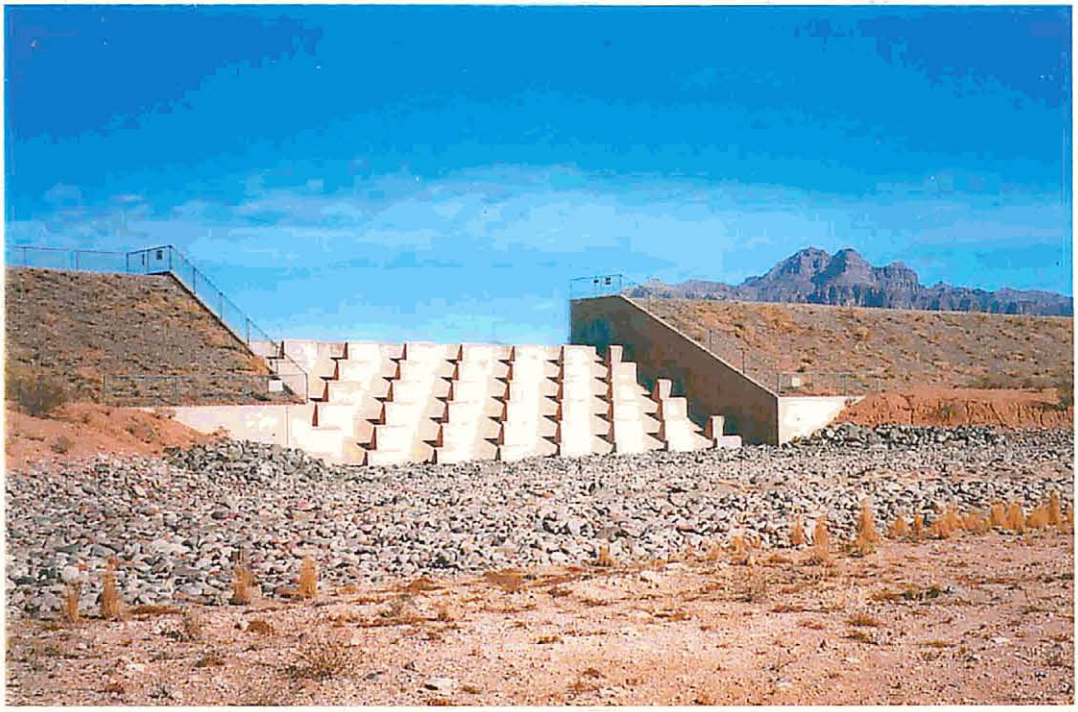
APACHE JUNCTION FLOOD RETARDING STRUCTURE

23984-001-0000

July 2000

SPILLWAY INUNDATION STUDY

FCD NO. 98-33



Submitted to

Flood Control District of Maricopa County
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Submitted by
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SECTION 1.0 INTRODUCTION

1.1 Purpose of Study

The purpose of this study is to determine and delineate the inundation limits of the 1/3, 2/3, and full spillway discharges from the emergency spillway of the Apache Junction Flood Retarding Structure (FRS); and, to determine the approximate travel time from the spillway to the downstream limit of study for each of the flow scenarios.

1.2 Study Area

The Apache Junction FRS is located in the north-central portion of the City of Apache Junction in Pinal County, Arizona and is bisected by the intersection of Lost Dutchman Boulevard and Idaho Road. The structure's emergency spillway is located to the northwest of this intersection in Sections 8 of Township 1 North (T1N), Range 8 East (R8E).

The study limits are from the spillway crest of the Apache Junction FRS to the Central Arizona Project (CAP) canal, a length of just under 5 miles. The study begins at the spillway crest. Flows from the spillway proceed in a typically southwest direction, first crossing over Meridian Road, the boundary between Pinal and Maricopa Counties, just north of Superstition Boulevard. The flow path continues in a southwest direction until encountering the north bank of the CAP canal where the study ends.

1.3 Survey and Mapping

This study utilized survey and mapping from two sources. The first was survey and mapping performed under contract FCD 98-17, Delineation of Spillway Flows for Signal Butte Flood Retarding Structure (FRS). The second was new survey and mapping developed specifically for this contract (FCD 98-33).

AZTEC Engineering provided field and ground control survey, for both contracts. Culvert inlet invert elevations were all field surveyed.

Aerial mapping for FCD 98-17 (Reference 1) was developed by Cooper Aerial for A-N West, Inc. and provided to Baker by the FCDMC. M & B Aerial Mapping, LLC performed new mapping (Reference 2) for this study under a subcontract with Michael Baker Jr., Inc. The new mapping utilized aerial data gathered on a flight date of May 13, 1999.

The approximate division between the two mappings is shown on the plan sheets. The area to the west is that developed for FCD 98-17. That to the east of the line is the new mapping developed by M & B under this contract.

SECTION 2.0 HYDRAULICS

2.1 Methodology

2.1.1 Modeling

All hydraulic analyses were performed by step backwater calculations using the USACE's HEC-RAS, version 2.2 (Reference 3). This version can perform only one-dimensional steady flow calculations.

Separate HEC-RAS models were developed for each of the three flow scenarios in order to specify different effective flow limits for the three discharges.

The HEC-RAS model was started approximately 150 ft downstream of the south bank of the CAP and included culverts under the CAP. The model terminated at the centerline of the Apache Junction FRS emergency spillway crest.

2.1.2 Discharges

Discharges for the three flow scenarios were determined and provided by the FCDMC. The discharges are 10,500 cfs (full spillway flow), 7,000 cfs (2/3 spillway flow), and 3,500 cfs (1/3 spillway flow).

2.1.3 Flow Regime

A mixed flow regime was assumed to account for both supercritical and subcritical flow conditions.

2.1.4 Starting Water Surface Elevation

The normal depth or slope-area method was used as the downstream boundary condition. A slope of 0.014 ft/ft was used. Critical depth was assumed for the upstream boundary condition.

2.1.5 Cross Section Layout

Cross sections for the HEC-RAS were developed from a digital terrain model (DTM) using BOSS International's RiverCAD, version 3.5, software (Reference 4). Spacing of cross sections was approximately every 500 ft except where topographical features warranted a deviation from this spacing.

Cross sections were oriented perpendicular to flow and stationed left to right looking downstream with the baseline being the 10,000 station.

The cross section at the centerline of the spillway crest was set at an arbitrary River Mile stationing of 20.000. Downstream cross section station IDs were then assigned based on the river mile distance, decreasing downstream, along the hydraulic baseline from this station 20.000.

2.1.6 *Channel Stationing*

There is no well-defined channel immediately downstream of the Apache Junction FRS spillway. Channel stations between the 100 ft wide spillway and Lost Dutchman Blvd. were set using engineering judgement with consideration to the topographic data and the center of the mass of flow within each cross section.

Downstream of Lost Dutchman Blvd., a minor channel is present. This channel meanders through residential areas and eventually becomes street flow. Bank stations were set based on topographic data and engineering judgement. For street flow areas, the street and any appropriate side ditches have been included with the channel bank stationing.

Since the majority of the inundation area is densely developed, it is reasonable that the majority of the flow area is best represented as an overbank area for modeling purposes. Flows through the small channel and through the streets, however, will be of a significantly higher velocity and, therefore, are more reasonably identified as channel in the modeling.

Channel stations remained the same for all three flow scenarios.

2.1.7 *Manning's 'n' Values*

Manning's 'n' value calculations are presented in Appendix C of this report.

The same 'n' values were used for all three flow scenarios.

2.1.8 *Expansion Ratios*

Expansion ratios were determined for the full flow scenario based on the methodology presented in the HEC-RAS Hydraulic Reference Manual, version 2.0 (Reference 5). Calculations may be found in Appendix C of this report.

For the 2/3 and 1/3 flow scenarios, the same expansion ratios computed for the full flow was used. In some areas, the expansion limits have been shifted in (toward the channel) to account for the reduced inundation area with the smaller discharges.

2.1.9 *Contraction Ratios*

Contraction ratios were assumed to be 1:1 in all cases for all flow scenarios.

2.1.10 *Contraction/Expansion Coefficients*

Contraction/Expansion (c/e) coefficients of 0.1 and 0.3, respectively, were used for most of the modeling. Downstream of the Apache Junction FRS, c/e coefficients of 0.3/0.5 were used until flows had fully expanded.

At the CAP, c/e coefficients of 0.1/0.3 were used for the full flow scenario since flows overtop the north bank of the CAP. For the 2/3 and 1/3 flow scenarios, coefficients of 0.3/0.5 were used.

2.1.11 *Calibration*

Flow has never occurred over the Apache Junction FRS emergency spillway. Therefore, there are no high water marks or flood records to calibrate against and calibration is not possible.

2.2 Special Considerations

2.2.1 *CAP Culverts*

Numerous culverts were placed during the construction of the CAP to allow drainage to continue through naturally occurring low areas. Determining which culverts to include in the modeling for this inundation study required several steps.

Initially the area behind the CAP to be impacted by the full flow scenario flooding was estimated to be that area lying between Apache Trail and Mountain Road. Within this area, there are 6 culvert groups under the CAP. All 6 groups were placed in the HEC-RAS model. The model was run with all 6 groups effective. Based on the inundation limits upstream and the CAP overtopping locations, the effective flow limits at the CAP were refined and culvert groups 1, 2, and 6 were assumed ineffective. These culvert groups were rendered ineffective by reducing the size of the culverts to 0.5 ft diameter pipes, yielding an insignificant discharge of only 2 to 6 cfs per culvert group.

For the 2/3 flow scenario, the HEC-RAS model was first run with the same conditions as the full flow scenario – culvert groups 3, 4, and 5 were effective and groups 1, 2, and 6 were not. Effective flow limits upstream and overtopping locations on the CAP were then analyzed. It was determined that the initial assumption was correct and culvert groups 3, 4, and 5 were left effective. With the minimal cross sectional diameter of 0.5 ft, culvert groups 1, 2, and 6 again show an insignificant discharge of 2 to 6 cfs per culvert group for the 2/3 scenario.

For the 1/3 flow scenario, the HEC-RAS model was again first run with culvert groups 3, 4, and 5 effective. In this case, judging by the flood limits upstream of the CAP and the computed water surface elevation at cross section 15.419, culvert group 5 was determined to be ineffective. Therefore, the size of the culverts at culvert group 5 was reduced to a minimal 0.5 ft diameter to essentially render the culverts in this group ineffective. The HEC-RAS output for the 1/3 flow scenario shows an insignificant discharge of from 2 to 6 cfs for each of the 4 culvert groups modeled as ineffective (culvert groups 1, 2, 5, and 6).

2.2.2 *Blocked Obstructions*

A large detention basin exists on the north side of Broadway Road at the CAP. The basin appears in cross section 15.419 between stations 12678 and 13207. The top of the basin was estimated to be elevation 1570 based on the topographic

mapping. Area below this elevation was removed from the effective area calculations by using the blocked obstruction option in HEC-RAS.

Blocked obstructions were also used in the HEC-RAS modeling at the limits of the flooding to prevent HEC-RAS from showing ineffective flow areas in non-flow areas.

SECTION 3.0 FINAL RESULTS

3.6 Overtopping of CAP

The results of the modeling show that the north bank of the CAP canal is overtopped by approximately ½ of the 10,500 cfs full flow discharge. Overtopping occurs along the CAP embankment from approximately 1200 ft south of the Apache Trail to Signal Butte Road and across the Grove Street Bridge.

For the 2/3 scenario, approximately 1,840 cfs flows across the combination of the Grove Street Bridge and the 104th Place Bridge. No flows, however, are shown to overtop the embankment itself.

For the 1/3 scenario, due to ponding behind the north bank of the CAP and based on the HEC-RAS computed water surface elevation at cross section 15.361, there will be some flows across the 104th Place Bridge.

Overtopping areas are identified on the plan sheets.

3.2 Street Flow

Many streets within the inundation area are sloped such that minor flows may be lost or temporarily diverted down the street. No attempt has been made to track in detail these flow paths. However, these streets are likely to experience shallow flooding. The streets adjacent to the inundation areas anticipated to experience this flooding have been shown on the plan sheets with an SF→ symbol. Other streets, downslope of those identified on the plan sheets, may experience shallow flooding as well but have not been identified on the plan sheets.

3.3 Inundation Limits

Due to the nature of the topography of this area and the resulting broad, shallow flooding across the cross sections, there are some cross sections within the modeling which show flows within a natural swale whereas the section immediately downstream may not show flows within that same swale. For all three flow scenarios, the inundation limits have been reviewed for consistency of upstream inundation limits and topography. In areas where it appears that flows would continue over the natural topography, the inundation limits have been expanded to include these areas even though the HEC-RAS model may not show these as inundated areas. For areas where it appears that flows would continue down streets, the streets have been identified on the plan sheets as street flow areas (see *Street Flow* above) and the inundation limits have not been expanded.

Along the southeast limit of study, immediately upstream of the CAP, it was noted that the ponded flows would extend beyond the limits of the study mapping. A field investigation was performed at this location. Based on that investigation,

it appears that the ponded limits for all three flow scenarios will be contained within a narrow strip adjacent to the CAP and bounded to the south by Southern Avenue.

3.4 Travel Times

Travel time is the time it takes flows to travel from the spillway to the specified cross section. In this study, two travel times have been computed and are shown in the *Hydraulic Data* table on the plan sheets.

The first, channel travel time, is the time it takes flows to travel in the channel. This time best represents flows in the streets and serves as an indicator of when streets will experience peak flooding.

The second, average channel time, is the time with consideration of the entire cross section. Since flows are primarily in the overbank for this study, this time best represents overbank travel time and when homes, businesses, etc. may experience peak flooding.

3.5 Hydraulic Jump

A hydraulic jump occurs immediately downstream of the spillway. No attempt was made in this study to pinpoint the exact location of the jump. However, the HEC-RAS output data indicates that for the full flow scenario, the approximate location of the jump is between cross sections 19.812 and 19.896. For the 2/3 and 1/3 scenarios, the jump likely occurs between cross sections 19.975 and 19.993. Because of the difference in location of the jump between the full flow and 2/3 and 1/3 flow scenarios, cross section 19.975 of the 2/3 and 1/3 flow shows a higher computed water surface elevation than that for the same section of the full flow.

3.6 Consistency with Signal Butte FRS Spillway Inundation Study (SIS)

The discharges in this study nearly match those used in the Signal Butte FRS SIS (FCD #98-17) (Reference 6) and flows from both the Signal Butte and Apache Junction FRS are impounded at approximately the same location along the CAP. A comparison of the computed water surface elevations behind the CAP shows the two studies, independently analyzed, to be in close agreement for all three flow scenarios. Review of the 'n' values and channel stationing shows the two studies to be very similar. In conclusion, there appears to be consistency in modeling approach between the two studies.

APPENDIX A: REFERENCES

A.1 Data Collection Summary

Throughout the course of this study, data was collected from several sources. The FCDMC provided the majority of data. Other sources included the CAP, A-N West, Inc., and the City of Apache Junction. The Arizona Department of Transportation (ADOT) was contacted regarding available drainage information for the area (see *Phone Call Reports* of July 14, 1999 and August 2, 1999 in Appendix B – General Documentation and Correspondence of this report). Having researched ADOT's files, however, no information pertinent to this study was located.

Data obtained from each noted source is listed below:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

- Cooper Aerial of Phoenix, Inc., Topographic Mapping (digital format) of the area downstream of the Signal Butte Flood Retarding Structure prepared for A-N West, Inc. for the Flood Control District of Maricopa County (FCD 98-17).
- Ebasco Services Incorporated, prepared for the U.S. Department of Agriculture, Soil Conservation Service, Apache Junction Flood Retention Structure, Downstream Inundation Study, Phoenix, Arizona, February 1986.
- Ebasco Services Incorporated, prepared for the U.S. Department of Agriculture, Soil Conservation Service, Apache Junction Floodwater Retarding Structure & Floodway, Buckhorn – Mesa Watershed Protection and Flood Prevention Project, Phase IV.2 Final Design Report, Volumes I and II, Phoenix, Arizona, October 1986.
- McLain Harbers Co., Inc., Topographic Mapping prepared for the Flood Control District of Maricopa County (FCD 93-51), Apache Junction FRS, Index and Sheets 1 through 3 of 3, Rev. Dec. 10, 1991.
- U.S. Department of Agriculture, Soil Conservation Service, Apache Junction Floodwater Retarding Structure & Floodway, Buckhorn – Mesa Watershed Protection and Flood Prevention Project, As-Built Design Drawings, Sheets 1-1 through 1-39A, February 1987.
- U.S. Department of Agriculture, Soil Conservation Service, Apache Junction FRS, Buckhorn – Mesa Watershed, Subsidence Survey, February 1989.

CENTRAL ARIZONA PROJECT

- U.S. Department of the Interior, Bureau of Reclamation, Central Arizona Project, Salt-Gila Division – Arizona, Salt-Gila Aqueduct, Reach 1, Protective Works, Drawing No. 344-330-1184, August 21, 1990.
- One page, undated, entitled Input Data for Flood Routing, Salt-Gila Aqueduct Reach 1.
- One page, undated, entitled Input Data for Unit Hydrographs, Salt-Gila Aqueduct - Reach 1.
- One page, undated, entitled Precipitation Frequency Values for Salt-Gila Reach 1.

A-N WEST, INC.

- A-N West, Inc., Study Report prepared for the Flood Control District of Maricopa County, Delineation of Spillway Flows for Signal Butte Flood Retarding Structure (FCD 98-17), Revised August 1999.

CITY OF APACHE JUNCTION

- See *Meeting Minutes* of August 5, 1999 in Appendix B – General Documentation and Correspondence of this report.

A.2 Referenced Documents

1. Cooper Aerial of Phoenix, Inc., Digital Files for Topographic Mapping of Area Downstream of Signal Butte FRS, Scale 1:2,400, Contour Interval 2 feet, Flight Date October 15, 1998.
2. M & B Aerial Mapping, LLC, Digital Files for Topographic Mapping of Area Downstream of Apache Junction FRS, Scale 1:2,400, Contour Interval 2 feet, Flight Date May 13, 1999.
3. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, Computer Program HEC-RAS: River Analysis System, Version 2.2, Davis, California, September 1998.
4. BOSS International, Inc., Computer Program RiverCAD, Version 3.5, Madison, Wisconsin, August 1998.
5. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, HEC-RAS, River Analysis System, Hydraulic Reference Manual, Version 2.0, Davis California, April 1997.
6. A-N West, Inc., Delineation of Spillway Flows for Signal Butte Flood Retarding Structure (FCD 98-17), Phoenix, Arizona, Revised August 1999.

Baker

PHONE CALL REPORT

From: Felicia Terry
To: Keith Duffy, ADOT

Date: 7/14/99
Phone #

Mr. Keith Duffy is in the ADOT Drainage Group. Mr. Duffy checked his computer files and said that it looks like he has something in the area I indicated. He said that he would check further and call me back. I asked him how would we go about getting a copy of the report. He said that we would need to send a printing company over to pick it up and copy it. (Its on Microfiche) I told him that we would probably want to look at it first to determine if its useful information for us. He said that would be fine, we would just have to go down to Engineering Records and view the Microfiche.

MICHAEL BAKER, JR., INC.

PHONE CALL REPORT

PROJECT/LOCATION: Apache Junction Spillway Fundation Study

S.O. No.:

DATE: 7/20/99

CONTRACT NO.:

To: PAUL STEARS

From: Felicia Terry

Repres.: Apache Junction

Repres.:

Phone No.: 982-1055

Phone No.:

Subject: DRAINAGE INFO in the AREA

He said they didn't have much information. There was a study that they just completed for Superstition Boulevard. Told me to contact Chris Woodrow of Cellar Bart 557-9100 for a copy.

I told him I would FAX over a copy of the AREA and we would try to set up a meeting for next week or the following week. He thinks that Doug Dobson the Public Works Director should be there, because he has been there a long time and knows the area.

FAX 480-983-5752

meeting Aug 5th 10:00 am
575 E Baseline Idaho Rd - east & south of Freeway

PREPARED BY _____ TITLE _____ PAGE ___ OF ___

OP-3
9/80

Baker

PHONE CALL REPORT

From: Keith Duffy, ADOT
To: Felicia Terry

Date: 8/2/99
Phone #

Mr. Duffy phoned. He found drainage reports (Apache Junction - Florence) on either side of the areas I indicated. He suggests we visit engineering records, view a strip map of various projects start/end sections, and with the project numbers from the strip map ask someone in engineering records if there's a drainage report associated with that project number. He also said that mile post numbers would be very helpful in locating drainage reports.

In case we go down to view the file/report he found, its on microfiche. The project number is F-022-3-301 and the reel number is 18.10.91.

Baker

PHONE CALL REPORT

From: Felicia Terry
To: Abe Sahli, CAP

Date: 8/25/99
Phone # 869-2126

Mr. Sahli said he thinks there is a drainage study in the area that I indicated, but that he would have to research it. He said that the drainage study is 20-25 Years old and that CAP would not be responsible for the validity of the content.

Mr. Sahli also said that we should come down to his office with diagrams, maps, pictures, etc. of exactly what we're looking for. I told him that I would be more than happy to do that. He then said let him do some research first.

Baker

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MEETING MINUTES

Date: March 14, 2000

Location: Michael Baker Jr., Inc.'s office

Project: Task A – Apache Junction FRS Inundation Study and Task B- FCD 98-33

Topic: Project Progress Meeting

Attendees: **Flood Control District of Maricopa County**
Tim Murphy

Michael Baker Jr., Inc.
Cathy Regester Felicia Terry

TASK A

The majority of the meeting was spent reviewing the comments from FCD and discussing Baker's response. Most of the comments were minor and will be easily resolved. The most significant comment was to make sure the start and end stations reported in the HEC-RAS model matched what was plotted on the map. In some instances Baker delineated based on the Topo and the amount of flow rather than start and end stations. Baker had used effective flow limits to restrict the flow in the cross sections. Tim instructed Baker to use blocked obstructions in the HEC-RAS model to allow the start and end stations in the HEC-RAS to match the delineation on the map. For those sections where the mapping start and end stations were not appropriate, Baker was told to note them on the plans and state "adjusted by hand". Baker agrees to make the changes to the plans and model.

TASK B

Discussed the progress of the Huitt Zollars mapping. It has not been checked yet. The FCD does not want Baker to start on mapping Task B3.

We have received the mapping for B1 and have shown it to Tim. Some of the control points used on the McLain Harbors project were not used. Will check with AZTEC on this. AZTEC is preparing a survey report, which will discuss what and why they used the control points.

Check surveys have been submitted, but have not been checked. One of the cross sections is along the top of the structure.

The discharge to use at this point is the 25,000-cfs. It is a combination of Powerline and Vineyard spillway discharges.

Baker

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MEETING MINUTES

Date: November 9, 1999

Location: Michael Baker Jr., Inc.'s office

Project: Task A – Apache Junction FRS Inundation Study - FCD 98-33

Topic: Project Progress Meeting

Attendees: **Flood Control District of Maricopa County**
Tim Murphy

Michael Baker Jr., Inc.
Cathy Regester Felicia Terry

We reviewed the preliminary mapping for the full flow over the spillway. Some of the mapping still needs to be cleaned up.

The County line will be shown on the sheets. At a minimum, half-section roads will be shown. Notes will be added to show flow being conveyed in the streets and then discussed in the report.

The Effective flow limits and bank stations will also be shown on the plan sheets.

The preliminary delineation will be delivered 11/19/99.

Tim Murphy reported that mylars for the Queen Creek ADMS have not been located, but they are still looking. The strip mapping for Queen Creek is not available yet. Baker will need this mapping by the middle of January, since that is when the area is scheduled to be flown.

MEETING MINUTES

Date: October 27, 1999

Location: Michael Baker Jr., Inc.'s office

Project: Task A – Apache Junction FRS Inundation Study - FCD 98-33

Topic: Project Progress Meeting

Attendees: **Flood Control District of Maricopa County**
Tim Murphy

Michael Baker Jr., Inc.
Cathy Regester Felicia Terry

Baker submitted the CD that contained the aerial mapping from M&B Aerial.

Discussed the 'n'-value report. Tim has not had a chance to review but wanted to make sure that the streets were considered the main path for the flow and have the 'n'-values reflect this situation. This situation was accounted for and is included in the report. The 'n'-values for the upper reaches were discussed. These values were reduced from the previous value of

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MEETING MINUTES

Date: October 6, 1999

Location: Michael Baker Jr., Inc.'s office

Project: Task A – Apache Junction FRS Inundation Study - FCD 98-33

Topic: Project Progress Meeting

Attendees: **Flood Control District of Maricopa County**
Tim Murphy

Michael Baker Jr., Inc.
Cathy Regester Felicia Terry

The Check Surveys were shown to Mr. Murphy. The surveys showed that the mapping was within tolerance.

A new schedule was given to Mr. Murphy. The revised schedule still has the project being completed the first week of January 2000.

The n-values were discussed and the format of depicting the section in the report was displayed. The n-values that have been calculated seem high, however they are consistent with the values used for the Signal Butte FRS prepared by A-N West. These calculations will be provided in the report.

A plan sheet was shown to Mr. Murphy. The sheets have been laid out in such a manner as to try to reduce the need to match sheets across individual cross sections. This orientation results in North being to the upper left corner of the sheet. Mr. Murphy agreed with the intent of the rotation and accepted the layout. Mr. Murphy commented, though, that the legend needed to be revised - particularly in regard to the reference to the "100-year Floodplain Boundary."

Mr. Murphy was shown the RiverCadd program. Cross sections had been cut and the delineation was displayed. This delineation will be refined and more cross sections added. It currently just showed the general area of inundation.

Mr. Murphy said that they are still having problems with the AutoCadd submittals and that Baker needs to make sure that the District criteria is followed. Baker will follow up with this to make sure the AutoCadd file that will be submitted meets the requirements.

The next meeting was scheduled for the afternoon of October 27, 1999. The n-value section of the report will be submitted prior to this meeting.

MEETING MINUTES

Date: August 5, 1999

Location: Apache Junction Public Works Department

Project: Apache Junction Spillway Inundation Study FCD 98-33

Topic: Meeting with City Engineer and Public Works Director

Attendees: **APACHE JUNCTION**
Paul Stears, P.E., City Engineer
Doug Dobson, P.E., Public Works Director

Michael Baker Jr., Inc.
Felicia Terry

Met with Apache Junction representatives to discuss the Spillway Inundation Study for the Flood Control District of Maricopa County.

Apache Junction was informed of the limits of the project and the type of project and that it would used as a tool to see the areas of inundation if the spillway was flowing. This study could be used in emergency situations, to close roads and inform people of possible flooding.

We discussed the area and places where they were aware of flooding. The aerial topography map was taken and used to see areas of possible flooding. The flows follow the wash that exits the spillway. This wash is impeded at numerous streets and the water spreads out and causes flooding in the streets and between local businesses. The flow follows streets and washes to the CAP. The amount of flow they have seen is less than the amount estimated to spill over the emergency spillway. This spillway flow will inundate more of the area.

Cella Barr prepared a study for Apache Junction on improving Superstition Boulevard and it had a drainage study that impacts the road.

They were very interested and were glad to be made aware of the project. They were also interested in the aerial topography and would like a copy.

Baker will keep them apprised of the project and update them when it is getting close to being completed.

CC: Tim Murphy, FCMCD

PROJECT#_____FILE#_____LOG#_____

Baker

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April 20, 1999

Tim Murphy, Project Manager
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, AZ 85009

Re: Apache Junction Spillway Inundation Study - FCD 98-33

Dear Mr. Murphy:

Baker met with our subconsultants for this project on April 14, 1999. Minutes of the meeting are attached. We anticipate receiving the aerial mapping at the end of May. During that time we will begin our data collection phase and coordination.

Also attached is our schedule and quarterly cost estimates. The quarters are based on a calendar year and not the Districts fiscal year quarters. The schedule and estimate will be updated as changes occur.

If you have any questions, please contact me at 798-7533.

Sincerely

MICHAEL BAKER JR., INC.

Felicia Terry

Felicia Terry, P.E.
Project Manager

23984

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

MEETING MINUTES

Date: April 14, 1999

Location: Michael Baker Jr., Inc.'s office

Project: Apache Junction Spillway Inundation Study FCD 98-33

Topic: Meeting with Subcontractors

Attendees: **M&B Aerial Mapping**
Robert Moon
AZTEC Enineering
Norm Smith
Michael Baker Jr., Inc.
Cathy Regester Felicia Terry

TASK A

- 2 Flight Lines -each 4,000' wide so total of 8,000'
- Target Size 5-6 feet with 1' wide legs

  4/21/99 –AZTEC will start placing control panels. Robert would like 3 days notice to set up flight.
- 4/28 will fly the area. Mapping would be delivered 5-6 weeks after that.
  M & B anticipates having the mapping completed by the end of May.

Check cross sections will be prepared as mapping is being produced. AZTEC will do the cross sections around 5/19. Baker & AZTEC will meet to determine where the check surveys cross-section should be taken. Will ask FCD if they have a preference.

- Will deliver DTM in format that the District requests. M & B just completed a project for FCD and will follow that same format.

Surveyor will try to stay within R/W so that no Right of Entry letter is needed. AZTEC will get keys from CAP and work with them for access.

M&B would like the Signal Butte mapping so he can tie in and to make sure the two maps look alike. He uses AutoCAD 13.

PROJECT#_____FILE#_____LOG#_____

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

LETTER OF TRANSMITTAL

To: Flood Control District of Maricopa County
2801 West Durango
Phoenix, Arizona 85009

Attn. Mr. Tim Murphy

S.O. No. 23984-001-0000
Project: East Side SIS – Apache Junction FRS
Date: May 17, 2000

We are forwarding the following: ☑ Attached Under Separate Cover

DWG. NO.	NO. COPIES	TITLE OR DESCRIPTION	COMMENTS
	1	M&B Revised Files for GIS/CADD Submittal	2 Diskettes
	1	Transmittal Sheet of 12/7/99 from M&B to Baker listing revised files	1 Sheet
	1	Inundation Study GIS/CADD Deliverables as prepared by Baker	1 CD
	1	Summary of Submitted Files	2 Sheets

THESE ARE TRANSMITTED as checked below:

☐ As requested
☑ For review and comment
☐ For your information
☐ No exception taken
☐ Rejected - See remarks
☐ Proceed subject to corrections noted
☐ Revise and resubmit
☐ Submit specified items
☐ _____

GENERAL COMMENTS:

MICHAEL BAKER JR., INC.

By: Felicia Terry, P.E.
Title: Project Manager
Page 1 of 1

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

LETTER OF TRANSMITTAL

To: Flood Control District of Maricopa County
2801 West Durango
Phoenix, Arizona 85009

Attn. Mr. Tim Murphy

S.O. No. 23984-001-0000
Project: East Side SIS – Apache Junction FRS
Date: April 28, 2000

We are forwarding the following: ☑ Attached Under Separate Cover

DWG. NO.	NO. COPIES	TITLE OR DESCRIPTION	COMMENTS
	1	Inundation Limits for Full, 2/3, and 1/3 Spillway Flows for Apache Junction FRS	37 Sheets
	1	Technical Data Notebook	

THESE ARE TRANSMITTED as checked below:

- ☐ As requested
- ☑ For review and comment
- ☐ For your information
- ☐ No exception taken
- ☐ Rejected - See remarks
- ☐ Proceed subject to corrections noted
- ☐ Revise and resubmit
- ☐ Submit specified items
- ☐ _____

GENERAL COMMENTS:

MICHAEL BAKER JR., INC.

By: Felicia Terry, P.E.
Title: Project Manager
Page 1 of 1

Baker
Michael Baker Jr., Inc.
1313 E. Osborn Road
Phoenix, Arizona 85014
(602) 279-1234

Letter of Transmittal

To: FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

S.O. No. 23984-001-0000

Project: SIS-EAST: APACHE JUNCTION

Date: 11/19/99

Attn. TIM MURPHY

We are forwarding the following: ☒ Attached ☐ Under Separate Cover ☐

DWG. NO.	NO. COPIES	TITLE OR DESCRIPTION	COMMENTS
	1	PRELIMINARY FULL FLOW SCENARIO DELINEATION FOR APACHE JUNCTION FRS	2 ROLLS W/ CHAN. STA.'S & EFF. FLOW LINES SHOWN.
	1	DISKETTE W/ HEC-RAS 2.2 PROJECT FILES (AJFULL.PRJ)	
	1	SAMPLE PLOT OF SHEET FILE	SHEET 3
	1	EXPANSION RATIO CALCULATIONS	4 SHEETS
	1	"INPUT DATA FOR FLOOD ROUTING SALT-GILA AQUEDUCT REACH 1"	3 SHEETS
	1	FIELD SURVEY DATA FROM AZTEC ENGINEERING FOR CAP CULVERTS (FOR APACHE JUNCTION FRS & SIGNAL BUTTE FRS SIS's)	7 SHEETS
	1	P. 95 & 96 OF SIGNAL BUTTE SIS FULL FLOW HEC-RAS	2 SHEETS

THESE ARE TRANSMITTED as checked below:

- ☐ As requested
- ☒ For review and comment
- ☐ For your information
- ☐ No exception taken
- ☐ Rejected - See remarks
- ☐ Proceed subject to corrections noted
- ☐ Revise and resubmit
- ☐ Submit specified items
- ☐ _____

GENERAL COMMENTS:

TIM,

LET ME KNOW IF YOU HAVE ANY QUESTIONS. THANK YOU!

Cathy

MICHAEL BAKER JR., INC.

By: CATHY REGESTER

Title: _____

Page 1 of 1

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

LETTER OF TRANSMITTAL

To: Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399

Attn. **Mr. Tim Murphy**

S.O. No. 23984-001-0000
Project: SIS (Eastside) – Apache Junction FRS
Date: October 25, 1999

We are forwarding the following: ☑ Attached Under Separate Cover

FILE NAME	NO. COPIES	TITLE OR DESCRIPTION	COMMENTS
	1	Preliminary 'n' Value Report for FCD 98-33	11 pages

THESE ARE TRANSMITTED as checked below:

☑ As requested
☑ For review and comment
☐ For your information
☐ No exception taken
☐ Rejected - See remarks
☐ Proceed subject to corrections noted
☐ Revise and resubmit
☐ Submit specified items
☐ _____

GENERAL COMMENTS:

MICHAEL BAKER JR., INC.

By: Felicia Terry, P.E.
Title: Project Manager
Page 1 of 1

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

Fax Cover Sheet

DATE:	7/20/99	**TIME:**	11:15 AM
TO:	PAUL STEARS, P.E.	**PHONE:**	480-982-1055
	CITY OF APACHE JUNCTION.	**FAX:**	480-983-5752
FROM:	FELICIA TERRY	**PHONE:**	602/279-1234
		FAX:	602/279-1411
RE:	APACHE JUNCTION FLOOD RETARDING STRUCTURE		

Number of pages including cover sheet: 2

Message: Paul,

Baker Engineers has contracted with the Flood Control District of Maricopa County to prepare a Spillway Inundation Study for the Apache Junction Flood Retarding Structure. This will demonstrate where the flows will go if the emergency spillway overtops. Any information that could be provided on where drainage flows downstream from the spillway would be beneficial.

I have attached a map showing the area that we are looking at. I would like to meet with you and Doug Dobson at your convenience to discuss the project and to get any information you might have. Please let me know if you and Mr. Dobson would be available either August 4, 5 or 6 for a meeting.

I look forward to hearing from you.

Felicia

file #_____

FLOOD CONTROL DISTRICT OF
MARICOPA COUNTY

SCOPE OF WORK

DELINEATION OF SPILLWAY FLOWS FOR FOUR EAST SIDE FLOOD RETARDING STRUCTURES

CONTRACT FCD 98-33

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
SCOPE OF WORK
DELINEATION OF SPILLWAY FLOWS FOR FOUR EAST SIDE FLOOD RETARDING STRUCTURES
FCD 98-33

GENERAL

The study is to delineate the inundation limits of the 1/3, 2/3, and full spillway discharge values for the Apache Junction, Powerline, Vineyard, and Rittenhouse Flood Retarding Structures (FRS). The combined delineation project consists of approximately 30 linear miles of emergency spillway delineations as depicted on exhibits 1 & 2. The consultant will determine the inundation limits using the U.S. Army Corps of Engineers HEC-RAS computer model. The consultant must use sound engineering judgement in the development of the inundation limits. The results of the HEC-RAS model must be analyzed carefully and refinements made to the input parameters in order to obtain the most realistic results.

All work must be completed within 690 days from Notice to Proceed, which includes a minimum of 120 days for District reviews.

TASK A – APACHE JUNCTION FLOOD RETARDING STRUCTURE

TASK A1 - COORDINATION

The consultant will submit a project schedule showing coordination meetings and completion dates for each of the tasks in the scope during the proposal stage. The consultant shall update and resubmit this project schedule whenever changes in the schedule occur.

The consultant shall submit a quarterly estimation of the projected billing within 14 days of Notice To Proceed. Thereafter, this estimation will be updated and submitted to the District's Project Manager at least 10 days prior to the end of each quarter.

The consultant will obtain any necessary Rights of Entry. The consultant will furnish the District with a list of all property owners notified and a sample Right of Entry letter.

The consultant shall meet with officials from ADOT, the Cities of Apache Junction and Mesa and other agencies in the study areas. The purpose of this meeting is to notify them about the study and obtain information on current or planned public works projects in the study area.

TASK A2 - DATA COLLECTION

The consultant will obtain Arizona Department of Transportation (ADOT) and Central Arizona Project (CAP) drainage calculations for hydraulic structures in the area as available. The District will provide the consultant with a copy of the Southeast Mesa ADMS and the East County ADMS. The consultant may utilize structural and hydraulic design data contained in the ADOT, CAP, and ADMS' for hydraulic modeling of structures within the study area.

The District will supply the 3 discharge values to be modeled. The consultant will conduct a field reconnaissance of the full study reach. This will include observation of channel and floodplain conditions for estimation of Manning's "n" values, photographic documentation of floodplain characteristics, determination of channel bank stations, observation of possible overflow and split flow areas. The results of the field reconnaissance will be included in the Final Report. However, a draft version of the field reconnaissance results will be submitted to the District prior to beginning the hydraulic modeling. The field reconnaissance section of the Final Report will present the determination of channel and overbank "n" values along with color photographs (or color photocopies) of these areas. Photo locations, structures and "n" values will be displayed on reduced (usually 11" x 17") scale exhibit.

The topographic mapping prepared for the Apache Junction FRS will be developed using a Digital Terrain Model (DTM). The DTM will be developed and a copy delivered to the District following the guidelines stated in the District's Data Delivery Specifications: The Hydrologic Information System, Revision 3.1, June 1, 1998. Topographic mapping will be provided at a scale of 1:2400 (1" = 200') with a contour interval of two (2) feet. Mapping will tie-in to the existing topographic mapping for the Signal Butte Flood Retarding Structure Spillway Inundation Study. The topographic mapping must meet the quality control called for in FEMA-37, Flood Insurance Study Guidelines and Specifications for Study Contractors, January 1995.

All mapping will be provided using the National Geodetic Vertical Datum of 1929 (NGVD 29). As-built mapping of the FRS is available based on the North American Vertical Datum of 1988 (NAVD 88). The consultant will include an Elevation Reference Mark (ERM) in its mapping common to the as-built mapping of the FRS so that the 2 datums may be tied together.

TASK A3 - HYDRAULIC ANALYSIS

The hydraulic analysis will be preformed using the U.S. Army Corps of Engineers HEC-RAS, Version 2.2, River Analysis System computer model.

The initial location and alignment of cross sections and channel centerline will be submitted for the District's review and approval prior to the initial digitizing of the cross section data and should closely parallel the existing flood insurance study. The usual spacing of cross sections will be approximately every 500 feet, unless geographic or structural constraints dictate closer spacing. The use of a different cross section spacing will require the approval of the District's Project Manager. Cross sections will extend the full width of the inundated area. The orientation of the cross sections may need to be altered after running the HEC-RAS model to ensure that cross sections are perpendicular to flow. Also, to ensure good hydraulic modeling of the spillway discharges, additional cross sections may need to be added, or the existing cross sections may need to be moved. Interpolated cross sections will not be used in the HEC-RAS model. Cross section stationing will be from left to right looking downstream with the thalweg at station 10,000.

Manning's n values are to be determined using the methodology in the USGS report, Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona, April 1991. In urbanized areas, the consultant may develop 'n' values to represent various densities of development. The use of high 'n' values to limit flows through areas of dense development and low conveyance is encouraged. The developed 'n' values may be applied to all flow scenarios.

Prior to the completion of the final hydraulic models all of the input data must be reviewed to ensure that it agrees with HEC-RAS model results. This includes: the location of the channel centerline, reach lengths, Manning's n values, ineffective flow limits, discharge values, etc.

The HEC-RAS models will be developed using a mixed flow regime. The HEC-RAS model will be started at the CAP canal based on the estimated discharge spillage high water elevation over the canal bank along the flow lines.

For braided channels, each branch should be modeled with its highest anticipated discharge value. This might require more then one HEC-RAS model to delineate the inundation limits in these areas. A rating curve must be determined and the discharge contained within the channel. The percentage of discharge in each overbank and the main channel must be closely assessed within the split flow area, as well as upstream and downstream of it.

The consultant is to setup the HEC-RAS models so that the cross sections are broken into as many segments as practical for determining the maximum depth and velocity along the cross section. The consultant will need to calculate the time it takes for flows to travel from the spillway to each cross section.

Cross sections shall be plotted showing, computed water surface profiles, ineffective flow areas, "n" values, encroachments, channel stationing, and other pertinent information. The consultant is to make refinements to the HEC-RAS model based on review of the model by the District and other interested Agencies. Adjustments to the input parameters for obtaining the most realistic results are considered normal to the scope of work.

TASK A4 - FINAL PRODUCTS

Develop an inundation limit exhibit using the supplied topographic data on 24" x 36" size sheets. The use of any larger size sheets will require approval from the District's Project Manager, and the maximum size allowed is 33" x 46". This exhibit will use the District's standard border, title block, and legend format. Shown on this exhibit will be the inundation limits for the three discharges, cross section locations, thalweg location, supplied topographic data, consultant developed topographic data or revisions, major and appropriate minor road names, and elevation reference marks. This exhibit will be plotted at the same scale as the originally supplied topographic data. The use of a different scale will require approval of the District's Project Manager. A table must be included on this exhibit showing the computed water surface elevation of each cross section for each discharge modeled, and other pertinent information such as maximum depth, velocity, and travel time from the spillway to each cross section. In the case of split or braided flow the maximum inundation limit should be shown and the maximum water surface elevation for each portion of the cross section listed. At the end of the study one complete set of inundation limit exhibits will be submitted on non-erasable mylar (3 mil or thicker), and will be sealed by the engineer. No sticky backs or other types of tape products shall be applied to the mylars.

An overall Final Report for the study will be developed. This report will include, a narrative description of the purpose of this study, what steps were undertaken to complete this study, any assumptions made, minutes of meetings with officials from ADOT and the Cities of Apache Junction and Mesa and other agencies, the field reconnaissance results, and a reduced size (11" x 17") copy of the inundation limit exhibit. Included as appendixes to this report should be printouts of the HEC-RAS models, plot of the cross sections, supporting calculations for any other hydraulic analysis done, and a copy of any supplemental survey work performed.

The electronic drawings developed for this study will be submitted in a CADD format that is suitable for translation into the District's Hydrologic Information System (HIS). The drawings will be prepared in conformance with the CADD Data Delivery Specifications portions (primarily Chapter 3 and Appendix C) of the District's HIS Data Delivery Specifications, Revision 3.1, for the following layers:

1. NDXPRJ (CP - 40)
2. PRJ (CP - 60)
3. DQ.TBL (CP - 410)
4. PRJDAT.TBL (CP - 430)
5. SPILLWAY BASELINE ROUTE SYSTEM (CP - 588)
6. SPILLWAY CROSS SECTION (CP - 590)
6. SPILLWAY ZONE (CP - 591)
8. HEC-RAS OUTPUT (CP - 599)

All topographic data developed for this study by the consultant will be prepared in conformance with the CADD Data Delivery Specifications portions of the District's HIS Data Delivery Specifications, Revision 3.1, for the following layers:

1. CARTOGRAPHIC FEATURES (CP - 110)
2. CORNERS (CP - 210)
3. MISCELLANEOUS CONTROL SURVEY POINTS (CP - 215)
4. STRUCTURE (CP - 360)
5. BRIDGE (CP - 608)
6. CANAL SYSTEM (CP - 610)
7. CULVERT (CP - 612)
8. FCD PROJECT FACILITY (CP - 620)
9. STREET DETAIL (CP - 660)
10. ELEVATION (LAND) (CP - 710)
11. RIVER SYSTEM (CP - 960)

The consultant is to only fill out those layers for which data is developed during the course of this study. If the consultant has data that doesn't fall into one of the above layers, the consultant shall contact the District in order to determine what to do with that data. The consultant must follow the applicable CADD specifications when developing their CADD files. The CADD files submitted by the consultant will be subject to a rigorous quality control (QC) check by District staff.

TASK A5 - DELIVERABLES

1. One set of the inundation limit exhibits (full size) on mylar sealed by the engineer.

2. 4 copies of the Final Report sealed by the engineer, inundation limit exhibits, and copies of the final HEC-RAS models on diskette.

3. All of the CADD data called for in the Final Products Section.

4. The Digital Terrain Model for the mapping developed for this study.

5. Two (2) sets of 9" X 9" contact prints.

TASK B – Rittenhouse, Vineyard and Powerline Flood Retarding Structures

No work is to begin on this Task until authorized in writing by the District's Project Manager.

TASK B1 - COORDINATION

After receiving authorization to proceed with this task, the consultant will update the project schedule showing coordination meetings and completion dates for each of the tasks in the scope. The consultant shall update and resubmit this project schedule whenever changes in the schedule occur.

The consultant shall submit an updated quarterly estimation of the projected billing within 14 days of Notice to Proceed on this task. Thereafter, this estimation will be updated and submitted to the District's Project Manager at least 10 days prior to the end of each quarter.

The consultant will obtain any necessary Rights of Entry. The consultant will furnish the District with a list of all property owners notified and a sample Right of Entry letter.

The consultant shall meet with officials from Central Arizona Project, the Cities of Mesa, Gilbert and Queen Creek and other agencies in the study area. The purpose of this meeting is to notify them about the study and obtain information on current or planned public works projects in the study area.

TASK B2 - DATA COLLECTION

The primary source for the topographic mapping data is the *Queen Creek Drainage Master Study (DMS)*. This mapping was originally developed using aerial photogrammetry methods. The horizontal scale is 1" = 200' and the contour interval is two-feet. This mapping will need to be augmented by new data outside the County boundary. The supplemental topographic data and survey work will be at the same scale, and on the same horizontal and vertical datum as the supplied mapping.

The consultant will obtain CAP drainage calculations for hydraulic structures in the area as available. The District will provide the consultant with a copy of the Queen Creek DMS. The consultant may utilize structural and hydraulic design data contained in the CAP and DMS for hydraulic modeling of structures within the study area.

The District will supply the discharge values to be modeled. The consultant will conduct a field reconnaissance of the full study reach. This will include observation of channel and floodplain conditions for estimation of Manning's "n" values, photographic documentation of floodplain characteristics, determination of channel bank stations, observation of possible overflow and split flow areas. The results of the field reconnaissance will be included in the Final Report. However, a draft version of the field reconnaissance results will be submitted to the District prior to beginning the hydraulic modeling. The field reconnaissance section of the Final Report will present the determination of channel and overbank "n" values along with color photographs (or color photocopies) of these areas. Photo locations, structures and "n" values will be displayed on reduced (usually 11" x 17") scale exhibit

The topographic mapping prepared for the Powerline, Vineyard, and Rittenhouse FRS's will be developed using a Digital Terrain Model (DTM). The DTM will be developed and a copy delivered to the District following the guidelines stated in the District's Data Delivery Specifications: The Hydrologic Information System, Revision 3.1, June 1, 1998. Topographic mapping will be provided at a scale of 1:2400 (1" = 200') with a contour interval of two (2) feet. Mapping will tie-in to the existing mapping for the Queen Creek Area Drainage Master Study (ADMS), and the Queen Creek Hydraulic Master Plan. The topographic mapping must meet the quality control called for in FEMA-37, Flood Insurance Study Guidelines and Specifications for Study Contractors, January 1995.

All mapping will be provided using the National Geodetic Vertical Datum of 1929 (NGVD 29). As-built mapping of the FRS is available based on the North American Vertical Datum of 1988 (NAVD 88). The consultant will include an Elevation Reference Mark (ERM) in its mapping common to the as-built mapping of the FRS so that the 2 datums may be tied together.

TASK B3 - HYDRAULIC ANALYSIS

The hydraulic analysis will be preformed using the U.S. Army Corps of Engineers HEC-RAS, Version 2.2, River Analysis System computer model.

The initial location and alignment of cross sections and channel centerline will be submitted for the District's review and approval prior to the initial digitizing of the cross section data and should closely parallel the existing flood insurance study. The usual spacing of cross sections will be approximately every 500 feet, unless

geographic or structural constraints dictate closer spacing. The use of a different cross section spacing will require the approval of the District's Project Manager. Cross sections will extend the full width of the inundated area. The orientation of the cross sections may need to be altered after running the HEC-RAS model to ensure that cross sections are perpendicular to flow. Also, to ensure good hydraulic modeling of the spillway discharges, additional cross sections may need to be added, or the existing cross sections may need to be moved. Interpolated cross sections will not be used in the HEC-RAS model. Cross section stationing will be from left to right looking downstream with the thalweg at station 10,000.

Manning's n values are to be determined using the methodology in the USGS report, Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona, April 1991. In urbanized areas, the consultant may develop 'n' values to represent various densities of development. The use of high 'n' values to limit flows through areas of dense development and low conveyance is encouraged. The developed 'n' values may be applied to all flow scenarios.

Prior to the completion of the final hydraulic models all of the input data must be reviewed to ensure that it agrees with HEC-RAS model results. This includes: the location of the channel centerline, reach lengths, Manning's n values, ineffective flow limits, discharge values, etc.

The HEC-RAS models will be developed using a mixed flow regime. The HEC-RAS model should be started far enough downstream to eliminate the affects of the starting conditions on the downstream limit of the study area; and reflect a minimized hazard from spillway flows.

For the north Powerline FRS spillway, three (3) HEC-RAS models will be prepared using the one-third, two-third, and full spillway discharges as supplied by the District.

For the Vineyard FRS, five (5) HEC-RAS models will be prepared for the combination spillway flows from the south Powerline FRS spillway and the Vineyard FRS spillway as determined by the District. The District will provide the consultant with the five (5) spillway flows to be modeled.

For the Rittenhouse FRS, HEC-RAS models will be developed using the one-third, two-third, and full spillway discharges as supplied by the District. Depending on whether failure and non-failure scenarios are needed for the existing diversion dike immediately downstream of the spillway, a minimum of three (3) and as many as six (6) HEC-RAS models may need to be prepared.

For the area downstream of the Powerline and Vineyard FRS' where flows from the two structures combine, the District will supply the discharges to be used in the modeling.

The CAP will be modeled assuming a spillage overtop of the higher of the 2 canal banks along the spillway flowage lines. The CAP will be assumed full at the time of overtopping and, therefore, no reduction in spillway discharge will be made at the CAP.

Several diversion dikes are present in the watershed. Where diversion dikes are encountered in the flow path and are not overtopped, dikes will be analyzed based on the worst case scenarios, failed vs. not failed. Where dikes are overtopped, they will be analyzed assuming failure of the dike.

For the north Powerline FRS spillway, flows are assumed to be traveling in a southwesterly direction. If mapping, modeling, or surveying prepared under this study refutes this assumption and flows are determined to be moving northwesterly, additional mapping will be required under a separate contract or a Change Order to this contract.

For braided channels, each branch should be modeled with its highest anticipated discharge value. This might require more than one HEC-RAS model to delineate the inundation limits in these areas. A rating curve must be determined and the discharge contained within the channel. The percentage of discharge in each overbank and the main channel must be closely assessed within the split flow area, as well as upstream and downstream of it.

The consultant is to setup the HEC-RAS models so that the cross sections are broken into as many segments as practical for determining the maximum depth and velocity along the cross section. The consultant will need to calculate the time it takes for flows to travel from the spillway to each cross section.

Cross sections shall be plotted showing, computed water surface profiles, ineffective flow areas, "n" values, encroachments, channel stationing, and other pertinent information. The consultant is to make refinements to the HEC-RAS model based on review of the model by the District and other interested Agencies. Adjustments to the input parameters for obtaining the most realistic results are considered normal to the scope of work.

TASK B4 - FINAL PRODUCTS

Develop an inundation limit exhibit using the supplied topographic data on 24" x 36" size sheets. The use of any larger size sheets will require approval from the District's Project Manager, and the maximum size allowed is 33" x 46". This exhibit will use the District's standard border, title block, and legend format. Shown on this exhibit will be the inundation limits for the three discharges, cross section locations, thalweg location, supplied topographic data, consultant developed topographic data or revisions, major and appropriate minor road names, and elevation reference marks. This exhibit will be plotted at the same scale as the originally supplied topographic data. The use of a different scale will require approval of the District's Project Manager. A table must be included on this exhibit showing the computed water surface elevation of each cross section for each discharge modeled, and other pertinent information such as maximum depth, velocity, and travel time from the spillway to each cross section. In the case of split or braided flow the maximum inundation limit should be shown and the maximum water surface elevation for each portion of the cross section listed. At the end of the study one complete set of inundation limit exhibits will be submitted on non-erasable mylar (3 mil or thicker), and will be sealed by the engineer. No sticky backs or other types of tape products shall be applied to the mylars.

An overall Final Report for the study will be developed. This report will include, a narrative description of the purpose of this study, what steps were undertaken to complete this study, any assumptions made, minutes of meetings with officials from Central Arizona Project, the Cities, and agencies, reconnaissance results, and a reduced size (11" x 17") copy of the inundation limit exhibit. Included as appendixes to this report should be printouts of the HEC-RAS models, plot of the cross sections, supporting calculations for any other hydraulic analysis done, and a copy of any supplemental survey work performed.

The electronic drawings developed for this study will be submitted in a CADD format that is suitable for translation into the District's Hydrologic Information System (HIS). The drawings will be prepared in conformance with the CADD Data Delivery Specifications portions (primarily Chapter 3 and Appendix C) of the District's HIS Data Delivery Specifications, Revision 3.1, for the following layers:

1. NDXPRJ (CP - 40)
2. PRJ (CP - 60)
3. DQ.TBL (CP - 410)
4. PRJDAT.TBL (CP - 430)
5. SPILLWAY BASELINE ROUTE SYSTEM (CP - 588)
6. SPILLWAY CROSS SECTION (CP - 590)
7. SPILLWAY ZONE (CP - 591)
8. HEC-RAS OUTPUT (CP - 599)

All topographic data developed for this study by the consultant will be prepared in conformance with the CADD Data Delivery Specifications portions of the District's HIS Data Delivery Specifications, Revision 3.1, for the following layers:

1. CARTOGRAPHIC FEATURES (CP - 110)
2. CORNERS (CP - 210)
3. MISCELLANEOUS CONTROL SURVEY POINTS (CP - 215)

4. STRUCTURE (CP - 360)
5. BRIDGE (CP - 608)
6. CANAL SYSTEM (CP - 610)
7. CULVERT (CP - 612)
8. FCD PROJECT FACILITY (CP - 620)
9. STREET DETAIL (CP - 660)
10. ELEVATION (LAND) (CP - 710)
11. RIVER SYSTEM (CP - 960)

The consultant is to only fill out those layers for which data is developed during the course of this study. If the consultant has data that doesn't fall into one of the above layers, the consultant shall contact the District in order to determine what to do with that data. The consultant must follow the applicable CADD specifications when developing their CADD files. The CADD files submitted by the consultant will be subject to a rigorous quality control (QC) check by District staff.

TASK B5 - DELIVERABLES

1. One set of the inundation limit exhibits (full size) on mylar sealed by the engineer.

2. 4 copies of the Final Report sealed by the engineer, inundation limit exhibits, and copies of the HEC-RAS models on diskette.

3. All of the CADD data called for in the Final Products Section.

4. Digital Terrain Models for the new topographic mapping developed for this study

5. Two (2) sets of 9" X 9" contact prints.

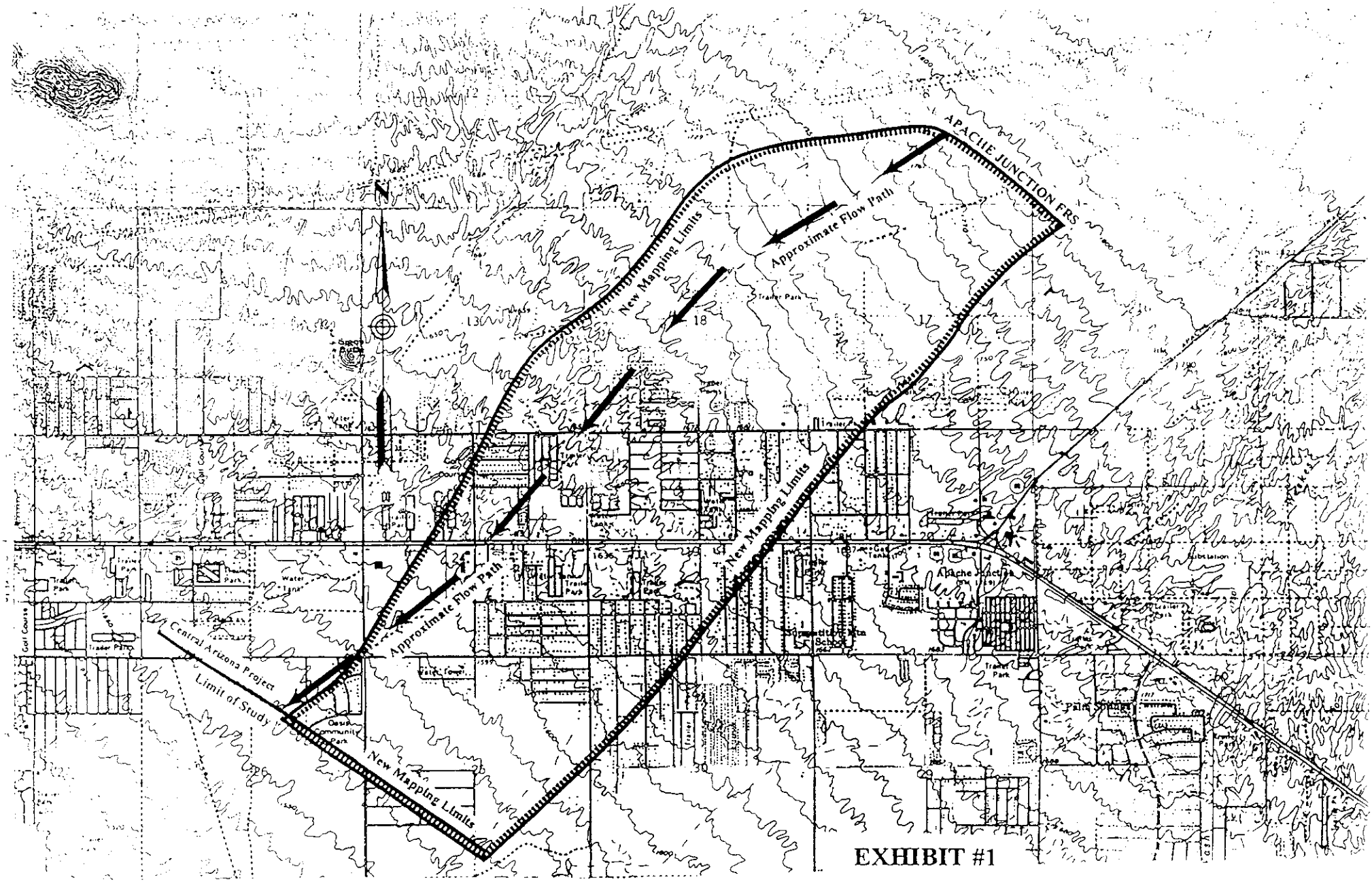
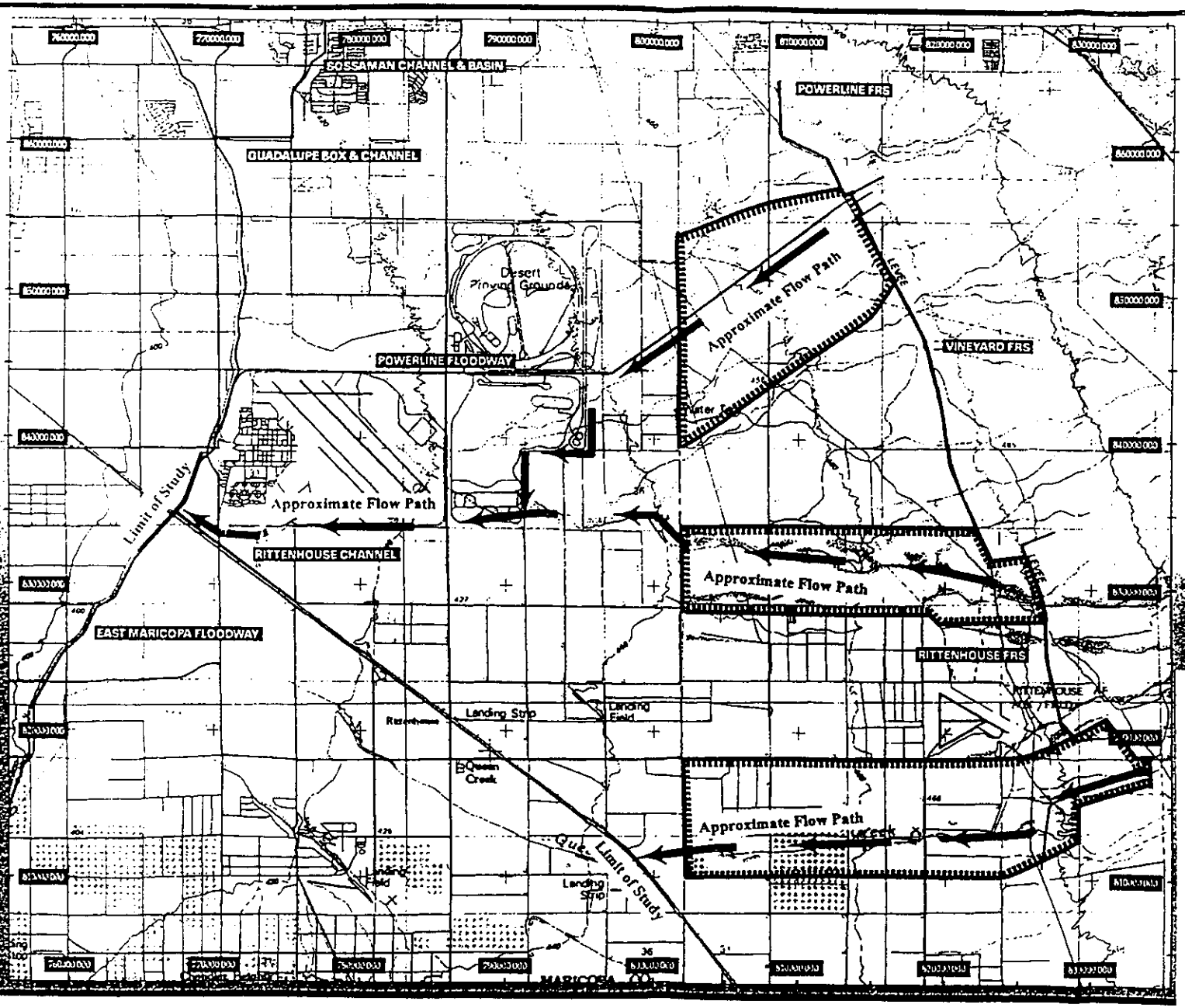

APACHE JUNCTION FRS
Approximate Flow Path
New Mapping Limits
Approximate Flow Path
New Mapping Limits
Central Arizona Project
Limit of Study
New Mapping Limits
N

EXHIBIT #1

EXHIBIT #2



New Mapping Limits

MANNING'S 'n' VALUE DETERMINATIONS

I. INTRODUCTION

A field reconnaissance investigation was conducted on September 9, 1999. The purpose of the trip was to gather data, including photographic documentation, for the estimation of Manning's 'n' values for the areas in the anticipated flow path downstream of the Apache Junction FRS emergency spillway. Those in attendance were a representative of the FCDMC and two Baker staff members.

Prior to the field investigation, a hydraulic baseline had been estimated from the Apache Junction FRS emergency spillway to the Central Arizona Project (CAP) canal. The baseline generally ran in a southwest direction from the spillway crest to the intersection of 4th Avenue and Signal Butte Road and then turned due south, following Signal Butte Road to the CAP. For the majority of the reach, the baseline followed a narrow, incised channel beginning at approximately the intersection of Lost Dutchman Blvd and Valley Drive, and continued downstream, to approximately 500 ft west of the intersection of 4th Avenue and Mountain Road. From there, the baseline followed the roads (4th Avenue and Signal Butte Road) to the CAP. The field reconnaissance investigation was focused primarily along this baseline and included areas approximately ½ mile either side of the baseline.

On October 15, 1999, a second field reconnaissance investigation was conducted by Baker for the purpose of verifying land use and 'n' value assignments determined from the previous field visit and to gather more detail of flow conditions at and downstream of the CAP. CAP overchute pipes were visited and photographed on this date.

II. METHODOLOGY

Manning's 'n' values were assigned based on field observation using the methodology described in ***Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona***, a manual prepared by the U.S. Geological Survey for the FCDMC. A base 'n' value (n_b) was assigned according to the bed material. In accordance with the manual, adjustments to the n_b were then made to account for factors affecting the roughness characteristics such as degree of irregularity, effects of obstructions, and vegetation. Typical photographs and calculations for the 'n' values for the areas are included in this section.

The inundation area was basically divided into 3 land use conditions: natural desert, moderate development, and dense development. Land use assignments are shown on the *Land Use Map* included in this section. The entire Apache Junction area and the neighboring community of Mesa are currently experiencing rapid growth and land use changes are occurring frequently. For these reasons, the land use assignments do not necessarily represent existing conditions. Rather they represent a best guess at near future land use conditions based on surrounding land use. For example, a vacant parcel surrounded by dense development was assumed to be dense development for the purpose of estimating 'n' values in this study. The reasoning here is that a vacant parcel surrounded by dense development is likely to be developed as high density as well.

Natural Desert: This land use applies to areas surrounding the dam, including those areas immediately downstream of the spillway but north of Lost Dutchman Blvd. It is anticipated that these areas will remain undeveloped for some time due to their proximity to the FRS dam. The area consists of natural desert vegetation such as mature saguaro, palo verde, cholla, and greasewood. Brushy vegetation is generally 2 to 4 ft in height. Bed material is a silty sand with small pebbles, typically ¼ inch diameter

coating the surface. The 'n' values for natural desert were determined to be 0.060 for the overbank areas and 0.028 for the channel.

Moderate Development: This land use includes larger acreage lots and lies between the natural desert and dense development land uses. In these areas, there are open spaces on or between the properties and properties generally are not fenced with solid block walls although there may be some wire or chain link fencing. However, there are significant obstacles to impede flow, such as sheds, above ground pools, and fencing. The effects of several obstructions would be additive thereby diverting flows on a circuitous route through these areas of moderate development. Therefore, the effects of obstruction adjustment factor was considered appreciable in these areas. The 'n' value was determined to be 0.090 for moderate development.

Dense Development: This land use includes areas of high-density development. Buildings and trailers are located close together and/or block walls generally surround the properties. The effects of obstructions would be severe in these areas, allowing very little effective conveyance of flows. Roads provide the main conveyance corridors within the dense development areas. Manning's 'n' values were also determined in this area using the method for adjusting Manning's 'n' values for urban areas presented by H.R. Hejl, Jr. in the Sept. – Oct. 1977 issue of the U.S. Geological Survey's *Journal of Research.*

Using this Hejl's method, a typical area (the area bounded by Mountain Road, 4th Avenue, Meridian Road, and Broadway Road) was chosen and roads were considered the only conveyance paths. Using base 'n' values of 0.025 and 0.030 yielded computed urban 'n' values of 0.12 and 0.15 respectively. These values are consistent with the computed value of 0.15 determined using the FCDMC's methodology. Additionally, a sensitivity analysis was conducted for the dense development area. When 'n' values were reduced from 0.15 to 0.12, water surface elevations dropped an average of 0.2 ft at the dense development cross sections. This change was considered insignificant. Therefore, a value of 0.15 was used in the HEC-RAS analysis.

Other data used in the 'n' value estimation included aerial contact photographs of the topographic mapping area supplied by M&B Aerial Mapping, LLC under this contract and the FCDMC's *Drainage Design Manual Volume II Hydraulics.*

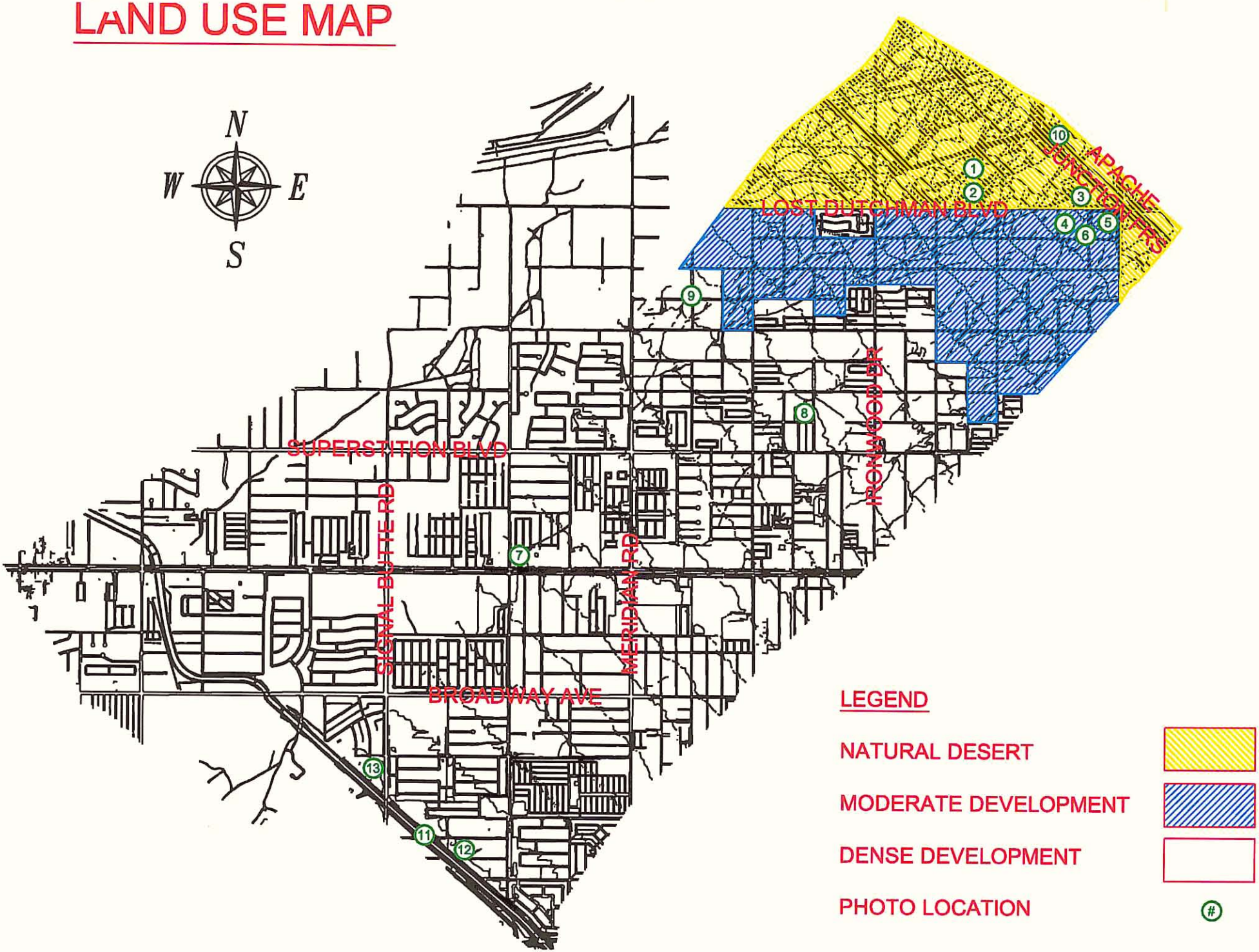
Comparisons were made between the 'n' values computed for this study and those computed by A-N West, Inc. for the Signal Butte FRS Spillway Inundation Study (FCD Contract No. 98-17). Both studies are in close agreement.

III. PHOTOGRAPHS AND 'n' VALUE ASSIGNMENTS

Along with the calculations for the 'n' value assignments, photographs are provided for typical areas representing the natural desert, moderate development, and dense development conditions. Other 'n' values used in the study are:

Channel Material	'n' Value
Concrete Spillway	0.020
Asphalt & Earthen Side Ditch	0.020
Concrete Pipe	0.013

LAND USE MAP


N
W
E
S
LOST DUTCHMAN BLVD
APACHE JUNCTION TRS
SUPERSTITION BLVD
SIGNAL BUTTE RD
MERIDIAN RD
IRONWOOD DR
BROADWAY AVE
1
2
3
4
5
6
7
8
9
10
11
12
13
LEGEND
NATURAL DESERT
MODERATE DEVELOPMENT
DENSE DEVELOPMENT
PHOTO LOCATION
#

LOCATION: Apache Junction FRS

CROSS SECTION DESCRIPTION: Natural Desert (Photographs 1 - 3).

'N' VALUE CALCULATION FOR APACHE JUNCTION FRS

Portion of Cross section	Components	Weighted and Composite Values
Channel	$n_b = 0.025$	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0.003$	**n = 0.028**
Left Overbank	$n_b = 0.025$	
	$n_1 = 0$	
	$n_2 = 0.005$	
	$n_3 = 0.030$	**n = 0.060**
Right Overbank	$n_b = 0.025$	
	$n_1 = 0$	
	$n_2 = 0.005$	
	$n_3 = 0.030$	**n = 0.060**

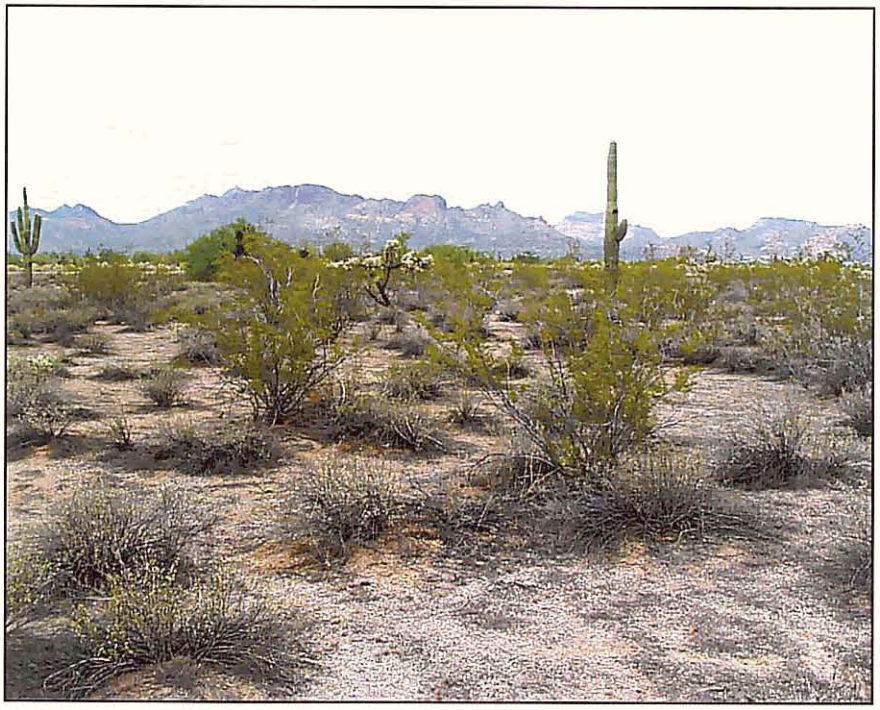


Photo 1. Looking north from approximately 900 ft northwest of intersection of Lost Dutchman Blvd. and San Marcos Drive. (Right Overbank)

Photo 2. Bed material at approximately 900 ft northwest of intersection of Lost Dutchman Blvd. and San Marcos Drive. (Right Overbank)

Photo 3. At intersection of Lost Dutchman Blvd and Idaho Rd looking northwest across natural desert area at downstream toe of dam.

LOCATION: **Apache Junction FRS**

CROSS SECTION DESCRIPTION: **Moderate Development** (Photographs 4 - 6).

'N' VALUE CALCULATION FOR APACHE JUNCTION FRS

Portion of Cross section	Components	Weighted and Composite Values
Channel	$n_b = 0$	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0$	**n =N/A**
Left Overbank	$n_b = 0.030$	
	$n_1 = 0$	
	$n_2 = 0.035$	
	$n_3 = 0.025$	**n = 0.090**
Right Overbank	$n_b = 0.030$	
	$n_1 = 0$	
	$n_2 = 0.035$	
	$n_3 = 0.025$	**n = 0.090**

Photo 4. At intersection of Lost Dutchman Blvd. and Idaho Rd.looking southwest across area of moderate development.

Photo 5. At intersection of Lost Dutchman Blvd and Idaho Rd looking south along east side of Idaho Rd across area of moderate development.

Photo 6. At intersection of Lost Dutchman Blvd and Idaho Rd looking south-southwest along east side of Idaho Rd across area of moderate development.

LOCATION: **Apache Junction FRS**

CROSS SECTION DESCRIPTION: **Dense Development** (Photographs 7 - 9).

'N' VALUE CALCULATION FOR APACHE JUNCTION FRS

Portion of Cross section	Components	Weighted and Composite Values
Channel	$n_b = 0$	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0$	**n = N/A**
Left Overbank	$n_b = 0.035$	
	$n_1 = 0$	
	$n_2 = 0.100$	
	$n_3 = 0.015$	**n = 0.150**
Right Overbank	$n_b = 0.035$	
	$n_1 = 0$	
	$n_2 = 0.100$	
	$n_3 = 0.015$	**n = 0.150**

Photo 7. Approximately 400 ft north of Apache Trail on Mountain Rd. looking north-northeast at typical walled community classified as dense development. Block wall continues north to Boise St.

Photo 8. At intersection of Greasewood St. and Main Dr. looking north-northwest at typical unwalled area classified as dense development.

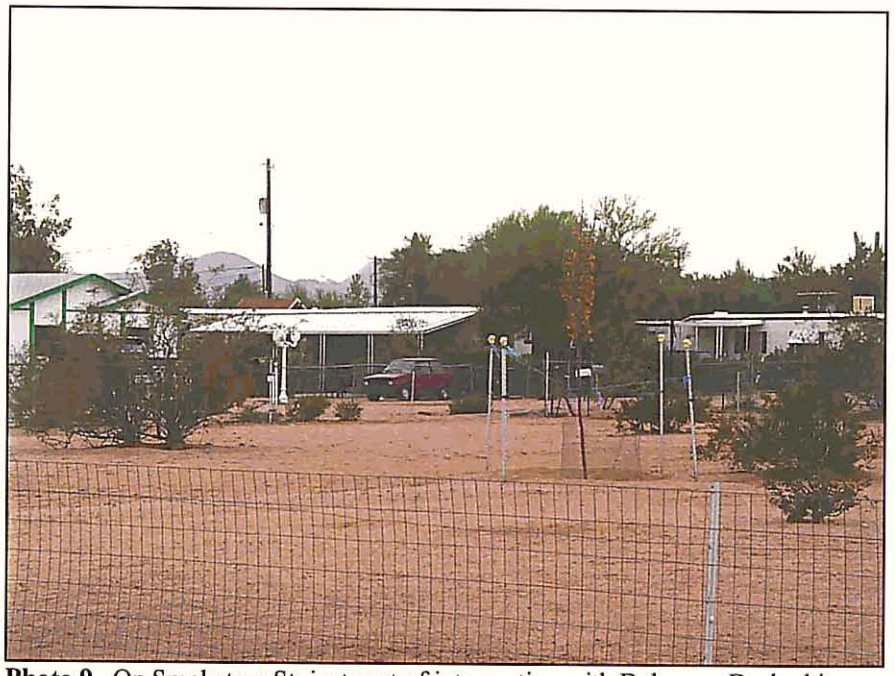


Photo 9. On Smoketree St. just east of intersection with Delaware Dr. looking northwest at typical unwalled area classified as dense development.

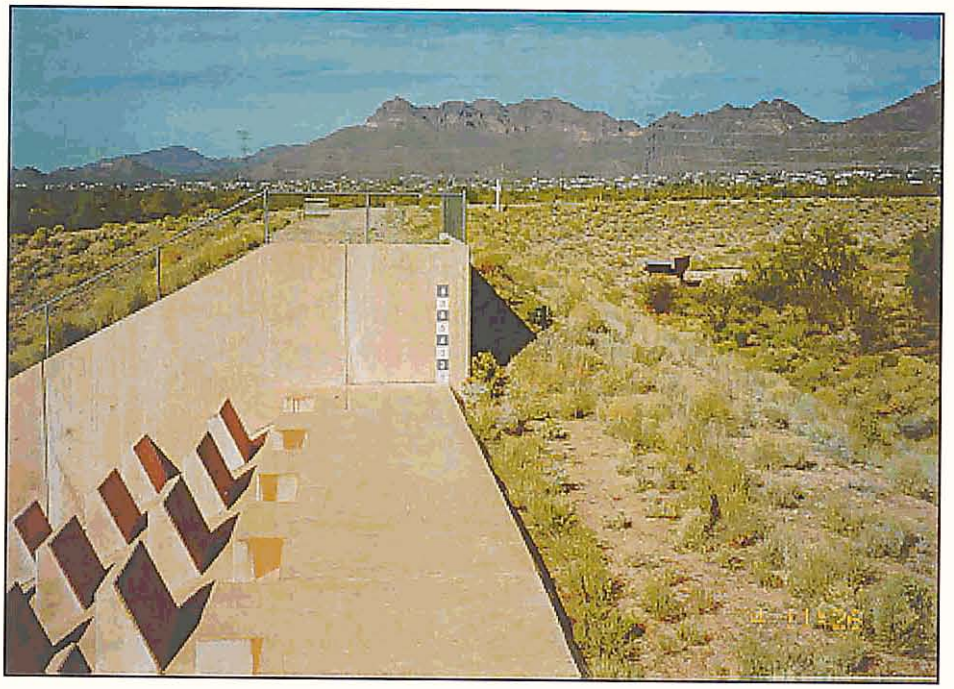


Photo 10. Looking northwest across concrete spillway sill on Apache Junction FRS. ('n'=0.020)

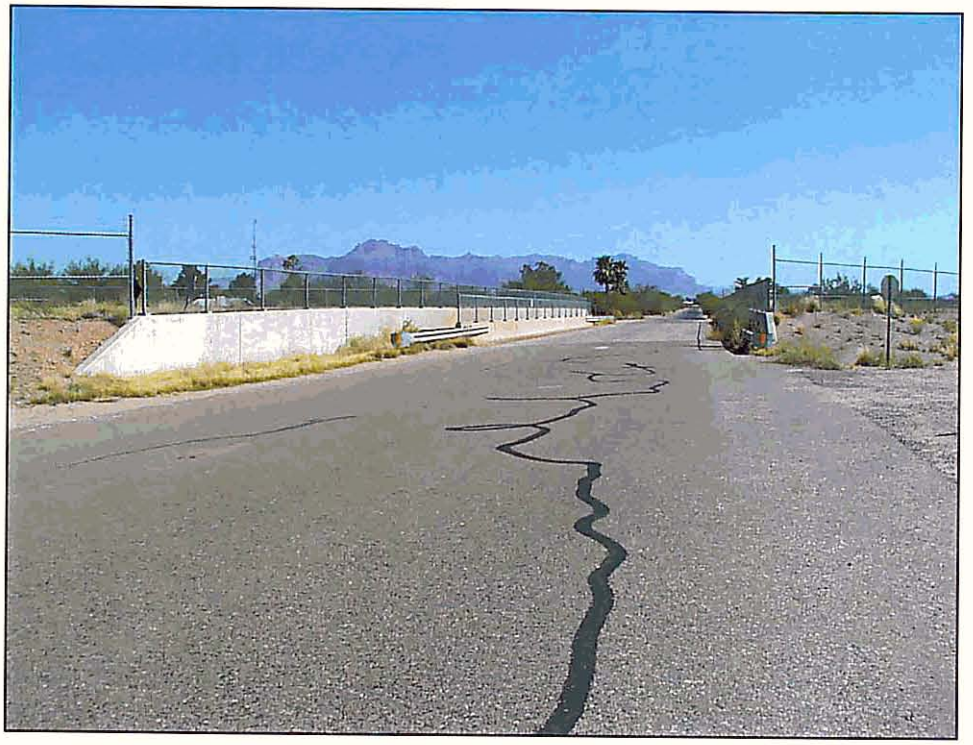


Photo 11. Typical asphalt paving (including earthen side ditch). ('n'=0.020)

Photo 12. Upstream end of RCP overchute pipes at CAP Sta. 529+50, at intersection of La Salle St. and the CAP. HEC-RAS culvert group #2. ('n'=0.013)

Photo 13. Upstream end of RCP overchute pipes at CAP Sta. 504+25, approximately 400 ft west of Signal Butte Road. HEC-RAS culvert group #3. ('n'=0.013)

S.O. No. 23984-001-0000

Subject: SIS APACHE JUNCTION FRS

EXPANSION RATIO — Sheet No. 1 of 2

FULL FLOW SCENARIO — Drawing No.

Computed by CWR — Checked By — Date 11/10/99

Baker

COMPUTE EXPANSION RATIO FOR LEFT SIDE OF FLOODPLAIN DOWNSTREAM OF X-SEC. 2.038

$b/B = 3000/4000 = 0.75$ USE: $b/B = 0.50$

$n_{ob}/n_c = 0.15/0.02 = 7.5$ USE: $n_{ob}/n_c = 4$

$s = 20/2200 = 0.009$ ft/ft $= 48$ ft/mi USE: 10 ft/mi

FROM TABLE B.2, p. B-7 OF HEC-RAS HYDRAULIC REFERENCE MANUAL:

ER = 1.0 - 1.4

CHECK RESULTS USING EQUATION B-3:

$$ER = 0.489 + 0.608\left(F_{c2}/F_{c1}\right)$$

$$= 0.489 + 0.608\left(2.10/1.68\right)$$

$$= 1.25$$

ER = 1.25 LIES WITHIN RANGE OF 1.0 - 1.4

$\boxed{\therefore \text{ USE } ER = 1.25}$

S.O. No. 23984-001-0000

Subject: SIS APACHE JUNCTION FRS EXPANSION RATIO FULL FLOW SCENARIO

Sheet No. 2 of 2

Drawing No.

Computed by CWR Checked By Date 11/16/99

RE-CHECK EXPANSION RATIO DOWNSTREAM OF X-SEC. 2.038 USING EQUATION B-3:

$$ER = 0.489 + 0.608\left(F_{c2}/F_{c1}\right)$$

$$= 0.489 + 0.608\left(1.39/1.54\right)$$

$$= 1.04$$

S.O. No. 23984-001-0000

Subject: SIS APACHE JUNCTION FRS

EXPANSION RATIO

FULL FLOW SCENARIO

Sheet No. 1 of 2

Drawing No.

Computed by CWR Checked By Date 11/16/99

Baker

COMPUTE EXPANSION RATIO DOWNSTREAM OF SPILLWAY (SEC. 4.975)

USING EQUATION B-3:

$$ER = 0.489 + 0.608 \left(F_{c^2} / F_{c'} \right)$$

WHERE, SEC. 1 = 4.110

& SEC. 2 = 4.975

THEN, $ER = 0.489 + 0.608 \left(2.07 / 1.56 \right)$

$= 1.30$

WHERE, SEC. 1 = 4.303

& SEC. 2 = 4.975

THEN, $ER = 0.489 + 0.608 \left(2.07 / 1.35 \right)$

$= 1.42$

WHERE, SEC. 1 = 4.208

& SEC. 2 = 4.975

THEN $ER = 0.489 + 0.608 \left(2.07 / 0.94 \right)$

$= 1.83$

S.O. No. 23984-001-0000

Subject: SIS APACHE JUNCTION FRS

EXPANSION RATIO

FULL FLOW SCENARIO

Sheet No. 2 of 2

Drawing No.

Computed by CWR Checked By Date 11/16/99

Baker

ER D/S OF SPILLWAY:

USING EQUATION B-2: WHERE SEC. 1 = 4.208

$$ER = 0.421 + 0.485\left(F_{c2}/F_{c1}\right) + 1.80 \times 10^{-5}(Q)$$

$$= 0.421 + 0.485\left(2.07/0.94\right) + 1.80 \times 10^{-5}(3500)$$

$$= 1.55$$ (USING SEC. 4.208 WILL YIELD THE MOST CONSERVATION ER RATIO - HIGHER CWSELS)

CHECK RANGE IN TABLE B.2:

$b/B = 100/4400 = 0.02$ USE $b/B = 0.10$

$n_{ob}/n_c = 0.06/0.028 = 2.14$ USE $n_{ob}/n_c = 2$

$S = 30/2250 = 0.013\ ft/ft = 70\ ft/mi$ USE $10\ ft/mi$

$$ER = 0.8 - 2.0$$

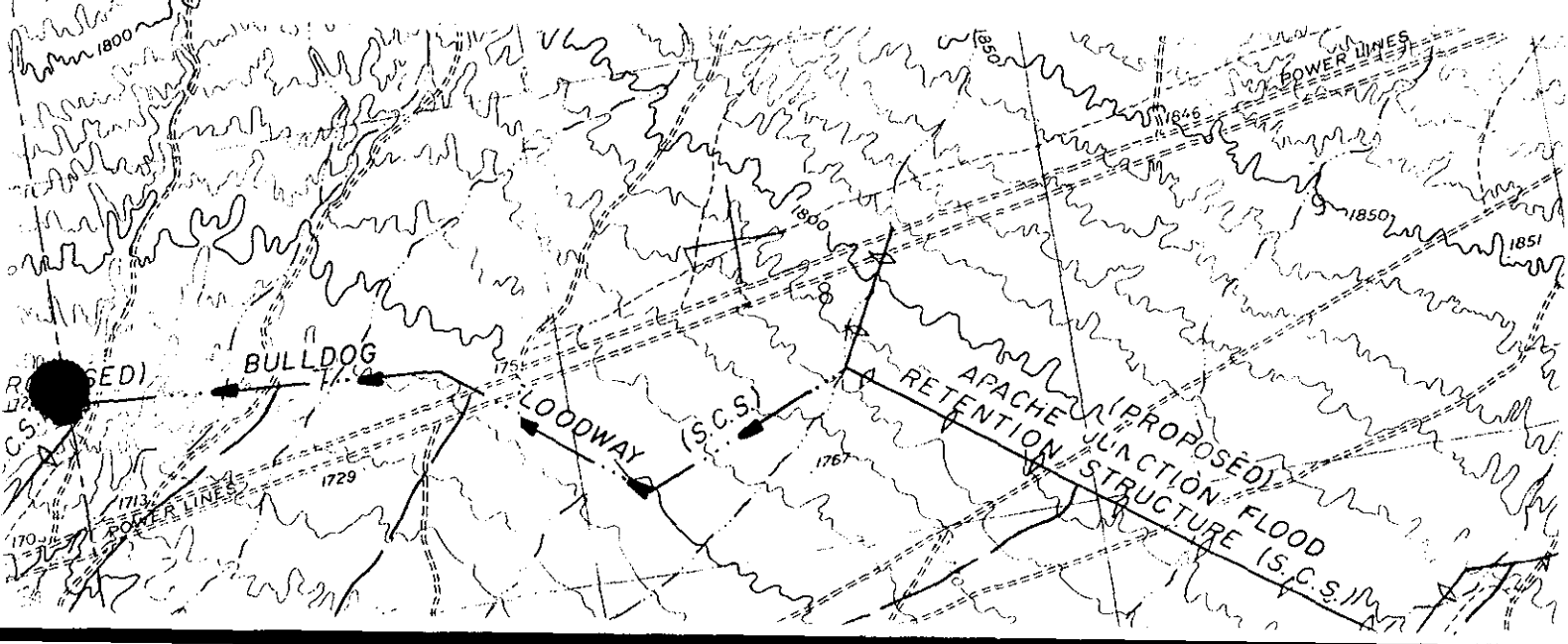
$$\boxed{\text{USE ER} = 2.0}$$

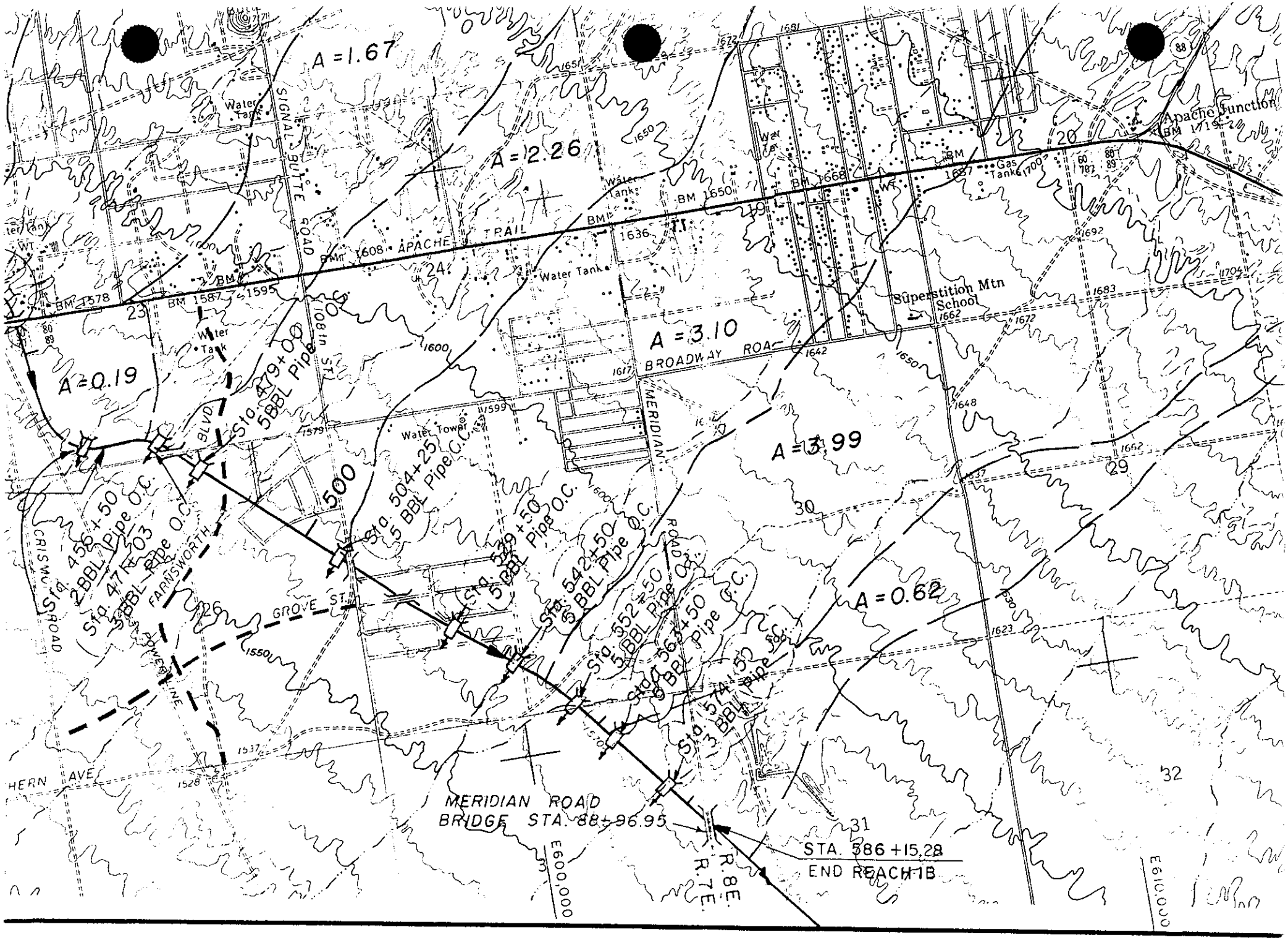
INPUT DATA FOR FLOOD ROUTING
SALT- GILA AQUEDUCT REACH 1

STATION	STRUCT. TYPE	SIZE	INVERT ELEV.	CREST ELEV.	STORAGE CAPACITY DATA ELEV.	AC.FT	ELEV.	AC.FT.
14+95.07								
	Protected by Spook Hill Flood Retarding Structure. Designed by Soil Conservation Service and Operated by Maricopa County Flood Control District. Emergency spillway located at Station 127+62.3. Principle spillway is on east side of the aqueduct and pumping plant.778							
331+00								
345+30	Pipe OC	3-54"	1565.90	1575.0	No routing considered for this area, due to lack of Right-of-Way available.			
374+00	Flume	40'-10"	1565.08	1571.83				
396+00	Flume	40'-10"	1564.90	1571.65	"			
427+15	Pipe OC	3-72"	1568.32	1577.9	"			
429+20	Pipe OC	3-72"	1568.32	1577.9	"			
456+50	Pipe OC	2-60"	1556.16	1574.0	"			
471+03	Pipe OC	3-72"	1560.68	1573.9	"			
479+00	Pipe OC	5-72"	1562.20	1573.9	"			
504+25	Pipe OC	5-72"	1562.26	1573.6	"			
529+50	Pipe OC	5-72"	1562.59	1576.4	"			
542+50	Pipe OC	5-72"	1562.59	1577.8	"			
552+50	Pipe OC	5-72"	1563.76	1577.7	"			
563+50	Pipe OC	5-72"	1563.76	1577.6	"			
574+50	Pipe OC	3-54"	1566.08	1577.5	"			

CROSS DRAINAGE STRUCTURES

STATION	SIZE	PEAK Q in (cfs)	STORAGE CAPACITY (ac.ft)	PEAK Q out (cfs)	DESIGN STORM
345+30	54" DIA. 3BL PIPE OVERCHUTE	230	0	230	100yr. 6hr GENERAL STORM
374+00	40'10" WIDE FLUME OVERCHUTE	445	0	445	"
396+00	40'10" WIDE FLUME OVERCHUTE	410	0	410	"
427+15	72" DIA. 3BL PIPE OVERCHUTE	370	0	370	"
429+20	72" DIA 3BL PIPE OVERCHUTE	370	0	370	"
456+50	60" DIA. 2BL PIPE OVERCHUTE	130	0	130	"
471+03	72" DIA. 3BL PIPE OVERCHUTE	608	0	608	"
479+00	72" DIA. 5BL PIPE OVERCHUTE	400	0	400	"
504+25	72" DIA. 5BL PIPE OVERCHUTE	400	0	400	"
529+50	72" DIA. 5BL PIPE OVERCHUTE	565	0	565	"
542+50	72" DIA. 5BL PIPE OVERCHUTE	565	0	565	"
552+50	72" DIA. 5BL PIPE OVERCHUTE	610	0	610	"
563+50	72" DIA. 5BL PIPE OVERCHUTE	610	0	610	"
574+50	54" DIA. 3BL PIPE OVERCHUTE	251	0	251	"




A = 1.67
A = 2.26
A = 3.10
A = 3.99
A = 0.62
A = 0.19
APACHE TRAIL
BROADWAY ROAD
MERIDIAN ROAD
SIGNAL BUTTE ROAD
108th ST.
CRISMON ROAD
FARNSWORTH
GROVE ST.
Superstition Mtn School
Apache Junction
Water Tank
Water Tower
Gas Tank
BM 1578
BM 1587
BM 1608
BM 1636
BM 1650
BM 1668
BM 1715
Sta. 479+00 5BBL Pipe O.C.
Sta. 504+25 5 BBL Pipe O.C.
Sta. 529+50 5 BBL Pipe O.C.
Sta. 542+50 5 BBL Pipe O.C.
Sta. 552+50 5 BBL Pipe O.C.
Sta. 563+50 9 BBL Pipe O.C.
Sta. 574+50 3 BBL Pipe O.C.
Sta. 456+50 2BBL Pipe O.C.
Sta. 471+03 3BBL Pipe O.C.
500
MERIDIAN ROAD BRIDGE STA. 88+96.95
STA. 586+15.28
END REACH 1B
R. 8 E.
R. 7 E.
E 600,000
E 610,000
20
19
24
23
29
30
31
32

```
 9988.16  1575.6  9994.4 1575.2110016.91 1569.6610021.29 1569.5410040.06 1577.33
 10045.4  1577.410051.38 1577.2810065.78  1576.710076.98 1576.66 10113.7 1576.53
10138.07  1576.610147.19 1576.8810169.12 1576.7810170.27 1576.5310171.93 1575.99
10174.76  1575.210188.98 1569.9110194.75  1569.810209.58 1574.9710220.06 1574.76
10237.94    157510241.72  1575.210244.41 1575.1310249.36 1575.1910270.25 1575.77
10299.93  1575.310305.03 1575.2310308.94 1575.1610309.74 1575.1210333.08 1574.77
10348.08  1574.410348.82 1574.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 3625.97     .08  9994.4    .04510040.06     .08

Bank Sta: Left   Right    Coeff Contr.   Expan.
        9994.410040.06             .1       .3

Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 3625.97    7300  1560.5    850010348.82  1560.5

Upstream Embankment side slope                =      2 horiz. to 1.0 vertical
Downstream Embankment side slope              =      2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins           =
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Culverts =  5
```

```
Culvert Name     Shape      Rise    Span
Culvert #3      Circular      6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 19     162       .012                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1561
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
    4920    4928    4936    4944    4952
Downstream Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
    4860    4868    4876    4884    4892
```

479+00

```
Culvert Name     Shape      Rise    Span
Culvert #2      Circular      6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10     180       .012                   .9                1
Number of Barrels =  3
Upstream   Elevation =  1560
```

471+03

```
Centerline Stations
    Sta.    Sta.    Sta.
    5790    5798    5806
Downstream Elevation =  1558.7
Centerline Stations
    Sta.    Sta.    Sta.
    5680    5688    5696
```

```
Culvert Name      Shape       Rise    Span
Culvert #1       Circular       5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  5     190       .012                  .9                1
Number of Barrels =  2
Upstream   Elevation =  1555.2
Centerline Stations
    Sta.    Sta.
    7300    7306
Downstream Elevation =  1554.4
Centerline Stations
    Sta.    Sta.
    7200    7206
```

456 + 50

```
Culvert Name      Shape       Rise    Span
Culvert #4       Circular       6
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 3 - Pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10     180       .024                  .9                1
Number of Barrels =  3
Upstream   Elevation =  1567.8
Centerline Stations
    Sta.    Sta.    Sta.
    9990    9998   10006
Downstream Elevation =  1567
Centerline Stations
    Sta.    Sta.    Sta.
    9990    9998   10006
```

```
Culvert Name      Shape       Rise    Span
Culvert #5       Circular       6
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 3 - Pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10     180       .024                  .9                1
Number of Barrels =  3
Upstream   Elevation =  1567.7
Centerline Stations
    Sta.    Sta.    Sta.
   10220   10228   10236
Downstream Elevation =  1567
```

Transmittal

AZTEC

Date: October 18, 1999

To: Cathy Regester
Michael Baker Jr., Inc.
1313 East Osborn Road, Suite 150
Phoenix, Arizona, 85014

RECEIVED
OCT 18 1999
MICHAEL BAKER JR., INC.

RE: Apache Junction FRS

Project: Aztec Job No. 991800

From: Al Reece

AZTEC Engineering
3747 East Grove Street
Phoenix AZ 85040-3982
(602)454-0402
(602)454-0403 fax

Items Sent: 1 floppy diskette with Excel file containing data from CAP canal topographic survey

1 hard copy print of Excel file

1 copy of field notes from CAP canal survey

Remarks:

AZTEC ENGINEERING is a registered trade name of Arizona Technology Engineers, L.L.C.

F:\9918\Corr\101899t1adr.doc

Pt #	Northing	Easting	Top Elev.	Inv. Elev	Desc.
402	874229.5925	797088.9729	1567.92	1559.30	6' Overshoot Pipe
403	874237.6521	797079.8206	1567.98	1559.36	6' Overshoot Pipe
404	874245.5350	797070.8205	1567.94	1559.44	6' Overshoot Pipe
405	874253.5509	797061.8465	1567.95	1559.40	6' Overshoot Pipe
406	874261.4497	797052.9007	1568.03	1559.35	6' Overshoot Pipe
407	873952.9614	797353.3758	1571.20		Corner Bridge Deck CAP & Sig. Butte
408	873908.6754	797404.0501	1571.22		Corner Bridge Deck CAP & Sig. Butte
409	873776.6619	797404.7485	1571.29		Corner Bridge Deck CAP & Sig. Butte
410	873821.4935	797354.0315	1571.31		Corner Bridge Deck CAP & Sig. Butte
411	873113.5525	798182.0235	1569.77		Corner Bridge Deck CAP & Grove
412	873113.7877	798328.6237	1569.76		Corner Bridge Deck CAP & Grove
413	873146.6710	798287.8579	1569.72		Corner Bridge Deck CAP & Grove
414	873146.2705	798142.1236	1569.70		Corner Bridge Deck CAP & Grove
415	872603.3280	799019.0006	1568.16	1560.05	Overshoot Pipe
416	872610.9634	799010.0420	1568.17	1560.07	Overshoot Pipe
417	872618.7073	799000.8708	1568.16	1560.07	Overshoot Pipe
418	872626.2960	798991.6104	1568.19	1560.13	Overshoot Pipe
419	872633.9513	798982.5810	1568.18	1560.13	Overshoot Pipe
420	871796.9459	799974.5852	1568.02	1560.04	Overshoot Pipe
421	871789.0973	799983.8839	1568.06	1559.98	Overshoot Pipe
422	871781.3079	799993.0491	1568.06	1560.04	Overshoot Pipe
423	871773.5638	800002.2038	1567.99	1559.99	Overshoot Pipe
424	871765.7697	800011.2669	1567.91	1559.83	Overshoot Pipe
425	871102.6100	800708.1626	1568.97	1561.12	Overshoot Pipe
426	871093.7717	800716.2192	1568.91	1561.06	Overshoot Pipe
427	871084.7992	800724.2691	1568.96	1561.08	Overshoot Pipe
428	871075.9752	800732.4062	1568.93	1560.99	Overshoot Pipe
429	871066.8031	800740.7072	1568.96	1560.99	Overshoot Pipe
430	870945.6619	800808.4618	1584.35		Corner Bridge Deck CAP & Southern
431	870923.1817	800668.7949	1581.75		Corner Bridge Deck CAP & Southern
432	870863.4018	800724.8782	1581.64		Corner Bridge Deck CAP & Southern
433	870885.9191	800864.4756	1581.00		Corner Bridge Deck CAP & Southern

Pt #	Northing	Easting	Top Elev.	Inv. Elev	Desc.	
402	874229.5925	797088.9729	1567.92	1559.30	6' Overshoot Pipe	CAP STA 504+[illegible] CULVERT GROUP #3
403	874237.6521	797079.8206	1567.98	1559.36	6' Overshoot Pipe	
404	874245.5350	797070.8205	1567.94	1559.44	6' Overshoot Pipe	
405	874253.5509	797061.8465	1567.95	1559.40	6' Overshoot Pipe	
406	874261.4497	797052.9007	1568.03	1559.35	6' Overshoot Pipe	
407	873952.9614	797353.3758	1571.20		Corner Bridge Deck CAP & Sig. Butte	
408	873908.6754	797404.0501	1571.22		Corner Bridge Deck CAP & Sig. Butte	
409	873776.6619	797404.7485	1571.29		Corner Bridge Deck CAP & Sig. Butte	
410	873821.4935	797354.0315	1571.31		Corner Bridge Deck CAP & Sig. Butte	
411	873113.5525	798182.0235	1569.77		Corner Bridge Deck CAP & Grove	
412	873113.7877	798328.6237	1569.76		Corner Bridge Deck CAP & Grove	
413	873146.6710	798287.8579	1569.72		Corner Bridge Deck CAP & Grove	
414	873146.2705	798142.1236	1569.70		Corner Bridge Deck CAP & Grove	
415	872603.3280	799019.0006	1568.16	1560.05	Overshoot Pipe	CAP STA 529+50 CULVERT GROUP #2
416	872610.9634	799010.0420	1568.17	1560.07	Overshoot Pipe	
417	872618.7073	799000.8708	1568.16	1560.07	Overshoot Pipe	
418	872626.2960	798991.6104	1568.19	1560.13	Overshoot Pipe	
419	872633.9513	798982.5810	1568.18	1560.13	Overshoot Pipe	
420	871796.9459	799974.5852	1568.02	1560.04	Overshoot Pipe	CAP STA 542+50 CULVERT GROUP #1
421	871789.0973	799983.8839	1568.06	1559.98	Overshoot Pipe	
422	871781.3079	799993.0491	1568.06	1560.04	Overshoot Pipe	
423	871773.5638	800002.2038	1567.99	1559.99	Overshoot Pipe	
424	871765.7697	800011.2669	1567.91	1559.83	Overshoot Pipe	
425	871102.6100	800708.1626	1568.97	1561.12	Overshoot Pipe	CAP STA 552+50
426	871093.7717	800716.2192	1568.91	1561.06	Overshoot Pipe	
427	871084.7992	800724.2691	1568.96	1561.08	Overshoot Pipe	
428	871075.9752	800732.4062	1568.93	1560.99	Overshoot Pipe	
429	871066.8031	800740.7072	1568.96	1560.99	Overshoot Pipe	
430	870945.6619	800808.4618	1584.35		Corner Bridge Deck CAP & Southern	
431	870923.1817	800668.7949	1581.75		Corner Bridge Deck CAP & Southern	
432	870863.4018	800724.8782	1581.64		Corner Bridge Deck CAP & Southern	
433	870885.9191	800864.4756	1581.00		Corner Bridge Deck CAP & Southern	

R.T.K. D.G. POINTS @ C.A.P BRIDGE

CORNERS, CAP OVER SHOOTS, & JOB ENGINEERED SECTION CORNERS

R.A.D.
S.A.E.

(10

5/24/79
SUNNY 72°F

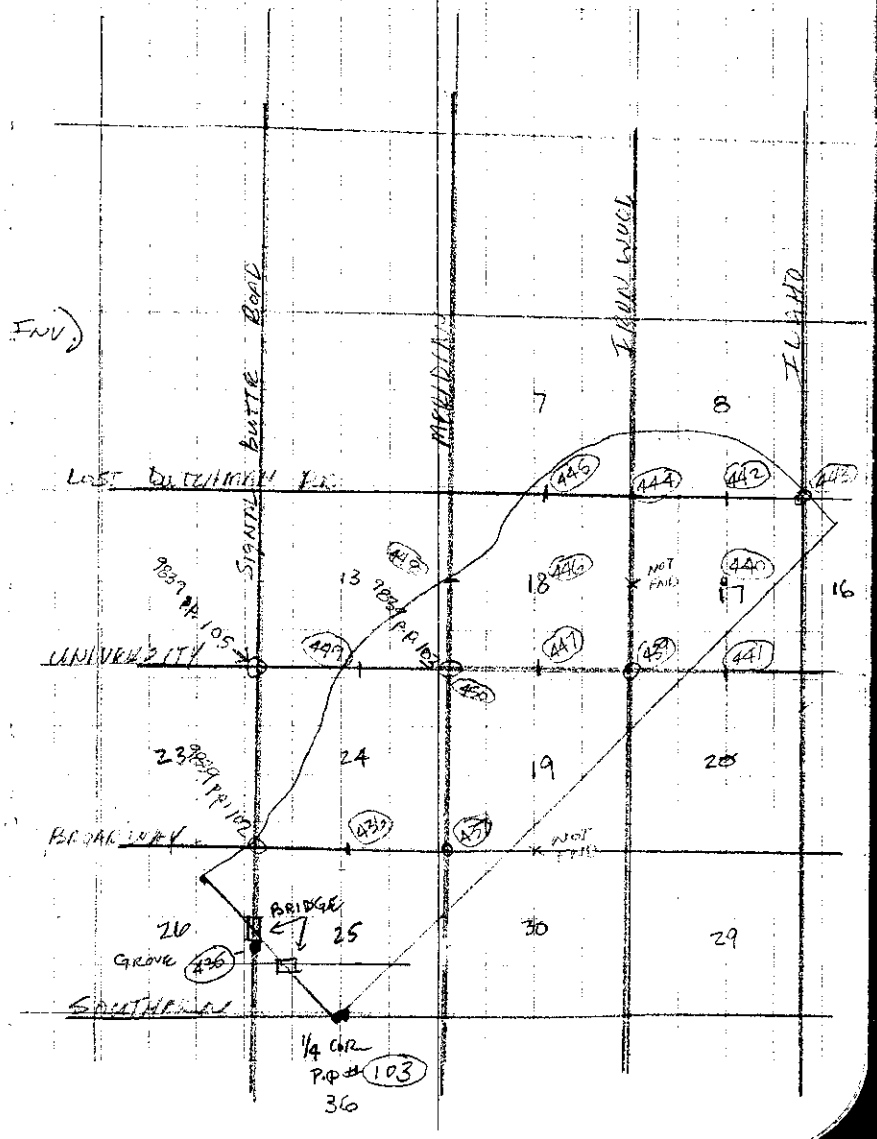
BASE @ 117 T.A.P. 5:25

ANT 1.222m
(4.00'ft)

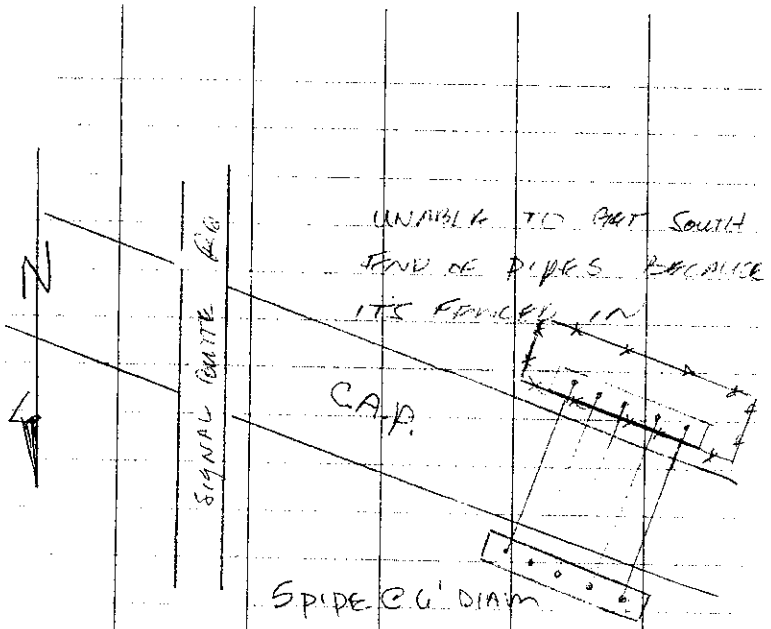
ROVER @

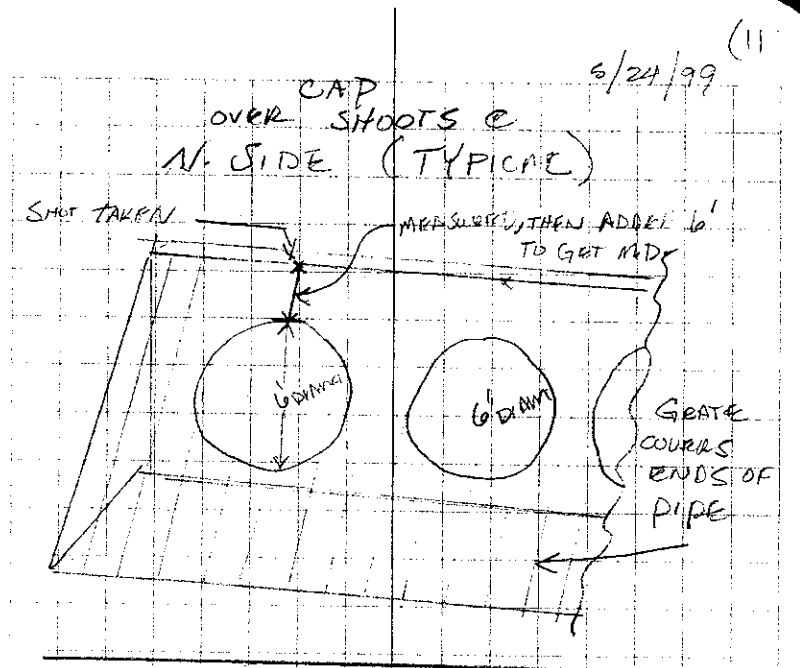
401 — CKE P.P. 101
402 - OVER SHOOT 6 DIAM PIPE (TYPICAL) (-8.62 → ENV.)
403 - " (-8.62)
404 - " (-8.59)
405 - " (-8.55)
406 " (-8.68)
407-410 CORNERS OF BRIDGE DECK OF C.A.P. CROSSING @ SIGNAL BUTTE
SEE pg. 11 FOR SKETCH
411-414 CORNERS OF BRIDGE DECK OF C.A.P. CROSSING @ GROVE ST.
415 OVER SHOOT PIPE (8.11)
416 " (8.10)
417 " (-8.07)
418 " (-8.06)
419 " (-8.05)

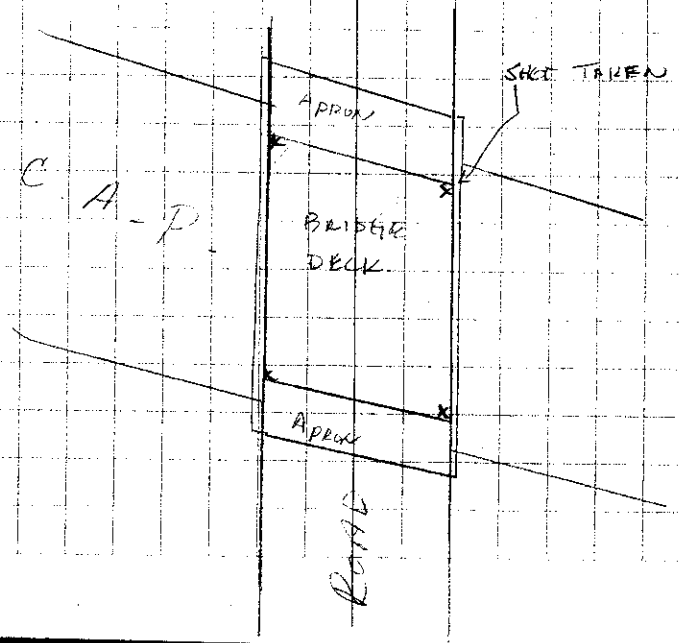
CONT ON pg 12



5/24/99


N
SIGNAL ROUTE 66
UNABLE TO GET SOUTH END OF PIPES BECAUSE ITS FENCED IN
C.A.P.
5 PIPE @ 6' DIAM


CAP OVER SHOOTS @ N. SIDE (TYPICAL)
SHOT TAKEN
MEASURED, THEN ADDED 6' TO GET MD
6' DIAM
6' DIAM
GRATE COVERS ENDS OF PIPE


SHOT TAKEN
APRON
C.A.P.
BRIDGE DECK
APRON
ROAD

Rover	420	over shot pipe	(-7.98)
	421	"	(-8.08)
	422	"	(-8.02)
	423	"	(-8.00)
	424	"	(-8.08)
	425	over shot pipe	(-7.85)
	426		(-7.85)
	427		(-7.88)
	428		(-7.94)
	429		(-7.97)
	430 - 433	corners of bridge	
		deck of C.A.P. crossing	
		@ Southern	
434	FND -	M.C. B/C in barrier	
		@ S.W. Cor. of bridge @	
435	W. 1/4	Sec 25	
436 438	N 1/4	" "	
437	N.E.	Cor " "	
438			
439	N.E.	Cor Sec 17	
440	C.	Sec 17	
441	S. 1/4	Sec 17	
442	N 1/4		

WALL Elev. Stamped = 1587.12 (1986)
C.A.P. & Southern

City of Marsh	BC/H.H.	(-0.60)
M.C.	B.C./H.H.	(-0.60)
"	"	(-0.60)
Owner ?	BC/H.H.	(-0.90)
	1" Diam Iron Pin/Pop Hole	(-0.30)
	3/8" Round/Pop Hole	(-1.0)
Owner ?	BC Flush, Wood post	

Letter of Transmittal

AZTEC ENGINEERING

To: Felicia Terry
Michael Baker Jr., Inc.
1313 East Osborn Road, Suite 150
Phoenix, Arizona, 85014

Date/Time: February 14, 2000
Subject: Survey Field Notes

RECEIVED
FEB 1 2000
MICHAEL BAKER JR., INC.

Project: Apache Junction FRS
Project Number: Aztec Job No. 9918

From: Al Reece

Method of Delivery: U.S. Mail x Courier To Be Picked Up Hand Carry

We Are Sending You: x Attached ____ Under Separate Cover

____ Shop Drawings ____ Prints ____ Plans ____ Specifications ____ Submittal
____ Change Order ____ Reports ____ Letter ____ Review Comments ____ Other

Quantity	Doc Date	Doc No.	Description
1			Copy of Field Notes for Area "A"

The above transmitted as follows:

____ For Approval
x For your use
x As requested
____ Other

____ Approved as Submitted
____ Approved as noted
____ Returned for Corrections
____ For review and comment

____ Resubmit Copies for Approval
____ Submit ___ copies for distribution
____ Return for ___ corrected prints
____ Please sign and return one copy

Remarks:

Copy: CAT/JCH/CF

c:

File Name and Path: G:\STANDRDS\Forms\OFFICE\Transmittal Letter.doc

3747 East Grove Street • Phoenix, Arizona 85040 • 602/454-0402 • FAX 602/454-0403

Rev 1/00

5/13/99

9:13

APACHE JUNCTION
WATERSHED STUDY

G.P.S.

R.A.D.
A R
S.A.H.

SUNNY 95°

BASE @ Double Z

ANT 1.424

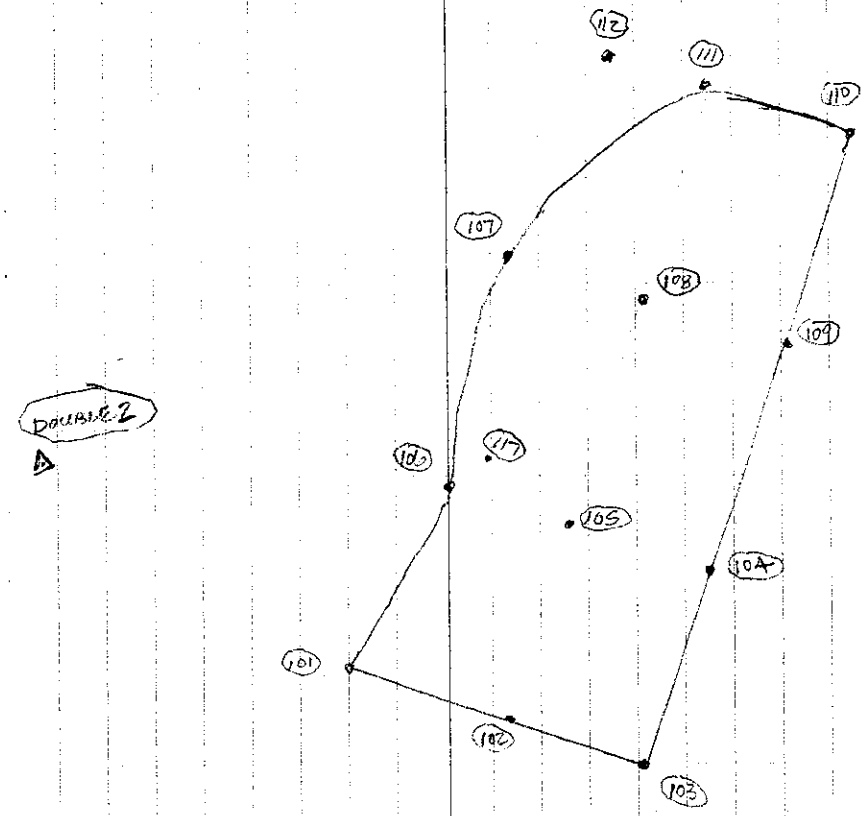
LAT 33 - 24 - 57. 9924 N
LON 111 - 39 - 12. 8877 W
EHT 456.970 m
T.A.P.

ROVER @

#101	P.K	5:10
		5:16
103	1/4 COR	6:07
		6:02
117	1/2" RBR	6:01
		6:00
112	1/2 RBR	6:01
		10:01
110	60d NAIL	10:19
		10:24

(4

5/13/99



BASE @ DOUBLE Z

ROVER @ 101, 103, 110, 112 — CORNERS OF PROJ. AREA

117 FUTURE BASE

R.T. PANAL D.C.

BASE @ 117

ANT 1.304

ROVER: 103
102
101

5/13/99 (5

R.A.D.
S.A.H.

(6

5/17/99

BASE @	117	T.A.P.					
ANT:	1.28?m	4:51					
ROVER @:	110						
	115						
	114						
	113						
	9838-102	(SHOULD HAVE		BEEN 9839)	N.E	COR	SEC 26
	9839-101				N.W	COR	SEC 26
	116						
	106						
	105						
	104						
	118						
	119						
	120						
	121						
	122						
	124						
	123						
	111						
	107						
	108						
	109						
	9839-105						
	5002						
	5005						

9918

5/20/99

APACHE JUNCTION
F.R.S

R.T.K DATA COLLECT
CROSS SECTIONS

R.A.D.
S.A.H

SUNNY 95°

9918 RAO

SAH

(8

RTK - DATA COLLECT CROSS SECTIONS FB#108

5/20/99

BASE @ 117

ANT: 1.288m TAP 1:58

ROVER @ 200-218
(BEGIN X1)

CONT RTK D.C. CROSS-SECT.

BASE @ 117

ANT 1.283m
4.209ft

ROVER 219 — 244 (END X1)

245 (BEGIN X2) → 280

281 (Begin X3) →

(9

5/21/99
SUNNY 95°

R.T.K. D.G. POINTS @ C.A.P. BRIDGE

CORNERS, CAP OVER SHOOTS, & JOB ENGINEER - ESSED SECTION CORNERS

R.A.D.

5/24/99

(10

BASE @ 117 T.N.P. S:25

ANT 1.222m
(4.00' FT)

ROVER @

401 — CKE P.P. 101

402 - OVER SHOOT 6" DIAM PIPE (TYPICAL) (-8.62 → INV)

403 - " (-8.62)

404 - " (-8.59)

405 - " (-8.55)

406 " (-8.60)

407-410 CORNERS OF BRIDGE DECK OF C.A.P. CROSSING @ SIGNAL BUTTE

SEE pg. 11 FOR SKETCH

411-414 CORNERS OF BRIDGE DECK OF C.A.P. CROSSING @ GROVE ST.

415 OVER SHOOT PIPE (8.11)

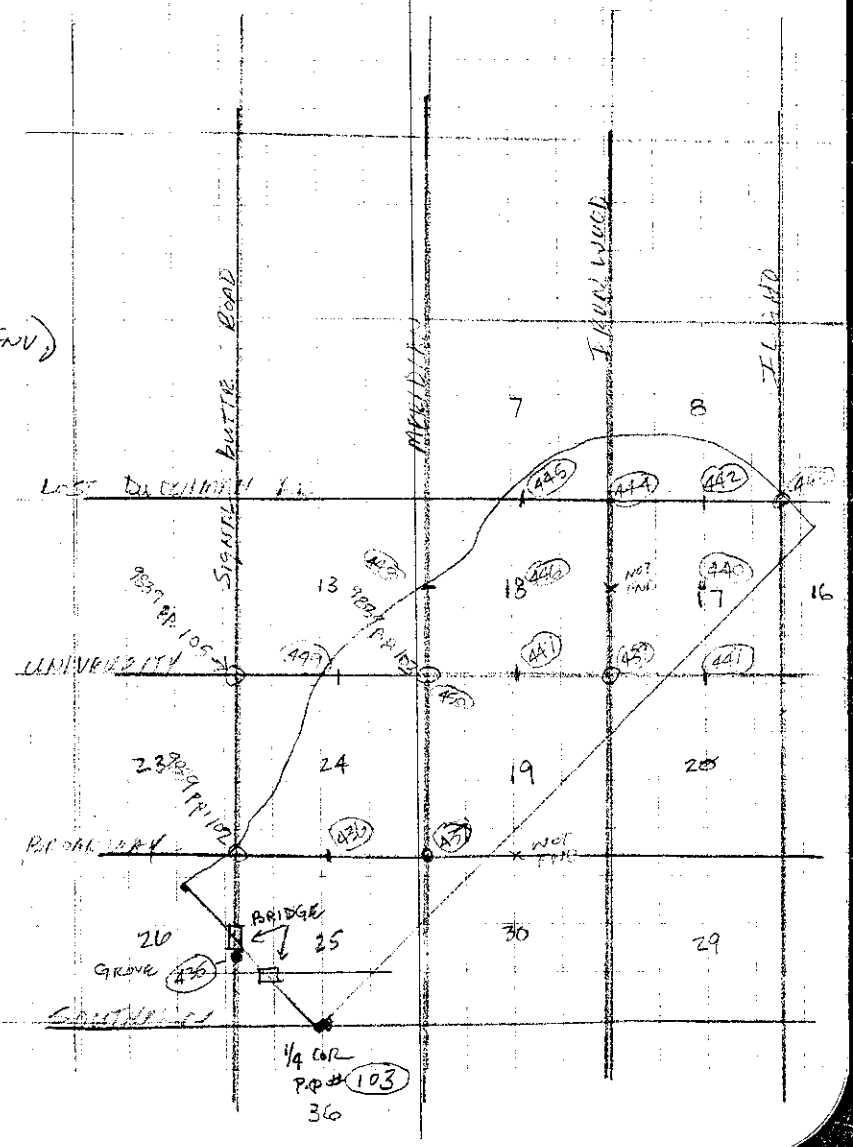
416 " (8.10)

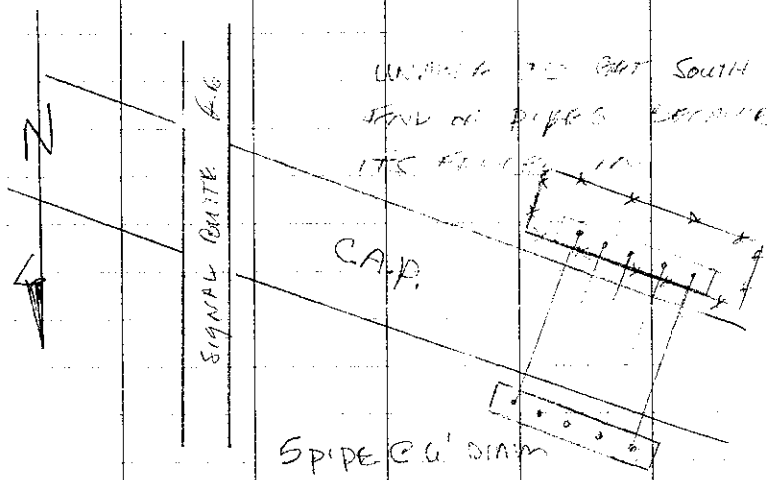
417 " (-8.09)

418 " (-8.06)

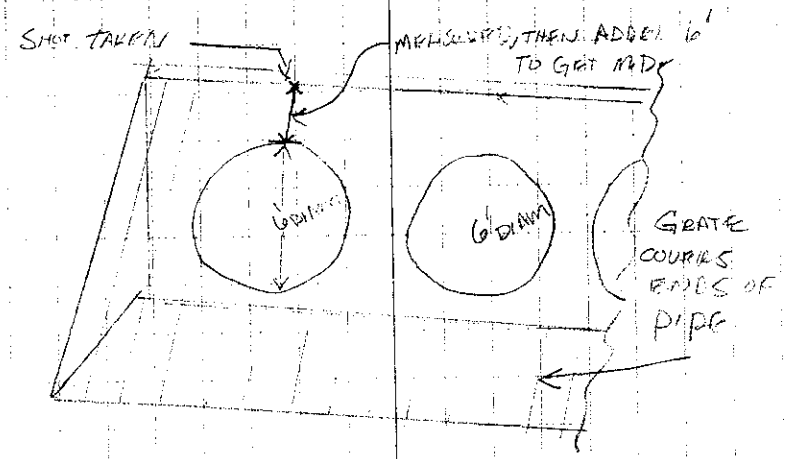
419 " (-8.05)

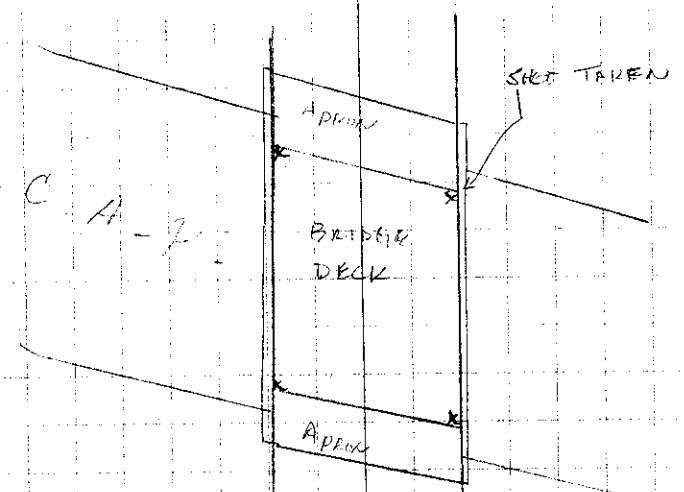
CONT ON pg 12




N
SIGNAL GRATE
C.A.P.
5' PIPE @ 6' DIAM

5/24/99


C.A.P.
OVER SHOOTS @
N. SIDE (TYPICAL)
SHOT TAKEN
MEASURED, THEN ADDED 6' TO GET MDP
6' DIAM
6' DIAM
GRATE COVERS ENDS OF PIPE


SHOT TAKEN
APRON
C A P
BRIDGE DECK
APRON

5/24/99

Rovelle	420	over shot pipe	(-7.98)
	421	"	(-8.03)
	422	"	(-8.02)
	423	"	(-8.00)
	424	"	(-8.08)
	425	over shot pipe	(-7.79)
	426		(-7.87)
	427		(-7.88)
	428		(-7.94)
	429		(-7.97)
	430 - 433	corners of bridge	
		line of C.P.R. crossing	
		@ Southern	
434	FND -	M.C. B/C in bridge	WALL Galv. stake = 1587.12 (1986)
		@ S.W. Cor. of bridge @	C.A.P.R. & Southern
435	W. 1/4	Sec 25	
436	438 N	1/4 " "	City of Sask. B.C./H.H. (-0.60)
437	N.E.	Cor " "	M.C. B.C. (-0.60)
438			" " (-0.60)
439	N.E.	Cor Sec 17	
440	C.	Sec 17	Owner ? B.C./H.H. (-0.90)
441	S. 1/4	Sec 17	1" Iron Pin/Pav. Hole (-0.30)
442	N 1/4		3/8" Rebar/Pav. Hole (-1.0)
			Owner ? B.C. Flush [illegible]

(13

5/24/99

443	N.E. Cor. Sec. 17				
444	N.W. Cor.				
445	N 1/4 Sec 18				
446	C. Sec 18				
447	N 1/4 Sec 19				
448	W. 1/4				
449	N 1/4 Sec 19				
450	S.W. Cor Sec 18				

Cotton Spindle Finish w/PAL

owner? BC Flush @ N. Edge of Rd

City of Hoboken Survey. BC/H.H. @ N. edge of Rd (-0.30)

5/8" Rebar in Hole w/ Pal. (-0.35)

1/2" I.D. Iron Pipe in Pav. (-0.30)

1/2" Rebar Flush w/ Pal.

M.C. BC/H.H. (-0.70)

M.C. BC/H.H. (-0.30)

GPS PHOTO I.D. POINT @
WARNER & FOOTHILL TO REPLACE
POINT 107 WHICH WAS DESTROYED
AL 6-1-99
JOE SUNNY 80°
MATT

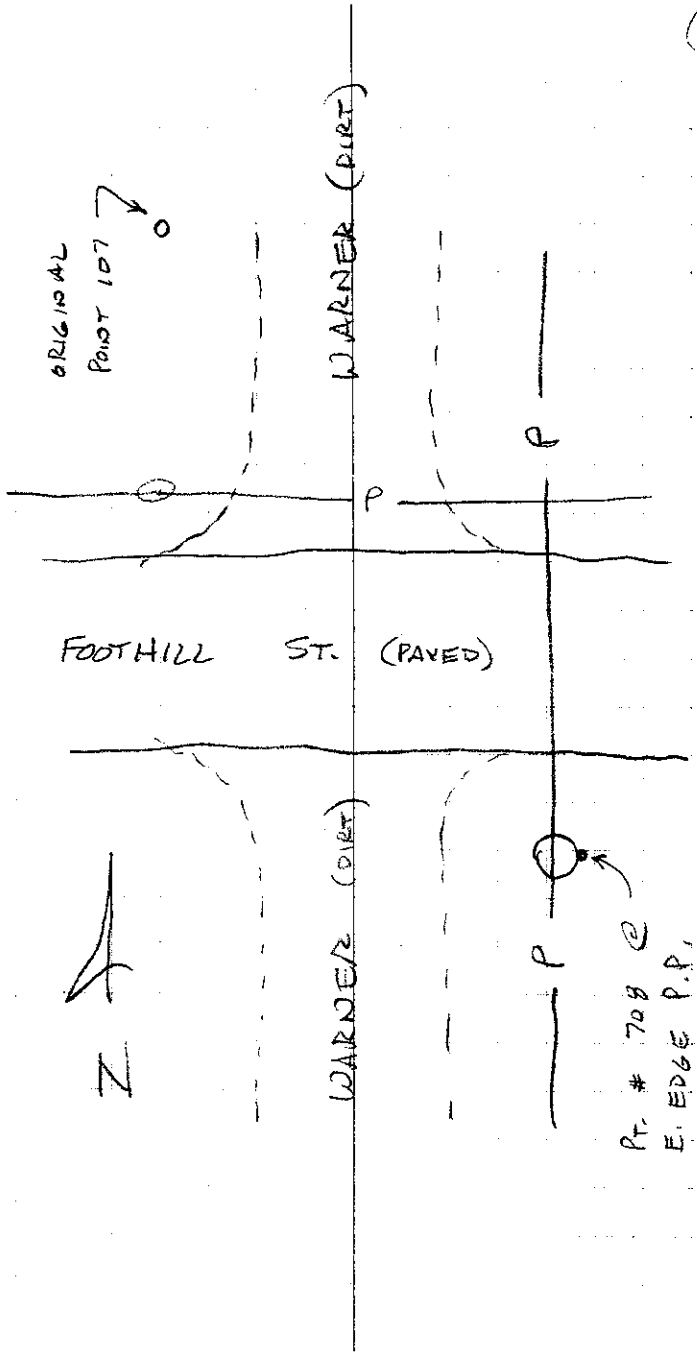
BASE @ 117
ANT HT. = 1.344 M
= 4.41 FT.

CHECK PT 107 885840.094 (N)
STORE AS PT. 707 803780.278 (E)
1696.570 (EL)
(GRID, NGVD 88)

SET NEW CONTROL POINT
FOR PHOTO I.D.

PT # 708 885279.9771 (N)
803835.3972 (E)
1692.903 (EL)
(GRID, NGVD 88)

EAST EDGE POWER POLE
@ S.E. COR WARNER &
FOOTHILL ST.



From: "Al Reece" <AReece@AZTECENG.COM>
To: 'Cathy Regester/Baker' <cregester@mbakercorp.com>
Date: 6/1/00 3:42PM
Subject: Apache Jct FRS

As Felicia requested, I have enclosed the spread sheets for the Apache Junction FRS. Ctrl.xls contains grid coordinates for aerial panel points, Control.xls contains grid coordinates for section corners and Fpctlfcd.xls contains grid coordinates for ERM's. In addition, Panels.txt is an ascii file with ground coordinates for aerial panel points and ERMground.xls contains ground coordinates for ERM's. The grid to ground factor is 1.00016887. All files contain NGVD 29 elevations. NAVD 88 elevations can be obtained by adding 1.98 feet to the elevations.

Point No	North	East	Elev.
101	875206.7748	796072.9440	1567.25
102	873129.1352	798132.4173	1572.00
103	870934.1872	800036.2840	1564.29
104	876207.3071	804896.9473	1635.57
105	878375.6509	802641.2679	1631.86
106	880584.0877	799984.2641	1628.23
107	885989.6871	803916.0068	1694.55
108	883504.3427	806880.1293	1701.57
109	881464.6446	809198.7645	1710.14
110	886292.6501	813877.1317	1810.22
111	888378.0583	811485.5081	1810.14
112	889999.4128	808863.6425	1779.06
113	875715.7995	798134.6400	1583.06
114	873536.0039	800972.6226	1587.47
115	875409.4898	802173.8747	1608.02
116	877549.7092	799620.9449	1604.85
117	881433.6266	802585.9802	1651.11
118	879060.2012	804892.8806	1655.91
119	880860.6950	806894.7772	1684.42
120	883157.9840	803948.3381	1672.85
121	886142.0729	806798.7686	1718.24
122	884014.3284	809624.3913	1730.26
123	885495.0605	811066.1188	1755.90
124	887494.5570	808492.4769	1749.12
708	885429.4743	803971.1409	1690.92

Apache Junction FRS
ERMground.xls

CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	PNTNUM	DESC
7	13	0	0	800036.284	870934.187	1564.29	0	7	ERM1	Found BLM Brass Cap North side Southern Ave. 1/2 mile East of Signal Butte Rd.
7	13	0	0	797374.582	876208.930	1581.30	0	11	ERM2	Found MCDOT Brass Cap in handhole 0.25' below rim at the intersection of Signal Butte Rd. & Broadway Rd.
7	13	0	0	804896.947	876207.307	1635.57	0	3	ERM3	Set 1/2" Rebar at the S.W. Corner Cornwall Dr. & Broadway Rd.
7	13	0	0	802654.718	881501.698	1651.54	0	11	ERM4	Found MCDOT Brass Cap in Handhole at the intersection of Meridian Rd. & University Dr.
7	13	0	0	809198.764	881464.645	1710.14	0	3	ERM5	Set 1/2" Rebar at the S.W. Corner Valley Dr. & Superstition Blvd.
7	13	0	0	803916.006	885989.687	1694.55	0	3	ERM6	Set 1/2" Rebar W. Side Warner Dr. approx. 400' North of Foothill St.
7	13	0	0	813877.132	886292.650	1810.22	0	3	ERM7	Set 1/2" Rebar approx. 600' East of Idaho Rd. on top of Flood Control Dike.
7	13	0	0	811485.508	888378.058	1810.14	0	3	ERM8	Set 1/2" Rebar on Flood Control Dike 120' West of Apache Junction F.R.S Spillway.

Letter of Transmittal

AZTEC ENGINEERING

To: Felicia Terry
Michael Baker Jr., Inc.
1313 East Osborn Road, Suite 150
Phoenix, Arizona, 85014

Date/Time: June 14, 2000
Subject: Survey Report

Project: Apache Junction FRS
Project Number: Aztec Job No. 9918

From: Al Reece

Method of Delivery: U.S. Mail x Courier To Be Picked Up Hand Carry

We Are Sending You: x Attached ____ Under Separate Cover

____ Shop Drawings ____ Prints ____ Plans ____ Specifications ____ Submittal
____ Change Order ____ Reports ____ Letter ____ Review Comments ____ Other

Quantity	Doc Date	Doc No.	Description
1			Survey Report for Apache Junction FRS

The above transmitted as follows:

____ For Approval ____ Approved as Submitted ____ Resubmit Copies for Approval
____ For your use ____ Approved as noted ____ Submit ___ copies for distribution
x As requested ____ Returned for Corrections ____ Return for ___ corrected prints
____ Other ____ For review and comment ____ Please sign and return one copy

Remarks:

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Copy: CAT/JCH/CF

c:

File Name and Path: F:\9918\Corr\061400t1adr.doc

3747 East Grove Street • Phoenix, Arizona 85040 • 602/454-0402 • FAX 602/454-0403

Rev 1/00

AZTEC ENGINEERING
3747 East Grove Street, Phoenix, AZ 85040-3982
Tel (602) 454-0402 Fax (602) 454-0403

SURVEY REPORT
for
APACHE JUNCTION F.R.S. SPILLWAY DELINEATION

This report will detail the results of a survey conducted by Aztec Engineering during the month of May, 1999 to establish horizontal and vertical control for the aerial mapping on the above project. The horizontal coordinates are NAD 83(1992) State Plane Coordinates and were established using NGS control point "Double 2" located on the double knolls to the West of the project as a basis. Additional NGS control points "A-365" and "B-365" were also tied to the project as a check. The basis of elevation is NGVD 29 elevation 1569.83 on NGS control point "B-365". Using NGS data, the shift from the NGVD 29 datum to the NAVD 88 datum is +1.98 feet.

Along with setting the aerial control points, Aztec Engineering made ties to Maricopa County Flood Control District control points 5002 and 5005 from the GIS data base for the study area. The table below shows record and measured grid values for the subject control points.

POINT I.D.	XNAD83	YNAD83	NAVD88	NGVD29	SHIFT
DOUBLE 2 (REC)	780275.033	879028.058	N/A	N/A	N/A
DOUBLE 2 (MEAS)	780275.033	879028.058	1595.81	1593.83	1.98
A-365 (REC)	773937.172	890842.812	1554.40	1552.47	1.93
A-365 (MEAS)	773937.255	890842.789	1554.45	1552.47	1.98
B-365 (REC)	N/A	N/A	1571.75	1569.83	1.92
B-365 (MEAS)	774548.764	891006.659	1571.81	1569.83	1.98
5002 (REC)	802512.790	888342.450	1709.14	N/A	N/A
5002 (MEAS)	802512.877	888342.460	1709.12	1707.01	1.98
5005 (REC)	802512.880	889642.910	1727.28	N/A	N/A
5005 (MEAS)	802512.942	889642.893	1727.11	1725.13	1.98

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
25396
ALAN D.
REECE
Date Signed 6-14-2000
ARIZONA, U.S.A.

