | 100-yr 6-hr | 979 | 2723.72 | | 5.48 | 191.26 | 1.34 | 0.58 | 9969.37 | 10160.63 |
| UpperFan5-1 | 4.42 | Method1 | 979 | 2724.44 | 2724.15 | 7.25 | 56.67 | 2.38 | 0.83 | 9977.13 | 10033.80 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.33 | 100-yr 6-hr | 979 | 2715.28 | 2715.28 | 7.30 | 140.59 | 1.26 | 0.87 | 9884.71 | 10025.31 |
| UpperFan5-1 | 4.33 | Method1 | 979 | 2715.55 | 2715.50 | 7.86 | 58.51 | 2.13 | 0.95 | 9965.99 | 10024.50 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.25 | 100-yr 6-hr | 979 | 2707.54 | 2706.75 | 4.66 | 305.94 | 1.12 | 0.47 | 9963.36 | 10283.21 |
| UpperFan5-1 | 4.25 | Method1 | 979 | 2708.33 | 2708.33 | 7.40 | 116.56 | 1.51 | 0.80 | 9970.70 | 10087.26 |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.16 | 100-yr 6-hr | 979 | 2701.64 | 2701.44 | 5.85 | 180.03 | 1.14 | 0.79 | 9978.76 | 10330.48 |
| UpperFan5-1 | 4.16 | Method1 | 979 | 2701.99 | 2701.63 | 5.77 | 89.47 | 1.90 | 0.74 | 9980.55 | 10070.02 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.11 | 100-yr 6-hr | 979 | 2697.25 | 2697.13 | 5.37 | 271.73 | 0.89 | 0.75 | 9950.81 | 10266.23 |
| UpperFan5-1 | 4.11 | Method1 | 979 | 2697.35 | 2697.35 | 6.62 | 110.38 | 1.34 | 1.01 | 9957.59 | 10067.97 |
| | | | | | | | | | | | |
| UpperFan5-1 | 4.04 | 100-yr 6-hr | 979 | 2688.73 | 2688.73 | 5.94 | 197.79 | 0.95 | 0.94 | 9861.31 | 10120.13 |
| UpperFan5-1 | 4.04 | Method1 | 979 | 2689.07 | 2688.73 | 4.92 | 141.21 | 1.41 | 0.73 | 9945.78 | 10114.92 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.96 | 100-yr 6-hr | 979 | 2680.75 | | 5.15 | 142.28 | 1.47 | 0.68 | 9935.73 | 10137.01 |
| UpperFan5-1 | 3.96 | Method1 | 979 | 2681.29 | 2681.29 | 7.64 | 71.90 | 1.78 | 1.01 | 9942.21 | 10014.11 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.92 | 100-yr 6-hr | 979 | 2677.60 | 2677.51 | 6.11 | 119.10 | 1.36 | 0.92 | 9982.31 | 10122.60 |
| UpperFan5-1 | 3.92 | Method1 | 979 | 2677.66 | 2677.50 | 5.88 | 114.57 | 1.45 | 0.86 | 9985.50 | 10119.95 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.87 | 100-yr 6-hr | 979 | 2672.72 | 2672.72 | 7.47 | 141.61 | 1.12 | 1.03 | 9955.11 | 10096.72 |
| UpperFan5-1 | 3.87 | Method1 | 979 | 2672.80 | 2672.52 | 7.59 | 51.00 | 2.53 | 0.84 | 9981.14 | 10032.14 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.78 | 100-yr 6-hr | 979 | 2663.59 | 2663.59 | 6.54 | 129.72 | 1.20 | 1.02 | 9991.46 | 10121.17 |
| UpperFan5-1 | 3.78 | Method1 | 979 | 2663.57 | 2663.57 | 6.70 | 105.72 | 1.38 | 1.00 | 9993.64 | 10099.36 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.71 | 100-yr 6-hr | 979 | 2656.04 | 2655.94 | 6.13 | 157.83 | 1.17 | 0.86 | 9971.92 | 10129.75 |
| UpperFan5-1 | 3.71 | Method1 | 979 | 2656.59 | | 4.94 | 89.60 | 2.21 | 0.59 | 9976.45 | 10066.05 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.67 | 100-yr 6-hr | 979 | 2653.43 | 2653.24 | 5.70 | 246.24 | 1.05 | 0.65 | 9944.68 | 10190.92 |
| UpperFan5-1 | 3.67 | Method1 | 979 | 2653.88 | 2653.88 | 7.88 | 65.23 | 1.91 | 1.01 | 9963.20 | 10028.43 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.58 | 100-yr 6-hr | 979 | 2644.83 | 2644.70 | 6.05 | 126.80 | 1.30 | 0.92 | 9910.96 | 10037.76 |
| UpperFan5-1 | 3.58 | Method1 | 979 | 2645.08 | | 5.21 | 107.83 | 1.74 | 0.69 | 9925.73 | 10033.56 |
| | | | | | | | | | | | |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.52 | 100-yr 6-hr | 979 | 2639.66 | 2639.66 | 7.27 | 175.88 | 1.13 | 0.81 | 9818.62 | 10021.00 |
| UpperFan5-1 | 3.52 | Method1 | 979 | 2639.88 | 2639.88 | 8.61 | 48.26 | 2.36 | 0.99 | 9971.06 | 10019.32 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.49 | 100-yr 6-hr | 979 | 2635.91 | 2635.63 | 5.53 | 190.69 | 0.99 | 0.92 | 9897.22 | 10087.91 |
| UpperFan5-1 | 3.49 | Method1 | 979 | 2635.93 | 2635.61 | 5.56 | 103.11 | 1.71 | 0.75 | 9933.42 | 10036.53 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.42 | 100-yr 6-hr | 979 | 2630.26 | 2630.19 | 7.53 | 79.53 | 1.65 | 1.02 | 9985.73 | 10065.26 |
| UpperFan5-1 | 3.42 | Method1 | 979 | 2630.26 | 2630.17 | 7.53 | 65.04 | 2.00 | 0.94 | 9986.07 | 10051.11 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.33 | 100-yr 6-hr | 1242 | 2621.44 | 2621.44 | 7.07 | 153.59 | 1.27 | 1.00 | 9893.58 | 10047.16 |
| UpperFan5-1 | 3.33 | Method1 | 1242 | 2621.49 | 2621.43 | 7.09 | 99.19 | 1.77 | 0.94 | 9945.90 | 10045.09 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.23 | 100-yr 6-hr | 1242 | 2612.46 | 2612.46 | 7.51 | 192.68 | 1.27 | 0.79 | 9986.78 | 10179.46 |
| UpperFan5-1 | 3.23 | Method1 | 1242 | 2613.01 | 2613.01 | 8.42 | 68.11 | 2.17 | 1.01 | 9988.14 | 10056.25 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.14 | 100-yr 6-hr | 1242 | 2605.70 | | 5.94 | 136.71 | 1.58 | 0.81 | 9943.59 | 10080.30 |
| UpperFan5-1 | 3.14 | Method1 | 1242 | 2605.81 | | 5.63 | 113.82 | 1.94 | 0.71 | 9961.37 | 10075.19 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.10 | 100-yr 6-hr | 1242 | 2602.23 | 2602.23 | 8.48 | 82.23 | 1.94 | 0.98 | 9943.41 | 10025.64 |
| UpperFan5-1 | 3.10 | Method1 | 1242 | 2602.18 | 2602.18 | 8.90 | 57.46 | 2.43 | 1.01 | 9964.07 | 10021.53 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.03 | 100-yr 6-hr | 1242 | 2597.46 | | 6.78 | 120.58 | 1.87 | 0.71 | 9962.93 | 10083.51 |
| UpperFan5-1 | 3.03 | Method1 | 1242 | 2597.41 | | 7.26 | 49.56 | 3.45 | 0.69 | 9968.84 | 10018.40 |
| | | | | | | | | | | | |
| UpperFan5-1 | 3.00 | 100-yr 6-hr | 1242 | 2597.65 | 2592.72 | 2.17 | 294.11 | 6.81 | 0.15 | 9973.30 | 10057.90 |
| UpperFan5-1 | 3.00 | Method1 | 1242 | 2597.64 | 2592.72 | 2.18 | 83.34 | 6.82 | 0.15 | 9974.56 | 10057.90 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.99 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.98 | 100-yr 6-hr | 1242 | 2591.54 | 2591.54 | 6.55 | 225.19 | 1.36 | 0.99 | 9948.41 | 10088.41 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.98 | Method1 | 1242 | 2592.03 | 2591.55 | 4.84 | 138.16 | 1.86 | 0.63 | 9950.25 | 10088.41 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.91 | 100-yr 6-hr | 1242 | 2585.66 | 2585.66 | 8.81 | 171.17 | 1.50 | 0.70 | 9962.62 | 10133.79 |
| UpperFan5-1 | 2.91 | Method1 | 1242 | 2585.80 | 2585.80 | 11.19 | 28.07 | 3.95 | 0.99 | 9986.46 | 10014.53 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.86 | 100-yr 6-hr | 1242 | 2580.82 | 2580.82 | 8.16 | 184.99 | 0.97 | 1.24 | 9940.78 | 10147.73 |
| UpperFan5-1 | 2.86 | Method1 | 1242 | 2580.81 | 2580.81 | 8.51 | 65.59 | 2.23 | 1.01 | 9949.37 | 10014.96 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.78 | 100-yr 6-hr | 1242 | 2574.64 | 2574.64 | 4.50 | 542.91 | 1.17 | 0.32 | 9959.80 | 10502.71 |
| UpperFan5-1 | 2.78 | Method1 | 1242 | 2574.92 | 2574.92 | 7.77 | 148.31 | 1.47 | 0.83 | 9967.01 | 10115.32 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.74 | 100-yr 6-hr | 1242 | 2570.53 | 2569.97 | 6.43 | 556.35 | 0.62 | 0.80 | 9974.01 | 10530.36 |
| UpperFan5-1 | 2.74 | Method1 | 1242 | 2571.15 | 2571.10 | 6.96 | 110.11 | 1.62 | 0.96 | 9975.96 | 10086.07 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.66 | 100-yr 6-hr | 1242 | 2564.21 | 2563.84 | 5.31 | 359.40 | 0.92 | 0.69 | 9775.83 | 10324.30 |
| UpperFan5-1 | 2.66 | Method1 | 1242 | 2564.17 | 2564.17 | 6.85 | 126.88 | 1.43 | 1.01 | 9888.32 | 10015.20 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.60 | 100-yr 6-hr | 1242 | 2557.19 | 2557.19 | 7.58 | 277.74 | 0.90 | 0.93 | 9984.08 | 10347.22 |
| UpperFan5-1 | 2.60 | Method1 | 1242 | 2558.15 | 2558.15 | 6.87 | 221.27 | 1.23 | 0.73 | 9984.81 | 10206.08 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.56 | 100-yr 6-hr | 1242 | 2552.91 | 2552.44 | 3.86 | 293.46 | 1.21 | 0.56 | 9975.99 | 10269.44 |
| UpperFan5-1 | 2.56 | Method1 | 1242 | 2553.79 | 2553.79 | 7.22 | 107.52 | 1.60 | 1.01 | 9977.94 | 10085.46 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.50 | 100-yr 6-hr | 1242 | 2547.59 | 2547.44 | 5.88 | 224.60 | 1.18 | 0.76 | 9819.32 | 10043.91 |
| UpperFan5-1 | 2.50 | Method1 | 1242 | 2547.96 | 2547.75 | 5.98 | 126.44 | 1.64 | 0.82 | 9907.72 | 10034.16 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.44 | 100-yr 6-hr | 1242 | 2542.75 | 2542.75 | 7.16 | 193.13 | 1.19 | 0.87 | 9863.90 | 10057.04 |
| UpperFan5-1 | 2.44 | Method1 | 1242 | 2542.69 | 2542.69 | 8.22 | 72.70 | 2.08 | 1.00 | 9971.53 | 10044.23 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.38 | 100-yr 6-hr | 1242 | 2536.50 | 2536.50 | 7.92 | 89.27 | 1.78 | 1.03 | 9977.87 | 10067.14 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.38 | Method1 | 1242 | 2536.50 | 2536.48 | 7.92 | 78.83 | 1.99 | 0.99 | 9981.27 | 10060.10 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.32 | 100-yr 6-hr | 1242 | 2531.48 | 2531.48 | 7.20 | 120.71 | 1.46 | 1.03 | 9909.51 | 10030.22 |
| UpperFan5-1 | 2.32 | Method1 | 1242 | 2531.46 | 2531.46 | 7.30 | 104.87 | 1.62 | 1.01 | 9924.11 | 10028.98 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.27 | 100-yr 6-hr | 1242 | 2526.20 | 2526.14 | 8.06 | 72.27 | 2.13 | 0.97 | 9949.50 | 10021.77 |
| UpperFan5-1 | 2.27 | Method1 | 1242 | 2526.28 | 2526.13 | 7.77 | 70.70 | 2.26 | 0.91 | 9950.27 | 10020.97 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.22 | 100-yr 6-hr | 1242 | 2521.90 | 2521.90 | 8.08 | 89.31 | 1.81 | 1.01 | 9978.57 | 10067.89 |
| UpperFan5-1 | 2.22 | Method1 | 1242 | 2521.87 | 2521.87 | 8.27 | 68.97 | 2.18 | 0.99 | 9985.18 | 10054.15 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.14 | 100-yr 6-hr | 1242 | 2514.74 | 2514.74 | 8.63 | 70.40 | 2.09 | 1.03 | 9956.49 | 10026.89 |
| UpperFan5-1 | 2.14 | Method1 | 1242 | 2514.72 | 2514.72 | 8.76 | 60.32 | 2.35 | 1.01 | 9962.07 | 10022.39 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.04 | 100-yr 6-hr | 1242 | 2505.51 | 2505.51 | 9.41 | 62.88 | 2.29 | 1.00 | 9956.35 | 10019.23 |
| UpperFan5-1 | 2.04 | Method1 | 1242 | 2505.46 | 2505.46 | 9.83 | 42.52 | 2.97 | 1.01 | 9973.08 | 10015.60 |
| | | | | | | | | | | | |
| UpperFan5-1 | 2.00 | 100-yr 6-hr | 1242 | 2499.44 | 2499.44 | 7.63 | 113.05 | 1.60 | 0.96 | 9946.17 | 10059.22 |
| UpperFan5-1 | 2.00 | Method1 | 1242 | 2499.48 | 2499.48 | 7.91 | 82.03 | 1.91 | 1.01 | 9972.69 | 10054.72 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.92 | 100-yr 6-hr | 1242 | 2491.79 | 2491.79 | 7.52 | 107.14 | 1.60 | 1.01 | 9946.53 | 10053.68 |
| UpperFan5-1 | 1.92 | Method1 | 1242 | 2491.76 | 2491.76 | 7.74 | 86.66 | 1.85 | 1.00 | 9947.50 | 10034.16 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.85 | 100-yr 6-hr | 1242 | 2484.90 | 2484.75 | 6.24 | 125.73 | 1.59 | 0.87 | 9897.08 | 10022.81 |
| UpperFan5-1 | 1.85 | Method1 | 1242 | 2484.93 | 2484.74 | 6.17 | 122.16 | 1.65 | 0.85 | 9899.46 | 10021.62 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.76 | 100-yr 6-hr | 1242 | 2477.51 | 2477.51 | 7.84 | 89.20 | 1.80 | 1.02 | 9971.99 | 10061.19 |
| UpperFan5-1 | 1.76 | Method1 | 1242 | 2477.50 | 2477.50 | 7.90 | 81.40 | 1.93 | 1.00 | 9974.73 | 10056.13 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.67 | 100-yr 6-hr | 1242 | 2468.86 | 2468.86 | 8.64 | 71.16 | 2.08 | 1.03 | 9962.57 | 10033.73 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.67 | Method1 | 1242 | 2469.11 | 2468.84 | 7.88 | 59.75 | 2.64 | 0.85 | 9965.35 | 10025.10 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.61 | 100-yr 6-hr | 1242 | 2463.80 | 2463.80 | 9.91 | 56.08 | 2.49 | 0.99 | 9984.55 | 10040.63 |
| UpperFan5-1 | 1.61 | Method1 | 1242 | 2463.74 | 2463.74 | 10.42 | 35.60 | 3.35 | 1.00 | 9989.12 | 10024.72 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.56 | 100-yr 6-hr | 1242 | 2458.21 | 2458.21 | 7.76 | 89.09 | 1.80 | 1.02 | 9958.10 | 10047.19 |
| UpperFan5-1 | 1.56 | Method1 | 1242 | 2458.21 | 2458.21 | 7.77 | 86.12 | 1.86 | 1.01 | 9958.71 | 10044.83 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.52 | 100-yr 6-hr | 1242 | 2453.79 | 2453.79 | 7.51 | 137.93 | 1.41 | 0.95 | 9930.36 | 10068.29 |
| UpperFan5-1 | 1.52 | Method1 | 1242 | 2453.81 | 2453.79 | 7.90 | 79.04 | 1.99 | 0.99 | 9970.93 | 10049.97 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.45 | 100-yr 6-hr | 1242 | 2447.47 | 2447.46 | 7.62 | 96.87 | 1.70 | 1.02 | 9945.66 | 10042.52 |
| UpperFan5-1 | 1.45 | Method1 | 1242 | 2447.54 | 2447.45 | 7.37 | 87.48 | 1.93 | 0.94 | 9952.96 | 10040.44 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.38 | 100-yr 6-hr | 1242 | 2441.73 | 2441.73 | 7.63 | 109.61 | 1.55 | 1.03 | 9925.15 | 10034.76 |
| UpperFan5-1 | 1.38 | Method1 | 1242 | 2441.70 | 2441.70 | 7.83 | 84.51 | 1.88 | 1.01 | 9944.42 | 10028.93 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.33 | 100-yr 6-hr | 1242 | 2436.56 | 2436.56 | 8.05 | 85.42 | 1.83 | 1.03 | 9956.12 | 10041.53 |
| UpperFan5-1 | 1.33 | Method1 | 1242 | 2436.56 | 2436.55 | 8.09 | 76.46 | 2.01 | 1.01 | 9961.75 | 10038.21 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.24 | 100-yr 6-hr | 2019 | 2428.25 | 2428.25 | 8.55 | 148.98 | 1.86 | 0.95 | 9919.73 | 10068.71 |
| UpperFan5-1 | 1.24 | Method1 | 2019 | 2428.36 | 2428.36 | 8.98 | 92.76 | 2.42 | 1.02 | 9963.18 | 10055.94 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.18 | 100-yr 6-hr | 2019 | 2423.01 | 2423.01 | 8.37 | 146.56 | 1.83 | 0.98 | 9904.13 | 10050.69 |
| UpperFan5-1 | 1.18 | Method1 | 2019 | 2423.20 | 2422.98 | 8.06 | 96.75 | 2.59 | 0.88 | 9944.06 | 10040.81 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.09 | 100-yr 6-hr | 2019 | 2416.30 | 2416.21 | 7.99 | 169.65 | 1.87 | 0.82 | 9903.27 | 10072.92 |
| UpperFan5-1 | 1.09 | Method1 | 2019 | 2416.30 | 2416.30 | 9.14 | 88.33 | 2.50 | 1.02 | 9929.49 | 10017.82 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.04 | 100-yr 6-hr | 2019 | 2412.32 | 2412.32 | 7.17 | 185.01 | 1.53 | 1.02 | 9936.22 | 10121.23 |

| Reach | River Sta | Profile | Q Total | W.S. Elev | Crit W.S. | Vel Chnl | Top Width | Hydr Depth | Froude # XS | Left Sta Eff | Rght Sta Eff |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft/s) | (ft) | (ft) | | (ft) | (ft) |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.04 | Method1 | 2019 | 2412.98 | | 5.08 | 177.95 | 2.24 | 0.60 | 9939.28 | 10117.23 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.01 | 100-yr 6-hr | 2019 | 2411.49 | 2410.21 | 5.67 | 220.60 | 2.76 | 0.35 | 9847.15 | 10067.75 |
| UpperFan5-1 | 1.01 | Method1 | 2019 | 2412.42 | 2410.09 | 5.46 | 101.48 | 4.92 | 0.32 | 9949.53 | 10051.01 |
| | | | | | | | | | | | |
| UpperFan5-1 | 1.00 | | Culvert | | | | | | | | |
| | | | | | | | | | | | |
| UpperFan5-1 | 0.99 | 100-yr 6-hr | 2019 | 2408.56 | 2408.56 | 8.56 | 154.02 | 2.32 | 0.99 | 9949.53 | 10051.01 |
| UpperFan5-1 | 0.99 | Method1 | 2019 | 2408.56 | 2408.56 | 8.56 | 101.48 | 2.32 | 0.99 | 9949.53 | 10051.01 |
| | | | | | | | | | | | |
| UpperFan5-1 | 0.93 | 100-yr 6-hr | 2019 | 2402.30 | 2402.16 | 6.77 | 234.33 | 1.33 | 0.99 | 9852.83 | 10102.57 |
| UpperFan5-1 | 0.93 | Method1 | 2019 | 2402.32 | 2402.13 | 6.73 | 158.88 | 1.89 | 0.86 | 9938.47 | 10097.35 |
| | | | | | | | | | | | |
| UpperFan5-1 | 0.86 | 100-yr 6-hr | 2019 | 2396.76 | 2396.76 | 8.62 | 117.66 | 2.04 | 1.04 | 9905.63 | 10023.29 |
| UpperFan5-1 | 0.86 | Method1 | 2019 | 2396.76 | 2396.76 | 8.65 | 98.40 | 2.37 | 0.99 | 9918.57 | 10016.97 |

## TABLE 21: Culvert Table Upper Fan 5

| Reach | River Sta | | Profile | Culv WS Inlet | Culv WS Outlet | Culv EG Inlet | Q Total | Culv Q | Q Weir | Culv Vel US | Culv Vel DS | Culv Frctn Ls |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft/s) | (ft/s) | (ft) |
| | | | | | | | | | | | | |
| UpperFan5-1 | 2.99 | CULVERT#1 | 100-yr 6-hr | 2594.60 | 2591.70 | 2597.05 | 1242 | 1242 | | 10.35 | 16.92 | 0.91 |
| UpperFan5-1 | 2.99 | CULVERT#1 | Method1 | 2594.60 | 2591.70 | 2597.05 | 1242 | 1242 | | 10.35 | 16.92 | 0.91 |
| | | | | | | | | | | | | |
| UpperFan5-1 | 1.00 | CULVERT#1 | 100-yr 6-hr | 2407.77 | 2407.67 | 2411.08 | 2019 | 2019 | 1304.40 | 11.17 | 11.17 | 0.59 |
| UpperFan5-1 | 1.00 | CULVERT#1 | Method1 | 2407.77 | 2407.67 | 2411.80 | 2019 | 2019 | 1208.70 | 12.66 | 12.66 | 0.76 |

# 6 Erosion and Sediment Transfer

No erosion or sediment transfer was taken into account for the riverine portions of this study.

## 6.1 Method Description

This item was not included as part of this study.

## 6.2 Parameter Estimation

This item was not included as part of this study.

## 6.3 Modeling Considerations

This item was not included as part of this study.

## 6.4 Method Description

This item was not included as part of this study.

## 6.5 Problems Encountered During the Study

This item was not included as part of this study.

## 6.6 Calibration

This item was not included as part of this study.

## 6.7 Final Results

This item was not included as part of this study.

# 7 Draft FIS Report Data

## 7.1 Summary of Discharges

Draft Summaries of Discharges Results Tables are located on the following pages.

| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-year | 50-year | 100-year | 500-year |
|---|---|---|---|---|---|
| Stage Coach Pass Wash | | | | | |
| At confluence with Scottsdale Road | 1.6 | __1 | __1 | 1,996 | __1 |
| At confluence with Pima Road | 1.10 | __1 | __1 | 1,308 | __1 |
| Approx. 600-ft upstream of confluence with Stage Coach Pass | 1.01 | __1 | __1 | 1,116 | __1 |
| At East boundary with Town of Carefree and City of Scottsdale | 0.54 | __1 | __1 | 844 | __1 |
| At the Northeast corner of Section 32, Township 6N, Range 5E | 0.304 | __1 | __1 | 758 | __1 |
| Upper Boulders Wash | | | | | |
| Approx. 2,300-ft upstream of Scottsdale Road | 1.73 | __1 | __1 | 2,178 | __1 |
| At confluence with Westland Road | 1.17 | __1 | __1 | 1,667 | __1 |
| At confluence with Hayden Road | 1.08 | __1 | __1 | 1,628 | __1 |
| At confluence with Pima Road | 0.70 | __1 | __1 | 1,270 | __1 |
| Fan 6C | | | | | |
| At confluence with existing FEMA alluvial fan | 1.680 | __1 | __1 | 1,584 | __1 |
| At confluence with Westland Road | 1.460 | __1 | __1 | 1,513 | __1 |
| At confluence with Pima Road | 1.18 | __1 | __1 | 1,369 | __1 |
| Fan 6A North | | | | | |
| Approx. 1300-ft upstream of confluence with north boundary of Legend Trail Subdivision | 1.27 | __1 | __1 | 1,527 | __1 |
| Fan 6A South | | | | | |
| Approx. 850-ft upstream of confluence with east boundary of Legend Trail Subdivision | 1.44 | __1 | __1 | 1,493 | __1 |
| Fan 6A | | | | | |
| At confluence with existing FEMA alluvial fan | 3.53 | __1 | __1 | 2,698 | __1 |
| At confluence with Fan 6A North and Fan 6A South | 3.4 | __1 | __1 | 2,698 | __1 |

[1] Not Computed

| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-year | 50-year | 100-year | 500-year |
|---|---|---|---|---|---|
| Upper Fan 5 | | | | | |
| At confluence with existing FEMA alluvial fan | 3.15 | __[1] | __[1] | 2,019 | __[1] |
| Approx. 1250-ft upstream of confluence with Pima Road | 3.07 | __[1] | __[1] | 2,019 | __[1] |
| Approx. 1000-ft upstream of confluence with east boundary of Legend Trail Subdivision | 1.6 | __[1] | __[1] | 979 | __[1] |

[1] Not Computed

## 7.2 Floodway Data

Draft Floodway Data Tables are located following the Summary of Discharges Results Table.

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Stagecoach Pass Wash | | | | | | | | |
| | 1.01 | 108 | 282 | 10.4 | 2269.6 | 2269.6 | 2269.6 | 0.0 |
| | 1.07 | 77 | 212 | 9.4 | 2275.7 | 2275.7 | 2276.1 | 0.4 |
| | 1.1 | 74 | 208 | 9.6 | 2279.0 | 2279.0 | 2279.0 | 0.0 |
| | 1.13 | 106 | 331 | 6.0 | 2280.6 | 2280.6 | 2281.2 | 0.6 |
| | 1.19 | 100 | 246 | 8.1 | 2287.7 | 2287.7 | 2287.7 | 0.0 |
| | 1.29 | 65 | 200 | 10.0 | 2297.2 | 2297.2 | 2297.2 | 0.0 |
| | 1.36 | 98 | 231 | 8.7 | 2305.7 | 2305.7 | 2305.8 | 0.1 |
| | 1.44 | 90 | 248 | 8.0 | 2313.8 | 2313.8 | 2313.9 | 0.1 |
| | 1.47 | 106 | 246 | 8.1 | 2316.5 | 2316.5 | 2316.6 | 0.1 |
| | 1.53 | 97 | 228 | 8.8 | 2324.5 | 2324.5 | 2324.5 | 0.0 |
| | 1.57 | 132 | 255 | 7.8 | 2331.2 | 2331.2 | 2331.2 | 0.0 |
| | 1.66 | 136 | 257 | 7.8 | 2338.8 | 2338.8 | 2338.8 | 0.0 |
| | 1.72 | 172 | 277 | 7.2 | 2345.6 | 2345.6 | 2345.6 | 0.0 |
| | 1.76 | 134 | 260 | 7.7 | 2350.6 | 2350.6 | 2350.6 | 0.0 |
| | 1.81 | 105 | 241 | 8.3 | 2357.1 | 2357.1 | 2357.1 | 0.0 |
| | 1.88 | 40 | 170 | 11.8 | 2365.4 | 2365.4 | 2366.2 | 0.8 |
| | 1.92 | 51 | 184 | 10.8 | 2369.5 | 2369.5 | 2369.5 | 0.0 |
| | 1.94 | 36 | 176 | 11.4 | 2373.9 | 2373.9 | 2374.2 | 0.3 |
| | 2.02 | 80 | 214 | 9.3 | 2383.1 | 2383.1 | 2383.1 | 0.0 |
| | 2.08 | 62 | 199 | 10.1 | 2391.4 | 2391.4 | 2391.4 | 0.0 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Stagecoach Pass Wash (Cont'd) | | | | | | | | |
| | 2.14 | 89 | 222 | 9.0 | 2398.7 | 2398.7 | 2398.7 | 0.0 |
| | 2.15 | 91 | 452 | 4.4 | 2401.7 | 2401.7 | 2401.8 | 0.1 |
| | 2.23 | 175 | 349 | 5.3 | 2411.8 | 2411.8 | 2411.8 | 0.0 |
| | 2.3 | 79 | 204 | 9.1 | 2419.2 | 2419.2 | 2419.2 | 0.0 |
| | 2.36 | 67 | 192 | 9.6 | 2425.7 | 2425.7 | 2425.7 | 0.0 |
| | 2.41 | 92 | 214 | 8.7 | 2430.8 | 2430.8 | 2430.8 | 0.0 |
| | 2.49 | 40 | 161 | 11.5 | 2439.3 | 2439.3 | 2439.3 | 0.0 |
| | 2.5 | 45 | 201 | 9.1 | 2443.9 | 2443.9 | 2444.4 | 0.5 |
| | 2.58 | 81 | 203 | 9.0 | 2451.4 | 2451.4 | 2451.4 | 0.0 |
| | 2.61 | 63 | 186 | 9.8 | 2454.4 | 2454.4 | 2454.4 | 0.0 |
| | 2.7 | 46 | 167 | 10.9 | 2464.0 | 2464.0 | 2464.0 | 0.0 |
| | 2.76 | 120 | 293 | 6.1 | 2468.5 | 2468.5 | 2468.6 | 0.1 |
| | 2.8 | 96 | 212 | 8.5 | 2472.3 | 2472.3 | 2472.3 | 0.0 |
| | 2.86 | 66 | 188 | 9.5 | 2478.5 | 2478.5 | 2478.5 | 0.0 |
| | 2.92 | 50 | 172 | 10.4 | 2483.9 | 2483.9 | 2484.0 | 0.1 |
| | 2.95 | 89 | 347 | 5.2 | 2487.2 | 2487.2 | 2487.2 | 0.0 |
| | 2.97 | 114 | 661 | 2.7 | 2492.3 | 2492.3 | 2493.2 | 0.9 |
| | 3.03 | 52 | 174 | 10.3 | 2495.5 | 2495.5 | 2495.6 | 0.1 |
| | 3.06 | 60 | 223 | 6.7 | 2498.3 | 2498.3 | 2499.0 | 0.7 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Stagecoach Pass Wash (Cont'd) | | | | | | | | |
| | 3.16 | 63 | 162 | 9.2 | 2506.6 | 2506.6 | 2506.6 | 0.0 |
| | 3.25 | 42 | 142 | 10.4 | 2517.2 | 2517.2 | 2517.2 | 0.0 |
| | 3.31 | 67 | 204 | 7.3 | 2522.8 | 2522.8 | 2522.9 | 0.1 |
| | 3.35 | 41 | 141 | 10.5 | 2527.4 | 2527.4 | 2527.4 | 0.0 |
| | 3.44 | 43 | 164 | 9.1 | 2535.3 | 2535.3 | 2535.6 | 0.3 |
| | 3.53 | 103 | 190 | 7.8 | 2543.7 | 2543.7 | 2543.7 | 0.0 |
| | 3.57 | 60 | 160 | 9.3 | 2547.2 | 2547.2 | 2547.2 | 0.0 |
| | 3.62 | 60 | 154 | 8.5 | 2551.0 | 2551.0 | 2551.1 | 0.1 |
| | 3.64 | 90 | 169 | 7.7 | 2554.9 | 2554.9 | 2555.0 | 0.1 |
| | 3.66 | 70 | 154 | 8.5 | 2556.8 | 2556.8 | 2556.8 | 0.0 |
| | 3.72 | 81 | 161 | 8.1 | 2563.4 | 2563.4 | 2563.4 | 0.0 |
| | 3.82 | 64 | 155 | 8.4 | 2573.0 | 2573.0 | 2573.0 | 0.0 |
| | 3.9 | 98 | 173 | 7.6 | 2582.3 | 2582.3 | 2582.3 | 0.0 |
| | 3.96 | 30 | 117 | 11.2 | 2588.2 | 2588.2 | 2588.2 | 0.0 |
| | 4.01 | 48 | 139 | 9.4 | 2592.9 | 2592.9 | 2592.9 | 0.0 |
| | 4.09 | 42 | 131 | 10.0 | 2600.6 | 2600.6 | 2600.6 | 0.0 |
| | 4.19 | 54 | 149 | 8.8 | 2609.7 | 2609.7 | 2609.7 | 0.0 |
| | 4.24 | 40 | 157 | 8.4 | 2613.5 | 2613.5 | 2613.8 | 0.3 |
| | | | | | | | | |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Stagecoach Pass Wash (Cont'd) | | | | | | | | |
| | 4.3 | 28 | 109 | 10.3 | 2618.3 | 2618.3 | 2618.5 | 0.2 |
| | 4.34 | 66 | 115 | 7.3 | 2624.3 | 2624.3 | 2624.3 | 0.0 |
| | 4.43 | 68 | 121 | 6.9 | 2634.1 | 2634.1 | 2634.2 | 0.1 |
| | 4.53 | 101 | 136 | 6.2 | 2644.8 | 2644.8 | 2644.8 | 0.0 |
| | 4.62 | 92 | 137 | 6.1 | 2655.7 | 2655.7 | 2655.8 | 0.1 |
| | 4.72 | 87 | 125 | 6.7 | 2666.5 | 2666.5 | 2666.5 | 0.0 |
| | 4.77 | 37 | 93 | 9.0 | 2672.8 | 2672.8 | 2672.8 | 0.0 |
| | 4.81 | 60 | 154 | 5.5 | 2676.4 | 2676.4 | 2676.4 | 0.0 |
| | 4.84 | 76 | 119 | 7.1 | 2678.5 | 2678.5 | 2678.5 | 0.0 |
| | 4.94 | 100 | 145 | 5.8 | 2689.4 | 2689.4 | 2689.6 | 0.2 |
| | 5.02 | 120 | 139 | 6.0 | 2699.2 | 2699.2 | 2699.2 | 0.0 |
| | 5.08 | 107 | 140 | 6.0 | 2706.3 | 2706.3 | 2706.3 | 0.0 |
| | 5.12 | 91 | 126 | 6.7 | 2713.3 | 2713.3 | 2713.3 | 0.0 |
| | 5.18 | 204 | 190 | 4.5 | 2720.9 | 2720.9 | 2720.9 | 0.0 |
| | 5.27 | 151 | 148 | 5.7 | 2732.2 | 2732.2 | 2732.2 | 0.0 |
| | 5.37 | 72 | 113 | 6.7 | 2744.2 | 2744.2 | 2744.7 | 0.5 |
| | 5.43 | 86 | 115 | 6.6 | 2753.0 | 2753.0 | 2753.0 | 0.0 |
| | 5.46 | 114 | 139 | 5.4 | 2757.1 | 2757.1 | 2757.1 | 0.0 |
| | | | | | | | | |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Stagecoach Pass Wash (Cont'd) | | | | | | | | |
| | 5.51 | 102 | 121 | 6.2 | 2763.3 | 2763.3 | 2763.3 | 0.0 |
| | 5.55 | 152 | 152 | 5.0 | 2768.8 | 2768.8 | 2768.8 | 0.0 |
| | 5.61 | 109 | 128 | 5.9 | 2776.2 | 2776.2 | 2776.2 | 0.0 |
| | 5.64 | 78 | 111 | 6.9 | 2780.2 | 2780.2 | 2780.2 | 0.0 |
| | 5.72 | 100 | 130 | 5.8 | 2789.3 | 2789.3 | 2789.3 | 0.0 |
| | 5.81 | 105 | 124 | 6.1 | 2801.4 | 2801.4 | 2801.4 | 0.0 |
| | 5.89 | 120 | 136 | 5.6 | 2811.3 | 2811.3 | 2811.3 | 0.0 |
| | 5.91 | 104 | 591 | 1.3 | 2817.8 | 2817.8 | 2818.0 | 0.2 |
| | 5.98 | 91 | 117 | 6.5 | 2823.8 | 2823.8 | 2823.8 | 0.0 |
| | 6.07 | 95 | 119 | 6.4 | 2837.9 | 2837.9 | 2837.9 | 0.0 |
| | 6.17 | 113 | 128 | 5.9 | 2850.7 | 2850.7 | 2851.0 | 0.3 |
| | 6.23 | 97 | 99 | 6 | 2860.2 | 2860.2 | 2860.2 | 0.0 |
| | 6.31 | 64 | 101 | 6.3 | 2870.2 | 2870.2 | 2870.2 | 0.0 |
| | 6.37 | 108 | 109 | 5.8 | 2879.1 | 2879.1 | 2879.1 | 0.0 |
| | 6.45 | 50 | 86 | 7.0 | 2890.9 | 2890.9 | 2890.9 | 0.0 |
| | 6.5 | 92 | 111 | 5.7 | 2897.5 | 2897.5 | 2897.5 | 0.0 |
| | 6.51 | 138 | 409 | 1.5 | 2901.3 | 2901.3 | 2901.7 | 0.4 |
| | 6.54 | 119 | 114 | 5.6 | 2902.3 | 2902.3 | 2902.3 | 0.0 |
| | 6.55 | 169 | 581 | 1.1 | 2906.2 | 2906.2 | 2906.2 | 0.0 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Stagecoach Pass Wash (Cont'd) | | | | | | | | |
| | 6.59 | 164 | 126 | 5.0 | 2910.6 | 2910.6 | 2910.6 | 0.0 |
| | 6.63 | 159 | 126 | 5.0 | 2917.0 | 2917.0 | 2917.0 | 0.0 |
| | 6.73 | 143 | 130 | 4.9 | 2930.6 | 2930.6 | 2930.9 | 0.3 |
| | 6.8 | 75 | 97 | 6.5 | 2942.3 | 2942.3 | 2942.4 | 0.1 |
| | 6.85 | 44 | 66 | 6.9 | 2948.9 | 2948.9 | 2949.7 | 0.8 |
| | 6.88 | 47 | 66 | 6.8 | 2955.5 | 2955.5 | 2955.5 | 0.0 |
| | 6.93 | 29 | 56 | 8.0 | 2962.5 | 2962.5 | 2962.5 | 0.0 |

[1] Miles above centerline of Scottsdale Road (Scottsdale Road = 1.00 miles)

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Upper Boulders Wash | | | | | | | | |
| | 0.47 | 114 | 257 | 8.5 | 2314.8 | 2314.8 | 2314.8 | 0.0 |
| | 0.48 | 102 | 221 | 8.2 | 2316.7 | 2316.7 | 2316.7 | 0.0 |
| | 0.5 | 98 | 218 | 8.3 | 2318.2 | 2318.2 | 2318.5 | 0.3 |
| | 0.57 | 177 | 282 | 6.4 | 2325.3 | 2325.3 | 2325.4 | 0.1 |
| | 0.66 | 94 | 211 | 8.6 | 2332.9 | 2332.9 | 2332.9 | 0.0 |
| | 0.71 | 73 | 194 | 9.3 | 2339.2 | 2339.2 | 2339.2 | 0.0 |
| | 0.75 | 111 | 527 | 3.2 | 2348.3 | 2348.3 | 2349.2 | 0.9 |
| | 0.79 | 48 | 160 | 10.4 | 2351.1 | 2351.1 | 2351.5 | 0.4 |
| | 0.87 | 40 | 151 | 11.1 | 2359.9 | 2359.9 | 2360.4 | 0.5 |
| | 0.97 | 40 | 151 | 11.0 | 2369.6 | 2369.6 | 2370.1 | 0.5 |
| | 1.05 | 100 | 206 | 8.1 | 2379.6 | 2379.6 | 2380.4 | 0.8 |
| | 1.14 | 119 | 221 | 7.5 | 2387.9 | 2387.9 | 2388.4 | 0.5 |
| | 1.16 | 146 | 415 | 8.7 | 2391.2 | 2391.2 | 2391.2 | 0.0 |
| | 1.18 | 93 | 528 | 3.1 | 2397.1 | 2397.1 | 2397.3 | 0.2 |
| | 1.23 | 98 | 200 | 8.1 | 2398.0 | 2398.0 | 2398.0 | 0.0 |
| | 1.3 | 118 | 212 | 7.7 | 2405.8 | 2405.8 | 2405.9 | 0.1 |
| | 1.36 | 95 | 215 | 7.6 | 2411.7 | 2411.7 | 2411.7 | 0.0 |
| | 1.41 | 88 | 192 | 8.5 | 2417.6 | 2417.6 | 2418.1 | 0.5 |
| | 1.48 | 38 | 135 | 10.8 | 2423.8 | 2423.8 | 2424.2 | 0.4 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQ FEET) | MEAN VELOCITY (FT/S) | REGULATORY (FEET NAVD) | WITHOUT FLOODWAY (FEET NAVD) | WITH FLOODWAY (FEET NAVD) | INCREASE (FEET NAVD) |
| Upper Boulders Wash (Cont'd) | | | | | | | | |
| | 1.55 | 43 | 154 | 9.5 | 2429.5 | 2429.5 | 2429.6 | 0.1 |
| | 1.58 | 98 | 232 | 6.3 | 2432.2 | 2432.2 | 2432.4 | 0.2 |
| | 1.65 | 84 | 177 | 8.2 | 2440.0 | 2440.0 | 2440.0 | 0.0 |
| | 1.72 | 106 | 190 | 7.7 | 2447.5 | 2447.5 | 2447.5 | 0.0 |
| | 1.78 | 80 | 174 | 8.4 | 2453.3 | 2453.3 | 2453.3 | 0.0 |
| | 1.87 | 107 | 196 | 7.4 | 2461.7 | 2461.7 | 2461.7 | 0.0 |
| | 1.92 | 103 | 190 | 7.7 | 2465.9 | 2465.9 | 2465.9 | 0.0 |
| | 1.98 | 135 | 219 | 6.7 | 2471.8 | 2471.8 | 2471.8 | 0.0 |
| | 2.08 | 106 | 191 | 7.6 | 2481.5 | 2481.5 | 2481.5 | 0.0 |
| | 2.17 | 28 | 123 | 11.8 | 2490.2 | 2490.2 | 2490.6 | 0.4 |
| | 2.24 | 75 | 213 | 6.8 | 2495.7 | 2495.7 | 2496.3 | 0.6 |
| | 2.29 | 61 | 160 | 9.2 | 2501.4 | 2501.4 | 2501.4 | 0.0 |
| | 2.31 | 140 | 224 | 5.7 | 2503.7 | 2503.7 | 2503.9 | 0.2 |
| | 2.38 | 46 | 131 | 9.7 | 2511.2 | 2511.2 | 2511.3 | 0.1 |
| | 2.44 | 41 | 132 | 9.6 | 2517.3 | 2517.3 | 2517.8 | 0.5 |
| | 2.5 | 45 | 131 | 9.7 | 2523.0 | 2523.0 | 2523.6 | 0.6 |
| | 2.55 | 57 | 160 | 7.9 | 2527.3 | 2527.3 | 2527.5 | 0.2 |
| | 2.64 | 103 | 175 | 7.3 | 2537.4 | 2537.4 | 2538.0 | 0.6 |
| | 2.71 | 49 | 134 | 9.5 | 2545.3 | 2545.3 | 2545.3 | 0.0 |
| | 2.75 | 41 | 134 | 9.5 | 2549.6 | 2549.6 | 2549.9 | 0.3 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Upper Boulders Wash (Cont'd) | | | | | | | | |
| | 2.8 | 83 | 181 | 7.02 | 2555.8 | 2555.8 | 2555.8 | 0.0 |
| | 2.85 | 32 | 136 | 9.3 | 2559.7 | 2559.7 | 2559.9 | 0.2 |
| | 2.88 | 35 | 128 | 9.9 | 2563.4 | 2563.4 | 2563.6 | 0.2 |
| | 2.97 | 45 | 155 | 8.2 | 2570.3 | 2570.3 | 2570.4 | 0.1 |
| | 3.04 | 31 | 117 | 10.8 | 2576.0 | 2576.0 | 2576.0 | 0.0 |
| | 3.05 | 38 | 124 | 1.9 | 2579.8 | 2579.8 | 2579.8 | 0.0 |
| | 3.11 | 22 | 34 | 7.1 | 2580.7 | 2580.7 | 2580.7 | 0.0 |
| | 3.14 | 22 | 36 | 6.5 | 2584.2 | 2584.2 | 2584.2 | 0.0 |
| | 3.23 | 30 | 46 | 5.2 | 2592.6 | 2592.6 | 2592.7 | 0.1 |
| | 3.29 | 18 | 33 | 7.2 | 2597.8 | 2597.8 | 2597.8 | 0.0 |
| | 3.37 | 20 | 41 | 5.8 | 2605.5 | 2605.5 | 2605.7 | 0.2 |
| | 3.43 | 29 | 39 | 6.2 | 2611.4 | 2611.4 | 2611.4 | 0.0 |
| | 3.5 | 65 | 67 | 3.6 | 2617.3 | 2617.3 | 2617.4 | 0.1 |
| | 3.58 | 25 | 38 | 6.2 | 2623.6 | 2623.6 | 2623.6 | 0.0 |
| | 3.62 | 38 | 52 | 4.6 | 2627.4 | 2627.4 | 2627.5 | 0.1 |
| | 3.66 | 34 | 97 | 2.5 | 2632.2 | 2632.2 | 2633.1 | 0.9 |
| | 3.67 | 76 | 133 | 1.8 | 2632.3 | 2632.3 | 2633.2 | 0.9 |
| | 3.77 | 47 | 43 | 5.5 | 2642.3 | 2642.3 | 2642.3 | 0.0 |
| | 3.8 | 62 | 72 | 3.3 | 2644.9 | 2644.9 | 2644.9 | 0.0 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Upper Boulders Wash (Cont'd) | | | | | | | | |
| | 3.87 | 31 | 38 | 6.2 | 2651.6 | 2651.6 | 2651.6 | 0.0 |
| | 3.94 | 57 | 62 | 3.9 | 2658.7 | 2658.7 | 2658.8 | 0.1 |
| | 4.03 | 50 | 44 | 5.4 | 2666.8 | 2666.8 | 2666.8 | 0.0 |