Apache Junction FRS
Ctrl.xls

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	PNTNUM	DESC
6	7	13	0	0	795938.534	875059.0036	1567.25	0	17	101	Set PK & Shiner @106th St & Oasis Dr.
6	7	13	0	0	797997.659	872981.7148	1572.00	0	17	102	Set Pk & Shiner@ Grove St. W. of CAP
6	7	13	0	0	799901.205	870787.1374	1564.29	0	7	103	GLO B.C. @ S. 1/4 Cor Sec. 25
6	7	13	0	0	804761.047	876059.367	1635.57	0	3	104	Set 1/2" rebar @ S.W. Cor. Cornwall & Broadway
6	7	13	0	0	802505.749	878227.3446	1631.86	0	17	105	Set PK & Shiner @ W. Side Meridian Rd. 2100' N. of Braodway.
6	7	13	0	0	799849.194	880435.4086	1628.23	0	3	106	Set 1/2" Rebar @ W. Side Mountain Rd. 50' N. of Boulder
6	7	13	0	0	803780.272	885840.0953	1694.55	0	3	107	Set 1/2" Rebar @ W. Side Warner 400' N. of Foothill
6	7	13	0	0	806743.895	883355.1705	1701.57	0	17	108	Set PK & Shiner @ S. Edge Shiprock 1600' E. Of Delaware
6	7	13	0	0	809062.138	881315.8168	1710.14	0	3	109	Set 1/2" Rebar @ S.W. Cor. Valley & Superstition
6	7	13	0	0	813739.716	886143.0071	1810.22	0	3	110	Set 1/2" Rebar
6	7	13	0	0	811348.496	888228.0632	1810.14	0	3	111	Set 1/2" Rebar
6	7	13	0	0	808727.073	889849.144	1779.06	0	3	112	Set 1/2" Rebar
6	7	13	0	0	797999.882	875567.9423	1583.06	0	3	113	Set 1/2" Rebar
6	7	13	0	0	800837.385	873388.5148	1587.47	0	3	114	Set 1/2" Rebar
6	7	13	0	0	802038.435	875261.6844	1608.02	0	3	115	Set 1/2" Rebar
6	7	13	0	0	799485.936	877401.5424	1604.85	0	3	116	Set 1/2" Rebar
6	7	13	0	0	802450.470	881284.804	1651.11	0	3	117	Set 1/2" Rebar
6	7	13	0	0	804756.981	878911.7794	1655.91	0	3	118	Set 1/2" Rebar
6	7	13	0	0	806758.540	880711.9692	1684.42	0	3	119	Set 1/2" Rebar
6	7	13	0	0	803812.598	883008.8703	1672.85	0	3	120	Set 1/2" Rebar
6	7	13	0	0	806662.548	885992.4554	1718.24	0	3	121	Set 1/2" Rebar
6	7	13	0	0	809487.693	883865.0701	1730.26	0	3	122	Set 1/2" Rebar
6	7	13	0	0	810929.177	885345.5522	1755.90	0	3	123	Set 1/2" Rebar
6	7	13	0	0	808355.970	887344.7111	1749.12	0	3	124	Set 1/2" Rebar

Apache Junction FRS
Corners.xls

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	CNRNAME	TWNSHP	RNG	SCTN	AGENCY	PNTNUM	DESC
28	7	13	0	0	799901.205	870787.137	1564.29	0	7	QCOR S	T01N	R07E	25	GLO	103	Found GLO Brass Cap
28	7	13	0	0	797245.090	873420.782	1568.49	0	11	QCOR W	T01N	R07E	25	COM	435	Found City of Mesa Brass Cap in Handhole
28	7	13	0	0	802535.991	876074.466	1615.40	0	11	SCOR NE	T01N	R07E	25	Maricopa County	437	Found Maricopa County Brass Cap in Handhole
28	7	13	0	0	799887.673	876066.866	1596.99	0	11	QCOR N	T01N	R07E	25	Maricopa County	438	Found Maricopa County Brass Cap in Handhole
28	7	13	0	0	807782.064	881379.504	1696.33	0	11	SCOR NE	T01N	R08E	19	N/A	439	Found Brass Cap in Handhole
28	7	13	0	0	810410.437	884024.919	1738.23	0	29	CENTER	T01N	R08E	17	N/A	440	Found 1" Iron Pin
28	7	13	0	0	810423.259	881385.558	1718.88	0	3	QCOR S	T01N	R08E	17	N/A	441	Found 3/8" Rebar
28	7	13	0	0	810397.372	886664.228	1758.24	0	7	QCOR N	T01N	R08E	17	N/A	442	Found Brass Cap Flush with Pvmt.
28	7	13	0	0	813038.834	886669.736	1809.96	0	18	SCOR NE	T01N	R08E	17	N/A	443	Found Cotton Picker Spindle Flush with Pvmt.
28	7	13	0	0	807758.101	886661.016	1734.35	0	7	SCOR NW	T01N	R08E	17	N/A	444	Found Brass Cap Flush with Pvmt.
28	7	13	0	0	805116.519	886644.851	1709.04	0	11	QCOR N	T01N	R08E	18	COAJ	445	Found City of Apache Junction B.C. in H.H.
28	7	13	0	0	805128.652	884006.574	1686.46	0	3	CENTER	T01N	R08E	18	N/A	446	Found 5/8" Rebar.
28	7	13	0	0	805141.139	881365.341	1672.80	0	1	QCOR N	T01N	R08E	19	N/A	447	Found 1/2" Pipe
28	7	13	0	0	802510.134	883992.339	1669.07	0	3	QCOR W	T01N	R08E	18	N/A	448	Found 1/2" Rebar
28	7	13	0	0	799878.397	881344.647	1629.56	0	11	QCOR N	T01N	R07E	24	Maricopa County	449	Found Maricopa County Brass Cap in Handhole
28	7	13	0	0	802519.204	881352.844	1649.61	0	11	SCOR SW	T01N	R08E	18	Maricopa County	450	Found Maricopa County Brass Cap in Handhole

Apache Junction FRS
FPCTLFCD.xls

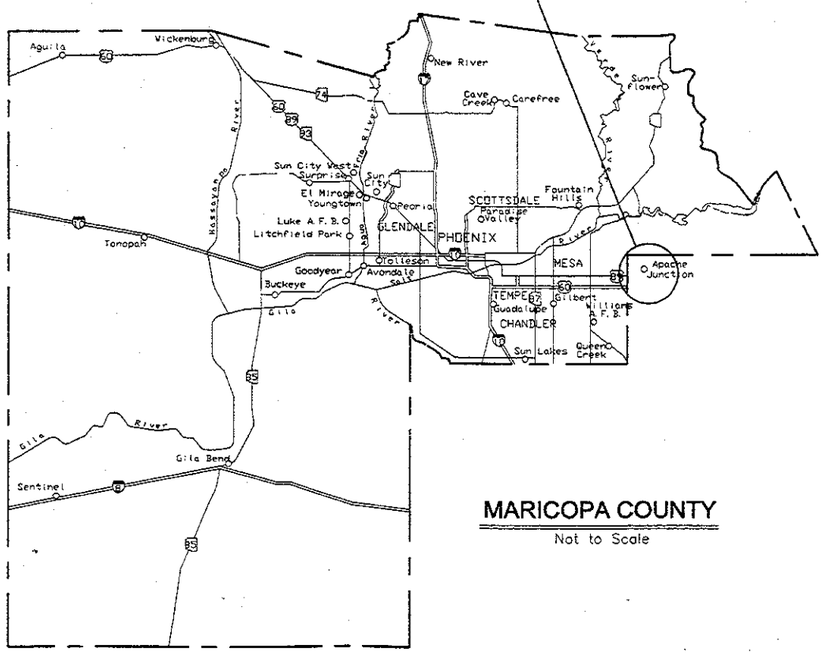
CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	PNTNUM	DESC
7	13	0	0	799901.205	870787.137	1564.29	0	7	ERM1	Found GLO Brass Cap North side Southern Ave. 1/2 mile East of Signal Butte Rd.
7	13	0	0	797239.952	876060.990	1581.30	0	11	ERM2	Found MCDOT Brass Cap in handhole 0.25' below rim at the Intersection of Signal Butte Rd. & Broadway Rd.
7	13	0	0	804761.047	876059.367	1635.57	0	3	ERM3	Set 1/2" Rebar at the S.W. Corner Cornwall Dr. & Broadway Rd.
7	13	0	0	802519.204	881352.844	1649.61	0	11	ERM4	Found Maricopa County Brass Cap in Handhole at the Intersection of Meridian Rd. & University Dr.
7	13	0	0	809062.138	881315.817	1710.14	0	3	ERM5	Set 1/2" Rebar at the S.W. Corner Valley Dr. & Superstition Blvd.
7	13	0	0	803780.272	885840.095	1694.55	0	3	ERM6	Set 1/2" Rebar W. Side Warner Dr. approx. 400' North of Foothill St.
7	13	0	0	813739.716	886143.007	1810.22	0	3	ERM7	Set 1/2" Rebar approx. 600' East of Idaho Rd. on top of Flood Control Dike.
7	13	0	0	811348.496	888228.063	1810.14	0	3	ERM8	Set 1/2" Rebar on Flood Control Dike 120' West of Apache Junction F.R.S Spillway.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

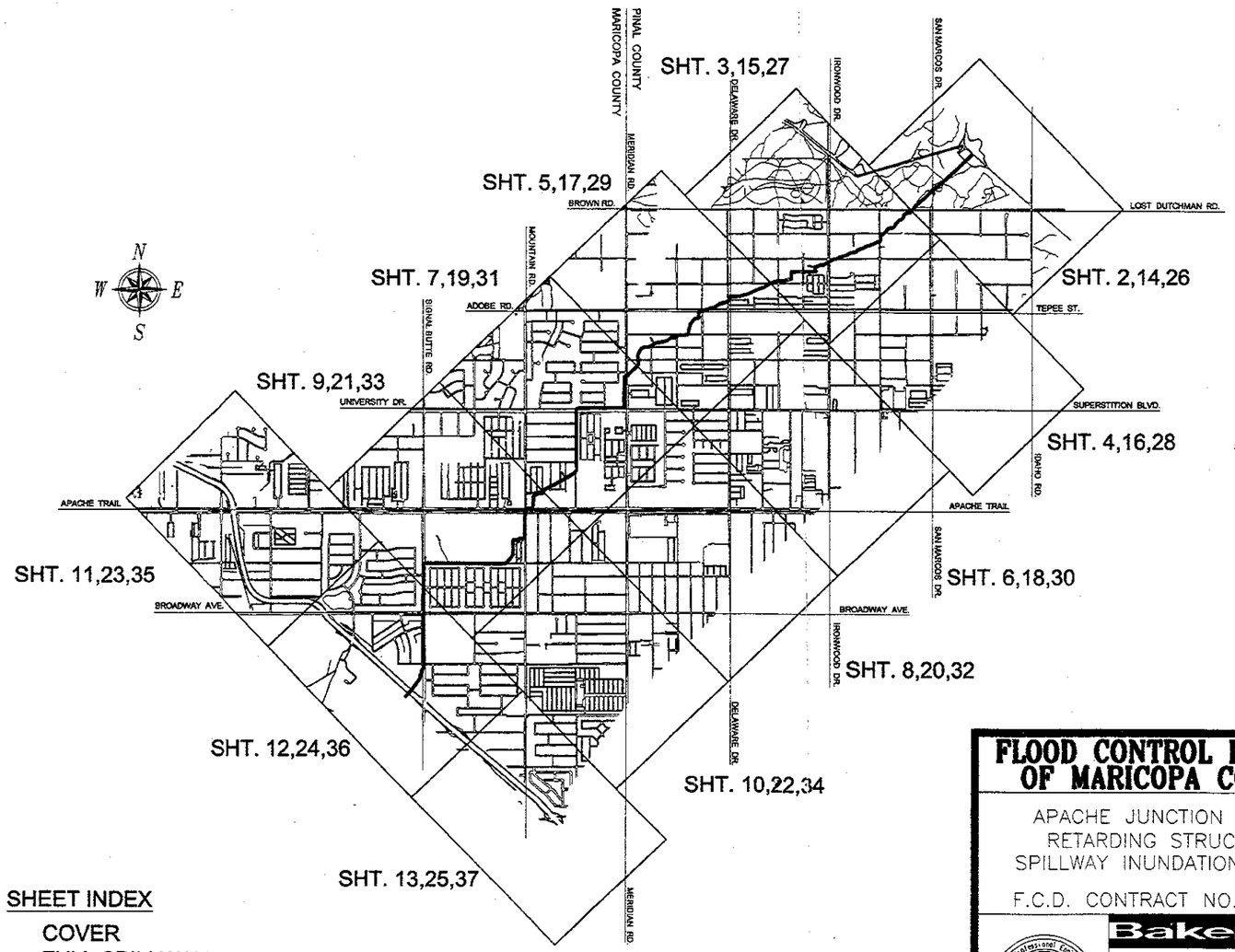
APACHE JUNCTION FLOOD RETARDING STRUCTURE SPILLWAY INUNDATION STUDY FCD CONTRACT NO. 98-33

MICHAEL S. ELLEGOOD, P.E.
CHIEF ENGINEER AND GENERAL MANAGER

PROJECT LOCATION



MARICOPA COUNTY
Not to Scale



VICINITY MAP
Not to Scale

SHEET INDEX

1	COVER
2-13	FULL SPILLWAY
14-25	2/3 SPILLWAY FLOW
26-37	1/3 SPILLWAY FLOW

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD
RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/1/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 1 OF 37

HYDRAULIC DATA

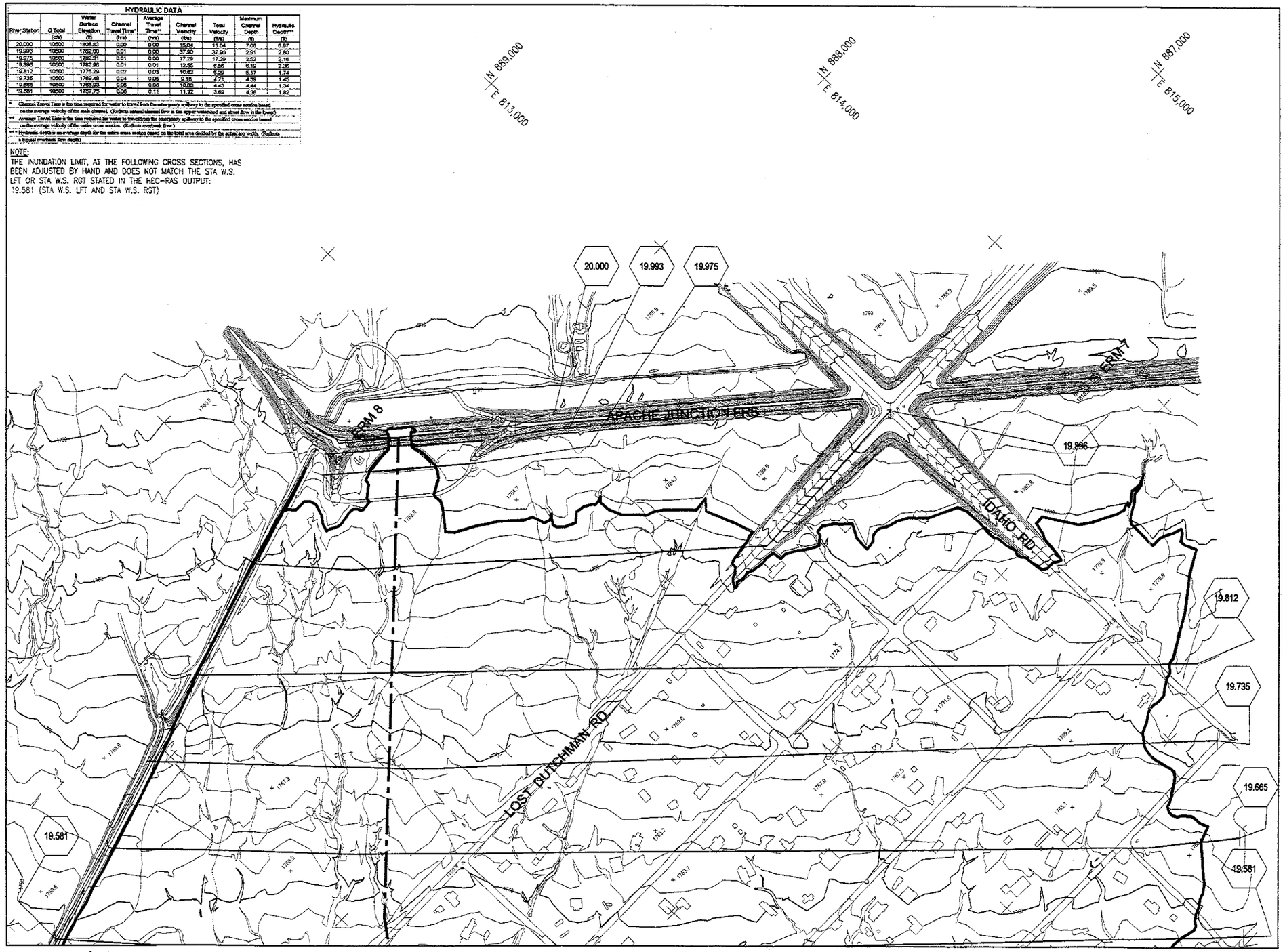
River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
20.000	10500	1808.53	0.00	0.00	15.04	15.04	7.06	6.07
19.993	10500	1782.00	0.01	0.00	37.90	37.90	2.91	2.80
19.975	10500	1780.31	0.01	0.00	17.29	17.29	2.52	2.16
19.896	10500	1782.96	0.01	0.01	12.55	6.56	6.19	2.36
19.812	10500	1776.29	0.02	0.03	10.63	5.29	5.17	1.74
19.735	10500	1769.48	0.04	0.05	9.18	4.71	4.39	1.45
19.665	10500	1763.93	0.08	0.06	10.83	4.43	4.44	1.34
19.581	10500	1757.75	0.06	0.11	11.72	3.69	4.38	1.82

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Surface natural channel flow in the upper watershed and street flow in the lower).

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Surface overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Represents a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.581 (STA W.S. LFT AND STA W.S. RGT)



LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — 20.0 — 30.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF →

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

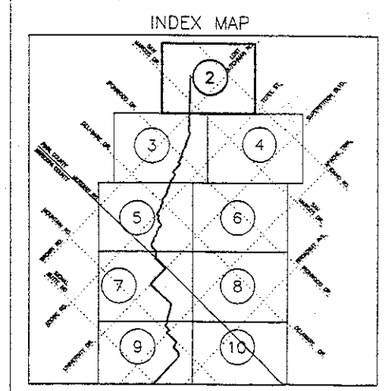
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
7	1810.22	SET ¾" REBAR APPROX. 600' EAST OF IDAHO RD. ON TOP OF FLOOD CONTROL DIKE. N: 886292.650 E: 813877.132
8	1810.14	SET ¾" REBAR ON FLOOD CONTROL DIKE 120' WEST OF APACHE JUNCTION F.R.S. SPILLWAY. N: 888378.058 E: 811485.508

NOTES

1– THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2– STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'

SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/11/00 ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

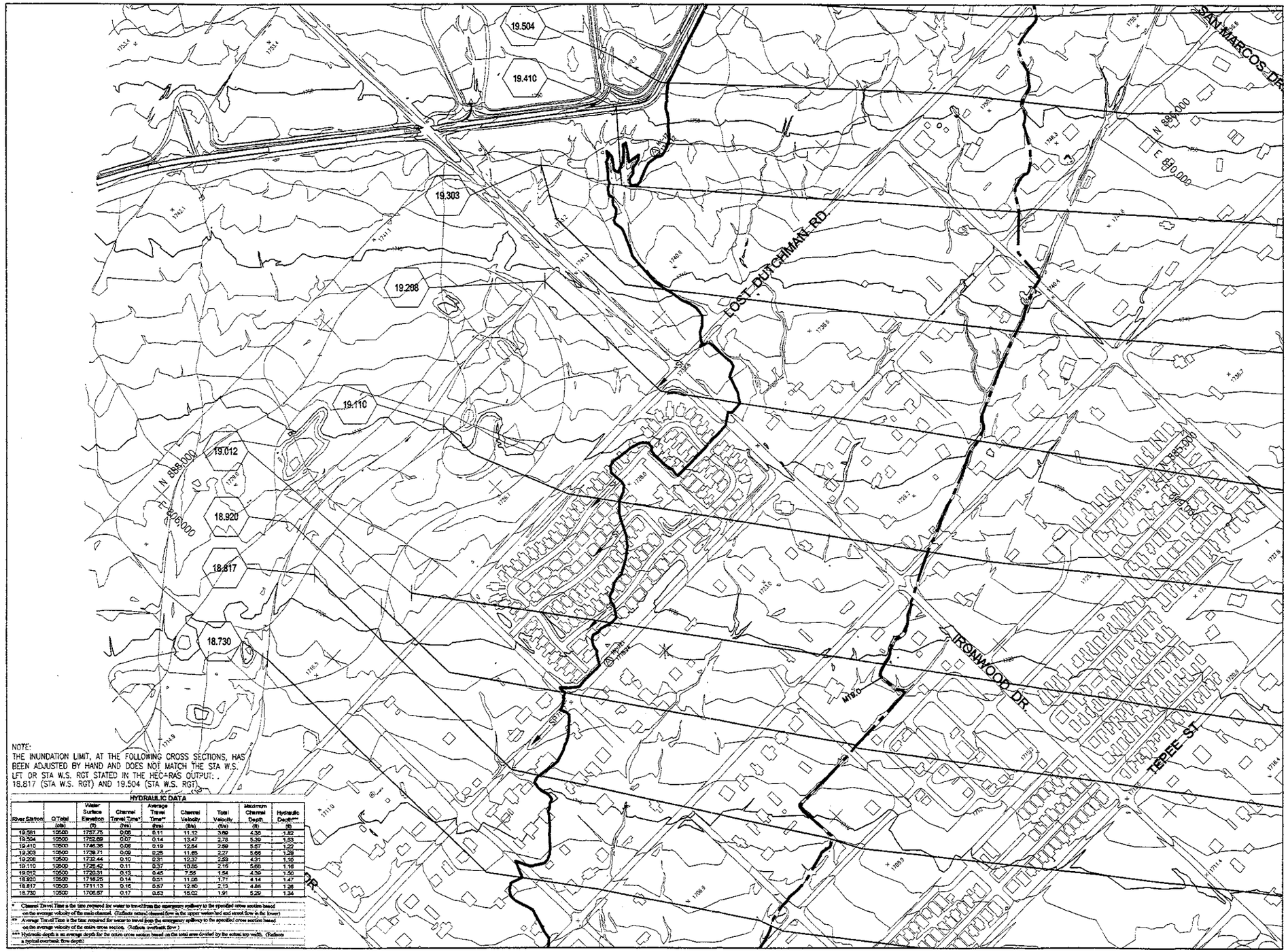
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK	F.T.	7/00

SHEET 2 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
18.817 (STA W.S. RGT) AND 19.504 (STA W.S. RGT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
19.581	10500	1757.75	0.08	0.11	11.12	3.89	4.38	1.82
19.504	10500	1752.69	0.07	0.14	13.47	2.78	5.39	1.53
19.410	10500	1746.36	0.08	0.19	12.54	2.59	5.57	1.22
19.303	10500	1739.71	0.09	0.25	11.65	2.27	5.66	1.29
19.208	10500	1732.44	0.10	0.31	12.37	2.53	4.31	1.10
19.110	10500	1725.42	0.11	0.37	10.86	2.16	5.66	1.16
19.012	10500	1720.31	0.13	0.45	7.55	1.54	4.39	1.50
18.920	10500	1716.25	0.14	0.51	11.26	1.71	4.14	1.47
18.817	10500	1711.13	0.16	0.57	12.80	2.13	4.86	1.26
18.730	10500	1706.57	0.17	0.53	15.02	1.91	5.29	1.34

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

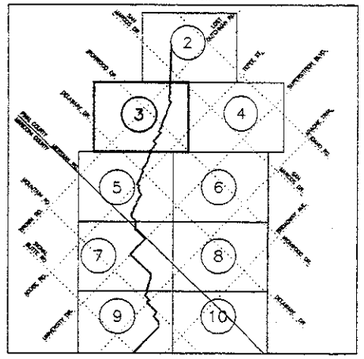
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/7/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

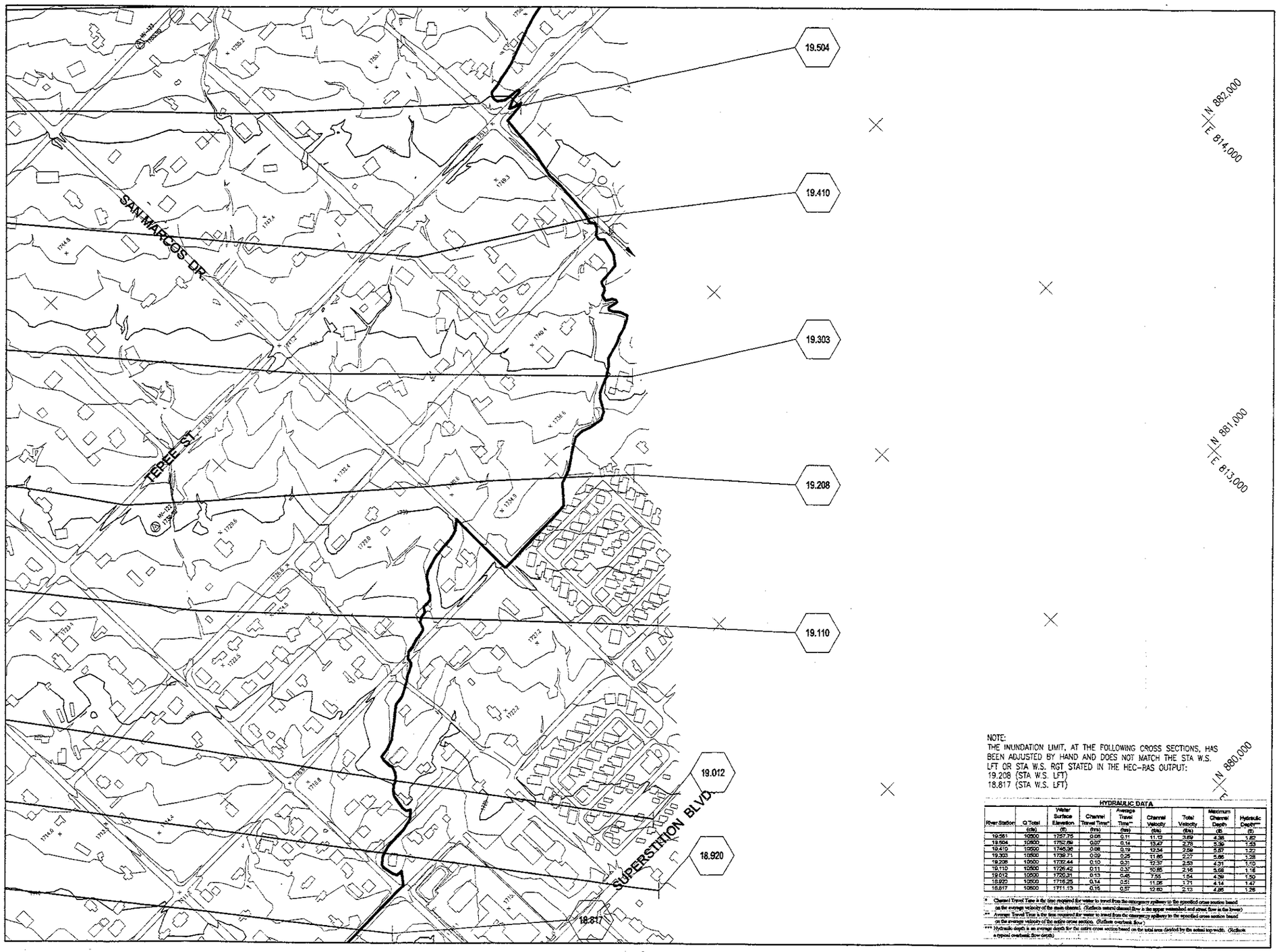
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 3 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.208 (STA W.S. LFT)
18.817 (STA W.S. LFT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (fps)	Total Velocity (fps)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
19.561	10500	1757.75	0.06	0.11	11.12	3.69	4.38	1.62
19.504	10500	1752.89	0.07	0.14	13.47	2.78	5.39	1.53
19.410	10500	1746.36	0.08	0.19	12.54	2.59	5.57	1.52
19.303	10500	1739.71	0.09	0.26	11.85	2.27	5.66	1.28
19.208	10500	1732.44	0.10	0.31	12.37	2.53	4.31	1.10
19.110	10500	1726.42	0.11	0.37	10.85	2.16	5.08	1.16
19.012	10500	1720.31	0.13	0.46	7.52	1.54	4.29	1.50
18.920	10500	1716.25	0.14	0.51	11.06	1.71	4.14	1.47
18.817	10500	1711.13	0.15	0.57	12.60	2.13	4.26	1.26

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Includes overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M120 M130

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

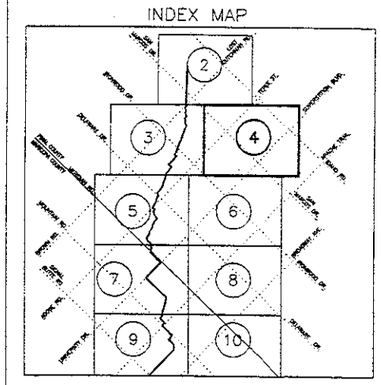
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/11/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

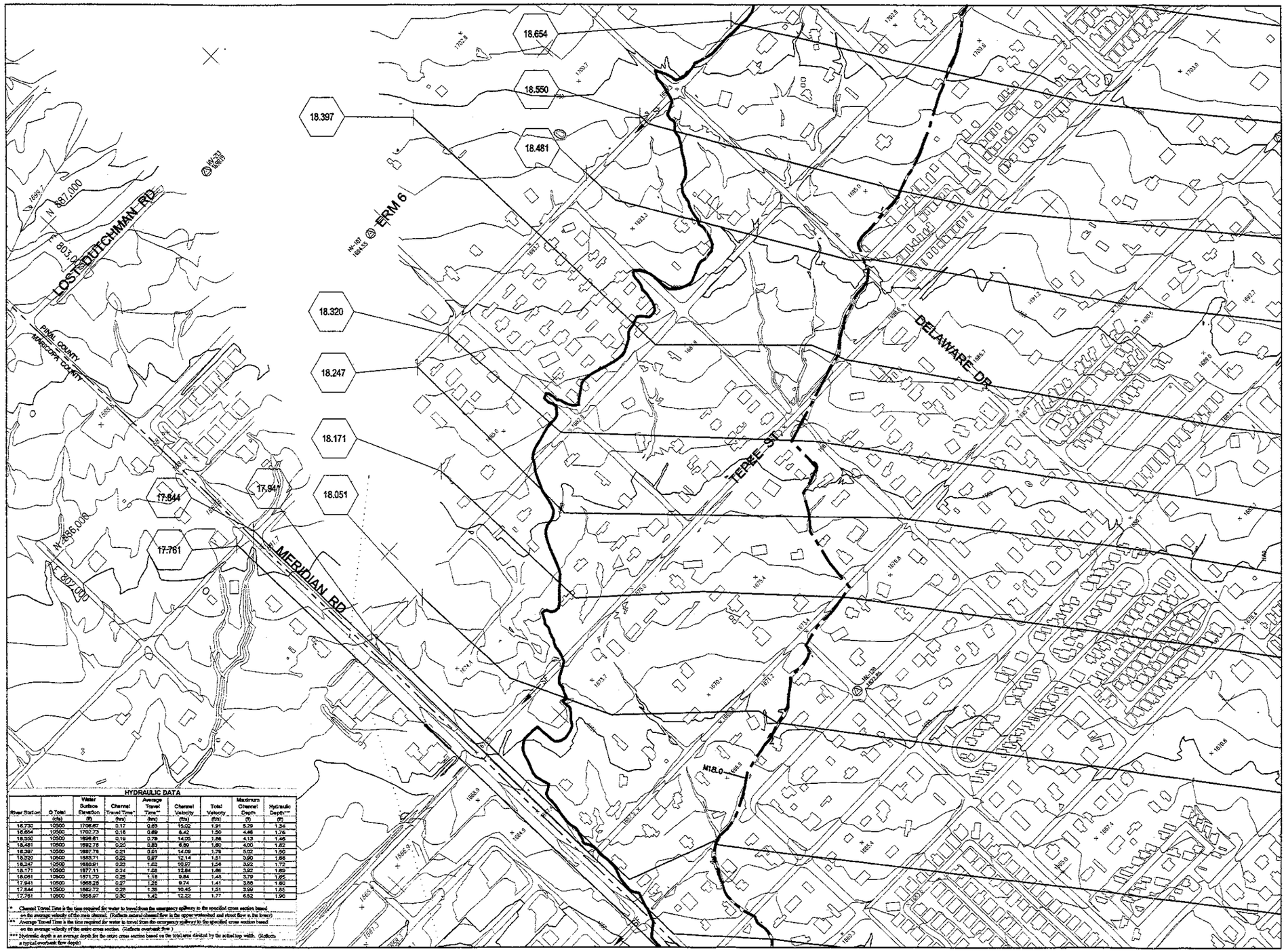
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 4 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 35TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (fps)	Total Velocity (fps)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.730	10500	1706.67	0.17	0.63	15.02	1.91	5.29	1.34
18.654	10500	1702.73	0.18	0.69	8.42	1.50	4.46	1.76
18.550	10500	1698.81	0.19	0.78	14.05	1.68	4.13	1.46
18.481	10500	1692.78	0.20	0.83	6.90	1.60	4.00	1.82
18.397	10500	1687.74	0.21	0.91	14.09	1.78	5.02	1.50
18.320	10500	1683.71	0.22	0.97	12.14	1.51	3.90	1.66
18.247	10500	1680.91	0.23	1.02	10.97	1.56	3.92	1.72
18.171	10500	1677.11	0.24	1.08	12.84	1.66	3.92	1.69
18.051	10500	1671.70	0.25	1.18	9.84	1.46	5.79	1.65
17.941	10500	1668.28	0.27	1.25	9.74	1.41	3.85	1.80
17.844	10500	1662.72	0.28	1.35	10.45	1.51	3.59	1.85
17.761	10500	1659.67	0.30	1.45	12.22	1.77	6.52	1.90

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M170 — M150
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	- - - - - - - -

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

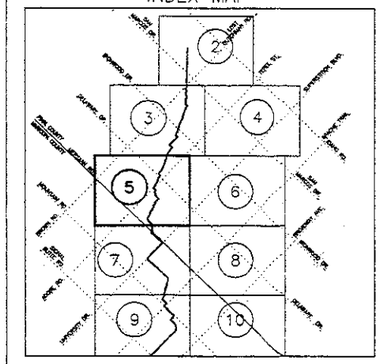
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
6	1694.55	SET ½" REBAR W. SIDE WARNER DR. APPROX. 400' NORTH OF FOOTHILL ST. N: 885989.687 E: 803916.006

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'

SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY

FULL SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/11/00 ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

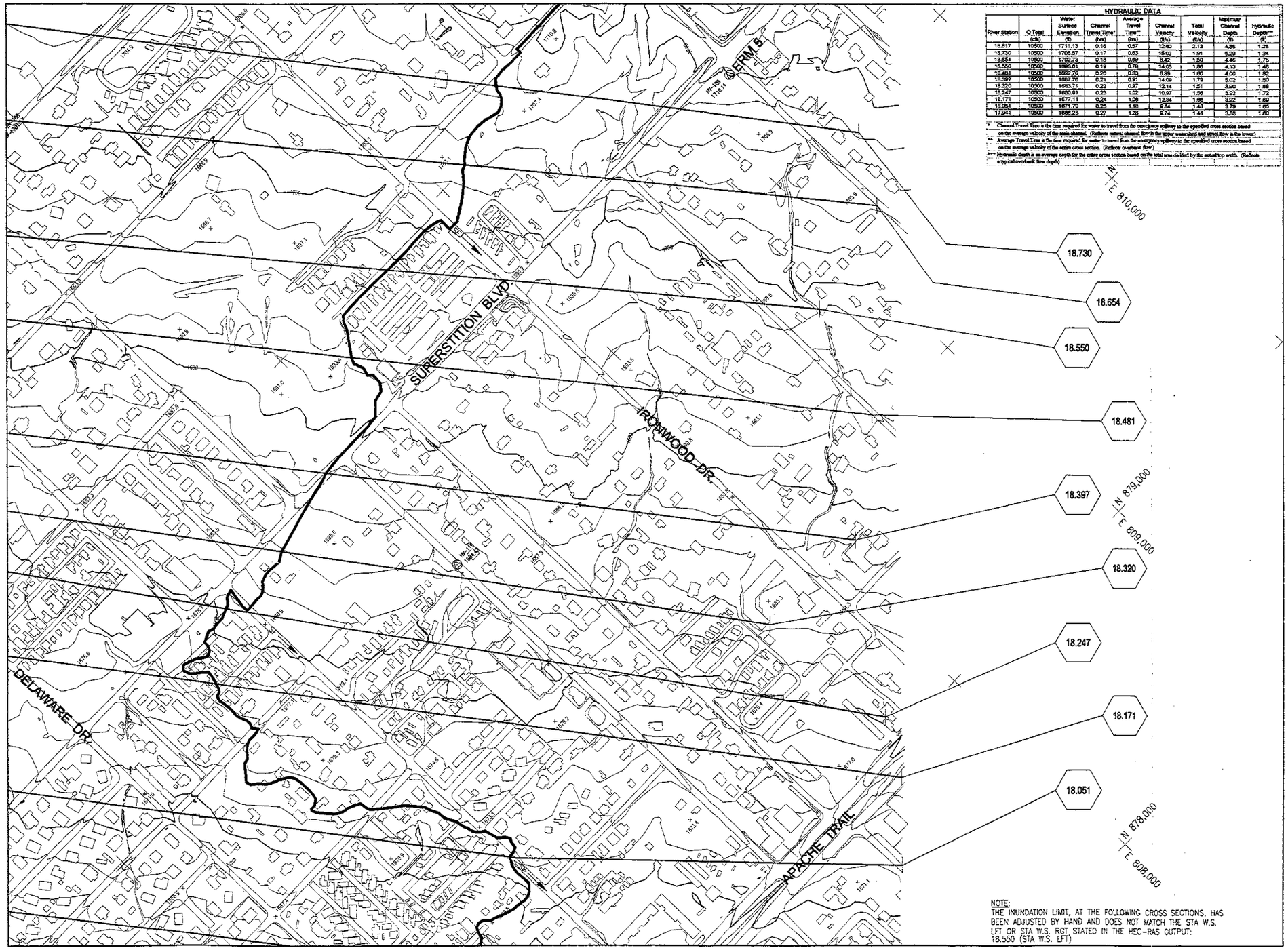
SHEET 5 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7205 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
5747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.817	10500	1711.13	0.16	0.57	12.80	2.13	4.86	1.25
18.730	10500	1708.87	0.17	0.63	15.02	1.91	5.29	1.34
18.654	10500	1702.73	0.18	0.69	8.42	1.50	4.46	1.75
18.550	10500	1696.61	0.19	0.78	14.05	1.86	4.13	1.46
18.481	10500	1692.78	0.20	0.83	6.89	1.60	4.00	1.82
18.397	10500	1687.76	0.21	0.91	14.09	1.79	5.02	1.50
18.320	10500	1683.71	0.22	0.97	12.14	1.51	3.90	1.86
18.247	10500	1680.91	0.23	1.02	10.97	1.56	3.92	1.72
18.171	10500	1677.11	0.24	1.08	12.84	1.66	3.92	1.69
18.051	10500	1671.70	0.25	1.16	9.84	1.48	3.79	1.65
17.941	10500	1666.28	0.27	1.28	9.74	1.41	3.88	1.60

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower).

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow).

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
18.550 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M20 M30

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

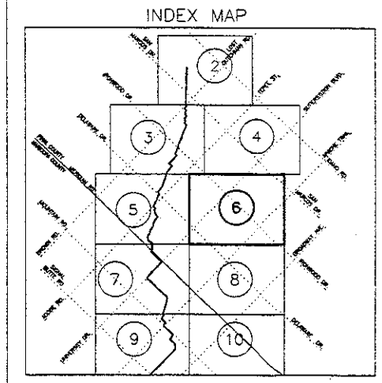
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
5	1710.14	SET ¾" REBAR AT THE S.W. CORNER VALLEY DR. & SUPERSTITION BLVD. N: 881464.645 E: 809198.764

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/11/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 6 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (fps)	Total Velocity (fps)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.844	10500	1652.72	0.28	1.35	10.45	1.51	3.99	1.85
17.751	10500	1658.97	0.30	1.42	12.22	1.77	6.52	1.90
17.674	10500	1656.60	0.31	1.47	13.31	1.74	7.51	1.76
17.601	10500	1653.60	0.31	1.53	12.01	2.08	6.80	1.94
17.480	10500	1648.62	0.33	1.60	13.71	2.07	5.63	1.72
17.336	10500	1644.52	0.34	1.68	14.11	1.41	5.29	1.82
17.262	10500	1641.10	0.35	1.75	13.32	1.79	4.66	1.72
17.186	10500	1638.58	0.38	1.80	10.46	1.45	5.43	2.10
17.111	10500	1635.56	0.37	1.86	15.52	1.85	4.95	1.70
17.046	10500	1633.24	0.38	1.90	7.11	1.42	5.01	2.08
16.983	10500	1630.47	0.39	1.95	9.95	1.50	6.51	1.90
16.919	10500	1627.33	0.40	2.02	10.68	1.79	6.39	1.73
16.850	10500	1624.14	0.40	2.05	10.73	1.91	5.49	1.63

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects normal channel flow in the upper watershed and street flows in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.262 (STA W.S. RGT)
17.111 (STA W.S. RGT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M120 — M130
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF →
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

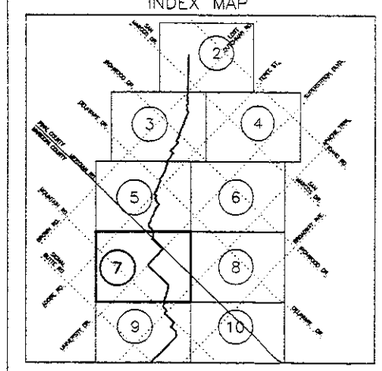
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
4	1651.54	FOUND MCDOT BRASS CAP IN HANDHOLE AT THE INTERSECTION OF MERIDIAN RD. & UNIVERSITY DR. N: 881501.698 E: 802654.718

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/1/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

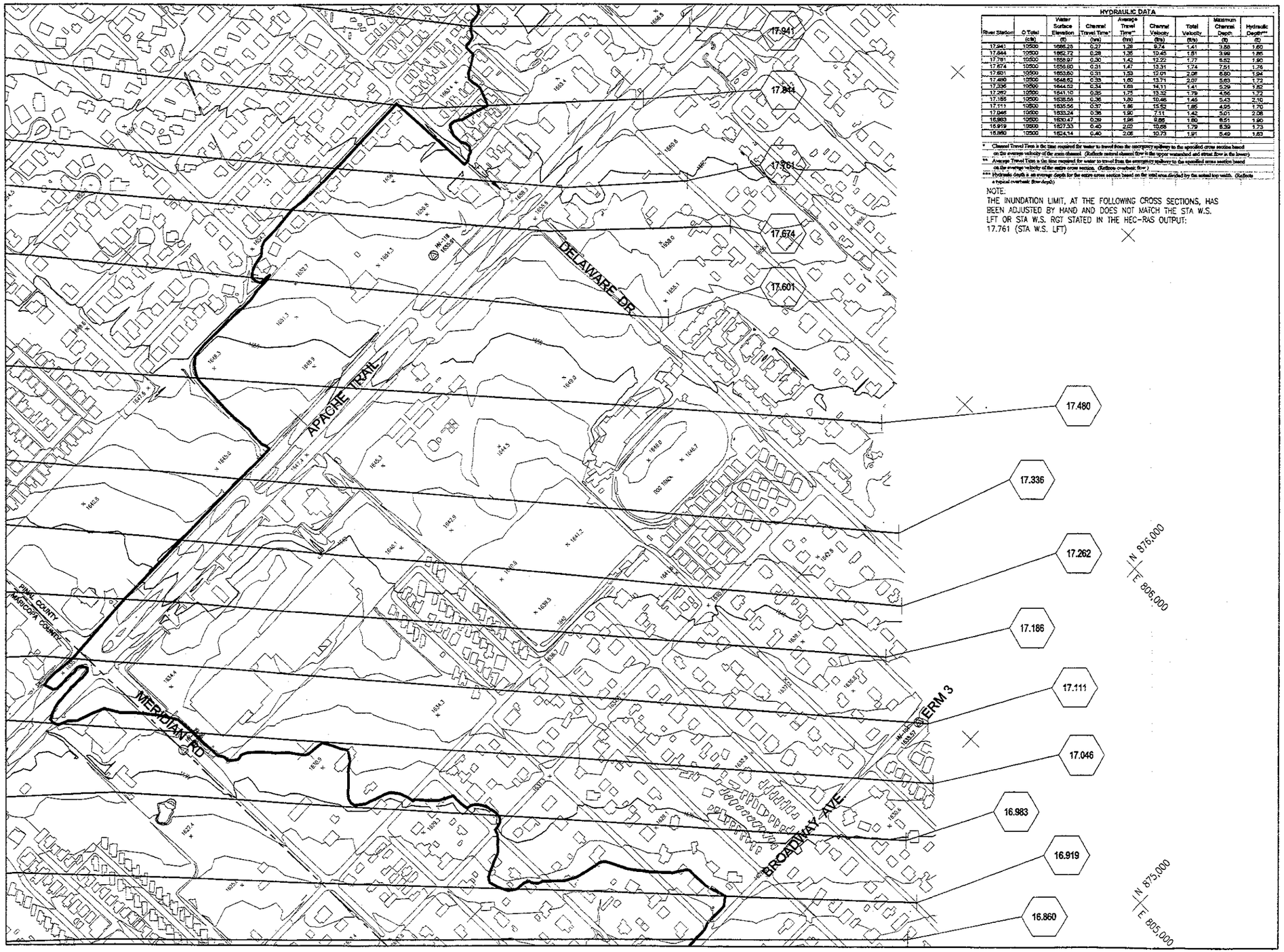
SHEET 7 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&G MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.941	10500	1666.23	0.27	1.29	9.74	1.41	3.88	1.60
17.834	10500	1662.72	0.28	1.35	10.45	1.51	3.98	1.85
17.761	10500	1659.97	0.30	1.42	12.20	1.77	5.52	1.90
17.674	10500	1658.60	0.31	1.47	13.31	1.74	7.51	1.76
17.601	10500	1653.50	0.31	1.53	12.01	2.08	6.80	1.94
17.480	10500	1648.52	0.33	1.60	13.71	2.07	5.63	1.72
17.336	10500	1644.52	0.34	1.69	14.11	1.41	5.29	1.82
17.262	10500	1641.10	0.35	1.75	13.32	1.79	4.66	1.72
17.186	10500	1638.58	0.36	1.80	10.46	1.46	5.43	2.10
17.111	10500	1635.56	0.37	1.86	15.52	1.86	4.95	1.70
17.046	10500	1633.24	0.38	1.90	7.11	1.42	3.01	2.08
16.983	10500	1630.47	0.39	1.96	9.89	1.80	6.51	1.90
16.919	10500	1627.53	0.40	2.02	10.08	1.79	6.39	1.73
16.860	10500	1624.14	0.40	2.06	10.73	1.91	5.49	1.83

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.761 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M13.0 M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

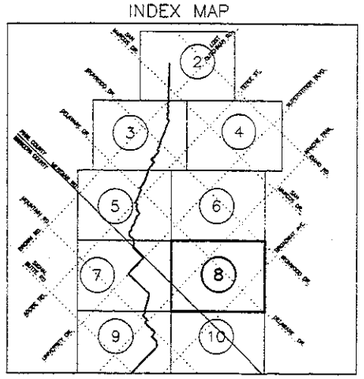
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
3	1635.57	SET ½" REBAR AT THE S.W. CORNER CORNWALL DR. & BROADWAY RD. N: 876207.307 E: 804896.947

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/10/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 8 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC,
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
16.585 (STA W.S. RGT)
16.525 (STA W.S. RGT)
16.451 (STA W.S. RGT)
16.381 (STA W.S. RGT)
16.265 (STA W.S. RGT)
16.182 (STA W.S. RGT)
16.086 (STA W.S. RGT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (f/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.860	10500	1624.14	0.40	2.06	10.73	1.91	5.49	1.53
16.775	10500	1620.75	0.42	2.13	7.28	1.38	5.53	2.25
16.678	10500	1616.65	0.43	2.20	13.25	1.90	4.73	1.63
16.585	10500	1612.73	0.44	2.28	11.05	1.81	4.43	1.91
16.525	10500	1610.57	0.45	2.33	8.21	1.49	3.89	1.91
16.451	10500	1607.29	0.47	2.39	7.15	1.63	3.90	1.65
16.381	10500	1603.49	0.48	2.46	9.05	1.43	4.95	1.91
16.265	10500	1599.89	0.50	2.53	12.97	1.54	4.16	1.55
16.182	10500	1595.91	0.51	2.59	10.31	1.45	4.73	1.62
16.086	10500	1594.30	0.52	2.65	10.06	1.50	4.36	1.56
16.001	10500	1592.07	0.53	2.70	8.65	1.37	4.67	1.77
15.892	10500	1588.91	0.55	2.76	8.77	1.61	5.62	1.66

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects actual channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — 0.01M — 0.01M

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

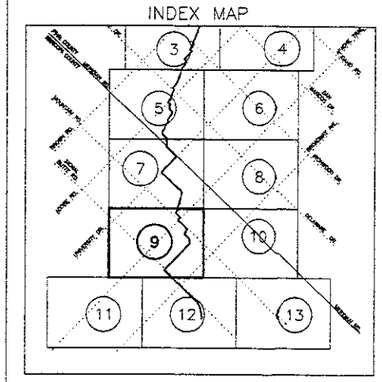
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'

SCALE: 1" = 200 FEET

CONTOUR INTERVAL = 2 FEET

FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY

FULL SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/11/00 ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

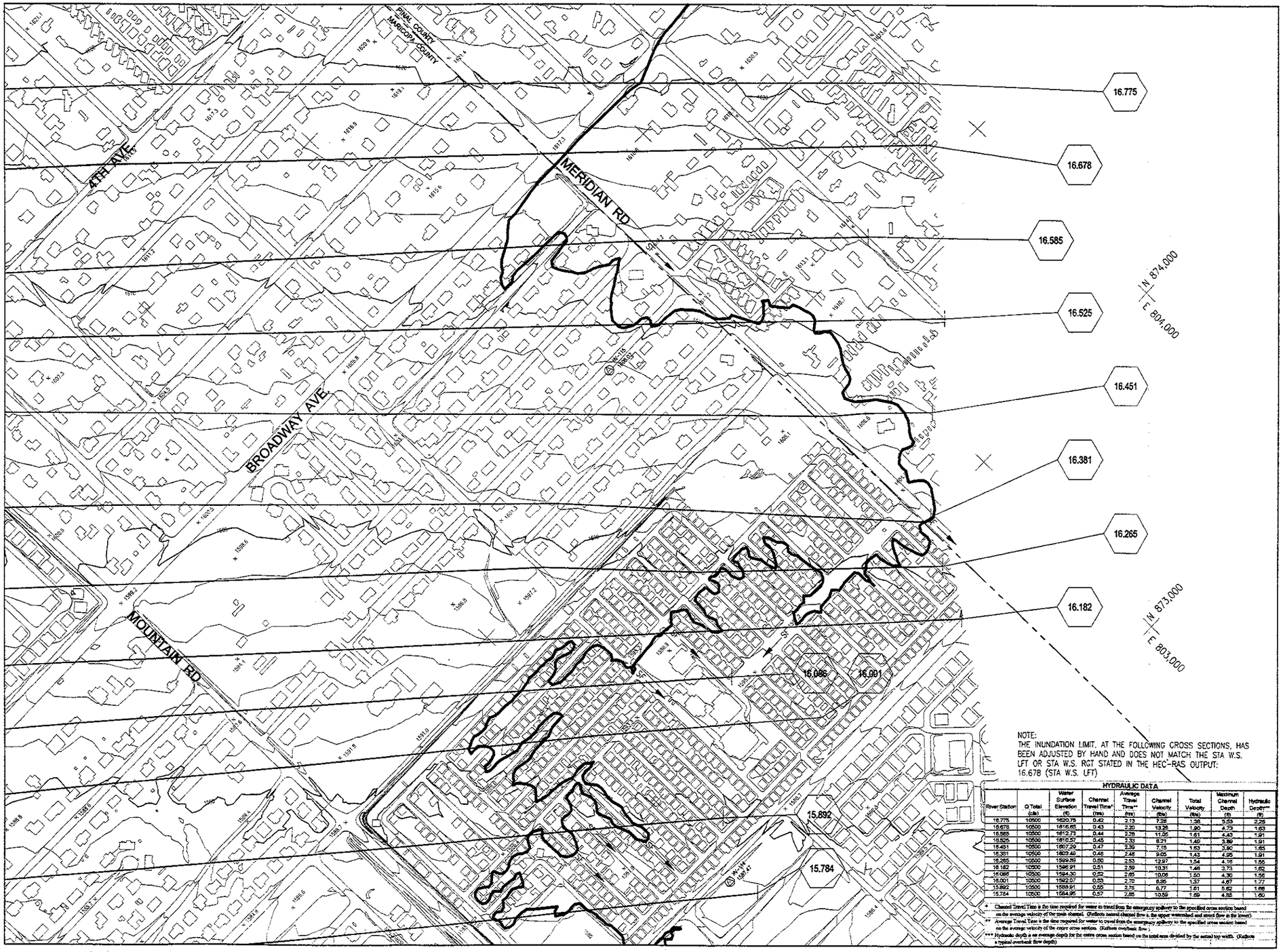
SHEET 9 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC,
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
16.678 (STA W.S. LFT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.775	10500	1620.79	0.42	2.13	7.28	1.38	5.53	2.25
16.678	10500	1616.65	0.43	2.20	13.26	1.90	4.73	1.63
16.585	10500	1612.73	0.44	2.29	11.05	1.61	4.43	1.91
16.525	10500	1610.57	0.45	2.33	8.21	1.49	3.89	1.91
16.451	10500	1607.29	0.47	2.39	7.15	1.63	3.90	1.65
16.381	10500	1603.49	0.48	2.48	9.05	1.43	4.95	1.91
16.265	10500	1599.89	0.50	2.53	12.97	1.54	4.16	1.55
16.182	10500	1596.91	0.51	2.59	10.31	1.46	3.73	1.52
16.086	10500	1594.30	0.52	2.65	10.08	1.50	4.30	1.56
16.001	10500	1592.07	0.53	2.70	8.95	1.37	4.67	1.77
15.892	10500	1589.91	0.55	2.76	6.77	1.61	5.62	1.66
15.784	10500	1584.95	0.57	2.85	10.59	1.69	4.83	1.60

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects lateral channel flow i. the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	- - - - - - - -

ELEVATION REFERENCE MARKS

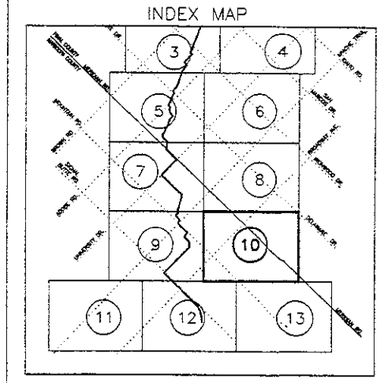
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 11/1/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 10 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA

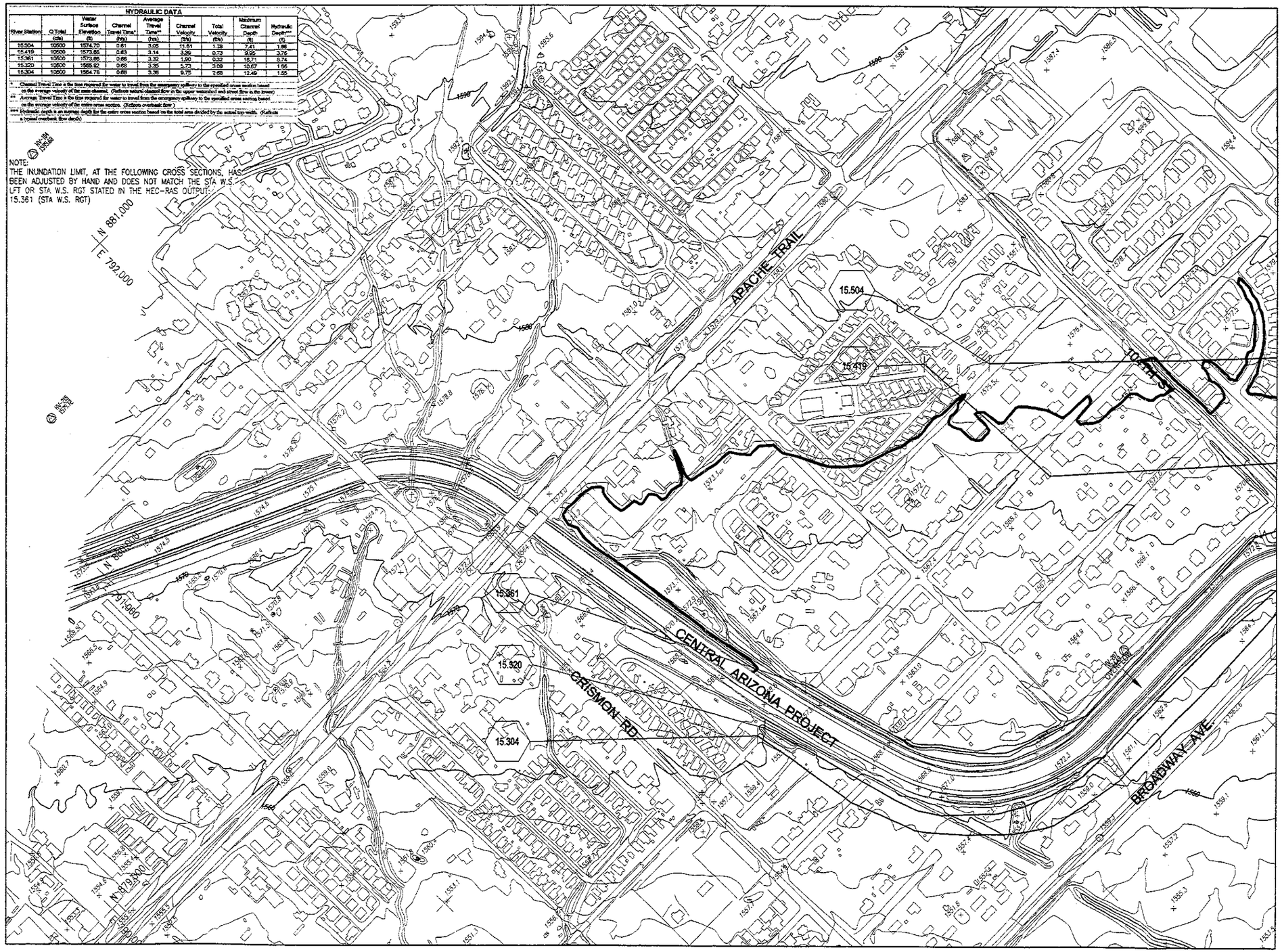
River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
15.504	10500	1574.70	0.61	3.05	11.61	1.38	7.41	1.86
15.419	10500	1573.86	0.63	3.14	3.36	0.73	9.95	3.75
15.361	10500	1573.86	0.66	3.32	1.90	0.32	16.71	8.74
15.320	10500	1565.92	0.68	3.35	5.73	3.09	10.67	1.66
15.304	10500	1564.76	0.68	3.36	9.75	2.68	12.49	1.55

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects return/channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
15.361 (STA W.S. RGT)



LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

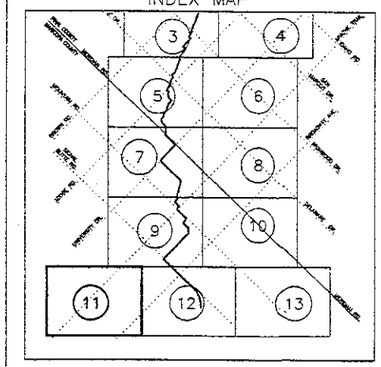
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ⟶ SYMBOL.
3- FLOODING LIMITS SHOWN OVERTOPPING THE CAP AT VARIOUS LOCATIONS ALONG THE NORTH BANK ARE BASED ON AN ELEVATION DETERMINED IN THE HEC-RAS MODEL FROM THE CROSS SECTION DATA AND THE EFFECTIVE FLOW LIMITS. FLOWS MAY CROSS THE CAP AND CAUSE FLOODING DOWNSTREAM OF THE CAP. NO ATTEMPT WAS MADE UNDER THIS STUDY TO DETERMINE THE FLOODING LIMITS DOWNSTREAM OF THE CAP.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/1/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

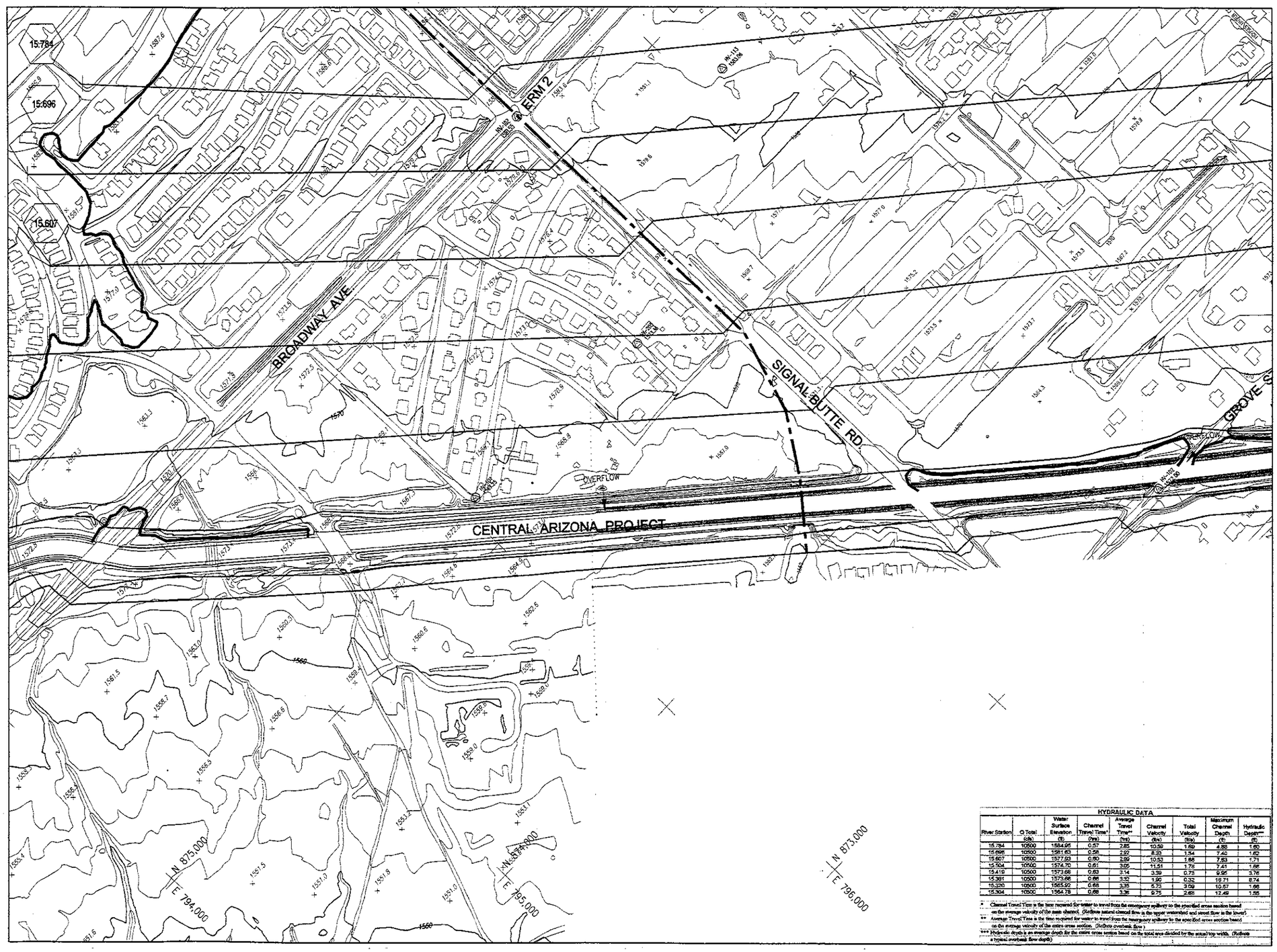
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 11 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (fps)	Total Velocity (fps)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
15.784	10500	1584.95	0.57	2.85	10.59	1.69	4.88	1.60
15.696	10500	1581.63	0.58	2.92	8.33	1.54	7.40	1.62
15.607	10500	1577.89	0.60	2.99	10.53	1.66	7.63	1.71
15.504	10500	1574.70	0.61	3.05	11.51	1.78	7.41	1.68
15.419	10500	1573.68	0.63	3.14	3.39	0.73	9.95	3.76
15.391	10500	1573.68	0.66	3.32	1.90	0.32	19.71	8.74
15.220	10500	1565.92	0.68	3.35	5.73	3.09	10.67	1.66
15.304	10500	1564.78	0.68	3.36	9.75	2.48	12.49	1.55

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflows natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	HB2.0 HB3.0
CROSS SECTION	2.147 WSE 2.147
STREET FLOW	SF
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
2	1581.30	FOUND MCDOT BRASS CAP IN HANDHOLE 0.25' BELOW RIM AT THE INTERSECTION OF SIGNAL BUTTE RD. & BROADWAY RD. N: 876208.930 E: 797374.582

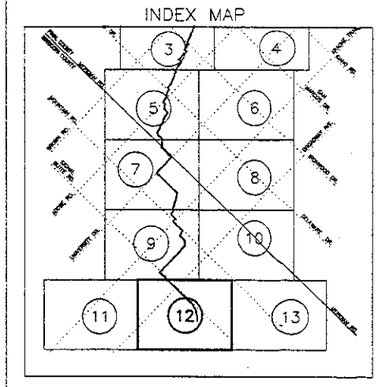
NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ⟶ SYMBOL.

3- FLOODING LIMITS SHOWN OVERTOPPING THE CAP AT VARIOUS LOCATIONS ALONG THE NORTH BANK ARE BASED ON AN ELEVATION DETERMINED IN THE HEC-RAS MODEL FROM THE CROSS SECTION DATA AND THE EFFECTIVE FLOW LIMITS. FLOWS MAY CROSS THE CAP AND CAUSE FLOODING DOWNSTREAM OF THE CAP. NO ATTEMPT WAS MADE UNDER THIS STUDY TO DETERMINE THE FLOODING LIMITS DOWNSTREAM OF THE CAP.

INDEX MAP



200' 0' 200' 400'

SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY ARIZONA, U.S.A. 7/10/00

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

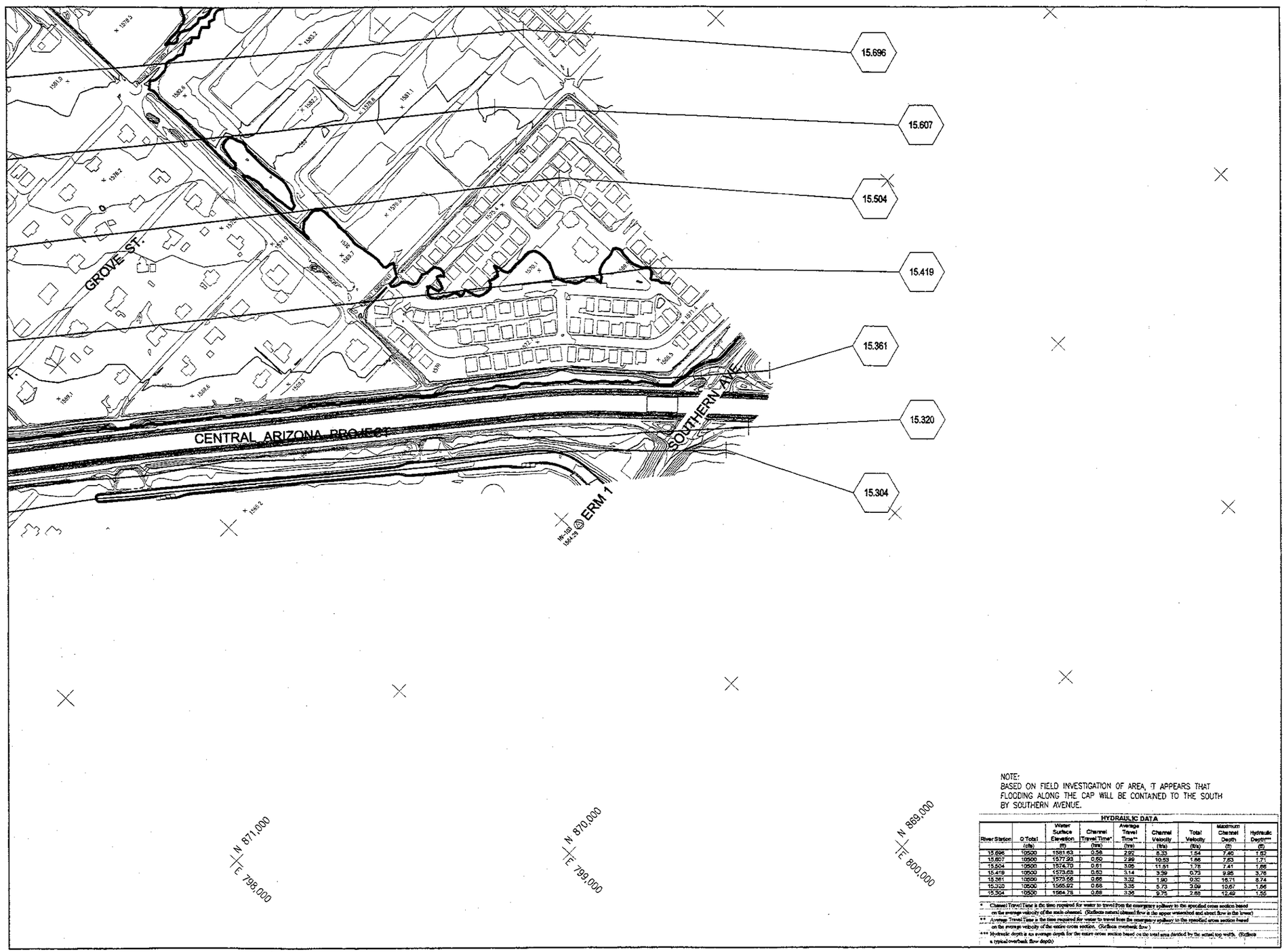
SHEET 12 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
BASED ON FIELD INVESTIGATION OF AREA, IT APPEARS THAT FLOODING ALONG THE CAP WILL BE CONTAINED TO THE SOUTH BY SOUTHERN AVENUE.

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
15.696	10500	1581.63	0.58	2.92	8.33	1.54	7.40	1.62
15.607	10500	1577.93	0.60	2.99	10.53	1.66	7.63	1.71
15.504	10500	1574.70	0.61	3.05	11.51	1.78	7.41	1.66
15.419	10500	1573.63	0.63	3.14	3.59	0.73	9.95	3.76
15.361	10500	1573.66	0.66	3.32	1.90	0.32	16.71	8.74
15.320	10500	1565.92	0.68	3.35	5.73	3.09	10.67	1.66
15.304	10500	1564.79	0.68	3.36	9.75	2.68	12.49	1.55

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the remoted cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M120 — M150
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

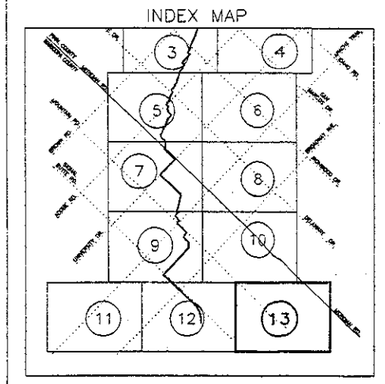
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
1	1564.29	FOUND BLM BRASS CAP NORTH SIDE SOUTHERN AVE. ½ MILE EAST OF SIGNAL BUTTE RD. N: 870934.187 E: 800036.284

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.
3- FLOODING LIMITS SHOWN OVERTOPPING THE CAP AT VARIOUS LOCATIONS ALONG THE NORTH BANK ARE BASED ON AN ELEVATION DETERMINED IN THE HEC-RAS MODEL FROM THE CROSS SECTION DATA AND THE EFFECTIVE FLOW LIMITS. FLOWS MAY CROSS THE CAP AND CAUSE FLOODING DOWNSTREAM OF THE CAP. NO ATTEMPT WAS MADE UNDER THIS STUDY TO DETERMINE THE FLOODING LIMITS DOWNSTREAM OF THE CAP.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/7/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 13 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&S MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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

PROJECT DATA
Project Title: East Side SIS - Apache Junction FRS
Project File : AJfull.prj
Run Date and Time: 4/26/00 10:51:12 AM

Project in English units

Project Description:
Spillway Inundation Study for Apache Junction FRS - Full Spillway Flow Scenario

FCD 98-33
Michael Baker Jr., Inc.

Last Updates: April 26, 2000
Submitted to FCD: April 28, 2000

PLAN DATA

Plan Title: Full Spillway Flow (Mixed Flow Regime)
Plan File : d:\fcdspill\apache\HEC-RAS\99pcent\full\AJfull.p03

Geometry Title: Base Conditions Geometry
Geometry File : d:\fcdspill\apache\HEC-RAS\99pcent\full\AJfull.G01

Flow Title : Full Spillway Flow (10,500 cfs)
Flow File : d:\fcdspill\apache\HEC-RAS\99pcent\full\AJfull.F01

Plan Summary Information:

Number of:	Cross Sections	= 58	Mulitple Openings	=	0
	Culverts	= 1	Inline Weirs	=	0
	Bridges	= 0			

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

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

FLOW DATA

Flow Title: Full Spillway Flow (10,500 cfs)
Flow File : d:\fcdspill\apache\HEC-RAS\99pcent\full\AJfull.F01

Flow Data (cfs)

River	Reach	RS	PF 1
Apache Junct FRS	Spillway	20.000	10500

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Apache Junct FRS	Spillway	PF 1	Critical	Normal S = .014

GEOMETRY DATA

Geometry Title: Base Conditions Geometry
Geometry File : d:\fcdspill\apache\HEC-RAS\99pcent\full\AJfull.G01

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 20.000

INPUT
Description: Spillway Crest
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9494.58	1810.18	9929.29	1810.56	9936.72	1810.56	9939.16	1799.77	9991.54	1799.77
10027.79	1799.77	10036.85	1799.77	10038.14	1809.97	10039.87	1809.93	10242.44	1810.25
10305.53	1810.12	10372.15	1810	10413.17	1810.31				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9494.58	.06	9936.72	.02	10038.14	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9936.72	10038.14	43.28	34.75	44.55	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1810.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.51	Wt. n-Val.		0.020	
W.S. Elev (ft)	1806.83	Reach Len. (ft)	43.28	34.75	44.55
Crit W.S. (ft)	1806.83	Flow Area (sq ft)		698.31	
E.G. Slope (ft/ft)	0.003571	Area (sq ft)		698.31	
Q Total (cfs)	10500.00	Flow (cfs)		10500.00	
Top Width (ft)	100.18	Top Width (ft)		100.18	
Vel Total (ft/s)	15.04	Avg. Vel. (ft/s)		15.04	
Max Chl Dpth (ft)	7.06	Hydr. Depth (ft)		6.97	
Conv. Total (cfs)	175711.2	Conv. (cfs)		175711.2	
Length Wtd. (ft)	34.75	Wetted Per. (ft)		112.04	
Min Ch El (ft)	1799.77	Shear (lb/sq ft)		1.39	
Alpha	1.00	Stream Power (lb/ft s)		20.89	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	2684.17	95.84	1300.46
C & E Loss (ft)	0.00	Cum SA (acres)	1562.10	37.83	621.65

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9936.72	9962.07	2311.04	167.37	30.15	22.01	6.83	13.81
9962.07	9987.43	2900.36	178.97	25.36	27.62	7.06	16.21
9987.43	10012.79	2900.36	178.97	25.36	27.62	7.06	16.21
10012.79	RB 10038.14	2388.24	173.01	31.18	22.75	6.93	13.80

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.993

INPUT
Description: Downstream Toe of Spillway
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9494.58	1789.34	9929.61	1792.78	9932.18	1779.09	9932.85	1779.09	9984.44	1779.16
10020.4	1779.34	10030.42	1779.25	10031.45	1793.58	10098.95	1789.46	10229.67	1805.84
10257.6	1805.93	10295.32	1789.15	10303.38	1788.56				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9494.58	.06	9929.61	.032	10031.45	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9929.61	10031.45		94.49	99.29	88.53	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1804.31	Element			
Vel Head (ft)	22.31	Wt. n-Val.		0.032	
W.S. Elev (ft)	1782.00	Reach Len. (ft)	94.49	99.29	88.53
Crit W.S. (ft)	1786.22	Flow Area (sq ft)		277.02	
E.G. Slope (ft/ft)	0.180338	Area (sq ft)		277.02	
Q Total (cfs)	10500.00	Flow (cfs)		10500.00	
Top Width (ft)	98.98	Top Width (ft)		98.98	
Vel Total (ft/s)	37.90	Avg. Vel. (ft/s)		37.90	
Max Chl Dpth (ft)	2.91	Hydr. Depth (ft)		2.80	
Conv. Total (cfs)	24725.5	Conv. (cfs)		24725.5	
Length Wtd. (ft)	99.29	Wetted Per. (ft)		103.95	
Min Ch El (ft)	1779.09	Shear (lb/sq ft)		30.00	
Alpha	1.00	Stream Power (lb/ft s)		1137.23	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	2684.17	95.45	1300.46
C & E Loss (ft)	5.64	Cum SA (acres)	1562.10	37.75	621.65

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9929.61	9955.07	2487.32	67.00	25.85	23.69	2.86	37.13
9955.07	9980.53	2885.62	72.80	25.46	27.48	2.86	39.64
9980.53	10005.99	2772.39	71.07	25.46	26.40	2.79	39.01

10005.99	RB 10031.45	2354.67	66.15	27.18	22.43	2.69	35.60

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.975

INPUT
Description: Downstream Edge of Spillway Rock Outfall Protection
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9664.74	1786.57	9674.21	1787.03	9692.15	1787.17	9726.44	1787.22	9732.47	1786.01
9741.55	1787.32	9809.19	1787.34	9820.56	1787.56	9846.36	1780.38	10112.27	1779.79
10137.51	1787.98	10165.36	1787.67	10227.12	1788.32	10250.52	1796	10266.1	1796.16
10289.41	1786.68	10301.12	1786.34	10314.18	1786.09				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9664.74	.06	9820.56	.03	10137.51	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9820.56	10137.51	416.52	415.95	409	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1786.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.64	Wt. n-Val.		0.032	
W.S. Elev (ft)	1782.31	Reach Len. (ft)	416.52	415.95	409.00
Crit W.S. (ft)	1783.66	Flow Area (sq ft)		607.28	
E.G. Slope (ft/ft)	0.049681	Area (sq ft)		607.28	
Q Total (cfs)	10500.00	Flow (cfs)		10500.00	
Top Width (ft)	280.59	Top Width (ft)		280.59	
Vel Total (ft/s)	17.29	Avg. Vel. (ft/s)		17.29	
Max Chl Dpth (ft)	2.52	Hydr. Depth (ft)		2.16	
Conv. Total (cfs)	47108.1	Conv. (cfs)		47108.1	
Length Wtd. (ft)	414.49	Wetted Per. (ft)		281.25	
Min Ch El (ft)	1779.79	Shear (lb/sq ft)		6.70	
Alpha	1.00	Stream Power (lb/ft s)		115.79	
Frctn Loss (ft)	8.52	Cum Volume (acre-ft)	2684.17	94.44	1300.46
C & E Loss (ft)	8.83	Cum SA (acres)	1562.10	37.32	621.65

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9820.56	9899.80	1760.17	112.81	60.62	16.76	1.87	15.60
9899.80	9979.04	2889.32	169.05	79.24	27.52	2.13	17.09
9979.04	10058.27	3297.00	182.98	79.24	31.40	2.31	18.02
10058.27	RB 10137.51	2553.51	142.44	62.15	24.32	2.31	17.93

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.896

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7636.43	1811.94	8411.27	1788.69	8431.84	1787.96	8452.63	1787.31	8488.09	1785.23
8494.79	1785.31	8501.3	1785.01	8524.01	1781.45	8759.33	1780.85	8770.56	1780.08
8785.49	1779.97	8792	1779.31	8807.33	1780.27	8815.84	1779.29	8816.35	1779.82
8820	1779.6	8826.15	1780.05	8860.85	1779.87	8959.15	1780.26	9328.56	1780.82
9334.31	1779.7	9339.97	1781.51	9365.04	1780.99	9851.39	1781.53	9974.35	1780.46
9979.39	1779.41	9984.07	1780.31	10043.78	1780.67	10052.66	1777.78	10065.49	1780.46
10184.2	1778.96	10300.75	1780.57	10339.72	1779.29	10346.43	1777.59	10354.89	1778.84
10424.55	1780.02	10469.64	1779.69	10474.66	1777.81	10483.54	1779.47	10492.57	1779.73
10498.25	1778.84	10503.69	1779.42	10569.76	1779.87	10583.27	1779.83	10585.03	1779.79
10586.3	1776.77	10591.04	1779.54	10601.74	1783.29	10613.34	1783	10621.83	1781.27
10636.57	1779.94	10646.32	1781.22						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7636.43	.06	9974.35	.02	10065.49	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.35	10065.49	444.8	443.55	442.48	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7636.43	9606.43	1784	10284.43	10646.32	1784

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10601.74	10646.32	1788

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1784.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.	0.060	0.028	0.060
W.S. Elev (ft)	1782.96	Reach Len. (ft)	444.80	443.55	442.48
Crit W.S. (ft)	1782.96	Flow Area (sq ft)	624.48	259.81	716.91
E.G. Slope (ft/ft)	0.014017	Area (sq ft)	3055.07	259.81	1775.12
Q Total (cfs)	10500.00	Flow (cfs)	2605.34	3259.75	4634.91
Top Width (ft)	2086.40	Top Width (ft)	1459.96	91.14	535.30
Vel Total (ft/s)	6.56	Avg. Vel. (ft/s)	4.17	12.55	6.47
Max Chl Dpth (ft)	6.19	Hydr. Depth (ft)	1.70	2.85	3.27
Conv. Total (cfs)	88687.3	Conv. (cfs)	22005.8	27533.2	39148.3
Length Wtd. (ft)	443.48	Wetted Per. (ft)	367.92	92.07	218.96
Min Ch El (ft)	1777.78	Shear (lb/sq ft)	1.49	2.47	2.87
Alpha	1.67	Stream Power (lb/ft s)	6.20	30.98	18.52
Frctn Loss (ft)	6.90	Cum Volume (acre-ft)	2669.57	90.30	1292.13
C & E Loss (ft)	0.25	Cum SA (acres)	1555.12	35.55	619.14

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid;
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9389.87	9682.11	515.32	125.47	75.68	4.91	1.66	4.11
9682.11	9974.35	2090.06	499.01	292.24	19.91	1.71	4.19
LB 9974.35	9997.13	782.50	63.96	22.98	7.45	2.81	12.23

9997.13	10019.92	651.55	57.11	22.79	6.21	2.51	11.41
10019.92	10042.71	591.54	53.89	22.79	5.63	2.37	10.98
10042.71	RB 10065.49	1234.16	84.85	23.52	11.75	3.72	14.54
10065.49	10138.09	1288.83	214.67	72.61	12.27	2.96	6.00
10138.09	10210.70	1912.08	271.99	72.61	18.21	3.75	7.03
10210.70	10283.30	1417.58	227.29	72.61	13.50	3.13	6.24
10283.30	10355.91	16.38	2.96	1.13	0.16	2.62	5.54

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.812

INPUT
Description:
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6576.97	1774.26	6622.91	1775.62	6651.07	1776.69	6739.73	1773.88	6757.66	1773.37
6776.75	1772.85	6806.97	1773.07	7010.04	1772.51	7031.41	1773.13	7039.78	1772.47
7063.52	1772.59	7081.53	1772.73	7100.1	1772.73	7162.48	1773.01	7168.95	1771.67
7178.17	1772.37	7371.66	1771.91	7682.58	1772.93	7723.7	1772.9	7874.47	1772.89
7879.76	1772.29	7888.4	1772.98	7968.69	1773.98	7984.38	1774.34	8018.75	1773.64
8024.61	1774.34	8029.19	1774.1	8044.64	1772.11	8049.73	1773.78	8631.52	1773.48
8679.59	1773.55	8897.55	1773.75	8914.73	1773.76	8930.13	1773.97	8953.31	1774.06
9001.04	1773.03	9015.31	1774.96	9120.97	1774.05	9127.4	1771.84	9134.7	1773.94
9263.36	1773.55	9381.4	1773.67	9576.26	1773.73	9644.79	1773.94	9991.41	1773.88
10066.96	1773.1610072.21	1772.23	10081.7	1773.5810204.88	1773.0810213.44	1771.7			
10222.71	177310269.86	1772.3710277.26	1772.0710281.92	1772.1310294.57	1773.24				
10412.77	1773.6910469.92	177210475.74	1770.1210484.05	1773.210709.06	1773.24				
10765.68	1773.1510772.71	1771.5310787.98	1771.4710796.93	1773.36	10813.3	1772.84			
10816.26	1770.4410834.47	1776.84							

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6576.97	.09	8914.73	.06	9991.41	.028	10081.7	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9991.41	10081.7	410.21	406.82	401.03	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6576.97	9327.06	1778	10469.91	0834.47	1778

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6576.97	6651.07	1777

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1775.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.	0.060	0.028	0.060
W.S. Elev (ft)	1775.29	Reach Len. (ft)	410.21	406.82	401.03
Crit W.S. (ft)	1775.12	Flow Area (sq ft)	975.09	169.66	840.91
E.G. Slope (ft/ft)	0.017344	Area (sq ft)	6356.07	169.66	1663.35
Q Total (cfs)	10500.00	Flow (cfs)	4107.38	1803.26	4589.35
Top Width (ft)	4134.70	Top Width (ft)	3296.06	90.29	748.35
Vel Total (ft/s)	5.29	Avg. Vel. (ft/s)	4.21	10.63	5.46
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)	1.47	1.88	2.17
Conv. Total (cfs)	79728.0	Conv. (cfs)	31187.9	13692.4	34847.6
Length Wtd. (ft)	405.46	Wetted Per. (ft)	664.35	90.47	388.49
Min Ch El (ft)	1772.23	Shear (lb/sq ft)	1.59	2.03	2.34

Alpha	1.41	Stream Power (lb/ft s)	6.69	21.58	12.79
Frctn Loss (ft)	5.70	Cum Volume (acre-ft)	2621.52	88.12	1274.67
C & E Loss (ft)	0.01	Cum SA (acres)	1530.84	34.62	612.62

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9137.80	9564.61	1693.31	380.32	237.55	16.13	1.60	4.45
9564.61	9991.41	2414.06	594.77	426.81	22.99	1.39	4.06
LB 9991.41	10013.98	310.68	34.18	22.57	2.96	1.51	9.09
10013.98	10036.55	387.68	39.03	22.57	3.69	1.73	9.93
10036.55	10059.13	471.38	43.89	22.57	4.49	1.94	10.74
10059.13	RB 10081.70	633.52	52.57	22.75	6.03	2.33	12.05
10081.70	10175.80	883.92	178.55	94.10	8.42	1.90	4.95
10175.80	10269.89	1417.30	237.23	94.30	13.50	2.52	5.97
10269.89	10363.99	1096.53	203.25	94.15	10.44	2.16	5.40
10363.99	10458.08	938.65	185.12	94.12	8.94	1.97	5.07
10458.08	10552.18	252.97	36.76	11.82	2.41	3.11	6.88

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.735

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6478.42	1768.48	6485.71	1768.74	6511.21	1769.61	6681.63	1772.14	6791.58	1769.48
6868.37	1769.02	6874.81	1767.85	6884.19	1768.68	6952.18	1768.46	7279.82	1767.89
7386.68	1768.78	7404.44	1769.25	7422.37	1769.3	7893.75	1768.17	7917.98	1767.47
7924.07	1767.53	7932.05	1768.22	8091.89	1768.83	8098.25	1767.39	8107.21	1768.4
8131.62	1767.75	8135.57	1767.43	8141.34	1768.33	8282.58	1769.13	8334.13	1769.22
8373.1	1768.73	8382.64	1769.01	9136.8	1768.69	9145.55	1765.78	9178.93	1768.28
9262.25	1768.4	9267.95	1767.86	9286.08	1768.16	9302.57	1768.41	9364.61	1768.89
9411.83	1768.98	9417.22	1768.12	9423.69	1769.32	9666.88	1768.34	9733.91	1767.43
9742.14	1767.25	9754.94	1768.35	9858.81	1769.3	9940.13	1767.83	9946.75	1768.04
10010.48	1767.41	10045.6	1767.71	10171.86	1767.34	10184.1	1765.09	10199.86	1767.99
10223.57	1767.91	10264.94	1766.88	10318.16	1766.99	10512.87	1767.84	10565.54	1767.82
10574.13	1766.01	10580.25	1767.43	10681.01	1767.18	10749.55	1767.55	10759.11	1765.94
10768.53	1767.55	10860.77	1767.65	10868.78	1767.96	10900.04	1766.97	10911.24	1766.16
10924.55	1767.91	10966.87	1768.19	10977.26	1770.31	10993.61	1769.75	10995.92	1765.87
11005.9	1765.61	11007.84	1770.02	11022.76	1774.57				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6478.42	.09	9286.08	.06	9946.75	.02	10199.86	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9946.75	10199.86	363.11	367.49	373	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6478.42	9090.42	1773	10630.42	11022.76	1773

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6478.42	6681.63	1774	10977.26	11022.76	1774

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1770.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.	0.069	0.028	0.060
W.S. Elev (ft)	1769.48	Reach Len. (ft)	363.11	367.49	373.00
Crit W.S. (ft)	1769.48	Flow Area (sq ft)	826.49	512.01	890.13
E.G. Slope (ft/ft)	0.011723	Area (sq ft)	2703.95	512.01	1578.14

Q Total (cfs)	10500.00	Flow (cfs)	1928.89	4699.84	3871.26
Top Width (ft)	4180.79	Top Width (ft)	3154.38	253.11	773.31
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)	2.33	9.18	4.35
Max Chl Dpth (ft)	4.39	Hydr. Depth (ft)	0.97	2.02	2.07
Conv. Total (cfs)	96975.9	Conv. (cfs)	17814.9	43406.8	35754.2
Length Wtd. (ft)		Wetted Per. (ft)	857.18	253.58	430.93
Min Ch El (ft)	1765.09	Shear (lb/sq ft)	0.71	1.48	1.51
Alpha	2.06	Stream Power (lb/ft s)	1.65	13.56	6.57
Frctn Loss (ft)		Cum Volume (acre-ft)	2578.86	84.93	1259.75
C & E Loss (ft)		Cum SA (acres)	1500.47	33.02	605.61

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.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9079.67	9513.21	827.40	402.25	423.56	7.88	0.95	2.06
9513.21	9946.75	1101.49	424.23	433.62	10.49	0.98	2.60
LB 9946.75	10010.03	911.81	110.60	63.28	8.68	1.75	8.24
10010.03	10073.30	1025.03	118.65	63.28	9.76	1.88	8.64
10073.30	10136.58	1089.05	123.04	63.28	10.37	1.94	8.85
10136.58	RB 10199.86	1673.94	159.72	63.75	15.94	2.52	10.48
10199.86	10302.72	968.77	219.12	102.88	9.23	2.13	4.42
10302.72	10405.58	1121.28	239.20	102.86	10.68	2.33	4.69
10405.58	10508.45	786.04	193.29	102.86	7.49	1.88	4.07
10508.45	10611.31	812.99	197.51	103.21	7.74	1.92	4.12
10611.31	10714.17	182.20	41.01	19.11	1.74	2.15	4.44

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.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.665

INPUT
Description:
Station Elevation Data num= 95

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6372.62	1764.93	6776.54	1762.44	6782.34	1761.83	6787.32	1762.38	6822.11	1762.33
6825.83	1761.85	6858.42	1762.57	6862.09	1762.61	6904.56	1762.24	7003.93	1762.2
7015.48	1760.87	7031.75	1762.92	7342.72	1763.48	7345.87	1762.46	7358.5	1762.03
7366.47	1762.62	7467.11	1761.72	7474.88	1760.62	7480.45	1761.56	7513.1	1761.95
7539.15	1761.6	7547.05	1760.18	7552.09	1761.39	7797	1762.48	7814.17	1762.31
7833.64	1762.26	7887.19	1761.64	7895.32	1759.78	7904.18	1761.66	8407.01	1763.4
8414.32	1762.74	8421.92	1763.62	8466.55	1762.89	8475.95	1762.57	8485.41	1763.38
8734.57	1763.76	8768.89	1763.74	8878.45	1764.61	8899.03	1764.07	9100.02	1763.33
9110.14	1762.28	9120.33	1763.49	9206.76	1763.69	9214.15	1762.35	9225.93	1763.91
9238.72	1764.49	9249.54	1760.17	9258.98	1763.28	9444.15	1763.01	9451.15	1761.08
9463.9	1763.13	9612.87	1762.1	9625.13	1760.62	9639.91	1760.74	9657.09	1761.03
9695.93	1761.21	9734.57	1762.28	9893.65	1764.21	9993.65	1762.67	10000.17	1761.45
10011.93	1762.44	10018.29	1762.01	10030.36	1762.42	10055.47	1761.66	10062.36	1759.98
10069.95	1762.21	10084.18	1761.94	10107.5	1762.34	10114.38	1761.43	10123.72	1761.57
10185.42	1762.45	10195.9	1759.49	10212.66	1761.65	10232.81	1761.47	10239.7	1760.65
10256.52	1762.53	10471.7	1761.68	10552.33	1763.56	10614.57	1762.45	10619.85	1761.42
10628	1762.71	10707.38	1762.64	10742.42	1762.62	10749.62	1761.32	10763.02	1762.16
10833	1763.04	10958.28	1764.01	11034.06	1764.21	11146.05	1763.42	11157.78	1766.45
11172.33	1766.22	11174.76	1762.75	11187.36	1762.04	11189.63	1766.41	11205.11	1769.33

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6372.62	.09	9657.09	.06	9993.65	.028	10107.5	.06

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

```
      9993.65 10107.5            435.66  441.94  435.91              .3        .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6372.62 8877.92    1768   1076111205.11    1768
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
11157.7811205.11    1767
```

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1764.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.	0.076	0.028	0.060
W.S. Elev (ft)	1763.93	Reach Len. (ft)	435.66	441.94	435.91
Crit W.S. (ft)	1763.89	Flow Area (sq ft)	1024.26	226.00	1117.99
E.G. Slope (ft/ft)	0.016835	Area (sq ft)	3864.08	226.00	1285.71
Q Total (cfs)	10500.00	Flow (cfs)	2919.57	2447.76	5132.67
Top Width (ft)	4291.47	Top Width (ft)	3261.32	113.85	916.30
Vel Total (ft/s)	4.43	Avg. Vel. (ft/s)	2.85	10.83	4.59
Max Chl Dpth (ft)	4.44	Hydr. Depth (ft)	1.02	1.99	1.71
Conv. Total (cfs)	80925.7	Conv. (cfs)	22501.7	18865.4	39558.6
Length Wtd. (ft)	436.64	Wetted Per. (ft)	1004.78	114.56	654.64
Min Ch El (ft)	1759.98	Shear (lb/sq ft)	1.07	2.07	1.79
Alpha	2.03	Stream Power (lb/ft s)	3.05	22.46	8.24
Frctn Loss (ft)	6.35	Cum Volume (acre-ft)	2551.48	81.82	1247.48
C & E Loss (ft)	0.17	Cum SA (acres)	1473.73	31.47	598.38

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8635.76	9088.39	38.65	42.53	152.00	0.37	0.28	0.91
9088.39	9541.02	724.47	377.94	440.93	6.90	0.86	1.92
9541.02	9993.65	2156.44	603.78	411.85	20.54	1.47	3.57
LB 9993.65	10022.11	554.03	53.54	28.63	5.28	1.88	10.35
10022.11	10050.58	502.52	50.38	28.48	4.79	1.77	9.97
10050.58	10079.04	864.74	70.28	28.99	8.24	2.47	12.30
10079.04	RB 10107.50	526.47	51.80	28.47	5.01	1.82	10.16
10107.50	10244.70	1783.52	325.43	137.90	16.99	2.37	5.48
10244.70	10381.90	1012.32	231.26	137.28	9.64	1.69	4.38
10381.90	10519.10	1285.87	266.90	137.21	12.25	1.95	4.82
10519.10	10656.30	459.08	143.95	137.42	4.37	1.05	3.19
10656.30	10793.51	591.89	150.46	104.83	5.64	1.44	3.93

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.581

INPUT
Description: Baseline crosses cross section just south of Lost Dutchman Blvd
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6372.33	1758.68	6468.78	1758.14	6498.72	1759	6646	1758	6923.13	1757.73
6931.11	1756.63	6942.12	1758.23	7197.64	1756.21	7208.68	1757.48	7262.09	1757.94
7271.14	1757.32	7318.36	1756.44	7587.57	1756.99	7598.69	1755.83	7607.62	1756.38
8038.12	1755.89	8045.47	1753.98	8052.93	1755.81	8187.64	1757.21	8213.76	1755.41
8228.87	1755.63	8246.59	1755.99	8256.73	1756.51	8268.78	1757.81	8499.88	1758.29
8526.68	1758.41	8781.33	1758.02	9137.72	1757.98	9164.16	1757.03	9201.66	1757.39
9211.53	1758.67	9252.09	1758.68	9263.28	1757.47	9283.67	1757.44	9303.7	1757.27
9327.01	1758.37	9332.78	1758.06	9419.36	1756.18	9426.04	1755.77	9438.85	1756.2
9466.26	1756.77	9478.06	1753.37	9494.12	1756.14	9501.48	1755.14	9664.67	1755.32
9670.45	1753.92	9687.88	1755.37	9688.94	1754.57	9842.48	1755.36	9864.46	1755.15
9880.85	1755.81	9996.13	1755.9410000.34		1754.4510009.83		1755.7910056.19		1756.06
10072.29	1754.3310086.49		1754.4910103.01		1754.710128.56		1754.6510157.11		1756.3
10264.44	1756.2910273.31		1754.7710286.99		1756.2910375.82		1754.8510383.95		1753.79
10391.41	1754.8410414.78		1754.3510428.71		1753.8910439.05		1755.2910532.86		1756.43
10538.07	1754.98	10545.3	1756.6510693.11		1757.3210704.71		1757.210715.96		1757.96

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10810.03  1758.910818.95 1758.0810822.03 1758.9510880.26  1757.811187.27 1756.64
11242.66  1757.711373.24 1758.0711384.37 1760.6911397.44  1760.411399.04 1756.93
11408.74 1756.5311410.77 1760.06   11421 1762.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6372.33     .09 9996.13    .02810009.83     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9996.1310009.83           432.12  407.92     355              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6372.33 8652.33    176210972.33   11421    1762
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
11384.37   11421    1763
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1758.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.090	0.028	0.060
W.S. Elev (ft)	1757.75	Reach Len. (ft)	432.12	407.92	355.00
Crit W.S. (ft)	1757.01	Flow Area (sq ft)	1490.38	35.76	1316.23
E.G. Slope (ft/ft)	0.012644	Area (sq ft)	3050.55	35.76	1500.98
Q Total (cfs)	10500.00	Flow (cfs)	4614.68	397.75	5487.57
Top Width (ft)	3129.14	Top Width (ft)	2043.67	13.70	1071.77
Vel Total (ft/s)	3.69	Avg. Vel. (ft/s)	3.10	11.12	4.17
Max Chl Dpth (ft)	4.38	Hydr. Depth (ft)	1.95	2.61	1.68
Conv. Total (cfs)	93377.6	Conv. (cfs)	41038.8	3537.3	48801.5
Length Wtd. (ft)	397.97	Wetted Per. (ft)	764.31	14.05	783.73
Min Ch El (ft)	1754.45	Shear (lb/sq ft)	1.54	2.01	1.33
Alpha	1.32	Stream Power (lb/ft s)	4.77	22.35	5.53
Frctn Loss (ft)	5.01	Cum Volume (acre-ft)	2516.90	80.49	1233.54
C & E Loss (ft)	0.01	Cum SA (acres)	1447.20	30.82	588.43

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9090.18	9543.16	796.54	374.60	310.83	7.59	1.21	2.13
9543.16	9996.13	3818.17	1115.78	453.49	36.36	2.46	3.42
LB 9996.13	9999.55	84.79	8.29	3.63	0.81	2.42	10.23
9999.55	10002.98	133.44	10.71	3.50	1.27	3.13	12.45
10002.98	10006.41	104.46	9.21	3.46	0.99	2.69	11.35
10006.41	RB 10009.83	75.06	7.55	3.46	0.71	2.20	9.94
10009.83	10186.23	1873.47	411.60	176.54	17.84	2.33	4.55
10186.23	10362.62	1239.40	321.29	176.62	11.80	1.82	3.86
10362.62	10539.02	2078.16	438.36	176.88	19.79	2.49	4.74
10539.02	10715.42	287.75	133.00	174.07	2.74	0.76	2.16
10715.42	10891.81						
10891.81	11068.21	8.77	11.98	79.63	0.08	0.15	0.73

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.504

INPUT
Description:
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6666.65	1753.47	6672.19	1752.56	6689.97	1753.05	6704.09	1753.68	6717.27	1753.18
6727.07	1752	6734.36	1753.18	6821.65	1752.91	6826.62	1752.22	6834.65	1752.7
6869.19	1751.52	6918.33	1751.71	6926.7	1752.16	7126.24	1752.09	7131.66	1751.08
7138.29	1751.91	7404.33	1751.53	7426.2	1750.72	7433.53	1750.95	7785.36	1750
7846.28	1750.81	7990.26	1750.7	8000.69	1749.14	8012.09	1751.38	8583.38	1752.28
8601.12	1752.26	8618.93	1752.21	8638.56	1751.72	8646.33	1752.33	8706.39	1750.67

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 8760.94 1751.03 8780.06 1750.82  8797.8 1750.88 8806.36 1750.94  8819.5 1752.15
 9538.72 1750.38 9571.89  1750.4  9601.4 1749.93 9609.76 1747.37  9618.4  1749.8
 9625.31 1747.75 9637.65 1749.63 9641.81 1747.66 9650.05  1750.3 9988.41 1750.91
 9996.47  1747.310004.87  1750.510314.98 1750.5110329.16 1749.7310345.61  1749.6
10362.09 1750.3610395.39 1750.0910420.82 1752.2710509.85 1752.13 10530.6 1751.98
10594.25 1752.1810659.18 1752.2510665.06 1749.6710674.21 1750.0310682.29 1751.69
10700.36 1751.8710830.58 1753.8310882.72 1753.2410885.41 1752.2510889.75 1753.26
10907.47 1752.9811042.83 1753.2711247.28 1752.11   11304 1752.6911500.96  1752.7
11512.92 1755.4511527.38  1755.211529.78 1751.4111538.75 1750.9211540.47 1755.28
11551.85  1759.511563.89 1759.3211580.68 1752.0211760.15 1753.46

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
 6666.65     .09 9988.41    .02810004.87     .0910362.09     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9988.4110004.87           443.61   495.7  479.53             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6666.65 8296.62    175711086.6211760.15    1757
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
11512.9211760.15    1758

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)          1753.01   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.32   Wt. n-Val.                0.090      0.028      0.083
  W.S. Elev (ft)          1752.69   Reach Len. (ft)          443.61     495.70     479.53
  Crit W.S. (ft)          1752.31   Flow Area (sq ft)       2563.83      60.77    1147.51
  E.G. Slope (ft/ft)     0.012557   Area (sq ft)            4648.02      60.77    1194.02
  Q Total (cfs)          10500.00   Flow (cfs)              6252.83     818.69    3428.48
  Top Width (ft)          4155.13   Top Width (ft)          3180.47      16.46     958.20
  Vel Total (ft/s)           2.78   Avg. Vel. (ft/s)           2.44      13.47       2.99
  Max Chl Dpth (ft)          5.39   Hydr. Depth (ft)           1.52       3.69       1.52
  Conv. Total (cfs)       93702.5   Conv. (cfs)             55800.6     7306.0    30595.9
  Length Wtd. (ft)         458.36   Wetted Per. (ft)        1693.92      17.82     754.21
  Min Ch El (ft)          1747.30   Shear (lb/sq ft)           1.19       2.67       1.19
  Alpha                      2.66   Stream Power (lb/ft s)     2.89      36.01       3.56
  Frctn Loss (ft)            6.38   Cum Volume (acre-ft)    2478.72      80.04    1222.56
  C & E Loss (ft)            0.04   Cum SA (acres)          1421.29      30.68     580.16


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  7912.31      8327.53         39.19      25.95     30.91       0.37      0.84       1.51
  8327.53      8742.75        487.35     332.90    415.27       4.64      0.80       1.46
  8742.75      9157.97        813.25     452.64    415.28       7.75      1.09       1.80
  9157.97      9573.19       2020.42     781.37    415.22      19.24      1.88       2.59
  9573.19      9988.41       2892.63     970.98    417.24      27.55      2.34       2.98
  LB 9988.41   9992.53        117.26      11.13      4.51       1.12      2.70      10.54
  9992.53      9996.64        278.76      18.70      4.50       2.65      4.54      14.91
  9996.64      10000.75       282.88      18.69      4.40       2.69      4.54      15.13
  10000.75     RB 10004.87    139.78      12.25      4.40       1.33      2.98      11.41
  10004.87     10224.28      1453.35     480.23    219.41      13.84      2.19       3.03
  10224.28     10443.69      1536.39     459.72    219.54      14.63      2.10       3.34
  10443.69     10663.10       222.04     122.04    219.77       2.11      0.56       1.82
  10663.10     10882.51       216.04      84.84     92.25       2.06      0.92       2.55
  10882.51     11101.92         0.66       0.69      3.23       0.01      0.22       0.96


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

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 19.410

INPUT
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Description: Baseline crosses cross section just north of Windsong St.

Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6332.31	1746.54	6347.22	1747.11	6360.36	1746.66	6421.94	1745.43	6429.08	1746.33
6568.96	1746.07	6575.07	1745.59	6585.35	1746.55	7048	1745.77	7118.9	1744.5
7199.11	1744.35	7206.21	1742.49	7216.69	1743.66	7312.92	1744.4	7329.71	1744.79
7346.69	1743.7	7358.41	1743.21	7371.61	1744.11	7426.7	1743.99	7437.28	1743.81
7441.34	1743.67	7789.43	1746.21	7806.27	1747.51	7852.68	1746.91	7865.31	1744.95
7873.32	1744.02	7878.87	1743.93	7900.36	1744.28	7909.35	1743.32	7920.29	1743.99
7935.55	1744.34	7940.7	1743.43	7949.63	1743.53	8135.6	1744.89	8178.95	1744.77
8200.51	1745.01	8223.61	1744.3	8769.97	1745.29	8777.93	1744.5	8783.88	1744.9
8998.52	1745.29	9014.33	1745.65	9033.73	1746.18	9052.87	1745.79	9067.86	1745.79
9233.49	1745.84	9778.02	1745.03	9787.17	1740.79	9799.04	1744.84	9916.84	1744.28
9937.51	1744.48	9987.68	1744.63	9995.02	1742.9	10006.66	1744.39	10228.36	1745.09
10248.11	1744.72	10271.54	1743.62	10288.65	1742.81	10289.72	1742.52	10298.48	1746.01
10558.38	1745.42	10562.47	1744.39	10567.34	1745.46	10569.37	1745.23	10573.49	1744.44
10579.07	1745.31	10747.68	1745.74	10763.36	1745.85	10779.08	1746.28	10797.78	1745.31
10812.95	1745.61	10896.71	1746.01	10902.92	1745.06	10911.28	1746.02	10953.46	1745.8
11074.63	1745.34	11078.6	1742.87	11084.58	1745.16	11168.95	1745.11	11289.44	1745.58
11368.27	1747.16	11443.41	1744.06	11540.26	1744.39	11631.1	1746.59	11676.16	1744.89
11680.78	1745.27	11883.13	1748.15	11989.36	1750.37	11998.83	1753.18	12012.86	1753.28

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6332.31	.09	9987.68	.02	10006.66	.09	10779.08	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.68	10006.66	535	565.65	492.3	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6332.31	7952.31	1750	11262.31	12012.86	1750

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1746.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.090	0.028	0.079
W.S. Elev (ft)	1746.36	Reach Len. (ft)	535.00	565.65	492.30
Crit W.S. (ft)	1746.11	Flow Area (sq ft)	2718.83	50.38	1284.57
E.G. Slope (ft/ft)	0.015504	Area (sq ft)	4400.52	50.38	1747.89
Q Total (cfs)	10500.00	Flow (cfs)	6775.58	631.84	3092.58
Top Width (ft)	5123.79	Top Width (ft)	3429.89	18.98	1674.92
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)	2.49	12.54	2.41
Max Chl Dpth (ft)	5.57	Hydr. Depth (ft)	1.34	2.65	1.02
Conv. Total (cfs)	84326.0	Conv. (cfs)	54415.0	5074.3	24836.7
Length Wtd. (ft)	526.22	Wetted Per. (ft)	2037.07	19.27	1258.10
Min Ch El (ft)	1742.92	Shear (lb/sq ft)	1.29	2.53	0.99
Alpha	2.26	Stream Power (lb/ft s)	3.22	31.74	2.38
Frctn Loss (ft)	6.61	Cum Volume (acre-ft)	2432.64	79.41	1206.37
C & E Loss (ft)	0.01	Cum SA (acres)	1387.63	30.48	565.67

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7703.07	8160.00	1341.26	428.09	207.69	12.77	2.06	3.13
8160.00	8616.92	2104.17	768.86	456.93	20.04	1.68	2.74
8616.92	9073.84	1089.24	517.96	456.99	10.37	1.13	2.10
9073.84	9530.76	451.31	305.27	456.92	4.30	0.67	1.48
9530.76	9987.68	1789.59	698.65	458.53	17.04	1.53	2.56
LB 9987.68	9992.42	120.01	10.81	4.87	1.14	2.28	11.10
9992.42	9997.17	213.55	15.23	4.83	2.03	3.21	14.02
9997.17	10001.92	177.94	13.59	4.78	1.69	2.86	13.09
10001.92	RB 10006.66	120.34	10.75	4.78	1.15	2.27	11.19
10006.66	10257.44	1084.23	404.18	250.79	10.33	1.61	2.68
10257.44	10508.21	430.16	232.37	251.52	4.10	0.93	1.85
10508.21	10758.99	393.53	220.17	251.18	3.75	0.88	1.79
10758.99	11009.76	292.59	144.68	250.94	2.79	0.58	2.02
11009.76	11260.54	887.82	281.59	251.91	8.46	1.12	3.15
11260.54	11511.31	4.24	1.57	1.77	0.04	0.89	2.70

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.303

INPUT
Description:
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6191.46	1741.87	6329.11	1739.2	6348.12	1738.46	6359.21	1739.09	6523	1739.37
6739	1739.58	6807.25	1738.2	6810.65	1738.04	6817.23	1738.05	6881.99	1737.25
6929.89	1736.68	7041.21	1738.31	7048.34	1739.62	7057.99	1738.05	7351.5	1737.6
7358.34	1736.15	7365.41	1737.61	7447.77	1737.75	7520	1738	7540	1738
7559.97	1739.34	7576.91	1739.19	7594.21	1738.97	7748.49	1740.09	7757.44	1738.99
7780.86	1738.18	7797.46	1738.48	7812.3	1737.74	7827.63	1736.79	7844.55	1738.04
8372.44	1738.82	8373.91	1737.15	8386.72	1738.38	8585.49	1737.55	8853.77	1737.28
8863.5	1737.16	8870.6	1737.77	9470.58	1738.74	9499.33	1739.67	9517.12	1740.14
9536.88	1739.58	9554.23	1738.83	9562.15	1737.45	9573.4	1738.96	9636.32	1739.61
9658.17	1740.28	9681.9	1739.63	9810.95	1737.46	9820.39	1735.76	9825.43	1738.11
9983.42	1738.82	9994.48	1734.37	10009.34	1738.22	10106.77	1737.86	10116.22	1738.78
10208.25	1738.15	10213.96	1734.05	10225.39	1738.46	10352.71	1739.14	10381.18	1739.27
10388.12	1739.5	10479.04	1738.87	10483.49	1736.72	10488.07	1736.69	10496.61	1738.6
11013.08	1739.33	11027.53	1736.55	11039.25	1738.6	11112.24	1739.4	11144.6	1738.99
11159.58	1739.21	11175.49	1739.35	11186.05	1738.66	11211.28	1737.99	11456.69	1739.62
11480.69	1738.77	11496.32	1740.67	11545.44	1741.4	11663.43	1740.72	11771.92	1740.54
12008.48	1742.44	12063.42	1743.16	12189.18	1744.27	12199.3	1742.83	12211.02	1744.43
12297.63	1745.28								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6191.46	.09	9983.42	.02	10009.34	.09	11211.28	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.42	10009.34	570	501.11	467.95	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6191.46	7748.49	1743	11434.46	12297.63	1743

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1739.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.090	0.028	0.083
W.S. Elev (ft)	1739.71	Reach Len. (ft)	570.00	501.11	467.95
Crit W.S. (ft)	1739.52	Flow Area (sq ft)	3194.66	85.13	1347.49
E.G. Slope (ft/ft)	0.010565	Area (sq ft)	4955.12	85.13	1366.98
Q Total (cfs)	10500.00	Flow (cfs)	7126.66	991.77	2381.57
Top Width (ft)	5058.38	Top Width (ft)	3553.40	25.92	1479.06
Vel Total (ft/s)	2.27	Avg. Vel. (ft/s)	2.23	11.65	1.77
Max Chl Dpth (ft)	5.66	Hydr. Depth (ft)	1.48	3.28	0.95
Conv. Total (cfs)	102155.0	Conv. (cfs)	69335.7	9649.0	23170.4
Length Wtd. (ft)	546.16	Wetted Per. (ft)	2162.53	27.27	1428.51
Min Ch El (ft)	1734.37	Shear (lb/sq ft)	0.97	2.06	0.62
Alpha	3.28	Stream Power (lb/ft s)	2.17	23.99	1.10
Frctn Loss (ft)	7.18	Cum Volume (acre-ft)	2375.19	78.53	1188.76
C & E Loss (ft)	0.02	Cum SA (acres)	1344.74	30.19	547.84

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7613.44	8087.44	1131.30	512.54	335.99	10.77	1.53	2.21
8087.44	8561.43	1286.98	635.92	474.81	12.26	1.34	2.02
8561.43	9035.43	2754.08	1003.12	474.02	26.23	2.12	2.75
9035.43	9509.42	1146.19	588.44	465.33	10.92	1.26	1.95
9509.42	9983.42	808.12	454.63	412.38	7.70	1.10	1.78
LB 9983.42	9989.90	117.55	14.20	6.99	1.12	2.19	8.28
9989.90	9996.38	409.99	29.90	6.90	3.90	4.61	13.71

9996.38	10002.86	330.54	25.96	6.69	3.15	4.01	12.74
10002.86	RB 10009.34	133.69	15.08	6.69	1.27	2.33	8.87
10009.34	10295.38	892.01	424.15	288.23	8.50	1.48	2.10
10295.38	10581.41	332.20	234.02	286.75	3.16	0.82	1.42
10581.41	10867.45	310.78	224.62	286.04	2.96	0.79	1.38
10867.45	11153.48	244.13	194.46	286.49	2.33	0.68	1.26
11153.48	11439.52	602.44	270.25	281.01	5.74	0.96	2.23

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.208

INPUT
Description:
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5997.18	1733.11	6013.57	1733.17	6026.42	1734.95	6174.89	1735.4	6185.73	1733.64
6296.98	1734.49	6300.55	1732.84	6311.01	1733.98	6616.94	1732.79	6622.25	1731.65
6632.47	1732.22	6867.87	1731.5	6883.65	1731.65	6900.3	1731.51	7169.38	1731.17
7204.99	1731.22	7211.32	1732.08	7400	1732	7452.26	1730.04	7463.22	1729.57
7471.61	1729.95	7493.27	1730.17	7770	1732	7849.65	1730.38	7857.33	1729.63
7871.5	1730.52	7953.32	1731.83	7963.61	1729.27	7970.11	1731.25	8132.16	1730.1
8152.96	1730.93	8172.08	1731.31	8188.09	1730.93	8201.94	1730.05	8214.56	1731.68
8499.37	1731.15	8510.16	1731.17	8558.85	1730.88	8595.16	1729.94	8600.97	1728.75
8605.32	1729.75	8767.07	1730.52	8791.58	1729.37	8810.66	1730.09	8832.48	1730.54
8863.24	1730.39	9040.5	1731.47	9090.82	1731.63	9237.75	1732.25	9272.63	1732.02
9681.38	1731.87	9688.84	1729.24	9700.5	1731.45	9748.94	1731.58	9766.91	1731.67
9783.02	1732.12	9799.43	1732.07	9938.03	1730.34	9980.66	1731.76	9995.7	1728.13
10016.8	1731.85	10046.21	1732.27	10057.7	1730.93	10570.52	1732.25	10615.16	1731.96
10805.96	1732.73	10814.53	1731.97	10825.36	1731.98	10896.89	1732.31	10912.29	1729.37
10924.69	1730.88	11083.91	1733.74	11102.71	1732.58	11122.81	1733.55	11149.09	1733.82
11202.04	1733.43	11228.18	1733.72	11252.94	1729.66	11311.51	1729.64	11332.26	1733.54
11353.88	1733.61	11371.59	1734.16	11385.88	1734.53	11414.77	1734.43	11600.23	1736.13
11606.06	1735.93	11665.23	1735.45	11695.15	1736.93	12027.47	1738.97		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5997.18	.09	9980.66	.028	10016.8	.09	11149.09	.15	11414.77	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.66	10016.8	440	517.56	497.46	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
5997.18	7169.38	1736

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5997.18	6296.98	1736	11083.91	12027.47	1736

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1732.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.090	0.028	0.090
W.S. Elev (ft)	1732.44	Reach Len. (ft)	440.00	517.56	497.46
Crit W.S. (ft)	1732.36	Flow Area (sq ft)	3413.03	89.39	653.45
E.G. Slope (ft/ft)	0.016706	Area (sq ft)	3882.72	89.39	653.45
Q Total (cfs)	10500.00	Flow (cfs)	8284.90	1106.01	1109.10
Top Width (ft)	4319.35	Top Width (ft)	3362.11	36.14	921.10
Vel Total (ft/s)	2.53	Avg. Vel. (ft/s)	2.43	12.37	1.70
Max Chl Dpth (ft)	4.31	Hydr. Depth (ft)	1.21	2.47	0.71
Conv. Total (cfs)	81236.0	Conv. (cfs)	64098.3	8556.9	8580.8
Length Wtd. (ft)	456.61	Wetted Per. (ft)	2813.26	36.90	921.58
Min Ch El (ft)	1728.13	Shear (lb/sq ft)	1.27	2.53	0.74
Alpha	3.30	Stream Power (lb/ft s)	3.07	31.26	1.26
Frctn Loss (ft)	5.88	Cum Volume (acre-ft)	2317.37	77.52	1177.91
C & E Loss (ft)	0.03	Cum SA (acres)	1299.50	29.83	534.95

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6993.05	7490.99	559.11	298.24	321.72	5.32	0.93	1.87
7490.99	7988.92	1710.24	695.05	498.64	16.29	1.40	2.46
7988.92	8486.86	1625.70	673.94	498.10	15.48	1.35	2.41
8486.86	8984.79	3156.40	1003.59	498.23	30.06	2.02	3.15
8984.79	9482.73	401.25	291.06	497.94	3.82	0.58	1.38
9482.73	9980.66	832.23	451.16	498.63	7.93	0.91	1.84
LB 9980.66	9989.70	146.53	16.04	9.29	1.40	1.78	9.14
9989.70	9998.73	509.70	33.82	9.25	4.85	3.74	15.07
9998.73	10007.76	351.28	26.96	9.17	3.35	2.98	13.03
10007.76	RB 10016.80	98.48	12.57	9.17	0.94	1.39	7.83
10016.80	10268.13	590.37	282.76	251.42	5.62	1.13	2.09
10268.13	10519.47	236.37	163.25	251.33	2.25	0.65	1.45
10519.47	10770.80	46.06	57.57	215.81	0.44	0.27	0.80
10770.80	11022.13	236.28	149.86	203.03	2.25	0.74	1.58

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.110

INPUT
Description: Baseline crosses cross section at Foothill St.
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5696.29	1726.25	5729.03	1726.35	5749.56	1726.91	5975.1	1727.35	6046.84	1727.73
6061.47	1727.89	6080.72	1728.09	6098.33	1727.99	6138.78	1727.02	6150	1726.52
6158.53	1727.3	6283.36	1727.55	6287.91	1727.43	6581.25	1728.75	6598.9	1729.2
6614.86	1728.36	6635.79	1728.55	6755.09	1724.77	6992.46	1724.7	6998.07	1723.88
7006.96	1725.5	7036	1725.58	7064.94	1726.15	7449.73	1724.87	7489.77	1724.83
7668.19	1725.43	7673.55	1724.13	7681.82	1725.69	8074.87	1725.42	8093.6	1725.65
8114.5	1725.43	8316.53	1725.23	8333.04	1725.78	8349.61	1725.3	8759.72	1725.15
8779.24	1721.03	8839.24	1720.74	8868.68	1726.04	8976.2	1725.4	9012.95	1725.02
9121.25	1724.47	9165.55	1725.02	9397.23	1725.3	9418.37	1725.33	9686.64	1725.6
9692.19	1724.47	9702.33	1724.86	9734.3	1723.91	9738.46	1722.88	9744.48	1724.07
9959.74	1725.37	9972.76	1722.73	9976.97	1722.99	9994.65	1722.69	10008.42	1722.98
10023.93	1724.24	10033.2	1726.25	10239.8	1726.11	10268.2	1726.15	10296.85	1726.98
10322.35	1727.05	10344.32	1726.39	10358.68	1727.06	10411.91	1727.78	10418.81	1725.87
10430.58	1726.91	10756.64	1726.09	10778.66	1727.51	10796.03	1727.22	10813.31	1727.01
10828.64	1727.28	10838.5	1723.95	10846.83	1726.41	10938.37	1725.27	10970.14	1724.98
11388.39	1726.71	11416.71	1726.68	11509.28	1725.49	11520.01	1723.68	11539.27	1727.52
11556.82	1727.61	11575.55	1728.25	11590.21	1728.62	11606.03	1726.5	11620.8	1727.9
11735.54	1727.97	11849.33	1728.09	11860.32	1728.63	11874.24	1729.07	11902.87	1724.33
11916.11	1722.85	11941.34	1723.04	11950.59	1724.17	11958.46	1724.26	11966.67	1725.2
11972.53	1724.74	11978.81	1724.92	12017.53	1730.19	12099.36	1729.77	12148.66	1730.29

Manning's n Values num= 12

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5696.29	.15	6080.72	.09	7036	.15	7489.77	.09	8114.5	.15
8333.04	.09	9165.55	.15	9418.37	.09	9959.74	.028	10033.2	.09
10796.03	.15	11590.21	.06						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9959.74	10033.2	545	521.08	508.11	.3	.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5696.29	6635.79	1730	11388.39	12148.66	1730

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1726.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.098	0.028	0.141
W.S. Elev (ft)	1726.42	Reach Len. (ft)	545.00	521.08	508.11
Crit W.S. (ft)	1726.42	Flow Area (sq ft)	4204.96	212.84	448.41
E.G. Slope (ft/ft)	0.010226	Area (sq ft)	4204.96	212.84	448.41
Q Total (cfs)	10500.00	Flow (cfs)	7838.44	2309.99	351.58
Top Width (ft)	4208.34	Top Width (ft)	3256.66	73.46	878.22
Vel Total (ft/s)	2.16	Avg. Vel. (ft/s)	1.86	10.85	0.78
Max Chl Dpth (ft)	5.68	Hydr. Depth (ft)	1.29	2.90	0.51

Conv. Total (cfs)	103832.8	Conv. (cfs)	77513.0	22843.1	3476.7
Length Wtd. (ft)	538.79	Wetted Per. (ft)	3258.52	74.01	879.10
Min Ch El (ft)	1722.69	Shear (lb/sq ft)	0.82	1.84	0.33
Alpha	6.13	Stream Power (lb/ft s)	1.54	19.93	0.26
Frctn Loss (ft)	5.56	Cum Volume (acre-ft)	2276.52	75.73	1171.62
C & E Loss (ft)	0.18	Cum SA (acres)	1266.07	29.18	524.68

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6229.22	6762.15	85.14	54.51	59.10	0.81	0.92	1.56
6762.15	7295.08	1118.93	606.48	533.14	10.66	1.14	1.84
7295.08	7828.02	949.02	627.28	533.23	9.04	1.18	1.51
7828.02	8360.95	690.66	522.48	532.95	6.58	0.98	1.32
8360.95	8893.88	2398.00	974.10	533.84	22.84	1.83	2.46
8893.88	9426.81	1103.43	687.28	532.94	10.51	1.29	1.61
9426.81	9959.74	1493.23	732.82	533.31	14.22	1.38	2.04
LB 9959.74	9978.11	496.50	49.72	18.64	4.73	2.71	9.99
9978.11	9996.47	806.22	66.11	18.37	7.68	3.60	12.19
9996.47	10014.83	742.87	62.97	18.39	7.07	3.43	11.80
10014.83	RB 10033.20	264.41	34.04	18.61	2.52	1.85	7.77
10033.20	10297.63	35.75	58.61	244.26	0.34	0.24	0.61
10297.63	10562.07	1.34	2.26	9.82	0.01	0.23	0.59
10562.07	10826.50	10.53	22.24	135.60	0.10	0.16	0.47
10826.50	11090.93	242.18	257.54	260.51	2.31	0.99	0.94
11090.93	11355.36	61.78	107.75	228.92	0.59	0.47	0.57

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.012

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5501.8	1718.47	5528.38	1718.58	5636.44	1718.64	5663.14	1718.53	5773.74	1718.81
5829.06	1719.34	5972.13	1719.64	5985.11	1719.21	5994.83	1719.82	6037.06	1720.33
6118.17	1719.96	6150.5	1720.61	6401.71	1717.26	6429.84	1717.18	6531	1720
6552	1721	6610	1720.31	6681	1720	6800	1719.58	6968.34	1717.34
6986.87	1716.7	7001.35	1716.94	7014.75	1716.81	7165.25	1717.64	7185.21	1717.86
7206.71	1717.56	7220.95	1716.71	7243.27	1717.98	7792.89	1718.96	7834.7	1719.01
8023.59	1718.06	8032.05	1717.4	8052.46	1719.18	8067.14	1718.68	8086.87	1717.33
8103.74	1718.59	8277.53	1718.69	8310.58	1718.38	8331.6	1718.73	8356.78	1718.86
8603.34	1718.38	8619.31	1719	8635.77	1718.86	8754.46	1718.25	8780.08	1718.04
8980.86	1719.26	9008.58	1719.01	9198.69	1718.83	9227.19	1718.6	9388.99	1718.39
9427.4	1718.3	9449.8	1718.24	9490.41	1718.72	9532.55	1718.53	9663.46	1719.03
9729.69	1718.92	9811.31	1718.91	9820.64	1716.75	9833.63	1719.21	9949.66	1719.1
9961.28	1718.47	9967.84	1719.86	9990.23	1719.29	9998.46	1715.92	10010.53	1719.18
10114.4	1720.03	10120.76	1718.71	10129.95	1719.44	10218.5	1720.02	10235.74	1720.08

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10252.29 1720.1710264.22 1719.2710275.85 1720.22 10678.5 1719.2310688.85 1717.86
10703.05 1719.3511024.41 1719.3611041.58 1719.27 11059.4 1718.9311085.81  1718.5
11103.12 1716.3311134.84 1719.5711218.85 1721.4111255.78 1721.3311448.79 1721.07
11461.49 1719.8811471.79 1721.1311517.06 1721.5611690.22    172211707.09 1721.85
11724.07 1722.3411749.04 1721.6511832.63 1721.6911848.96 1722.0711892.77 1721.78
11979.88 1722.6212015.18 1723.3312025.36 1723.72

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  5501.8     .15 9811.31     .09 9967.84    .02810010.53     .0911041.58     .15
11832.63     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9967.8410010.53           347.81  482.12     335              .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  5501.8    6552    172311218.8512025.36    1723
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1720.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.147	0.028	0.102
W.S. Elev (ft)	1720.31	Reach Len. (ft)	347.81	482.12	335.00
Crit W.S. (ft)	1719.61	Flow Area (sq ft)	5799.90	72.04	966.68
E.G. Slope (ft/ft)	0.010410	Area (sq ft)	5799.90	72.04	966.68
Q Total (cfs)	10500.00	Flow (cfs)	8623.61	543.60	1332.79
Top Width (ft)	4558.66	Top Width (ft)	3357.86	42.69	1158.11
Vel Total (ft/s)	1.54	Avg. Vel. (ft/s)	1.49	7.55	1.38
Max Chl Dpth (ft)	4.39	Hydr. Depth (ft)	1.73	1.69	0.83
Conv. Total (cfs)	102912.5	Conv. (cfs)	84521.6	5327.9	13062.9
Length Wtd. (ft)	353.57	Wetted Per. (ft)	3358.84	43.79	1158.84
Min Ch El (ft)	1715.92	Shear (lb/sq ft)	1.12	1.07	0.54
Alpha	2.12	Stream Power (lb/ft s)	1.67	8.07	0.75
Frctn Loss (ft)	3.97	Cum Volume (acre-ft)	2213.93	74.03	1163.37
C & E Loss (ft)	0.01	Cum SA (acres)	1224.69	28.49	512.80

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6060.05	6618.31	0.01	0.15	8.33	0.00	0.02	0.07
6618.31	7176.56	1571.04	1035.66	558.29	14.96	1.86	1.52
7176.56	7734.82	1787.17	1118.96	558.32	17.02	2.00	1.60
7734.82	8293.08	1377.51	957.23	558.46	13.12	1.71	1.44
8293.08	8851.33	1439.97	982.91	558.28	13.71	1.76	1.47
8851.33	9409.58	1159.59	863.13	558.26	11.04	1.55	1.34
9409.58	9967.84	1288.28	841.84	558.90	12.27	1.51	1.53
LB 9967.84	9978.51	20.25	6.26	10.68	0.19	0.59	3.24
9978.51	9989.19	38.19	9.16	10.68	0.36	0.86	4.17
9989.19	9999.86	252.63	29.19	11.39	2.41	2.73	8.66
9999.86	RB 10010.53	232.54	27.45	11.06	2.21	2.57	8.47
10010.53	10262.38	179.82	154.87	252.06	1.71	0.61	1.16
10262.38	10514.24	86.44	99.76	251.90	0.82	0.40	0.87
10514.24	10766.09	392.22	247.26	252.02	3.74	0.98	1.59
10766.09	11017.95	374.39	240.39	251.85	3.57	0.95	1.56
11017.95	11269.80	299.96	224.43	151.01	2.86	1.49	1.34

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.920

INPUT
Description: Baseline crosses cross section just east of Saguaro Dr.
Station Elevation Data num= 89

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 5356.31 1715.72 5481.67  1715.6 5489.91 1715.06 5509.65 1715.23 5528.48 1715.65
  5563.5 1714.23 5603.02  1715.9 5667.49 1716.29 5845.62 1716.73 5975.71 1716.73
 6081.89 1715.62 6091.96 1715.76 6296.97 1715.68  6310.2    1715 6334.84 1714.52
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 6445.79 1715.97 6476.47 1716.93 6516.09 1717.48 6535.91 1716.22 6562.38 1715.47
 6591.11 1715.62    6635  1716.5  6656.3 1717.41 6676.23 1717.35 7065.86  1718.9
 7067.66 1717.25 7126.39 1713.62 7145.19 1713.53 7159.98 1713.58 7174.86 1713.65
 7200.13 1714.83 7731.35 1714.41 7748.72 1712.79 7756.91 1713.13 7785.94 1713.61
 7807.11 1713.27 7822.52 1713.24 7834.52 1713.84 8773.73 1714.62 8790.84 1715.01
 8807.76 1715.12 8887.09 1715.08 8909.49    1715 8937.58 1715.02 8958.89 1714.51
 8963.38 1715.49 9164.99 1713.89 9197.77 1713.82 9203.91 1714.48 9266.53 1714.69
 9297.03 1714.55 9330.46  1714.2 9370.18 1714.66 9518.92 1715.73  9524.4 1716.75
 9576.91 1716.63 9582.12 1714.78 9646.03 1714.58 9835.13 1714.51 9870.85 1714.56
 9987.01 1714.96 9997.76 1712.1110008.86 1715.1510037.16 1715.8310049.55 1715.64
10088.38 1715.5910387.32 1714.5710403.99 1714.4610420.82 1714.7510633.94  1715.8
10644.49 1714.5610653.45 1716.3110708.64 1715.5610719.81 1715.7610798.64 1715.69
10805.04  1713.310813.45 1715.9611179.15 1715.4611194.86 1715.7511278.22 1716.54
11287.55 1716.8511304.15 1717.9711748.42 1718.5711925.88 1720.0111937.36 1720.13
11949.28  1720.211979.82 1720.3412130.33 1721.1712148.38 1721.77

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
 5356.31     .15 9987.01    .02810008.86     .0911949.28     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9987.0110008.86             404.5  544.04     400             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 5356.31 6516.09    1720
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CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1716.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.150	0.028	0.090
W.S. Elev (ft)	1716.25	Reach Len. (ft)	404.50	544.04	400.00
Crit W.S. (ft)	1715.81	Flow Area (sq ft)	5092.90	58.35	1000.85
E.G. Slope (ft/ft)	0.012294	Area (sq ft)	5092.90	58.35	1000.85
Q Total (cfs)	10500.00	Flow (cfs)	8164.79	645.55	1689.67
Top Width (ft)	4190.85	Top Width (ft)	2934.32	21.85	1234.68
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)	1.60	11.06	1.69
Max Chl Dpth (ft)	4.14	Hydr. Depth (ft)	1.74	2.67	0.81
Conv. Total (cfs)	94696.8	Conv. (cfs)	73636.1	5822.0	15238.7
Length Wtd. (ft)	423.21	Wetted Per. (ft)	2935.02	22.63	1235.79
Min Ch El (ft)	1712.11	Shear (lb/sq ft)	1.33	1.98	0.62
Alpha	3.43	Stream Power (lb/ft s)	2.14	21.89	1.05
Frctn Loss (ft)	4.66	Cum Volume (acre-ft)	2170.45	73.30	1155.80
C & E Loss (ft)	0.04	Cum SA (acres)	1199.57	28.13	503.60

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6513.98	7092.82	27.92	43.72	96.40	0.27	0.45	0.64
7092.82	7671.66	1539.85	993.12	578.93	14.67	1.72	1.55
7671.66	8250.50	2523.96	1335.88	578.94	24.04	2.31	1.89
8250.50	8829.33	1656.98	1037.71	578.84	15.78	1.79	1.60
8829.33	9408.17	1350.70	918.06	579.00	12.86	1.59	1.47
9408.17	9987.01	1065.36	764.42	522.91	10.15	1.46	1.39
LB 9987.01	9992.47	97.10	11.02	5.65	0.92	2.02	8.81
9992.47	9997.94	239.04	18.93	5.65	2.28	3.46	12.63
9997.94	10003.40	225.39	18.28	5.66	2.15	3.35	12.33
10003.40	RB 10008.86	84.02	10.11	5.66	0.80	1.85	8.31
10008.86	10276.30	391.36	237.78	267.45	3.73	0.89	1.65
10276.30	10543.74	818.55	370.21	267.44	7.80	1.38	2.21
10543.74	10811.18	223.56	169.04	263.97	2.13	0.64	1.32
10811.18	11078.62	138.29	127.40	267.55	1.32	0.48	1.09
11078.62	11346.06	117.93	96.44	169.38	1.12	0.57	1.22

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

CROSS SECTION RIVER: Apache Junct FRS

REACH: Spillway RS: 18.817

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6408.06	1712.82	6474.87	1712.78	6526.68	1712.37	6546.36	1712.41	6563.9	1712.02
6956.73	1711.89	7208.24	1710.58	7243.21	1710.98	7263.6	1710.84	7364.6	1710.21
7378.51	1710.45	7393.31	1709.72	7406.61	1709.44	7416.77	1710.02	8310.03	1710.23
8330.9	1710.69	8356.44	1710.31	8373.45	1709.8	8382.5	1710.44	8442.15	1710.13
8472.25	1709.36	8495.62	1710.35	8992.85	1709.68	9001.22	1708.74	9021.34	1709.7
9037.36	1710	9051.42	1709.82	9079.68	1710.15	9180.76	1709.52	9213.57	1709.73
9285.01	1710.31	9306.43	1710.23	9384.21	1709.83	9446.97	1709.95	9866.48	1707.67
9891.14	1707.65	9980.7	1708.02	9987.83	1706.27	10029.66	1708.71	10412.77	1709.54
10416.16	1708.79	10420.79	1709.4	10591.9	1711.03	10608.72	1710.56	10630.25	1710.94
10646.25	1711.13	10882.62	1710.89	10888.19	1708.79	10892.14	1710.91	11387.12	1711.85
11397.5	1711.76	11415.24	1711.73	11422.77	1712.15	11434.87	1714.53	11471.68	1714.58
11479.33	1712.73	11488.46	1714.89	12036	1718.86	12048.65	1719.27	12059.81	1719.18
12088.51	1719.15	12195.24	1719.57	12365.68	1720.94	12382.03	1721.75	12559.42	1721.7

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6408.06	.15	9446.97	.09	9980.7	.02	10029.66	.09	12048.65	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.7	10029.66	402.59	458.21	415.84	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6408.06	6547.67	1715

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1711.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.	0.112	0.028	0.090
W.S. Elev (ft)	1711.13	Reach Len. (ft)	402.59	458.21	415.84
Crit W.S. (ft)	1710.95	Flow Area (sq ft)	3729.16	181.05	1014.61
E.G. Slope (ft/ft)	0.009927	Area (sq ft)	3729.16	181.05	1014.61
Q Total (cfs)	10500.00	Flow (cfs)	6512.91	2280.32	1706.77
Top Width (ft)	3907.71	Top Width (ft)	2878.69	48.96	980.05
Vel Total (ft/s)	2.13	Avg. Vel. (ft/s)	1.75	12.60	1.68
Max Chl Dpth (ft)	4.86	Hydr. Depth (ft)	1.30	3.70	1.04
Conv. Total (cfs)	105386.5	Conv. (cfs)	65368.8	22887.1	17130.5
Length Wtd. (ft)	414.98	Wetted Per. (ft)	2878.90	49.24	981.11
Min Ch El (ft)	1706.27	Shear (lb/sq ft)	0.80	2.28	0.64
Alpha	8.10	Stream Power (lb/ft s)	1.40	28.70	1.08
Frctn Loss (ft)	4.58	Cum Volume (acre-ft)	2129.48	71.81	1146.55
C & E Loss (ft)	0.05	Cum SA (acres)	1172.58	27.69	493.43

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6854.64	7301.22	27.18	61.75	199.22	0.26	0.31	0.44
7301.22	7747.80	456.28	463.26	446.62	4.35	1.04	0.98
7747.80	8194.38	417.19	439.00	446.58	3.97	0.98	0.95
8194.38	8640.96	378.49	414.12	446.65	3.60	0.93	0.91
8640.96	9087.54	627.15	560.69	446.66	5.97	1.26	1.12
9087.54	9534.12	724.76	558.44	446.59	6.90	1.25	1.30
9534.12	9980.70	3881.85	1231.93	446.59	36.97	2.76	3.15
LB 9980.70	9992.94	714.46	52.53	12.46	6.80	4.29	13.60
9992.94	10005.18	699.65	51.54	12.26	6.66	4.21	13.58
10005.18	10017.42	514.10	42.84	12.26	4.90	3.50	12.00
10017.42	RB 10029.66	352.10	34.14	12.26	3.35	2.79	10.31
10029.66	10345.88	1328.69	659.85	316.22	12.65	2.09	2.01
10345.88	10662.10	357.89	300.41	316.36	3.41	0.95	1.19
10662.10	10978.32	20.09	53.42	317.14	0.19	0.17	0.38
10978.32	11294.54	0.11	0.94	31.39	0.00	0.03	0.12

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.730

INPUT
Description: Baseline crosses cross section west of Juan Dr.
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5060.77	1708.45	5318.44	1706.79	5337.75	1707.32	5359.67	1707.26	5810.65	1707.53
5827.61	1708.31	5846.91	1708.55	5864.02	1708.26	5886.25	1706.98	5897.48	1705.95
5910.3	1708.55	6046.17	1705.02	6049.6	1704.55	6082.68	1705.27	6430	1708
6497	1708	6647.87	1706.31	6666.65	1706.39	6680.64	1706.45	6885.43	1707.08
6892.54	1703.71	6897.62	1706.75	7475.76	1705.73	7490.69	1705.85	7511.09	1705.71
7527.34	1706.22	7558.45	1706.27	7585.67	1705.75	7592.13	1705.61	7631.47	1705.74
7782.75	1705.05	7809.26	1705.28	8001.11	1705.22	8026.2	1705.54	8175.25	1705.62
8202.05	1705.69	8266.01	1705.46	8268.4	1704.8	8289.36	1706.73	8307.15	1707.22
8323.97	1706.69	8336	1705.72	8342.86	1706.01	9083.59	1705.84	9090.62	1704.05
9110.21	1705.31	9125.75	1705.43	9141.28	1705.44	9161.82	1705.59	9170.54	1706.37
9267.09	1704.85	9300.19	1704.48	9396.92	1704.61	9405.5	1705.32	9499.87	1704.57
9532.41	1704.31	9534.79	1704.61	9538.71	1703.69	9546.09	1705.09	9762.77	1703.27
9812.58	1703.65	9938.28	1703.62	9942.9	1702.33	9965.04	1701.63	9972.51	1703.62
9990.14	1703.38	9996.21	1701.38	10007.21	1703.62	10040.07	1703.94	10046.9	1703.93
10053.53	1703.62	10061.33	1703.95	10476.47	1705.45	10483.54	1704.88	10491.37	1705.82
10671.17	1705.38	10681.35	1704.69	10698.68	1704.59	10715.33	1704.62	10733.83	1704.89
10752.84	1704.81	10784	1705.47	10816	1706	10980.35	1705.71	11036.74	1706.38
11227.63	1707.91	11451.26	1708.75	11465.19	1709.27	11481.35	1708.86	11784.73	1711.3
11790.78	1710.46	11796.67	1711.87	12102.04	1715.18	12113.25	1715.14	12125.27	1715.39
12154.63	1714.77	12369.49	1716.54	12504.14	1717.67	12522.35	1716.37		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5060.77	.15	9942.9	.09	9990.14	.02	10007.21	.09	12125.27	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990.14	10007.21	429.44	402.72	399.74	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5060.77	6885.43	1710

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5060.77	6430	1711

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1707.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.141	0.028	0.090
W.S. Elev (ft)	1706.67	Reach Len. (ft)	429.44	402.72	399.74
Crit W.S. (ft)	1706.37	Flow Area (sq ft)	3828.35	71.88	1594.06
E.G. Slope (ft/ft)	0.012288	Area (sq ft)	3851.27	71.88	1594.06
Q Total (cfs)	10500.00	Flow (cfs)	5604.91	1079.73	3815.35
Top Width (ft)	4240.29	Top Width (ft)	3157.49	17.07	1065.72
Vel Total (ft/s)	1.91	Avg. Vel. (ft/s)	1.46	15.02	2.39
Max Chl Dpth (ft)	5.29	Hydr. Depth (ft)	1.27	4.21	1.50
Conv. Total (cfs)	94720.9	Conv. (cfs)	50562.1	9740.3	34418.4
Length Wtd. (ft)	418.33	Wetted Per. (ft)	3024.59	17.62	1065.87
Min Ch El (ft)	1701.38	Shear (lb/sq ft)	0.97	3.13	1.15
Alpha	7.24	Stream Power (lb/ft s)	1.42	47.02	2.75
Frctn Loss (ft)	4.18	Cum Volume (acre-ft)	2094.45	70.48	1134.10
C & E Loss (ft)	0.10	Cum SA (acres)	1144.69	27.34	483.67

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6293.11	6909.28	19.67	16.54	12.67	0.19	1.48	1.19
6909.28	7525.46	182.80	291.23	581.49	1.74	0.50	0.63
7525.46	8141.63	833.94	740.95	616.18	7.94	1.20	1.13
8141.63	8757.80	390.79	459.21	580.84	3.72	0.79	0.85
8757.80	9373.97	765.52	703.99	616.49	7.29	1.14	1.09
9373.97	9990.14	3412.19	1616.42	616.92	32.50	2.62	2.11

LB 9990.14	9994.41	241.28	17.03	4.49	2.30	3.99	14.17
9994.41	9998.67	357.59	21.41	4.41	3.41	5.02	16.70
9998.67	10002.94	284.55	18.57	4.36	2.71	4.35	15.32
10002.94	RB 10007.21	196.30	14.86	4.36	1.87	3.48	13.21
10007.21	10321.60	2205.10	740.35	314.41	21.00	2.35	2.98
10321.60	10636.00	794.22	401.22	314.47	7.56	1.28	1.98
10636.00	10950.39	737.19	383.65	314.43	7.02	1.22	1.92
10950.39	11264.78	78.85	68.83	122.55	0.75	0.56	1.15

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.654

INPUT
Description:
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4865.26	1704.4	5223.52	1703.55	5235.85	1700.63	5248.98	1703.83	5269.9	1704.58
5283.15	1705.38	5295.7	1703.88	5891.7	1703.99	5913.64	1703.83	5933.45	1703.52
5990.93	1703.87	6010.45	1704.17	6027.5	1703.92	6204.73	1704.81	6270.37	1706.26
6280.87	1703.32	6550.92	1704.13	6615.01	1702.74	6831.95	1702.4	6847.61	1702.69
6867.15	1702.35	6962.6	1702.59	6986.55	1702.95	7010.08	1702.79	7034.14	1702.73
7385	1702	7671.55	1700.29	7686.72	1700.19	7701.88	1699.73	7822.56	1701.61
7849.75	1701.62	7987.83	1701.32	8015.65	1701.34	8053.48	1701.27	8063.39	1699.83
8072.74	1701.28	8507.25	1701.9	8525.74	1702.19	8542.79	1701.8	9314.25	1699.74
9324.2	1698.27	9346.26	1699.13	9361.68	1699.27	9377.06	1699.28	9501.32	1698.9
9532.32	1699.38	9662.45	1699.25	9691.42	1699.29	9992.49	1700.71	9998.26	1700
10005.92	1700.9210131.08		1700.310158.88		1700.3710167.48		1700.8810328.54		1700.71
10399.8	1700.0610462.76		1701.0610472.91		1699.1410481.39		1701.2810637.66		1701.68
10646.01	1699.2810654.41		1700.9710885.43		1702.5110900.63		1702.9210917.17		1703.08
10937.08	1703.12								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
4865.26	.15	9992.49	.02810005.92		.1510158.88		.09

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9992.4910005.92		492.04	551.96	536.77	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4865.26	6847.61	1706

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4865.26	6550.92	1707

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1702.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.150	0.028	0.101
W.S. Elev (ft)	1702.73	Reach Len. (ft)	492.04	551.96	536.77
Crit W.S. (ft)	1701.15	Flow Area (sq ft)	5489.79	31.15	1483.17
E.G. Slope (ft/ft)	0.008272	Area (sq ft)	5528.48	31.15	1483.17
Q Total (cfs)	10500.00	Flow (cfs)	7407.48	262.20	2830.31
Top Width (ft)	4215.26	Top Width (ft)	3314.00	13.43	887.84
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)	1.35	8.42	1.91
Max Chl Dpth (ft)	4.46	Hydr. Depth (ft)	1.78	2.32	1.67
Conv. Total (cfs)	115450.2	Conv. (cfs)	81447.2	2883.0	31120.0
Length Wtd. (ft)	505.74	Wetted Per. (ft)	3085.21	13.53	888.82
Min Ch El (ft)	1700.00	Shear (lb/sq ft)	0.92	1.19	0.86
Alpha	1.80	Stream Power (lb/ft s)	1.24	10.01	1.64
Frctn Loss (ft)	5.90	Cum Volume (acre-ft)	2048.22	70.00	1119.98
C & E Loss (ft)	0.02	Cum SA (acres)	1112.79	27.20	474.70

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6787.97	7428.88	82.48	197.82	521.21	0.79	0.38	0.42
7428.88	8069.78	1219.71	1081.86	641.11	11.62	1.69	1.13
8069.78	8710.68	622.07	722.23	640.95	5.92	1.13	0.86
8710.68	9351.59	2024.68	1466.26	641.03	19.28	2.29	1.38
9351.59	9992.49	3458.55	2021.63	640.91	32.94	3.15	1.71
LB 9992.49	9995.85	61.12	7.49	3.38	0.58	2.23	8.16
9995.85	9999.21	79.48	8.77	3.38	0.76	2.61	9.06
9999.21	10002.56	69.97	8.12	3.38	0.67	2.42	8.61
10002.56	RB 10005.92	51.63	6.77	3.38	0.49	2.02	7.63
10005.92	10122.31	341.07	244.76	116.40	3.25	2.10	1.39
10122.31	10238.71	467.53	240.78	116.41	4.45	2.07	1.94
10238.71	10355.11	529.74	234.62	116.40	5.05	2.02	2.26
10355.11	10471.50	665.54	269.20	116.56	6.34	2.31	2.47
10471.50	10587.89	299.18	166.69	116.69	2.85	1.43	1.79
10587.89	10704.29	327.52	176.13	116.90	3.12	1.51	1.86
10704.29	10820.69	177.00	121.54	116.40	1.69	1.04	1.46
10820.69	10937.08	22.74	29.45	73.07	0.22	0.40	0.77

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.550

INPUT
Description:
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4916.15	1698.29	4930.06	1696.42	4936.81	1698.47	5150.47	1698.83	5167.75	1698.73
5185.33	1698.79	5717.74	1696.03	5721.7	1695.19	5728.98	1696.41	6206.27	1698.15
6233.02	1698.05	6250.29	1698.23	6290.07	1697.57	6344.64	1696.78	6642.05	1698.32
6757.27	1697.24	6783.74	1696.88	7045.49	1696.93	7066.75	1696.91	7079.82	1697.09
7087.44	1695.97	7095.01	1696.77	7350	1695.77	7400	1695	7655	1696
7901.59	1695.17	7916.8	1695.12	7932.23	1695.22	8310.11	1695.57	8397.49	1695.81
8543	1696.06	8549.67	1694.96	8555.29	1696.29	8741.79	1695.23	8756.63	1695.55
8771.47	1695.2	9220.8	1694.79	9557	1693.9	9565.41	1692.49	9586.2	1693.19
9600.45	1693.31	9615.83	1693.42	9701.42	1693.27	9733.03	1693.12	9858.86	1694.16
9892.88	1694.27	9989.94	1694.88	9998.06	1692.5	10008.35	1694.9	10048.58	1695.14
10070.88	1693.3	10092.15	1695.13	10362.48	1695.57	10368.18	1693.79	10395.58	1694.29
10402.4	1694.96	10471.01	1694.79	10480.42	1693.46	10496.61	1695.41	10683.25	1695.35
10708.06	1696.03	10732.84	1695.64	10784.68	1696.12	10892.45	1695.34	10905.83	1694.38
10948.26	1696.24	11100.03	1697.78	11113	1698.06	11124.57	1697.77	11149.02	1698.25

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
4916.15	.15	9989.94	.028	10008.35	.151	10708.06	.09

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9989.94	10008.35	335	361.64	341.28	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4916.15	7079.82	1698

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4916.15	6642.05	1699

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1696.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.150	0.028	0.137
W.S. Elev (ft)	1696.61	Reach Len. (ft)	335.00	361.64	341.28
Crit W.S. (ft)	1696.19	Flow Area (sq ft)	4326.85	53.54	1274.43
E.G. Slope (ft/ft)	0.017653	Area (sq ft)	4326.85	53.54	1274.43
Q Total (cfs)	10500.00	Flow (cfs)	7504.62	752.13	2243.24
Top Width (ft)	3861.17	Top Width (ft)	2865.89	18.41	976.87
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)	1.73	14.05	1.76
Max Chl Dpth (ft)	4.13	Hydr. Depth (ft)	1.51	2.91	1.30
Conv. Total (cfs)	79028.8	Conv. (cfs)	56483.9	5661.0	16883.9

Length Wtd. (ft)	338.18	Wetted Per. (ft)	2866.38	19.04	977.63
Min Ch El (ft)	1692.50	Shear (lb/sq ft)	1.66	3.10	1.44
Alpha	4.92	Stream Power (lb/ft s)	2.89	43.54	2.53
Frctn Loss (ft)	3.99	Cum Volume (acre-ft)	1992.56	69.47	1102.99
C & E Loss (ft)	0.06	Cum SA (acres)	1077.88	27.00	463.21

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6818.82	7453.04	221.62	236.06	329.09	2.11	0.72	0.94
7453.04	8087.27	892.56	707.96	634.23	8.50	1.12	1.26
8087.27	8721.49	642.06	581.09	634.47	6.11	0.92	1.10
8721.49	9355.72	1753.81	1061.74	634.23	16.70	1.67	1.65
9355.72	9989.94	3994.61	1740.00	634.36	38.04	2.74	2.30
LB 9989.94	9994.54	133.47	11.09	4.80	1.27	2.41	12.03
9994.54	9999.14	272.18	16.98	4.78	2.59	3.69	16.03
9999.14	10003.75	228.91	15.24	4.73	2.18	3.31	15.02
10003.75	RB 10008.35	117.57	10.22	4.73	1.12	2.22	11.50
10008.35	10150.93	478.17	251.65	142.73	4.55	1.76	1.90
10150.93	10293.52	277.68	181.55	142.58	2.64	1.27	1.53
10293.52	10436.10	406.17	228.27	142.89	3.87	1.60	1.78
10436.10	10578.68	384.72	220.90	142.79	3.66	1.55	1.74
10578.68	10721.27	239.29	162.56	142.59	2.28	1.14	1.47
10721.27	10863.85	201.40	110.20	142.59	1.92	0.77	1.83
10863.85	11006.44	255.78	119.29	121.44	2.44	0.98	2.14

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.481

INPUT
Description: Baseline crosses cross section at Delaware Dr., approx. 250 ft north of Tepee St.
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4520.48	1694.43	4555.86	1694.94	4669.7	1693.43	4678.37	1689.52	4689.65	1693.04
5415.99	1692.62	5424.53	1689.9	5429.42	1692.68	5437.03	1692.72	5441.68	1690.11
5446.39	1692.26	5554.97	1692.71	5595.02	1692.32	5614.7	1692.87	5635.97	1692.92
5671.83	1693.34	5827.06	1696.31	6005.91	1693.12	6167.83	1693.77	6351.3	1692.62
6373	1693.37	6406.33	1694.01	6444.06	1693.5	6462.59	1694.07	6508.09	1695.26
6512.74	1694.23	6588.83	1694.27	6616.23	1694.22	6751.28	1692.59	6757.1	1692.41
6763.42	1692.77	6866	1693.67	6941	1693.19	7099.09	1692.14	7107.77	1693.28
7122.04	1691.65	7233.08	1691.4	7254.15	1693.32	7278.14	1691.15	7765.4	1691.11
7813.98	1691.67	7835.73	1692	7846.38	1689.67	7855.49	1691.63	8050.73	1691.74
8065.25	1692.03	8080.89	1691.69	8480.28	1691.62	8487.16	1688.76	8516.98	1689.79
8880.67	1691.18	8894.1	1691.26	8909.59	1691.09	9431.1	1689.45	9475.08	1690.36
9553.4	1689.6	9648.81	1690.7	9657.59	1689.78	9674.91	1690.56	9689.11	1690.77
9703.15	1690.74	9792.97	1690.99	9826.2	1690.89	9956.73	1691.94	9976.5	1691.85
9995.49	1690.36	10007.55	1691.01	10022.68	1691.64	10039.93	1691.72	10178.86	1690.8
10186.69	1689.11	10196.82	1690.91	10234.05	1691.52	10248.8	1690.27	10384.44	1691.35
10394.81	1690.44	10448.81	1690.68	10453.82	1689.99	10483.21	1689.16	10500.24	1690.59
10598.36	1690.86	10618.97	1689.99	10638.33	1691.21	10688.88	1691.94	10715	1692.77
10866.17	1693.28	10870.31	1691.94	10876.18	1692.89	11077.55	1693.69	11132.02	1693.59
11201.96	1695.46	11214.34	1695.63	11226.93	1695.26	11245.61	1695.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4520.48	.15	9976.5	.02	10022.68	.09

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.5	10022.68	443.61	444.17	450	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4520.48	7107.48	1696

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4520.48	6508.09	1697	10866.17	11245.61	1697

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1692.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.150	0.028	0.090
W.S. Elev (ft)	1692.76	Reach Len. (ft)	443.61	444.17	450.00
Crit W.S. (ft)	1691.49	Flow Area (sq ft)	5188.22	77.99	1277.13
E.G. Slope (ft/ft)	0.008414	Area (sq ft)	5221.94	77.99	1277.13
Q Total (cfs)	10500.00	Flow (cfs)	7053.65	537.71	2908.64
Top Width (ft)	3712.94	Top Width (ft)	2974.87	46.18	691.89
Vel Total (ft/s)	1.60	Avg. Vel. (ft/s)	1.36	6.89	2.28
Max Chl Dpth (ft)	4.00	Hydr. Depth (ft)	1.82	1.69	1.85
Conv. Total (cfs)	114468.5	Conv. (cfs)	76897.2	5861.9	31709.3
Length Wtd. (ft)	445.21	Wetted Per. (ft)	2853.08	46.27	692.52
Min Ch El (ft)	1690.36	Shear (lb/sq ft)	0.96	0.89	0.97
Alpha	1.99	Stream Power (lb/ft s)	1.30	6.10	2.21
Frctn Loss (ft)	4.69	Cum Volume (acre-ft)	1955.84	68.92	1092.99
C & E Loss (ft)	0.03	Cum SA (acres)	1055.42	26.73	456.68

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6566.49	7248.49	145.86	152.16	135.73	1.39	1.12	0.96
7248.49	7930.49	1189.67	1015.59	670.65	11.33	1.52	1.17
7930.49	8612.50	1108.07	980.10	682.60	10.55	1.44	1.13
8612.50	9294.50	2202.49	1479.55	682.01	20.98	2.17	1.49
9294.50	9976.50	2407.55	1560.81	682.10	22.93	2.29	1.54
LB 9976.50	9988.04	91.40	15.69	11.58	0.87	1.36	5.82
9988.04	9999.59	199.20	25.04	11.57	1.90	2.17	7.96
9999.59	10011.13	155.87	21.60	11.56	1.48	1.87	7.22
10011.13	RB 10022.68	91.24	15.66	11.55	0.87	1.36	5.83
10022.68	10175.55	411.78	219.99	152.87	3.92	1.44	1.87
10175.55	10328.41	743.70	313.97	153.26	7.08	2.05	2.37
10328.41	10481.28	800.61	327.91	152.97	7.62	2.15	2.44
10481.28	10634.14	842.19	338.04	152.98	8.02	2.21	2.49
10634.14	10787.01	110.35	77.22	80.45	1.05	0.96	1.43

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.397

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4469.19	1688.26	4477.13	1689.24	4513.74	1688.62	4668.57	1688.57	4675.09	1686.38
4680.7	1688.34	4830	1688.42	4853.39	1688.03	4875.72	1687.65	5403.8	1687.52
5411.05	1684.9	5419.91	1687.2	5651.12	1690.01	6011.97	1688.1	6030.15	1688.46
6052.45	1688.32	6190.75	1687.37	6198.15	1686.57	6203.21	1687.34	6535.58	1687.38
6559.56	1687.77	6584.34	1687.83	6703.64	1687.53	6722.17	1687.97	6738.98	1687.67
6750.85	1687.21	6765.9	1688.28	6996.82	1687.74	7009.97	1686.32	7021.09	1686.78
7053.33	1686.49	7087.41	1686.83	7329.03	1686.13	7347.78	1686.39	7522.77	1685.23
7541.99	1685.46	7560.38	1685.38	7752.77	1685.33	7766.01	1684.52	7777.98	1685.37
8124.91	1686.67	8146.19	1686.74	8163.85	1686.79	8205.94	1685.8	8214.55	1686.6
8321.47	1686.38	8346.44	1687.03	8361.34	1687.05	8374.7	1686.96	8559.13	1685.88
8583.66	1686.02	8688.02	1686	8713.14	1685.91	8841.91	1686.22	8866.37	1686.35
9014.25	1686.48	9035.54	1686.78	9138.05	1686.26	9152.38	1686.28	9166.52	1686.19
9328.78	1686.5	9351.36	1686.52	9374.65	1686.09	9402.93	1686.46	9411.85	1685.32
9423.45	1686.42	9931.26	1686.22	9945.34	1686.2	9958.73	1686.04	9975.41	1686.61

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 9985.92 1687.15  9995.2 1682.7410010.68 1686.3710117.98 1686.77 10141.8 1686.63
   10148 1684.3610164.57 1686.9210311.41 1686.1610324.45 1683.7910331.03 1685.94
10501.88 1686.7310523.48 1686.1510778.42 1686.6410808.39 1686.7611447.05  1693.4
11459.82 1693.7711471.18 1693.6211490.21 1693.5711964.11  1697.7 11973.6 1699.16
11993.56 1698.0312188.18 1699.23

Manning's n Values          num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
 4469.19     .15 9985.92    .02510010.68     .0910501.88     .1511459.82     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9985.9210010.68           347.84  408.99     396              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 4469.19  6765.9    1691
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4469.19 6722.17    1692

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1688.12   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.35   Wt. n-Val.                  0.150      0.025      0.106
  W.S. Elev (ft)            1687.76   Reach Len. (ft)            347.84     408.99     396.00
  Crit W.S. (ft)            1687.61   Flow Area (sq ft)         4659.73      75.83    1139.94
  E.G. Slope (ft/ft)       0.013610   Area (sq ft)              4665.98      75.83    1139.94
  Q Total (cfs)            10500.00   Flow (cfs)                7222.88    1068.62    2208.49
  Top Width (ft)            3943.28   Top Width (ft)            3024.25      24.76     894.27
  Vel Total (ft/s)             1.79   Avg. Vel. (ft/s)             1.55      14.09       1.94
  Max Chl Dpth (ft)            5.02   Hydr. Depth (ft)             1.55       3.06       1.27
  Conv. Total (cfs)         90004.7   Conv. (cfs)               61913.7     9160.1    18930.9
  Length Wtd. (ft)           363.80   Wetted Per. (ft)          2999.71      26.17     895.44
  Min Ch El (ft)            1682.74   Shear (lb/sq ft)             1.32       2.46       1.08
  Alpha                        7.09   Stream Power (lb/ft s)       2.05      34.69       2.10
  Frctn Loss (ft)              4.10   Cum Volume (acre-ft)      1905.49      68.14    1080.51
  C & E Loss (ft)              0.02   Cum SA (acres)            1024.88      26.37     448.48


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  6537.96      7227.55        302.50     256.63    241.05       2.88       1.07       1.18
  7227.55      7917.15       2666.46    1442.25    689.65      25.39       2.09       1.85
  7917.15      8606.74       1306.03     939.84    689.65      12.44       1.36       1.39
  8606.74      9296.33       1510.49    1025.50    689.60      14.39       1.49       1.47
  9296.33      9985.92       1437.40     995.52    689.75      13.69       1.44       1.44
  LB 9985.92   9992.11        128.40      12.90      6.85       1.22       2.08       9.95
  9992.11      9998.30        470.25      27.70      6.61       4.48       4.48      16.97
  9998.30      10004.49       331.16      22.11      6.36       3.15       3.57      14.98
  10004.49     RB 10010.68    138.80      13.12      6.36       1.32       2.12      10.58
  10010.68     10282.87       738.06     338.75    272.79       7.03       1.24       2.18
  10282.87     10555.05       987.29     421.85    272.75       9.40       1.55       2.34
  10555.05     10827.24       463.74     347.95    272.19       4.42       1.28       1.33
  10827.24     11099.43        19.41      31.39     77.71       0.18       0.40       0.62


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

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 18.320

INPUT
Description:
Station Elevation Data     num=      70
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 4641.39  1684.8 4716.41 1687.09 4750.82 1685.67 4782.39  1682.9 4792.34 1682.95
 4926.69 1683.12 4947.95 1683.05 5321.36 1683.91 5327.25 1681.94 5347.31 1683.53
 5354.37  1684.1 5375.65 1685.18 5396.12 1684.95 5891.37 1684.89 5917.33 1684.67
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 5941.42 1684.53 5974.19 1683.83 5981.03 1682.89 5992.66 1683.63 6033.76  1683.9
 6089.34 1684.18 6096.17  1682.2 6105.95 1683.01    6571 1684.49 6740.55 1683.71
 6821.31 1683.49 6838.39 1683.74 6854.33 1683.64 6976.46 1682.78 7000.75 1683.32
 7027.57 1682.89 7549.52 1682.25 7576.07 1682.49 7601.86 1682.37 7610.93 1682.18
 7645.63 1682.21 7665.49 1682.06 7689.74 1683.12  8193.8 1682.34 8427.21 1682.09
 8438.11 1682.37  8452.1 1682.51  8466.6 1682.34 8573.09 1682.25 8594.18 1681.74
 8654.29 1681.89 8721.69 1681.59 8743.23  1681.2 8854.65 1681.29 9244.72 1681.28
 9258.71 1681.38 9275.73 1680.91 9859.75 1681.33 9891.65 1681.55 9988.34 1681.39
 10004.8 1679.8110020.19 1681.7210066.02 1680.7510081.14 1681.0610096.53  1680.9
10577.91 1682.9210589.51 1680.9510598.99 1682.2710628.98 1682.6810830.48 1683.07
   10871 1682.8610939.17  1682.410981.12 1682.33   11039  1683.711616.31 1689.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4641.39     .15 9988.34    .02510020.19     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9988.3410020.19           268.13   380.9  331.29              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 4641.39 6840.39    1687
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4641.39    6571    1688
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1683.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.150	0.025	0.150
W.S. Elev (ft)	1683.71	Reach Len. (ft)	268.13	380.90	331.29
Crit W.S. (ft)	1683.40	Flow Area (sq ft)	5362.29	96.54	1511.54
E.G. Slope (ft/ft)	0.009587	Area (sq ft)	5372.92	96.54	1511.54
Q Total (cfs)	10500.00	Flow (cfs)	7422.57	1172.07	1905.37
Top Width (ft)	4293.19	Top Width (ft)	3241.39	31.85	1019.95
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)	1.38	12.14	1.26
Max Chl Dpth (ft)	3.90	Hydr. Depth (ft)	1.70	3.03	1.48
Conv. Total (cfs)	107236.1	Conv. (cfs)	75806.4	11970.3	19459.4
Length Wtd. (ft)	295.09	Wetted Per. (ft)	3145.38	32.04	1020.25
Min Ch El (ft)	1679.81	Shear (lb/sq ft)	1.02	1.80	0.89
Alpha	7.97	Stream Power (lb/ft s)	1.41	21.89	1.12
Frctn Loss (ft)	2.90	Cum Volume (acre-ft)	1865.41	67.33	1068.45
C & E Loss (ft)	0.05	Cum SA (acres)	999.86	26.10	439.78

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6646.50	7314.87	293.79	380.34	471.86	2.80	0.81	0.77
7314.87	7983.23	709.31	741.90	668.40	6.76	1.11	0.96
7983.23	8651.60	1075.11	952.16	668.38	10.24	1.42	1.13
8651.60	9319.97	2577.10	1608.85	668.38	24.54	2.41	1.60
9319.97	9988.34	2767.26	1679.05	668.37	26.35	2.51	1.65
LB 9988.34	9996.30	239.46	21.52	8.00	2.28	2.70	11.13
9996.30	10004.27	362.65	27.61	8.00	3.45	3.47	13.13
10004.27	10012.23	362.23	27.62	8.02	3.45	3.47	13.11
10012.23	RB 10020.19	207.72	19.79	8.02	1.98	2.49	10.50
10020.19	10219.71	842.43	512.33	199.53	8.02	2.57	1.64
10219.71	10419.22	499.00	374.18	199.52	4.75	1.88	1.33
10419.22	10618.74	245.56	244.65	199.78	2.34	1.23	1.00
10618.74	10818.25	136.27	171.74	199.52	1.30	0.86	0.79
10818.25	11017.76	180.18	203.08	199.53	1.72	1.02	0.89
11017.76	11217.28	1.94	5.58	22.38	0.02	0.25	0.35

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.247

INPUT
Description:
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4215.81	1680.52	4651.48	1680.04	4670.7	1679.79	4745.35	1679.89	4765.07	1679.89
4876.54	1679.57	4896.22	1679.33	4953.16	1679.29	5011.79	1679.63	5018.84	1677.62
5054.37	1679.92	5076.53	1679.55	5086.75	1679.03	5585.43	1680.47	5612.53	1680.87
5637.38	1681.28	5650.41	1681.72	5686.24	1681.35	5696.82	1681.84	5729.95	1682.8
5929.96	1682.71	5999.53	1682.6	6118.23	1682.56	6140.56	1682.27	6175.81	1681.21
6181.55	1679.19	6191.15	1680.76	6299.99	1680.47	6314.11	1680.53	6325.15	1680.82
6911.65	1681.64	6934.29	1681.34	6955.37	1681.73	7053.85	1680.91	7126.8	1679.96
7144.56	1679.94	7181.14	1679.39	7190.77	1679.79	7226.25	1679.16	7284.73	1679.38
7310.05	1679.72	7337.9	1679.63	7372.87	1680.68	7440.34	1680.52	7531.94	1680.81
7539.45	1679	7544.32	1679.35	7622.17	1679.56	7633.77	1679.75	7644.4	1679.77
7799.93	1681.65	7811.46	1681.85	7822.41	1681.98	7923.73	1678.91	7942.23	1678.83
7960.22	1678.7	8091.72	1680.05	8206.98	1680.54	8264.31	1681.49	8274.76	1681.33
8368.03	1680.08	8373.31	1679.44	8379.46	1679.69	8464.45	1679.85	8485.63	1679.85
8549.14	1680.25	8729.03	1679.03	8757.6	1678.5	8769.38	1677.9	8776.33	1678.65
9546.9	1678.42	9564.17	1678.32	9629.25	1679.52	9634.75	1679.22	9990.65	1678.97
9997.44	1676.99	10006.72	1678.65	10409.99	1678.67	10422.47	1677.31	10442.38	1677.99
10457.94	1678.02	10474.07	1677.68	10483.72	1677.78	10495.08	1679.25	10536.68	1678.89
10545.27	1677.28	10576.61	1677.68	10711.05	1678.81	10724.91	1677.94	10742.89	1679.24
10940.09	1678.44	10946.98	1677.58	10961.07	1679.75	11038.91	1679.59	11254.26	1681.75
11285.38	1682.42	11919.97	1687.67						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4215.81	.15	9990.65	.02	810006.72	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990.65	10006.72	361.88	401.35	317.5	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4215.81	6955.37	1685

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1681.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1680.91	Reach Len. (ft)	361.88	401.35	317.50
Crit W.S. (ft)	1680.11	Flow Area (sq ft)	4247.71	48.64	2452.82
E.G. Slope (ft/ft)	0.010115	Area (sq ft)	4247.71	48.64	2452.82
Q Total (cfs)	10500.00	Flow (cfs)	5951.62	533.66	4014.72
Top Width (ft)	3922.83	Top Width (ft)	2742.54	16.07	1164.21
Vel Total (ft/s)	1.56	Avg. Vel. (ft/s)	1.40	10.97	1.64
Max Chl Dpth (ft)	3.92	Hydr. Depth (ft)	1.55	3.03	2.11
Conv. Total (cfs)	104399.3	Conv. (cfs)	59175.7	5306.1	39917.5
Length Wtd. (ft)	348.59	Wetted Per. (ft)	2743.00	16.50	1164.86
Min Ch El (ft)	1676.99	Shear (lb/sq ft)	0.98	1.86	1.33
Alpha	3.41	Stream Power (lb/ft s)	1.37	20.43	2.18
Frctn Loss (ft)	3.48	Cum Volume (acre-ft)	1835.80	66.69	1053.38
C & E Loss (ft)	0.03	Cum SA (acres)	981.44	25.89	431.48

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6381.38	7103.23	7.35	16.08	49.88	0.07	0.32	0.46
7103.23	7825.09	548.68	591.95	636.10	5.23	0.93	0.93
7825.09	8546.94	630.88	634.30	613.22	6.01	1.03	0.99
8546.94	9268.79	2358.32	1493.61	721.92	22.46	2.07	1.58
9268.79	9990.65	2406.38	1511.76	721.88	22.92	2.09	1.59
LB 9990.65	9994.67	96.76	10.16	4.18	0.92	2.53	9.52
9994.67	9998.69	175.94	14.51	4.15	1.68	3.61	12.13
9998.69	10002.70	156.44	13.42	4.08	1.49	3.34	11.65
10002.70	RB 10006.72	104.52	10.54	4.08	1.00	2.62	9.92
10006.72	10245.88	884.11	540.07	239.16	8.42	2.26	1.64
10245.88	10485.03	1053.38	600.03	239.26	10.03	2.51	1.76
10485.03	10724.19	1123.32	623.80	239.42	10.70	2.61	1.80

10724.19	10963.34	795.94	507.31	239.43	7.58	2.12	1.57
10963.34	11202.50	157.98	181.61	207.59	1.50	0.87	0.87

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.171

INPUT
Description: Baseline crosses cross section at Shiprock St.
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4303.03	1679.08	4326.79	1678.88	4345.48	1676.98	4361.14	1675.63	4379.92	1676.82
4403.71	1678.75	4425.05	1678.54	4450.6	1678.05	4469.75	1677.1	4472.71	1674.64
4481.54	1677.16	4853.18	1676.58	4871.59	1676.9	4892.4	1676.58	5381.94	1675.47
5406.85	1676.22	5431.93	1676.6	5597.69	1677.77	5605.3	1679.21	5902.1	1679.86
5909.06	1678.6	5949.41	1678.24	5967.27	1678.13	5984.46	1677.78	6346.15	1677.82
6399.92	1677.39	6470.17	1677.75	6494.52	1677.61	6576.5	1677.96	6581.34	1677.05
6589.08	1677.82	6640.91	1677.91	6675.4	1678.56	6695.63	1678.26	6911.59	1677.17
6930.42	1677.57	6946.78	1677.34	7182.15	1677.28	7213.15	1677.26	7237.71	1677.11
7422.45	1676.98	7428.25	1676.82	7431.62	1676.49	7465.62	1676.18	7551.47	1675.07
7567.66	1675.18	7583.47	1675.22	7608.81	1675.85	7625.28	1673.86	7679.45	1675.98
8055.31	1677.05	8066.72	1676.95	8078.64	1677.2	8141.7	1677.18	8162.81	1677.03
8187.16	1676.82	8367.96	1675.4	8396.25	1675.56	8508.28	1675.99	8532	1676.5
8678.19	1676.42	8702.23	1676.42	8878.19	1676.36	8903.21	1676	9036.87	1675.88
9063.83	1675.91	9157.31	1674.46	9173.77	1673.19	9182.67	1673.28	9212.98	1673.21
9230.21	1674.16	9253.32	1674.3	9269.78	1673.45	9314.12	1673.73	9575.49	1675.2
9610.07	1675.25	9973.99	1675.43	9997.17	1674.7	10012.86	1674.76	10029.12	1674.29
10570.79	1674.84	10591.88	1674.34	10606.9	1675.22	10901.6	1674.51	10920.18	1674.53
10936.15	1674.66	11033.06	1676.36	11133.08	1675.48	11223	1677.11	11629.71	1680.52
11661.49	1680.85	11908.84	1681.65	11913.89	1680.52				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4303.03	.15	9973.99	.021	10029.12	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9973.99	10029.12	565	633.22	508.03	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4303.03	7422.45	1680

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4303.03	6930.42	1681

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1677.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1677.11	Reach Len. (ft)	565.00	633.22	508.03
Crit W.S. (ft)	1676.32	Flow Area (sq ft)	3615.42	126.81	2566.69
E.G. Slope (ft/ft)	0.009839	Area (sq ft)	3627.54	126.81	2566.69
Q Total (cfs)	10500.00	Flow (cfs)	4674.09	1628.04	4197.87
Top Width (ft)	3909.56	Top Width (ft)	2659.29	55.13	1195.14
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)	1.29	12.84	1.64
Max Chl Dpth (ft)	3.92	Hydr. Depth (ft)	1.46	2.30	2.15
Conv. Total (cfs)	105857.7	Conv. (cfs)	47122.7	16413.4	42321.6
Length Wtd. (ft)	556.74	Wetted Per. (ft)	2474.78	55.15	1195.21
Min Ch El (ft)	1674.29	Shear (lb/sq ft)	0.90	1.41	1.32
Alpha	9.88	Stream Power (lb/ft s)	1.16	18.13	2.16
Frctn Loss (ft)	5.64	Cum Volume (acre-ft)	1803.09	65.88	1035.09
C & E Loss (ft)	0.10	Cum SA (acres)	959.01	25.56	422.88

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

7138.51	7847.38	637.14	564.48	425.13	6.07	1.33	1.13
7847.38	8556.25	390.61	493.14	631.79	3.72	0.78	0.79
8556.25	9265.12	1144.25	984.15	708.98	10.90	1.39	1.16
9265.12	9973.99	2502.06	1573.64	708.88	23.83	2.22	1.59
LB 9973.99	9987.77	293.21	26.15	13.79	2.79	1.90	11.21
9987.77	10001.55	406.12	31.80	13.79	3.87	2.31	12.77
10001.55	10015.34	426.29	32.73	13.78	4.06	2.37	13.02
10015.34	RB 10029.12	502.44	36.13	13.79	4.79	2.62	13.91
10029.12	10264.72	1161.25	636.34	235.60	11.06	2.70	1.82
10264.72	10500.31	994.96	579.99	235.60	9.48	2.46	1.72
10500.31	10735.91	815.98	514.95	235.63	7.77	2.19	1.58
10735.91	10971.50	947.11	563.10	235.60	9.02	2.39	1.68
10971.50	11207.10	277.96	269.87	235.62	2.65	1.15	1.03
11207.10	11442.70	0.63	2.45	17.16	0.01	0.14	0.26

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.051

INPUT
Description:
Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4039.67	1673.2	4073.2	1672.78	4336.57	1673.62	4366.31	1673.63	4394.77	1673.73
4426.75	1673.27	4449.82	1672	4461.54	1668.62	4473.53	1671.86	4491.36	1673.59
4532.18	1673.28	4601.02	1671.12	4620.95	1670.78	5076.35	1670.22	5091.11	1670.28
5414.45	1671.97	5430.43	1671.8	5443.5	1672.13	5681.49	1671.74	5704.1	1671.77
5722.58	1671.37	5751.69	1671.7	5780.97	1671.47	5831.75	1671.05	5905.26	1671.23
6007.11	1671.67	6025.35	1671.53	6077.01	1671.32	6084.19	1669.03	6091.88	1670.88
6162.49	1671.69	6200.08	1671.74	6326.05	1671.92	6369.77	1671.78	6377.7	1671.3
6395.09	1670.66	6412.35	1671.1	7116.05	1669.24	7134.92	1669.64	7190.02	1670.74
7209.69	1670.48	7360.43	1671.45	7362.52	1668.74	7365.53	1671.34	7432.92	1670.5
7449.18	1670.98	7466.28	1670.91	7759.37	1671.02	7778.83	1671.06	7796.51	1670.37
7940.37	1669.32	8015.95	1668.55	8220.5	1668.34	8228.29	1667.91	8238.46	1668.41
8579.66	1670.34	8608.99	1670.67	8964.47	1669.8	8995.64	1669.65	9090.45	1668.76
9115.56	1668.91	9237.72	1668.89	9258.84	1669.26	9369.31	1669.73	9377.01	1669.27
9387.39	1669.51	9462.31	1670.63	9797.84	1670.19	9833.08	1670.04	9986.91	1670.57
9995.72	1667.96	10002.38	1670.04	10052.53	1670.23	10063.45	1668.74	10069.39	1670.88
10095.52	1670.77	10201.11	1669.31	10217.64	1669.44	10234.25	1669.33	10249.64	1669.08
10264.49	1670.01	10536.04	1670.61	10548.68	1670.36	10568.71	1668.59	10584.84	1670.99
10722.17	1672.03	10885.08	1670.94	10892.64	1671.14	10906.86	1673.74	10916.67	1671.54
11019.98	1673.51	11043.41	1672.45	11056.33	1672.43	11069.55	1672.23	11102.63	1672.61
11119.46	1672.62	11181.25	167	511235.52	1675.03	11326.61	1677.28	11385.54	1675.03
11404.58	1674.82	11489.82	1675.77	11529.41	1676.16	11688.87	1676.51		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4039.67	.15	9986.91	.02	10002.38	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.91	10002.38	525	583.8	596.87	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4039.67	6509.67	1674

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4039.67	5443.5	1675

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1671.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1671.70	Reach Len. (ft)	525.00	583.80	596.87
Crit W.S. (ft)	1670.89	Flow Area (sq ft)	6045.69	39.50	1013.96
E.G. Slope (ft/ft)	0.010454	Area (sq ft)	6316.54	39.50	1013.96
Q Total (cfs)	10500.00	Flow (cfs)	8849.59	388.80	1261.60
Top Width (ft)	4908.46	Top Width (ft)	4081.97	15.47	811.02
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)	1.46	9.84	1.24
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)	1.74	2.55	1.25
Conv. Total (cfs)	102696.2	Conv. (cfs)	86554.2	3802.7	12339.2
Length Wtd. (ft)	537.83	Wetted Per. (ft)	3479.66	16.17	811.88

Min Ch El (ft)	1667.96	Shear (lb/sq ft)	1.13	1.59	0.82
Alpha	2.55	Stream Power (lb/ft s)	1.66	15.70	1.01
Frctn Loss (ft)	5.39	Cum Volume (acre-ft)	1738.60	64.67	1014.21
C & E Loss (ft)	0.00	Cum SA (acres)	915.29	25.05	411.18

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6269.88	7013.29	986.11	769.05	503.62	9.39	1.53	1.28
7013.29	7756.70	815.87	803.09	745.74	7.77	1.08	1.02
7756.70	8500.10	3458.07	1907.91	743.45	32.93	2.57	1.81
8500.10	9243.50	2096.76	1413.12	743.42	19.97	1.90	1.48
9243.50	9986.91	1492.79	1152.53	743.43	14.22	1.55	1.30
LB 9986.91	9990.78	48.13	6.60	4.03	0.46	1.71	7.29
9990.78	9994.64	113.27	11.03	4.03	1.08	2.85	10.27
9994.64	9998.51	150.35	13.09	4.05	1.43	3.39	11.48
9998.51	RB 10002.38	77.05	8.77	4.05	0.73	2.27	8.78
10002.38	10213.19	453.79	341.23	211.30	4.32	1.62	1.33
10213.19	10424.00	499.96	361.34	210.84	4.76	1.71	1.38
10424.00	10634.81	276.98	253.64	211.07	2.64	1.20	1.09
10634.81	10845.63	9.19	26.14	119.10	0.09	0.22	0.35
10845.63	11056.44	21.68	31.61	59.56	0.21	0.53	0.69

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.941

INPUT
Description:
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4661.93	1668.02	4692.52	1667.65	4721.92	1667.2	4745.08	1666.48	4927.78	1667.42
4945.07	1667.71	4963.6	1667.24	5309.51	1667.75	5319.22	1671.08	5583.24	1668.91
5590.75	1666.27	5686.15	1665.48	5716	1665.69	5869.24	1666.15	5898.35	1666.14
5954.82	1665.79	5960.71	1665.12	5966.77	1665.87	6281.96	1665.98	6302.3	1665.95
6322.84	1665.87	6333.92	1664.59	6342.77	1665.59	6539.88	1665.17	6558.75	1665.33
6573.74	1664.87	6714.4	1664.33	6719.38	1663.53	6722.81	1663.27	6731.72	1664.51
6985.2	1664.99	6999.05	1665.37	7013.07	1665.39	7037	1666	7231	1666
7256	1665.49	7285.88	1665.08	7296.65	1664.93	7314.94	1665.05	7332.23	1664.79
7608.51	1665.03	7626.38	1665.01	7641.04	1664.42	7790.56	1664.11	7809.16	1664.17
7832.63	1663.76	7937.68	1662.86	7953.81	1662.9	7972.31	1662.85	8000.02	1663.02
8082.18	1663.29	8116.97	1663.82	8253.73	1665.01	8290.91	1665.25	8356.77	1665.12
8369.62	1666.8	8474.57	1664.97	8491.07	1664.33	8537.38	1664.57	8710.32	1664.88
8750.35	1665.44	8892.93	1664.9	8909.95	1663.51	9012.01	1664.04	9021.12	1664.39
9051.89	1664.42	9171.06	1663.26	9189.36	1663.35	9225.96	1664.33	9581.29	1664.07
9586.74	1664.51	9646.12	1663.71	9983.74	1665.51	9998.24	1662.41	10009.41	1664.28
10257.57	1663.42	10405.19	1664.94	10574.03	1665.51	10586.1	1665.86	10598.85	1666.09
10635.61	1664.92	11161.19	1669.32	11176.96	1670.07	11208.12	1670.37	11234.82	1670.61
11247.87	1670.96	11260.05	1670.84	11316.72	1671.27	11602.91	1672.86	11761.29	1673.48
11881.97	1675.46	11889.14	1674.02	11922.18	1674.46				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4661.93	.15	9983.74	.02	8100	9.41 .15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.74	10009.41	368.92	509.5	343.39	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4661.93	6119.91	1674

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1666.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.150	0.028	0.150

W.S. Elev (ft)	1666.28	Reach Len. (ft)	368.92	509.50	343.39
Crit W.S. (ft)	1665.57	Flow Area (sq ft)	6116.71	66.55	1241.10
E.G. Slope (ft/ft)	0.009701	Area (sq ft)	6321.24	66.55	1241.10
Q Total (cfs)	10500.00	Flow (cfs)	8213.39	648.29	1638.32
Top Width (ft)	5173.52	Top Width (ft)	4359.21	25.67	788.64
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)	1.34	9.74	1.32
Max Chl Dpth (ft)	3.88	Hydr. Depth (ft)	1.60	2.59	1.57
Conv. Total (cfs)	106603.8	Conv. (cfs)	83388.5	6581.9	16633.5
Length Wtd. (ft)	373.54	Wetted Per. (ft)	3830.59	26.16	788.68
Min Ch El (ft)	1662.40	Shear (lb/sq ft)	0.97	1.54	0.95
Alpha	3.77	Stream Power (lb/ft s)	1.30	15.01	1.26
Frctn Loss (ft)	3.56	Cum Volume (acre-ft)	1662.44	63.96	998.76
C & E Loss (ft)	0.00	Cum SA (acres)	864.42	24.78	400.22

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5992.38	6657.61	356.42	435.60	537.84	3.39	0.81	0.82
6657.61	7322.83	717.88	721.98	665.41	6.84	1.09	0.99
7322.83	7988.06	1952.24	1315.74	665.25	18.59	1.98	1.48
7988.06	8653.29	1529.25	1113.02	631.53	14.56	1.76	1.37
8653.29	9318.51	1843.75	1271.42	665.31	17.56	1.91	1.45
9318.51	9983.74	1813.84	1258.96	665.25	17.27	1.89	1.44
LB 9983.74	9990.16	59.15	9.36	6.56	0.56	1.46	6.32
9990.16	9996.58	179.05	18.19	6.56	1.71	2.83	9.84
9996.58	10002.99	260.09	22.70	6.52	2.48	3.54	11.46
10002.99	RB 10009.41	150.00	16.30	6.51	1.43	2.54	9.20
10009.41	10248.51	902.74	577.22	239.10	8.60	2.41	1.56
10248.51	10487.60	562.81	434.74	239.11	5.36	1.82	1.29
10487.60	10726.70	164.51	207.84	239.13	1.57	0.87	0.79
10726.70	10965.79	8.27	21.31	71.35	0.08	0.30	0.39

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.844

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5104.49	1664.56	5136.33	1664.02	5177.07	1662.83	5220.57	1663.96	5248.85	1663.85
5278.16	1663.16	5316.21	1662.55	5626.1	1663.38	5681.75	1663.06	5845.73	1662.41
5880.36	1662.31	6045.81	1661.6	6079.9	1661.87	6098.2	1661.65	6115.82	1661.02
6176.41	1662.08	6194.17	1661.68	6211.01	1661.86	6316	1662.32	6486.78	1661.78
6504.5	1661.67	6523.09	1661.6	6798.69	1660.77	6816.97	1660.82	6831.03	1660.96
7043.14	1662.13	7049.46	1659.03	7056.72	1661.51	7111.73	1661.22	7127.01	1661.64
7141.6	1661.63	7305	1661.55	7536.03	1661.22	7569.78	1661.44	7616.94	1661.25
8174.49	1659.06	8193.13	1659.2	8208.96	1659.21	8347.72	1661.43	8361	1659.85
8372.62	1661.36	8483.5	1662.12	8524.27	1662.54	8559.89	1661.89	8689.76	1661.89
8719.1	1661.69	8826.75	1660.82	8867.03	1660.98	9045.14	1660.35	9052.44	1659.46
9058.67	1660.48	9199.8	1660.31	9231.14	1660.7	9381.94	1659.59	9413.26	1659.94
9582.11	1660.24	9591.56	1658.89	9600.11	1659.93	9735.98	1661.06	9739.1	1660.37
9786.98	1660.23	9824.82	1661.2	9831.22	1660.29	9834.86	1661.33	9988.95	1660.86
9996.89	1658.73	10006.58	1660.68	10159.32	1661.13	10190.75	1661.17	10419.05	1660.74
10861.67	1665.91	10893.95	1666.11	10924.03	1666.08	11518.29	1669.97	11555.75	1670.3
11586.06	1670.79	12831.8	1681.58	12888.56	1681.67				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5104.49	.15	9988.95	.02	10006.58	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.95	10006.58	375	441.57	330	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev

5104.49 6834.54 1670
Blocked Obstructions num= 1

Sta L	Sta R	Elev
5104.49	5626.1	1666

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1662.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1662.72	Reach Len. (ft)	375.00	441.57	330.00
Crit W.S. (ft)	1661.97	Flow Area (sq ft)	5986.49	52.42	896.60
E.G. Slope (ft/ft)	0.009389	Area (sq ft)	7022.15	52.42	896.60
Q Total (cfs)	10500.00	Flow (cfs)	8804.39	547.52	1148.09
Top Width (ft)	4820.60	Top Width (ft)	4221.10	17.63	581.88
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)	1.47	10.45	1.28
Max Chl Dpth (ft)	3.99	Hydr. Depth (ft)	1.90	2.97	1.54
Conv. Total (cfs)	108364.6	Conv. (cfs)	90865.1	5650.7	11848.8
Length Wtd. (ft)	385.16	Wetted Per. (ft)	3156.39	18.10	581.89
Min Ch El (ft)	1658.73	Shear (lb/sq ft)	1.11	1.70	0.90
Alpha	3.35	Stream Power (lb/ft s)	1.63	17.73	1.16
Frctn Loss (ft)	2.99	Cum Volume (acre-ft)	1605.94	63.27	990.33
C & E Loss (ft)	0.07	Cum SA (acres)	828.08	24.52	394.82

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6325.61	6936.16	176.99	148.28	101.62	1.69	1.46	1.19
6936.16	7546.72	786.66	744.03	611.70	7.49	1.22	1.06
7546.72	8157.28	2430.82	1463.01	610.56	23.15	2.40	1.66
8157.28	8767.83	1095.14	906.86	610.78	10.43	1.49	1.21
8767.83	9378.39	2122.96	1348.97	610.70	20.22	2.21	1.57
9378.39	9988.95	2191.81	1375.34	611.02	20.87	2.25	1.59
LB 9988.95	9993.36	96.98	10.80	4.56	0.92	2.45	8.98
9993.36	9997.77	183.87	15.83	4.55	1.75	3.59	11.61
9997.77	10002.17	166.56	14.85	4.50	1.59	3.37	11.22
10002.17	RB 10006.58	100.10	10.94	4.50	0.95	2.48	9.15
10006.58	10366.83	860.01	628.22	360.25	8.19	1.74	1.37
10366.83	10727.08	288.08	268.37	221.64	2.74	1.21	1.07

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.761

INPUT
Description: Baseline crosses cross section at Meridian Rd. approx. 900 ft
north of University Dr./Superstition Blvd.
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4910.45	1659.67	4926.24	1659.67	5312.2	1660.95	5350.52	1660.89	5378.01	1660.76
5408.48	1660.76	5412.92	1660.87	5419.15	1660.78	5427.22	1660.25	5454.12	1659.9
5477.21	1659.87	5509.51	1658.52	5545.69	1659.88	5581.79	1659.45	5607.07	1658.87
5707.42	1658.92	5739.41	1659.16	5764.78	1659.53	5768.13	1659.31	5777.86	1656.13
5791.74	1659.11	5858.83	1659.77	5895.93	1660.03	5925.98	1658.09	6016.72	1659.21
6026.8	1657.98	6038.96	1659.05	6425.01	1658.69	6444.05	1658.3	6463.08	1658.43
6614	1658.53	6745.75	1657.74	6763.84	1657.54	6782.91	1657.86	6880.06	1658.7
6887.7	1656.95	6892.54	1657.85	7067.48	1658.39	7085.09	1658.57	7101.87	1658.52
7167.59	1658.44	7188.94	1659.02	7212.19	1658.48	7360	1657.96	7693.56	1657.31
7713.63	1657.62	7729.97	1657.33	8110.03	1655.42	8128.94	1655.45	8146.09	1655.24
8335.11	1656.24	8365.37	1657.01	8396.76	1656.82	8799.6	1656.84	8837.97	1657.13
8877.37	1656.87	9264.42	1657.79	9295	1657.48	9505.26	1657.24	9535.91	1657.21
9643.8	1656.72	9654.55	1657.76	9664.23	1657.03	9683.58	1657.27	9704.27	1657.12

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 9711.33 1655.98 9721.32 1656.88  9920.5 1657.21 9956.59 1657.09 9993.07 1656.46
10023.01 1656.6410038.96 1652.4510056.47 1657.48 10092.5 1657.4510125.36 1657.27
10742.43 1662.7910775.58 1662.41 10786.3 1663.0910799.68 1662.2911726.92 1668.51
11744.58 1668.4911751.93 1668.6311837.69 1670.8411944.25 1668.8712001.83    1672
 12992.8 1680.97 13002.7 1677.5613013.52 1680.7413074.63 1680.8213091.39 1681.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4910.45     .15 9956.59     .0210056.47     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9956.5910056.47           192.33  457.84     585             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 4910.45 7188.94    1665
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4910.45 6038.96    1666
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1659.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.81	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1658.97	Reach Len. (ft)	192.33	457.84	585.00
Crit W.S. (ft)	1658.97	Flow Area (sq ft)	5369.57	293.06	268.21
E.G. Slope (ft/ft)	0.006548	Area (sq ft)	5947.78	293.06	268.21
Q Total (cfs)	10500.00	Flow (cfs)	6698.67	3581.11	220.21
Top Width (ft)	4184.43	Top Width (ft)	3825.82	99.88	258.73
Vel Total (ft/s)	1.77	Avg. Vel. (ft/s)	1.25	12.22	0.82
Max Chl Dpth (ft)	6.52	Hydr. Depth (ft)	1.94	2.93	1.04
Conv. Total (cfs)	129758.9	Conv. (cfs)	82782.1	44255.4	2721.4
Length Wtd. (ft)	330.42	Wetted Per. (ft)	2765.67	101.14	258.74
Min Ch El (ft)	1652.45	Shear (lb/sq ft)	0.79	1.18	0.42
Alpha	16.57	Stream Power (lb/ft s)	0.99	14.47	0.35
Frctn Loss (ft)		Cum Volume (acre-ft)	1550.11	61.52	985.92
C & E Loss (ft)		Cum SA (acres)	793.45	23.93	391.64

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6802.75	7433.52	130.66	195.13	242.36	1.24	0.81	0.67
7433.52	8064.29	1522.68	1248.44	630.78	14.50	1.98	1.22
8064.29	8695.05	2473.29	1670.20	630.78	23.56	2.65	1.48
8695.05	9325.82	1228.76	1097.69	630.77	11.70	1.74	1.12
9325.82	9956.59	1343.26	1158.12	630.98	12.79	1.84	1.16
LB 9956.59	9981.56	491.50	52.28	24.97	4.68	2.09	9.40
9981.56	10006.53	634.54	60.94	24.97	6.04	2.44	10.41
10006.53	10031.50	763.73	68.42	25.26	7.27	2.74	11.16
10031.50	RB 10056.47	1691.35	111.41	25.93	16.11	4.46	15.18
10056.47	10435.83	220.21	268.21	258.74	2.10	1.04	0.82

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.674

INPUT
Description: Baseline crosses cross section at Meridian Rd. approx. 475 ft

north of University Dr./Superstition Blvd.

Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4910.45	1657.43	5518.8	1656.06	5569.47	1656.97	5707.35	1656.98	5713.05	1655.77
5721.18	1656.69	5728.2	1656.34	5753.33	1657.18	5786.2	1657.61	5849.12	1657.99
5878.21	1658.08	5909.71	1657.39	5945.44	1655.93	5980.08	1657.65	6004.22	1657.72
6028.51	1657.16	6106.25	1656.44	6115.86	1654.9	6124.87	1656.01	6847.03	1656.68
6866.32	1656.23	6885.39	1656.41	7163.27	1656.57	7186.56	1656.13	7212.91	1656.41
7241.79	1656.75	7660	1655.2	7679.87	1654.96	7730.71	1655.16	7751.29	1654.46
7887.62	1655.26	7894.42	1653.25	7907.9	1653	7917.17	1655.3	8117.1	1655.31
8135.52	1655.03	8152.76	1654.8	8363.44	1653.08	8395.49	1653.27	8424.55	1653.49
8659.34	1653.74	8671.02	1655.53	8754.79	1655.2	8796.78	1655.35	9223.7	1654.41
9262.22	1654.71	9300.77	1654.76	9688.73	1656.51	9719.37	1656.43	9765.33	1655.72
9804.84	1655.53	9812.91	1655.32	9861.71	1655.37	9892.61	1655.67	9898.39	1654.94
9931.09	1654.79	9969.34	1653.97	9987.62	1653.31	9997.56	1649.09	10012.36	1653.83
10032.56	1653.41	10170.74	1653.14	10213.54	1653.16	10247.65	1653.81	10310.49	1652.99
10358.61	1655.58	10469.94	1654.09	10502.84	1654.39	10608.55	1655.74	10621.78	1657.76
10716.56	1656.91	10730.01	1656.01	10761.88	1655.74	10865.29	1657.82	10878.81	1659.51
10989.77	1657.86	11022.07	1657.88	11044.93	1659.46	11125.25	1659.91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4910.45	.15	9931.09	.02	10012.36	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9931.09	10012.36	317.78	384.64	153.53	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4910.45	7240.88	1658

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4910.45	6847.03	1659

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1657.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.95	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1656.60	Reach Len. (ft)	317.78	384.64	153.53
Crit W.S. (ft)	1656.79	Flow Area (sq ft)	4187.78	268.78	1569.03
E.G. Slope (ft/ft)	0.006688	Area (sq ft)	4242.71	268.78	1569.03
Q Total (cfs)	10500.00	Flow (cfs)	4603.25	3577.75	2319.00
Top Width (ft)	3794.00	Top Width (ft)	3027.46	81.27	685.27
Vel Total (ft/s)	1.74	Avg. Vel. (ft/s)	1.10	13.31	1.48
Max Chl Dpth (ft)	7.51	Hydr. Depth (ft)	1.58	3.31	2.29
Conv. Total (cfs)	128392.9	Conv. (cfs)	56288.1	43748.3	28356.5
Length Wtd. (ft)		Wetted Per. (ft)	2649.66	82.89	685.48
Min Ch El (ft)	1649.09	Shear (lb/sq ft)	0.66	1.35	0.96
Alpha	20.22	Stream Power (lb/ft s)	0.73	18.02	1.41
Frctn Loss (ft)	2.20	Cum Volume (acre-ft)	1527.61	58.56	973.58
C & E Loss (ft)	0.02	Cum SA (acres)	778.32	22.97	385.30

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6793.19	7420.77	10.59	35.56	138.54	0.10	0.26	0.30
7420.77	8048.35	792.29	867.08	628.17	7.55	1.38	0.91
8048.35	8675.93	2286.24	1637.11	627.73	21.77	2.61	1.40
8675.93	9303.51	1079.75	1043.65	627.58	10.28	1.66	1.03
9303.51	9931.09	434.39	604.37	627.64	4.14	0.96	0.72
LB 9931.09	9951.41	372.79	41.20	20.32	3.55	2.03	9.05
9951.41	9971.72	516.30	50.09	20.32	4.92	2.47	10.31
9971.72	9992.04	816.33	66.44	20.71	7.77	3.27	12.29
9992.04	RB 10012.36	1872.29	111.05	21.53	17.83	5.47	16.86
10012.36	10151.47	772.50	453.35	139.12	7.36	3.26	1.70
10151.47	10290.58	768.75	452.04	139.12	7.32	3.25	1.70

10290.58	10429.69	360.47	287.02	139.19	3.43	2.06	1.26
10429.69	10568.80	358.11	285.83	139.12	3.41	2.05	1.25
10568.80	10707.92	36.86	46.69	45.45	0.35	1.03	0.79
10707.92	10847.03	22.34	44.10	83.48	0.21	0.53	0.51

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.601

INPUT
Description:
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5553.59	1654.45	5648.49	1653.52	5667.49	1653.49	5689.55	1653.38	5699.57	1652.98
5721.29	1652.65	6380.66	1653.41	6398.37	1653.26	6444.82	1654.74	6467.92	1654.85
6491.62	1654.5	6524.34	1653.6	6558.03	1654.93	6592.22	1654.55	6616.75	1654.13
6654.09	1653.78	7253.9	1653.39	7262.73	1654.26	7274.73	1651.89	7288.21	1653.7
7340	1653.72	7348.3	1651.44	7354.48	1652.06	7686.38	1653.47	7696.66	1653.02
7711.71	1654.24	7878.61	1652.34	7898.23	1652.65	7915.98	1652.22	7935.13	1653.19
7949.15	1654.03	8002.98	1653.34	8011.77	1652.75	8278.84	1651.61	8297.65	1651.5
8319.71	1651.44	8341.21	1650.88	8373.66	1651.31	8403.65	1651.7	8671.92	1651.4
8707.78	1651.12	8765.79	1650.69	8773.48	1649.63	8785.27	1651.48	8831.09	1651.46
8863.62	1650.86	8910.68	1650.85	8949.32	1651.1	9101.65	1651.12	9139.26	1651.23
9293.48	1651.36	9330.53	1651.39	9362.18	1651.49	9394.65	1651.73	9762.69	1652
9767.27	1651.1	9783.82	1650.92	9795.3	1651.94	9821.43	1652.01	9873.91	1651.78
9957.48	1651.24	9985.4	1651.46	9996.27	1646.8	10010.88	1652.2	110179.87	1651.7
10196.3	1651.5	210379.35	1651.7	510424.06	1652.2	410485.74	1653.19	10527.4	1652.16
10621.64	1654.8	510733.57	1653.5	610766.34	1653.8	210871.45	1654.8	710884.62	1657.39
10983.17	1656.32	10993.4	1655.6	311025.82	1655.4	511131.97	1657.3	911141.62	1659.3
11253.56	1657.6	211286.01	1657.4	511309.59	1659.1	111396.59	1659.95		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5553.59	.15	9873.91	.02	10010.88	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9873.91	10010.88	492.39	639.3	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5553.59	7949.15	1657

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5553.59	7262.73	1658

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1654.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1653.60	Reach Len. (ft)	492.39	639.30	480.00
Crit W.S. (ft)	1653.59	Flow Area (sq ft)	3823.49	346.29	873.43
E.G. Slope (ft/ft)	0.007735	Area (sq ft)	4276.82	346.29	873.43
Q Total (cfs)	10500.00	Flow (cfs)	5324.99	4160.50	1014.50
Top Width (ft)	3163.81	Top Width (ft)	2450.65	136.97	576.19
Vel Total (ft/s)	2.08	Avg. Vel. (ft/s)	1.39	12.01	1.16
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)	2.02	2.53	1.52
Conv. Total (cfs)	119385.4	Conv. (cfs)	60545.4	47305.1	11534.9
Length Wtd. (ft)	539.81	Wetted Per. (ft)	1891.84	138.90	576.24
Min Ch El (ft)	1646.80	Shear (lb/sq ft)	0.98	1.20	0.73
Alpha	13.45	Stream Power (lb/ft s)	1.36	14.46	0.85
Frctn Loss (ft)	5.07	Cum Volume (acre-ft)	1496.53	55.85	969.28
C & E Loss (ft)	0.03	Cum SA (acres)	758.34	22.01	383.07

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

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7713.75	8253.79	335.39	339.03	271.34	3.19	1.25	0.99
8253.79	8793.83	1748.87	1202.84	540.27	16.66	2.23	1.45
8793.83	9333.87	2008.50	1306.78	540.05	19.13	2.42	1.54
9333.87	9873.91	1232.23	974.84	540.18	11.74	1.81	1.26
LB 9873.91	9908.15	649.14	66.21	34.24	6.18	1.93	9.80
9908.15	9942.39	777.61	73.78	34.24	7.41	2.15	10.54
9942.39	9976.64	866.43	78.73	34.24	8.25	2.30	11.00
9976.64	RB 10010.88	1867.33	127.57	36.17	17.78	3.73	14.64
10010.88	10184.09	336.55	286.62	173.21	3.21	1.65	1.17
10184.09	10357.31	455.48	343.69	173.21	4.34	1.98	1.33
10357.31	10530.52	201.70	210.83	173.24	1.92	1.22	0.96
10530.52	10703.73	20.77	32.10	47.45	0.20	0.68	0.65
10703.73	10876.95	0.01	0.20	9.12	0.00	0.02	0.06

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.480

INPUT
Description:
Station Elevation Data num= 105

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4197.31	1648.47	4282.47	1648.62	4287.42	1648.14	4295.04	1648.79	4308.89	1648.75
4319.81	1648.38	4328.87	1649.07	4452.14	1648.31	4490.11	1648.01	4561.96	1649.37
4772.28	1648.63	4790.28	1648.96	4809.52	1649.1	4902.94	1648.83	4957.89	1646.64
5009.44	1646.56	5072.61	1647.96	5111.33	1647.5	5155.94	1651.21	5296.31	1651.7
5306.98	1651.04	5338.1	1649.39	5906.16	1647.16	5941.63	1648.82	5967.65	1647.58
6310.77	1648.56	6320.81	1648.24	6338.1	1649.56	6381.39	1650.05	6407.05	1649.63
6412.21	1649.13	6425.71	1649.44	6436.64	1649.34	6473.85	1649.66	6488.54	1650.74
6512.54	1650.11	6536.5	1649.61	6545.04	1650.23	6560.11	1647.41	6575.45	1648.83
7107.93	1649.05	7123.57	1646.79	7145.36	1650.21	7165.53	1648.12	7297	1649.53
7344.53	1648.04	7376.24	1648.44	7406.66	1648.39	7419.39	1649.18	7617.41	1648.26
7780.43	1646.58	7826.34	1646.69	7892.8	1646.84	7931.23	1646.6	8037.88	1647.64
8041.96	1646.86	8051.04	1647.45	8142.7	1647.23	8183.27	1647.19	8391.47	1646.05
8442.47	1646.15	8630.45	1645.99	8673.85	1646.7	8737.25	1646.77	8744.03	1645.34
8752.97	1647.58	8868.67	1645.76	8889.24	1645.47	8922.81	1645.19	8931.69	1645.08
8944.93	1646.18	9083.77	1646.97	9121.28	1646.98	9277.7	1646.7	9313.2	1646.59
9358.66	1647.25	9382.36	1647.19	9430.34	1647.43	9445.78	1646.04	9457.47	1646.47
9779.75	1646.37	9792.28	1644.36	9806.25	1646.87	9883.87	1646.35	9924.08	1647.16
9967.66	1646.64	9987.56	1646.3	9998.36	1642.99	10011.63	1648.44	10127.94	1646.89
10160.09	1646.89	10267.63	1648.76	10276.29	1649.98	10387.85	1648.23	10420.29	1648.48
10521.53	1650.18	10537.35	1652.42	10647.91	1650.43	10680.52	1650.46	10783.13	1652.52
10797.76	1654.83	10907.8	1652.94	10940.38	1653.28	11045.96	1655.84	11058.58	1656.77

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4197.31	.15	9924.08	.02	10011.63	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9924.08	10011.63	422.71	759.29	635.28	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4197.31	7107.93	1654

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1649.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1648.62	Reach Len. (ft)	422.71	759.29	635.28
Crit W.S. (ft)	1648.51	Flow Area (sq ft)	4596.81	198.96	265.86
E.G. Slope (ft/ft)	0.011665	Area (sq ft)	4596.81	198.96	265.86
Q Total (cfs)	10500.00	Flow (cfs)	7494.95	2727.08	277.97

Top Width (ft)	2943.75	Top Width (ft)	2543.14	87.55	313.06
Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)	1.63	13.71	1.05
Max Chl Dpth (ft)	5.63	Hydr. Depth (ft)	1.81	2.27	0.85
Conv. Total (cfs)	97216.7	Conv. (cfs)	69393.7	25249.3	2573.6
Length Wtd. (ft)	521.11	Wetted Per. (ft)	2544.54	89.13	313.09
Min Ch El (ft)	1642.99	Shear (lb/sq ft)	1.32	1.63	0.62
Alpha	11.79	Stream Power (lb/ft s)	2.15	22.28	0.65
Frctn Loss (ft)	4.14	Cum Volume (acre-ft)	1446.38	51.85	963.00
C & E Loss (ft)	0.02	Cum SA (acres)	730.11	20.36	378.17

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7060.70	7776.54	205.78	259.75	395.93	1.96	0.66	0.79
7776.54	8492.39	2071.62	1315.87	715.95	19.73	1.84	1.57
8492.39	9208.23	2783.16	1571.25	716.34	26.51	2.19	1.77
9208.23	9924.08	2434.38	1449.94	716.32	23.18	2.03	1.68
LB 9924.08	9945.97	363.42	34.75	21.89	3.46	1.59	10.46
9945.97	9967.86	468.43	40.47	21.89	4.46	1.85	11.58
9967.86	9989.74	623.41	48.13	21.99	5.94	2.20	12.95
9989.74	RB 10011.63	1271.84	75.62	23.36	12.11	3.46	16.82
10011.63	10142.50	148.96	135.88	130.88	1.42	1.04	1.10
10142.50	10273.37	123.62	116.15	116.93	1.18	0.99	1.06
10273.37	10404.24	4.23	10.08	41.07	0.04	0.25	0.42
10404.24	10535.11	1.16	3.75	24.22	0.01	0.15	0.31

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.336

INPUT
Description: Baseline crosses cross section on east side of 114th St. just south of intersection with University Dr.
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3862.04	1644.7	3927.65	1645.09	3933.24	1644.1	3986.83	1643.75	4005.63	1644.29
4024.93	1644.41	4324.21	1643.79	4340.29	1643.56	4361.77	1643.93	4394.55	1643.96
4431.54	1644.08	4654.02	1644.67	4698.59	1644.52	4803.09	1646.58	4820.57	1647.91
4827.27	1648.81	4855.67	1647.33	5002.27	1647.24	5027.73	1648.46	5033.96	1647.09
5050.47	1645.37	5068.94	1644.87	5089	1645	5095.37	1644.14	5128.74	1641.85
5519.08	1644.59	5586.37	1645.96	5663.97	1644.13	6131.04	1645.32	6213.42	1644.27
6238.77	1642.75	6265.93	1644.56	6427.69	1645.4	6463.74	1646.05	6497.79	1646.59
6522.73	1646.17	6543.35	1644.37	6556.86	1643.4	6578.08	1645.04	6588.05	1646.43
6629.77	1646.06	6652.81	1645.6	6660.96	1645.89	6674.62	1643.78	6692.19	1644.96
7053.43	1643.95	7367.79	1643.9	7519.62	1643.31	7558.95	1643.38	7694.9	1642.8
7741.86	1642.67	7987.86	1642.61	8070.59	1642.53	8133.6	1642.09	8136.57	1641.05
8141.06	1641.51	8201.13	1640.93	8223.34	1641.09	8261.95	1640.94	8270.6	1640.62
8281.7	1641.79	8436.39	1642.29	8516.77	1641.42	8548.01	1641.46	8740.82	1642.06
8775.35	1642.31	8974.47	1642.54	9009.96	1642.86	9157.97	1642.16	9363.28	1641.79
9396.74	1642.25	9404.65	1642.72	9601.39	1642.6	9633.75	1642.69	9837.77	1642.23
9869.58	1642.26	9988.52	1641.95	10000	1639.23	10005.61	1640	10011.19	1640.8
10020.35	1640.64	10030.73	1641.03	10068.91	1640.21	10134.02	1641.78	10179.51	1641.98
10197.44	1642.29	10201.75	1641.31	10209.18	1643.69	10239.09	1642.48	10434.7	1643.21
10537.27	1643.37	10639.08	1643.27	10745.11	1644	10839.08	1644	10939.04	1644.68
10994.19	1645.14	10995.54	1647.03	11005.11	1649.09	11006.74	1647.35	11095.85	1649.89
11102	1649.89	11112.35	1650.86	11127.36	1647.97	11172.29	1648.13	11190.8	1649.05
11325.88	1650	11335.76	1650.29	11489.63	1648.61	11530.87	1648.68	11549.84	1648.96
11694.66	1649.86	11721.13	1645.35	11946.02	1645.28	11982.26	1651.34	12008.76	1650.48
12051.9	1650.65								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3862.04	.15	9988.52	.02	10030.73	.15

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

```
      9988.5210030.73           292.68  391.01     280             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 3862.04 6660.96    1650
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1645.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1644.52	Reach Len. (ft)	292.68	391.01	280.00
Crit W.S. (ft)	1644.52	Flow Area (sq ft)	5910.93	168.88	1354.12
E.G. Slope (ft/ft)	0.005761	Area (sq ft)	5910.93	168.88	1354.12
Q Total (cfs)	10500.00	Flow (cfs)	6765.38	2383.73	1350.89
Top Width (ft)	4084.23	Top Width (ft)	3156.55	42.21	885.47
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)	1.14	14.11	1.00
Max Chl Dpth (ft)	5.29	Hydr. Depth (ft)	1.87	4.00	1.53
Conv. Total (cfs)	138338.2	Conv. (cfs)	89134.3	31405.8	17798.1
Length Wtd. (ft)		Wetted Per. (ft)	3156.94	42.65	886.01
Min Ch El (ft)	1639.23	Shear (lb/sq ft)	0.67	1.42	0.55
Alpha	23.16	Stream Power (lb/ft s)	0.77	20.10	0.55
Frctn Loss (ft)		Cum Volume (acre-ft)	1395.40	48.64	951.19
C & E Loss (ft)		Cum SA (acres)	702.46	19.23	369.43

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6159.47	6925.28	2.84	14.30	93.39	0.03	0.15	0.20
6925.28	7691.09	367.70	613.72	765.81	3.50	0.80	0.60
7691.09	8456.90	2193.96	1792.57	766.08	20.89	2.34	1.22
8456.90	9222.71	2239.52	1814.56	765.82	21.33	2.37	1.23
9222.71	9988.52	1961.37	1675.78	765.83	18.68	2.19	1.17
LB 9988.52	9999.07	543.77	40.36	10.84	5.18	3.82	13.47
9999.07	10009.63	768.78	49.36	10.67	7.32	4.68	15.57
10009.63	10020.18	549.14	40.19	10.57	5.23	3.81	13.66
10020.18	RB 10030.73	522.03	38.97	10.56	4.97	3.69	13.40
10030.73	10283.38	883.49	699.30	253.18	8.41	2.77	1.26
10283.38	10536.02	301.92	366.87	252.65	2.88	1.45	0.82
10536.02	10788.67	150.16	241.27	252.65	1.43	0.95	0.62
10788.67	11041.32	15.33	46.68	127.53	0.15	0.37	0.33

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.262

INPUT
Description: Baseline continues on east side of 114th St.
Station Elevation Data num= 137

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4129.86	1640.84	4482.22	1641.01	4501.53	1641.04	4519.84	1641.01	4769.86	1640.76
4870.09	1640.91	4887.4	1640.75	4903.46	1640.86	5013.05	1641.38	5027.22	1641.71
5042.15	1641.75	5350.86	1641.46	5385.18	1642.77	5402.86	1640.86	6032.07	1641.95
6049.86	1642.98	6076.09	1641.74	6091.55	1641.45	6197.67	1641.17	6534.96	1638.5
6595.15	1639.93	6614.14	1640.21	6691.11	1639.31	6784.15	1637.63	6956.81	1644.09

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 6959.78 1643.37 6975.47 1642.28  6995.2 1644.05  6999.8 1643.33 7034.77 1643.68
 7060.81 1643.27 7103.28 1642.04    7142 1642.76 7165.35 1642.68 7187.37 1642.28
 7196.71 1642.51 7212.37 1639.82 7227.84 1641.25 7331.32 1641.06    7400 1640.12
 7898.35 1639.77 8070.76 1640.18 8072.76 1639.08 8076.39 1640.22 8143.74 1639.68
 8156.65 1638.91 8165.23 1639.35 8185.99 1638.79 8208.61 1638.51 8234.83 1638.38
 8244.98 1638.65 8315.09 1639.15 8485.56  1638.8 8520.13 1638.73 8573.81 1638.82
 8610.01 1638.81 8752.66 1638.31 8811.12    1638 8831.81 1639.48 8835.12 1639.17
 8939.07 1639.45  8940.3 1639.52 8948.04 1638.64  8993.4 1638.69 9104.84 1639.92
 9146.52 1639.66 9246.25 1639.82 9358.24  1639.4 9390.53 1639.56 9395.66 1639.61
 9459.52 1639.49 9530.34 1639.76  9564.5 1639.91 9629.63 1639.78 9666.65 1640.02
 9701.85 1640.08 9834.91  1639.4 9867.03 1639.81 9989.29 1639.73   10000 1636.44
10002.89 1638.7910008.19 1639.0610017.37 1639.3510030.13 1639.3510040.44 1639.51
10181.88 1638.64 10259.1  1638.5 10296.9 1638.51 10323.3 1638.7510464.71 1638.77
10608.03 1638.5110646.31 1640.4110660.94 1640.1410748.17 1639.3610769.64 1639.45
10780.67 1641.23 10874.5 1640.6510897.75 1639.7810931.42 1639.7810948.88 1641.21
11038.58 1641.1311048.72 1643.0211162.62 1641.4611194.85 1641.6111209.08 1642.46
11302.57 1643.5411314.53 1644.2711427.48  1643.111460.65 1642.9211481.45 1644.34
11573.11 1645.2111582.05 1646.6611670.77 1647.1411706.82 1645.3711758.45  1645.3
11795.87 1645.9411930.87 1647.06 11947.7 1647.9512034.24 1647.33 12045.5  1646.5
12052.71 1645.8212094.88 1645.7812111.71 1646.73 12174.9 1645.6312188.46 1643.53
12197.73 1643.54 12215.1 1646.2112373.68 1647.6212398.23 1643.0612495.41 1643.11
12522.26 1647.18 12538.6 1647.1312545.53 1646.6412588.38  1646.612604.94 1647.23
12619.66 1647.9912743.25 1649.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4129.86     .15 9989.29     .0210040.44     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9989.2910040.44               320  403.01     280             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 4129.86 7519.86    1648
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4129.86    7142    1648

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1641.52   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.42   Wt. n-Val.                  0.150      0.020      0.150
  W.S. Elev (ft)            1641.10   Reach Len. (ft)            320.00     403.01     280.00
  Crit W.S. (ft)            1640.83   Flow Area (sq ft)         4085.36     110.68    1655.29
  E.G. Slope (ft/ft)       0.011887   Area (sq ft)              4256.25     110.68    1655.29
  Q Total (cfs)            10500.00   Flow (cfs)                6171.04    1474.15    2854.81
  Top Width (ft)            3635.16   Top Width (ft)            2699.30      51.15     884.71
  Vel Total (ft/s)             1.79   Avg. Vel. (ft/s)             1.51      13.32       1.72
  Max Chl Dpth (ft)            4.66   Hydr. Depth (ft)             1.65       2.16       1.87
  Conv. Total (cfs)         96304.3   Conv. (cfs)               56599.7    13520.7    26183.9
  Length Wtd. (ft)           316.91   Wetted Per. (ft)          2470.08      52.49     884.97
  Min Ch El (ft)            1636.44   Shear (lb/sq ft)             1.23       1.56       1.39
  Alpha                        8.40   Stream Power (lb/ft s)       1.85      20.84       2.39
  Frctn Loss (ft)              2.63   Cum Volume (acre-ft)      1361.24      47.39     941.51
  C & E Loss (ft)              0.05   Cum SA (acres)             682.78      18.81     363.74


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta    Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)        (ft)            (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  7059.58     7792.00        367.37     314.78    272.14       3.50       1.16       1.17
  7792.00     8524.43       1904.55    1255.83    732.94      18.14       1.71       1.52
  8524.43     9256.86       2568.88    1502.49    732.56      24.47       2.05       1.71
  9256.86     9989.29       1330.23    1012.26    732.44      12.67       1.38       1.31
  LB 9989.29  10002.08       642.15      40.18     13.88       6.12       3.14      15.98
  10002.08    10014.87       335.66      26.54     13.03       3.20       2.08      12.65
  10014.87    10027.65       256.85      22.44     12.79       2.45       1.75      11.45
  10027.65    RB 10040.44    239.49      21.52     12.79       2.28       1.68      11.13
  10040.44    10378.29      1441.27     773.06    337.86      13.73       2.29       1.86
  10378.29    10716.14      1206.51     694.87    337.90      11.49       2.06       1.74
  10716.14    11053.99       207.04     187.36    209.21       1.97       0.90       1.11
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Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.186

INPUT
Description: Baseline continues on east side of 114th St.
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4497.19	1638.31	4525.25	1638.13	4543.59	1638.12	4562.55	1638.14	5048.57	1638.21
5070.78	1638.4	5088.24	1638.44	5377.01	1638.88	5394.1	1638.26	5411.94	1637.74
5567.34	1637.26	5582.63	1637.15	5599.19	1637.1	5854.65	1638.09	5864.97	1639.56
5872.72	1640.95	5896.55	1642.58	5924.08	1639.45	6032.03	1639.62	6065.76	1642.2
6087.3	1640.5	6104.39	1638.93	6214.23	1638.02	6254.41	1638.34	6472.11	1638.43
6511.33	1638.25	6622.85	1638.24	6638.49	1635.93	6650.37	1639.29	6700.3	1638.64
6716.74	1638.23	7143.54	1636.35	7281.81	1636.07	7302.36	1636.21	7306.2	1640.02
7419.45	1640.48	7422.99	1639.46	7480.52	1640.95	7503.1	1641.51	7510.63	1640.65
7518.8	1640.6	7525.4	1640.78	7531.03	1639.85	7564.79	1640.25	7590.6	1639.74
7630.38	1637.07	7664.26	1639.26	7699.68	1639.23	7736.98	1638.65	7749.63	1638.48
7756.73	1638.14	7767.54	1638.43	7789.42	1637.83	7807.24	1636.87	7845.27	1639.66
7952.53	1639.36	7965.06	1638.08	8108.85	1636.6	8155.34	1637.42	8178.78	1636.89
8211.88	1636.83	8543.74	1637.08	8706.48	1636.73	8742.12	1637.08	8765.97	1636.78
8804	1636.63	8943.96	1636.76	8977.91	1636.68	9088.6	1636.26	9101.7	1634.63
9120.05	1636.68	9348.12	1636.67	9357.01	1635.46	9371.84	1636.95	9473.98	1636.3
9584.39	1635.7	9617.8	1635.62	9831.4	1636.72	9864.69	1637.11	9989.15	1637.2
10000	1633.151	10005.86	1636.311	10010.88	1636.05	10021	1636.42	10032	1636.92
10043.19	1637.231	10184.63	1637.181	10326.04	1636.581	10350.74	1636.221	10393.75	1635.63
10808.86	1635.78	10843.2	1635.921	11023.95	1636.121	11200.61	1636.971	11211.39	1635.5
11299.63	1634.941	11319.97	1635.881	11332.56	1636.71	11421.69	1636.751	11448.28	1636.35
11481.74	1636.23	11501	1637.591	11591.52	1638.831	11602.06	1639.681	1712.68	1638.84
11745.99	1638.821	1761.98	1639.57	11797.3	1639.58	11811.6	1638.771	1844.55	1638.34
11879.65	1640.541	1987.95	1641.251	2015.58	1633.91	2065.42	1634.491	2088.83	1640.5
12097.7	1637.131	2112.78	1640.191	2167.46	1640.521	2232.91	1640.191	2269.27	1639.64
12391.11	1639.961	2419.37	1641.311	2458.26	1640.681	2472.89	1640.011	2490.65	1640.19
12582.26	1640.871	2595.94	1639.51	2625.31	1639.161	2641.09	1642.21	2718.64	1641.1
12782	1640.281	2952.22	1640.241	3029.67	1640.141	3044.28	1638.651	3081.52	1638.95
13115.02	1640.331	3122.19	1640.51	3140.78	1639.691	3180.12	1640.761	3219.47	1640.09
13237.9	1641.411	3416.38	1643.371	3466.53	1642.751	3493.13	1644.731	3982.62	1648.89

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4497.19	.15	9989.15	.021	10043.19	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9989.151	10043.19	297.26	396.01	290	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4497.19	8107.19	1643	11602.06	13982.62	1643

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4497.19	7664.26	1644	12088.83	13982.62	1644

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1638.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1638.58	Reach Len. (ft)	297.26	396.01	290.00
Crit W.S. (ft)	1637.86	Flow Area (sq ft)	3632.62	133.33	3496.81
E.G. Slope (ft/ft)	0.006176	Area (sq ft)	3866.90	133.33	3792.16
Q Total (cfs)	10500.00	Flow (cfs)	4383.33	1394.67	4722.00
Top Width (ft)	3808.03	Top Width (ft)	2117.70	54.04	1636.29
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)	1.21	10.46	1.35
Max Chl Dpth (ft)	5.43	Hydr. Depth (ft)	1.93	2.47	2.28
Conv. Total (cfs)	133614.4	Conv. (cfs)	55778.7	17747.4	60088.3
Length Wtd. (ft)	307.49	Wetted Per. (ft)	1882.36	55.60	1530.57
Min Ch El (ft)	1633.15	Shear (lb/sq ft)	0.74	0.92	0.88
Alpha	7.64	Stream Power (lb/ft s)	0.90	9.67	1.19
Frctn Loss (ft)	2.64	Cum Volume (acre-ft)	1331.40	46.26	924.01
C & E Loss (ft)	0.04	Cum SA (acres)	665.09	18.33	355.64

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7929.67	8616.16	874.96	822.00	508.98	8.33	1.62	1.06
8616.16	9302.66	1606.22	1334.10	686.72	15.30	1.94	1.20
9302.66	9989.15	1902.16	1476.52	686.66	18.12	2.15	1.29
LB 9989.15	10002.66	624.74	49.53	14.60	5.95	3.67	12.61
10002.66	10016.17	360.89	34.99	13.96	3.44	2.59	10.31
10016.17	10029.68	253.35	27.95	13.52	2.41	2.07	9.07
10029.68	RB 10043.19	155.70	20.86	13.52	1.48	1.54	7.46
10043.19	10535.62	1259.17	1019.57	492.44	11.99	2.07	1.23
10535.62	11028.05	2002.57	1346.84	492.43	19.07	2.74	1.49
11028.05	11520.48	1452.78	1111.11	492.63	13.84	2.26	1.31
11520.48	12012.91	7.46	19.28	53.07	0.07	0.36	0.39

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.111

INPUT
Description: Baseline on east side of 114th St.
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4606.86	1635.16	4665.45	1635.93	4683.9	1636.33	4701.41	1636.01	4718.53	1635.08
5027.01	1635.85	5047.06	1635.97	5066.77	1635.92	5299.63	1635.06	5318.11	1635.35
5546.56	1634.64	5564.78	1634.76	5582.85	1634.98	5903.62	1634.9	5922.61	1634.78
5941.86	1634.81	6064.89	1634.35	6085.92	1634.41	6106.68	1633.7	6364.39	1635.67
6381.78	1636.02	6399.33	1635.83	6457.73	1635.81	6497.77	1635.9	6603.63	1635.4
6613.39	1634.44	6625.33	1635.63	6841.9	1635.94	7019.88	1635.37	7030.2	1635.23
7224.01	1635.81	7241.98	1637.03	7631.28	1637.07	7681.89	1636.29	7810.83	1634.67
7945.2	1635.07	7986.27	1634.7	7990.11	1634.38	8005.12	1633.23	8039.39	1636.07
8067.35	1636.68	8071.4	1636.44	8099.25	1636.69	8151.93	1636.19	8234.8	1635.86
8268.93	1635.23	8274.79	1635.54	8291.04	1632.4	8299.39	1633.26	8392.34	1634.46
8541.24	1634.15	8774.52	1634.09	8791.07	1633.93	8899.68	1633.42	8976.13	1633.32
9102.7	1635.02	9110.79	1633.4	9125.13	1635.54	9458.29	1633.57	9993.67	1634.39
10000	1630.61	10007.16	1632.99	10012.19	1633.36	10020.97	1633.3	10032.9	1633.75
10044.92	1633.31	10050.15	1633.44	10187.77	1634.81	10455.54	1633.87	10470.6	1633.41
10506.12	1633.86	10612	1633.64	10764.85	1634.22	10894.67	1633.43	10922.8	1633.26
10968.46	1633.29	11036.32	1634.59	11373.07	1633.69	11383.79	1632.81	11397.17	1633.39
11425.73	1632.73	11433.46	1632.51	11443.68	1633.16	11616.1	1632.51	11768.6	1633.31
11780.05	1630.99	11809.58	1631.81	11918.36	1632.81	11945.6	1635.19	12149.83	1635.81
12272.52	1635.63	12287.99	1634.12	12319.25	1634.12	12337.37	1635.51	12446.21	1635.01
12566.14	1635.16	12580.82	1634.12	12612.67	1634.41	12629.62	1635.29	12793.22	1635.3
12806.07	1632.99	12815.86	1634.43	12908.18	1634.57	12925.55	1634.51	12953.67	1634.82
12975.98	1635.51	13072.73	1637.12	13163.98	1637.05	13181.12	1637	13284.16	1637.68
13300.61	1638.87	13578.82	1640.84	13594.09	1640.06	13616.87	1639.92	13645.21	1641.65
13750.72	1642.21	13761.69	1642.04	13811	1642.91	13867.76	1642.36	13997.43	1644.78

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4606.86	.15	9993.67	.02	10032.9	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9993.67	10032.9	286.01	340.97	275	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4606.86	8716.86	1641

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4606.86	8099.25	1642	12149.83	13997.43	1642

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1636.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1635.56	Reach Len. (ft)	286.01	340.97	275.00
Crit W.S. (ft)	1635.43	Flow Area (sq ft)	1867.30	102.21	3718.27
E.G. Slope (ft/ft)	0.012774	Area (sq ft)	2517.10	102.21	3718.27
Q Total (cfs)	10500.00	Flow (cfs)	2693.16	1586.08	6220.75
Top Width (ft)	3817.01	Top Width (ft)	1742.70	39.23	2035.08
Vel Total (ft/s)	1.85	Avg. Vel. (ft/s)	1.44	15.52	1.67
Max Chl Dpth (ft)	4.95	Hydr. Depth (ft)	1.46	2.61	1.83
Conv. Total (cfs)	92902.7	Conv. (cfs)	23828.8	14033.5	55040.4
Length Wtd. (ft)	284.26	Wetted Per. (ft)	1277.15	40.68	2035.56
Min Ch El (ft)	1630.61	Shear (lb/sq ft)	1.17	2.00	1.46
Alpha	11.32	Stream Power (lb/ft s)	1.68	31.09	2.44
Frctn Loss (ft)	2.70	Cum Volume (acre-ft)	1309.62	45.19	899.01
C & E Loss (ft)	0.16	Cum SA (acres)	651.92	17.90	343.42

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8646.97	9320.32	1080.67	802.08	603.79	10.29	1.33	1.35
9320.32	9993.67	1612.48	1065.22	673.35	15.36	1.58	1.51
LB 9993.67	10003.48	611.76	34.59	11.04	5.83	3.53	17.69
10003.48	10013.29	409.23	26.14	10.02	3.90	2.67	15.65
10013.29	10023.09	308.80	21.89	9.81	2.94	2.23	14.11
10023.09	RB 10032.90	256.29	19.58	9.81	2.44	2.00	13.09
10032.90	10528.47	943.07	698.65	495.59	8.98	1.41	1.35
10528.47	11024.03	1415.68	891.48	495.58	13.48	1.80	1.59
11024.03	11519.60	1346.82	865.25	495.65	12.83	1.75	1.56
11519.60	12015.17	2514.35	1258.65	495.92	23.95	2.54	2.00
12015.17	12510.73	0.85	4.24	52.81	0.01	0.08	0.20

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.046

INPUT
Description: Baseline on west side of 114th St.
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4766.12	1632.08	4813.95	1632.77	4950.97	1633	4965.08	1632.93	4981.28	1632.8
5069.69	1633.52	5089.28	1633.96	5107.9	1633.43	5123.98	1632.55	5136.01	1632.97
5184.91	1633.05	5190.34	1632.23	5205.52	1632.53	5434.22	1632.61	5451.89	1632.39
5465.49	1632.73	5956.29	1632.18	5974.36	1632.17	5990.21	1631.86	6323.58	1631.58
6337.64	1631.69	6351.09	1631.93	6481.59	1632.52	6497.02	1632.65	6510.59	1633.1
6786.51	1633.01	6802.14	1633.13	6818.76	1632.85	6902.15	1633.07	6928.18	1633.74
7654.5	1633.37	7671.44	1634.58	7910.57	1634.34	7930.69	1632.27	7958.64	1632.71
7962.88	1631.95	8011.36	1632.23	8058.43	1632.21	8114.17	1632.35	8507.41	1633.75
8532.85	1633.88	8554.34	1633.49	8558.74	1633.25	8573.34	1628.23	8586.7	1632.11
8635.16	1633.63	8666.85	1633.28	8702.08	1632.5	8724.91	1633.58	8727.61	1633.64
8730.73	1633.69	8995.91	1633.22	9010.91	1630.78	9024.64	1631.66	9507.98	1630.87
9922.69	1630.45	9936.97	1631.44	9953.58	1631.46	9991.67	1631.95	10000	1629.25
10011.15	1631.31	10274.36	1631.85	10295.73	1631.37	10315.13	1631.84	10317.54	1631.72
10319.31	1629.91	10331.59	1630.06	10333.38	1631.65	10398.93	1630.79	10419.8	1631.29
10873.91	1630.81	10925.61	1630.83	11350.91	1633.07	11363.04	1632.04	11397	1631.9
11415.31	1632.13	11703.26	1631.24	11721.53	1630.25	11752.21	1630	11795.53	1630.16
11838.85	1630.31	11876.19	1630.21	11891.08	1629.84	11928.87	1628.27	11937.9	1629.48
12150.46	1631.1	12192.3	1631.13	12203.66	1631.21	12342.68	1631.31	12443.69	1631.05
12601.56	1630.52	12634.3	1630.44	12655.21	1631.91	12927.54	1631.76	12939.82	1629.91
12949.32	1630.62	13035.51	1631.58	13055.57	1631.14	13121.94	1631.8	13135.5	1633.1
13309.87	1634.22	13678.23	1636.34	13771.72	1636.99	13995.5	1639.68	14013.28	1639.19

14036 1639.4614063.36 1640.33 14160.5 1641.58

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4766.12	.15	9991.67	.03510011.15		.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9991.6710011.15		320.73	334.71	325	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4766.12	8734.12	163912534.12		14160.5	1639

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4766.12	7671.44	1640

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1633.30	Element			
Vel Head (ft)	0.06	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1633.24	Reach Len. (ft)	320.73	334.71	325.00
Crit W.S. (ft)	1632.03	Flow Area (sq ft)	2196.40	55.08	5135.57
E.G. Slope (ft/ft)	0.007313	Area (sq ft)	2612.78	55.08	6239.94
Q Total (cfs)	10500.00	Flow (cfs)	3123.60	391.68	6984.73
Top Width (ft)	4733.49	Top Width (ft)	1567.17	19.48	3146.83
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)	1.42	7.11	1.36
Max Chl Dpth (ft)	5.01	Hydr. Depth (ft)	2.18	2.83	2.04
Conv. Total (cfs)	122781.5	Conv. (cfs)	36525.7	4580.1	81675.8
Length Wtd. (ft)	324.55	Wetted Per. (ft)	1009.80	20.10	2524.58
Min Ch El (ft)	1629.25	Shear (lb/sq ft)	0.99	1.25	0.93
Alpha	1.84	Stream Power (lb/ft s)	1.41	8.90	1.26
Frctn Loss (ft)	2.65	Cum Volume (acre-ft)	1292.78	44.57	867.57
C & E Loss (ft)	0.01	Cum SA (acres)	641.05	17.67	327.06

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8685.28	9338.48	759.52	624.34	356.57	7.23	1.75	1.22
9338.48	9991.67	2364.05	1572.04	653.23	22.51	2.41	1.50
LB 9991.67	9996.54	56.62	10.15	5.12	0.54	2.08	5.58
9996.54	10001.41	139.03	17.33	5.07	1.32	3.56	8.02
10001.41	10006.28	123.56	15.99	4.95	1.18	3.28	7.73
10006.28	RB 10011.15	72.46	11.61	4.95	0.69	2.38	6.24
10011.15	10529.82	1164.35	957.13	520.07	11.09	1.85	1.22
10529.82	11048.49	1600.80	1157.32	518.67	15.25	2.23	1.38
11048.49	11567.16	495.41	572.60	518.72	4.72	1.10	0.87
11567.16	12085.83	2421.16	1483.60	518.82	23.06	2.86	1.63
12085.83	12604.49	1303.03	964.93	448.30	12.41	2.15	1.35

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.983

INPUT
Description:
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4815.86	1629.84	5067.59	1630.15	5082.87	1629.85	5097.69	1630	5230.63	1631.04
5250.1	1631.26	5268.08	1631.1	5282.94	1629.91	5288.81	1630.6	5604.04	1629.95
5620.39	1629.77	5641.8	1629.63	6101.83	1629.16	6124.4	1628.96	6141.08	1629.15
6491.26	1631.06	6505.48	1630.68	6522.55	1630.84	6626.58	1629.59	6644.67	1629.83
6661.32	1629.95	6955.95	1629.84	6972.63	1629.96	6990.9	1629.64	7621.23	1629.26
7642.33	1629.66	7662.54	1629.93	7698.16	1629.52	8148.88	1629.08	8167.78	1626.77
8185.35	1628.56	8711.12	1629.11	8739.44	1630.55	8768.59	1630.68	8794.16	1630.17
8821.2	1628.14	8840.78	1626.7	8869.94	1628.78	8883.09	1630.67	8910.85	1630.23
8940.94	1629.58	8943.29	1629.36	8962.93	1626.28	8985.18	1628.64	9455.42	1629.27

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 9470.22 1631.07 9474.26 1630.37 9502.09 1629.93  9508.9 1629.39 9528.92 1629.08
 9542.37 1629.54 9559.56 1629.85  9883.7 1628.21 9903.94 1628.21 9987.38 1629.24
   10000 1623.9610012.88  1628.510074.41 1627.5610106.37 1628.0210237.85 1627.74
10240.37 1626.46 10252.1  1626.510254.58 1627.5110274.99 1626.8410280.73 1626.91
10414.79 1627.9810446.56 1628.0510573.54 1628.6510582.28 1627.2810590.87 1627.38
10597.95 1628.6910633.96 1629.02 10647.3 1627.14 10660.4 1628.1210697.26 1628.41
 11112.1 1630.2811129.21 1629.5211139.14 1629.4211177.62  1629.811194.87 1629.92
11296.42 1629.2211312.25 1628.4111325.97 1628.6411356.48 1628.7911366.02 1628.84
11451.84 1629.0311467.94 1627.4311504.46 1627.5611516.42 1627.6311709.45 1627.35
 11722.8  1626.411759.94 1626.4311790.71 1627.6111826.69 1627.57 11965.4 1628.65
11975.69 1628.3312031.97 1628.06 12046.1 1627.9712219.51 1627.7212230.19  1627.6
12272.67 1627.6712284.63 1628.2512474.89 1627.6612482.78 1627.5112527.84 1627.52
12539.13 1628.07 12671.3 1627.2812767.06 1627.9913078.45 1630.3513125.08 1629.44
13160.63  1630.313180.99  1631.814117.88 1639.3114140.01 1638.9714163.93 1639.23
14223.38 1639.9614231.28 1640.04

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4815.86     .15 9987.38    .03510012.88     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9987.3810012.88           314.66  337.78     317             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4815.86 8645.86    163412151.8614231.28    1634
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4815.86 6491.26    1635

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1630.64   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.18   Wt. n-Val.                   0.150      0.035      0.150
  W.S. Elev (ft)            1630.47   Reach Len. (ft)             314.66     337.78     317.00
  Crit W.S. (ft)            1629.78   Flow Area (sq ft)          1875.32     103.34    4566.92
  E.G. Slope (ft/ft)       0.009157   Area (sq ft)               4210.66     103.34    6684.31
  Q Total (cfs)            10500.00   Flow (cfs)                 2305.79    1018.74    7175.47
  Top Width (ft)            6544.83   Top Width (ft)             3369.33      25.50    3150.00
  Vel Total (ft/s)             1.60   Avg. Vel. (ft/s)              1.23       9.86       1.57
  Max Chl Dpth (ft)            6.51   Hydr. Depth (ft)              1.47       4.05       2.14
  Conv. Total (cfs)        109729.7   Conv. (cfs)                24096.6    10646.3    74986.8
  Length Wtd. (ft)           321.24   Wetted Per. (ft)           1278.05      27.34    2140.11
  Min Ch El (ft)            1623.96   Shear (lb/sq ft)              0.84       2.16       1.22
  Alpha                        4.45   Stream Power (lb/ft s)        1.03      21.30       1.92
  Frctn Loss (ft)              2.61   Cum Volume (acre-ft)       1267.66      43.96     819.36
  C & E Loss (ft)              0.05   Cum SA (acres)              622.88      17.50     303.57


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8048.06      8694.50         80.78      68.02     48.64       0.77       1.40       1.19
  8694.50      9340.94       1198.42     931.82    591.30      11.41       1.58       1.29
  9340.94      9987.38       1026.58     875.47    638.11       9.78       1.37       1.17
  LB 9987.38   9993.75        111.59      16.31      6.91       1.06       2.56       6.84
  9993.75      10000.13       366.80      33.31      6.91       3.49       5.23      11.01
  10000.13     10006.50       385.39      34.02      6.76       3.67       5.34      11.33
  10006.50     RB 10012.88    154.96      19.69      6.76       1.48       3.09       7.87
  10012.88     10540.18      2480.69    1415.13    527.83      23.63       2.68       1.75
  10540.18     11067.48       937.79     789.36    527.70       8.93       1.50       1.19
  11067.48     11594.78      1010.51     825.36    527.43       9.62       1.57       1.22
  11594.78     12122.08      2611.25    1458.84    527.37      24.87       2.77       1.79
  12122.08     12649.38       135.26      78.22     29.78       1.29       2.63       1.73


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

CROSS SECTION          RIVER: Apache Junct FRS
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REACH: Spillway RS: 16.919

INPUT
Description:
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4676.97	1626.67	4693.99	1626.65	4709.33	1626.68	5191.23	1627.14	5209.16	1627.11
5226.06	1627.19	5396.64	1628.12	5414	1628.11	5433.72	1627.78	5685.9	1625.79
5703.44	1625.8	5722.11	1625.87	5986.74	1625.76	5990.77	1625.35	5999.2	1625.91
6189.63	1626.46	6206.51	1626.48	6225.08	1626.96	6566	1626.92	6675.71	1626.28
6701.43	1626.31	6722.45	1626.49	7140.68	1625.61	7176.11	1625.98	7215.34	1625.74
7229.76	1626.23	7748.32	1626.03	7760.17	1623.59	7774.88	1625.1	8026.52	1624.37
8065.08	1624.42	8263.51	1625.42	8326.7	1625.16	8474.24	1626.07	8500.23	1625.99
8968.5	1627.53	8997.13	1627.56	9023.67	1627.14	9046.98	1626.11	9061.74	1624.73
9102.68	1627.4	9136.7	1626.83	9171.92	1626.38	9865.52	1625.11	9898.94	1624.94
9981.04	1625.49	9995.11	1621.03	10000	1620.94	10032.49	1622.22	10046.62	1623.1
10050.55	1624.59	10159.19	1625.26	10164.82	1623.47	10173.28	1623.43	10183.39	1625
10292.91	1624.73	10323.58	1625.24	10506.09	1624.87	10536.38	1625.02	10688.98	1624.51
10721.71	1624.36	10855.82	1626.91	10887.68	1624.33	10893.76	1625.05	10930.94	1625.5
10941.87	1625.69	11100.02	1625.49	11140.51	1625.52	11151.91	1626.06	11313.18	1626.8
11332.99	1625.05	11370.31	1625.23	11380.37	1625.73	11571.91	1625.03	11585.72	1625.2
11622.95	1625.81	11635.53	1626.38	11710.77		1626	11744.05	1625.56	11827.73	1625.86
11837.24	1624.98	11874.54	1625.13	11886.19		1625	11902.37	1625.31	11911.02	1625.06
11949.12	1625.02	11967.19	1626.16	12088.77	1624.81	12126.98	1624.59	12157.28	1624.56
12197.41	1624.71	12206.96	1624.75	12330.9	1624.98	12342.61	1624.54	12378.62	1624.45
12389.46	1625.42	12579	1627.33	12691.81	1627.76	12742.91	1627.64	12795.02	1627.89
13003.12	1627.71	13211.85	1629.54	13255.94	1630.03	13527.86	1631.86	13596.27	1632.31
13631.22	1632.48	14181.85	1638.56	14215.61	1639.08				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4676.97	.15	9981.04	.035	10050.55	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.04	10050.55	294.82	311.56	321.17	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4676.97	8246.97	1630	11740.97	14215.61	1630

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4676.97	5396.64	1631

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1627.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1627.33	Reach Len. (ft)	294.82	311.56	321.17
Crit W.S. (ft)	1627.33	Flow Area (sq ft)	2197.19	354.60	3306.97
E.G. Slope (ft/ft)	0.007344	Area (sq ft)	5895.20	354.60	4933.40
Q Total (cfs)	10500.00	Flow (cfs)	2323.49	3786.46	4390.05
Top Width (ft)	6977.19	Top Width (ft)	4379.50	69.51	2528.18
Vel Total (ft/s)	1.79	Avg. Vel. (ft/s)	1.06	10.68	1.33
Max Chl Dpth (ft)	6.39	Hydr. Depth (ft)	1.35	5.10	1.96
Conv. Total (cfs)	122524.1	Conv. (cfs)	27112.7	44184.0	51227.4
Length Wtd. (ft)		Wetted Per. (ft)	1623.81	70.53	1691.13
Min Ch El (ft)	1620.94	Shear (lb/sq ft)	0.62	2.31	0.90
Alpha	13.11	Stream Power (lb/ft s)	0.66	24.62	1.19
Frctn Loss (ft)		Cum Volume (acre-ft)	1231.16	42.19	777.09
C & E Loss (ft)		Cum SA (acres)	594.89	17.13	282.91

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. *This may indicate the need for additional cross sections.*

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

7992.01	8655.02	652.59	614.92	408.06	6.22	1.51	1.06
8655.02	9318.03	252.14	392.41	552.74	2.40	0.71	0.64
9318.03	9981.04	1418.80	1189.89	663.01	13.51	1.79	1.19
LB 9981.04	9998.42	745.51	78.16	18.07	7.10	4.50	9.54
9998.42	10015.79	1271.96	106.05	17.39	12.11	6.10	11.99
10015.79	10033.17	1044.34	94.23	17.39	9.95	5.42	11.08
10033.17	RB 10050.55	724.62	76.17	17.68	6.90	4.38	9.51
10050.55	10571.18	1870.79	1252.63	521.04	17.82	2.41	1.49
10571.18	11091.81	1408.98	1056.51	520.81	13.42	2.03	1.33
11091.81	11612.45	949.43	833.66	520.74	9.04	1.60	1.14
11612.45	12133.08	160.83	164.17	128.54	1.53	1.28	0.98

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.860

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4687.12	1625.27	4979.89	1624.73	4998.79	1624.84	5015.38	1625.04	5163.42	1624.62
5177.81	1624.64	5191.42	1624.56	5538.71	1625.21	5559.61	1625.32	5579.47	1624.93
5590.95	1623.95	5943.61	1623.92	5962.92	1624.03	5978.5	1623.92	6014.41	1623.87
6017.83	1621.87	6022.43	1623.7	6412.66	1624.11	6429.07	1624.01	6449.45	1624.3
6865.2	1623.37	6892.94	1623.65	6932.6	1623.05	6944.08	1622.17	6952.17	1623.27
7356.44	1622.39	7368.16	1622.94	7388.43	1622.72	7405.57	1622.35	7411.74	1622.38
7416.49	1621.55	7421.16	1622.56	7576.65	1624.19	7593.68	1621.23	7607.96	1623.16
7712.02	1622.07	7749.23	1622.35	7954.45	1621.44	7993.5	1621.72	8087.49	1621.82
8134.05	1622.15	8173.77	1622.71	8207.44	1622.74	8541.85	1622.32	8568.45	1622.49
8589.19	1622.25	8742.81	1622.4	8746.39	1623.59	8817.79	1622.37	8828.79	1621.28
8840.96	1622.74	8944.5	1624.59	8996.13	1621.91	9035.98	1622.14	9054	1623.54
9223.8	1624.08	9253.76	1624.23	9285.09	1624.04	9303.68	1622.49	9314.8	1621.51
9333.11	1621.91	9363.26	1623.7	9390.9	1623.6	9417.16	1623.09	9426.01	1622.59
9444.8	1620.69	9464.83	1622.11	9765.79	1622.68	9787.96	1619.43	9834.03	1618.65
9852.72	1621.32	9888.72	1621.32	9897.15	1622.41	9989.53	1622.3	10000	1619.1
10013.71	1621.31	0031.54	1622.67	10085.61	1622.21	10172.51	1621.92	10202.2	1622.2
10390.12	1621.93	10420.18	1622.05	10492.48	1622.71	10526.86	1622.51	0531.69	1621.4
10539.66	1619.57	10558.08	1620.81	10568.26	1620.99	10580.32	1620.75	10582.43	1620.27
10618.24	1620.75	10783.89	1622.97	10832.13	1622.91	11101.08	1622.56	11123.71	1622.73
11158.49	1622.69	11179.86	1622.77	11216.14	1623.05	11238.15	1623.16	11389.81	1622.69
11430.67	1622.91	1446.42	1623.47	11483.62	1623.41	11495.24	1622.88	11531.89	1623.04
11543.55	1622.98	11660.74	1623.65	11695.58	1623.19	11732.83	1622.64	11747.53	1621.44
11785.28	1622.25	11802.58	1623.36	11990.97	1622.92	12000.89	1621.74	12037.4	1622.07
12047.92	1621.98	12357.99	1623.24	12407.52	1624.36	12643.3	1623.93	12979.65	1626.87

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4687.12	.15	9989.53	.035	10031.54	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9989.53	10031.54	387	447.02	388.71	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4687.12	8754.84	1627	12197.84	12979.65	1627

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1624.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1624.14	Reach Len. (ft)	387.00	447.02	388.71
Crit W.S. (ft)	1623.80	Flow Area (sq ft)	1857.31	128.32	3523.45
E.G. Slope (ft/ft)	0.014734	Area (sq ft)	5191.70	128.32	3751.15
Q Total (cfs)	10500.00	Flow (cfs)	3264.82	1376.80	5858.38
Top Width (ft)	6788.10	Top Width (ft)	4242.92	42.01	2503.17
Vel Total (ft/s)	1.91	Avg. Vel. (ft/s)	1.76	10.73	1.66

Max Chl Dpth (ft)	5.49	Hydr. Depth (ft)	1.59	3.05	1.63
Conv. Total (cfs)	86502.4	Conv. (cfs)	26896.6	11342.5	48263.3
Length Wtd. (ft)	393.27	Wetted Per. (ft)	1167.75	42.72	2166.96
Min Ch El (ft)	1619.10	Shear (lb/sq ft)	1.46	2.76	1.50
Alpha	4.84	Stream Power (lb/ft s)	2.57	29.65	2.49
Frctn Loss (ft)	3.53	Cum Volume (acre-ft)	1193.64	40.46	745.07
C & E Loss (ft)	0.06	Cum SA (acres)	565.71	16.73	264.37

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8663.93	9326.73	528.13	464.92	504.22	5.03	0.92	1.14
9326.73	9989.53	2736.69	1392.39	663.53	26.06	2.10	1.97
LB 9989.53	10000.03	395.53	36.15	10.98	3.77	3.44	10.94
10000.03	10010.54	560.44	43.99	10.64	5.34	4.19	12.74
10010.54	10021.04	273.69	28.54	10.56	2.61	2.72	9.59
10021.04	RB 10031.54	147.15	19.64	10.53	1.40	1.87	7.49
10031.54	10400.05	1365.45	744.52	368.52	13.00	2.02	1.83
10400.05	10768.57	1880.05	902.44	368.96	17.91	2.45	2.08
10768.57	11137.08	719.43	506.87	368.52	6.85	1.38	1.42
11137.08	11505.60	550.80	431.83	368.54	5.25	1.17	1.28
11505.60	11874.11	509.66	412.21	368.62	4.85	1.12	1.24
11874.11	12242.62	832.99	525.56	323.80	7.93	1.62	1.58

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.775

INPUT
Description: Left side flows blocked at Sta. 5848.92 as topographic data indicates that flow spillage to left side area is not likely even though cross section indicates that this may occur. If any spillage occurs, flow depths would be expected to be less than 0.5 ft deep.

Station Elevation Data num= 107

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4668.44	1621.21	4699.63	1621.63	4729.4	1621.4	4981.66	1621.28	5009.63	1620.96
5187.75	1620.56	5205.22	1620.02	5219.57	1620.29	5572.44	1620	5587.74	1620.09
5606.86	1619.81	5713.28	1619.77	5848.92	1620.41	5892.38	1619.77	5933.2	1620.16
5973.98	1619.33	5992.07	1620.5	6048.56	1620.17	6061.45	1619.91	6079.97	1620.02
6100.25	1619.72	6484.42	1620.23	6498.75	1619.65	6544.18	1620.26	6606.7	1619.88
6631.36	1619.73	6713	1620	6773	1620	6810	1619.66	7258.37	1618.7
7279.01	1618.98	7299	1618.52	7736.63	1617.06	7744.52	1617.62	7764.85	1617.65
7783.5	1617.41	7794.46	1616.62	7865.7	1618.68	8208.74	1618.2	8229.07	1618.44
8248.04	1618.47	8635.34	1618.31	8677.15	1618.78	9331.52	1618.86	9365.68	1618.58
9584.32	1617.17	9589.9	1616.84	9634.89	1620.44	9663.81	1620.72	9690.06	1620.38
9717.7	1618.68	9731.01	1617.65	9741.65	1618.17	9777.83	1619.82	9805.37	1619.53
9833.48	1619.08	9992.97	1618.86	10000	1615.22	10014.93	1619.47	10163.14	1618.96
10211.85	1618.41	10219.25	1616.87	10228.18	1618.13	10236.79	1618.81	10247.58	1618.71
10260.92	1618.55	10452.16	1616.73	10458.69	1618.11	10487.77	1618.33	10507.34	1616.17
10767.4	1619	10784.52	1619.37	10818.39	1619.38	10845.21	1619.85	11002	1619.45
11027.74	1619.42	11062.03	1619.44	11165.85	1618.81	11198.77	1618.81	11229.38	1619.52
11333.49	1619.55	11437.99	1619.56	11470.5	1620.53	11496.95	1619.91	11598.57	1619.34
11614.68	1619.16	11650.87	1619.38	11666.6	1619.81	11826.35	1619.12	11846.09	1622.71
11884.65	1623.31	11892.42	1618.86	11985.9	1619.07	12051.62	1618.2	12114.4	1618.37
12138.3	1618.32	12194.13	1619.52	12317.88	1619.61	12350.51	1619.87	12387.69	1619.1
12739.65	1621.17	12751.11	1619.86	12766.35	1620.23	13057.74	1621.92	13063.39	1623.99
13070.34	1622.29	13362.64	1624.73						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

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 4668.44     .15 9992.97    .03510014.93     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9992.9710014.93           361.96   513.4     490             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4668.44 7668.44    162411061.0313362.64    1624
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4668.44 5848.92    1625
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1620.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1620.75	Reach Len. (ft)	361.96	513.40	490.00
Crit W.S. (ft)	1619.59	Flow Area (sq ft)	5159.68	77.01	2389.92
E.G. Slope (ft/ft)	0.006028	Area (sq ft)	7746.22	77.01	4511.01
Q Total (cfs)	10500.00	Flow (cfs)	6751.78	560.95	3187.26
Top Width (ft)	6879.64	Top Width (ft)	4144.05	21.96	2713.63
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)	1.31	7.28	1.33
Max Chl Dpth (ft)	5.53	Hydr. Depth (ft)	2.22	3.51	2.28
Conv. Total (cfs)	135240.6	Conv. (cfs)	86963.3	7225.1	41052.1
Length Wtd. (ft)	416.17	Wetted Per. (ft)	2324.92	23.44	1046.67
Min Ch El (ft)	1615.22	Shear (lb/sq ft)	0.84	1.24	0.86
Alpha	2.36	Stream Power (lb/ft s)	1.09	9.01	1.15
Frctn Loss (ft)	3.41	Cum Volume (acre-ft)	1136.17	39.41	708.21
C & E Loss (ft)	0.06	Cum SA (acres)	528.46	16.40	241.09

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7330.71	7996.27	1441.61	939.45	327.91	13.73	2.87	1.53
7996.27	8661.84	2140.20	1580.56	665.57	20.38	2.37	1.35
8661.84	9327.40	1524.16	1289.31	665.57	14.52	1.94	1.18
9327.40	9992.97	1645.81	1350.36	665.88	15.67	2.03	1.22
LB 9992.97	9998.46	117.43	18.20	6.18	1.12	3.32	6.45
9998.46	10003.95	243.29	27.54	5.84	2.32	5.02	8.83
10003.95	10009.44	143.94	19.92	5.71	1.37	3.63	7.23
10009.44	RB 10014.93	56.28	11.34	5.71	0.54	2.07	4.96
10014.93	10433.39	1262.14	972.47	418.75	12.02	2.32	1.30
10433.39	10851.86	1723.55	1172.37	418.75	16.41	2.80	1.47
10851.86	11270.32	201.59	245.08	209.17	1.92	1.17	0.82

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.678

INPUT
Description: Baseline crosses cross section on west side of Mountain Rd.
approx. 200 ft south of intersection with Apache Trail.
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4743.95	1619.64	4796.8	1619.19	4825.27	1619.45	5201.51	1618.02	5384.27	1617.9
5400.58	1617.94	5419.31	1617.64	6270.55	1617.06	6333.78	1617.34	6393.97	1617.14
7006.72	1616.27	7027.33	1616.24	7049.26	1616.11	7685.56	1614.51	7706.83	1614.86
7725.64	1614.43	8169.81	1615.08	8179.78	1614.42	8200.84	1614.37	8220.18	1614.31
8231.64	1612.99	8246.45	1615.35	8391.63	1615.34	8397.66	1615.81	8403.47	1614.08
8440.51	1614.39	8452.94	1615.49	9085.28	1615.55	9116.63	1614.8	9409.04	1615.63

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 9539.89  1614.4 9577.07 1614.33 9767.93 1614.72 9777.03 1611.92 9788.36 1615.02
 9798.49  1615.2 9903.46 1615.31  9957.5 1614.75 9971.01 1614.61 9983.27 1614.75
 9997.61 1614.4110050.85  1614.510104.08 1614.58 10376.9 1615.4410396.51 1615.51
10414.04 1615.3310430.26 1613.4210442.39 1611.9210457.97  1613.710475.15 1615.76
10494.19 1615.5510514.07 1615.2210530.02 1612.4810542.42 1614.1210609.73 1614.38
 10641.6 1615.6610678.34 1615.8310701.69 1615.7510728.25 1616.0110777.36 1615.49
10870.39 1616.1410894.03 1616.0810953.73 1616.2411000.63 1616.2611031.46 1616.38
11099.71 1616.0911247.87  1616.211286.75 1616.4111315.75 1616.3211374.67  1616.7
11450.46 1616.53 11525.5 1616.2111681.31 1616.4211694.66 1615.9211730.47 1615.98
11742.04  1616.911926.26 1616.2211937.54 1616.0811973.21 1616.0711982.79 1616.37
12053.31 1615.8912064.96 1616.18 12105.7 1615.8412282.14 1616.0512297.51 1615.17
12391.69 1616.2112429.55 1616.0812474.72  1615.612646.11 1616.2113073.91 1620.34
13079.58 1619.69 13094.2 1619.8313690.71 1624.7313759.43 1625.17 13776.9 1624.41
13795.69 1626.18

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4743.95     .15  9957.5     .0210050.85     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9957.510050.85           430.64   490.1     305             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4743.95 7473.95    162010876.9513795.69    1620
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1617.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1616.65	Reach Len. (ft)	430.64	490.10	305.00
Crit W.S. (ft)	1616.65	Flow Area (sq ft)	4017.35	197.31	1325.22
E.G. Slope (ft/ft)	0.011732	Area (sq ft)	4542.87	197.31	2186.25
Q Total (cfs)	10500.00	Flow (cfs)	5937.57	2615.12	1947.31
Top Width (ft)	5851.74	Top Width (ft)	3218.42	93.35	2539.97
Vel Total (ft/s)	1.90	Avg. Vel. (ft/s)	1.48	13.25	1.47
Max Chl Dpth (ft)	4.73	Hydr. Depth (ft)	1.62	2.11	1.60
Conv. Total (cfs)	96938.7	Conv. (cfs)	54817.2	24143.4	17978.1
Length Wtd. (ft)		Wetted Per. (ft)	2485.02	93.36	826.91
Min Ch El (ft)	1614.41	Shear (lb/sq ft)	1.18	1.55	1.17
Alpha	12.63	Stream Power (lb/ft s)	1.75	20.52	1.72
Frctn Loss (ft)		Cum Volume (acre-ft)	1085.11	37.79	670.54
C & E Loss (ft)		Cum SA (acres)	497.87	15.73	211.54

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7350.73	8002.42	1714.34	1034.45	528.48	16.33	1.96	1.66
8002.42	8654.11	1440.01	1013.53	652.30	13.71	1.56	1.42
8654.11	9305.81	1029.74	828.51	651.70	9.81	1.27	1.24
9305.81	9957.50	1753.45	1140.82	652.54	16.70	1.75	1.54
LB 9957.50	9980.84	583.73	46.11	23.34	5.56	1.98	12.66
9980.84	10004.17	646.04	49.01	23.34	6.15	2.10	13.18
10004.17	10027.51	703.06	51.56	23.34	6.70	2.21	13.64
10027.51	RB 10050.85	682.30	50.64	23.34	6.50	2.17	13.47
10050.85	10518.96	1306.07	835.49	468.61	12.44	1.78	1.56
10518.96	10987.06	641.26	489.73	358.30	6.11	1.37	1.31

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.585

INPUT
Description: Baseline on west side of Mountain Rd.
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5048.94	1615.54	5368.98	1614.49	5387.31	1614.45	5403.64	1614.28	6001.91	1613.58
6043.26	1613.31	6288.29	1613.53	6319.57	1613.53	6361.35	1613.35	6386.87	1613.05
6660.3	1612.95	6679.7	1611.37	6700.68	1610.82	6723.23	1610.98	6744.1	1613.25
6763.21	1613.62	6889.48	1612.92	7052.2	1612.21	7100	1612.41	7148.85	1611.84
7580	1611.61	7792.37	1611.1	7811.78	1611.65	7834.81	1610.93	7843.61	1610.94
8491.7	1610.87	8513.39	1610.81	8533.34	1610.57	8961.67	1610.47	9001.79	1610.83
9021.27	1611.05	9042.18	1610.92	9056	1610.36	9058.93	1609.83	9076.77	1611.4
9083.01	1612.53	9092.12	1611.38	9100.05	1610.38	9109.38	1611.76	9489.81	1611.29
9535.82	1611.31	9958.01	1609.23	9975.72	1609.31	9992.76	1608.83	10011.39	1609.38
10020.14	1610.69	10837.67	1610.74	10850.65	1608.31	10932.47	1615.27	10968.37	1615.42
11030.28	1615.49	11067.48	1615.08	11073.36	1615.17	11097.98	1614.44	11141.13	1614.06
11173.92	1613.91	11303.06	1614.67	11388.75	1614.48	11449	1614.03	11512.43	1614.88
11592.43	1614.79	11631.15	1614.65	11739.4	1615.36	11848.25	1614.25	11885.24	1614.23
12001.59	1614.76	12041.71	1614.33	12101.98	1614.53	12140.74	1614.54	12243.45	1615.18
12356.35	1614.29	12394.29	1614.48	12510.09	1614.97	12540.89	1614	12581.69	1614.07
12747.85	1614.97	12757.25	1615.72	12760.55	1614.68	12775.92	1613.88	12937.21	1614.7
12980.63	1615.94	13382.92	1617.15	13496.61	1619.57	13504.34	1619.34	13519.36	1619.47
13729.29	1621.39	14104.77	1623.15	14113.96	1624.31	14182.52	1625.04	14200.56	1624.05

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5048.94	.15	9975.72	.02	10020.14	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975.72	10020.14	290	318.41	208.83	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5048.94	7493.94	1617

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1613.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1612.73	Reach Len. (ft)	290.00	318.41	208.83
Crit W.S. (ft)	1612.43	Flow Area (sq ft)	4559.75	153.33	1801.28
E.G. Slope (ft/ft)	0.008335	Area (sq ft)	5078.16	153.33	1801.28
Q Total (cfs)	10500.00	Flow (cfs)	6185.41	1694.01	2620.58
Top Width (ft)	4045.07	Top Width (ft)	3118.18	44.42	882.47
Vel Total (ft/s)	1.61	Avg. Vel. (ft/s)	1.36	11.05	1.45
Max Chl Dpth (ft)	4.43	Hydr. Depth (ft)	1.84	3.45	2.04
Conv. Total (cfs)	115007.5	Conv. (cfs)	67749.4	18554.6	28703.4
Length Wtd. (ft)	280.34	Wetted Per. (ft)	2482.28	44.53	882.89
Min Ch El (ft)	1608.83	Shear (lb/sq ft)	0.96	1.79	1.06
Alpha	8.20	Stream Power (lb/ft s)	1.30	19.80	1.54
Frctn Loss (ft)	2.34	Cum Volume (acre-ft)	1037.55	35.82	656.58
C & E Loss (ft)	0.08	Cum SA (acres)	466.55	14.95	199.56

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6896.48	7512.33	18.59	19.78	18.39	0.18	1.08	0.94
7512.33	8128.18	1142.30	953.57	615.87	10.88	1.55	1.20
8128.18	8744.02	1696.49	1208.95	615.85	16.16	1.96	1.40
8744.02	9359.87	1313.43	1037.18	616.32	12.51	1.68	1.27
9359.87	9975.72	2014.62	1340.28	615.85	19.19	2.18	1.50
LB 9975.72	9986.82	446.15	39.68	11.11	4.25	3.57	11.24
9986.82	9997.93	497.99	42.38	11.11	4.74	3.82	11.75
9997.93	10009.04	447.65	39.76	11.11	4.26	3.58	11.26
10009.04	RB 10020.14	302.21	31.51	11.20	2.88	2.84	9.59
10020.14	10542.69	1526.34	1055.95	522.55	14.54	2.02	1.45
10542.69	11065.24	1094.23	745.33	360.34	10.42	2.07	1.47

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.525

INPUT
Description:
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4901.52	1612.18	5450	1610.57	5507	1610	5577	1610	5707.74	1610.58
5745.79	1610.25	5794.8	1610.12	5814.48	1610.47	5847.66	1610.12	6133.72	1610.57
6181.83	1610.08	6300	1610.54	6432	1609.64	6502.09	1609.26	6545.54	1609.07
6862.35	1609.27	6874.49	1607.49	6894.42	1607.04	6916	1607.3	6931.62	1609.8
7079.81	1609.12	7235.95	1608.81	7282.78	1608.82	7369.58	1608.5	7622.84	1608.88
7632.42	1608.22	7949.42	1607.34	7996.95	1607.11	8533.17	1607.68	8575.22	1608.4
9047.5	1609.41	9072.67	1608.75	9129.86	1608.77	9147.99	1609.05	9168.91	1608.7
9177.83	1607.92	9188.54	1609.16	9537.77	1609.6	9555.49	1609.68	9571.67	1609.74
9589.16	1608.15	9598.95	1609.21	9694.46	1607.96	9731.89	1607.92	9863.09	1607.57
9890.2	1608.21	9991.4	1609.28	9998.09	1606.88	10009.42	1609.88	10518.98	1609.82
10528.17	1606.89	10541.97	1609.15	10552.13	1609.59	10563.04	1609.99	10594.23	1610.37
10601.78	1608.61	10925.87	1610.91	10947.68	1613.46	10984.61	1613.63	10994.24	1613.05
11017.63	1610.48	11036.7	1613.63	11046.23	1614.37	11085.72	1613.46	11110.86	1611.31
11406.38	1612.51	11444.8	1611.98	11479.57	1612.06	11517.85	1612.21	11626.79	1612.85
11737.5	1613.02	11775.75	1612.72	11882.99	1614.02	11995.39	1613.23	12045.51	1613.17
12187.34	1612.42	12224.17	1613.09	12565.93	1612.45	12591.16	1612.85	12751.71	1612.8
12762.03	1612.71	12771.43	1613.69	13208.12	1616.26	13280.95	1618.52	13421.87	1619.2
13428.35	1618.64	13444.39	1619.11	14023.82	1623.57				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4901.52	.15	9991.4	.02	10009.42	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9991.4	10009.42		330	391.68	271.49	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4901.52	7061.52	1615	10761.52	14023.82	1615

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1610.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1610.57	Reach Len. (ft)	330.00	391.68	271.49
Crit W.S. (ft)	1609.30	Flow Area (sq ft)	6330.34	41.56	691.37
E.G. Slope (ft/ft)	0.008336	Area (sq ft)	7559.83	41.56	741.30
Q Total (cfs)	10500.00	Flow (cfs)	9567.94	341.36	590.70
Top Width (ft)	5431.50	Top Width (ft)	4541.40	18.02	872.08
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)	1.51	8.21	0.85
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)	2.16	2.31	0.92
Conv. Total (cfs)	115006.7	Conv. (cfs)	104797.9	3738.9	6470.0
Length Wtd. (ft)	327.53	Wetted Per. (ft)	2930.18	18.83	752.97
Min Ch El (ft)	1606.88	Shear (lb/sq ft)	1.12	1.15	0.48
Alpha	1.95	Stream Power (lb/ft s)	1.70	9.44	0.41
Frctn Loss (ft)	3.29	Cum Volume (acre-ft)	995.48	35.11	650.48
C & E Loss (ft)	0.00	Cum SA (acres)	441.05	14.72	195.35

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6810.23	7446.46	871.91	680.94	384.94	8.30	1.77	1.28
7446.46	8082.70	2809.94	1680.12	636.26	26.76	2.64	1.67
8082.70	8718.93	3178.37	1809.01	636.24	30.27	2.84	1.76
8718.93	9355.17	1116.27	965.63	636.35	10.63	1.52	1.16
9355.17	9991.40	1591.42	1194.62	636.39	15.16	1.88	1.33
LB 9991.40	9995.91	68.49	9.47	4.79	0.65	2.10	7.23

9995.91	10000.41	149.92	15.08	4.72	1.43	3.35	9.94
10000.41	10004.92	92.03	11.19	4.66	0.88	2.48	8.22
10004.92	RB 10009.42	30.93	5.82	4.66	0.29	1.29	5.32
10009.42	10511.22	253.01	363.58	501.80	2.41	0.72	0.70
10511.22	11013.02	337.71	327.80	251.17	3.22	1.31	1.03

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.451

INPUT
Description:
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5215.51	1608.11	5356.94	1607.14	5498.37	1606.85	5645.05	1606.69	5664.07	1606.74
5684.58	1606.3	5704.82	1606.42	5719.83	1606.98	5736.13	1606.21	6040.58	1605.8
6097.61	1606.21	6411.81	1606.58	6430.69	1606.59	6451.45	1606.41	6773.19	1605.7
6814.23	1605.58	7121.31	1604.82	7168.83	1604.7	7178.58	1604.8	7343.67	1606.2
7391.44	1606.17	7476.62	1605.74	7486.71	1603.72	7507.88	1603.39	7527.96	1603.5
7560.73	1603.95	7588.35	1604.26	7614.85	1604.82	7840.48	1604.77	7885.58	1605.05
7932.89	1604.1	7938.75	1604.6	8455.74	1604.5	8505.05	1604.34	8548.96	1604.4
8583.8	1604.61	8589.97	1605.81	8998.67	1606	9017.58	1605.46	9052.28	1606.06
9491.2	1606.3	9508.73	1606.5	9544.51	1606.43	9568.5	1605.95	9582.35	1604.77
9599.61	1605.77	9635.95	1605.78	9650.66	1604.35	9665.87	1606.2	9679.65	1605.57
9692.59	1605.58	9718.8	1606.17	9735.9	1607.18	9821.7	1607.14	9857.13	1606.99
9986.27	1606.07	9996.66	1606.38	9999.36	1604.99	10008.35	1606.43	10507.81	1606.05
10518.67	1604.48	10533.52	1605.93	11369.36	1609.07	11410.57	1611.87	11453.19	1612
11459.44	1611.37	11476.56	1609.22	11499.22	1612.87	11585.55	1611.93	11647.04	1611.87
11851.3	1611.23	11899.99	1610.92	12008.38	1611.63	12122.69	1612.19	12160.86	1611.81
12242.88	1612.97	12313.42	1611.89	12354.44	1612.07	12377.36	1614.44	12392.93	1611.82
12443.06	1611.68	12467.3	1611.67	12724.48	1611.15	12745.76	1610.97	12873.28	1612.19
12966.86	1610.83	12997.21	1611.55	13137.88	1612.25	13149.56	1613.71	3528.41	1615.48
13672.78	1617.09	13798.38	1618.81	3802.47	1617.74	13993.86	1619.55		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5215.51	.15	9986.27	.02	10008.35	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.27	10008.35	401.88	370.79	366.61	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5215.51	6985.05	1612	10945.05	13993.86	1615

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1607.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1607.29	Reach Len. (ft)	401.88	370.79	366.61
Crit W.S. (ft)	1605.82	Flow Area (sq ft)	5597.01	29.68	826.70
E.G. Slope (ft/ft)	0.012560	Area (sq ft)	7357.01	29.68	826.70
Q Total (cfs)	10500.00	Flow (cfs)	9413.03	212.11	874.85
Top Width (ft)	5561.94	Top Width (ft)	4651.72	22.08	888.14
Vel Total (ft/s)	1.63	Avg. Vel. (ft/s)	1.68	7.15	1.06
Max Chl Dpth (ft)	3.90	Hydr. Depth (ft)	1.86	1.34	0.93
Conv. Total (cfs)	93689.4	Conv. (cfs)	83990.6	1892.7	7806.1
Length Wtd. (ft)	398.62	Wetted Per. (ft)	3001.92	22.54	888.33
Min Ch El (ft)	1604.99	Shear (lb/sq ft)	1.46	1.03	0.73
Alpha	1.38	Stream Power (lb/ft s)	2.46	7.38	0.77
Frctn Loss (ft)	3.73	Cum Volume (acre-ft)	938.98	34.79	645.60
C & E Loss (ft)	0.01	Cum SA (acres)	406.23	14.54	189.87

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6408.20	7004.54	73.16	42.12	19.50	0.70	2.16	1.74

7004.54	7600.89	2282.35	1303.92	596.56	21.74	2.19	1.75
7600.89	8197.23	3066.16	1556.42	596.38	29.20	2.61	1.97
8197.23	8793.58	2533.74	1388.20	596.46	24.13	2.33	1.83
8793.58	9389.92	894.46	743.19	596.36	8.52	1.25	1.20
9389.92	9986.27	563.17	563.16	596.67	5.36	0.94	1.00
LB 9986.27	9991.79	39.60	6.30	5.52	0.38	1.14	6.29
9991.79	9997.31	31.33	5.51	5.60	0.30	1.00	5.69
9997.31	10002.83	92.03	10.67	5.82	0.88	1.93	8.62
10002.83	RB 10008.35	49.15	7.21	5.59	0.47	1.31	6.82
10008.35	10506.54	595.50	524.61	498.19	5.67	1.05	1.14
10506.54	11004.73	279.35	302.09	390.14	2.66	0.77	0.92

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.381

INPUT
Description: Baseline on 4th Ave. approx. 600 ft west of intersection with Mountain Rd.
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5162.11	1603.79	5194.62	1603.32	5282.46	1602.47	5302.31	1602.32	5358.74	1601.79
5378.04	1601.91	5386.9	1602.68	5430.61	1602.54	5497.9	1602.39	5508.89	1601.68
5542.44	1602	5548.23	1602.5	5620.07	1603.16	5683.84	1602.28	5694.95	1601.94
5728.87	1602.01	5736.58	1602.53	5806.62	1603.05	5846.37	1602.8	5855.11	1601.89
5884.86	1601.6	5897.44	1602.52	6331.66	1603.46	6341.97	1598.54	6351.73	1601.78
6365.45	1601.55	6380.17	1601.47	6390.47	1601.63	6414.93	1600.93	6723.47	1602.23
6743.33	1602.23	6760.85	1601.95	7082.21	1601.29	7085.74	1601.39	7141.89	1600.25
7169.6	1600.94	7317.72	1601.63	7442.32	1601.08	7463.7	1601.28	7504.04	1600.93
7530.61	1601.26	7860.67	1600.39	7881.05	1600.89	7902.49	1600.52	8159.84	1600.63
8206.79	1601.12	8252.57	1600.51	8262.58	1601.4	8555.84	1600.6	8594.08	1600.96
9021.66	1602.25	9041.68	1602.12	9074.7	1602.01	9079.27	1602.48	9095.11	1602.25
9115.73	1602.14	9148.79	1602.56	9173.93	1602.09	9186.31	1602.73	9218.72	1602.6
9232.67	1601.25	9269.21	1601.38	9498.55	1601.72	9534.8	1601.94	9764.26	1601.87
9800.53	1602.24	9855.38	1602.33	9891.66	1601.99	9963.89	1602.73	9974.09	1599.99
9986.14	1602.32	9996.4	1602.11	10006.08	1602.04	10015.21	1602.08	10019.78	1602.18
10123.8	1602.51	10128.5	1601.65	10134.71	1602.65	11263.66	1605.65	11729.57	1605.82
11758.28	1604.15	11783.97	1608.99	11821.28	1609.13	11881.87	1609.42	11920.85	1609.09
11928.91	1608.55	11937.24	1608.31	12190.54	1608.98	12221.06	1608.79	12287.18	1608.86
12368.18	1609.45	12485.19	1610.49	12656.02	1609.03	12697.96	1609.38	12856.31	1606.72
12865.06	1608.57	13533.49	1613.52	13758.44	1616.14	13921.38	1617.81	13927.39	1616.83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5162.11	.15	9963.89	.02	10015.21	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9963.89	10015.21	354.57	609.88	452.58	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5162.11	6592.46	1607

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1603.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1603.49	Reach Len. (ft)	354.57	609.88	452.58
Crit W.S. (ft)	1602.18	Flow Area (sq ft)	6989.69	89.67	271.95
E.G. Slope (ft/ft)	0.007155	Area (sq ft)	8486.04	89.67	271.95
Q Total (cfs)	10500.00	Flow (cfs)	9522.02	811.33	166.65
Top Width (ft)	5266.86	Top Width (ft)	4780.86	51.32	434.67
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)	1.36	9.05	0.61
Max Chl Dpth (ft)	4.95	Hydr. Depth (ft)	2.07	1.75	0.63
Conv. Total (cfs)	124136.4	Conv. (cfs)	112574.2	9592.0	1970.2
Length Wtd. (ft)	390.95	Wetted Per. (ft)	3371.65	51.91	434.84
Min Ch El (ft)	1599.99	Shear (lb/sq ft)	0.93	0.77	0.28
Alpha	3.93	Stream Power (lb/ft s)	1.26	6.98	0.17
Frctn Loss (ft)	3.21	Cum Volume (acre-ft)	865.90	34.28	640.97
C & E Loss (ft)	0.04	Cum SA (acres)	362.71	14.23	184.30

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6362.55	6962.78	677.28	602.72	370.32	6.45	1.63	1.12
6962.78	7563.00	1904.93	1359.84	600.25	18.14	2.27	1.40
7563.00	8163.22	2715.36	1682.09	600.23	25.86	2.80	1.61
8163.22	8763.44	2190.17	1478.60	600.27	20.86	2.46	1.48
8763.44	9363.67	1036.26	943.77	600.34	9.87	1.57	1.10
9363.67	9963.89	998.03	922.66	600.23	9.51	1.54	1.08
LB 9963.89	9976.72	321.31	30.23	13.24	3.06	2.36	10.63
9976.72	9989.55	216.49	23.68	13.01	2.06	1.85	9.14
9989.55	10002.38	130.79	17.41	12.83	1.25	1.36	7.51
10002.38	RB 10015.21	142.74	18.35	12.83	1.36	1.43	7.78
10015.21	10504.23	166.65	271.95	434.84	1.59	0.63	0.61

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.265

INPUT
Description: Baseline on 4th Ave.
Station Elevation Data num= 112

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4720.35	1600.28	4750.75	1600.29	4820.08	1600.9	4891.42	1599.94	4922.23	1599.98
4992.04	1600.85	5062.2	1599.53	5095.32	1599.42	5162.12	1599.45	5178.21	1599.86
5186.74	1600.27	5226.35	1600.23	5234.66	1599.61	5265.9	1599.83	5273.21	1600.31
5334.01	1600.77	5398.2	1600.05	5406.14	1599.45	5437.11	1599.63	5443.64	1600.25
5504.46	1600.5	5568.88	1599.96	5577.78	1599.34	5608.65	1599.51	5676.54	1600.09
5690.19	1598.89	5722.21	1598.73	5749.51	1598.75	5782.3	1599.17	5792.1	1600.02
5854.52	1600.47	5922.64	1599.78	5931.98	1599.12	5964.9	1599.15	5974.15	1600.12
6039.34	1600.46	6073.99	1599.69	6084.75	1598.85	6114.33	1598.58	6120.14	1599.24
6179.35	1600.07	6189.31	1595.73	6198.18	1597.82	6214.48	1598.45	6225.9	1598.7
6237.53	1598.45	6267.99	1598.42	6423.18	1598.6	6448.53	1597.98	6653.88	1599.04
6659.51	1596.35	6670.43	1599.13	6953.87	1597.78	7010.68	1597.58	7331.79	1597.39
7347.14	1597.33	7364.8	1597.19	8079.46	1599.27	8129.12	1599.57	8176.39	1599.08
8198.92	1598.79	8217.28	1599.36	8267.35	1599.06	8295.92	1599.43	8328.58	1599.24
8333.19	1600.04	8348.68	1599.3	8364.8	1597.14	8382.68	1599.08	8484	1598.07
8520.12	1598.16	8746.42	1598.34	8782.25	1598.48	9007.38	1598.25	9044.19	1598.51
9265.85	1597.97	9305.83	1598.14	9323.79	1599.16	9419.73	1599.66	9531.6	1597.81
9567.68	1598.19	9778.91	1597.68	9863.35	1597.87	9951.96	1598.09	9964.71	1595.98
9983.35	1598.15	9993.85	1598.07	10002.75	1597.76	10010.71	1598	10015.67	1598.96
10019.44	1597.32	10696.79	1600.83	10814.57	1601.12	10855.49	1600.83	10901.12	1602.23
11180.95	1602.01	11737.46	1603.69	11758.61	1605.85	11803.59	1605.43	11814.31	1604.71
11824.65	1606.03	11836.99	1606.96	11903.55	1605.81	11920.23	1605.27	12229.97	1610.07
12238.21	1607.38	12455.97	1606.74	12503.98	1607.23	12579.69	1605.63	12589.23	1606.8
12676.89	1608.27	12690.41	1609						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4720.35	.15	9951.96	.02	10010.71	.15

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9951.96 10010.71 323.21 438.39 331.63 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4720.35	6110.35	1605	10696.79	12690.41	1605

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4720.35	4992.04	1606

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1600.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1599.89	Reach Len. (ft)	323.21	438.39	331.63
Crit W.S. (ft)	1599.79	Flow Area (sq ft)	6027.51	141.23	650.12
E.G. Slope (ft/ft)	0.009524	Area (sq ft)	6295.91	141.23	650.12
Q Total (cfs)	10500.00	Flow (cfs)	7924.82	1831.25	743.94
Top Width (ft)	4898.43	Top Width (ft)	4335.29	58.75	504.39

Vel Total (ft/s)	1.54	Avg. Vel. (ft/s)	1.31	12.97	1.14
Max Chl Dpth (ft)	4.16	Hydr. Depth (ft)	1.58	2.40	1.29
Conv. Total (cfs)	107593.4	Conv. (cfs)	81205.5	18764.8	7623.1
Length Wtd. (ft)	339.48	Wetted Per. (ft)	3826.73	59.06	504.83
Min Ch El (ft)	1595.98	Shear (lb/sq ft)	0.94	1.42	0.77
Alpha	12.96	Stream Power (lb/ft s)	1.23	18.44	0.88
Frctn Loss (ft)	3.17	Cum Volume (acre-ft)	805.74	32.66	636.18
C & E Loss (ft)	0.09	Cum SA (acres)	325.61	13.46	179.42

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6028.25	6682.20	883.62	758.97	560.63	8.42	1.36	1.16
6682.20	7336.16	1968.33	1305.19	653.96	18.75	2.00	1.51
7336.16	7990.11	1693.68	1192.66	653.95	16.13	1.82	1.42
7990.11	8644.06	686.86	692.39	650.25	6.54	1.07	0.99
8644.06	9298.01	1345.92	1039.03	653.95	12.82	1.59	1.30
9298.01	9951.96	1346.43	1039.29	654.00	12.82	1.59	1.30
LB 9951.96	9966.65	635.76	43.74	14.87	6.05	2.98	14.54
9966.65	9981.33	585.63	41.53	14.79	5.58	2.83	14.10
9981.33	9996.02	277.02	26.45	14.70	2.64	1.80	10.48
9996.02	RB 10010.71	332.82	29.52	14.70	3.17	2.01	11.28
10010.71	10345.67	707.13	575.74	335.40	6.73	1.72	1.23
10345.67	10680.63	36.80	74.37	169.43	0.35	0.44	0.49

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.182

INPUT
Description: Baseline on 4th Ave.
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4328.73	1599.13	4343.06	1599.91	4444.51	1597.92	4476.64	1597.67	4487.72	1598.63
4519.1	1597.74	4549.22	1597.73	4621.45	1598.41	4686.86	1597.31	4717.02	1597.36
4785.93	1598.65	4854.78	1597.18	4884.81	1597.31	4953.81	1598.45	4987.62	1597.96
5001.3	1597.39	5023.12	1597.03	5088.16	1596.96	5107.02	1597.35	5116.85	1598.06
5190.53	1597.16	5220.77	1597.25	5286.44	1598.09	5358.3	1596.67	5388.5	1596.82
5455.95	1598.03	5526.12	1596.71	5584.89	1597.26	5599.78	1596.82	5663.54	1596.25
5676.1	1596.41	5682.26	1596.45	5694.44	1596.25	5724.25	1596.29	5790.67	1597.4
5862.03	1595.85	5909.99	1596.15	5981.23	1596.98	6054.04	1595.25	6086.04	1595.28
6097.9	1595.84	6156.16	1596	6165.84	1593.18	6177.1	1595.01	6194.51	1595.24
6205.95	1595.53	6218.24	1595.18	6910.84	1595.39	6940.25	1595.47	7615.06	1595.58
7628.46	1593.67	7641.14	1595.67	7644.61	1595.05	7667.9	1595.27	7696.38	1594.52
8096	1596.2	8142.64	1595.93	8188.18	1595.67	8195.67	1596	8216.36	1596.31
8234.9	1594.05	8249.3	1595.59	8364.06	1594.9	8367.62	1594.8	8370.06	1594.9
8416.09	1595.17	8635.75	1594.5	8672.16	1594.94	8899.23	1594.33	8945.26	1595.12
9161.55	1594.8	9198.79	1595.12	9475.72	1594.4	9512.02	1594.7	9790.99	1595.2
9837.73	1595.08	9858.59	1595.66	9959.07	1596.13	9967.23	1593.78	9975.9	1593.56
9982.65	1595.93	9993.99	1595.63	10010.09	1595.34	10017.42	1596.22	10056.85	1595.88
10071.65	1594.98	10082.56	1596.38	10472.82	1596.02	10485.61	1597.55	10498.64	1595.44
10520.79	1600.07	10543.5	1598.12	10827.04	1598.69	10841.47	1598.87	11033.1	1599.66
11163.43	1599.36	11232.45	1601.44	11289.63	1599.88	11332.57	1598.88	11361.71	1600.23
11483.23	1601.29	11525.47	1601.07	11536.86	1601.42	11755.82	1602.99	11808.84	1603.96
11830.2	1604.14	11846.38	1604.04	11858.62	1604.55	11871.61	1604.2	11909.2	1603.46
11942.38	1603.96	11959.97	1602.17	11973.27	1602.83	12190.42	1603.82	12308.91	1604.17
12320.54	1601.98	12337.82	1605.18	12345.79	1605.06	12373.64	1604.35	12633.19	1605.21

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4328.73	.15	9959.07	.02	10017.42	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9959.07	10017.42	255	507.2	380	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4328.73	6038.73	1600	10472.82	12633.19	1600

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4328.73	5286.44	1601

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1597.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1596.91	Reach Len. (ft)	255.00	507.20	380.00
Crit W.S. (ft)	1596.23	Flow Area (sq ft)	6730.05	102.94	348.22
E.G. Slope (ft/ft)	0.009193	Area (sq ft)	6943.19	102.94	363.47
Q Total (cfs)	10500.00	Flow (cfs)	9162.53	1060.96	276.51
Top Width (ft)	4920.49	Top Width (ft)	4383.11	58.35	479.03
Vel Total (ft/s)	1.46	Avg. Vel. (ft/s)	1.36	10.31	0.79
Max Chl Dpth (ft)	3.73	Hydr. Depth (ft)	1.72	1.76	0.76
Conv. Total (cfs)	109514.1	Conv. (cfs)	95564.4	11065.7	2884.0
Length Wtd. (ft)	283.95	Wetted Per. (ft)	3921.54	59.15	455.52
Min Ch El (ft)	1593.56	Shear (lb/sq ft)	0.98	1.00	0.44
Alpha	5.78	Stream Power (lb/ft s)	1.34	10.29	0.35
Frctn Loss (ft)	2.60	Cum Volume (acre-ft)	756.62	31.43	632.33
C & E Loss (ft)	0.00	Cum SA (acres)	293.27	12.87	175.68

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5736.31	6440.11	839.20	648.78	401.96	7.99	1.62	1.29
6440.11	7143.90	1362.09	1085.45	703.79	12.97	1.54	1.25
7143.90	7847.69	1442.64	1123.75	704.15	13.74	1.60	1.28
7847.69	8551.49	1263.88	1037.93	704.03	12.04	1.47	1.22
8551.49	9255.28	2313.89	1491.74	703.80	22.04	2.12	1.55
9255.28	9959.07	1940.81	1342.39	703.80	18.48	1.91	1.45
LB 9959.07	9973.66	456.72	36.66	14.92	4.35	2.51	12.46
9973.66	9988.25	290.90	28.02	14.99	2.77	1.92	10.38
9988.25	10002.83	155.05	19.00	14.59	1.48	1.30	8.16
10002.83	RB 10017.42	158.30	19.26	14.64	1.51	1.32	8.22
10017.42	10344.39	186.38	241.00	327.09	1.78	0.74	0.77
10344.39	10671.36	90.14	107.23	128.43	0.86	0.83	0.84

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.086

INPUT
Description: Baseline crosses cross section on 4th Ave. approx. 500 ft east of Signal Butte Rd.
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4938.55	1595.16	4964.22	1595.07	5000.82	1595.24	5018.16	1598.84	5034.14	1598.85
5036.63	1596.93	5265.96	1594.59	5324.57	1594.36	5364.68	1594.94	5397.57	1594.5
5406.63	1595.44	5472.02	1595.78	5544.35	1594.28	5576.92	1593.9	5652.57	1595.11
5724.11	1593.83	5756.81	1593.6	5827.8	1594.54	5903.65	1593.02	5936.52	1592.76
5952.66	1593.11	6007.73	1593.28	6017.8	1590	6028.37	1592.13	6046.96	1592.38
6057.99	1592.61	6071.39	1592.44	6794.6	1592.74	6835.62	1592.99	7025.43	1594.04
7036.86	1592.23	7050.29	1594.31	7056.18	1593.36	7075.51	1593.29	7099.49	1593.19
7284.66	1591.82	7284.72	1591.81	7329.93	1591.51	8002.12	1592.91	8047.65	1592.77
8097.01	1592.19	8102.94	1592.84	8127.77	1593.54	8141.6	1590.96	8161.2	1593.05
8266.87	1592.78	8305.16	1592.41	8397.36	1592.66	8509.63	1591.45	8544.17	1591.6
8674.53	1594.01	8809.81	1591.69	8882.48	1592.02	9110.59	1591.53	9144.75	1591.74
9329.6	1593.62	9363.16	1592.65	9396.79	1592.85	9419.32	1592.74	9582.77	1592.97
9613.74	1592.77	9648.47	1593.11	9672.58	1593.44	9772.69	1593.58	9804.95	1593.1
9842.97	1592.95	9861.49	1595.06	9954.74	1594.42	9958.14	1590.17	9972.49	1590.82
9977.1	1593.62	9987.84	1593.11	10006.36	1593.26	10014.38	1592.56	10024.66	1594.69
10036	1594.11	10455.96	1594.24	10464.29	1593.75	10473.7	1594.37	10630.19	1594.54

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10643.85 1593.4310662.98 1594.5810769.26 1595.5210925.83 1596.8611042.12 1597.09
11060.05 1597.3811249.86    159611664.53 1600.4911720.71 1601.56 11736.2 1600.41
11753.19 1601.4311769.25 1601.3311778.88  1601.211827.64 1600.7412159.21 1602.82
12169.79 1602.4612345.82 1603.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4938.55     .15 9954.74     .0210024.66     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9954.7410024.66           272.52  446.48     350             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4938.55 5854.31    160010455.9612345.82    1600
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4938.55  5827.8    1601
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1594.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1594.30	Reach Len. (ft)	272.52	446.48	350.00
Crit W.S. (ft)	1593.59	Flow Area (sq ft)	6841.53	119.92	53.51
E.G. Slope (ft/ft)	0.009100	Area (sq ft)	6843.60	119.92	69.15
Q Total (cfs)	10500.00	Flow (cfs)	9281.01	1206.26	12.73
Top Width (ft)	4548.03	Top Width (ft)	4014.66	67.92	465.44
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)	1.36	10.06	0.24
Max Chl Dpth (ft)	4.30	Hydr. Depth (ft)	1.71	1.77	0.13
Conv. Total (cfs)	110072.6	Conv. (cfs)	97293.8	12645.4	133.4
Length Wtd. (ft)	294.78	Wetted Per. (ft)	4002.01	70.93	423.74
Min Ch El (ft)	1590.17	Shear (lb/sq ft)	0.97	0.96	0.07
Alpha	5.91	Stream Power (lb/ft s)	1.32	9.66	0.02
Frctn Loss (ft)	2.28	Cum Volume (acre-ft)	716.27	30.13	630.44
C & E Loss (ft)	0.03	Cum SA (acres)	268.69	12.13	171.56

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5565.57	6192.60	672.79	531.91	339.04	6.41	1.57	1.26
6192.60	6819.62	1385.45	1049.24	627.02	13.19	1.67	1.32
6819.62	7446.65	1291.40	1006.04	627.24	12.30	1.60	1.28
7446.65	8073.67	1736.47	1201.50	627.03	16.54	1.92	1.45
8073.67	8700.69	1466.49	1085.95	627.46	13.97	1.73	1.35
8700.69	9327.72	2039.78	1323.37	627.05	19.43	2.11	1.54
9327.72	9954.74	688.63	643.55	527.17	6.56	1.22	1.07
LB 9954.74	9972.22	799.62	60.43	19.38	7.62	3.48	13.23
9972.22	9989.70	162.73	22.71	18.28	1.55	1.30	7.17
9989.70	10007.18	127.50	19.27	17.48	1.21	1.10	6.62
10007.18	RB 10024.66	116.41	17.52	15.79	1.11	1.12	6.65
10024.66	10314.80	10.82	42.22	282.59	0.10	0.15	0.26
10314.80	10604.95	1.91	11.30	141.16	0.02	0.08	0.17

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.001

INPUT
Description: Baseline crosses cross section at intersection of 4th Ave. and Signal Butte Rd.

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Station Elevation Data    num=     116
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4559 1593.79 4762.32 1593.06 4819.92 1592.65 4884.97 1594.05 4953.53 1592.83
 4982.69 1593.01 5047.73 1593.66 5079.06 1593.47 5094.41 1592.44 5128.05 1592.33
 5203.21 1593.47 5278.98 1592.04 5313.05 1591.64 5389.89 1593.31 5465.21 1591.53
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 5498.89 1591.41 5574.81  1592.8 5651.03 1591.44 5684.65  1591.2 5756.72 1592.02
 5837.01 1590.51 5870.67 1590.48 5888.39 1590.95  5946.7 1591.42 5955.77  1587.4
 5967.37 1590.33 5985.69  1590.9 5996.35 1590.92 6007.06 1590.64 6098.71  1590.4
 6115.21 1589.65 6141.21 1590.65 6484.71 1592.24 6491.49 1590.64  6502.5  1592.5
 6512.52 1591.17 6536.65 1591.32 6570.36 1590.59 7004.54  1589.8 7010.24 1589.63
 7033.01 1589.69 7244.79  1591.3 7264.71 1589.68 7310.01 1589.77 7996.11 1589.34
 8043.37  1589.3  8092.9 1588.98 8101.51 1589.79 8121.53 1590.45 8138.72 1587.63
  8158.4 1590.17 8280.37 1588.87 8319.13 1588.72 8329.98 1589.41 8403.02 1590.09
 8530.73 1589.61 8540.08 1588.69 8575.03 1588.67 8793.33 1588.89 8827.61    1589
 8990.95  1591.3 9025.45 1591.06 9092.96 1590.48 9118.65 1591.64 9269.14 1591.64
 9300.98 1590.54  9335.2 1590.75 9364.95 1591.18 9533.29 1591.27    9554 1590.62
 9588.28 1591.01 9609.81 1591.58 9755.59 1590.72 9788.31 1590.87  9833.8 1590.91
 9937.97 1591.81 9943.37 1588.97 9959.88 1589.01 9967.32 1591.77 9982.03 1590.78
10115.93 1591.4110139.13 1593.0410159.83 1592.8810173.42  1591.710317.48 1592.01
10350.53 1590.8810396.52 1591.4810411.01  1591.610424.35 1592.8910508.02 1593.27
10530.72 1592.6210541.12  1591.7 10584.5 1591.6210618.41 1593.1910743.42 1592.57
10754.17 1592.1611010.99 1595.8311024.94 1595.8111216.01 1592.1511316.99    1590
11458.57 1592.59 11646.3 1596.7211656.45 1597.6411668.44 1597.5311730.19 1597.87
11752.06 1595.9711769.95 1596.8411779.35 1596.8811817.66 1597.0811827.45 1596.88
11842.18 1596.6412035.95  1597.512045.24 1594.82 12056.8 1594.2212063.89 1598.17
12120.82 1598.36

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4559     .15 9937.97     .0210115.93     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9937.9710115.93           377.84  575.99     440              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    4559 5756.72    159610115.9312065.27    1596
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    4559 5389.89    159710508.0212120.82    1597

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1592.20   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.12   Wt. n-Val.                  0.150      0.020
  W.S. Elev (ft)            1592.07   Reach Len. (ft)            377.84     575.99     440.00
  Crit W.S. (ft)            1591.00   Flow Area (sq ft)         7427.64     215.35
  E.G. Slope (ft/ft)       0.006649   Area (sq ft)              7536.30     215.35     106.26
  Q Total (cfs)            10500.00   Flow (cfs)                9025.35    1474.65
  Top Width (ft)            4807.29   Top Width (ft)            4373.08     177.96     256.24
  Vel Total (ft/s)             1.37   Avg. Vel. (ft/s)             1.22       6.85
  Max Chl Dpth (ft)            4.67   Hydr. Depth (ft)             1.79       1.21
  Conv. Total (cfs)        128773.7   Conv. (cfs)              110688.3    18085.4
  Length Wtd. (ft)           406.80   Wetted Per. (ft)          4141.26     179.19
  Min Ch El (ft)            1588.97   Shear (lb/sq ft)             0.74       0.50
  Alpha                        4.16   Stream Power (lb/ft s)       0.90       3.42
  Frctn Loss (ft)              3.08   Cum Volume (acre-ft)       671.29      28.42     629.73
  C & E Loss (ft)              0.01   Cum SA (acres)             242.45      10.87     168.66


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  5231.37      5903.74        128.00     158.47     147.04       1.22       1.08       0.81
  5903.74      6576.11        542.02     674.93     631.67       5.16       1.07       0.80
  6576.11      7248.48       1381.97    1213.39     672.39      13.16       1.80       1.14
  7248.48      7920.86       2327.01    1658.78     672.42      22.16       2.47       1.40
  7920.86      8593.23       2638.16    1789.00     672.89      25.13       2.66       1.47
  8593.23      9265.60       1525.30    1287.42     672.42      14.53       1.91       1.18
  9265.60      9937.97        482.88     645.67     672.42       4.60       0.96       0.75
  LB 9937.97   9982.46        729.81      84.84      45.72       6.95       1.91       8.60
  9982.46      10026.95       337.30      52.81      44.49       3.21       1.19       6.39
  10026.95     10071.44       244.14      43.50      44.49       2.33       0.98       5.61
  10071.44     RB 10115.93    163.40      34.19      44.49       1.56       0.77       4.78
```