[1] Miles above centerline of Scottsdale Road

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Fan 6C | | | | | | | | |
| | 0.82 | 35 | 136 | 11.2 | 2461.2 | 2461.2 | 2461.2 | 0.0 |
| | 0.91 | 27 | 119 | 11.4 | 2468.1 | 2468.1 | 2468.3 | 0.2 |
| | 0.94 | 68 | 178 | 7.6 | 2471.7 | 2471.7 | 2471.9 | 0.2 |
| | 1.02 | 100 | 177 | 7.6 | 2478.5 | 2478.5 | 2479.2 | 0.7 |
| | 1.07 | 67 | 156 | 8.7 | 2483.8 | 2483.8 | 2484.0 | 0.2 |
| | 1.16 | 88 | 169 | 8.0 | 2493.0 | 2493.0 | 2493.0 | 0.0 |
| | 1.23 | 160 | 207 | 6.5 | 2502.4 | 2502.4 | 2502.4 | 0.0 |
| | 1.26 | 71 | 163 | 8.4 | 2504.2 | 2504.2 | 2504.8 | 0.6 |
| | 1.33 | 109 | 195 | 7.0 | 2510.9 | 2510.9 | 2511.2 | 0.3 |
| | 1.39 | 84 | 168 | 8.1 | 2515.9 | 2515.9 | 2516.4 | 0.5 |
| | 1.44 | 120 | 190 | 7.2 | 2521.5 | 2521.5 | 2521.5 | 0.0 |
| | 1.49 | 124 | 192 | 7.1 | 2526.5 | 2526.5 | 2526.5 | 0.0 |
| | 1.55 | 81 | 173 | 7.9 | 2531.7 | 2531.7 | 2532.3 | 0.6 |
| | 1.64 | 94 | 194 | 7.1 | 2539.5 | 2539.5 | 2540.3 | 0.8 |
| | 1.73 | 114 | 187 | 7.3 | 2549.6 | 2549.6 | 2550.2 | 0.6 |
| | 1.79 | 105 | 182 | 7.5 | 2555.1 | 2555.1 | 2555.9 | 0.8 |
| | 1.83 | 57 | 150 | 9.1 | 2560.6 | 2560.6 | 2561.3 | 0.7 |
| | 1.87 | 39 | 130 | 10.3 | 2566.0 | 2566.0 | 2566.0 | 0.0 |
| | 1.88 | 44 | 271 | 5.0 | 2570.4 | 2570.4 | 2570.6 | 0.2 |
| | 1.93 | 58 | 148 | 9.1 | 2572.7 | 2572.7 | 2572.7 | 0.0 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQ FEET) | MEAN VELOCITY (FT/S) | REGULATORY (FEET NAVD) | WITHOUT FLOODWAY (FEET NAVD) | WITH FLOODWAY (FEET NAVD) | INCREASE (FEET NAVD) |
| Fan 6C (Cont'd) | | | | | | | | |
| | 1.99 | 83 | 168 | 8.0 | 2579.1 | 2579.1 | 2579.4 | 0.3 |
| | 2.03 | 72 | 159 | 8.5 | 2583.0 | 2583.0 | 2583.8 | 0.8 |
| | 2.13 | 28 | 116 | 11.6 | 2593.9 | 2593.9 | 2593.9 | 0.0 |
| | 2.17 | 44 | 163 | 8.3 | 2596.9 | 2596.9 | 2597.2 | 0.3 |
| | 2.20 | 58 | 149 | 9.0 | 2599.3 | 2599.3 | 2599.3 | 0.0 |
| | 2.23 | 33 | 123 | 11.0 | 2602.4 | 2602.4 | 2602.4 | 0.0 |
| | 2.26 | 33 | 124 | 10.9 | 2605.6 | 2605.6 | 2605.6 | 0.0 |
| | 2.30 | 41 | 133 | 10.1 | 2607.3 | 2607.3 | 2607.3 | 0.0 |
| | 2.31 | 33 | 123 | 11.0 | 2611.4 | 2611.4 | 2611.4 | 0.0 |
| | 2.39 | 43 | 135 | 9.3 | 2618.5 | 2618.5 | 2618.5 | 0.0 |
| | 2.40 | 40 | 148 | 8.5 | 2620.0 | 2620.0 | 2620.0 | 0.0 |
| | 2.43 | 85 | 171 | 7.4 | 2621.1 | 2621.1 | 2621.1 | 0.0 |
| | 2.51 | 186 | 485 | 2.6 | 2629.4 | 2629.4 | 2629.4 | 0.0 |
| | 2.55 | 54 | 139 | 9.1 | 2631.3 | 2631.3 | 2631.3 | 0.0 |
| | 2.58 | 72 | 344 | 5.0 | 2639.9 | 2639.9 | 2639.9 | 0.0 |
| | 2.63 | 90 | 165 | 7.6 | 2641.7 | 2641.7 | 2641.7 | 0.0 |
| | 2.69 | 78 | 157 | 8.0 | 2647.0 | 2647.0 | 2647.0 | 0.0 |

[1] Miles above centerline of Dove Valley Road

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQ FEET) | MEAN VELOCITY (FT/S) | REGULATORY (FEET NAVD) | WITHOUT FLOODWAY (FEET NAVD) | WITH FLOODWAY (FEET NAVD) | INCREASE (FEET NAVD) |
| Fan 6A | | | | | | | | |
| | 0.38 | 76 | 260 | 10.4 | 2495.2 | 2495.2 | 2495.6 | 0.4 |
| | 0.42 | 60 | 239 | 11.3 | 2499.4 | 2499.4 | 2499.5 | 0.1 |
| | 0.52 | 103 | 306 | 8.8 | 2506.8 | 2506.8 | 2506.9 | 0.1 |
| | 0.58 | 55 | 232 | 11.6 | 2512.0 | 2512.0 | 2512.4 | 0.4 |
| | 0.63 | 63 | 261 | 10.3 | 2516.1 | 2516.1 | 2516.3 | 0.2 |
| | 0.69 | 36 | 203 | 13.3 | 2521.1 | 2521.1 | 2521.2 | 0.1 |
| | 0.78 | 57 | 257 | 10.5 | 2528.1 | 2528.1 | 2528.5 | 0.4 |
| | 0.81 | 87 | 269 | 10.0 | 2531.1 | 2531.1 | 2531.1 | 0.0 |
| | 0.87 | 59 | 237 | 11.4 | 2538.1 | 2538.1 | 2538.1 | 0.0 |
| | 0.93 | 123 | 438 | 6.2 | 2541.5 | 2541.5 | 2542.1 | 0.6 |

[1] Miles above centerline of Pima Road

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQ FEET) | MEAN VELOCITY (FT/S) | REGULATORY (FEET NAVD) | WITHOUT FLOODWAY (FEET NAVD) | WITH FLOODWAY (FEET NAVD) | INCREASE (FEET NAVD) |
| Fan 6A North | | | | | | | | |
| | 0.99 | 122 | 219 | 7.7 | 2545.8 | 2545.8 | 2545.8 | 0.0 |
| | 1.02 | 158 | 299 | 5.6 | 2548.2 | 2548.2 | 2548.4 | 0.2 |
| | 1.04 | 112 | 786 | 2.1 | 2555.5 | 2555.5 | 2555.5 | 0.0 |
| | 1.12 | 89 | 198 | 8.5 | 2557.9 | 2557.9 | 2558.0 | 0.1 |
| | 1.18 | 92 | 222 | 8.9 | 2564.5 | 2564.5 | 2564.5 | 0.0 |
| | 1.2 | 71 | 481 | 3.5 | 2569.1 | 2569.1 | 2569.2 | 0.1 |
| | 1.23 | 125 | 471 | 3.6 | 2569.1 | 2569.1 | 2569.3 | 0.2 |
| | 1.32 | 124 | 220 | 7.6 | 2575.8 | 2575.8 | 2576.0 | 0.2 |
| | 1.42 | 160 | 250 | 6.7 | 2584.9 | 2584.9 | 2585.1 | 0.2 |
| | 1.48 | 124 | 234 | 7.2 | 2590.2 | 2590.2 | 2590.6 | 0.4 |
| | 1.54 | 165 | 489 | 9.1 | 2599.7 | 2599.7 | 2599.8 | 0.1 |
| | 1.56 | 115 | 798 | 2.1 | 2605.2 | 2605.2 | 2605.2 | 0.0 |
| | 1.62 | 84 | 193 | 8.7 | 2606.7 | 2606.7 | 2607.0 | 0.3 |
| | 1.65 | 111 | 273 | 6.2 | 2608.7 | 2608.7 | 2609.3 | 0.6 |
| | 1.72 | 89 | 212 | 7.9 | 2615.3 | 2615.3 | 2616.1 | 0.8 |
| | 1.78 | 72 | 195 | 8.6 | 2621.0 | 2621.0 | 2621.7 | 0.7 |
| | 1.83 | 183 | 303 | 5.5 | 2625.1 | 2625.1 | 2625.8 | 0.7 |
| | 1.9 | 74 | 188 | 8.9 | 2632.6 | 2632.6 | 2632.7 | 0.1 |
| | 1.97 | 61 | 174 | 9.7 | 2638.1 | 2638.1 | 2638.7 | 0.6 |
| | 2.04 | 95 | 203 | 8.3 | 2645.7 | 2645.7 | 2645.7 | 0.0 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Fan 6A North (Cont'd) | | | | | | | | |
| | 2.06 | 73 | 441 | 3.8 | 2651.0 | 2651.0 | 2651.0 | 0.0 |
| | 2.14 | 122 | 222 | 7.6 | 2654.4 | 2654.4 | 2654.4 | 0.0 |
| | 2.2 | 43 | 156 | 10.8 | 2659.6 | 2659.6 | 2659.6 | 0.0 |
| | 2.28 | 36 | 148 | 11.4 | 2667.7 | 2667.7 | 2667.7 | 0.0 |
| | 2.32 | 60 | 198 | 8.5 | 2670.9 | 2670.9 | 2671.3 | 0.4 |
| | 2.39 | 51 | 164 | 10.2 | 2677.4 | 2677.4 | 2677.4 | 0.0 |
| | 2.44 | 73 | 191 | 8.8 | 2682.1 | 2682.1 | 2682.1 | 0.0 |
| | 2.51 | 80 | 194 | 7.9 | 2687.2 | 2687.2 | 2687.2 | 0.0 |
| | 2.55 | 90 | 200 | 7.6 | 2690.9 | 2690.9 | 2691.8 | 0.9 |
| | 2.6 | 104 | 209 | 7.3 | 2696.0 | 2696.0 | 2696.0 | 0.0 |
| | 2.69 | 57 | 143 | 8.6 | 2705.6 | 2705.6 | 2706.5 | 0.9 |
| | 2.79 | 61 | 142 | 8.6 | 2715.0 | 2715.0 | 2715.1 | 0.1 |
| | 2.88 | 86 | 166 | 7.4 | 2723.1 | 2723.1 | 2724.0 | 0.9 |
| | 2.95 | 151 | 219 | 5.6 | 2729.7 | 2729.7 | 2730.2 | 0.5 |
| | 2.98 | 82 | 174 | 7.1 | 2735.0 | 2735.0 | 2735.8 | 0.8 |
| | 3.07 | 131 | 203 | 6.1 | 2745.4 | 2745.4 | 2746.3 | 0.9 |
| | 3.15 | 78 | 155 | 7.9 | 2757.3 | 2757.3 | 2757.4 | 0.1 |
| | 3.24 | 60 | 141 | 8.7 | 2769.4 | 2769.4 | 2770.1 | 0.7 |
| | 3.32 | 48 | 131 | 9.4 | 2778.6 | 2778.6 | 2778.6 | 0.0 |
| | 3.39 | 200 | 267 | 4.6 | 2786.0 | 2786.0 | 2786.9 | 0.9 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQ FEET) | MEAN VELOCITY (FT/S) | REGULATORY (FEET NAVD) | WITHOUT FLOODWAY (FEET NAVD) | WITH FLOODWAY (FEET NAVD) | INCREASE (FEET NAVD) |
| Fan 6A North (Cont'd) | | | | | | | | |
| | 3.43 | 178 | 254 | 4.8 | 2790.9 | 2790.9 | 2791.4 | 0.5 |
| | 3.48 | 76 | 152 | 8.1 | 2797.7 | 2797.7 | 2798.5 | 0.8 |
| | 3.53 | 84 | 179 | 6.9 | 2802.7 | 2802.7 | 2803.4 | 0.7 |
| | 3.57 | 81 | 155 | 7.9 | 2807.6 | 2807.6 | 2808.2 | 0.6 |
| | 3.63 | 124 | 188 | 6.5 | 2814.0 | 2814.0 | 2814.1 | 0.1 |
| | 3.72 | 57 | 139 | 8.8 | 2824.2 | 2824.2 | 2824.9 | 0.7 |
| | 3.81 | 87 | 160 | 7.6 | 2835.7 | 2835.7 | 2836.0 | 0.3 |
| | 3.91 | 218 | 269 | 4.7 | 2845.1 | 2845.1 | 2845.3 | 0.2 |
| | 3.92 | 236 | 1264 | 1.0 | 2851.4 | 2851.4 | 2851.4 | 0.0 |
| | 3.96 | 131 | 199 | 6.2 | 2852.5 | 2852.5 | 2853.4 | 0.9 |
| | 4.02 | 190 | 212 | 5.8 | 2859.7 | 2859.7 | 2860.0 | 0.3 |
| | 4.08 | 110 | 138 | 5.9 | 2866.6 | 2866.6 | 2867.6 | 1.0 |
| | 4.13 | 64 | 109 | 7.4 | 2875.1 | 2875.1 | 2875.8 | 0.7 |
| | 4.21 | 77 | 117 | 6.9 | 2885.2 | 2885.2 | 2885.8 | 0.6 |
| | 4.31 | 117 | 133 | 6.1 | 2899.3 | 2899.3 | 2899.3 | 0.0 |
| | 4.4 | 59 | 107 | 7.6 | 2913.1 | 2913.1 | 2913.7 | 0.6 |
| | 4.5 | 107 | 128 | 6.3 | 2929.0 | 2929.0 | 2929.0 | 0.0 |
| | 4.59 | 77 | 115 | 7.0 | 2945.4 | 2945.4 | 2945.4 | 0.0 |
| | 4.69 | 52 | 102 | 7.9 | 2963.7 | 2963.7 | 2964.4 | 0.7 |
| | 4.77 | 128 | 137 | 5.9 | 2977.8 | 2977.8 | 2977.8 | 0.0 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Fan 6A North (Cont'd) | | | | | | | | |
| | 4.84 | 159 | 147 | 5.5 | 2993.1 | 2993.1 | 2993.1 | 0.0 |
| | 4.91 | 129 | 137 | 5.9 | 3005.2 | 3005.2 | 3005.2 | 0.0 |
| | 4.95 | 152 | 145 | 5.6 | 3013.2 | 3013.2 | 3013.2 | 0.0 |
| | 5 | 85 | 120 | 6.8 | 3023.2 | 3023.2 | 3023.3 | 0.1 |
| | 5.07 | 92 | 122 | 6.6 | 3038.2 | 3038.2 | 3038.2 | 0.0 |
| | 5.17 | 24 | 79 | 10.2 | 3059.4 | 3059.4 | 3059.5 | 0.1 |

[1] Miles above centerline of Pima Road

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Fan 6A South | | | | | | | | |
| | 1.03 | 325 | 282 | 5.3 | 2548.6 | 2548.6 | 2548.6 | 0.0 |
| | 1.11 | 170 | 248 | 6.0 | 2555.5 | 2555.5 | 2555.5 | 0.0 |
| | 1.15 | 73 | 173 | 8.7 | 2559.4 | 2559.4 | 2559.5 | 0.1 |
| | 1.17 | 82 | 406 | 3.7 | 2563.7 | 2563.7 | 2563.7 | 0.0 |
| | 1.21 | 63 | 162 | 9.2 | 2564.6 | 2564.6 | 2564.6 | 0.0 |
| | 1.24 | 41 | 141 | 10.6 | 2568.0 | 2568.0 | 2568.0 | 0.0 |
| | 1.31 | 129 | 207 | 7.2 | 2576.2 | 2576.2 | 2576.2 | 0.0 |
| | 1.4 | 123 | 210 | 7.1 | 2584.2 | 2584.2 | 2584.3 | 0.1 |
| | 1.49 | 126 | 294 | 5.1 | 2590.5 | 2590.5 | 2591.4 | 0.9 |
| | 1.58 | 108 | 194 | 7.7 | 2598.0 | 2598.0 | 2598.0 | 0.0 |
| | 1.64 | 48 | 149 | 10.1 | 2603.6 | 2603.6 | 2604.3 | 0.7 |
| | 1.7 | 76 | 202 | 7.4 | 2608.6 | 2608.6 | 2609.2 | 0.6 |
| | 1.76 | 48 | 150 | 10.0 | 2613.4 | 2613.4 | 2613.4 | 0.0 |
| | 1.78 | 66 | 350 | 4.3 | 2617.2 | 2617.2 | 2617.2 | 0.0 |
| | 1.85 | 91 | 205 | 7.3 | 2623.2 | 2623.2 | 2623.2 | 0.0 |
| | 1.87 | 109 | 246 | 6.1 | 2625.2 | 2625.2 | 2626.2 | 1.0 |
| | 1.97 | 93 | 193 | 7.8 | 2633.2 | 2633.2 | 2633.2 | 0.0 |
| | 2.03 | 134 | 259 | 5.8 | 2637.6 | 2637.6 | 2638.0 | 0.4 |
| | 2.07 | 64 | 160 | 9.0 | 2641.3 | 2641.3 | 2641.3 | 0.0 |
| | 2.13 | 124 | 284 | 5.1 | 2645.9 | 2645.9 | 2646.2 | 0.3 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQ FEET) | MEAN VELOCITY (FT/S) | REGULATORY (FEET NAVD) | WITHOUT FLOODWAY (FEET NAVD) | WITH FLOODWAY (FEET NAVD) | INCREASE (FEET NAVD) |
| Fan 6A South (Cont'd) | | | | | | | | |
| | 2.17 | 105 | 189 | 7.6 | 2649.0 | 2649.0 | 2649.0 | 0.0 |
| | 2.26 | 127 | 270 | 5.3 | 2657.3 | 2657.3 | 2658.2 | 0.9 |
| | 2.34 | 98 | 222 | 6.5 | 2663.7 | 2663.7 | 2664.6 | 0.9 |
| | 2.41 | 103 | 227 | 6.4 | 2669.7 | 2669.7 | 2670.5 | 0.8 |
| | 2.48 | 260 | 332 | 4.3 | 2675.4 | 2675.4 | 2676.3 | 0.9 |
| | 2.54 | 106 | 190 | 7.6 | 2681.0 | 2681.0 | 2681.7 | 0.7 |
| | 2.61 | 79 | 181 | 6.4 | 2688.0 | 2688.0 | 2688.6 | 0.6 |
| | 2.68 | 74 | 162 | 7.1 | 2694.3 | 2694.3 | 2694.6 | 0.3 |
| | 2.74 | 126 | 254 | 4.6 | 2698.8 | 2698.8 | 2699.7 | 0.9 |
| | 2.8 | 130 | 175 | 6.6 | 2705.4 | 2705.4 | 2705.5 | 0.1 |
| | 2.9 | 108 | 229 | 5.1 | 2712.7 | 2712.7 | 2713.6 | 0.9 |
| | 2.96 | 46 | 126 | 9.1 | 2718.9 | 2718.9 | 2719.2 | 0.3 |
| | 3.04 | 110 | 207 | 5.6 | 2725.6 | 2725.6 | 2726.0 | 0.4 |
| | 3.09 | 152 | 222 | 5.2 | 2730.3 | 2730.3 | 2730.9 | 0.6 |
| | 3.18 | 75 | 165 | 7.0 | 2740.5 | 2740.5 | 2740.5 | 0.0 |
| | 3.26 | 113 | 201 | 5.8 | 2747.5 | 2747.5 | 2748.4 | 0.9 |
| | 3.35 | 131 | 187 | 6.2 | 2755.0 | 2755.0 | 2755.8 | 0.8 |
| | 3.45 | 104 | 204 | 5.6 | 2764.8 | 2764.8 | 2765.7 | 0.9 |
| | 3.52 | 54 | 130 | 8.9 | 2772.8 | 2772.8 | 2773.6 | 0.8 |
| | 3.55 | 96 | 190 | 6.1 | 2776.4 | 2776.4 | 2777.2 | 0.8 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Fan 6A South (Cont'd) | | | | | | | | |
| | 3.62 | 105 | 164 | 7.0 | 2785.6 | 2785.6 | 2786.1 | 0.5 |
| | 3.68 | 104 | 206 | 5.6 | 2793.1 | 2793.1 | 2794.1 | 1.0 |
| | 3.75 | 91 | 160 | 7.2 | 2799.8 | 2799.8 | 2800.0 | 0.2 |
| | 3.85 | 107 | 170 | 6.8 | 2811.1 | 2811.1 | 2812.0 | 0.9 |
| | 3.93 | 63 | 145 | 7.9 | 2821.8 | 2821.8 | 2822.6 | 0.8 |
| | 4.03 | 144 | 235 | 4.9 | 2831.3 | 2831.3 | 2831.7 | 0.4 |
| | 4.13 | 69 | 142 | 8.2 | 2843.2 | 2843.2 | 2843.8 | 0.6 |

[1] Miles above centerline of Pima Road

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQ FEET) | MEAN VELOCITY (FT/S) | REGULATORY (FEET NAVD) | WITHOUT FLOODWAY (FEET NAVD) | WITH FLOODWAY (FEET NAVD) | INCREASE (FEET NAVD) |
| Upper Fan 5 | | | | | | | | |
| | 0.86 | 98 | 234 | 8.7 | 2396.8 | 2396.8 | 2396.8 | 0.0 |
| | 0.93 | 159 | 300 | 6.7 | 2402.3 | 2402.3 | 2402.3 | 0.0 |
| | 0.99 | 101 | 236 | 8.6 | 2408.6 | 2408.6 | 2408.6 | 0.0 |
| | 1.01 | 101 | 499 | 4.1 | 2411.5 | 2411.5 | 2412.4 | 0.9 |
| | 1.04 | 178 | 398 | 5.1 | 2412.3 | 2412.3 | 2413.0 | 0.7 |
| | 1.09 | 88 | 221 | 9.1 | 2416.3 | 2416.3 | 2416.3 | 0.0 |
| | 1.18 | 97 | 250 | 8.1 | 2423.0 | 2423.0 | 2423.2 | 0.2 |
| | 1.24 | 93 | 225 | 9.0 | 2428.3 | 2428.3 | 2428.4 | 0.1 |
| | 1.33 | 76 | 153 | 8.1 | 2436.6 | 2436.6 | 2436.6 | 0.0 |
| | 1.38 | 85 | 159 | 7.8 | 2441.7 | 2441.7 | 2441.7 | 0.0 |
| | 1.45 | 87 | 169 | 7.4 | 2447.5 | 2447.5 | 2447.5 | 0.0 |
| | 1.52 | 79 | 157 | 7.9 | 2453.8 | 2453.8 | 2453.8 | 0.0 |
| | 1.56 | 86 | 160 | 7.8 | 2458.2 | 2458.2 | 2458.2 | 0.0 |
| | 1.61 | 36 | 119 | 10.4 | 2463.8 | 2463.8 | 2463.8 | 0.0 |
| | 1.67 | 60 | 158 | 7.9 | 2468.9 | 2468.9 | 2469.1 | 0.2 |
| | 1.76 | 81 | 157 | 7.9 | 2477.5 | 2477.5 | 2477.5 | 0.0 |
| | 1.85 | 122 | 201 | 6.2 | 2484.9 | 2484.9 | 2484.9 | 0.0 |
| | 1.92 | 87 | 160 | 7.7 | 2491.8 | 2491.8 | 2491.8 | 0.0 |
| | 2 | 82 | 157 | 7.9 | 2499.4 | 2499.4 | 2499.5 | 0.1 |
| | 2.04 | 43 | 126 | 9.8 | 2505.5 | 2505.5 | 2505.5 | 0.0 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Upper Fan 5 (Cont'd) | | | | | | | | |
| | 2.14 | 60 | 142 | 8.8 | 2514.7 | 2514.7 | 2514.7 | 0.0 |
| | 2.22 | 69 | 150 | 8.3 | 2521.9 | 2521.9 | 2521.9 | 0.0 |
| | 2.27 | 71 | 160 | 7.8 | 2526.2 | 2526.2 | 2526.3 | 0.1 |
| | 2.32 | 105 | 170 | 7.3 | 2531.5 | 2531.5 | 2531.5 | 0.0 |
| | 2.38 | 79 | 157 | 7.9 | 2536.5 | 2536.5 | 2536.5 | 0.0 |
| | 2.44 | 73 | 151 | 8.2 | 2542.8 | 2542.8 | 2542.8 | 0.0 |
| | 2.5 | 126 | 208 | 6.0 | 2547.6 | 2547.6 | 2548.0 | 0.4 |
| | 2.56 | 108 | 172 | 7.2 | 2552.9 | 2552.9 | 2553.8 | 0.9 |
| | 2.6 | 221 | 271 | 4.6 | 2557.2 | 2557.2 | 2558.2 | 1.0 |
| | 2.66 | 127 | 181 | 6.9 | 2564.2 | 2564.2 | 2564.2 | 0.0 |
| | 2.74 | 110 | 179 | 7.0 | 2570.5 | 2570.5 | 2571.2 | 0.7 |
| | 2.78 | 148 | 218 | 5.7 | 2574.6 | 2574.6 | 2574.9 | 0.3 |
| | 2.86 | 66 | 146 | 8.5 | 2580.8 | 2580.8 | 2580.8 | 0.0 |
| | 2.91 | 28 | 111 | 11.2 | 2585.7 | 2585.7 | 2585.8 | 0.1 |
| | 2.98 | 138 | 257 | 4.8 | 2591.5 | 2591.5 | 2592.0 | 0.5 |
| | 3 | 83 | 569 | 2.2 | 2597.7 | 2597.7 | 2597.7 | 0.0 |
| | 3.03 | 50 | 171 | 7.3 | 2597.5 | 2597.5 | 2597.5 | 0.0 |
| | 3.1 | 57 | 140 | 8.9 | 2602.2 | 2602.2 | 2602.2 | 0.0 |
| | 3.14 | 114 | 221 | 5.6 | 2605.7 | 2605.7 | 2605.8 | 0.1 |
| | 3.23 | 68 | 147 | 8.4 | 2612.5 | 2612.5 | 2613.0 | 0.5 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Upper Fan 5 (Cont'd) | | | | | | | | |
| | 3.33 | 99 | 175 | 7.1 | 2621.4 | 2621.4 | 2621.5 | 0.1 |
| | 3.42 | 65 | 130 | 7.5 | 2630.3 | 2630.3 | 2630.3 | 0.0 |
| | 3.49 | 103 | 176 | 5.6 | 2635.9 | 2635.9 | 2635.9 | 0.0 |
| | 3.52 | 48 | 114 | 8.6 | 2639.7 | 2639.7 | 2639.9 | 0.2 |
| | 3.58 | 108 | 188 | 5.2 | 2644.8 | 2644.8 | 2645.1 | 0.3 |
| | 3.67 | 65 | 124 | 7.9 | 2653.4 | 2653.4 | 2653.9 | 0.5 |
| | 3.71 | 90 | 198 | 4.9 | 2656.0 | 2656.0 | 2656.6 | 0.6 |
| | 3.78 | 106 | 146 | 6.7 | 2663.6 | 2663.6 | 2663.6 | 0.0 |
| | 3.87 | 51 | 129 | 7.6 | 2672.7 | 2672.7 | 2672.8 | 0.1 |
| | 3.92 | 115 | 166 | 5.9 | 2677.6 | 2677.6 | 2677.7 | 0.1 |
| | 3.96 | 72 | 128 | 7.6 | 2680.8 | 2680.8 | 2681.3 | 0.5 |
| | 4.04 | 141 | 199 | 4.9 | 2688.7 | 2688.7 | 2689.1 | 0.4 |
| | 4.11 | 110 | 148 | 6.6 | 2697.3 | 2697.3 | 2697.4 | 0.1 |
| | 4.16 | 89 | 170 | 5.8 | 2701.6 | 2701.6 | 2702.0 | 0.4 |
| | 4.25 | 117 | 176 | 5.6 | 2707.5 | 2707.5 | 2708.3 | 0.8 |
| | 4.33 | 59 | 125 | 7.9 | 2715.3 | 2715.3 | 2715.6 | 0.3 |
| | 4.42 | 57 | 135 | 7.3 | 2723.7 | 2723.7 | 2724.4 | 0.8 |
| | 4.52 | 82 | 159 | 6.2 | 2731.3 | 2731.3 | 2731.8 | 0.5 |
| | 4.62 | 48 | 113 | 8.7 | 2739.6 | 2739.6 | 2740.2 | 0.6 |
| | 4.67 | 90 | 199 | 4.9 | 2743.9 | 2743.9 | 2744.5 | 0.6 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH | SECTION AREA | MEAN VELOCITY | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | (FEET) | (SQ FEET) | (FT/S) | (FEET NAVD) | | | |
| Upper Fan 5 (Cont'd) | | | | | | | | |
| | 4.76 | 29 | 53 | 7.7 | 2751.9 | 2751.9 | 2752.0 | 0.1 |
| | 4.8 | 67 | 104 | 3.9 | 2754.8 | 2754.8 | 2755.2 | 0.4 |
| | 4.88 | 29 | 52 | 7.7 | 2763.2 | 2763.2 | 2763.2 | 0.0 |
| | 4.95 | 31 | 65 | 6.2 | 2769.8 | 2769.8 | 2770.3 | 0.5 |

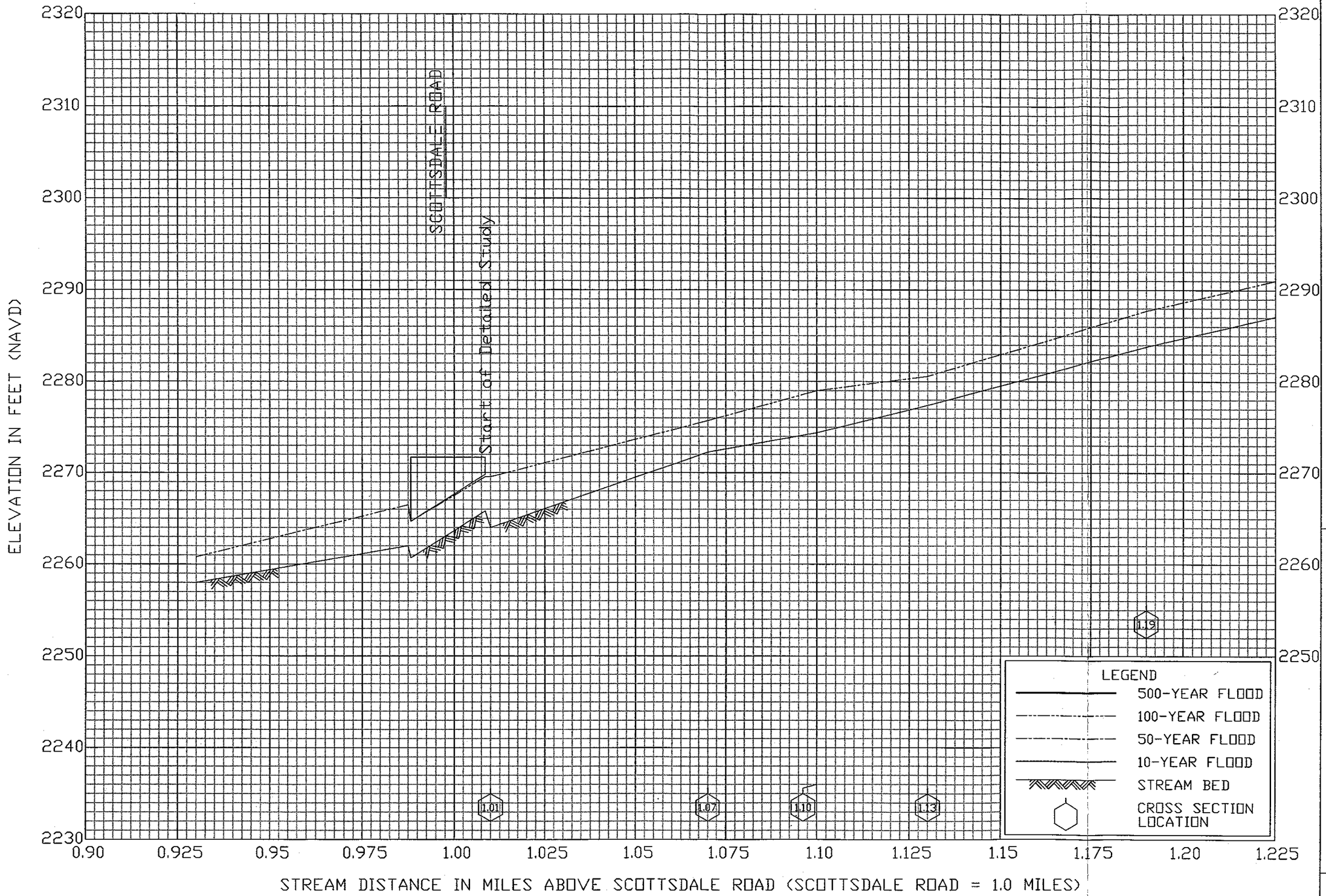
[1] Miles above centerline of Pima Road (Pima Road = 1.00 miles)

## 7.3 Annotated Flood Insurance Rate Maps

Annotated Flood Insurance Rate Maps are located on the following pages.

## 7.4 Flood Profiles

Flood Profiles are located on the following pages.