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.892

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5007.87	1590.39	5075.02	1589.01	5104.25	1589.11	5169.3	1590.22	5236.89	1588.64
5265.98	1588.86	5335.18	1589.83	5398.58	1588.39	5427.76	1588.71	5497.5	1589.67
5541	1589.8	5560.36	1588.16	5589.37	1588.18	5655.02	1589.3	5722.05	1587.82
5750.98	1588.11	5849.09	1587.71	5883.18	1587.5	5896.78	1588.53	5943.35	1588.32
6005.4	1586.98	6034.75	1587.13	6047.14	1588.42	6102.65	1588.76	6152.88	1588.14
6167.75	1587.39	6196.76	1587.58	6206.47	1588.45	6268.93	1589.09	6314.14	1588.4
6329.58	1587.26	6358.83	1587.22	6378.18	1588.93	6419.6	1589.62	6428.58	1583.29
6439.18	1587.82	6462.26	1586.73	6493.44	1587.4	6523.17	1587.39	6538.57	1587.64
6558.58	1583.71	6582.54	1588.13	6728.48	1587.66	6762.41	1587.79	6788.19	1586.8
6965.08	1586.76	6989.18	1586.95	6998.82	1588.73	7018.45	1588.41	7047.91	1588.06
7070.11	1589.79	7191.06	1587.65	7202.16	1587.93	7211.4	1587.64	7288.74	1587.96
7371.42	1586.66	7478.92	1587.23	7503.88	1586.32	7512.5	1586.21	7562.33	1586.32
7587.49	1585.73	7597.36	1586.33	7991.74	1586.76	8035.25	1586.18	8043.81	1587.01
8222.97	1586.5	8234.62	1585.79	8245.34	1585.94	8255.85	1585.91	8266.19	1585.52
8279.19	1586.6	8285.22	1586.3	8689.57	1586.22	8712.63	1587.16	8757.98	1587.16
8808.52	1586.37	8821.14	1587.39	8837.19	1587.43	8855.25	1584.3	8874.63	1586.97
8997.42	1586.54	9057.95	1586.03	9095.46	1588.96	9239.34	1588.58	9273.63	1587.71
9308.16	1588.36	9332.13	1589.06	9476.02	1589.18	9524.64	1587.96	9557.9	1587.89
9754.12	1588.11	9820.77	1588.46	9843.31	1588.74	9919.37	1588.59	9921.77	1585.05
9935.31	1585.64	9940.63	1589.11	9961.91	1587.42	10038.26	1587.95	10078.41	1590.26
10088.25	1587.59	10283.82	1587.77	10310.48	1588.41	10327.73	1589.21	10353.88	1587.05
10433.41	1588.97	10555.07	1588.22	10630.65	1586.96	10655.72	1588.43	10775.1	1587.8
10783.67	1589.63	10912.33	1588.87	10936.49	1587.61	10973.67	1588.04	10985.12	1588.5
10995.86	1589.26	11101.34	1588.93	11108.05	1589.78	11215.94	1589.37	11236.57	1588.63
11244.74	1587.91	11280.34	1588.15	11307.85	1588.33	11430.86	1588.99	11434.11	1589.87
11915.55	1589.59	11953.26	1588.98	12046.38	1589.93	12331.15	1593.86	12341.36	1589.39
12349.67	1589.43	12358.33	1594.11	12379.35	1594.45	12420.62	1594.75	12444.63	1592.93
12460.95	1594.86	12522.25	1594.67	12544.97	1593.44	12556.45	1593.98	12607.21	1594.84
12640.92	1595.13	12709.43	1595.47	12752.9	1595.82	12778.01	1595.91	12809.81	1596.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5007.87	.15	9919.37	.02	10038.26	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9919.37	10038.26	380	574.17	385.41	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5007.87	6152.88	1592	10433.41	12412.02	1592

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5007.87	5335.18	1593	10783.67	12809.81	1593

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1589.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1588.91	Reach Len. (ft)	380.00	574.17	385.41
Crit W.S. (ft)	1587.82	Flow Area (sq ft)	5990.52	169.09	369.58
E.G. Slope (ft/ft)	0.008716	Area (sq ft)	6468.56	169.09	636.51
Q Total (cfs)	10500.00	Flow (cfs)	8662.06	1482.35	355.59
Top Width (ft)	4890.31	Top Width (ft)	4082.39	116.08	691.84
Vel Total (ft/s)	1.61	Avg. Vel. (ft/s)	1.45	8.77	0.96
Max Chl Dpth (ft)	5.62	Hydr. Depth (ft)	1.73	1.46	1.04
Conv. Total (cfs)	112470.5	Conv. (cfs)	92783.5	15878.2	3808.9
Length Wtd. (ft)	418.77	Wetted Per. (ft)	3459.54	119.00	354.86
Min Ch El (ft)	1585.05	Shear (lb/sq ft)	0.94	0.77	0.57
Alpha	4.87	Stream Power (lb/ft s)	1.36	6.78	0.55
Frctn Loss (ft)	3.67	Cum Volume (acre-ft)	610.55	25.87	625.98
C & E Loss (ft)	0.03	Cum SA (acres)	205.78	8.93	163.87

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5621.81	6235.75	67.32	76.21	82.93	0.64	0.92	0.88
6235.75	6849.68	981.33	808.20	545.76	9.35	1.49	1.21
6849.68	7463.62	973.83	808.86	553.20	9.27	1.46	1.20
7463.62	8077.56	2431.37	1460.21	614.02	23.16	2.38	1.67
8077.56	8691.50	2768.91	1578.67	614.02	26.37	2.57	1.75
8691.50	9305.43	1222.21	954.63	595.38	11.64	1.61	1.28
9305.43	9919.37	217.07	303.74	454.24	2.07	0.67	0.71
LB 9919.37	9949.09	687.73	62.91	29.79	6.55	2.34	10.93
9949.09	9978.81	281.52	36.80	29.76	2.68	1.24	7.65
9978.81	10008.54	294.17	37.76	29.72	2.80	1.27	7.79
10008.54	RB 10038.26	218.94	31.63	29.72	2.09	1.06	6.92
10038.26	10384.70	339.49	343.75	308.58	3.23	1.12	0.99
10384.70	10731.15	16.09	25.83	46.27	0.15	0.56	0.62

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.784

INPUT
Description: Baseline crosses cross section on Signal Butte Rd. approx. 200 ft north of intersection with Broadway Ave.
Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5254.05	1587.8	5459.58	1586.29	5462.95	1585.06	5499.88	1586.78	5518.54	1586.6
5535.29	1586.17	5561.63	1587.61	5656.78	1585.54	5690.66	1585.42	5699.37	1586.14
5787.61	1585.03	5816.64	1585.33	5881.4	1586.19	5948.28	1584.67	5977.32	1585.02
5983.74	1585.19	6004.63	1580.88	6073.58	1585	6235.36	1584.24	6270.72	1584.09
6284.2	1584.99	6346.34	1585.38	6373.56	1585.23	6389.86	1583.52	6418.82	1583.77
6480.34	1586.11	6490.55	1580.07	6499.82	1584.14	6522.46	1582.86	6551.75	1583.55
6582.03	1583.16	6593.43	1583.7	6616.36	1580.38	6644.55	1585.28	6665.77	1584.86
6813.12	1584.18	6855.67	1584.84	6864.02	1585.06	6871.31	1584.06	6888.72	1583.99
6908.38	1585.54	6914.32	1585.23	6957.81	1584.89	7088.18	1583.69	7138.11	1583.51
7306.96	1583.97	7330.56	1586.19	7508.83	1584.26	7540.05	1584.38	7567.49	1583.64
7715.57	1584.5	7728.56	1582.33	7733.25	1582.27	7746.59	1583.75	7750.76	1583.45
7758.32	1582.61	7775.39	1582.68	7792.29	1584.04	7927.66	1582.8	7949.04	1582.86
7972.55	1582.64	8265.93	1582.46	8277.22	1582.78	8290.49	1582.9	8325.25	1583.28
8339.63	1581.53	8353.39	1583.48	8752.87	1582.77	8765.53	1584.96	8771.11	1582.23
8854.59	1583.25	9187.33	1583.25	9236.98	1582.04	9484.51	1584.91	9509.47	1583.31
9529.94	1584.65	9626.61	1584.1	9638.95	1586.27	9660.44	1586.12	9670.83	1583.59
9684.45	1583.09	9691.49	1584	9705.26	1583.83	9715.57	1581.26	9767.02	1581.71
9788.29	1584.92	9801.27	1585.12	9833.69	1584.84	9854.25	1584.88	9881.21	1584.16
9916.79	1585.53	9922.04	1582.18	9933.08	1582.46	9939.8	1585.05	9960.74	1582.7
10051.58	1583.171	0077.26	1584.87	10085.4	1582.241	0220.51	1582.941	0236.72	1581.51
10256.49	1580.651	0303.77	1581.331	0352.19	1584.071	0505.91	1583.531	0535.54	1581.68
10578.17	1581.681	0615.34	1584.031	0707.03	1584.031	0733.87	1585.61	0849.91	1584.99
10876.42	1582.751	0912.97	1582.541	0940.76	1584.981	1047.86	1583.761	1072.93	1583.02
11140.45	1584.831	1258.71	1584.21	1316.33	1583.14	11341.2	1584.291	1452.26	1584.31
11472.57	1586.731	1604.15	1585.831	1627.65	1584.631	1672.17	1584.611	1681.08	1585.63
11692.27	1586.461	1732.97	1586.66						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5254.05	.15	9916.79	.02	10051.58	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9916.79	10051.58		370	461.26	344.31	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5254.05	6864.02	1588	11140.45	11732.97	1588

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5254.05	5983.74	1589	11472.57	11732.97	1589

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1585.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1584.95	Reach Len. (ft)	370.00	461.26	344.31
Crit W.S. (ft)	1584.48	Flow Area (sq ft)	4319.20	248.83	1643.52
E.G. Slope (ft/ft)	0.008916	Area (sq ft)	5056.88	248.83	1873.67
Q Total (cfs)	10500.00	Flow (cfs)	5578.10	2635.35	2286.55
Top Width (ft)	4924.39	Top Width (ft)	3516.05	132.74	1275.60
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)	1.29	10.59	1.39
Max Chl Dpth (ft)	4.88	Hydr. Depth (ft)	1.54	1.87	1.71
Conv. Total (cfs)	111197.3	Conv. (cfs)	59073.3	27909.0	24215.1
Length Wtd. (ft)	377.74	Wetted Per. (ft)	2798.49	134.15	959.44
Min Ch El (ft)	1582.18	Shear (lb/sq ft)	0.86	1.03	0.95
Alpha	10.31	Stream Power (lb/ft s)	1.11	10.94	1.33
Frctn Loss (ft)	3.55	Cum Volume (acre-ft)	560.27	23.12	614.88
C & E Loss (ft)	0.10	Cum SA (acres)	172.64	7.29	155.17

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6419.73	7002.58	19.06	37.07	88.77	0.18	0.42	0.51
7002.58	7585.42	398.09	441.44	455.30	3.79	0.97	0.90
7585.42	8168.26	1365.21	1020.98	583.23	13.00	1.75	1.34
8168.26	8751.11	1677.69	1155.28	583.09	15.98	1.98	1.45
8751.11	9333.95	1587.51	1118.01	583.62	15.12	1.92	1.42
9333.95	9916.79	530.52	546.42	504.49	5.05	1.09	0.97
LB 9916.79	9950.49	436.29	48.51	32.99	4.16	1.53	8.99
9950.49	9984.19	764.23	68.54	33.76	7.28	2.03	11.15
9984.19	10017.88	770.68	68.83	33.70	7.34	2.04	11.20
10017.88	RB 10051.58	664.18	62.95	33.70	6.33	1.87	10.55
10051.58	10261.75	815.55	497.44	210.73	7.77	2.37	1.64
10261.75	10471.93	578.66	404.51	210.26	5.51	1.92	1.43
10471.93	10682.10	555.16	394.61	210.31	5.29	1.88	1.41
10682.10	10892.28	95.52	94.50	82.70	0.91	1.14	1.01
10892.28	11102.45	225.37	228.49	207.44	2.15	1.10	0.99
11102.45	11312.62	16.29	23.96	38.02	0.16	0.63	0.68

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.696

INPUT
Description: Baseline crosses cross section on Signal Butte Rd. approx. 250 ft south of Broadway Ave.
Station Elevation Data num= 128

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4710.11	1582.75	4735.93	1583.42	4749.47	1583.57	4770.07	1583.76	4795.72	1584.07
4816.14	1584.09	4880.22	1582.71	4897.64	1584.89	5044.8	1583.62	5079.36	1583.12
5084.43	1581.99	5131.15	1581.36	5164.62	1583.17	5307.61	1582.46	5324.31	1583.95
5501.63	1582.11	5509.69	1581.03	5556.24	1580.68	5576.26	1582.78	5730.4	1582.91
5750.95	1584.56	5924	1582.93	5929.89	1581.49	5980.62	1581.52	6001.57	1583.63
6229.66	1581.71	6233.87	1580.53	6265.17	1581.28	6282.41	1581.28	6299.66	1580.84
6328.17	1581.93	6335.06	1582.03	6357.46	1578.65	6419.16	1578.45	6435.2	1581.18
6448.89	1581.59	6457.91	1577.72	6468.33	1581.46	6492.03	1580.16	6501.65	1580.56
6512.45	1580.83	6939.98	1581.68	6961.62	1577.84	6968.2	1577.34	6976.99	1577.82
6997.51	1580.27	7007.84	1580.05	7057.21	1579.61	7218.84	1579.98	7240.51	1581.39
7418.13	1579.67	7467.3	1579.44	7629.16	1579.22	7651.96	1581.34	7829.57	1579.72
7879.47	1579.34	7900.92	1578.82	7916.2	1579.82	8038.58	1579.35	8058.22	1578.94
8101.35	1579.8	8130.32	1580.86	8225.14	1580.98	8243.5	1579.15	8271.73	1579.57
8312.91	1579.44	8333.84	1579.1	8341.96	1580.28	8477.32	1580.27	8487.66	1581.55
8633.7	1580.23	8733.19	1579.14	8751.16	1579.71	8868.41	1579.5	8891	1581.47
9025.67	1580.45	9058.24	1579.13	9115.77	1580.01	9141.14	1580.25	9284.3	1580
9406.96	1579.68	9767.34	1580.94	9876.7	1581.77	9956.15	1580.9	9964.95	1580.14
10032.3	1580.51	10037.71	1580.72	10056.7	1580.47	10068.93	1580.56	10153.21	1580.42
10165	1580.151	10334.65	1580.06	10352.1	1579.61	10378.52	1579.68	10387.93	1580.1
10499.64	1579.241	10511.83	1579.991	10524.66	1579.171	10534.63	1574.231	10541.45	1574.69

```
10684.83 1579.17 10702.3 1578.4210718.22 1577.84 10760.6 1577.6710786.27 1579.45
10926.17 1578.9110941.62 1581.2211082.83 1580.39 11099.3 1578.7111138.07 1578.65
11166.85 1580.9111281.87 1580.85 11297.1 1582.0511426.43 1581.0211463.21 1578.84
 11507.4 1579.0511542.22 1581.0911672.26 1581.3111702.85 1579.4311755.61 1579.98
11781.66 1581.7811921.71    158211951.65 1580.2711996.13  1580.512056.04 1580.77
12101.72 1580.7612126.35 1581.8212300.01 1582.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4710.11     .15 9956.15     .0210068.93     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9956.1510068.93           376.56  470.47  385.16             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4710.11  7467.3 1586.0511781.6612300.01    1586
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4710.11 6001.57    1586
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1581.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1581.63	Reach Len. (ft)	376.56	470.47	385.16
Crit W.S. (ft)	1580.25	Flow Area (sq ft)	3596.75	136.25	3102.98
E.G. Slope (ft/ft)	0.009769	Area (sq ft)	5007.74	136.25	3281.33
Q Total (cfs)	10500.00	Flow (cfs)	4584.19	1134.72	4781.09
Top Width (ft)	5606.53	Top Width (ft)	3648.38	112.78	1845.37
Vel Total (ft/s)	1.54	Avg. Vel. (ft/s)	1.27	8.33	1.54
Max Chl Dpth (ft)	7.40	Hydr. Depth (ft)	1.46	1.21	1.88
Conv. Total (cfs)	106233.2	Conv. (cfs)	46380.3	11480.5	48372.4
Length Wtd. (ft)	399.72	Wetted Per. (ft)	2457.12	112.82	1653.77
Min Ch El (ft)	1580.14	Shear (lb/sq ft)	0.89	0.74	1.14
Alpha	3.94	Stream Power (lb/ft s)	1.14	6.13	1.76
Frctn Loss (ft)	3.27	Cum Volume (acre-ft)	517.53	21.08	594.50
C & E Loss (ft)	0.04	Cum SA (acres)	142.21	5.99	142.83

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7333.13	7988.89	1340.10	932.40	521.73	12.76	1.79	1.44
7988.89	8644.64	1118.81	917.00	656.06	10.66	1.40	1.22
8644.64	9300.40	1349.39	1026.02	655.89	12.85	1.56	1.32
9300.40	9956.15	775.90	721.34	623.44	7.39	1.16	1.08
LB 9956.15	9984.35	331.57	37.52	28.23	3.16	1.33	8.84
9984.35	10012.54	321.58	36.82	28.19	3.06	1.31	8.73
10012.54	10040.73	248.71	31.57	28.20	2.37	1.12	7.88
10040.73	RB 10068.93	232.86	30.34	28.20	2.22	1.08	7.67
10068.93	10347.81	439.75	392.23	278.89	4.19	1.41	1.12
10347.81	10626.70	1821.96	922.01	280.16	17.35	3.31	1.98
10626.70	10905.58	1534.25	830.29	279.00	14.61	2.98	1.85
10905.58	11184.47	471.38	409.13	279.23	4.49	1.47	1.15
11184.47	11463.35	118.59	162.57	220.24	1.13	0.74	0.73
11463.35	11742.24	353.67	344.23	279.01	3.37	1.23	1.03
11742.24	12021.13	41.48	42.51	37.24	0.40	1.14	0.98

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.607

INPUT
Description:
Station Elevation Data num= 130
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

5179.7	1580.72	5333.58	1578.65	5346.94	1577.54	5389.24	1577.4	5396.84	1578.27
5426.09	1579.26	5569.93	1578.66	5585.24	1580.71	5768.68	1579.28	5776.12	1578.79
5824.45	1578.16	5832.18	1578.92	5864.05	1579.98	6003.16	1580.11	6020.4	1581.77
6191.47	1581.12	6206.09	1579.65	6253.83	1579.44	6369.26	1582.3	6404.63	1581.75
6443.5	1574.53	6456.25	1573.51	6490.33	1577.55	6498.52	1577.68	6509	1580.95
6531.74	1576.94	6561.51	1577.83	6588.33	1577.76	6926.03	1578.04	6969.04	1578.26
7348.91	1577.2	7391.37	1577.53	7457.74	1577.67	7496.62	1570.3	7549.87	1578.58
7730.97	1575.56	7782.17	1575.39	7941.28	1575.47	7963.93	1576.95	8064.75	1575.21
8106.97	1575.59	8183.94	1576.33	8202.59	1574.29	8220.89	1576.75	8259.36	1577.24
8293.63	1571.79	8315.05	1575.23	8368.8	1576.22	8380.74	1578.49	8485.31	1578.25
8548.63	1576.62	8614.38	1576.4	8654.57	1576.98	8784.12	1576.72	8802.89	1578.32
8983.59	1576.35	9003.65	1576.59	9024.35	1576.28	9076.57	1576.45	9084.65	1577.11
9106.17	1577.01	9154.23	1575.59	9217.7	1577.04	9231.45	1578.07	9480.55	1575.96
9492.4	1577.18	9621.48	1576.2	9633.29	1578.08	9664.28	1577.66	9674.08	1575.76
9781.84	1575.72	9793.34	1577.04	9917.2	1578.01	9920.71	1577	9931.94	1573.77
9939.82	1575.41	9966.62	1575.58	9996.57	1576.46	10030.22	1575.77	10036.4	1575.38
10054.92	1575.85	10128.08	1577.24	10256.81	1576.94	10278.21	1577.15	10492.91	1576.18
10531.75	1576.31	10557.34	1576.48	10620.29	1576.21	10670.18	1576.05	10729.19	1576.05
10828.84	1575.62	10849.17	1575.91	10859.07	1574.22	10886.08	1575.45	10902.23	1575.99
10970.51	1577.57	11100.98	1575.54	11114.12	1575.92	11215.27	1575.71	11215.28	1575.78
11227.02	1576.52	11239.95	1576.23	11248.23	1570.72	11398.42	1575.41	11419.89	1574.18
11434.73	1573.61	11481.07	1573.84	11530.54	1573.77	11575.86	1574.15	11593.06	1575.04
11630.85	1575.16	11648.51	1577.89	11784.81	1576.79	11802.9	1576.59	11813.63	1574.8
11858.45	1574.93	11889.72	1577.18	12011.41	1577.21	2025.88	1579.34	12162.92	1578.57
12187.04	1575.79	12222.76	1576.21	12246.12	1578.48	12377.69	1578.81	12385.72	1578.74
12398.98	1577.45	12438.19	1578.13	12446.98	1578.86	12457.52	1579.71	2561.22	1579.86

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5179.7	.15	9920.71	.02	10054.92	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9920.71	10054.92		409.72	545.69	344.4	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5179.7	8183.94	1582	12222.76	12561.22	1582.07

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5179.7	6369.26	1583	12377.69	12561.22	1583

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1578.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1577.93	Reach Len. (ft)	409.72	545.69	344.40
Crit W.S. (ft)	1576.34	Flow Area (sq ft)	2001.91	296.23	4020.20
E.G. Slope (ft/ft)	0.007034	Area (sq ft)	3869.00	296.23	4035.47
Q Total (cfs)	10500.00	Flow (cfs)	2091.34	3118.86	5289.79
Top Width (ft)	5103.94	Top Width (ft)	2936.25	134.21	2033.49
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)	1.04	10.53	1.32
Max Chl Dpth (ft)	7.63	Hydr. Depth (ft)	1.30	2.21	1.99
Conv. Total (cfs)	125198.5	Conv. (cfs)	24936.5	37188.3	63073.7
Length Wtd. (ft)	419.26	Wetted Per. (ft)	1538.88	134.87	2018.52
Min Ch El (ft)	1573.77	Shear (lb/sq ft)	0.57	0.96	0.87
Alpha	12.32	Stream Power (lb/ft s)	0.60	10.15	1.15
Frctn Loss (ft)	2.99	Cum Volume (acre-ft)	479.16	18.75	562.16
C & E Loss (ft)	0.02	Cum SA (acres)	113.75	4.66	125.69

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8142.83	8735.46	884.41	727.98	432.87	8.42	1.69	1.21
8735.46	9328.08	502.56	564.34	534.70	4.79	1.06	0.89
9328.08	9920.71	704.35	709.58	571.30	6.71	1.24	0.99
LB 9920.71	9954.26	1069.28	90.73	34.18	10.18	2.70	11.79
9954.26	9987.81	750.39	72.83	33.56	7.15	2.17	10.30
9987.81	10021.37	496.56	56.85	33.56	4.73	1.69	8.74
10021.37	RB 10054.92	802.64	75.84	33.57	7.64	2.26	10.58
10054.92	10368.21	237.13	317.76	313.30	2.26	1.01	0.75

10368.21	10681.50	505.51	500.42	313.29	4.81	1.60	1.01
10681.50	10994.78	651.70	582.95	313.49	6.21	1.86	1.12
10994.78	11308.07	1249.48	863.23	315.09	11.90	2.76	1.45
11308.07	11621.36	2170.93	1199.89	313.40	20.68	3.83	1.81
11621.36	11934.64	360.04	408.46	313.73	3.43	1.30	0.88
11934.64	12247.93	115.00	147.51	136.21	1.10	1.08	0.78

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.504

INPUT
Description:
Station Elevation Data num= 160

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5296.27	1577.54	5415.25	1577.25	5425.03	1576.11	5456	1576.04	5488.19	1576.16
5506.06	1577.22	5620.29	1576.18	5629.68	1572.61	5639.92	1575.11	5655.17	1576.73
5673.25	1576.7	5691.31	1576.11	5703.2	1576.41	5894.47	1575.89	5908.35	1576.93
5941.73	1576.9	6049.54	1576.68	6100.6	1575.32	6120.3	1574.09	6125.17	1574.55
6158.5	1574.86	6161.38	1575.37	6204.31	1577.22	6227.93	1576.86	6246.87	1575.97
6253.08	1575.27	6286.11	1575.07	6309.01	1576.72	6376.94	1579.25	6404.41	1576.68
6446.77	1575.6	6467.45	1579.17	6504.92	1571.45	6515.22	1571.08	6524.23	1571.76
6554.71	1575.26	6620.41	1575.98	6647.15	1575.47	7053.07	1574.43	7100.53	1574.38
7329.49	1575.07	7340.13	1576.63	7349.77	1575.01	7760.42	1573.67	7779.13	1573.87
7800.54	1573.37	7830.51	1573.82	7840.41	1575.22	8021.89	1572.18	8047.3	1572.68
8072.53	1572.27	8262	1572.19	8311.59	1567.29	8335.82	1567.35	8362.56	1572.82
8370.1	1573.46	8516.86	1572.25	8569.78	1572.55	8593.59	1573.01	8771.79	1573.4
8790.63	1574.73	8969.62	1573.68	9021.18	1573.23	9196.75	1573.48	9209.63	1574.83
9398.28	1574.05	9449.18	1573.74	9480.23	1574.28	9623.67	1574.31	9641.39	1575.91
9674.18	1575.18	9680.45	1573.74	9689.72	1573.34	9712.62	1573.92	9732.08	1573.91
9828.12	1573.33	9848.42	1573.01	9869.34	1573.07	9898.41	1572.51	9927.9	1570.34
9938.98	1572.44	9965.56	1571.86	9999.02	1572.58	10034.84	1572.02	10039.75	1572.03
10059.48	1572.22	10070.7	1573.07	10444.65	1572.69	10465.69	1573.26	10487.98	1572.9
10578.8	1574.47	10650.2	1573.76	10705.93	1573.57	10716.37	1573.41	10736.52	1573.49
10812.04	1573.53	10951.69	1572.82	10970.19	1572.89	10999.42	1572.82	11013.72	1573.59
11141.33	1572.97	11150.35	1572.58	11191.44	1573.53	11286.85	1573.22	11294.62	1571.89
11322.11	1572.74	11442.8	1573.34	11595.51	1571.29	11607.29	1571.79	11680.87	1572.64
11787.18	1572.49	11814.65	1572.61	11938.17	1572.61	11948.14	1573.35	11961.5	1572.75
11975.6	1567.41	11979.15	1567.49	11991.67	1572.93	12058.22	1573.01	12068.19	1571.62
12134.92	1572.19	12150.67	1571.45	12163.18	1570.91	12207.95	1570.43	12237	1570.55
12280.55	1570.87	12291.48	1571.45	12312	1571.95	12405.3	1573.56	12417.14	1574.05
12495.1	1574.27	12504.81	1574.63	12567.86	1574.42	12605.3	1573.08	12640.07	1572.4
12885.24	1574.35	12900.49	1574.45	12951.82	1574.85	12972.19	1576.07	13168.25	1576.72
13198.41	1574.18	13231.25	1574.13	13266.79	1575.23	13394.17	1576.28	13417.23	1574.98
13425.66	1574.05	13470.14	1574.31	3504.21	1575.76	13639.41	1576.76	13646.28	1569.78
13658.4	1571.11	3665.03	1574.99	13688.93	1574.61	13722.61	1575.02	13785.17	1575.4
13791.61	1576.61	14270.65	1576.65	14281.09	1575.33	14332.69	1575.48	14343.18	1575.85

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5296.27	.15	9938.98	.02	10070.7	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9938.98	10070.7	370	445.22	390	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5296.27	8969.62	1578.05	12605.31	4343.18	1578.25

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5296.27	6467.45	1580

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1575.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1574.70	Reach Len. (ft)	370.00	445.22	390.00
Crit W.S. (ft)	1574.70	Flow Area (sq ft)	894.76	324.33	4671.20
E.G. Slope (ft/ft)	0.007219	Area (sq ft)	3451.97	324.33	5202.05
Q Total (cfs)	10500.00	Flow (cfs)	861.59	3732.34	5906.07
Top Width (ft)	5848.37	Top Width (ft)	2699.87	131.72	3016.78
Vel Total (ft/s)	1.78	Avg. Vel. (ft/s)	0.96	11.51	1.26

Max Chl Dpth (ft)	7.41	Hydr. Depth (ft)	1.01	2.46	1.84
Conv. Total (cfs)	123577.5	Conv. (cfs)	10140.3	43927.0	69510.3
Length Wtd. (ft)	403.44	Wetted Per. (ft)	890.13	131.77	2537.19
Min Ch El (ft)	1571.86	Shear (lb/sq ft)	0.45	1.11	0.83
Alpha	15.12	Stream Power (lb/ft s)	0.44	12.77	1.05
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	444.73	14.86	525.64
C & E Loss (ft)	0.21	Cum SA (acres)	87.24	2.99	105.72

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth 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 critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8778.30	9358.64	311.44	337.65	357.57	2.97	0.94	0.92
9358.64	9938.98	550.15	557.11	532.56	5.24	1.05	0.99
LB 9938.98	9971.91	1019.37	85.53	32.94	9.71	2.60	11.92
9971.91	10004.84	876.77	78.14	32.94	8.35	2.37	11.22
10004.84	10037.77	937.96	81.36	32.93	8.93	2.47	11.53
10037.77	RB 10070.70	898.24	79.30	32.96	8.55	2.41	11.33
10070.70	10604.76	963.21	856.97	534.09	9.17	1.60	1.12
10604.76	11138.82	720.07	719.72	534.09	6.86	1.35	1.00
11138.82	11672.88	1390.30	1068.19	534.24	13.24	2.00	1.30
11672.88	12206.94	2025.06	1340.69	536.34	19.29	2.51	1.51
12206.94	12741.00	807.43	685.64	398.44	7.69	1.72	1.18

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth 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 critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway *RS: 15.419*

INPUT
Description: Blocked Obstruction Option used to remove detention basin from the
effective conveyance area.
Station Elevation Data num= 158

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5122.82	1574.46	5131.98	1573.1	5157.36	1573.49	5183.04	1573.06	5184.52	1572.86
5197.65	1570.51	5318.62	1570.32	5340.18	1574.07	5674.52	1573.79	5694.51	1570.92
5743.28	1570.89	5759.54	1573.52	5767.41	1573.64	5787.24	1573.92	5806.16	1573.42
5812.64	1574.25	5973.86	1574.34	6066.58	1574.11	6083.12	1572.14	6131	1572.49
6179.6	1572.22	6293.54	1573.58	6301.95	1568.48	6311.86	1571.7	6326.32	1572.14
6334.84	1571.98	6364.03	1571.89	6425.82	1573.22	6465.6	1571.92	6469.44	1571.82
6476.64	1572.98	6999.74	1571.86	7024.27	1572.26	7058.09	1572.32	7285.66	1571.69
7296.67	1569.35	7309.42	1570.1	7317.2	1571.57	7702.48	1571.26	7743.92	1571.48
8132.6	1570.86	8175.14	1570.48	8398.11	1569.68	8415.91	1570.05	8438.29	1569.26
8468.5	1569.99	8478.28	1571.53	8530.39	1570.75	8575.74	1571.67	8608.14	1571.31
8655.22	1569.91	8683.96	1570.03	8719.15	1569.86	8753.44	1569.67	8792.12	1565.31
8932.46	1564.13	8987.16	1572.41	9115.08	1572.25	9168.07	1571.27	9191.22	1571.58
9218.88	1571.23	9309.55	1571.79	9390.08	1571.54	9406.33	1573.56	9529.87	1573.28
9548.44	1571.23	9569.58	1571.68	9591.98	1571.42	9744.4	1572.77	9805.98	1570.48
9848.34	1571.05	9881.98	1570.33	9889.17	1569.92	9908.01	1571.71	9932.47	1570.68
10041.17	1568.9	10066.08	1569.36	10553.32	1569.23	10562.26	1569.41	0573.64	1569.38
10712.74	1569.91	10731.14	1569.45	10749.98	1569.91	11146.01	1569.85	11157.84	1571.15
11228.49	1571	11245.71	1570.08	11275.48	1569.95	11420.79	1570.11	11426.77	1569.86
11491.32	1570.26	11568.92	1569.83	11576.12	1568.79	11611.9	1569.36	11619.75	1569.4
11657.04	1568.52	11668.36	1568.45	11678.89	1570.41	11687.04	1569.36	11750.44	1569.32
11780.61	1568.23	11837.28	1567.65	11854.93	1568.79	11918.94	1568.86	11971.8	1569.47
12009.36	1570.96	12115.03	1570.42	12205.54	1568.88	12249.68	1568.95	12264.87	1567.82
12288.38	1568.44	12350.83	1568.73	12388.51	1568.41	12424.6	1569.65	12434.96	1568.65
12466.62	1569.54	12573.46	1569.5	12608.89	1563.75	12624.01	1563.73	12636.8	1569.83
12678.48	1570.46	12700.68	1567.93	12755.27	1564.32	13135.54	1563.73	13185.73	1570.21
13192.38	1570.7	13227.39	1571.93	13238.05	1572.34	13390.67	1572.49	13394.78	1565.74
13409.5	1565.61	13416.3	1569.97	13439.2	1569.76	13471.82	1570.01	13475.87	1570.41
13490.53	1571.69	13508.08	1568.82	13519.83	1571.33	13645.55	1572.43	13770.1	1572.17
13787.46	1571.13	13830.53	1570.99	13849.91	1572.5	13988.78	1571.37	14094.99	1571.46
14120.87	1571.74	14155.08	1571.59	14268.64	1570.39	14292.98	1572.19	14367.55	1571.51
14385.63	1570.82	14422.56	1570.91	14438.12	1571.72	14763.96	1575.08	14770.2	1574.09
14796.9	1573.61	15000.41	1576.87	15011.51	1577.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5122.82	.15	9932.47	.02	10066.08	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9932.47	10066.08	390	307.29	328.78	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5122.82	9406.33	1575.89	13238.05	14922.82	1575.89

Blocked Obstructions num= 1

Sta L	Sta R	Elev
12678.48	13207.82	1570

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1573.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1573.68	Reach Len. (ft)	390.00	307.29	328.78
Crit W.S. (ft)	1570.59	Flow Area (sq ft)	885.15	532.00	12992.55
E.G. Slope (ft/ft)	0.000648	Area (sq ft)	9861.21	532.00	15789.03
Q Total (cfs)	10500.00	Flow (cfs)	315.50	1804.67	8379.82
Top Width (ft)	8882.50	Top Width (ft)	4178.78	133.61	4570.11
Vel Total (ft/s)	0.73	Avg. Vel. (ft/s)	0.36	3.39	0.64
Max Chl Dpth (ft)	9.95	Hydr. Depth (ft)	1.68	3.98	4.10
Conv. Total (cfs)	412625.7	Conv. (cfs)	12398.5	70919.5	329307.7
Length Wtd. (ft)	327.84	Wetted Per. (ft)	526.44	133.63	3174.60
Min Ch El (ft)	1568.96	Shear (lb/sq ft)	0.07	0.16	0.17
Alpha	4.36	Stream Power (lb/ft s)	0.02	0.55	0.11
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	388.19	10.48	431.67
C & E Loss (ft)	0.01	Cum SA (acres)	58.03	1.63	71.76

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9331.26	9932.47	315.50	885.15	526.44	3.00	1.68	0.36

LB 9932.47	9965.87	320.96	108.99	33.41	3.06	3.26	2.94
9965.87	9999.28	412.22	126.65	33.41	3.93	3.79	3.25
9999.28	10032.68	512.37	144.30	33.41	4.88	4.32	3.55
10032.68	RB 10066.08	559.13	152.06	33.41	5.33	4.55	3.68
10066.08	10684.26	1785.00	2675.95	618.18	17.00	4.33	0.67
10684.26	11302.44	1333.91	2246.99	618.29	12.70	3.63	0.59
11302.44	11920.62	1779.16	2671.39	618.58	16.94	4.32	0.67
11920.62	12538.79	1736.42	2632.32	618.36	16.54	4.26	0.66
12538.79	13156.97	1632.76	2539.65	620.05	15.55	4.11	0.64
13156.97	13775.15	112.58	226.26	81.14	1.07	2.79	0.50

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.361

INPUT
Description: Immediately Upstream of CAP
Station Elevation Data num= 219

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4695.67	1570.24	4706.27	1570.46	4743.16	1570.65	4765.95	1572.8	4788.68	1579.39
4809.97	1581.02	4860.64	1583.94	4907.66	1586.76	4943.2	1584.3	4985.49	1582.25
5032.9	1579.47	5046.86	1578.1	5077.41	1568.36	5094.47	1566.58	5120.91	1563.87
5171.82	1564.47	5243.7	1565.6	5282.72	1565.87	5408.87	1566.55	5420.82	1566.6
5569.97	1568.57	5618.85	1567.71	5709.9	1564.75	5761.69	1563.64	5848.61	1563.27
5891	1563.58	5948.33	1564	5986.15	1564	6051.59	1564.14	6078.98	1564.1
6142.52	1563.05	6178.25	1563.08	6179.75	1562.84	6268.1	1564.23	6382.87	1564.4
6422.6	1564.35	6471.48	1564.2	6519.57	1564.05	6533.72	1564.04	6604.75	1563.67
6718.27	1563.75	6772.18	1563.73	6813.51	1563.56	6868.86	1563.29	6907.75	1563.08
6993.68	1563.22	7049.73	1563.03	7058.86	1563	7142.83	1563	7202.39	1562.92
7245.65	1562.81	7308.77	1562.46	7385.42	1562.44	7426.71	1562.67	7468.84	1562.98
7495.01	1562.64	7523.3	1562.13	7555.19	1561.92	7592.82	1561.9	7637.49	1561.92
7695.11	1562.34	7749.06	1562.43	7808.93	1562.62	7885.6	1562.53	7978.29	1561.91
8060.33	1562.11	8102.06	1561.95	8131.75	1561.63	8147.9	1572.7	8171.66	1571.16
8193.32	1571.57	8211.33	1571.28	8246.22	1571.5	8266.67	1562.9	8271.07	1562.81
8317.76	1562.72	8343.97	1562.59	8391.79	1563.03	8477.68	1562.32	8546.54	1562.48
8655.5	1563.05	8660.62	1563.05	8717.38	1563.02	8721.75	1563.05	8743.54	1563.16
8814.79	1563.21	8858.49	1563.54	8897.72	1564.09	8905.45	1564.24	8993.41	1564.16
9030.25	1564.14	9048.71	1564.14	9051.99	1564.14	9163.46	1564.7	9197.57	1564.72
9271.26	1565.27	9312.28	1565.62	9349.3	1565.65	9413.69	1565.94	9554.69	1573.58
9566.02	1573.46	9610.38	1573.69	9647.04	1573.06	9754.99	1564.42	9799.17	1563.25
9872.53	1562.69	9953.17	1562.42	9964.86	1562.32	10036.99	1561.37	10144.63	1561.47
10179.35	1561.55	10279.57	1561.39	10300.53	1561.26	10345.16	1561.26	10363.26	1561.26
10387.6	1561.44	10435.56	1560.92	10442.87	1560.91	0487.97	1561.24	10510.85	1561.5
10539.43	1561.43	10542.16	1561.43	10564.75	1561.65	10591.95	1561.83	10696.61	1561.51
10730.67	1561.79	10752.15	1561.78	10782.42	1561.81	0789.01	1561.78	10817.9	1561.58
10867.81	1561.77	10878.69	1561.77	10906.47	1561.77	10911.69	1561.77	10972.38	1561.94
11016.87	1562	11060.86	1562.05	11142.11	1562.18	11188.4	1562.44	11196.91	1562.5
11283.88	1562.79	11284.1	1562.79	11386.14	1563.56	11402.43	1563.83	11442.24	1564.28
11481.65	1564.57	11540.28	1564.43	11583.65	1564.09	11604.83	1563.92	11684.87	1563.53
11766.22	1563.33	11792.05	1562.96	11835.67	1562.55	11838.06	1562.53	11915.02	1562.65
12006.39	1563.13	12027.72	1563.13	12041.14	1563.07	12056.38	1567.78	12064.35	1568.37
12114.59	1568.94	12246.05	1572.4	12446.39	1567.74	12506.34	1561.8	12557.83	1561.65
12587.39	1564.91	12700.18	1565.18	12704.64	1565.29	12749.72	1567.6	12766.47	1568.14
12808.1	1568.22	12835.1	1573.74	12860.79	1575.13	12951.92	1574.6	12966.42	1574.55
12984.12	1573.82	12989.26	1576.65	12997.62	1576.94	13024.86	1572.12	13054.89	1568.03
13187.34	1570.35	13202.13	1570.11	13277.55	1573.14	13373.34	1572.25	13396.18	1561.91
13429.8	1561.45	13465.39	1570.77	13481.39	1569.33	13509.47	1570.93	13556.47	1572.85
13921.26	1572.33	13969.06	1572.18	14068.44	1572.18	14140.56	1572.18	14163.08	1572.26
14184.82	1572.32	14218.31	1572.13	14392.26	1572.17	14424.62	1572.12	14548.67	1571.89
14691.6	1558.23	14863.65	1557.56	14925.94	1556.95	14984.69	1557.73	15084.73	1558.28
15150.23	1558.35	15160.99	1558.36	15214.42	1558.6	15249.89	1559	15295.96	1559.82
15334.29	1559.66	15481.87	1560.72	15554.1	1561.29	15673.82	1561.46	15700.15	1561.65
15769.85	1561.79	15782.08	1561.82	15807.25	1561.64	15846.39	1561.62		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4695.67	.15	9953.17	.025	10036.99	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9953.17	10036.99	224.47	218.48	231.22	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4695.67	9622.6	158513	590.77	15846.39	1579.89

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4695.67	4907.66	159015	846.39	15846.39	1580

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1573.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.150	0.025	0.150
W.S. Elev (ft)	1573.66	Reach Len. (ft)	224.47	218.48	231.22
Crit W.S. (ft)	1563.77	Flow Area (sq ft)	2655.66	984.51	29465.04
E.G. Slope (ft/ft)	0.000038	Area (sq ft)	45149.20	984.51	48409.46
Q Total (cfs)	10500.00	Flow (cfs)	652.69	1871.47	7975.83
Top Width (ft)	10597.62	Top Width (ft)	4885.81	83.82	5627.99
Vel Total (ft/s)	0.32	Avg. Vel. (ft/s)	0.25	1.90	0.27
Max Chl Dpth (ft)	16.71	Hydr. Depth (ft)	8.03	11.75	8.74
Conv. Total (cfs)	1696315.0	Conv. (cfs)	105445.1	302343.4	1288526.5
Length Wtd. (ft)	218.48	Wetted Per. (ft)	330.94	83.83	3378.42
Min Ch El (ft)	1561.37	Shear (lb/sq ft)	0.02	0.03	0.02
Alpha	6.99	Stream Power (lb/ft s)	0.00	0.05	0.01
Frctn Loss (ft)		Cum Volume (acre-ft)	141.93	5.13	189.39
C & E Loss (ft)		Cum SA (acres)	17.45	0.87	33.27

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9295.98	9953.17	652.69	2655.66	330.94	6.22	8.03	0.25
LB 9953.17	9974.13	441.28	237.69	20.96	4.20	11.34	1.86
9974.13	9995.08	458.32	243.16	20.96	4.36	11.60	1.88
9995.08	10016.04	476.63	248.94	20.96	4.54	11.88	1.91
10016.04	RB 10036.99	495.23	254.72	20.96	4.72	12.16	1.94
10036.99	10763.17	2808.45	8870.25	726.19	26.75	12.22	0.32
10763.17	11489.34	2409.54	8091.28	726.19	22.95	11.14	0.30
11489.34	12215.51	1649.89	6449.30	726.96	15.71	8.88	0.26
12215.51	12941.69	812.96	3958.57	620.37	7.74	6.39	0.21
12941.69	13667.87	295.00	2095.63	578.72	2.81	3.65	0.14

CULVERT RIVER: Apache Junct FRS
REACH: Spillway RS: 15.340

INPUT
Description: Culverts under CAP.
Size of culverts in Culvert Groups #1, 2, and
6 reduced to 0.5 ft diam. in order to render culverts ineffective
in conveying flows (outside effective flow limits).
Distance from Upstream XS = 37
Deck/Roadway Width = 160
Weir Coefficient = 2.8
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 85

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4695.67	1577.06		4836.58	1577.06		4887.67	1583.09	
4897.95	1583.41		4937.04	1585.44		4971.52	1586.56	
4986.96	1585.63		5006.91	1578.26		5068.58	1577.47	
5098.17	1577		5268.7	1577.66		6834.57	1577.66	
7075.47	1577.08		7112.69	1576.89		7213.47	1576.42	
7944.34	1576.42		8060.62	1576.18		8239.49	1576.24	
8271.25	1571.82		8297.35	1572.24		8319.04	1571.7	
8341.34	1576.42		8349.18	1575.95		8865.58	1575.95	
9015.14	1575.8		9427.44	1575.8		9495.23	1574.1	
9506.02	1573.67		9521.59	1573.56		9548.32	1573.83	
9575.82	1573.57		9587.4	1573.69		9717.74	1572.88	
9897.14	1572.88		10033.15	1573.25		10139.42	1573.5	
10336.36	1573.37		10389.85	1573.29		10593.28	1573.13	
10636.73	1573.07		10711.86	1573.06		10784.85	1573.28	
10948.47	1573.28		10971.54	1573.41		11066.84	1573.52	
11090.22	1573.48		11397.82	1572.95		11434.84	1573.03	
11448.89	1573.03		11508.61	1573.33		11835.58	1573.21	
11854.55	1573.48		11951.45	1573.25		11979.72	1568.43	
12049.27	1569.21		12086.18	1573.92		12260.5	1573.92	

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12309.37 1574.05        12516.75 1574.05        12604.05 1573.85
12851.79 1573.85        12874.03 1574.23        12875.15 1574.85
12897.18 1575.15        12974.66 1574.96        12986.34 1574.57
12986.91 1574.57        13038.29 1573.28        13142.09 1573.97
13212.82 1573.49        13297.88 1573.22        13394.82 1573.37
13515.62 1573.37        13621.95 1573.31        13709.39  1572.9
14938.89 1572.88         14958.6 1573.04        15001.26 1573.21
15037.33 1573.47        15144.96 1573.49        15274.32 1573.39
15406.53  1573.8        15591.14  1573.8        15783.07  1573.5
15854.25  1573.5

Upstream Bridge Cross Section Data
Station Elevation Data    num=     219
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 4695.67 1570.24 4706.27 1570.46 4743.16 1570.65 4765.95  1572.8 4788.68 1579.39
 4809.97 1581.02 4860.64 1583.94 4907.66 1586.76  4943.2  1584.3 4985.49 1582.25
  5032.9 1579.47 5046.86  1578.1 5077.41 1568.36 5094.47 1566.58 5120.91 1563.87
 5171.82 1564.47  5243.7  1565.6 5282.72 1565.87 5408.87 1566.55 5420.82  1566.6
 5569.97 1568.57 5618.85 1567.71  5709.9 1564.75 5761.69 1563.64 5848.61 1563.27
    5891 1563.58 5948.33    1564 5986.15    1564 6051.59 1564.14 6078.98  1564.1
 6142.52 1563.05 6178.25 1563.08 6179.75 1562.84  6268.1 1564.23 6382.87  1564.4
  6422.6 1564.35 6471.48  1564.2 6519.57 1564.05 6533.72 1564.04 6604.75 1563.67
 6718.27 1563.75 6772.18 1563.73 6813.51 1563.56 6868.86 1563.29 6907.75 1563.08
 6993.68 1563.22 7049.73 1563.03 7058.86    1563 7142.83    1563 7202.39 1562.92
 7245.65 1562.81 7308.77 1562.46 7385.42 1562.44 7426.71 1562.67 7468.84 1562.98
 7495.01 1562.64  7523.3 1562.13 7555.19 1561.92 7592.82  1561.9 7637.49 1561.92
 7695.11 1562.34 7749.06 1562.43 7808.93 1562.62  7885.6 1562.53 7978.29 1561.91
 8060.33 1562.11 8102.06 1561.95 8131.75 1561.63  8147.9  1572.7 8171.66 1571.16
 8193.32 1571.57 8211.33 1571.28 8246.22  1571.5 8266.67  1562.9 8271.07 1562.81
 8317.76 1562.72 8343.97 1562.59 8391.79 1563.03 8477.68 1562.32 8546.54 1562.48
  8655.5 1563.05 8660.62 1563.05 8717.38 1563.02 8721.75 1563.05 8743.54 1563.16
 8814.79 1563.21 8858.49 1563.54 8897.72 1564.09 8905.45 1564.24 8993.41 1564.16
 9030.25 1564.14 9048.71 1564.14 9051.99 1564.14 9163.46  1564.7 9197.57 1564.72
 9271.26 1565.27 9312.28 1565.62  9349.3 1565.65 9413.69 1565.94 9554.69 1573.58
 9566.02 1573.46 9610.38 1573.69 9647.04 1573.06 9754.99 1564.42 9799.17 1563.25
 9872.53 1562.69 9953.17 1562.42 9964.86 1562.3210036.99 1561.3710144.63 1561.47
10179.35 1561.5510279.57 1561.3910300.53 1561.2610345.16 1561.2610363.26 1561.26
 10387.6 1561.4410435.56 1560.9210442.87  1560.910487.97 1561.2410510.85  1561.5
10539.43 1561.4310542.16 1561.4310564.75 1561.6510591.95 1561.8310696.61 1561.51
10730.67 1561.7910752.15 1561.7810782.42  1561.810789.01 1561.78 10817.9 1561.58
10867.81 1561.7710878.69 1561.7710906.47 1561.7710911.69 1561.7710972.38 1561.94
11016.87    156211060.86 1562.0511142.11 1562.18 11188.4 1562.4411196.91  1562.5
11283.88 1562.79 11284.1 1562.7911386.14 1563.5611402.43 1563.8311442.24 1564.28
11481.65 1564.5711540.28 1564.4311583.65 1564.0911604.83 1563.9211684.87 1563.53
11766.22 1563.3311792.05 1562.9611835.67 1562.5511838.06 1562.5311915.02 1562.65
12006.39 1563.1312027.72 1563.1312041.14 1563.0712056.38 1567.7812064.35 1568.37
12114.59 1568.9412246.05  1572.412446.39 1567.7412506.34  1561.812557.83 1561.65
12587.39 1564.9112700.18 1565.1812704.64 1565.2912749.72  1567.612766.47 1568.14
 12808.1 1568.22 12835.1 1573.7412860.79 1575.1312951.92  1574.612966.42 1574.55
12984.12 1573.8212989.26 1576.6512997.62 1576.9413024.86 1572.1213054.89 1568.03
13187.34 1570.3513202.13 1570.1113277.55 1573.1413373.34 1572.2513396.18 1561.91
 13429.8 1561.4513465.39 1570.7713481.39 1569.3313509.47 1570.9313556.47 1572.85
13921.26 1572.3313969.06 1572.1814068.44 1572.1814140.56 1572.1814163.08 1572.26
14184.82 1572.3214218.31 1572.1314392.26 1572.1714424.62 1572.1214548.67 1571.89
 14691.6 1558.2314863.65 1557.5614925.94 1556.9514984.69 1557.7315084.73 1558.28
15150.23 1558.3515160.99 1558.3615214.42  1558.615249.89    155915295.96 1559.82
15334.29 1559.6615481.87 1560.72 15554.1 1561.2915673.82 1561.4615700.15 1561.65
15769.85 1561.7915782.08 1561.8215807.25 1561.6415846.39 1561.62

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4695.67     .15 9953.17    .02510036.99     .15

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9953.1710036.99             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4695.67  9622.6    158513590.7715846.39 1579.89
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4695.67 4907.66    159015846.3915846.39    1580

Downstream  Deck/Roadway Coordinates
    num=      76
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
```

4822.77	1577.11	4989.88	1577.11	5043.37	1583.6
5070.25	1584.51	5104.75	1584	5108.2	1584.38
5132.03	1583.41	5157.54	1577.11	5188	1576.74
5223.03	1577.81	6713.48	1577.81	6770.88	1577.58
6800.13	1577.57	6829.76	1577.65	6879.39	1577.96
6942.54	1577.78	7007.81	1577.57	7078.71	1577.19
7121.26	1576.93	7199.97	1576.57	7459.02	1576.67
7497.45	1576.22	7519.39	1576.39	7539.28	1576.69
8199.69	1576.69	8267.18	1576.22	8339.65	1575.95
8454.26	1575.95	8487.58	1572.28	8512.54	1571.73
8531.1	1576.33	8559.21	1575.73	8724.64	1575.73
8820.46	1575.99	9351.88	1575.99	9396.42	1575.32
9420.2	1575.95	9440.33	1575	9519.1	1573.72
9531.16	1570.47	9539.73	1574.16	9553.87	1573.48
9751.64	1573.48	9852.95	1573.7	10859.44	1573.7
10920.37	1573.52	11735.3	1573.52	11919.2	1573.7
11963.24	1573.7	12035.7	1573.7	12057.67	1573.7
12166.33	1573.46	12341.21	1574.09	12342.86	1574.09
12515.4	1573.7	12516.06	1573.7	12581.52	1573.7
12835.59	1573.7	12928.3	1573.36	13022.83	1574.46
13032.28	1574.52	13039.93	1574.96	13114.77	1575.11
13121.92	1574.62	13189.61	1573.08	13257.49	1573.08
13293.72	1572.93	13355.55	1573.39	13667.88	1573.39
13848.57	1573.42	15081.06	1573.42	15129.21	1572.97
15150.54	1572.88	15230.19	1570.61	15348.3	1568.34
15982.46	1568.34				

Downstream Bridge Cross Section Data
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4822.77	1576.4	4910.4	1576.62	4969.53	1577.93	5001.36	1576.18	5047.52	1583.14
5075.79	1584.14	5113.38	1583.69	5138.77	1582.58	5199.14	1580.27	5204.38	1580.28
5241.26	1578.85	5275.56	1571.61	5416.69	1572.54	5785.12	1570.56	5874.18	1568.64
6092.67	1568.05	6122.6	1562.36	6219.64	1561.46	6233.7	1568.45	6248.4	1566.79
6483.43	1565.3	6766.26	1566.35	7044.87	1567.4	7136.51	1567.75	7218.49	1567.99
7340.67	1566.77	7376.48	1567.06	7410.01	1570.77	7431.66	1562	7509.75	1561.98
7521.83	1567.92	7532	1571.22	7538.45	1570.79	7565.72	1567.73	7600.54	1566.87
7802.73	1573.84	7829.55	1573.89	7888.24	1574.21	7987.05	1574.05	8064.1	1574.37
8135.03	1574.76	8140.14	1574.81	8290.01	1575.43	8317.2	1575.38	8434.95	1572.77
8474.11	1572.07	8501.46	1572.17	8527.52	1571.7	8548.91	1571.81	8603.13	1572.82
8629.96	1574.03	8750.98	1575.28	8793.25	1573.83	8945.62	1574.04	8957.92	1573.96
9051.62	1573.82	9120.76	1574.19	9292.54	1574.54	9311.21	1573.44	9347.96	1574.07
9375.17	1573.38	9389.01	1572.67	9423.09	1573.28	9455.48	1573.05	9476.82	1573.1
9581.24	1571.62	9939.51	1570.44	9973.2	1560.45	10001.02	1560.31	10087.53	1563.67
10319.18	1562.72	10346.17	1562.53	10412.02	1562.87	10661.77	1563.39	10884.74	1564.96
10884.8	1564.96	10896.07	1565.02	10950.52	1565.33	10962.44	1565.29	11045.15	1565.55
11228.48	1565.71	11271.64	1565.82	11298.49	1565.7	11324.7	1565.71	11362.94	1565.73
11393.16	1565.85	11429.48	1565.92	11508.31	1565.26	11518.89	1565.25	11522.34	1565.25
11652.17	1565.11	11664.71	1565.11	11779.49	1564.67	11896	1568.38	11911.22	1571.81
11940.99	1569.11	11958.16	1568.6	11999.7	1563.92	12009.68	1563.92	12252.33	1573.31
12320.73	1571.33	12342.5	1568.39	12402.65	1567.69	12437.24	1569.23	12459.56	1569.52
12470.65	1571.73	12552.98	1562.74	12586.76	1571.3	12623.5	1570.11	12761.35	1569.9
12813.55	1570.21	12834.96	1570.41	12836.11	1570.42	13003.98	1570.52	13064.71	1570.31
13105.27	1575.22	13165.27	1574.95	13195.95	1572.74	13222	1572.41	13337.24	1570.66
13363.21	1561.51	13410.96	1562.87	13426.97	1570.17	13462.55	1569.87	13582.87	1566.28
13687.98	1566.11	13812.76	1565.91	13973.38	1565.45	14167.15	1563.77	14180.69	1563.52
14252.91	1562.79	14265.62	1562.54	14372.17	1561.84	14460.67	1570.23	14486.65	1570.49
14552.95	1560.97	14596.39	1560.78	14642.5	1563.76	14696.54	1560.87	14722.5	1562.99
14731.35	1560.06	14745.38	1559.89	14755.53	1562.23	14759.09	1560.09	14760.26	1560.05
14852.43	1560.97	14865.32	1562.74	14875.38	1555.91	14922.85	1555.91	14934.31	1561.56
14995.03	1562.51	15110.39	1561.71	15124.8	1560.66	15192.19	1560.53	15212.48	1558.32
15236.55	1558.31	15338.69	1558.82	15408.87	1559.35	15419.37	1560.78	15438.81	1559.19
15575.47	1558.76	15605.22	1558.77	15619.71	1559.31	15636.17	1560.12	15820.21	1560.6
15857.24	1556.45	15897.42	1556.01	16072.17	1555.25				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4822.77	.03	9939.51	.02	10087.53	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
9939.51	10087.53	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4822.77	8744.03	1580	13432.37	16072.17	1580

Blocked Obstructions num= 1

```
   Sta L   Sta R    Elev
16072.1716072.17    1575

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

Number of Culverts =  6

Culvert Name      Shape      Rise    Span
CULVERT#1        Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     170       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 6159.67 6167.67 6175.67 6183.67 6191.67
Downstream Elevation =  1559
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 6156.77 6164.77 6172.77 6180.77 6188.77

Culvert Name      Shape      Rise    Span
CULVERT#2        Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     170       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1560.1
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 7439.67 7447.67 7455.67 7463.67 7471.67
Downstream Elevation =  1559.1
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 7456.77 7464.77 7472.77 7480.77 7488.77

Culvert Name      Shape      Rise    Span
CULVERT#3        Circular       6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     170       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1559.4
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 9959.67 9967.67 9975.67 9983.67 9991.67
Downstream Elevation =  1558.4
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 9976.77 9984.77 9992.7710000.7710008.77

Culvert Name      Shape      Rise    Span
CULVERT#4        Circular       6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     162       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1561
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
```

```
12509.6712517.6712525.6712533.6712541.67
Downstream Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
12536.7712544.7712552.7712560.7712568.77

Culvert Name     Shape      Rise    Span
CULVERT#5       Circular       6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     180       .013                   .9                1
Number of Barrels =  3
Upstream   Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.
13402.6713410.6713418.67
Downstream Elevation =  1558.7
Centerline Stations
    Sta.    Sta.    Sta.
13379.7713387.7713395.77

Culvert Name     Shape      Rise    Span
CULVERT#6       Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     190       .013                   .9                1
Number of Barrels =  2
Upstream   Elevation =  1555.2
Centerline Stations
    Sta.    Sta.
14903.6714910.67
Downstream Elevation =  1554.4
Centerline Stations
    Sta.    Sta.
14895.7714902.77

CULVERT OUTPUT    Profile #PF 1
Culvert ID : CULVERT#1

  Culv Q (cfs)              5.61   Culv Vel In (ft/s)        5.71
  # Barrels                    5   Culv Vel Out (ft/s)       5.71
  Q Barrel (cfs)            1.12   Culv Inv El Up (ft)    1560.00
  E.G. US. (ft)          1573.67   Culv Inv El Dn (ft)    1559.00
  W.S. US. (ft)          1573.66   Culv Frctn Ls (ft)        6.79
  Delta EG (ft)             7.53   Culv Ext Lss (ft)         0.28
  Delta WS (ft)             7.74   Culv Ent Lss (ft)         0.46
  E.G. IC (ft)           1561.38   Q Weir (cfs)           5168.87
  E.G. OC (ft)           1573.68   Weir Sta Lft (ft)      9622.60
  Culvert Control         Outlet   Weir Sta Rgt (ft)     13590.77
  Culv WS In (ft)        1560.50   Weir Submerg              0.00
  Culv WS Out (ft)       1559.50   Weir Max Depth (ft)       5.26
  Culv Nml Depth (ft)       0.50   Weir Avg Depth (ft)       0.58
  Culv Crt Depth (ft)       0.50   Wr Flw Area (sq ft)    1722.99
  Culv Ful Lngh (ft)      170.00   Min Top Rd (ft)        1572.27


Note:    The normal depth exceeds the height of the culvert.  The program assumes that the normal
         depth is equal to the height of the culvert.
Note:    Culvert critical depth exceeds the height of the culvert.

CULVERT OUTPUT    Profile #PF 1
Culvert ID : CULVERT#2

  Culv Q (cfs)              5.61   Culv Vel In (ft/s)        5.71
  # Barrels                    5   Culv Vel Out (ft/s)       5.71
  Q Barrel (cfs)            1.12   Culv Inv El Up (ft)    1560.10
  E.G. US. (ft)          1573.67   Culv Inv El Dn (ft)    1559.10
  W.S. US. (ft)          1573.66   Culv Frctn Ls (ft)        6.79
  Delta EG (ft)             7.53   Culv Ext Lss (ft)         0.28
  Delta WS (ft)             7.74   Culv Ent Lss (ft)         0.46
  E.G. IC (ft)           1561.48   Q Weir (cfs)           5168.87
```

E.G. OC (ft)	1573.68	Weir Sta Lft (ft)	9622.60
Culvert Control	Outlet	Weir Sta Rgt (ft)	13590.77
Culv WS In (ft)	1560.60	Weir Submerg	0.00
Culv WS Out (ft)	1559.60	Weir Max Depth (ft)	5.26
Culv Nml Depth (ft)	0.50	Weir Avg Depth (ft)	0.58
Culv Crt Depth (ft)	0.50	Wr Flw Area (sq ft)	1722.99
Culv Ful Lngh (ft)	170.00	Min Top Rd (ft)	1572.27

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.
Note: Culvert critical depth exceeds the height of the culvert.

CULVERT OUTPUT Profile #PF 1
Culvert ID : CULVERT#3

Culv Q (cfs)	2044.55	Culv Vel In (ft/s)	14.46
# Barrels	5	Culv Vel Out (ft/s)	14.46
Q Barrel (cfs)	408.91	Culv Inv El Up (ft)	1559.40
E.G. US. (ft)	1573.67	Culv Inv El Dn (ft)	1558.40
W.S. US. (ft)	1573.66	Culv Frctn Ls (ft)	1.58
Delta EG (ft)	7.53	Culv Ext Lss (ft)	3.02
Delta WS (ft)	7.74	Culv Ent Lss (ft)	2.92
E.G. IC (ft)	1570.15	Q Weir (cfs)	5168.87
E.G. OC (ft)	1573.67	Weir Sta Lft (ft)	9622.60
Culvert Control	Outlet	Weir Sta Rgt (ft)	13590.77
Culv WS In (ft)	1565.40	Weir Submerg	0.00
Culv WS Out (ft)	1564.40	Weir Max Depth (ft)	5.26
Culv Nml Depth (ft)		Weir Avg Depth (ft)	0.58
Culv Crt Depth (ft)	5.37	Wr Flw Area (sq ft)	1722.99
Culv Ful Lngh (ft)	170.00	Min Top Rd (ft)	1572.27

CULVERT OUTPUT Profile #PF 1
Culvert ID : CULVERT#4

Culv Q (cfs)	2053.72	Culv Vel In (ft/s)	14.53
# Barrels	5	Culv Vel Out (ft/s)	14.57
Q Barrel (cfs)	410.74	Culv Inv El Up (ft)	1561.00
E.G. US. (ft)	1573.67	Culv Inv El Dn (ft)	1560.00
W.S. US. (ft)	1573.66	Culv Frctn Ls (ft)	1.51
Delta EG (ft)	7.53	Culv Ext Lss (ft)	3.07
Delta WS (ft)	7.74	Culv Ent Lss (ft)	2.95
E.G. IC (ft)	1571.81	Q Weir (cfs)	5168.87
E.G. OC (ft)	1573.67	Weir Sta Lft (ft)	9622.60
Culvert Control	Outlet	Weir Sta Rgt (ft)	13590.77
Culv WS In (ft)	1567.00	Weir Submerg	0.00
Culv WS Out (ft)	1565.92	Weir Max Depth (ft)	5.26
Culv Nml Depth (ft)	6.00	Weir Avg Depth (ft)	0.58
Culv Crt Depth (ft)	5.38	Wr Flw Area (sq ft)	1722.99
Culv Ful Lngh (ft)	138.49	Min Top Rd (ft)	1572.27

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.

CULVERT OUTPUT Profile #PF 1
Culvert ID : CULVERT#5

Culv Q (cfs)	1219.51	Culv Vel In (ft/s)	14.38
# Barrels	3	Culv Vel Out (ft/s)	14.38
Q Barrel (cfs)	406.50	Culv Inv El Up (ft)	1560.00
E.G. US. (ft)	1573.67	Culv Inv El Dn (ft)	1558.70
W.S. US. (ft)	1573.66	Culv Frctn Ls (ft)	1.66
Delta EG (ft)	7.53	Culv Ext Lss (ft)	2.99
Delta WS (ft)	7.74	Culv Ent Lss (ft)	2.89
E.G. IC (ft)	1572.22	Q Weir (cfs)	5168.87
E.G. OC (ft)	1573.68	Weir Sta Lft (ft)	9622.60
Culvert Control	Outlet	Weir Sta Rgt (ft)	13590.77
Culv WS In (ft)	1566.00	Weir Submerg	0.00
Culv WS Out (ft)	1564.70	Weir Max Depth (ft)	5.26
Culv Nml Depth (ft)		Weir Avg Depth (ft)	0.58
Culv Crt Depth (ft)	5.36	Wr Flw Area (sq ft)	1722.99
Culv Ful Lngh (ft)	180.00	Min Top Rd (ft)	1572.27

CULVERT OUTPUT Profile #PF 1
Culvert ID : CULVERT#6

Culv Q (cfs)	2.13	Culv Vel In (ft/s)	5.43
# Barrels	2	Culv Vel Out (ft/s)	5.43
Q Barrel (cfs)	1.07	Culv Inv El Up (ft)	1555.20
E.G. US. (ft)	1573.67	Culv Inv El Dn (ft)	1554.40
W.S. US. (ft)	1573.66	Culv Frctn Ls (ft)	6.89
Delta EG (ft)	7.53	Culv Ext Lss (ft)	0.23
Delta WS (ft)	7.74	Culv Ent Lss (ft)	0.41
E.G. IC (ft)	1556.48	Q Weir (cfs)	5168.87
E.G. OC (ft)	1573.65	Weir Sta Lft (ft)	9622.60
Culvert Control	Outlet	Weir Sta Rgt (ft)	13590.77
Culv WS In (ft)	1555.70	Weir Submerg	0.00
Culv WS Out (ft)	1554.90	Weir Max Depth (ft)	5.26
Culv Nml Depth (ft)	0.50	Weir Avg Depth (ft)	0.58
Culv Crt Depth (ft)	0.50	Wr Flw Area (sq ft)	1722.99
Culv Ful Lngh (ft)	190.00	Min Top Rd (ft)	1572.27

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.
Note: Culvert critical depth exceeds the height of the culvert.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.320

INPUT
Description: Immediately Downstream of CAP
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4822.77	1576.4	4910.4	1576.62	4969.53	1577.93	5001.36	1576.18	5047.52	1583.14
5075.79	1584.14	5113.38	1583.69	5138.77	1582.58	5199.14	1580.27	5204.38	1580.28
5241.26	1578.85	5275.56	1571.61	5416.69	1572.54	5785.12	1570.56	5874.18	1568.64
6092.67	1568.05	6122.6	1562.36	6219.64	1561.46	6233.7	1568.45	6248.4	1566.79
6483.43	1565.3	6766.26	1566.35	7044.87	1567.4	7136.51	1567.75	7218.49	1567.99
7340.67	1566.77	7376.48	1567.06	7410.01	1570.77	7431.66	1562	7509.75	1561.98
7521.83	1567.92	7532	1571.22	7538.45	1570.79	7565.72	1567.73	7600.54	1566.87
7802.73	1573.84	7829.55	1573.89	7888.24	1574.21	7987.05	1574.05	8064.1	1574.37
8135.03	1574.76	8140.14	1574.81	8290.01	1575.43	8317.2	1575.38	8434.95	1572.77
8474.11	1572.07	8501.46	1572.17	8527.52	1571.7	8548.91	1571.81	8603.13	1572.82
8629.96	1574.03	8750.98	1575.28	8793.25	1573.83	8945.62	1574.04	8957.92	1573.96
9051.62	1573.82	9120.76	1574.19	9292.54	1574.54	9311.21	1573.44	9347.96	1574.07
9375.17	1573.38	9389.01	1572.67	9423.09	1573.28	9455.48	1573.05	9476.82	1573.1
9581.24	1571.62	9939.51	1570.44	9973.2	1560.45	10001.02	1560.31	10087.53	1563.67
10319.18	1562.72	10346.17	1562.53	10412.02	1562.87	10661.77	1563.39	10884.74	1564.96
10884.8	1564.96	10896.07	1565.02	10950.52	1565.33	10962.44	1565.29	11045.15	1565.55
11228.48	1565.71	11271.64	1565.82	11298.49	1565.7	11324.7	1565.71	11362.94	1565.73
11393.16	1565.85	11429.48	1565.92	11508.31	1565.26	11518.89	1565.25	11522.34	1565.25
11652.17	1565.11	11664.71	1565.11	11779.49	1564.67	11896	1568.38	11911.22	1571.81
11940.99	1569.11	11958.16	1568.6	11999.7	1563.92	12009.68	1563.92	12252.33	1573.31
12320.73	1571.33	12342.5	1568.39	12402.65	1567.69	12437.24	1569.23	12459.56	1569.52
12470.65	1571.73	12552.98	1562.74	12586.76	1571.3	12623.5	1570.11	12761.35	1569.9
12813.55	1570.21	12834.96	1570.41	12836.11	1570.42	13003.98	1570.52	13064.71	1570.31
13105.27	1575.22	13165.27	1574.95	13195.95	1572.74	13222	1572.41	13337.24	1570.66
13363.21	1561.51	13410.96	1562.87	13426.97	1570.17	13462.55	1569.87	13582.87	1566.28
13687.98	1566.11	13812.76	1565.91	13973.38	1565.45	14167.15	1563.77	14180.69	1563.52
14252.91	1562.79	14265.62	1562.54	14372.17	1561.84	14460.67	1570.23	14486.65	1570.49
14552.95	1560.97	14596.39	1560.78	14642.5	1563.76	14696.54	1560.87	14722.5	1562.99
14731.35	1560.06	14745.38	1559.89	14755.53	1562.23	14759.09	1560.09	14760.26	1560.05
14852.43	1560.97	14865.32	1562.74	14875.38	1555.91	14922.85	1555.91	14934.31	1561.56
14995.03	1562.51	15110.39	1561.71	15124.8	1560.66	15192.19	1560.53	15212.48	1558.32
15236.55	1558.31	15338.69	1558.82	15408.87	1559.35	15419.37	1560.78	15438.81	1559.19
15575.47	1558.76	15605.22	1558.77	15619.71	1559.31	15636.17	1560.12	15820.21	1560.6
15857.24	1556.45	15897.42	1556.01	16072.17	1555.25				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4822.77	.03	9939.51	.025	10087.53	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9939.51	10087.53	88.46	84.3	74.33	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

4822.77 8744.03 158013432.3716072.17 1580
Blocked Obstructions num= 1
Sta L Sta R Elev
16072.1716072.17 1575

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1566.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.025	0.030
W.S. Elev (ft)	1565.92	Reach Len. (ft)	88.46	84.30	74.33
Crit W.S. (ft)	1564.81	Flow Area (sq ft)		544.97	2856.91
E.G. Slope (ft/ft)	0.001427	Area (sq ft)	865.63	544.97	13719.68
Q Total (cfs)	10500.00	Flow (cfs)		3123.26	7376.74
Top Width (ft)	4697.55	Top Width (ft)	484.79	132.77	4079.98
Vel Total (ft/s)	3.09	Avg. Vel. (ft/s)		5.73	2.58
Max Chl Dpth (ft)	10.67	Hydr. Depth (ft)		4.10	1.49
Conv. Total (cfs)	277960.8	Conv. (cfs)		82680.3	195280.5
Length Wtd. (ft)	79.57	Wetted Per. (ft)		133.63	1920.57
Min Ch El (ft)	1560.30	Shear (lb/sq ft)		0.36	0.13
Alpha	1.52	Stream Power (lb/ft s)		2.08	0.34
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	23.37	1.30	24.50
C & E Loss (ft)	0.09	Cum SA (acres)	3.61	0.32	7.51

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9939.51	9976.51	311.76	68.59	22.55	2.97	3.15	4.55
9976.51	10013.52	1369.94	203.26	37.01	13.05	5.49	6.74
10013.52	10050.53	950.21	163.24	37.03	9.05	4.41	5.82
10050.53	RB 10087.53	491.34	109.89	37.03	4.68	2.97	4.47
10087.53	10835.61	5795.95	1961.56	748.09	55.20	2.62	2.95
10835.61	11583.69	278.46	317.25	747.31	2.65	0.42	0.88
11583.69	12331.77	441.88	296.08	314.56	4.21	0.94	1.49
12331.77	13079.85	138.85	66.21	42.22	1.32	1.59	2.10
13079.85	13827.93	721.60	215.83	68.38	6.87	3.22	3.34

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.304

INPUT
Description:
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4873.16	1570.48	5004.62	1570.32	5014.53	1570.91	5062.47	1582.22	5090.36	1583.06
5126.08	1581.98	5136.75	1579.79	5195.63	1568.68	5253.57	1566.76	5298.18	1569.97
5308.88	1570.22	5386.52	1566.09	5521.01	1565.43	5582.57	1560.6	5618.87	1552.45
5721.92	1552.29	6093.67	1554.66	6503.25	1553.5	6640.91	1553.5	7425.07	1554.73
7551.54	1554.89	7564.76	1565.02	7863.21	1564.75	7910.55	1564.92	8206.61	1565.01
8532.12	1563.65	8560.1	1569.44	8570.51	1570.26	8586.09	1570.34	8599.28	1570.11
8610.86	1569.19	8630.19	1564.71	9161.12	1563.73	9252.35	1565.56	9269.82	1569.93
9276.86	1570.5	9307.6	1570.9	9348.61	1570.65	9619.06	1565.8	9660.32	1566.42
9893.55	1562.47	9966.37	1561.36	9985.78	1559.97	10031.85	1559.19	10052.98	1559.24
10071.29	1561.23	10085.01	1562	10093.57	1563.06	10096.37	1562.91	10273.56	1563.1
10276.47	1562.17	11015.83	1564.87	11032.52	1564.96	11070.24	1565.24	11152.64	1564.36

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11345.09 1564.17 11362.2 1565.3511425.87 1565.6211456.37 1564.7911467.68 1564.27
11483.04 1564.55 11629.9 1563.3611650.89 1563.9411852.71 1563.6411869.67 1566.54
11896.16 1567.6911932.22 1567.2511961.07 1563.1112056.15 1562.7312098.28 1565.37
12178.41 1564.5612328.76 1563.0312480.56 1562.54 12511.7 1559.2312531.36 1562.58
12618.69 1565.3812947.99 1567.7612995.81  1568.513147.48 1569.3713179.54 1573.78
13239.43 1573.8613271.07 1570.5713325.19 1568.4413349.96 1560.1213385.55 1560.12
13403.52 1560.1213418.95 1567.2313471.48 1565.7413784.81 1564.01 13819.2 1564.57
13841.82  1564.3 13843.4 1564.2813934.21 1563.7413946.96 1561.7313957.41 1563.39
 14340.4 1561.0214399.56 1560.2714413.88 1561.7614439.48 1561.0214450.81 1560.63
14781.69 1557.6814823.39 1558.6114888.39  1558.514903.14 1558.8114911.86 1560.65
14927.93 1555.4914955.16 1555.4114985.87 1560.76 15003.5 1560.4615012.85 1559.01
15061.46  1559.415089.52 1558.09 15110.3 1557.6515125.98 1557.9115151.77 1557.88
15334.84 1558.4115385.19 1557.88 15455.6 1558.3815680.66 1558.1715710.16 1558.16
15720.63 1558.5115732.38 1559.6615894.01 1559.5715908.77 1559.2715918.35 1559.68
15926.55 1558.2615951.08 1558.7515983.69 1558.0716012.78 1558.2816029.42 1558.42
16164.68  1560.9

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
 4873.16     .15 9893.55    .02510096.37     .15

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9893.5510096.37              .1       .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4873.16  9314.1 1580.14 13420.316164.68 1580.09
Blocked Obstructions     num=        1
   Sta L   Sta R    Elev
16164.6816164.68    1575
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1565.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.	0.150	0.025	0.150
W.S. Elev (ft)	1564.78	Reach Len. (ft)			
Crit W.S. (ft)	1564.78	Flow Area (sq ft)	157.44	796.45	2970.81
E.G. Slope (ft/ft)	0.004348	Area (sq ft)	22152.30	796.45	14996.20
Q Total (cfs)	10500.00	Flow (cfs)	113.17	7762.25	2624.58
Top Width (ft)	7991.47	Top Width (ft)	3071.32	202.82	4717.34
Vel Total (ft/s)	2.68	Avg. Vel. (ft/s)	0.72	9.75	0.88
Max Chl Dpth (ft)	12.49	Hydr. Depth (ft)	1.15	3.93	1.35
Conv. Total (cfs)	159245.3	Conv. (cfs)	1716.4	117724.0	39804.9
Length Wtd. (ft)		Wetted Per. (ft)	136.37	203.08	2200.90
Min Ch El (ft)	1559.19	Shear (lb/sq ft)	0.31	1.06	0.37
Alpha	9.84	Stream Power (lb/ft s)	0.23	10.37	0.32
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal
depth is below critical depth). Water surface set to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9266.00	9893.55	113.17	157.44	136.37	1.08	1.15	0.72
LB 9893.55	9944.25	1005.10	136.69	50.71	9.57	2.70	7.35
9944.25	9994.96	1841.06	196.61	50.76	17.53	3.88	9.36
9994.96	10045.67	3157.73	271.66	50.71	30.07	5.36	11.62
10045.67	RB 10096.37	1758.35	191.48	50.90	16.75	3.78	9.18
10096.37	10854.91	1049.80	1219.00	758.69	10.00	1.61	0.86
10854.91	11613.45	95.32	251.00	533.52	0.91	0.47	0.38
11613.45	12371.99	484.68	698.41	600.91	4.62	1.16	0.69
12371.99	13130.53	523.78	496.97	228.46	4.99	2.18	1.05
13130.53	13889.06	471.01	305.42	79.33	4.49	3.94	1.54

Warning: Divided flow computed for this cross-section.
Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal
depth is below critical depth). Water surface set to critical depth.

SUMMARY OF MANNING'S N VALUES

River:Apache Junct FRS

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11	n12
Spillway	20.000	.06	.02	.06									
Spillway	19.993	.06	.032	.06									
Spillway	19.975	.06	.032	.06									
Spillway	19.896	.06	.028	.06									
Spillway	19.812	.09	.06	.028	.06								
Spillway	19.735	.09	.06	.028	.06								
Spillway	19.665	.09	.06	.028	.06								
Spillway	19.581	.09	.028	.06									
Spillway	19.504	.09	.028	.09	.06								
Spillway	19.410	.09	.028	.09	.06								
Spillway	19.303	.09	.028	.09	.06								
Spillway	19.208	.09	.028	.09	.15	.06							
Spillway	19.110	.15	.09	.15	.09	.15	.09	.15	.09	.028	.09	.15	.06
Spillway	19.012	.15	.09	.028	.09	.15	.06						
Spillway	18.920	.15	.028	.09	.06								
Spillway	18.817	.15	.09	.028	.09	.06							
Spillway	18.730	.15	.09	.028	.09	.06							
Spillway	18.654	.15	.028	.15	.09								
Spillway	18.550	.15	.028	.15	.09								
Spillway	18.481	.15	.028	.09									
Spillway	18.397	.15	.025	.09	.15	.09							
Spillway	18.320	.15	.025	.15									
Spillway	18.247	.15	.028	.15									
Spillway	18.171	.15	.02	.15									
Spillway	18.051	.15	.028	.15									
Spillway	17.941	.15	.028	.15									
Spillway	17.844	.15	.028	.15									
Spillway	17.761	.15	.02	.15									
Spillway	17.674	.15	.02	.15									
Spillway	17.601	.15	.02	.15									
Spillway	17.480	.15	.02	.15									
Spillway	17.336	.15	.02	.15									
Spillway	17.262	.15	.02	.15									
Spillway	17.186	.15	.02	.15									
Spillway	17.111	.15	.02	.15									
Spillway	17.046	.15	.035	.15									
Spillway	16.983	.15	.035	.15									
Spillway	16.919	.15	.035	.15									
Spillway	16.860	.15	.035	.15									
Spillway	16.775	.15	.035	.15									
Spillway	16.678	.15	.02	.15									
Spillway	16.585	.15	.028	.15									
Spillway	16.525	.15	.028	.15									
Spillway	16.451	.15	.028	.15									
Spillway	16.381	.15	.02	.15									
Spillway	16.265	.15	.02	.15									
Spillway	16.182	.15	.02	.15									
Spillway	16.086	.15	.02	.15									
Spillway	16.001	.15	.02	.15									
Spillway	15.892	.15	.02	.15									
Spillway	15.784	.15	.02	.15									
Spillway	15.696	.15	.02	.15									
Spillway	15.607	.15	.02	.15									
Spillway	15.504	.15	.02	.15									
Spillway	15.419	.15	.028	.15									
Spillway	15.361	.15	.025	.15									
Spillway	15.340	Culvert											
Spillway	15.320	.03	.025	.03									
Spillway	15.304	.15	.025	.15									

SUMMARY OF REACH LENGTHS

River: Apache Junct FRS

Reach	River Sta.	Left	Channel	Right
Spillway	20.000	43.28	34.75	44.55
Spillway	19.993	94.49	99.29	88.53
Spillway	19.975	416.52	415.95	409
Spillway	19.896	444.8	443.55	442.48
Spillway	19.812	410.21	406.82	401.03
Spillway	19.735	363.11	367.49	373
Spillway	19.665	435.66	441.94	435.91
Spillway	19.581	432.12	407.92	355
Spillway	19.504	443.61	495.7	479.53
Spillway	19.410	535	565.65	492.3
Spillway	19.303	570	501.11	467.95
Spillway	19.208	440	517.56	497.46
Spillway	19.110	545	521.08	508.11
Spillway	19.012	347.81	482.12	335
Spillway	18.920	404.5	544.04	400
Spillway	18.817	402.59	458.21	415.84
Spillway	18.730	429.44	402.72	399.74
Spillway	18.654	492.04	551.96	536.77
Spillway	18.550	335	361.64	341.28
Spillway	18.481	443.61	444.17	450
Spillway	18.397	347.84	408.99	396
Spillway	18.320	268.13	380.9	331.29
Spillway	18.247	361.88	401.35	317.5
Spillway	18.171	565	633.22	508.03
Spillway	18.051	525	583.8	596.87
Spillway	17.941	368.92	509.5	343.39
Spillway	17.844	375	441.57	330
Spillway	17.761	192.33	457.84	585
Spillway	17.674	317.78	384.64	153.53
Spillway	17.601	492.39	639.3	480
Spillway	17.480	422.71	759.29	635.28
Spillway	17.336	292.68	391.01	280
Spillway	17.262	320	403.01	280
Spillway	17.186	297.26	396.01	290
Spillway	17.111	286.01	340.97	275
Spillway	17.046	320.73	334.71	325
Spillway	16.983	314.66	337.78	317
Spillway	16.919	294.82	311.56	321.17
Spillway	16.860	387	447.02	388.71
Spillway	16.775	361.96	513.4	490
Spillway	16.678	430.64	490.1	305
Spillway	16.585	290	318.41	208.83
Spillway	16.525	330	391.68	271.49
Spillway	16.451	401.88	370.79	366.61
Spillway	16.381	354.57	609.88	452.58
Spillway	16.265	323.21	438.39	331.63
Spillway	16.182	255	507.2	380
Spillway	16.086	272.52	446.48	350
Spillway	16.001	377.84	575.99	440
Spillway	15.892	380	574.17	385.41
Spillway	15.784	370	461.26	344.31
Spillway	15.696	376.56	470.47	385.16
Spillway	15.607	409.72	545.69	344.4
Spillway	15.504	370	445.22	390
Spillway	15.419	390	307.29	328.78
Spillway	15.361	224.47	218.48	231.22
Spillway	15.340	Culvert		
Spillway	15.320	88.46	84.3	74.33
Spillway	15.304			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Apache Junct FRS

Reach	River Sta.	Contr.	Expan.
Spillway	20.000	.3	.5
Spillway	19.993	.3	.5

Spillway	19.975		.3	.5
Spillway	19.896		.3	.5
Spillway	19.812		.1	.3
Spillway	19.735		.3	.5
Spillway	19.665		.3	.5
Spillway	19.581		.3	.5
Spillway	19.504		.3	.5
Spillway	19.410		.3	.5
Spillway	19.303		.3	.5
Spillway	19.208		.3	.5
Spillway	19.110		.3	.5
Spillway	19.012		.1	.3
Spillway	18.920		.1	.3
Spillway	18.817		.1	.3
Spillway	18.730		.1	.3
Spillway	18.654		.1	.3
Spillway	18.550		.1	.3
Spillway	18.481		.1	.3
Spillway	18.397		.1	.3
Spillway	18.320		.1	.3
Spillway	18.247		.1	.3
Spillway	18.171		.1	.3
Spillway	18.051		.1	.3
Spillway	17.941		.1	.3
Spillway	17.844		.1	.3
Spillway	17.761		.1	.3
Spillway	17.674		.1	.3
Spillway	17.601		.1	.3
Spillway	17.480		.1	.3
Spillway	17.336		.1	.3
Spillway	17.262		.1	.3
Spillway	17.186		.1	.3
Spillway	17.111		.1	.3
Spillway	17.046		.1	.3
Spillway	16.983		.1	.3
Spillway	16.919		.1	.3
Spillway	16.860		.1	.3
Spillway	16.775		.1	.3
Spillway	16.678		.1	.3
Spillway	16.585		.1	.3
Spillway	16.525		.1	.3
Spillway	16.451		.1	.3
Spillway	16.381		.1	.3
Spillway	16.265		.1	.3
Spillway	16.182		.1	.3
Spillway	16.086		.1	.3
Spillway	16.001		.1	.3
Spillway	15.892		.1	.3
Spillway	15.784		.1	.3
Spillway	15.696		.1	.3
Spillway	15.607		.1	.3
Spillway	15.504		.1	.3
Spillway	15.419		.1	.3
Spillway	15.361		.1	.3
Spillway	15.340	Culvert		
Spillway	15.320		.1	.3
Spillway	15.304		.1	.3

Profile Output Table - Standard Table 1

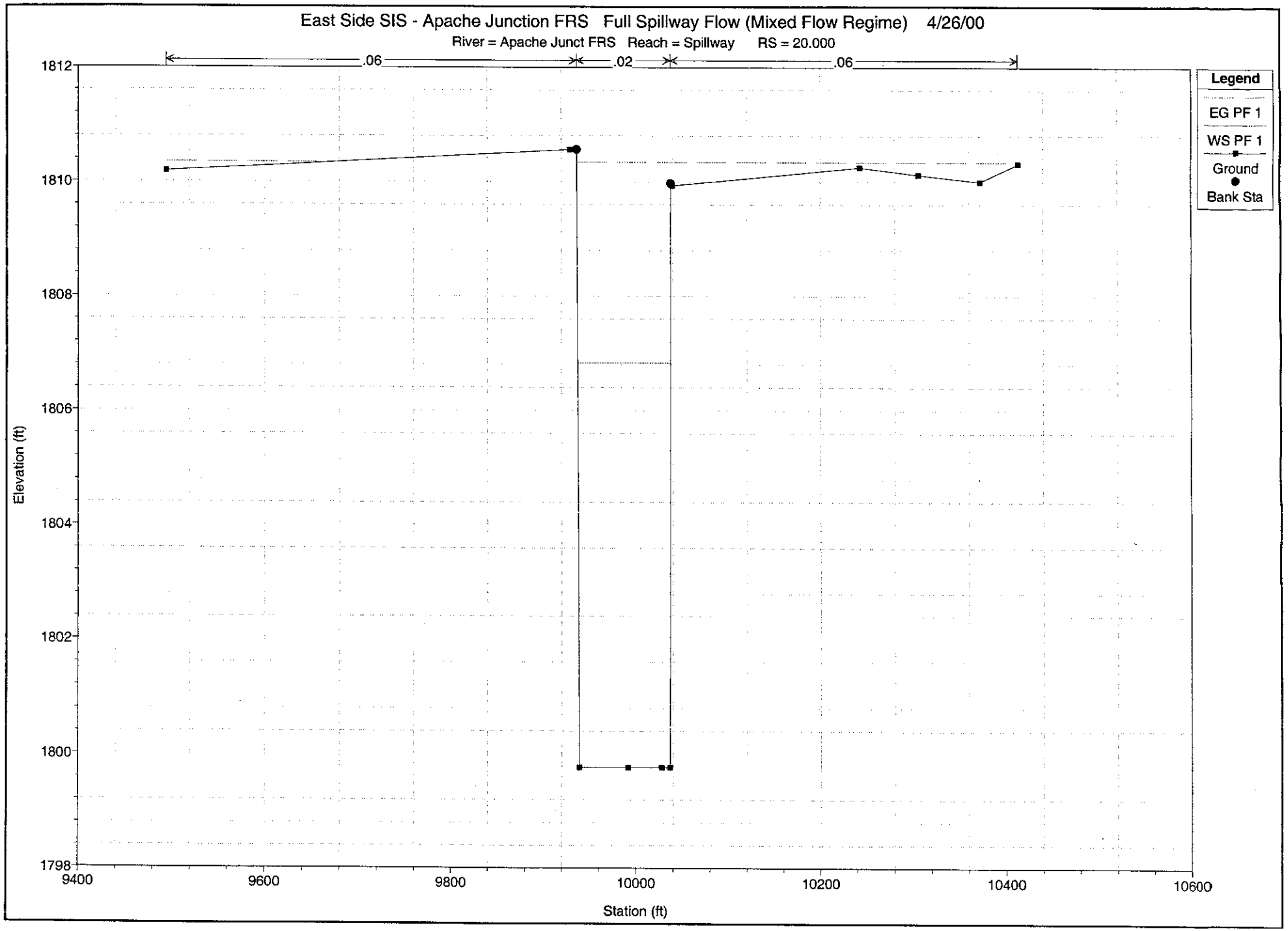
Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Spillway	20.000	10500.00	1799.77	1806.83	1806.83	1810.34	0.003571	15.04	698.31	100.18	1.00
Spillway	19.993	10500.00	1779.09	1782.00	1786.22	1804.31	0.180338	37.90	277.02	98.98	3.99
Spillway	19.975	10500.00	1779.79	1782.31	1783.66	1786.95	0.049681	17.29	607.28	280.59	2.07
Spillway	19.896	10500.00	1777.78	1782.96	1782.96	1784.07	0.014017	12.55	1601.20	2086.40	1.31
Spillway	19.812	10500.00	1772.23	1775.29	1775.12	1775.90	0.017344	10.63	1985.66	4134.70	1.37
Spillway	19.735	10500.00	1765.09	1769.48	1769.48	1770.18	0.011723	9.18	2228.63	4180.79	1.14
Spillway	19.665	10500.00	1759.98	1763.93	1763.89	1764.55	0.016835	10.83	2368.26	4291.47	1.35
Spillway	19.581	10500.00	1754.45	1757.75	1757.01	1758.03	0.012644	11.12	2842.36	3129.14	1.21
Spillway	19.504	10500.00	1747.30	1752.69	1752.31	1753.01	0.012557	13.47	3772.11	4155.13	1.24
Spillway	19.410	10500.00	1742.92	1746.36	1746.11	1746.59	0.015504	12.54	4053.78	5123.79	1.36
Spillway	19.303	10500.00	1734.37	1739.71	1739.52	1739.97	0.010565	11.65	4627.28	5058.38	1.13
Spillway	19.208	10500.00	1728.13	1732.44	1732.36	1732.77	0.016706	12.37	4155.87	4319.35	1.39
Spillway	19.110	10500.00	1722.69	1726.42	1726.42	1726.86	0.010226	10.85	4866.21	4208.34	1.12
Spillway	19.012	10500.00	1715.92	1720.31	1719.61	1720.39	0.010410	7.55	6838.63	4558.66	1.02
Spillway	18.920	10500.00	1712.11	1716.25	1715.81	1716.41	0.012294	11.06	6152.10	4190.85	1.19
Spillway	18.817	10500.00	1706.27	1711.13	1710.95	1711.70	0.009927	12.60	4924.82	3907.71	1.15
Spillway	18.730	10500.00	1701.38	1706.67	1706.37	1707.08	0.012288	15.02	5494.29	4240.29	1.29
Spillway	18.654	10500.00	1700.00	1702.73	1701.15	1702.80	0.008272	8.42	7004.11	4215.26	0.97
Spillway	18.550	10500.00	1692.50	1696.61	1696.19	1696.88	0.017653	14.05	5654.82	3861.17	1.45
Spillway	18.481	10500.00	1690.36	1692.76	1691.49	1692.84	0.008414	6.89	6543.34	3712.94	0.93
Spillway	18.397	10500.00	1682.74	1687.76	1687.61	1688.12	0.013610	14.09	5875.51	3943.28	1.42
Spillway	18.320	10500.00	1679.81	1683.71	1683.40	1683.99	0.009587	12.14	6970.38	4293.19	1.23
Spillway	18.247	10500.00	1676.99	1680.91	1680.11	1681.04	0.010115	10.97	6749.17	3922.83	1.11
Spillway	18.171	10500.00	1674.29	1677.11	1676.32	1677.54	0.009839	12.84	6308.92	3909.56	1.49
Spillway	18.051	10500.00	1667.96	1671.70	1670.89	1671.79	0.010454	9.84	7099.15	4908.46	1.09
Spillway	17.941	10500.00	1662.40	1666.28	1665.57	1666.40	0.009701	9.74	7424.36	5173.52	1.07
Spillway	17.844	10500.00	1658.73	1662.72	1661.97	1662.84	0.009389	10.45	6935.51	4820.60	1.07
Spillway	17.761	10500.00	1652.45	1658.97	1658.97	1659.77	0.006548	12.22	5930.85	4184.43	1.26
Spillway	17.674	10500.00	1649.09	1656.60	1656.79	1657.55	0.006688	13.31	6025.59	3794.00	1.29
Spillway	17.601	10500.00	1646.80	1653.60	1653.59	1654.51	0.007735	12.01	5043.22	3163.81	1.33
Spillway	17.480	10500.00	1642.99	1648.62	1648.51	1649.40	0.011665	13.71	5061.64	2943.75	1.60
Spillway	17.336	10500.00	1639.23	1644.52	1644.52	1645.24	0.005761	14.11	7433.93	4084.23	1.24
Spillway	17.262	10500.00	1636.44	1641.10	1640.83	1641.52	0.011887	13.32	5851.33	3635.16	1.60
Spillway	17.186	10500.00	1633.15	1638.58	1637.86	1638.83	0.006176	10.46	7262.76	3808.03	1.17
Spillway	17.111	10500.00	1630.61	1635.56	1635.43	1636.16	0.012774	15.52	5687.78	3817.01	1.69
Spillway	17.046	10500.00	1629.25	1633.24	1632.03	1633.30	0.007313	7.11	7387.05	4733.49	0.75
Spillway	16.983	10500.00	1623.96	1630.47	1629.78	1630.64	0.009157	9.86	6545.58	6544.83	0.86
Spillway	16.919	10500.00	1620.94	1627.33	1627.33	1627.98	0.007344	10.68	5858.76	6977.19	0.83
Spillway	16.860	10500.00	1619.10	1624.14	1623.80	1624.41	0.014734	10.73	5509.08	6788.10	1.08
Spillway	16.775	10500.00	1615.22	1620.75	1619.59	1620.82	0.006028	7.28	7626.61	6879.64	0.69
Spillway	16.678	10500.00	1614.41	1616.65	1616.65	1617.35	0.011732	13.25	5539.88	5851.74	1.61
Spillway	16.585	10500.00	1608.83	1612.73	1612.43	1613.06	0.008335	11.05	6514.36	4045.07	1.05
Spillway	16.525	10500.00	1606.88	1610.57	1609.30	1610.64	0.008336	8.21	7063.27	5431.50	0.95
Spillway	16.451	10500.00	1604.99	1607.29	1605.82	1607.35	0.012560	7.15	6453.39	5561.94	1.09
Spillway	16.381	10500.00	1599.99	1603.49	1602.18	1603.61	0.007155	9.05	7351.32	5266.86	1.21
Spillway	16.265	10500.00	1595.98	1599.89	1599.79	1600.37	0.009524	12.97	6818.87	4898.43	1.47

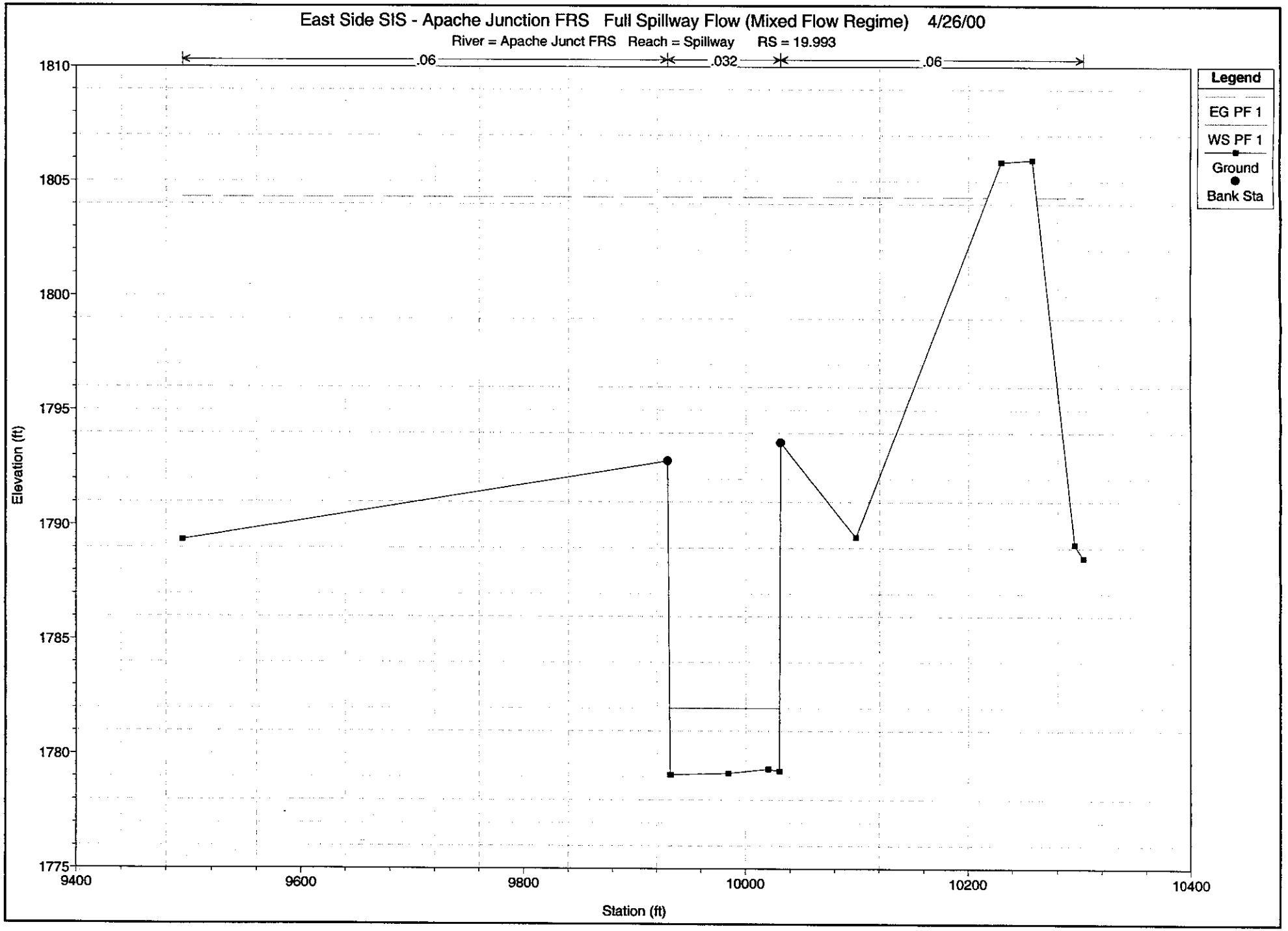
Spillway	16.182	10500.00	1593.56	1596.91	1596.23	1597.11	0.009193	10.31	7181.21	4920.49	1.37
Spillway	16.086	10500.00	1590.17	1594.30	1593.59	1594.50	0.009100	10.06	7014.96	4548.03	1.33
Spillway	16.001	10500.00	1588.97	1592.07	1591.00	1592.20	0.006649	6.85	7642.99	4807.29	1.10
Spillway	15.892	10500.00	1585.05	1588.91	1587.82	1589.11	0.008716	8.77	6529.19	4890.31	1.28
Spillway	15.784	10500.00	1582.18	1584.95	1584.48	1585.41	0.008916	10.59	6211.55	4924.39	1.36
Spillway	15.696	10500.00	1580.14	1581.63	1580.25	1581.77	0.009769	8.33	6835.99	5606.53	1.34
Spillway	15.607	10500.00	1573.77	1577.93	1576.34	1578.46	0.007034	10.53	6318.34	5103.94	1.25
Spillway	15.504	10500.00	1571.86	1574.70	1574.70	1575.45	0.007219	11.51	5890.29	5848.37	1.29
Spillway	15.419	10500.00	1568.96	1573.68	1570.59	1573.71	0.000648	3.39	14409.71	8882.50	0.30
Spillway	15.361	10500.00	1561.37	1573.66	1563.77	1573.67	0.000038	1.90	33105.20	10597.62	0.10
Spillway	15.340	Culvert									
Spillway	15.320	10500.00	1560.30	1565.92	1564.81	1566.14	0.001427	5.73	3401.89	4697.55	0.50
Spillway	15.304	10500.00	1559.19	1564.78	1564.78	1565.87	0.004348	9.75	3924.69	7991.47	0.87

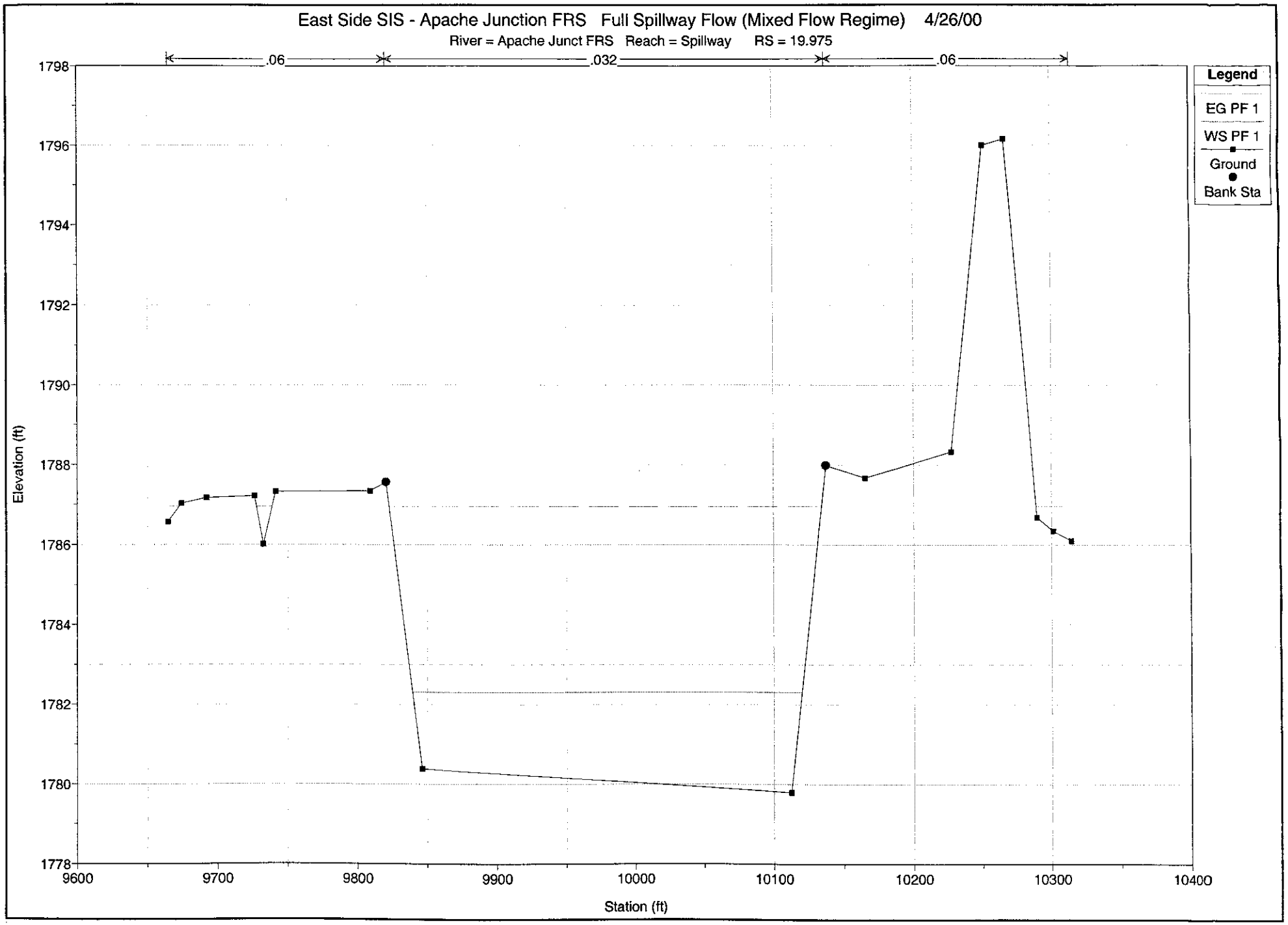
Profile Output Table - Standard Table 2

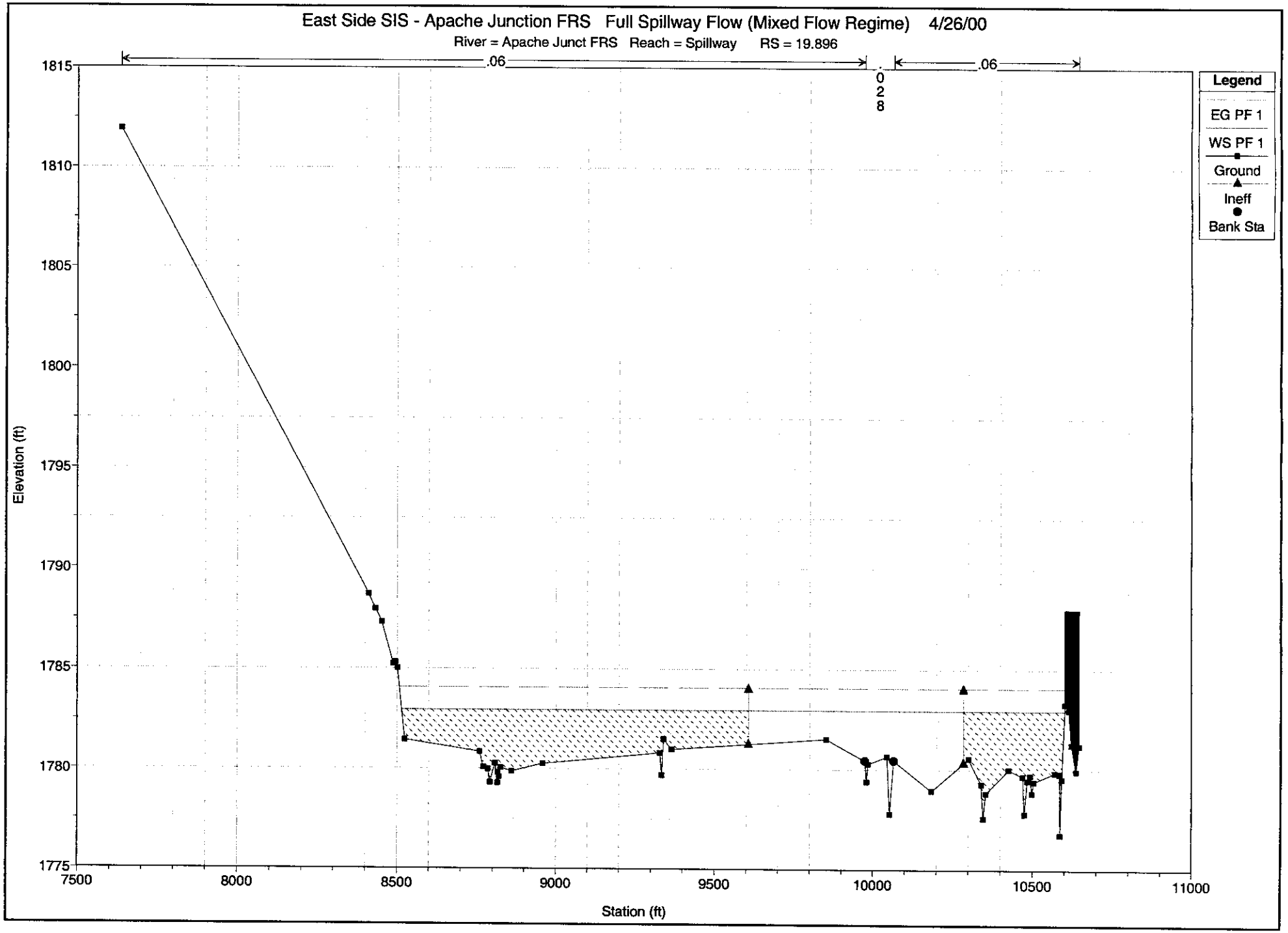
Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Spillway	20.000	1810.34	1806.83	3.51	0.19	0.00		10500.00		100.18
Spillway	19.993	1804.31	1782.00	22.31	0.38	5.64		10500.00		98.98
Spillway	19.975	1786.95	1782.31	4.64	8.52	8.83		10500.00		280.59
Spillway	19.896	1784.07	1782.96	1.11	6.90	0.25	2605.34	3259.75	4634.91	2086.40
Spillway	19.812	1775.90	1775.29	0.61	5.70	0.01	4107.38	1803.26	4589.35	4134.70
Spillway	19.735	1770.18	1769.48	0.71			1928.89	4699.84	3871.26	4180.79
Spillway	19.665	1764.55	1763.93	0.62	6.35	0.17	2919.57	2447.76	5132.67	4291.47
Spillway	19.581	1758.03	1757.75	0.28	5.01	0.01	4614.68	397.75	5487.57	3129.14
Spillway	19.504	1753.01	1752.69	0.32	6.38	0.04	6252.83	818.69	3428.48	4155.13
Spillway	19.410	1746.59	1746.36	0.24	6.61	0.01	6775.58	631.84	3092.58	5123.79
Spillway	19.303	1739.97	1739.71	0.26	7.18	0.02	7126.66	991.77	2381.57	5058.38
Spillway	19.208	1732.77	1732.44	0.33	5.88	0.03	8284.90	1106.01	1109.10	4319.35
Spillway	19.110	1726.86	1726.42	0.44	5.56	0.18	7838.44	2309.99	351.58	4208.34
Spillway	19.012	1720.39	1720.31	0.08	3.97	0.01	8623.61	543.60	1332.79	4558.66
Spillway	18.920	1716.41	1716.25	0.16	4.66	0.04	8164.79	645.55	1689.67	4190.85
Spillway	18.817	1711.70	1711.13	0.57	4.58	0.05	6512.91	2280.32	1706.77	3907.71
Spillway	18.730	1707.08	1706.67	0.41	4.18	0.10	5604.91	1079.73	3815.35	4240.29
Spillway	18.654	1702.80	1702.73	0.06	5.90	0.02	7407.48	262.20	2830.31	4215.26
Spillway	18.550	1696.88	1696.61	0.26	3.99	0.06	7504.62	752.13	2243.24	3861.17
Spillway	18.481	1692.84	1692.76	0.08	4.69	0.03	7053.65	537.71	2908.64	3712.94
Spillway	18.397	1688.12	1687.76	0.35	4.10	0.02	7222.88	1068.62	2208.49	3943.28
Spillway	18.320	1683.99	1683.71	0.28	2.90	0.05	7422.57	1172.07	1905.37	4293.19
Spillway	18.247	1681.04	1680.91	0.13	3.48	0.03	5951.62	533.66	4014.72	3922.83
Spillway	18.171	1677.54	1677.11	0.42	5.64	0.10	4674.09	1628.04	4197.87	3909.56
Spillway	18.051	1671.79	1671.70	0.09	5.39	0.00	8849.59	388.80	1261.60	4908.46
Spillway	17.941	1666.40	1666.28	0.12	3.56	0.00	8213.39	648.29	1638.32	5173.52
Spillway	17.844	1662.84	1662.72	0.12	2.99	0.07	8804.39	547.52	1148.09	4820.60
Spillway	17.761	1659.77	1658.97	0.81			6698.67	3581.11	220.21	4184.43
Spillway	17.674	1657.55	1656.60	0.95	2.20	0.02	4603.25	3577.75	2319.00	3794.00
Spillway	17.601	1654.51	1653.60	0.91	5.07	0.03	5324.99	4160.50	1014.50	3163.81
Spillway	17.480	1649.40	1648.62	0.79	4.14	0.02	7494.95	2727.08	277.97	2943.75

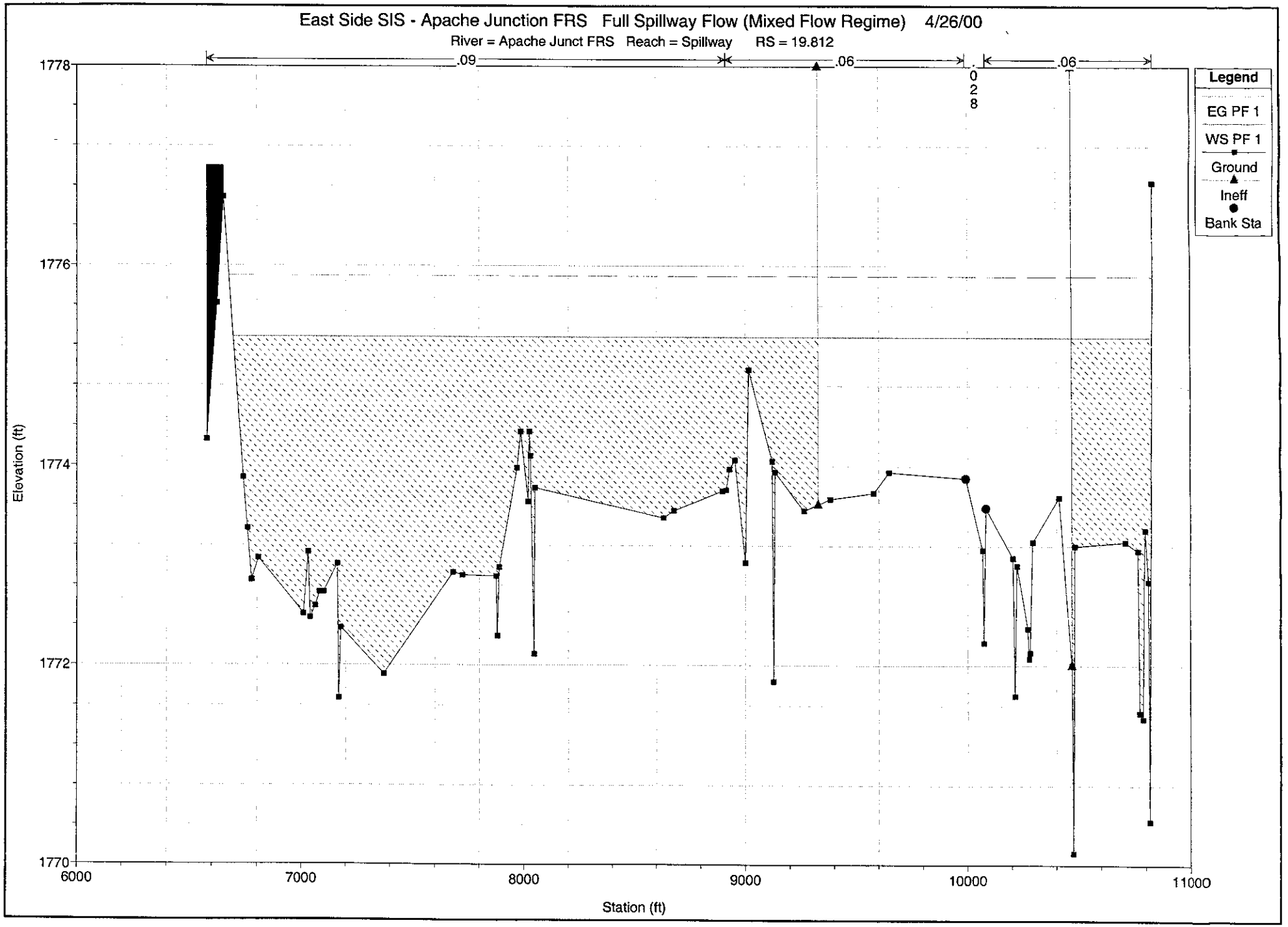
Spillway	17.336	1645.24	1644.52	0.72			6765.38	2383.73	1350.89	4084.23
Spillway	17.262	1641.52	1641.10	0.42	2.63	0.05	6171.04	1474.15	2854.81	3635.16
Spillway	17.186	1638.83	1638.58	0.25	2.64	0.04	4383.33	1394.67	4722.00	3808.03
Spillway	17.111	1636.16	1635.56	0.60	2.70	0.16	2693.16	1586.08	6220.75	3817.01
Spillway	17.046	1633.30	1633.24	0.06	2.65	0.01	3123.60	391.68	6984.73	4733.49
Spillway	16.983	1630.64	1630.47	0.18	2.61	0.05	2305.79	1018.74	7175.47	6544.83
Spillway	16.919	1627.98	1627.33	0.65			2323.49	3786.46	4390.05	6977.19
Spillway	16.860	1624.41	1624.14	0.27	3.53	0.06	3264.82	1376.80	5858.38	6788.10
Spillway	16.775	1620.82	1620.75	0.07	3.41	0.06	6751.78	560.95	3187.26	6879.64
Spillway	16.678	1617.35	1616.65	0.70			5937.57	2615.12	1947.31	5851.74
Spillway	16.585	1613.06	1612.73	0.33	2.34	0.08	6185.41	1694.01	2620.58	4045.07
Spillway	16.525	1610.64	1610.57	0.07	3.29	0.00	9567.94	341.36	590.70	5431.50
Spillway	16.451	1607.35	1607.29	0.06	3.73	0.01	9413.03	212.11	874.85	5561.94
Spillway	16.381	1603.61	1603.49	0.12	3.21	0.04	9522.02	811.33	166.65	5266.86
Spillway	16.265	1600.37	1599.89	0.48	3.17	0.09	7924.82	1831.25	743.94	4898.43
Spillway	16.182	1597.11	1596.91	0.19	2.60	0.00	9162.53	1060.96	276.51	4920.49
Spillway	16.086	1594.50	1594.30	0.21	2.28	0.03	9281.01	1206.26	12.73	4548.03
Spillway	16.001	1592.20	1592.07	0.12	3.08	0.01	9025.35	1474.65		4807.29
Spillway	15.892	1589.11	1588.91	0.20	3.67	0.03	8662.06	1482.35	355.59	4890.31
Spillway	15.784	1585.41	1584.95	0.46	3.55	0.10	5578.10	2635.35	2286.55	4924.39
Spillway	15.696	1581.77	1581.63	0.14	3.27	0.04	4584.19	1134.72	4781.09	5606.53
Spillway	15.607	1578.46	1577.93	0.53	2.99	0.02	2091.34	3118.86	5289.79	5103.94
Spillway	15.504	1575.45	1574.70	0.75	0.62	0.21	861.59	3732.34	5906.07	5848.37
Spillway	15.419	1573.71	1573.68	0.04	0.03	0.01	315.50	1804.67	8379.82	8882.50
Spillway	15.361	1573.67	1573.66	0.01			652.69	1871.47	7975.83	10597.62
Spillway	15.340	Culvert								
Spillway	15.320	1566.14	1565.92	0.22	0.18	0.09		3123.26	7376.74	4697.55
Spillway	15.304	1565.87	1564.78	1.09			113.17	7762.25	2624.58	7991.47

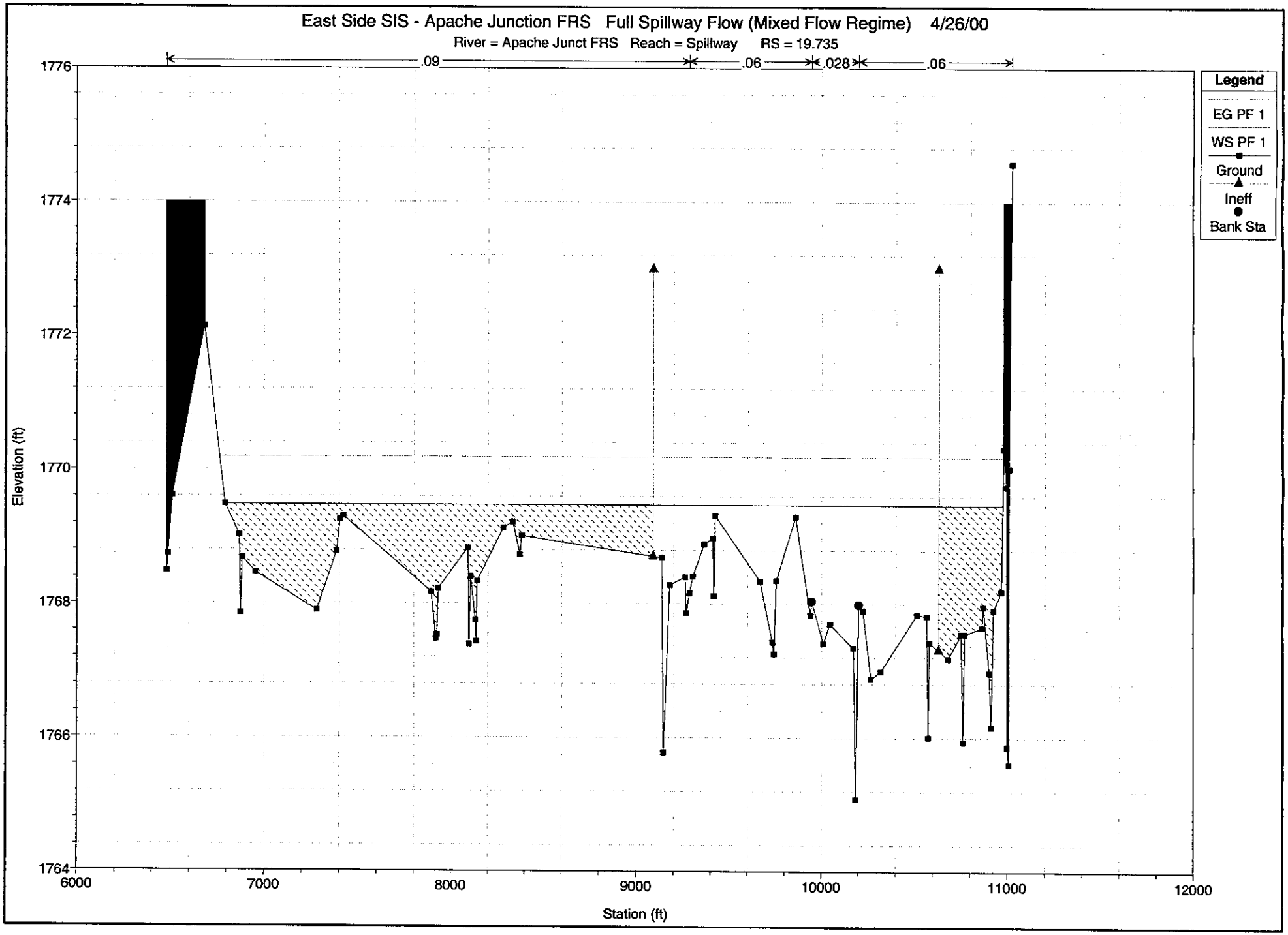

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 20.000
.06
.02
.06
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1812
1810
1808
1806
1804
1802
1800
1798
9400
9600
9800
10000
10200
10400
10600
Station (ft)

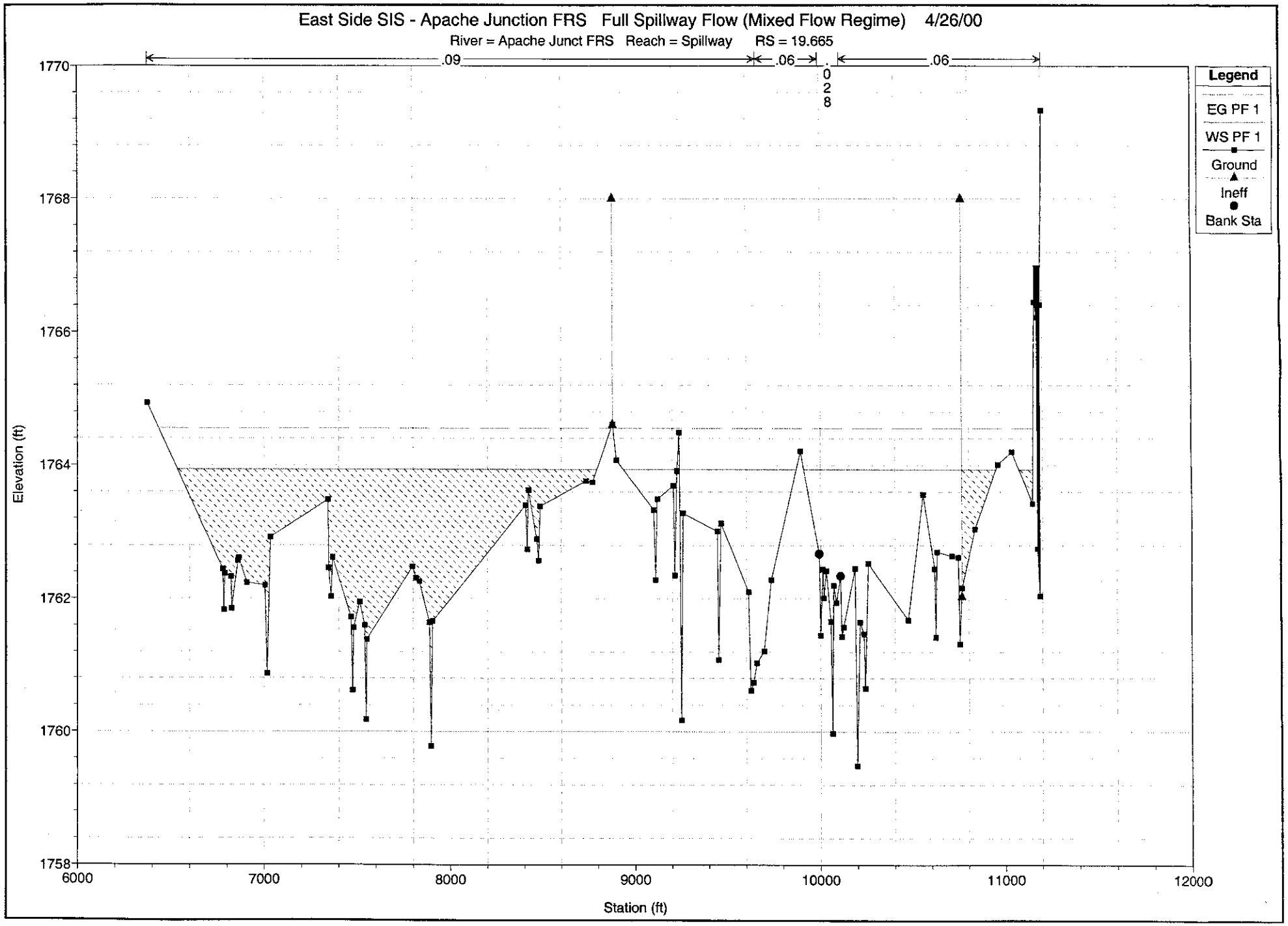

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.993
.06
.032
.06
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1810
1805
1800
1795
1790
1785
1780
1775
9400
9600
9800
10000
10200
10400
Station (ft)

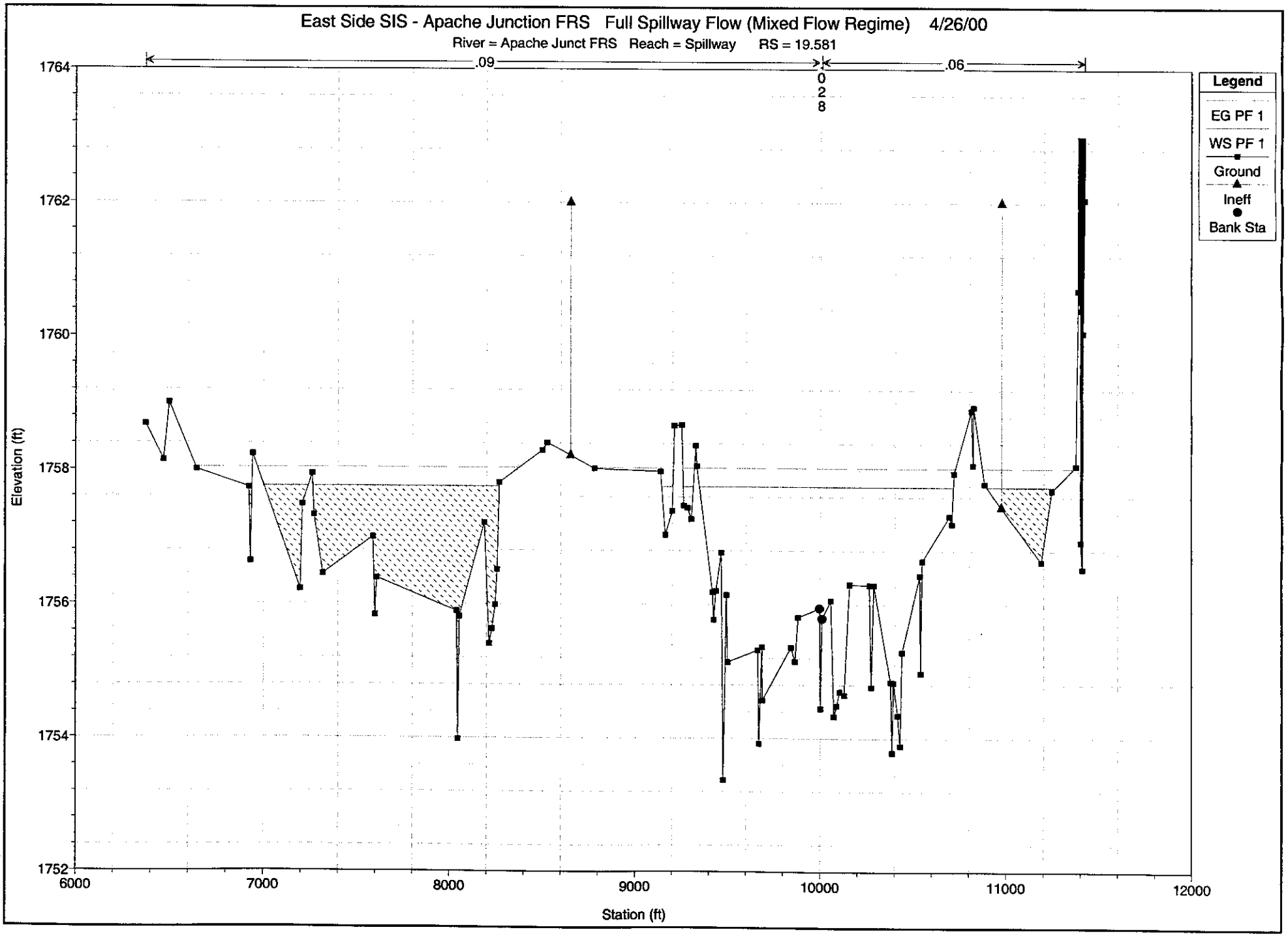

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.975
.06
.032
.06
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1798
1796
1794
1792
1790
1788
1786
1784
1782
1780
1778
9600
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

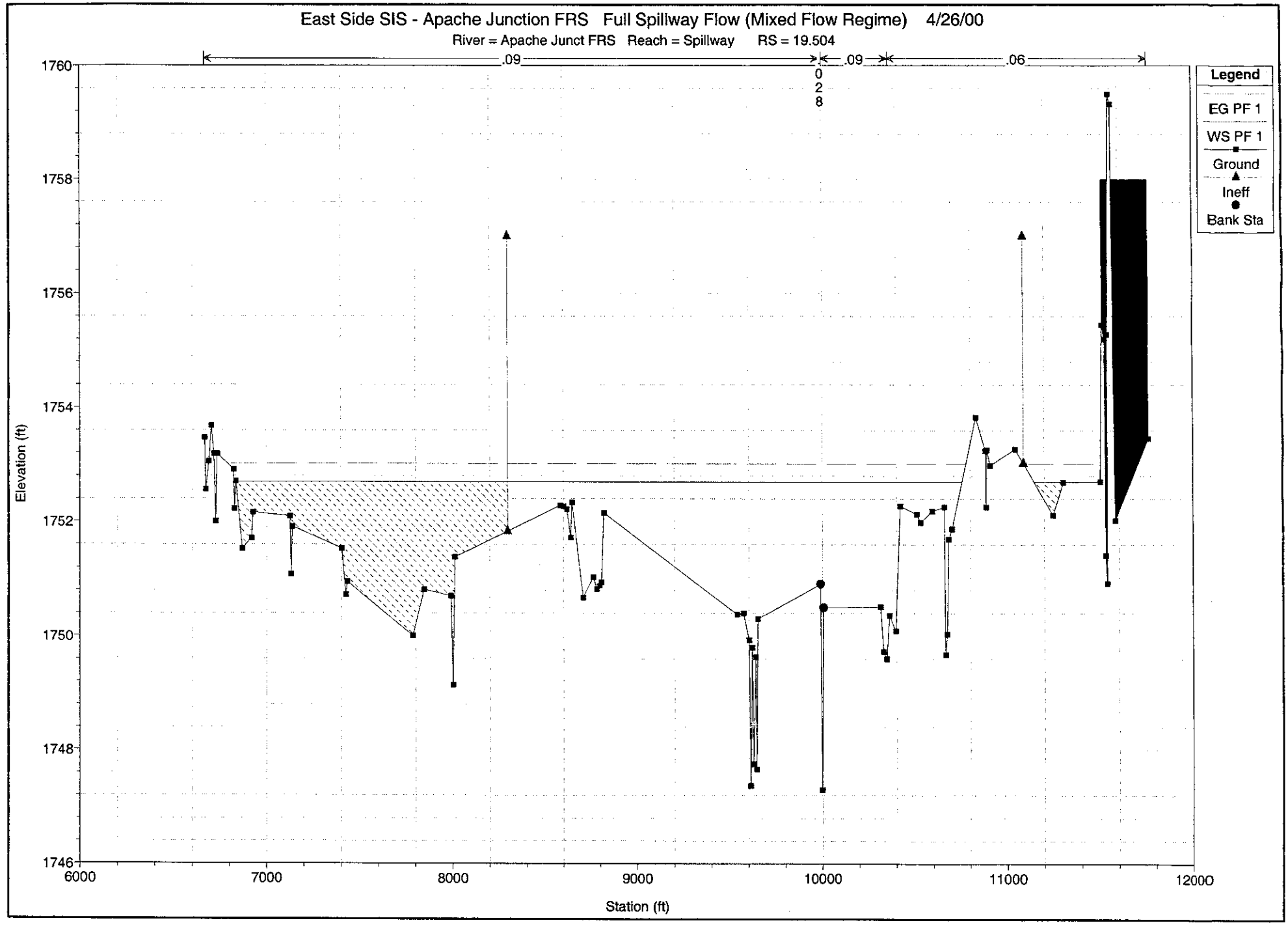

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.896
.06
.028
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1815
1810
1805
1800
1795
1790
1785
1780
1775
7500
8000
8500
9000
9500
10000
10500
11000
Station (ft)

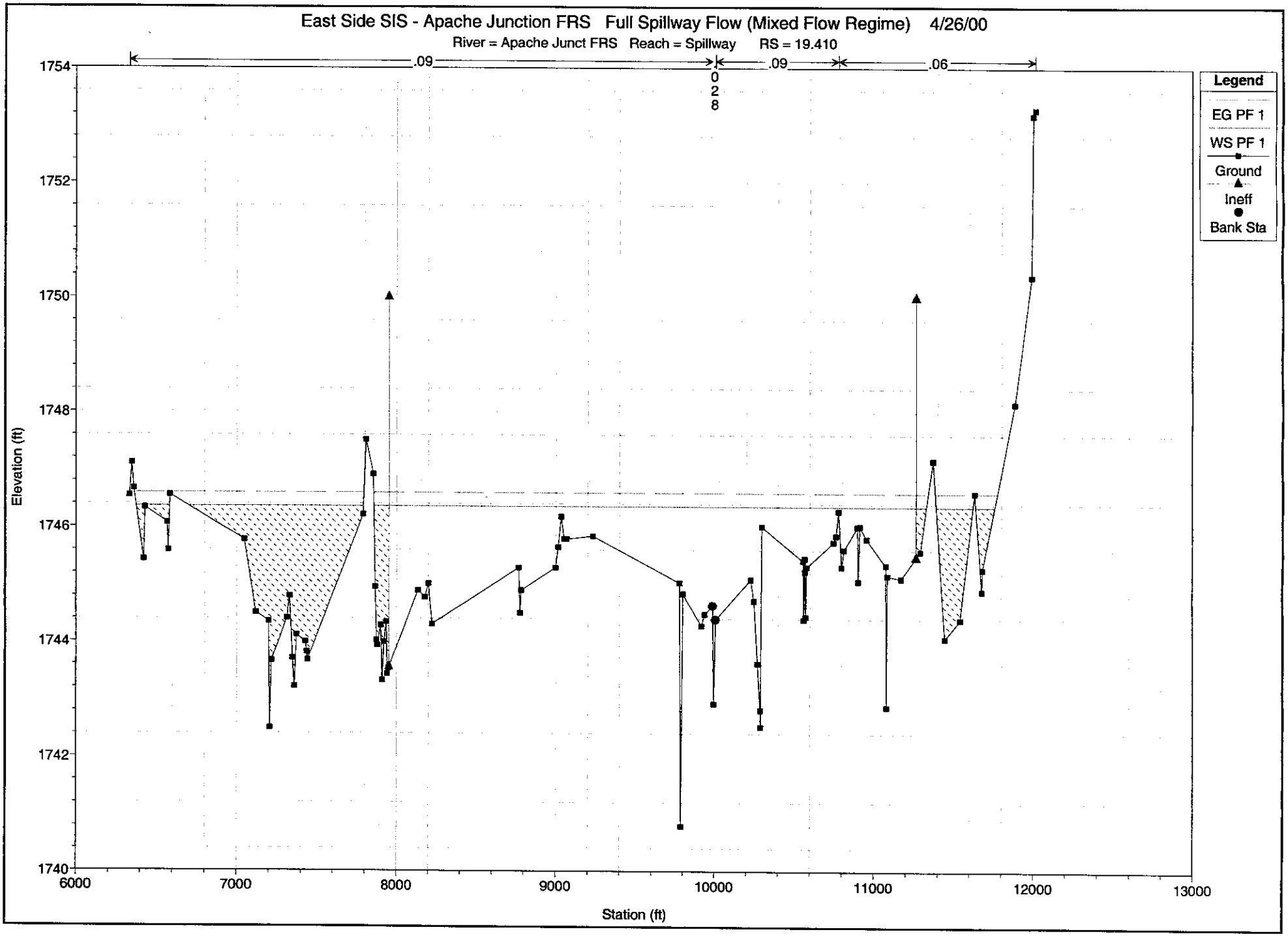

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.812
.09
.06
.028
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1778
1776
1774
1772
1770
6000
7000
8000
9000
10000
11000
Station (ft)

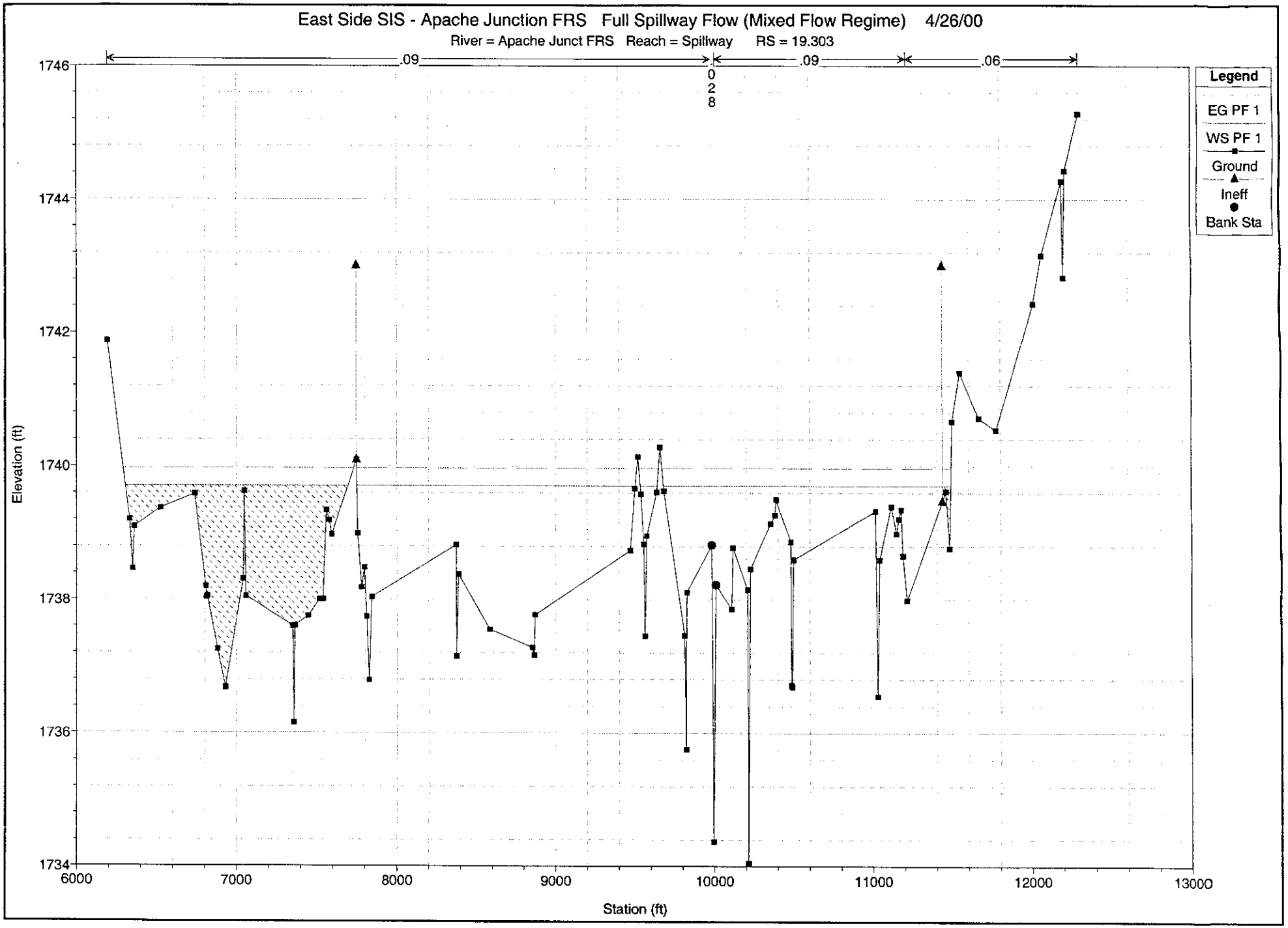

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.735
.09
.06
.028
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1776
1774
1772
1770
1768
1766
1764
6000
7000
8000
9000
10000
11000
12000
Station (ft)

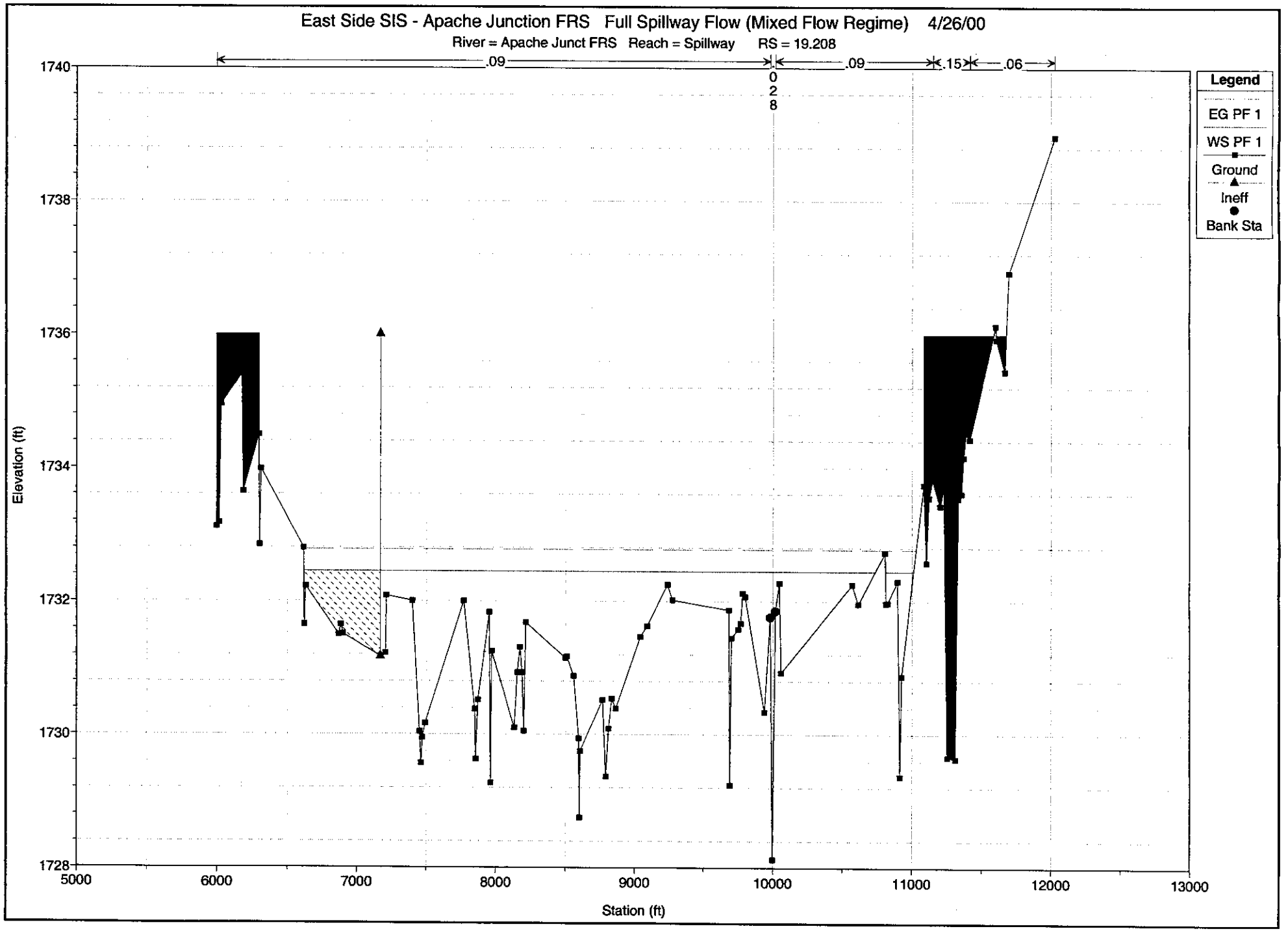

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.665
.09
.06
.028
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1770
1768
1766
1764
1762
1760
1758
6000
7000
8000
9000
10000
11000
12000
Station (ft)