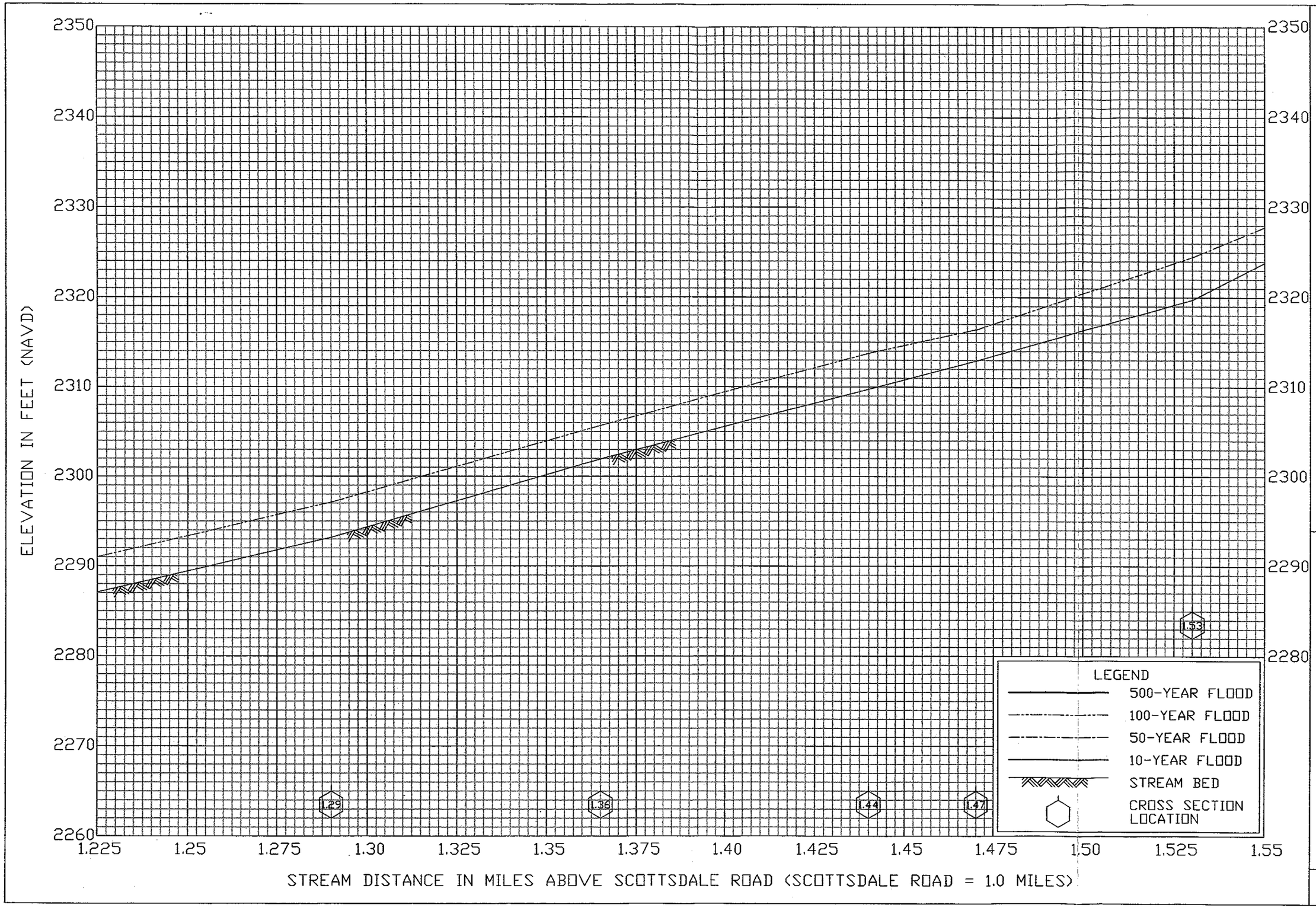

FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

01P



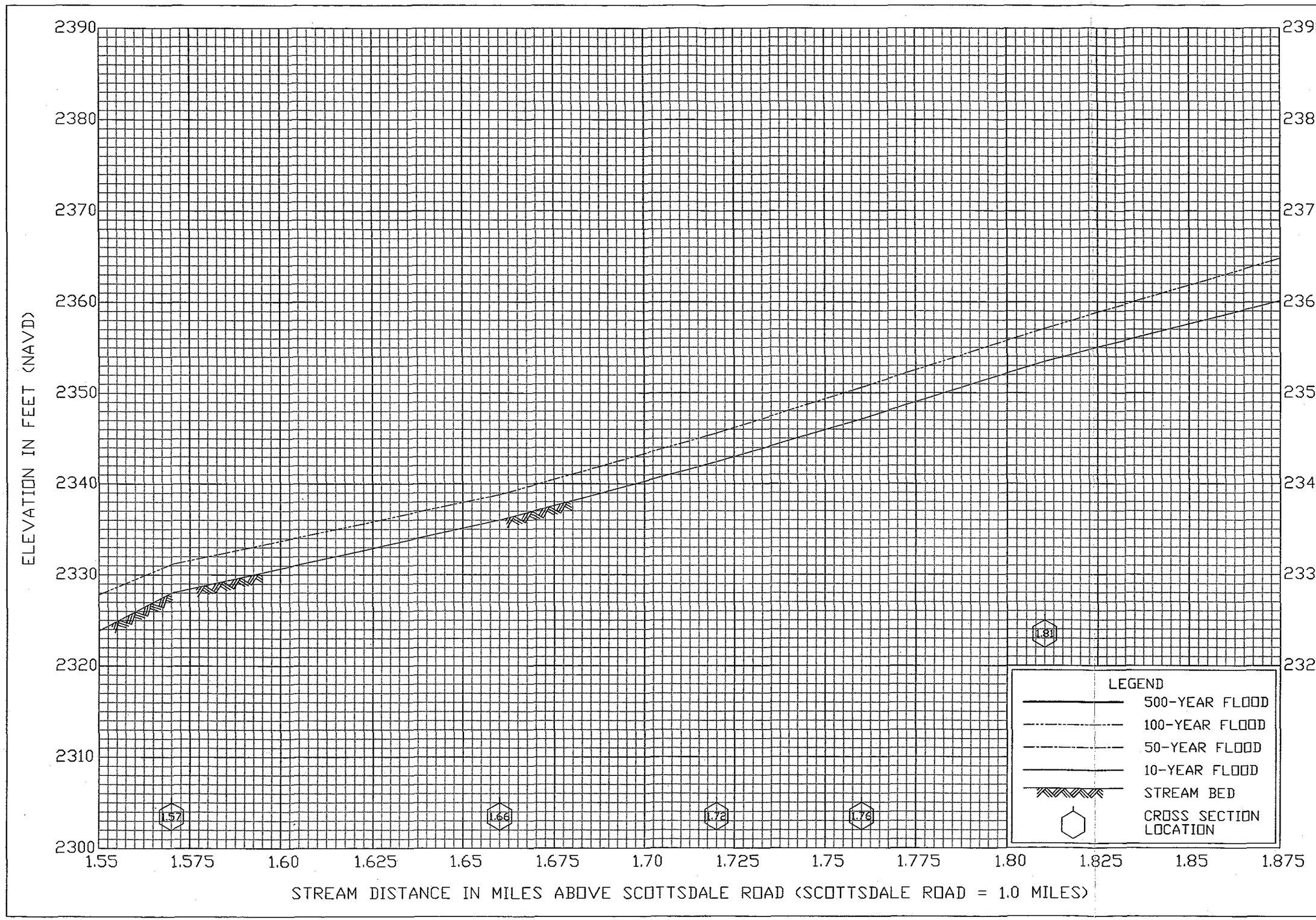

FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

02P



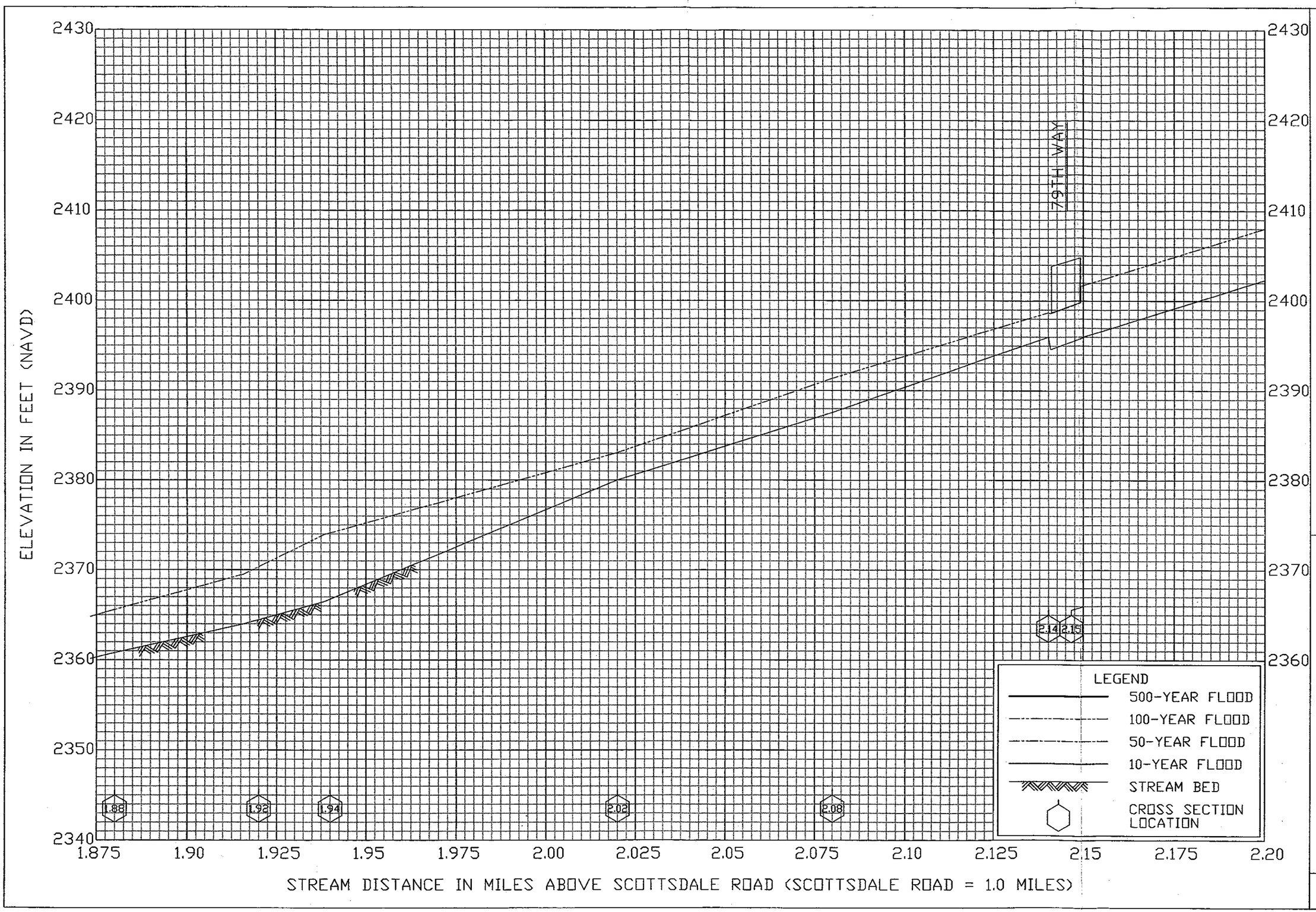

FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

03P



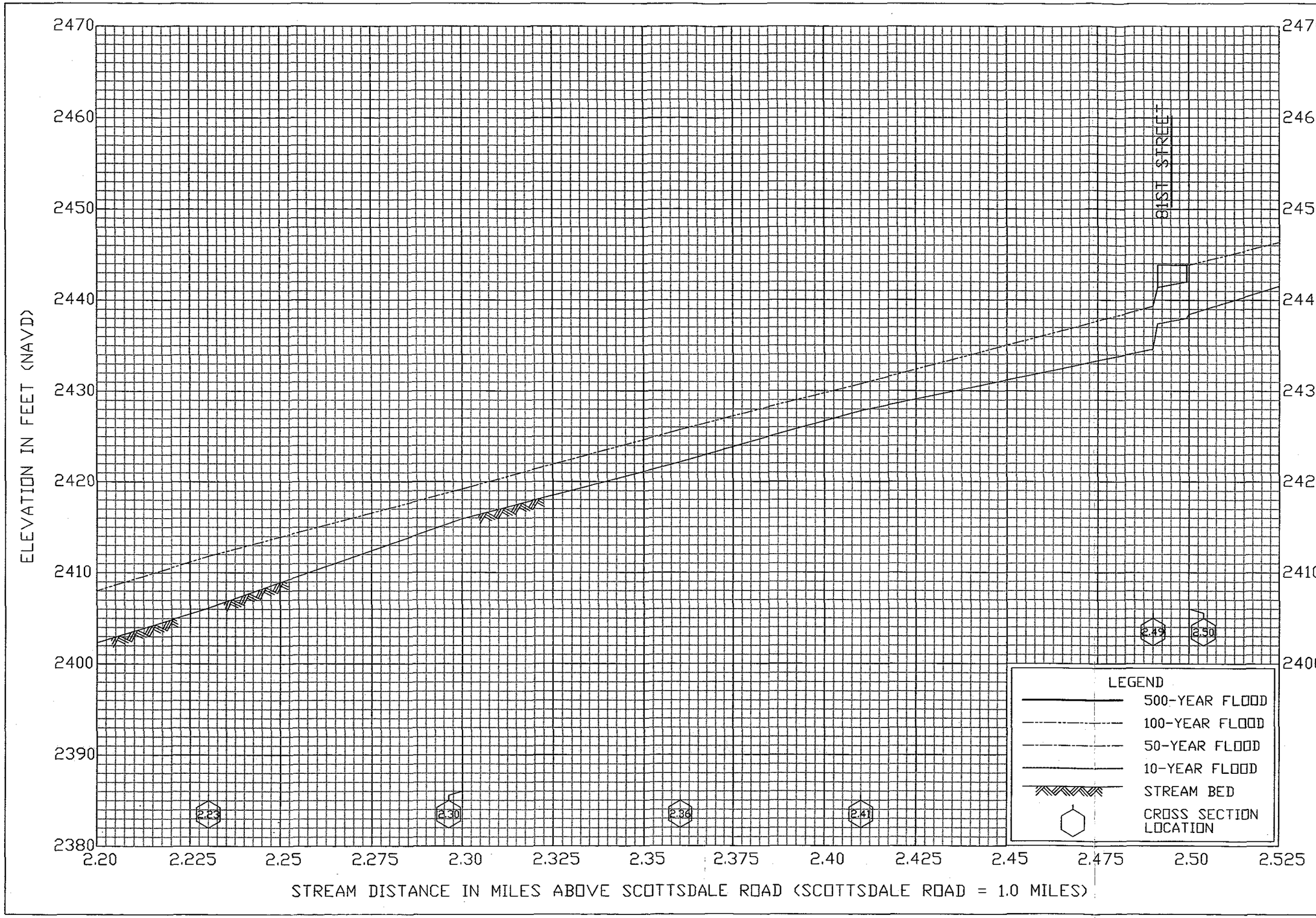

FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

04P



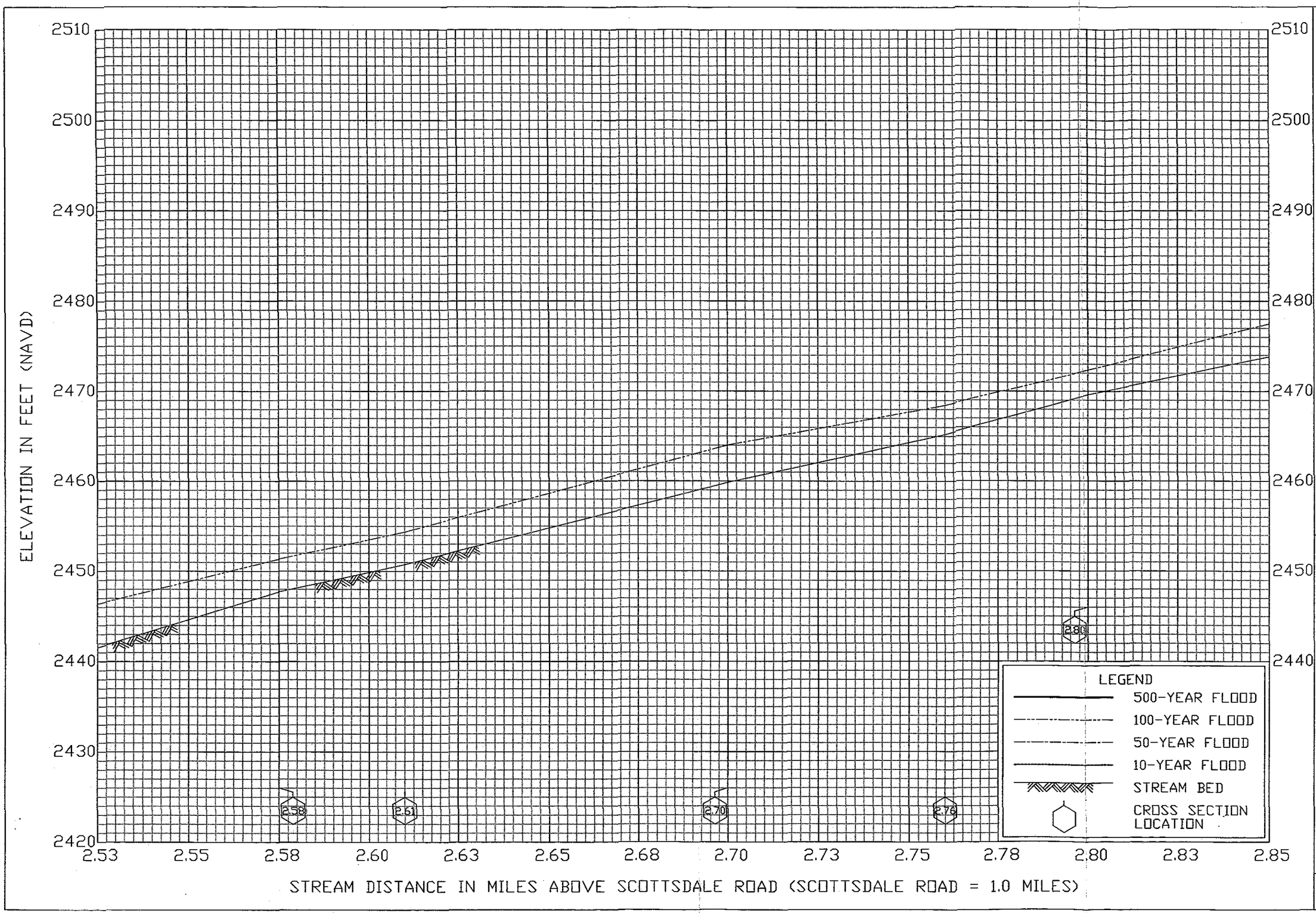

FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

05P



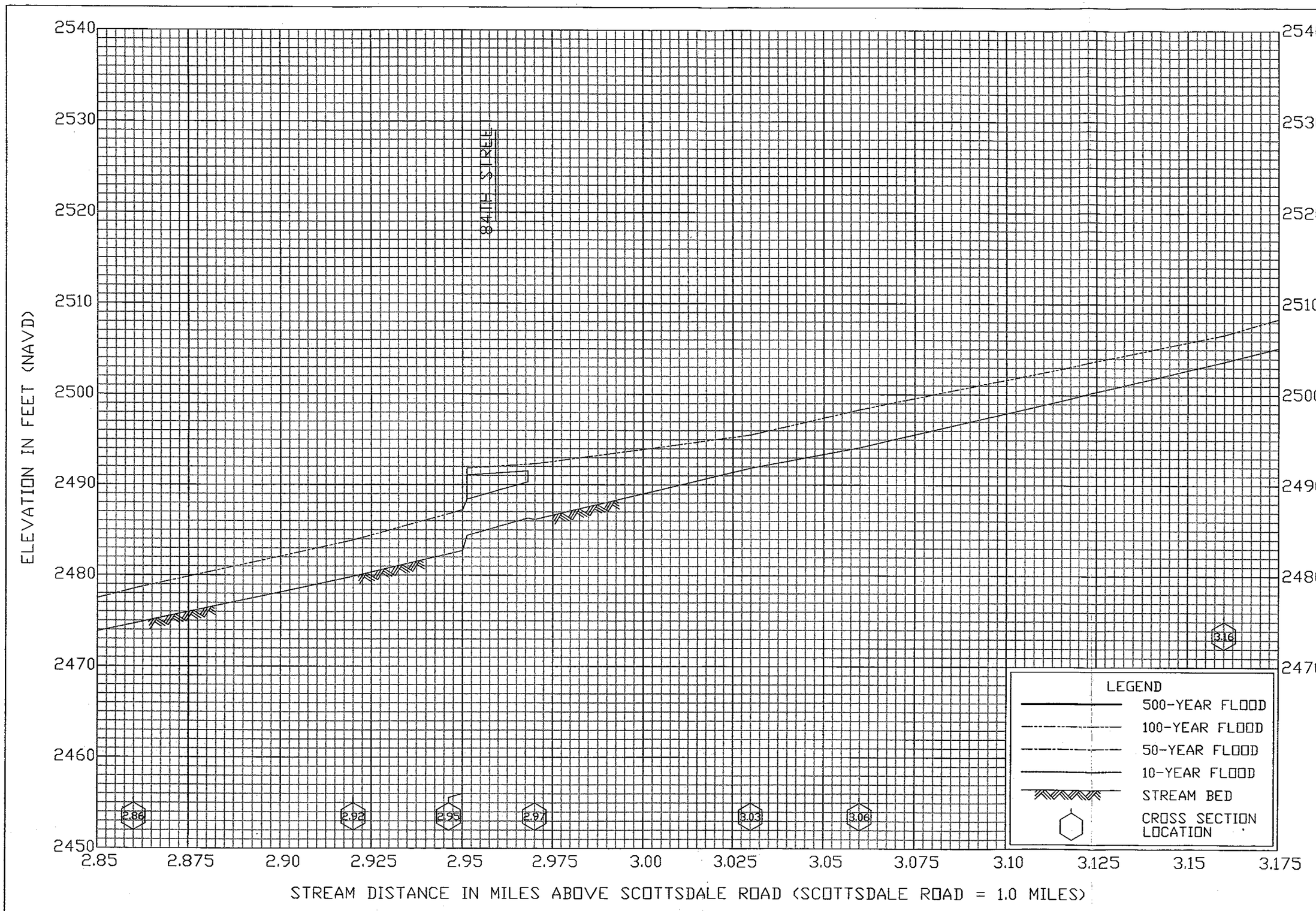

FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

06P

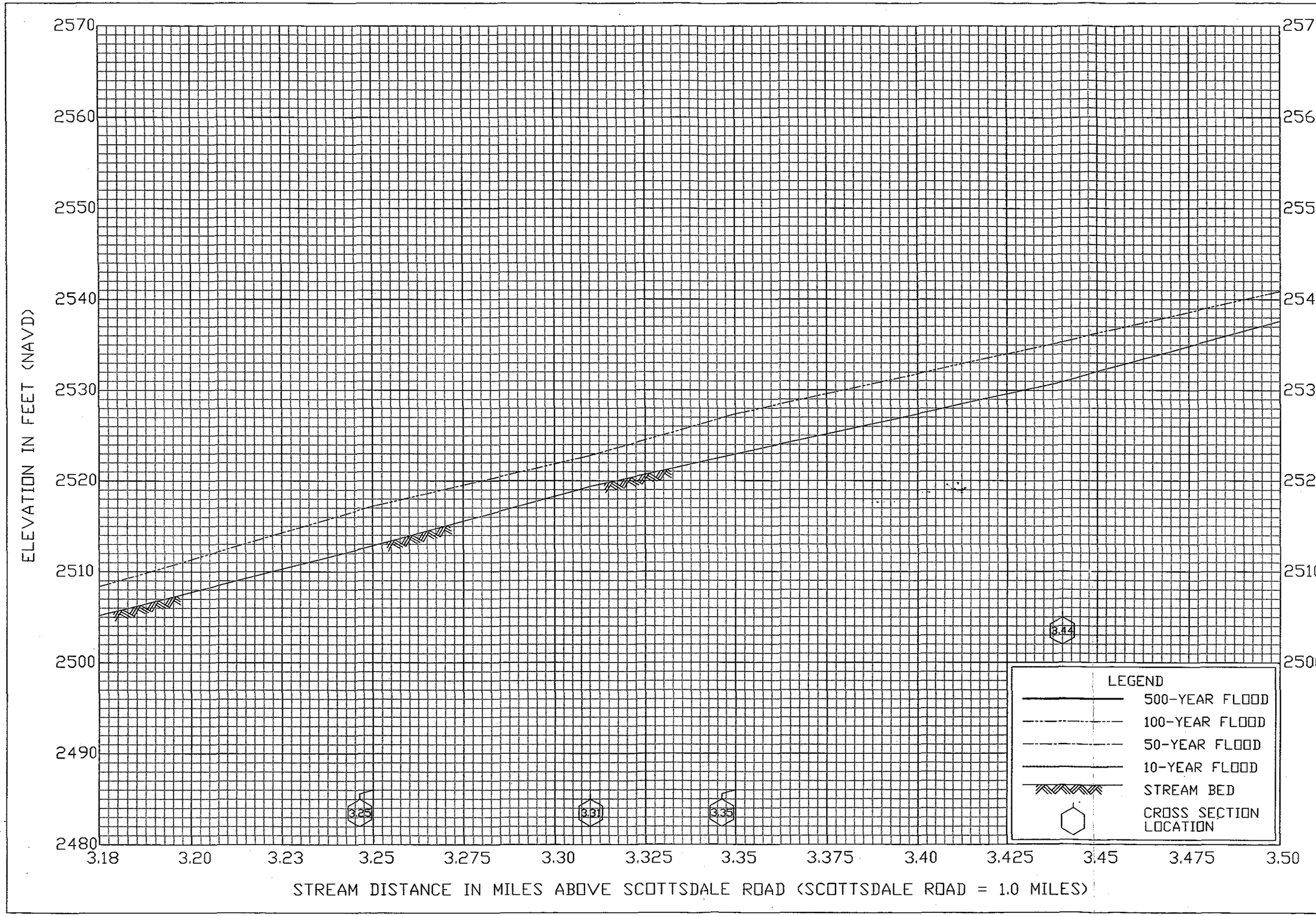



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

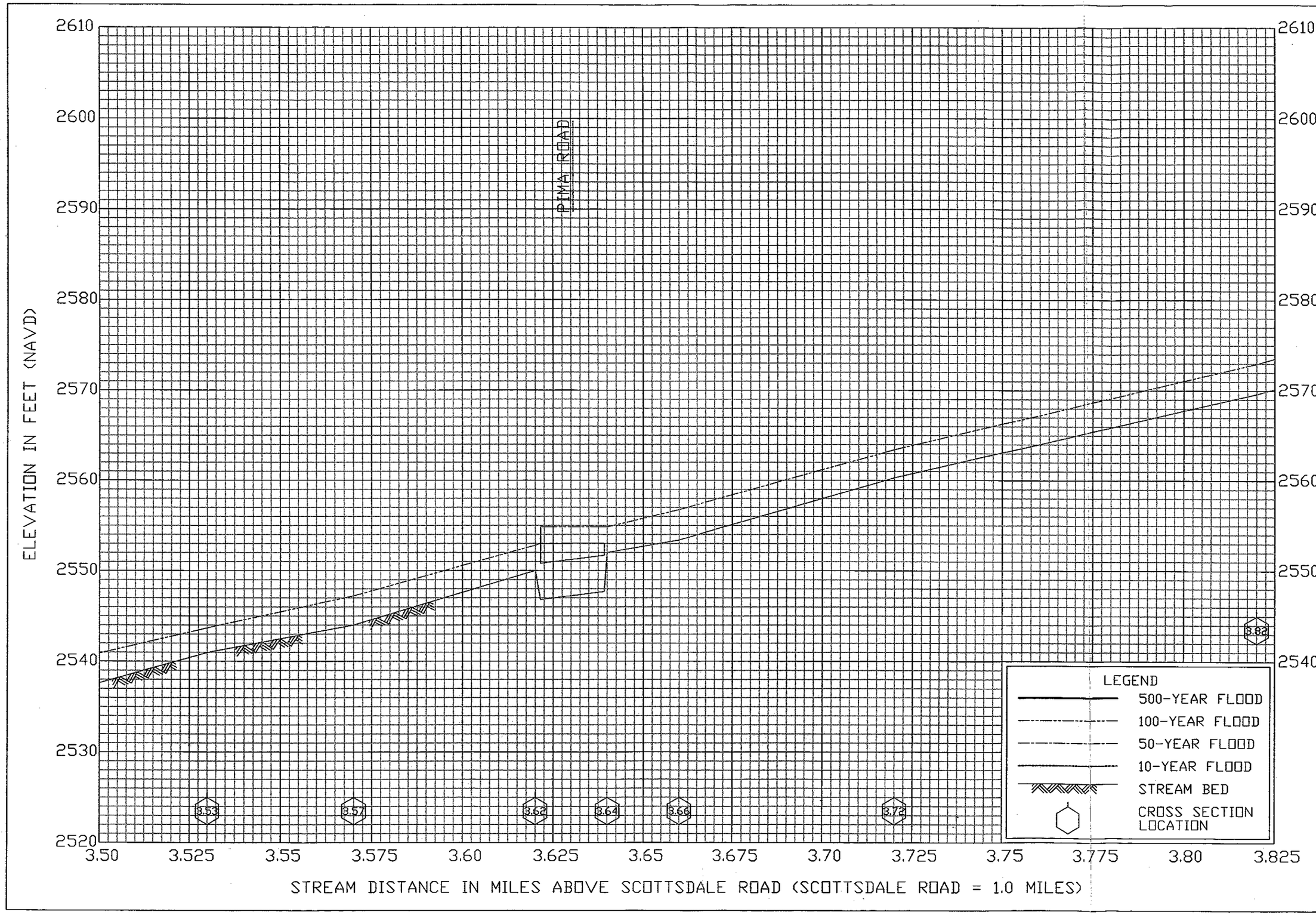



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



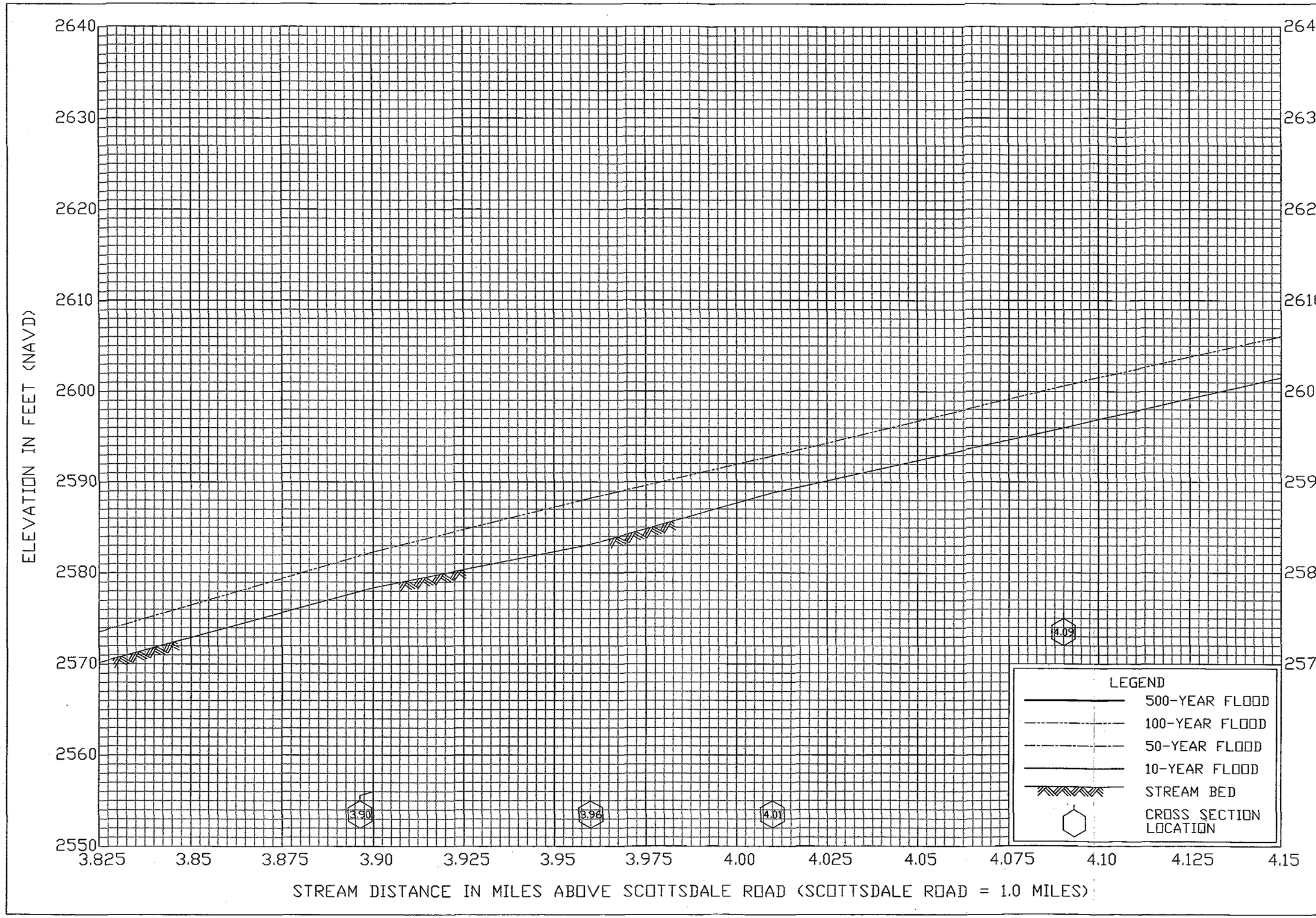

FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

09P

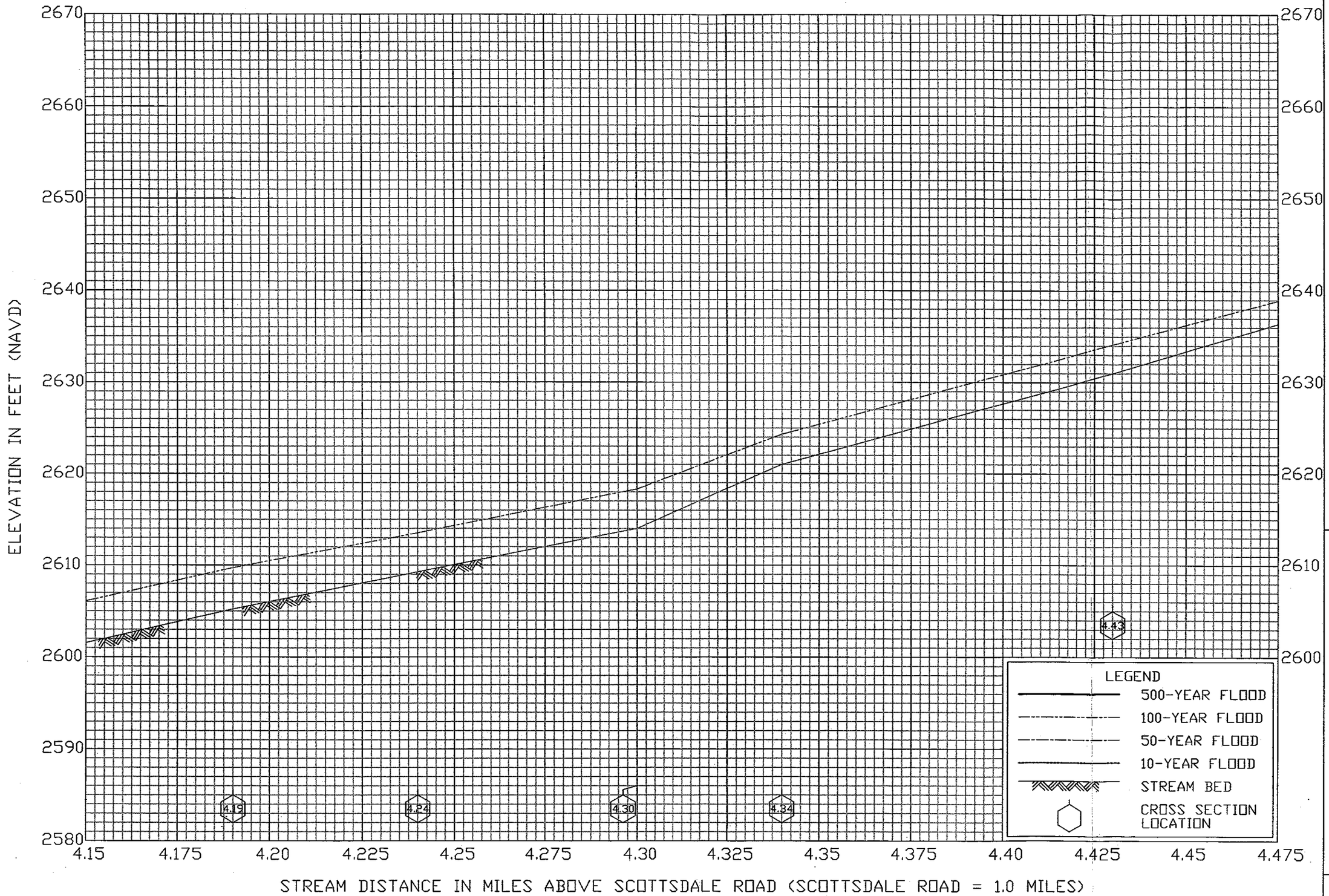



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

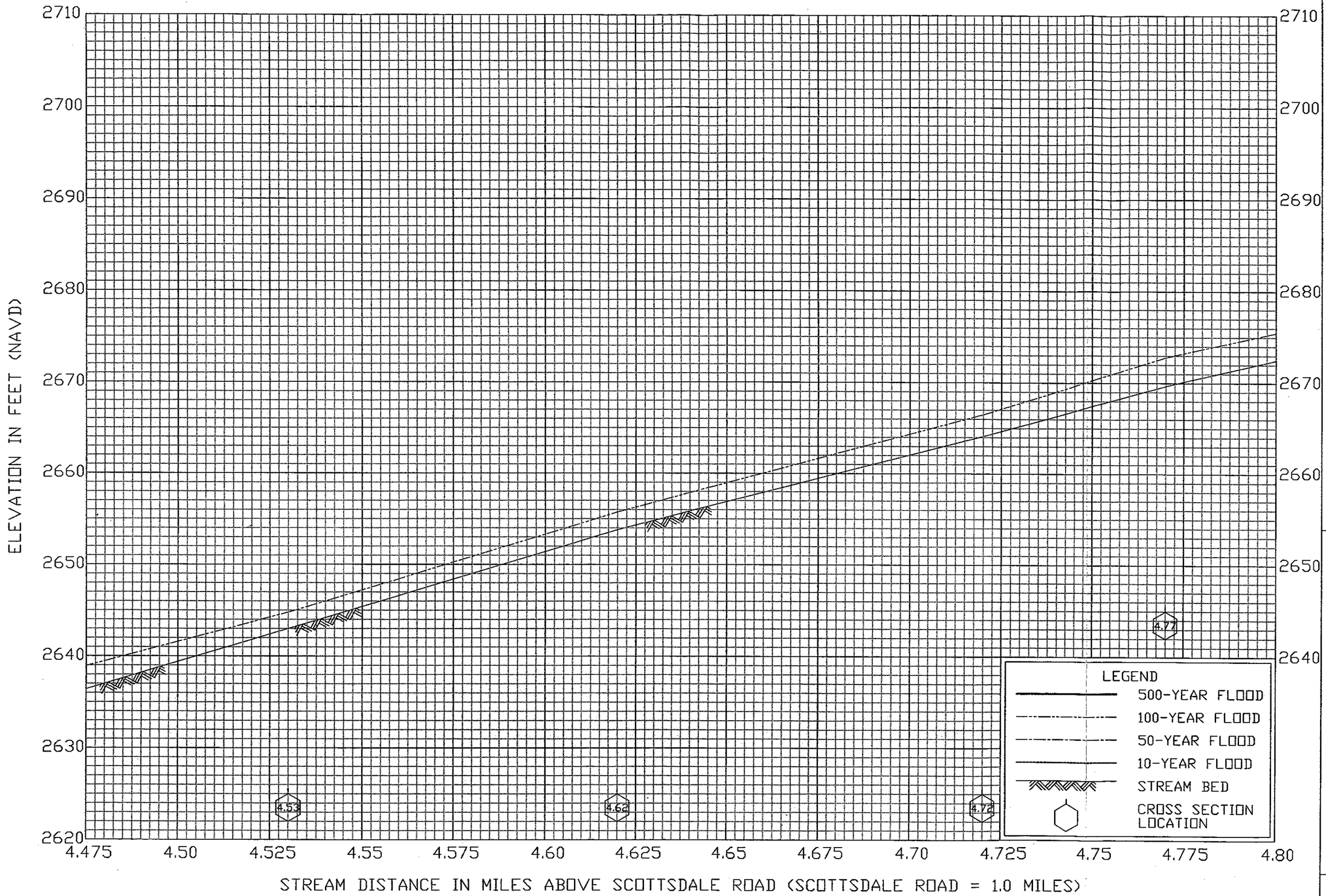



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

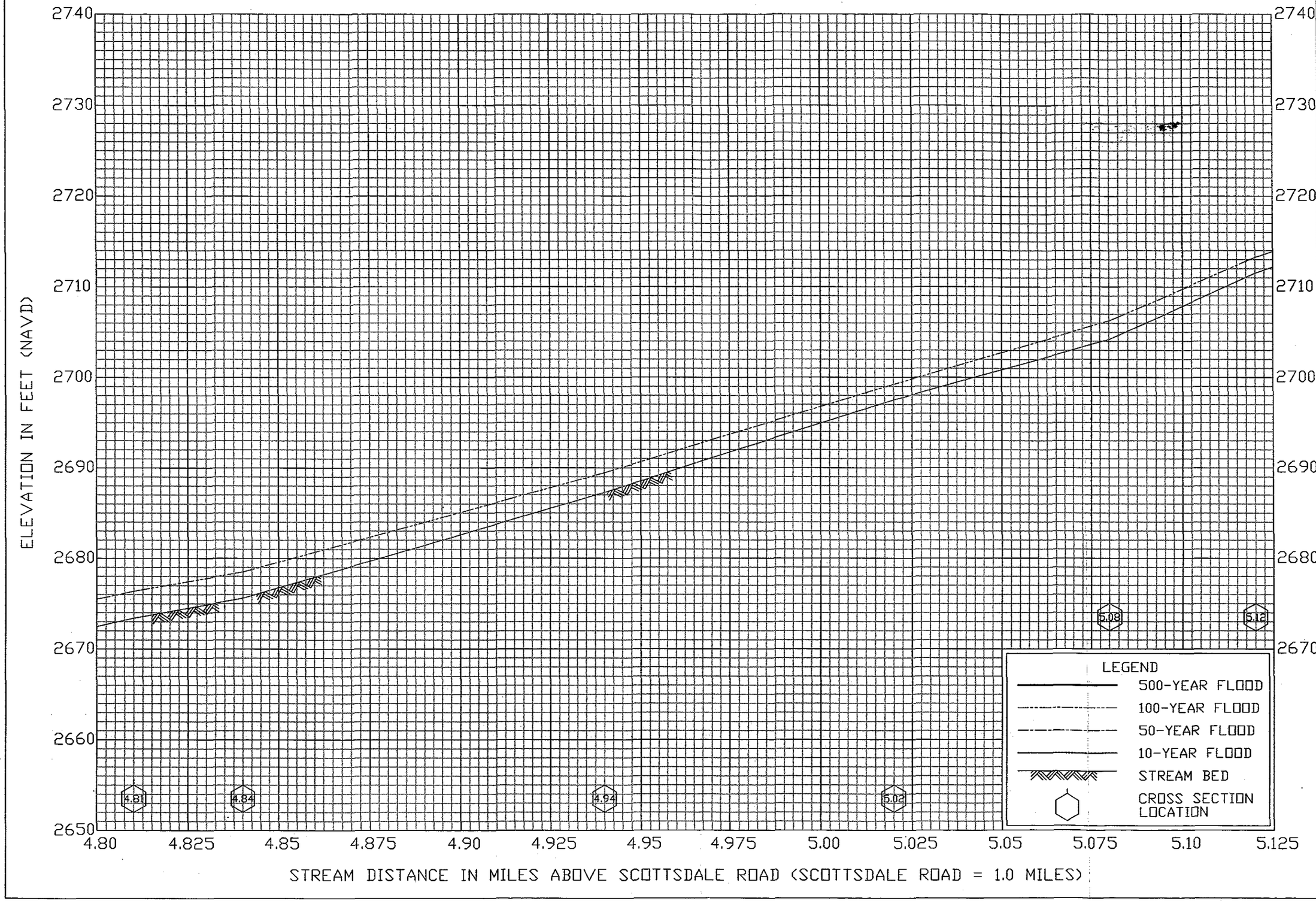



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

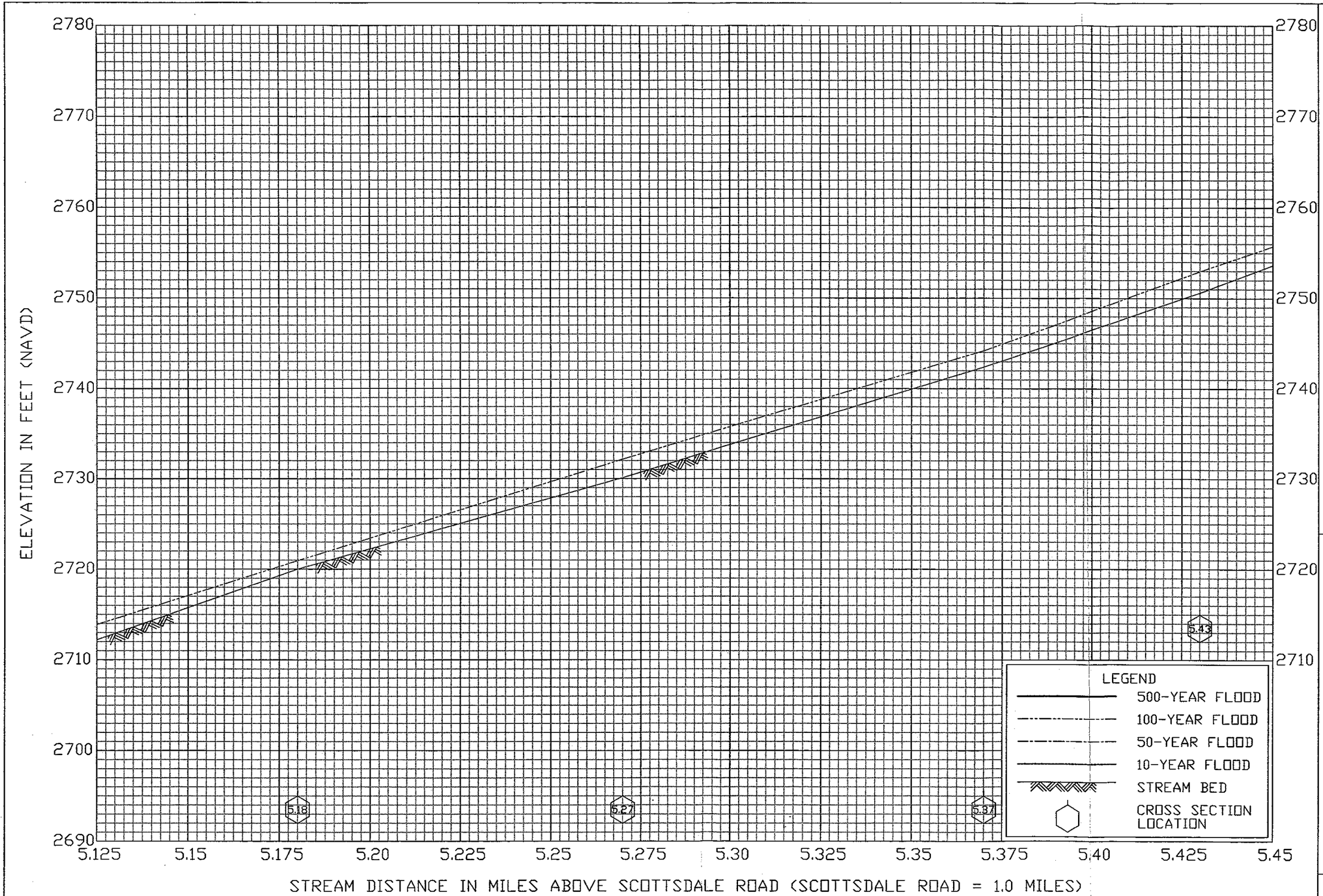



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

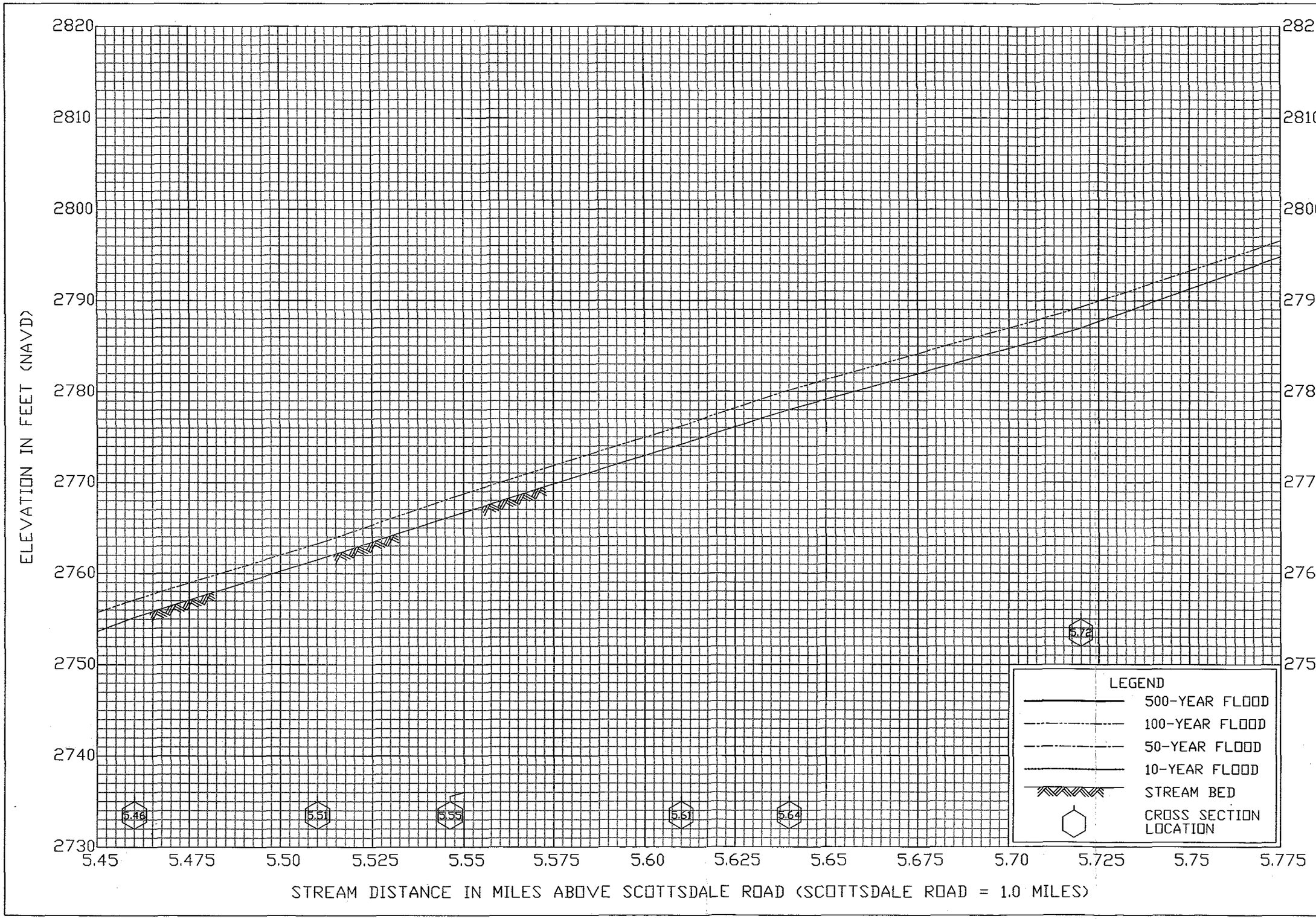



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

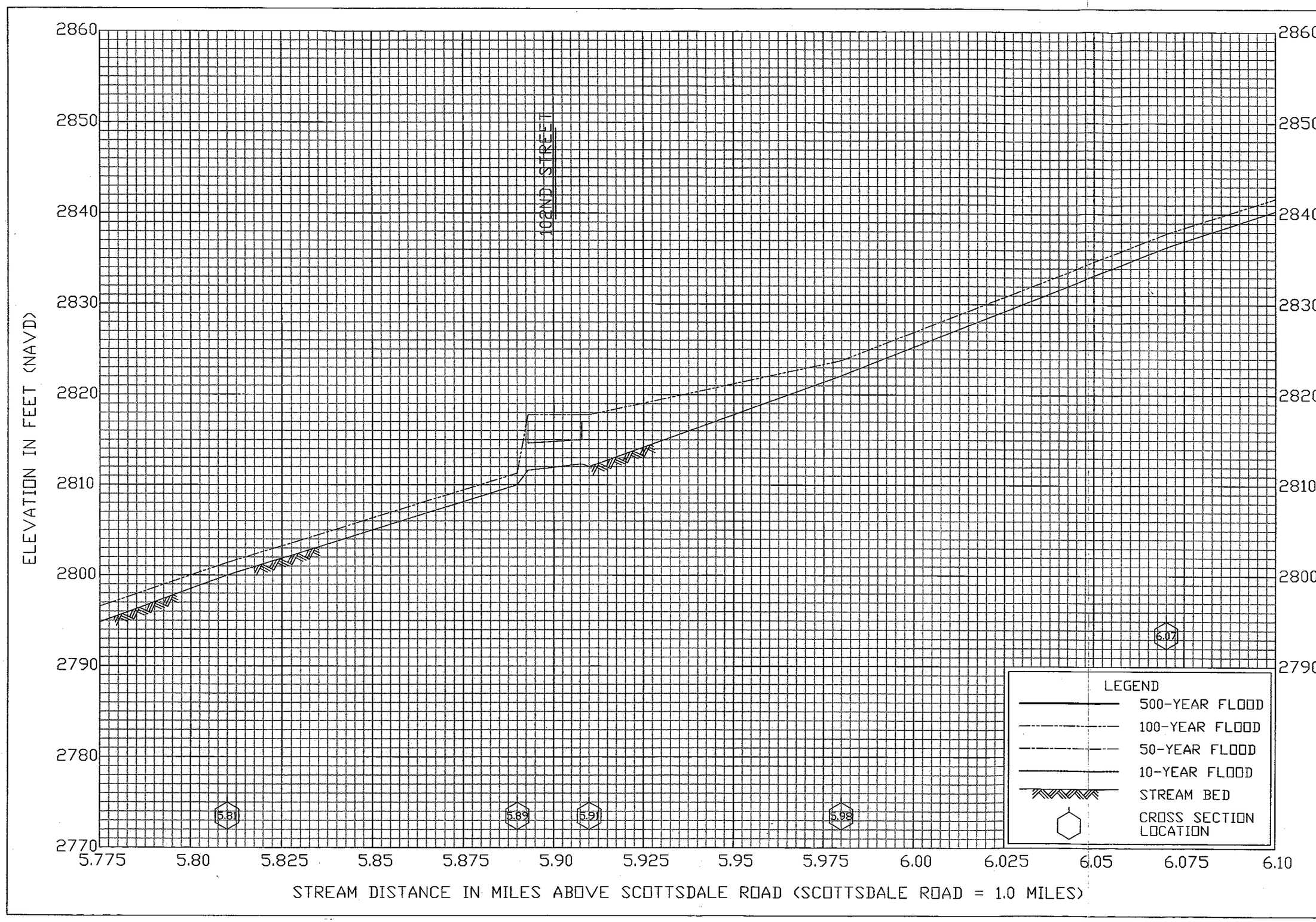



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

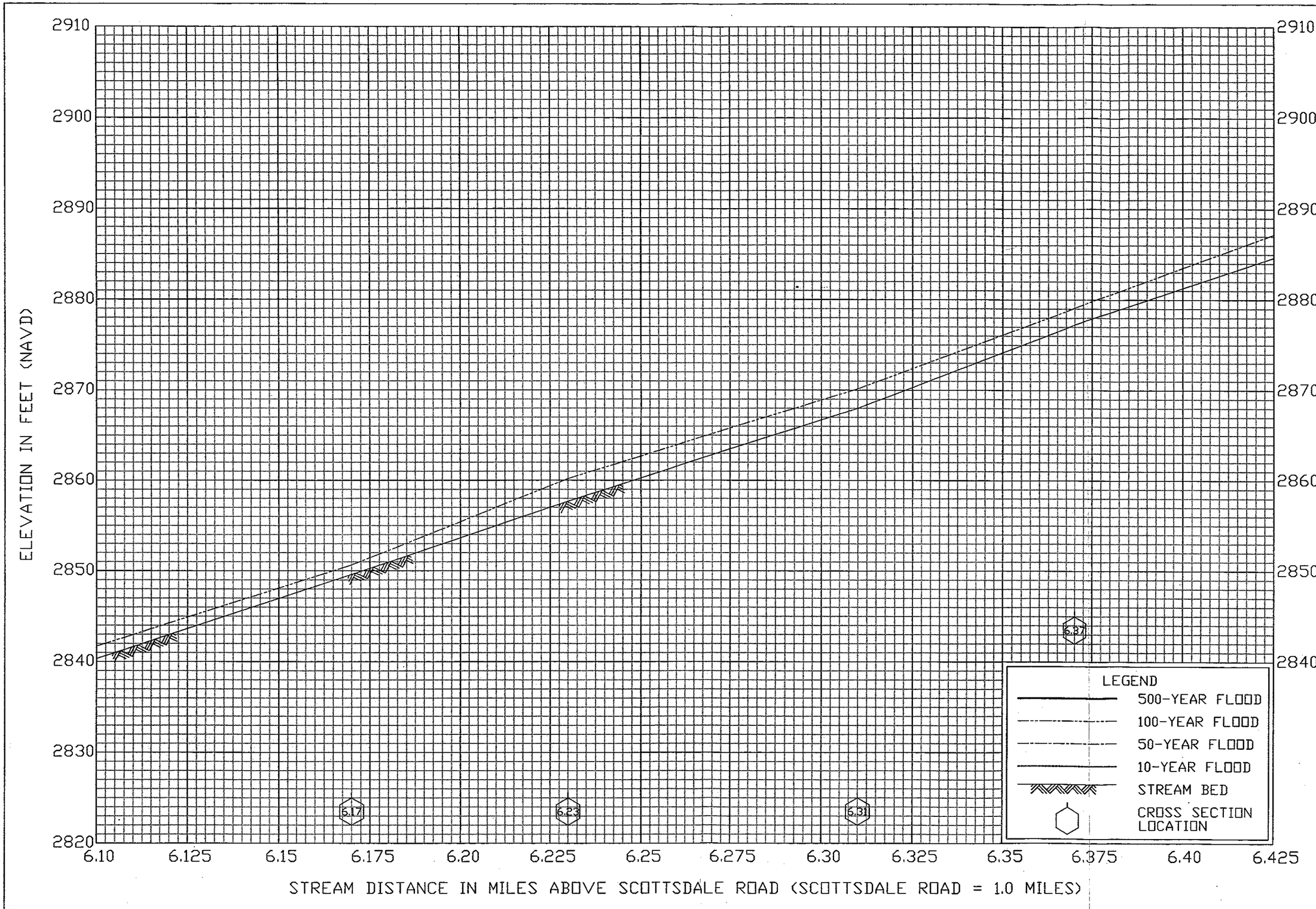



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

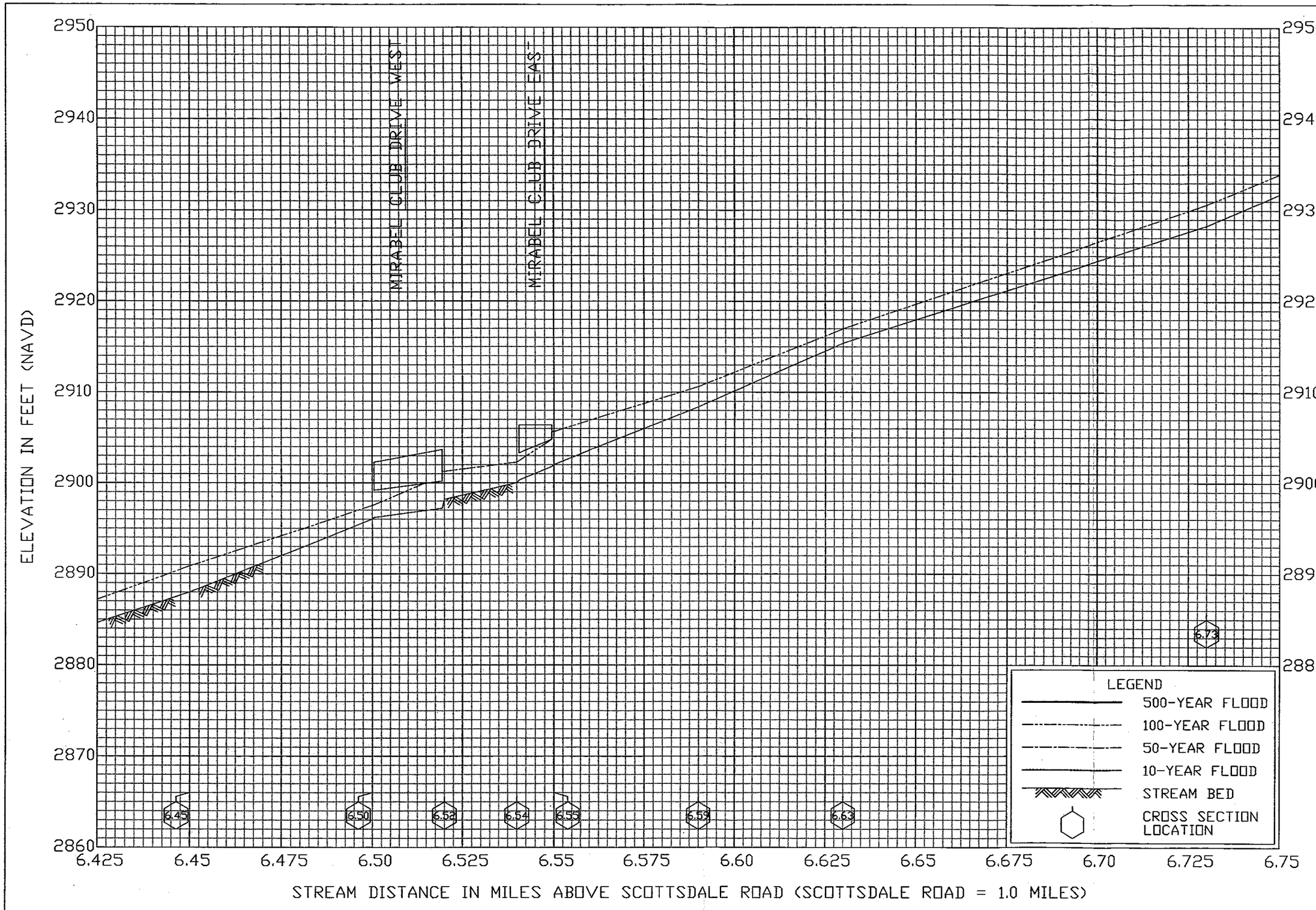



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

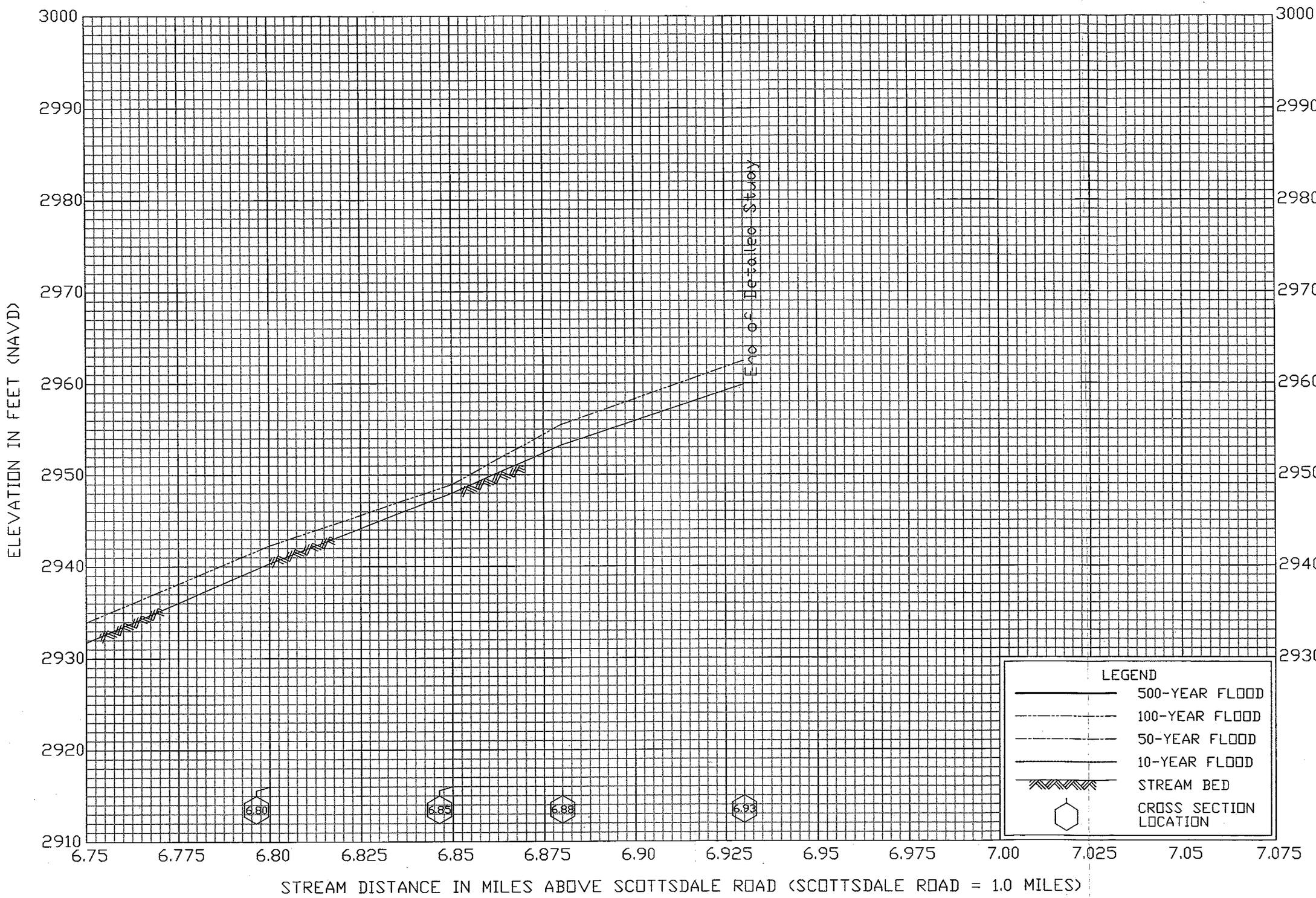



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

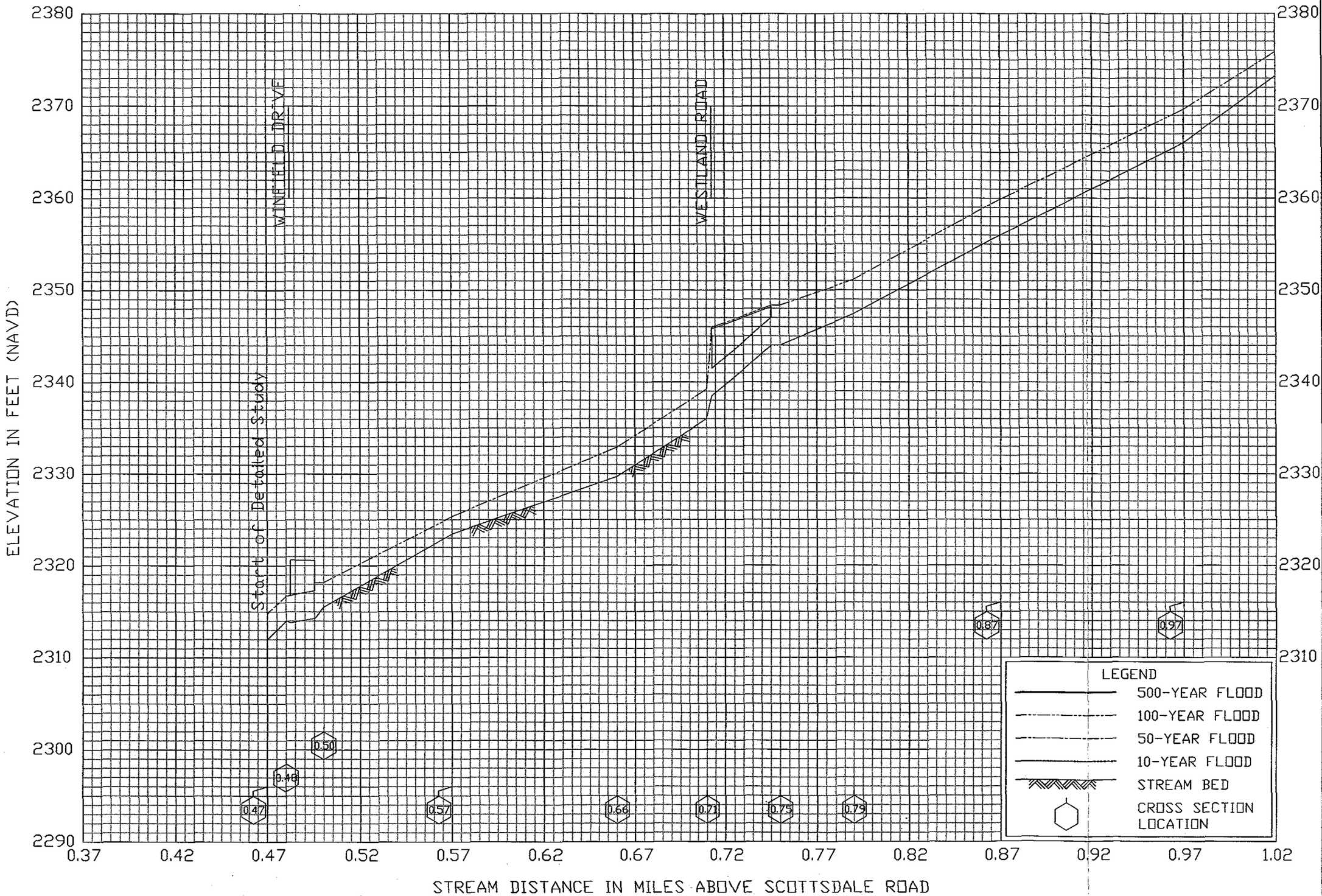



FLOOD PROFILES

STAGECOACH PASS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



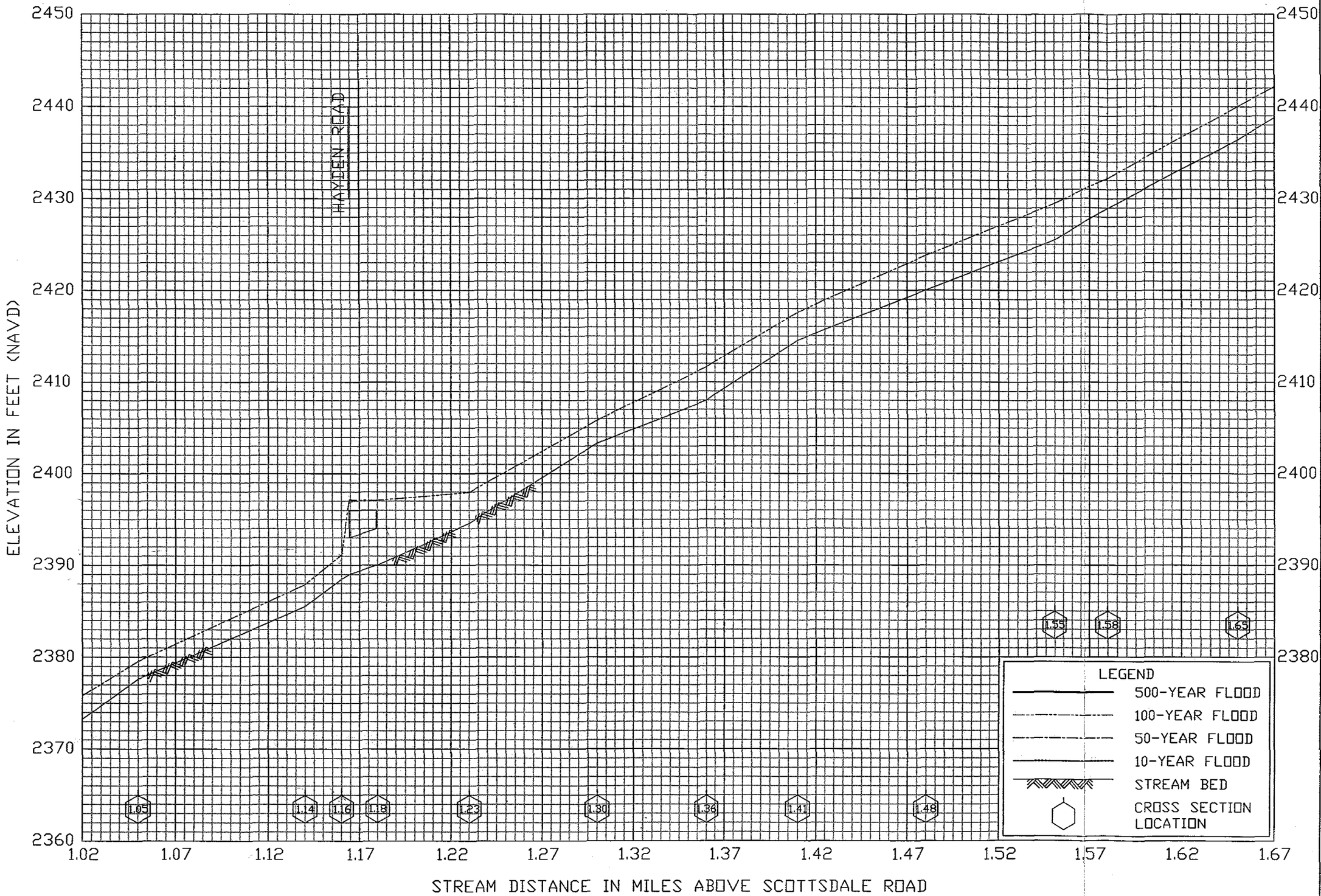

FLOOD PROFILES

UPPER BOULDERS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

01P



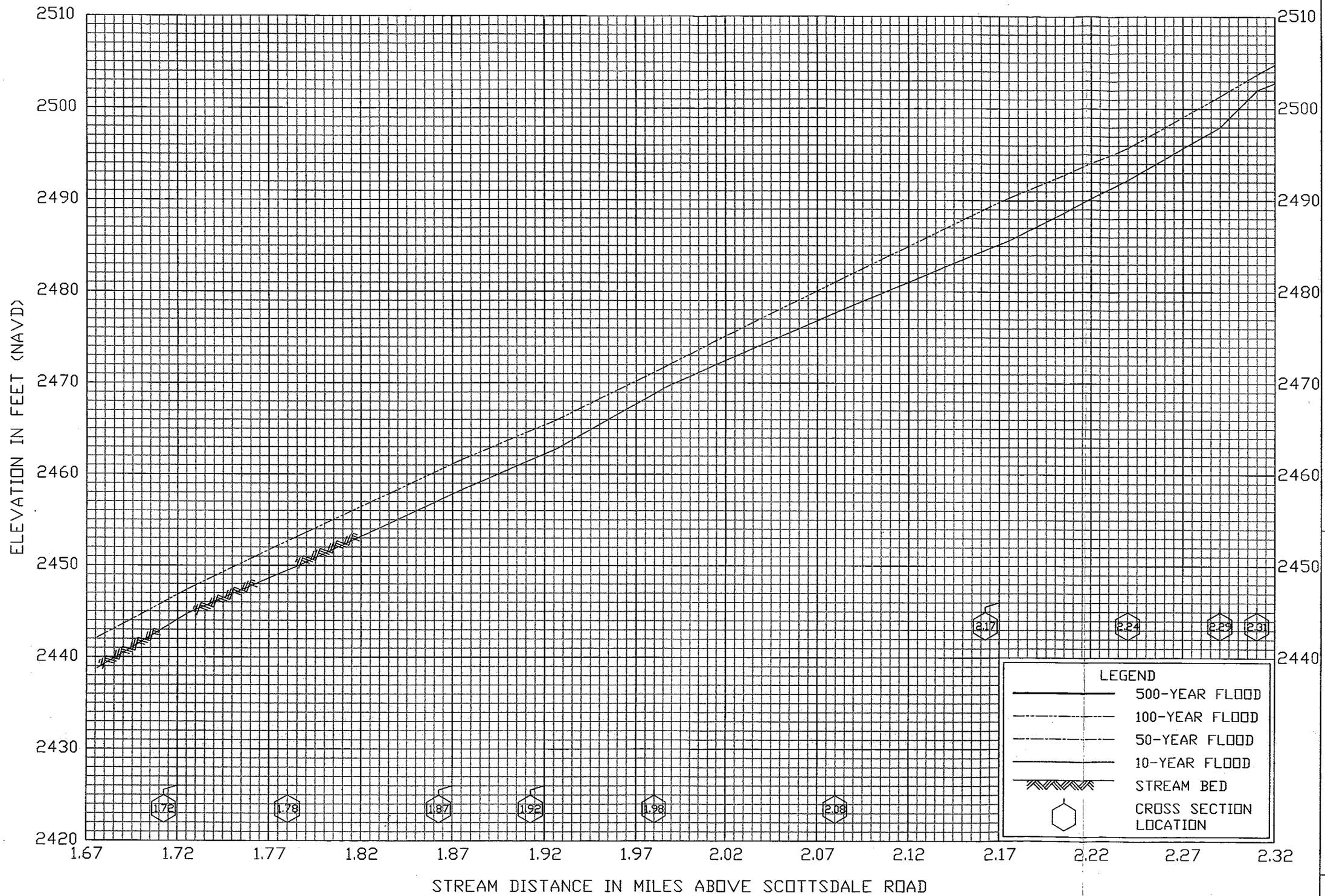

FLOOD PROFILES

UPPER BOULDERS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

02P



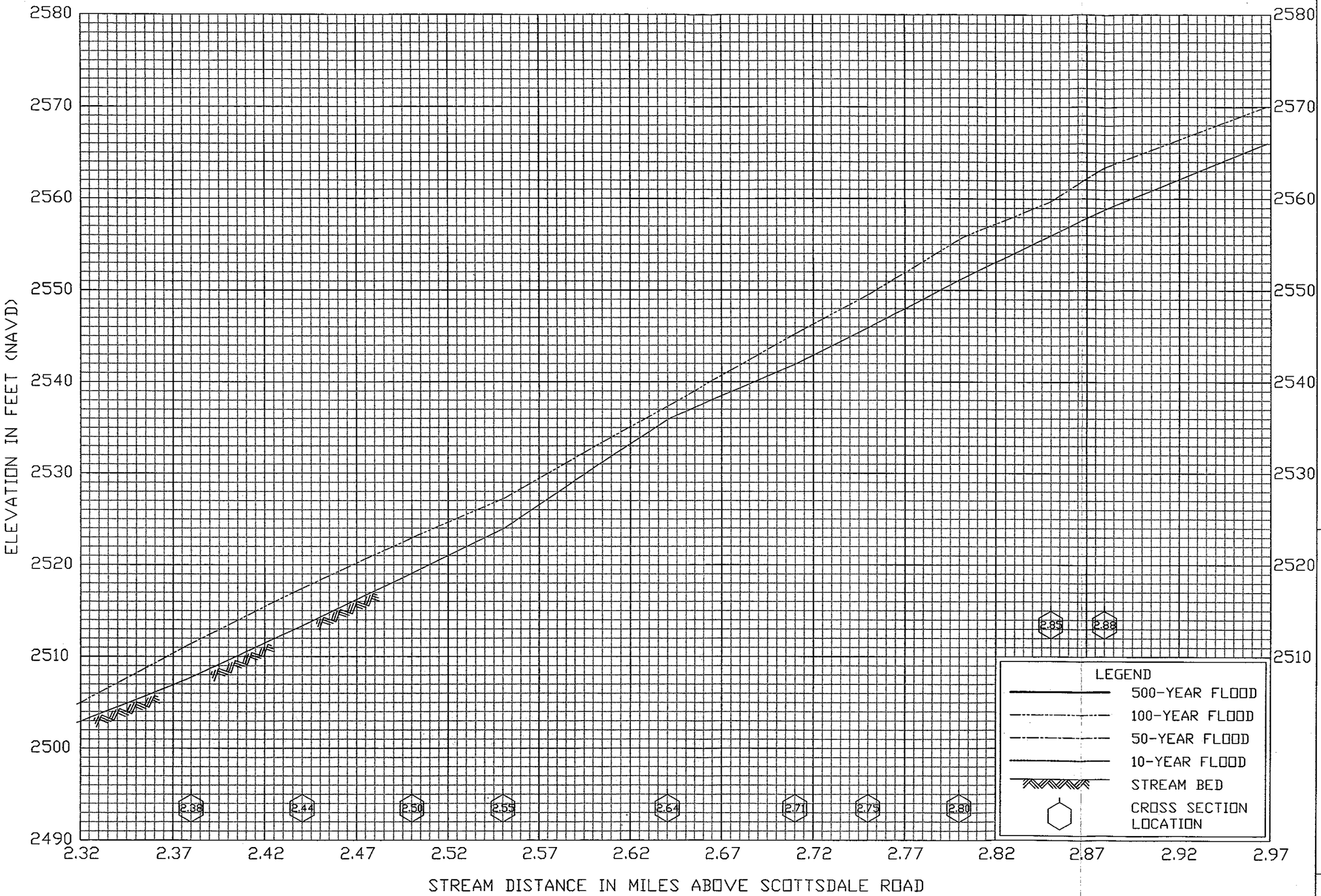

FLOOD PROFILES

UPPER BOULDERS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

03P

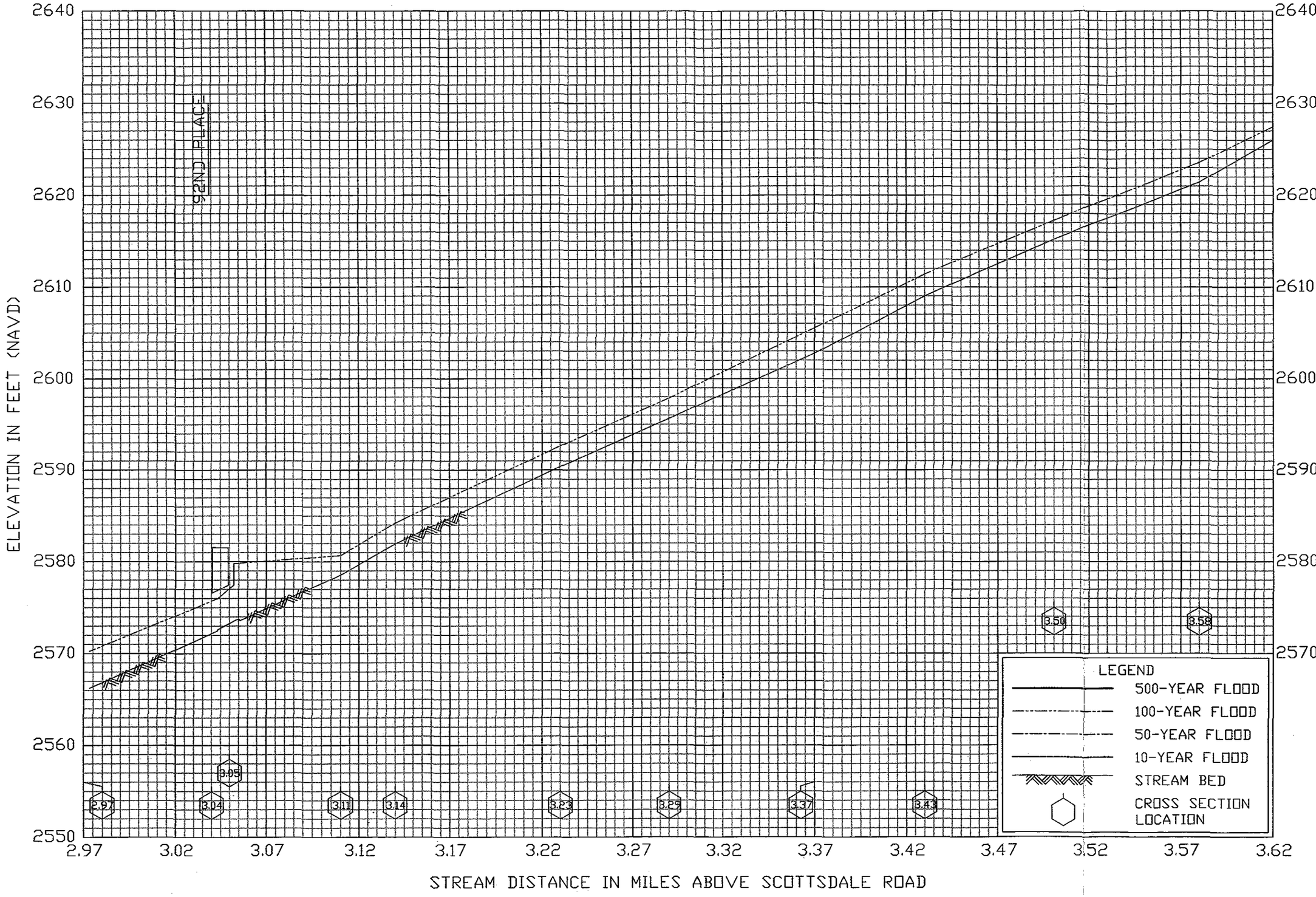



FLOOD PROFILES

UPPER BOULDERS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



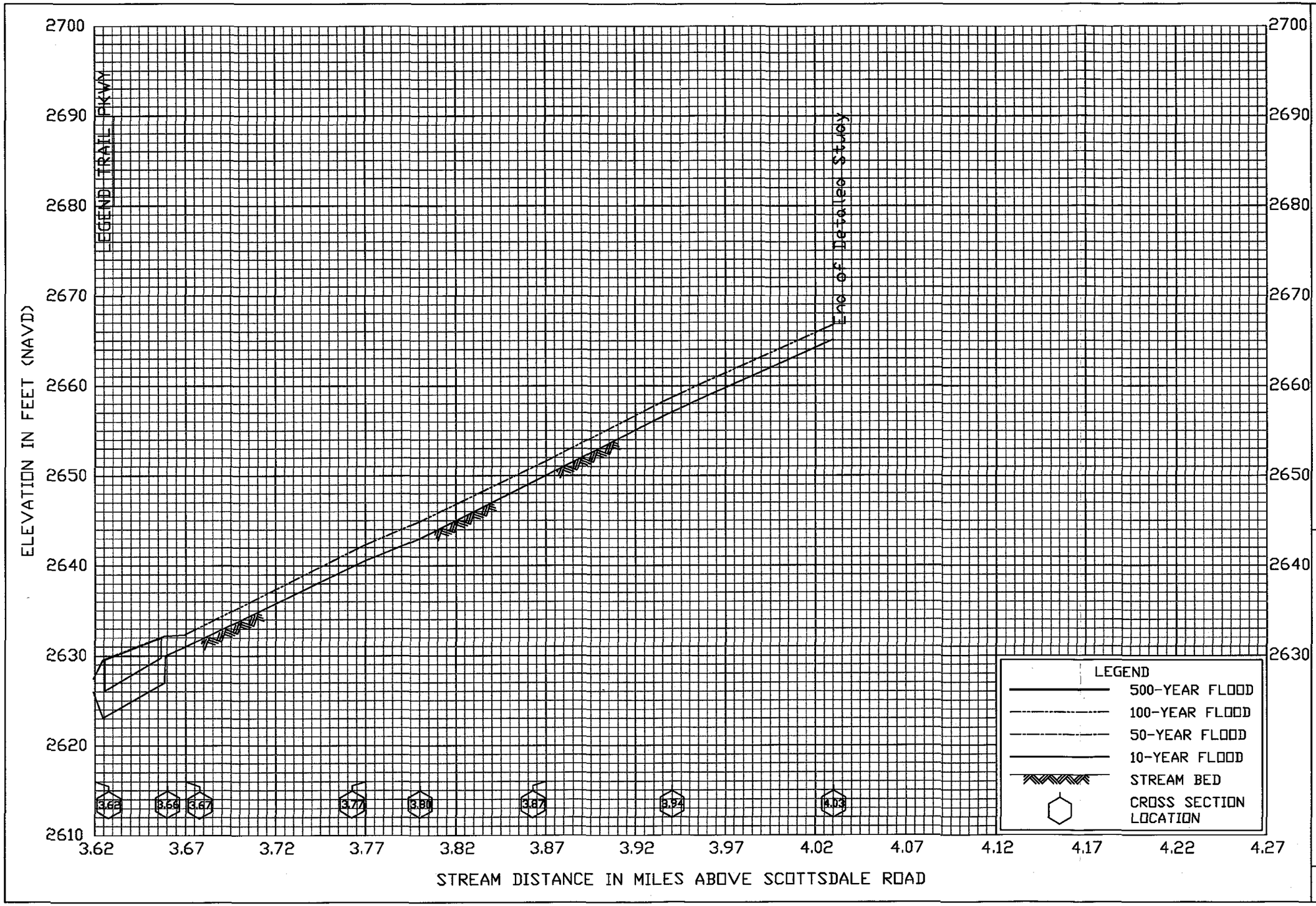

FLOOD PROFILES

UPPER BOULDERS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

05P



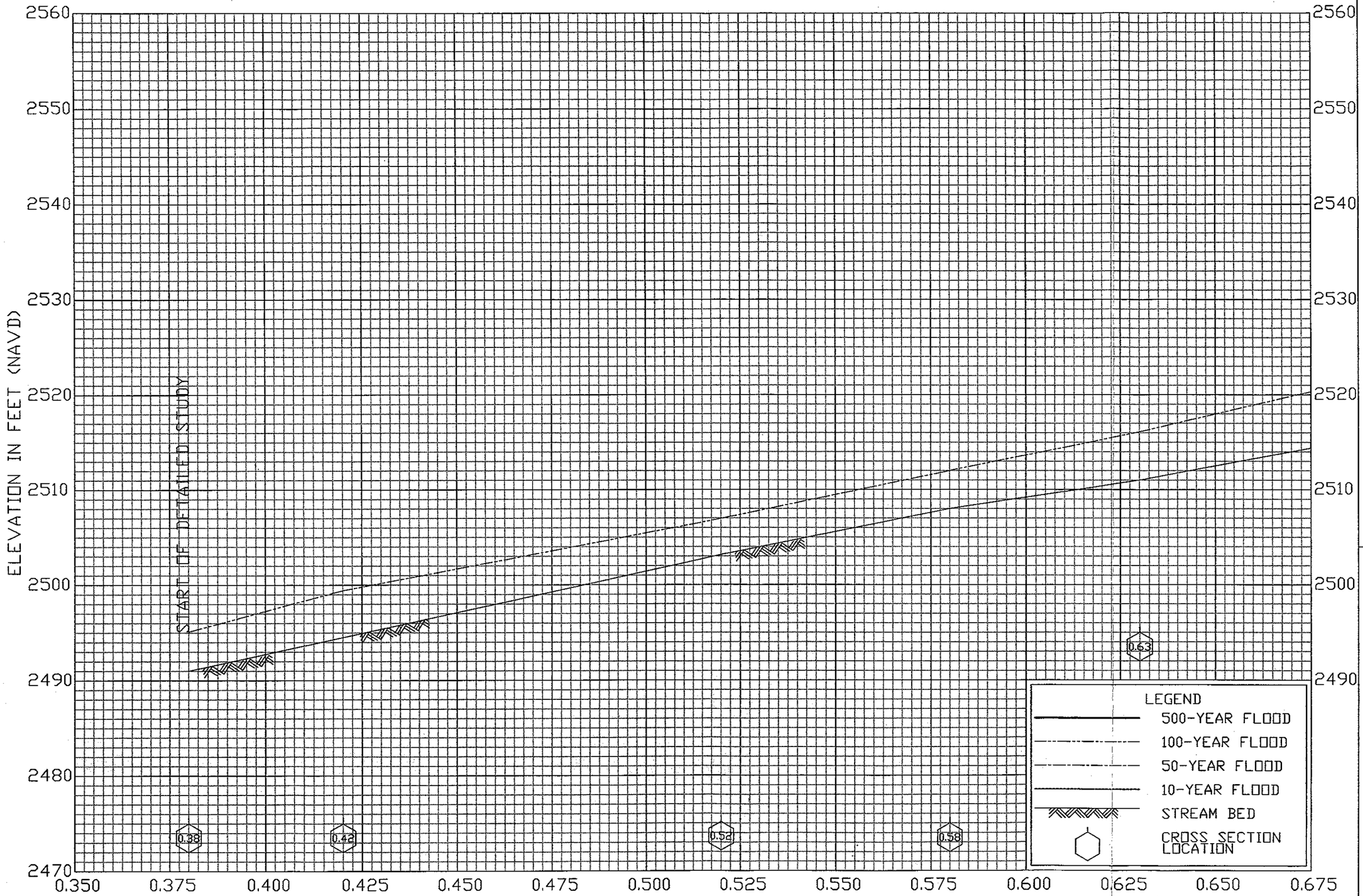

FLOOD PROFILES

UPPER BOULDERS WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

06P



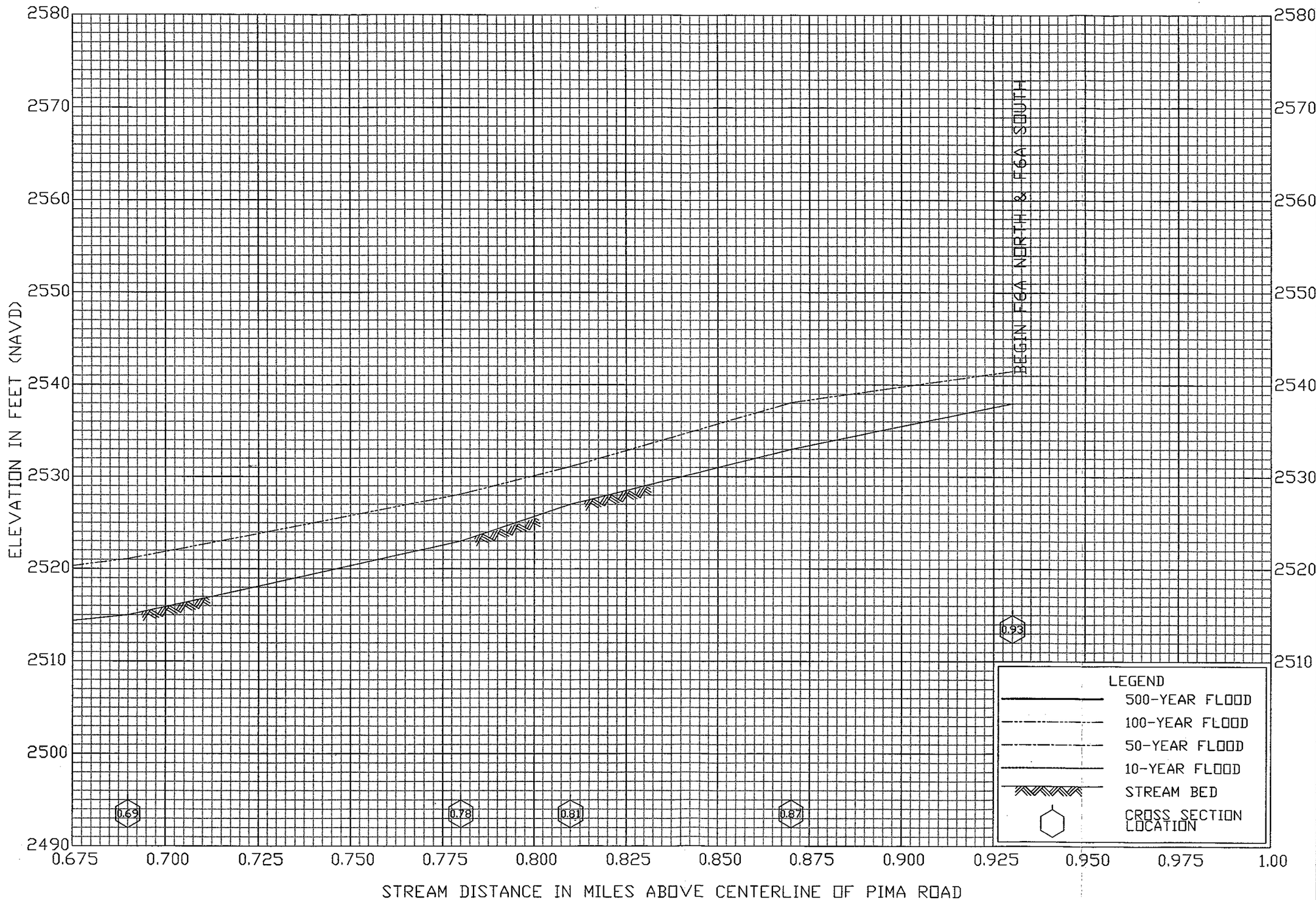