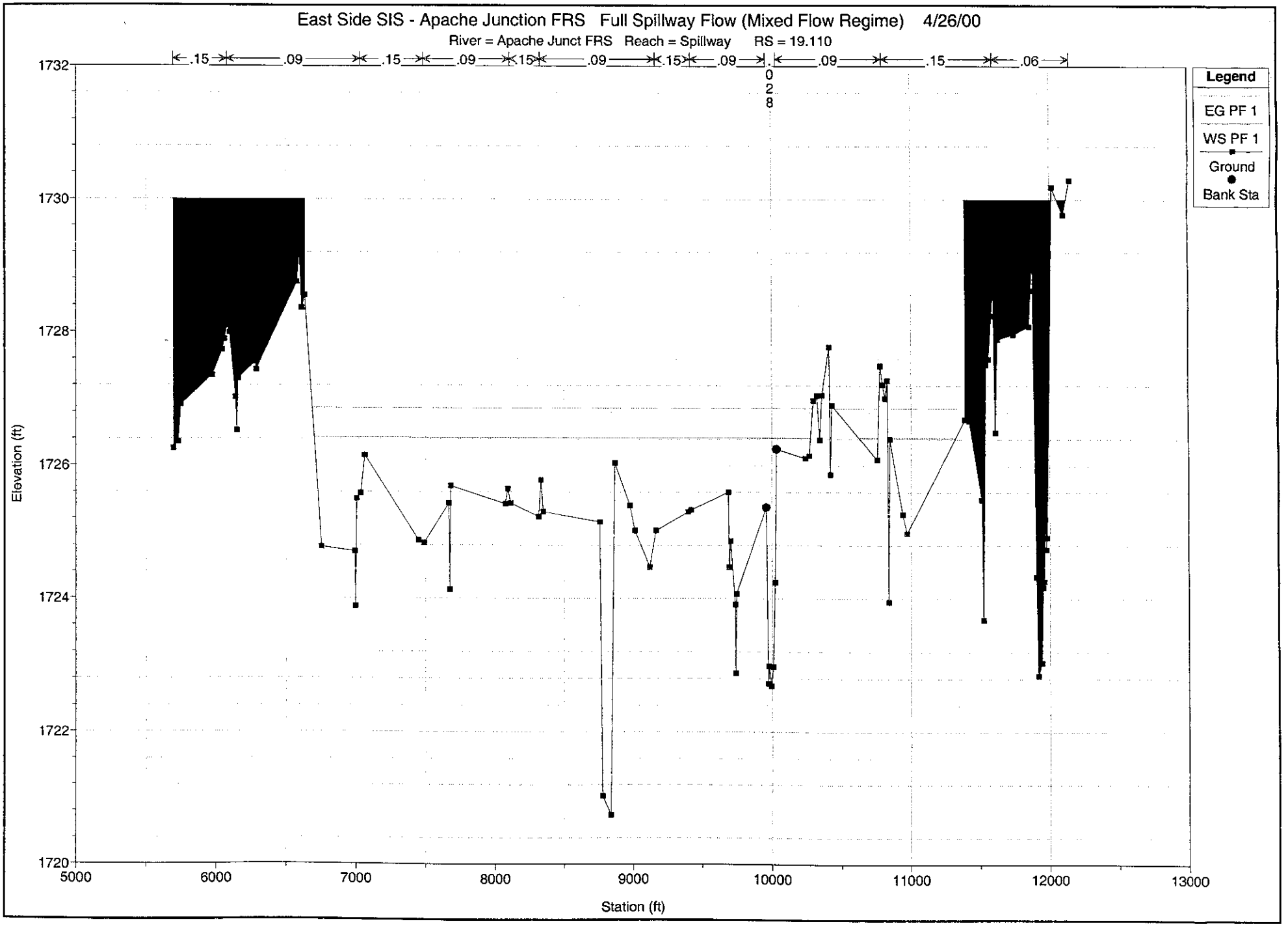

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.581
.09
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1764
1762
1760
1758
1756
1754
1752
6000
7000
8000
9000
10000
11000
12000
Station (ft)

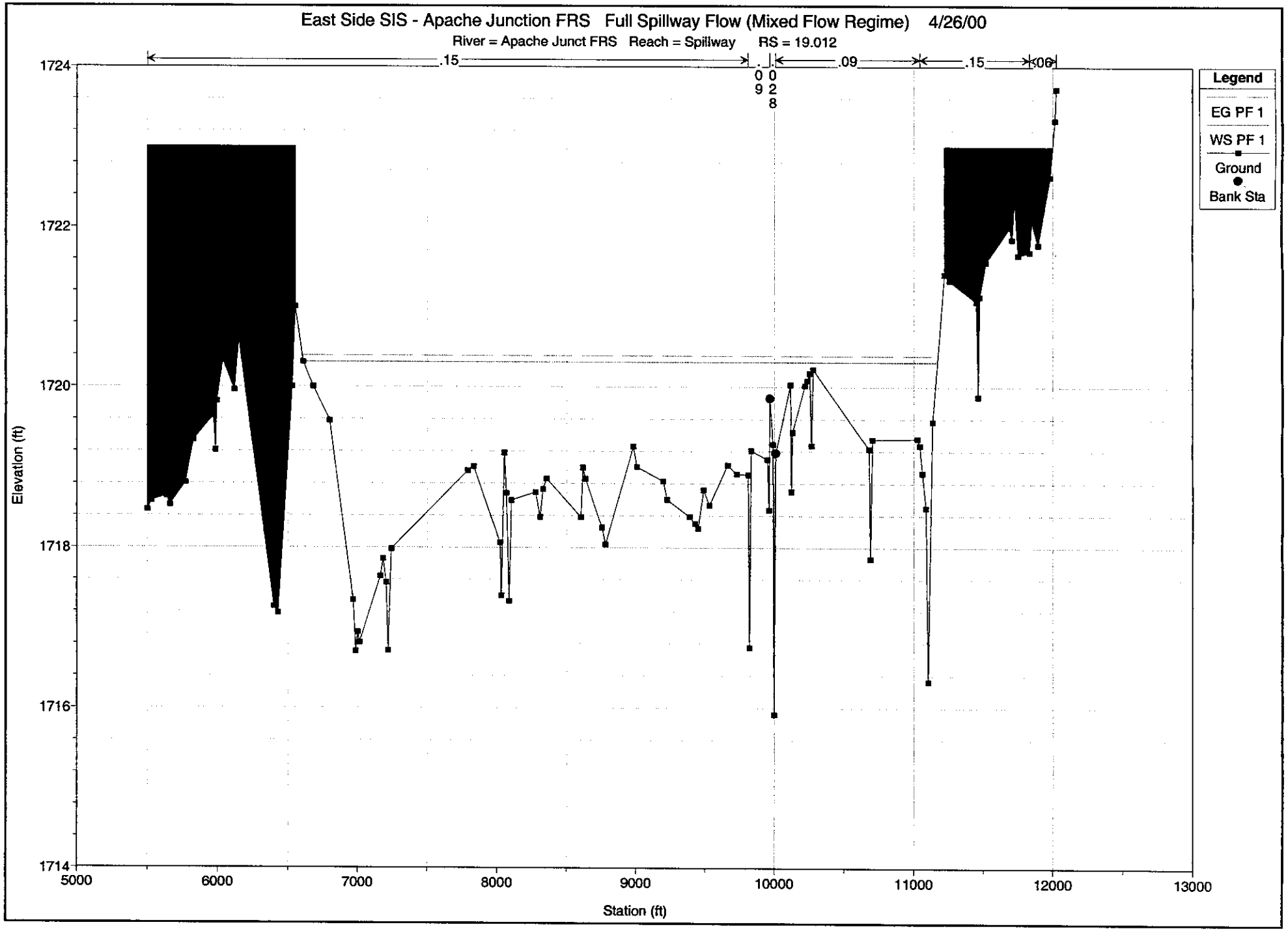

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.504
.09
.09
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1760
1758
1756
1754
1752
1750
1748
1746
6000
7000
8000
9000
10000
11000
12000
Station (ft)

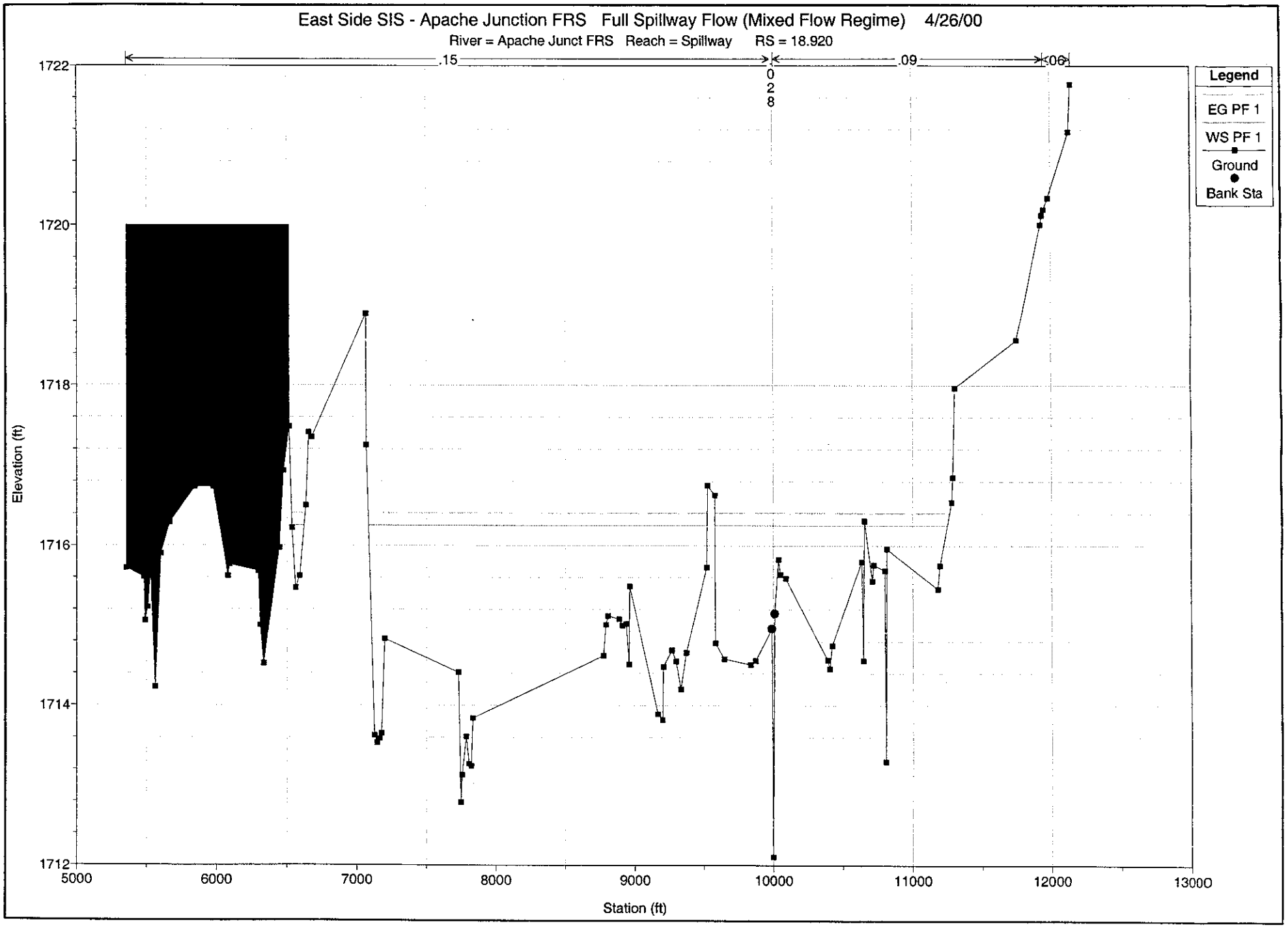

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.410
.09
.09
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1754
1752
1750
1748
1746
1744
1742
1740
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

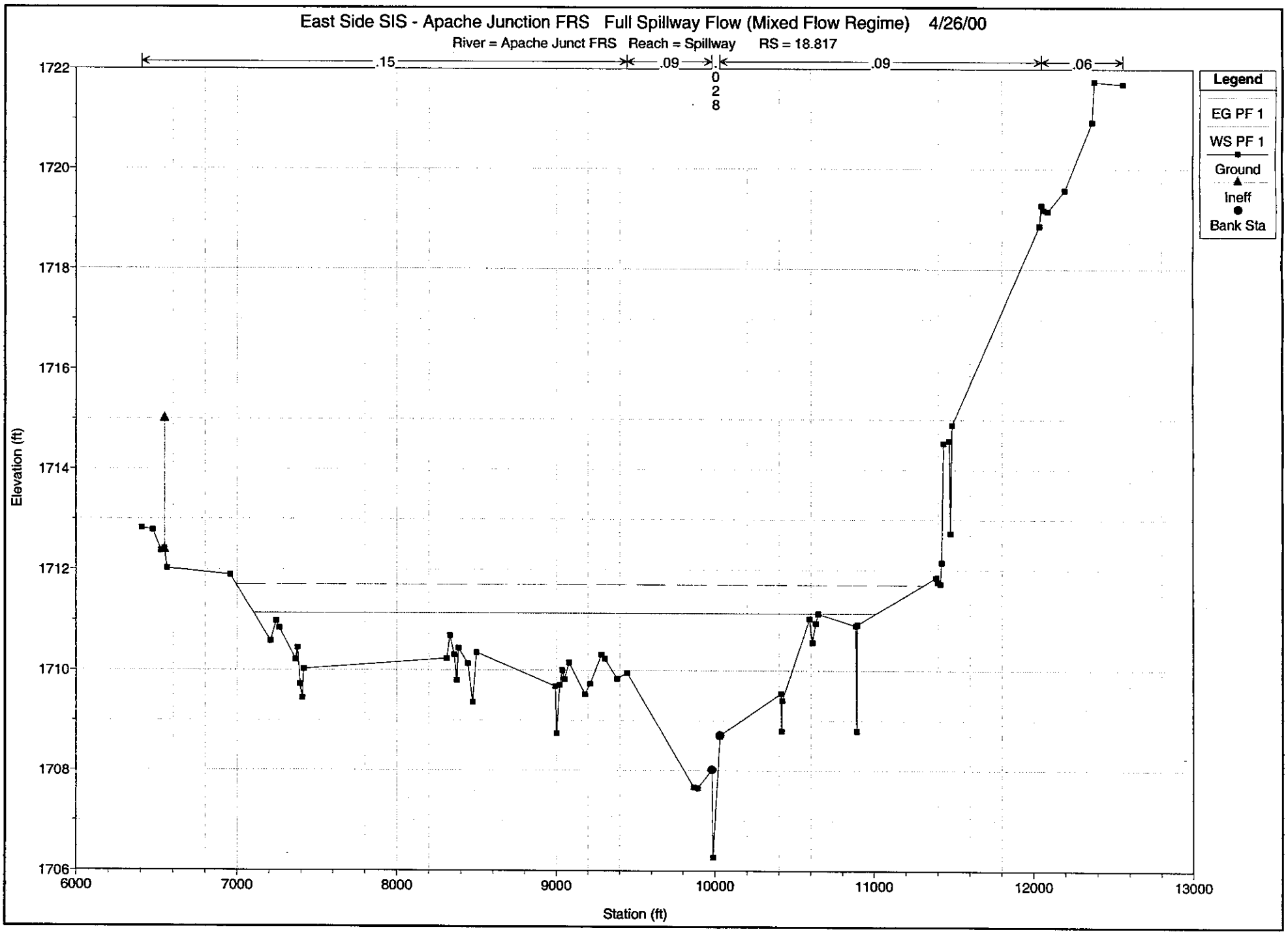

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.303
.09
.09
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1746
1744
1742
1740
1738
1736
1734
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

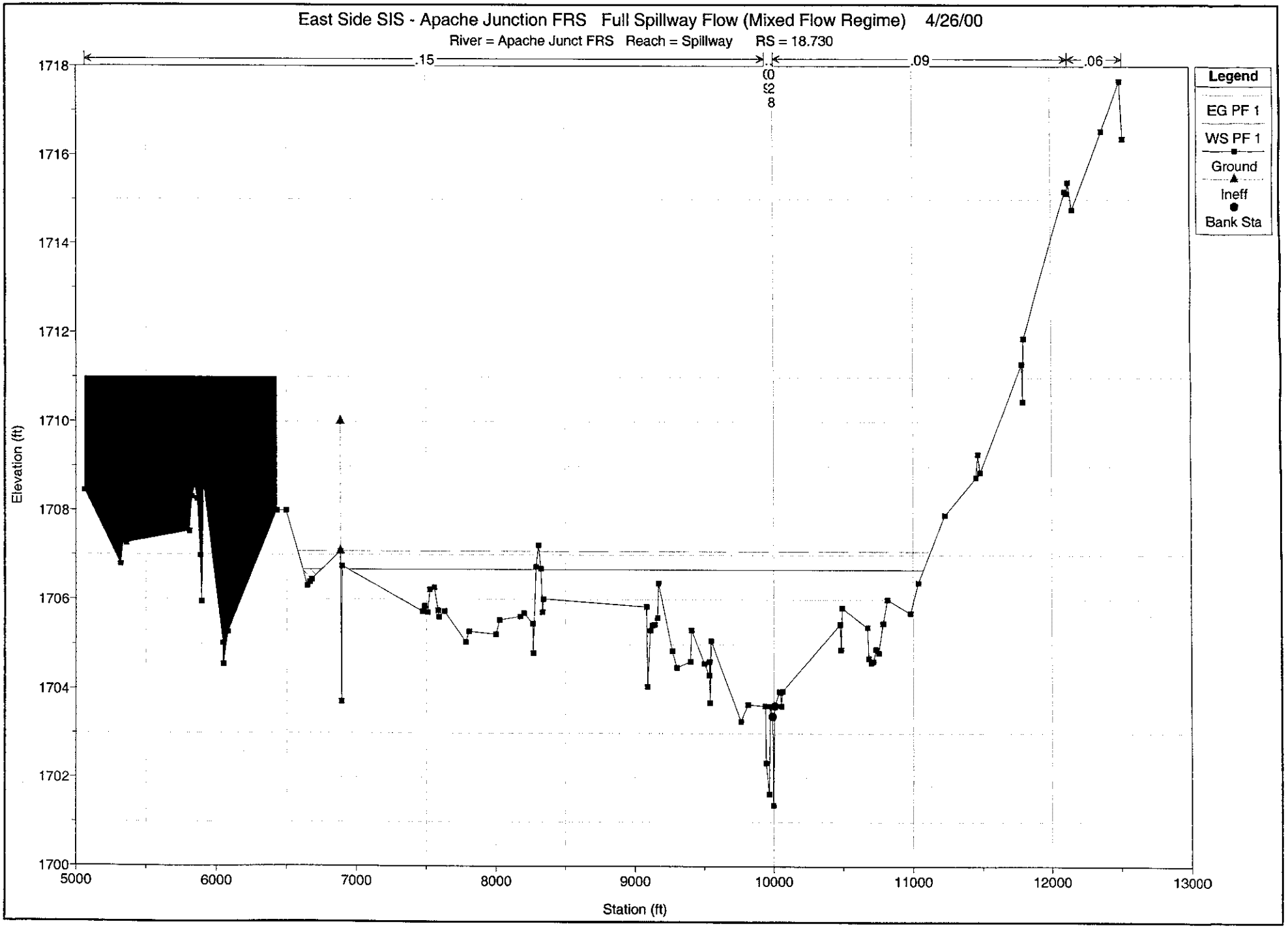

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.208
.09
.09
.15
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1740
1738
1736
1734
1732
1730
1728
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

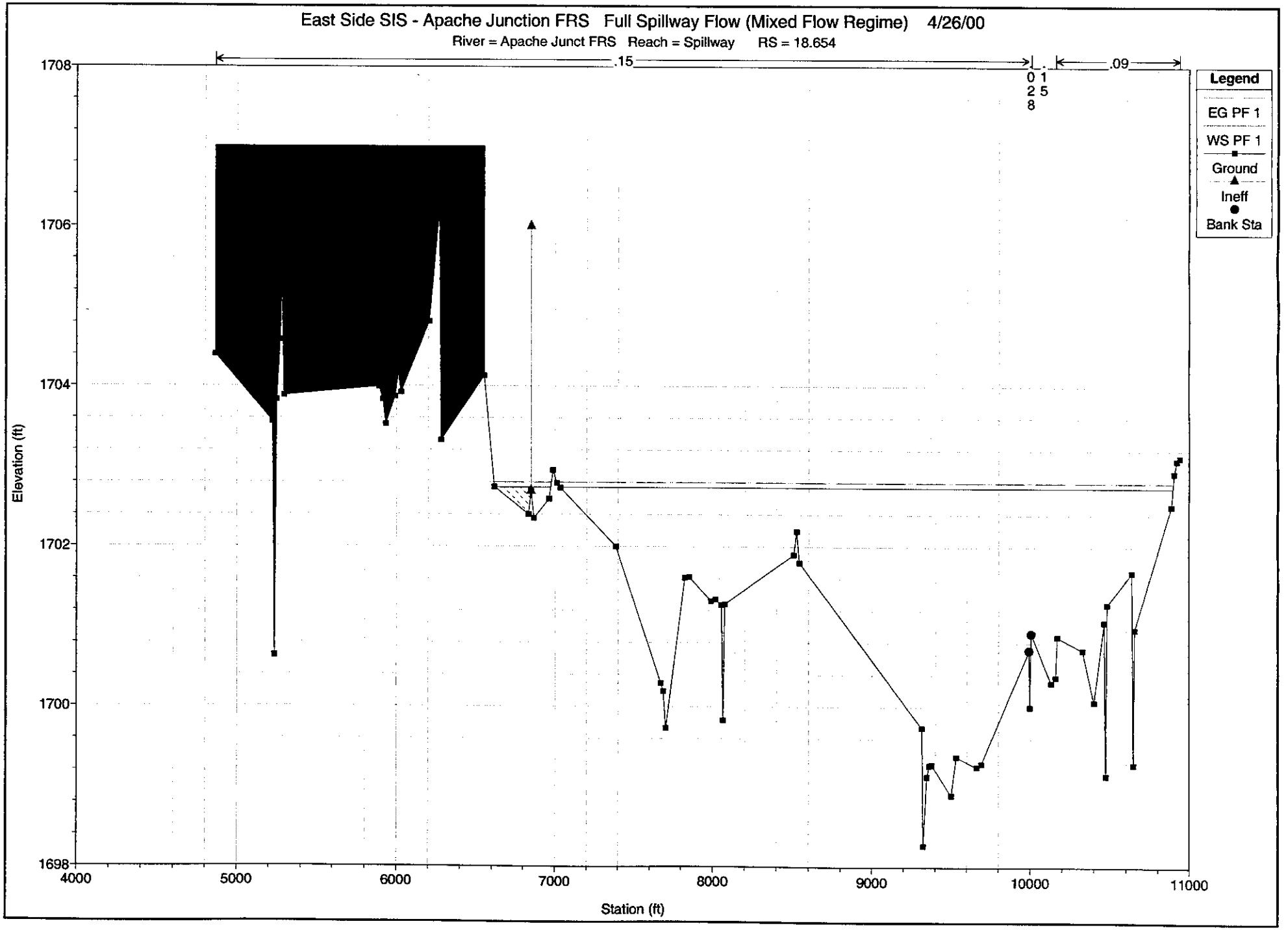

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.110
.15
.09
.15
.09
15
.09
.15
.09
.09
.15
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1732
1730
1728
1726
1724
1722
1720
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

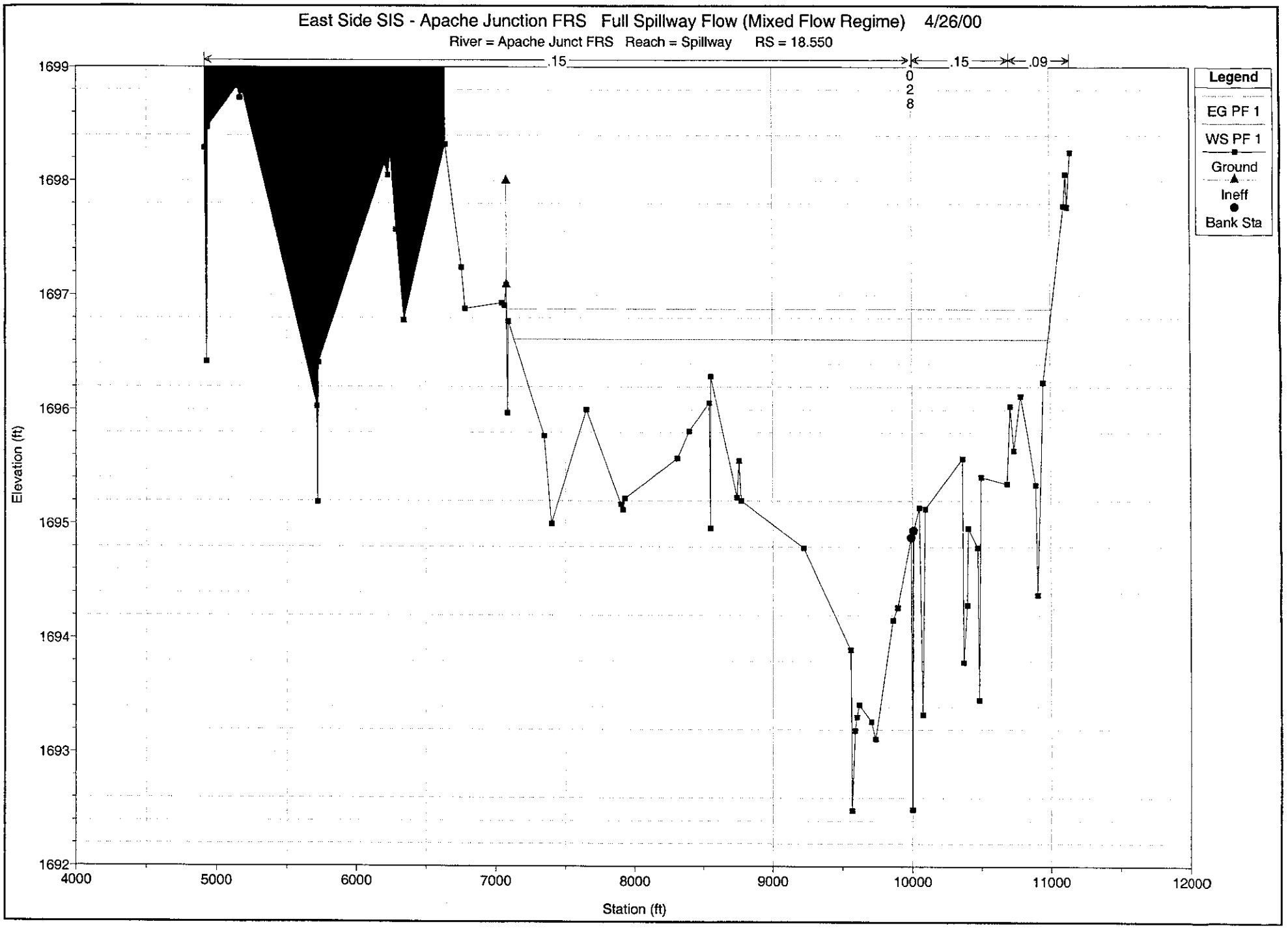

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 19.012
.15
.09
.15
.06
.009
.028
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1724
1722
1720
1718
1716
1714
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

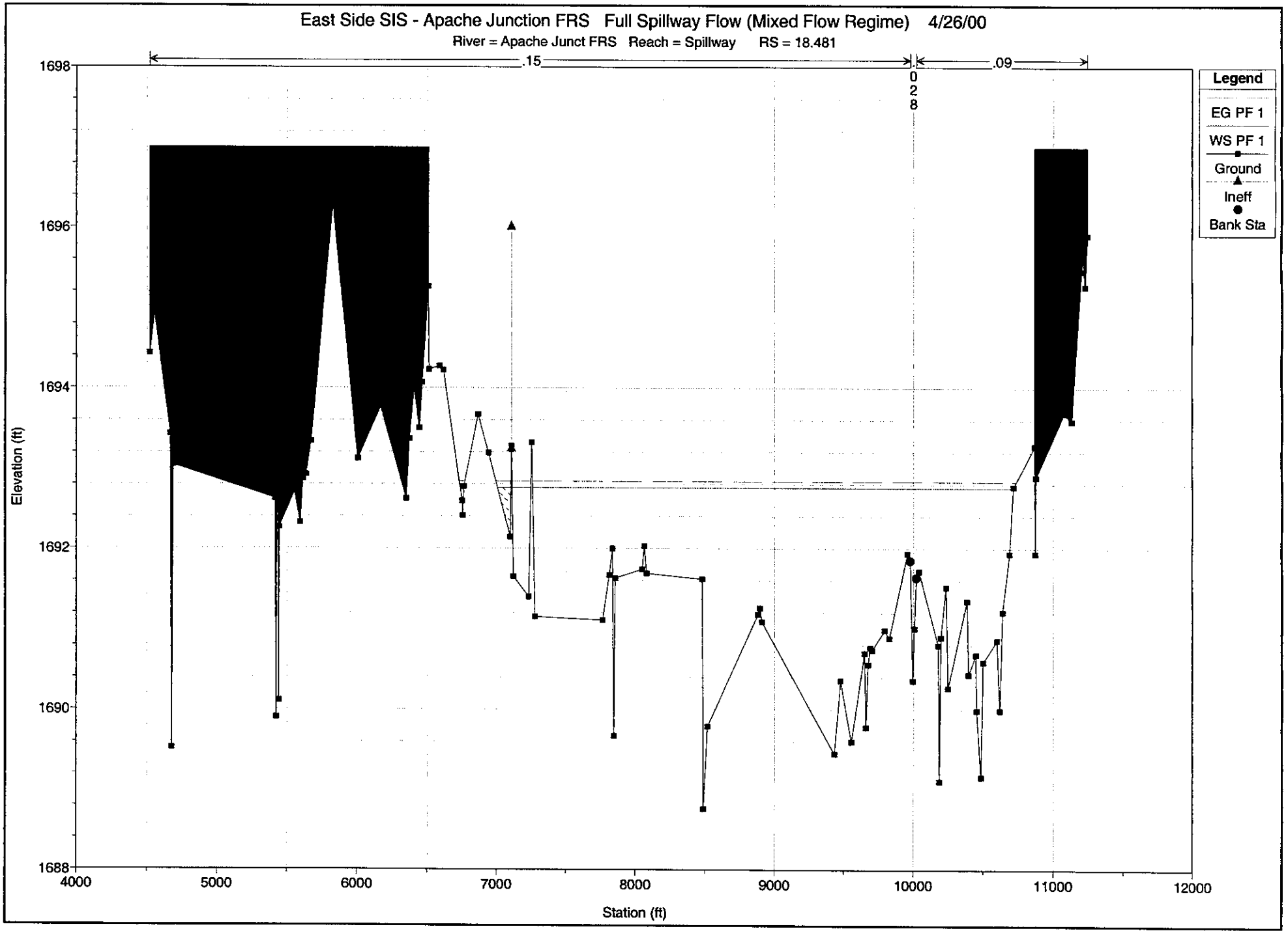

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.920
.15
.09
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1722
1720
1718
1716
1714
1712
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

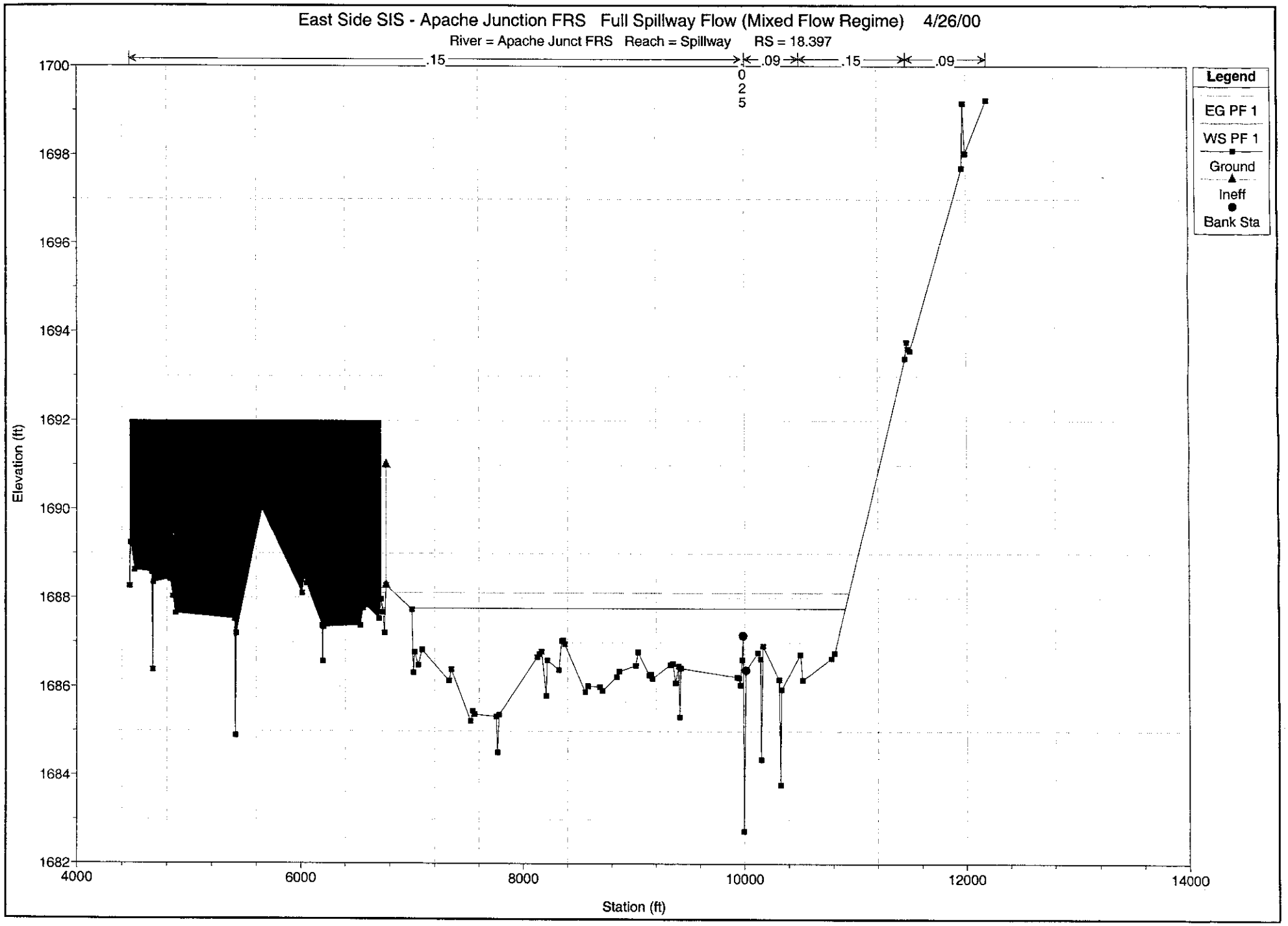

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.817
.15
.09
.028
.09
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1722
1720
1718
1716
1714
1712
1710
1708
1706
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

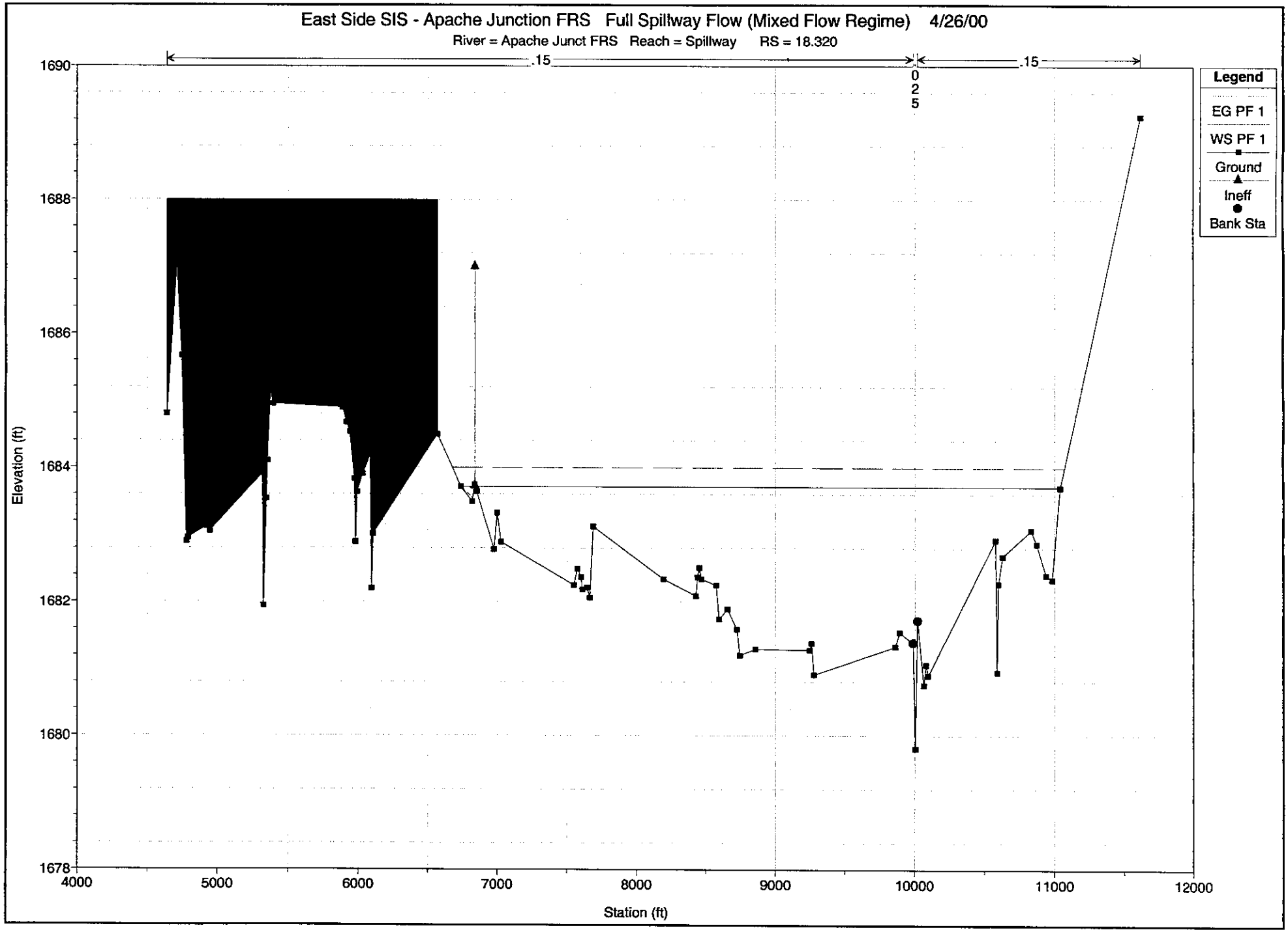

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.730
.15
.09
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1718
1716
1714
1712
1710
1708
1706
1704
1702
1700
5000
6000
7000
8000
9000
10000
11000
12000
13000

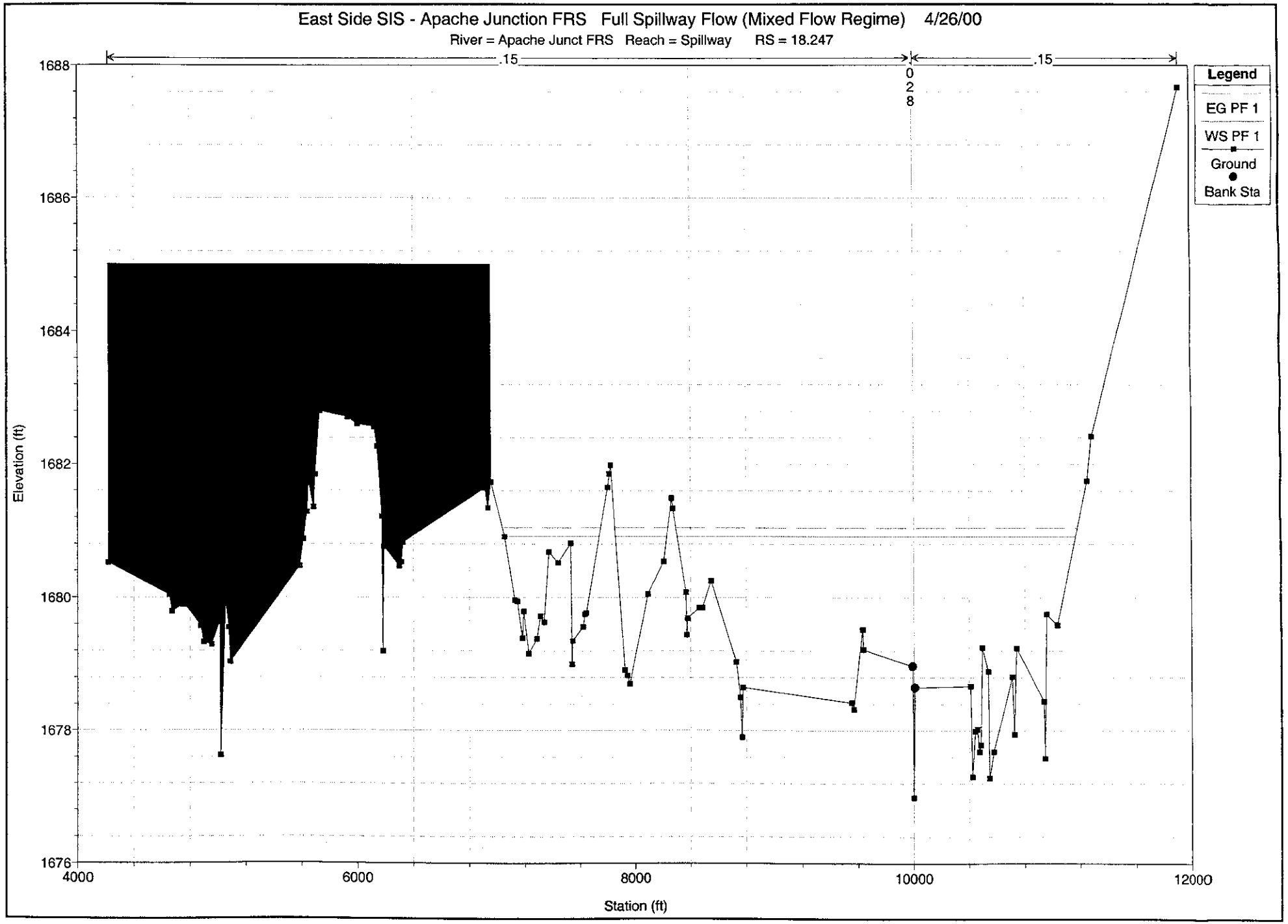

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.654
.15
.09
0 1
2 5
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1708
1706
1704
1702
1700
1698
4000
5000
6000
7000
8000
9000
10000
11000
Station (ft)

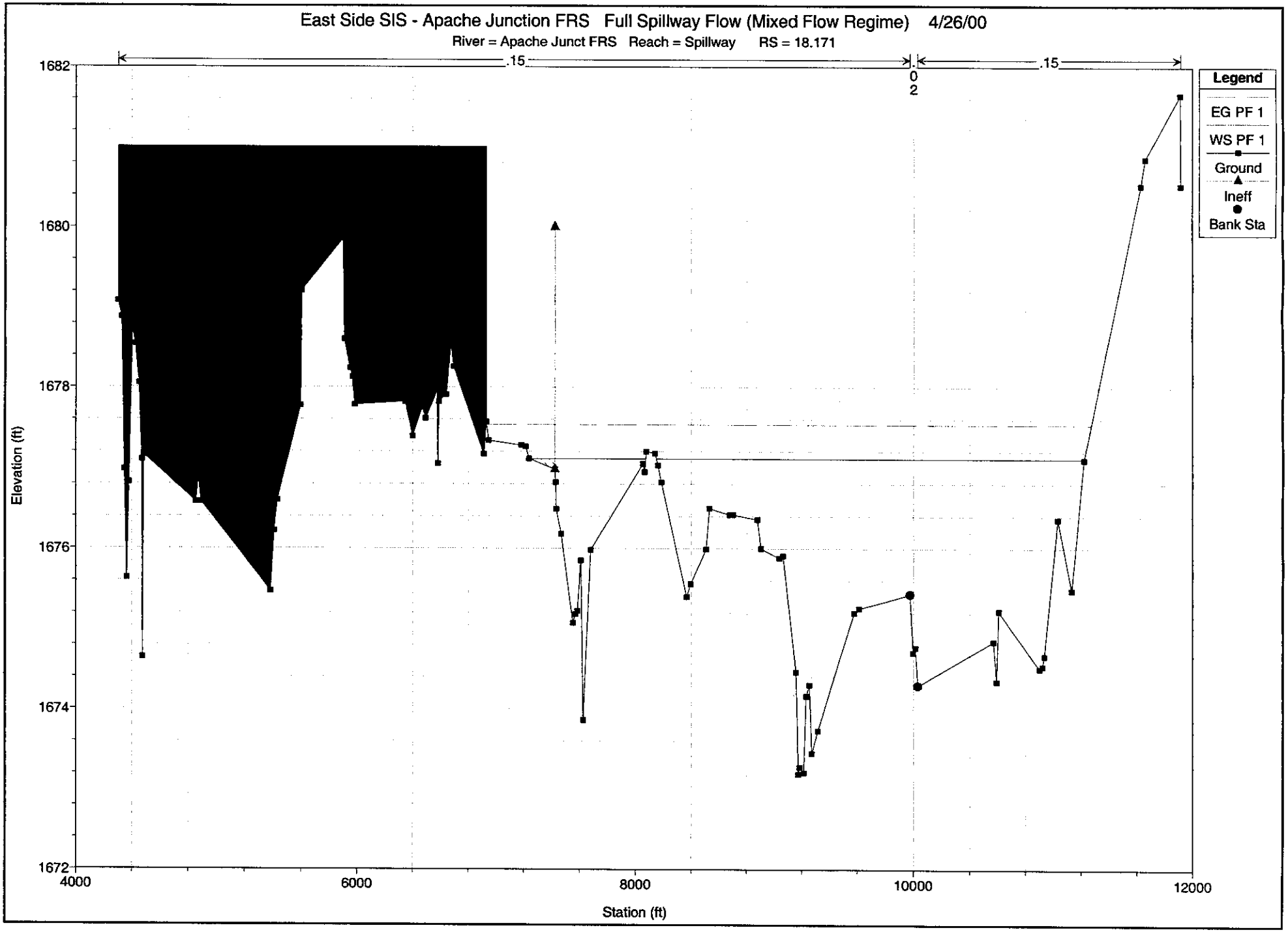

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.550
.15
.15
.09
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1699
1698
1697
1696
1695
1694
1693
1692
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

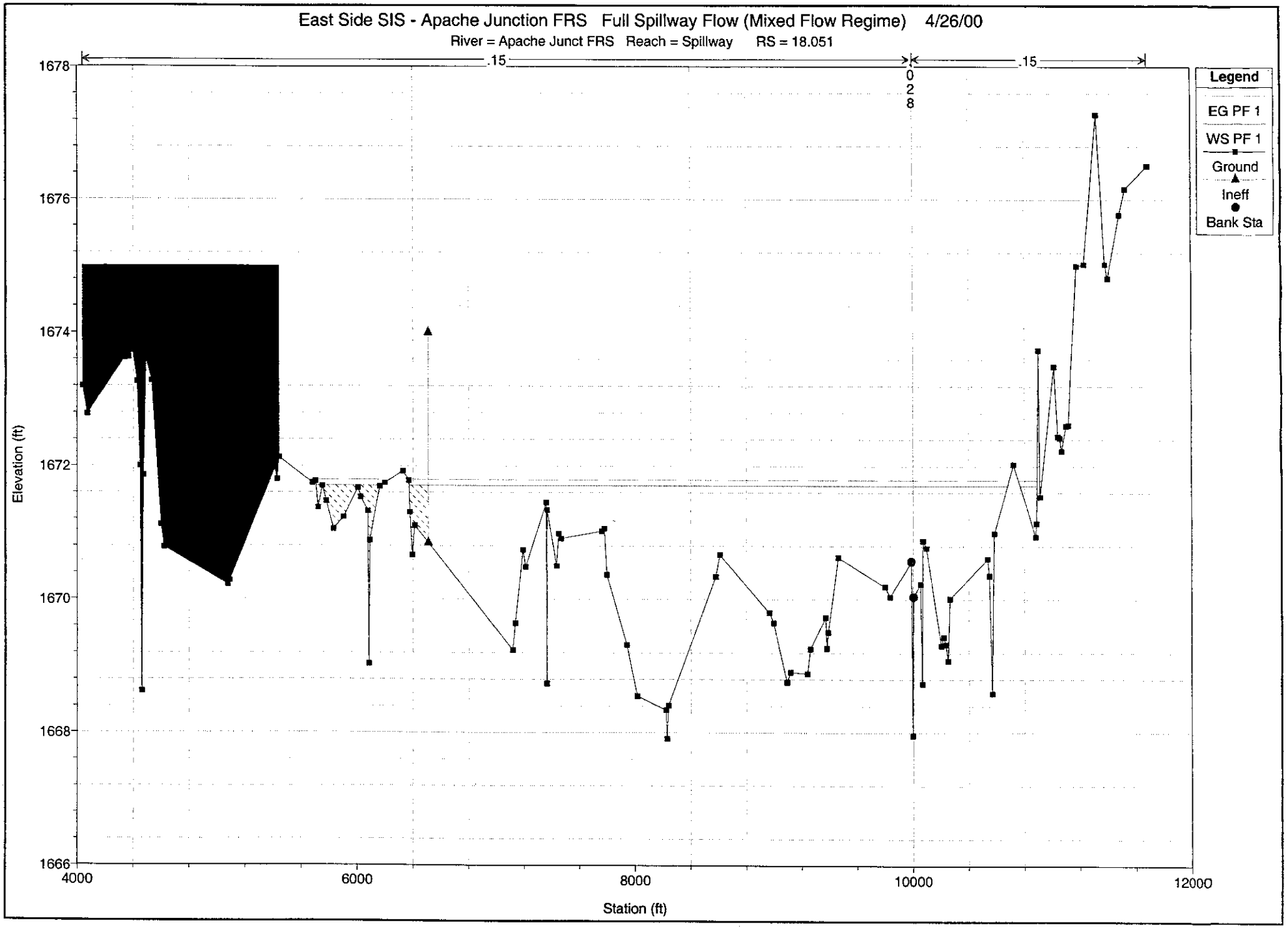

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.481
.15
.028
.09
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1698
1696
1694
1692
1690
1688
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

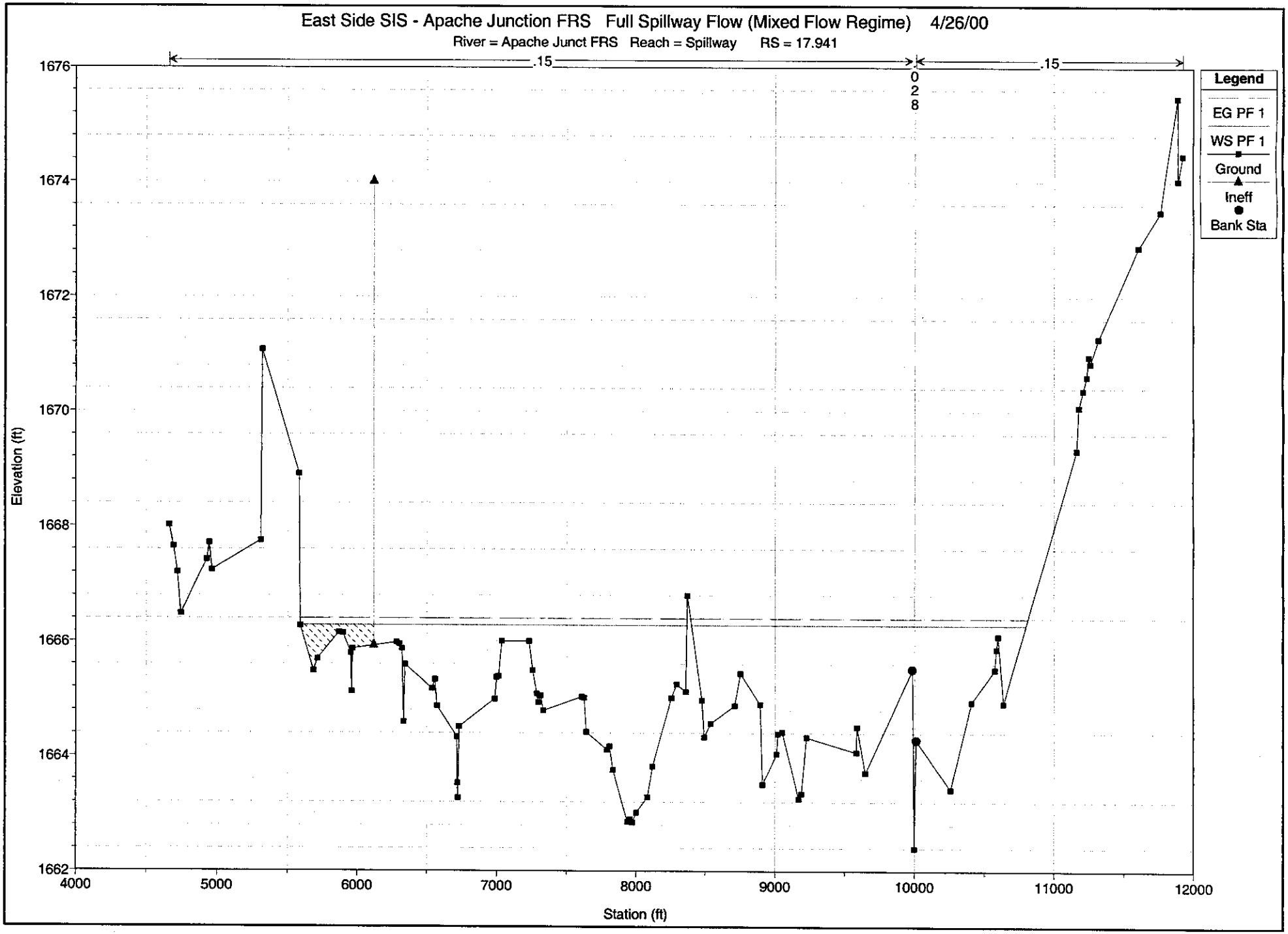

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.397
.15
.09
.15
.09
0
2
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1700
1698
1696
1694
1692
1690
1688
1686
1684
1682
4000
6000
8000
10000
12000
14000
Station (ft)

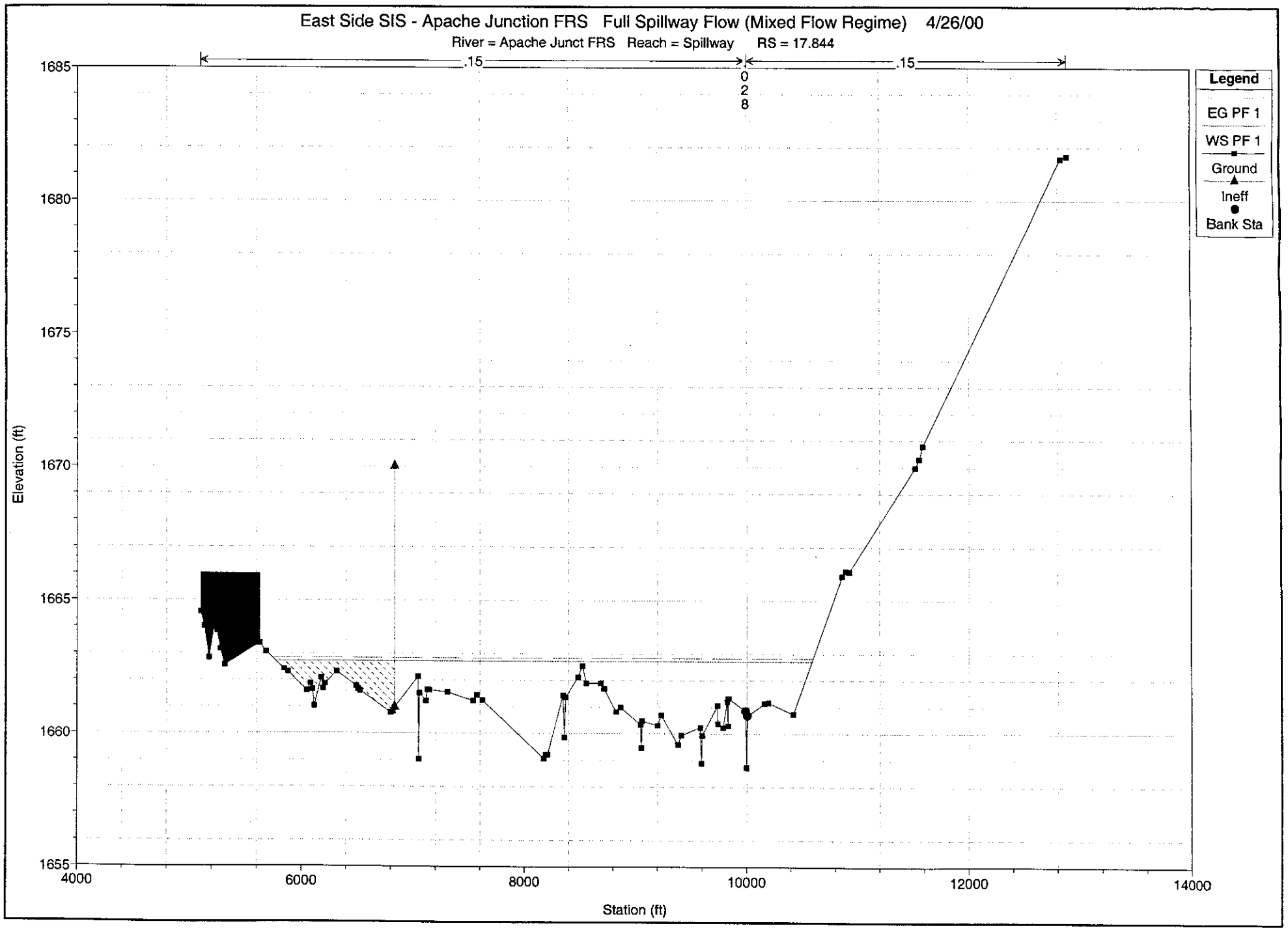

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.320
.15
.15
0
2
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1690
1688
1686
1684
1682
1680
1678
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

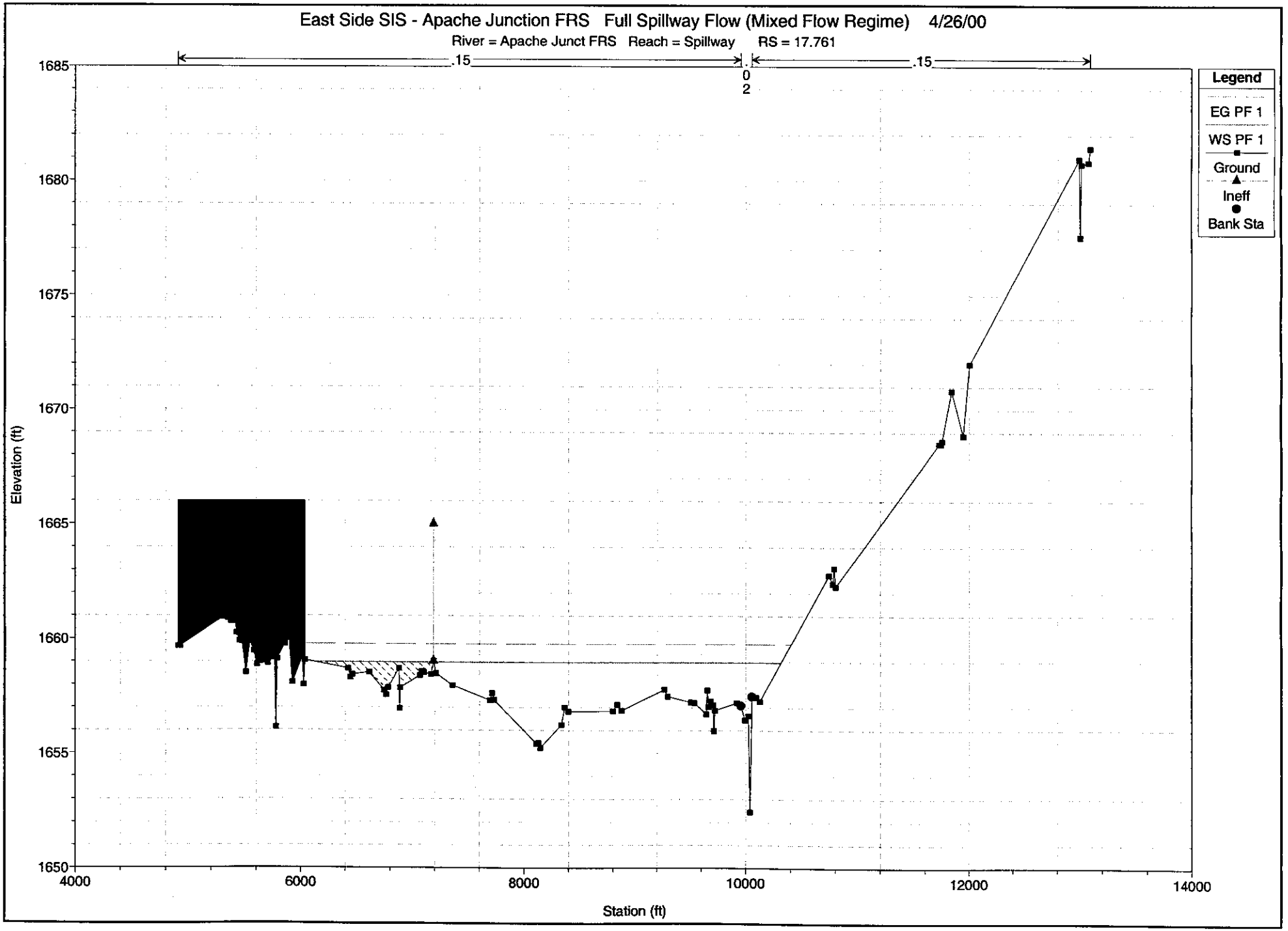

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.247
.15
.15
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1688
1686
1684
1682
1680
1678
1676
4000
6000
8000
10000
12000
Station (ft)

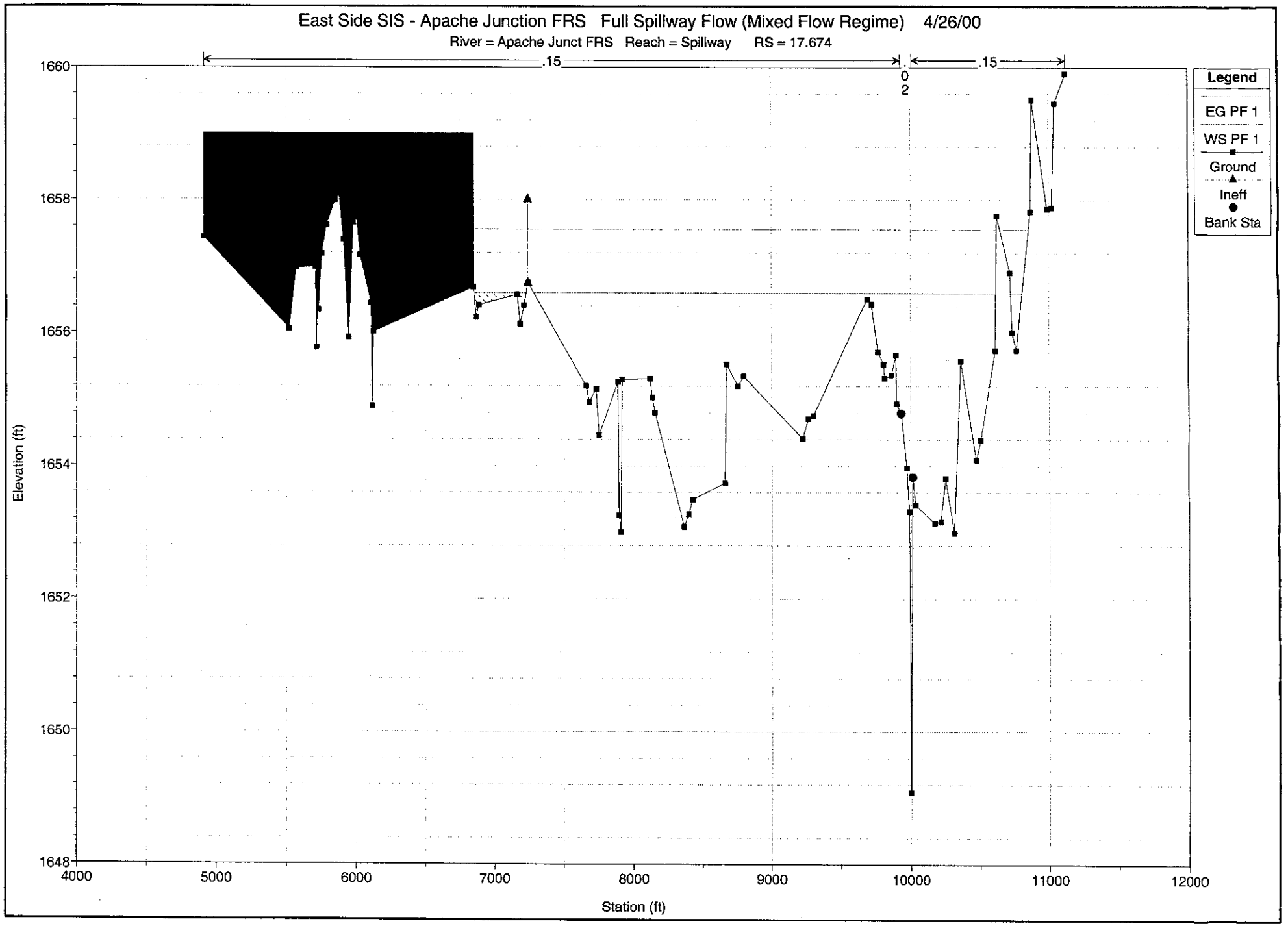

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.171
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1682
1680
1678
1676
1674
1672
4000
6000
8000
10000
12000
Station (ft)

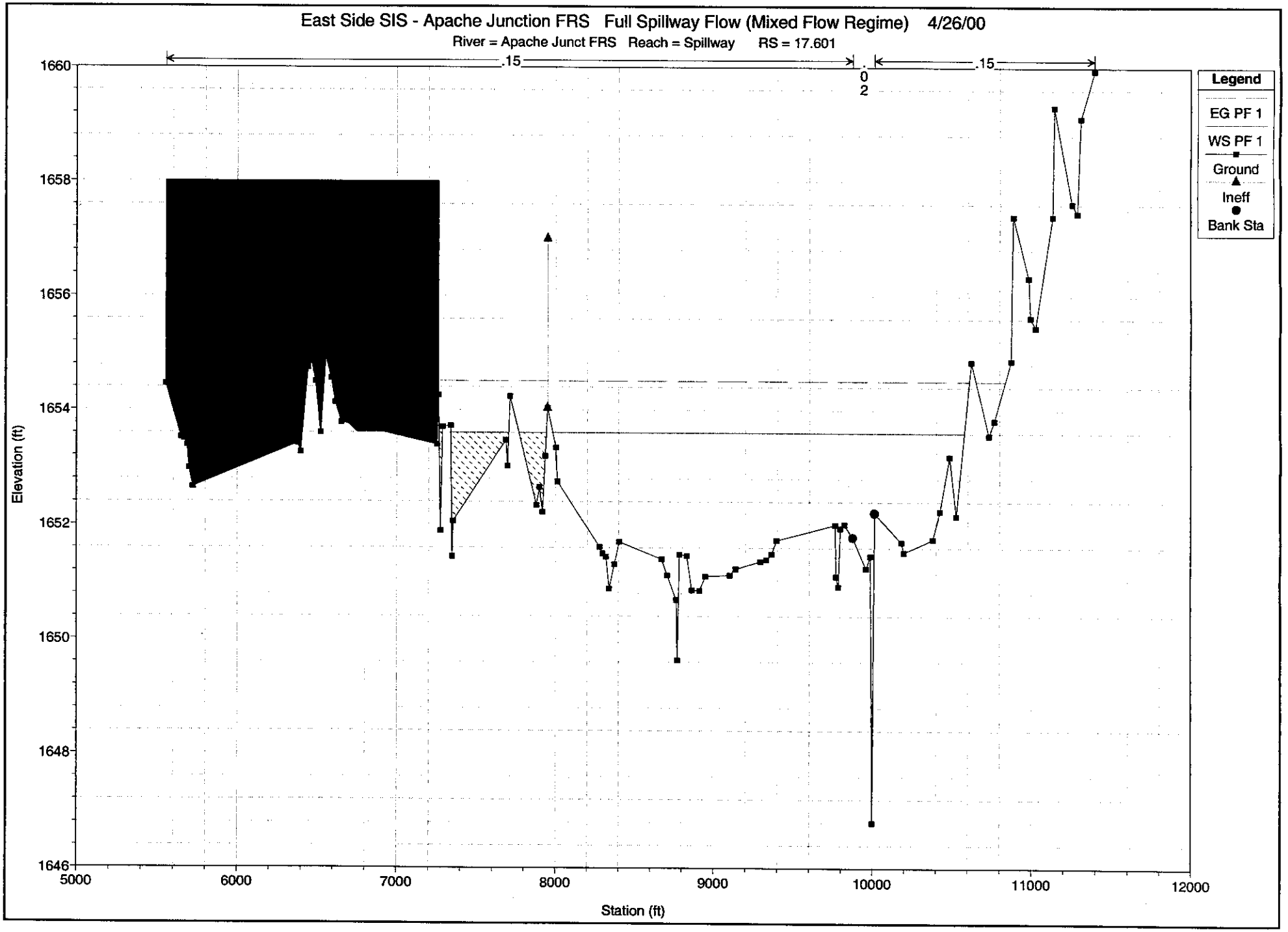

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 18.051
.15
.15
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1678
1676
1674
1672
1670
1668
1666
4000
6000
8000
10000
12000
Station (ft)

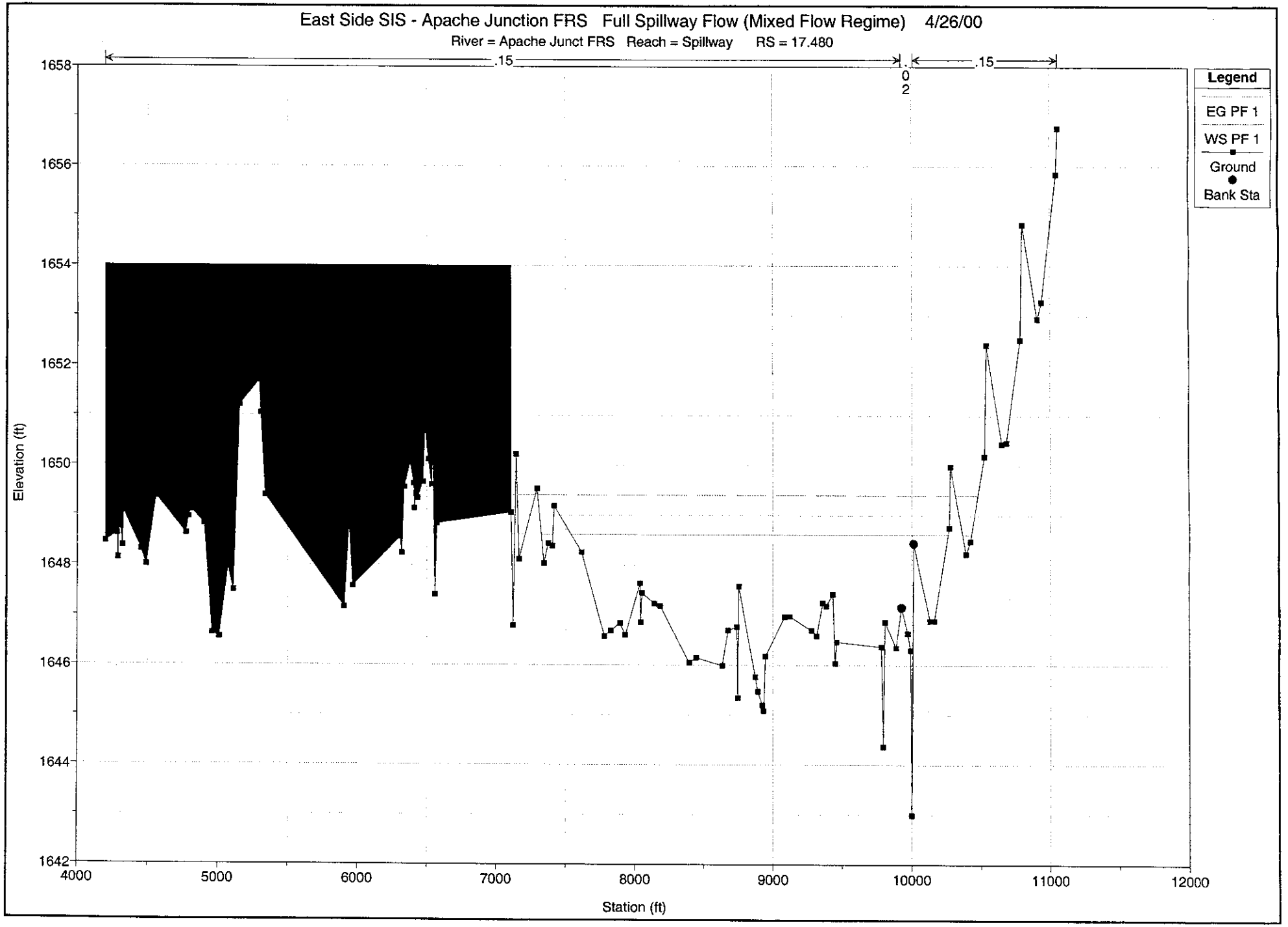

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.941
.15
.15
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1676
1674
1672
1670
1668
1666
1664
1662
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

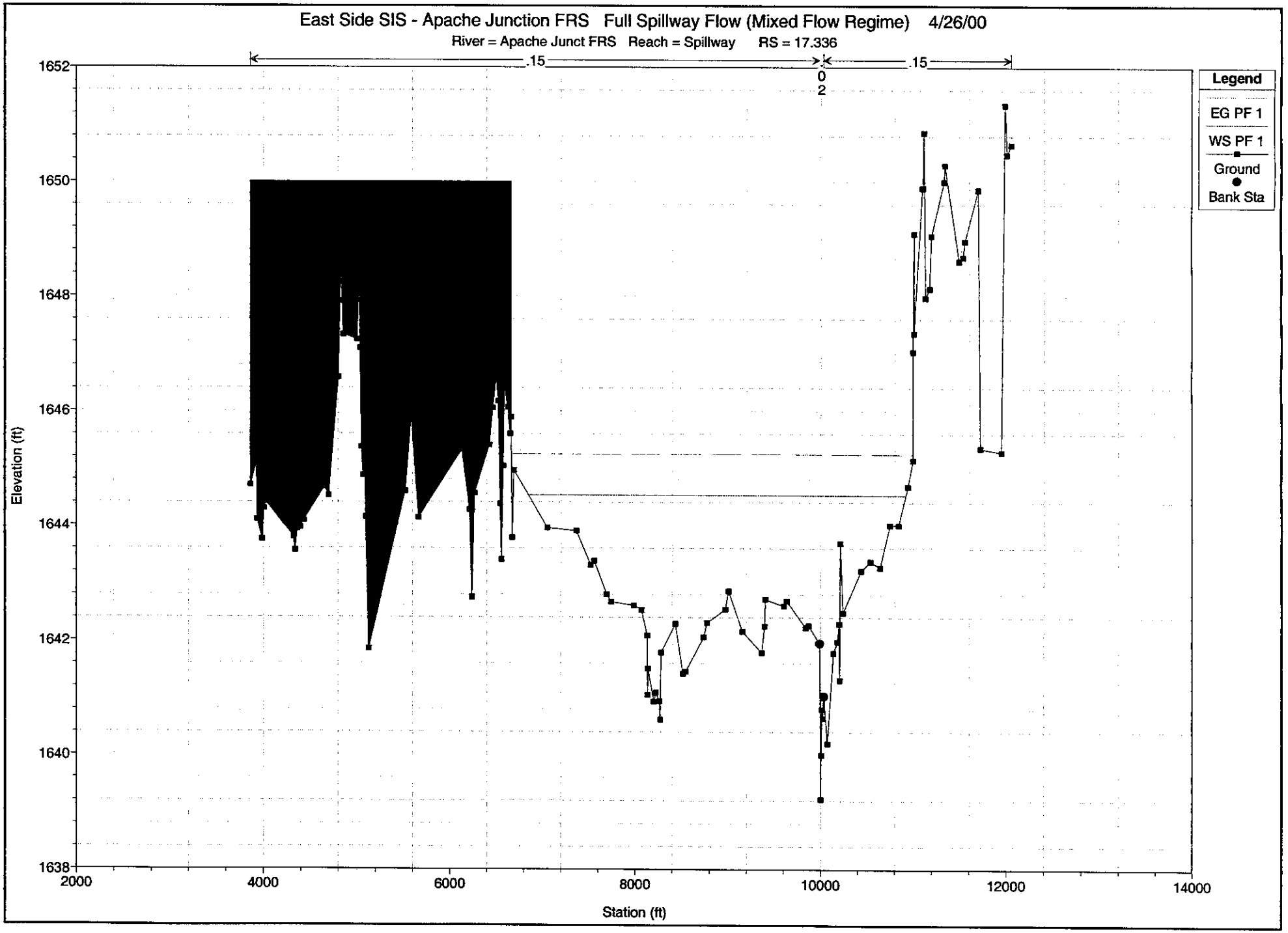

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.844
.15
0
2
8
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1685
1680
1675
1670
1665
1660
1655
4000
6000
8000
10000
12000
14000
Station (ft)

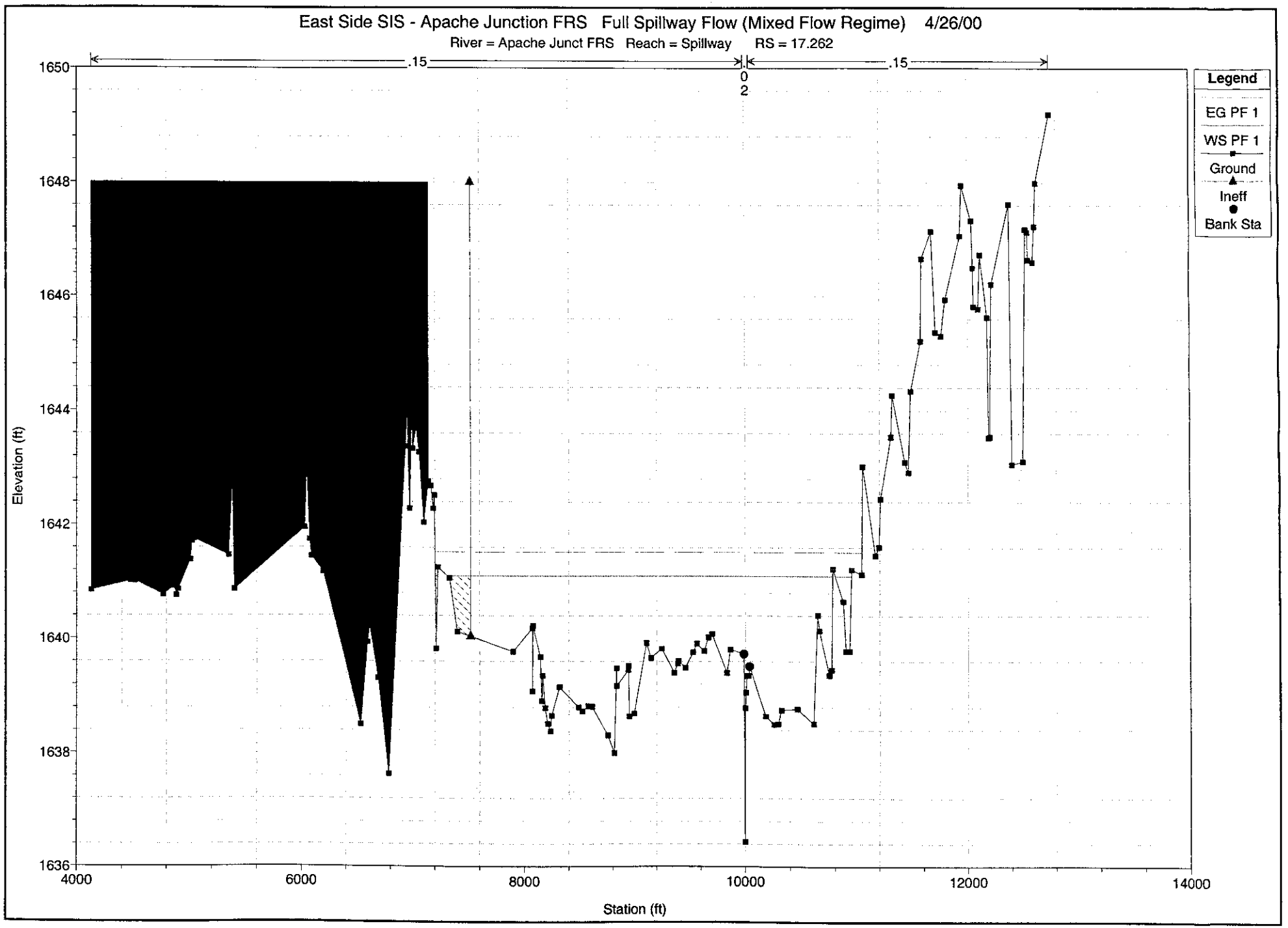

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.761
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1685
1680
1675
1670
1665
1660
1655
1650
4000
6000
8000
10000
12000
14000
Station (ft)

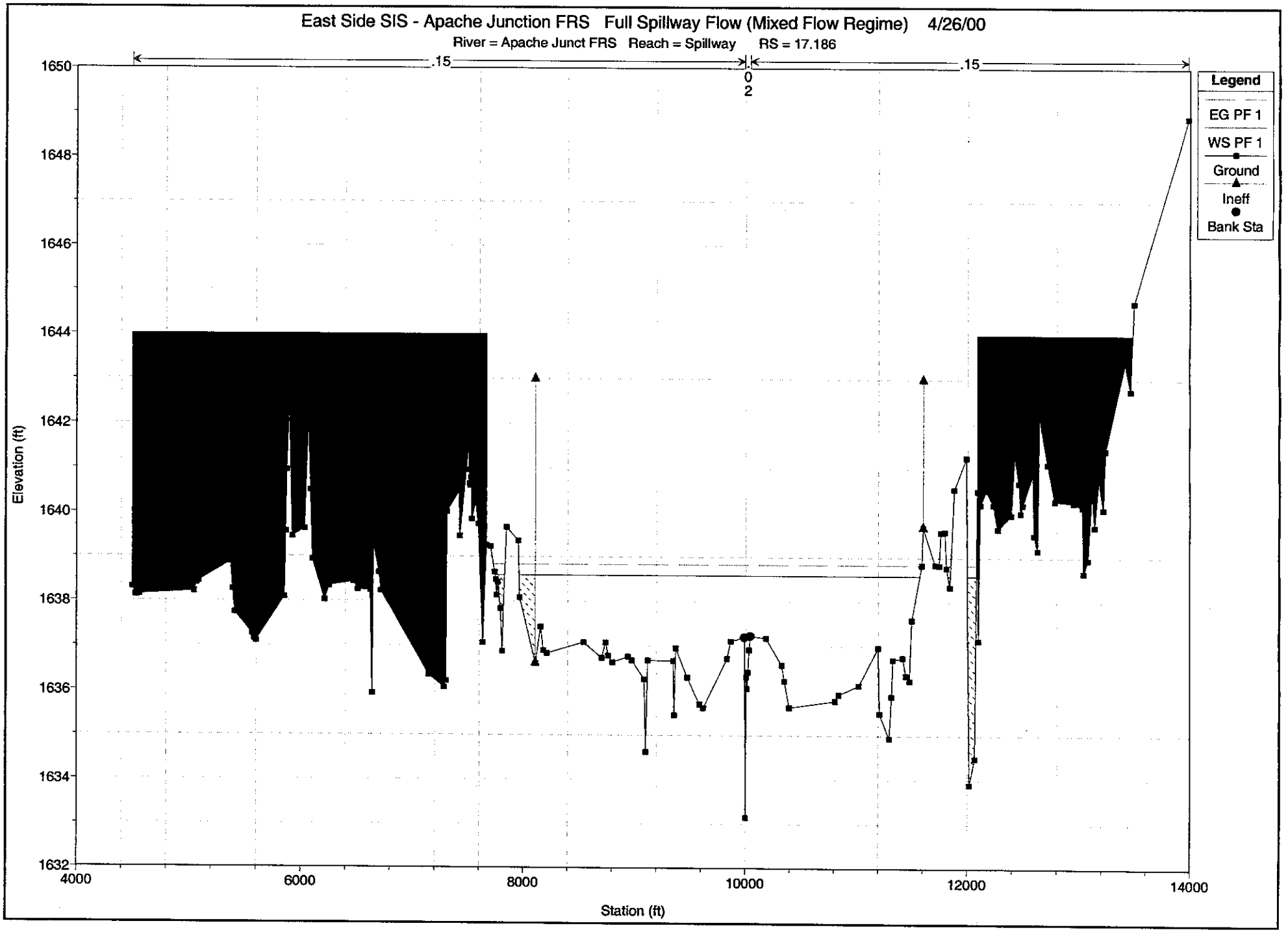

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.674
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1660
1658
1656
1654
1652
1650
1648
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

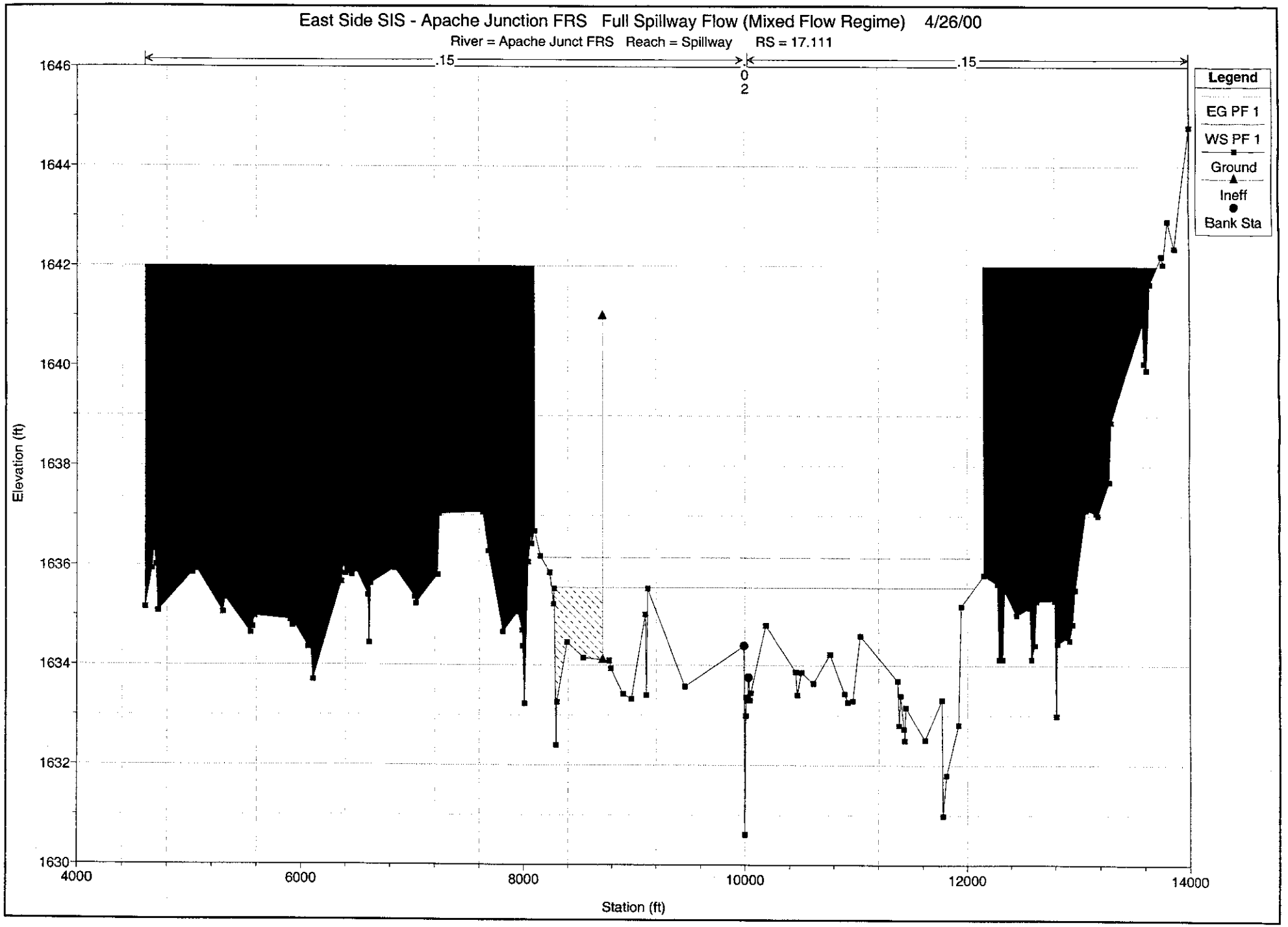

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.601
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1660
1658
1656
1654
1652
1650
1648
1646
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

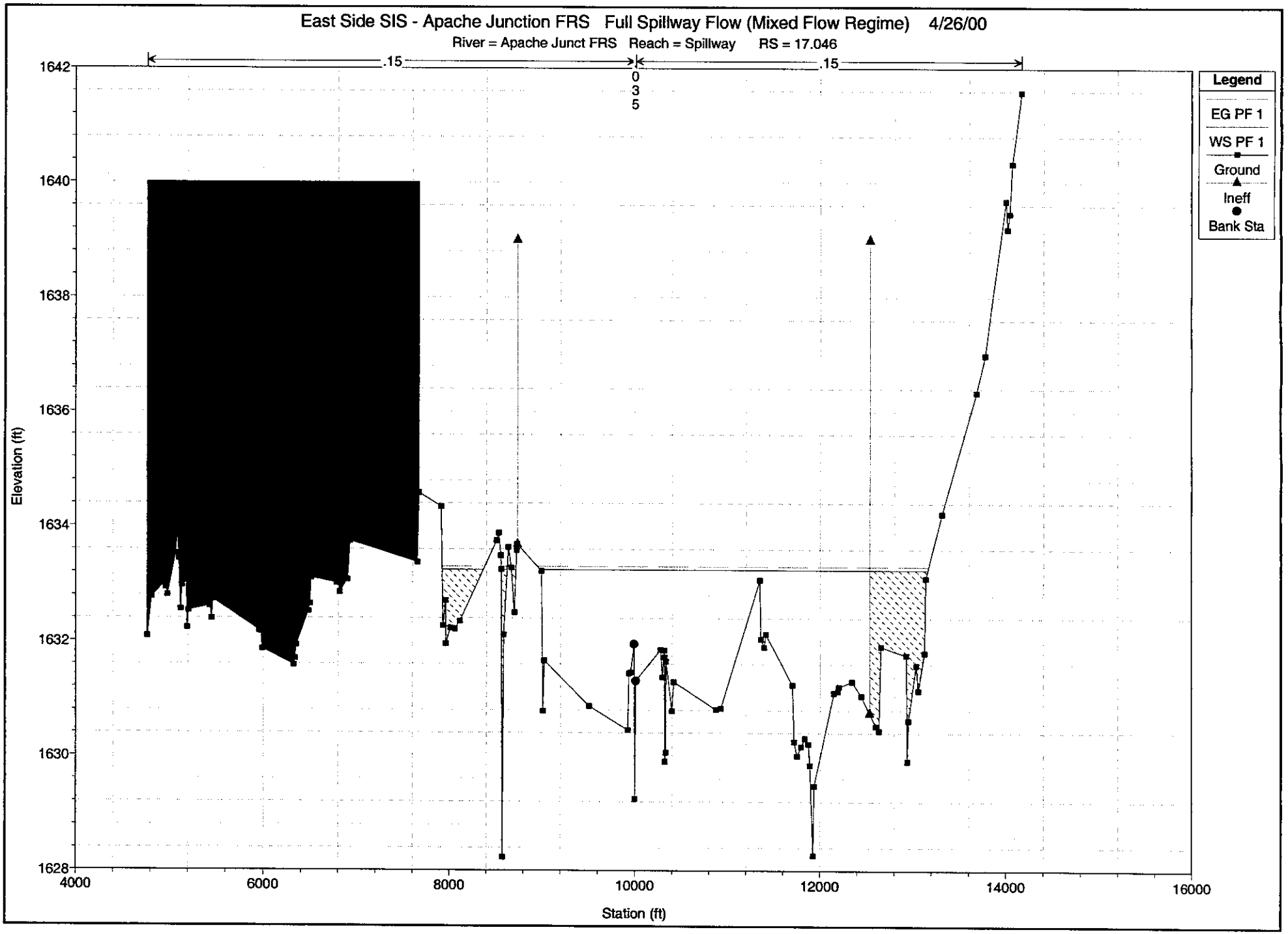

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.480
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1658
1656
1654
1652
1650
1648
1646
1644
1642
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

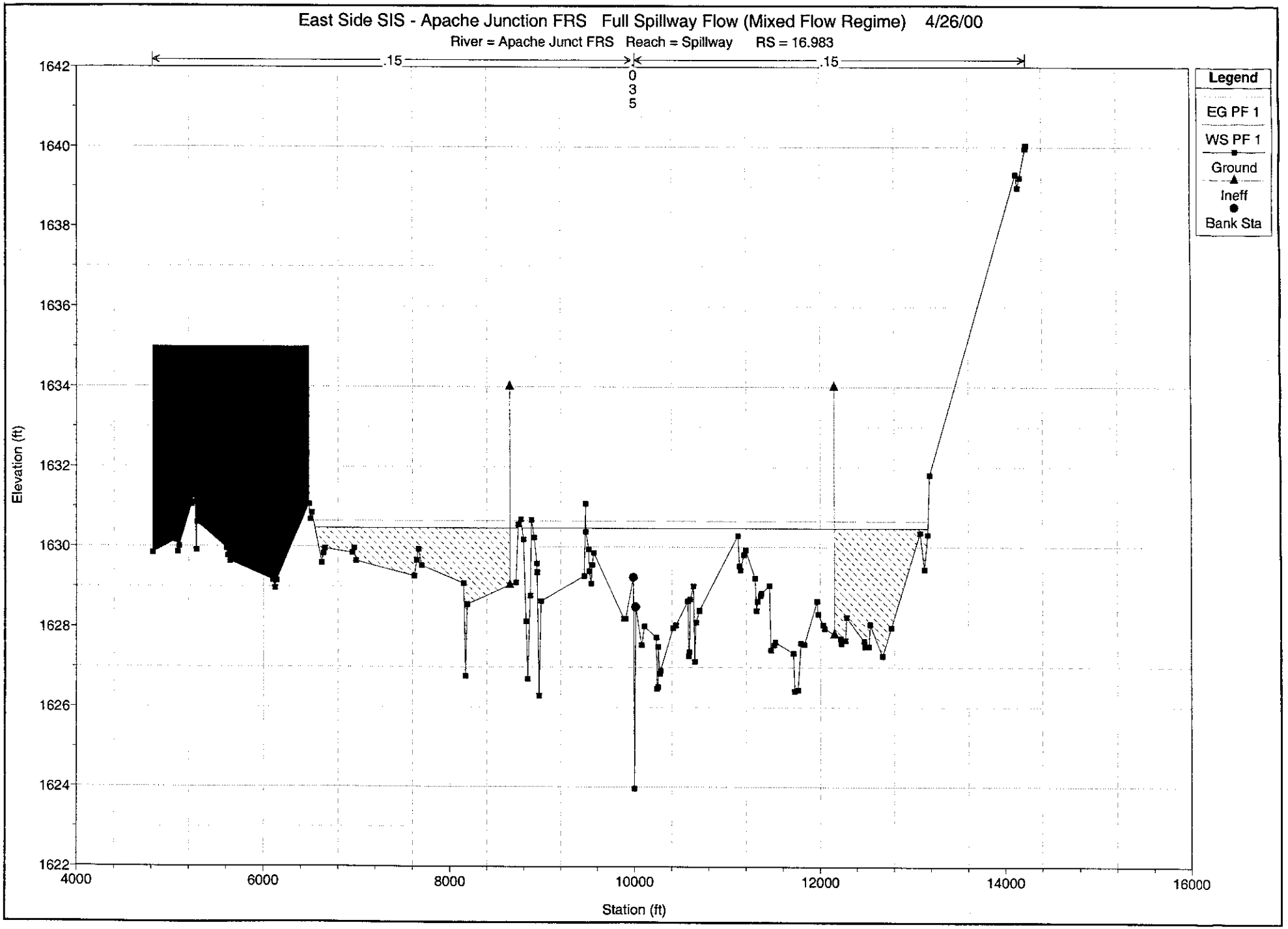

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.336
.15
0
2
.15
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1652
1650
1648
1646
1644
1642
1640
1638
2000
4000
6000
8000
10000
12000
14000
Station (ft)

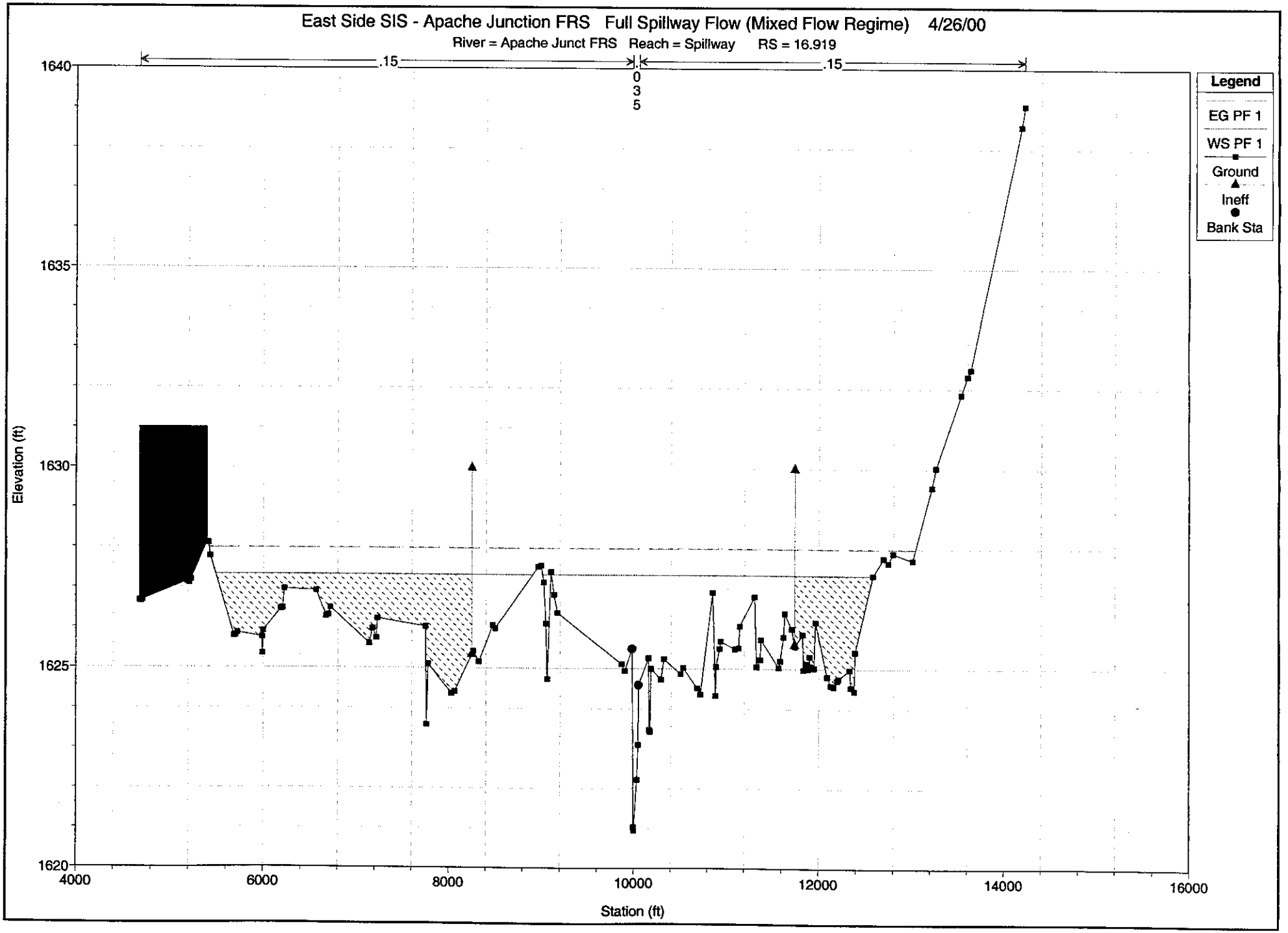

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.262
.15
.15
0
2
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1650
1648
1646
1644
1642
1640
1638
1636
4000
6000
8000
10000
12000
14000
Station (ft)

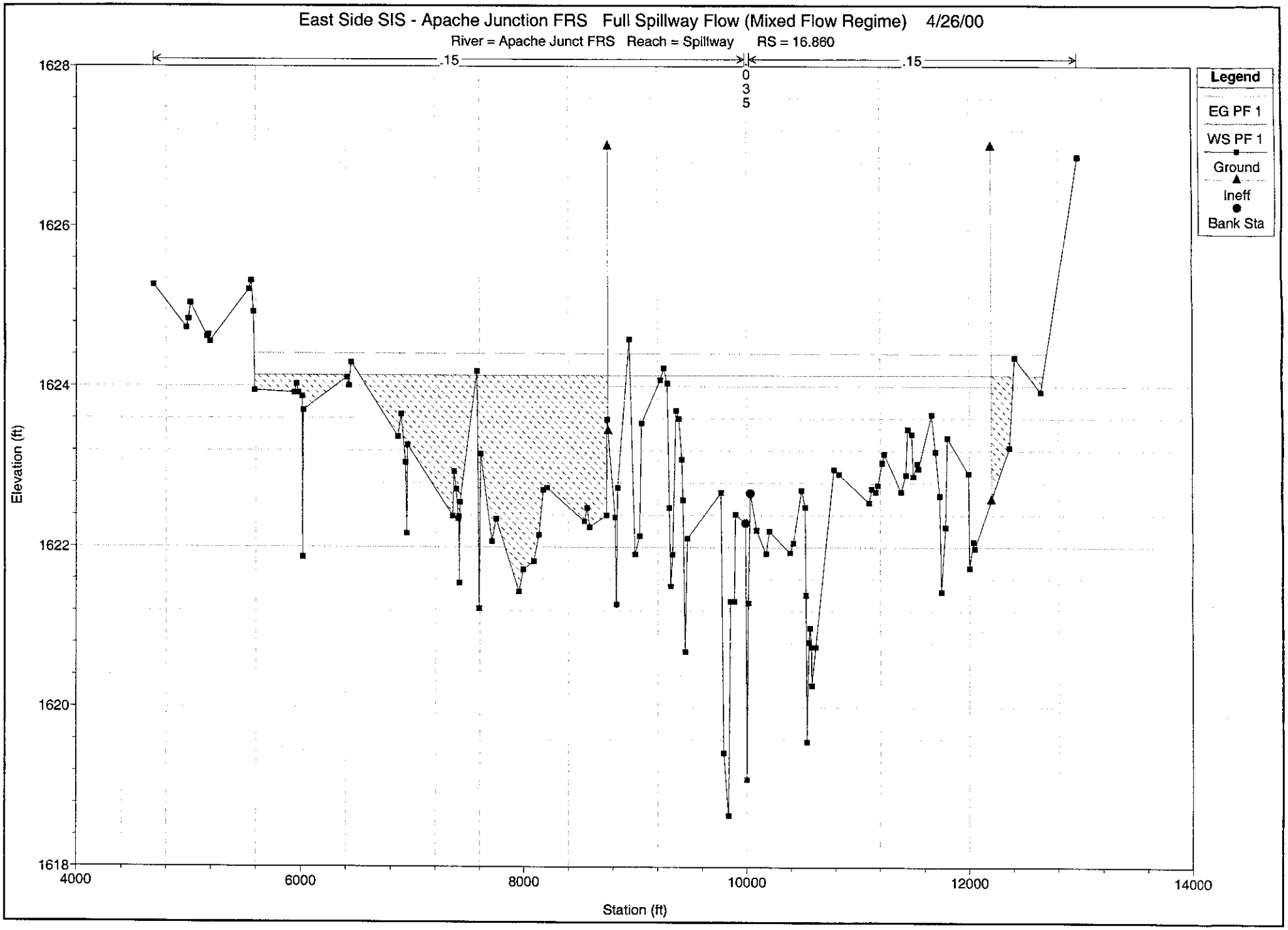

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.186
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1650
1648
1646
1644
1642
1640
1638
1636
1634
1632
4000
6000
8000
10000
12000
14000
Station (ft)

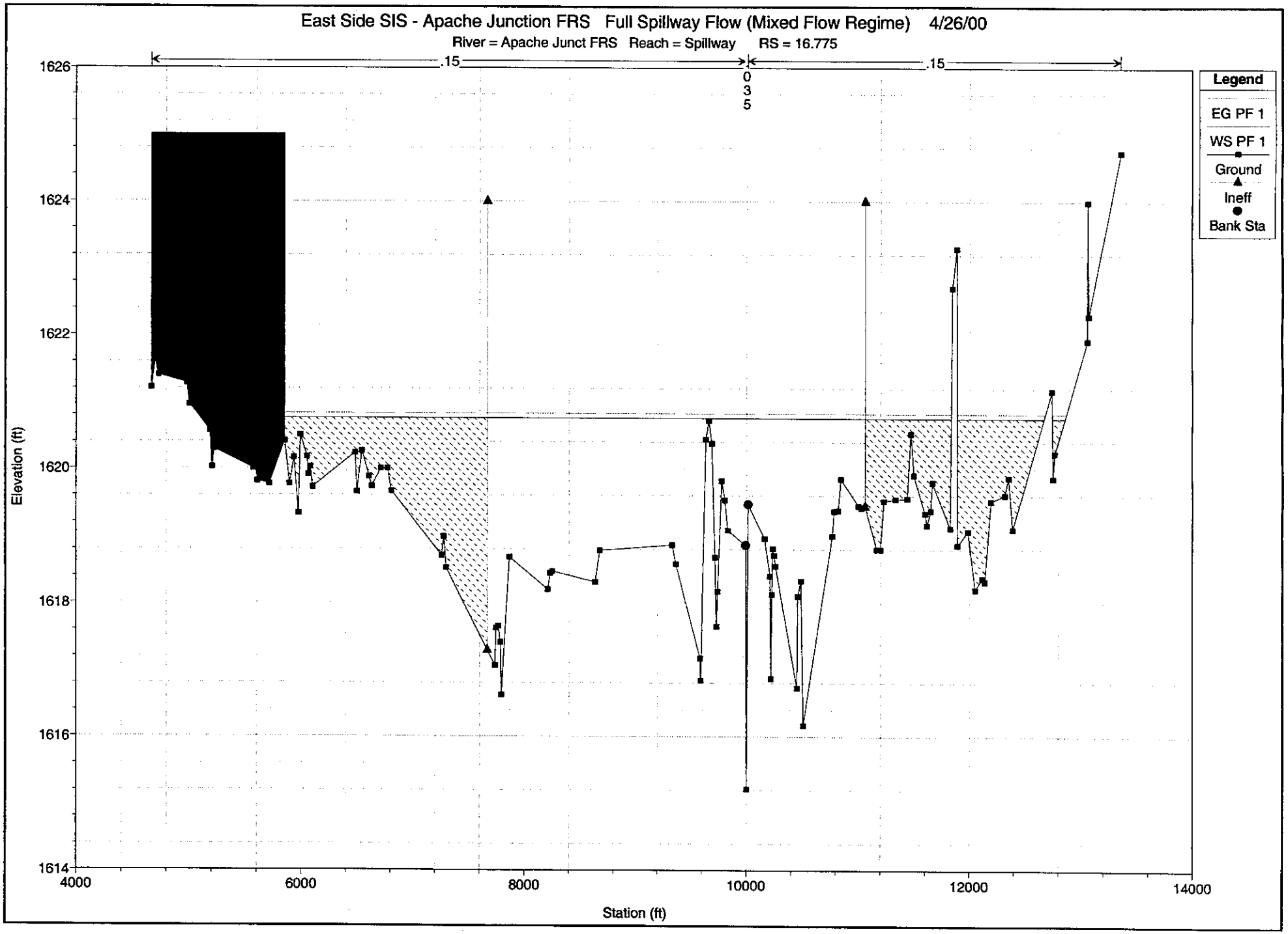

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.111
.15
0
2
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1646
1644
1642
1640
1638
1636
1634
1632
1630
4000
6000
8000
10000
12000
14000
Station (ft)

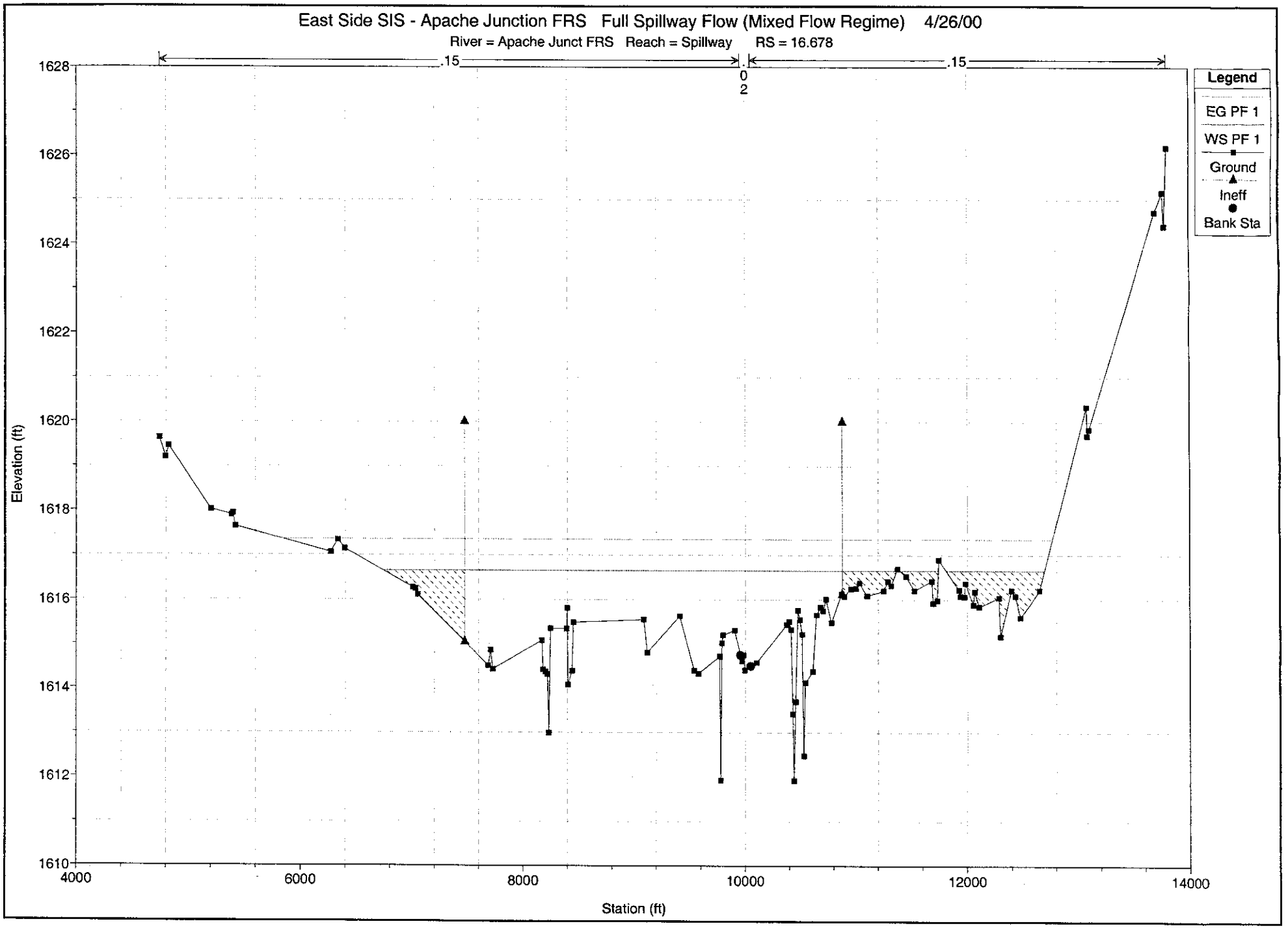

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 17.046
.15
.15
0
3
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1642
1640
1638
1636
1634
1632
1630
1628
4000
6000
8000
10000
12000
14000
16000
Station (ft)

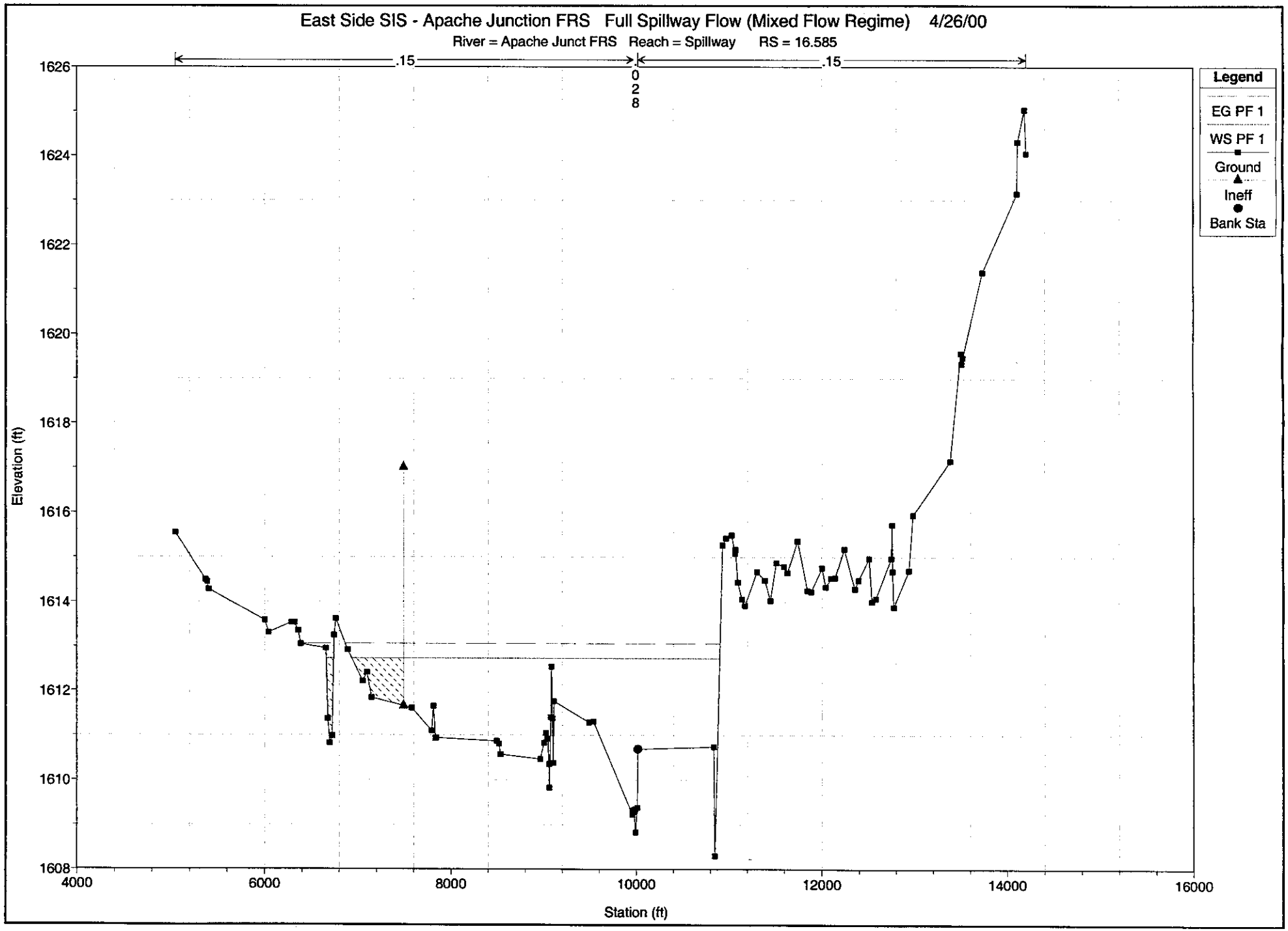

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.983
.15
.15
0
3
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1642
1640
1638
1636
1634
1632
1630
1628
1626
1624
1622
4000
6000
8000
10000
12000
14000
16000
Station (ft)

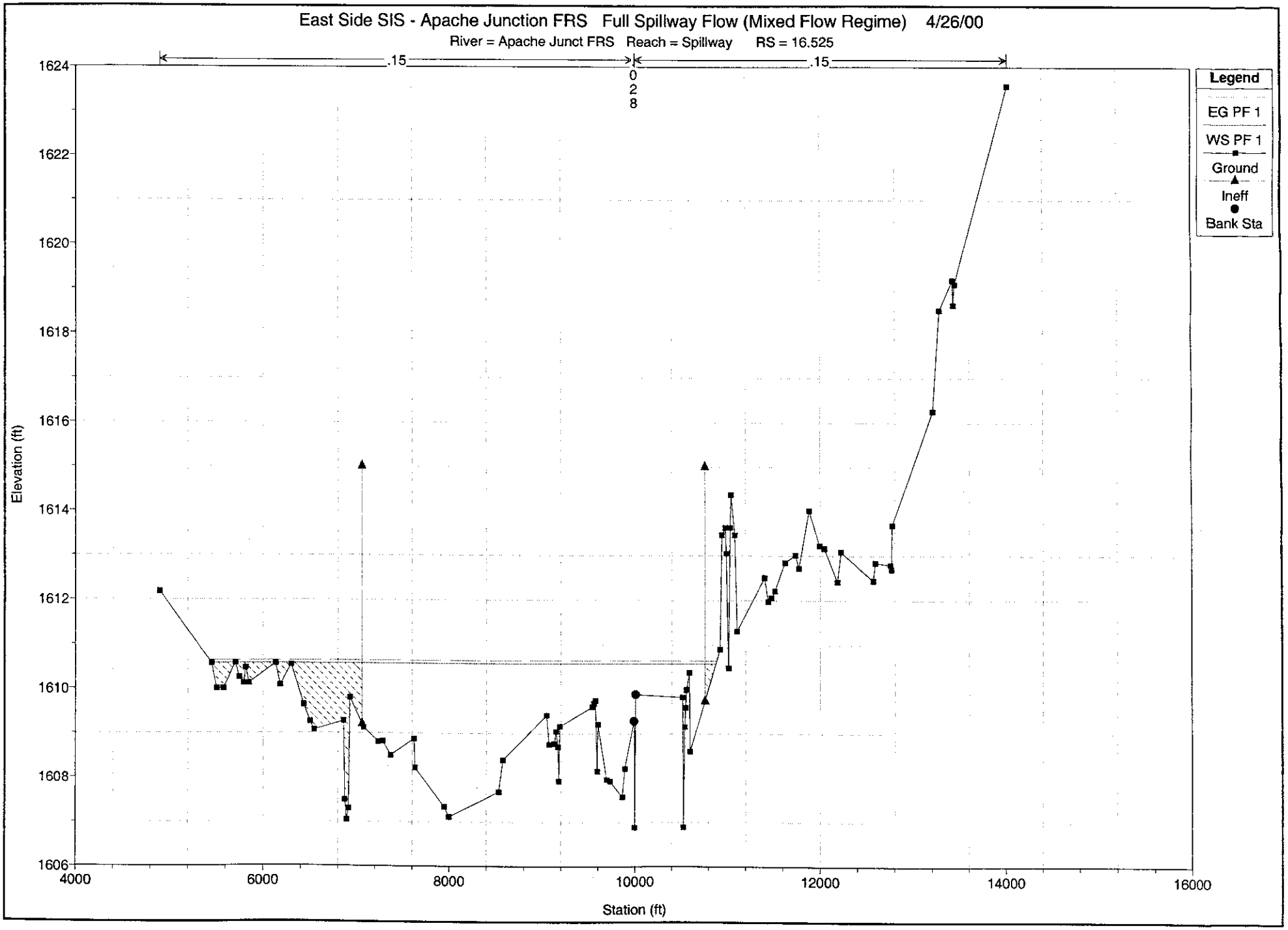

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.919
.15
.035
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1640
1635
1630
1625
1620
4000
6000
8000
10000
12000
14000
16000
Station (ft)

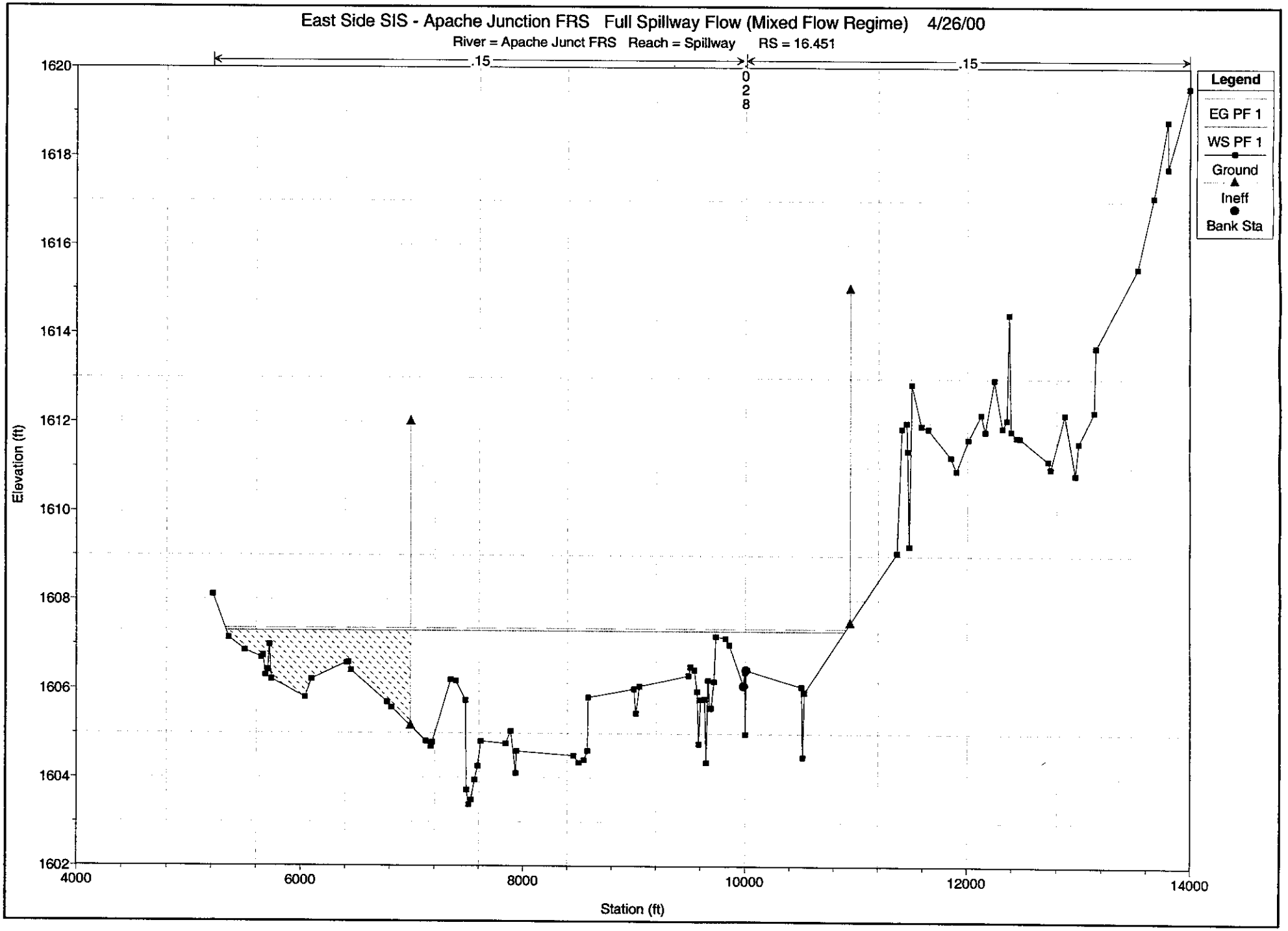

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.860
.15
.15
0
3
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1628
1626
1624
1622
1620
1618
4000
6000
8000
10000
12000
14000
Station (ft)

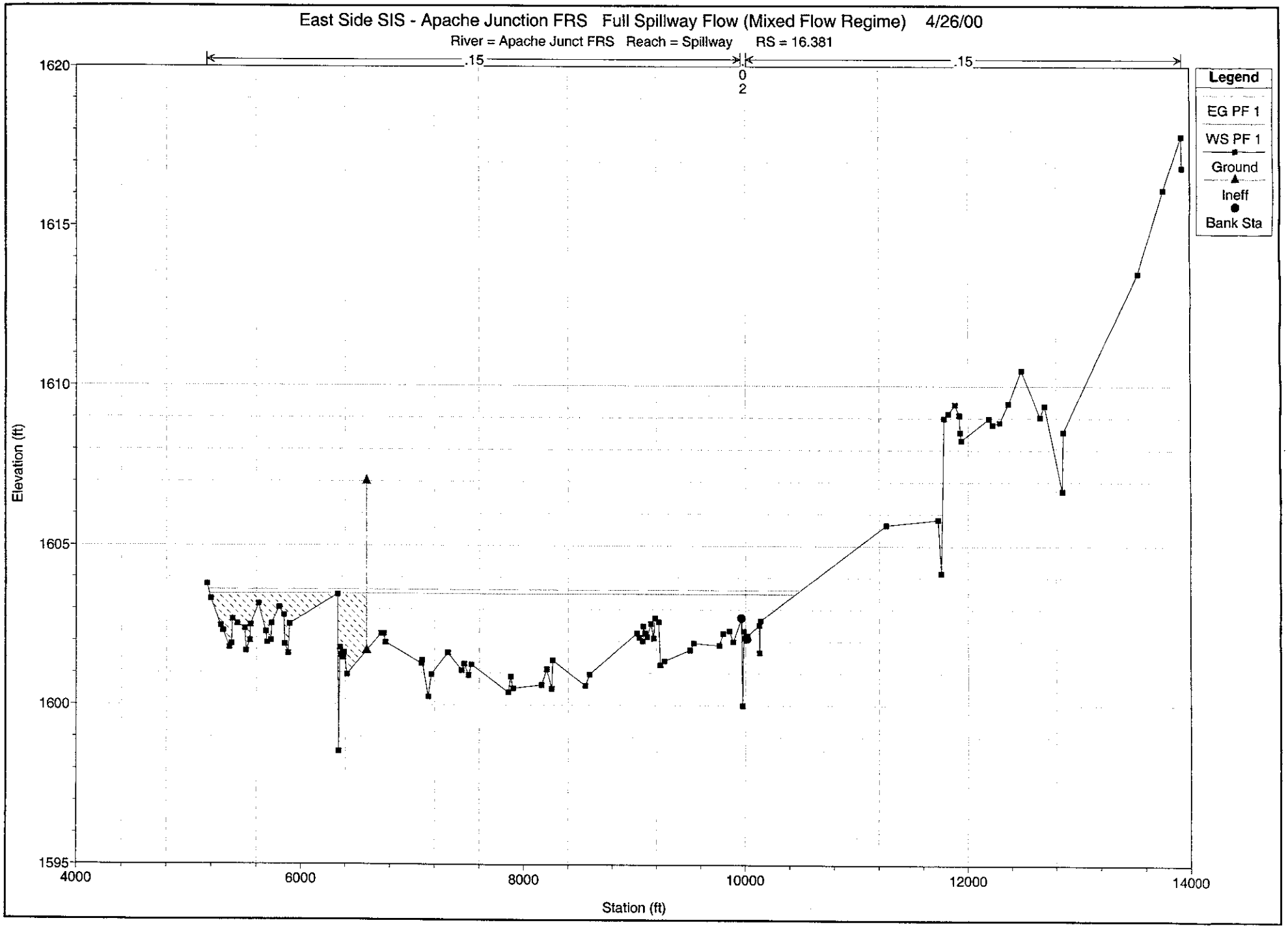

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.775
.15
.15
0
3
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1626
1624
1622
1620
1618
1616
1614
4000
6000
8000
10000
12000
14000
Station (ft)

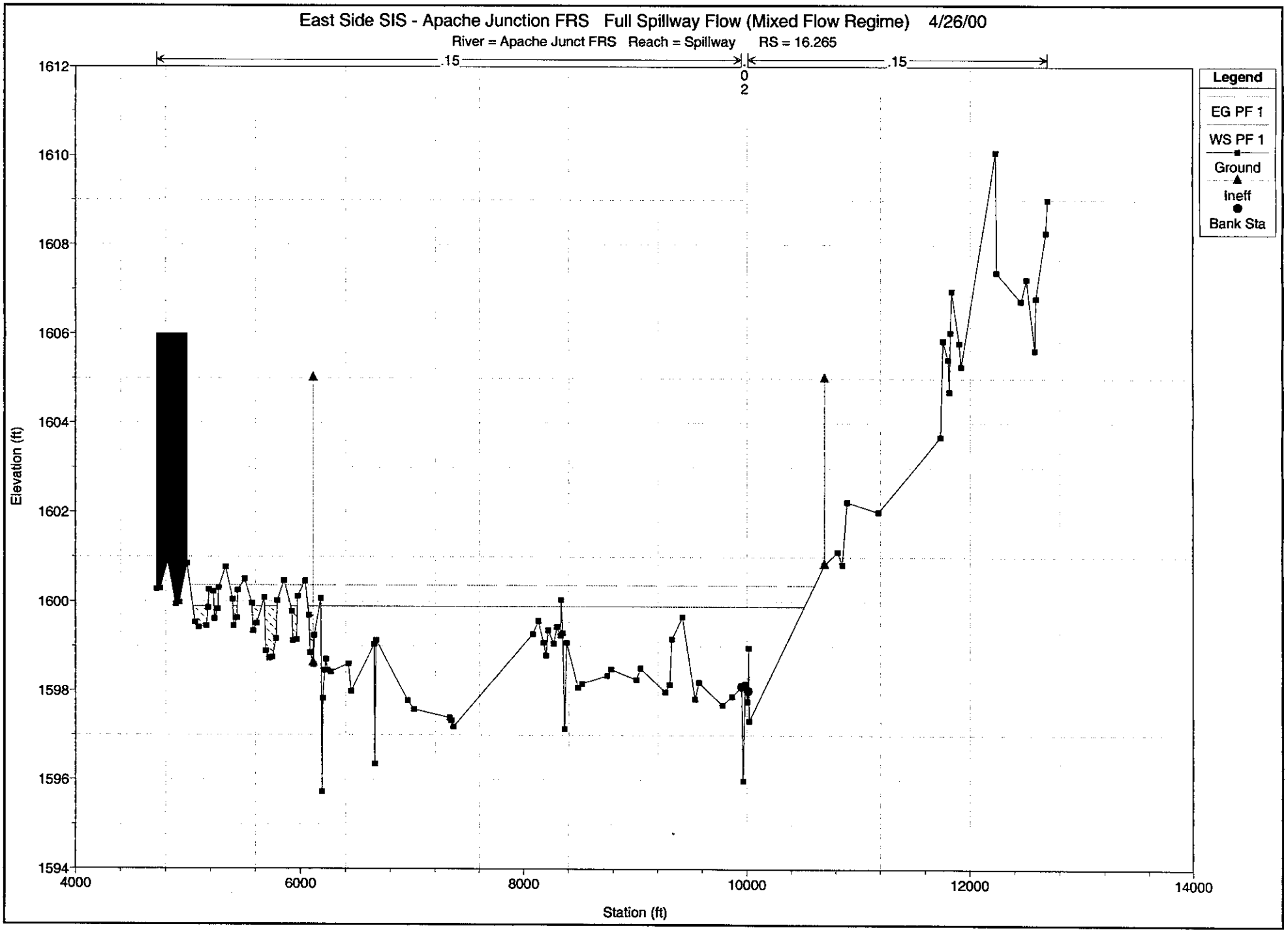

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.678
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1628
1626
1624
1622
1620
1618
1616
1614
1612
1610
4000
6000
8000
10000
12000
14000
Station (ft)

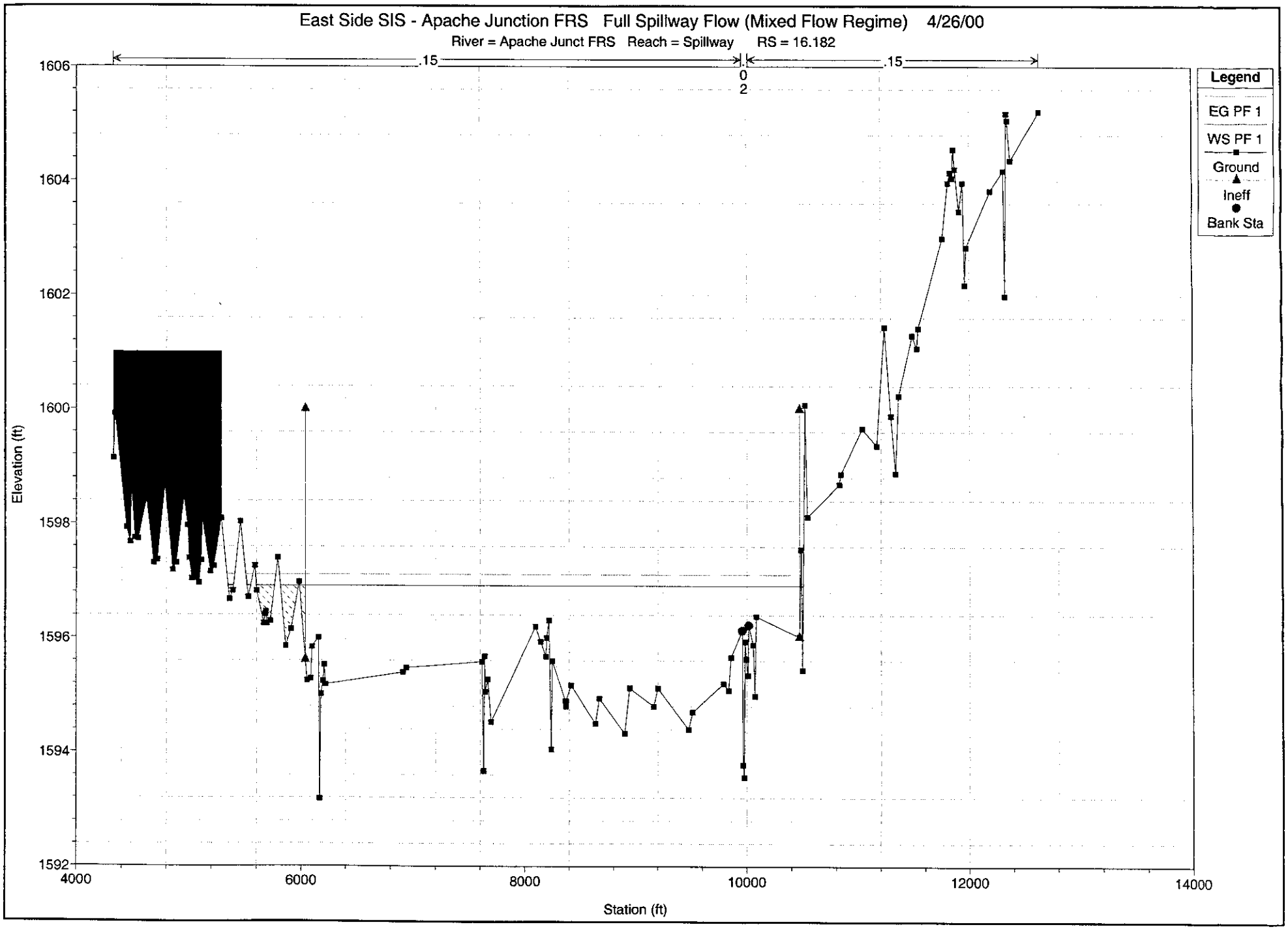

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.585
.15
.15
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1626
1624
1622
1620
1618
1616
1614
1612
1610
1608
4000
6000
8000
10000
12000
14000
16000
Station (ft)

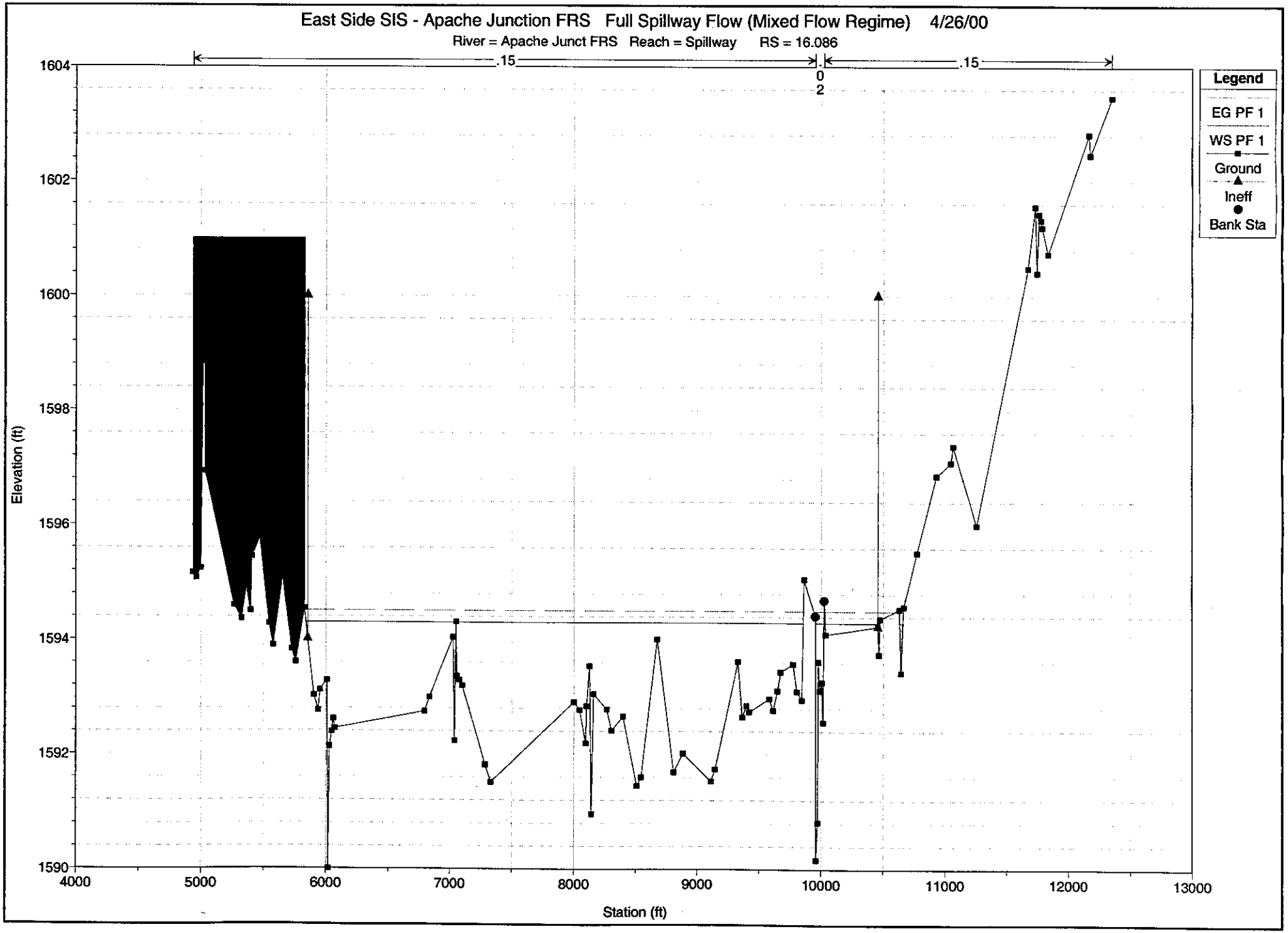

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.525
.15
.15
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1624
1622
1620
1618
1616
1614
1612
1610
1608
1606
4000
6000
8000
10000
12000
14000
16000
Station (ft)

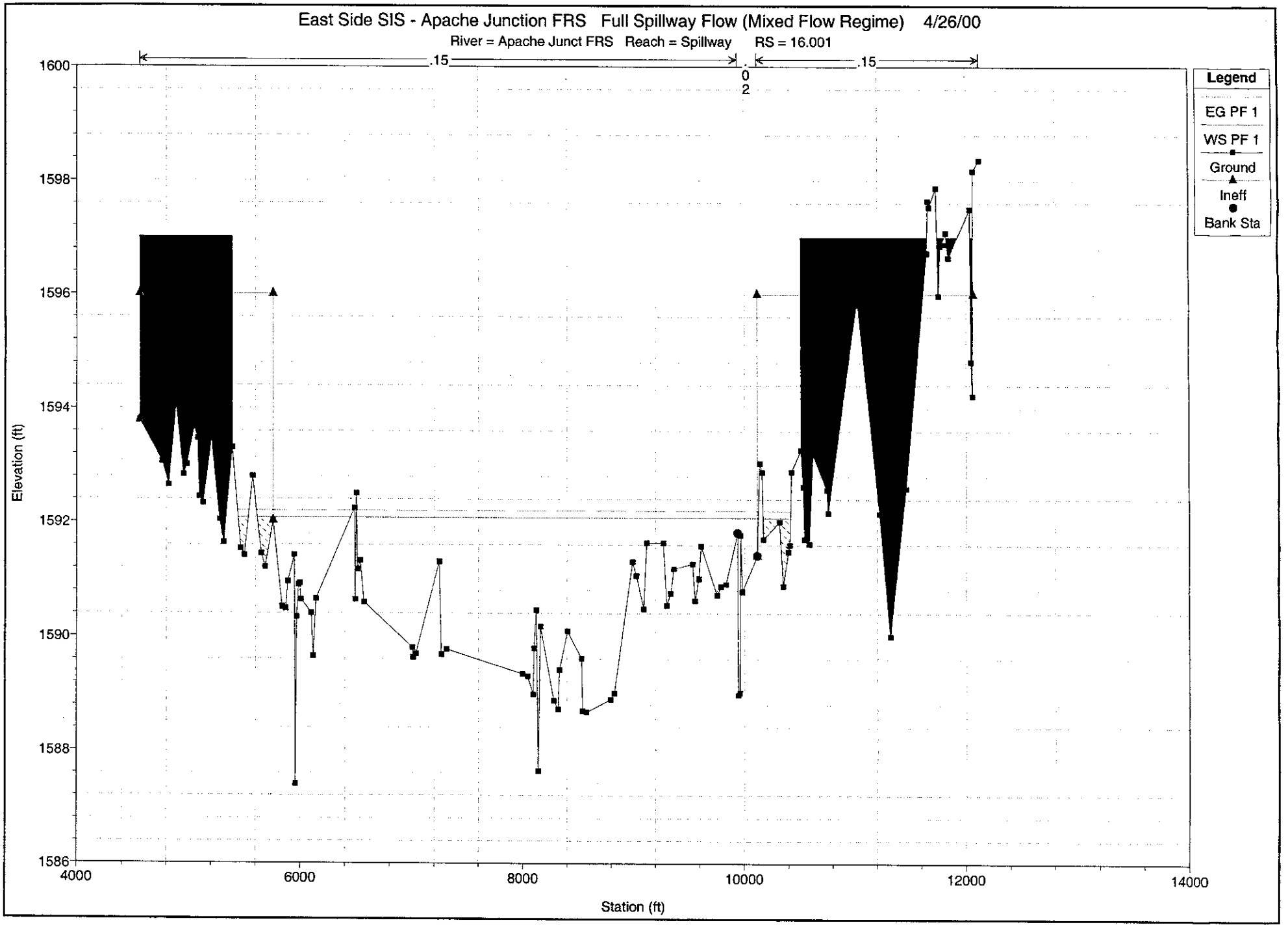

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.451
.15
.028
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1620
1618
1616
1614
1612
1610
1608
1606
1604
1602
4000
6000
8000
10000
12000
14000
Station (ft)

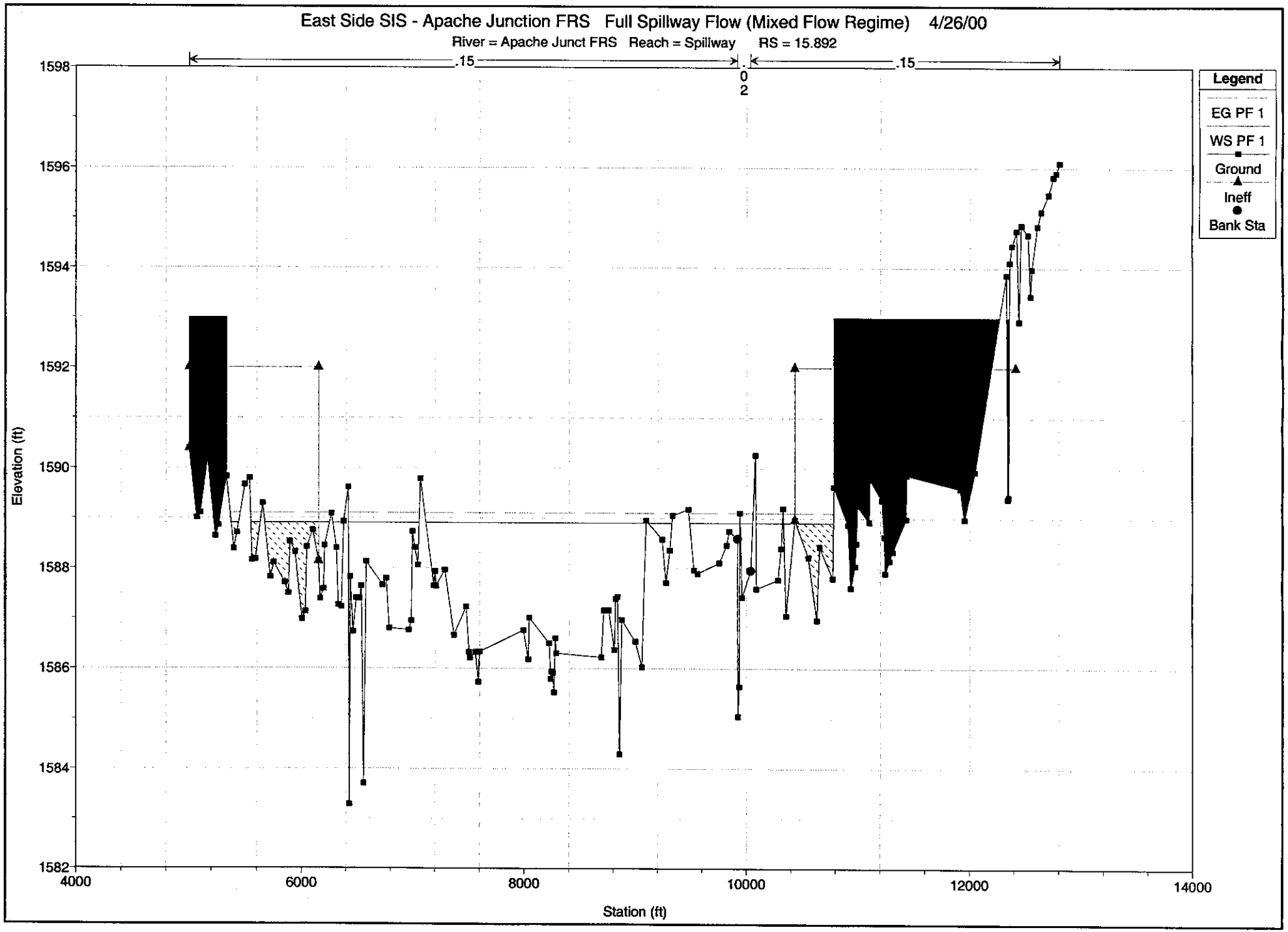

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.381
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1620
1615
1610
1605
1600
1595
4000
6000
8000
10000
12000
14000
Station (ft)