FLOOD PROFILES

FAN 6A

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

01P



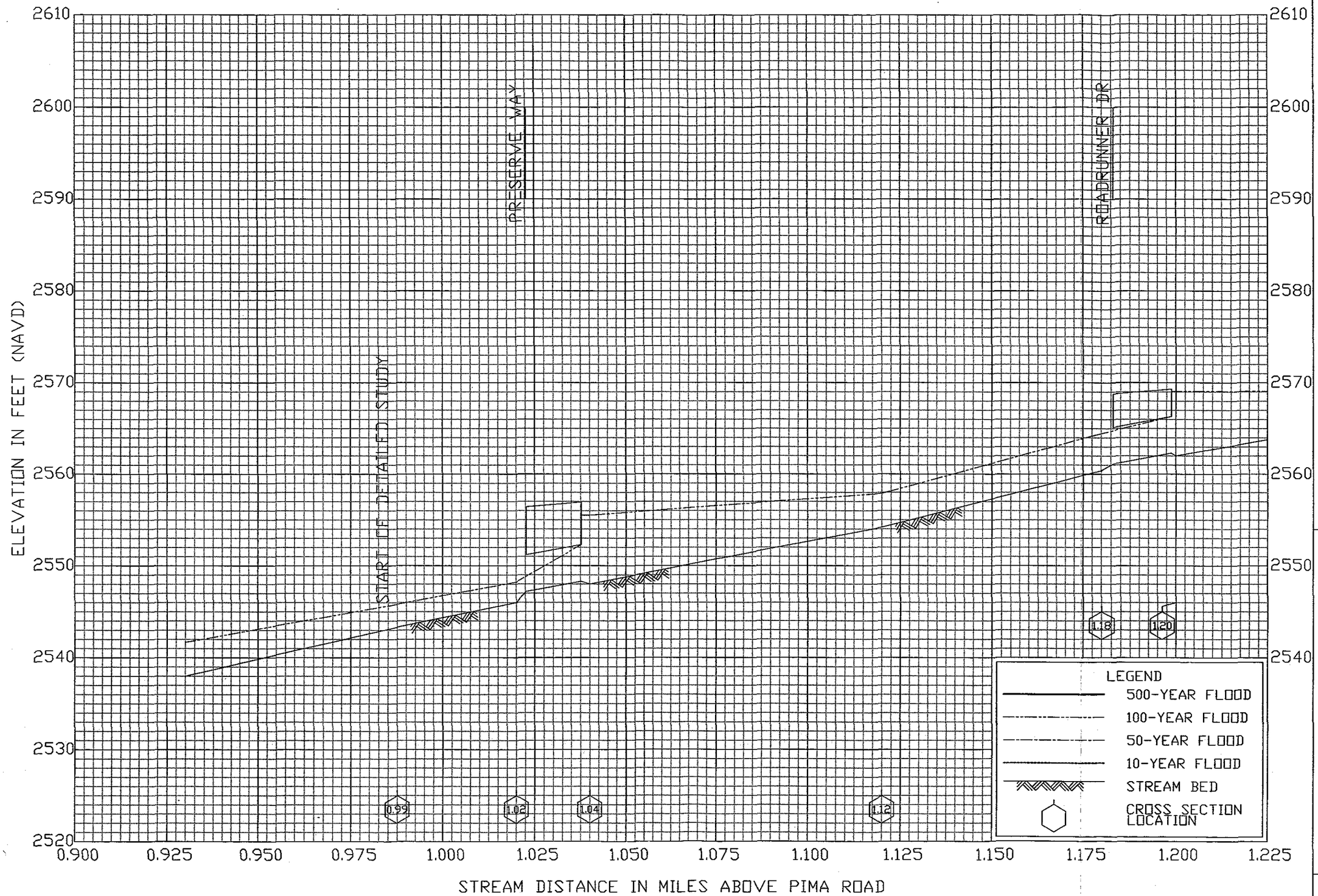

FLOOD PROFILES

FAN 6A

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

02P



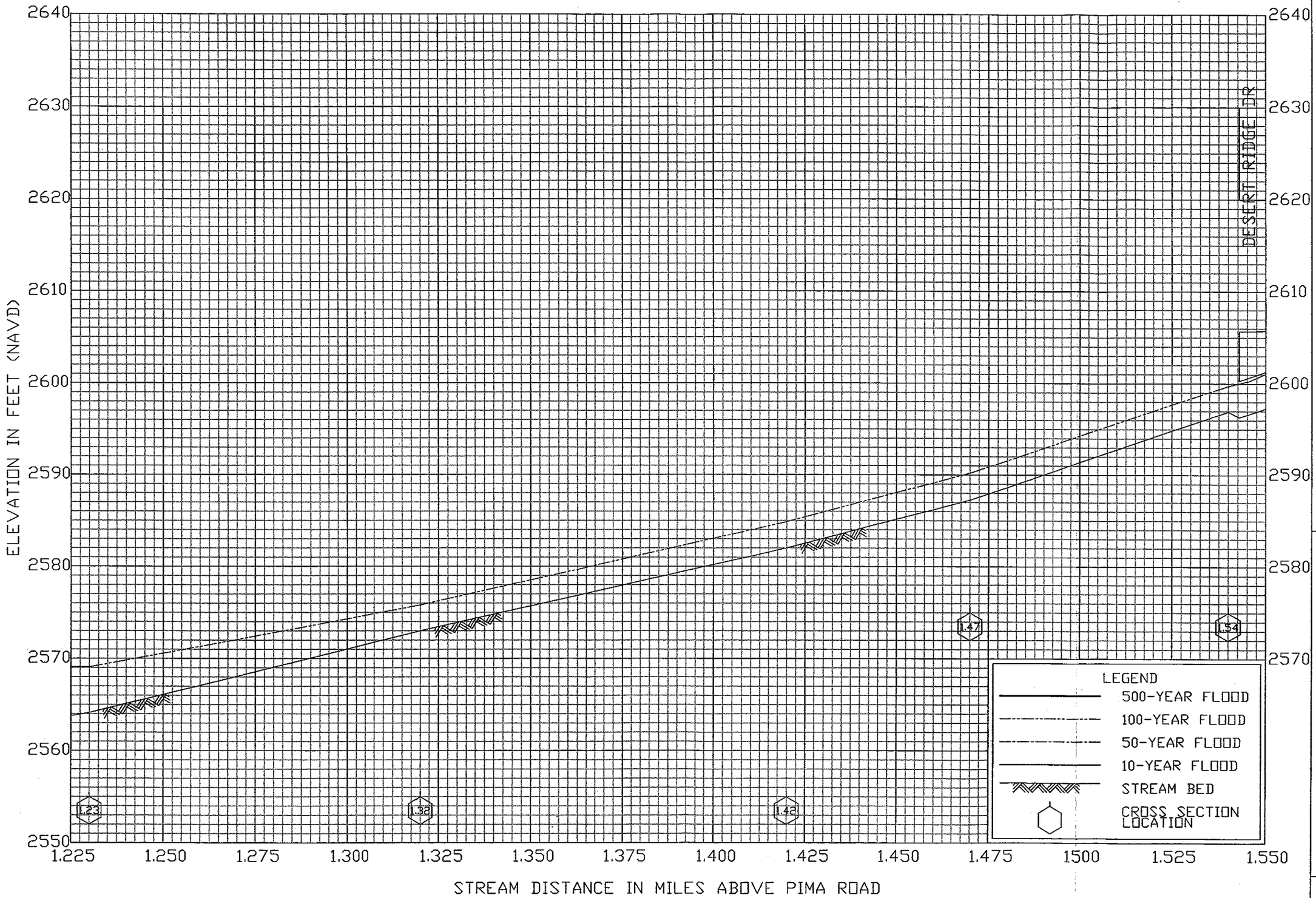

FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

01P



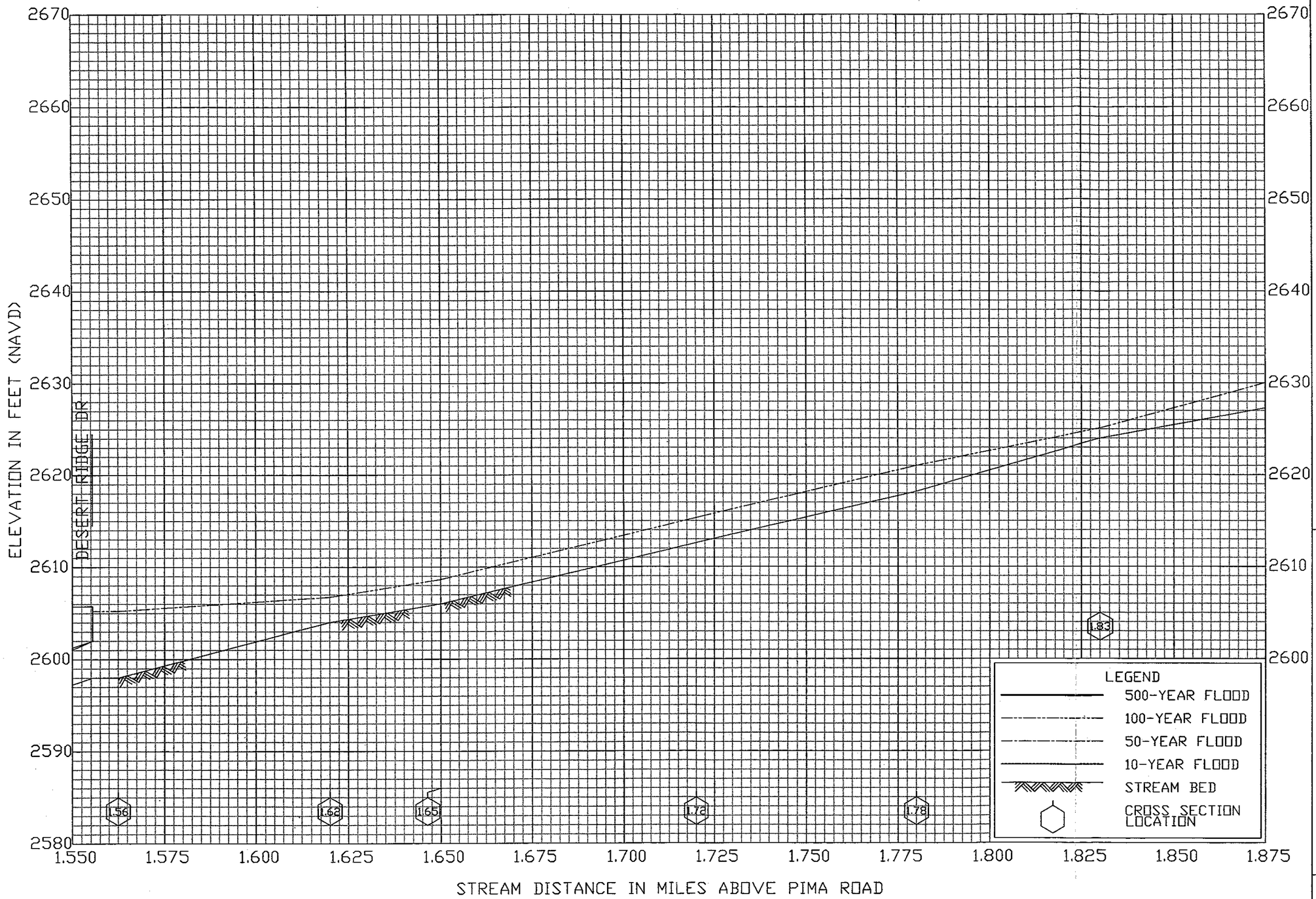

FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

02P



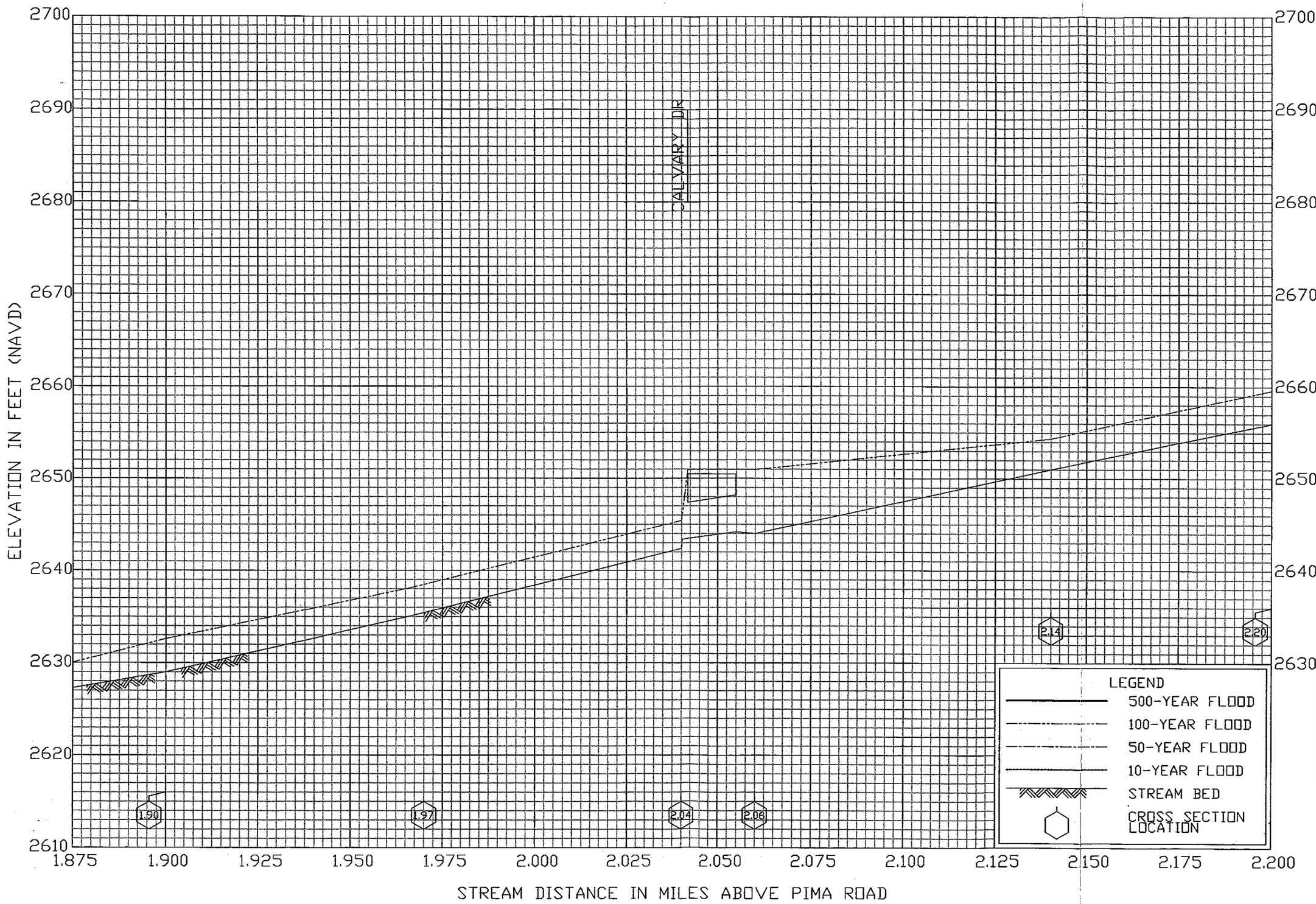

FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

03P



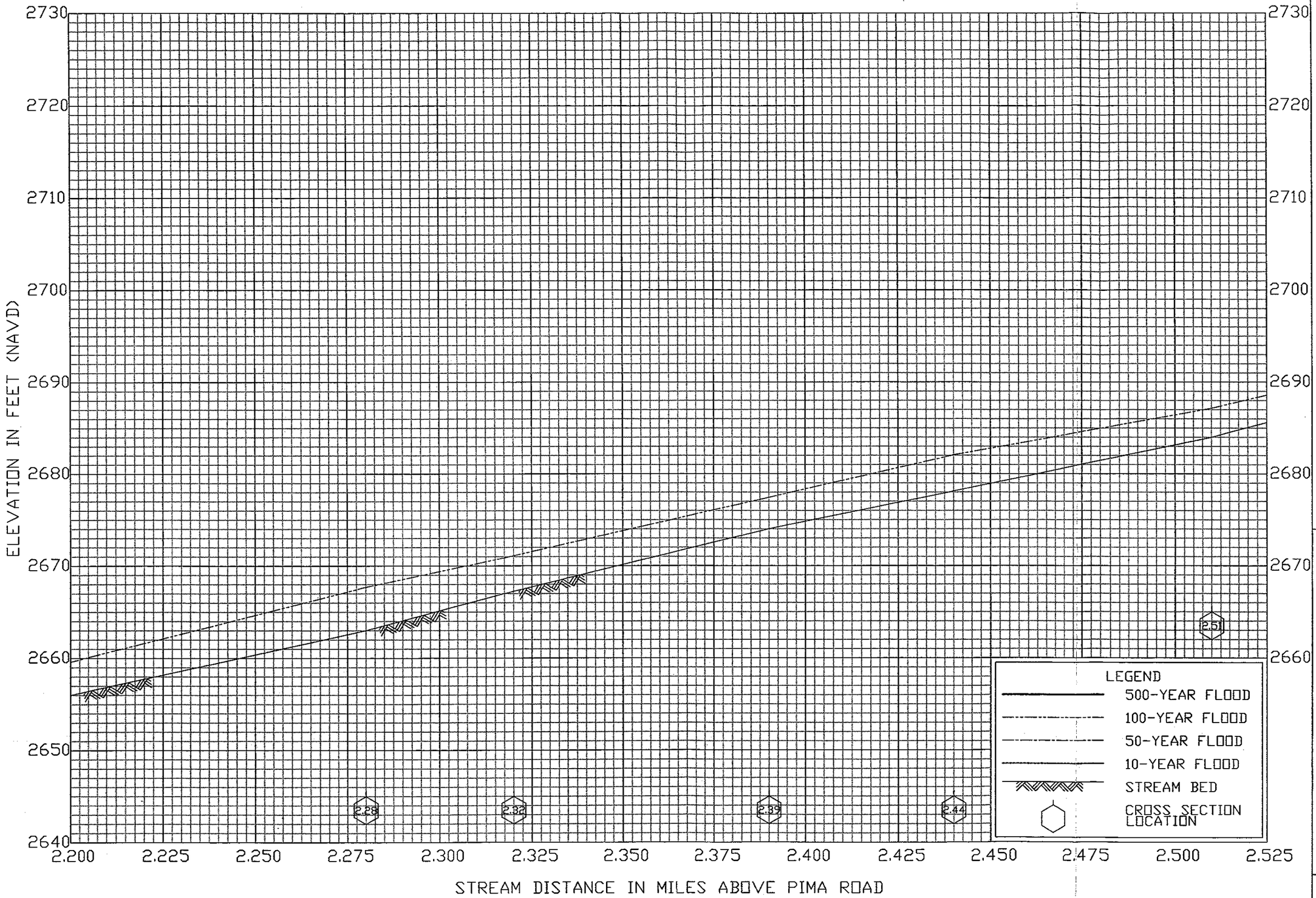

FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

04P



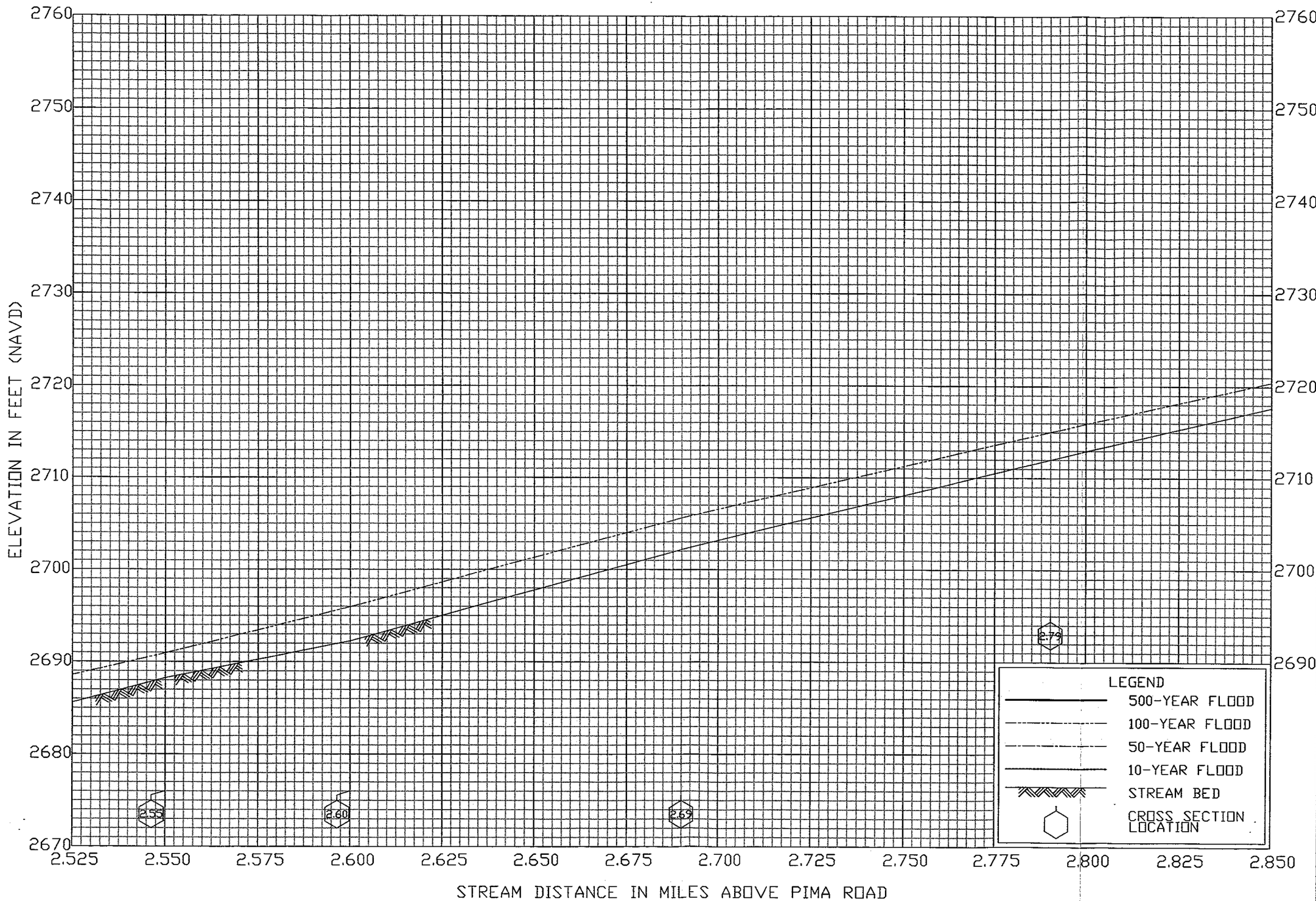

FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

05P



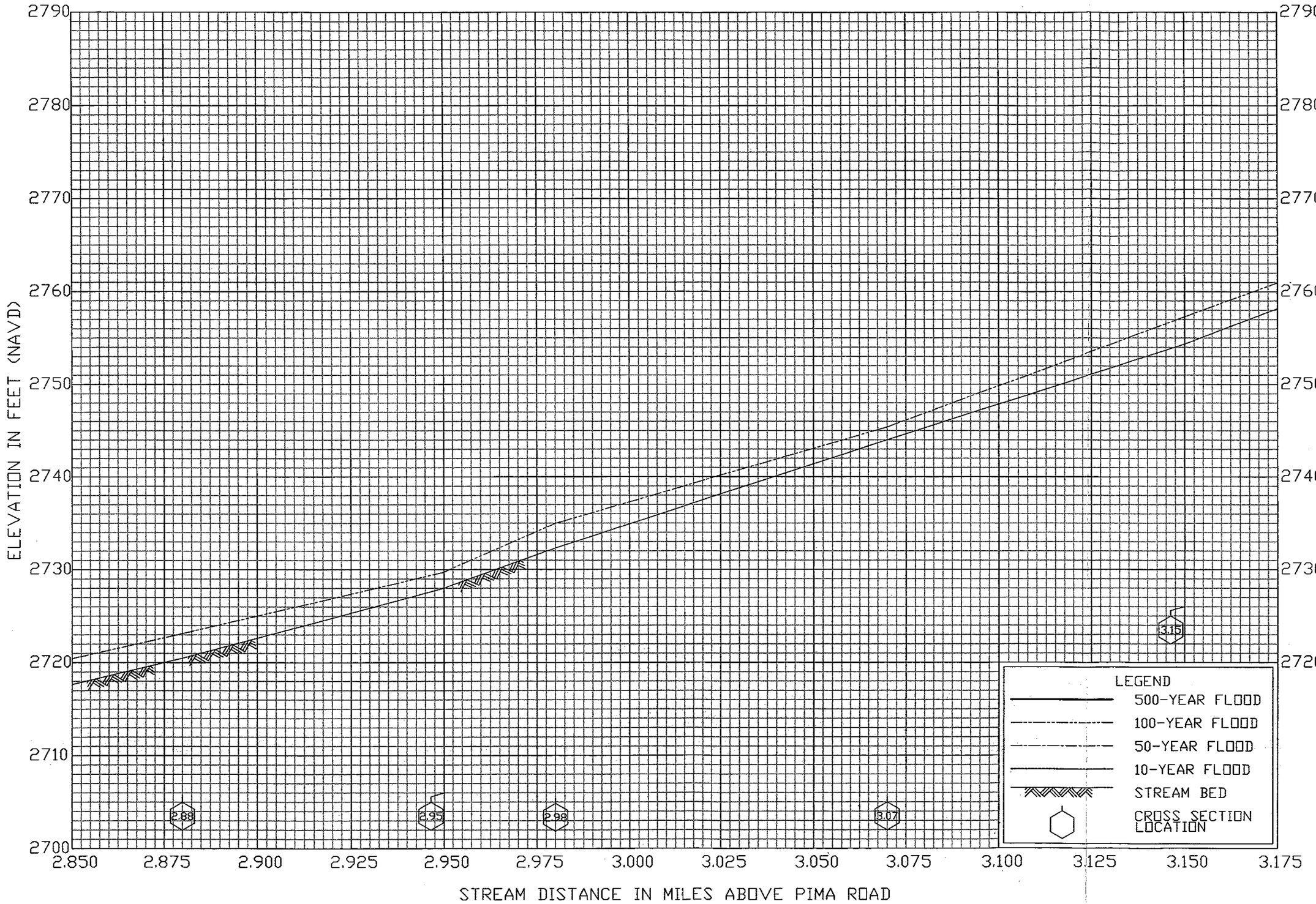

FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

06P



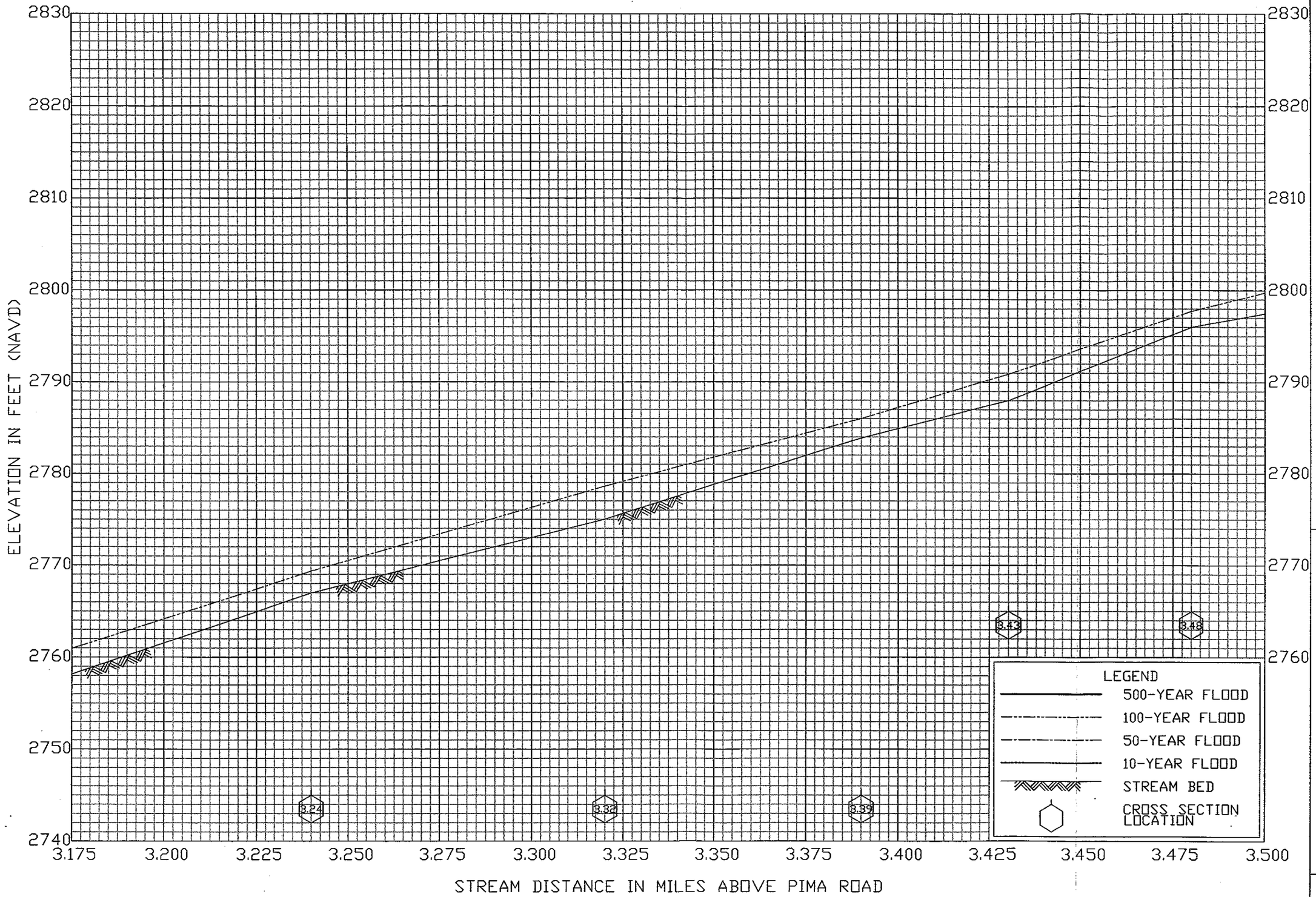

FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

07P



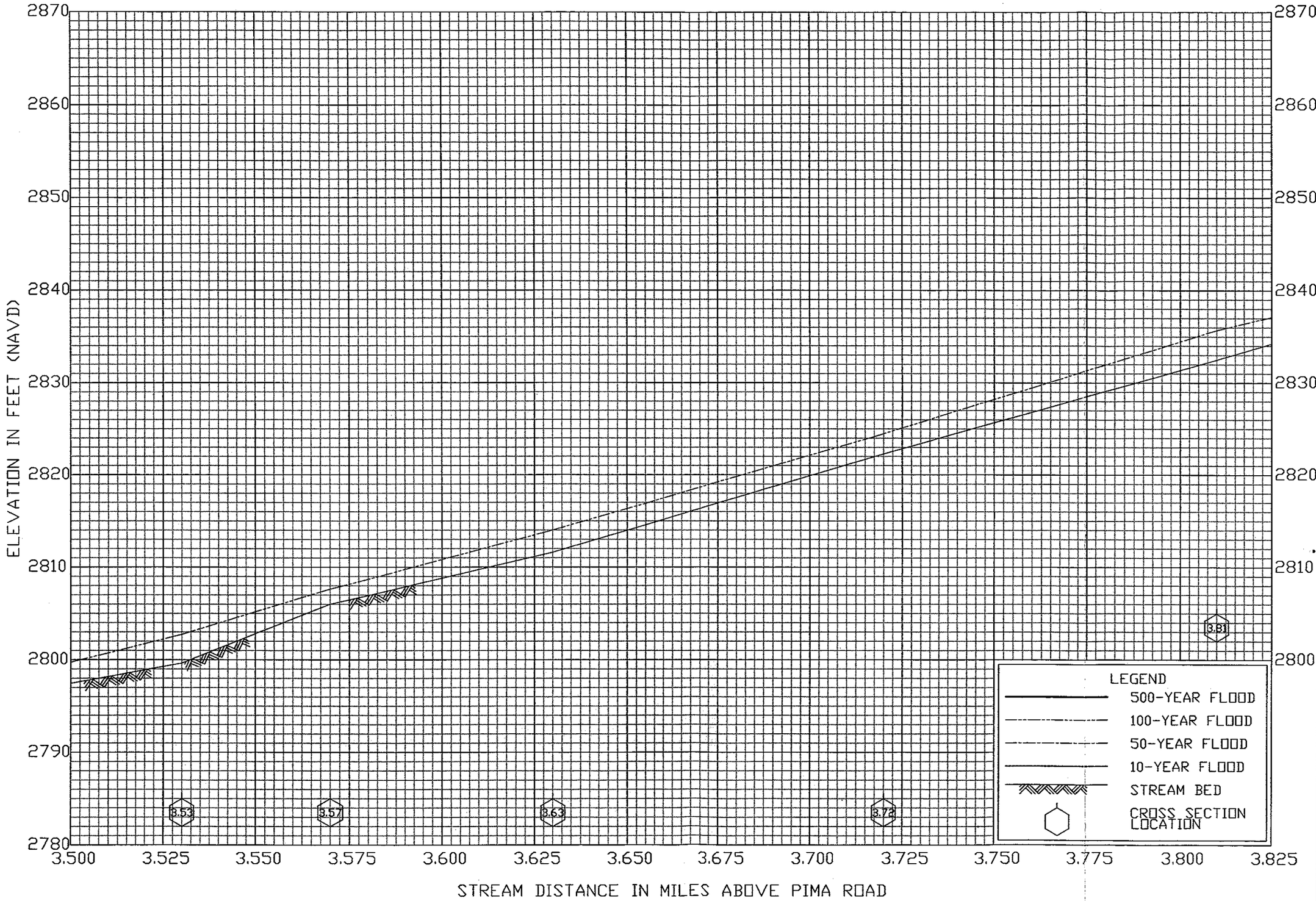

FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

08P



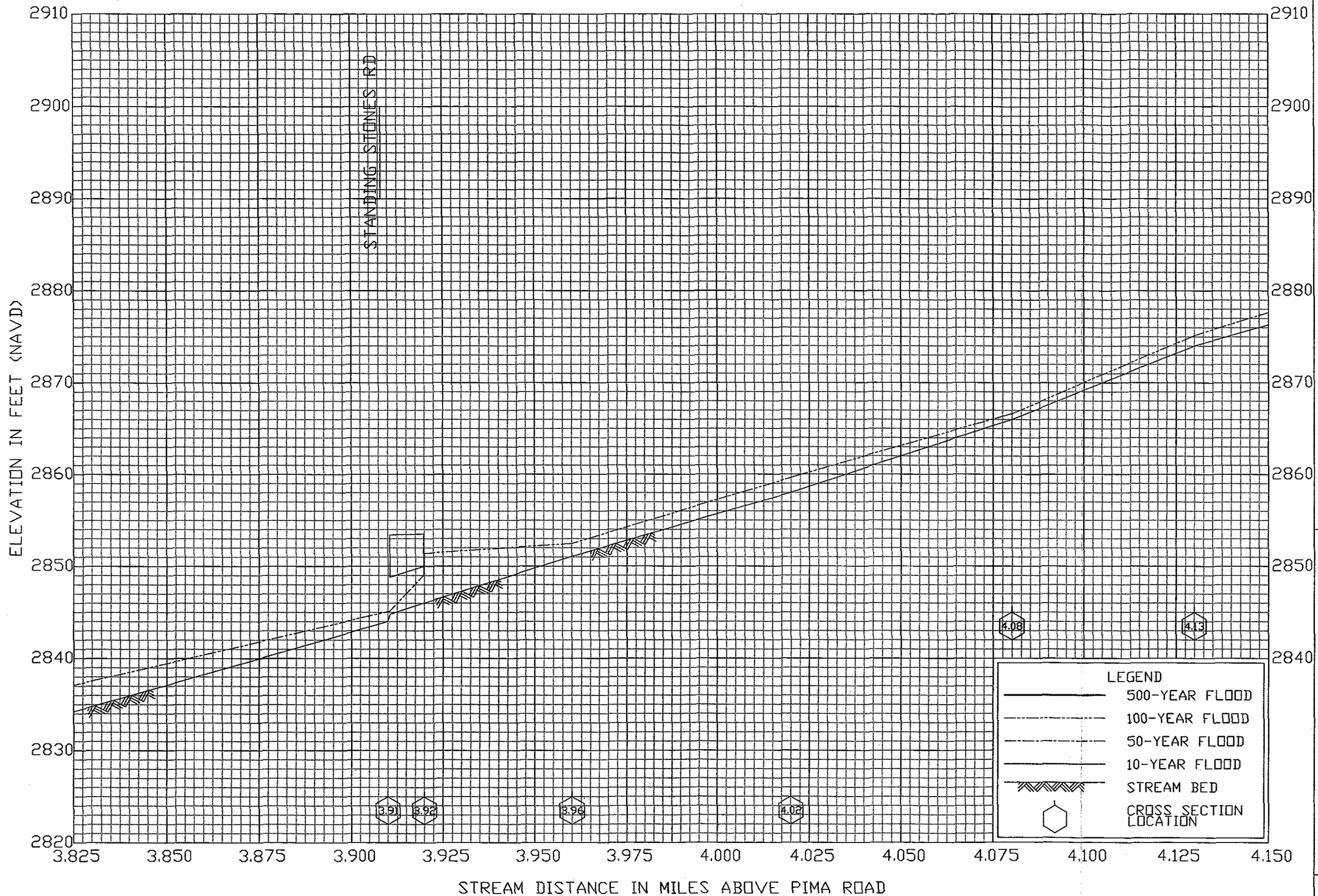

FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

09P

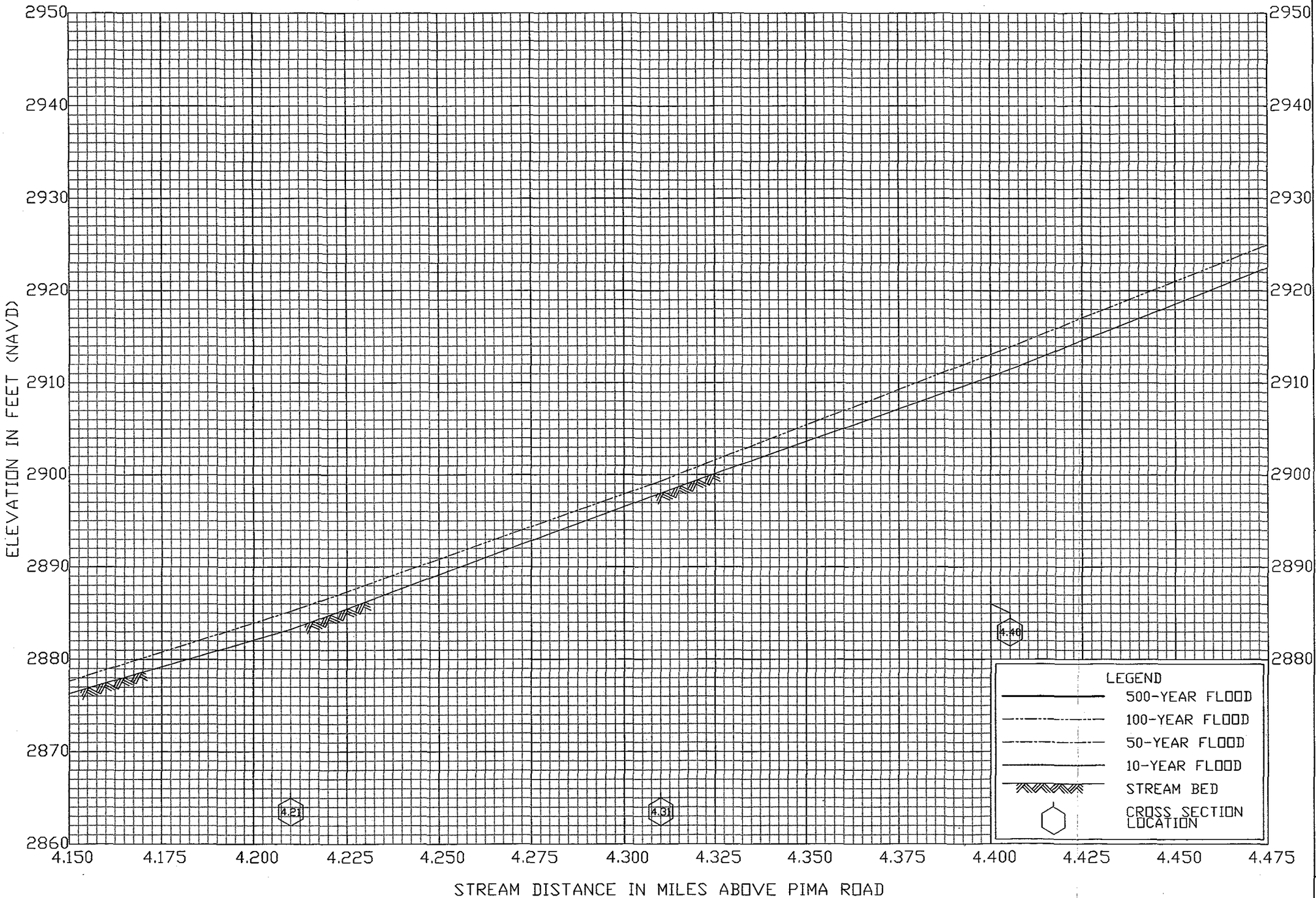



FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

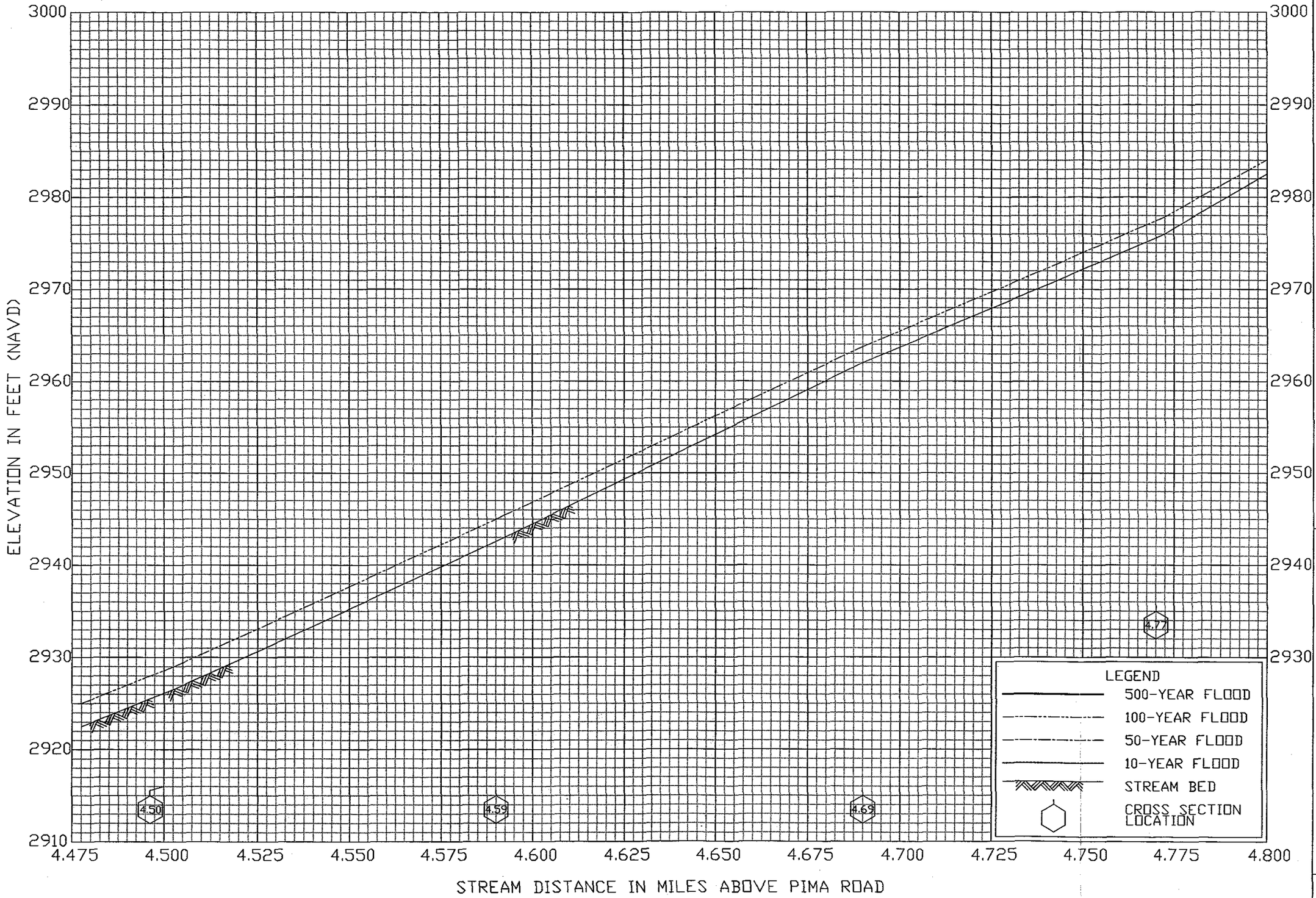



FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

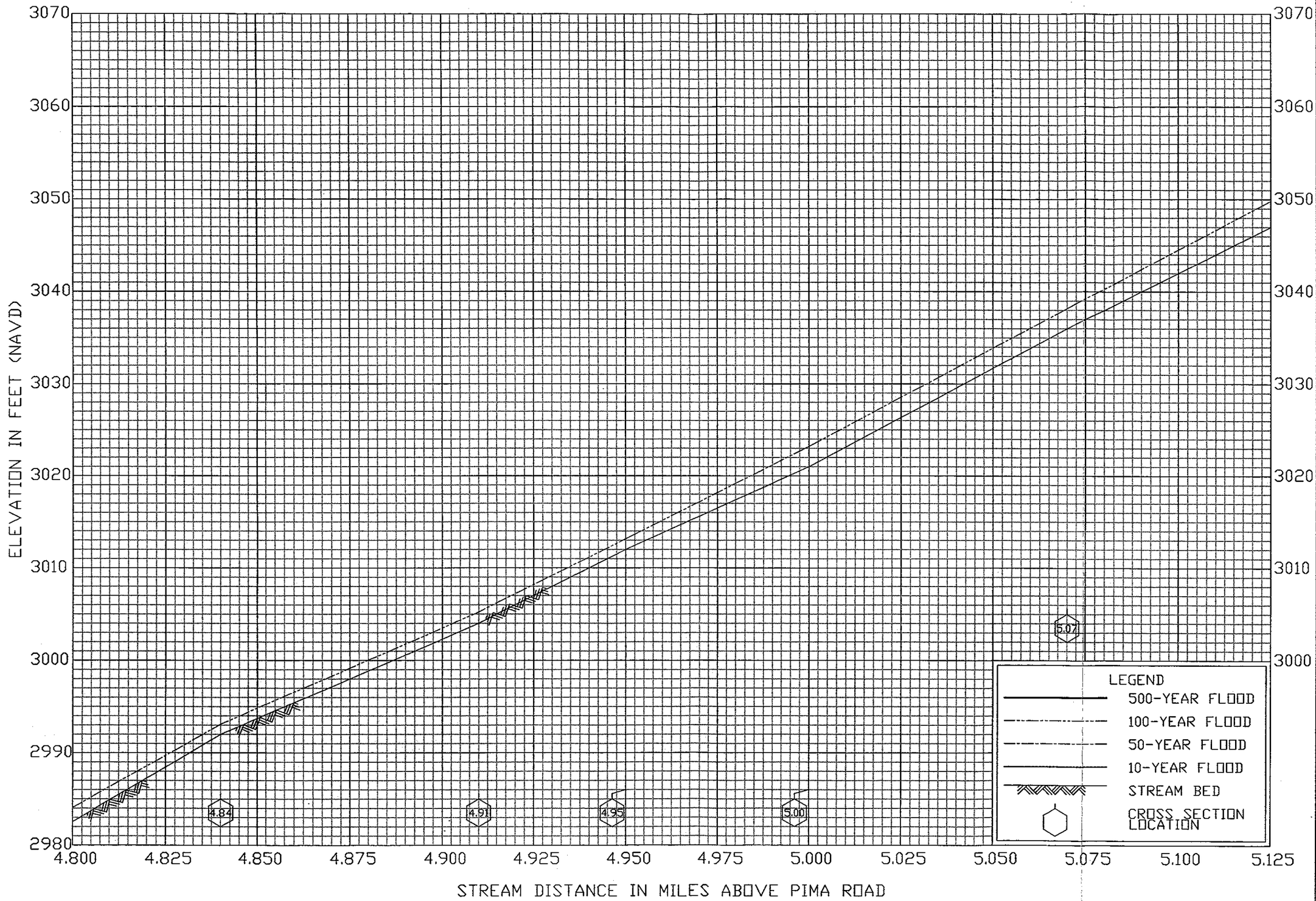



FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

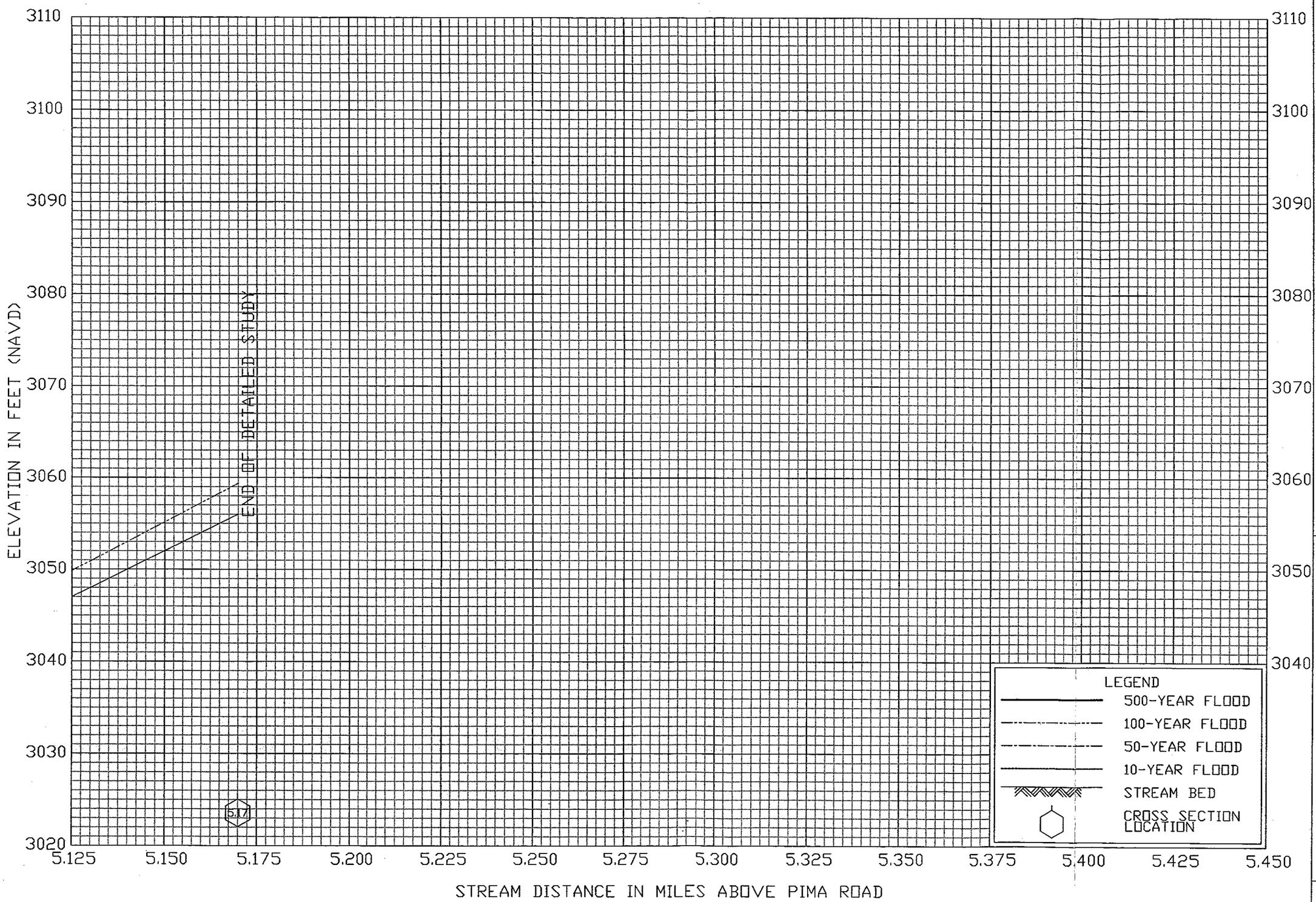



FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

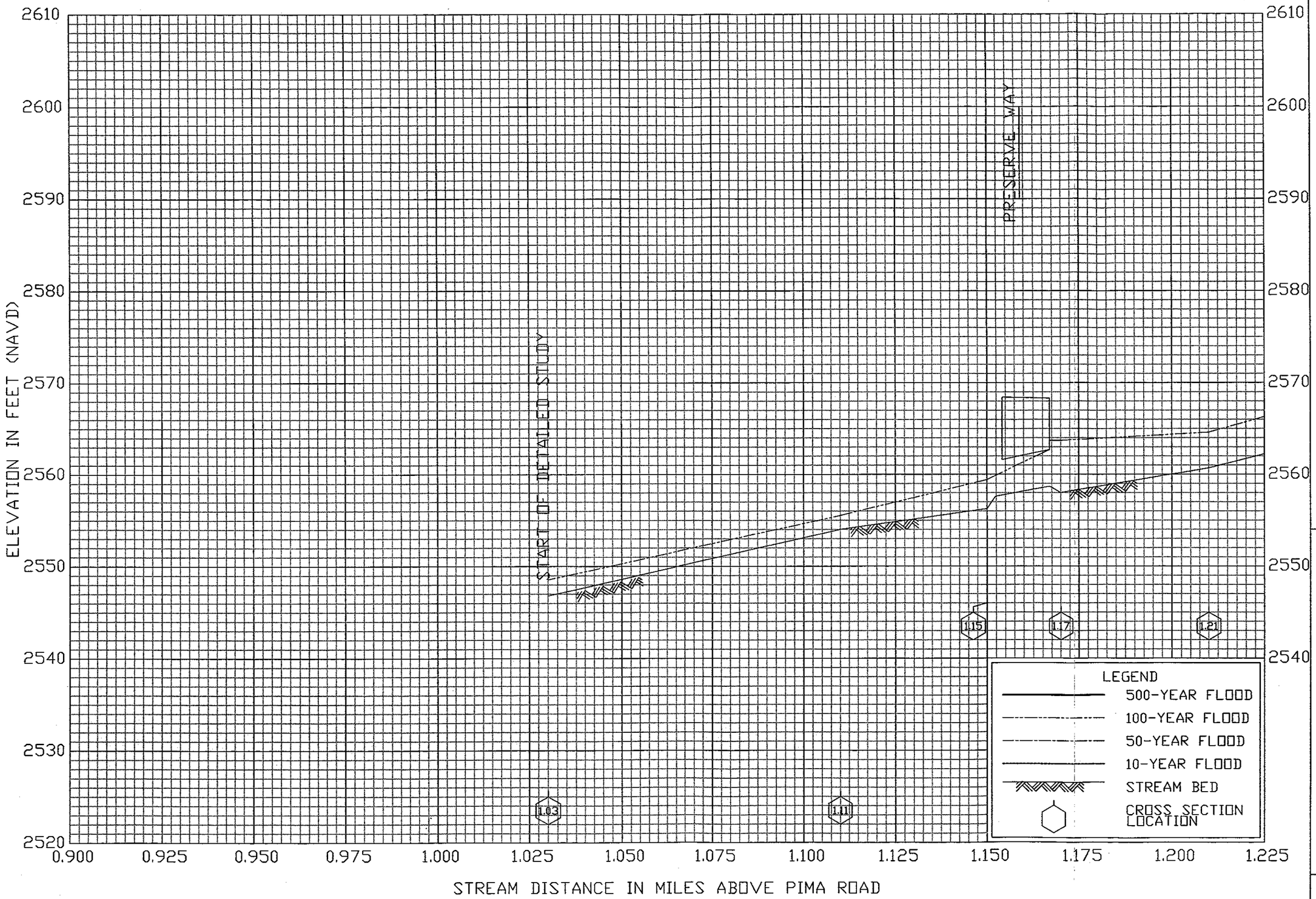



FLOOD PROFILES

FAN 6A NORTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS



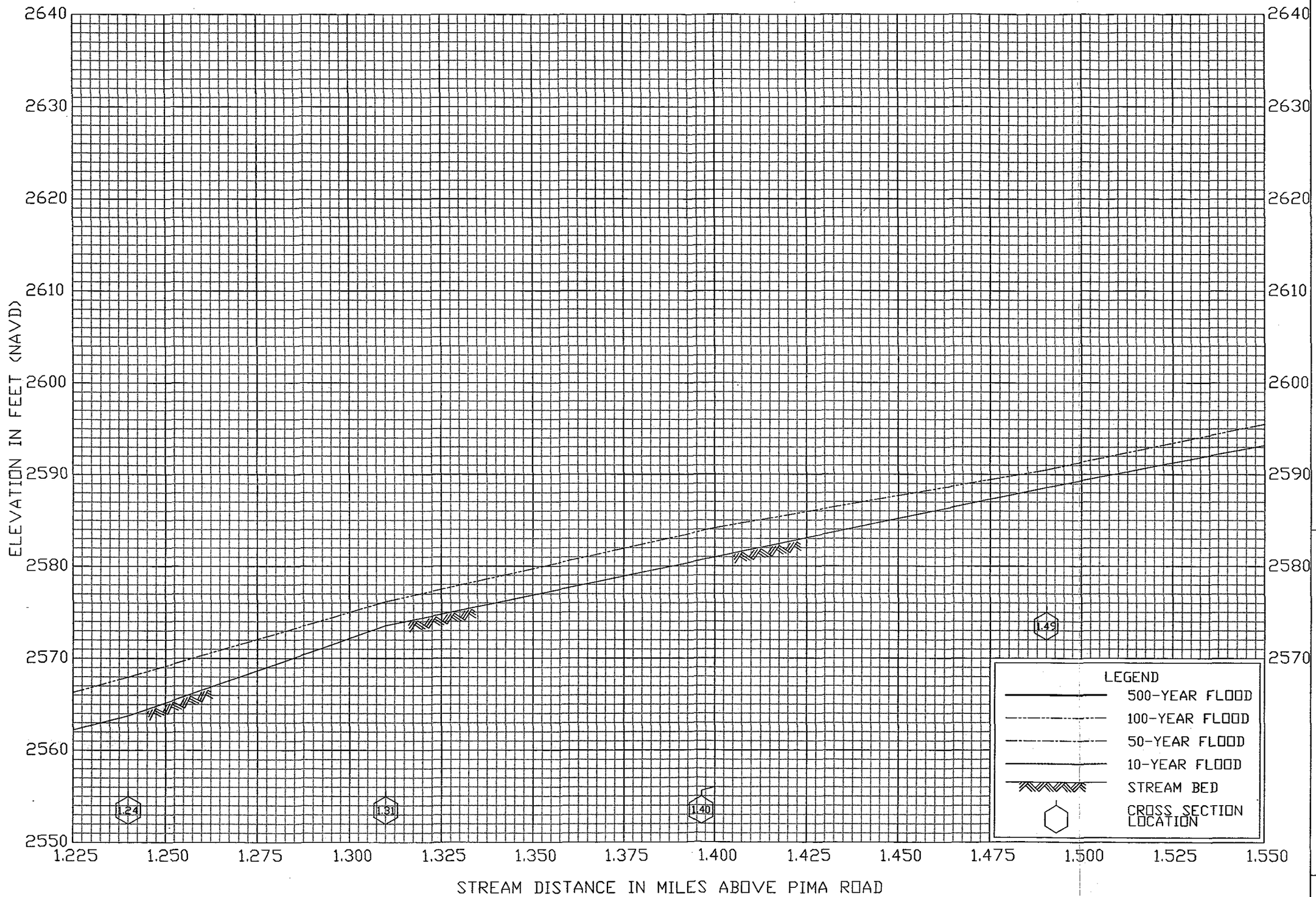

FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

01P



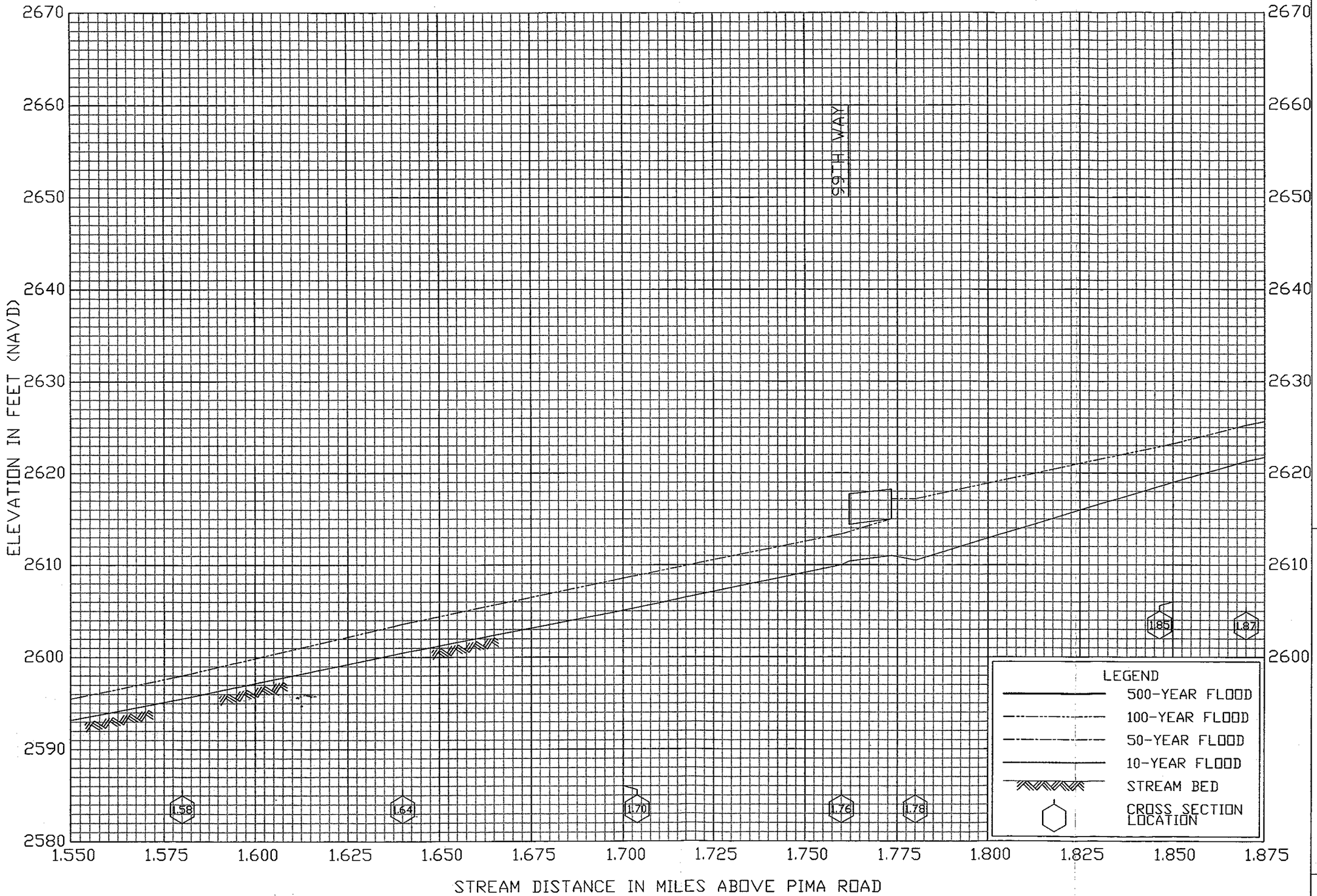

FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

02P



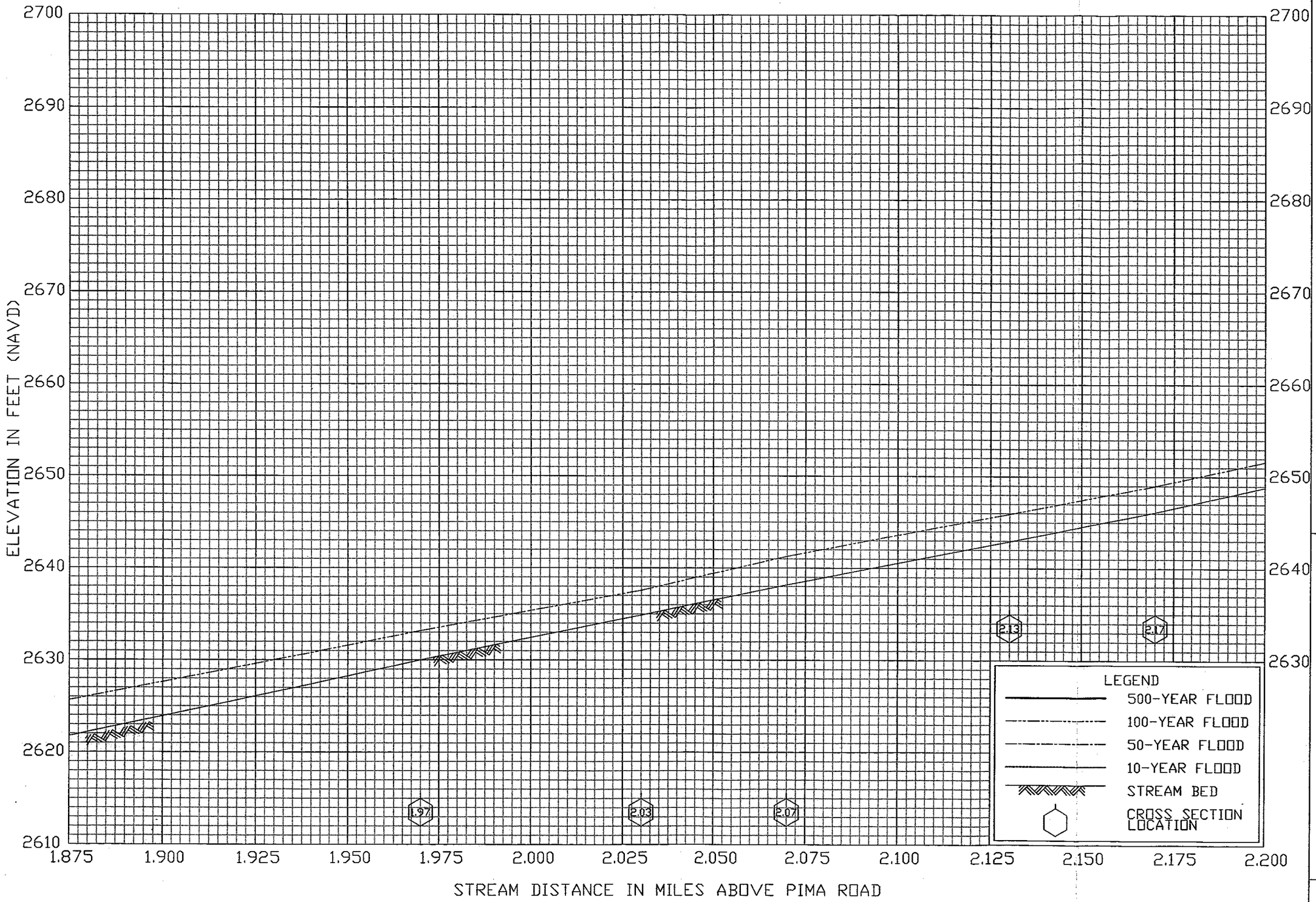

FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

03P



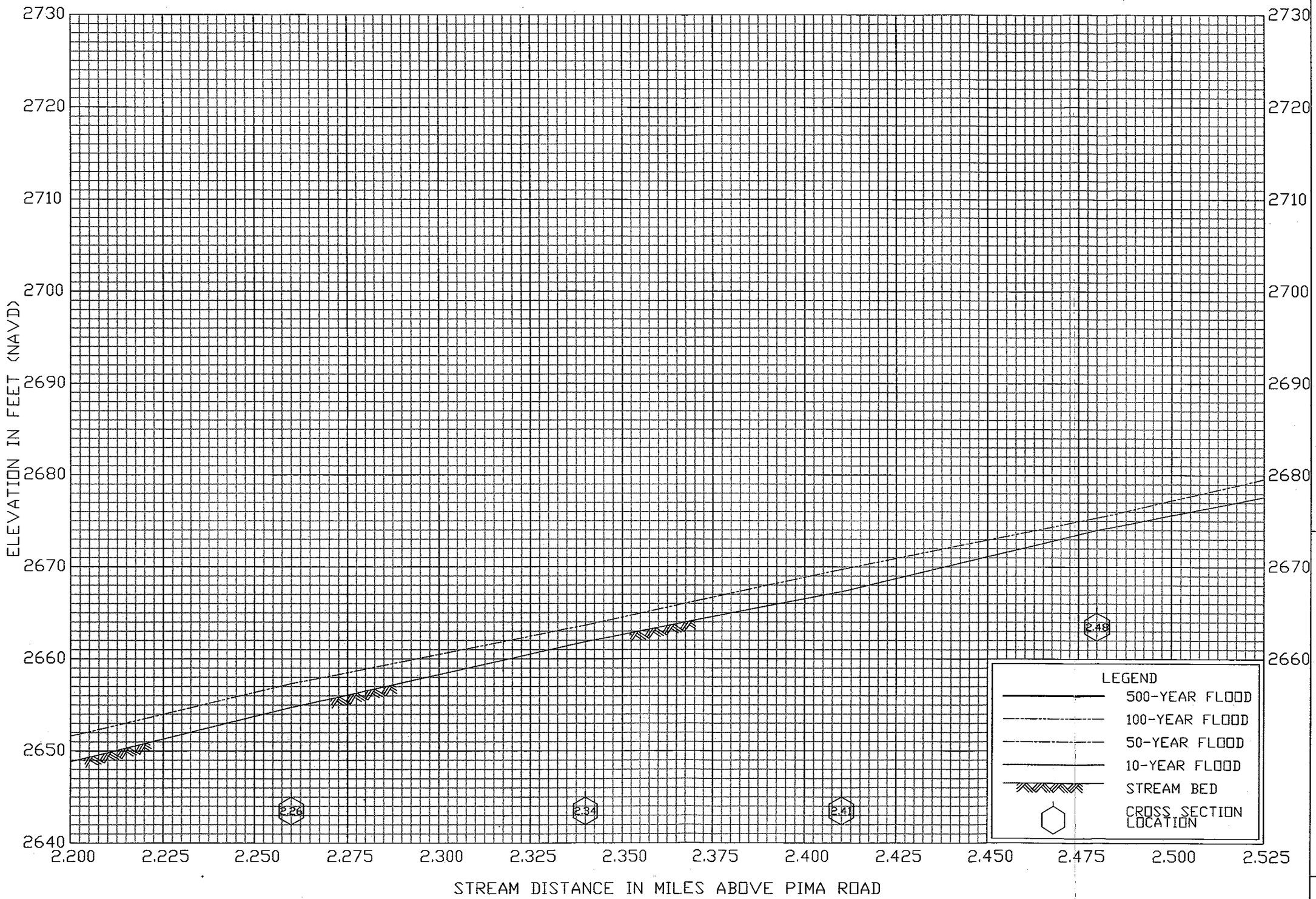

FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

04P



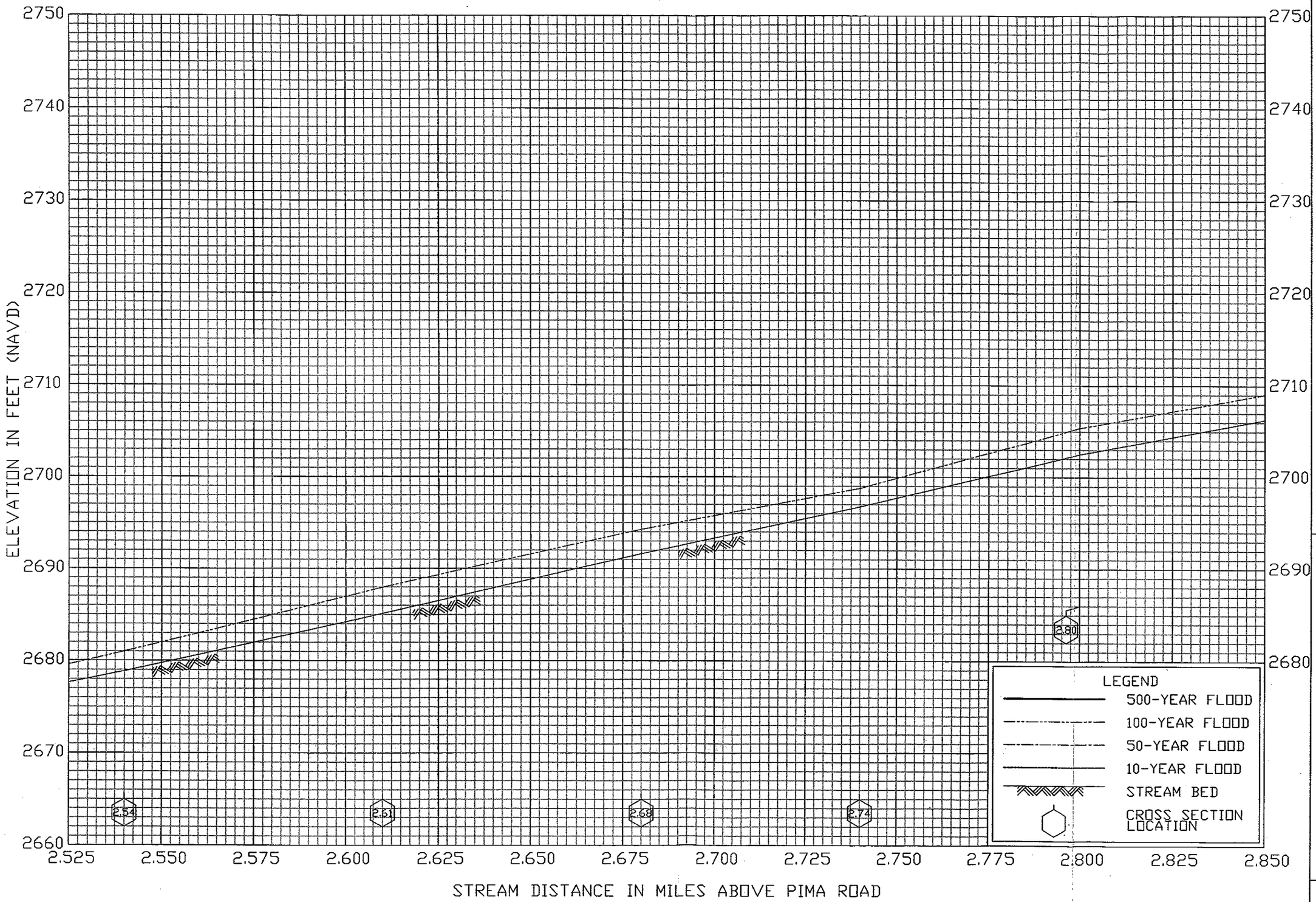

FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

05P



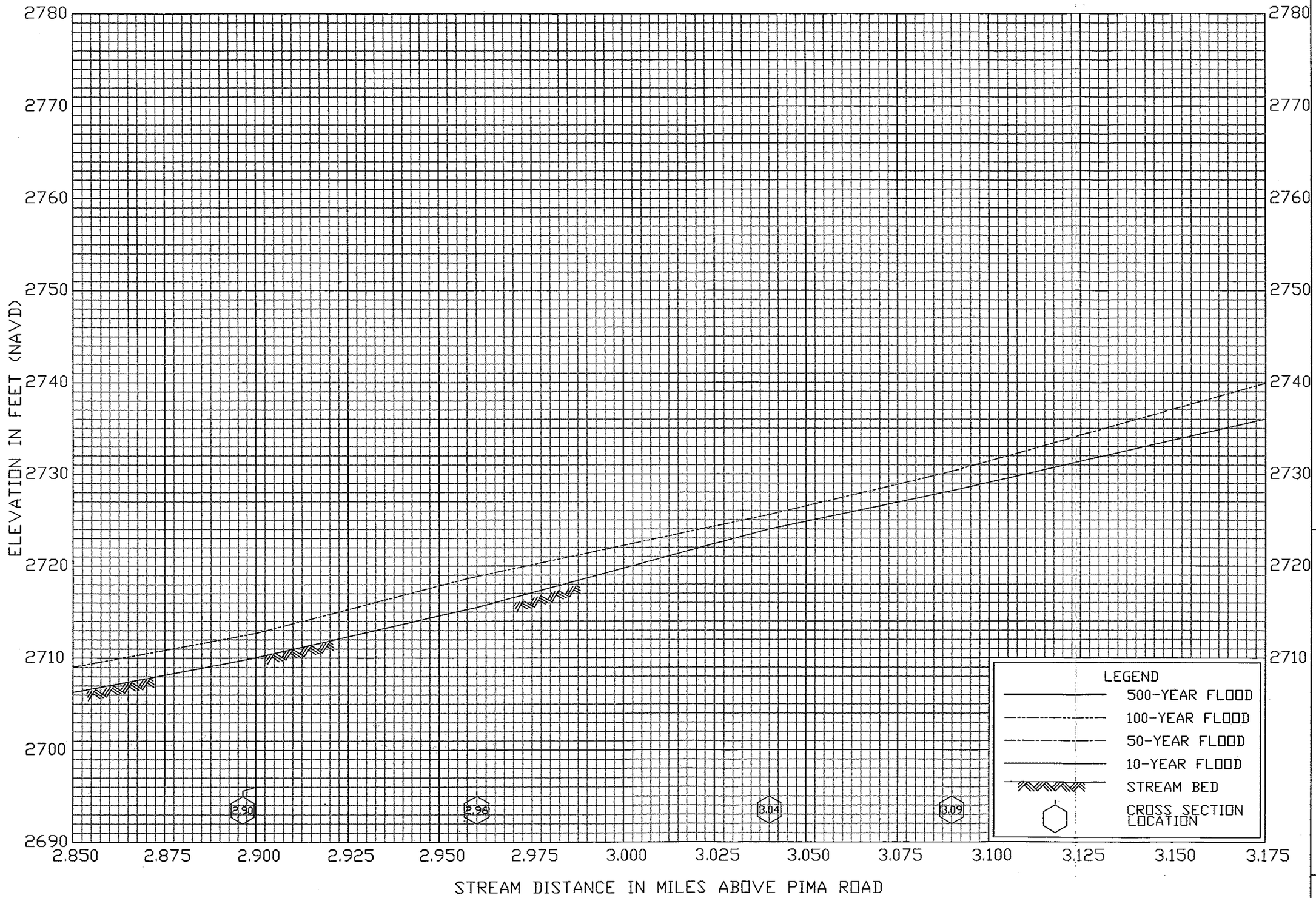

FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

06P

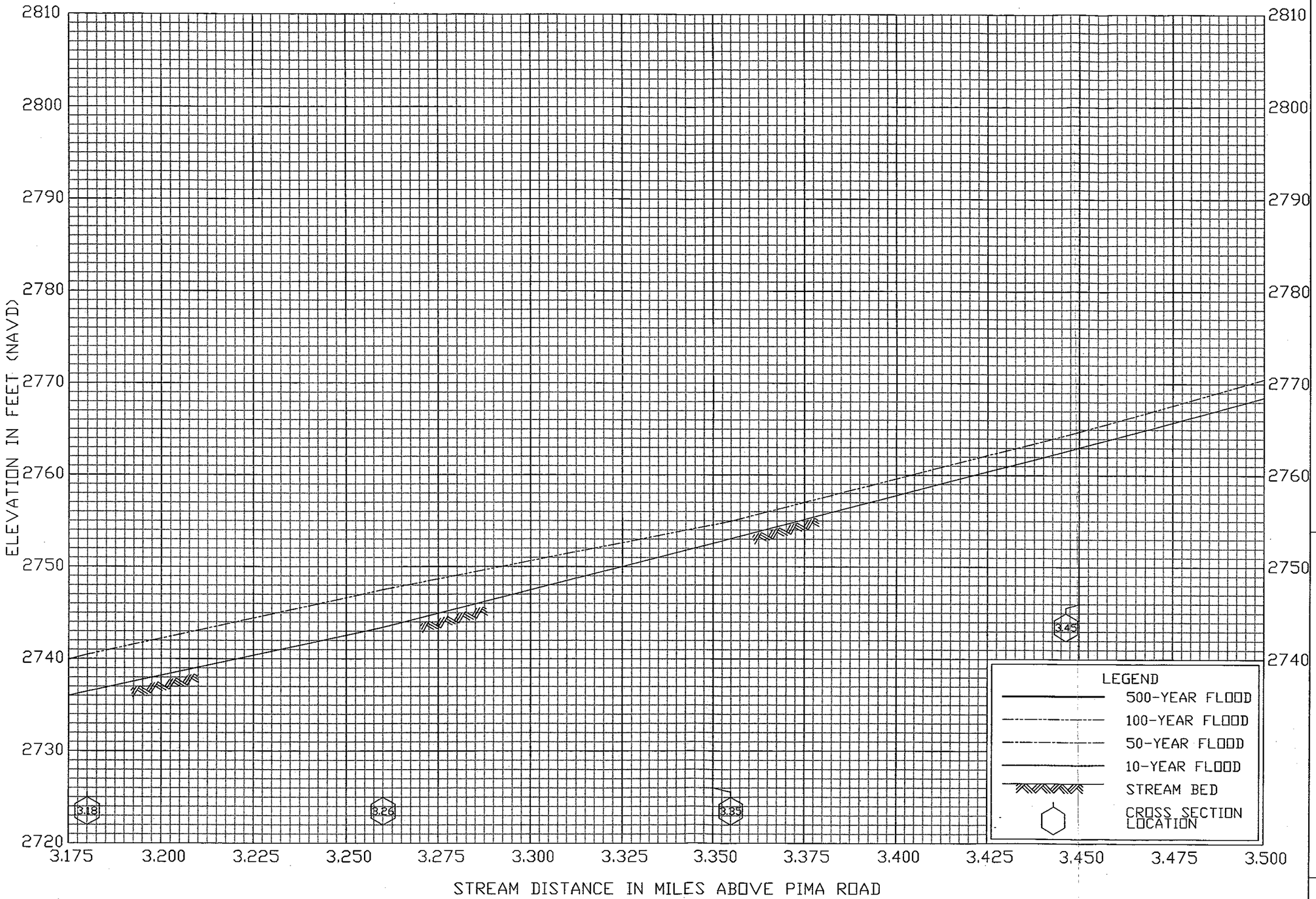



FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS



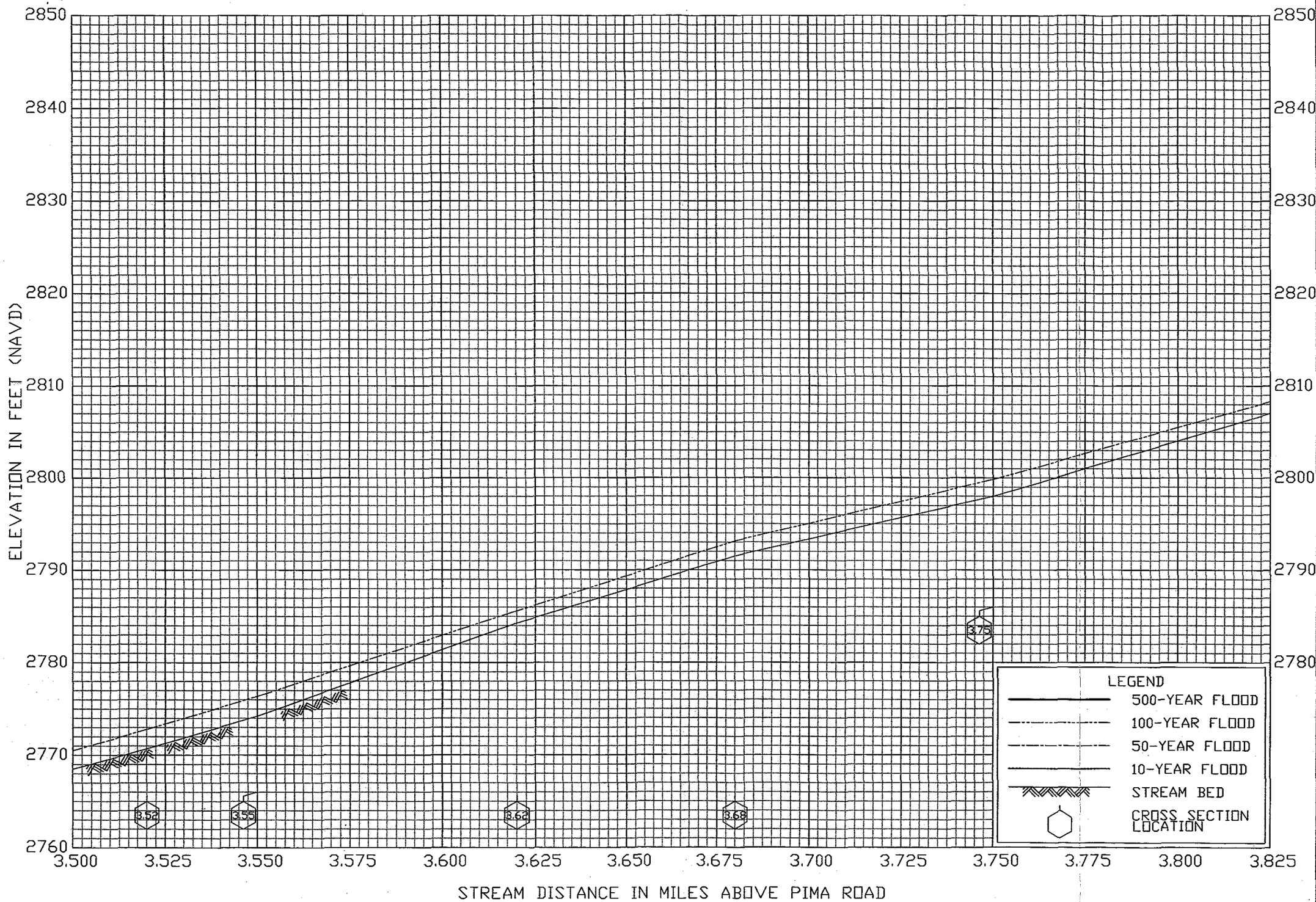

FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

08P



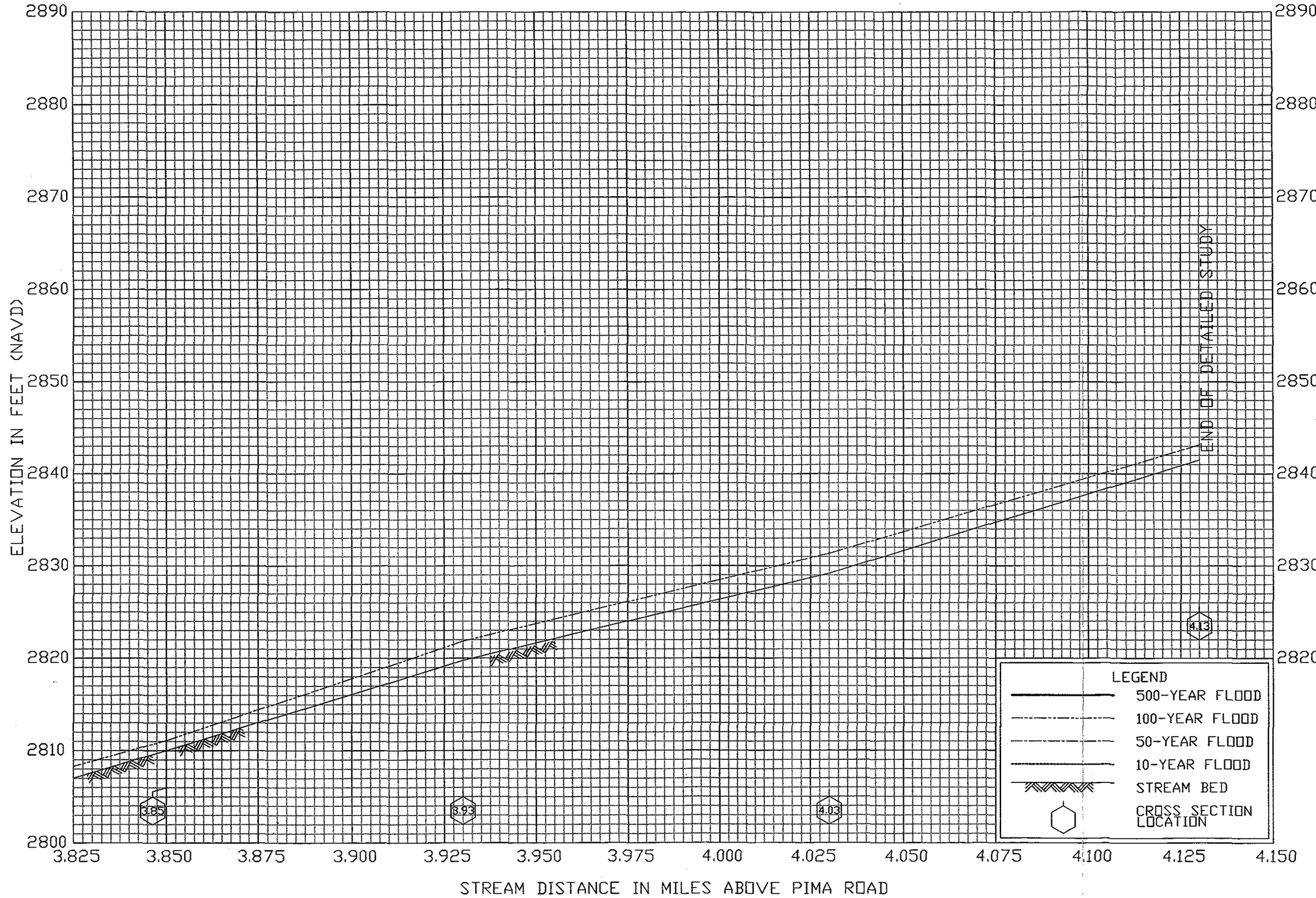

FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

09P



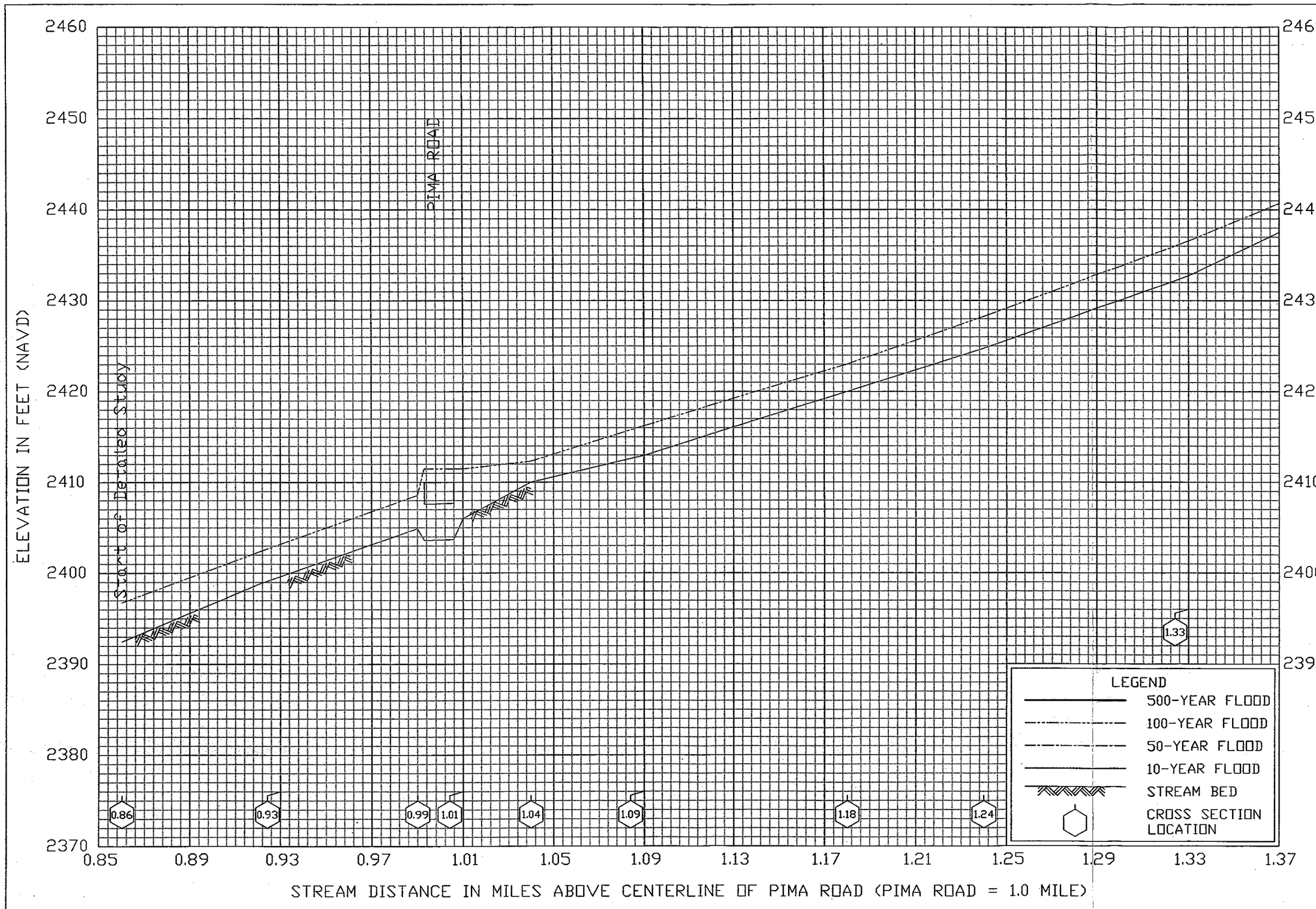

FLOOD PROFILES

FAN 6A SOUTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY , AZ
AND INCORPORATED AREAS