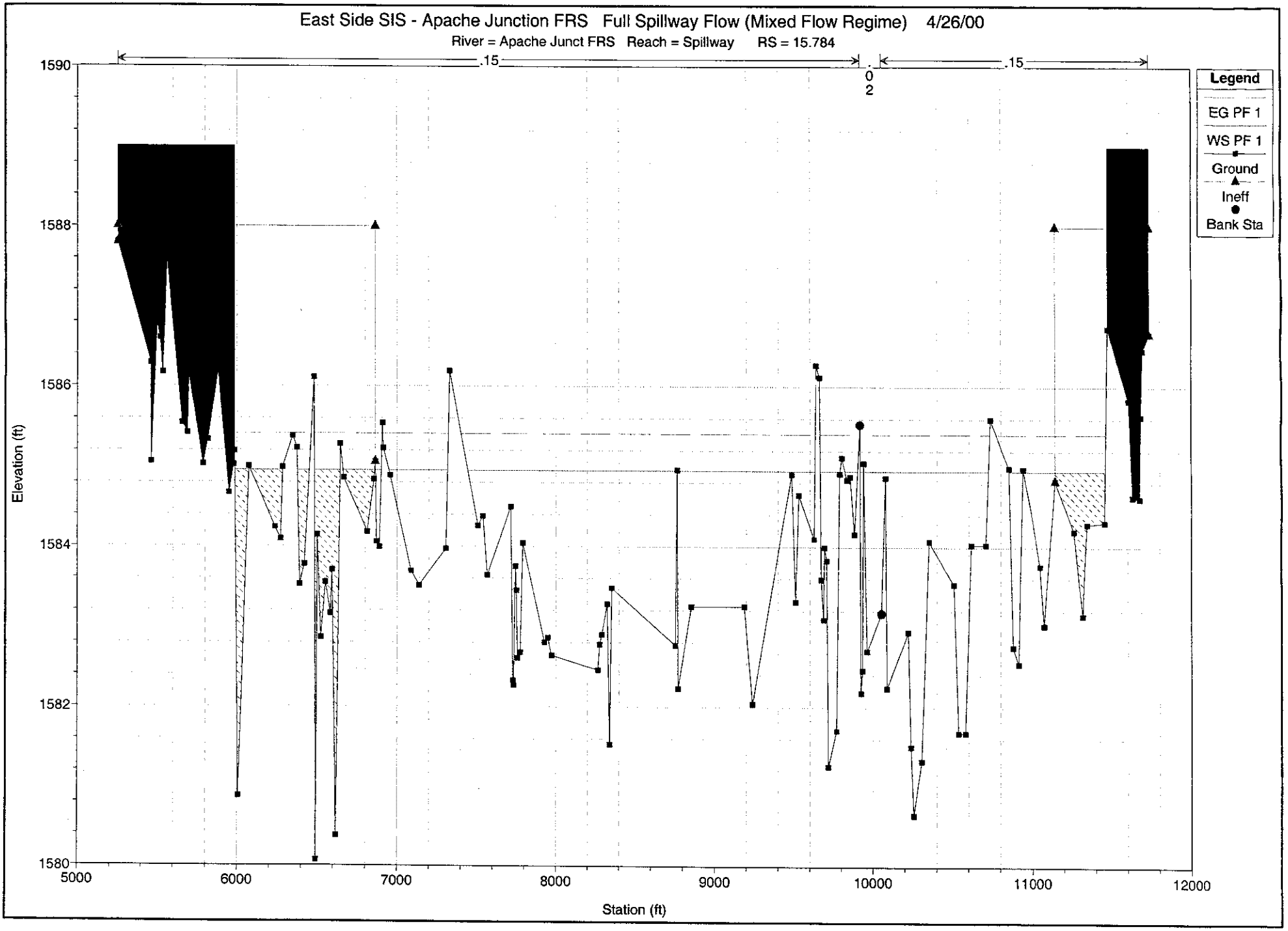

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.265
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1612
1610
1608
1606
1604
1602
1600
1598
1596
1594
4000
6000
8000
10000
12000
14000
Station (ft)

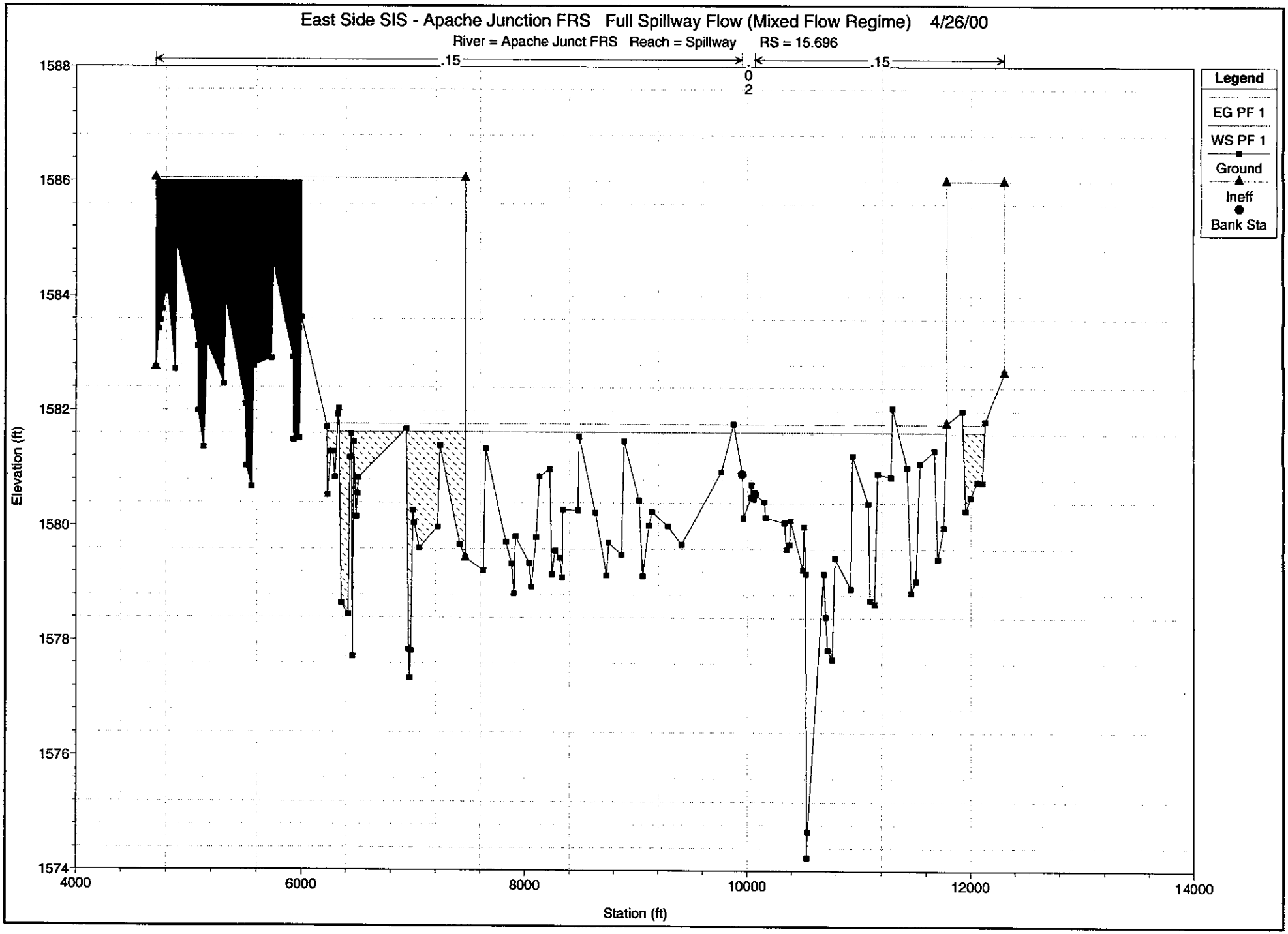

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.182
.15
.15
0
2
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1606
1604
1602
1600
1598
1596
1594
1592
4000
6000
8000
10000
12000
14000
Station (ft)

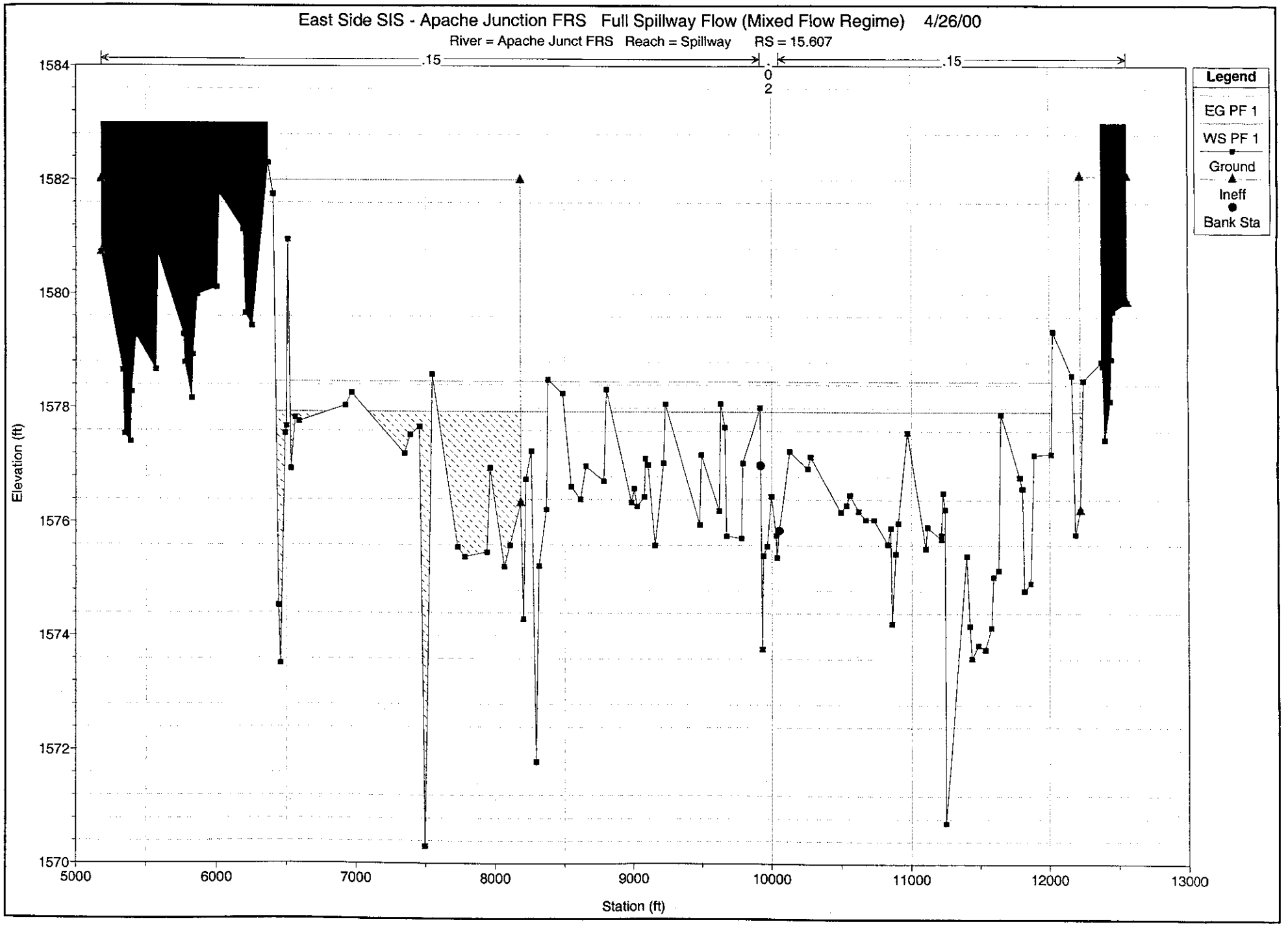

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.086
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1604
1602
1600
1598
1596
1594
1592
1590
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

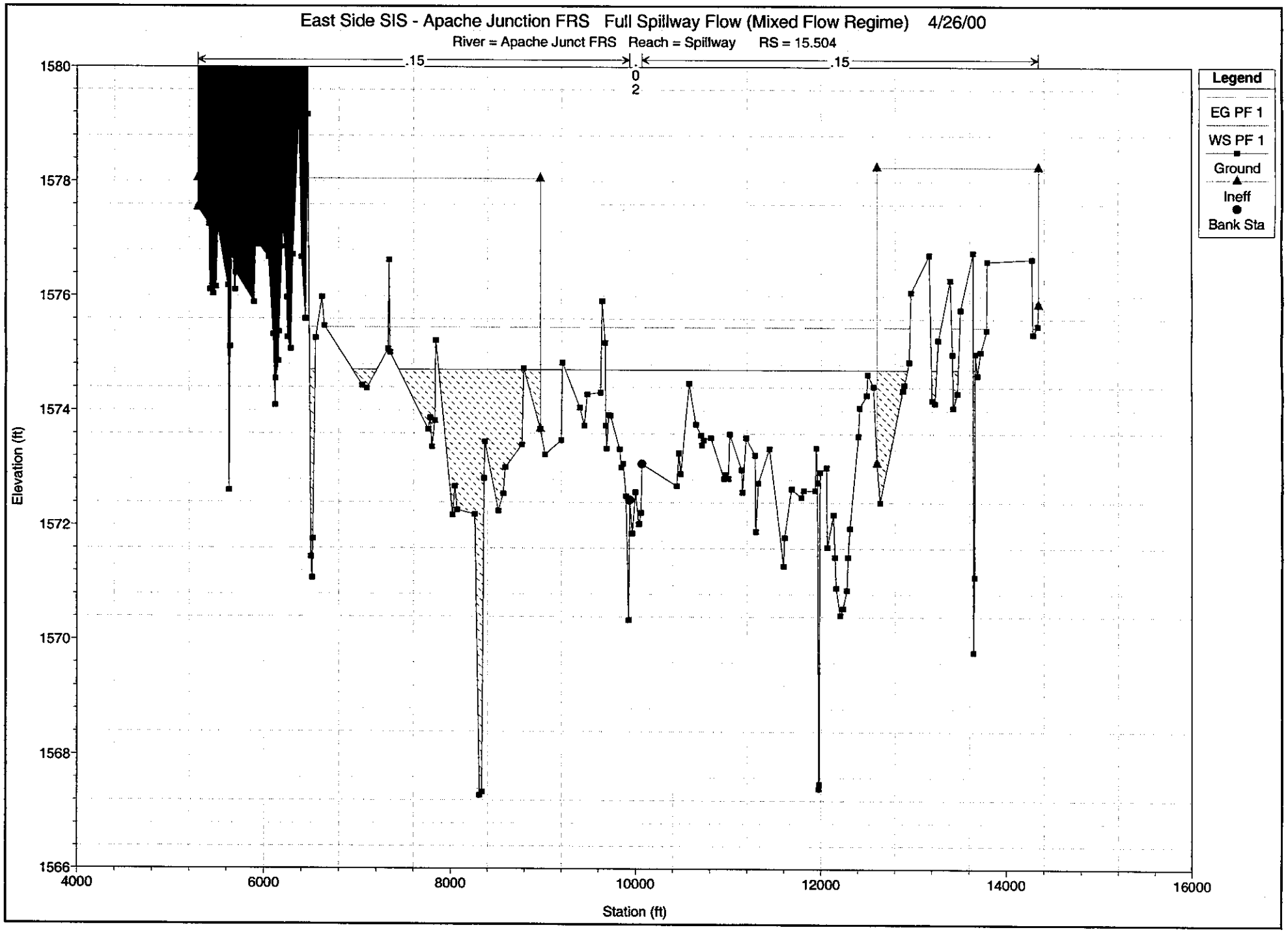

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 16.001
.15
.15
0
2
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1600
1598
1596
1594
1592
1590
1588
1586
4000
6000
8000
10000
12000
14000
Station (ft)

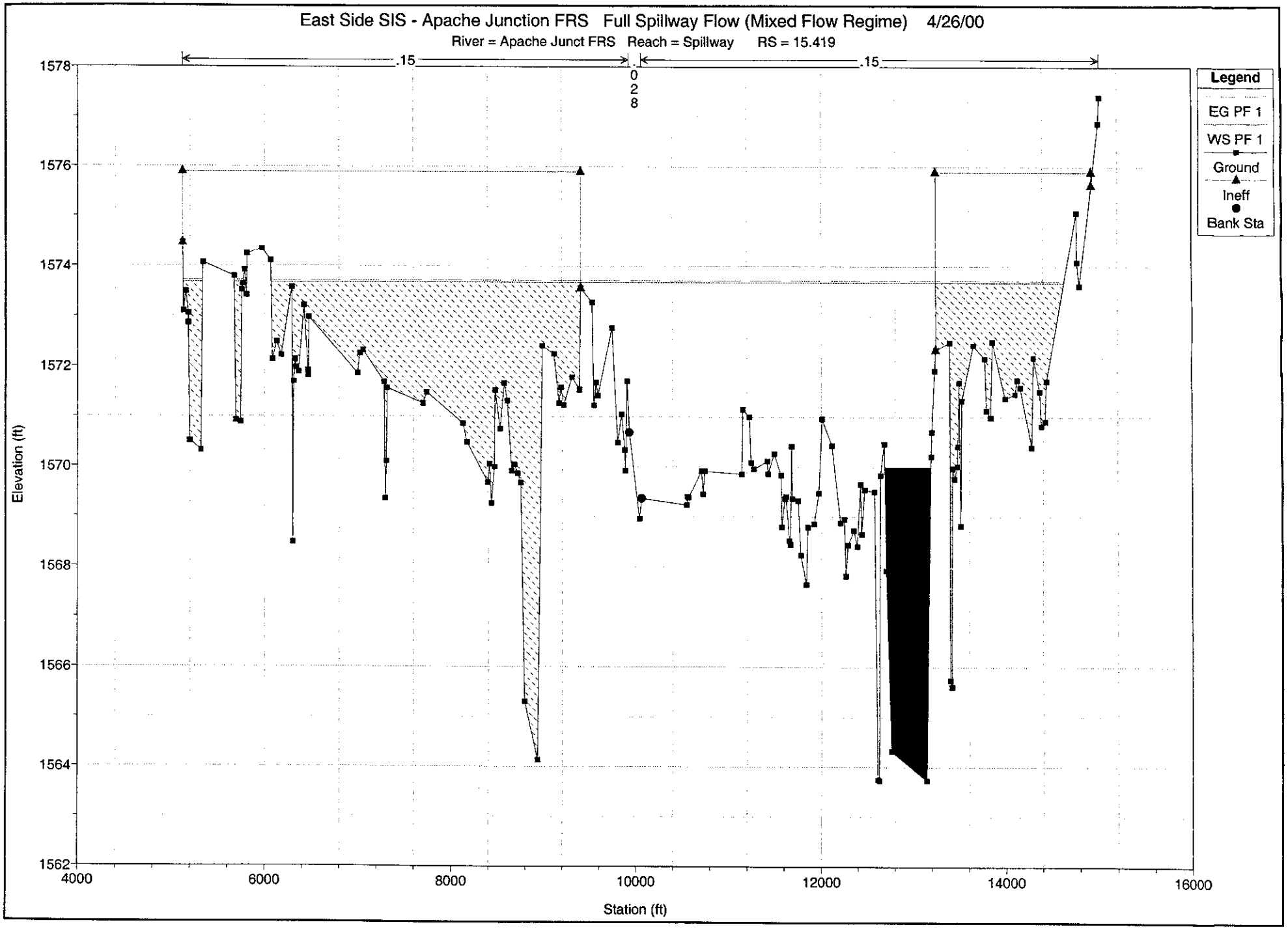

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.892
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1598
1596
1594
1592
1590
1588
1586
1584
1582
4000
6000
8000
10000
12000
14000
Station (ft)

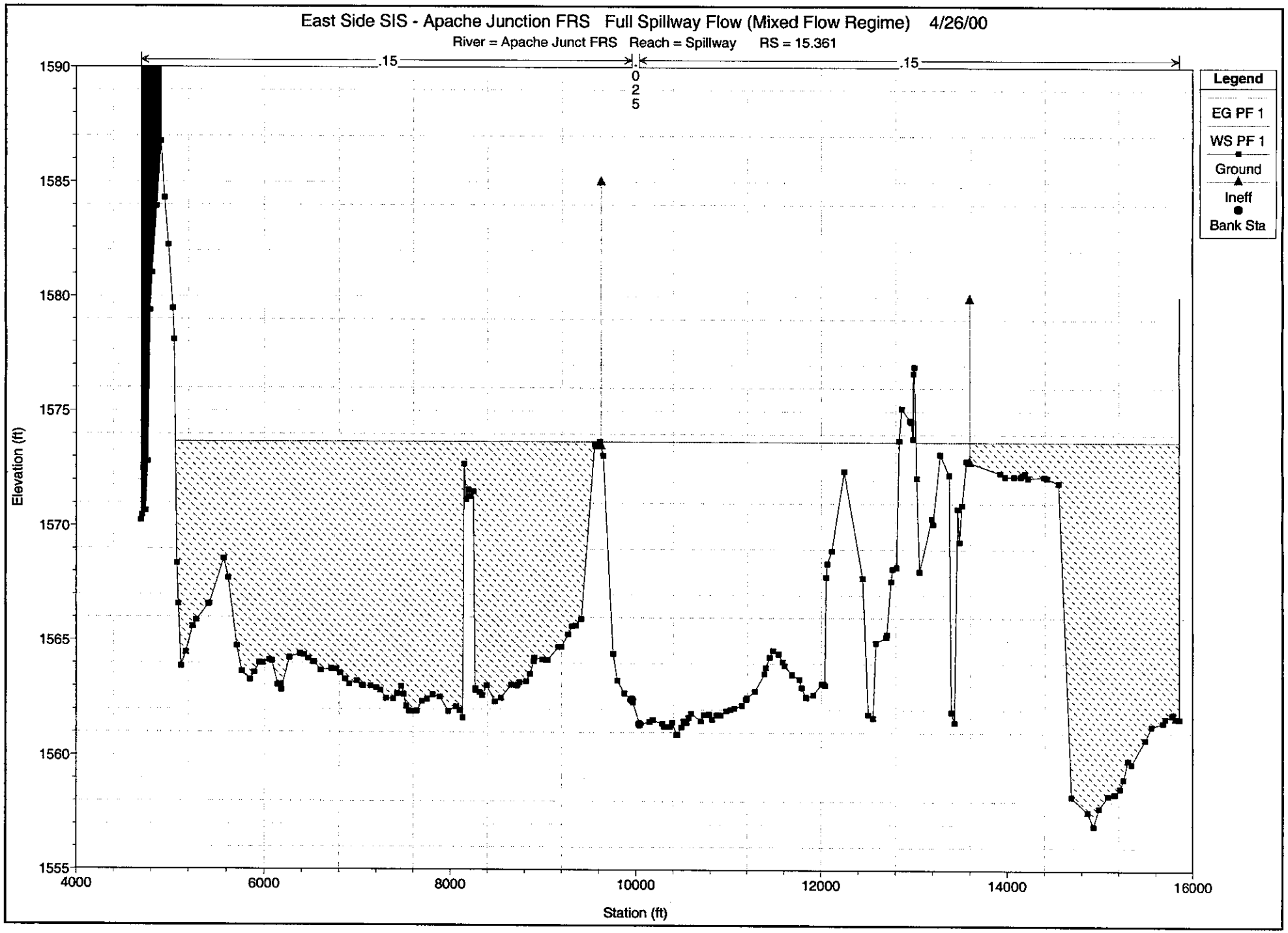

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.784
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1590
1588
1586
1584
1582
1580
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

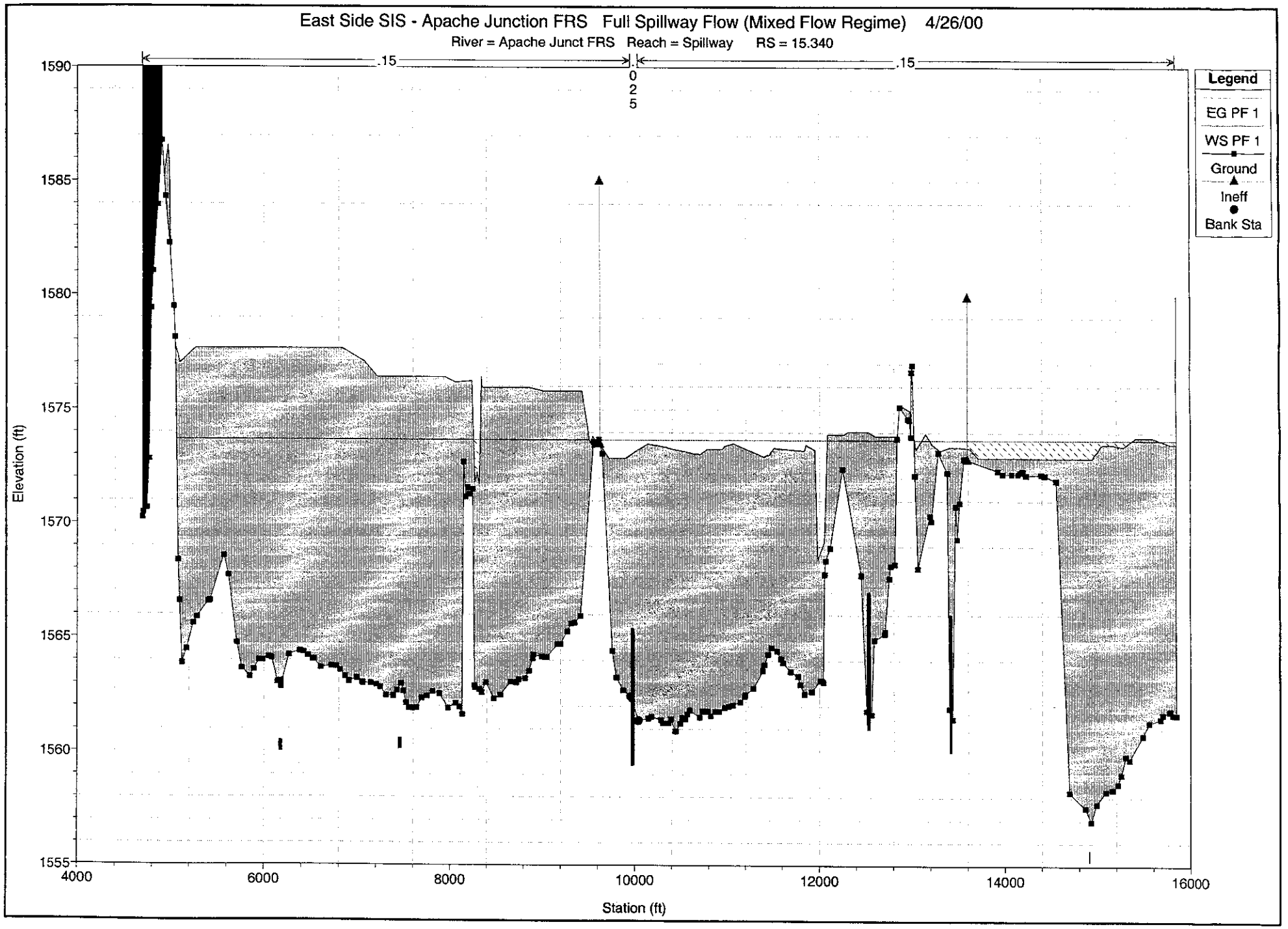

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.696
.15
0
2
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1588
1586
1584
1582
1580
1578
1576
1574
4000
6000
8000
10000
12000
14000
Station (ft)

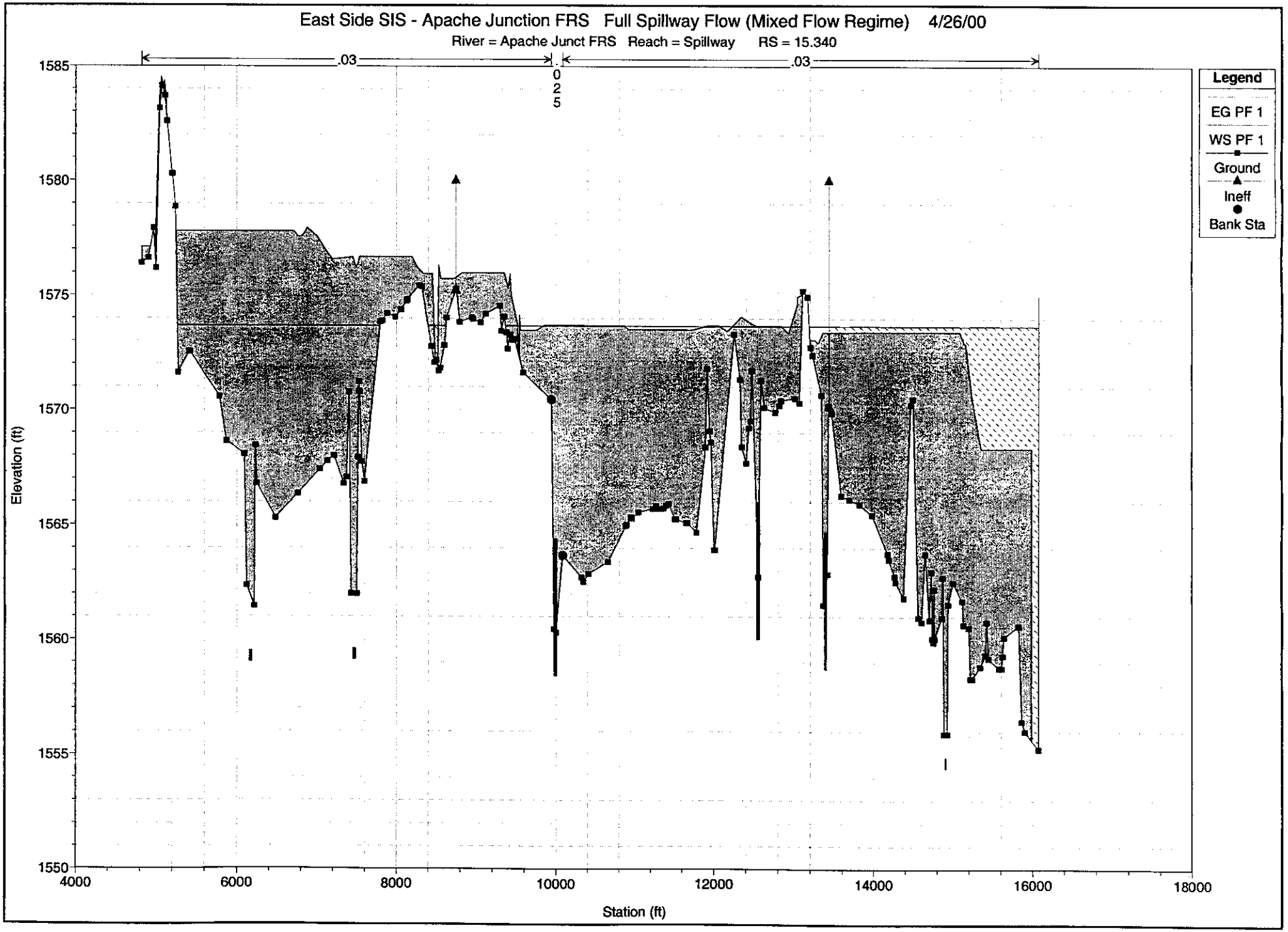

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.607
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1584
1582
1580
1578
1576
1574
1572
1570
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

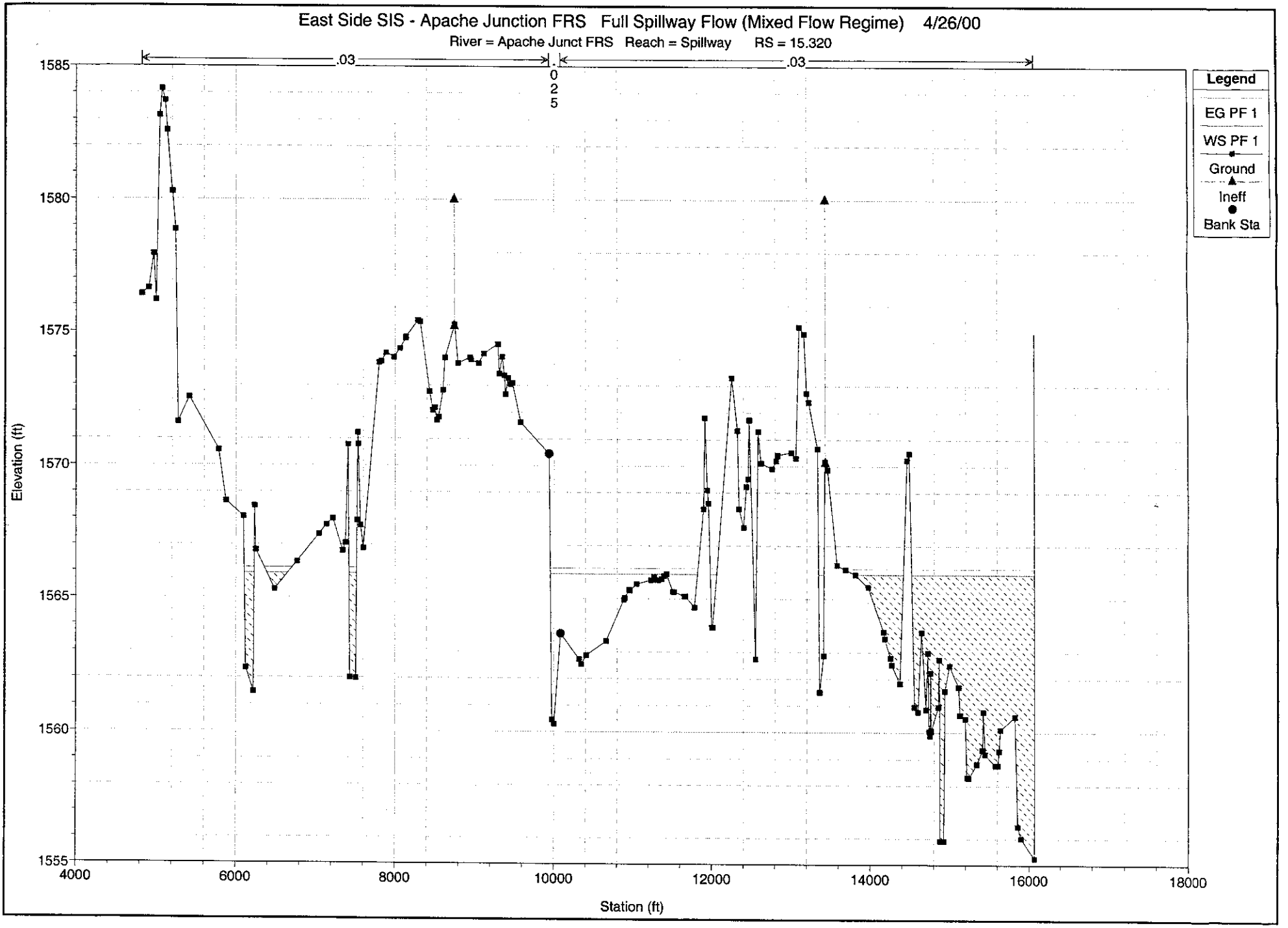

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.504
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1580
1578
1576
1574
1572
1570
1568
1566
4000
6000
8000
10000
12000
14000
16000
Station (ft)

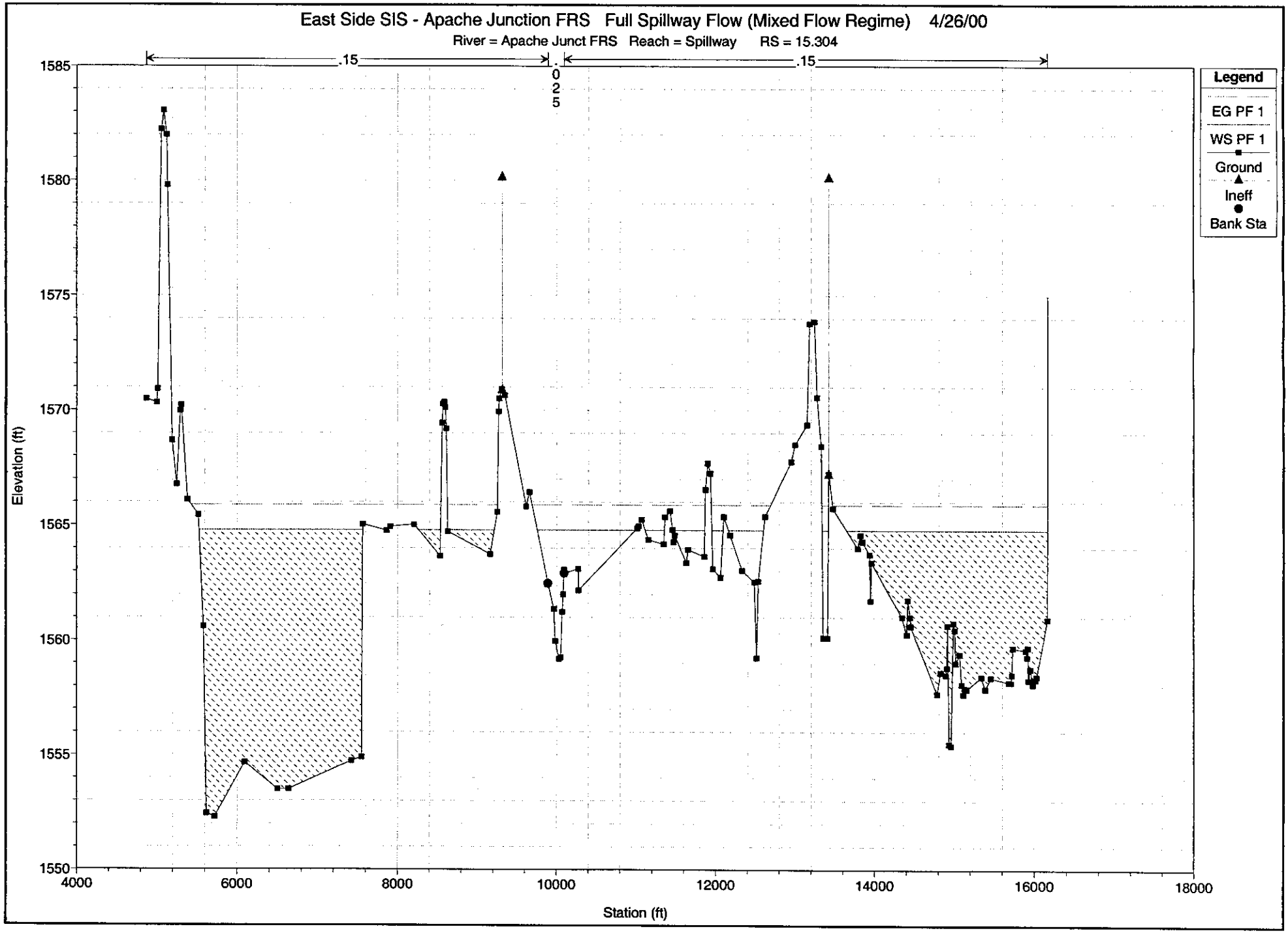

East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.419
.15
.028
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1578
1576
1574
1572
1570
1568
1566
1564
1562
4000
6000
8000
10000
12000
14000
16000
Station (ft)


East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.361
.15
.025
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1590
1585
1580
1575
1570
1565
1560
1555
4000
6000
8000
10000
12000
14000
16000
Station (ft)


East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.340
.15
.025
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1590
1585
1580
1575
1570
1565
1560
1555
4000
6000
8000
10000
12000
14000
16000
Station (ft)


East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.340
.03
.025
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1585
1580
1575
1570
1565
1560
1555
1550
4000
6000
8000
10000
12000
14000
16000
18000
Station (ft)


East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.320
.03
.025
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1585
1580
1575
1570
1565
1560
1555
4000
6000
8000
10000
12000
14000
16000
18000
Station (ft)


East Side SIS - Apache Junction FRS Full Spillway Flow (Mixed Flow Regime) 4/26/00
River = Apache Junct FRS Reach = Spillway RS = 15.304
.15
.025
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1585
1580
1575
1570
1565
1560
1555
1550
4000
6000
8000
10000
12000
14000
16000
18000
Station (ft)

HYDRAULIC DATA

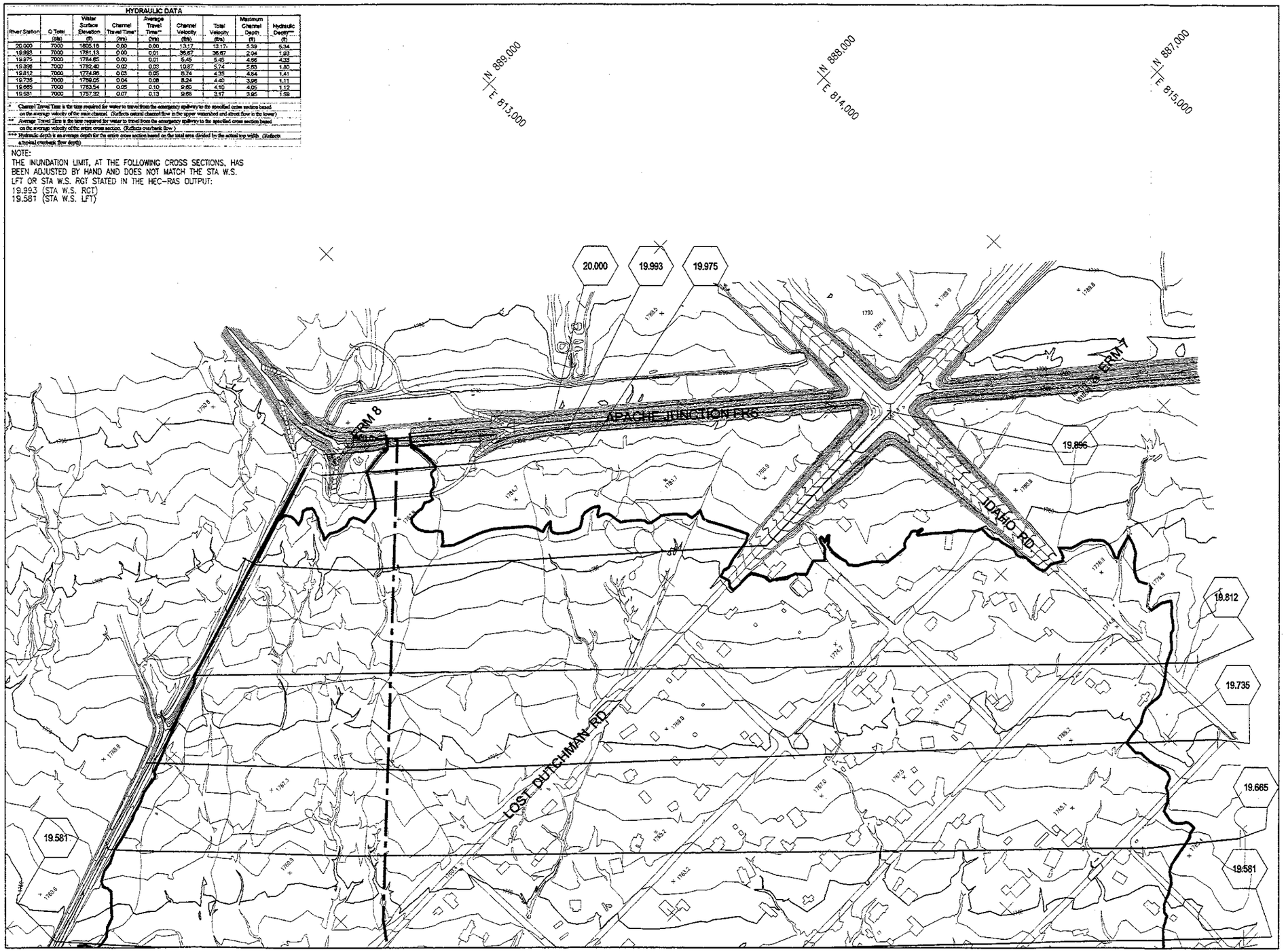
River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
20.000	7000	1805.18	0.00	0.00	13.17	13.17	5.39	5.34
19.993	7000	1781.13	0.00	0.01	36.67	36.67	2.04	1.93
19.975	7000	1784.65	0.00	0.01	5.45	5.45	4.66	4.33
19.895	7000	1782.40	0.02	0.03	10.87	5.74	5.63	1.80
19.812	7000	1774.95	0.03	0.05	8.74	4.35	4.64	1.41
19.735	7000	1769.05	0.04	0.08	8.24	4.40	3.96	1.11
19.665	7000	1763.54	0.05	0.10	9.60	4.10	4.05	1.12
19.581	7000	1757.32	0.07	0.13	9.68	3.17	3.95	1.59

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.993 (STA W.S. RGT)
19.581 (STA W.S. LFT)



LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	- - - - - - - - - -

ELEVATION REFERENCE MARKS

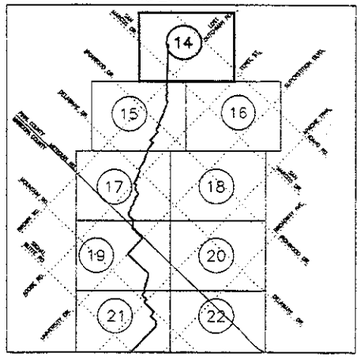
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
7	1810.22	SET ⅜" REBAR APPROX. 600' EAST OF IDAHO RD. ON TOP OF FLOOD CONTROL DIKE. N: 886292.650 E: 813877.132
8	1810.14	SET ⅜" REBAR ON FLOOD CONTROL DIKE 120' WEST OF APACHE JUNCTION F.R.S. SPILLWAY. N: 888378.058 E: 811485.508

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/11/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 14 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040

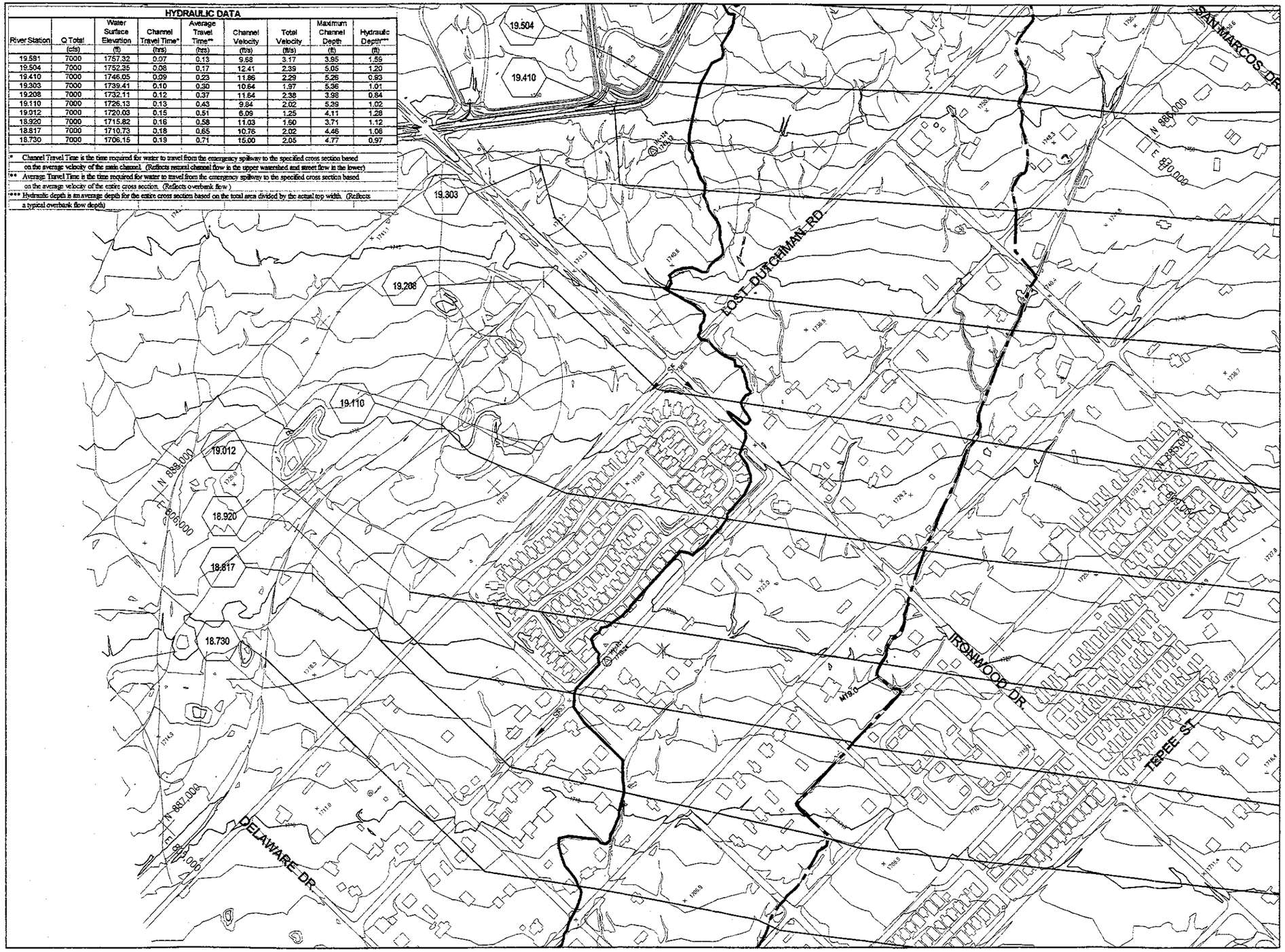
HYDRAULIC DATA

River Station	Q Total	Water Surface Elevation	Channel Travel Time*	Average Travel Time**	Channel Velocity	Total Velocity	Maximum Channel Depth	Hydraulic Depth***
	(cfs)	(ft)	(hrs)	(hrs)	(ft/s)	(ft/s)	(ft)	(ft)
19.581	7000	1757.32	0.07	0.13	9.68	3.17	3.95	1.59
19.504	7000	1752.35	0.08	0.17	12.41	2.39	5.05	1.20
19.410	7000	1746.05	0.09	0.23	11.86	2.29	5.26	0.93
19.303	7000	1739.41	0.10	0.30	10.64	1.97	5.36	1.01
19.208	7000	1732.11	0.12	0.37	11.64	2.38	3.98	0.84
19.110	7000	1726.13	0.13	0.43	9.84	2.02	5.39	1.02
19.012	7000	1720.03	0.15	0.51	6.09	1.25	4.11	1.28
18.920	7000	1715.82	0.16	0.58	11.03	1.60	3.71	1.12
18.817	7000	1710.73	0.18	0.65	10.76	2.02	4.46	1.06
18.730	7000	1706.15	0.19	0.71	15.00	2.05	4.77	0.97

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)



LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M120 — M110

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

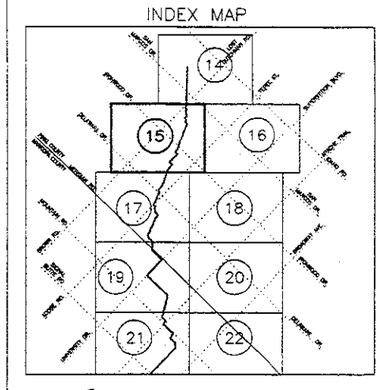
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.

INDEX MAP



200' 0' 200' 400'

SCALE: 1" = 200 FEET

CONTOUR INTERVAL = 2 FEET

FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY

2/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/6/00 ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

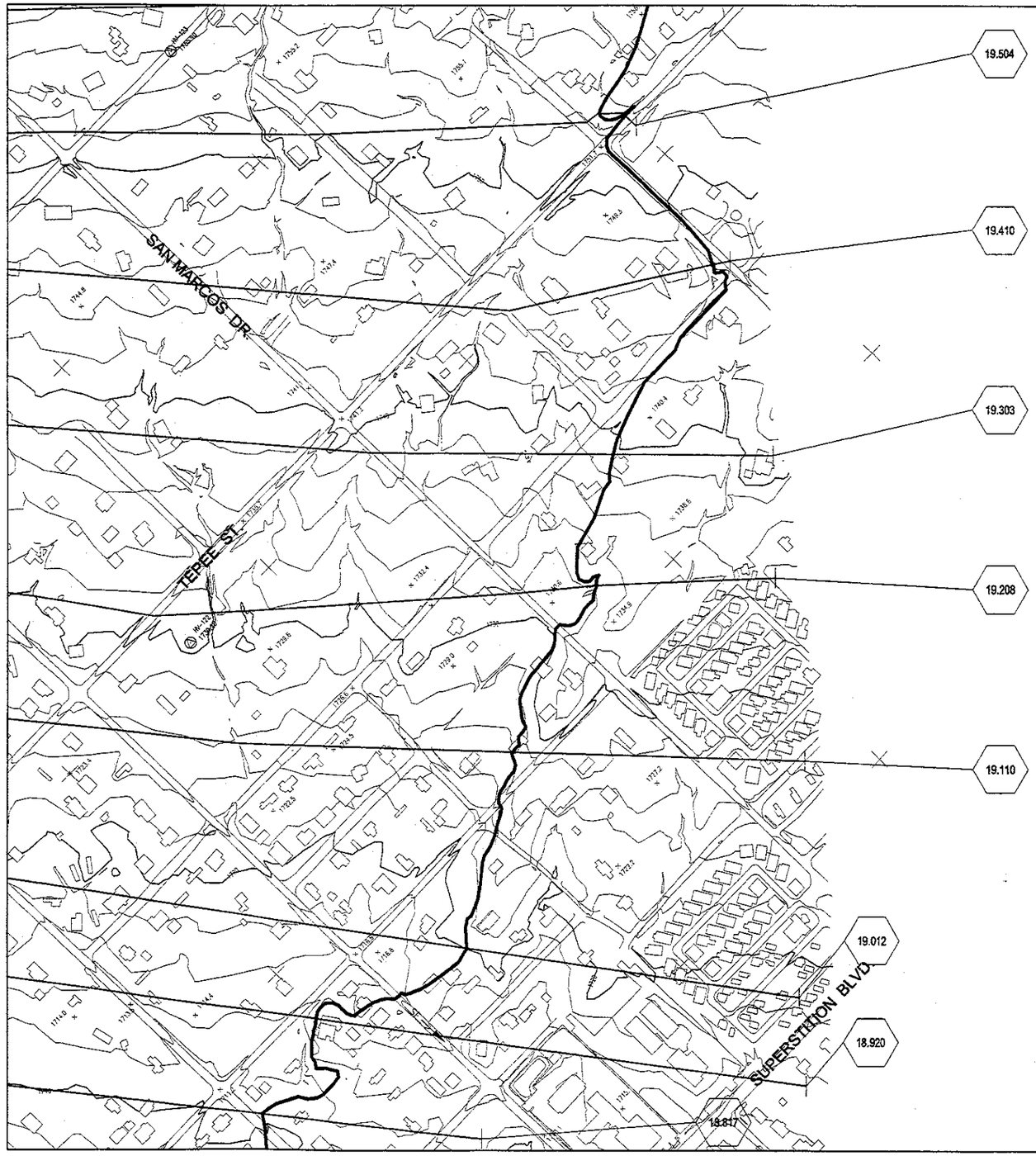
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 15 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&B MAPPING, LLC. 7206 N. 55TH AVE. #201. GLENDALE, AZ. 85301

GROUND CONTROL SURVEY DATA PROVIDED BY: AZTEC ENGINEERING. 3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
19.581	7000	1757.32	0.07	0.13	9.68	3.17	3.95	1.59
19.504	7000	1752.35	0.08	0.17	12.41	2.39	5.05	1.20
19.410	7000	1746.05	0.09	0.23	11.86	2.29	5.26	0.93
19.303	7000	1739.41	0.10	0.30	10.64	1.97	5.58	1.01
19.208	7000	1732.11	0.12	0.37	11.64	2.38	3.98	0.84
19.110	7000	1726.13	0.13	0.43	9.84	2.02	5.39	1.02
19.012	7000	1720.03	0.15	0.51	6.09	1.25	4.11	1.28
18.920	7000	1715.82	0.16	0.58	11.03	1.60	3.71	1.12
18.817	7000	1710.73	0.18	0.65	10.76	2.02	4.46	1.08

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — MI 0.0 — MI 3.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

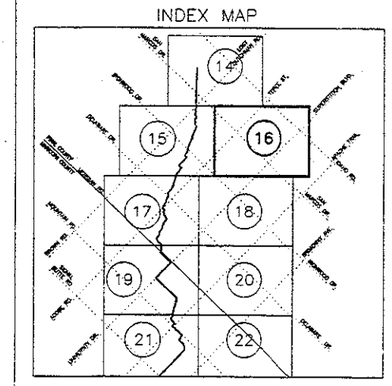
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'

SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY

2/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 24030 FELICIA TERRY DATE SIGNED 7/6/00 ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

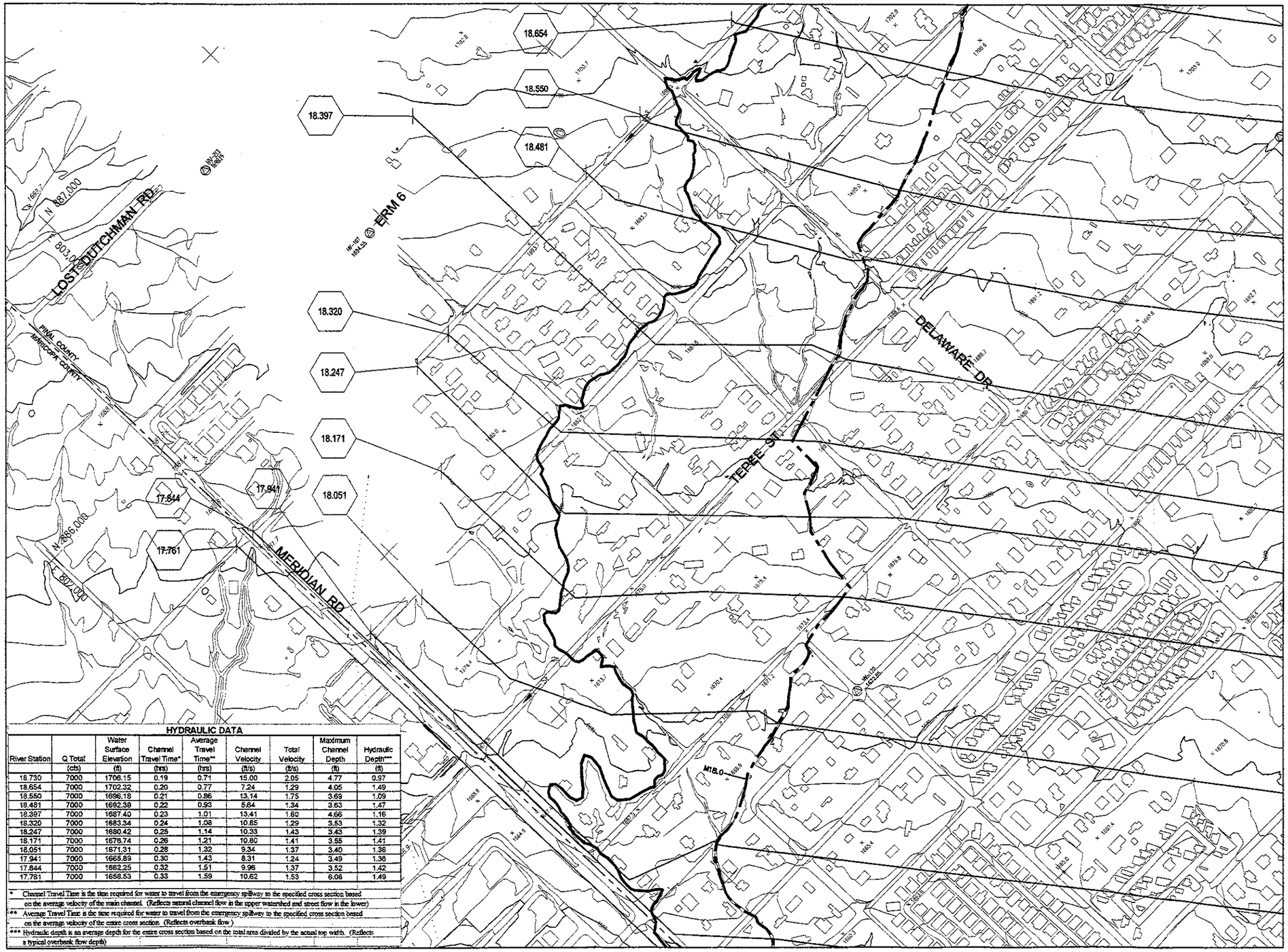
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 15 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&B MAPPING, LLC. 7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA PROVIDED BY: AZTEC ENGINEERING. 3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA

River Station	Q Total	Water Surface Elevation	Channel Travel Time*	Average Travel Time**	Channel Velocity	Total Velocity	Maximum Channel Depth	Hydraulic Depth***
	(cfs)	(ft)	(hrs)	(hrs)	(ft/s)	(ft/s)	(ft)	(ft)
18.730	7000	1706.15	0.19	0.71	15.00	2.05	4.77	0.97
18.654	7000	1702.32	0.20	0.77	7.24	1.29	4.05	1.49
18.550	7000	1696.18	0.21	0.86	13.14	1.75	3.69	1.09
18.481	7000	1692.39	0.22	0.93	5.64	1.34	3.63	1.47
18.397	7000	1687.40	0.23	1.01	13.41	1.60	4.66	1.16
18.320	7000	1683.34	0.24	1.08	10.85	1.29	3.53	1.32
18.247	7000	1680.42	0.25	1.14	10.33	1.43	3.43	1.39
18.171	7000	1678.74	0.26	1.21	10.80	1.41	3.55	1.41
18.051	7000	1671.31	0.28	1.32	9.34	1.37	3.40	1.36
17.941	7000	1665.89	0.30	1.43	8.31	1.24	3.49	1.38
17.844	7000	1662.25	0.32	1.51	9.96	1.37	3.52	1.42
17.761	7000	1658.53	0.33	1.59	10.62	1.53	6.08	1.49

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M120 — M130

CROSS SECTION — 2.147 — WSE — 2.147

STREET FLOW — SF →

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

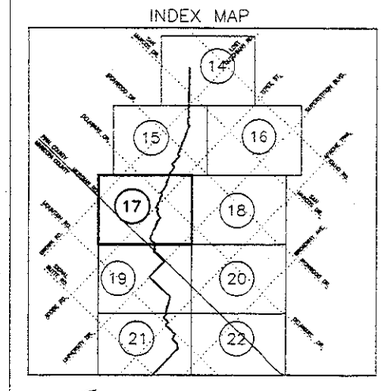
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR :1929 NGVD TO 1988 NAVD= -1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
6	1694.55	SET ½" REBAR W. SIDE WARNER DR. APPROX. 400' NORTH OF FOOTHILL ST. N: 885989.687 E: 803916.006

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Mar 5, 2000 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

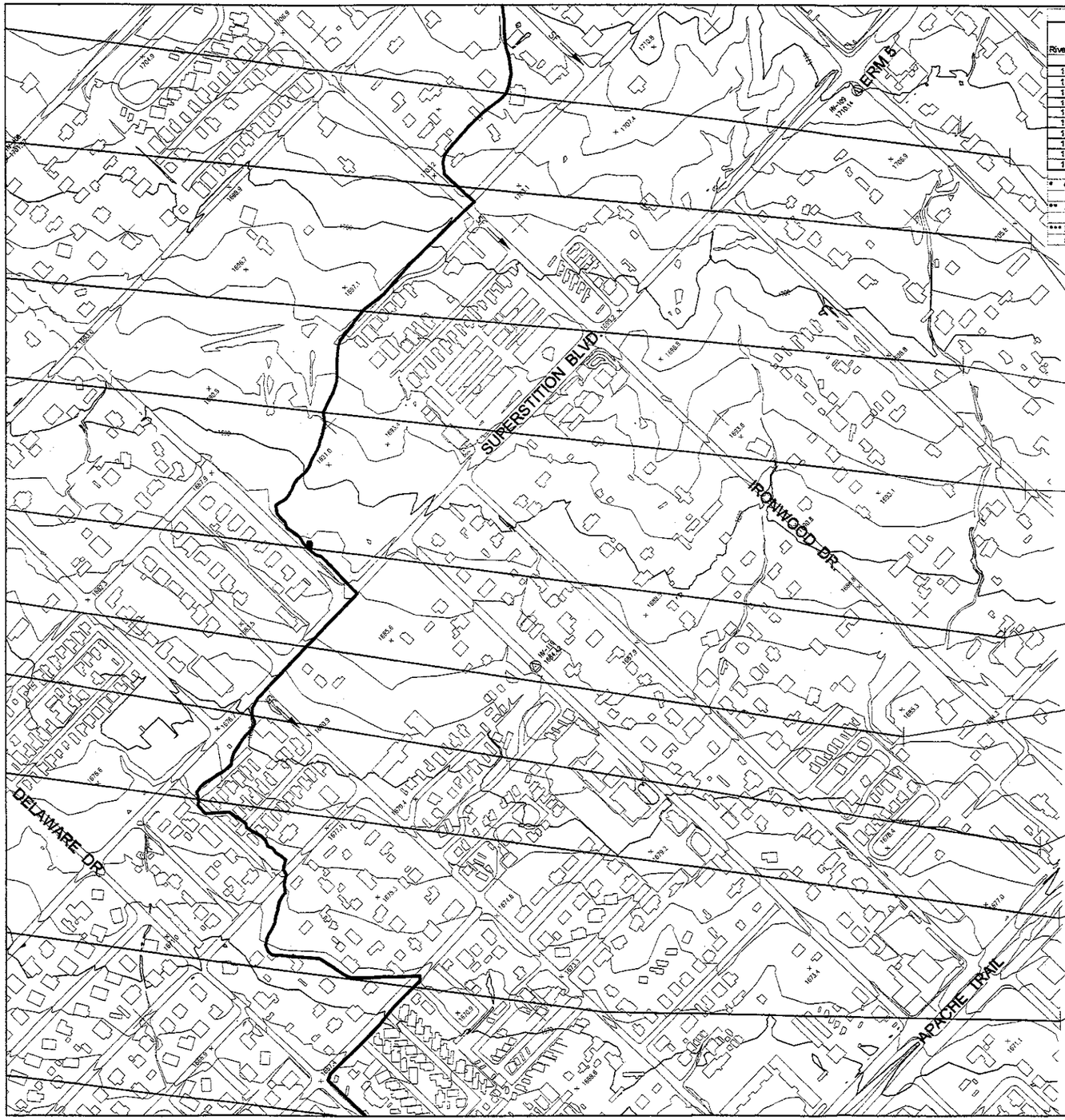
SHEET 17 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA

River Station	Q Total	Water Surface Elevation	Channel Travel Time*	Average Travel Time**	Channel Velocity	Total Velocity	Maximum Channel Depth	Hydraulic Depth***
	(cfs)	(ft)	(hrs)	(hrs)	(ft/s)	(ft/s)	(ft)	(ft)
18.730	7000	1706.15	0.19	0.71	15.00	2.05	4.77	0.97
18.654	7000	1702.32	0.20	0.77	7.24	1.29	4.05	1.49
18.550	7000	1696.18	0.21	0.86	13.14	1.75	3.69	1.09
18.481	7000	1692.39	0.22	0.93	5.84	1.34	3.63	1.47
18.397	7000	1687.40	0.23	1.01	13.41	1.60	4.66	1.16
18.320	7000	1683.34	0.24	1.08	10.85	1.29	3.53	1.32
18.247	7000	1680.42	0.25	1.14	10.33	1.43	3.43	1.39
18.171	7000	1676.74	0.26	1.21	10.60	1.41	3.55	1.41
18.051	7000	1671.31	0.28	1.32	9.34	1.37	3.40	1.38
17.941	7000	1665.89	0.30	1.43	8.31	1.24	3.49	1.36

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
18.654 (STA W.S. LFT)
18.320 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M120 — M130

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF →

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

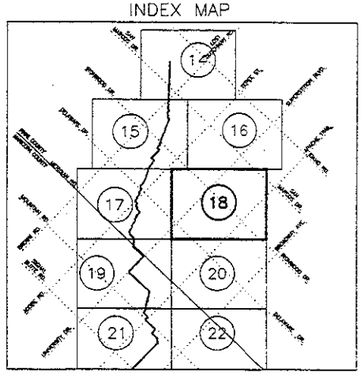
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.85 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
5	1710.14	SET 1/2" REBAR AT THE S.W. CORNER VALLEY DR. & SUPERSTITION BLVD. N: 881464.645 E: 809198.764

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/1/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 18 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7205 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.844	7000	1662.25	0.32	1.51	9.96	1.37	3.52	1.42
17.761	7000	1658.53	0.33	1.59	10.62	1.53	6.08	1.49
17.674	7000	1656.03	0.34	1.65	12.31	1.67	6.94	1.39
17.601	7000	1653.17	0.35	1.71	10.22	1.78	6.37	1.54
17.480	7000	1648.14	0.36	1.79	12.21	1.88	5.15	1.44
17.336	7000	1644.09	0.38	1.89	12.41	1.23	4.86	1.48
17.262	7000	1640.68	0.39	1.96	11.88	1.57	4.24	1.34
17.186	7000	1638.12	0.40	2.03	9.02	1.24	4.97	1.66
17.111	7000	1635.13	0.41	2.09	13.83	1.54	4.52	1.35
17.046	7000	1632.87	0.42	2.14	6.21	1.22	4.60	1.73
16.983	7000	1630.01	0.43	2.21	9.76	1.52	6.05	1.49
16.919	7000	1626.92	0.44	2.26	9.52	1.65	5.98	1.42
16.860	7000	1623.61	0.45	2.31	9.66	1.74	4.96	1.38

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.480 (STA W.S. RGT)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M120 — M130
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	- - - - - - - -

ELEVATION REFERENCE MARKS

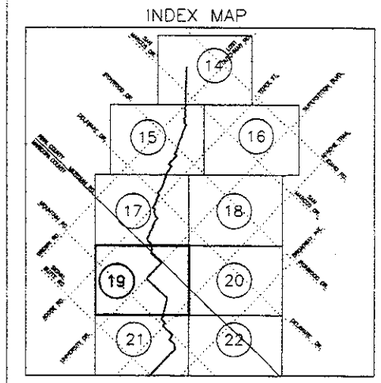
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
4	1651.54	FOUND MCDOT BRASS CAP IN HANDHOLE AT THE INTERSECTION OF MERIDIAN RD. & UNIVERSITY DR. N: 881501.698 E: 802654.718

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/7/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY:	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 19 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&S MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.941	7000	1665.89	0.30	1.43	8.31	1.24	3.49	1.36
17.844	7000	1662.25	0.32	1.51	9.96	1.37	3.52	1.42
17.761	7000	1658.53	0.33	1.59	10.62	1.53	6.08	1.49
17.674	7000	1656.03	0.34	1.65	12.31	1.67	6.94	1.39
17.601	7000	1653.17	0.35	1.71	10.22	1.78	6.37	1.54
17.480	7000	1648.14	0.36	1.79	12.21	1.88	5.15	1.44
17.336	7000	1644.09	0.38	1.89	12.41	1.23	4.86	1.48
17.262	7000	1640.68	0.39	1.96	11.88	1.57	4.24	1.34
17.186	7000	1638.12	0.40	2.03	9.02	1.24	4.97	1.86
17.111	7000	1635.13	0.41	2.09	13.83	1.64	4.52	1.35
17.046	7000	1632.87	0.42	2.14	6.21	1.22	4.60	1.73
16.983	7000	1630.01	0.43	2.21	9.76	1.52	6.05	1.49
16.919	7000	1626.92	0.44	2.26	9.52	1.65	5.98	1.42
16.860	7000	1623.61	0.45	2.31	9.66	1.74	4.96	1.38

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects normal channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.941 (STA W.S. LFT)
17.046 (STA W.S. LFT)
16.860 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M120 — M130
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF →
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

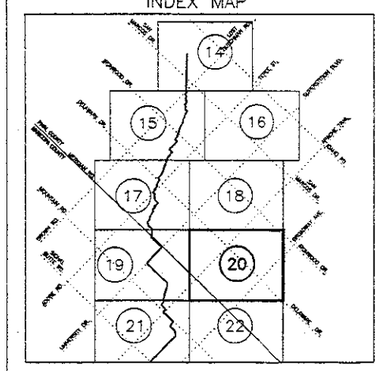
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
3	1635.57	SET 3/4" REBAR AT THE S.W. CORNER CORNWALL DR. & BROADWAY RD. N: 876207.307 E: 804896.947

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/6/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

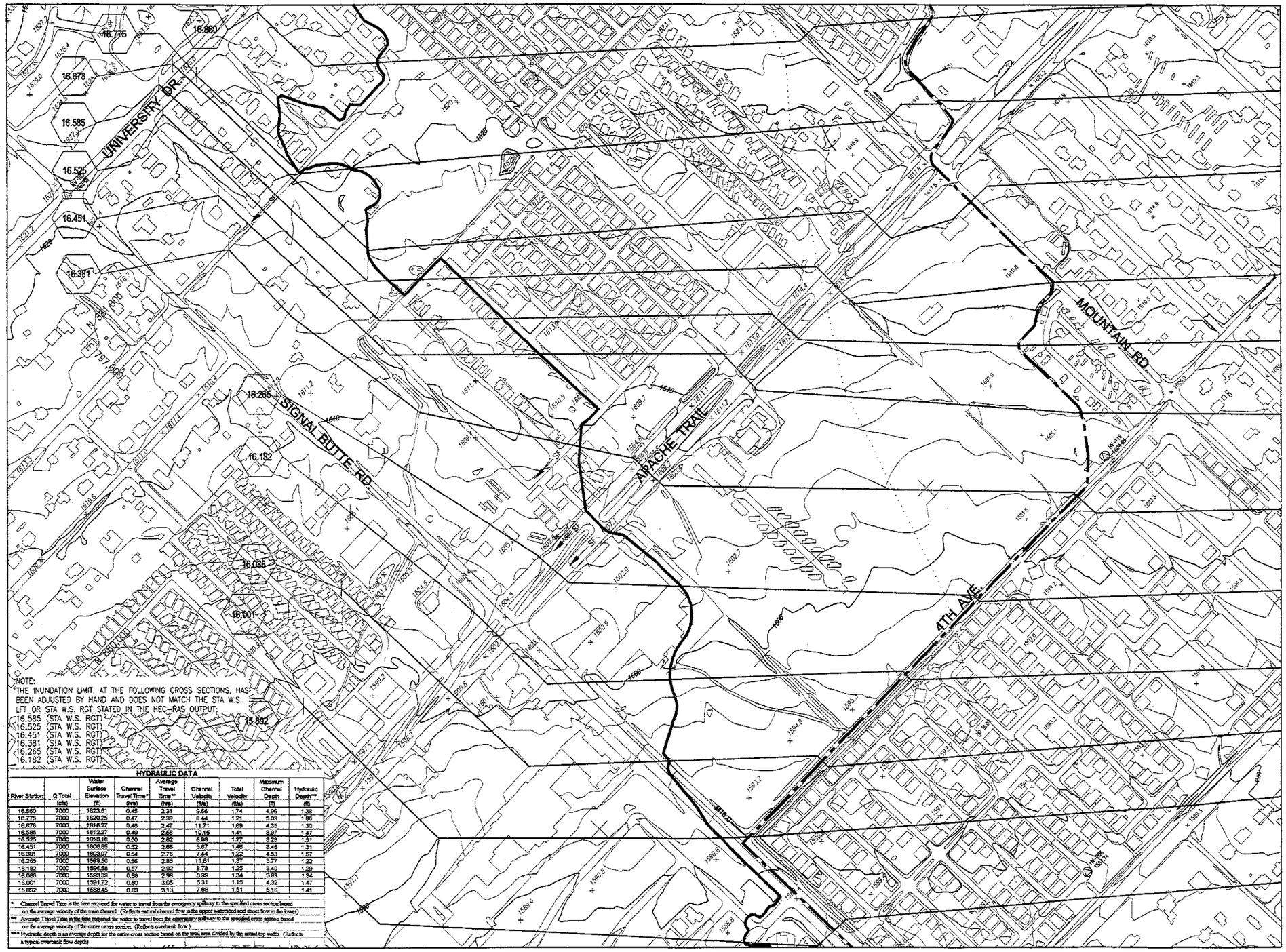
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	

SHEET 20 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&S MAPPING, LLC. 7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA PROVIDED BY: AZTEC ENGINEERING. 3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
16.585 (STA W.S. RGT)
16.525 (STA W.S. RGT)
16.451 (STA W.S. RGT)
16.381 (STA W.S. RGT)
16.265 (STA W.S. RGT)
16.182 (STA W.S. RGT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.880	7000	1623.81	0.45	2.31	9.66	1.74	4.96	1.38
16.775	7000	1620.25	0.47	2.30	8.44	1.21	5.03	1.86
16.678	7000	1618.27	0.48	2.47	11.71	1.69	4.35	1.30
16.585	7000	1612.27	0.49	2.56	10.15	1.41	3.97	1.47
16.525	7000	1610.16	0.50	2.62	6.98	1.27	3.28	1.51
16.451	7000	1608.86	0.52	2.68	5.67	1.48	3.46	1.31
16.381	7000	1603.07	0.54	2.76	7.44	1.22	4.53	1.57
16.265	7000	1599.50	0.56	2.85	11.61	1.37	3.77	1.22
16.182	7000	1596.58	0.57	2.92	9.79	1.25	3.40	1.29
16.086	7000	1593.88	0.58	2.96	8.96	1.34	3.89	1.34
16.001	7000	1591.72	0.60	3.05	5.31	1.15	4.32	1.47
15.892	7000	1588.45	0.63	3.13	7.88	1.51	5.16	1.41

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	1615.0 — 1613.0
CROSS SECTION	2.147 WSE 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	- - - - - - - -

ELEVATION REFERENCE MARKS

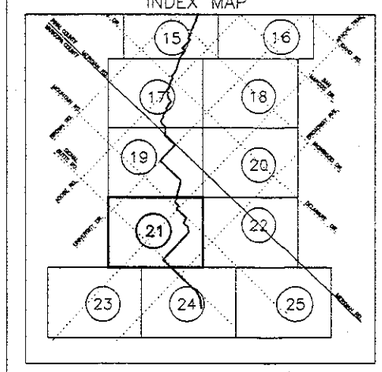
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/6/99 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 21 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7205 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
16.678 (STA W.S. LFT)
15.892 (STA W.S. LFT)

HYDRAULIC DATA

River Station	Q Total	Water Surface Elevation	Channel Travel Time*	Average Travel Time**	Channel Velocity	Total Velocity	Maximum Channel Depth	Hydraulic Depth***
	(cfs)	(ft)	(hrs)	(hrs)	(ft/s)	(ft/s)	(ft)	(ft)
16.775	7000	1620.25	0.47	2.39	8.44	1.21	5.03	1.86
16.678	7000	1616.27	0.48	2.47	11.71	1.69	4.35	1.30
16.585	7000	1612.27	0.49	2.56	10.15	1.41	3.97	1.47
16.525	7000	1610.16	0.50	2.62	6.98	1.27	3.28	1.51
16.451	7000	1606.85	0.52	2.68	5.67	1.48	3.46	1.31
16.381	7000	1603.07	0.54	2.76	7.44	1.22	4.53	1.57
16.265	7000	1599.50	0.56	2.85	11.61	1.37	3.77	1.22
16.182	7000	1596.58	0.57	2.92	8.78	1.25	3.40	1.29
16.086	7000	1593.89	0.58	2.98	8.99	1.34	3.89	1.34
16.001	7000	1591.72	0.60	3.05	5.31	1.15	4.32	1.47
15.892	7000	1588.45	0.63	3.13	7.86	1.51	5.16	1.41
15.784	7000	1584.62	0.64	3.21	8.87	1.46	4.55	1.41

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0

CROSS SECTION — 2.147 — WSE — 2.147

STREET FLOW — SF →

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

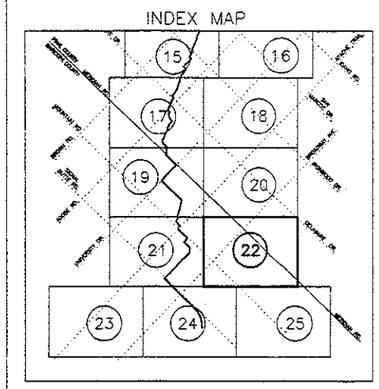
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY

2/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/11/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 22 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA

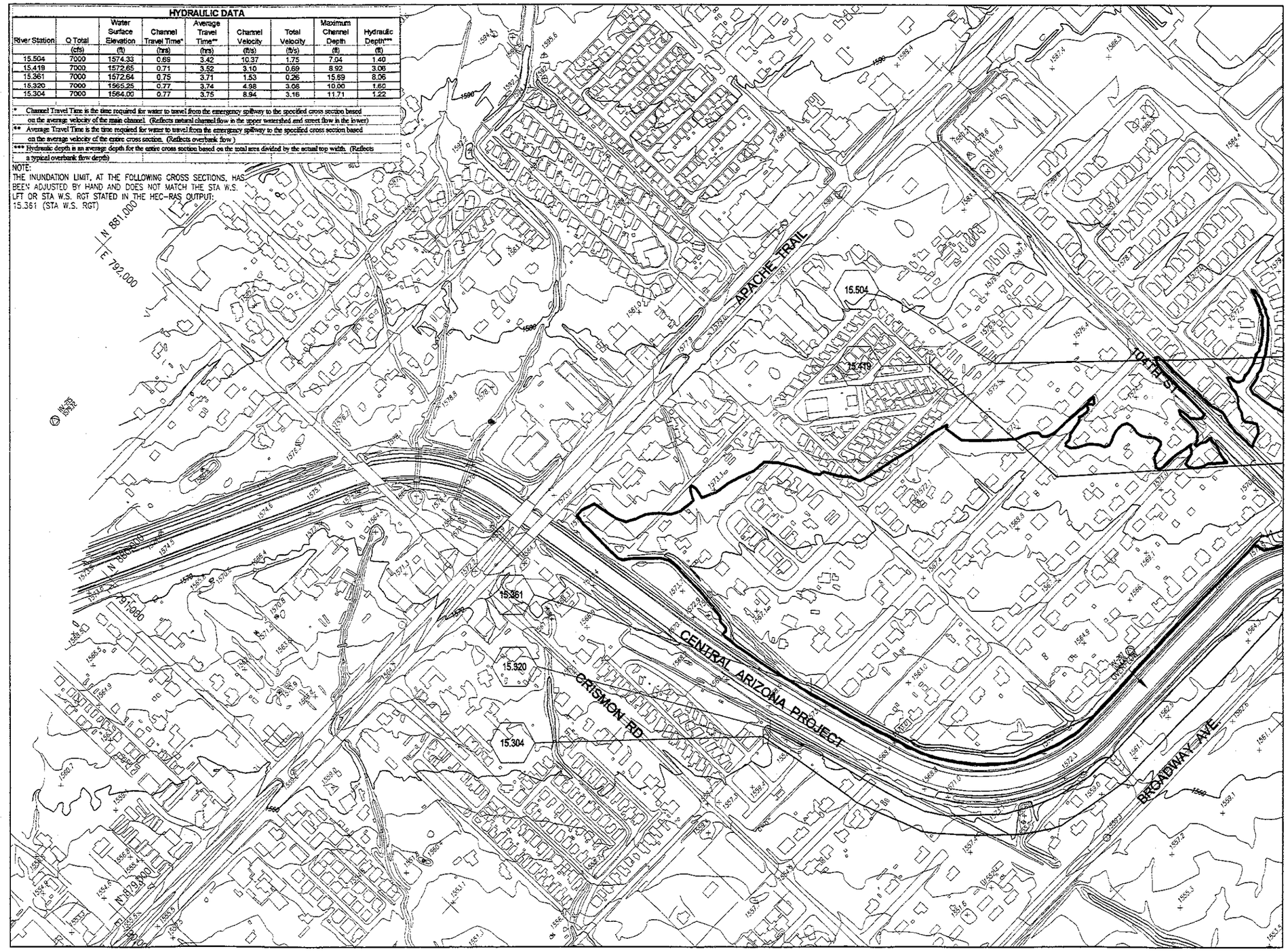
River Station	Q Total	Water Surface Elevation	Channel Travel Time*	Average Travel Time**	Channel Velocity	Total Velocity	Maximum Channel Depth	Hydraulic Depth***
	(cfs)	(ft)	(hrs)	(hrs)	(ft/s)	(ft/s)	(ft)	(ft)
15.504	7000	1574.33	0.69	3.42	10.37	1.75	7.04	1.40
15.419	7000	1572.65	0.71	3.52	3.10	0.69	8.92	3.06
15.361	7000	1572.64	0.75	3.71	1.53	0.26	15.69	8.06
15.320	7000	1565.25	0.77	3.74	4.98	3.08	10.00	1.60
15.304	7000	1564.00	0.77	3.75	8.94	3.16	11.71	1.22

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
15.361 (STA W.S. RGT)



LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

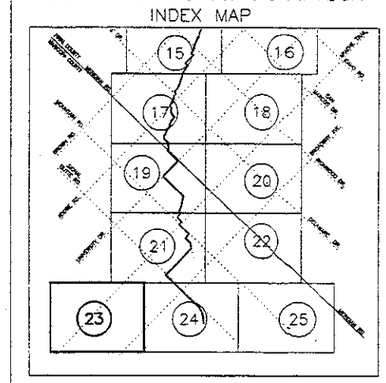
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft.

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.
3- FLOODING LIMITS SHOWN OVERTOPPING THE CAP AT VARIOUS LOCATIONS ALONG THE NORTH BANK ARE BASED ON AN ELEVATION DETERMINED IN THE HEC-RAS MODEL FROM THE CROSS SECTION DATA AND THE EFFECTIVE FLOW LIMITS. FLOWS MAY CROSS THE CAP AND CAUSE FLOODING DOWNSTREAM OF THE CAP. NO ATTEMPT WAS MADE UNDER THIS STUDY TO DETERMINE THE FLOODING LIMITS DOWNSTREAM OF THE CAP.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/6/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

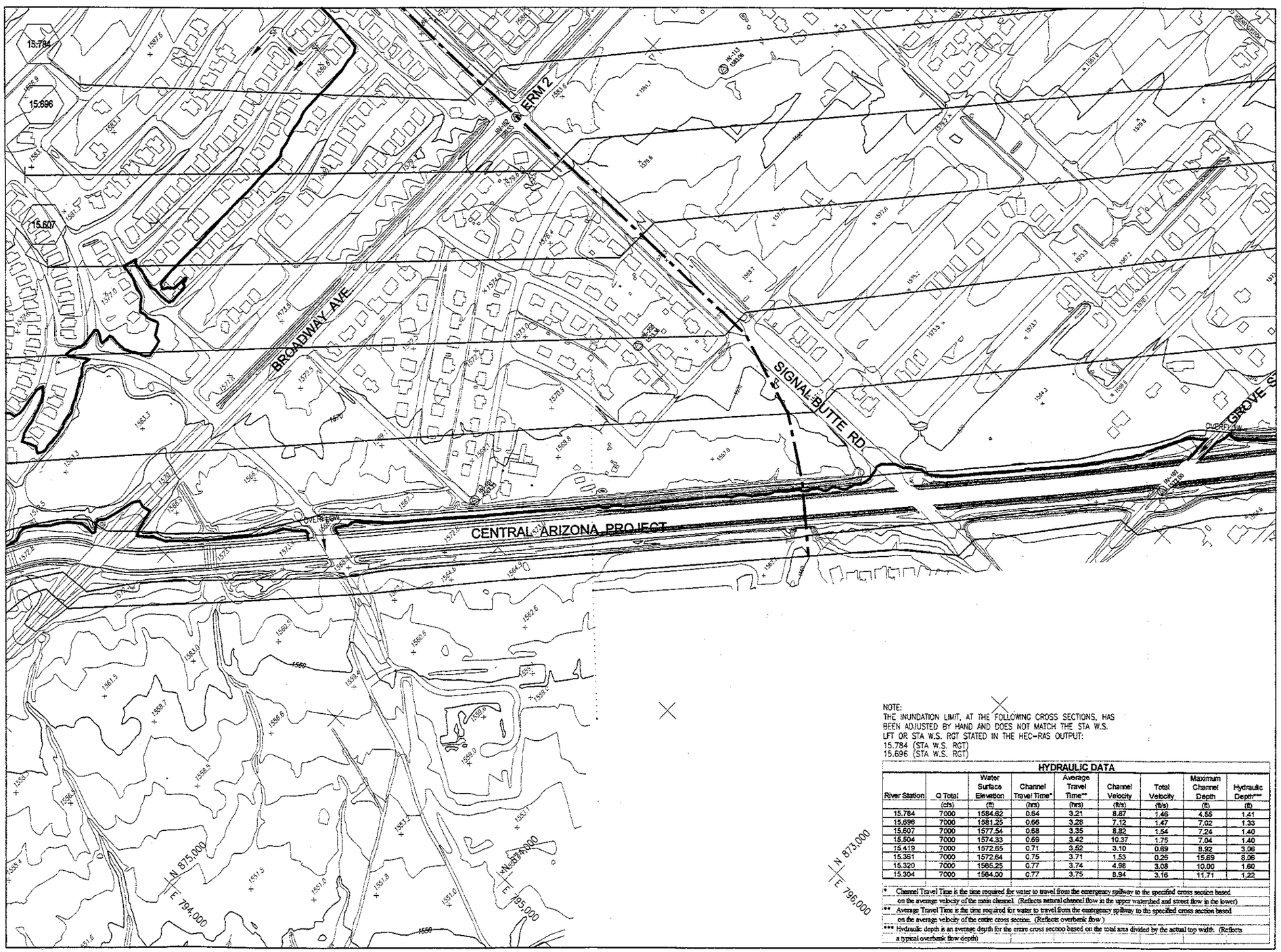
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 23 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
15.784 (STA W.S. RGT)
15.696 (STA W.S. RGT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
15.784	7000	1584.62	0.64	3.21	8.87	1.46	4.55	1.41
15.696	7000	1581.25	0.66	3.28	7.12	1.47	7.02	1.33
15.607	7000	1577.54	0.68	3.35	8.82	1.54	7.24	1.40
15.504	7000	1574.33	0.69	3.42	10.37	1.75	7.04	1.40
15.419	7000	1572.65	0.71	3.52	3.10	0.69	8.92	3.06
15.361	7000	1572.64	0.75	3.71	1.53	0.26	15.69	8.06
15.320	7000	1565.25	0.77	3.74	4.98	3.08	10.00	1.60
15.304	7000	1564.00	0.77	3.75	8.94	3.16	11.71	1.22

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

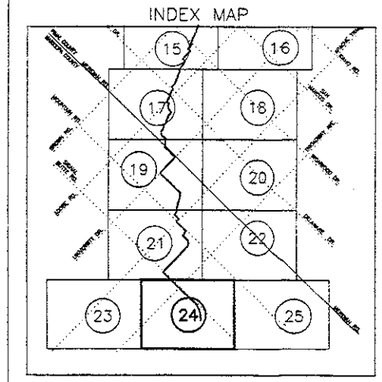
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
2	1581.30	FOUND MCDOT BRASS CAP IN HANDHOLE 0.25' BELOW RIM AT THE INTERSECTION OF SIGNAL BUTTE RD. & BROADWAY RD. N: 876208.930 E: 797374.582

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF SYMBOL.
3- FLOODING LIMITS SHOWN OVERTOPPING THE CAP AT VARIOUS LOCATIONS ALONG THE NORTH BANK ARE BASED ON AN ELEVATION DETERMINED IN THE HEC-RAS MODEL FROM THE CROSS SECTION DATA AND THE EFFECTIVE FLOW LIMITS. FLOWS MAY CROSS THE CAP AND CAUSE FLOODING DOWNSTREAM OF THE CAP. NO ATTEMPT WAS MADE UNDER THIS STUDY TO DETERMINE THE FLOODING LIMITS DOWNSTREAM OF THE CAP.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/7/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

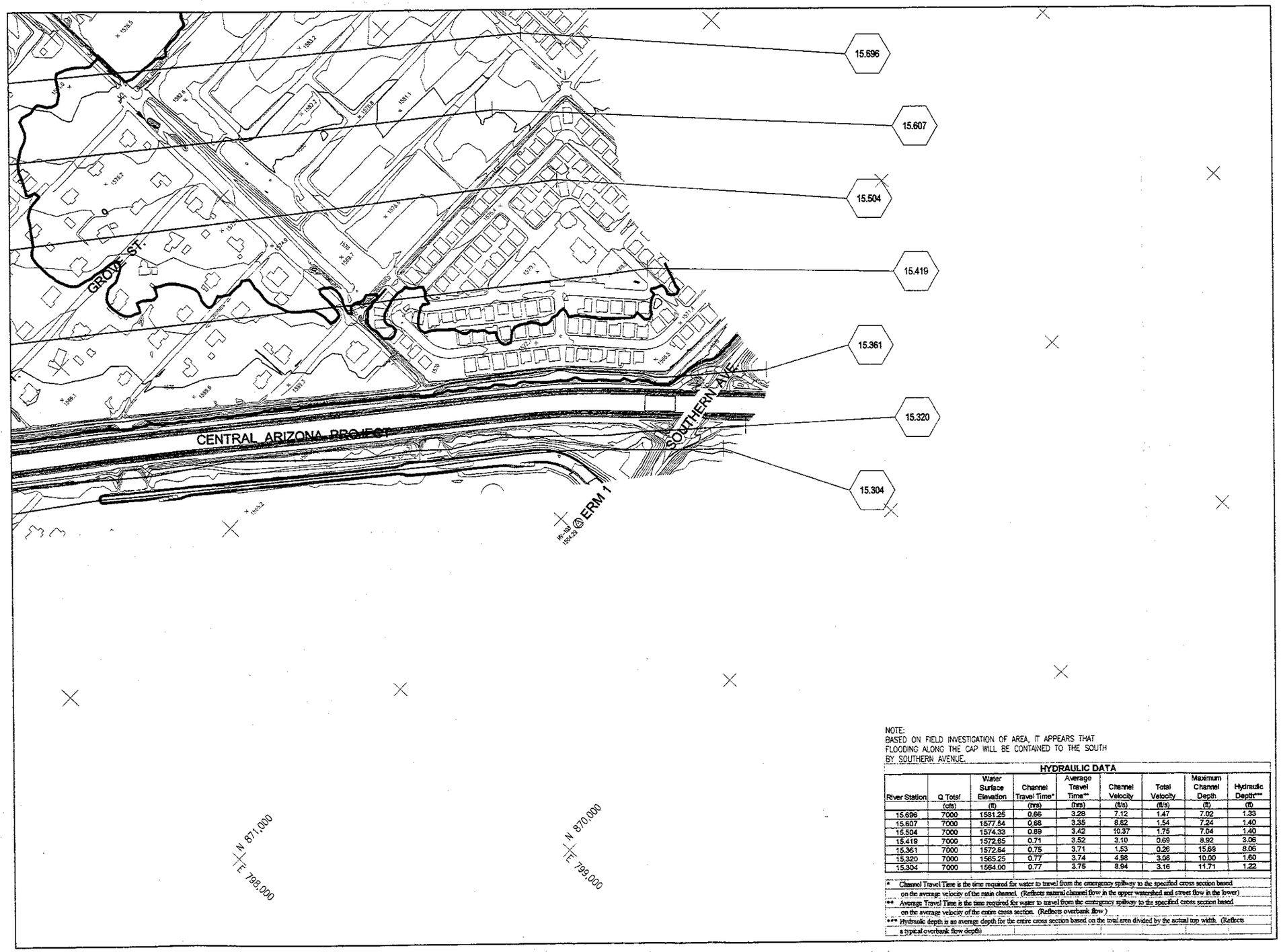
SHEET 24 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
BASED ON FIELD INVESTIGATION OF AREA, IT APPEARS THAT FLOODING ALONG THE CAP WILL BE CONTAINED TO THE SOUTH BY SOUTHERN AVENUE.

HYDRAULIC DATA

River Station	Q Total	Water Surface Elevation	Channel Travel Time*	Average Travel Time**	Channel Velocity	Total Velocity	Maximum Channel Depth	Hydraulic Depth***
	(cfs)	(ft)	(hrs)	(hrs)	(ft/s)	(ft/s)	(ft)	(ft)
15.696	7000	1581.25	0.66	3.28	7.12	1.47	7.02	1.33
15.607	7000	1577.54	0.68	3.35	8.62	1.54	7.24	1.40
15.504	7000	1574.33	0.69	3.42	10.37	1.75	7.04	1.40
15.419	7000	1572.65	0.71	3.52	3.10	0.69	8.92	3.06
15.361	7000	1572.64	0.75	3.71	1.53	0.26	15.69	8.06
15.320	7000	1565.25	0.77	3.74	4.98	3.08	10.00	1.60
15.304	7000	1564.00	0.77	3.75	8.94	3.16	11.71	1.22

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

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*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0

CROSS SECTION — 2.147 — WSE — 2.147

STREET FLOW — SF →

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
1	1564.29	FOUND BLM BRASS CAP NORTH SIDE SOUTHERN AVE. ½ MILE EAST OF SIGNAL BUTTE RD. N: 870934.187 E: 800036.284

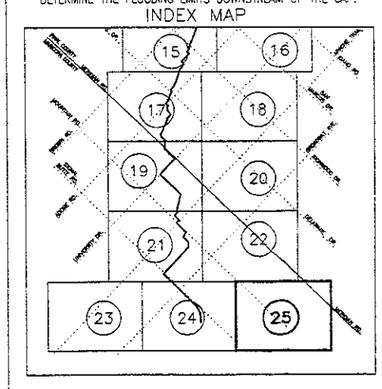
NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

3- FLOODING LIMITS SHOWN OVERTOPPING THE CAP AT VARIOUS LOCATIONS ALONG THE NORTH BANK ARE BASED ON AN ELEVATION DETERMINED IN THE HEC-RAS MODEL FROM THE CROSS SECTION DATA AND THE EFFECTIVE FLOW LIMITS. FLOWS MAY CROSS THE CAP AND CAUSE FLOODING DOWNSTREAM OF THE CAP. NO ATTEMPT WAS MADE UNDER THIS STUDY TO DETERMINE THE FLOODING LIMITS DOWNSTREAM OF THE CAP.

INDEX MAP



200' 0' 200' 400'

SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Baker
Michael Baker Jr., Inc.

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/14/00 ARIZONA, U.S.A.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 25 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&B MAPPING, LLC. 7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA PROVIDED BY: AZTEC ENGINEERING. 3747 East Grove Street, Phoenix, AZ 85040

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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

PROJECT DATA
Project Title: East Side SIS - Apache Junction FRS
Project File : AJ2third.prj
Run Date and Time: 6/22/00 6:06:21 PM

Project in English units

Project Description:
Spillway Inundation Study for Apache Junction FRS - 2/3 Spillway Flow Scenario

FCD 98-33
Michael Baker Jr., Inc.

Last Updates: June 22, 2000
Submitted to FCD: June, 2000

PLAN DATA

Plan Title: 2/3 Spillway Flow (Mixed Flow Regime)
Plan File : d:\fcdspill\apache\HEC-RAS\100pcent\2thirds\AJ2third.p03

Geometry Title: Base Conditions Geometry
Geometry File : d:\fcdspill\apache\HEC-RAS\100pcent\2thirds\AJ2third.G01

Flow Title : 2/3 Spillway Flow (7,000 cfs)
Flow File : d:\fcdspill\apache\HEC-RAS\100pcent\2thirds\AJ2third.F01

Plan Summary Information:

Number of:	Cross Sections =	58	Mulitple Openings =	0
	Culverts =	1	Inline Weirs =	0
	Bridges =	0		

Computational Information

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

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

FLOW DATA

Flow Title: 2/3 Spillway Flow (7,000 cfs)
Flow File : d:\fcdspill\apache\HEC-RAS\100pcent\2thirds\AJ2third.F01

Flow Data (cfs)

River	Reach	RS	PF 2
Apache Junct FRS	Spillway	20.000	7000

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Apache Junct FRS	Spillway	PF 2	Critical	Normal S = .014

GEOMETRY DATA

Geometry Title: Base Conditions Geometry
Geometry File : d:\fcdspill\apache\HEC-RAS\100pcent\2thirds\AJ2third.G01

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 20.000

INPUT
Description: Spillway Crest
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9494.58	1810.18	9929.29	1810.56	9936.72	1810.56	9939.16	1799.77	9991.54	1799.77
10027.79	1799.77	10036.85	1799.77	10038.14	1809.97	10039.87	1809.93	10242.44	1810.25
10305.53	1810.12	10372.15	1810	10413.17	1810.31				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9494.58	.06	9936.72	.02	10038.14	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9936.72	10038.14	43.28	34.75	44.55	.3	.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1807.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.69	Wt. n-Val.		0.020	
W.S. Elev (ft)	1805.16	Reach Len. (ft)	43.28	34.75	44.55
Crit W.S. (ft)	1805.16	Flow Area (sq ft)		531.62	
E.G. Slope (ft/ft)	0.003781	Area (sq ft)		531.62	
Q Total (cfs)	7000.00	Flow (cfs)		7000.00	
Top Width (ft)	99.59	Top Width (ft)		99.59	
Vel Total (ft/s)	13.17	Avg. Vel. (ft/s)		13.17	
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)		5.34	
Conv. Total (cfs)	113839.3	Conv. (cfs)		113839.3	
Length Wtd. (ft)	34.75	Wetted Per. (ft)		108.65	
Min Ch El (ft)	1799.77	Shear (lb/sq ft)		1.16	
Alpha	1.00	Stream Power (lb/ft s)		15.21	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	2020.48	83.90	999.30
C & E Loss (ft)	0.00	Cum SA (acres)	1393.03	37.72	545.31

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9936.72	9970.53	2194.47	172.33	36.89	31.35	5.29	12.73

9970.53	10004.33	2552.17	182.20	33.81	36.46	5.39	14.01
10004.33	RB 10038.14	2253.36	177.09	37.95	32.19	5.33	12.72

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.993

INPUT
Description: Downstream Toe of Spillway
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9635.13	1789.34	9929.61	1792.78	9932.18	1779.09	9932.85	1779.09	9984.44	1779.16
10020.4	1779.34	10030.42	1779.25	10031.45	1793.58	10098.95	1789.46	10229.67	1805.84
10257.6	1805.93	10295.32	1789.15	10303.38	1788.56				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9635.13	.06	9929.61	.03	10031.45	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9929.61	10031.45	94.49	99.29	88.53	.3	.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1802.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	20.87	Wt. n-Val.		0.032	
W.S. Elev (ft)	1781.13	Reach Len. (ft)	94.49	99.29	88.53
Crit W.S. (ft)	1784.56	Flow Area (sq ft)		190.92	
E.G. Slope (ft/ft)	0.270958	Area (sq ft)		190.92	
Q Total (cfs)	7000.00	Flow (cfs)		7000.00	
Top Width (ft)	98.76	Top Width (ft)		98.76	
Vel Total (ft/s)	36.67	Avg. Vel. (ft/s)		36.67	
Max Chl Dpth (ft)	2.04	Hydr. Depth (ft)		1.93	
Conv. Total (cfs)	13447.7	Conv. (cfs)		13447.7	
Length Wtd. (ft)	99.29	Wetted Per. (ft)		102.19	
Min Ch El (ft)	1779.09	Shear (lb/sq ft)		31.60	
Alpha	1.00	Stream Power (lb/ft s)		1158.73	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	2020.48	83.61	999.30
C & E Loss (ft)	5.45	Cum SA (acres)	1393.03	37.64	545.31

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9929.61	9963.56	2358.24	63.63	33.45	33.69	2.00	37.06
9963.56	9997.50	2519.82	66.61	33.95	36.00	1.96	37.83
9997.50	RB 10031.45	2121.94	60.68	34.80	30.31	1.84	34.97

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.975

INPUT
Description: Downstream Edge of Spillway Rock Outfall Protection
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9664.74	1786.57	9674.21	1787.03	9692.15	1787.17	9726.44	1787.22	9732.47	1786.01
9741.55	1787.32	9809.19	1787.34	9820.56	1787.56	9846.36	1780.38	10112.27	1779.79
10137.51	1787.98	10165.36	1787.67	10227.12	1788.32	10250.52	1796	10266.1	1796.16
10289.41	1786.68	10301.12	1786.34	10314.18	1786.09				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9664.74	.06	9820.56	.03	10137.51	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9820.56	10137.51	416.52	415.95	409	.3	.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1785.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.		0.032	
W.S. Elev (ft)	1784.65	Reach Len. (ft)	416.52	415.95	409.00
Crit W.S. (ft)	1782.82	Flow Area (sq ft)		1283.25	
E.G. Slope (ft/ft)	0.001966	Area (sq ft)		1283.25	
Q Total (cfs)	7000.00	Flow (cfs)		7000.00	
Top Width (ft)	296.24	Top Width (ft)		296.24	
Vel Total (ft/s)	5.45	Avg. Vel. (ft/s)		5.45	
Max Chl Dpth (ft)	4.86	Hydr. Depth (ft)		4.33	
Conv. Total (cfs)	157864.8	Conv. (cfs)		157864.8	
Length Wtd. (ft)	414.32	Wetted Per. (ft)		297.59	
Min Ch El (ft)	1779.79	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.89	
Frctn Loss (ft)	1.72	Cum Volume (acre-ft)	2020.48	81.93	999.30
C & E Loss (ft)	0.12	Cum SA (acres)	1393.03	37.19	545.31

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9820.56	9926.21	1964.73	380.86	95.78	28.07	4.00	5.16
9926.21	10031.86	2727.91	482.30	105.65	38.97	4.57	5.66
10031.86	RB 10137.51	2307.35	420.09	96.16	32.96	4.40	5.49

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.896

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7636.43	1811.94	8411.27	1788.69	8431.84	1787.96	8452.63	1787.31	8488.09	1785.23
8494.79	1785.31	8501.3	1785.01	8524.01	1781.45	8759.33	1780.85	8770.56	1780.08
8785.49	1779.97	8792	1779.31	8807.33	1780.27	8815.84	1779.29	8816.35	1779.82
8820	1779.6	8826.15	1780.05	8860.85	1779.87	8959.15	1780.26	9328.56	1780.82
9334.31	1779.7	9339.97	1781.51	9365.04	1780.99	9851.39	1781.53	9974.35	1780.46

```
 9979.39 1779.41 9984.07  1780.310043.78 1780.6710052.66 1777.7810065.49 1780.46
 10184.2 1778.9610300.75 1780.5710339.72 1779.2910346.43 1777.5910354.89 1778.84
10424.55 1780.0210469.64 1779.6910474.66 1777.8110483.54 1779.4710492.57 1779.73
10498.25 1778.8410503.69 1779.4210569.76 1779.8710583.27 1779.8310585.03 1779.79
 10586.3 1776.7710591.04 1779.5410601.74 1783.2910613.34    178310621.83 1781.27
10636.57 1779.9410646.32 1781.22

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7636.43     .06 9974.35    .02810065.49     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9974.3510065.49            444.8  443.55  442.48             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 7636.43 9606.43    178410284.4310646.32    1784
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
10601.7410646.32    1788
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1783.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.	0.060	0.028	0.060
W.S. Elev (ft)	1782.40	Reach Len. (ft)	444.80	443.55	442.48
Crit W.S. (ft)	1782.40	Flow Area (sq ft)	417.57	208.56	593.79
E.G. Slope (ft/ft)	0.014106	Area (sq ft)	2235.03	208.56	1474.53
Q Total (cfs)	7000.00	Flow (cfs)	1336.35	2267.24	3396.41
Top Width (ft)	2081.21	Top Width (ft)	1456.37	91.14	533.70
Vel Total (ft/s)	5.74	Avg. Vel. (ft/s)	3.20	10.87	5.72
Max Chl Dpth (ft)	5.63	Hydr. Depth (ft)	1.13	2.29	2.71
Conv. Total (cfs)	58938.3	Conv. (cfs)	11251.8	19089.6	28596.9
Length Wtd. (ft)	443.39	Wetted Per. (ft)	367.92	92.07	218.96
Min Ch El (ft)	1777.78	Shear (lb/sq ft)	1.00	1.99	2.39
Alpha	1.70	Stream Power (lb/ft s)	3.20	21.69	13.66
Frctn Loss (ft)	6.48	Cum Volume (acre-ft)	2009.79	74.81	992.38
C & E Loss (ft)	0.23	Cum SA (acres)	1386.07	35.34	542.80

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 critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9306.37	9640.36	120.33	37.96	33.93	1.72	1.12	3.17
9640.36	9974.35	1216.07	379.62	333.99	17.37	1.14	3.20
LB 9974.35	10004.73	689.73	66.26	30.57	9.85	2.18	10.41
10004.73	10035.11	537.55	56.92	30.38	7.68	1.87	9.44
10035.11	RB 10065.49	1039.93	85.37	31.12	14.86	2.81	12.18
10065.49	10148.47	1084.29	204.11	82.98	15.49	2.46	5.31
10148.47	10231.44	1639.63	261.59	82.98	23.42	3.15	6.27
10231.44	10314.42	672.47	128.08	52.99	9.61	2.42	5.25

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 critical depth, the calculated water surface came back below critical depth. This indicates

that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.812

INPUT
Description:
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6576.97	1774.26	6622.91	1775.62	6651.07	1776.69	6739.73	1773.88	6757.66	1773.37
6776.75	1772.85	6806.97	1773.07	7010.04	1772.51	7031.41	1773.13	7039.78	1772.47
7063.52	1772.59	7081.53	1772.73	7100.1	1772.73	7162.48	1773.01	7168.95	1771.67
7178.17	1772.37	7371.66	1771.91	7682.58	1772.93	7723.7	1772.9	7874.47	1772.89
7879.76	1772.29	7888.4	1772.98	7968.69	1773.98	7984.38	1774.34	8018.75	1773.64
8024.61	1774.34	8029.19	1774.1	8044.64	1772.11	8049.73	1773.78	8631.52	1773.48
8679.59	1773.55	8897.55	1773.75	8914.73	1773.76	8930.13	1773.97	8953.31	1774.06
9001.04	1773.03	9015.31	1774.96	9120.97	1774.05	9127.4	1771.84	9134.7	1773.94
9263.36	1773.55	9381.4	1773.67	9576.26	1773.73	9644.79	1773.94	9991.41	1773.88
10066.96	1773.161	0072.21	1772.23	10081.7	1773.581	0204.88	1773.081	0213.44	1771.7
10222.71	177310269.86		1772.371	0277.26	1772.071	0281.92	1772.131	0294.57	1773.24
10412.77	1773.691	0469.92	177210475.74		1770.121	0484.05	1773.21	0709.06	1773.24
10765.68	1773.151	0772.71	1771.531	0787.98	1771.471	0796.93	1773.36	10813.3	1772.84
10816.26	1770.441	0834.47	1776.84						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6576.97	.09	8914.73	.06	9991.41	.028	10081.7	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9991.41	10081.7	410.21	406.82	401.03	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6576.97	9327.06	1778	10469.91	0834.47	1778

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6576.97	6651.07	1777

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1775.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.060	0.028	0.060
W.S. Elev (ft)	1774.96	Reach Len. (ft)	410.21	406.82	401.03
Crit W.S. (ft)	1774.76	Flow Area (sq ft)	756.53	139.96	713.20
E.G. Slope (ft/ft)	0.015163	Area (sq ft)	5273.44	139.96	1417.32
Q Total (cfs)	7000.00	Flow (cfs)	2515.80	1223.37	3260.83
Top Width (ft)	4123.08	Top Width (ft)	3285.38	90.29	747.41
Vel Total (ft/s)	4.35	Avg. Vel. (ft/s)	3.33	8.74	4.57
Max Chl Dpth (ft)	4.84	Hydr. Depth (ft)	1.14	1.55	1.84
Conv. Total (cfs)	56847.7	Conv. (cfs)	20431.1	9935.1	26481.5
Length Wtd. (ft)	405.15	Wetted Per. (ft)	664.35	90.47	388.49
Min Ch El (ft)	1772.23	Shear (lb/sq ft)	1.08	1.46	1.74
Alpha	1.43	Stream Power (lb/ft s)	3.58	12.80	7.95
Frctn Loss (ft)	5.67	Cum Volume (acre-ft)	1971.46	73.03	977.69
C & E Loss (ft)	0.06	Cum SA (acres)	1361.86	34.42	536.30

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9015.86	9503.63	813.07	226.54	176.57	11.62	1.28	3.59
9503.63	9991.41	1702.72	529.99	487.78	24.32	1.09	3.21
LB 9991.41	10021.51	269.30	36.75	30.10	3.85	1.22	7.33
10021.51	10051.60	382.79	45.38	30.10	5.47	1.51	8.44
10051.60	RB 10081.70	571.29	57.84	30.27	8.16	1.92	9.88
10081.70	10189.24	701.81	171.61	107.54	10.03	1.60	4.09
10189.24	10296.78	1296.67	248.27	107.80	18.52	2.31	5.22
10296.78	10404.32	636.13	161.79	107.54	9.09	1.50	3.93
10404.32	10511.85	626.22	131.53	65.61	8.95	2.01	4.76

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.735

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6478.42	1768.48	6485.71	1768.74	6511.21	1769.61	6681.63	1772.14	6791.58	1769.48
6868.37	1769.02	6874.81	1767.85	6884.19	1768.68	6952.18	1768.46	7279.82	1767.89
7386.68	1768.78	7404.44	1769.25	7422.37	1769.3	7893.75	1768.17	7917.98	1767.47
7924.07	1767.53	7932.05	1768.22	8091.89	1768.83	8098.25	1767.39	8107.21	1768.4
8131.62	1767.75	8135.57	1767.43	8141.34	1768.33	8282.58	1769.13	8334.13	1769.22
8373.1	1768.73	8382.64	1769.01	9136.8	1768.69	9145.55	1765.78	9178.93	1768.28
9262.25	1768.4	9267.95	1767.86	9286.08	1768.16	9302.57	1768.41	9364.61	1768.89
9411.83	1768.98	9417.22	1768.12	9423.69	1769.32	9666.88	1768.34	9733.91	1767.43
9742.14	1767.25	9754.94	1768.35	9858.81	1769.3	9940.13	1767.83	9946.75	1768.04
10010.48	1767.41	10045.6	1767.71	10171.86	1767.34	10184.1	1765.09	10199.86	1767.99
10223.57	1767.91	10264.94	1766.88	10318.16	1766.99	10512.87	1767.84	10565.54	1767.82
10574.13	1766.01	10580.25	1767.43	10681.01	1767.18	10749.55	1767.55	10759.11	1765.94
10768.53	1767.55	10860.77	1767.65	10868.78	1767.96	10900.04	1766.97	10911.24	1766.16
10924.55	1767.91	10966.87	1768.19	10977.26	1770.31	10993.61	1769.75	10995.92	1765.87
11005.9	1765.61	11007.84	1770.02	11022.76	1774.57				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6478.42	.09	9286.08	.06	9946.75	.02	10199.86	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9946.75	10199.86	363.11	367.49	373	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6478.42	9090.42	1774	10630.42	11022.76	1774

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6478.42	6681.63	1774	10977.26	11022.76	1774

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1769.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.071	0.028	0.060
W.S. Elev (ft)	1769.05	Reach Len. (ft)	363.11	367.49	373.00
Crit W.S. (ft)	1769.04	Flow Area (sq ft)	478.15	404.86	707.85
E.G. Slope (ft/ft)	0.012929	Area (sq ft)	1423.31	404.86	1251.20
Q Total (cfs)	7000.00	Flow (cfs)	887.80	3337.21	2774.99
Top Width (ft)	3791.56	Top Width (ft)	2767.22	253.11	771.23
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)	1.86	8.24	3.92
Max Chl Dpth (ft)	3.96	Hydr. Depth (ft)	0.64	1.60	1.64
Conv. Total (cfs)	61562.4	Conv. (cfs)	7807.9	29349.5	24405.1
Length Wtd. (ft)	369.13	Wetted Per. (ft)	748.33	253.58	430.93
Min Ch El (ft)	1765.09	Shear (lb/sq ft)	0.52	1.29	1.33
Alpha	2.01	Stream Power (lb/ft s)	0.96	10.62	5.20
Frctn Loss (ft)	5.56	Cum Volume (acre-ft)	1939.93	70.49	965.41
C & E Loss (ft)	0.05	Cum SA (acres)	1333.36	32.82	529.31

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8955.80	9451.27	396.44	231.32	332.58	5.66	0.70	1.71
9451.27	9946.75	491.36	246.84	415.75	7.02	0.59	1.99
LB 9946.75	10031.12	861.59	116.69	84.37	12.31	1.38	7.38
10031.12	10115.49	926.55	121.89	84.37	13.24	1.44	7.60
10115.49	RB 10199.86	1549.03	166.28	84.84	22.13	1.97	9.32
10199.86	10317.42	837.19	206.12	117.57	11.96	1.75	4.06
10317.42	10434.97	881.61	212.61	117.56	12.59	1.81	4.15

10434.97	10552.53	526.31	156.01	117.56	7.52	1.33	3.37
10552.53	10670.09	529.92	133.11	78.24	7.57	1.71	3.98

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.665

INPUT
Description:
Station Elevation Data num= 95

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6372.62	1764.93	6776.54	1762.44	6782.34	1761.83	6787.32	1762.38	6822.11	1762.33
6825.83	1761.85	6858.42	1762.57	6862.09	1762.61	6904.56	1762.24	7003.93	1762.2
7015.48	1760.87	7031.75	1762.92	7342.72	1763.48	7345.87	1762.46	7358.5	1762.03
7366.47	1762.62	7467.11	1761.72	7474.88	1760.62	7480.45	1761.56	7513.1	1761.95
7539.15	1761.6	7547.05	1760.18	7552.09	1761.39	7797	1762.48	7814.17	1762.31
7833.64	1762.26	7887.19	1761.64	7895.32	1759.78	7904.18	1761.66	8407.01	1763.4
8414.32	1762.74	8421.92	1763.62	8466.55	1762.89	8475.95	1762.57	8485.41	1763.38
8734.57	1763.76	8768.89	1763.74	8878.45	1764.61	8899.03	1764.07	9100.02	1763.33
9110.14	1762.28	9120.33	1763.49	9206.76	1763.69	9214.15	1762.35	9225.93	1763.91
9238.72	1764.49	9249.54	1760.17	9258.98	1763.28	9444.15	1763.01	9451.15	1761.08
9463.9	1763.13	9612.87	1762.1	9625.13	1760.62	9639.91	1760.74	9657.09	1761.03
9695.93	1761.21	9734.57	1762.28	9893.65	1764.21	9993.65	1762.67	10000.17	1761.45
10011.93	1762.44	10018.29	1762.01	10030.36	1762.42	10055.47	1761.66	10062.36	1759.98
10069.95	1762.21	10084.18	1761.94	10107.5	1762.34	10114.38	1761.43	10123.72	1761.57
10185.42	1762.45	10195.9	1759.49	10212.66	1761.65	10232.81	1761.47	10239.7	1760.65
10256.52	1762.53	10471.7	1761.68	10552.33	1763.56	10614.57	1762.45	10619.85	1761.42
10628	1762.71	10707.38	1762.64	10742.42	1762.62	10749.62	1761.32	10763.02	1762.16
10833	1763.04	10958.28	1764.01	11034.06	1764.21	11146.05	1763.42	11157.78	1766.45
11172.33	1766.22	11174.76	1762.75	11187.36	1762.04	11189.63	1766.41	11205.11	1769.33

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6372.62	.09	9657.09	.06	9993.65	.028	10107.5	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9993.65	10107.5	435.66	441.94	435.91	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6372.62	8877.92	1768	10761	11205.11	1768

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11157.78	11205.11	1767

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1764.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.074	0.028	0.060
W.S. Elev (ft)	1763.54	Reach Len. (ft)	435.66	441.94	435.91
Crit W.S. (ft)	1763.44	Flow Area (sq ft)	667.26	181.09	860.19
E.G. Slope (ft/ft)	0.017759	Area (sq ft)	2659.52	181.09	945.76
Q Total (cfs)	7000.00	Flow (cfs)	1757.40	1737.75	3504.85
Top Width (ft)	3670.01	Top Width (ft)	2751.20	113.85	804.97
Vel Total (ft/s)	4.10	Avg. Vel. (ft/s)	2.63	9.60	4.07
Max Chl Dpth (ft)	4.05	Hydr. Depth (ft)	0.87	1.59	1.32
Conv. Total (cfs)	52528.2	Conv. (cfs)	13187.6	13040.1	26300.5
Length Wtd. (ft)	436.69	Wetted Per. (ft)	768.48	114.56	652.44
Min Ch El (ft)	1759.98	Shear (lb/sq ft)	0.96	1.75	1.46
Alpha	1.96	Stream Power (lb/ft s)	2.54	16.82	5.96
Frctn Loss (ft)	6.37	Cum Volume (acre-ft)	1922.91	68.02	956.00
C & E Loss (ft)	0.15	Cum SA (acres)	1310.36	31.27	522.56

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8959.07	9476.36	225.96	168.05	350.12	3.23	0.48	1.34

9476.36	9993.65	1531.43	499.22	418.37	21.88	1.19	3.07
LB 9993.65	10031.60	477.71	54.09	38.13	6.82	1.43	8.83
10031.60	10069.55	781.74	72.95	38.46	11.17	1.92	10.72
10069.55	RB 10107.50	478.30	54.05	37.97	6.83	1.42	8.85
10107.50	10264.30	1488.75	298.98	157.57	21.27	1.91	4.98
10264.30	10421.10	838.26	211.41	156.80	11.98	1.35	3.97
10421.10	10577.90	578.19	168.23	154.63	8.26	1.09	3.44
10577.90	10734.71	431.69	142.05	157.01	6.17	0.91	3.04
10734.71	10891.51	167.97	39.53	26.43	2.40	1.50	4.25

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.581

INPUT
Description: Baseline crosses cross section just south of Lost Dutchman Blvd.
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6372.33	1758.68	6468.78	1758.14	6498.72	1759	6646	1758	6923.13	1757.73
6931.11	1756.63	6942.12	1758.23	7197.64	1756.21	7208.68	1757.48	7262.09	1757.94
7271.14	1757.32	7318.36	1756.44	7587.57	1756.99	7598.69	1755.83	7607.62	1756.38
8038.12	1755.89	8045.47	1753.98	8052.93	1755.81	8187.64	1757.21	8213.76	1755.41
8228.87	1755.63	8246.59	1755.99	8256.73	1756.51	8268.78	1757.81	8499.88	1758.29
8526.68	1758.41	8781.33	1758.02	9137.72	1757.98	9164.16	1757.03	9201.66	1757.39
9211.53	1758.67	9252.09	1758.68	9263.28	1757.47	9283.67	1757.44	9303.7	1757.27
9327.01	1758.37	9332.78	1758.06	9419.36	1756.18	9426.04	1755.77	9438.85	1756.2
9466.26	1756.77	9478.06	1753.37	9494.12	1756.14	9501.48	1755.14	9664.67	1755.32
9670.45	1753.92	9687.88	1755.37	9688.94	1754.57	9842.48	1755.36	9864.46	1755.15
9880.85	1755.81	9996.13	1755.9	10000.34	1754.45	10009.83	1755.79	10056.19	1756.06
10072.29	1754.33	10086.49	1754.49	10103.01	1754.71	10128.56	1754.65	10157.11	1756.3
10264.44	1756.29	10273.31	1754.77	10286.99	1756.29	10375.82	1754.85	10383.95	1753.79
10391.41	1754.84	10414.78	1754.35	10428.71	1753.89	10439.05	1755.29	10532.86	1756.43
10538.07	1754.98	10545.3	1756.65	10693.11	1757.32	10704.71	1757.21	10715.96	1757.96
10810.03	1758.91	10818.95	1758.08	10822.03	1758.95	10880.26	1757.81	11187.27	1756.64
11242.66	1757.71	11373.24	1758.07	11384.37	1760.69	11397.44	1760.41	11399.04	1756.93
11408.74	1756.53	11410.77	1760.06	11421	1762.05				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6372.33	.09	9996.13	.02	10009.83	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9996.13	10009.83		432.12	407.92	355	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6372.33	8652.33	1762	10972.33	11421	1762

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11384.37	11421	1763

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1757.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.090	0.028	0.060
W.S. Elev (ft)	1757.32	Reach Len. (ft)	432.12	407.92	355.00
Crit W.S. (ft)	1756.60	Flow Area (sq ft)	1175.60	29.85	1002.58
E.G. Slope (ft/ft)	0.012184	Area (sq ft)	2218.31	29.85	1076.28
Q Total (cfs)	7000.00	Flow (cfs)	3221.05	289.01	3489.94
Top Width (ft)	2754.93	Top Width (ft)	1828.40	13.70	912.82
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	2.74	9.68	3.48
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)	1.74	2.18	1.44
Conv. Total (cfs)	63416.9	Conv. (cfs)	29181.3	2618.3	31617.3
Length Wtd. (ft)	398.48	Wetted Per. (ft)	676.48	14.05	697.71
Min Ch El (ft)	1754.45	Shear (lb/sq ft)	1.32	1.62	1.09
Alpha	1.33	Stream Power (lb/ft s)	3.62	15.65	3.80
Frctn Loss (ft)	4.85	Cum Volume (acre-ft)	1898.52	66.95	945.89
C & E Loss (ft)	0.03	Cum SA (acres)	1287.46	30.62	513.96

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8960.76	9478.44	161.28	112.99	157.98	2.30	0.72	1.43
9478.44	9996.13	3059.79	1062.61	518.50	43.71	2.05	2.88
LB 9996.13	10000.70	93.94	9.97	4.83	1.34	2.18	9.42
10000.70	10005.26	121.32	11.42	4.61	1.73	2.50	10.63
10005.26	RB 10009.83	73.76	8.47	4.61	1.05	1.85	8.71
10009.83	10211.43	1343.39	361.42	201.74	19.19	1.79	3.72
10211.43	10413.02	1308.96	355.99	201.97	18.70	1.77	3.68
10413.02	10614.62	826.35	270.21	202.09	11.81	1.34	3.06
10614.62	10816.21	11.23	14.95	91.90	0.16	0.16	0.75

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.504

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6666.65	1753.47	6672.19	1752.56	6689.97	1753.05	6704.09	1753.68	6717.27	1753.18
6727.07	1752	6734.36	1753.18	6821.65	1752.91	6826.62	1752.22	6834.65	1752.7
6869.19	1751.52	6918.33	1751.71	6926.7	1752.16	7126.24	1752.09	7131.66	1751.08
7138.29	1751.91	7404.33	1751.53	7426.2	1750.72	7433.53	1750.95	7785.36	1750
7846.28	1750.81	7990.26	1750.7	8000.69	1749.14	8012.09	1751.38	8583.38	1752.28
8601.12	1752.26	8618.93	1752.21	8638.56	1751.72	8646.33	1752.33	8706.39	1750.67
8760.94	1751.03	8780.06	1750.82	8797.8	1750.88	8806.36	1750.94	8819.5	1752.15
9538.72	1750.38	9571.89	1750.4	9601.4	1749.93	9609.76	1747.37	9618.4	1749.8
9625.31	1747.75	9637.65	1749.63	9641.81	1747.66	9650.05	1750.3	9988.41	1750.91
9996.47	1747.31	10004.87	1750.51	10314.98	1750.51	10329.16	1749.73	10345.61	1749.6
10362.09	1750.36	10395.39	1750.09	10420.82	1752.27	10509.85	1752.13	10530.6	1751.98
10594.25	1752.18	10659.18	1752.25	10665.06	1749.67	10674.21	1750.03	10682.29	1751.69
10700.36	1751.87	10830.58	1753.83	10882.72	1753.24	10885.41	1752.25	10889.75	1753.26
10907.47	1752.98	11042.83	1753.27	11247.28	1752.11	11500.96	1752.71	11512.92	1755.45
11527.38	1755.21	11529.78	1751.41	11538.75	1750.92	11540.47	1755.28	11551.85	1759.5
11563.89	1759.32	11580.68	1752.02	11760.15	1753.46				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6666.65	.09	9988.41	.02	10004.87	.09	10362.09	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.41	10004.87	443.61	495.7	479.53	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6666.65	8296.62	1759	11086.62	11760.15	1759

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11512.92	11760.15	1758

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1752.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.090	0.028	0.085
W.S. Elev (ft)	1752.35	Reach Len. (ft)	443.61	495.70	479.53
Crit W.S. (ft)	1750.28	Flow Area (sq ft)	1982.28	55.11	892.93
E.G. Slope (ft/ft)	0.012141	Area (sq ft)	3560.29	55.11	910.18
Q Total (cfs)	7000.00	Flow (cfs)	4004.63	684.02	2311.34
Top Width (ft)	4040.63	Top Width (ft)	3151.60	16.46	872.58
Vel Total (ft/s)	2.39	Avg. Vel. (ft/s)	2.02	12.41	2.59
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)	1.17	3.35	1.23
Conv. Total (cfs)	63528.1	Conv. (cfs)	36343.8	6207.8	20976.5
Length Wtd. (ft)	458.58	Wetted Per. (ft)	1693.92	17.82	728.86
Min Ch El (ft)	1747.30	Shear (lb/sq ft)	0.89	2.34	0.93
Alpha	3.43	Stream Power (lb/ft s)	1.79	29.09	2.40
Frctn Loss (ft)	6.33	Cum Volume (acre-ft)	1869.85	66.55	937.79
C & E Loss (ft)	0.03	Cum SA (acres)	1262.75	30.48	506.69

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8090.26	8564.80	59.74	82.87	268.18	0.85	0.31	0.72
8564.80	9039.34	403.26	327.48	474.65	5.76	0.69	1.23
9039.34	9513.87	1193.86	628.01	474.54	17.06	1.32	1.90
9513.87	9988.41	2347.77	943.91	476.56	33.54	1.99	2.49
LB 9988.41	9993.90	149.99	14.63	6.01	2.14	2.67	10.25
9993.90	9999.38	359.50	24.60	5.94	5.14	4.48	14.61
9999.38	RB 10004.87	174.53	15.87	5.87	2.49	2.89	10.99
10004.87	10255.62	1251.46	462.51	250.75	17.88	1.84	2.71
10255.62	10506.38	919.92	336.86	250.89	13.14	1.34	2.73
10506.38	10757.13	139.96	93.53	226.50	2.00	0.41	1.50
10757.13	11007.89	0.01	0.03	0.72	0.00	0.05	0.35

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.410

INPUT
Description: Baseline crosses cross section just north of Windsong St.
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6332.31	1746.54	6347.22	1747.11	6360.36	1746.66	6421.94	1745.43	6429.08	1746.33
6568.96	1746.07	6575.07	1745.59	6585.35	1746.55	7048	1745.77	7118.9	1744.5
7199.11	1744.35	7206.21	1742.49	7216.69	1743.66	7312.92	1744.4	7329.71	1744.79
7346.69	1743.7	7358.41	1743.21	7371.61	1744.11	7426.7	1743.99	7437.28	1743.81
7441.34	1743.67	7789.43	1746.21	7806.27	1747.51	7852.68	1746.91	7865.31	1744.95
7873.32	1744.02	7878.87	1743.93	7900.36	1744.28	7909.35	1743.32	7920.29	1743.99
7935.55	1744.34	7940.7	1743.43	7949.63	1743.53	8135.6	1744.89	8178.95	1744.77
8200.51	1745.01	8223.61	1744.3	8769.97	1745.29	8777.93	1744.5	8783.88	1744.9
8998.52	1745.29	9014.33	1745.65	9033.73	1746.18	9052.87	1745.79	9067.86	1745.79
9233.49	1745.84	9778.02	1745.03	9787.17	1740.79	9799.04	1744.84	9916.84	1744.28
9937.51	1744.48	9987.68	1744.63	9995.02	1742.92	10006.66	1744.39	10228.36	1745.09
10248.11	1744.72	10271.54	1743.62	10288.65	1742.81	10289.72	1742.52	10298.48	1746.01
10558.38	1745.42	10562.47	1744.39	10567.34	1745.46	10569.37	1745.23	10573.49	1744.44
10579.07	1745.31	10747.68	1745.74	10763.36	1745.85	10779.08	1746.28	10797.78	1745.31
10812.95	1745.61	10896.71	1746.01	10902.92	1745.06	10911.28	1746.02	10953.46	1745.8
11074.63	1745.34	11078.6	1742.87	11084.58	1745.16	11168.95	1745.11	11289.44	1745.58
11368.27	1747.16	11443.41	1744.06	11540.26	1744.39	11631.1	1746.59	11676.16	1744.89
11680.78	1745.27	11883.13	1748.15	11989.36	1750.37	11998.83	1753.18	12012.86	1753.28

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6332.31	.09	9987.68	.02	10006.66	.09	10779.08	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.68	10006.66	535	565.65	492.3	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev
6332.31	7952.31	1750
11262.31	12012.86	1750

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11368.27	12012.86	1749

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1746.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.090	0.028	0.080
W.S. Elev (ft)	1746.05	Reach Len. (ft)	535.00	565.65	492.30
Crit W.S. (ft)	1745.88	Flow Area (sq ft)	2106.31	44.66	907.70
E.G. Slope (ft/ft)	0.016272	Area (sq ft)	3420.57	44.66	927.63
Q Total (cfs)	7000.00	Flow (cfs)	4697.10	529.54	1773.36
Top Width (ft)	4367.60	Top Width (ft)	3054.75	18.98	1293.87
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	2.23	11.86	1.95
Max Chl Dpth (ft)	5.26	Hydr. Depth (ft)	1.04	2.35	0.73
Conv. Total (cfs)	54875.1	Conv. (cfs)	36821.9	4151.3	13901.9

Length Wtd. (ft)	528.53	Wetted Per. (ft)	2026.31	19.27	1245.50
Min Ch El (ft)	1742.92	Shear (lb/sq ft)	1.06	2.35	0.74
Alpha	2.85	Stream Power (lb/ft s)	2.35	27.92	1.45
Frctn Loss (ft)	6.62	Cum Volume (acre-ft)	1834.31	65.98	927.68
C & E Loss (ft)	0.01	Cum SA (acres)	1231.15	30.28	494.76

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7898.90	8421.09	2059.88	757.96	468.80	29.43	1.62	2.72
8421.09	8943.29	1141.08	555.25	522.25	16.30	1.06	2.06
8943.29	9465.48	197.82	192.41	511.46	2.83	0.38	1.03
9465.48	9987.68	1298.37	600.70	523.80	18.55	1.15	2.16
LB 9987.68	9994.01	150.27	13.68	6.50	2.15	2.16	10.99
9994.01	10000.33	238.40	17.93	6.40	3.41	2.83	13.30
10000.33	RB 10006.66	140.87	13.06	6.38	2.01	2.06	10.79
10006.66	10293.26	1002.21	420.53	286.96	14.32	1.47	2.38
10293.26	10579.86	119.98	117.74	287.40	1.71	0.41	1.02
10579.86	10866.46	152.62	124.84	274.04	2.18	0.46	1.22
10866.46	11153.06	294.90	158.46	287.86	4.21	0.55	1.86
11153.06	11439.66	203.63	86.12	109.25	2.91	0.79	2.36

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.303

INPUT
Description:
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6191.46	1741.87	6329.11	1739.2	6348.12	1738.46	6359.21	1739.09	6523	1739.37
6739	1739.58	6807.25	1738.2	6810.65	1738.04	6817.23	1738.05	6881.99	1737.25
6929.89	1736.68	7041.21	1738.31	7048.34	1739.62	7057.99	1738.05	7351.5	1737.6
7358.34	1736.15	7365.41	1737.61	7447.77	1737.75	7520	1738	7540	1738
7559.97	1739.34	7576.91	1739.19	7594.21	1738.97	7748.49	1740.09	7757.44	1738.99
7780.86	1738.18	7797.46	1738.48	7812.3	1737.74	7827.63	1736.79	7844.55	1738.04
8372.44	1738.82	8373.91	1737.15	8386.72	1738.38	8585.49	1737.55	8853.77	1737.28
8863.5	1737.16	8870.6	1737.77	9470.58	1738.74	9499.33	1739.67	9517.12	1740.14
9536.88	1739.58	9554.23	1738.83	9562.15	1737.45	9573.4	1738.96	9636.32	1739.61
9658.17	1740.28	9681.9	1739.63	9810.95	1737.46	9820.39	1735.76	9825.43	1738.11
9983.42	1738.82	9994.48	1734.37	10009.34	1738.22	10106.77	1737.86	10116.22	1738.78
10208.25	1738.15	10213.96	1734.05	10225.39	1738.46	10352.71	1739.14	10381.18	1739.27
10388.12	1739.51	10479.04	1738.87	10483.49	1736.72	10488.07	1736.69	10496.61	1738.6
11013.08	1739.33	11027.53	1736.55	11039.25	1738.61	11112.24	1739.4	11144.6	1738.99
11159.58	1739.21	11175.49	1739.35	11186.05	1738.66	11211.28	1737.99	11456.69	1739.62
11480.69	1738.77	11496.32	1740.67	11545.44	1741.41	11663.43	1740.72	11771.92	1740.54
12008.48	1742.44	12063.42	1743.16	12189.18	1744.27	12199.3	1742.83	12211.02	1744.43
12297.63	1745.28								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6191.46	.09	9983.42	.02	10009.34	.09	11211.28	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.42	10009.34	570	501.11	467.95	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6191.46	7748.49	1743	11434.46	12297.63	1743

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6191.46	6739	1742

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1739.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.090	0.028	0.083

W.S. Elev (ft)	1739.41	Reach Len. (ft)	570.00	501.11	467.95
Crit W.S. (ft)	1739.27	Flow Area (sq ft)	2557.18	77.38	922.66
E.G. Slope (ft/ft)	0.010010	Area (sq ft)	3876.86	77.38	930.09
Q Total (cfs)	7000.00	Flow (cfs)	4862.39	823.45	1314.16
Top Width (ft)	4454.92	Top Width (ft)	3006.19	25.92	1422.80
Vel Total (ft/s)	1.97	Avg. Vel. (ft/s)	1.90	10.64	1.42
Max Chl Dpth (ft)	5.36	Hydr. Depth (ft)	1.22	2.99	0.66
Conv. Total (cfs)	69966.3	Conv. (cfs)	48600.5	8230.6	13135.3
Length Wtd. (ft)	547.44	Wetted Per. (ft)	2103.43	27.27	1402.91
Min Ch El (ft)	1734.37	Shear (lb/sq ft)	0.76	1.77	0.41
Alpha	4.19	Stream Power (lb/ft s)	1.44	18.87	0.59
Frctn Loss (ft)	7.19	Cum Volume (acre-ft)	1789.49	65.19	917.18
C & E Loss (ft)	0.02	Cum SA (acres)	1193.93	29.99	479.41

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7274.88	7816.59	107.03	64.89	62.62	1.53	1.04	1.65
7816.59	8358.29	941.18	566.91	541.78	13.45	1.05	1.66
8358.29	8900.00	2168.26	935.89	542.55	30.98	1.73	2.32
8900.00	9441.71	1106.26	624.60	541.71	15.80	1.15	1.77
9441.71	9983.42	539.65	364.90	414.78	7.71	0.88	1.48
LB 9983.42	9992.06	168.73	20.10	9.31	2.41	2.33	8.39
9992.06	10000.70	483.47	37.35	9.03	6.91	4.32	12.95
10000.70	RB 10009.34	171.26	19.94	8.92	2.45	2.31	8.59
10009.34	10336.24	587.87	357.70	329.09	8.40	1.09	1.64
10336.24	10663.14	197.34	181.81	311.63	2.82	0.58	1.09
10663.14	10990.04	85.04	111.83	326.90	1.21	0.34	0.76
10990.04	11316.93	398.42	232.66	327.39	5.69	0.71	1.71
11316.93	11643.83	45.49	38.67	107.91	0.65	0.36	1.18

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.208

INPUT
Description:
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5997.18	1733.11	6013.57	1733.17	6026.42	1734.95	6174.89	1735.4	6185.73	1733.64
6296.98	1734.49	6300.55	1732.84	6311.01	1733.98	6616.94	1732.79	6622.25	1731.65
6632.47	1732.22	6867.87	1731.5	6883.65	1731.65	6900.3	1731.51	7169.38	1731.17
7204.99	1731.22	7211.32	1732.08	7400	1732	7452.26	1730.04	7463.22	1729.57
7471.61	1729.95	7493.27	1730.17	7770	1732	7849.65	1730.38	7857.33	1729.63
7871.5	1730.52	7953.32	1731.83	7963.61	1729.27	7970.11	1731.25	8132.16	1730.1
8152.96	1730.93	8172.08	1731.31	8188.09	1730.93	8201.94	1730.05	8214.56	1731.68
8499.37	1731.15	8510.16	1731.17	8558.85	1730.88	8595.16	1729.94	8600.97	1728.75
8605.32	1729.75	8767.07	1730.52	8791.58	1729.37	8810.66	1730.09	8832.48	1730.54
8863.24	1730.39	9040.5	1731.47	9090.82	1731.63	9237.75	1732.25	9272.63	1732.02
9681.38	1731.87	9688.84	1729.24	9700.5	1731.45	9748.94	1731.58	9766.91	1731.67
9783.02	1732.12	9799.43	1732.07	9938.03	1730.34	9980.66	1731.76	9995.7	1728.13
10016.8	1731.85	10046.21	1732.27	10057.7	1730.93	10570.52	1732.25	10615.16	1731.96
10805.96	1732.73	10814.53	1731.97	10825.36	1731.98	10896.89	1732.31	10912.29	1729.37
10924.69	1730.88	11083.91	1733.74	11102.71	1732.58	11122.81	1733.55	11149.09	1733.82
11202.04	1733.43	11228.18	1733.72	11252.94	1729.66	11311.51	1729.64	11332.26	1733.54
11353.88	1733.61	11371.59	1734.16	11385.88	1734.53	11414.77	1734.43	11600.23	1736.13
11606.06	1735.93	11665.23	1735.45	11695.15	1736.93	12027.47	1738.97		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5997.18	.09	9980.66	.028	10016.8	.09	11149.09	.15	11414.77	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.66	10016.8	440	517.56	497.46	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

```
 5997.18 7169.38    173611083.9112027.47    1736
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5997.18 6296.98    173611083.9112027.47    1736
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1732.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.090	0.028	0.090
W.S. Elev (ft)	1732.11	Reach Len. (ft)	440.00	517.56	497.46
Crit W.S. (ft)	1731.98	Flow Area (sq ft)	2484.28	77.40	375.32
E.G. Slope (ft/ft)	0.017920	Area (sq ft)	2773.51	77.40	375.32
Q Total (cfs)	7000.00	Flow (cfs)	5482.03	901.09	616.88
Top Width (ft)	3991.37	Top Width (ft)	3267.93	36.14	687.30
Vel Total (ft/s)	2.38	Avg. Vel. (ft/s)	2.21	11.64	1.64
Max Chl Dpth (ft)	3.98	Hydr. Depth (ft)	0.90	2.14	0.55
Conv. Total (cfs)	52292.0	Conv. (cfs)	40952.3	6731.4	4608.3
Length Wtd. (ft)	458.02	Wetted Per. (ft)	2757.50	36.90	687.74
Min Ch El (ft)	1728.13	Shear (lb/sq ft)	1.01	2.35	0.61
Alpha	3.78	Stream Power (lb/ft s)	2.22	27.32	1.00
Frctn Loss (ft)	5.86	Cum Volume (acre-ft)	1745.98	64.30	910.17
C & E Loss (ft)	0.03	Cum SA (acres)	1152.88	29.63	468.08

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7135.32	7704.39	915.73	458.86	535.13	13.08	0.86	2.00
7704.39	8273.45	1423.74	613.23	569.93	20.34	1.08	2.32
8273.45	8842.52	2207.63	797.54	569.36	31.54	1.40	2.77
8842.52	9411.59	507.86	317.46	515.84	7.26	0.62	1.60
9411.59	9980.66	427.06	297.19	567.24	6.10	0.52	1.44
LB 9980.66	9992.71	207.66	21.77	12.39	2.97	1.81	9.54
9992.71	10004.75	568.50	39.67	12.27	8.12	3.29	14.33
10004.75	RB 10016.80	124.92	15.96	12.23	1.78	1.33	7.83
10016.80	10304.04	395.63	221.74	274.97	5.65	0.81	1.78
10304.04	10591.28	50.91	58.54	213.27	0.73	0.27	0.87
10591.28	10878.52	3.17	8.30	103.68	0.05	0.08	0.38
10878.52	11165.75	167.18	86.75	95.82	2.39	0.91	1.93

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.110

INPUT
Description: Baseline crosses cross section at Foothill St.
Station Elevation Data num= 100