10P

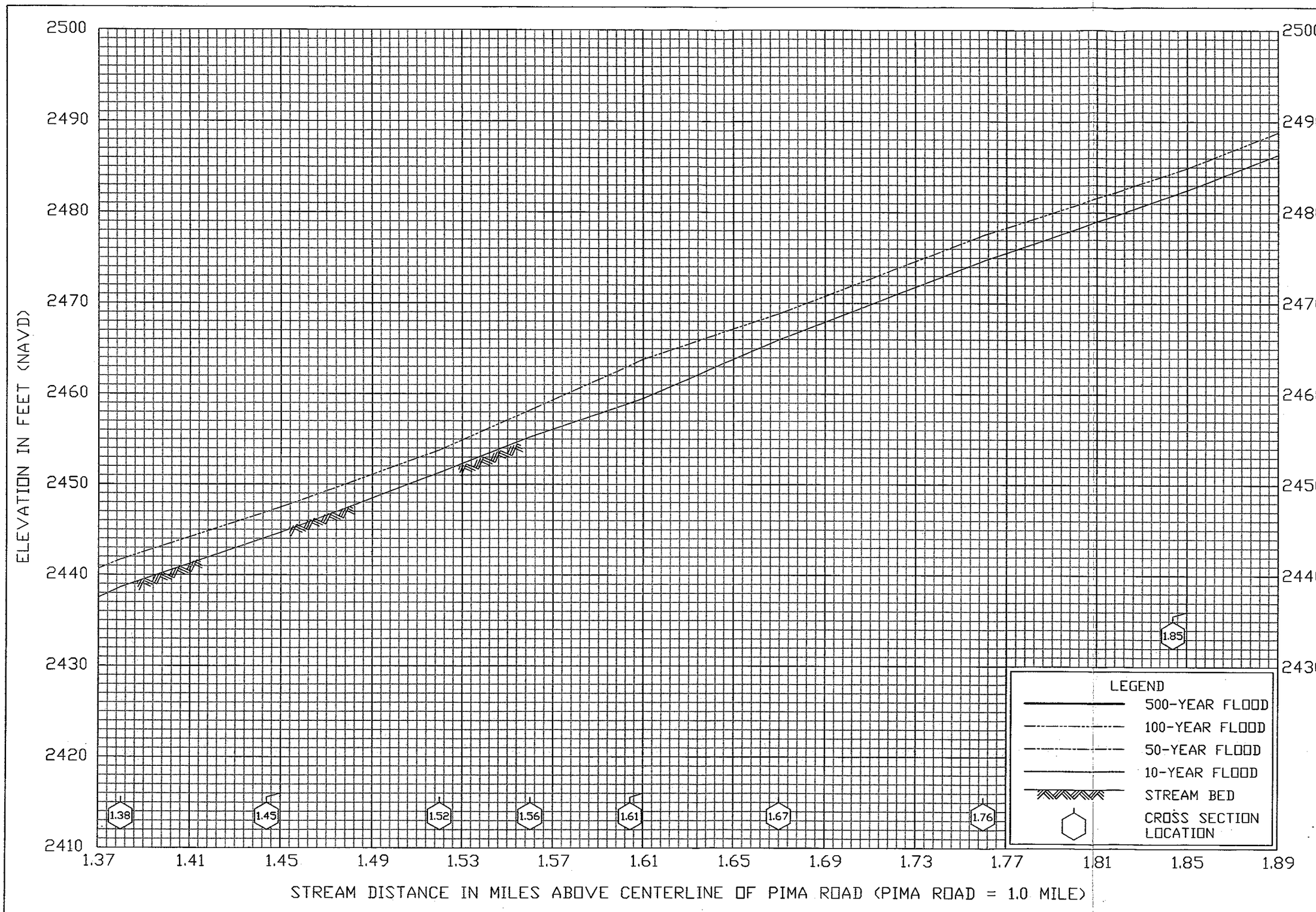



FLOOD PROFILES

UPPER FAN 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



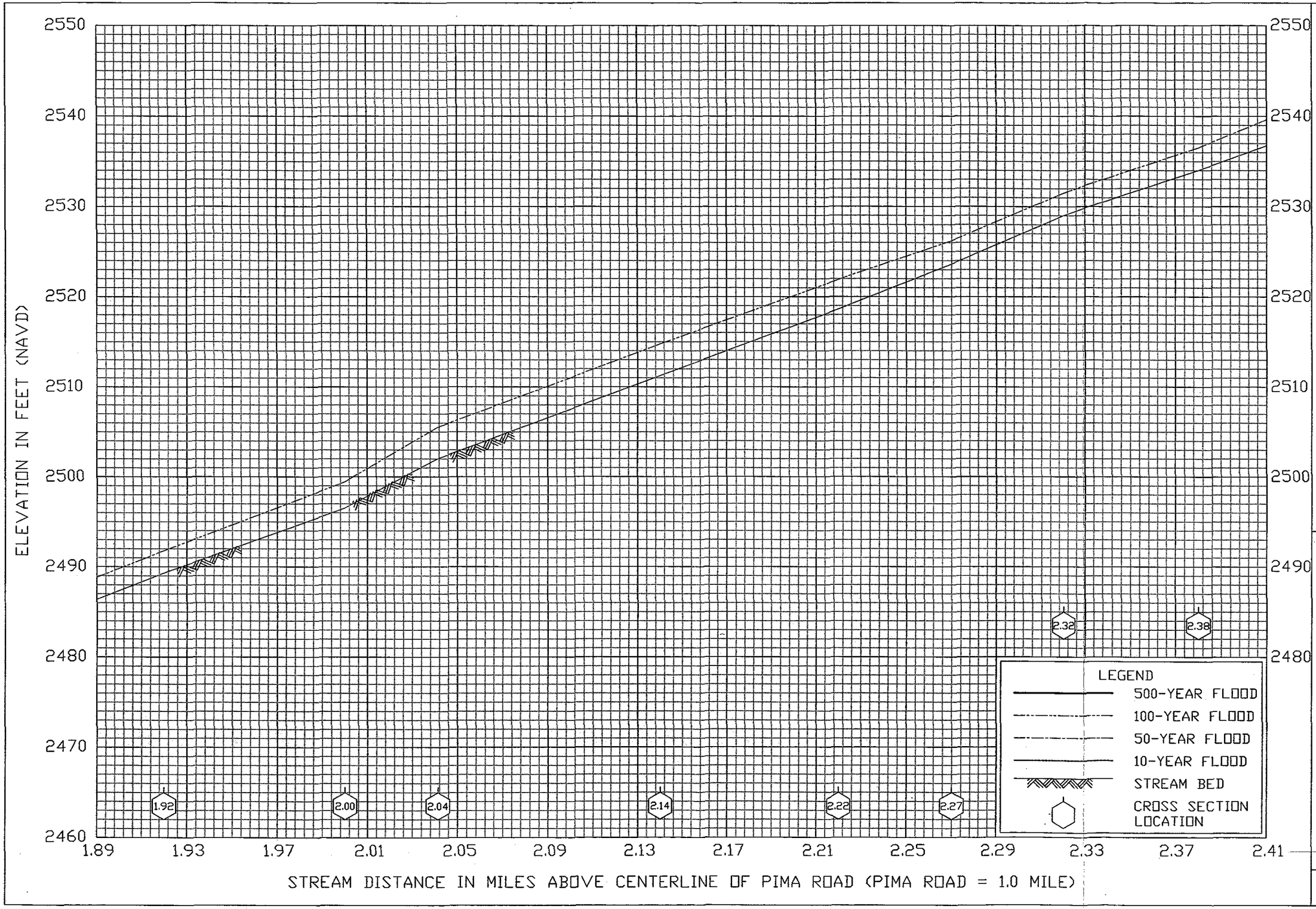

FLOOD PROFILES

UPPER FAN 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

02P



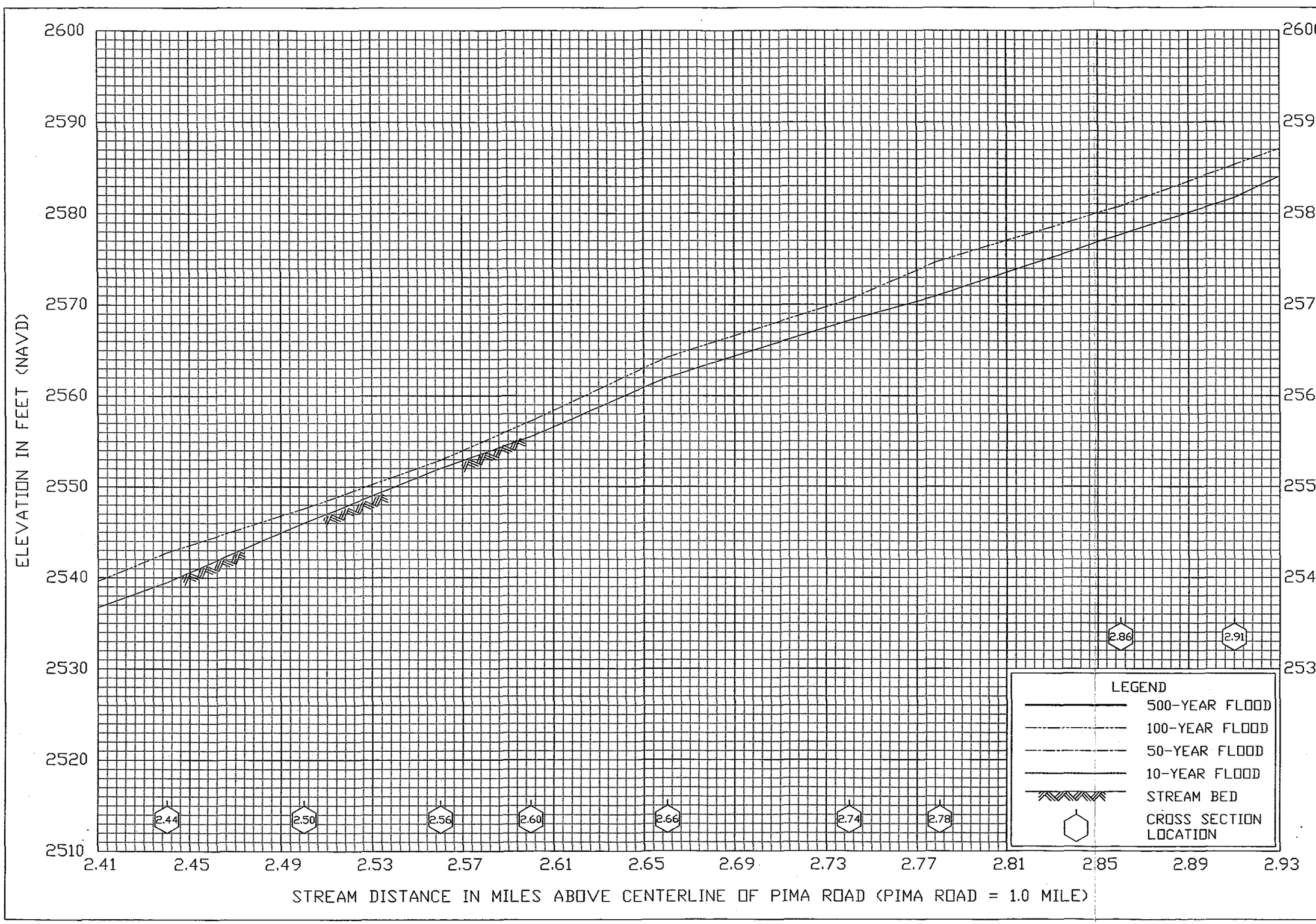

FLOOD PROFILES

UPPER FAN 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

03P



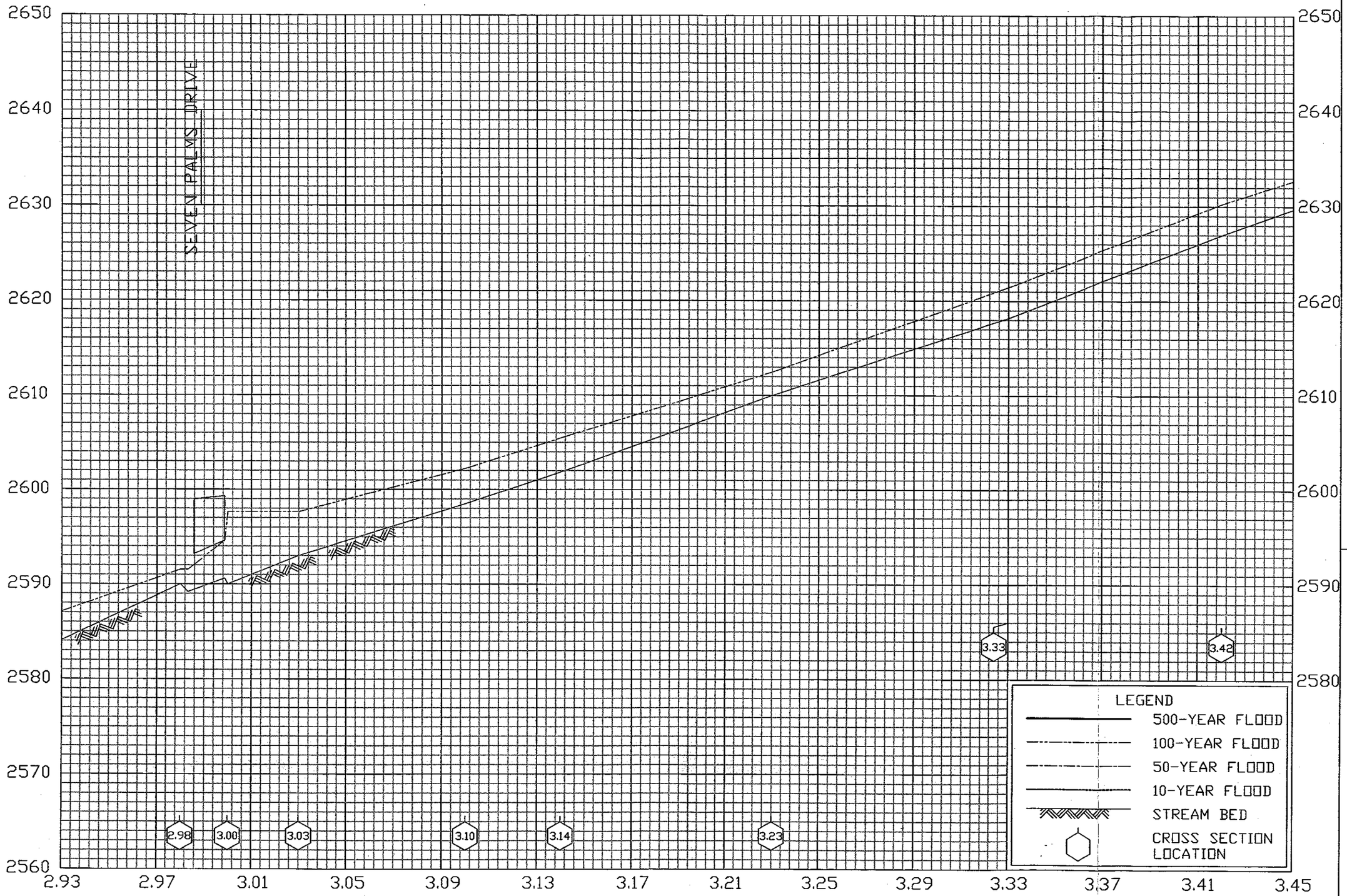

FLOOD PROFILES

UPPER FAN 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

04P



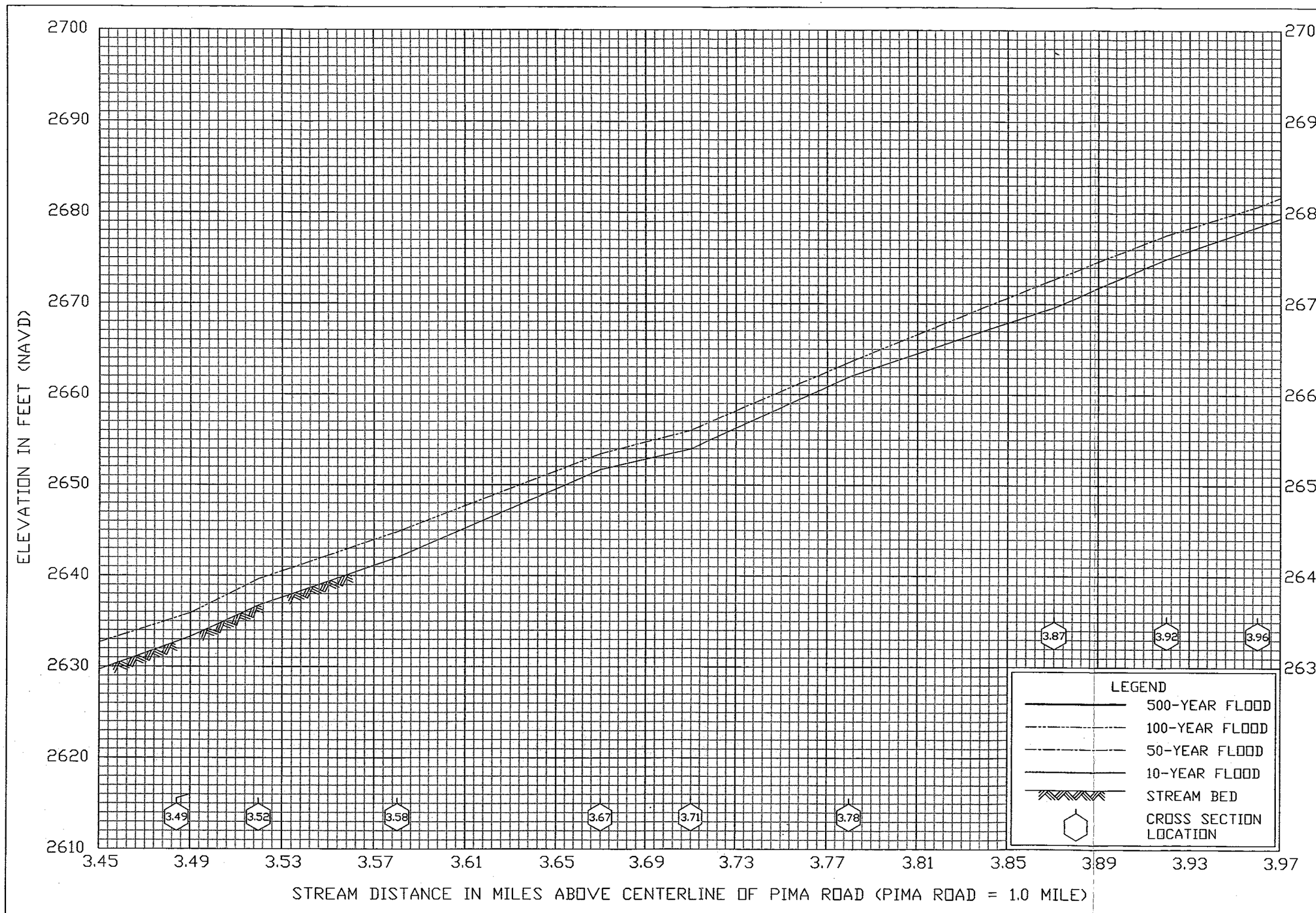

FLOOD PROFILES

UPPER FAN 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

05P



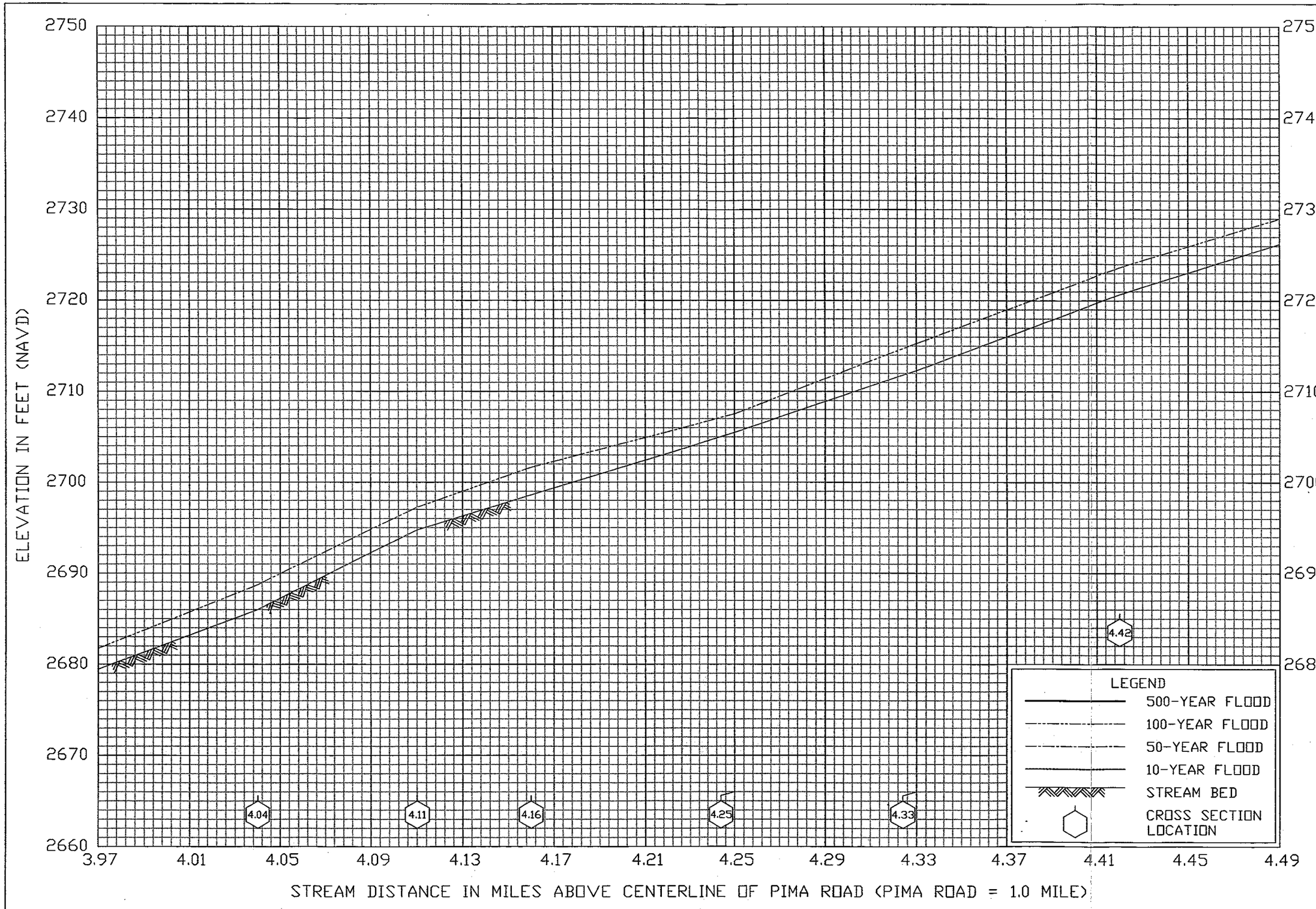

FLOOD PROFILES

UPPER FAN 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

06P



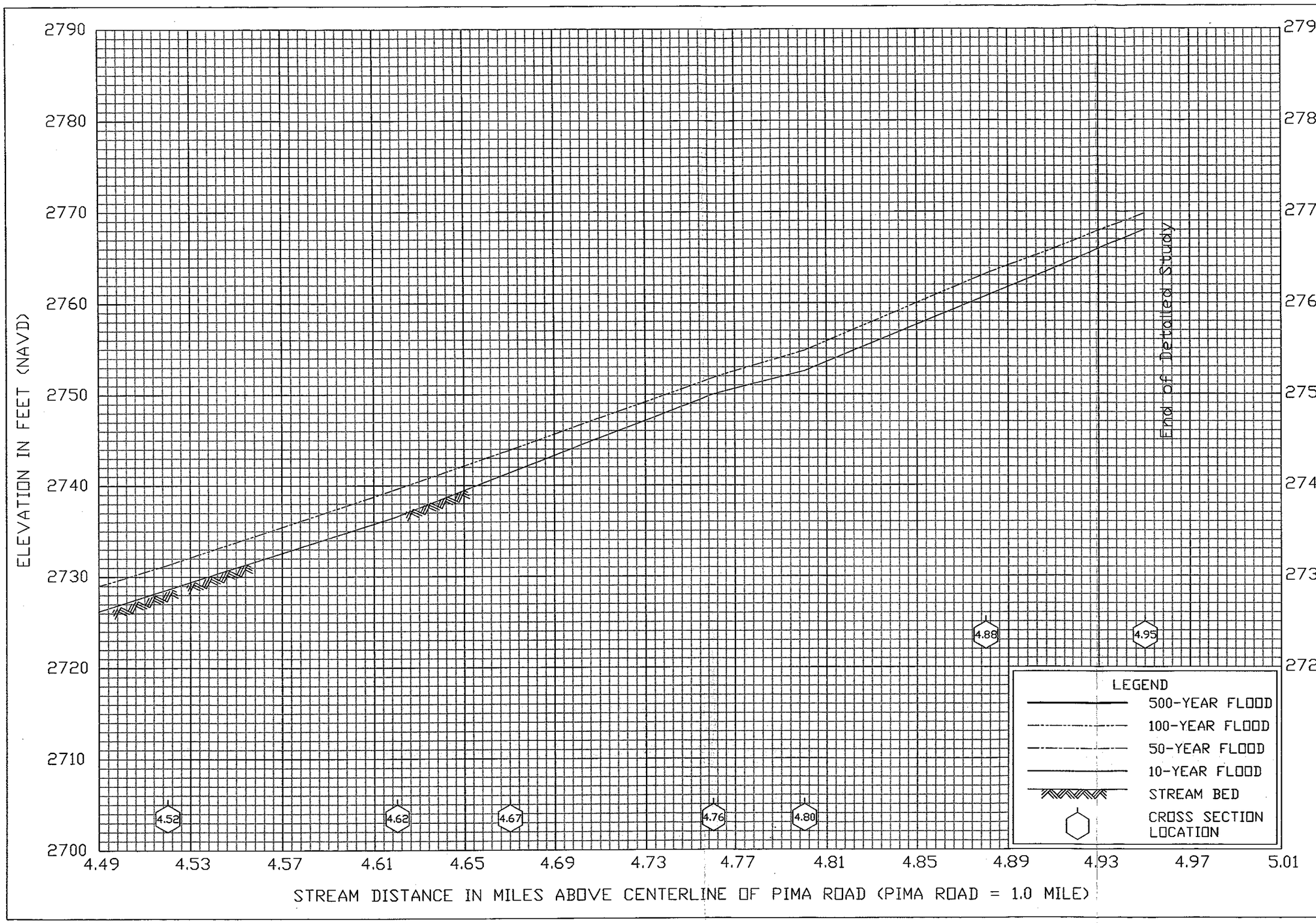

FLOOD PROFILES

UPPER FAN 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

07P



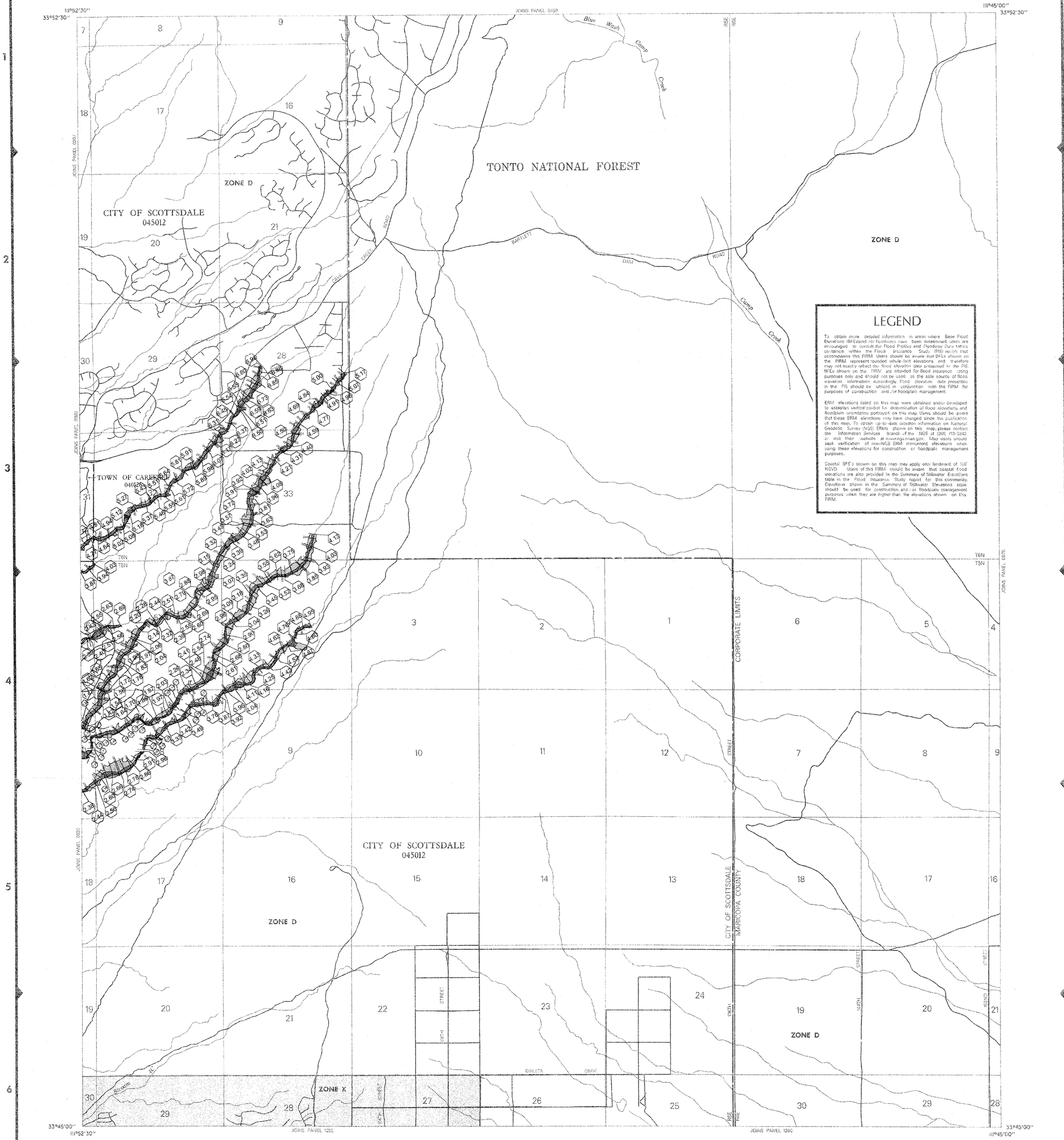

FLOOD PROFILES

UPPER FAN 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

08P




# LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

**ZONE A** No base flood elevations determined.

**ZONE AE** Base flood elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

**ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.

**ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.

**ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

**ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

**ZONE X** Areas determined to be outside 500-year floodplain.

**ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal Barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

D — D — Cross Section Line

(EL. 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 × — Elevation Reference Mark

● M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFEs, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and/or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index.

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
2000 0 2000

0850

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

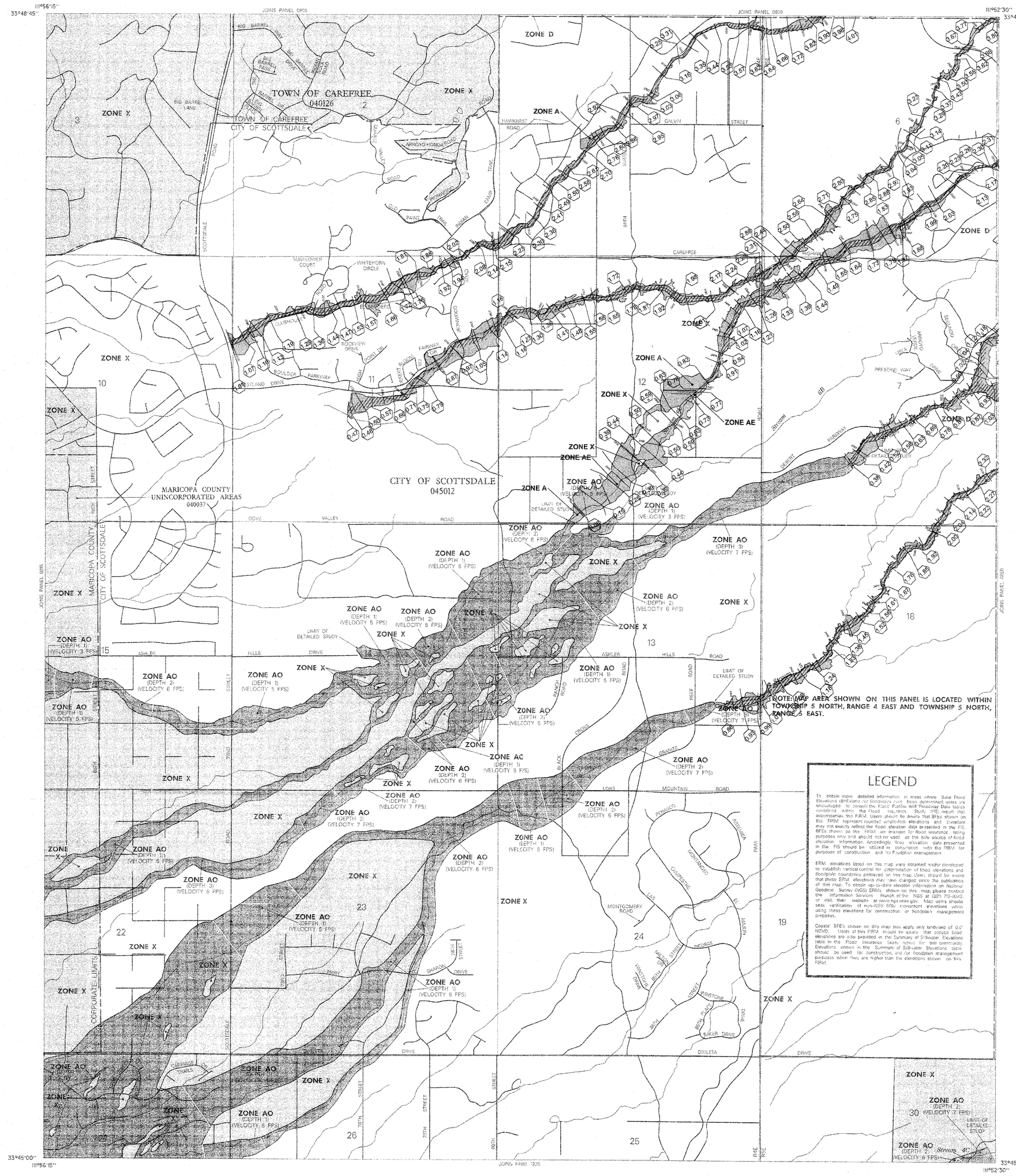
**PANEL 850 OF 4350**
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS: COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CAREFREE, TOWN OF | 040129 | 0850 | E |
| MARICOPA COUNTY UNINCORPORATED AREAS | 040037 | 0850 | E |
| SCOTTSDALE, CITY OF | 045012 | 0850 | E |

**MAP NUMBER**
**04013C0850 E**

**MAP REVISED:**
**JULY 19, 2001**

Federal Emergency Management Agency




# LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

**ZONE A** No base flood elevations determined.

**ZONE AE** Base flood elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

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**ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.

**ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

**ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

**ZONE X** Areas determined to be outside 500-year floodplain.

**ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

(D)———(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 × Elevation Reference Mark

● M2 River Mile

97°07'30", 32°22'30" Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

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Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and/or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1998

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
DECEMBER 3, 1993

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 5 NORTH, RANGE 4 EAST AND TOWNSHIP 5 NORTH, RANGE 5 EAST.

## LEGEND

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

FIRM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these FIRM elevations may have changed since the publication of this map. To obtain up-to-date elevation information on National Geodetic Survey (NGS) BMMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS BMM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

08 20

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 820 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CAREFREE, TOWN OF | 040126 | 0820 | F |
| MARICOPA, COUNTY UNINCORPORATED AREAS | 040037 | 0820 | F |
| SCOTTSDALE, CITY OF | 045012 | 0820 | F |

MAP NUMBER
04013C0820 F

MAP REVISED:
JULY 19, 2001

Federal Emergency Management Agency
~~~
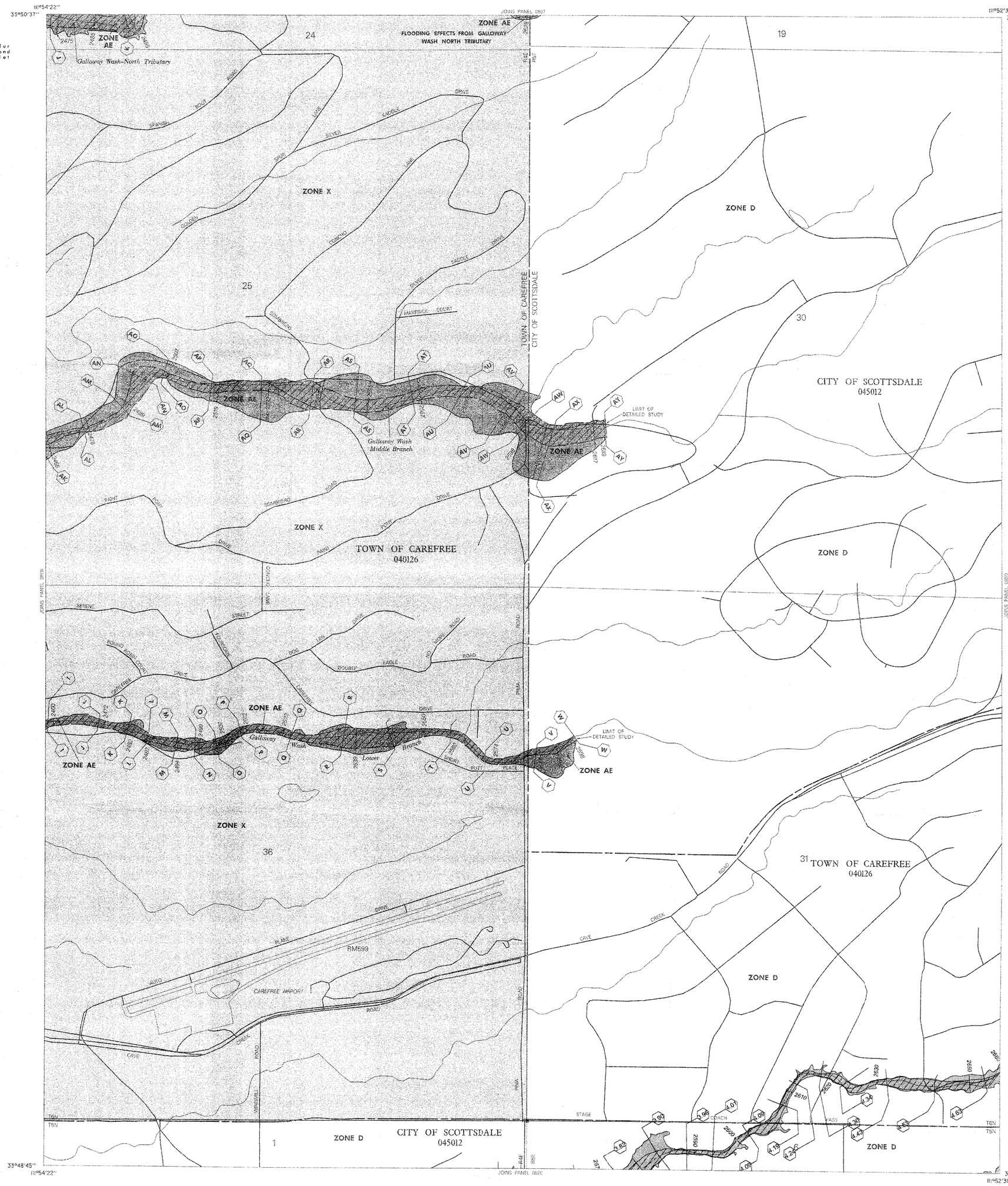

ELEVATION REFERENCE MARKS

| REFERENCE MARK | ELEVATION (FEET NGVD) | DESCRIPTION OF LOCATION |
|---|---|---|
| RM599 | 2503.56 | Carefree Airport, in island for fuel pump, in concrete slab and flush with surface, standard tablet stamped 21 HRP 1963 2504. |




## LEGEND

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Coastal BFEs shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and /or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

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RM7 × — Elevation Reference Mark

● M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A99, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 100 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1989

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
SEPTEMBER 29, 1989, SEPTEMBER 4, 1991, DECEMBER 3, 1993

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
500 0 500

0809

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

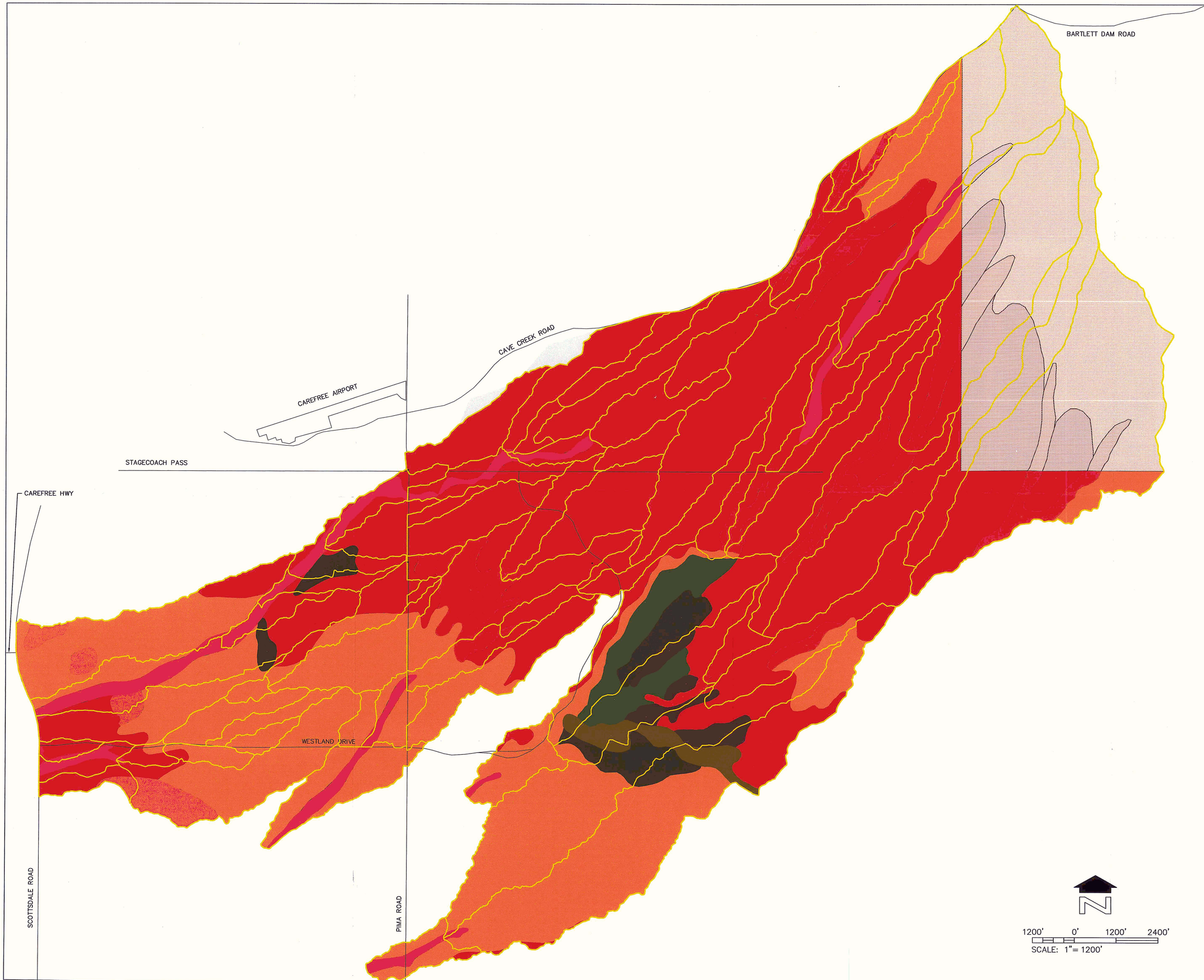
**PANEL 809 OF 4350**
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS: COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CAREFREE, TOWN OF | 040126 | 0809 | H |
| SCOTTSDALE, CITY OF | 045012 | 0809 | H |

**MAP NUMBER**
**04013C0809 H**

**MAP REVISED:**
**JULY 19, 2001**

Federal Emergency Management Agency



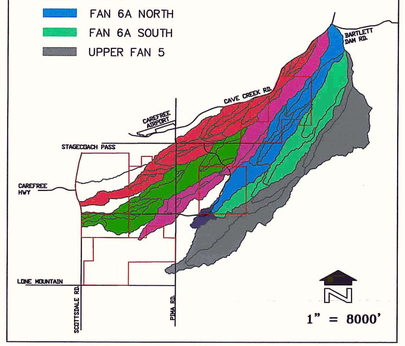

## LEGEND

| LID | SOIL TYPE CODE | SPECIAL NOTES |
|---|---|---|
| 06 | AoB | |
| 26 | PnC | |
| 33 | Ru | |
| 34 | TrB | |
| 61 | 22 | |
| 63 | 24 | |
| 72 | 33 | |
| 93 | 54 | |
| 96 | 57 | |
| 06 | AoB | ESTIMATED SOIL TYPE |
| 33 | Ru | ESTIMATED SOIL TYPE |
| 61 | 22 | ESTIMATED SOIL TYPE |
| 96 | 57 | ESTIMATED SOIL TYPE |

DRAINAGE BOUNDARY

WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
- UPPER BOULDERS WASH
- FAN 6C
- FAN 6A
- FAN 6A NORTH
- FAN 6A SOUTH
- UPPER FAN 5




| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | | |
| DRAWN | | |
| CHECKED | | |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 4-4-04 ARIZONA, U.S.A.

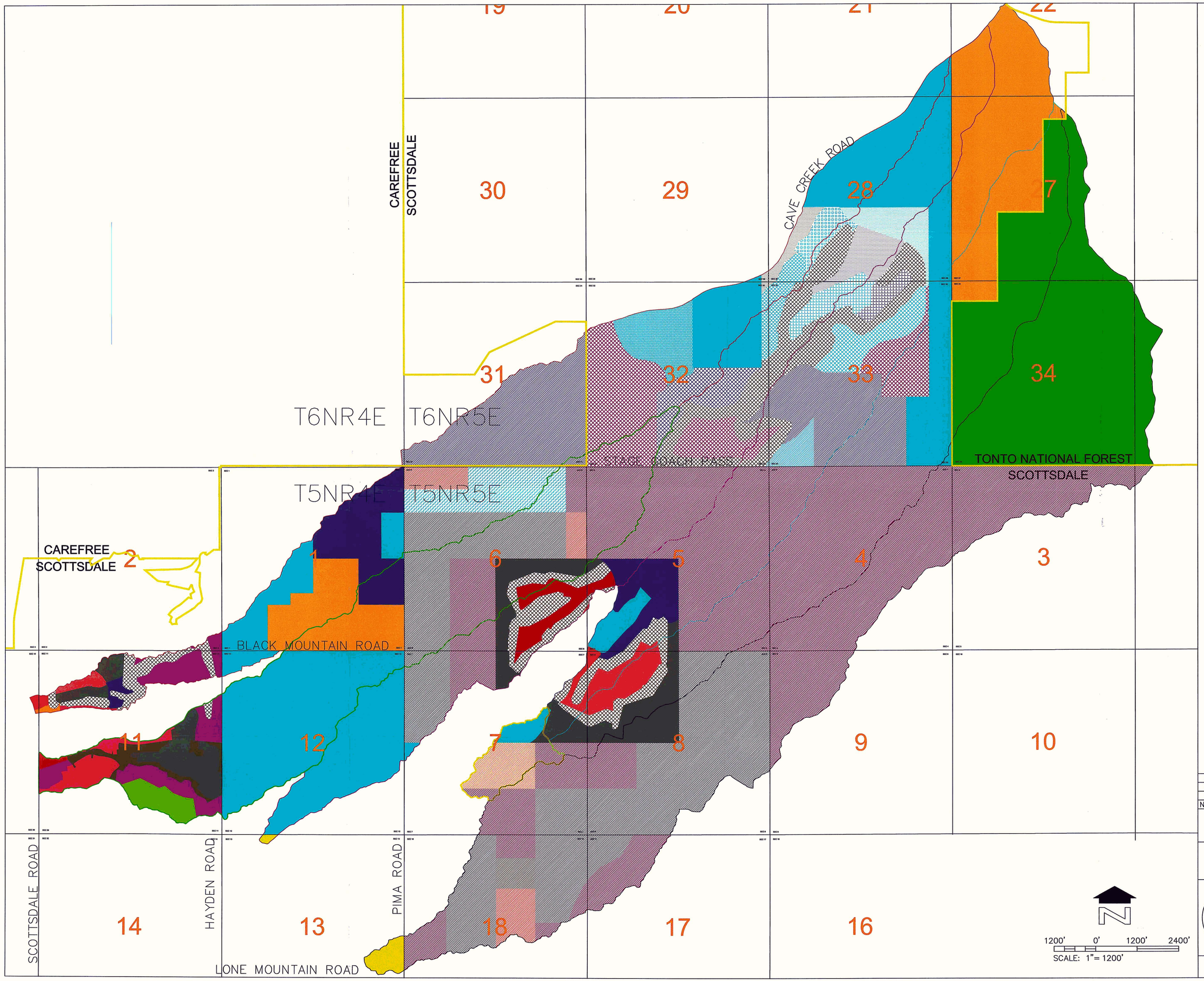
1983-2004 22 Years of Excellence DEI Professional Services, LLC

DEI Professional Services LLC
6225 N. 24th St., Ste. 200
Phoenix, AZ 85016
Phone: (602)954-6618
Fax: (602)944-5605

DRAWING NO. 01131SM.dwg

SOIL BOUNDARY

SHEET 1 OF 1




## LEGEND

| | | |
|---|---|---|
| R1-190 | 0.20 UNITS/AC | R1-190 |
| R1-130 | 0.56 UNITS/AC | R1-43 |
| R1-43 | 0.60 UNITS/AC | R1-43 |
| R1-35 | 0.64 UNITS/AC | R1-43 |
| R1-18 | 0.73 UNITS/AC | R1-43 |
| R1-10 | 0.74 UNITS/AC | R1-43 |
| R1-7 | 0.75 UNITS/AC | R1-43 |
| R-4 | 0.77 UNITS/AC | R1-43 |
| R-4R | 0.81 UNITS/AC | R1-43 |
| S-R | 0.85 UNITS/AC | R1-35 |
| C-2 | 0.86 UNITS/AC | R1-35 |
| PNC | 0.91 UNITS/AC | R1-35 |
| D-S | 1.00 UNITS/AC | R1-35 |
| HC/D-S | 1.10 UNITS/AC | R1-18 |
| | 1.50 UNITS/AC | R1-18 |
| | 3.00 UNITS/AC | R1-10 |
| | COMMERCIAL | COMMERCIAL |
| | PARKS | PARKS |
| | GOLF COURSE | GOLF COURSE |
| | D-S | D-S |
| | NATIONAL FOREST | DESERT |

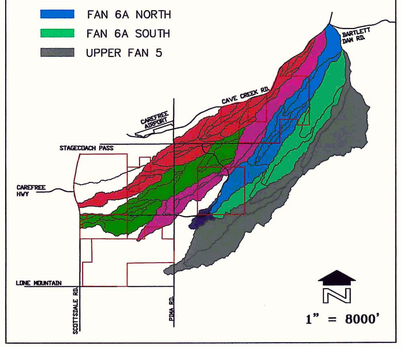
City Boundary

## NOTES

*Land Use Map prepared from City of Scottsdale provided GIS Zoning Districts. For areas without GIS zoning designation COS provided the units per acre and/or other land uses. These areas have been adjusted to the next highest density level.

WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
- UPPER BOULDERS WASH
- FAN 6C
- FAN 6A
- FAN 6A NORTH
- FAN 6A SOUTH
- UPPER FAN 5




| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | | |
| DRAWN | | |
| CHECKED | | |

Registered Professional Engineer CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 10/31/11 ARIZONA, U.S.A.

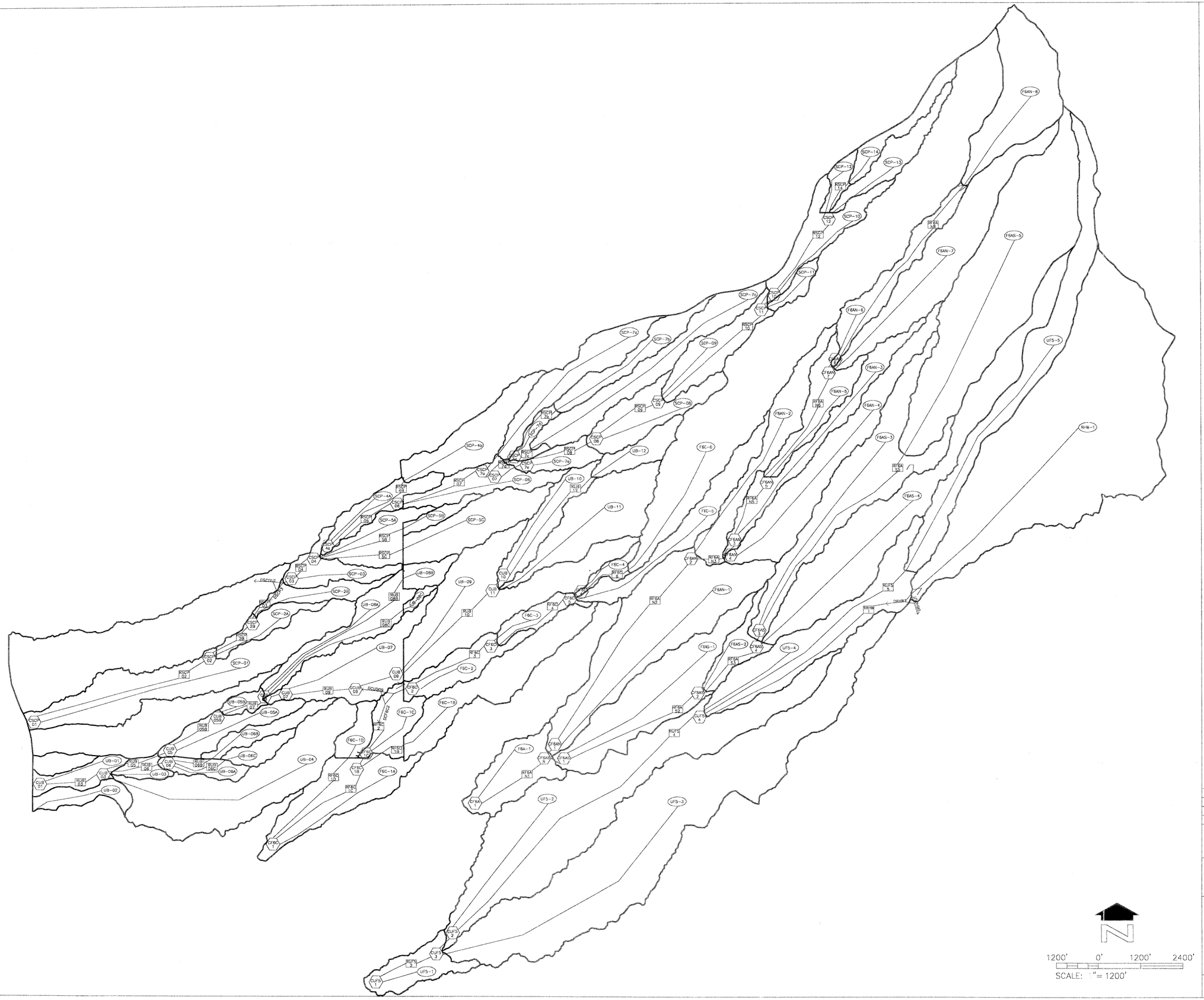
22 YEARS OF EXCELLENCE DE Enterprises Services, LLC

DEI Professional Services LLC
4025 N. 34th St., Ste. 200
Phoenix, AZ 85016
Phone: (602)954-6038
Fax: (602)954-8603

DRAWING NO. 01131LU.dwg

LAND USE BOUNDARIES

SHEET 1 OF 1



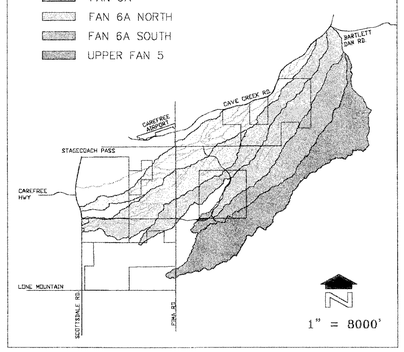

LEGEND

- SUB-BASIN BOUNDARY
- SUB-BASIN INDENTIFICATION
- ROUTE HYDROGRAPH
- COMBINE HYDROGRAPH
- DIVERT HYDROGRAPH

31

WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
- UPPER BOULDERS WASH
- FAN 6C
- FAN 6A
- FAN 6A NORTH
- FAN 6A SOUTH
- UPPER FAN 5




| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
## FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | | |
| DRAWN | | |
| CHECKED | | |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 10/17/07 ARIZONA U.S.A.

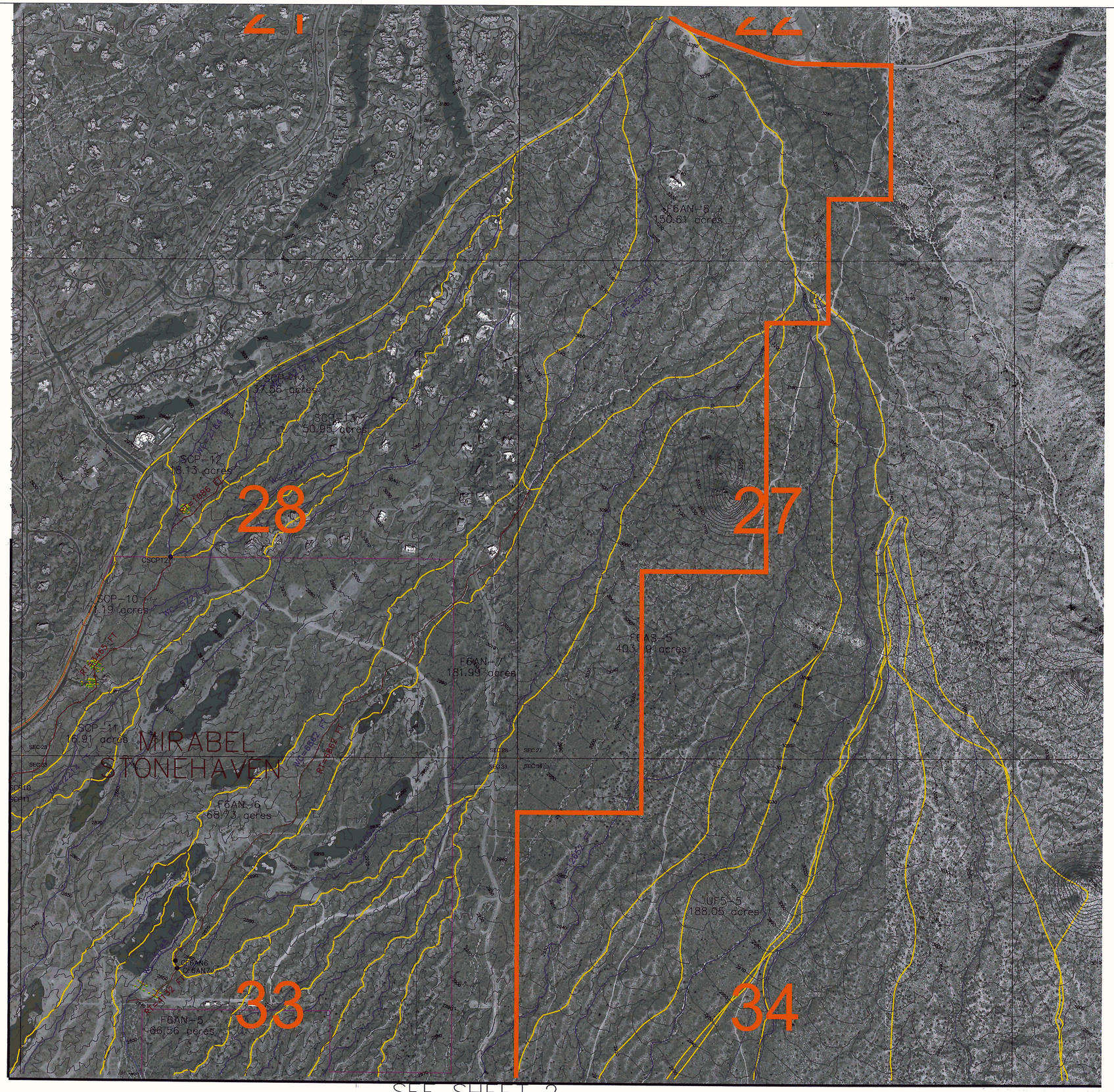
1983-2005 22 YEARS OF EXCELLENCE DEI Professional Services, LLC

DEI Professional Services, LLC
6225 N. 24th St., Ste 200
Phoenix, AZ 85016
Phone (602)954-6326
Fax (602)954-6967

DRAWING NO. 01131HEC-1

HEC-1 SCHEMATIC

SHEET 1 OF 1




## LEGEND

| | |
|---|---|
| 188.05 acres<br>8191663.5 sqft | DRAINAGE BASIN AND AREA |
| | DRAINAGE BASIN BOUNDARY |
| UF5-5 | HEC-1 CONCENTRATION POINT |
| | ELEVATION |
| WC=9812 FT | WATERCOURSE LENGTH |
| RT=8318 FT | ROUTE REACH |
| SEC 33 / SEC 34 / SEC 4 / SEC 3 | SECTION CORNER |
| | SUBDIVISION BOUNDARY |
| | CORPORATION BOUNDARIES |
| 31 | SECTION NUMBER |

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY IGA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

NOTE: RED TOPOGRAPHY NOT CERTIFIED TOPOGRAPHY
CREATED FROM FCD MASS POINTS AND BREAKLINES.

WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
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- FAN 6C
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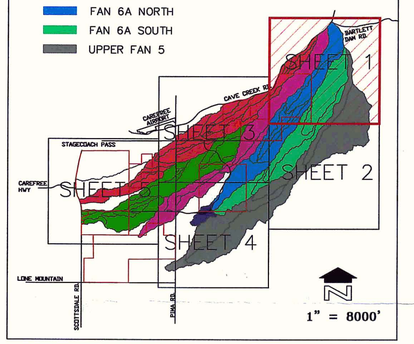
- UPPER FAN 5




N

500' 0' 500' 1000'

SCALE: 1"= 500'
CONTOUR INTERVAL = 10 FEET

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 9-9-03 ARIZONA U.S.A.

1983-2004 22 YEARS OF EXCELLENCE

DEI Professional Services, LLC

6222 N. 24th St., Ste. 200
Phoenix, AZ 85016
Phone: (602)954-6018
Fax: (602)944-8085

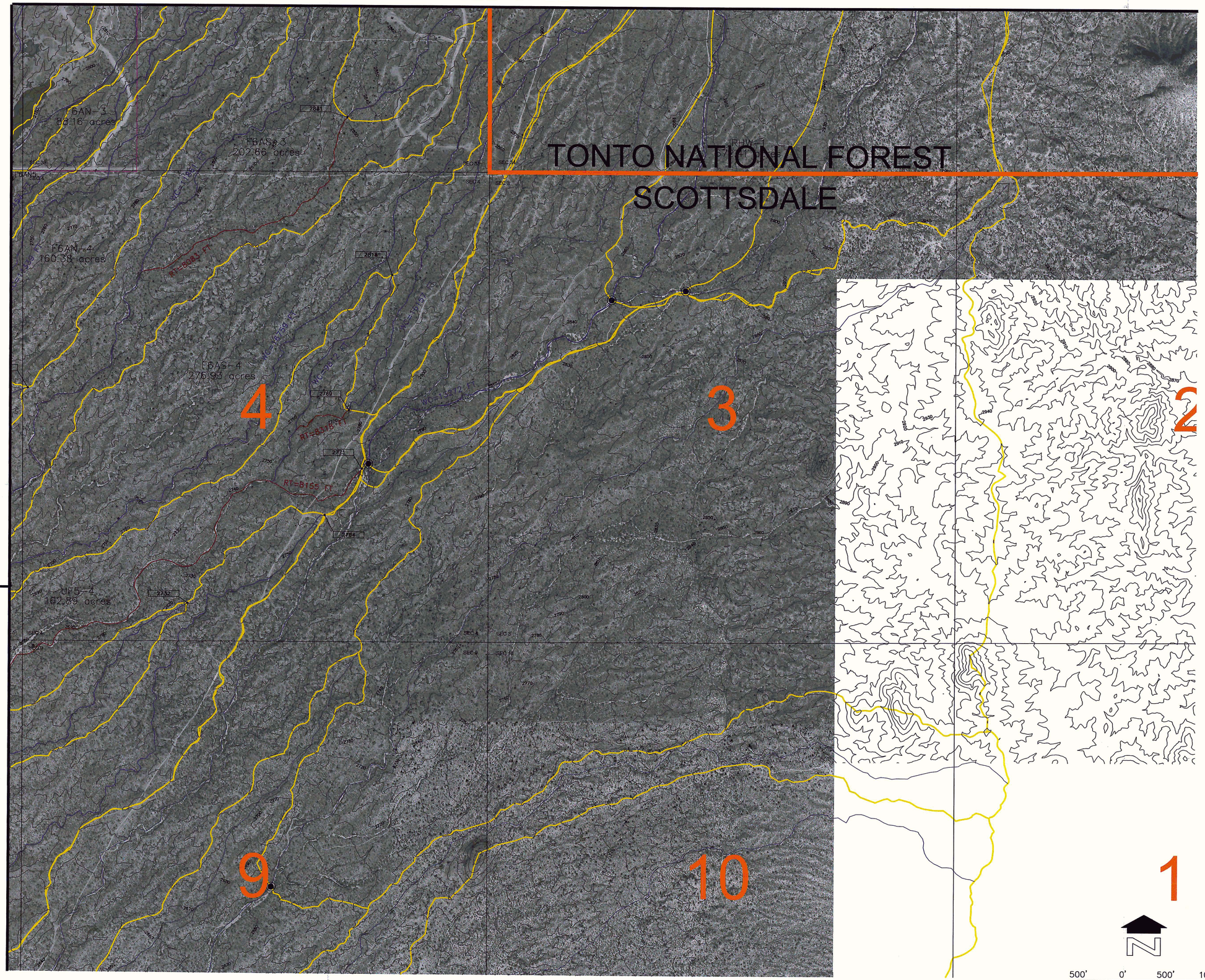
DEI Professional Services LLC

| DRAWING NO. | PLAN SHEET | SHEET |
|---|---|---|
| 1131F001.DWG | AERIAL WITH 10-FT CONTOURS | 1 OF 5 |

SEE SHEET 1

SEE SHEET 3

SEE SHEET 4




500' 0' 500' 1000'

SCALE: 1"= 500'
CONTOUR INTERVAL = 10 FEET

## LEGEND

| | |
|---|---|
| 188.05 acres<br>8191663.5 sqft | DRAINAGE BASIN AND AREA |
| | DRAINAGE BASIN BOUNDARY |
| • UF5-5 | HEC-1 CONCENTRATION POINT |
| | ELEVATION |
| WC=9812 FT | WATERCOURSE LENGTH |
| RT=8318 FT | ROUTE REACH |
| SEC 33 / SEC 34 / SEC 4 / SEC 3 | SECTION CORNER |
| | SUBDIVISION BOUNDARY |
| | CORPORATION BOUNDARIES |
| 31 | SECTION NUMBER |

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY IGA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

NOTE: RED TOPOGRAPHY NOT CERTIFIED TOPOGRAPHY CREATED FROM FCD MASS POINTS AND BREAKLINES.

### WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
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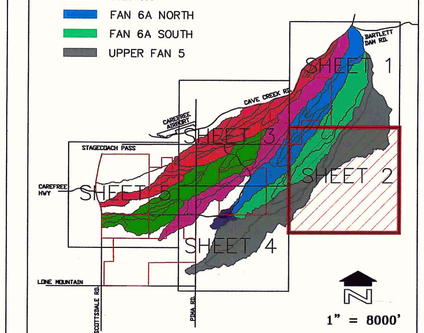



| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

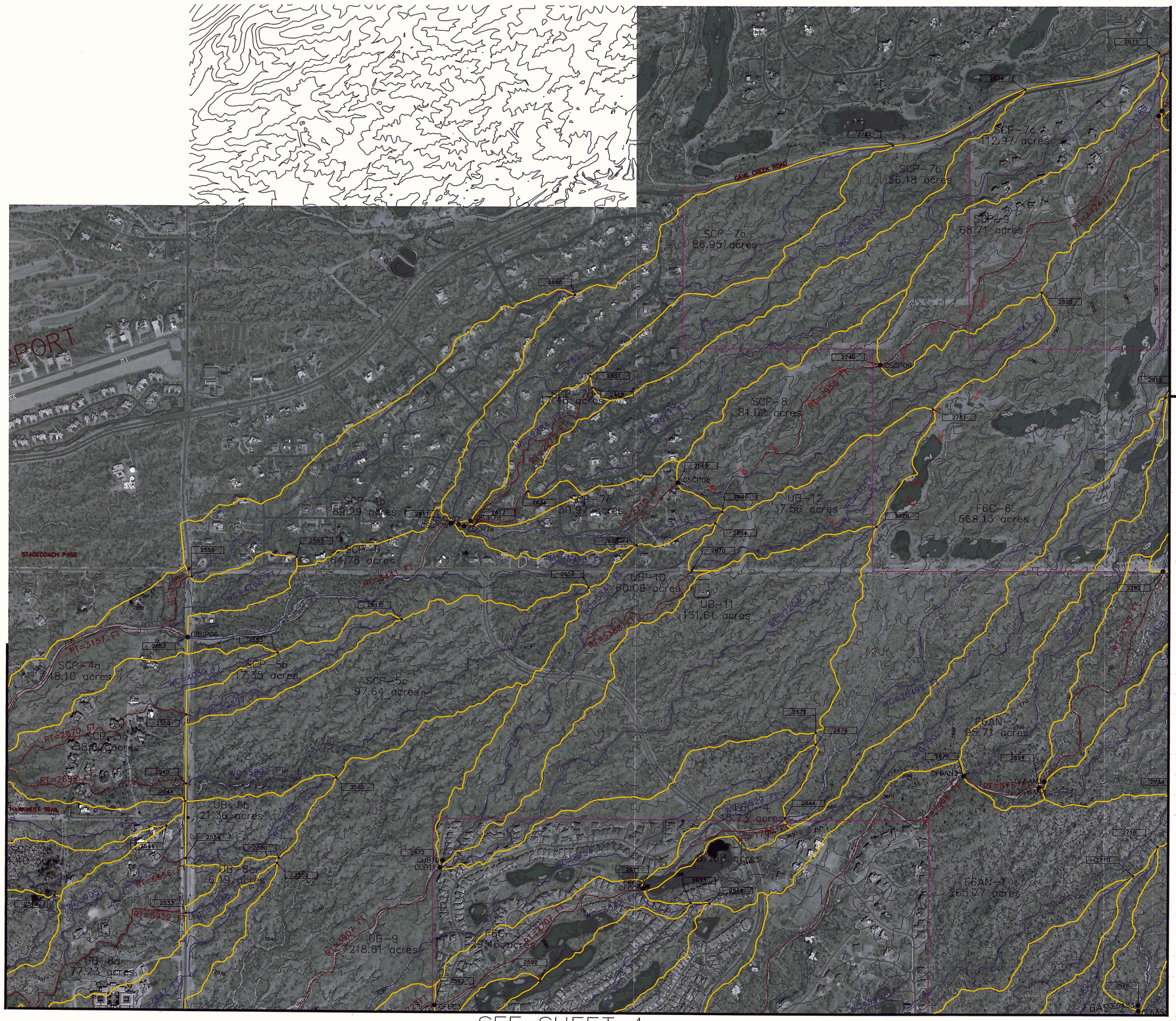
Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 11-14-03 ARIZONA U.S.A.

| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

22 YEARS OF EXCELLENCE PB Professional Services, L.L.C.

DEI Professional Services LLC
4232 N. 24th St., Ste. 200
Phoenix, AZ 85016
Phone: (602)954-0038
Fax: (602)954-8903

| DRAWING NO. | PLAN SHEET | SHEET |
|---|---|---|
| 1131F002.DWG | AERIAL WITH 10-FT CONTOURS | 2 OF 5 |




## LEGEND

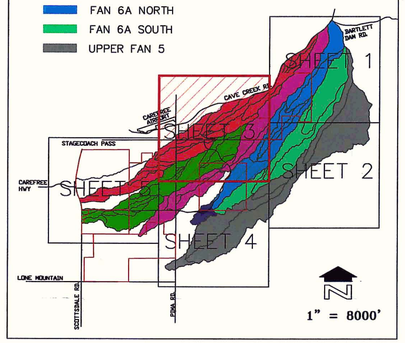
| | |
|---|---|
| 188.05 acres<br>8191663.5 sqft | DRAINAGE BASIN AND AREA |
| | DRAINAGE BASIN BOUNDARY |
| • UF5-5 | HEC-1 CONCENTRATION POINT |
| | ELEVATION |
| WC=9812 FT | WATERCOURSE LENGTH |
| RT=8318 FT | ROUTE REACH |
| SEC 33 / SEC 34 / SEC 4 / SEC 3 | SECTION CORNER |
| | SUBDIVISION BOUNDARY |
| | CORPORATION BOUNDARIES |
| 31 | SECTION NUMBER |

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY IGA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

NOTE: RED TOPOGRAPHY PROVIDED FROM ADJACENT CAREFREE ADMP THIS SHEET ONLY.

### WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
- UPPER BOULDERS WASH
- FAN 6C
- FAN 6A
- FAN 6A NORTH
- FAN 6A SOUTH
- UPPER FAN 5




| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
## FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 9/11/03 ARIZONA, U.S.A.

1983-2003 22 YEARS OF EXCELLENCE

DEI Professional Services, L.L.C.

6323 N. 24th St., Ste. 200
Phoenix, AZ 85016
Phone: (602)954-6038
Fax: (602)944-8085

| DRAWING NO. | PLAN SHEET | SHEET |
|---|---|---|
| 1131F003.DWG | AERIAL WITH 10-FT CONTOURS | 3 OF 5 |

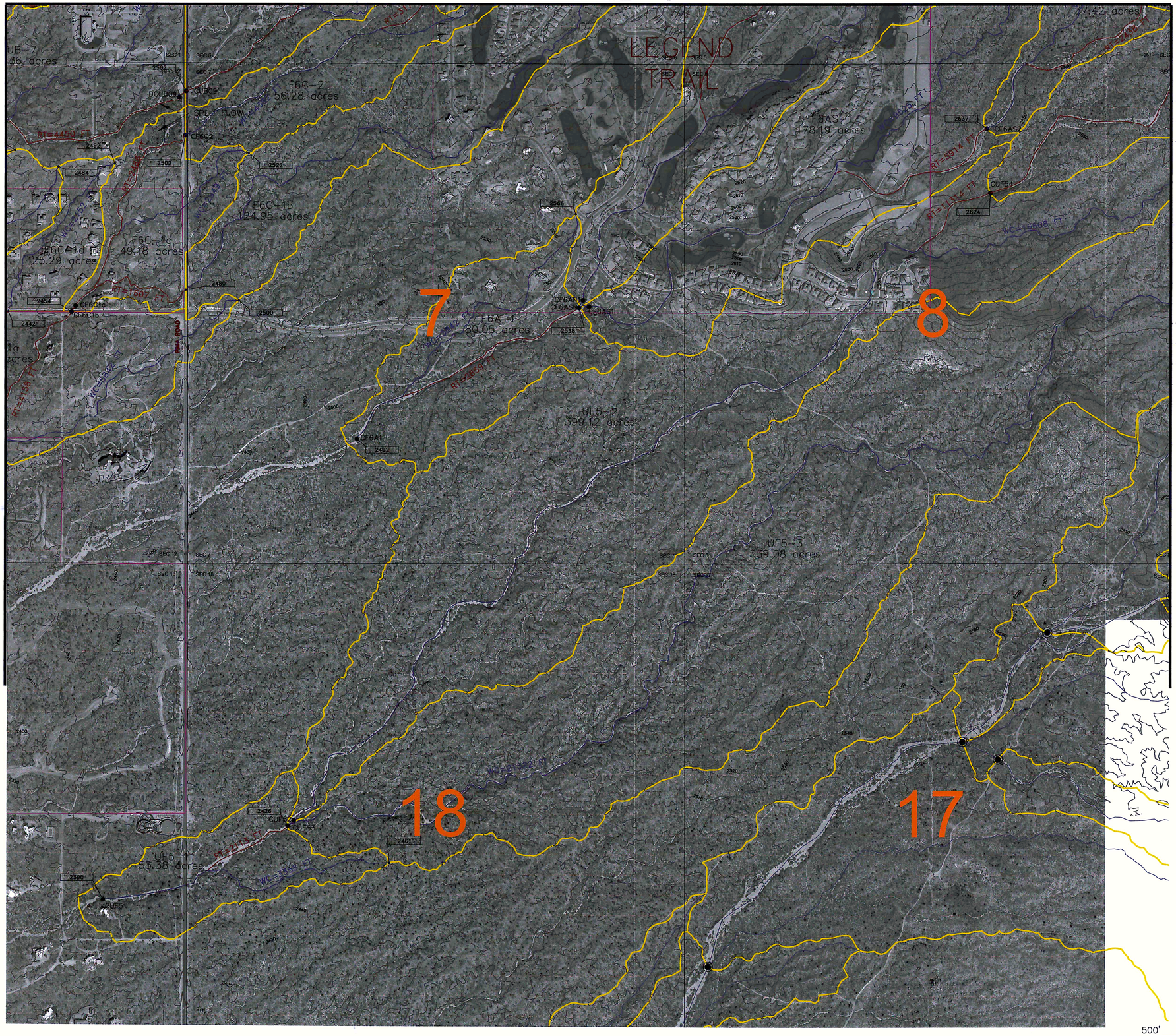
500' 0' 500' 1000'

SCALE: 1"= 500'
CONTOUR INTERVAL = 10 FEET

SEE SHEET 3

SEE SHEET 5

SEE SHEET 2




500' 0' 500' 1000'

SCALE: 1"= 500'
CONTOUR INTERVAL = 10 FEET

## LEGEND

188.05 acres
8191663.5 sqft — DRAINAGE BASIN AND AREA

DRAINAGE BASIN BOUNDARY

UF5-5 — HEC-1 CONCENTRATION POINT

ELEVATION

WC=9812 FT — WATERCOURSE LENGTH

RT=8318 FT — ROUTE REACH

SEC 33 | SEC 34
SEC 4 | SEC 3 — SECTION CORNER

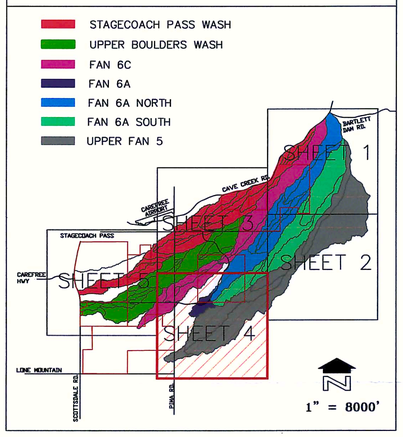
SUBDIVISION BOUNDARY

CORPORATION BOUNDARIES

31 — SECTION NUMBER

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY IGA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

WATERSHED KEY MAP AND SHEET INDEX




| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

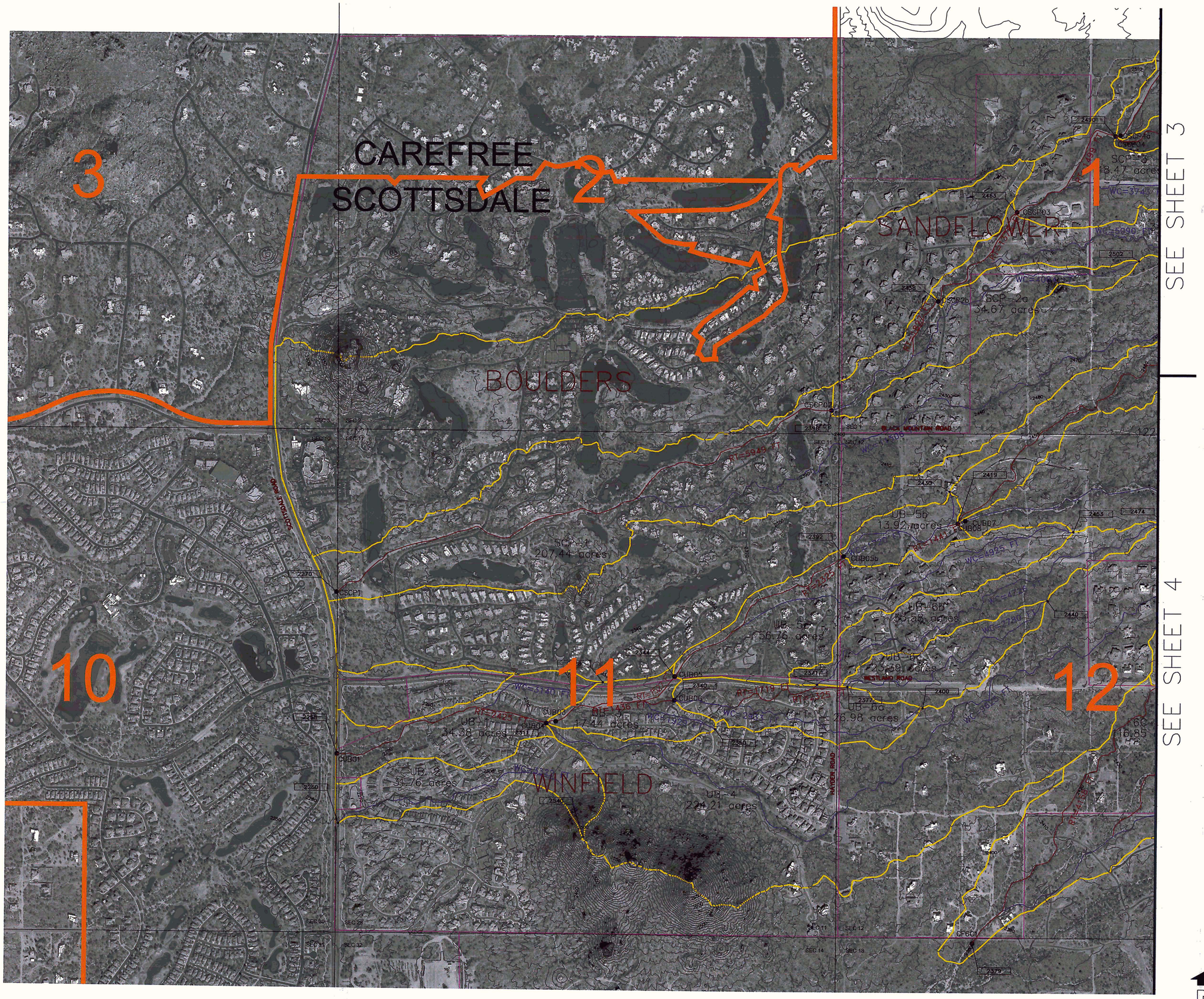
| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 9/17/04 ARIZONA U.S.A.

1982-2004 22 Years of Service DBE Professional Services, L.L.C.

DEI Professional Services LLC 6225 N. 24th St., Ste. 200 Phoenix, AZ 85016 Phone: (602)954-6028 Fax: (602)954-6025

DRAWING NO. 1131F004.DWG | PLAN SHEET AERIAL WITH 10-FT CONTOURS | SHEET 4 OF 5




## LEGEND

| | |
|---|---|
| 188.05 acres<br>8191663.5 sqft | DRAINAGE BASIN AND AREA |
| | DRAINAGE BASIN BOUNDARY |
| • UF5-5 | HEC-1 CONCENTRATION POINT |
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| WC=9812 FT | WATERCOURSE LENGTH |
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| SEC 33 / SEC 34 / SEC 4 / SEC 3 | SECTION CORNER |
| | SUBDIVISION BOUNDARY |
| | CORPORATION BOUNDARIES |
| 31 | SECTION NUMBER |

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY IGA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

### WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
- UPPER BOULDERS WASH
- FAN 6C
- FAN 6A
- FAN 6A NORTH
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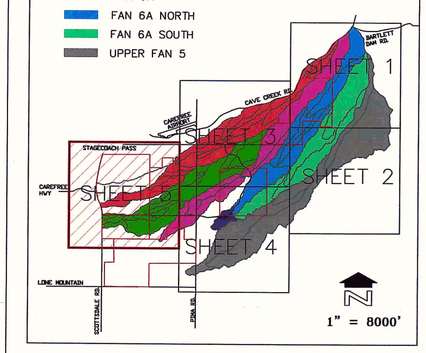
- UPPER FAN 5




| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 3 | | | |
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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FCD 2003 C008

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|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 10/30/03 Not Valid Unless Signed

1983-2003 22 YEARS OF EXCELLENCE DEI Professional Services, L.L.C.

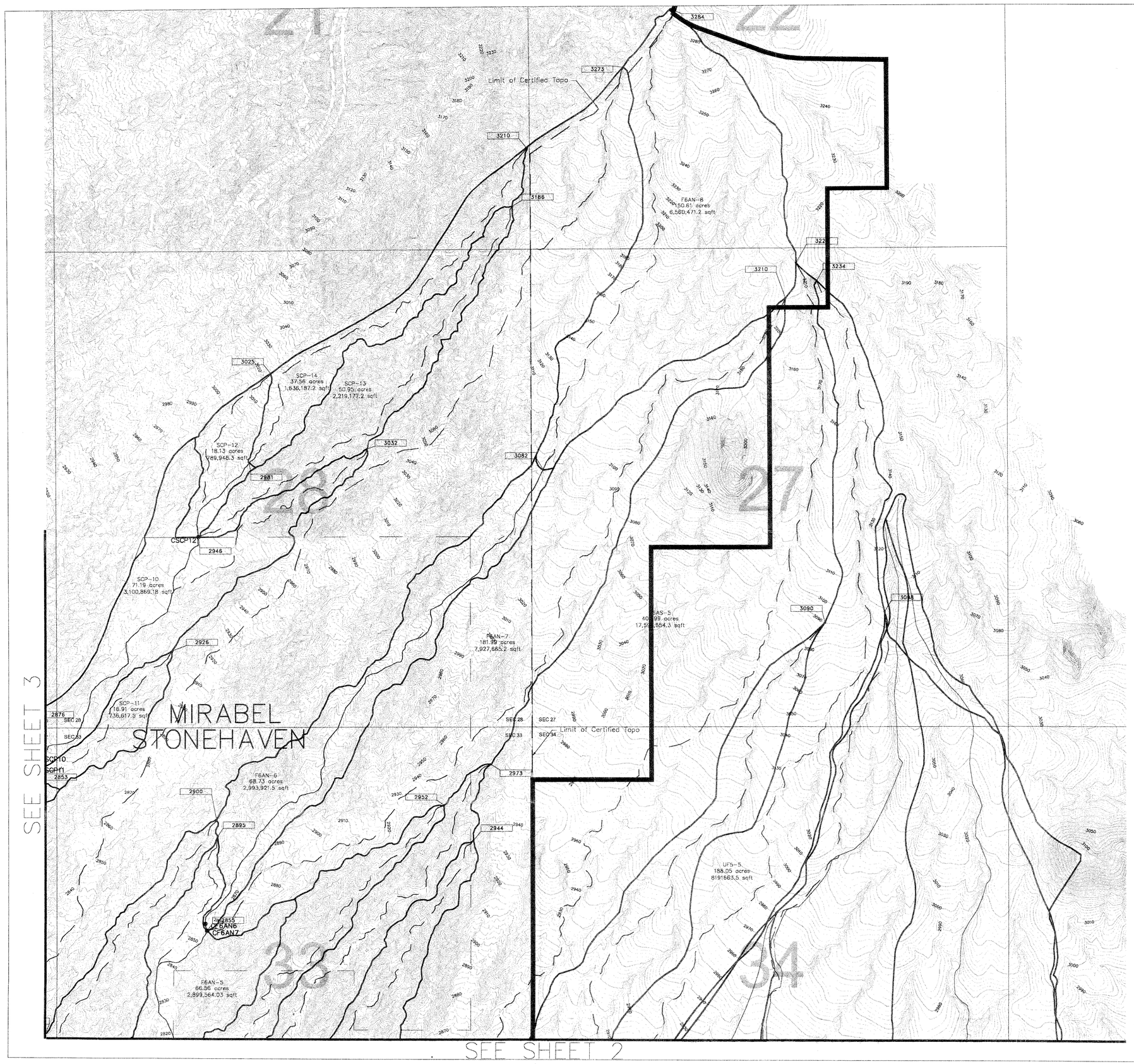
DEI Professional Services, L.L.C. 6225 N. 24th St., Ste. 200 Phoenix, AZ 85016 Phone: (602)954-0055 Fax: (602)954-6085

N

500' 0' 500' 1000'

SCALE: 1"= 500'
CONTOUR INTERVAL = 10 FEET

| DRAWING NO. | PLAN SHEET | SHEET |
|---|---|---|
| 1131F005.DWG | AERIAL WITH 10-FT CONTOURS | 5 OF 5 |




500' 0' 500' 1000'

SCALE: 1"= 500'
CONTOUR INTERVAL = 2 FEET

## LEGEND

188.05 acres
8191663.5 sqft — DRAINAGE BASIN AND AREA

DRAINAGE BASIN BOUNDARY

UF5-5 — HEC-1 CONCENTRATION POINT

ELEVATION

WC=9812 FT — WATERCOURSE LENGTH

RT=8318 FT — ROUTE REACH

SEC 33 | SEC 34
SEC 4 | SEC 3 — SECTION CORNER

SUBDIVISION BOUNDARY

LIMIT OF CERTIFIED TOPOGRAPHY

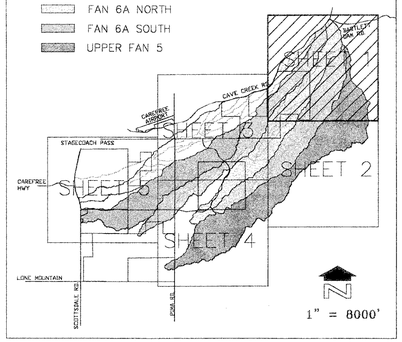
CORPORATION BOUNDARIES

31 — SECTION NUMBER

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (GA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
- UPPER BOULDERS WASH
- FAN 6C
- FAN 6A
- FAN 6A NORTH
- FAN 6A SOUTH
- UPPER FAN 5




| NO. | REVISION | BY | DATE |
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# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16378 HAL E. MARRON Date Signed 4-15-05 ARIZONA U.S.A.

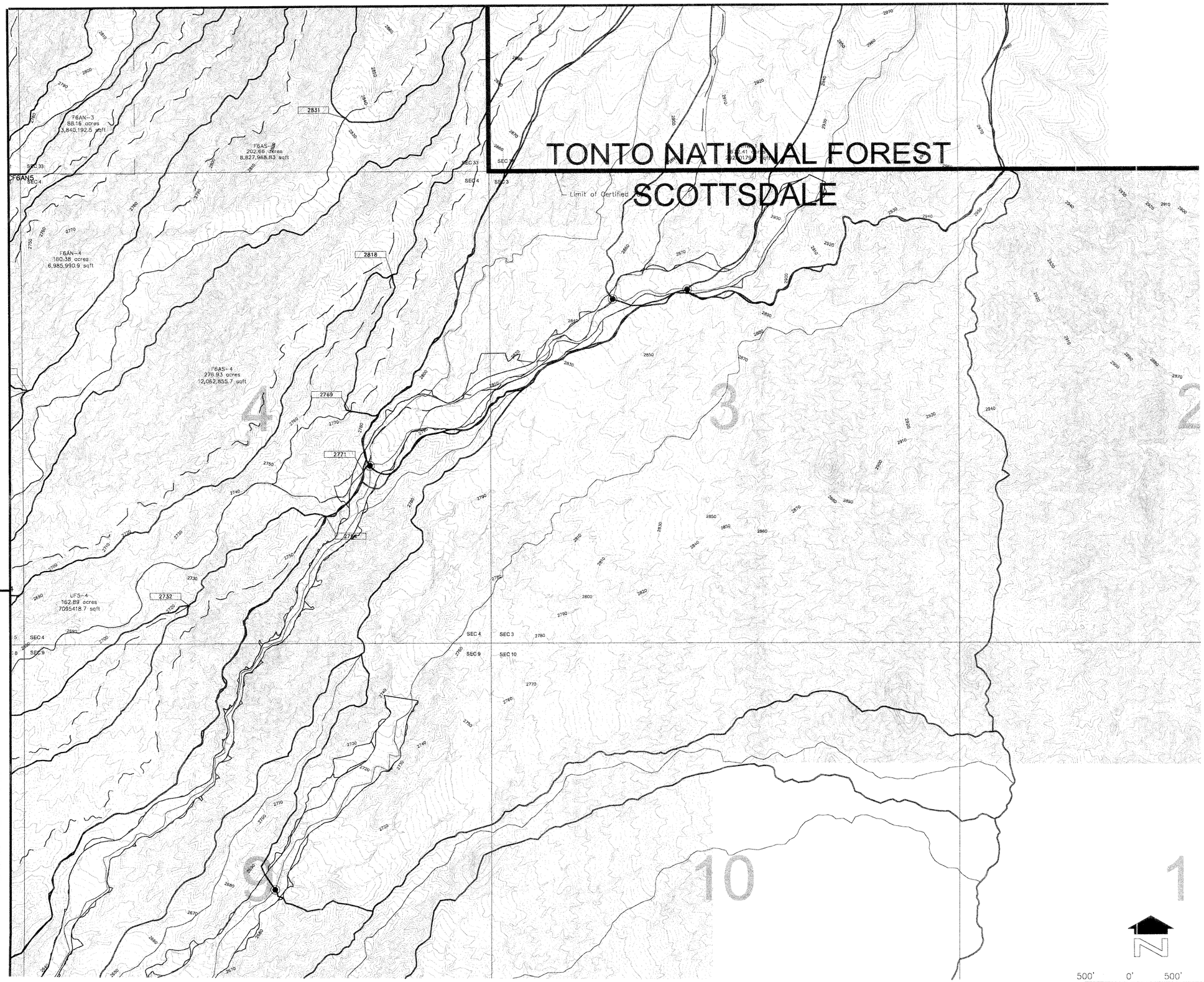
1983-2005 22 YEARS OF EXCELLENCE
DEI Professional Services, Inc.
DEI Professional Services, LLC
4214 N. 24th St. Ste. 230 Phoenix, AZ 85016 Phone (602)954-0038 Fax (602)954-0055

DRAWING NO. 1131F001T.DWG | PLAN SHEET 2-FT CONTOURS | SHEET 1 OF 5

SEE SHEET 1

SEE SHEET 3

SEE SHEET 4



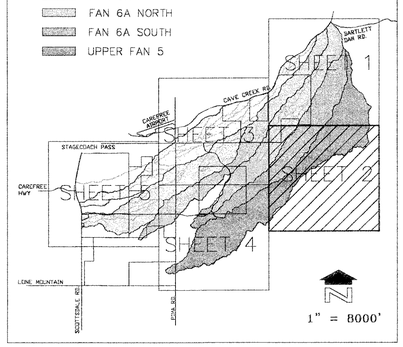

## LEGEND

| | |
|---|---|
| 188.05 acres<br>8191663.5 sqft | DRAINAGE BASIN AND AREA |
| | DRAINAGE BASIN BOUNDARY |
| UF5-5 | HEC-1 CONCENTRATION POINT |
| | ELEVATION |
| WC=9812 FT | WATERCOURSE LENGTH |
| RT=8318 FT | ROUTE REACH |
| SEC 33 / SEC 34 / SEC 4 / SEC 3 | SECTION CORNER |
| | SUBDIVISION BOUNDARY |
| | LIMIT OF CERTIFIED TOPOGRAPHY |
| | CORPORATION BOUNDARIES |
| 31 | SECTION NUMBER |

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY IGA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
- UPPER BOULDERS WASH
- FAN 6C
- FAN 6A
- FAN 6A NORTH
- FAN 6A SOUTH
- UPPER FAN 5

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| 3 | | | |
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# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 9-15-03 NOT VALID UNLESS SEALED

1993-2003 22 YEARS OF EXCELLENCE DEI Professional Services, LLC

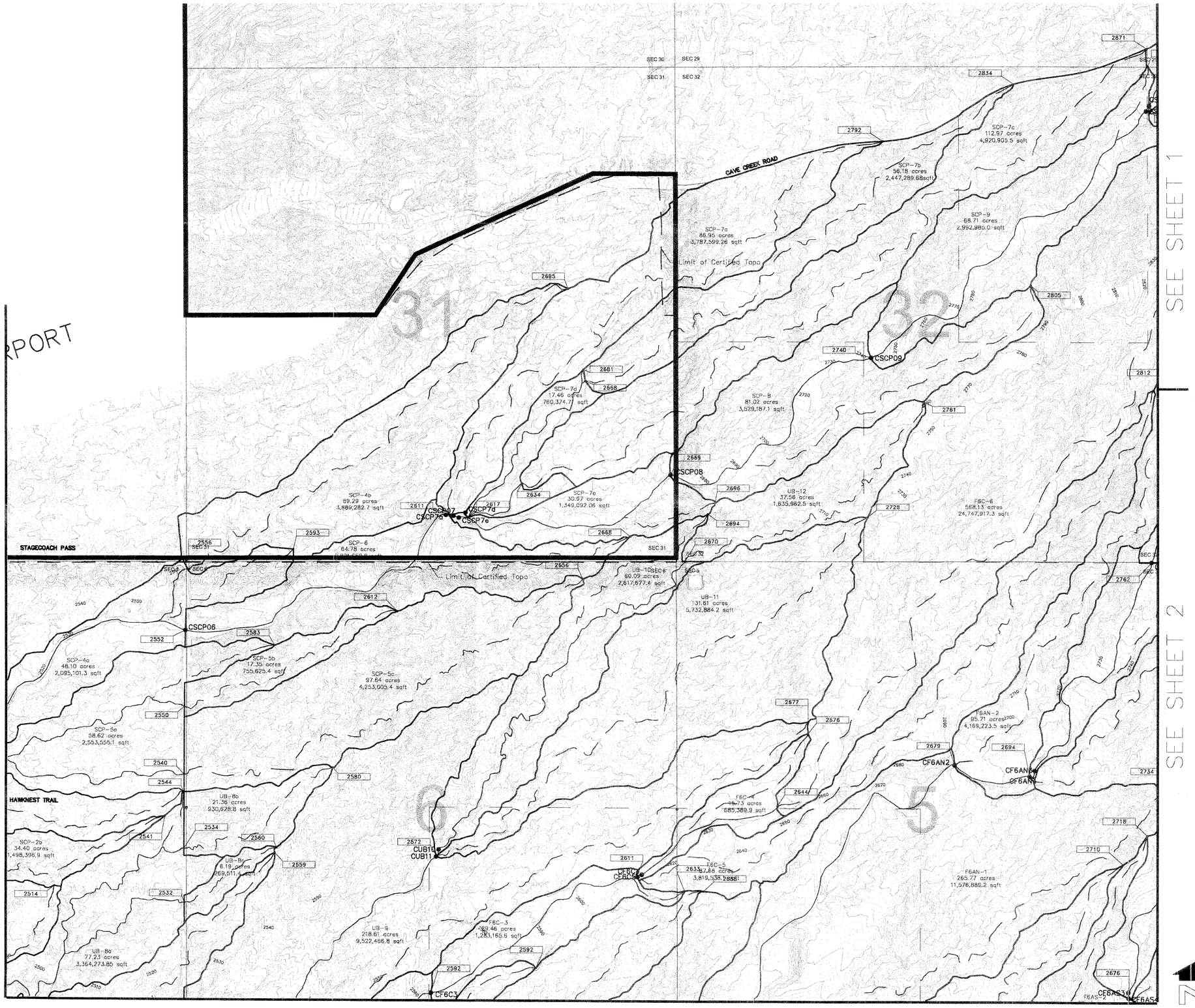
DEI Professional Services, LLC
6275 N. 7th St., Ste 200
Phoenix, AZ 85014
Phone: (602)954-0218
Fax: (602)954-0602

DRAWING NO. 1131F002T.DWG

PLAN SHEET
2-FT CONTOURS

SHEET 2 OF 5

500' 0' 500' 1000'
SCALE: 1"= 500'
CONTOUR INTERVAL = 2 FEET




## LEGEND

| | |
|---|---|
| 188.05 acres<br>8191663.5 sqft | DRAINAGE BASIN AND AREA |
| | DRAINAGE BASIN BOUNDARY |
| UF5-5 | HEC-1 CONCENTRATION POINT |
| | ELEVATION |
| WC=9812 FT | WATERCOURSE LENGTH |
| RT=8318 FT | ROUTE REACH |
| SEC 33 / SEC 34 / SEC 4 / SEC 3 | SECTION CORNER |
| | SUBDIVISION BOUNDARY |
| | LIMIT OF CERTIFIED TOPOGRAPHY |
| | CORPORATION BOUNDARIES |
| 31 | SECTION NUMBER |

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY IGA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
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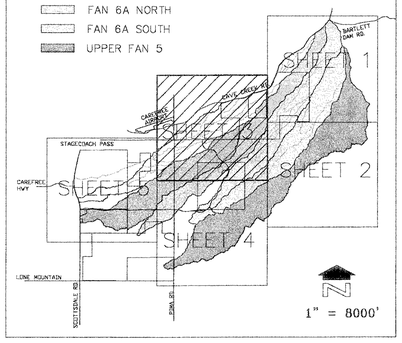


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| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 4-15-04 ARIZONA U.S.A.

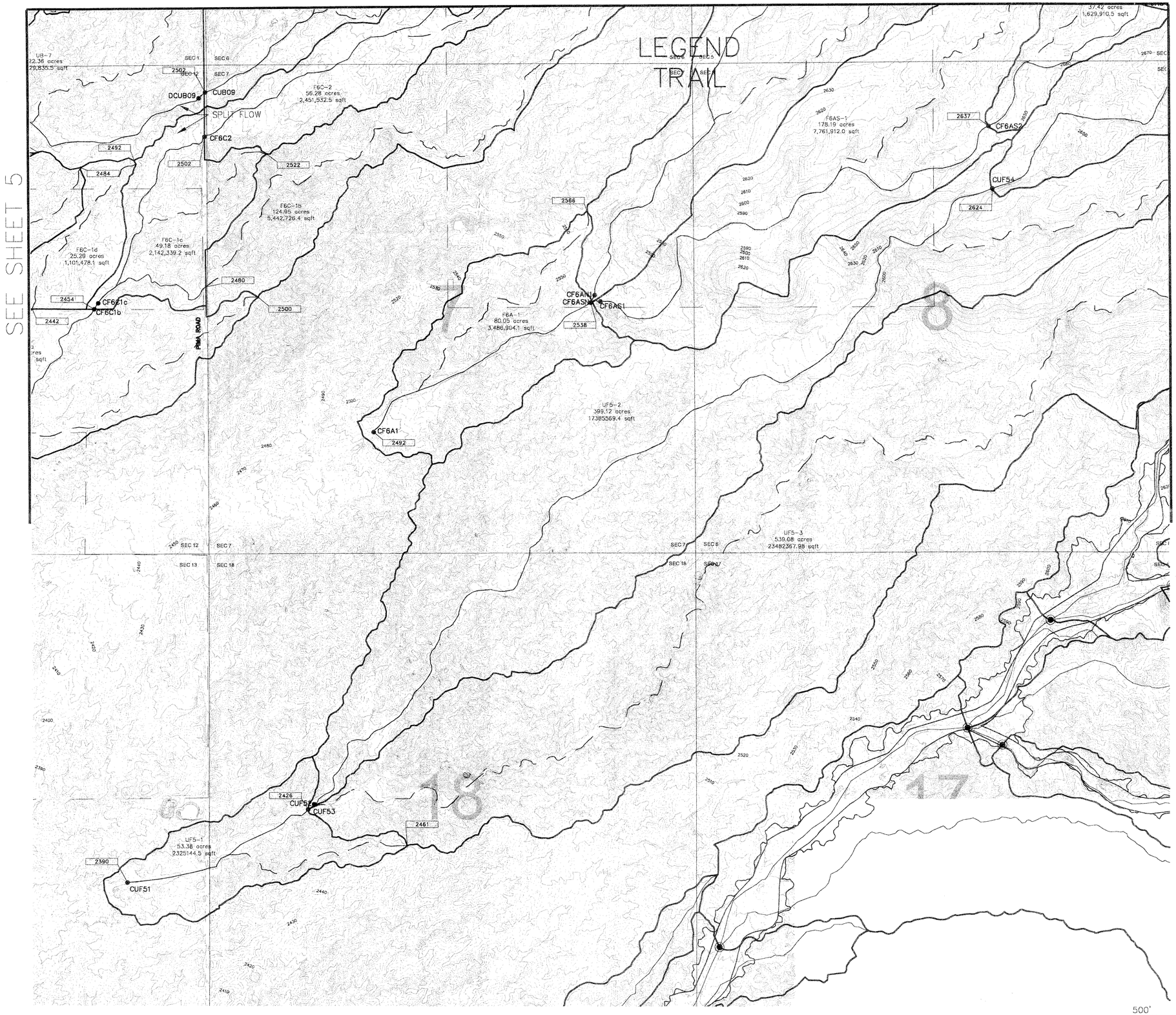
1982-2004 22 YEARS OF EXCELLENCE

DEI Professional Services, L.L.C.

DEI Professional Services, L.L.C. 5225 N. 24th St., Ste. 200 Phoenix, AZ 85016 Phone: (602)954-0218 Fax: (602)944-8865

500' 0' 500' 1000'
SCALE: 1"= 500'
CONTOUR INTERVAL = 2 FEET

| DRAWING NO. | PLAN SHEET | SHEET |
|---|---|---|
| 1131F00T.DWG | 2-FT CONTOURS | 3 OF 5 |




## LEGEND

| | |
|---|---|
| 188.05 acres<br>8191663.5 sqft | DRAINAGE BASIN AND AREA |
| | DRAINAGE BASIN BOUNDARY |
| UF5-5 | HEC-1 CONCENTRATION POINT |
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| SEC 33 / SEC 34 / SEC 4 / SEC 3 | SECTION CORNER |
| | SUBDIVISION BOUNDARY |
| | CORPORATION BOUNDARIES |
| 31 | SECTION NUMBER |

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY IGA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

WATERSHED KEY MAP AND SHEET INDEX

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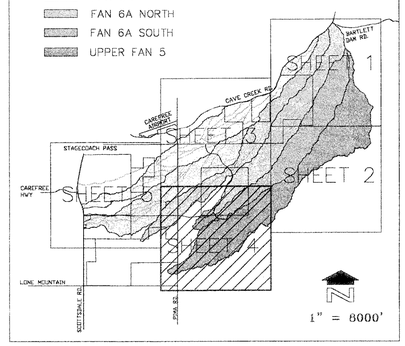


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# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
## FCD 2003 C008

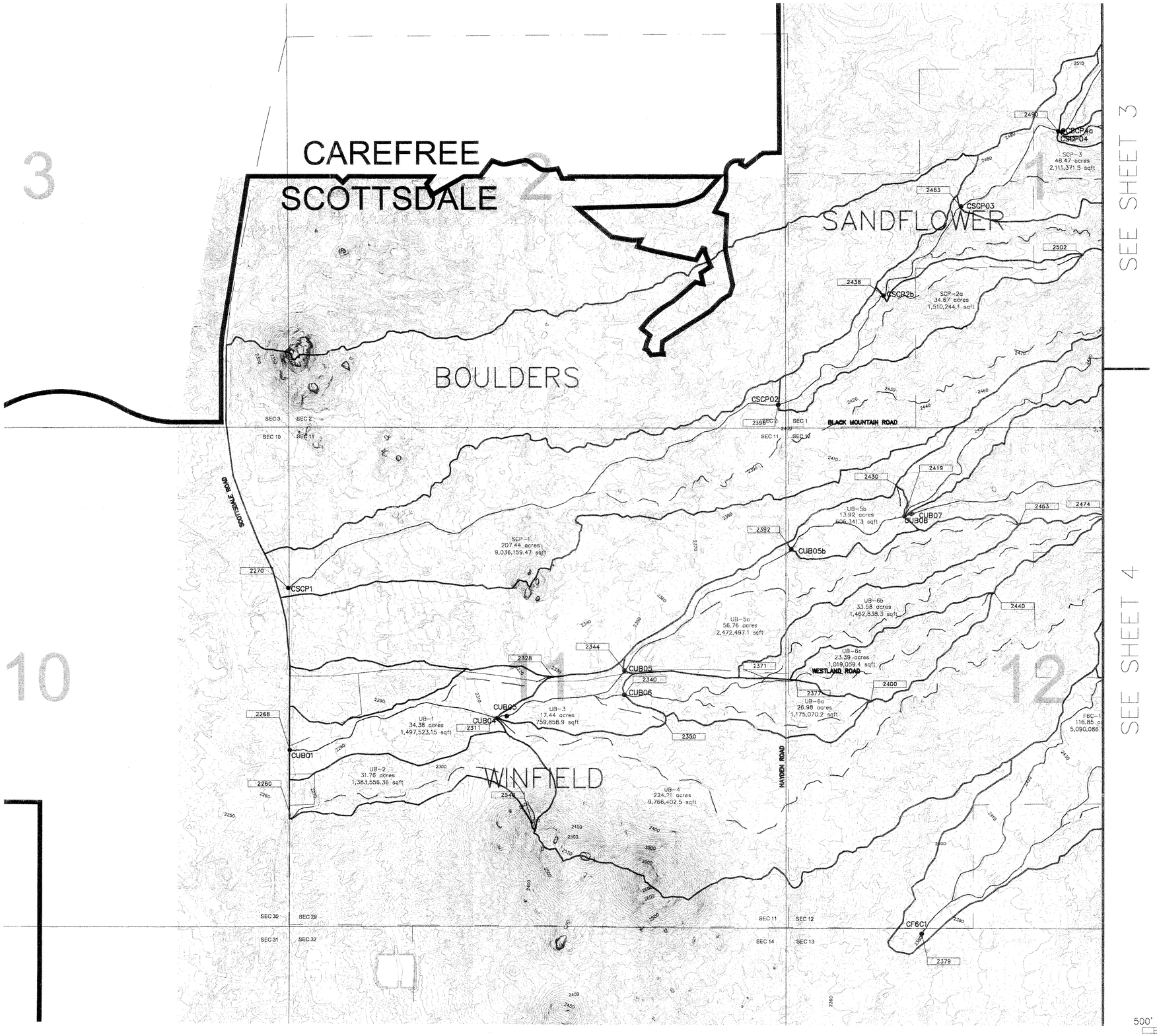
| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 11-4-03 ARIZONA U.S.A.

1993-2004 22 YEARS OF EXCELLENCE DEI Professional Services, L.L.C.

DEI Professional Services, L.L.C. 6021 N. 24th St., Ste. 270 Phoenix, AZ 85016 Phone: (602)264-6831 Fax: (602)264-0928

| DRAWING NO. | PLAN SHEET | SHEET |
|---|---|---|
| 1131F004T.DWG | 2-FT CONTOURS | 4 OF 5 |




500' 0' 500' 1000'

SCALE: 1"= 500'
CONTOUR INTERVAL = 2 FEET

## LEGEND

188.05 acres
8191663.5 sqft — DRAINAGE BASIN AND AREA

DRAINAGE BASIN BOUNDARY

UF5-5 — HEC-1 CONCENTRATION POINT

ELEVATION

WC=9812 FT — WATERCOURSE LENGTH

RT=8318 FT — ROUTE REACH

SEC 33 | SEC 34
SEC 4 | SEC 3 — SECTION CORNER

SUBDIVISION BOUNDARY

CORPORATION BOUNDARIES

31 — SECTION NUMBER

NOTE: TOPOGRAPHICAL MAPPING PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY IGA#93-07
MAPPING DATE-JAN1997;
ORTHO PHOTOGRAPHY-2002

### WATERSHED KEY MAP AND SHEET INDEX

- STAGECOACH PASS WASH
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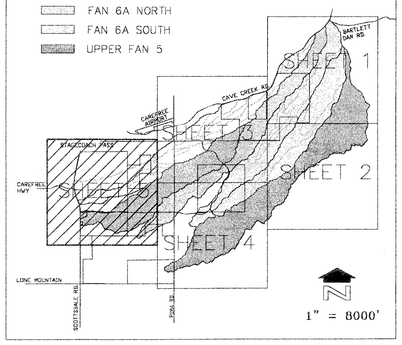


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# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## NORTH SCOTTSDALE FLOODPLAIN DELINEATION STUDY
## FCD 2003 C008

| | BY | DATE |
|---|---|---|
| DESIGNED | EC | 09/03 |
| DRAWN | PMM | 09/03 |
| CHECKED | HEM | 09/03 |

Registered Professional Engineer (Civil) CERTIFICATE NO. 16379 HAL E. MARRON Date Signed 9-15-03 Expires 12/31/04 ARIZONA U.S.A.

22 YEARS OF EXCELLENCE DEI Professional Services, LLC

DEI Professional Services, LLC
6325 N. 24th St., Ste. 200
Phoenix, AZ 85016
Phone: (602)561-6226
Fax: (602)944-6862

| DRAWING NO. | PLAN SHEET | SHEET |
|---|---|---|
| 1131F005T.DWG | 2-FT CONTOURS | 5 OF 5 |