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 5696.29 1726.25 5729.03 1726.35 5749.56 1726.91  5975.1 1727.35 6046.84 1727.73
 6061.47 1727.89 6080.72 1728.09 6098.33 1727.99 6138.78 1727.02    6150 1726.52
 6158.53  1727.3 6283.36 1727.55 6287.91 1727.43 6581.25 1728.75  6598.9  1729.2
 6614.86 1728.36 6635.79 1728.55 6755.09 1724.77 6992.46  1724.7 6998.07 1723.88
 7006.96  1725.5    7036 1725.58 7064.94 1726.15 7449.73 1724.87 7489.77 1724.83
 7668.19 1725.43 7673.55 1724.13 7681.82 1725.69 8074.87 1725.42  8093.6 1725.65
  8114.5 1725.43 8316.53 1725.23 8333.04 1725.78 8349.61  1725.3 8759.72 1725.15
 8779.24 1721.03 8839.24 1720.74 8868.68 1726.04  8976.2  1725.4 9012.95 1725.02
 9121.25 1724.47 9165.55 1725.02 9397.23  1725.3 9418.37 1725.33 9686.64  1725.6
 9692.19 1724.47 9702.33 1724.86  9734.3 1723.91 9738.46 1722.88 9744.48 1724.07
 9959.74 1725.37 9972.76 1722.73 9976.97 1722.99 9994.65 1722.6910008.42 1722.98
10023.93 1724.24 10033.2 1726.25 10239.8 1726.11 10268.2 1726.1510296.85 1726.98
10322.35 1727.0510344.32 1726.3910358.68 1727.0610411.91 1727.7810418.81 1725.87
10430.58 1726.9110756.64 1726.0910778.66  1727.510796.03 1727.2210813.31 1727.01
10828.64 1727.28 10838.5 1723.9510846.83  1726.410938.37 1725.2710970.14 1724.98
11388.39  1726.711416.71 1726.6811509.28 1725.4911520.01 1723.6811539.27 1727.52
11556.82  1727.611575.55 1728.2511590.21 1728.6211606.03  1726.5 11620.8  1727.9
11735.54 1727.9711849.33 1728.0911860.32 1728.6311874.24 1729.0711902.87 1724.33
11916.11 1722.8511941.34 1723.0411950.59 1724.1711958.46 1724.2611966.67  1725.2
```

11972.53 1724.7411978.81 1724.9212017.53 1730.1912099.36 1729.7712148.66 1730.29

Manning's n Values num= 12

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5696.29	.15	6080.72	.09	7036	.15	7489.77	.09	8114.5	.15
8333.04	.09	9165.55	.15	9418.37	.09	9959.74	.028	10033.2	.09
10796.03	.15	11590.21	.06						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9959.74	10033.2	545	521.08	508.11	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5696.29	6635.79	1730	10846.81	2148.66	1730

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5696.29	6635.79	1730	10846.81	2148.66	1730

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1726.56	Element			
Vel Head (ft)	0.43	Wt. n-Val.	0.097	0.028	0.149
W.S. Elev (ft)	1726.13	Reach Len. (ft)	545.00	521.08	508.11
Crit W.S. (ft)	1726.13	Flow Area (sq ft)	3255.88	191.44	16.11
E.G. Slope (ft/ft)	0.009580	Area (sq ft)	3255.88	191.44	16.11
Q Total (cfs)	7000.00	Flow (cfs)	5101.10	1883.68	15.22
Top Width (ft)	3380.10	Top Width (ft)	3239.09	72.89	68.12
Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)	1.57	9.84	0.94
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)	1.01	2.63	0.24
Conv. Total (cfs)	71519.0	Conv. (cfs)	52117.9	19245.6	155.5
Length Wtd. (ft)		Wetted Per. (ft)	3240.94	73.42	68.84
Min Ch El (ft)	1722.69	Shear (lb/sq ft)	0.60	1.56	0.14
Alpha	6.82	Stream Power (lb/ft s)	0.94	15.34	0.13
Frctn Loss (ft)		Cum Volume (acre-ft)	1715.53	62.70	907.93
C & E Loss (ft)		Cum SA (acres)	1120.02	28.98	463.76

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6305.35	6914.42	449.01	248.85	202.15	6.41	1.23	1.80
6914.42	7523.48	560.32	488.16	600.91	8.00	0.81	1.15
7523.48	8132.55	495.88	413.80	609.37	7.08	0.68	1.20
8132.55	8741.61	651.39	520.07	609.08	9.31	0.85	1.25
8741.61	9350.68	1932.29	944.10	609.98	27.60	1.55	2.05
9350.68	9959.74	1012.21	640.89	609.45	14.46	1.05	1.58
LB 9959.74	9984.23	609.77	63.99	24.76	8.71	2.61	9.53
9984.23	10008.71	912.39	81.14	24.49	13.03	3.31	11.24
10008.71	RB 10033.20	361.52	46.31	24.17	5.16	1.94	7.81
10033.20	10335.41	0.02	0.29	35.47	0.00	0.01	0.07
10335.41	10637.62	0.20	0.49	3.87	0.00	0.13	0.41
10637.62	10939.83	15.00	15.33	29.50	0.21	0.53	0.98

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.012

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5501.8	1718.47	5528.38	1718.58	5636.44	1718.64	5663.14	1718.53	5773.74	1718.81
5829.06	1719.34	5972.13	1719.64	5985.11	1719.21	5994.83	1719.82	6037.06	1720.33
6118.17	1719.96	6150.5	1720.61	6401.71	1717.26	6429.84	1717.18	6531	1720
6552	1721	6610	1720.31	6681	1720	6800	1719.58	6968.34	1717.34
6986.87	1716.7	7001.35	1716.94	7014.75	1716.81	7165.25	1717.64	7185.21	1717.86
7206.71	1717.56	7220.95	1716.71	7243.27	1717.98	7792.89	1718.96	7834.7	1719.01
8023.59	1718.06	8032.05	1717.4	8052.46	1719.18	8067.14	1718.68	8086.87	1717.33
8103.74	1718.59	8277.53	1718.69	8310.58	1718.38	8331.6	1718.73	8356.78	1718.86
8603.34	1718.38	8619.31	1719	8635.77	1718.86	8754.46	1718.25	8780.08	1718.04
8980.86	1719.26	9008.58	1719.01	9198.69	1718.83	9227.19	1718.6	9388.99	1718.39
9427.4	1718.3	9449.8	1718.24	9490.41	1718.72	9532.55	1718.53	9663.46	1719.03
9729.69	1718.92	9811.31	1718.91	9820.64	1716.75	9833.63	1719.21	9949.66	1719.1
9961.28	1718.47	9967.84	1719.86	9990.23	1719.29	9998.46	1715.92	10010.53	1719.18
10114.4	1720.03	10120.76	1718.71	10129.95	1719.44	10218.5	1720.02	10235.74	1720.08
10252.29	1720.17	10264.22	1719.27	10275.85	1720.22	10678.5	1719.23	10688.85	1717.86
10703.05	1719.35	11024.41	1719.36	11041.58	1719.27	11059.4	1718.93	11085.81	1718.5
11103.12	1716.33	11134.84	1719.57	11218.85	1721.41	11255.78	1721.33	11448.79	1721.07
11461.49	1719.88	11471.79	1721.13	11517.06	1721.56	11690.22	1722	11707.09	1721.85
11724.07	1722.34	11749.04	1721.65	11832.63	1721.69	11848.96	1722.07	11892.77	1721.78
11979.88	1722.62	12015.18	1723.33	12025.36	1723.72				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5501.8	.15	9811.31	.09	9967.84	.02	10010.53	.09	11041.58	.15
11832.63	.06								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9967.84	10010.53	347.81	482.12	335	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5501.8	6600	1723	11218.91	12025.36	1723

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5501.8	6552	1723	11218.85	12025.36	1723

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1720.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.147	0.028	0.107
W.S. Elev (ft)	1720.03	Reach Len. (ft)	347.81	482.12	335.00
Crit W.S. (ft)	1719.51	Flow Area (sq ft)	4870.98	60.12	654.52
E.G. Slope (ft/ft)	0.008636	Area (sq ft)	4870.98	60.12	654.52
Q Total (cfs)	7000.00	Flow (cfs)	5940.27	366.22	693.51
Top Width (ft)	4370.35	Top Width (ft)	3293.94	42.69	1033.72
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)	1.22	6.09	1.06
Max Chl Dpth (ft)	4.11	Hydr. Depth (ft)	1.48	1.41	0.63
Conv. Total (cfs)	75327.2	Conv. (cfs)	63923.3	3940.9	7462.9
Length Wtd. (ft)	355.25	Wetted Per. (ft)	3294.92	43.79	1034.43
Min Ch El (ft)	1715.92	Shear (lb/sq ft)	0.80	0.74	0.34
Alpha	2.11	Stream Power (lb/ft s)	0.97	4.51	0.36
Frctn Loss (ft)	4.07	Cum Volume (acre-ft)	1664.69	61.20	904.02
C & E Loss (ft)	0.01	Cum SA (acres)	1079.15	28.29	457.34

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6139.81	6777.81	5.75	19.65	103.91	0.08	0.19	0.29
6777.81	7415.82	2010.55	1364.47	638.10	28.72	2.14	1.47
7415.82	8053.82	1029.41	913.13	638.11	14.71	1.43	1.13
8053.82	8691.83	1013.02	904.38	638.12	14.47	1.42	1.12
8691.83	9329.83	921.44	854.34	638.01	13.16	1.34	1.08
9329.83	9967.84	960.12	815.02	638.65	13.72	1.28	1.18
LB 9967.84	9982.07	9.90	5.01	14.24	0.14	0.35	1.98
9982.07	9996.30	75.92	17.24	14.72	1.08	1.21	4.40
9996.30	RB 10010.53	280.40	37.87	14.84	4.01	2.66	7.40
10010.53	10298.36	72.31	91.37	230.77	1.03	0.40	0.79
10298.36	10586.20	42.81	67.02	233.49	0.61	0.29	0.64
10586.20	10874.03	259.85	215.08	288.00	3.71	0.75	1.21
10874.03	11161.86	318.54	281.04	282.17	4.55	1.00	1.13

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.920

INPUT
Description: Baseline crosses cross section just east of Saguaro Dr.
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5356.31	1715.72	5481.67	1715.6	5489.91	1715.06	5509.65	1715.23	5528.48	1715.65
5563.5	1714.23	5603.02	1715.9	5667.49	1716.29	5845.62	1716.73	5975.71	1716.73
6081.89	1715.62	6091.96	1715.76	6296.97	1715.68	6310.2	1715	6334.84	1714.52
6445.79	1715.97	6476.47	1716.93	6516.09	1717.48	6535.91	1716.22	6562.38	1715.47
6591.11	1715.62	6635	1716.5	6656.3	1717.41	6676.23	1717.35	7065.86	1718.9
7067.66	1717.25	7126.39	1713.62	7145.19	1713.53	7159.98	1713.58	7174.86	1713.65
7200.13	1714.83	7731.35	1714.41	7748.72	1712.79	7756.91	1713.13	7785.94	1713.61
7807.11	1713.27	7822.52	1713.24	7834.52	1713.84	8773.73	1714.62	8790.84	1715.01
8807.76	1715.12	8887.09	1715.08	8909.49	1715	8937.58	1715.02	8958.89	1714.51
8963.38	1715.49	9164.99	1713.89	9197.77	1713.82	9203.91	1714.48	9266.53	1714.69
9297.03	1714.55	9330.46	1714.2	9370.18	1714.66	9518.92	1715.73	9524.4	1716.75
9576.91	1716.63	9582.12	1714.78	9646.03	1714.58	9835.13	1714.51	9870.85	1714.56
9987.01	1714.96	9997.76	1712.11	10008.86	1715.15	10037.16	1715.83	10049.55	1715.64
10088.38	1715.59	10387.32	1714.57	10403.99	1714.46	10420.82	1714.75	10633.94	1715.8
10644.49	1714.56	10653.45	1716.31	10708.64	1715.56	10719.81	1715.76	10798.64	1715.69
10805.04	1713.31	10813.45	1715.96	11179.15	1715.46	11194.86	1715.75	11278.22	1716.54
11287.55	1716.85	11304.15	1717.97	11748.42	1718.57	11925.88	1720.01	11937.36	1720.13
11949.28	1720.21	11979.82	1720.34	12130.33	1721.17	12148.38	1721.77		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5356.31	.15	9987.01	.02	10008.86	.09	11949.28	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.01	10008.86	404.5	544.04	400	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5356.31	7064.31	1722

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5356.31	7064.31	1720

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1716.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.150	0.028	0.090
W.S. Elev (ft)	1715.82	Reach Len. (ft)	404.50	544.04	400.00
Crit W.S. (ft)	1715.53	Flow Area (sq ft)	3830.65	48.96	494.13
E.G. Slope (ft/ft)	0.015451	Area (sq ft)	3830.65	48.96	494.13
Q Total (cfs)	7000.00	Flow (cfs)	5769.71	540.21	690.09
Top Width (ft)	3913.26	Top Width (ft)	2836.52	21.85	1054.89
Vel Total (ft/s)	1.60	Avg. Vel. (ft/s)	1.51	11.03	1.40
Max Chl Dpth (ft)	3.71	Hydr. Depth (ft)	1.35	2.24	0.47
Conv. Total (cfs)	56314.7	Conv. (cfs)	46417.0	4345.9	5551.7
Length Wtd. (ft)	426.55	Wetted Per. (ft)	2837.08	22.63	1055.93
Min Ch El (ft)	1712.11	Shear (lb/sq ft)	1.30	2.09	0.45
Alpha	4.47	Stream Power (lb/ft s)	1.96	23.03	0.63
Frctn Loss (ft)	4.76	Cum Volume (acre-ft)	1629.95	60.60	899.60
C & E Loss (ft)	0.03	Cum SA (acres)	1054.67	27.93	449.31

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6679.37	7340.90	495.30	335.76	250.26	7.08	1.34	1.48
7340.90	8002.42	1770.98	1063.96	661.63	25.30	1.61	1.66
8002.42	8663.95	1700.93	1038.44	661.53	24.30	1.57	1.64
8663.95	9325.48	987.77	749.56	661.69	14.11	1.13	1.32

9325.48	9987.01	814.72	642.96	601.97	11.64	1.07	1.27
LB 9987.01	9994.29	122.08	13.32	7.53	1.74	1.83	9.16
9994.29	10001.58	313.27	23.46	7.54	4.48	3.22	13.35
10001.58	RB 10008.86	104.85	12.17	7.55	1.50	1.67	8.61
10008.86	10314.51	207.24	158.79	305.00	2.96	0.52	1.31
10314.51	10620.15	414.14	240.77	305.65	5.92	0.79	1.72
10620.15	10925.80	34.29	42.55	168.42	0.49	0.25	0.81
10925.80	11231.44	34.43	52.03	276.86	0.49	0.19	0.66

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.817

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6408.06	1712.82	6474.87	1712.78	6526.68	1712.37	6546.36	1712.41	6563.9	1712.02
6956.73	1711.89	7208.24	1710.58	7243.21	1710.98	7263.6	1710.84	7364.6	1710.21
7378.51	1710.45	7393.31	1709.72	7406.61	1709.44	7416.77	1710.02	8310.03	1710.23
8330.9	1710.69	8356.44	1710.31	8373.45	1709.8	8382.5	1710.44	8442.15	1710.13
8472.25	1709.36	8495.62	1710.35	8992.85	1709.68	9001.22	1708.74	9021.34	1709.7
9037.36	1710	9051.42	1709.82	9079.68	1710.15	9180.76	1709.52	9213.57	1709.73
9285.01	1710.31	9306.43	1710.23	9384.21	1709.83	9446.97	1709.95	9866.48	1707.67
9891.14	1707.65	9980.7	1708.02	9987.83	1706.27	10029.66	1708.71	10412.77	1709.54
10416.16	1708.79	10420.79	1709.4	10591.9	1711.03	10608.72	1710.56	10630.25	1710.94
10646.25	1711.13	10882.62	1710.89	10888.19	1708.79	10892.14	1710.91	11387.12	1711.85
11397.5	1711.76	11415.24	1711.73	11422.77	1712.15	11434.87	1714.53	11471.68	1714.58
11479.33	1712.73	11488.46	1714.89	12036	1718.86	12048.65	1719.27	12059.81	1719.18
12088.51	1719.15	12195.24	1719.57	12365.68	1720.94	12382.03	1721.75	12559.42	1721.7

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6408.06	.15	9446.97	.09	9980.7	.02	10029.66	.09	12048.65	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.7	10029.66	402.59	458.21	415.84	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6408.06	7370	1715

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1711.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.	0.106	0.028	0.090
W.S. Elev (ft)	1710.73	Reach Len. (ft)	402.59	458.21	415.84
Crit W.S. (ft)	1710.73	Flow Area (sq ft)	2575.85	161.53	734.92
E.G. Slope (ft/ft)	0.008436	Area (sq ft)	2603.84	161.53	734.92
Q Total (cfs)	7000.00	Flow (cfs)	3897.14	1738.11	1364.75
Top Width (ft)	3348.54	Top Width (ft)	2743.42	48.96	556.15
Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)	1.51	10.76	1.86
Max Chl Dpth (ft)	4.46	Hydr. Depth (ft)	0.99	3.30	1.32
Conv. Total (cfs)	76214.3	Conv. (cfs)	42431.1	18924.1	14859.1
Length Wtd. (ft)	416.69	Wetted Per. (ft)	2610.90	49.24	557.13
Min Ch El (ft)	1706.27	Shear (lb/sq ft)	0.52	1.73	0.69
Alpha	7.55	Stream Power (lb/ft s)	0.79	18.59	1.29
Frctn Loss (ft)		Cum Volume (acre-ft)	1600.08	59.28	893.96
C & E Loss (ft)		Cum SA (acres)	1028.77	27.49	441.91

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

6918.44	7428.81	36.13	46.82	58.85	0.52	0.80	0.77
7428.81	7939.19	224.82	332.66	510.38	3.21	0.65	0.68
7939.19	8449.57	153.07	264.16	510.42	2.19	0.52	0.58
8449.57	8959.95	267.21	369.00	510.41	3.82	0.72	0.72
8959.95	9470.32	369.06	440.12	510.47	5.27	0.86	0.84
9470.32	9980.70	2846.88	1123.11	510.38	40.67	2.20	2.53
LB 9980.70	9997.02	759.01	64.17	16.55	10.84	3.93	11.83
9997.02	10013.34	617.27	56.41	16.35	8.82	3.46	10.94
10013.34	RB 10029.66	361.81	40.94	16.35	5.17	2.51	8.84
10029.66	10391.05	1196.28	592.12	361.40	17.09	1.64	2.02
10391.05	10752.45	157.00	134.27	186.11	2.24	0.72	1.17
10752.45	11113.84	11.46	8.54	9.62	0.16	0.97	1.34

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.730

INPUT
Description: Baseline crosses cross section west of Juan Dr.
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5060.77	1708.45	5318.44	1706.79	5337.75	1707.32	5359.67	1707.26	5810.65	1707.53
5827.61	1708.31	5846.91	1708.55	5864.02	1708.26	5886.25	1706.98	5897.48	1705.95
5910.3	1708.55	6046.17	1705.02	6049.6	1704.55	6082.68	1705.27	6430	1708
6497	1708	6647.87	1706.31	6666.65	1706.39	6680.64	1706.45	6885.43	1707.08
6892.54	1703.71	6897.62	1706.75	7475.76	1705.73	7490.69	1705.85	7511.09	1705.71
7527.34	1706.22	7558.45	1706.27	7585.67	1705.75	7592.13	1705.61	7631.47	1705.74
7782.75	1705.05	7809.26	1705.28	8001.11	1705.22	8026.2	1705.54	8175.25	1705.62
8202.05	1705.69	8266.01	1705.46	8268.4	1704.8	8289.36	1706.73	8307.15	1707.22
8323.97	1706.69	8336	1705.72	8342.86	1706.01	9083.59	1705.84	9090.62	1704.05
9110.21	1705.31	9125.75	1705.43	9141.28	1705.44	9161.82	1705.59	9170.54	1706.37
9267.09	1704.85	9300.19	1704.48	9396.92	1704.61	9405.5	1705.32	9499.87	1704.57
9532.41	1704.31	9534.79	1704.61	9538.71	1703.69	9546.09	1705.09	9762.77	1703.27
9812.58	1703.65	9938.28	1703.62	9942.9	1702.33	9965.04	1701.63	9972.51	1703.62
9990.14	1703.38	9996.21	1701.38	10007.21	1703.62	10040.07	1703.94	10046.9	1703.93
10053.53	1703.62	10061.33	1703.95	10476.47	1705.45	10483.54	1704.88	10491.37	1705.82
10671.17	1705.38	10681.35	1704.69	10698.68	1704.59	10715.33	1704.62	10733.83	1704.89
10752.84	1704.81	10784	1705.47	10816	1706	10900	1706.69	10980.35	1705.7
11036.74	1706.38	11227.63	1707.91	11451.26	1708.75	11465.19	1709.27	11481.35	1708.86
11784.73	1711.31	11790.78	1710.46	11796.67	1711.87	12102.04	1715.18	12113.25	1715.14
12125.27	1715.39	12154.63	1714.77	12369.49	1716.54	12504.14	1717.67	12522.35	1716.37

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5060.77	.15	9942.9	.09	9990.14	.02	10007.21	.09	12125.27	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990.14	10007.21	429.44	402.72	399.74	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5060.77	6885.43	1710

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5060.77	6430	1711	10900	12522.35	1711

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1706.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.138	0.028	0.090
W.S. Elev (ft)	1706.15	Reach Len. (ft)	429.44	402.72	399.74
Crit W.S. (ft)	1706.23	Flow Area (sq ft)	2344.52	63.02	1000.29
E.G. Slope (ft/ft)	0.014602	Area (sq ft)	2344.52	63.02	1000.29
Q Total (cfs)	7000.00	Flow (cfs)	3789.40	945.18	2265.42
Top Width (ft)	3501.19	Top Width (ft)	2657.20	17.07	826.92
Vel Total (ft/s)	2.05	Avg. Vel. (ft/s)	1.62	15.00	2.26
Max Chl Dpth (ft)	4.77	Hydr. Depth (ft)	0.88	3.69	1.21
Conv. Total (cfs)	57928.4	Conv. (cfs)	31359.2	7821.8	18747.4
Length Wtd. (ft)		Wetted Per. (ft)	2659.67	17.62	827.06

Min Ch El (ft)	1701.38	Shear (lb/sq ft)	0.80	3.26	1.10
Alpha	7.93	Stream Power (lb/ft s)	1.30	48.91	2.50
Frctn Loss (ft)	4.54	Cum Volume (acre-ft)	1577.21	58.10	885.68
C & E Loss (ft)	0.00	Cum SA (acres)	1003.81	27.15	435.31

Warning: Divided flow computed for this cross-section.
Warning: The cross section had to be extended vertically during the critical depth 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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6469.16	7173.36	14.17	11.25	10.44	0.20	1.22	1.26
7173.36	7877.55	216.56	291.74	599.55	3.09	0.49	0.74
7877.55	8581.75	239.70	321.56	656.74	3.42	0.49	0.75
8581.75	9285.94	186.05	281.40	687.98	2.66	0.41	0.66
9285.94	9990.14	3132.89	1438.56	704.95	44.76	2.04	2.18
LB 9990.14	9995.83	310.17	21.09	5.99	4.43	3.71	14.71
9995.83	10001.52	398.81	24.24	5.82	5.70	4.26	16.45
10001.52	RB 10007.21	236.20	17.69	5.81	3.37	3.11	13.35
10007.21	10366.52	1682.89	629.98	359.32	24.04	1.75	2.67
10366.52	10725.82	459.26	289.05	359.41	6.56	0.80	1.59
10725.82	11085.13	123.30	81.28	108.32	1.76	0.75	1.52

Warning: Divided flow computed for this cross-section.
Warning: The cross section had to be extended vertically during the critical depth 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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.654

INPUT
Description:
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4865.26	1704.4	5223.52	1703.55	5235.85	1700.63	5248.98	1703.83	5269.9	1704.58
5283.15	1705.38	5295.7	1703.88	5891.7	1703.99	5913.64	1703.83	5933.45	1703.52
5990.93	1703.87	6010.45	1704.17	6027.5	1703.92	6204.73	1704.81	6270.37	1706.26
6280.87	1703.32	6550.92	1704.13	6615.01	1702.74	6831.95	1702.4	6847.61	1702.69
6867.15	1702.35	6962.6	1702.59	6986.55	1702.95	7010.08	1702.79	7034.14	1702.73
7385	1702	7671.55	1700.29	7686.72	1700.19	7701.88	1699.73	7822.56	1701.61
7849.75	1701.62	7987.83	1701.32	8015.65	1701.34	8053.48	1701.27	8063.39	1699.83
8072.74	1701.28	8507.25	1701.9	8525.74	1702.19	8542.79	1701.8	9314.25	1699.74
9324.2	1698.27	9346.26	1699.13	9361.68	1699.27	9377.06	1699.28	9501.32	1698.9
9532.32	1699.38	9662.45	1699.25	9691.42	1699.29	9992.49	1700.71	9998.26	1700
10005.92	1700.92	10131.08	1700.31	10158.88	1700.37	10167.48	1700.88	10328.54	1700.71
10399.8	1700.06	10462.76	1701.06	10472.91	1699.14	10481.39	1701.28	10637.66	1701.68
10646.01	1699.28	10654.41	1700.97	10885.43	1702.51	10900.63	1702.92	10917.17	1703.08
10937.08	1703.12								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
4865.26	.15	9992.49	.02	10005.92	.15	10158.88	.09

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9992.49	10005.92	492.04	551.96	536.77	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4865.26	6986.26	1706

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4865.26	6550.92	1707

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1702.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.150	0.028	0.102
W.S. Elev (ft)	1702.32	Reach Len. (ft)	492.04	551.96	536.77
Crit W.S. (ft)	1700.86	Flow Area (sq ft)	4267.90	25.56	1118.57
E.G. Slope (ft/ft)	0.007960	Area (sq ft)	4267.90	25.56	1118.57
Q Total (cfs)	7000.00	Flow (cfs)	5043.04	184.93	1772.03
Top Width (ft)	3624.47	Top Width (ft)	2760.33	13.43	850.71
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	1.18	7.24	1.58
Max Chl Dpth (ft)	4.05	Hydr. Depth (ft)	1.55	1.90	1.31
Conv. Total (cfs)	78460.5	Conv. (cfs)	56525.6	2072.8	19862.1
Length Wtd. (ft)	504.97	Wetted Per. (ft)	2760.72	13.53	851.69
Min Ch El (ft)	1700.00	Shear (lb/sq ft)	0.77	0.94	0.65
Alpha	1.81	Stream Power (lb/ft s)	0.91	6.79	1.03
Frctn Loss (ft)	5.90	Cum Volume (acre-ft)	1544.62	57.69	875.96
C & E Loss (ft)	0.02	Cum SA (acres)	977.11	27.00	427.61

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7062.64	7795.11	490.05	601.26	562.97	7.00	1.07	0.82
7795.11	8527.57	390.47	582.96	732.68	5.58	0.80	0.67
8527.57	9260.03	1063.86	1063.58	732.47	15.20	1.45	1.00
9260.03	9992.49	3098.64	2020.10	732.60	44.27	2.76	1.53
LB 9992.49	9996.97	60.20	8.43	4.51	0.86	1.88	7.14
9996.97	10001.44	75.60	9.67	4.51	1.08	2.16	7.82
10001.44	RB 10005.92	49.12	7.46	4.51	0.70	1.67	6.58
10005.92	10138.94	273.32	229.55	133.02	3.90	1.73	1.19
10138.94	10271.97	360.63	209.91	133.04	5.15	1.58	1.72
10271.97	10404.99	485.59	238.53	133.03	6.94	1.79	2.04
10404.99	10538.01	344.04	194.24	133.48	4.91	1.46	1.77
10538.01	10671.03	179.62	131.54	133.53	2.57	0.99	1.37
10671.03	10804.06	124.87	105.60	133.03	1.78	0.79	1.18
10804.06	10937.08	3.98	9.21	52.57	0.06	0.18	0.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.550

INPUT
Description:
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4916.15	1698.29	4930.06	1696.42	4936.81	1698.47	5150.47	1698.83	5167.75	1698.73
5185.33	1698.79	5717.74	1696.03	5721.7	1695.19	5728.98	1696.41	6206.27	1698.15
6233.02	1698.05	6250.29	1698.23	6290.07	1697.57	6344.64	1696.78	6642.05	1698.32
6757.27	1697.24	6783.74	1696.88	7045.49	1696.93	7066.75	1696.91	7079.82	1697.09
7087.44	1695.97	7095.01	1696.77	7350	1695.77	7400	1695	7655	1696
7901.59	1695.17	7916.8	1695.12	7932.23	1695.22	8310.11	1695.57	8397.49	1695.81
8543	1696.06	8549.67	1694.96	8555.29	1696.29	8741.79	1695.23	8756.63	1695.55
8771.47	1695.2	9220.8	1694.79	9557	1693.9	9565.41	1692.49	9586.2	1693.19
9600.45	1693.31	9615.83	1693.42	9701.42	1693.27	9733.03	1693.12	9858.86	1694.16
9892.88	1694.27	9989.94	1694.88	9998.06	1692.5	10008.35	1694.9	10048.58	1695.14
10070.88	1693.3	10092.15	1695.1	10362.48	1695.57	10368.18	1693.79	10395.58	1694.29
10402.4	1694.96	10471.01	1694.79	10480.42	1693.46	10496.61	1695.41	10683.25	1695.35
10708.06	1696.03	10732.84	1695.64	10784.68	1696.12	10892.45	1695.34	10905.83	1694.38
10948.26	1696.24	11100.03	1697.78	11113	1698.06	11124.57	1697.77	11149.02	1698.25

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
4916.15	.15	9989.94	.02810008.35		.1510708.06		.09

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9989.9410008.35 335 361.64 341.28 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev
4916.15	7095.15	1698

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4916.15	6642.05	1699

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1696.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.150	0.028	0.141
W.S. Elev (ft)	1696.18	Reach Len. (ft)	335.00	361.64	341.28
Crit W.S. (ft)	1696.03	Flow Area (sq ft)	3105.76	45.52	858.40
E.G. Slope (ft/ft)	0.019184	Area (sq ft)	3106.11	45.52	858.40
Q Total (cfs)	7000.00	Flow (cfs)	5178.06	598.41	1223.53
Top Width (ft)	3684.88	Top Width (ft)	2727.93	18.41	938.53
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)	1.67	13.14	1.43
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)	1.14	2.47	0.91
Conv. Total (cfs)	50539.3	Conv. (cfs)	37385.0	4320.5	8833.8
Length Wtd. (ft)	338.22	Wetted Per. (ft)	2724.91	19.04	939.30
Min Ch El (ft)	1692.50	Shear (lb/sq ft)	1.37	2.86	1.09
Alpha	5.64	Stream Power (lb/ft s)	2.28	37.65	1.56
Frctn Loss (ft)	3.94	Cum Volume (acre-ft)	1502.97	57.24	863.78
C & E Loss (ft)	0.06	Cum SA (acres)	946.11	26.80	416.59

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7090.63	7815.46	261.16	306.61	569.93	3.73	0.54	0.85
7815.46	8540.29	470.21	480.38	724.83	6.72	0.66	0.98
8540.29	9265.11	912.90	707.44	705.19	13.04	1.00	1.29
9265.11	9989.94	3533.78	1611.32	724.97	50.48	2.22	2.19
LB 9989.94	9996.08	158.73	13.50	6.39	2.27	2.20	11.76
9996.08	10002.21	306.61	19.96	6.33	4.38	3.25	15.36
10002.21	RB 10008.35	133.06	12.07	6.31	1.90	1.97	11.02
10008.35	10171.30	319.44	208.68	163.10	4.56	1.28	1.53
10171.30	10334.25	142.37	128.45	162.95	2.03	0.79	1.11
10334.25	10497.21	383.82	233.19	163.47	5.48	1.43	1.65
10497.21	10660.16	144.73	129.72	162.95	2.07	0.80	1.12
10660.16	10823.11	59.56	62.94	162.97	0.85	0.39	0.95
10823.11	10986.07	173.62	95.42	123.85	2.48	0.77	1.82

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.481

INPUT
Description: Baseline crosses cross section at Delaware Dr., approx. 250 ft north of Tepee St.
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4520.48	1694.43	4555.86	1694.94	4669.7	1693.43	4678.37	1689.52	4689.65	1693.04
5415.99	1692.62	5424.53	1689.9	5429.42	1692.68	5437.03	1692.72	5441.68	1690.11
5446.39	1692.26	5554.97	1692.71	5595.02	1692.32	5614.7	1692.87	5635.97	1692.92
5671.83	1693.34	5827.06	1696.31	6005.91	1693.12	6167.83	1693.77	6351.3	1692.62
6373	1693.37	6406.33	1694.01	6444.06	1693.5	6462.59	1694.07	6508.09	1695.26
6512.74	1694.23	6588.83	1694.27	6616.23	1694.22	6751.28	1692.59	6757.1	1692.41

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 6763.42 1692.77    6866 1693.67    6941 1693.19 7099.09 1692.14 7107.77 1693.28
 7122.04 1691.65 7233.08  1691.4 7254.15 1693.32 7278.14 1691.15  7765.4 1691.11
 7813.98 1691.67 7835.73    1692 7846.38 1689.67 7855.49 1691.63 8050.73 1691.74
 8065.25 1692.03 8080.89 1691.69 8480.28 1691.62 8487.16 1688.76 8516.98 1689.79
 8880.67 1691.18  8894.1 1691.26 8909.59 1691.09  9431.1 1689.45 9475.08 1690.36
  9553.4  1689.6 9648.81  1690.7 9657.59 1689.78 9674.91 1690.56 9689.11 1690.77
 9703.15 1690.74 9792.97 1690.99  9826.2 1690.89 9956.73 1691.94  9976.5 1691.85
 9995.49 1690.3610007.55 1691.0110022.68 1691.6410039.93 1691.7210178.86  1690.8
10186.69 1689.1110196.82  1690.910234.05 1691.52 10248.8 1690.2710384.44 1691.35
10394.81 1690.4410448.81 1690.6810453.82 1689.9910483.21 1689.1610500.24 1690.59
10598.36 1690.8610618.97 1689.9910638.33 1691.2110688.88 1691.94   10715 1692.77
10866.17 1693.2810870.31 1691.9410876.18 1692.8911077.55 1693.6911132.02 1693.59
11201.96 1695.4611214.34 1695.6311226.93 1695.2611245.61  1695.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4520.48     .15  9976.5    .02810022.68     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9976.510022.68            443.61  444.17     450              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 4520.48 7107.48    1696
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4520.48    6866    169710866.1711245.61    1697

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1692.44   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.05   Wt. n-Val.                0.150      0.028      0.090
  W.S. Elev (ft)            1692.39   Reach Len. (ft)          443.61     444.17     450.00
  Crit W.S. (ft)            1691.26   Flow Area (sq ft)       4142.49      61.02    1025.03
  E.G. Slope (ft/ft)       0.007817   Area (sq ft)            4147.38      61.02    1025.03
  Q Total (cfs)             7000.00   Flow (cfs)              4690.37     344.33    1965.29
  Top Width (ft)            3606.27   Top Width (ft)          2879.77      46.18     680.32
  Vel Total (ft/s)             1.34   Avg. Vel. (ft/s)           1.13       5.64       1.92
  Max Chl Dpth (ft)            3.63   Hydr. Depth (ft)           1.46       1.32       1.51
  Conv. Total (cfs)         79172.2   Conv. (cfs)            53049.6     3894.5    22228.1
  Length Wtd. (ft)           445.18   Wetted Per. (ft)        2841.72      46.27     680.96
  Min Ch El (ft)            1690.36   Shear (lb/sq ft)           0.71       0.64       0.73
  Alpha                        1.93   Stream Power (lb/ft s)     0.81       3.63       1.41
  Frctn Loss (ft)              4.63   Cum Volume (acre-ft)    1475.08      56.80     856.40
  C & E Loss (ft)              0.03   Cum SA (acres)           924.55      26.53     410.25


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  6858.77      7638.21        505.43     563.51    502.26      7.22      1.12       0.90
  7638.21      8417.64        482.14     653.20    779.90      6.89      0.84       0.74
  8417.64      9197.07       1689.10    1386.00    780.03     24.13      1.78       1.22
  9197.07      9976.50       2013.69    1539.76    779.52     28.77      1.98       1.31
  LB 9976.50   9991.89         87.46      17.59     15.44      1.25      1.14       4.97
  9991.89      10007.29       178.46      26.97     15.42      2.55      1.75       6.62
  10007.29     RB 10022.68     78.41      16.46     15.41      1.12      1.07       4.76
  10022.68     10197.38       347.32     213.09    175.04      4.96      1.22       1.63
  10197.38     10372.09       502.54     265.80    174.77      7.18      1.52       1.89
  10372.09     10546.79       773.03     344.24    174.86     11.04      1.97       2.25
  10546.79     10721.50       342.42     201.91    156.28      4.89      1.29       1.70


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

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 18.397

INPUT
Description:
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Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4469.19	1688.26	4477.13	1689.24	4513.74	1688.62	4668.57	1688.57	4675.09	1686.38
4680.7	1688.34	4830	1688.42	4853.39	1688.03	4875.72	1687.65	5403.8	1687.52
5411.05	1684.9	5419.91	1687.2	5651.12	1690.01	6011.97	1688.1	6030.15	1688.46
6052.45	1688.32	6190.75	1687.37	6198.15	1686.57	6203.21	1687.34	6535.58	1687.38
6559.56	1687.77	6584.34	1687.83	6703.64	1687.53	6722.17	1687.97	6738.98	1687.67
6750.85	1687.21	6765.9	1688.28	6996.82	1687.74	7009.97	1686.32	7021.09	1686.78
7053.33	1686.49	7087.41	1686.83	7329.03	1686.13	7347.78	1686.39	7522.77	1685.23
7541.99	1685.46	7560.38	1685.38	7752.77	1685.33	7766.01	1684.52	7777.98	1685.37
8124.91	1686.67	8146.19	1686.74	8163.85	1686.79	8205.94	1685.8	8214.55	1686.6
8321.47	1686.38	8346.44	1687.03	8361.34	1687.05	8374.7	1686.96	8559.13	1685.88
8583.66	1686.02	8688.02	1686	8713.14	1685.91	8841.91	1686.22	8866.37	1686.35
9014.25	1686.48	9035.54	1686.78	9138.05	1686.26	9152.38	1686.28	9166.52	1686.19
9328.78	1686.5	9351.36	1686.52	9374.65	1686.09	9402.93	1686.46	9411.85	1685.32
9423.45	1686.42	9931.26	1686.22	9945.34	1686.2	9958.73	1686.04	9975.41	1686.61
9985.92	1687.15	9995.2	1682.74	10010.68	1686.37	10117.98	1686.77	10141.8	1686.63
10148	1684.36	10164.57	1686.92	10311.41	1686.16	10324.45	1683.79	10331.03	1685.94
10501.88	1686.73	10523.48	1686.15	10778.42	1686.64	10808.39	1686.76	11447.05	1693.4
11459.82	1693.77	11471.18	1693.62	11490.21	1693.57	11964.11	1697.7	11973.6	1699.16
11993.56	1698.03	12188.18	1699.23						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
4469.19	.15	9985.92	.02	10010.68	.09	10501.88	.15	11459.82	.09

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.92	10010.68	347.84	408.99	396	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4469.19	7100	1691

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4469.19	6765.9	1692

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1687.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.150	0.025	0.105
W.S. Elev (ft)	1687.40	Reach Len. (ft)	347.84	408.99	396.00
Crit W.S. (ft)	1687.38	Flow Area (sq ft)	3491.14	66.74	818.16
E.G. Slope (ft/ft)	0.014622	Area (sq ft)	3562.96	66.74	818.16
Q Total (cfs)	7000.00	Flow (cfs)	4747.47	895.35	1357.17
Top Width (ft)	3869.65	Top Width (ft)	2985.92	24.76	858.96
Vel Total (ft/s)	1.60	Avg. Vel. (ft/s)	1.36	13.41	1.66
Max Chl Dpth (ft)	4.66	Hydr. Depth (ft)	1.21	2.70	0.95
Conv. Total (cfs)	57889.4	Conv. (cfs)	39261.2	7404.5	11223.7
Length Wtd. (ft)	364.48	Wetted Per. (ft)	2886.21	26.17	860.14
Min Ch El (ft)	1682.74	Shear (lb/sq ft)	1.10	2.33	0.87
Alpha	9.69	Stream Power (lb/ft s)	1.50	31.23	1.44
Frctn Loss (ft)	4.14	Cum Volume (acre-ft)	1435.82	56.15	846.88
C & E Loss (ft)	0.04	Cum SA (acres)	894.68	26.17	402.29

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6833.50	7621.61	1046.28	712.93	521.62	14.95	1.37	1.47
7621.61	8409.71	1478.49	1034.83	788.22	21.12	1.31	1.43
8409.71	9197.82	1165.70	897.23	788.11	16.65	1.14	1.30
9197.82	9985.92	1057.01	846.13	788.26	15.10	1.07	1.25
LB 9985.92	9994.17	196.07	18.22	9.14	2.80	2.21	10.76
9994.17	10002.43	525.27	32.06	8.56	7.50	3.88	16.38
10002.43	RB 10010.68	174.02	16.46	8.48	2.49	1.99	10.57
10010.68	10321.75	560.30	294.54	311.84	8.00	0.95	1.90
10321.75	10632.82	633.77	352.66	311.47	9.05	1.13	1.80
10632.82	10943.89	163.10	170.95	236.83	2.33	0.72	0.95

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.320

INPUT
Description:
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4641.39	1684.8	4716.41	1687.09	4750.82	1685.67	4782.39	1682.9	4792.34	1682.95
4926.69	1683.12	4947.95	1683.05	5321.36	1683.91	5327.25	1681.94	5347.31	1683.53
5354.37	1684.1	5375.65	1685.18	5396.12	1684.95	5891.37	1684.89	5917.33	1684.67
5941.42	1684.53	5974.19	1683.83	5981.03	1682.89	5992.66	1683.63	6033.76	1683.9
6089.34	1684.18	6096.17	1682.2	6105.95	1683.01	6571	1684.49	6740.55	1683.71
6821.31	1683.49	6838.39	1683.74	6854.33	1683.64	6976.46	1682.78	7000.75	1683.32
7027.57	1682.89	7549.52	1682.25	7576.07	1682.49	7601.86	1682.37	7610.93	1682.18
7645.63	1682.21	7665.49	1682.06	7689.74	1683.12	8193.8	1682.34	8427.21	1682.09
8438.11	1682.37	8452.1	1682.51	8466.6	1682.34	8573.09	1682.25	8594.18	1681.74
8654.29	1681.89	8721.69	1681.59	8743.23	1681.2	8854.65	1681.29	9244.72	1681.28
9258.71	1681.38	9275.73	1680.91	9859.75	1681.33	9891.65	1681.55	9988.34	1681.39
10004.8	1679.81	10020.19	1681.72	10066.02	1680.75	10081.14	1681.06	10096.53	1680.9
10577.91	1682.92	10589.51	1680.95	10598.99	1682.27	10628.98	1682.68	10830.48	1683.07
10871	1682.86	10939.17	1682.41	10981.12	1682.33	11039	1683.71	11616.31	1689.25

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4641.39	.15	9988.34	.025	10020.19	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.34	10020.19	268.13	380.9	331.29	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4641.39	6840.39	1687

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4641.39	6571	1688

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1683.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.150	0.025	0.150
W.S. Elev (ft)	1683.34	Reach Len. (ft)	268.13	380.90	331.29
Crit W.S. (ft)	1683.05	Flow Area (sq ft)	4221.13	84.89	1141.34
E.G. Slope (ft/ft)	0.009087	Area (sq ft)	4221.13	84.89	1141.34
Q Total (cfs)	7000.00	Flow (cfs)	4905.26	920.85	1173.89
Top Width (ft)	4127.77	Top Width (ft)	3092.11	31.85	1003.81
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	1.16	10.85	1.03
Max Chl Dpth (ft)	3.53	Hydr. Depth (ft)	1.37	2.67	1.14
Conv. Total (cfs)	73431.0	Conv. (cfs)	51456.8	9659.9	12314.3
Length Wtd. (ft)	297.00	Wetted Per. (ft)	3092.17	32.04	1004.11
Min Ch El (ft)	1679.81	Shear (lb/sq ft)	0.77	1.50	0.64
Alpha	10.05	Stream Power (lb/ft s)	0.90	16.30	0.66
Frctn Loss (ft)	3.02	Cum Volume (acre-ft)	1404.74	55.43	837.97
C & E Loss (ft)	0.04	Cum SA (acres)	870.41	25.91	393.83

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6169.09	6932.94	1.02	4.75	36.71	0.01	0.13	0.22
6932.94	7696.79	406.41	579.07	763.89	5.81	0.76	0.70
7696.79	8460.64	436.58	604.48	763.86	6.24	0.79	0.72
8460.64	9224.49	1736.29	1383.95	763.86	24.80	1.81	1.25
9224.49	9988.34	2324.93	1648.89	763.86	33.21	2.16	1.41
LB 9988.34	9998.96	266.06	26.17	10.67	3.80	2.46	10.17
9998.96	10009.57	420.93	34.48	10.68	6.01	3.25	12.21
10009.57	RB 10020.19	233.86	24.25	10.70	3.34	2.28	9.64
10020.19	10248.21	666.25	492.56	228.03	9.52	2.16	1.35
10248.21	10476.22	296.91	303.28	228.02	4.24	1.33	0.98
10476.22	10704.24	111.25	168.36	228.28	1.59	0.74	0.66
10704.24	10932.26	53.04	107.90	228.02	0.76	0.47	0.49
10932.26	11160.28	46.46	69.24	91.76	0.66	0.75	0.67

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.247

INPUT
Description:
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4215.81	1680.52	4651.48	1680.04	4670.7	1679.79	4745.35	1679.89	4765.07	1679.89
4876.54	1679.57	4896.22	1679.33	4953.16	1679.29	5011.79	1679.63	5018.84	1677.62
5054.37	1679.92	5076.53	1679.55	5086.75	1679.03	5585.43	1680.47	5612.53	1680.87
5637.38	1681.28	5650.41	1681.72	5686.24	1681.35	5696.82	1681.84	5729.95	1682.8
5929.96	1682.71	5999.53	1682.6	6118.23	1682.56	6140.56	1682.27	6175.81	1681.21
6181.55	1679.19	6191.15	1680.76	6299.99	1680.47	6314.11	1680.53	6325.15	1680.82
6911.65	1681.64	6934.29	1681.34	6955.37	1681.73	7053.85	1680.91	7126.8	1679.96
7144.56	1679.94	7181.14	1679.39	7190.77	1679.79	7226.25	1679.16	7284.73	1679.38
7310.05	1679.72	7337.9	1679.63	7372.87	1680.68	7440.34	1680.52	7531.94	1680.81
7539.45	1679	7544.32	1679.35	7622.17	1679.56	7633.77	1679.75	7644.4	1679.77
7799.93	1681.65	7811.46	1681.85	7822.41	1681.98	7923.73	1678.91	7942.23	1678.83
7960.22	1678.7	8091.72	1680.05	8206.98	1680.54	8264.31	1681.49	8274.76	1681.33
8368.03	1680.08	8373.31	1679.44	8379.46	1679.69	8464.45	1679.85	8485.63	1679.85
8549.14	1680.25	8729.03	1679.03	8757.6	1678.5	8769.38	1677.9	8776.33	1678.65
9546.9	1678.42	9564.17	1678.32	9629.25	1679.52	9634.75	1679.22	9990.65	1678.97
9997.44	1676.9	10006.72	1678.6	10409.99	1678.6	10422.47	1677.3	10442.38	1677.99
10457.94	1678.02	10474.07	1677.68	10483.72	1677.78	10495.08	1679.25	10536.68	1678.89
10545.27	1677.28	10576.61	1677.68	10711.05	1678.81	10724.91	1677.94	10742.89	1679.24
10940.09	1678.44	10946.98	1677.58	10961.07	1679.75	11038.91	1679.59	11254.26	1681.75
11285.38	1682.42	11919.97	1687.67						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4215.81	.15	9990.65	.02	10006.72	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990.65	10006.72	361.88	401.35	317.5	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4215.81	6955.37	1686

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4215.81	6955.37	1685

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1680.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1680.42	Reach Len. (ft)	361.88	401.35	317.50
Crit W.S. (ft)	1679.87	Flow Area (sq ft)	2963.45	40.65	1886.71
E.G. Slope (ft/ft)	0.011384	Area (sq ft)	2963.45	40.65	1886.71
Q Total (cfs)	7000.00	Flow (cfs)	3748.98	419.89	2831.13
Top Width (ft)	3519.51	Top Width (ft)	2388.76	16.07	1114.68
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)	1.27	10.33	1.50
Max Chl Dpth (ft)	3.43	Hydr. Depth (ft)	1.24	2.53	1.69
Conv. Total (cfs)	65607.0	Conv. (cfs)	35137.1	3935.4	26534.5
Length Wtd. (ft)	348.00	Wetted Per. (ft)	2389.15	16.50	1115.32
Min Ch El (ft)	1676.99	Shear (lb/sq ft)	0.88	1.75	1.20
Alpha	3.99	Stream Power (lb/ft s)	1.12	18.09	1.80
Frctn Loss (ft)	3.46	Cum Volume (acre-ft)	1382.63	54.89	826.46
C & E Loss (ft)	0.02	Cum SA (acres)	853.54	25.70	385.77

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6690.74	7515.72	178.34	205.31	272.48	2.55	0.75	0.87
7515.72	8340.70	327.16	367.08	468.74	4.67	0.78	0.89
8340.70	9165.67	1279.53	1042.11	822.93	18.28	1.27	1.23
9165.67	9990.65	1963.95	1348.95	825.00	28.06	1.64	1.46
LB 9990.65	9996.01	110.52	11.94	5.58	1.58	2.23	9.26

9996.01	10001.36	195.46	16.68	5.48	2.79	3.11	11.72
10001.36	RB 10006.72	113.91	12.03	5.44	1.63	2.25	9.47
10006.72	10280.04	720.10	481.20	273.32	10.29	1.76	1.50
10280.04	10553.36	873.50	540.58	273.66	12.48	1.98	1.62
10553.36	10826.68	854.23	533.19	273.40	12.20	1.95	1.60
10826.68	11100.01	382.76	329.45	273.55	5.47	1.21	1.16
11100.01	11373.33	0.53	2.30	21.39	0.01	0.11	0.23

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.171

INPUT
Description: Baseline crosses cross section at Shiprock St.
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4303.03	1679.08	4326.79	1678.88	4345.48	1676.98	4361.14	1675.63	4379.92	1676.82
4403.71	1678.75	4425.05	1678.54	4450.6	1678.05	4469.75	1677.1	4472.71	1674.64
4481.54	1677.16	4853.18	1676.58	4871.59	1676.9	4892.4	1676.58	5381.94	1675.47
5406.85	1676.22	5431.93	1676.6	5597.69	1677.77	5605.3	1679.21	5902.1	1679.86
5909.06	1678.6	5949.41	1678.24	5967.27	1678.13	5984.46	1677.78	6346.15	1677.82
6399.92	1677.39	6470.17	1677.75	6494.52	1677.61	6576.5	1677.96	6581.34	1677.05
6589.08	1677.82	6640.91	1677.91	6675.4	1678.56	6695.63	1678.26	6911.59	1677.17
6930.42	1677.57	6946.78	1677.34	7182.15	1677.28	7213.15	1677.26	7237.71	1677.11
7422.45	1676.98	7428.25	1676.82	7431.62	1676.49	7465.62	1676.18	7551.47	1675.07
7567.66	1675.18	7583.47	1675.22	7608.81	1675.85	7625.28	1673.86	7679.45	1675.98
8055.31	1677.05	8066.72	1676.95	8078.64	1677.2	8141.7	1677.18	8162.81	1677.03
8187.16	1676.82	8367.96	1675.4	8396.25	1675.56	8508.28	1675.99	8532	1676.5
8678.19	1676.42	8702.23	1676.42	8878.19	1676.36	8903.21	1676	9036.87	1675.88
9063.83	1675.91	9157.31	1674.46	9173.77	1673.19	9182.67	1673.28	9212.98	1673.21
9230.21	1674.16	9253.32	1674.3	9269.78	1673.45	9314.12	1673.73	9575.49	1675.2
9610.07	1675.25	9973.99	1675.43	9997.17	1674.71	10012.86	1674.76	10029.12	1674.29
10570.79	1674.84	10591.88	1674.34	10606.9	1675.22	10901.6	1674.51	10920.18	1674.53
10936.15	1674.66	11033.06	1676.36	11133.08	1675.48	11223	1677.11	11629.71	1680.52
11661.49	1680.85	11908.84	1681.65	11913.89	1680.52				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4303.03	.15	9973.99	.02	10029.12	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9973.99	10029.12	565	633.22	508.03	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4303.03	6930.03	1680

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4303.03	6930.42	1681

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1677.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1676.74	Reach Len. (ft)	565.00	633.22	508.03
Crit W.S. (ft)	1676.22	Flow Area (sq ft)	2737.63	106.56	2131.69
E.G. Slope (ft/ft)	0.008779	Area (sq ft)	2737.63	106.56	2131.69
Q Total (cfs)	7000.00	Flow (cfs)	2904.60	1150.80	2944.60
Top Width (ft)	3524.81	Top Width (ft)	2295.60	55.13	1174.08
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)	1.06	10.80	1.38
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)	1.19	1.93	1.82
Conv. Total (cfs)	74708.0	Conv. (cfs)	30999.6	12282.0	31426.4
Length Wtd. (ft)	556.80	Wetted Per. (ft)	2295.92	55.15	1174.14
Min Ch El (ft)	1674.29	Shear (lb/sq ft)	0.65	1.06	1.00
Alpha	10.33	Stream Power (lb/ft s)	0.69	11.44	1.37
Frctn Loss (ft)	5.60	Cum Volume (acre-ft)	1358.94	54.21	811.81
C & E Loss (ft)	0.07	Cum SA (acres)	834.08	25.37	377.43

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6733.44	7543.58	72.49	97.41	114.57	1.04	0.85	0.74
7543.58	8353.72	290.30	422.76	560.95	4.15	0.75	0.69
8353.72	9163.85	398.56	592.30	810.18	5.69	0.73	0.67
9163.85	9973.99	2143.24	1625.17	810.22	30.62	2.01	1.32
LB 9973.99	9992.37	278.17	29.45	18.39	3.97	1.60	9.44
9992.37	10010.74	403.91	36.83	18.38	5.77	2.00	10.97
10010.74	RB 10029.12	468.71	40.28	18.38	6.70	2.19	11.64
10029.12	10298.37	980.80	623.75	269.25	14.01	2.32	1.57
10298.37	10567.63	795.58	550.14	269.25	11.37	2.04	1.45
10567.63	10836.88	669.08	495.87	269.29	9.56	1.84	1.35
10836.88	11106.13	442.26	386.80	269.27	6.32	1.44	1.14
11106.13	11375.38	56.89	75.14	97.08	0.81	0.77	0.76

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.051

INPUT
Description:
Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4039.67	1673.2	4073.2	1672.78	4336.57	1673.62	4366.31	1673.63	4394.77	1673.73
4426.75	1673.27	4449.82	1672	4461.54	1668.62	4473.53	1671.86	4491.36	1673.59
4532.18	1673.28	4601.02	1671.12	4620.95	1670.78	5076.35	1670.22	5091.11	1670.28
5414.45	1671.97	5430.43	1671.8	5443.5	1672.13	5681.49	1671.74	5704.1	1671.77
5722.58	1671.37	5751.69	1671.7	5780.97	1671.47	5831.75	1671.05	5905.26	1671.23
6007.11	1671.67	6025.35	1671.53	6077.01	1671.32	6084.19	1669.03	6091.88	1670.88
6162.49	1671.69	6200.08	1671.74	6326.05	1671.92	6369.77	1671.78	6377.7	1671.3
6395.09	1670.66	6412.35	1671.1	7116.05	1669.24	7134.92	1669.64	7190.02	1670.74
7209.69	1670.48	7360.43	1671.45	7362.52	1668.74	7365.53	1671.34	7432.92	1670.5
7449.18	1670.98	7466.28	1670.91	7759.37	1671.02	7778.83	1671.06	7796.51	1670.37
7940.37	1669.32	8015.95	1668.55	8220.5	1668.34	8228.29	1667.91	8238.46	1668.41
8579.66	1670.34	8608.99	1670.67	8964.47	1669.8	8995.64	1669.65	9090.45	1668.76
9115.56	1668.91	9237.72	1668.89	9258.84	1669.26	9369.31	1669.73	9377.01	1669.27
9387.39	1669.51	9462.31	1670.63	9797.84	1670.19	9833.08	1670.04	9986.91	1670.57
9995.72	1667.96	10002.38	1670.04	10052.53	1670.23	10063.45	1668.74	10069.39	1670.88
10095.52	1670.77	10201.11	1669.31	10217.64	1669.44	10234.25	1669.33	10249.64	1669.08
10264.49	1670.01	10536.04	1670.61	10548.68	1670.36	10568.71	1668.59	10584.84	1670.99
10722.17	1672.03	10885.08	1670.94	10892.64	1671.14	10906.86	1673.74	10916.67	1671.54
11019.98	1673.51	11043.41	1672.45	11056.33	1672.43	11069.55	1672.23	11102.63	1672.61
11119.46	1672.62	11181.25	167	511235.52	1675.03	11326.61	1677.28	11385.54	1675.03
11404.58	1674.82	11489.82	1675.77	11529.41	1676.16	11688.87	1676.51		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4039.67	.15	9986.91	.02	810002.38	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.91	10002.38	525	583.8	596.87	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4039.67	6850	1678

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4039.67	6326.05	167	10722.17	11688.87	1675

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1671.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1671.31	Reach Len. (ft)	525.00	583.80	596.87
Crit W.S. (ft)	1670.49	Flow Area (sq ft)	4357.32	33.37	705.70
E.G. Slope (ft/ft)	0.011777	Area (sq ft)	4714.45	33.37	705.70
Q Total (cfs)	7000.00	Flow (cfs)	5866.02	311.51	822.47
Top Width (ft)	4224.39	Top Width (ft)	3584.50	15.47	624.42
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)	1.35	9.34	1.17
Max Chl Dpth (ft)	3.40	Hydr. Depth (ft)	1.40	2.16	1.13
Conv. Total (cfs)	64502.2	Conv. (cfs)	54053.0	2870.5	7578.7

Length Wtd. (ft)	538.19	Wetted Per. (ft)	3114.42	16.17	625.19
Min Ch El (ft)	1667.96	Shear (lb/sq ft)	1.03	1.52	0.83
Alpha	2.95	Stream Power (lb/ft s)	1.38	14.17	0.97
Frctn Loss (ft)	5.41	Cum Volume (acre-ft)	1310.61	53.19	795.26
C & E Loss (ft)	0.00	Cum SA (acres)	795.95	24.86	366.94

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6588.49	7438.09	776.20	656.69	565.51	11.09	1.17	1.18
7438.09	8287.70	1836.70	1295.75	849.66	26.24	1.53	1.42
8287.70	9137.30	1826.59	1291.44	849.62	26.09	1.52	1.41
9137.30	9986.91	1426.52	1113.43	849.64	20.38	1.31	1.28
LB 9986.91	9992.07	54.72	7.74	5.38	0.78	1.50	7.07
9992.07	9997.22	163.41	14.93	5.39	2.33	2.90	10.94
9997.22	RB 10002.38	93.38	10.69	5.40	1.33	2.07	8.74
10002.38	10243.31	401.57	316.55	241.41	5.74	1.31	1.27
10243.31	10484.23	311.86	271.79	240.96	4.46	1.13	1.15
10484.23	10725.16	109.05	117.37	142.82	1.56	0.82	0.93

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.941

INPUT
Description:
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4661.93	1668.02	4692.52	1667.65	4721.92	1667.2	4745.08	1666.48	4927.78	1667.42
4945.07	1667.71	4963.6	1667.24	5309.51	1667.75	5319.22	1671.08	5583.24	1668.91
5590.75	1666.27	5686.15	1665.48	5716	1665.69	5869.24	1666.15	5898.35	1666.14
5954.82	1665.79	5960.71	1665.12	5966.77	1665.87	6281.96	1665.98	6302.3	1665.95
6322.84	1665.87	6333.92	1664.59	6342.77	1665.59	6539.88	1665.17	6558.75	1665.33
6573.74	1664.87	6714.4	1664.33	6719.38	1663.53	6722.81	1663.27	6731.72	1664.51
6985.2	1664.99	6999.05	1665.37	7013.07	1665.39	7037	1666	7231	1666
7256	1665.49	7285.88	1665.08	7296.65	1664.93	7314.94	1665.05	7332.23	1664.79
7608.51	1665.03	7626.38	1665.01	7641.04	1664.42	7790.56	1664.11	7809.16	1664.17
7832.63	1663.76	7937.68	1662.86	7953.81	1662.9	7972.31	1662.85	8000.02	1663.02
8082.18	1663.29	8116.97	1663.82	8253.73	1665.01	8290.91	1665.25	8356.77	1665.12
8369.62	1666.8	8474.57	1664.97	8491.07	1664.33	8537.38	1664.57	8710.32	1664.88
8750.35	1665.44	8892.93	1664.9	8909.95	1663.51	9012.01	1664.04	9021.12	1664.39
9051.89	1664.42	9171.06	1663.26	9189.36	1663.35	9225.96	1664.33	9581.29	1664.07
9586.74	1664.51	9646.12	1663.71	9983.74	1665.51	9998.24	1662.41	10009.41	1664.28
10257.57	1663.42	10405.19	1664.94	10574.03	1665.51	10586.1	1665.86	10598.85	1666.09
10635.61	1664.92	11161.19	1669.32	11176.96	1670.07	11208.12	1670.37	11234.82	1670.61
11247.87	1670.96	11260.05	1670.84	11316.72	1671.27	11602.91	1672.86	11761.29	1673.48
11881.97	1675.46	11889.14	1674.02	11922.18	1674.46				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4661.93	.15	9983.74	.02	10009.41	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.74	10009.41	368.92	509.5	343.39	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4661.93	6170	1674

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4661.93	6100	1672

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1665.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1665.89	Reach Len. (ft)	368.92	509.50	343.39

Crit W.S. (ft)	1665.24	Flow Area (sq ft)	4665.95	56.57	945.23
E.G. Slope (ft/ft)	0.008758	Area (sq ft)	4665.95	56.57	945.23
Q Total (cfs)	7000.00	Flow (cfs)	5422.32	469.84	1107.84
Top Width (ft)	4154.23	Top Width (ft)	3403.64	25.67	724.92
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)	1.16	8.31	1.17
Max Chl Dpth (ft)	3.49	Hydr. Depth (ft)	1.37	2.20	1.30
Conv. Total (cfs)	74798.3	Conv. (cfs)	57940.1	5020.5	11837.8
Length Wtd. (ft)	374.71	Wetted Per. (ft)	3404.18	26.16	724.96
Min Ch El (ft)	1662.40	Shear (lb/sq ft)	0.75	1.18	0.71
Alpha	3.86	Stream Power (lb/ft s)	0.87	9.82	0.84
Frctn Loss (ft)	3.61	Cum Volume (acre-ft)	1254.09	52.59	783.95
C & E Loss (ft)	0.00	Cum SA (acres)	753.84	24.58	357.70

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6182.45	6942.71	541.50	606.17	625.59	7.74	0.97	0.89
6942.71	7702.96	461.68	525.74	556.68	6.60	0.94	0.88
7702.96	8463.22	1751.54	1283.29	701.26	25.02	1.83	1.36
8463.22	9223.48	1281.38	1098.84	760.36	18.31	1.45	1.17
9223.48	9983.74	1386.22	1151.90	760.29	19.80	1.52	1.20
LB 9983.74	9992.30	61.27	11.11	8.75	0.88	1.30	5.51
9992.30	10000.85	245.19	25.51	8.73	3.50	2.98	9.61
10000.85	RB 10009.41	163.38	19.95	8.68	2.33	2.33	8.19
10009.41	10282.66	792.15	565.28	273.26	11.32	2.07	1.40
10282.66	10555.92	273.81	298.85	273.26	3.91	1.09	0.92
10555.92	10829.17	41.89	81.11	178.44	0.60	0.45	0.52

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.844

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5104.49	1664.56	5136.33	1664.02	5177.07	1662.83	5220.57	1663.96	5248.85	1663.85
5278.16	1663.16	5316.21	1662.55	5626.1	1663.38	5681.75	1663.06	5845.73	1662.41
5880.36	1662.31	6045.81	1661.6	6079.9	1661.87	6098.2	1661.65	6115.82	1661.02
6176.41	1662.08	6194.17	1661.68	6211.01	1661.86	6316	1662.32	6486.78	1661.78
6504.5	1661.67	6523.09	1661.6	6798.69	1660.77	6816.97	1660.82	6831.03	1660.96
7043.14	1662.13	7049.46	1659.03	7056.72	1661.51	7111.73	1661.22	7127.01	1661.64
7141.6	1661.63	7305	1661.55	7536.03	1661.22	7569.78	1661.44	7616.94	1661.25
8174.49	1659.06	8193.13	1659.2	8208.96	1659.21	8347.72	1661.43	8361	1659.85
8372.62	1661.36	8483.5	1662.12	8524.27	1662.54	8559.89	1661.89	8689.76	1661.89
8719.1	1661.69	8826.75	1660.82	8867.03	1660.98	9045.14	1660.35	9052.44	1659.46
9058.67	1660.48	9199.8	1660.31	9231.14	1660.7	9381.94	1659.59	9413.26	1659.94
9582.11	1660.24	9591.56	1658.89	9600.11	1659.93	9735.98	1661.06	9739.1	1660.37
9786.98	1660.23	9824.82	1661.2	9831.22	1660.29	9834.86	1661.33	9988.95	1660.86
9996.89	1658.73	10006.58	1660.68	10159.32	1661.13	10190.75	1661.17	10419.05	1660.74
10861.67	1665.91	10893.95	1666.11	10924.03	1666.08	11518.29	1669.97	11555.75	1670.3
11586.06	1670.79	12831.8	1681.58	12888.56	1681.67				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5104.49	.15	9988.95	.028	10006.58	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.95	10006.58	375	441.57	330	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5104.49	6909	1670

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5104.49	6316	1666

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1662.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1662.25	Reach Len. (ft)	375.00	441.57	330.00
Crit W.S. (ft)	1661.42	Flow Area (sq ft)	4420.11	44.07	630.61
E.G. Slope (ft/ft)	0.010755	Area (sq ft)	4896.05	44.07	630.61
Q Total (cfs)	7000.00	Flow (cfs)	5843.93	438.84	717.23
Top Width (ft)	4163.45	Top Width (ft)	3604.50	17.63	541.33
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)	1.32	9.96	1.14
Max Chl Dpth (ft)	3.52	Hydr. Depth (ft)	1.46	2.50	1.16
Conv. Total (cfs)	67498.9	Conv. (cfs)	56351.3	4231.6	6916.0
Length Wtd. (ft)	387.02	Wetted Per. (ft)	3037.14	18.10	541.34
Min Ch El (ft)	1658.73	Shear (lb/sq ft)	0.98	1.63	0.78
Alpha	4.14	Stream Power (lb/ft s)	1.29	16.27	0.89
Frctn Loss (ft)	3.12	Cum Volume (acre-ft)	1213.60	52.00	777.74
C & E Loss (ft)	0.05	Cum SA (acres)	724.16	24.33	352.71

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6500.05	7197.83	147.84	195.07	289.97	2.11	0.68	0.76
7197.83	7895.61	817.97	773.55	697.78	11.69	1.11	1.06
7895.61	8593.39	1829.86	1221.33	653.21	26.14	1.87	1.50
8593.39	9291.17	1137.16	942.71	697.93	16.25	1.35	1.21
9291.17	9988.95	1911.12	1287.47	698.25	27.30	1.85	1.48
LB 9988.95	9994.83	113.00	12.77	6.08	1.61	2.17	8.85
9994.83	10000.70	213.19	18.62	6.03	3.05	3.17	11.45
10000.70	RB 10006.58	112.64	12.67	5.99	1.61	2.16	8.89
10006.58	10418.29	635.32	532.49	411.71	9.08	1.29	1.19
10418.29	10830.00	81.90	98.11	129.63	1.17	0.76	0.83

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.761

INPUT
Description: Baseline crosses cross section at Meridian Rd. approx. 900 ft
north of University Dr./Superstition Blvd.
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4910.45	1659.67	4926.24	1659.67	5312.2	1660.95	5350.52	1660.89	5378.01	1660.76
5408.48	1660.76	5412.92	1660.87	5419.15	1660.78	5427.22	1660.25	5454.12	1659.9
5477.21	1659.87	5509.51	1658.52	5545.69	1659.88	5581.79	1659.45	5607.07	1658.87
5707.42	1658.92	5739.41	1659.16	5764.78	1659.53	5768.13	1659.31	5777.86	1656.13
5791.74	1659.11	5858.83	1659.77	5895.93	1660.03	5925.98	1658.09	6016.72	1659.21
6026.8	1657.98	6038.96	1659.05	6425.01	1658.69	6444.05	1658.3	6463.08	1658.43
6614	1658.53	6745.75	1657.74	6763.84	1657.54	6782.91	1657.86	6880.06	1658.7
6887.7	1656.95	6892.54	1657.85	7067.48	1658.39	7085.09	1658.57	7101.87	1658.52
7167.59	1658.44	7188.94	1659.02	7212.19	1658.48	7360	1657.96	7693.56	1657.31
7713.63	1657.62	7729.97	1657.33	8110.03	1655.42	8128.94	1655.45	8146.09	1655.24
8335.11	1656.24	8365.37	1657.01	8396.76	1656.82	8799.6	1656.84	8837.97	1657.13
8877.37	1656.87	9264.42	1657.79	9295	1657.48	9505.26	1657.24	9535.91	1657.21
9643.8	1656.72	9654.55	1657.76	9664.23	1657.03	9683.58	1657.27	9704.27	1657.12
9711.33	1655.98	9721.32	1656.88	9920.5	1657.21	9956.59	1657.09	9993.07	1656.46
10023.01	1656.64	10038.96	1652.45	10056.47	1657.48	10092.5	1657.45	10125.36	1657.27
10742.43	1662.79	10775.58	1662.41	10786.3	1663.09	10799.68	1662.29	11726.92	1668.51
11744.58	1668.49	11751.93	1668.63	11837.69	1670.84	11944.25	1668.87	12001.83	1672
12992.8	1680.97	13002.7	1677.56	13013.52	1680.74	13074.63	1680.82	13091.39	1681.44

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4910.45	.15	9956.59	.021	10056.47	.15

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

9956.59 10056.47 192.33 457.84 585 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4910.45	7188.94	1666

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4910.45	6614	1666

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1659.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1658.53	Reach Len. (ft)	192.33	457.84	585.00
Crit W.S. (ft)	1658.53	Flow Area (sq ft)	4149.74	248.85	164.64
E.G. Slope (ft/ft)	0.006156	Area (sq ft)	4344.47	248.85	164.64
Q Total (cfs)	7000.00	Flow (cfs)	4246.90	2644.04	109.06
Top Width (ft)	3571.36	Top Width (ft)	3262.22	99.88	209.25
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)	1.02	10.62	0.66
Max Chl Dpth (ft)	6.08	Hydr. Depth (ft)	1.51	2.49	0.79
Conv. Total (cfs)	89214.2	Conv. (cfs)	54126.2	33698.0	1390.0
Length Wtd. (ft)	341.57	Wetted Per. (ft)	2746.61	101.14	209.26
Min Ch El (ft)	1652.45	Shear (lb/sq ft)	0.58	0.95	0.30
Alpha	18.39	Stream Power (lb/ft s)	0.59	10.05	0.20
Frctn Loss (ft)		Cum Volume (acre-ft)	1173.82	50.51	774.73
C & E Loss (ft)		Cum SA (acres)	694.60	23.73	349.86

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7073.08	7793.96	292.75	467.55	583.74	4.18	0.80	0.63
7793.96	8514.84	2142.22	1679.23	720.90	30.60	2.33	1.28
8514.84	9235.71	966.98	1041.93	720.88	13.81	1.45	0.93
9235.71	9956.59	844.95	961.03	721.09	12.07	1.33	0.88
LB 9956.59	9989.88	451.15	57.37	33.30	6.44	1.72	7.86
9989.88	10023.18	569.32	65.96	33.30	8.13	1.98	8.63
10023.18	RB 10056.47	1623.57	125.52	34.54	23.19	3.77	12.93
10056.47	10490.03	109.06	164.64	209.26	1.56	0.79	0.66

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.674

INPUT
Description: Baseline crosses cross section at Meridian Rd. approx. 475 ft north of University Dr./Superstition Blvd.
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4981.43	1657.43	5518.8	1656.06	5569.47	1656.97	5707.35	1656.98	5713.05	1655.77
5721.18	1656.69	5728.2	1656.34	5753.33	1657.18	5786.2	1657.61	5849.12	1657.99
5878.21	1658.08	5909.71	1657.39	5945.44	1655.93	5980.08	1657.65	6004.22	1657.72
6028.51	1657.16	6106.25	1656.44	6115.86	1654.9	6124.87	1656.01	6847.03	1656.68
6866.32	1656.23	6885.39	1656.41	7163.27	1656.57	7186.56	1656.13	7212.91	1656.41
7241.79	1656.75	7660	1655.2	7679.87	1654.96	7730.71	1655.16	7751.29	1654.46

```
 7887.62 1655.26 7894.42 1653.25  7907.9    1653 7917.17  1655.3  8117.1 1655.31
 8135.52 1655.03 8152.76  1654.8 8363.44 1653.08 8395.49 1653.27 8424.55 1653.49
 8659.34 1653.74 8671.02 1655.53 8754.79  1655.2 8796.78 1655.35  9223.7 1654.41
 9262.22 1654.71 9300.77 1654.76 9688.73 1656.51 9719.37 1656.43 9765.33 1655.72
 9804.84 1655.53 9812.91 1655.32 9861.71 1655.37 9892.61 1655.67 9898.39 1654.94
 9931.09 1654.79 9969.34 1653.97 9987.62 1653.31 9997.56 1649.0910012.36 1653.83
10032.56 1653.4110170.74 1653.1410213.54 1653.1610247.65 1653.8110310.49 1652.99
10358.61 1655.5810469.94 1654.0910502.84 1654.3910608.55 1655.7410621.78 1657.76
10716.56 1656.9110730.01 1656.0110761.88 1655.7410865.29 1657.8210878.81 1659.51
10989.77 1657.8611022.07 1657.8811044.93 1659.4611125.25 1659.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4981.43     .15 9931.09     .0210012.36     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9931.0910012.36           317.78  384.64  153.53             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4981.43 7240.88    1659 10621.811125.25    1659
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4981.43 6847.03    1659
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1656.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.93	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1656.03	Reach Len. (ft)	317.78	384.64	153.53
Crit W.S. (ft)	1656.22	Flow Area (sq ft)	2773.76	222.73	1184.96
E.G. Slope (ft/ft)	0.007346	Area (sq ft)	2773.76	222.73	1192.15
Q Total (cfs)	7000.00	Flow (cfs)	2671.98	2741.25	1586.77
Top Width (ft)	3060.20	Top Width (ft)	2334.01	81.27	644.92
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	0.96	12.31	1.34
Max Chl Dpth (ft)	6.94	Hydr. Depth (ft)	1.19	2.74	1.98
Conv. Total (cfs)	81672.2	Conv. (cfs)	31175.2	31983.5	18513.6
Length Wtd. (ft)		Wetted Per. (ft)	2334.81	82.89	598.24
Min Ch El (ft)	1649.09	Shear (lb/sq ft)	0.54	1.23	0.91
Alpha	21.44	Stream Power (lb/ft s)	0.52	15.17	1.22
Frctn Loss (ft)	2.20	Cum Volume (acre-ft)	1158.11	48.04	765.62
C & E Loss (ft)	0.03	Cum SA (acres)	682.25	22.78	344.13

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7102.71	7809.81	175.00	269.36	374.70	2.50	0.72	0.65
7809.81	8516.90	1319.98	1167.64	707.68	18.86	1.65	1.13
8516.90	9224.00	911.13	934.56	707.23	13.02	1.32	0.97
9224.00	9931.09	265.85	402.19	545.19	3.80	0.74	0.66
LB 9931.09	9958.18	318.79	41.55	27.10	4.55	1.53	7.67
9958.18	9985.27	574.14	59.15	27.10	8.20	2.18	9.71
9985.27	RB 10012.36	1848.33	122.03	28.69	26.40	4.50	15.15
10012.36	10171.34	658.60	431.66	158.99	9.41	2.72	1.53
10171.34	10330.33	638.80	423.86	159.02	9.13	2.67	1.51
10330.33	10489.31	188.37	203.72	159.04	2.69	1.28	0.92
10489.31	10648.30	101.00	125.72	121.19	1.44	1.04	0.80

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.601

INPUT
Description:
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5553.59	1654.45	5648.49	1653.52	5667.49	1653.49	5689.55	1653.38	5699.57	1652.98
5721.29	1652.65	6380.66	1653.41	6398.37	1653.26	6444.82	1654.74	6467.92	1654.85
6491.62	1654.5	6524.34	1653.6	6558.03	1654.93	6592.22	1654.55	6616.75	1654.13
6654.09	1653.78	7253.9	1653.39	7262.73	1654.26	7274.73	1651.89	7288.21	1653.7
7340	1653.72	7348.3	1651.44	7354.48	1652.06	7686.38	1653.47	7696.66	1653.02
7711.71	1654.24	7878.61	1652.34	7898.23	1652.65	7915.98	1652.22	7935.13	1653.19
7949.15	1654.03	8002.98	1653.34	8011.77	1652.75	8278.84	1651.61	8297.65	1651.5
8319.71	1651.44	8341.21	1650.88	8373.66	1651.31	8403.65	1651.7	8671.92	1651.4
8707.78	1651.12	8765.79	1650.69	8773.48	1649.63	8785.27	1651.48	8831.09	1651.46
8863.62	1650.86	8910.68	1650.85	8949.32	1651.1	9101.65	1651.12	9139.26	1651.23
9293.48	1651.36	9330.53	1651.39	9362.18	1651.49	9394.65	1651.73	9762.69	1652
9767.27	1651.1	9783.82	1650.92	9795.3	1651.94	9821.43	1652.01	9873.91	1651.78
9957.48	1651.24	9985.4	1651.46	9996.27	1646.8	10010.88	1652.2	110179.87	1651.7
10196.3	1651.5	210379.35	1651.7	510424.06	1652.2	410485.74	1653.19	10527.4	1652.16
10621.64	1654.8	510733.57	1653.5	610766.34	1653.8	210871.45	1654.8	710884.62	1657.39
10983.17	1656.32	10993.4	1655.6	311025.82	1655.4	511131.97	1657.3	911141.62	1659.3
11253.56	1657.6	211286.01	1657.4	511309.59	1659.1	111396.59	1659.95		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5553.59	.15	9873.91	.02	10010.88	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9873.91	10010.88	492.39	639.3	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5553.59	7949.15	1658

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5553.59	7711.71	1658

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1653.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1653.17	Reach Len. (ft)	492.39	639.30	480.00
Crit W.S. (ft)	1653.14	Flow Area (sq ft)	3007.96	286.77	630.14
E.G. Slope (ft/ft)	0.007197	Area (sq ft)	3073.21	286.77	630.14
Q Total (cfs)	7000.00	Flow (cfs)	3471.87	2930.67	597.46
Top Width (ft)	2683.77	Top Width (ft)	1997.23	136.97	549.57
Vel Total (ft/s)	1.78	Avg. Vel. (ft/s)	1.15	10.22	0.95
Max Chl Dpth (ft)	6.37	Hydr. Depth (ft)	1.61	2.09	1.15
Conv. Total (cfs)	82513.1	Conv. (cfs)	40925.0	34545.5	7042.6
Length Wtd. (ft)	542.65	Wetted Per. (ft)	1868.76	138.90	549.61
Min Ch El (ft)	1646.80	Shear (lb/sq ft)	0.72	0.93	0.52
Alpha	13.98	Stream Power (lb/ft s)	0.83	9.48	0.49
Frctn Loss (ft)	5.05	Cum Volume (acre-ft)	1136.78	45.79	762.41
C & E Loss (ft)	0.01	Cum SA (acres)	666.45	21.82	342.02

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7405.16	8022.34	2.46	5.97	16.82	0.04	0.35	0.41
8022.34	8639.53	891.02	864.92	617.20	12.73	1.40	1.03
8639.53	9256.72	1662.20	1257.51	617.41	23.75	2.04	1.32
9256.72	9873.91	916.19	879.56	617.32	13.09	1.43	1.04
LB 9873.91	9919.57	566.47	70.12	45.66	8.09	1.54	8.08
9919.57	9965.22	752.74	83.16	45.66	10.75	1.82	9.05
9965.22	RB 10010.88	1611.46	133.49	47.58	23.02	2.92	12.07
10010.88	10208.84	239.21	251.22	197.96	3.42	1.27	0.95
10208.84	10406.80	312.48	294.91	197.96	4.46	1.49	1.06
10406.80	10604.76	45.77	84.01	153.69	0.65	0.55	0.54

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

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.480

INPUT
Description:
Station Elevation Data num= 105

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4197.31	1648.47	4282.47	1648.62	4287.42	1648.14	4295.04	1648.79	4308.89	1648.75
4319.81	1648.38	4328.87	1649.07	4452.14	1648.31	4490.11	1648.01	4561.96	1649.37
4772.28	1648.63	4790.28	1648.96	4809.52	1649.1	4902.94	1648.83	4957.89	1646.64
5009.44	1646.56	5072.61	1647.96	5111.33	1647.5	5155.94	1651.21	5296.31	1651.7
5306.98	1651.04	5338.1	1649.39	5906.16	1647.16	5941.63	1648.82	5967.65	1647.58
6310.77	1648.56	6320.81	1648.24	6338.1	1649.56	6381.39	1650.05	6407.05	1649.63
6412.21	1649.13	6425.71	1649.44	6436.64	1649.34	6473.85	1649.66	6488.54	1650.74
6512.54	1650.11	6536.5	1649.61	6545.04	1650.23	6560.11	1647.41	6575.45	1648.83
7107.93	1649.05	7123.57	1646.79	7145.36	1650.21	7165.53	1648.12	7297	1649.53
7344.53	1648.04	7376.24	1648.44	7406.66	1648.39	7419.39	1649.18	7617.41	1648.26
7780.43	1646.58	7826.34	1646.69	7892.8	1646.84	7931.23	1646.6	8037.88	1647.64
8041.96	1646.86	8051.04	1647.45	8142.7	1647.23	8183.27	1647.19	8391.47	1646.05
8442.47	1646.15	8630.45	1645.99	8673.85	1646.7	8737.25	1646.77	8744.03	1645.34
8752.97	1647.58	8868.67	1645.76	8889.24	1645.47	8922.81	1645.19	8931.69	1645.08
8944.93	1646.18	9083.77	1646.97	9121.28	1646.98	9277.7	1646.7	9313.2	1646.59
9358.66	1647.25	9382.36	1647.19	9430.34	1647.43	9445.78	1646.04	9457.47	1646.47
9779.75	1646.37	9792.28	1644.36	9806.25	1646.87	9883.87	1646.35	9924.08	1647.16
9967.66	1646.64	9987.56	1646.3	9998.36	1642.99	10011.63	1648.44	10127.94	1646.89
10160.09	1646.89	10267.63	1648.76	10276.29	1649.98	10387.85	1648.23	10420.29	1648.48
10521.53	1650.18	10537.35	1652.42	10647.91	1650.43	10680.52	1650.46	10783.13	1652.52
10797.76	1654.83	10907.8	1652.94	10940.38	1653.28	11045.96	1655.84	11058.58	1656.77

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4197.31	.15	9924.08	.02	10011.63	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9924.08	10011.63	422.71	759.29	635.28	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4197.31	7419.39	1654

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4197.31	7297	1654

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1648.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1648.14	Reach Len. (ft)	422.71	759.29	635.28
Crit W.S. (ft)	1648.14	Flow Area (sq ft)	3422.14	157.21	143.52
E.G. Slope (ft/ft)	0.012530	Area (sq ft)	3422.69	157.21	143.52
Q Total (cfs)	7000.00	Flow (cfs)	4951.33	1920.12	128.55
Top Width (ft)	2590.42	Top Width (ft)	2305.91	86.82	197.69
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)	1.45	12.21	0.90
Max Chl Dpth (ft)	5.15	Hydr. Depth (ft)	1.49	1.81	0.73
Conv. Total (cfs)	62535.8	Conv. (cfs)	44233.7	17153.8	1148.4
Length Wtd. (ft)	527.76	Wetted Per. (ft)	2296.00	88.33	197.71
Min Ch El (ft)	1642.99	Shear (lb/sq ft)	1.17	1.39	0.57
Alpha	12.00	Stream Power (lb/ft s)	1.69	17.00	0.51
Frctn Loss (ft)		Cum Volume (acre-ft)	1100.06	42.53	758.15
C & E Loss (ft)		Cum SA (acres)	642.13	20.17	337.91

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7469.75	8287.86	778.29	694.15	658.81	11.12	1.05	1.12
8287.86	9105.97	2418.73	1495.02	818.61	34.55	1.83	1.62
9105.97	9924.08	1754.31	1232.97	818.58	25.06	1.51	1.42
LB 9924.08	9953.26	287.56	33.65	29.19	4.11	1.15	8.55
9953.26	9982.45	455.99	44.37	29.19	6.51	1.52	10.28
9982.45	RB 10011.63	1176.57	79.19	29.96	16.81	2.78	14.86
10011.63	10161.19	93.94	100.04	126.98	1.34	0.79	0.94
10161.19	10310.76	34.61	43.48	70.73	0.49	0.61	0.80

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.336

INPUT
Description: Baseline crosses cross section on east side of 114th St. just south of intersection with University Dr.
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3862.04	1644.7	3927.65	1645.09	3933.24	1644.1	3986.83	1643.75	4005.63	1644.29
4024.93	1644.41	4324.21	1643.79	4340.29	1643.56	4361.77	1643.93	4394.55	1643.96
4431.54	1644.08	4654.02	1644.67	4698.59	1644.52	4803.09	1646.58	4820.57	1647.91
4827.27	1648.81	4855.67	1647.33	5002.27	1647.24	5027.73	1648.46	5033.96	1647.09
5050.47	1645.37	5068.94	1644.87	5089	1645	5095.37	1644.14	5128.74	1641.85
5519.08	1644.59	5586.37	1645.96	5663.97	1644.13	6131.04	1645.32	6213.42	1644.27
6238.77	1642.75	6265.93	1644.56	6427.69	1645.4	6463.74	1646.05	6497.79	1646.59
6522.73	1646.17	6543.35	1644.37	6556.86	1643.4	6578.08	1645.04	6588.05	1646.43
6629.77	1646.06	6652.81	1645.6	6660.96	1645.89	6674.62	1643.78	6692.19	1644.96
7053.43	1643.95	7367.79	1643.9	7519.62	1643.31	7558.95	1643.38	7694.9	1642.8
7741.86	1642.67	7987.86	1642.61	8070.59	1642.53	8133.6	1642.09	8136.57	1641.05
8141.06	1641.51	8201.13	1640.93	8223.34	1641.09	8261.95	1640.94	8270.6	1640.62
8281.7	1641.79	8436.39	1642.29	8516.77	1641.42	8548.01	1641.46	8740.82	1642.06
8775.35	1642.31	8974.47	1642.54	9009.96	1642.86	9157.97	1642.16	9363.28	1641.79
9396.74	1642.25	9404.65	1642.72	9601.39	1642.6	9633.75	1642.69	9837.77	1642.23
9869.58	1642.26	9988.52	1641.95	10000	1639.23	10005.61	1640	10011.19	1640.8
10020.35	1640.64	10030.73	1641.03	10068.91	1640.21	10134.02	1641.78	10179.51	1641.98
10197.44	1642.29	10201.75	1641.31	10209.18	1643.69	10239.09	1642.48	10434.7	1643.21
10537.27	1643.37	10639.08	1643.27	10745.11	1644	10839.08	1644	10939.04	1644.68
10994.19	1645.14	10995.54	1647.03	11005.11	1649.09	11006.74	1647.35	11095.85	1649.89
11102	1649.89	11112.35	1650.86	11127.36	1647.97	11172.29	1648.13	11190.8	1649.05
11325.88	1650	11335.76	1650.29	11489.63	1648.61	11530.87	1648.68	11549.84	1648.96
11694.66	1649.86	11721.13	1645.35	11946.02	1645.28	11982.26	1651.34	12008.76	1650.48
12051.9	1650.65								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3862.04	.15	9988.52	.02	10030.73	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.52	10030.73	292.68	391.01	280	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3862.04	6832.04	1650

Blocked Obstructions num= 1

Sta L	Sta R	Elev
3862.04	6692.19	1650

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1644.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1644.09	Reach Len. (ft)	292.68	391.01	280.00
Crit W.S. (ft)	1644.14	Flow Area (sq ft)	4573.95	150.54	983.20
E.G. Slope (ft/ft)	0.005195	Area (sq ft)	4573.95	150.54	983.20
Q Total (cfs)	7000.00	Flow (cfs)	4340.18	1868.88	790.94

Top Width (ft)	3849.01	Top Width (ft)	2985.21	42.21	821.59
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)	0.95	12.41	0.80
Max Chl Dpth (ft)	4.86	Hydr. Depth (ft)	1.53	3.57	1.20
Conv. Total (cfs)	97118.1	Conv. (cfs)	60215.7	25928.8	10973.6
Length Wtd. (ft)		Wetted Per. (ft)	2985.52	42.65	822.13
Min Ch El (ft)	1639.23	Shear (lb/sq ft)	0.50	1.14	0.39
Alpha	27.78	Stream Power (lb/ft s)	0.47	14.21	0.31
Frctn Loss (ft)	4.06	Cum Volume (acre-ft)	1061.26	39.85	749.93
C & E Loss (ft)	0.00	Cum SA (acres)	616.46	19.05	330.47

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6487.67	7362.89	10.20	54.49	359.58	0.15	0.15	0.19
7362.89	8238.10	980.11	1203.72	875.42	14.00	1.38	0.81
8238.10	9113.31	1850.76	1762.56	875.29	26.44	2.01	1.05
9113.31	9988.52	1499.12	1553.19	875.23	21.42	1.77	0.97
LB 9988.52	10002.59	660.76	52.31	14.41	9.44	3.72	12.63
10002.59	10016.66	658.47	51.83	14.16	9.41	3.68	12.70
10016.66	RB 10030.73	549.63	46.40	14.08	7.85	3.30	11.85
10030.73	10319.47	626.33	639.23	289.28	8.95	2.21	0.98
10319.47	10608.21	141.66	261.82	288.74	2.02	0.91	0.54
10608.21	10896.95	22.96	82.16	244.12	0.33	0.34	0.28

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.262

INPUT
Description: Baseline continues on east side of 114th St.
Station Elevation Data num= 137

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4129.86	1640.84	4482.22	1641.01	4501.53	1641.04	4519.84	1641.01	4769.86	1640.76
4870.09	1640.91	4887.4	1640.75	4903.46	1640.86	5013.05	1641.38	5027.22	1641.71
5042.15	1641.75	5350.86	1641.46	5385.18	1642.77	5402.86	1640.86	6032.07	1641.95
6049.86	1642.98	6076.09	1641.74	6091.55	1641.45	6197.67	1641.17	6534.96	1638.5
6595.15	1639.93	6614.14	1640.21	6691.11	1639.31	6784.15	1637.63	6956.81	1644.09
6959.78	1643.37	6975.47	1642.28	6995.2	1644.05	6999.8	1643.33	7034.77	1643.68
7060.81	1643.27	7103.28	1642.04	7142	1642.76	7165.35	1642.68	7187.37	1642.28
7196.71	1642.51	7212.37	1639.82	7227.84	1641.25	7331.32	1641.06	7400	1640.12
7898.35	1639.77	8070.76	1640.18	8072.76	1639.08	8076.39	1640.22	8143.74	1639.68
8156.65	1638.91	8165.23	1639.35	8185.99	1638.79	8208.61	1638.51	8234.83	1638.38
8244.98	1638.65	8315.09	1639.15	8485.56	1638.8	8520.13	1638.73	8573.81	1638.82
8610.01	1638.81	8752.66	1638.31	8811.12	1638	8831.81	1639.48	8835.12	1639.17
8939.07	1639.45	8940.3	1639.52	8948.04	1638.64	8993.4	1638.69	9104.84	1639.92
9146.52	1639.66	9246.25	1639.82	9358.24	1639.4	9390.53	1639.56	9395.66	1639.61
9459.52	1639.49	9530.34	1639.76	9564.5	1639.91	9629.63	1639.78	9666.65	1640.02
9701.85	1640.08	9834.91	1639.4	9867.03	1639.81	9989.29	1639.73	10000	1636.44
10002.89	1638.79	10008.19	1639.06	10017.37	1639.35	10030.13	1639.35	10040.44	1639.51
10181.88	1638.64	10259.1	1638.5	10296.9	1638.51	10323.3	1638.75	10464.71	1638.77
10608.03	1638.51	10646.31	1640.41	10660.94	1640.14	10748.17	1639.36	10769.64	1639.45
10780.67	1641.23	10874.5	1640.65	10897.75	1639.78	10931.42	1639.78	10948.88	1641.21
11038.58	1641.13	11048.72	1643.02	11162.62	1641.46	11194.85	1641.61	11209.08	1642.46
11302.57	1643.54	11314.53	1644.27	11427.48	1643.11	11460.65	1642.92	11481.45	1644.34
11573.11	1645.21	11582.05	1646.66	11670.77	1647.14	11706.82	1645.37	11758.45	1645.3
11795.87	1645.94	11930.87	1647.06	11947.7	1647.95	12034.24	1647.33	12045.5	1646.5
12052.71	1645.82	12094.88	1645.78	12111.71	1646.73	12174.9	1645.63	12188.46	1643.53
12197.73	1643.54	12215.1	1646.21	12373.68	1647.62	12398.23	1643.06	12495.41	1643.11
12522.26	1647.18	12538.6	1647.13	12545.53	1646.64	12588.38	1646.61	2604.94	1647.23
12619.66	1647.99	12743.25	1649.19						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4129.86	.15	9989.29	.021	0040.44	.15

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9989.29 10040.44 320 403.01 280 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4129.86	7519.86	1648

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4129.86	7227.84	1648

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1641.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1640.68	Reach Len. (ft)	320.00	403.01	280.00
Crit W.S. (ft)	1640.50	Flow Area (sq ft)	3055.33	89.34	1301.94
E.G. Slope (ft/ft)	0.012575	Area (sq ft)	3138.92	89.34	1301.94
Q Total (cfs)	7000.00	Flow (cfs)	3910.92	1061.07	2028.02
Top Width (ft)	3490.89	Top Width (ft)	2630.19	51.15	809.55
Vel Total (ft/s)	1.57	Avg. Vel. (ft/s)	1.28	11.88	1.56
Max Chl Dpth (ft)	4.24	Hydr. Depth (ft)	1.24	1.75	1.61
Conv. Total (cfs)	62423.2	Conv. (cfs)	34876.0	9462.2	18085.0
Length Wtd. (ft)	316.87	Wetted Per. (ft)	2470.08	52.49	809.76
Min Ch El (ft)	1636.44	Shear (lb/sq ft)	0.97	1.34	1.26
Alpha	9.28	Stream Power (lb/ft s)	1.24	15.87	1.97
Frctn Loss (ft)	2.67	Cum Volume (acre-ft)	1035.35	38.77	742.59
C & E Loss (ft)	0.05	Cum SA (acres)	597.59	18.63	325.23

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7478.11	8315.17	827.13	786.53	795.82	11.82	0.99	1.05
8315.17	9152.23	2254.20	1464.77	837.19	32.20	1.75	1.54
9152.23	9989.29	829.59	804.02	837.07	11.85	0.96	1.03
LB 9989.29	10006.34	603.08	42.86	18.38	8.62	2.51	14.07
10006.34	10023.39	251.75	24.63	17.06	3.60	1.44	10.22
10023.39	RB 10040.44	206.24	21.85	17.05	2.95	1.28	9.44
10040.44	10426.56	1217.47	724.73	386.12	17.39	1.88	1.68
10426.56	10812.67	772.99	531.09	350.86	11.04	1.51	1.46
10812.67	11198.79	37.56	46.12	72.78	0.54	0.63	0.81

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.186

INPUT
Description: Baseline continues on east side of 114th St.
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4497.19	1638.31	4525.25	1638.13	4543.59	1638.12	4562.55	1638.14	5048.57	1638.21
5070.78	1638.4	5088.24	1638.44	5377.01	1638.88	5394.1	1638.26	5411.94	1637.74
5567.34	1637.26	5582.63	1637.15	5599.19	1637.1	5854.65	1638.09	5864.97	1639.56
5872.72	1640.95	5896.55	1642.58	5924.08	1639.45	6032.03	1639.62	6065.76	1642.2
6087.3	1640.5	6104.39	1638.93	6214.23	1638.02	6254.41	1638.34	6472.11	1638.43
6511.33	1638.25	6622.85	1638.24	6638.49	1635.93	6650.37	1639.29	6700.3	1638.64
6716.74	1638.23	7143.54	1636.35	7281.81	1636.07	7302.36	1636.21	7306.2	1640.02

7419.45	1640.48	7422.99	1639.46	7480.52	1640.95	7503.1	1641.51	7510.63	1640.65
7518.8	1640.6	7525.4	1640.78	7531.03	1639.85	7564.79	1640.25	7590.6	1639.74
7630.38	1637.07	7664.26	1639.26	7699.68	1639.23	7736.98	1638.65	7749.63	1638.48
7756.73	1638.14	7767.54	1638.43	7789.42	1637.83	7807.24	1636.87	7845.27	1639.66
7952.53	1639.36	7965.06	1638.08	8108.85	1636.6	8155.34	1637.42	8178.78	1636.89
8211.88	1636.83	8543.74	1637.08	8706.48	1636.73	8742.12	1637.08	8765.97	1636.78
8804	1636.63	8943.96	1636.76	8977.91	1636.68	9088.6	1636.26	9101.7	1634.63
9120.05	1636.68	9348.12	1636.67	9357.01	1635.46	9371.84	1636.95	9473.98	1636.3
9584.39	1635.7	9617.8	1635.62	9831.4	1636.72	9864.69	1637.11	9989.15	1637.2
10000	1633.15	10005.86	1636.31	10010.88	1636.05	10021	1636.42	10032	1636.92
10043.19	1637.23	10184.63	1637.18	10326.04	1636.58	10350.74	1636.22	10393.75	1635.63
10808.86	1635.78	10843.2	1635.92	11023.95	1636.12	11200.61	1636.97	11211.39	1635.5
11299.63	1634.94	11319.97	1635.88	11332.56	1636.71	11421.69	1636.75	11448.28	1636.35
11481.74	1636.23	11501	1637.59	11591.52	1638.83	11602.06	1639.68	11712.68	1638.84
11745.99	1638.82	11761.98	1639.57	11797.3	1639.58	11811.6	1638.77	11844.55	1638.34
11879.65	1640.54	11987.95	1641.25	12015.58	1633.91	12065.42	1634.49	12088.83	1640.5
12097.7	1637.13	12112.78	1640.19	12167.46	1640.52	12232.91	1640.19	12269.27	1639.64
12391.11	1639.96	12419.37	1641.31	12458.26	1640.68	12472.89	1640.01	12490.65	1640.19
12582.26	1640.87	12595.94	1639.51	12625.31	1639.16	12641.09	1642.21	12718.64	1641.1
12782	1640.28	12952.22	1640.24	13029.67	1640.14	13044.28	1638.65	13081.52	1638.95
13115.02	1640.33	13122.19	1640.51	13140.78	1639.69	13180.12	1640.76	13219.47	1640.09
13237.9	1641.41	13416.38	1643.37	13466.53	1642.75	13493.13	1644.73	13982.62	1648.89

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4497.19	.15	9989.15	.021	10043.19	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9989.15	10043.19	297.26	396.01	290	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4497.19	8130	1643	11516	13982.62	1643

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4497.19	7664.26	1644	12088.83	13982.62	1644

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1638.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1638.12	Reach Len. (ft)	297.26	396.01	290.00
Crit W.S. (ft)	1637.55	Flow Area (sq ft)	2732.56	108.37	2793.83
E.G. Slope (ft/ft)	0.006055	Area (sq ft)	2899.20	108.37	3052.60
Q Total (cfs)	7000.00	Flow (cfs)	2722.57	977.59	3299.84
Top Width (ft)	3700.54	Top Width (ft)	2070.02	54.04	1576.48
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)	1.00	9.02	1.18
Max Chl Dpth (ft)	4.97	Hydr. Depth (ft)	1.47	2.01	1.90
Conv. Total (cfs)	89956.9	Conv. (cfs)	34987.7	12562.9	42406.3
Length Wtd. (ft)	308.56	Wetted Per. (ft)	1859.55	55.60	1473.02
Min Ch El (ft)	1633.15	Shear (lb/sq ft)	0.56	0.74	0.72
Alpha	8.04	Stream Power (lb/ft s)	0.55	6.65	0.85
Frctn Loss (ft)	2.63	Cum Volume (acre-ft)	1013.17	37.86	728.59
C & E Loss (ft)	0.03	Cum SA (acres)	580.33	18.14	317.56

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7635.45	8420.02	289.63	340.42	290.03	4.14	1.17	0.85
8420.02	9204.58	1038.76	1090.77	784.79	14.84	1.39	0.95
9204.58	9989.15	1394.17	1301.38	784.73	19.92	1.66	1.07
LB 9989.15	10007.16	581.67	54.25	19.54	8.31	3.01	10.72
10007.16	10025.18	270.00	33.14	18.03	3.86	1.84	8.15
10025.18	RB 10043.19	125.92	20.97	18.03	1.80	1.16	6.00
10043.19	10605.97	1057.13	962.90	562.78	15.10	1.71	1.10
10605.97	11168.74	1483.21	1179.84	562.78	21.19	2.10	1.26
11168.74	11731.52	759.50	651.10	347.46	10.85	1.87	1.17

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.111

INPUT
Description: Baseline on east side of 114th St.
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4606.86	1635.16	4665.45	1635.93	4683.9	1636.33	4701.41	1636.01	4718.53	1635.08
5027.01	1635.85	5047.06	1635.97	5066.77	1635.92	5299.63	1635.06	5318.11	1635.35
5546.56	1634.64	5564.78	1634.76	5582.85	1634.98	5903.62	1634.9	5922.61	1634.78
5941.86	1634.81	6064.89	1634.35	6085.92	1634.41	6106.68	1633.7	6364.39	1635.67
6381.78	1636.02	6399.33	1635.83	6457.73	1635.81	6497.77	1635.9	6603.63	1635.4
6613.39	1634.44	6625.33	1635.63	6841.9	1635.94	7019.88	1635.37	7030.2	1635.23
7224.01	1635.81	7241.98	1637.03	7631.28	1637.07	7681.89	1636.29	7810.83	1634.67
7945.2	1635.07	7986.27	1634.7	7990.11	1634.38	8005.12	1633.23	8039.39	1636.07
8067.35	1636.68	8071.4	1636.44	8099.25	1636.69	8151.93	1636.19	8234.8	1635.86
8268.93	1635.23	8274.79	1635.54	8291.04	1632.4	8299.39	1633.26	8392.34	1634.46
8541.24	1634.15	8774.52	1634.09	8791.07	1633.93	8899.68	1633.42	8976.13	1633.32
9102.7	1635.02	9110.79	1633.4	9125.13	1635.54	9458.29	1633.57	9993.67	1634.39
10000	1630.61	10007.16	1632.99	10012.19	1633.36	10020.97	1633.3	10032.9	1633.75
10044.92	1633.31	10050.15	1633.44	10187.77	1634.81	10455.54	1633.87	10470.6	1633.41
10506.12	1633.86	10612	1633.64	10764.85	1634.22	10894.67	1633.43	10922.8	1633.26
10968.46	1633.29	11036.32	1634.59	11373.07	1633.69	11383.79	1632.81	11397.17	1633.39
11425.73	1632.73	11433.46	1632.51	11443.68	1633.16	11616.1	1632.51	11768.6	1633.31
11780.05	1630.99	11809.58	1631.81	11918.36	1632.81	11945.6	1635.19	12149.83	1635.81
12272.52	1635.63	12287.99	1634.12	12319.25	1634.12	12337.37	1635.51	12446.21	1635.01
12566.14	1635.16	12580.82	1634.12	12612.67	1634.41	12629.62	1635.29	12793.22	1635.3
12806.07	1632.99	12815.86	1634.43	12908.18	1634.57	12925.55	1634.51	12953.67	1634.82
12975.98	1635.51	13072.73	1637.12	13163.98	1637.05	13181.12	1637	13284.16	1637.68
13300.61	1638.87	13578.82	1640.84	13594.09	1640.06	13616.87	1639.92	13645.21	1641.65
13750.72	1642.21	13761.69	1642.04	13811	1642.91	13867.76	1642.36	13997.43	1644.78

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4606.86	.15	9993.67	.02	10032.9	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9993.67	10032.9	286.01	340.97	275	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4606.86	8716.86	1642	12138.38	13997.43	1642

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4606.86	8099.25	1642	12149.83	13997.43	1642

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1635.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1635.13	Reach Len. (ft)	286.01	340.97	275.00
Crit W.S. (ft)	1635.11	Flow Area (sq ft)	1326.41	85.12	2862.72
E.G. Slope (ft/ft)	0.012938	Area (sq ft)	1780.15	85.12	2862.72
Q Total (cfs)	7000.00	Flow (cfs)	1602.27	1176.85	4220.89
Top Width (ft)	3595.16	Top Width (ft)	1643.96	39.23	1911.97
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)	1.21	13.83	1.47
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)	1.10	2.17	1.50
Conv. Total (cfs)	61541.6	Conv. (cfs)	14086.6	10346.4	37108.6
Length Wtd. (ft)	284.96	Wetted Per. (ft)	1204.34	40.68	1912.45
Min Ch El (ft)	1630.61	Shear (lb/sq ft)	0.89	1.69	1.21
Alpha	12.59	Stream Power (lb/ft s)	1.07	23.37	1.78
Frctn Loss (ft)	2.58	Cum Volume (acre-ft)	997.21	36.98	708.90
C & E Loss (ft)	0.14	Cum SA (acres)	567.66	17.72	305.95

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8454.58	9224.13	642.73	510.53	434.79	9.18	1.18	1.26
9224.13	9993.67	959.55	815.89	769.55	13.71	1.06	1.18
LB 9993.67	10006.75	633.78	39.53	14.48	9.05	3.02	16.03
10006.75	10019.82	303.16	24.40	13.11	4.33	1.87	12.42
10019.82	RB 10032.90	239.91	21.19	13.09	3.43	1.62	11.32
10032.90	10599.26	625.90	581.00	566.39	8.94	1.03	1.08
10599.26	11165.62	808.14	677.27	566.38	11.54	1.20	1.19
11165.62	11731.98	1685.11	1052.61	566.45	24.07	1.86	1.60
11731.98	12298.35	1101.72	551.84	213.23	15.74	2.59	2.00

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.046

INPUT
Description: Baseline on west side of 114th St.
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4766.12	1632.08	4813.95	1632.77	4950.97	1633	4965.08	1632.93	4981.28	1632.8
5069.69	1633.52	5089.28	1633.96	5107.9	1633.43	5123.98	1632.55	5136.01	1632.97
5184.91	1633.05	5190.34	1632.23	5205.52	1632.53	5434.22	1632.61	5451.89	1632.39
5465.49	1632.73	5956.29	1632.18	5974.36	1632.17	5990.21	1631.86	6323.58	1631.58
6337.64	1631.69	6351.09	1631.93	6481.59	1632.52	6497.02	1632.65	6510.59	1633.1
6786.51	1633.01	6802.14	1633.13	6818.76	1632.85	6902.15	1633.07	6928.18	1633.74
7654.5	1633.37	7671.44	1634.58	7910.57	1634.34	7930.69	1632.27	7958.64	1632.71
7962.88	1631.95	8011.36	1632.23	8058.43	1632.21	8114.17	1632.35	8507.41	1633.75
8532.85	1633.88	8554.34	1633.49	8558.74	1633.25	8573.34	1628.23	8586.7	1632.11
8635.16	1633.63	8666.85	1633.28	8702.08	1632.5	8724.91	1633.58	8727.61	1633.64
8730.73	1633.69	8995.91	1633.22	9010.91	1630.78	9024.64	1631.66	9507.98	1630.87
9922.69	1630.45	9936.97	1631.44	9953.58	1631.46	9991.67	1631.95	10000	1629.25
10011.15	1631.31	10274.36	1631.85	10295.73	1631.37	10315.13	1631.84	10317.54	1631.72
10319.31	1629.91	10331.59	1630.06	10333.38	1631.65	10398.93	1630.79	10419.8	1631.29
10873.91	1630.81	10925.61	1630.83	11350.91	1633.07	11363.04	1632.04	11397	1631.9
11415.31	1632.13	11703.26	1631.24	11721.53	1630.25	11752.21	1630	11795.53	1630.16
11838.85	1630.31	11876.19	1630.21	11891.08	1629.84	11928.87	1628.27	11937.9	1629.48
12150.46	1631.1	12192.3	1631.13	12203.66	1631.21	12342.68	1631.31	12443.69	1631.05
12601.56	1630.52	12634.3	1630.44	12655.21	1631.91	12927.54	1631.76	12939.82	1629.91
12949.32	1630.62	13035.51	1631.58	13055.57	1631.14	13121.94	1631.8	13135.5	1633.1
13309.87	1634.22	13678.23	1636.34	13771.72	1636.99	13995.5	1639.68	14013.28	1639.19
14036	1639.46	14063.36	1640.33	14160.5	1641.58				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4766.12	.15	9991.67	.035	10011.15	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9991.67	10011.15		320.73	334.71	325	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4766.12	8734.12	1640	12335	14160.5	1640

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4766.12	8734.12	1640

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1632.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1632.87	Reach Len. (ft)	320.73	334.71	325.00
Crit W.S. (ft)	1631.81	Flow Area (sq ft)	1828.53	47.88	3844.32
E.G. Slope (ft/ft)	0.006734	Area (sq ft)	1828.53	47.88	5087.57
Q Total (cfs)	7000.00	Flow (cfs)	2231.73	297.57	4470.70
Top Width (ft)	4095.76	Top Width (ft)	993.64	19.48	3082.64
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)	1.22	6.21	1.16
Max Chl Dpth (ft)	4.60	Hydr. Depth (ft)	1.84	2.46	1.68
Conv. Total (cfs)	85305.5	Conv. (cfs)	27197.0	3626.3	54482.2
Length Wtd. (ft)	324.71	Wetted Per. (ft)	993.87	20.10	2286.09
Min Ch El (ft)	1629.25	Shear (lb/sq ft)	0.77	1.00	0.71
Alpha	1.99	Stream Power (lb/ft s)	0.94	6.22	0.82
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)	985.36	36.46	683.80

C & E Loss (ft)	0.02	Cum SA (acres)	559.00	17.49	290.18

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8498.66	9245.16	344.27	343.83	247.33	4.92	1.39	1.00
9245.16	9991.67	1887.48	1484.71	746.54	26.96	1.99	1.27
LB 9991.67	9998.16	66.22	12.84	6.83	0.95	1.98	5.16
9998.16	10004.66	152.63	20.99	6.67	2.18	3.23	7.27
10004.66	RB 10011.15	78.73	14.05	6.60	1.12	2.16	5.60
10011.15	10603.92	931.93	894.35	594.17	13.31	1.51	1.04
10603.92	11196.68	1098.09	985.93	592.77	15.69	1.66	1.11
11196.68	11789.44	584.46	657.06	553.47	8.35	1.19	0.89
11789.44	12382.21	1856.20	1306.96	545.68	26.52	2.40	1.42

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.983

INPUT
Description:
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4815.86	1629.84	5067.59	1630.15	5082.87	1629.85	5097.69	1630	5230.63	1631.04
5250.1	1631.26	5268.08	1631.1	5282.94	1629.91	5288.81	1630.6	5604.04	1629.95
5620.39	1629.77	5641.8	1629.63	6101.83	1629.16	6124.4	1628.96	6141.08	1629.15
6491.26	1631.06	6505.48	1630.68	6522.55	1630.84	6626.58	1629.59	6644.67	1629.83
6661.32	1629.95	6955.95	1629.84	6972.63	1629.96	6990.9	1629.64	7621.23	1629.26
7642.33	1629.66	7662.54	1629.93	7698.16	1629.52	8148.88	1629.08	8167.78	1626.77
8185.35	1628.56	8711.12	1629.11	8739.44	1630.55	8768.59	1630.68	8794.16	1630.17
8821.2	1628.14	8840.78	1626.7	8869.94	1628.78	8883.09	1630.67	8910.85	1630.23
8940.94	1629.58	8943.29	1629.36	8962.93	1626.28	8985.18	1628.64	9455.42	1629.27
9470.22	1631.07	9474.26	1630.37	9502.09	1629.93	9508.9	1629.39	9528.92	1629.08
9542.37	1629.54	9559.56	1629.85	9883.7	1628.21	9903.94	1628.21	9987.38	1629.24
10000	1623.96	10012.88	1628.51	10074.41	1627.56	10106.37	1628.02	10237.85	1627.74
10240.37	1626.46	10252.1	1626.51	10254.58	1627.51	10274.99	1626.84	10280.73	1626.91
10414.79	1627.98	10446.56	1628.05	10573.54	1628.65	10582.28	1627.28	10590.87	1627.38
10597.95	1628.69	10633.96	1629.02	10647.3	1627.14	10660.4	1628.12	10697.26	1628.41
11112.1	1630.28	11129.21	1629.52	11139.14	1629.42	11177.62	1629.81	1194.87	1629.92
11296.42	1629.22	11312.25	1628.41	11325.97	1628.64	11356.48	1628.79	11366.02	1628.84
11451.84	1629.03	11467.94	1627.43	11504.46	1627.56	11516.42	1627.63	11709.45	1627.35
11722.8	1626.41	1759.94	1626.43	11790.71	1627.61	11826.69	1627.57	11965.4	1628.65
11975.69	1628.33	12031.97	1628.06	12046.1	1627.97	12219.51	1627.72	12230.19	1627.6
12272.67	1627.67	12284.63	1628.25	12474.89	1627.66	12482.78	1627.51	12527.84	1627.52
12539.13	1628.07	12671.3	1627.28	12767.06	1627.99	13078.45	1630.35	13125.08	1629.44
13160.63	1630.31	3180.99	1631.81	4117.88	1639.31	14140.01	1638.97	14163.93	1639.23
14223.38	1639.96	14231.28	1640.04						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4815.86	.15	9987.38	.03	10012.88	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.38	10012.88	314.66	337.78	317	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4815.86	8645.86	1634	11942	14231.28	1634

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4815.86	6491.26	1635

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1630.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1630.01	Reach Len. (ft)	314.66	337.78	317.00

Crit W.S. (ft)	1629.55	Flow Area (sq ft)	1312.59	91.73	3198.08
E.G. Slope (ft/ft)	0.010526	Area (sq ft)	2703.95	91.73	5272.08
Q Total (cfs)	7000.00	Flow (cfs)	1443.20	895.48	4661.31
Top Width (ft)	6283.40	Top Width (ft)	3250.28	25.50	3007.62
Vel Total (ft/s)	1.52	Avg. Vel. (ft/s)	1.10	9.76	1.46
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)	1.10	3.60	1.72
Conv. Total (cfs)	68229.3	Conv. (cfs)	14067.0	8728.3	45434.0
Length Wtd. (ft)	322.48	Wetted Per. (ft)	1196.80	27.34	1864.31
Min Ch El (ft)	1623.96	Shear (lb/sq ft)	0.72	2.20	1.13
Alpha	5.99	Stream Power (lb/ft s)	0.79	21.53	1.64
Frctn Loss (ft)	2.63	Cum Volume (acre-ft)	968.68	35.92	645.16
C & E Loss (ft)	0.04	Cum SA (acres)	543.37	17.32	267.46

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8509.80	9248.59	766.31	634.20	493.43	10.95	1.29	1.21
9248.59	9987.38	676.90	678.39	703.37	9.67	0.96	1.00
LB 9987.38	9995.88	157.58	21.66	9.21	2.25	2.55	7.27
9995.88	10004.38	527.04	44.50	9.11	7.53	5.23	11.84
10004.38	RB 10012.88	210.87	25.57	9.01	3.01	3.01	8.25
10012.88	10615.51	2078.54	1299.70	603.39	29.69	2.16	1.60
10615.51	11218.14	390.92	455.15	536.90	5.58	0.85	0.86
11218.14	11820.77	1818.74	1199.16	602.79	25.98	1.99	1.52
11820.77	12423.39	373.11	244.07	121.24	5.33	2.01	1.53

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.919

INPUT
Description:
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4676.97	1626.67	4693.99	1626.65	4709.33	1626.68	5191.23	1627.14	5209.16	1627.11
5226.06	1627.19	5396.64	1628.12	5414	1628.11	5433.72	1627.78	5685.9	1625.79
5703.44	1625.8	5722.11	1625.87	5986.74	1625.76	5990.77	1625.35	5999.2	1625.91
6189.63	1626.46	6206.51	1626.48	6225.08	1626.96	6566	1626.92	6675.71	1626.28
6701.43	1626.31	6722.45	1626.49	7140.68	1625.61	7176.11	1625.98	7215.34	1625.74
7229.76	1626.23	7748.32	1626.03	7760.17	1623.59	7774.88	1625.1	8026.52	1624.37
8065.08	1624.42	8263.51	1625.42	8326.7	1625.16	8474.24	1626.07	8500.23	1625.99
8968.5	1627.53	8997.13	1627.56	9023.67	1627.14	9046.98	1626.11	9061.74	1624.73
9102.68	1627.4	9136.7	1626.83	9171.92	1626.38	9865.52	1625.11	9898.94	1624.94
9981.04	1625.49	9995.11	1621.03	10000	1620.94	10032.49	1622.22	10046.62	1623.1
10050.55	1624.59	10159.19	1625.26	10164.82	1623.47	10173.28	1623.43	10183.39	1625
10292.91	1624.73	10323.58	1625.24	10506.09	1624.87	10536.38	1625.02	10688.98	1624.51
10721.71	1624.36	10855.82	1626.91	10887.68	1624.33	10893.76	1625.05	10930.94	1625.5
10941.87	1625.69	11100.02	1625.49	11140.51	1625.52	11151.91	1626.06	11313.18	1626.8
11332.99	1625.05	11370.31	1625.23	11380.37	1625.73	11571.91	1625.03	11585.72	1625.2
11622.95	1625.8	11635.53	1626.38	11710.77		162611744.05	1625.56	11827.73	1625.86
11837.24	1624.98	11874.54	1625.13	11886.19		162511902.37	1625.31	11911.02	1625.06
11949.12	1625.02	11967.19	1626.16	12088.77	1624.81	12126.98	1624.59	12157.28	1624.56
12197.41	1624.71	12206.96	1624.75	12330.9	1624.98	12342.61	1624.54	12378.62	1624.45
12389.46	1625.42	12579	1627.33	12691.81	1627.76	12742.91	1627.64	12795.02	1627.89
13003.12	1627.71	13211.85	1629.54	13255.94	1630.03	13527.86	1631.86	13596.27	1632.31
13631.22	1632.48	14181.85	1638.56	14215.61	1639.08				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4676.97	.15	9981.04	.035	10050.55	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.04	10050.55	294.82	311.56	321.17	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4676.97	8264	1630	11532	14215.61	1630

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4676.97	6225.08	1631

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1627.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1626.92	Reach Len. (ft)	294.82	311.56	321.17
Crit W.S. (ft)	1626.92	Flow Area (sq ft)	1540.91	326.08	2364.38
E.G. Slope (ft/ft)	0.006531	Area (sq ft)	3573.83	326.08	3904.19
Q Total (cfs)	7000.00	Flow (cfs)	1310.91	3104.89	2584.20
Top Width (ft)	5688.56	Top Width (ft)	3131.59	69.51	2487.46
Vel Total (ft/s)	1.65	Avg. Vel. (ft/s)	0.85	9.52	1.09
Max Chl Dpth (ft)	5.98	Hydr. Depth (ft)	1.07	4.69	1.60
Conv. Total (cfs)	86618.8	Conv. (cfs)	16221.3	38420.2	31977.2
Length Wtd. (ft)		Wetted Per. (ft)	1434.30	70.53	1482.14
Min Ch El (ft)	1620.94	Shear (lb/sq ft)	0.44	1.89	0.65
Alpha	14.91	Stream Power (lb/ft s)	0.37	17.95	0.71
Frctn Loss (ft)		Cum Volume (acre-ft)	946.00	34.30	611.77
C & E Loss (ft)		Cum SA (acres)	520.32	16.95	247.47

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7707.87	8465.59	276.05	286.59	201.59	3.94	1.42	0.96
8465.59	9223.32	139.90	268.56	474.98	2.00	0.57	0.52
9223.32	9981.04	894.97	985.76	757.73	12.79	1.30	0.91
LB 9981.04	10004.21	964.69	105.27	23.86	13.78	4.54	9.16
10004.21	10027.38	1293.04	124.07	23.19	18.47	5.35	10.42
10027.38	RB 10050.55	847.16	96.74	23.47	12.10	4.18	8.76
10050.55	10645.56	1488.81	1197.94	595.42	21.27	2.01	1.24
10645.56	11240.57	797.33	823.47	595.20	11.39	1.38	0.97
11240.57	11835.58	298.06	342.97	291.52	4.26	1.18	0.87

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.860

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4687.12	1625.27	4979.89	1624.73	4998.79	1624.84	5015.38	1625.04	5163.42	1624.62
5177.81	1624.64	5191.42	1624.56	5538.71	1625.21	5559.61	1625.32	5579.47	1624.93
5590.95	1623.95	5943.61	1623.92	5962.92	1624.03	5978.5	1623.92	6014.41	1623.87
6017.83	1621.87	6022.43	1623.7	6412.66	1624.11	6429.07	1624.01	6449.45	1624.3
6865.2	1623.37	6892.94	1623.65	6932.6	1623.05	6944.08	1622.17	6952.17	1623.27
7356.44	1622.39	7368.16	1622.94	7388.43	1622.72	7405.57	1622.35	7411.74	1622.38
7416.49	1621.55	7421.16	1622.56	7576.65	1624.19	7593.68	1621.23	7607.96	1623.16
7712.02	1622.07	7749.23	1622.35	7954.45	1621.44	7993.5	1621.72	8087.49	1621.82
8134.05	1622.15	8173.77	1622.71	8207.44	1622.74	8541.85	1622.32	8568.45	1622.49
8589.19	1622.25	8742.81	1622.4	8746.39	1623.59	8817.79	1622.37	8828.79	1621.28
8840.96	1622.74	8944.5	1624.59	8996.13	1621.91	9035.98	1622.14	9054	1623.54

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  9223.8 1624.08 9253.76 1624.23 9285.09 1624.04 9303.68 1622.49  9314.8 1621.51
 9333.11 1621.91 9363.26  1623.7  9390.9  1623.6 9417.16 1623.09 9426.01 1622.59
  9444.8 1620.69 9464.83 1622.11 9765.79 1622.68 9787.96 1619.43 9834.03 1618.65
 9852.72 1621.32 9888.72 1621.32 9897.15 1622.41 9989.53  1622.3   10000  1619.1
10013.71  1621.310031.54 1622.6710085.61 1622.2110172.51 1621.92 10202.2  1622.2
10390.12 1621.9310420.18 1622.0510492.48 1622.7110526.86  1622.510531.69  1621.4
10539.66 1619.5710558.08 1620.8110568.26 1620.9910580.32 1620.7510582.43 1620.27
10618.24 1620.7510783.89 1622.9710832.13 1622.9111101.08 1622.5611123.71 1622.73
11158.49 1622.6911179.86 1622.7711216.14 1623.0511238.15 1623.1611389.81 1622.69
11430.67  1622.911446.42 1623.4711483.62 1623.4111495.24 1622.8811531.89 1623.04
11543.55 1622.9811660.74 1623.6511695.58 1623.1911732.83 1622.6411747.53 1621.44
11785.28 1622.2511802.58 1623.3611990.97 1622.9212000.89 1621.74 12037.4 1622.07
12047.92 1621.9812357.99 1623.2412407.52 1624.36 12643.3 1623.9312979.65 1626.87

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4687.12     .15 9989.53    .03510031.54     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9989.5310031.54               387  447.02  388.71             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4687.12  7979.5    1627   1120212979.65    1627
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4687.12 6449.45    1626

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1623.86   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.24   Wt. n-Val.                0.150      0.035      0.150
  W.S. Elev (ft)            1623.61   Reach Len. (ft)          387.00     447.02     388.71
  Crit W.S. (ft)            1623.35   Flow Area (sq ft)       2282.85     106.38    1631.61
  E.G. Slope (ft/ft)       0.015330   Area (sq ft)            3365.01     106.38    2507.26
  Q Total (cfs)             7000.00   Flow (cfs)              3476.01    1027.39    2496.60
  Top Width (ft)            5234.45   Top Width (ft)          2858.33      42.01    2334.11
  Vel Total (ft/s)             1.74   Avg. Vel. (ft/s)           1.52       9.66       1.53
  Max Chl Dpth (ft)            4.96   Hydr. Depth (ft)           1.34       2.53       1.39
  Conv. Total (cfs)         56536.4   Conv. (cfs)            28074.4     8297.9    20164.1
  Length Wtd. (ft)           393.79   Wetted Per. (ft)       1700.08      42.72    1170.92
  Min Ch El (ft)            1619.10   Shear (lb/sq ft)           1.29       2.38       1.33
  Alpha                        5.17   Stream Power (lb/ft s)     1.96      23.02       2.04
  Frctn Loss (ft)              3.49   Cum Volume (acre-ft)     922.52      32.75     588.13
  C & E Loss (ft)              0.06   Cum SA (acres)           500.05      16.55     229.70


Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  7717.07      8474.56        913.23     631.88     495.06      13.05      1.28       1.45
  8474.56      9232.04        702.27     554.64     529.93      10.03      1.05       1.27
  9232.04      9989.53       1860.51    1096.34     675.09      26.58      1.63       1.70
  LB 9989.53   10003.53       488.15      45.46      14.53       6.97      3.25      10.74
  10003.53     10017.54       404.06      40.16      14.15       5.77      2.87      10.06
  10017.54     RB 10031.54    135.17      20.76      14.04       1.93      1.48       6.51
  10031.54     10452.70       982.63     630.37     421.16      14.04      1.50       1.56
  10452.70     10873.86      1186.41     706.13     421.61      16.95      1.68       1.68
  10873.86     11295.02       327.56     295.11     328.14       4.68      0.90       1.11


Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 16.775
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INPUT
Description:
Station Elevation Data num= 107

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4668.44	1621.21	4699.63	1621.63	4729.4	1621.4	4981.66	1621.28	5009.63	1620.96
5187.75	1620.56	5205.22	1620.02	5219.57	1620.29	5572.44	1620	5587.74	1620.09
5606.86	1619.81	5713.28	1619.77	5848.92	1620.41	5892.38	1619.77	5933.2	1620.16
5973.98	1619.33	5992.07	1620.5	6048.56	1620.17	6061.45	1619.91	6079.97	1620.02
6100.25	1619.72	6484.42	1620.23	6498.75	1619.65	6544.18	1620.26	6606.7	1619.88
6631.36	1619.73	6713	1620	6773	1620	6810	1619.66	7258.37	1618.7
7279.01	1618.98	7299	1618.52	7736.63	1617.06	7744.52	1617.62	7764.85	1617.65
7783.5	1617.41	7794.46	1616.62	7865.7	1618.68	8208.74	1618.2	8229.07	1618.44
8248.04	1618.47	8635.34	1618.31	8677.15	1618.78	9331.52	1618.86	9365.68	1618.58
9584.32	1617.17	9589.9	1616.84	9634.89	1620.44	9663.81	1620.72	9690.06	1620.38
9717.7	1618.68	9731.01	1617.65	9741.65	1618.17	9777.83	1619.82	9805.37	1619.53
9833.48	1619.08	9992.97	1618.86	10000	1615.22	10014.93	1619.47	10163.14	1618.96
10211.85	1618.41	10219.25	1616.87	10228.18	1618.13	10236.79	1618.81	10247.58	1618.71
10260.92	1618.55	10452.16	1616.73	10458.69	1618.11	10487.77	1618.33	10507.34	1616.17
10767.4	1619	10784.52	1619.37	10818.39	1619.38	10845.21	1619.85	11002	1619.45
11027.74	1619.42	11062.03	1619.44	11165.85	1618.81	11198.77	1618.81	1229.38	1619.52
11333.49	1619.55	11437.99	1619.56	11470.5	1620.53	11496.95	1619.91	11598.57	1619.34
11614.68	1619.16	11650.87	1619.38	11666.6	1619.81	1826.35	1619.12	11846.09	1622.71
11884.65	1623.31	1892.42	1618.86	11985.9	1619.07	12051.62	1618.2	12114.4	1618.37
12138.3	1618.32	12194.13	1619.52	12317.88	1619.61	12350.51	1619.87	12387.69	1619.1
12739.65	1621.17	12751.11	1619.86	12766.35	1620.23	13057.74	1621.92	13063.39	1623.99
13070.34	1622.29	13362.64	1624.73						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4668.44	.15	9992.97	.035	10014.93	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9992.97	10014.93	361.96	513.4	490	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4668.44	7668.44	1625	10849.71	13362.64	1625

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4668.44	5848.92	1625

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1620.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1620.25	Reach Len. (ft)	361.96	513.40	490.00
Crit W.S. (ft)	1619.34	Flow Area (sq ft)	4012.47	66.00	1724.56
E.G. Slope (ft/ft)	0.005792	Area (sq ft)	5693.79	66.00	3199.14
Q Total (cfs)	7000.00	Flow (cfs)	4466.81	425.24	2107.95
Top Width (ft)	6560.87	Top Width (ft)	4026.00	21.96	2512.91
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)	1.11	6.44	1.22
Max Chl Dpth (ft)	5.03	Hydr. Depth (ft)	1.77	3.01	2.07
Conv. Total (cfs)	91980.3	Conv. (cfs)	58694.0	5587.7	27698.6
Length Wtd. (ft)	418.17	Wetted Per. (ft)	2265.34	23.44	835.34
Min Ch El (ft)	1615.22	Shear (lb/sq ft)	0.64	1.02	0.75
Alpha	2.59	Stream Power (lb/ft s)	0.71	6.56	0.91
Frctn Loss (ft)	3.39	Cum Volume (acre-ft)	882.28	31.87	562.67
C & E Loss (ft)	0.05	Cum SA (acres)	469.47	16.22	208.07

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6950.38	7711.03	203.77	129.31	42.59	2.91	3.04	1.58
7711.03	8471.68	1837.82	1532.92	760.73	26.25	2.02	1.20
8471.68	9232.32	1192.91	1182.72	760.65	17.04	1.55	1.01
9232.32	9992.97	1232.29	1167.49	701.37	17.60	1.67	1.06

LB 9992.97	10000.29	151.74	24.04	8.22	2.17	3.28	6.31
10000.29	10007.61	213.51	28.61	7.61	3.05	3.91	7.46
10007.61	RB 10014.93	60.00	13.36	7.61	0.86	1.82	4.49
10014.93	10493.17	1062.22	917.01	478.71	15.17	1.92	1.16
10493.17	10971.42	1045.75	807.54	356.64	14.94	2.27	1.29

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.678

INPUT
Description: Baseline crosses cross section on west side of Mountain Rd.
approx. 200 ft south of intersection with Apache Trail.
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4743.95	1619.64	4796.8	1619.19	4825.27	1619.45	5201.51	1618.02	5384.27	1617.9
5400.58	1617.94	5419.31	1617.64	6270.55	1617.06	6333.78	1617.34	6393.97	1617.14
7006.72	1616.27	7027.33	1616.24	7049.26	1616.11	7685.56	1614.51	7706.83	1614.86
7725.64	1614.43	8169.81	1615.08	8179.78	1614.42	8200.84	1614.37	8220.18	1614.31
8231.64	1612.99	8246.45	1615.35	8391.63	1615.34	8397.66	1615.81	8403.47	1614.08
8440.51	1614.39	8452.94	1615.49	9085.28	1615.55	9116.63	1614.8	9409.04	1615.63
9539.89	1614.4	9577.07	1614.33	9767.93	1614.72	9777.03	1611.92	9788.36	1615.02
9798.49	1615.2	9903.46	1615.31	9957.5	1614.75	9971.01	1614.61	9983.27	1614.75
9997.61	1614.41	10050.85	1614.51	10104.08	1614.58	10376.9	1615.44	10396.51	1615.51
10414.04	1615.33	10430.26	1613.42	10442.39	1611.92	10457.97	1613.71	10475.15	1615.76
10494.19	1615.55	10514.07	1615.22	10530.02	1612.48	10542.42	1614.12	10609.73	1614.38
10641.6	1615.66	10678.34	1615.83	10701.69	1615.75	10728.25	1616.01	10777.36	1615.49
10870.39	1616.14	10894.03	1616.08	10953.73	1616.24	11000.63	1616.26	11031.46	1616.38
11099.71	1616.09	11247.87	1616.21	1286.75	1616.41	11315.75	1616.32	11374.67	1616.7
11450.46	1616.53	11525.5	1616.21	11681.31	1616.42	11694.66	1615.92	11730.47	1615.98
11742.04	1616.91	11926.26	1616.22	11937.54	1616.08	11973.21	1616.07	11982.79	1616.37
12053.31	1615.89	12064.96	1616.18	12105.7	1615.84	12282.14	1616.05	12297.51	1615.17
12391.69	1616.21	12429.55	1616.08	12474.72	1615.61	2646.11	1616.21	13073.91	1620.34
13079.58	1619.69	13094.2	1619.83	13690.71	1624.73	13759.43	1625.17	13776.9	1624.41
13795.69	1626.18								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4743.95	.15	9957.5	.02	10050.85	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9957.5	10050.85	430.64	490.1	305	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4743.95	7490	1620	10676	13795.69	1620

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1616.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1616.27	Reach Len. (ft)	430.64	490.10	305.00
Crit W.S. (ft)	1616.27	Flow Area (sq ft)	3057.48	161.99	920.90
E.G. Slope (ft/ft)	0.011923	Area (sq ft)	3375.40	161.99	1305.29
Q Total (cfs)	7000.00	Flow (cfs)	3813.85	1897.61	1288.53
Top Width (ft)	5033.83	Top Width (ft)	2951.90	93.35	1988.59
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)	1.25	11.71	1.40
Max Chl Dpth (ft)	4.35	Hydr. Depth (ft)	1.24	1.74	1.47
Conv. Total (cfs)	64106.2	Conv. (cfs)	34927.3	17378.4	11800.4
Length Wtd. (ft)		Wetted Per. (ft)	2468.97	93.36	625.95
Min Ch El (ft)	1614.41	Shear (lb/sq ft)	0.92	1.29	1.10
Alpha	13.44	Stream Power (lb/ft s)	1.15	15.13	1.53
Frctn Loss (ft)		Cum Volume (acre-ft)	844.60	30.52	537.34
C & E Loss (ft)		Cum SA (acres)	440.48	15.54	182.75

Warning: The energy equation could not be balanced within the specified number of iterations. The

program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6978.33	7723.12	497.89	356.20	233.13	7.11	1.53	1.40
7723.12	8467.91	1460.55	1081.53	745.40	20.86	1.45	1.35
8467.91	9212.71	587.78	626.21	744.80	8.40	0.84	0.94
9212.71	9957.50	1267.62	993.53	745.64	18.11	1.33	1.28
LB 9957.50	9988.62	545.95	49.49	31.12	7.80	1.59	11.03
9988.62	10019.73	681.93	56.55	31.12	9.74	1.82	12.06
10019.73	RB 10050.85	669.76	55.94	31.12	9.57	1.80	11.97
10050.85	10585.83	1164.36	816.39	535.75	16.63	1.53	1.43
10585.83	11120.80	124.17	104.51	90.20	1.77	1.16	1.19

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.585

INPUT
Description: Baseline on west side of Mountain Rd.
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5048.94	1615.54	5368.98	1614.49	5387.31	1614.45	5403.64	1614.28	6001.91	1613.58
6043.26	1613.31	6288.29	1613.53	6319.57	1613.53	6361.35	1613.35	6386.87	1613.05
6660.3	1612.95	6679.7	1611.37	6700.68	1610.82	6723.23	1610.98	6744.1	1613.25
6763.21	1613.62	6889.48	1612.92	7052.2	1612.21	7100	1612.41	7148.85	1611.84
7580	1611.61	7792.37	1611.1	7811.78	1611.65	7834.81	1610.93	7843.61	1610.94
8491.7	1610.87	8513.39	1610.81	8533.34	1610.57	8961.67	1610.47	9001.79	1610.83
9021.27	1611.05	9042.18	1610.92	9056	1610.36	9058.93	1609.83	9076.77	1611.4
9083.01	1612.53	9092.12	1611.38	9100.05	1610.38	9109.38	1611.76	9489.81	1611.29
9535.82	1611.31	9958.01	1609.23	9975.72	1609.31	9992.76	1608.83	10011.39	1609.38
10020.14	1610.69	10837.67	1610.74	10850.65	1608.31	10932.47	1615.27	10968.37	1615.42
11030.28	1615.49	11067.48	1615.08	11073.36	1615.17	11097.98	1614.44	11141.13	1614.06
11173.92	1613.91	11303.06	1614.67	11388.75	1614.48	11449	1614.03	11512.43	1614.88
11592.43	1614.79	11631.15	1614.65	11739.4	1615.36	11848.25	1614.25	11885.24	1614.23
12001.59	1614.76	12041.71	1614.33	12101.98	1614.53	12140.74	1614.54	12243.45	1615.18
12356.35	1614.29	12394.29	1614.48	12510.09	1614.97	12540.89	1614	12581.69	1614.07
12747.85	1614.97	12757.25	1615.72	12760.55	1614.68	12775.92	1613.88	12937.21	1614.7
12980.63	1615.94	13382.92	1617.15	13496.61	1619.57	13504.34	1619.34	13519.36	1619.47
13729.29	1621.39	14104.77	1623.15	14113.96	1624.31	14182.52	1625.04	14200.56	1624.05

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5048.94	.15	9975.72	.028	10020.14	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975.72	10020.14	290	318.41	208.83	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5048.94	7505	1617

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5048.94	6763.21	1618

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1612.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1612.27	Reach Len. (ft)	290.00	318.41	208.83
Crit W.S. (ft)	1612.13	Flow Area (sq ft)	3430.28	133.23	1403.15
E.G. Slope (ft/ft)	0.008481	Area (sq ft)	3627.78	133.23	1403.15
Q Total (cfs)	7000.00	Flow (cfs)	3897.81	1351.93	1750.26

Top Width (ft)	3812.27	Top Width (ft)	2890.69	44.42	877.16
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)	1.14	10.15	1.25
Max Chl Dpth (ft)	3.97	Hydr. Depth (ft)	1.39	3.00	1.60
Conv. Total (cfs)	76012.9	Conv. (cfs)	42326.3	14680.6	19006.0
Length Wtd. (ft)	281.67	Wetted Per. (ft)	2467.74	44.53	877.56
Min Ch El (ft)	1608.83	Shear (lb/sq ft)	0.74	1.58	0.85
Alpha	10.57	Stream Power (lb/ft s)	0.84	16.07	1.06
Frctn Loss (ft)	2.31	Cum Volume (acre-ft)	809.98	28.86	527.85
C & E Loss (ft)	0.08	Cum SA (acres)	411.60	14.77	172.72

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7160.42	7864.24	270.58	322.97	359.26	3.87	0.90	0.84
7864.24	8568.07	1102.51	981.84	703.83	15.75	1.40	1.12
8568.07	9271.89	1132.68	996.16	700.82	16.18	1.42	1.14
9271.89	9975.72	1392.04	1129.28	703.83	19.89	1.60	1.23
LB 9975.72	9990.53	492.17	46.98	14.81	7.03	3.17	10.48
9990.53	10005.33	520.69	48.59	14.81	7.44	3.28	10.72
10005.33	RB 10020.14	339.10	37.66	14.91	4.84	2.54	9.00
10020.14	10617.34	1149.84	935.17	597.20	16.43	1.57	1.23
10617.34	11214.54	600.38	467.95	280.36	8.58	1.67	1.28

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.525

INPUT
Description:
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4901.52	1612.18	5450	1610.57	5507	1610	5577	1610	5707.74	1610.58
5745.79	1610.25	5794.8	1610.12	5814.48	1610.47	5847.66	1610.12	6133.72	1610.57
6181.83	1610.08	6300	1610.54	6432	1609.64	6502.09	1609.26	6545.54	1609.07
6862.35	1609.27	6874.49	1607.49	6894.42	1607.04	6916	1607.3	6931.62	1609.8
7079.81	1609.12	7235.95	1608.81	7282.78	1608.82	7369.58	1608.5	7622.84	1608.88
7632.42	1608.22	7949.42	1607.34	7996.95	1607.11	8533.17	1607.68	8575.22	1608.4
9047.5	1609.41	9072.67	1608.75	9129.86	1608.77	9147.99	1609.05	9168.91	1608.7
9177.83	1607.92	9188.54	1609.16	9537.77	1609.6	9555.49	1609.68	9571.67	1609.74
9589.16	1608.15	9598.95	1609.21	9694.46	1607.96	9731.89	1607.92	9863.09	1607.57
9890.2	1608.21	9991.4	1609.28	9998.09	1606.88	10009.42	1609.88	10518.98	1609.82
10528.17	1606.89	10541.97	1609.15	10552.13	1609.59	10563.04	1609.99	10594.23	1610.37
10601.78	1608.61	10925.87	1610.91	10947.68	1613.46	10984.61	1613.63	10994.24	1613.05
11017.63	1610.48	11036.7	1613.63	11046.23	1614.37	11085.72	1613.46	11110.86	1611.31
11406.38	1612.51	11444.8	1611.98	11479.57	1612.06	11517.85	1612.21	11626.79	1612.85
11737.5	1613.02	11775.75	1612.72	11882.99	1614.02	11995.39	1613.23	12045.51	1613.17
12187.34	1612.42	12224.17	1613.09	12565.93	1612.45	12591.16	1612.85	12751.71	1612.8
12762.03	1612.71	12771.43	1613.69	13208.12	1616.26	13280.95	1618.52	13421.87	1619.2
13428.35	1618.64	13444.39	1619.11	14023.82	1623.57				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4901.52	.15	9991.4	.02	10009.42	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9991.4	10009.42	330	391.68	271.49	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4901.52	7075	1615	10761.52	14023.82	1615

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4901.52	6300	1612

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1610.21	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.05	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1610.16	Reach Len. (ft)	330.00	391.68	271.49
Crit W.S. (ft)	1609.00	Flow Area (sq ft)	5113.48	34.16	384.26
E.G. Slope (ft/ft)	0.007828	Area (sq ft)	5810.72	34.16	397.32
Q Total (cfs)	7000.00	Flow (cfs)	6516.25	238.56	245.19
Top Width (ft)	4449.29	Top Width (ft)	3636.28	18.02	795.00
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)	1.27	6.98	0.64
Max Chl Dpth (ft)	3.28	Hydr. Depth (ft)	1.75	1.90	0.52
Conv. Total (cfs)	79117.2	Conv. (cfs)	73649.6	2696.3	2771.3
Length Wtd. (ft)	328.97	Wetted Per. (ft)	2916.70	18.83	735.17
Min Ch El (ft)	1606.88	Shear (lb/sq ft)	0.86	0.89	0.26
Alpha	1.99	Stream Power (lb/ft s)	1.09	6.19	0.16
Frctn Loss (ft)	3.32	Cum Volume (acre-ft)	778.56	28.25	523.54
C & E Loss (ft)	0.00	Cum SA (acres)	389.87	14.54	168.71

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6355.77	7082.90	6.96	8.20	7.90	0.10	1.04	0.85
7082.90	7810.02	1301.17	1155.65	727.15	18.59	1.59	1.13
7810.02	8537.15	3248.86	2001.05	727.13	46.41	2.75	1.62
8537.15	9264.27	918.74	937.92	727.25	13.12	1.29	0.98
9264.27	9991.40	1040.53	1010.66	727.28	14.86	1.39	1.03
LB 9991.40	9997.41	78.27	11.78	6.38	1.12	1.96	6.64
9997.41	10003.41	130.86	15.89	6.23	1.87	2.65	8.24
10003.41	RB 10009.42	29.44	6.48	6.21	0.42	1.08	4.54
10009.42	10582.91	102.17	219.72	568.58	1.46	0.39	0.47
10582.91	11156.39	143.02	164.54	166.60	2.04	0.99	0.87

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.451

INPUT
Description:
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5215.51	1608.11	5356.94	1607.14	5498.37	1606.85	5645.05	1606.69	5664.07	1606.74
5684.58	1606.3	5704.82	1606.42	5719.83	1606.98	5736.13	1606.21	6040.58	1605.8
6097.61	1606.21	6411.81	1606.58	6430.69	1606.59	6451.45	1606.41	6773.19	1605.7
6814.23	1605.58	7121.31	1604.82	7168.83	1604.7	7178.58	1604.8	7343.67	1606.2
7391.44	1606.17	7476.62	1605.74	7486.71	1603.72	7507.88	1603.39	7527.96	1603.5
7560.73	1603.95	7588.35	1604.26	7614.85	1604.82	7840.48	1604.77	7885.58	1605.05
7932.89	1604.1	7938.75	1604.6	8455.74	1604.5	8505.05	1604.34	8548.96	1604.4
8583.8	1604.61	8589.97	1605.81	8998.67	1606	9017.58	1605.46	9052.28	1606.06
9491.2	1606.3	9508.73	1606.5	9544.51	1606.43	9568.5	1605.95	9582.35	1604.77
9599.61	1605.77	9635.95	1605.78	9650.66	1604.35	9665.87	1606.2	9679.65	1605.57
9692.59	1605.58	9718.8	1606.17	9735.9	1607.18	9821.7	1607.14	9857.13	1606.99
9986.27	1606.07	9996.66	1606.38	9999.36	1604.99	10008.35	1606.43	10507.81	1606.05
10518.67	1604.48	10533.52	1605.93	11369.36	1609.07	11410.57	1611.87	11453.19	1612
11459.44	1611.37	11476.56	1609.22	11499.22	1612.87	11585.55	1611.93	11647.04	1611.87
11851.3	1611.23	11899.99	1610.92	12008.38	1611.63	12122.69	1612.19	12160.86	1611.81
12242.88	1612.97	12313.42	1611.89	12354.44	1612.07	12377.36	1614.44	12392.93	1611.82
12443.06	1611.68	12467.3	1611.67	12724.48	1611.15	12745.76	1610.97	12873.28	1612.19
12966.86	1610.83	12997.21	1611.55	13137.88	1612.25	13149.56	1613.71	3528.41	1615.48
13672.78	1617.09	13798.38	1618.81	3802.47	1617.74	13993.86	1619.55		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5215.51	.15	9986.27	.02	10008.35	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.27	10008.35	401.88	370.79	366.61	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5215.51	7010	1612	10945.05	13993.86	1615

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1606.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1606.85	Reach Len. (ft)	401.88	370.79	366.61
Crit W.S. (ft)	1605.54	Flow Area (sq ft)	4255.72	19.86	457.97
E.G. Slope (ft/ft)	0.013493	Area (sq ft)	5353.85	19.86	457.97
Q Total (cfs)	7000.00	Flow (cfs)	6514.74	112.53	372.73
Top Width (ft)	5125.63	Top Width (ft)	4333.82	22.08	769.73
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)	1.53	5.67	0.81
Max Chl Dpth (ft)	3.46	Hydr. Depth (ft)	1.50	0.90	0.59
Conv. Total (cfs)	60262.1	Conv. (cfs)	56084.5	968.8	3208.8
Length Wtd. (ft)	399.40	Wetted Per. (ft)	2830.30	22.54	769.91
Min Ch El (ft)	1604.99	Shear (lb/sq ft)	1.27	0.74	0.50
Alpha	1.25	Stream Power (lb/ft s)	1.94	4.21	0.41
Frctn Loss (ft)	3.73	Cum Volume (acre-ft)	736.27	28.01	520.87
C & E Loss (ft)	0.00	Cum SA (acres)	359.68	14.36	163.83

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6578.58	7260.12	758.15	469.08	250.13	10.83	1.88	1.62
7260.12	7941.66	2043.43	1270.01	681.79	29.19	1.86	1.61
7941.66	8623.20	2807.44	1536.54	681.65	40.11	2.25	1.83
8623.20	9304.73	572.90	592.07	681.55	8.18	0.87	0.97
9304.73	9986.27	332.84	388.04	535.18	4.75	0.73	0.86
LB 9986.27	9993.63	22.85	4.92	7.36	0.33	0.67	4.64
9993.63	10000.99	44.79	7.52	7.72	0.64	1.02	5.96
10000.99	RB 10008.35	44.89	7.42	7.45	0.64	1.01	6.05
10008.35	10577.71	328.69	382.56	569.54	4.70	0.67	0.86
10577.71	11147.07	44.03	75.41	200.37	0.63	0.38	0.58

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.381

INPUT
Description: Baseline on 4th Ave. approx. 600 ft west of intersection with Mountain Rd.
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5162.11	1603.79	5194.62	1603.32	5282.46	1602.47	5302.31	1602.32	5358.74	1601.79
5378.04	1601.91	5386.9	1602.68	5430.61	1602.54	5497.9	1602.39	5508.89	1601.68
5542.44	1602	5548.23	1602.5	5620.07	1603.16	5683.84	1602.28	5694.95	1601.94
5728.87	1602.01	5736.58	1602.53	5806.62	1603.05	5846.37	1602.8	5855.11	1601.89
5884.86	1601.6	5897.44	1602.52	6331.66	1603.46	6341.97	1598.54	6351.73	1601.78
6365.45	1601.55	6380.17	1601.47	6390.47	1601.63	6414.93	1600.93	6723.47	1602.23
6743.33	1602.23	6760.85	1601.95	7082.21	1601.29	7085.74	1601.39	7141.89	1600.25
7169.6	1600.94	7317.72	1601.63	7442.32	1601.08	7463.7	1601.28	7504.04	1600.93
7530.61	1601.26	7860.67	1600.39	7881.05	1600.89	7902.49	1600.52	8159.84	1600.63
8206.79	1601.12	8252.57	1600.51	8262.58	1601.4	8555.84	1600.6	8594.08	1600.96
9021.66	1602.25	9041.68	1602.12	9074.7	1602.01	9079.27	1602.48	9095.11	1602.25
9115.73	1602.14	9148.79	1602.56	9173.93	1602.09	9186.31	1602.73	9218.72	1602.6
9232.67	1601.25	9269.21	1601.38	9498.55	1601.72	9534.8	1601.94	9764.26	1601.87
9800.53	1602.24	9855.38	1602.33	9891.66	1601.99	9963.89	1602.73	9974.09	1599.99
9986.14	1602.32	9996.4	1602.11	0006.08	1602.04	10015.21	1602.08	10019.78	1602.18
10123.8	1602.51	10128.5	1601.65	10134.71	1602.65	11263.66	1605.65	11729.57	1605.82
11758.28	1604.15	11783.97	1608.99	11821.28	1609.13	11881.87	1609.42	11920.85	1609.09
11928.91	1608.55	11937.24	1608.31	2190.54	1608.98	12221.06	1608.79	12287.18	1608.86
12368.18	1609.45	12485.19	1610.49	12656.02	1609.03	12697.96	1609.38	12856.31	1606.72
12865.06	1608.57	13533.49	1613.52	13758.44	1616.14	13921.38	1617.81	13927.39	1616.83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5162.11	.15	9963.89	.02	10015.21	.15

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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9963.8910015.21           354.57  609.88  452.58              .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev
 5162.11    6620    1607
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1603.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1603.07	Reach Len. (ft)	354.57	609.88	452.58
Crit W.S. (ft)	1602.09	Flow Area (sq ft)	5558.50	68.45	124.37
E.G. Slope (ft/ft)	0.006928	Area (sq ft)	6550.98	68.45	124.37
Q Total (cfs)	7000.00	Flow (cfs)	6431.19	509.00	59.81
Top Width (ft)	4879.49	Top Width (ft)	4549.13	51.32	279.04
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)	1.16	7.44	0.48
Max Chl Dpth (ft)	4.53	Hydr. Depth (ft)	1.66	1.33	0.45
Conv. Total (cfs)	84098.3	Conv. (cfs)	77264.5	6115.2	718.6
Length Wtd. (ft)	392.77	Wetted Per. (ft)	3344.11	51.91	279.20
Min Ch El (ft)	1599.99	Shear (lb/sq ft)	0.72	0.57	0.19
Alpha	3.55	Stream Power (lb/ft s)	0.83	4.24	0.09
Frctn Loss (ft)	3.19	Cum Volume (acre-ft)	681.36	27.63	518.42
C & E Loss (ft)	0.03	Cum SA (acres)	318.71	14.05	159.42

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6534.05	7220.02	962.44	914.17	600.04	13.75	1.52	1.05
7220.02	7905.98	1794.53	1401.61	685.99	25.64	2.04	1.28
7905.98	8591.95	2130.09	1553.48	686.02	30.43	2.26	1.37
8591.95	9277.92	819.99	876.13	686.09	11.71	1.28	0.94
9277.92	9963.89	724.14	813.11	685.98	10.34	1.19	0.89
LB 9963.89	9981.00	309.59	34.17	17.60	4.42	2.00	9.06
9981.00	9998.10	97.87	16.97	17.21	1.40	0.99	5.77
9998.10	RB 10015.21	101.53	17.31	17.11	1.45	1.01	5.87
10015.21	10574.09	59.81	124.37	279.20	0.85	0.45	0.48

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.265

INPUT
Description: Baseline on 4th Ave.
Station Elevation Data num= 112

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4720.35	1600.28	4750.75	1600.29	4820.08	1600.9	4891.42	1599.94	4922.23	1599.98
4992.04	1600.85	5062.2	1599.53	5095.32	1599.42	5162.12	1599.45	5178.21	1599.86
5186.74	1600.27	5226.35	1600.23	5234.66	1599.61	5265.9	1599.83	5273.21	1600.31
5334.01	1600.77	5398.2	1600.05	5406.14	1599.45	5437.11	1599.63	5443.64	1600.25
5504.46	1600.5	5568.88	1599.96	5577.78	1599.34	5608.65	1599.51	5676.54	1600.09
5690.19	1598.89	5722.21	1598.73	5749.51	1598.75	5782.3	1599.17	5792.1	1600.02
5854.52	1600.47	5922.64	1599.78	5931.98	1599.12	5964.9	1599.15	5974.15	1600.12
6039.34	1600.46	6073.99	1599.69	6084.75	1598.85	6114.33	1598.58	6120.14	1599.24
6179.35	1600.07	6189.31	1595.73	6198.18	1597.82	6214.48	1598.45	6225.9	1598.7
6237.53	1598.45	6267.99	1598.42	6423.18	1598.6	6448.53	1597.98	6653.88	1599.04
6659.51	1596.35	6670.43	1599.13	6953.87	1597.78	7010.68	1597.58	7331.79	1597.39
7347.14	1597.33	7364.8	1597.19	8079.46	1599.27	8129.12	1599.57	8176.39	1599.08
8198.92	1598.79	8217.28	1599.36	8267.35	1599.06	8295.92	1599.43	8328.58	1599.24
8333.19	1600.04	8348.68	1599.3	8364.8	1597.14	8382.68	1599.08	8484	1598.07
8520.12	1598.16	8746.42	1598.34	8782.25	1598.48	9007.38	1598.25	9044.19	1598.51
9265.85	1597.97	9305.83	1598.14	9323.79	1599.16	9419.73	1599.66	9531.6	1597.81
9567.68	1598.19	9778.91	1597.68	9863.35	1597.87	9951.96	1598.09	9964.71	1595.98
9983.35	1598.15	9993.85	1598.07	10002.75	1597.76	10010.71	1598	10015.67	1598.96
10019.44	1597.32	10696.79	1600.83	10814.57	1601.12	10855.49	1600.83	10901.12	1602.23
11180.95	1602.01	11737.46	1603.69	11758.61	1605.85	11803.59	1605.43	11814.31	1604.71

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11824.65 1606.0311836.99 1606.9611903.55  1605.811920.23 1605.2712229.97 1610.07
12238.21 1607.3812455.97 1606.7412503.98 1607.2312579.69 1605.6312589.23  1606.8
12676.89 1608.2712690.41    1609

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4720.35     .15 9951.96     .0210010.71     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9951.9610010.71           323.21  438.39  331.63             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4720.35    6203    160510696.7912690.41    1605
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4720.35 4992.04    1606
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1599.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1599.50	Reach Len. (ft)	323.21	438.39	331.63
Crit W.S. (ft)	1599.43	Flow Area (sq ft)	4506.75	118.59	470.02
E.G. Slope (ft/ft)	0.009637	Area (sq ft)	4672.72	118.59	470.02
Q Total (cfs)	7000.00	Flow (cfs)	5138.75	1376.57	484.68
Top Width (ft)	4531.22	Top Width (ft)	4042.48	58.75	430.00
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)	1.14	11.61	1.03
Max Chl Dpth (ft)	3.77	Hydr. Depth (ft)	1.23	2.02	1.09
Conv. Total (cfs)	71307.4	Conv. (cfs)	52347.3	14022.8	4937.3
Length Wtd. (ft)	340.88	Wetted Per. (ft)	3678.75	59.06	430.43
Min Ch El (ft)	1595.98	Shear (lb/sq ft)	0.74	1.21	0.66
Alpha	14.59	Stream Power (lb/ft s)	0.84	14.02	0.68
Frctn Loss (ft)	3.12	Cum Volume (acre-ft)	635.68	26.32	515.33
C & E Loss (ft)	0.08	Cum SA (acres)	283.74	13.28	155.74

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5467.72	6215.10	16.70	15.28	12.10	0.24	1.26	1.09
6215.10	6962.47	755.77	783.41	748.35	10.80	1.05	0.96
6962.47	7709.84	2071.73	1433.92	747.38	29.60	1.92	1.44
7709.84	8457.21	310.89	451.63	715.77	4.44	0.63	0.69
8457.21	9204.59	945.75	895.76	747.38	13.51	1.20	1.06
9204.59	9951.96	1037.91	926.75	707.78	14.83	1.31	1.12
LB 9951.96	9971.54	718.90	52.82	19.80	10.27	2.70	13.61
9971.54	9991.13	360.99	34.84	19.66	5.16	1.78	10.36
9991.13	RB 10010.71	296.67	30.93	19.59	4.24	1.58	9.59
10010.71	10393.52	483.39	464.26	383.25	6.91	1.21	1.04
10393.52	10776.34	1.30	5.77	47.18	0.02	0.12	0.23

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.182

INPUT
Description: Baseline on 4th Ave.
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4328.73	1599.13	4343.06	1599.91	4444.51	1597.92	4476.64	1597.67	4487.72	1598.63
4519.1	1597.74	4549.22	1597.73	4621.45	1598.41	4686.86	1597.31	4717.02	1597.36
4785.93	1598.65	4854.78	1597.18	4884.81	1597.31	4953.81	1598.45	4987.62	1597.96
5001.3	1597.39	5023.12	1597.03	5088.16	1596.96	5107.02	1597.35	5116.85	1598.06
5190.53	1597.16	5220.77	1597.25	5286.44	1598.09	5358.3	1596.67	5388.5	1596.82
5455.95	1598.03	5526.12	1596.71	5584.89	1597.26	5599.78	1596.82	5663.54	1596.25
5676.1	1596.41	5682.26	1596.45	5694.44	1596.25	5724.25	1596.29	5790.67	1597.4
5862.03	1595.85	5909.99	1596.15	5981.23	1596.98	6054.04	1595.25	6086.04	1595.28

6097.9	1595.84	6156.16	1596	6165.84	1593.18	6177.1	1595.01	6194.51	1595.24
6205.95	1595.53	6218.24	1595.18	6910.84	1595.39	6940.25	1595.47	7615.06	1595.58
7628.46	1593.67	7641.14	1595.67	7644.61	1595.05	7667.9	1595.27	7696.38	1594.52
8096	1596.2	8142.64	1595.93	8188.18	1595.67	8195.67	1596	8216.36	1596.31
8234.9	1594.05	8249.3	1595.59	8364.06	1594.9	8367.62	1594.8	8370.06	1594.9
8416.09	1595.17	8635.75	1594.5	8672.16	1594.94	8899.23	1594.33	8945.26	1595.12
9161.55	1594.8	9198.79	1595.12	9475.72	1594.4	9512.02	1594.7	9790.99	1595.2
9837.73	1595.08	9858.59	1595.66	9959.07	1596.13	9967.23	1593.78	9975.9	1593.56
9982.65	1595.93	9993.99	1595.63	10009.09	1595.34	10017.42	1596.22	10056.85	1595.88
10071.65	1594.98	10082.56	1596.38	10472.82	1596.02	10485.61	1597.55	10498.64	1595.44
10520.79	1600.07	10543.5	1598.12	10827.04	1598.69	10841.47	1598.87	11033.1	1599.66
11163.43	1599.36	11232.45	1601.44	11289.63	1599.88	11332.57	1598.88	11361.71	1600.23
11483.23	1601.29	11525.47	1601.07	11536.86	1601.42	11755.82	1602.99	11808.84	1603.96
11830.2	1604.14	11846.38	1604.04	11858.62	1604.55	11871.61	1604.2	11909.2	1603.46
11942.38	1603.96	11959.97	1602.17	11973.27	1602.83	12190.42	1603.82	12308.91	1604.17
12320.54	1601.98	12337.82	1605.18	12345.79	1605.06	12373.64	1604.35	12633.19	1605.21

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4328.73	.15	9959.07	.02	10017.42	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9959.07	10017.42	255	507.2	380	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4328.73	6154	1600	10472.82	12633.19	1600

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4328.73	5981.23	1601

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1596.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1596.58	Reach Len. (ft)	255.00	507.20	380.00
Crit W.S. (ft)	1596.00	Flow Area (sq ft)	5304.77	83.35	195.29
E.G. Slope (ft/ft)	0.008840	Area (sq ft)	5433.12	83.35	203.69
Q Total (cfs)	7000.00	Flow (cfs)	6164.81	731.78	103.42
Top Width (ft)	4491.83	Top Width (ft)	3960.94	58.35	472.54
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)	1.16	8.78	0.53
Max Chl Dpth (ft)	3.40	Hydr. Depth (ft)	1.39	1.43	0.43
Conv. Total (cfs)	74449.6	Conv. (cfs)	65566.7	7782.9	1099.9
Length Wtd. (ft)	284.14	Wetted Per. (ft)	3806.25	59.15	455.52
Min Ch El (ft)	1593.56	Shear (lb/sq ft)	0.77	0.78	0.24
Alpha	5.89	Stream Power (lb/ft s)	0.89	6.83	0.13
Frctn Loss (ft)	2.66	Cum Volume (acre-ft)	598.19	25.31	512.77
C & E Loss (ft)	0.00	Cum SA (acres)	254.05	12.69	152.30

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5937.40	6741.73	884.79	792.93	588.29	12.64	1.35	1.12
6741.73	7546.07	855.51	880.64	804.33	12.22	1.09	0.97
7546.07	8350.40	965.74	947.35	804.93	13.80	1.18	1.02
8350.40	9154.74	1894.46	1418.93	804.35	27.06	1.76	1.34
9154.74	9959.07	1564.32	1264.92	804.35	22.35	1.57	1.24
LB 9959.07	9978.52	493.85	45.16	19.94	7.05	2.32	10.93
9978.52	9997.97	113.91	18.64	19.70	1.63	0.96	6.11
9997.97	RB 10017.42	124.02	19.54	19.50	1.77	1.00	6.35
10017.42	10391.10	77.90	152.73	373.80	1.11	0.41	0.51
10391.10	10764.78	25.51	42.55	81.72	0.36	0.52	0.60

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.086

INPUT
Description: Baseline crosses cross section on 4th Ave. approx. 500 ft east of Signal Butte Rd.

Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4938.55	1595.16	4964.22	1595.07	5000.82	1595.24	5018.16	1598.84	5034.14	1598.85
5036.63	1596.93	5265.96	1594.59	5324.57	1594.36	5364.68	1594.94	5397.57	1594.5
5406.63	1595.44	5472.02	1595.78	5544.35	1594.28	5576.92	1593.9	5652.57	1595.11
5724.11	1593.83	5756.81	1593.6	5827.8	1594.54	5903.65	1593.02	5936.52	1592.76
5952.66	1593.11	6007.73	1593.28	6017.8	1590	6028.37	1592.13	6046.96	1592.38
6057.99	1592.61	6071.39	1592.44	6794.6	1592.74	6835.62	1592.99	7025.43	1594.04
7036.86	1592.23	7050.29	1594.31	7056.18	1593.36	7075.51	1593.29	7099.49	1593.19
7284.66	1591.82	7284.72	1591.81	7329.93	1591.51	8002.12	1592.91	8047.65	1592.77
8097.01	1592.19	8102.94	1592.84	8127.77	1593.54	8141.6	1590.96	8161.2	1593.05
8266.87	1592.78	8305.16	1592.41	8397.36	1592.66	8509.63	1591.45	8544.17	1591.6
8674.53	1594.01	8809.81	1591.69	8882.48	1592.02	9110.59	1591.53	9144.75	1591.74
9329.6	1593.62	9363.16	1592.65	9396.79	1592.85	9419.32	1592.74	9582.77	1592.97
9613.74	1592.77	9648.47	1593.11	9672.58	1593.44	9772.69	1593.58	9804.95	1593.1
9842.97	1592.95	9861.49	1595.06	9954.74	1594.42	9958.14	1590.17	9972.49	1590.82
9977.1	1593.62	9987.84	1593.11	10006.36	1593.26	10014.38	1592.56	10024.66	1594.69
10036	1594.11	10455.96	1594.24	10464.29	1593.75	10473.7	1594.37	10630.19	1594.54
10643.85	1593.43	10662.98	1594.58	10769.26	1595.52	10925.83	1596.86	11042.12	1597.09
11060.05	1597.38	11249.86		159	11664.53	1600.49	11720.71	1601.56	11736.2 1600.41
11753.19	1601.43	11769.25	1601.33	11778.88	1601.21	11827.64	1600.74	12159.21	1602.82
12169.79	1602.46	12345.82	1603.47						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4938.55	.15	9954.74	.02	10024.66	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9954.74	10024.66	272.52	446.48	350	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4938.55	5969	160	10455.96	12345.82	1600

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4938.55	5827.8	1601

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1594.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.150	0.020	
W.S. Elev (ft)	1593.89	Reach Len. (ft)	272.52	446.48	350.00
Crit W.S. (ft)	1593.43	Flow Area (sq ft)	5150.33	92.94	
E.G. Slope (ft/ft)	0.009731	Area (sq ft)	5230.10	92.94	3.42
Q Total (cfs)	7000.00	Flow (cfs)	6164.55	835.45	
Top Width (ft)	4028.64	Top Width (ft)	3945.02	65.65	17.97
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)	1.20	8.99	
Max Chl Dpth (ft)	3.89	Hydr. Depth (ft)	1.34	1.42	
Conv. Total (cfs)	70961.2	Conv. (cfs)	62492.0	8469.2	
Length Wtd. (ft)	292.99	Wetted Per. (ft)	3837.72	68.42	
Min Ch El (ft)	1590.17	Shear (lb/sq ft)	0.82	0.83	
Alpha	6.12	Stream Power (lb/ft s)	0.98	7.42	
Frctn Loss (ft)	2.24	Cum Volume (acre-ft)	566.97	24.28	511.87
C & E Loss (ft)	0.03	Cum SA (acres)	230.91	11.96	150.16

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5655.15	6371.75	660.55	560.34	403.49	9.44	1.39	1.18
6371.75	7088.35	637.93	677.74	684.01	9.11	0.99	0.94
7088.35	7804.94	1743.54	1262.26	716.61	24.91	1.76	1.38
7804.94	8521.54	1085.99	950.35	717.01	15.51	1.33	1.14
8521.54	9238.14	1625.69	1201.40	703.43	23.22	1.71	1.35
9238.14	9954.74	410.86	498.23	613.18	5.87	0.81	0.82
LB 9954.74	9978.05	686.14	62.29	25.47	9.80	2.72	11.02
9978.05	10001.35	69.51	15.22	23.32	0.99	0.65	4.57
10001.35	RB 10024.66	79.79	15.43	19.62	1.14	0.79	5.17

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.001

INPUT
Description: Baseline crosses cross section at intersection of 4th Ave. and Signal Butte Rd.
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4559	1593.79	4762.32	1593.06	4819.92	1592.65	4884.97	1594.05	4953.53	1592.83
4982.69	1593.01	5047.73	1593.66	5079.06	1593.47	5094.41	1592.44	5128.05	1592.33
5203.21	1593.47	5278.98	1592.04	5313.05	1591.64	5389.89	1593.31	5465.21	1591.53
5498.89	1591.41	5574.81	1592.8	5651.03	1591.44	5684.65	1591.2	5756.72	1592.02
5837.01	1590.51	5870.67	1590.48	5888.39	1590.95	5946.7	1591.42	5955.77	1587.4
5967.37	1590.33	5985.69	1590.9	5996.35	1590.92	6007.06	1590.64	6098.71	1590.4
6115.21	1589.65	6141.21	1590.65	6484.71	1592.24	6491.49	1590.64	6502.5	1592.5
6512.52	1591.17	6536.65	1591.32	6570.36	1590.59	7004.54	1589.8	7010.24	1589.63
7033.01	1589.69	7244.79	1591.3	7264.71	1589.68	7310.01	1589.77	7996.11	1589.34
8043.37	1589.3	8092.9	1588.98	8101.51	1589.79	8121.53	1590.45	8138.72	1587.63
8158.4	1590.17	8280.37	1588.87	8319.13	1588.72	8329.98	1589.41	8403.02	1590.09
8530.73	1589.61	8540.08	1588.69	8575.03	1588.67	8793.33	1588.89	8827.61	1589
8990.95	1591.3	9025.45	1591.06	9092.96	1590.48	9118.65	1591.64	9269.14	1591.64
9300.98	1590.54	9335.2	1590.75	9364.95	1591.18	9533.29	1591.27	9554	1590.62
9588.28	1591.01	9609.81	1591.58	9755.59	1590.72	9788.31	1590.87	9833.8	1590.91
9937.97	1591.81	9943.37	1588.97	9959.88	1589.01	9967.32	1591.77	9982.03	1590.78
10115.93	1591.41	10139.13	1593.04	10159.83	1592.88	10173.42	1591.71	10317.48	1592.01
10350.53	1590.88	10396.52	1591.48	10411.01	1591.61	10424.35	1592.89	10508.02	1593.27
10530.72	1592.62	10541.12	1591.7	10584.5	1591.62	10618.41	1593.19	10743.42	1592.57
10754.17	1592.16	11010.99	1595.83	11024.94	1595.81	11216.01	1592.15	11316.99	1590
11458.57	1592.59	11646.3	1596.72	11656.45	1597.64	11668.44	1597.53	11730.19	1597.87
11752.06	1595.97	11769.95	1596.84	11779.35	1596.88	11817.66	1597.08	11827.45	1596.88
11842.18	1596.64	12035.95	1597.51	12045.24	1594.82	12056.8	1594.22	12063.89	1598.17
12120.82	1598.36								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4559	.15	9937.97	.02	10115.93	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9937.97	10115.93	377.84	575.99	440	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4559	5858	1596	10115.93	12065.27	1596

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4559	5389.89	1597	10139.13	12120.82	1597

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1591.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.150	0.020	
W.S. Elev (ft)	1591.72	Reach Len. (ft)	377.84	575.99	440.00
Crit W.S. (ft)	1590.90	Flow Area (sq ft)	5925.08	152.81	
E.G. Slope (ft/ft)	0.006276	Area (sq ft)	6029.48	152.81	0.69
Q Total (cfs)	7000.00	Flow (cfs)	6188.01	811.99	
Top Width (ft)	4366.38	Top Width (ft)	4184.98	176.96	4.44
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)	1.04	5.31	
Max Chl Dpth (ft)	4.32	Hydr. Depth (ft)	1.50	0.86	
Conv. Total (cfs)	88359.1	Conv. (cfs)	78109.6	10249.5	
Length Wtd. (ft)	402.73	Wetted Per. (ft)	3947.54	178.15	
Min Ch El (ft)	1588.97	Shear (lb/sq ft)	0.59	0.34	
Alpha	3.20	Stream Power (lb/ft s)	0.61	1.79	
Frctn Loss (ft)	3.19	Cum Volume (acre-ft)	531.75	23.02	511.85
C & E Loss (ft)	0.01	Cum SA (acres)	205.48	10.72	150.07

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5327.42	6095.85	204.90	264.42	239.08	2.93	1.11	0.77
6095.85	6864.27	477.11	652.71	644.22	6.82	1.01	0.73
6864.27	7632.70	1420.08	1347.67	768.50	20.29	1.75	1.05
7632.70	8401.12	2239.20	1771.51	768.90	31.99	2.31	1.26
8401.12	9169.55	1643.41	1471.12	768.52	23.48	1.91	1.12
9169.55	9937.97	203.33	417.64	758.31	2.90	0.55	0.49
LB 9937.97	9997.29	543.02	82.65	59.51	7.76	1.42	6.57
9997.29	10056.61	185.67	43.36	59.32	2.65	0.73	4.28
10056.61	RB 10115.93	83.28	26.80	59.32	1.19	0.45	3.11

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.892

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5007.87	1590.39	5075.02	1589.01	5104.25	1589.11	5169.3	1590.22	5236.89	1588.64
5265.98	1588.86	5335.18	1589.83	5398.58	1588.39	5427.76	1588.71	5497.5	1589.67
5541	1589.8	5560.36	1588.16	5589.37	1588.18	5655.02	1589.3	5722.05	1587.82
5750.98	1588.11	5849.09	1587.71	5883.18	1587.5	5896.78	1588.53	5943.35	1588.32
6005.4	1586.98	6034.75	1587.13	6047.14	1588.42	6102.65	1588.76	6152.88	1588.14
6167.75	1587.39	6196.76	1587.58	6206.47	1588.45	6268.93	1589.09	6314.14	1588.4
6329.58	1587.26	6358.83	1587.22	6378.18	1588.93	6419.6	1589.62	6428.58	1583.29
6439.18	1587.82	6462.26	1586.73	6493.44	1587.4	6523.17	1587.39	6538.57	1587.64
6558.58	1583.71	6582.54	1588.13	6728.48	1587.66	6762.41	1587.79	6788.19	1586.8
6965.08	1586.76	6989.18	1586.95	6998.82	1588.73	7018.45	1588.41	7047.91	1588.06
7070.11	1589.79	7191.06	1587.65	7202.16	1587.93	7211.4	1587.64	7288.74	1587.96
7371.42	1586.66	7478.92	1587.23	7503.88	1586.32	7512.5	1586.21	7562.33	1586.32
7587.49	1585.73	7597.36	1586.33	7991.74	1586.76	8035.25	1586.18	8043.81	1587.01
8222.97	1586.5	8234.62	1585.79	8245.34	1585.94	8255.85	1585.91	8266.19	1585.52
8279.19	1586.6	8285.22	1586.3	8689.57	1586.22	8712.63	1587.16	8757.98	1587.16
8808.52	1586.37	8821.14	1587.39	8837.19	1587.43	8855.25	1584.3	8874.63	1586.97
8997.42	1586.54	9057.95	1586.03	9095.46	1588.96	9239.34	1588.58	9273.63	1587.71
9308.16	1588.36	9332.13	1589.06	9476.02	1589.18	9524.64	1587.96	9557.9	1587.89
9754.12	1588.11	9820.77	1588.46	9843.31	1588.74	9919.37	1588.59	9921.77	1585.05
9935.31	1585.64	9940.63	1589.11	9961.91	1587.42	10038.26	1587.95	10078.41	1590.26
10088.25	1587.59	10283.82	1587.77	10310.48	1588.41	10327.73	1589.21	10353.88	1587.05
10433.41	1588.97	10555.07	1588.22	10630.65	1586.96	10655.72	1588.43	10775.1	1587.8
10783.67	1589.63	10912.33	1588.87	10936.49	1587.61	10973.67	1588.04	10985.12	1588.5
10995.86	1589.26	11101.34	1588.93	11108.05	1589.78	11215.94	1589.37	11236.57	1588.63
11244.74	1587.91	11280.34	1588.15	11307.85	1588.33	11430.86	1588.99	11434.11	1589.87
11915.55	1589.59	11953.26	1588.98	12046.38	1589.93	12331.15	1593.86	12341.36	1589.39
12349.67	1589.43	12358.33	1594.11	12379.35	1594.45	12420.62	1594.75	12444.63	1592.93
12460.95	1594.86	12522.25	1594.67	12544.97	1593.44	12556.45	1593.98	12607.21	1594.84
12640.92	1595.13	12709.43	1595.47	12752.9	1595.82	12778.01	1595.91	12809.81	1596.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5007.87	.15	9919.37	.02	10038.26	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9919.37	10038.26	380	574.17	385.41	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5007.87	6491	1592	10433.41	12412.02	1592

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5007.87	5896.78	1593	10433.41	12809.81	1593

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1588.59	Element			
Vel Head (ft)	0.14	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1588.45	Reach Len. (ft)	380.00	574.17	385.41
Crit W.S. (ft)	1587.74	Flow Area (sq ft)	4286.85	117.36	217.14
E.G. Slope (ft/ft)	0.010000	Area (sq ft)	4605.74	117.36	217.14
Q Total (cfs)	7000.00	Flow (cfs)	5930.87	898.48	170.65
Top Width (ft)	3637.23	Top Width (ft)	3217.31	109.51	310.42

Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)	1.38	7.66	0.79
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)	1.49	1.07	0.70
Conv. Total (cfs)	69999.3	Conv. (cfs)	59308.0	8984.7	1706.5
Length Wtd. (ft)	418.48	Wetted Per. (ft)	2869.73	112.20	310.63
Min Ch El (ft)	1585.05	Shear (lb/sq ft)	0.93	0.65	0.44
Alpha	3.99	Stream Power (lb/ft s)	1.29	5.00	0.34
Frctn Loss (ft)	3.62	Cum Volume (acre-ft)	485.63	21.24	510.75
C & E Loss (ft)	0.02	Cum SA (acres)	173.37	8.83	148.48

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6411.16	7112.80	720.84	648.49	544.38	10.30	1.19	1.11
7112.80	7814.44	1355.25	1028.42	668.80	19.36	1.54	1.32
7814.44	8516.08	2138.15	1378.30	701.77	30.54	1.96	1.55
8516.08	9217.73	1638.98	1083.92	573.49	23.41	1.89	1.51
9217.73	9919.37	77.66	147.73	381.29	1.11	0.39	0.53
LB 9919.37	9959.00	542.82	56.10	32.93	7.75	1.85	9.68
9959.00	9998.63	227.90	35.90	39.64	3.26	0.91	6.35
9998.63	RB 10038.26	127.75	25.36	39.63	1.82	0.64	5.04
10038.26	10434.20	170.65	217.14	310.63	2.44	0.70	0.79

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.784

INPUT
Description: Baseline crosses cross section on Signal Butte Rd. approx. 200 ft north of intersection with Broadway Ave.
Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5254.05	1587.8	5459.58	1586.29	5462.95	1585.06	5499.88	1586.78	5518.54	1586.6
5535.29	1586.17	5561.63	1587.61	5656.78	1585.54	5690.66	1585.42	5699.37	1586.14
5787.61	1585.03	5816.64	1585.33	5881.4	1586.19	5948.28	1584.67	5977.32	1585.02
5983.74	1585.19	6004.63	1580.88	6073.58	1585	6235.36	1584.24	6270.72	1584.09
6284.2	1584.99	6346.34	1585.38	6373.56	1585.23	6389.86	1583.52	6418.82	1583.77
6480.34	1586.11	6490.55	1580.07	6499.82	1584.14	6522.46	1582.86	6551.75	1583.55
6582.03	1583.16	6593.43	1583.7	6616.36	1580.38	6644.55	1585.28	6665.77	1584.86
6813.12	1584.18	6855.67	1584.84	6864.02	1585.06	6871.31	1584.06	6888.72	1583.99
6908.38	1585.54	6914.32	1585.23	6957.81	1584.89	7088.18	1583.69	7138.11	1583.51
7306.96	1583.97	7330.56	1586.19	7508.83	1584.26	7540.05	1584.38	7567.49	1583.64
7715.57	1584.5	7728.56	1582.33	7733.25	1582.27	7746.59	1583.75	7750.76	1583.45
7758.32	1582.61	7775.39	1582.68	7792.29	1584.04	7927.66	1582.8	7949.04	1582.86
7972.55	1582.64	8265.93	1582.46	8277.22	1582.78	8290.49	1582.9	8325.25	1583.28
8339.63	1581.53	8353.39	1583.48	8752.87	1582.77	8765.53	1584.96	8771.11	1582.23
8854.59	1583.25	9187.33	1583.25	9236.98	1582.04	9484.51	1584.91	9509.47	1583.31
9529.94	1584.65	9626.61	1584.1	9638.95	1586.27	9660.44	1586.12	9670.83	1583.59
9684.45	1583.09	9691.49	1584	9705.26	1583.83	9715.57	1581.26	9767.02	1581.71
9788.29	1584.92	9801.27	1585.12	9833.69	1584.84	9854.25	1584.88	9881.21	1584.16
9916.79	1585.53	9922.04	1582.18	9933.08	1582.46	9939.8	1585.05	9960.74	1582.7
10051.58	1583.17	10077.26	1584.87	10085.4	1582.24	10220.51	1582.94	10236.72	1581.51
10256.49	1580.65	10303.77	1581.33	10352.19	1584.07	10505.91	1583.53	10535.54	1581.68
10578.17	1581.68	10615.34	1584.03	10707.03	1584.03	10733.87	1585.6	10849.91	1584.99
10876.42	1582.75	10912.97	1582.54	10940.76	1584.98	11047.86	1583.76	11072.93	1583.02
11140.45	1584.83	11258.71	1584.21	11316.33	1583.14	11341.2	1584.29	11452.26	1584.31
11472.57	1586.73	11604.15	1585.83	11627.65	1584.63	11672.17	1584.61	11681.08	1585.63
11692.27	1586.46	11732.97	1586.66						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5254.05	.15	9916.79	.02	10051.58	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9916.79	10051.58	370	461.26	344.31	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

5254.05 7205 1590.0911140.4511732.97 1590
Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5254.05	5983.74	158911140.4511732.97			1589

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1584.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1584.62	Reach Len. (ft)	370.00	461.26	344.31
Crit W.S. (ft)	1584.23	Flow Area (sq ft)	3246.04	205.71	1335.42
E.G. Slope (ft/ft)	0.007701	Area (sq ft)	3952.38	205.71	1335.42
Q Total (cfs)	7000.00	Flow (cfs)	3606.14	1824.44	1569.42
Top Width (ft)	4202.64	Top Width (ft)	3170.45	128.43	903.77
Vel Total (ft/s)	1.46	Avg. Vel. (ft/s)	1.11	8.87	1.18
Max Chl Dpth (ft)	4.55	Hydr. Depth (ft)	1.37	1.60	1.48
Conv. Total (cfs)	79768.1	Conv. (cfs)	41093.6	20790.3	17884.2
Length Wtd. (ft)	376.46	Wetted Per. (ft)	2376.51	129.65	904.71
Min Ch El (ft)	1582.18	Shear (lb/sq ft)	0.66	0.76	0.71
Alpha	10.03	Stream Power (lb/ft s)	0.73	6.77	0.83
Frctn Loss (ft)	3.53	Cum Volume (acre-ft)	448.30	19.11	503.88
C & E Loss (ft)	0.07	Cum SA (acres)	145.51	7.26	143.11

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6586.26	7252.37	32.20	40.93	47.37	0.46	0.86	0.79
7252.37	7918.47	323.65	421.15	504.91	4.62	0.83	0.77
7918.47	8584.58	1493.29	1177.82	666.36	21.33	1.77	1.27
8584.58	9250.68	1231.04	1047.59	664.19	17.59	1.58	1.18
9250.68	9916.79	525.96	558.55	493.69	7.51	1.13	0.94
LB 9916.79	9961.72	434.56	54.45	39.79	6.21	1.41	7.98
9961.72	10006.65	774.71	80.86	44.93	11.07	1.80	9.58
10006.65	RB 10051.58	615.18	70.41	44.93	8.79	1.57	8.74
10051.58	10291.78	795.47	539.07	236.17	11.36	2.29	1.48
10291.78	10531.98	311.57	309.34	240.33	4.45	1.29	1.01
10531.98	10772.18	274.30	258.24	185.25	3.92	1.39	1.06
10772.18	11012.37	110.26	126.74	122.65	1.58	1.03	0.87
11012.37	11252.57	77.82	102.03	120.31	1.11	0.85	0.76

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.696

INPUT
Description: Baseline crosses cross section on Signal Butte Rd. approx. 250 ft south of Broadway Ave.
Station Elevation Data num= 128

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4710.11	1582.75	4735.93	1583.42	4749.47	1583.57	4770.07	1583.76	4795.72	1584.07
4816.14	1584.09	4880.22	1582.71	4897.64	1584.89	5044.8	1583.62	5079.36	1583.12
5084.43	1581.99	5131.15	1581.36	5164.62	1583.17	5307.61	1582.46	5324.31	1583.95
5501.63	1582.11	5509.69	1581.03	5556.24	1580.68	5576.26	1582.78	5730.4	1582.91
5750.95	1584.56	5924	1582.93	5929.89	1581.49	5980.62	1581.52	6001.57	1583.63
6229.66	1581.71	6233.87	1580.53	6265.17	1581.28	6282.41	1581.28	6299.66	1580.84
6328.17	1581.93	6335.06	1582.03	6357.46	1578.65	6419.16	1578.45	6435.2	1581.18
6448.89	1581.59	6457.91	1577.72	6468.33	1581.46	6492.03	1580.16	6501.65	1580.56
6512.45	1580.83	6939.98	1581.68	6961.62	1577.84	6968.2	1577.34	6976.99	1577.82
6997.51	1580.27	7007.84	1580.05	7057.21	1579.61	7218.84	1579.98	7240.51	1581.39
7418.13	1579.67	7467.3	1579.44	7629.16	1579.22	7651.96	1581.34	7829.57	1579.72
7879.47	1579.34	7900.92	1578.82	7916.2	1579.82	8038.58	1579.35	8058.22	1578.94
8101.35	1579.8	8130.32	1580.86	8225.14	1580.98	8243.5	1579.15	8271.73	1579.57
8312.91	1579.44	8333.84	1579.1	8341.96	1580.28	8477.32	1580.27	8487.66	1581.55
8633.7	1580.23	8733.19	1579.14	8751.16	1579.71	8868.41	1579.5	8891	1581.47
9025.67	1580.45	9058.24	1579.13	9115.77	1580.01	9141.14	1580.25	9284.3	1580
9406.96	1579.68	9767.34	1580.94	9876.7	1581.77	9956.15	1580.9	9964.95	1580.14

```
 10032.3  1580.510037.71 1580.72 10056.7 1580.4710068.93 1580.5610153.21 1580.42
   10165 1580.1510334.65 1580.06 10352.1  1579.610378.52 1579.6810387.93  1580.1
10499.64 1579.2410511.83 1579.9910524.66 1579.1710534.63 1574.2310541.45 1574.69
10684.83 1579.17 10702.3 1578.4210718.22 1577.84 10760.6 1577.6710786.27 1579.45
10926.17 1578.9110941.62 1581.2211082.83 1580.39 11099.3 1578.7111138.07 1578.65
11166.85 1580.9111281.87 1580.85 11297.1 1582.0511426.43 1581.0211463.21 1578.84
 11507.4 1579.0511542.22 1581.0911672.26 1581.3111702.85 1579.4311755.61 1579.98
11781.66 1581.7811921.71    158211951.65 1580.2711996.13  1580.512056.04 1580.77
12101.72 1580.7612126.35 1581.8212300.01 1582.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4710.11     .15 9956.15     .0210068.93     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9956.1510068.93           376.56  470.47  385.16              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4710.11    7875 1586.0511781.6612300.01    1586
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4710.11 6335.06    158611781.6612300.01    1586

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1581.35   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.10   Wt. n-Val.                0.150      0.020      0.150
  W.S. Elev (ft)            1581.25   Reach Len. (ft)          376.56     470.47     385.16
  Crit W.S. (ft)            1580.11   Flow Area (sq ft)       2160.23      93.87    2494.07
  E.G. Slope (ft/ft)       0.011736   Area (sq ft)            3687.18      93.87    2494.07
  Q Total (cfs)             7000.00   Flow (cfs)              2568.81     668.33    3762.86
  Top Width (ft)            4839.29   Top Width (ft)          3169.08     112.78    1557.43
  Vel Total (ft/s)             1.47   Avg. Vel. (ft/s)           1.19       7.12       1.51
  Max Chl Dpth (ft)            7.02   Hydr. Depth (ft)           1.14       0.83       1.60
  Conv. Total (cfs)         64614.5   Conv. (cfs)            23711.8     6169.1    34733.6
  Length Wtd. (ft)           400.29   Wetted Per. (ft)       1898.07     112.82    1559.43
  Min Ch El (ft)            1580.14   Shear (lb/sq ft)          0.83       0.61       1.17
  Alpha                        3.03   Stream Power (lb/ft s)    0.99       4.34       1.77
  Frctn Loss (ft)              3.39   Cum Volume (acre-ft)    415.85      17.52     488.75
  C & E Loss (ft)              0.03   Cum SA (acres)          118.59       5.98     133.38


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  7707.85       8457.28        1027.57     781.65    582.54      14.68      1.34       1.31
  8457.28       9206.72         889.70     763.69    682.25      12.71      1.12       1.16
  9206.72       9956.15         651.55     614.89    633.28       9.31      0.97       1.06
  LB 9956.15    9993.74         280.16      36.14     37.63       4.00      0.96       7.75
  9993.74       10031.34        230.51      32.14     37.59       3.29      0.85       7.17
  10031.34      RB 10068.93     157.64      25.59     37.60       2.25      0.68       6.16
  10068.93      10387.66        358.81     349.23    318.74       5.13      1.10       1.03
  10387.66      10706.38       2010.58     983.76    320.04      28.72      3.09       2.04
  10706.38      11025.11        848.93     585.65    318.97      12.13      1.84       1.45
  11025.11      11343.83        239.21     253.18    262.02       3.42      0.97       0.94
  11343.83      11662.56        174.95     202.21    238.82       2.50      0.85       0.87
  11662.56      11981.28        130.39     120.06    100.83       1.86      1.19       1.09


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

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 15.607

INPUT
Description:
Station Elevation Data    num=     130
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  5179.7 1580.72 5333.58 1578.65 5346.94 1577.54 5389.24  1577.4 5396.84 1578.27
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 5426.09 1579.26 5569.93 1578.66 5585.24 1580.71 5768.68 1579.28 5776.12 1578.79
 5824.45 1578.16 5832.18 1578.92 5864.05 1579.98 6003.16 1580.11  6020.4 1581.77
 6191.47 1581.12 6206.09 1579.65 6253.83 1579.44 6369.26  1582.3 6404.63 1581.75
  6443.5 1574.53 6456.25 1573.51 6490.33 1577.55 6498.52 1577.68    6509 1580.95
 6531.74 1576.94 6561.51 1577.83 6588.33 1577.76 6926.03 1578.04 6969.04 1578.26
 7348.91  1577.2 7391.37 1577.53 7457.74 1577.67 7496.62  1570.3 7549.87 1578.58
 7730.97 1575.56 7782.17 1575.39 7941.28 1575.47 7963.93 1576.95 8064.75 1575.21
 8106.97 1575.59 8183.94 1576.33 8202.59 1574.29 8220.89 1576.75 8259.36 1577.24
 8293.63 1571.79 8315.05 1575.23  8368.8 1576.22 8380.74 1578.49 8485.31 1578.25
 8548.63 1576.62 8614.38  1576.4 8654.57 1576.98 8784.12 1576.72 8802.89 1578.32
 8983.59 1576.35 9003.65 1576.59 9024.35 1576.28 9076.57 1576.45 9084.65 1577.11
 9106.17 1577.01 9154.23 1575.59  9217.7 1577.04 9231.45 1578.07 9480.55 1575.96
  9492.4 1577.18 9621.48  1576.2 9633.29 1578.08 9664.28 1577.66 9674.08 1575.76
 9781.84 1575.72 9793.34 1577.04  9917.2 1578.01 9920.71    1577 9931.94 1573.77
 9939.82 1575.41 9966.62 1575.58 9996.57 1576.4610030.22 1575.77 10036.4 1575.38
10054.92 1575.8510128.08 1577.2410256.81 1576.9410278.21 1577.1510492.91 1576.18
10531.75  1576.310557.34 1576.4810620.29  1576.210670.18 1576.0510729.19 1576.05
10828.84 1575.6210849.17  1575.910859.07 1574.2210886.08 1575.4510902.23 1575.99
10970.51 1577.5711100.98 1575.5411114.12 1575.9211215.27 1575.7111215.28 1575.78
11227.02 1576.5211239.95 1576.2311248.23 1570.7211398.42 1575.4111419.89 1574.18
11434.73 1573.6111481.07 1573.8411530.54 1573.7711575.86 1574.1511593.06 1575.04
11630.85 1575.1611648.51 1577.8911784.81 1576.79 11802.9 1576.5911813.63  1574.8
11858.45 1574.9311889.72 1577.1812011.41  1577.212025.88 1579.3412162.92 1578.57
12187.04 1575.7912222.76 1576.2112246.12 1578.4812377.69 1578.8112385.72 1578.74
12398.98 1577.4512438.19 1578.1312446.98 1578.8612457.52  1579.712561.22 1579.86

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  5179.7     .15 9920.71     .0210054.92     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9920.7110054.92           409.72  545.69   344.4             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  5179.7    8534    158212222.7612561.22 1582.07
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  5179.7 6969.04    158312377.6912561.22    1583
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1577.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1577.54	Reach Len. (ft)	409.72	545.69	344.40
Crit W.S. (ft)	1575.64	Flow Area (sq ft)	1042.58	244.04	3245.26
E.G. Slope (ft/ft)	0.006396	Area (sq ft)	2727.22	244.04	3254.41
Q Total (cfs)	7000.00	Flow (cfs)	788.02	2153.10	4058.88
Top Width (ft)	4292.95	Top Width (ft)	2183.21	134.21	1975.53
Vel Total (ft/s)	1.54	Avg. Vel. (ft/s)	0.76	8.82	1.25
Max Chl Dpth (ft)	7.24	Hydr. Depth (ft)	0.91	1.82	1.65
Conv. Total (cfs)	87527.1	Conv. (cfs)	9853.3	26922.1	50751.7
Length Wtd. (ft)	421.51	Wetted Per. (ft)	1141.81	134.87	1964.49
Min Ch El (ft)	1573.77	Shear (lb/sq ft)	0.36	0.72	0.66
Alpha	10.44	Stream Power (lb/ft s)	0.28	6.37	0.83
Frctn Loss (ft)	2.88	Cum Volume (acre-ft)	388.13	15.70	463.33
C & E Loss (ft)	0.03	Cum SA (acres)	95.45	4.65	117.76

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7888.85	8566.14	19.82	27.45	32.14	0.28	0.85	0.72
8566.14	9243.42	372.56	506.95	578.13	5.32	0.88	0.73
9243.42	9920.71	395.64	508.19	531.54	5.65	0.96	0.78
LB 9920.71	9965.45	991.97	100.12	45.36	14.17	2.24	9.91
9965.45	10010.18	482.30	64.60	44.75	6.89	1.44	7.47
10010.18	RB 10054.92	678.84	79.31	44.76	9.70	1.77	8.56
10054.92	10412.96	137.81	236.26	358.06	1.97	0.66	0.58
10412.96	10771.01	442.48	475.71	358.05	6.32	1.33	0.93
10771.01	11129.05	478.34	497.03	355.46	6.83	1.40	0.96
11129.05	11487.09	2063.25	1200.71	359.91	29.47	3.35	1.72

11487.09	11845.13	797.17	641.99	313.27	11.39	2.05	1.24
11845.13	12203.18	111.85	165.19	200.16	1.60	0.83	0.68
12203.18	12561.22	27.96	28.38	19.58	0.40	1.45	0.99

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.504

INPUT
Description:
Station Elevation Data num= 160

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5296.27	1577.54	5415.25	1577.25	5425.03	1576.11	5456	1576.04	5488.19	1576.16
5506.06	1577.22	5620.29	1576.18	5629.68	1572.61	5639.92	1575.11	5655.17	1576.73
5673.25	1576.7	5691.31	1576.11	5703.2	1576.41	5894.47	1575.89	5908.35	1576.93
5941.73	1576.9	6049.54	1576.68	6100.6	1575.32	6120.3	1574.09	6125.17	1574.55
6158.5	1574.86	6161.38	1575.37	6204.31	1577.22	6227.93	1576.86	6246.87	1575.97
6253.08	1575.27	6286.11	1575.07	6309.01	1576.72	6376.94	1579.25	6404.41	1576.68
6446.77	1575.6	6467.45	1579.17	6504.92	1571.45	6515.22	1571.08	6524.23	1571.76
6554.71	1575.26	6620.41	1575.98	6647.15	1575.47	7053.07	1574.43	7100.53	1574.38
7329.49	1575.07	7340.13	1576.63	7349.77	1575.01	7760.42	1573.67	7779.13	1573.87
7800.54	1573.37	7830.51	1573.82	7840.41	1575.22	8021.89	1572.18	8047.3	1572.68
8072.53	1572.27	8262	1572.19	8311.59	1567.29	8335.82	1567.35	8362.56	1572.82
8370.1	1573.46	8516.86	1572.25	8569.78	1572.55	8593.59	1573.01	8771.79	1573.4
8790.63	1574.73	8969.62	1573.68	9021.18	1573.23	9196.75	1573.48	9209.63	1574.83
9398.28	1574.05	9449.18	1573.74	9480.23	1574.28	9623.67	1574.31	9641.39	1575.91
9674.18	1575.18	9680.45	1573.74	9689.72	1573.34	9712.62	1573.92	9732.08	1573.91
9828.12	1573.33	9848.42	1573.01	9869.34	1573.07	9898.41	1572.51	9927.9	1570.34
9938.98	1572.44	9965.56	1571.86	9999.02	1572.58	10034.84	1572.02	10039.75	1572.03
10059.48	1572.22	10070.7	1573.07	10444.65	1572.69	10465.69	1573.26	10487.98	1572.9
10578.8	1574.47	10650.2	1573.76	10705.93	1573.57	10716.37	1573.41	10736.52	1573.49
10812.04	1573.53	10951.69	1572.82	10970.19	1572.89	10999.42	1572.82	11013.72	1573.59
11141.33	1572.97	11150.35	1572.58	11191.44	1573.53	11286.85	1573.22	11294.62	1571.89
11322.11	1572.74	11442.8	1573.34	11595.51	1571.29	11607.29	1571.79	11680.87	1572.64
11787.18	1572.49	11814.65	1572.61	11938.17	1572.61	11948.14	1573.35	11961.5	1572.75
11975.6	1567.41	11979.15	1567.49	11991.67	1572.93	12058.22	1573.01	12068.19	1571.62
12134.92	1572.19	12150.67	1571.45	12163.18	1570.91	12207.95	1570.43	12237	1570.55
12280.55	1570.87	12291.48	1571.45	12312	1571.95	12405.3	1573.56	12417.14	1574.05
12495.1	1574.27	12504.81	1574.63	12567.86	1574.42	12605.3	1573.08	12640.07	1572.4
12885.24	1574.35	12900.49	1574.45	12951.82	1574.85	12972.19	1576.07	13168.25	1576.72
13198.41	1574.18	13231.25	1574.13	13266.79	1575.23	13394.17	1576.28	13417.23	1574.98
13425.66	1574.05	13470.14	1574.31	3504.21	1575.76	13639.41	1576.76	13646.28	1569.78
13658.4	1571.11	3665.03	1574.99	13688.93	1574.61	13722.61	1575.02	13785.17	1575.4
13791.61	1576.61	14270.65	1576.65	14281.09	1575.33	14332.69	1575.48	14343.18	1575.85

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5296.27	.15	9938.98	.02	10070.7	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9938.98	10070.7	370	445.22	390	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5296.27	9318	1578.05	12252.5	14343.18	1578.25

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5296.27	7340.12	1580	13791.61	14343.18	1580

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1575.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1574.33	Reach Len. (ft)	370.00	445.22	390.00
Crit W.S. (ft)	1574.33	Flow Area (sq ft)	361.01	275.11	3362.10
E.G. Slope (ft/ft)	0.007301	Area (sq ft)	2446.55	275.11	4109.03
Q Total (cfs)	7000.00	Flow (cfs)	312.22	2853.00	3834.78
Top Width (ft)	5027.82	Top Width (ft)	2068.61	131.72	2827.49
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)	0.86	10.37	1.14
Max Chl Dpth (ft)	7.04	Hydr. Depth (ft)	0.65	2.09	1.56
Conv. Total (cfs)	81921.7	Conv. (cfs)	3653.9	33388.9	44878.9
Length Wtd. (ft)	405.63	Wetted Per. (ft)	555.04	131.77	2162.28
Min Ch El (ft)	1571.86	Shear (lb/sq ft)	0.30	0.95	0.71

Alpha	14.54	Stream Power (lb/ft s)	0.26	9.87	0.81
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	363.80	12.44	434.22
C & E Loss (ft)	0.20	Cum SA (acres)	75.46	2.98	98.78

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth 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 critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9275.74	9938.98	312.22	361.01	555.04	4.46	0.65	0.86
LB 9938.98	9982.89	1052.71	97.55	43.92	15.04	2.22	10.79
9982.89	10026.79	848.49	85.71	43.91	12.12	1.95	9.90
10026.79	RB 10070.70	951.81	91.85	43.94	13.60	2.09	10.36
10070.70	10681.05	617.14	693.86	588.35	8.82	1.18	0.89
10681.05	11291.41	544.43	653.15	610.47	7.78	1.07	0.83
11291.41	11901.76	1300.22	1101.17	610.45	18.57	1.80	1.18
11901.76	12512.12	1372.98	913.91	353.02	19.61	2.61	1.50

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth 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 critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway *RS:* 15.419

INPUT
Description: Blocked Obstruction Option used to remove detention basin from the
effective conveyance area.
Station Elevation Data num= 158

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5122.82	1574.46	5131.98	1573.1	5157.36	1573.49	5183.04	1573.06	5184.52	1572.86
5197.65	1570.51	5318.62	1570.32	5340.18	1574.07	5674.52	1573.79	5694.51	1570.92
5743.28	1570.89	5759.54	1573.52	5767.41	1573.64	5787.24	1573.92	5806.16	1573.42
5812.64	1574.25	5973.86	1574.34	6066.58	1574.11	6083.12	1572.14	6131	1572.49
6179.6	1572.22	6293.54	1573.58	6301.95	1568.48	6311.86	1571.7	6326.32	1572.14
6334.84	1571.98	6364.03	1571.89	6425.82	1573.22	6465.6	1571.92	6469.44	1571.82
6476.64	1572.98	6999.74	1571.86	7024.27	1572.26	7058.09	1572.32	7285.66	1571.69

```
 7296.67 1569.35 7309.42  1570.1  7317.2 1571.57 7702.48 1571.26 7743.92 1571.48
  8132.6 1570.86 8175.14 1570.48 8398.11 1569.68 8415.91 1570.05 8438.29 1569.26
  8468.5 1569.99 8478.28 1571.53 8530.39 1570.75 8575.74 1571.67 8608.14 1571.31
 8655.22 1569.91 8683.96 1570.03 8719.15 1569.86 8753.44 1569.67 8792.12 1565.31
 8932.46 1564.13 8987.16 1572.41 9115.08 1572.25 9168.07 1571.27 9191.22 1571.58
 9218.88 1571.23 9309.55 1571.79 9390.08 1571.54 9406.33 1573.56 9529.87 1573.28
 9548.44 1571.23 9569.58 1571.68 9591.98 1571.42  9744.4 1572.77 9805.98 1570.48
 9848.34 1571.05 9881.98 1570.33 9889.17 1569.92 9908.01 1571.71 9932.47 1570.68
10041.17 1568.9610066.08 1569.3610553.32 1569.2310562.26  1569.410573.64 1569.38
10712.74 1569.9110731.14 1569.4510749.98 1569.9111146.01 1569.8511157.84 1571.15
11228.49    157111245.71 1570.0811275.48 1569.9511420.79 1570.1111426.77 1569.86
11491.32 1570.2611568.92 1569.8311576.12 1568.79 11611.9 1569.3611619.75  1569.4
11657.04 1568.5211668.36 1568.4511678.89 1570.4111687.04 1569.3611750.44 1569.32
11780.61 1568.2311837.28 1567.6511854.93 1568.7911918.94 1568.86 11971.8 1569.47
12009.36 1570.9612115.03 1570.4212205.54 1568.8812249.68 1568.9512264.87 1567.82
12288.38 1568.4412350.83 1568.7312388.51 1568.41 12424.6 1569.6512434.96 1568.65
12466.62 1569.5412573.46  1569.512608.89 1563.7512624.01 1563.73 12636.8 1569.83
12678.48 1570.4612700.68 1567.9312755.27 1564.3213135.54 1563.7313185.73 1570.21
13192.38  1570.713227.39 1571.9313238.05 1572.3413390.67 1572.4913394.78 1565.74
 13409.5 1565.61 13416.3 1569.97 13439.2 1569.7613471.82 1570.0113475.87 1570.41
13490.53 1571.6913508.08 1568.8213519.83 1571.3313645.55 1572.43 13770.1 1572.17
13787.46 1571.1313830.53 1570.9913849.91  1572.513988.78 1571.3714094.99 1571.46
14120.87 1571.7414155.08 1571.5914268.64 1570.3914292.98 1572.1914367.55 1571.51
14385.63 1570.8214422.56 1570.9114438.12 1571.7214763.96 1575.08 14770.2 1574.09
 14796.9 1573.6115000.41 1576.8715011.51  1577.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 5122.82     .15 9932.47    .02810066.08     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9932.4710066.08              390  307.29  328.78             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5122.82    9932 1575.8913238.0514922.82 1575.89
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5122.82 5973.86    157712678.4813207.82    1570

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1572.68   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                0.03   Wt. n-Val.                 0.150      0.028      0.150
  W.S. Elev (ft)            1572.65   Reach Len. (ft)           390.00     307.29     328.78
  Crit W.S. (ft)            1570.16   Flow Area (sq ft)           0.92     394.54    9729.21
  E.G. Slope (ft/ft)       0.000807   Area (sq ft)             5404.84     394.54   11146.66
  Q Total (cfs)             7000.00   Flow (cfs)                  0.41    1223.95    5775.65
  Top Width (ft)            8016.50   Top Width (ft)           3420.67     133.61    4462.22
  Vel Total (ft/s)             0.69   Avg. Vel. (ft/s)            0.44       3.10       0.59
  Max Chl Dpth (ft)            8.92   Hydr. Depth (ft)            1.96       2.95       3.07
  Conv. Total (cfs)        246454.7   Conv. (cfs)                14.3    43092.4   203348.0
  Length Wtd. (ft)          324.80   Wetted Per. (ft)            0.47     133.63    3174.60
  Min Ch El (ft)            1568.96   Shear (lb/sq ft)            0.10       0.15       0.15
  Alpha                        4.13   Stream Power (lb/ft s)      0.04       0.46       0.09
  Frctn Loss (ft)              0.03   Cum Volume (acre-ft)      330.45       9.02     365.93
  C & E Loss (ft)              0.01   Cum SA (acres)             52.14       1.63      66.14


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  9245.38      9932.47           0.41       0.92      0.47       0.01       1.96       0.44
  LB 9932.47   9977.01         269.25     103.42     44.54       3.85       2.32       2.60
  9977.01      10021.54        418.78     134.81     44.54       5.98       3.03       3.11
  10021.54     RB 10066.08     535.91     156.31     44.54       7.66       3.51       3.43
  10066.08     10772.57       1399.95    2292.07    706.50      20.00       3.24       0.61
  10772.57     11479.06        953.60    1820.55    706.59      13.62       2.58       0.52
  11479.06     12185.55       1356.56    2249.73    706.93      19.38       3.18       0.60
  12185.55     12892.04       1638.60    2521.95    708.50      23.41       3.57       0.65
  12892.04     13598.53        426.94     844.90    346.07       6.10       2.44       0.51
```

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.361

INPUT
Description: Immediately Upstream of CAP
Station Elevation Data num= 219

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4695.67	1570.24	4706.27	1570.46	4743.16	1570.65	4765.95	1572.8	4788.68	1579.39
4809.97	1581.02	4860.64	1583.94	4907.66	1586.76	4943.2	1584.3	4985.49	1582.25
5032.9	1579.47	5046.86	1578.1	5077.41	1568.36	5094.47	1566.58	5120.91	1563.87
5171.82	1564.47	5243.7	1565.6	5282.72	1565.87	5408.87	1566.55	5420.82	1566.6
5569.97	1568.57	5618.85	1567.71	5709.9	1564.75	5761.69	1563.64	5848.61	1563.27
5891	1563.58	5948.33	1564	5986.15	1564	6051.59	1564.14	6078.98	1564.1
6142.52	1563.05	6178.25	1563.08	6179.75	1562.84	6268.1	1564.23	6382.87	1564.4
6422.6	1564.35	6471.48	1564.2	6519.57	1564.05	6533.72	1564.04	6604.75	1563.67
6718.27	1563.75	6772.18	1563.73	6813.51	1563.56	6868.86	1563.29	6907.75	1563.08
6993.68	1563.22	7049.73	1563.03	7058.86	1563	7142.83	1563	7202.39	1562.92
7245.65	1562.81	7308.77	1562.46	7385.42	1562.44	7426.71	1562.67	7468.84	1562.98
7495.01	1562.64	7523.3	1562.13	7555.19	1561.92	7592.82	1561.9	7637.49	1561.92
7695.11	1562.34	7749.06	1562.43	7808.93	1562.62	7885.6	1562.53	7978.29	1561.91
8060.33	1562.11	8102.06	1561.95	8131.75	1561.63	8147.9	1572.7	8171.66	1571.16
8193.32	1571.57	8211.33	1571.28	8246.22	1571.5	8266.67	1562.9	8271.07	1562.81
8317.76	1562.72	8343.97	1562.59	8391.79	1563.03	8477.68	1562.32	8546.54	1562.48
8655.5	1563.05	8660.62	1563.05	8717.38	1563.02	8721.75	1563.05	8743.54	1563.16
8814.79	1563.21	8858.49	1563.54	8897.72	1564.09	8905.45	1564.24	8993.41	1564.16
9030.25	1564.14	9048.71	1564.14	9051.99	1564.14	9163.46	1564.7	9197.57	1564.72
9271.26	1565.27	9312.28	1565.62	9349.3	1565.65	9413.69	1565.94	9554.69	1573.58
9566.02	1573.46	9610.38	1573.69	9647.04	1573.06	9754.99	1564.42	9799.17	1563.25
9872.53	1562.69	9953.17	1562.42	9964.86	1562.32	10036.99	1561.37	10144.63	1561.47
10179.35	1561.55	10279.57	1561.39	10300.53	1561.26	10345.16	1561.26	10363.26	1561.26
10387.6	1561.44	10435.56	1560.92	10442.87	1560.91	10487.97	1561.24	10510.85	1561.5
10539.43	1561.43	10542.16	1561.43	10564.75	1561.65	10591.95	1561.83	10696.61	1561.51
10730.67	1561.79	10752.15	1561.78	10782.42	1561.81	10789.01	1561.78	10817.9	1561.58
10867.81	1561.77	10878.69	1561.77	10906.47	1561.77	10911.69	1561.77	10972.38	1561.94
11016.87	1562	11060.86	1562.05	11142.11	1562.18	11188.4	1562.44	11196.91	1562.5
11283.88	1562.79	11284.1	1562.79	11386.14	1563.56	11402.43	1563.83	11442.24	1564.28
11481.65	1564.57	11540.28	1564.43	11583.65	1564.09	11604.83	1563.92	11684.87	1563.53
11766.22	1563.33	11792.05	1562.96	11835.67	1562.55	11838.06	1562.53	11915.02	1562.65
12006.39	1563.13	12027.72	1563.13	12041.14	1563.07	12056.38	1567.78	12064.35	1568.37
12114.59	1568.94	12246.05	1572.41	12446.39	1567.74	12506.34	1561.81	12557.83	1561.65
12587.39	1564.91	12700.18	1565.18	12704.64	1565.29	12749.72	1567.61	12766.47	1568.14
12808.1	1568.22	12835.1	1573.74	12860.79	1575.13	12951.92	1574.61	12966.42	1574.55
12984.12	1573.82	12989.26	1576.65	12997.62	1576.94	13024.86	1572.12	13054.89	1568.03
13187.34	1570.35	13202.13	1570.11	13277.55	1573.14	13373.34	1572.25	13396.18	1561.91
13429.8	1561.45	13465.39	1570.77	13481.39	1569.33	13509.47	1570.93	13556.47	1572.85
13921.26	1572.33	13969.06	1572.18	14068.44	1572.18	14140.56	1572.18	14163.08	1572.26
14184.82	1572.32	14218.31	1572.13	14392.26	1572.17	14424.62	1572.12	14548.67	1571.89
14691.6	1558.23	14863.65	1557.56	14925.94	1556.95	14984.69	1557.73	15084.73	1558.28
15150.23	1558.35	15160.99	1558.36	15214.42	1558.61	15249.89	1559	15295.96	1559.82
15334.29	1559.66	15481.87	1560.72	15554.1	1561.29	15673.82	1561.46	15700.15	1561.65
15769.85	1561.79	15782.08	1561.82	15807.25	1561.64	15846.39	1561.62		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4695.67	.15	9953.17	.025	10036.99	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9953.17	10036.99	224.47	218.48	231.22	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4695.67	9953.17	1585	13590.71	5846.39	1579.89

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4695.67	4907.66	1583	15846.39	15846.39	1580

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1572.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.025	0.150
W.S. Elev (ft)	1572.64	Reach Len. (ft)	224.47	218.48	231.22
Crit W.S. (ft)	1563.22	Flow Area (sq ft)		898.34	26027.49

E.G. Slope (ft/ft)	0.000028	Area (sq ft)	40209.18	898.34	42662.55
Q Total (cfs)	7000.00	Flow (cfs)		1370.74	5629.26
Top Width (ft)	10251.52	Top Width (ft)	4773.00	83.82	5394.69
Vel Total (ft/s)	0.26	Avg. Vel. (ft/s)		1.53	0.22
Max Chl Dpth (ft)	15.69	Hydr. Depth (ft)		10.72	8.00
Conv. Total (cfs)	1325382.6	Conv. (cfs)		259536.7	1065846.0
Length Wtd. (ft)	218.48	Wetted Per. (ft)		83.83	3260.98
Min Ch El (ft)	1561.37	Shear (lb/sq ft)		0.02	0.01
Alpha	7.30	Stream Power (lb/ft s)		0.03	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	126.26	4.46	162.86
C & E Loss (ft)		Cum SA (acres)	15.46	0.86	28.94

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9953.17	9981.11	431.42	289.38	27.94	6.16	10.36	1.49
9981.11	10009.05	456.44	299.33	27.94	6.52	10.71	1.52
10009.05	RB 10036.99	482.89	309.63	27.94	6.90	11.08	1.56
10036.99	10866.90	2365.82	9257.63	829.93	33.80	11.15	0.26
10866.90	11696.82	1852.44	7993.89	829.93	26.46	9.63	0.23
11696.82	12526.73	888.32	5146.20	831.05	12.69	6.20	0.17
12526.73	13356.65	400.98	2749.83	571.92	5.73	4.82	0.15
13356.65	14186.56	121.69	879.94	198.16	1.74	4.52	0.14

CULVERT RIVER: Apache Junct FRS
REACH: Spillway RS: 15.34

INPUT
Description: Culverts under CAP.
Size of culverts in Culvert Groups #1, 2, and
6 reduced to 0.5 ft diam. in order to render culverts ineffective
in conveying flows (outside effective flow limits).
Distance from Upstream XS = 37
Deck/Roadway Width = 160
Weir Coefficient = 2.8
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 85

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4695.67	1577.06		4836.58	1577.06		4887.67	1583.09	
4897.95	1583.41		4937.04	1585.44		4971.52	1586.56	
4986.96	1585.63		5006.91	1578.26		5068.58	1577.47	
5098.17	1577		5268.7	1577.66		6834.57	1577.66	
7075.47	1577.08		7112.69	1576.89		7213.47	1576.42	
7944.34	1576.42		8060.62	1576.18		8239.49	1576.24	
8271.25	1571.82		8297.35	1572.24		8319.04	1571.7	
8341.34	1576.42		8349.18	1575.95		8865.58	1575.95	
9015.14	1575.8		9427.44	1575.8		9495.23	1574.1	
9506.02	1573.67		9521.59	1573.56		9548.32	1573.83	
9575.82	1573.57		9587.4	1573.69		9717.74	1572.88	
9897.14	1572.88		10033.15	1573.25		10139.42	1573.5	
10336.36	1573.37		10389.85	1573.29		10593.28	1573.13	
10636.73	1573.07		10711.86	1573.06		10784.85	1573.28	
10948.47	1573.28		10971.54	1573.41		11066.84	1573.52	
11090.22	1573.48		11397.82	1572.95		11434.84	1573.03	
11448.89	1573.03		11508.61	1573.33		11835.58	1573.21	
11854.55	1573.48		11951.45	1573.25		11979.72	1568.43	
12049.27	1569.21		12086.18	1573.92		12260.5	1573.92	
12309.37	1574.05		12516.75	1574.05		12604.05	1573.85	
12851.79	1573.85		12874.03	1574.23		12875.15	1574.85	
12897.18	1575.15		12974.66	1574.96		12986.34	1574.57	
12986.91	1574.57		13038.29	1573.28		13142.09	1573.97	
13212.82	1573.49		13297.88	1573.22		13394.82	1573.37	
13515.62	1573.37		13621.95	1573.31		13709.39	1572.9	
14938.89	1572.88		14958.6	1573.04		15001.26	1573.21	
15037.33	1573.47		15144.96	1573.49		15274.32	1573.39	
15406.53	1573.8		15591.14	1573.8		15783.07	1573.5	
15854.25	1573.5							

Upstream Bridge Cross Section Data
Station Elevation Data num= 219

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4695.67	1570.24	4706.27	1570.46	4743.16	1570.65	4765.95	1572.8	4788.68	1579.39

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 4809.97 1581.02 4860.64 1583.94 4907.66 1586.76  4943.2  1584.3 4985.49 1582.25
  5032.9 1579.47 5046.86  1578.1 5077.41 1568.36 5094.47 1566.58 5120.91 1563.87
 5171.82 1564.47  5243.7  1565.6 5282.72 1565.87 5408.87 1566.55 5420.82  1566.6
 5569.97 1568.57 5618.85 1567.71  5709.9 1564.75 5761.69 1563.64 5848.61 1563.27
    5891 1563.58 5948.33    1564 5986.15    1564 6051.59 1564.14 6078.98  1564.1
 6142.52 1563.05 6178.25 1563.08 6179.75 1562.84  6268.1 1564.23 6382.87  1564.4
  6422.6 1564.35 6471.48  1564.2 6519.57 1564.05 6533.72 1564.04 6604.75 1563.67
 6718.27 1563.75 6772.18 1563.73 6813.51 1563.56 6868.86 1563.29 6907.75 1563.08
 6993.68 1563.22 7049.73 1563.03 7058.86    1563 7142.83    1563 7202.39 1562.92
 7245.65 1562.81 7308.77 1562.46 7385.42 1562.44 7426.71 1562.67 7468.84 1562.98
 7495.01 1562.64  7523.3 1562.13 7555.19 1561.92 7592.82  1561.9 7637.49 1561.92
 7695.11 1562.34 7749.06 1562.43 7808.93 1562.62  7885.6 1562.53 7978.29 1561.91
 8060.33 1562.11 8102.06 1561.95 8131.75 1561.63  8147.9  1572.7 8171.66 1571.16
 8193.32 1571.57 8211.33 1571.28 8246.22  1571.5 8266.67  1562.9 8271.07 1562.81
 8317.76 1562.72 8343.97 1562.59 8391.79 1563.03 8477.68 1562.32 8546.54 1562.48
  8655.5 1563.05 8660.62 1563.05 8717.38 1563.02 8721.75 1563.05 8743.54 1563.16
 8814.79 1563.21 8858.49 1563.54 8897.72 1564.09 8905.45 1564.24 8993.41 1564.16
 9030.25 1564.14 9048.71 1564.14 9051.99 1564.14 9163.46  1564.7 9197.57 1564.72
 9271.26 1565.27 9312.28 1565.62  9349.3 1565.65 9413.69 1565.94 9554.69 1573.58
 9566.02 1573.46 9610.38 1573.69 9647.04 1573.06 9754.99 1564.42 9799.17 1563.25
 9872.53 1562.69 9953.17 1562.42 9964.86 1562.3210036.99 1561.3710144.63 1561.47
10179.35 1561.5510279.57 1561.3910300.53 1561.2610345.16 1561.2610363.26 1561.26
 10387.6 1561.4410435.56 1560.9210442.87  1560.910487.97 1561.2410510.85  1561.5
10539.43 1561.4310542.16 1561.4310564.75 1561.6510591.95 1561.8310696.61 1561.51
10730.67 1561.7910752.15 1561.7810782.42  1561.810789.01 1561.78 10817.9 1561.58
10867.81 1561.7710878.69 1561.7710906.47 1561.7710911.69 1561.7710972.38 1561.94
11016.87    156211060.86 1562.0511142.11 1562.18 11188.4 1562.4411196.91  1562.5
11283.88 1562.79 11284.1 1562.7911386.14 1563.5611402.43 1563.8311442.24 1564.28
11481.65 1564.5711540.28 1564.4311583.65 1564.0911604.83 1563.9211684.87 1563.53
11766.22 1563.3311792.05 1562.9611835.67 1562.5511838.06 1562.5311915.02 1562.65
12006.39 1563.1312027.72 1563.1312041.14 1563.0712056.38 1567.7812064.35 1568.37
12114.59 1568.9412246.05  1572.412446.39 1567.7412506.34  1561.812557.83 1561.65
12587.39 1564.9112700.18 1565.1812704.64 1565.2912749.72  1567.612766.47 1568.14
 12808.1 1568.22 12835.1 1573.7412860.79 1575.1312951.92  1574.612966.42 1574.55
12984.12 1573.8212989.26 1576.6512997.62 1576.9413024.86 1572.1213054.89 1568.03
13187.34 1570.3513202.13 1570.1113277.55 1573.1413373.34 1572.2513396.18 1561.91
 13429.8 1561.4513465.39 1570.7713481.39 1569.3313509.47 1570.9313556.47 1572.85
13921.26 1572.3313969.06 1572.1814068.44 1572.1814140.56 1572.1814163.08 1572.26
14184.82 1572.3214218.31 1572.1314392.26 1572.1714424.62 1572.1214548.67 1571.89
 14691.6 1558.2314863.65 1557.5614925.94 1556.9514984.69 1557.7315084.73 1558.28
15150.23 1558.3515160.99 1558.3615214.42  1558.615249.89    155915295.96 1559.82
15334.29 1559.6615481.87 1560.72 15554.1 1561.2915673.82 1561.4615700.15 1561.65
15769.85 1561.7915782.08 1561.8215807.25 1561.6415846.39 1561.62

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4695.67     .15 9953.17    .02510036.99     .15

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9953.1710036.99             .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4695.67 9953.17    1585 13590.715846.39 1579.89
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4695.67 4907.66    158315846.3915846.39    1580

Downstream  Deck/Roadway Coordinates
    num=       76
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 4822.77 1577.11         4989.88 1577.11         5043.37  1583.6
 5070.25 1584.51         5104.75    1584          5108.2 1584.38
 5132.03 1583.41         5157.54 1577.11            5188 1576.74
 5223.03 1577.81         6713.48 1577.81         6770.88 1577.58
 6800.13 1577.57         6829.76 1577.65         6879.39 1577.96
 6942.54 1577.78         7007.81 1577.57         7078.71 1577.19
 7121.26 1576.93         7199.97 1576.57         7459.02 1576.67
 7497.45 1576.22         7519.39 1576.39         7539.28 1576.69
 8199.69 1576.69         8267.18 1576.22         8339.65 1575.95
 8454.26 1575.95         8487.58 1572.28         8512.54 1571.73
  8531.1 1576.33         8559.21 1575.73         8724.64 1575.73
 8820.46 1575.99         9351.88 1575.99         9396.42 1575.32
  9420.2 1575.95         9440.33    1575          9519.1 1573.72
 9531.16 1570.47         9539.73 1574.16         9553.87 1573.48
 9751.64 1573.48         9852.95  1573.7        10859.44  1573.7
10920.37 1573.52         11735.3 1573.52         11919.2  1573.7
```

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11963.24  1573.7        12035.7  1573.7        12057.67  1573.7
12166.33 1573.46       12341.21 1574.09        12342.86 1574.09
 12515.4  1573.7       12516.06  1573.7        12581.52  1573.7
12835.59  1573.7        12928.3 1573.36        13022.83 1574.46
13032.28 1574.52       13039.93 1574.96        13114.77 1575.11
13121.92 1574.62       13189.61 1573.08        13257.49 1573.08
13293.72 1572.93       13355.55 1573.39        13667.88 1573.39
13848.57 1573.42       15081.06 1573.42        15129.21 1572.97
15150.54 1572.88       15230.19 1570.61         15348.3 1568.34
15982.46 1568.34

Downstream Bridge Cross Section Data
Station Elevation Data    num=      168
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 4822.77  1576.4  4910.4 1576.62 4969.53 1577.93 5001.36 1576.18 5047.52 1583.14
 5075.79 1584.14 5113.38 1583.69 5138.77 1582.58 5199.14 1580.27 5204.38 1580.28
 5241.26 1578.85 5275.56 1571.61 5416.69 1572.54 5785.12 1570.56 5874.18 1568.64
 6092.67 1568.05  6122.6 1562.36 6219.64 1561.46  6233.7 1568.45  6248.4 1566.79
 6483.43  1565.3 6766.26 1566.35 7044.87  1567.4 7136.51 1567.75 7218.49 1567.99
 7340.67 1566.77 7376.48 1567.06 7410.01 1570.77 7431.66    1562 7509.75 1561.98
 7521.83 1567.92    7532 1571.22 7538.45 1570.79 7565.72 1567.73 7600.54 1566.87
 7802.73 1573.84 7829.55 1573.89 7888.24 1574.21 7987.05 1574.05  8064.1 1574.37
 8135.03 1574.76 8140.14 1574.81 8290.01 1575.43  8317.2 1575.38 8434.95 1572.77
 8474.11 1572.07 8501.46 1572.17 8527.52  1571.7 8548.91 1571.81 8603.13 1572.82
 8629.96 1574.03 8750.98 1575.28 8793.25 1573.83 8945.62 1574.04 8957.92 1573.96
 9051.62 1573.82 9120.76 1574.19 9292.54 1574.54 9311.21 1573.44 9347.96 1574.07
 9375.17 1573.38 9389.01 1572.67 9423.09 1573.28 9455.48 1573.05 9476.82  1573.1
 9581.24 1571.62 9939.51 1570.44  9973.2 1560.4510001.02  1560.310087.53 1563.67
10319.18 1562.7210346.17 1562.5310412.02 1562.8710661.77 1563.3910884.74 1564.96
 10884.8 1564.9610896.07 1565.0210950.52 1565.3310962.44 1565.2911045.15 1565.55
11228.48  1565.711271.64 1565.8211298.49  1565.7 11324.7  1565.711362.94 1565.73
11393.16 1565.8511429.48 1565.9211508.31 1565.2611518.89 1565.2511522.34 1565.25
11652.17  1565.111664.71  1565.111779.49 1564.67   11896 1568.3811911.22 1571.81
11940.99  1569.111958.16  1568.6 11999.7 1563.9212009.68 1563.9212252.33 1573.31
12320.73 1571.33 12342.5 1568.3912402.65 1567.6912437.24 1569.2312459.56 1569.52
12470.65 1571.7312552.98 1562.7412586.76  1571.3 12623.5 1570.1112761.35  1569.9
12813.55  1570.212834.96  1570.412836.11 1570.4213003.98 1570.5213064.71 1570.31
13105.27 1575.2213165.27 1574.9513195.95 1572.74   13222  1572.413337.24 1570.66
13363.21 1561.5113410.96 1562.8713426.97 1570.1713462.55 1569.8713582.87 1566.28
13687.98 1566.1113812.76 1565.9113973.38 1565.4514167.15 1563.7714180.69 1563.52
14252.91 1562.7914265.62 1562.5414372.17 1561.8414460.67 1570.2314486.65 1570.49
14552.95 1560.9714596.39 1560.78 14642.5 1563.7614696.54 1560.87 14722.5 1562.99
14731.35 1560.0614745.38 1559.8914755.53 1562.2314759.09 1560.0914760.26 1560.05
14852.43 1560.9714865.32 1562.7414875.38 1555.9114922.85 1555.9114934.31 1561.56
14995.03 1562.5115110.39 1561.71 15124.8 1560.6615192.19 1560.5315212.48 1558.32
15236.55  1558.315338.69 1558.8215408.87 1559.3515419.37 1560.7815438.81 1559.19
15575.47 1558.7615605.22 1558.7715619.71  1559.315636.17 1560.1215820.21  1560.6
15857.24 1556.4515897.42 1556.0116072.17 1555.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4822.77     .03 9939.51    .02510087.53     .03

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9939.5110087.53             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4822.77 8744.03    1580   1343216072.17    1580
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
16072.1716072.17    1575

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

Number of Culverts =  6

Culvert Name     Shape      Rise    Span
CULVERT#1       Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
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```
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     170       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 6159.67 6167.67 6175.67 6183.67 6191.67
Downstream Elevation =  1559
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 6156.77 6164.77 6172.77 6180.77 6188.77

Culvert Name     Shape      Rise    Span
CULVERT#2       Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     170       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1560.1
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 7439.67 7447.67 7455.67 7463.67 7471.67
Downstream Elevation =  1559.1
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 7456.77 7464.77 7472.77 7480.77 7488.77

Culvert Name     Shape      Rise    Span
CULVERT#3       Circular       6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     170       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1559.4
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 9959.67 9967.67 9975.67 9983.67 9991.67
Downstream Elevation =  1558.4
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 9976.77 9984.77 9992.7710000.7710008.77

Culvert Name     Shape      Rise    Span
CULVERT#4       Circular       6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     162       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1561
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
12509.6712517.6712525.6712533.6712541.67
Downstream Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
12536.7712544.7712552.7712560.7712568.77

Culvert Name     Shape      Rise    Span
CULVERT#5       Circular       6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     180       .013                   .9                1
Number of Barrels =  3
Upstream   Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.
13402.6713410.6713418.67
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Downstream Elevation =  1558.7
Centerline Stations
    Sta.    Sta.    Sta.
13379.7713387.7713395.77

Culvert Name      Shape      Rise    Span
CULVERT#6       Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     190       .013                   .9                1
Number of Barrels =  2
Upstream   Elevation =  1555.2
Centerline Stations
    Sta.    Sta.
14903.6714910.67
Downstream Elevation =  1554.4
Centerline Stations
    Sta.    Sta.
14895.7714902.77

CULVERT OUTPUT    Profile #PF 2
Culvert ID : CULVERT#1

  Culv Q (cfs)              5.47   Culv Vel In (ft/s)        5.58
  # Barrels                    5   Culv Vel Out (ft/s)       5.58
  Q Barrel (cfs)            1.09   Culv Inv El Up (ft)    1560.00
  E.G. US. (ft)          1572.64   Culv Inv El Dn (ft)    1559.00
  W.S. US. (ft)          1572.64   Culv Frctn Ls (ft)        6.47
  Delta EG (ft)             7.19   Culv Ext Lss (ft)         0.29
  Delta WS (ft)             7.38   Culv Ent Lss (ft)         0.43
  E.G. IC (ft)           1561.33   Q Weir (cfs)           1839.21
  E.G. OC (ft)           1572.65   Weir Sta Lft (ft)     11954.99
  Culvert Control         Outlet   Weir Sta Rgt (ft)     12076.20
  Culv WS In (ft)        1560.50   Weir Submerg              0.00
  Culv WS Out (ft)       1559.50   Weir Max Depth (ft)       4.22
  Culv Nml Depth (ft)       0.50   Weir Avg Depth (ft)       3.01
  Culv Crt Depth (ft)       0.50   Wr Flw Area (sq ft)     364.51
  Culv Ful Lngh (ft)      170.00   Min Top Rd (ft)        1572.27

Note:    The normal depth exceeds the height of the culvert.  The program assumes that the normal
         depth is equal to the height of the culvert.
Note:    Culvert critical depth exceeds the height of the culvert.

CULVERT OUTPUT    Profile #PF 2
Culvert ID : CULVERT#2

  Culv Q (cfs)              5.47   Culv Vel In (ft/s)        5.58
  # Barrels                    5   Culv Vel Out (ft/s)       5.58
  Q Barrel (cfs)            1.09   Culv Inv El Up (ft)    1560.10
  E.G. US. (ft)          1572.64   Culv Inv El Dn (ft)    1559.10
  W.S. US. (ft)          1572.64   Culv Frctn Ls (ft)        6.47
  Delta EG (ft)             7.19   Culv Ext Lss (ft)         0.29
  Delta WS (ft)             7.38   Culv Ent Lss (ft)         0.43
  E.G. IC (ft)           1561.43   Q Weir (cfs)           1839.21
  E.G. OC (ft)           1572.65   Weir Sta Lft (ft)     11954.99
  Culvert Control         Outlet   Weir Sta Rgt (ft)     12076.20
  Culv WS In (ft)        1560.60   Weir Submerg              0.00
  Culv WS Out (ft)       1559.60   Weir Max Depth (ft)       4.22
  Culv Nml Depth (ft)       0.50   Weir Avg Depth (ft)       3.01
  Culv Crt Depth (ft)       0.50   Wr Flw Area (sq ft)     364.51
  Culv Ful Lngh (ft)      170.00   Min Top Rd (ft)        1572.27

Note:    The normal depth exceeds the height of the culvert.  The program assumes that the normal
         depth is equal to the height of the culvert.
Note:    Culvert critical depth exceeds the height of the culvert.

CULVERT OUTPUT    Profile #PF 2
Culvert ID : CULVERT#3

  Culv Q (cfs)           1996.13   Culv Vel In (ft/s)       14.12
  # Barrels                    5   Culv Vel Out (ft/s)      14.12
  Q Barrel (cfs)          399.23   Culv Inv El Up (ft)    1559.40
```

E.G. US. (ft)	1572.64	Culv Inv El Dn (ft)	1558.40
W.S. US. (ft)	1572.64	Culv Frctn Ls (ft)	1.51
Delta EG (ft)	7.19	Culv Ext Lss (ft)	2.90
Delta WS (ft)	7.38	Culv Ent Lss (ft)	2.79
E.G. IC (ft)	1569.84	Q Weir (cfs)	1839.21
E.G. OC (ft)	1572.65	Weir Sta Lft (ft)	11954.99
Culvert Control	Outlet	Weir Sta Rgt (ft)	12076.20
Culv WS In (ft)	1565.40	Weir Submerg	0.00
Culv WS Out (ft)	1564.40	Weir Max Depth (ft)	4.22
Culv Nml Depth (ft)		Weir Avg Depth (ft)	3.01
Culv Crt Depth (ft)	5.33	Wr Flw Area (sq ft)	364.51
Culv Ful Lngh (ft)	170.00	Min Top Rd (ft)	1572.27

CULVERT OUTPUT Profile #PF 2
Culvert ID : CULVERT#4

Culv Q (cfs)	1961.24	Culv Vel In (ft/s)	13.89
# Barrels	5	Culv Vel Out (ft/s)	14.85
Q Barrel (cfs)	392.25	Culv Inv El Up (ft)	1561.00
E.G. US. (ft)	1572.64	Culv Inv El Dn (ft)	1560.00
W.S. US. (ft)	1572.64	Culv Frctn Ls (ft)	1.22
Delta EG (ft)	7.19	Culv Ext Lss (ft)	3.27
Delta WS (ft)	7.38	Culv Ent Lss (ft)	2.70
E.G. IC (ft)	1571.22	Q Weir (cfs)	1839.21
E.G. OC (ft)	1572.64	Weir Sta Lft (ft)	11954.99
Culvert Control	Outlet	Weir Sta Rgt (ft)	12076.20
Culv WS In (ft)	1566.94	Weir Submerg	0.00
Culv WS Out (ft)	1565.30	Weir Max Depth (ft)	4.22
Culv Nml Depth (ft)	6.00	Weir Avg Depth (ft)	3.01
Culv Crt Depth (ft)	5.30	Wr Flw Area (sq ft)	364.51
Culv Ful Lngh (ft)		Min Top Rd (ft)	1572.27

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.

CULVERT OUTPUT Profile #PF 2
Culvert ID : CULVERT#5

Culv Q (cfs)	1190.38	Culv Vel In (ft/s)	14.03
# Barrels	3	Culv Vel Out (ft/s)	14.03
Q Barrel (cfs)	396.79	Culv Inv El Up (ft)	1560.00
E.G. US. (ft)	1572.64	Culv Inv El Dn (ft)	1558.70
W.S. US. (ft)	1572.64	Culv Frctn Ls (ft)	1.58
Delta EG (ft)	7.19	Culv Ext Lss (ft)	2.86
Delta WS (ft)	7.38	Culv Ent Lss (ft)	2.75
E.G. IC (ft)	1571.84	Q Weir (cfs)	1839.21
E.G. OC (ft)	1572.64	Weir Sta Lft (ft)	11954.99
Culvert Control	Outlet	Weir Sta Rgt (ft)	12076.20
Culv WS In (ft)	1566.00	Weir Submerg	0.00
Culv WS Out (ft)	1564.70	Weir Max Depth (ft)	4.22
Culv Nml Depth (ft)		Weir Avg Depth (ft)	3.01
Culv Crt Depth (ft)	5.32	Wr Flw Area (sq ft)	364.51
Culv Ful Lngh (ft)	180.00	Min Top Rd (ft)	1572.27

CULVERT OUTPUT Profile #PF 2
Culvert ID : CULVERT#6

Culv Q (cfs)	2.08	Culv Vel In (ft/s)	5.30
# Barrels	2	Culv Vel Out (ft/s)	5.30
Q Barrel (cfs)	1.04	Culv Inv El Up (ft)	1555.20
E.G. US. (ft)	1572.64	Culv Inv El Dn (ft)	1554.40
W.S. US. (ft)	1572.64	Culv Frctn Ls (ft)	6.56
Delta EG (ft)	7.19	Culv Ext Lss (ft)	0.24
Delta WS (ft)	7.38	Culv Ent Lss (ft)	0.39
E.G. IC (ft)	1556.43	Q Weir (cfs)	1839.21
E.G. OC (ft)	1572.62	Weir Sta Lft (ft)	11954.99
Culvert Control	Outlet	Weir Sta Rgt (ft)	12076.20
Culv WS In (ft)	1555.70	Weir Submerg	0.00
Culv WS Out (ft)	1554.90	Weir Max Depth (ft)	4.22
Culv Nml Depth (ft)	0.50	Weir Avg Depth (ft)	3.01
Culv Crt Depth (ft)	0.50	Wr Flw Area (sq ft)	364.51
Culv Ful Lngh (ft)	190.00	Min Top Rd (ft)	1572.27

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.
Note: Culvert critical depth exceeds the height of the culvert.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.320

INPUT
Description: Immediately Downstream of CAP
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4822.77	1576.4	4910.4	1576.62	4969.53	1577.93	5001.36	1576.18	5047.52	1583.14
5075.79	1584.14	5113.38	1583.69	5138.77	1582.58	5199.14	1580.27	5204.38	1580.28
5241.26	1578.85	5275.56	1571.61	5416.69	1572.54	5785.12	1570.56	5874.18	1568.64
6092.67	1568.05	6122.6	1562.36	6219.64	1561.46	6233.7	1568.45	6248.4	1566.79
6483.43	1565.3	6766.26	1566.35	7044.87	1567.4	7136.51	1567.75	7218.49	1567.99
7340.67	1566.77	7376.48	1567.06	7410.01	1570.77	7431.66	1562	7509.75	1561.98
7521.83	1567.92	7532	1571.22	7538.45	1570.79	7565.72	1567.73	7600.54	1566.87
7802.73	1573.84	7829.55	1573.89	7888.24	1574.21	7987.05	1574.05	8064.1	1574.37
8135.03	1574.76	8140.14	1574.81	8290.01	1575.43	8317.2	1575.38	8434.95	1572.77
8474.11	1572.07	8501.46	1572.17	8527.52	1571.7	8548.91	1571.81	8603.13	1572.82
8629.96	1574.03	8750.98	1575.28	8793.25	1573.83	8945.62	1574.04	8957.92	1573.96
9051.62	1573.82	9120.76	1574.19	9292.54	1574.54	9311.21	1573.44	9347.96	1574.07
9375.17	1573.38	9389.01	1572.67	9423.09	1573.28	9455.48	1573.05	9476.82	1573.1
9581.24	1571.62	9939.51	1570.44	9973.2	1560.45	10001.02	1560.31	0087.53	1563.67
10319.18	1562.72	10346.17	1562.53	10412.02	1562.87	10661.77	1563.39	10884.74	1564.96
10884.8	1564.96	10896.07	1565.02	10950.52	1565.33	10962.44	1565.29	11045.15	1565.55
11228.48	1565.71	1271.64	1565.82	11298.49	1565.7	11324.7	1565.71	1362.94	1565.73
11393.16	1565.85	11429.48	1565.92	11508.31	1565.26	11518.89	1565.25	11522.34	1565.25
11652.17	1565.11	1664.71	1565.11	1779.49	1564.67	11896	1568.38	11911.22	1571.81
11940.99	1569.11	1958.16	1568.6	11999.7	1563.92	12009.68	1563.92	12252.33	1573.31
12320.73	1571.33	12342.5	1568.39	12402.65	1567.69	12437.24	1569.23	12459.56	1569.52
12470.65	1571.73	12552.98	1562.74	12586.76	1571.3	12623.5	1570.11	12761.35	1569.9
12813.55	1570.21	2834.96	1570.41	2836.11	1570.42	13003.98	1570.52	13064.71	1570.31
13105.27	1575.22	13165.27	1574.95	13195.95	1572.74	13222	1572.41	3337.24	1570.66
13363.21	1561.51	13410.96	1562.87	13426.97	1570.17	13462.55	1569.87	13582.87	1566.28
13687.98	1566.11	13812.76	1565.91	13973.38	1565.45	14167.15	1563.77	14180.69	1563.52
14252.91	1562.79	14265.62	1562.54	14372.17	1561.84	14460.67	1570.23	14486.65	1570.49
14552.95	1560.97	14596.39	1560.78	14642.5	1563.76	14696.54	1560.87	14722.5	1562.99
14731.35	1560.06	14745.38	1559.89	14755.53	1562.23	14759.09	1560.09	14760.26	1560.05
14852.43	1560.97	14865.32	1562.74	14875.38	1555.91	14922.85	1555.91	14934.31	1561.56
14995.03	1562.51	15110.39	1561.71	15124.8	1560.66	15192.19	1560.53	15212.48	1558.32
15236.55	1558.31	5338.69	1558.82	15408.87	1559.35	15419.37	1560.78	15438.81	1559.19
15575.47	1558.76	15605.22	1558.77	15619.71	1559.31	5636.17	1560.12	15820.21	1560.6
15857.24	1556.45	15897.42	1556.01	16072.17	1555.25				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4822.77	.03	9939.51	.02510087.53		.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9939.51	10087.53		88.46	84.3	74.33 .3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4822.77	8744.03	1580	13432	16072.17	1580

Blocked Obstructions num= 1

Sta L	Sta R	Elev
16072.17	16072.17	1575

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1565.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.025	0.030
W.S. Elev (ft)	1565.25	Reach Len. (ft)	88.46	84.30	74.33
Crit W.S. (ft)	1564.38	Flow Area (sq ft)		457.37	1812.17
E.G. Slope (ft/ft)	0.001329	Area (sq ft)	639.74	457.37	11314.84
Q Total (cfs)	7000.00	Flow (cfs)		2277.43	4722.57
Top Width (ft)	3589.26	Top Width (ft)	212.67	130.53	3246.06
Vel Total (ft/s)	3.08	Avg. Vel. (ft/s)		4.98	2.61
Max Chl Dpth (ft)	10.00	Hydr. Depth (ft)		3.50	1.41
Conv. Total (cfs)	192011.2	Conv. (cfs)		62470.4	129540.8
Length Wtd. (ft)	80.06	Wetted Per. (ft)		131.29	1286.63
Min Ch El (ft)	1560.30	Shear (lb/sq ft)		0.29	0.12
Alpha	1.33	Stream Power (lb/ft s)		1.44	0.30
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	21.01	1.06	19.60

C & E Loss (ft) 0.25 Cum SA (acres) 2.62 0.32 6.01

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9939.51	9988.85	559.24	114.74	32.55	7.99	3.60	4.87
9988.85	10038.19	1226.11	217.09	49.37	17.52	4.40	5.65
10038.19	RB 10087.53	492.08	125.54	49.38	7.03	2.54	3.92
10087.53	10942.48	3936.42	1494.46	849.55	56.23	1.76	2.63
10942.48	11797.43	38.37	59.75	282.16	0.55	0.21	0.64
11797.43	12652.38	149.37	85.56	90.14	2.13	0.96	1.75
12652.38	13507.32	598.41	172.39	64.78	8.55	2.71	3.47

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.304

INPUT
Description:
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4873.16	1570.48	5004.62	1570.32	5014.53	1570.91	5062.47	1582.22	5090.36	1583.06
5126.08	1581.98	5136.75	1579.79	5195.63	1568.68	5253.57	1566.76	5298.18	1569.97
5308.88	1570.22	5386.52	1566.09	5521.01	1565.43	5582.57	1560.6	5618.87	1552.45
5721.92	1552.29	6093.67	1554.66	6503.25	1553.5	6640.91	1553.5	7425.07	1554.73
7551.54	1554.89	7564.76	1565.02	7863.21	1564.75	7910.55	1564.92	8206.61	1565.01
8532.12	1563.65	8560.1	1569.44	8570.51	1570.26	8586.09	1570.34	8599.28	1570.11
8610.86	1569.19	8630.19	1564.71	9161.12	1563.73	9252.35	1565.56	9269.82	1569.93
9276.86	1570.5	9307.6	1570.9	9348.61	1570.65	9619.06	1565.8	9660.32	1566.42
9893.55	1562.47	9966.37	1561.36	9985.78	1559.97	10031.85	1559.19	10052.98	1559.24
10071.29	1561.23	10085.01	1562	10093.57	1563.06	10096.37	1562.91	10273.56	1563.1
10276.47	1562.17	11015.83	1564.87	11032.52	1564.96	11070.24	1565.24	11152.64	1564.36
11345.09	1564.17	11362.2	1565.35	11425.87	1565.62	11456.37	1564.79	11467.68	1564.27
11483.04	1564.55	11629.9	1563.36	11650.89	1563.94	11852.71	1563.64	11869.67	1566.54
11896.16	1567.69	11932.22	1567.25	11961.07	1563.11	12056.15	1562.73	12098.28	1565.37
12178.41	1564.56	12328.76	1563.03	12480.56	1562.54	12511.7	1559.23	12531.36	1562.58
12618.69	1565.38	12947.99	1567.76	12995.81	1568.5	13147.48	1569.37	13179.54	1573.78
13239.43	1573.86	13271.07	1570.57	13325.19	1568.44	13349.96	1560.12	13385.55	1560.12
13403.52	1560.12	13418.95	1567.23	13471.48	1565.74	13784.81	1564.01	13819.2	1564.57
13841.82	1564.3	13843.4	1564.28	13934.21	1563.74	13946.96	1561.73	13957.41	1563.39
14340.4	1561.02	14399.56	1560.27	14413.88	1561.76	14439.48	1561.02	14450.81	1560.63
14781.69	1557.68	14823.39	1558.61	14888.39	1558.5	14903.14	1558.81	14911.86	1560.65
14927.93	1555.49	14955.16	1555.41	14985.87	1560.76	15003.5	1560.46	15012.85	1559.01
15061.46	1559.4	15089.52	1558.09	15110.3	1557.65	15125.98	1557.91	15151.77	1557.88
15334.84	1558.41	15385.19	1557.88	15455.6	1558.38	15680.66	1558.17	15710.16	1558.16
15720.63	1558.51	15732.38	1559.66	15894.01	1559.57	15908.77	1559.27	15918.35	1559.68
15926.55	1558.26	15951.08	1558.75	15983.69	1558.07	16012.78	1558.28	16029.42	1558.42
16164.68	1560.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4873.16	.15	9893.55	.025	10096.37	.15

Bank Sta: Left Right Coeff Contr. Expan.
9893.55 10096.37 .3 .5
Ineffective Flow num= 2

```
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4873.16  9314.1 1580.14   1342016164.68 1580.09
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
16164.6816164.68    1575
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1565.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.	0.150	0.025	0.150
W.S. Elev (ft)	1564.00	Reach Len. (ft)			
Crit W.S. (ft)	1564.00	Flow Area (sq ft)	69.55	639.38	1506.45
E.G. Slope (ft/ft)	0.004902	Area (sq ft)	20049.60	639.38	11661.59
Q Total (cfs)	7000.00	Flow (cfs)	40.43	5715.40	1244.17
Top Width (ft)	6367.15	Top Width (ft)	2364.18	202.82	3800.15
Vel Total (ft/s)	3.16	Avg. Vel. (ft/s)	0.58	8.94	0.83
Max Chl Dpth (ft)	11.71	Hydr. Depth (ft)	0.77	3.15	0.99
Conv. Total (cfs)	99981.7	Conv. (cfs)	577.5	81633.5	17770.6
Length Wtd. (ft)		Wetted Per. (ft)	90.64	203.08	1527.41
Min Ch El (ft)	1559.19	Shear (lb/sq ft)	0.23	0.96	0.30
Alpha	6.55	Stream Power (lb/ft s)	0.14	8.61	0.25
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal
depth is below critical depth). Water surface set to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9176.35	9893.55	40.43	69.55	90.64	0.58	0.77	0.58
LB 9893.55	9961.16	897.66	138.60	67.61	12.82	2.05	6.48
9961.16	10028.76	2683.95	267.49	67.66	38.34	3.96	10.03
10028.76	RB 10096.37	2133.79	233.29	67.81	30.48	3.45	9.15
10096.37	10963.27	430.48	642.12	682.70	6.15	0.94	0.67
10963.27	11830.17	18.78	68.64	279.87	0.27	0.25	0.27
11830.17	12697.07	413.43	548.78	489.79	5.91	1.12	0.75
12697.07	13563.98	381.47	246.92	75.04	5.45	3.36	1.54

Warning: Divided flow computed for this cross-section.
Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal
depth is below critical depth). Water surface set to critical depth.

SUMMARY OF MANNING'S N VALUES

River:Apache Junct FRS

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11	n12
Spillway	20.000	.06	.02	.06									
Spillway	19.993	.06	.032	.06									
Spillway	19.975	.06	.032	.06									
Spillway	19.896	.06	.028	.06									
Spillway	19.812	.09	.06	.028	.06								
Spillway	19.735	.09	.06	.028	.06								
Spillway	19.665	.09	.06	.028	.06								
Spillway	19.581	.09	.028	.06									
Spillway	19.504	.09	.028	.09	.06								
Spillway	19.410	.09	.028	.09	.06								
Spillway	19.303	.09	.028	.09	.06								
Spillway	19.208	.09	.028	.09	.15	.06							
Spillway	19.110	.15	.09	.15	.09	.15	.09	.15	.09	.028	.09	.15	.06
Spillway	19.012	.15	.09	.028	.09	.15	.06						
Spillway	18.920	.15	.028	.09	.06								
Spillway	18.817	.15	.09	.028	.09	.06							
Spillway	18.730	.15	.09	.028	.09	.06							

Spillway	18.654	.15	.028	.15	.09	
Spillway	18.550	.15	.028	.15	.09	
Spillway	18.481	.15	.028	.09		
Spillway	18.397	.15	.025	.09	.15	.09
Spillway	18.320	.15	.025	.15		
Spillway	18.247	.15	.028	.15		
Spillway	18.171	.15	.02	.15		
Spillway	18.051	.15	.028	.15		
Spillway	17.941	.15	.028	.15		
Spillway	17.844	.15	.028	.15		
Spillway	17.761	.15	.02	.15		
Spillway	17.674	.15	.02	.15		
Spillway	17.601	.15	.02	.15		
Spillway	17.480	.15	.02	.15		
Spillway	17.336	.15	.02	.15		
Spillway	17.262	.15	.02	.15		
Spillway	17.186	.15	.02	.15		
Spillway	17.111	.15	.02	.15		
Spillway	17.046	.15	.035	.15		
Spillway	16.983	.15	.035	.15		
Spillway	16.919	.15	.035	.15		
Spillway	16.860	.15	.035	.15		
Spillway	16.775	.15	.035	.15		
Spillway	16.678	.15	.02	.15		
Spillway	16.585	.15	.028	.15		
Spillway	16.525	.15	.028	.15		
Spillway	16.451	.15	.028	.15		
Spillway	16.381	.15	.02	.15		
Spillway	16.265	.15	.02	.15		
Spillway	16.182	.15	.02	.15		
Spillway	16.086	.15	.02	.15		
Spillway	16.001	.15	.02	.15		
Spillway	15.892	.15	.02	.15		
Spillway	15.784	.15	.02	.15		
Spillway	15.696	.15	.02	.15		
Spillway	15.607	.15	.02	.15		
Spillway	15.504	.15	.02	.15		
Spillway	15.419	.15	.028	.15		
Spillway	15.361	.15	.025	.15		
Spillway	15.34	Culvert				
Spillway	15.320	.03	.025	.03		
Spillway	15.304	.15	.025	.15		

SUMMARY OF REACH LENGTHS

River: Apache Junct FRS

Reach	River Sta.	Left	Channel	Right
Spillway	20.000	43.28	34.75	44.55
Spillway	19.993	94.49	99.29	88.53
Spillway	19.975	416.52	415.95	409
Spillway	19.896	444.8	443.55	442.48
Spillway	19.812	410.21	406.82	401.03
Spillway	19.735	363.11	367.49	373
Spillway	19.665	435.66	441.94	435.91
Spillway	19.581	432.12	407.92	355
Spillway	19.504	443.61	495.7	479.53
Spillway	19.410	535	565.65	492.3
Spillway	19.303	570	501.11	467.95
Spillway	19.208	440	517.56	497.46
Spillway	19.110	545	521.08	508.11
Spillway	19.012	347.81	482.12	335
Spillway	18.920	404.5	544.04	400
Spillway	18.817	402.59	458.21	415.84
Spillway	18.730	429.44	402.72	399.74
Spillway	18.654	492.04	551.96	536.77
Spillway	18.550	335	361.64	341.28
Spillway	18.481	443.61	444.17	450
Spillway	18.397	347.84	408.99	396
Spillway	18.320	268.13	380.9	331.29
Spillway	18.247	361.88	401.35	317.5
Spillway	18.171	565	633.22	508.03

Spillway	18.051	525	583.8	596.87
Spillway	17.941	368.92	509.5	343.39
Spillway	17.844	375	441.57	330
Spillway	17.761	192.33	457.84	585
Spillway	17.674	317.78	384.64	153.53
Spillway	17.601	492.39	639.3	480
Spillway	17.480	422.71	759.29	635.28
Spillway	17.336	292.68	391.01	280
Spillway	17.262	320	403.01	280
Spillway	17.186	297.26	396.01	290
Spillway	17.111	286.01	340.97	275
Spillway	17.046	320.73	334.71	325
Spillway	16.983	314.66	337.78	317
Spillway	16.919	294.82	311.56	321.17
Spillway	16.860	387	447.02	388.71
Spillway	16.775	361.96	513.4	490
Spillway	16.678	430.64	490.1	305
Spillway	16.585	290	318.41	208.83
Spillway	16.525	330	391.68	271.49
Spillway	16.451	401.88	370.79	366.61
Spillway	16.381	354.57	609.88	452.58
Spillway	16.265	323.21	438.39	331.63
Spillway	16.182	255	507.2	380
Spillway	16.086	272.52	446.48	350
Spillway	16.001	377.84	575.99	440
Spillway	15.892	380	574.17	385.41
Spillway	15.784	370	461.26	344.31
Spillway	15.696	376.56	470.47	385.16
Spillway	15.607	409.72	545.69	344.4
Spillway	15.504	370	445.22	390
Spillway	15.419	390	307.29	328.78
Spillway	15.361	224.47	218.48	231.22
Spillway	15.34	Culvert		
Spillway	15.320	88.46	84.3	74.33
Spillway	15.304			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Apache Junct FRS

Reach	River Sta.	Contr.	Expan.
Spillway	20.000	.3	.5
Spillway	19.993	.3	.5
Spillway	19.975	.3	.5
Spillway	19.896	.3	.5
Spillway	19.812	.3	.5
Spillway	19.735	.3	.5
Spillway	19.665	.3	.5
Spillway	19.581	.3	.5
Spillway	19.504	.3	.5
Spillway	19.410	.3	.5
Spillway	19.303	.3	.5
Spillway	19.208	.3	.5
Spillway	19.110	.3	.5
Spillway	19.012	.1	.3
Spillway	18.920	.1	.3
Spillway	18.817	.1	.3
Spillway	18.730	.1	.3
Spillway	18.654	.1	.3
Spillway	18.550	.1	.3
Spillway	18.481	.1	.3
Spillway	18.397	.1	.3
Spillway	18.320	.1	.3
Spillway	18.247	.1	.3
Spillway	18.171	.1	.3
Spillway	18.051	.1	.3
Spillway	17.941	.1	.3
Spillway	17.844	.1	.3
Spillway	17.761	.1	.3
Spillway	17.674	.1	.3
Spillway	17.601	.1	.3
Spillway	17.480	.1	.3

Spillway	17.336	.1	.3
Spillway	17.262	.1	.3
Spillway	17.186	.1	.3
Spillway	17.111	.1	.3
Spillway	17.046	.1	.3
Spillway	16.983	.1	.3
Spillway	16.919	.1	.3
Spillway	16.860	.1	.3
Spillway	16.775	.1	.3
Spillway	16.678	.1	.3
Spillway	16.585	.1	.3
Spillway	16.525	.1	.3
Spillway	16.451	.1	.3
Spillway	16.381	.1	.3
Spillway	16.265	.1	.3
Spillway	16.182	.1	.3
Spillway	16.086	.1	.3
Spillway	16.001	.1	.3
Spillway	15.892	.1	.3
Spillway	15.784	.1	.3
Spillway	15.696	.1	.3
Spillway	15.607	.1	.3
Spillway	15.504	.1	.3
Spillway	15.419	.3	.5
Spillway	15.361	.3	.5
Spillway	15.34	Culvert	
Spillway	15.320	.3	.5
Spillway	15.304	.3	.5

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Spillway	20.000	7000.00	1799.77	1805.16	1805.16	1807.85	0.003781	13.17	531.62	99.59	1.00
Spillway	19.993	7000.00	1779.09	1781.13	1784.56	1802.00	0.270958	36.67	190.92	98.76	4.65
Spillway	19.975	7000.00	1779.79	1784.65	1782.82	1785.11	0.001966	5.45	1283.25	296.24	0.46
Spillway	19.896	7000.00	1777.78	1782.40	1782.40	1783.27	0.014106	10.87	1219.91	2081.21	1.27
Spillway	19.812	7000.00	1772.23	1774.96	1774.76	1775.38	0.015163	8.74	1609.69	4123.08	1.24
Spillway	19.735	7000.00	1765.09	1769.05	1769.04	1769.66	0.012929	8.24	1590.87	3791.56	1.15
Spillway	19.665	7000.00	1759.98	1763.54	1763.44	1764.05	0.017759	9.60	1708.54	3670.01	1.34
Spillway	19.581	7000.00	1754.45	1757.32	1756.60	1757.53	0.012184	9.68	2208.03	2754.93	1.16
Spillway	19.504	7000.00	1747.30	1752.35	1750.28	1752.65	0.012141	12.41	2930.32	4040.63	1.20
Spillway	19.410	7000.00	1742.92	1746.05	1745.88	1746.29	0.016272	11.86	3058.67	4367.60	1.36
Spillway	19.303	7000.00	1734.37	1739.41	1739.27	1739.66	0.010010	10.64	3557.22	4454.92	1.09
Spillway	19.208	7000.00	1728.13	1732.11	1731.98	1732.45	0.017920	11.64	2937.00	3991.37	1.40
Spillway	19.110	7000.00	1722.69	1726.13	1726.13	1726.56	0.009580	9.84	3463.43	3380.10	1.07
Spillway	19.012	7000.00	1715.92	1720.03	1719.51	1720.08	0.008636	6.09	5585.62	4370.35	0.90
Spillway	18.920	7000.00	1712.11	1715.82	1715.53	1716.00	0.015451	11.03	4373.74	3913.26	1.30
Spillway	18.817	7000.00	1706.27	1710.73	1710.73	1711.21	0.008436	10.76	3472.30	3348.54	1.04
Spillway	18.730	7000.00	1701.38	1706.15	1706.23	1706.67	0.014602	15.00	3407.83	3501.19	1.38
Spillway	18.654	7000.00	1700.00	1702.32	1700.86	1702.36	0.007960	7.24	5412.03	3624.47	0.92
Spillway	18.550	7000.00	1692.50	1696.18	1696.03	1696.45	0.019184	13.14	4009.68	3684.88	1.47
Spillway	18.481	7000.00	1690.36	1692.39	1691.26	1692.44	0.007817	5.64	5228.54	3606.27	0.87
Spillway	18.397	7000.00	1682.74	1687.40	1687.38	1687.78	0.014622	13.41	4376.04	3869.65	1.44
Spillway	18.320	7000.00	1679.81	1683.34	1683.05	1683.60	0.009087	10.85	5447.36	4127.77	1.17
Spillway	18.247	7000.00	1676.99	1680.42	1679.87	1680.54	0.011384	10.33	4890.81	3519.51	1.14
Spillway	18.171	7000.00	1674.29	1676.74	1676.22	1677.06	0.008779	10.80	4975.88	3524.81	1.37
Spillway	18.051	7000.00	1667.96	1671.31	1670.49	1671.39	0.011777	9.34	5096.39	4224.39	1.12
Spillway	17.941	7000.00	1662.40	1665.89	1665.24	1665.98	0.008758	8.31	5667.75	4154.23	0.99
Spillway	17.844	7000.00	1658.73	1662.25	1661.42	1662.37	0.010755	9.96	5094.79	4163.45	1.11
Spillway	17.761	7000.00	1652.45	1658.53	1658.53	1659.20	0.006156	10.62	4563.24	3571.36	1.19
Spillway	17.674	7000.00	1649.09	1656.03	1656.22	1656.97	0.007346	12.31	4181.45	3060.20	1.31
Spillway	17.601	7000.00	1646.80	1653.17	1653.14	1653.86	0.007197	10.22	3924.87	2683.77	1.24
Spillway	17.480	7000.00	1642.99	1648.14	1648.14	1648.80	0.012530	12.21	3722.88	2590.42	1.60
Spillway	17.336	7000.00	1639.23	1644.09	1644.14	1644.74	0.005195	12.41	5707.69	3849.01	1.16
Spillway	17.262	7000.00	1636.44	1640.68	1640.50	1641.04	0.012575	11.88	4446.61	3490.89	1.58
Spillway	17.186	7000.00	1633.15	1638.12	1637.55	1638.31	0.006055	9.02	5634.76	3700.54	1.12
Spillway	17.111	7000.00	1630.61	1635.13	1635.11	1635.65	0.012938	13.83	4274.25	3595.16	1.65
Spillway	17.046	7000.00	1629.25	1632.87	1631.81	1632.92	0.006734	6.21	5720.73	4095.76	0.70
Spillway	16.983	7000.00	1623.96	1630.01	1629.55	1630.23	0.010526	9.76	4602.40	6283.40	0.91
Spillway	16.919	7000.00	1620.94	1626.92	1626.92	1627.55	0.006531	9.52	4231.37	5688.56	0.77
Spillway	16.860	7000.00	1619.10	1623.61	1623.35	1623.86	0.015330	9.66	4020.83	5234.45	1.07
Spillway	16.775	7000.00	1615.22	1620.25	1619.34	1620.31	0.005792	6.44	5803.03	6560.87	0.65
Spillway	16.678	7000.00	1614.41	1616.27	1616.27	1616.87	0.011923	11.71	4140.37	5033.83	1.57
Spillway	16.585	7000.00	1608.83	1612.27	1612.13	1612.60	0.008481	10.15	4966.66	3812.27	1.03
Spillway	16.525	7000.00	1606.88	1610.16	1609.00	1610.21	0.007828	6.98	5531.90	4449.29	0.89
Spillway	16.451	7000.00	1604.99	1606.85	1605.54	1606.89	0.013493	5.67	4733.55	5125.63	1.05
Spillway	16.381	7000.00	1599.99	1603.07	1602.09	1603.16	0.006928	7.44	5751.32	4879.49	1.13
Spillway	16.265	7000.00	1595.98	1599.50	1599.43	1599.93	0.009637	11.61	5095.35	4531.22	1.44

Spillway	16.182	7000.00	1593.56	1596.58	1596.00	1596.72	0.008840	8.78	5583.41	4491.83	1.29
Spillway	16.086	7000.00	1590.17	1593.89	1593.43	1594.06	0.009731	8.99	5243.27	4028.64	1.33
Spillway	16.001	7000.00	1588.97	1591.72	1590.90	1591.79	0.006276	5.31	6077.89	4366.38	1.01
Spillway	15.892	7000.00	1585.05	1588.45	1587.74	1588.59	0.010000	7.66	4621.35	3637.23	1.30
Spillway	15.784	7000.00	1582.18	1584.62	1584.23	1584.95	0.007701	8.87	4787.17	4202.64	1.23
Spillway	15.696	7000.00	1580.14	1581.25	1580.11	1581.35	0.011736	7.12	4748.17	4839.29	1.38
Spillway	15.607	7000.00	1573.77	1577.54	1575.64	1577.93	0.006396	8.82	4531.88	4292.95	1.15
Spillway	15.504	7000.00	1571.86	1574.33	1574.33	1575.02	0.007301	10.37	3998.23	5027.82	1.26
Spillway	15.419	7000.00	1568.96	1572.65	1570.16	1572.68	0.000807	3.10	10124.67	8016.50	0.32
Spillway	15.361	7000.00	1561.37	1572.64	1563.22	1572.64	0.000028	1.53	26925.83	10251.52	0.08
Spillway	15.34	Culvert									
Spillway	15.320	7000.00	1560.30	1565.25	1564.38	1565.45	0.001329	4.98	2269.54	3589.26	0.47
Spillway	15.304	7000.00	1559.19	1564.00	1564.00	1565.02	0.004902	8.94	2215.38	6367.15	0.89

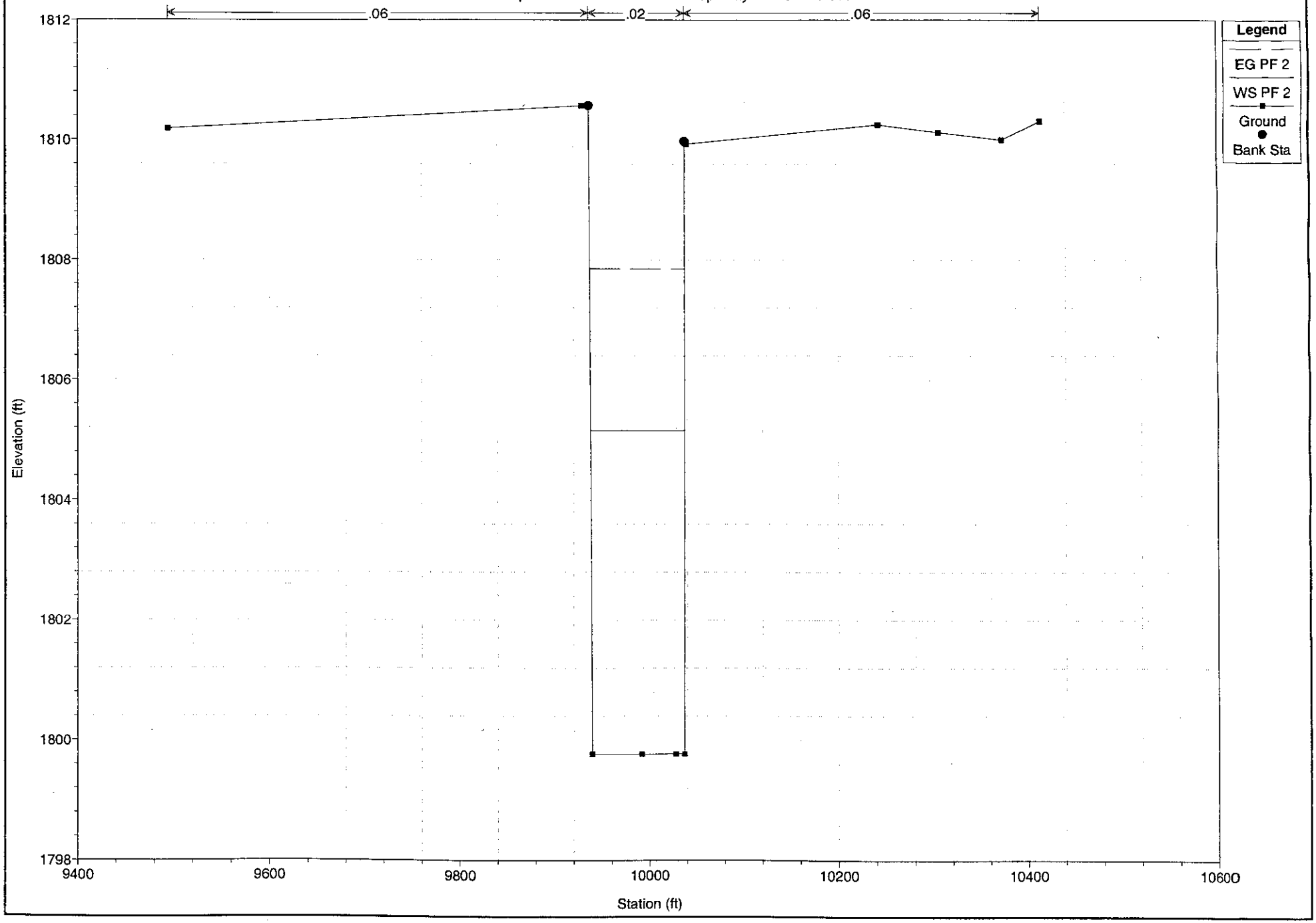
Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Spillway	20.000	1807.85	1805.16	2.69	0.20	0.00		7000.00		99.59
Spillway	19.993	1802.00	1781.13	20.87	0.42	5.45		7000.00		98.76
Spillway	19.975	1785.11	1784.65	0.46	1.72	0.12		7000.00		296.24
Spillway	19.896	1783.27	1782.40	0.87	6.48	0.23	1336.35	2267.24	3396.41	2081.21
Spillway	19.812	1775.38	1774.96	0.42	5.67	0.06	2515.80	1223.37	3260.83	4123.08
Spillway	19.735	1769.66	1769.05	0.60	5.56	0.05	887.80	3337.21	2774.99	3791.56
Spillway	19.665	1764.05	1763.54	0.51	6.37	0.15	1757.40	1737.75	3504.85	3670.01
Spillway	19.581	1757.53	1757.32	0.21	4.85	0.03	3221.05	289.01	3489.94	2754.93
Spillway	19.504	1752.65	1752.35	0.30	6.33	0.03	4004.63	684.02	2311.34	4040.63
Spillway	19.410	1746.29	1746.05	0.23	6.62	0.01	4697.10	529.54	1773.36	4367.60
Spillway	19.303	1739.66	1739.41	0.25	7.19	0.02	4862.39	823.45	1314.16	4454.92
Spillway	19.208	1732.45	1732.11	0.33	5.86	0.03	5482.03	901.09	616.88	3991.37
Spillway	19.110	1726.56	1726.13	0.43			5101.10	1883.68	15.22	3380.10
Spillway	19.012	1720.08	1720.03	0.05	4.07	0.01	5940.27	366.22	693.51	4370.35
Spillway	18.920	1716.00	1715.82	0.18	4.76	0.03	5769.71	540.21	690.09	3913.26
Spillway	18.817	1711.21	1710.73	0.48			3897.14	1738.11	1364.75	3348.54
Spillway	18.730	1706.67	1706.15	0.52	4.54	0.00	3789.40	945.18	2265.42	3501.19
Spillway	18.654	1702.36	1702.32	0.05	5.90	0.02	5043.04	184.93	1772.03	3624.47
Spillway	18.550	1696.45	1696.18	0.27	3.94	0.06	5178.06	598.41	1223.53	3684.88
Spillway	18.481	1692.44	1692.39	0.05	4.63	0.03	4690.37	344.33	1965.29	3606.27
Spillway	18.397	1687.78	1687.40	0.39	4.14	0.04	4747.47	895.35	1357.17	3869.65
Spillway	18.320	1683.60	1683.34	0.26	3.02	0.04	4905.26	920.85	1173.89	4127.77
Spillway	18.247	1680.54	1680.42	0.13	3.46	0.02	3748.98	419.89	2831.13	3519.51
Spillway	18.171	1677.06	1676.74	0.32	5.60	0.07	2904.60	1150.80	2944.60	3524.81
Spillway	18.051	1671.39	1671.31	0.09	5.41	0.00	5866.02	311.51	822.47	4224.39
Spillway	17.941	1665.98	1665.89	0.09	3.61	0.00	5422.32	469.84	1107.84	4154.23
Spillway	17.844	1662.37	1662.25	0.12	3.12	0.05	5843.93	438.84	717.23	4163.45
Spillway	17.761	1659.20	1658.53	0.67			4246.90	2644.04	109.06	3571.36
Spillway	17.674	1656.97	1656.03	0.93	2.20	0.03	2671.98	2741.25	1586.77	3060.20
Spillway	17.601	1653.86	1653.17	0.69	5.05	0.01	3471.87	2930.67	597.46	2683.77
Spillway	17.480	1648.80	1648.14	0.66			4951.33	1920.12	128.55	2590.42

Spillway	17.336	1644.74	1644.09	0.65	4.06	0.00	4340.18	1868.88	790.94	3849.01
Spillway	17.262	1641.04	1640.68	0.36	2.67	0.05	3910.92	1061.07	2028.02	3490.89
Spillway	17.186	1638.31	1638.12	0.19	2.63	0.03	2722.57	977.59	3299.84	3700.54
Spillway	17.111	1635.65	1635.13	0.52	2.58	0.14	1602.27	1176.85	4220.89	3595.16
Spillway	17.046	1632.92	1632.87	0.05	2.68	0.02	2231.73	297.57	4470.70	4095.76
Spillway	16.983	1630.23	1630.01	0.22	2.63	0.04	1443.20	895.48	4661.31	6283.40
Spillway	16.919	1627.55	1626.92	0.63			1310.91	3104.89	2584.20	5688.56
Spillway	16.860	1623.86	1623.61	0.24	3.49	0.06	3476.01	1027.39	2496.60	5234.45
Spillway	16.775	1620.31	1620.25	0.06	3.39	0.05	4466.81	425.24	2107.95	6560.87
Spillway	16.678	1616.87	1616.27	0.60			3813.85	1897.61	1288.53	5033.83
Spillway	16.585	1612.60	1612.27	0.33	2.31	0.08	3897.81	1351.93	1750.26	3812.27
Spillway	16.525	1610.21	1610.16	0.05	3.32	0.00	6516.25	238.56	245.19	4449.29
Spillway	16.451	1606.89	1606.85	0.04	3.73	0.00	6514.74	112.53	372.73	5125.63
Spillway	16.381	1603.16	1603.07	0.08	3.19	0.03	6431.19	509.00	59.81	4879.49
Spillway	16.265	1599.93	1599.50	0.43	3.12	0.08	5138.75	1376.57	484.68	4531.22
Spillway	16.182	1596.72	1596.58	0.14	2.66	0.00	6164.81	731.78	103.42	4491.83
Spillway	16.086	1594.06	1593.89	0.17	2.24	0.03	6164.55	835.45		4028.64
Spillway	16.001	1591.79	1591.72	0.07	3.19	0.01	6188.01	811.99		4366.38
Spillway	15.892	1588.59	1588.45	0.14	3.62	0.02	5930.87	898.48	170.65	3637.23
Spillway	15.784	1584.95	1584.62	0.33	3.53	0.07	3606.14	1824.44	1569.42	4202.64
Spillway	15.696	1581.35	1581.25	0.10	3.39	0.03	2568.81	668.33	3762.86	4839.29
Spillway	15.607	1577.93	1577.54	0.39	2.88	0.03	788.02	2153.10	4058.88	4292.95
Spillway	15.504	1575.02	1574.33	0.69	0.74	0.20	312.22	2853.00	3834.78	5027.82
Spillway	15.419	1572.68	1572.65	0.03	0.03	0.01	0.41	1223.95	5775.65	8016.50
Spillway	15.361	1572.64	1572.64	0.01				1370.74	5629.26	10251.52
Spillway	15.34	Culvert								
Spillway	15.320	1565.45	1565.25	0.20	0.18	0.25		2277.43	4722.57	3589.26
Spillway	15.304	1565.02	1564.00	1.01			40.43	5715.40	1244.17	6367.15

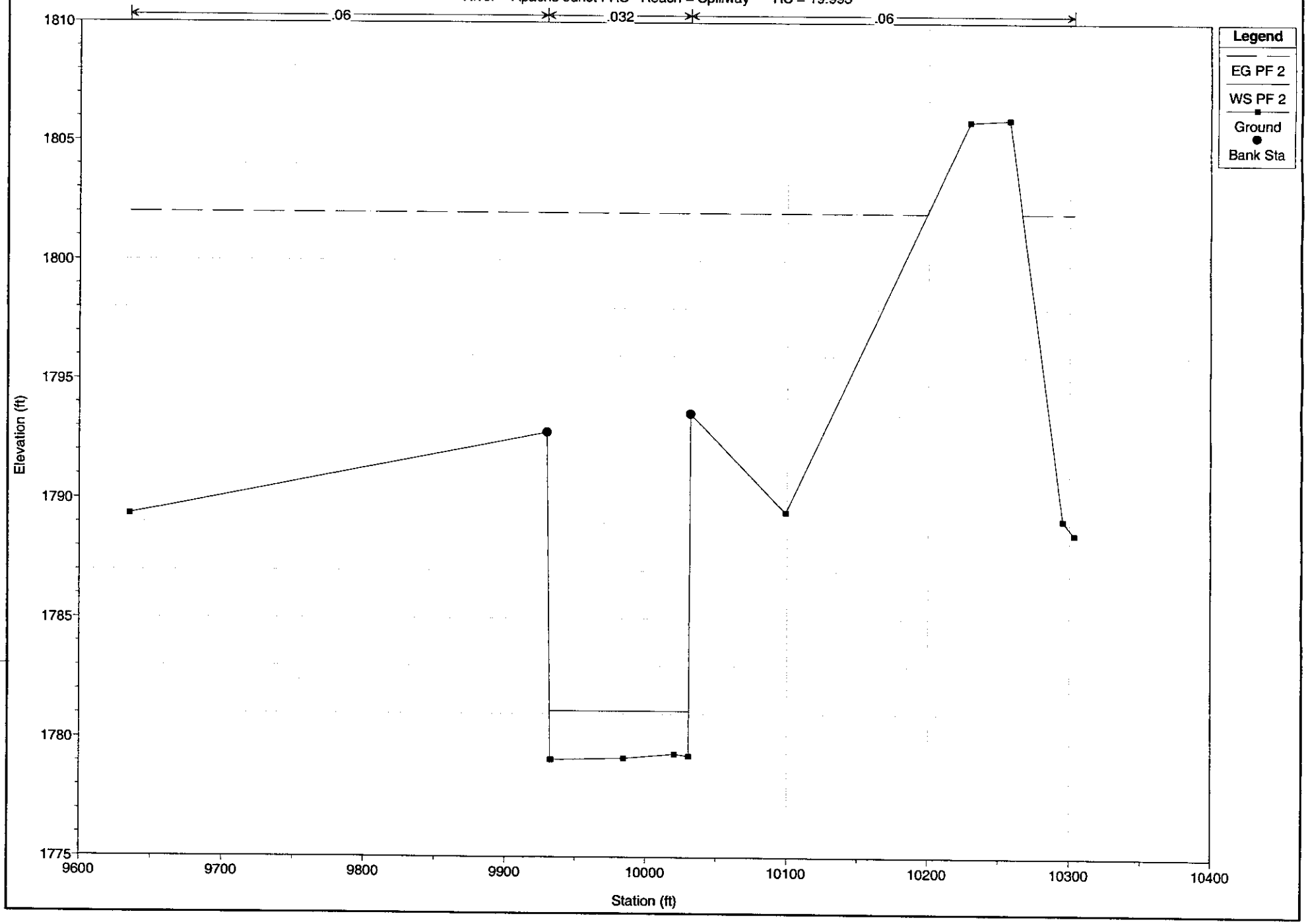
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

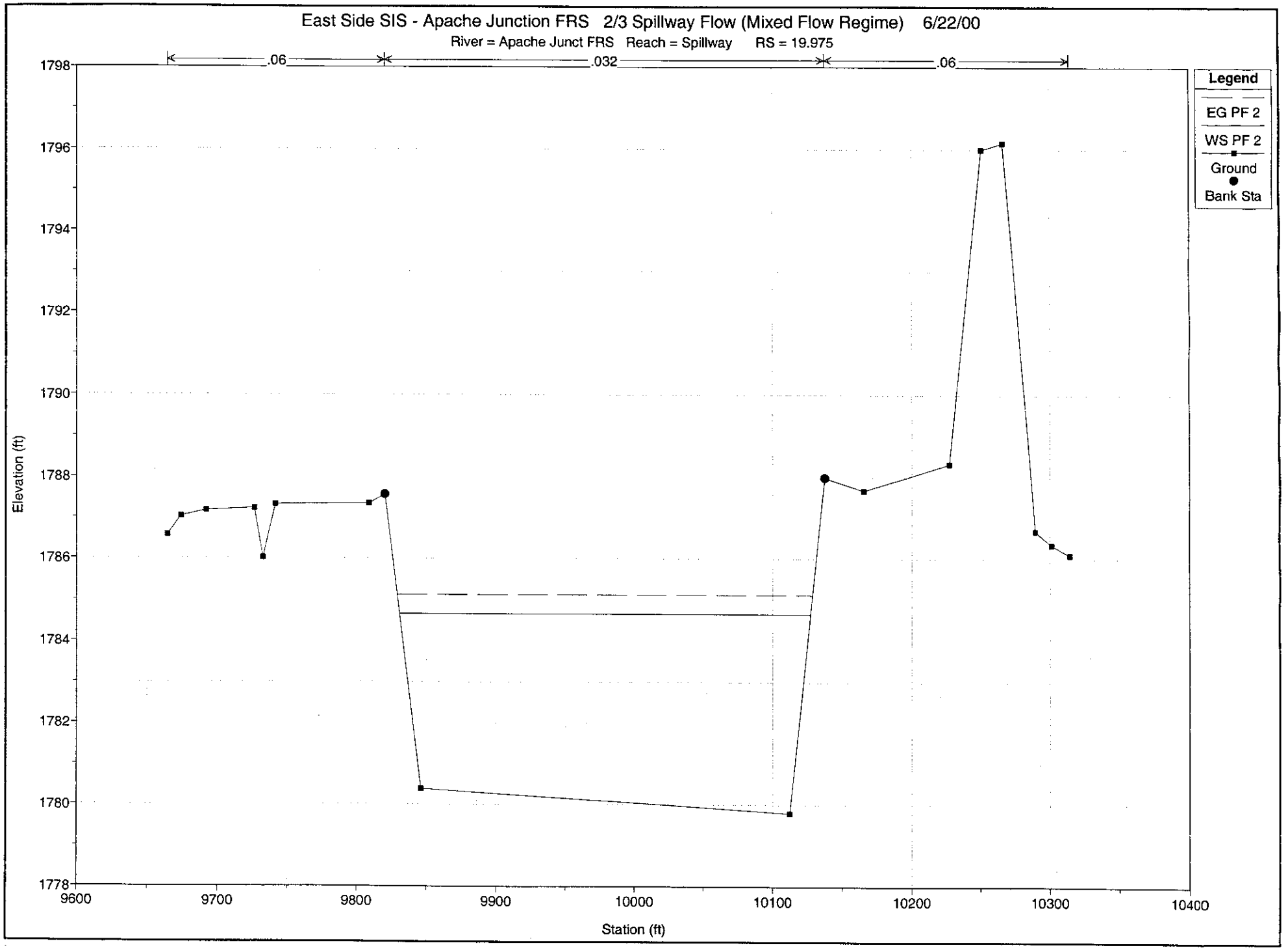
River = Apache Junct FRS Reach = Spillway RS = 20.000

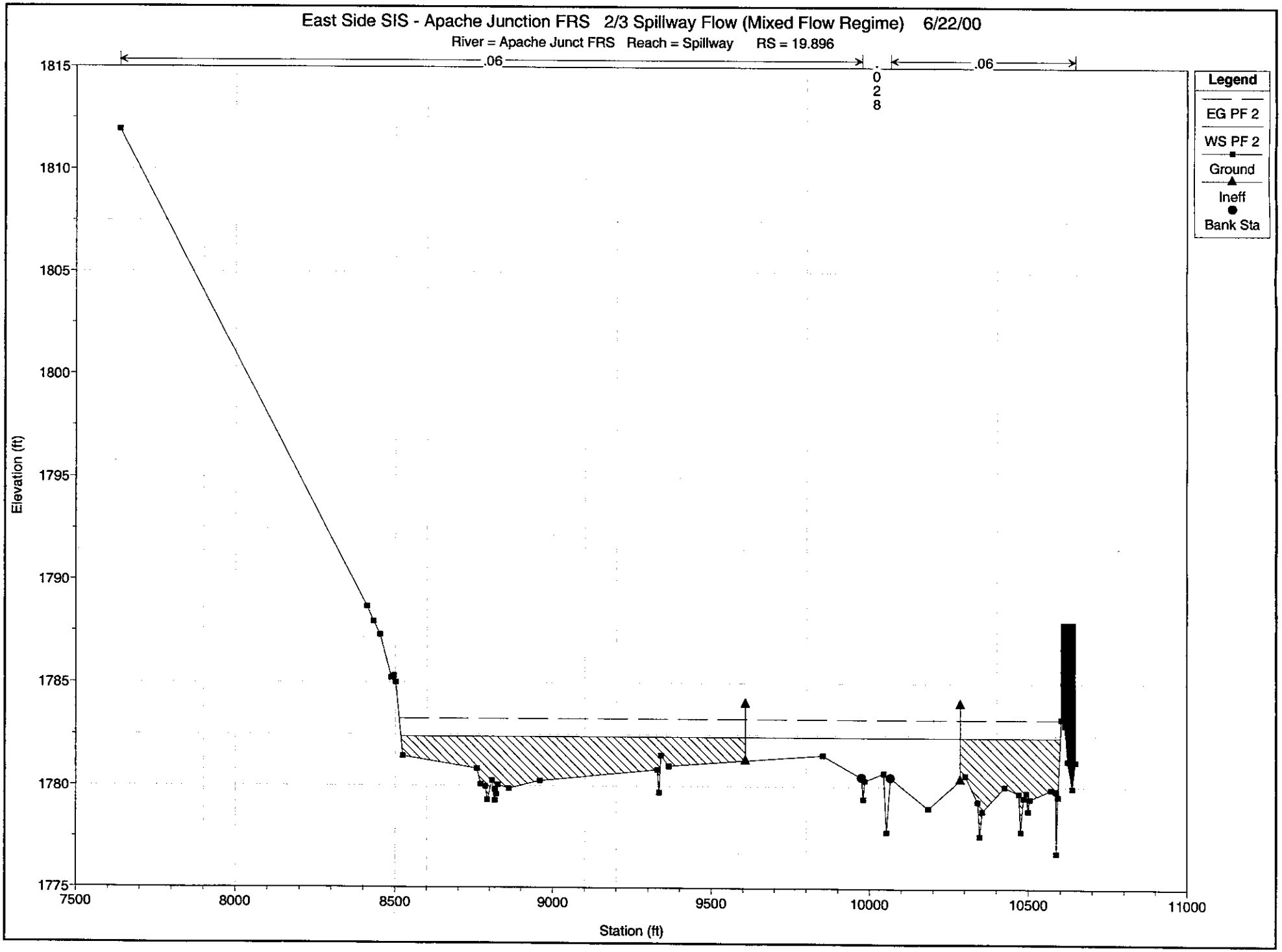


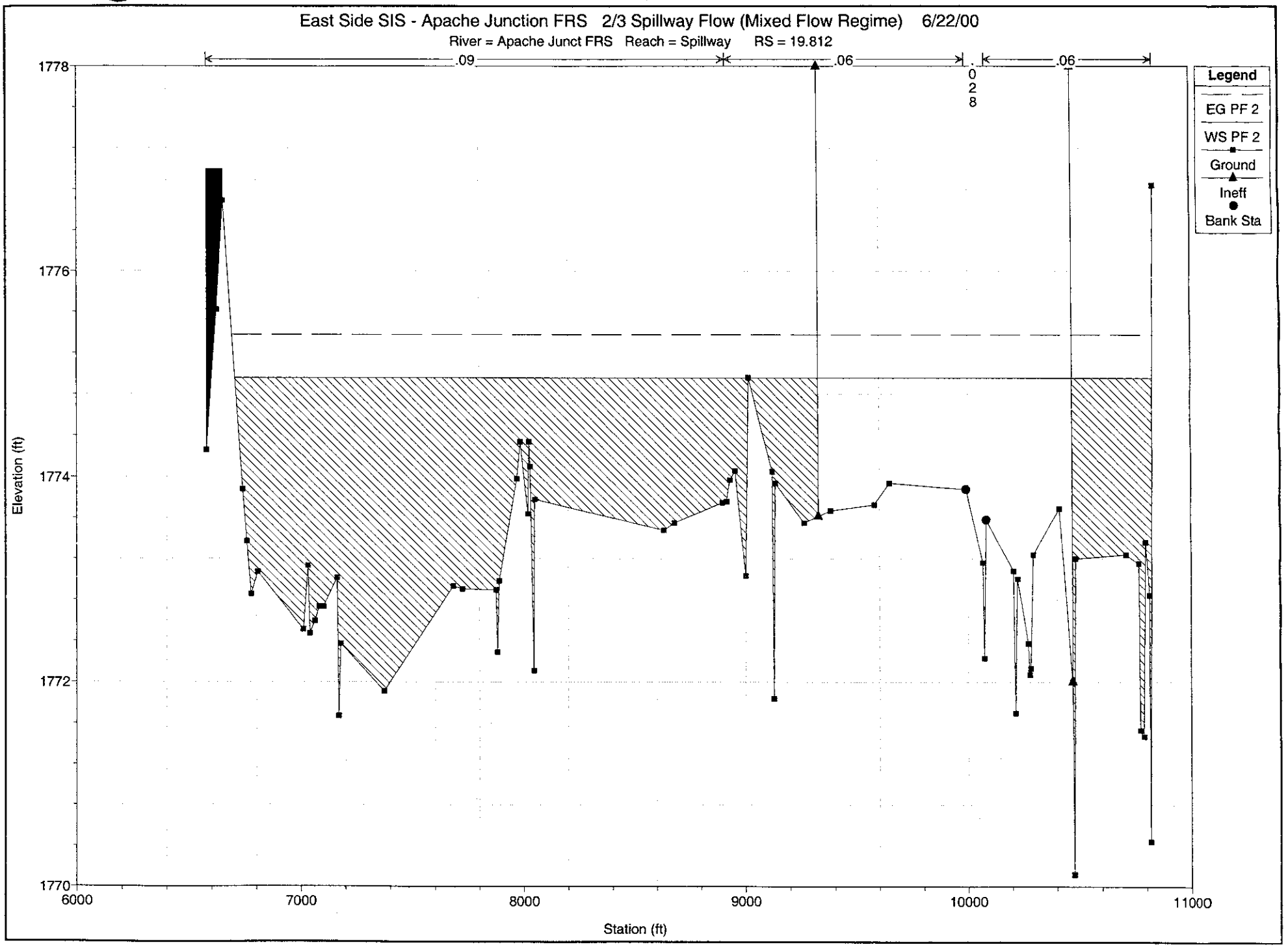
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

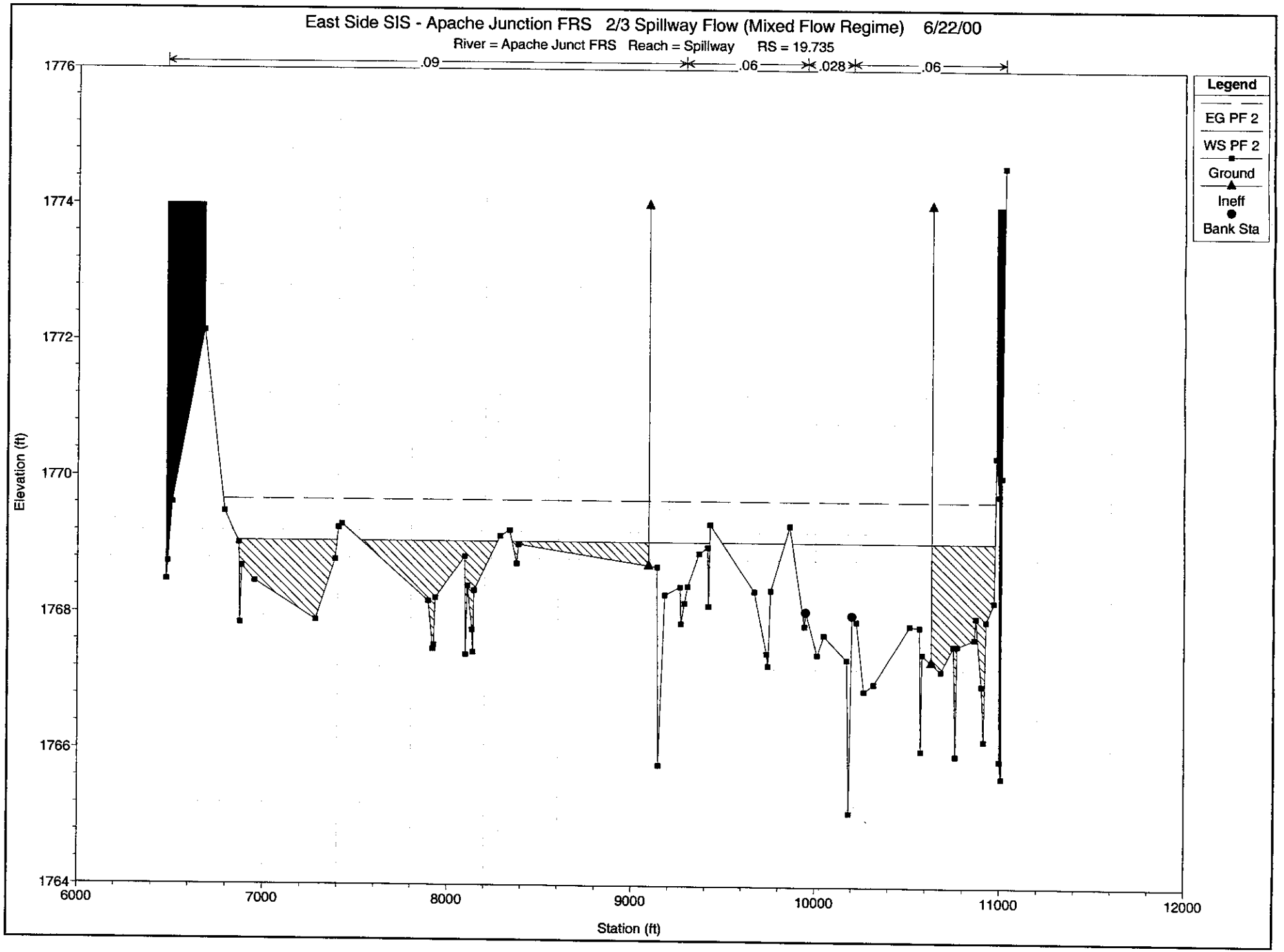
River = Apache Junct FRS Reach = Spillway RS = 19.993

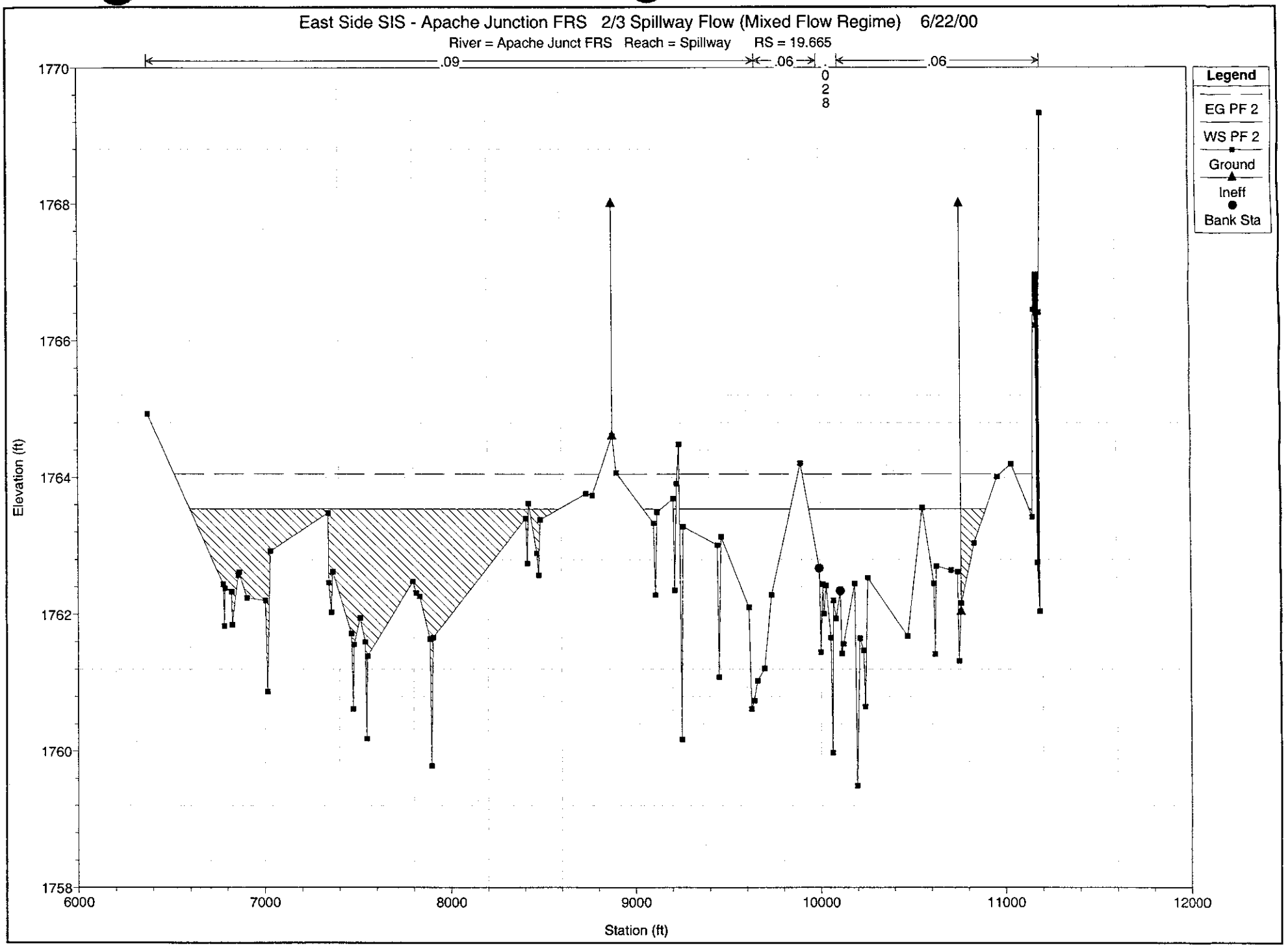


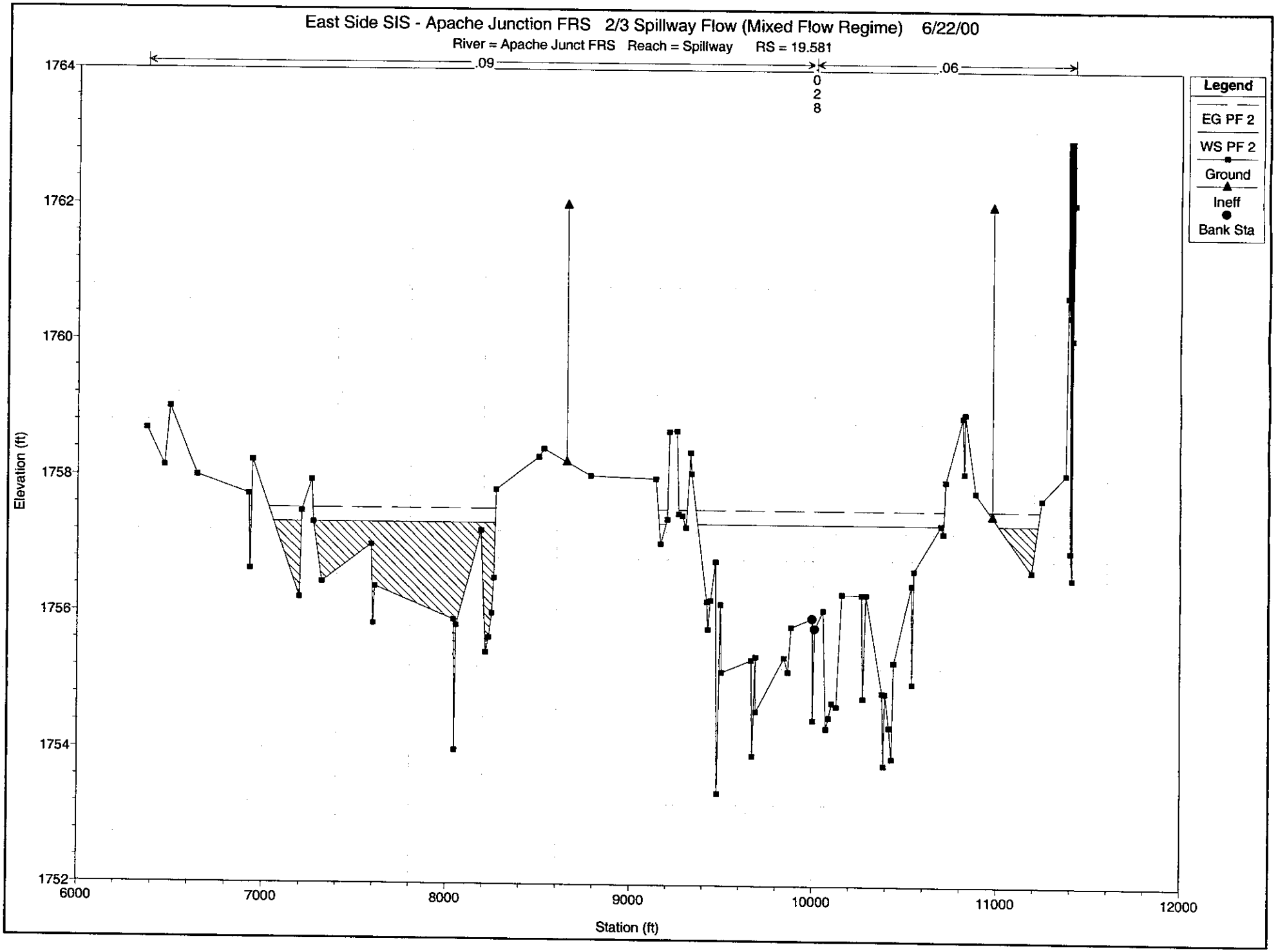

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.975
.06
.032
.06
Legend
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
1798
1796
1794
1792
1790
1788
1786
1784
1782
1780
1778
9600
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

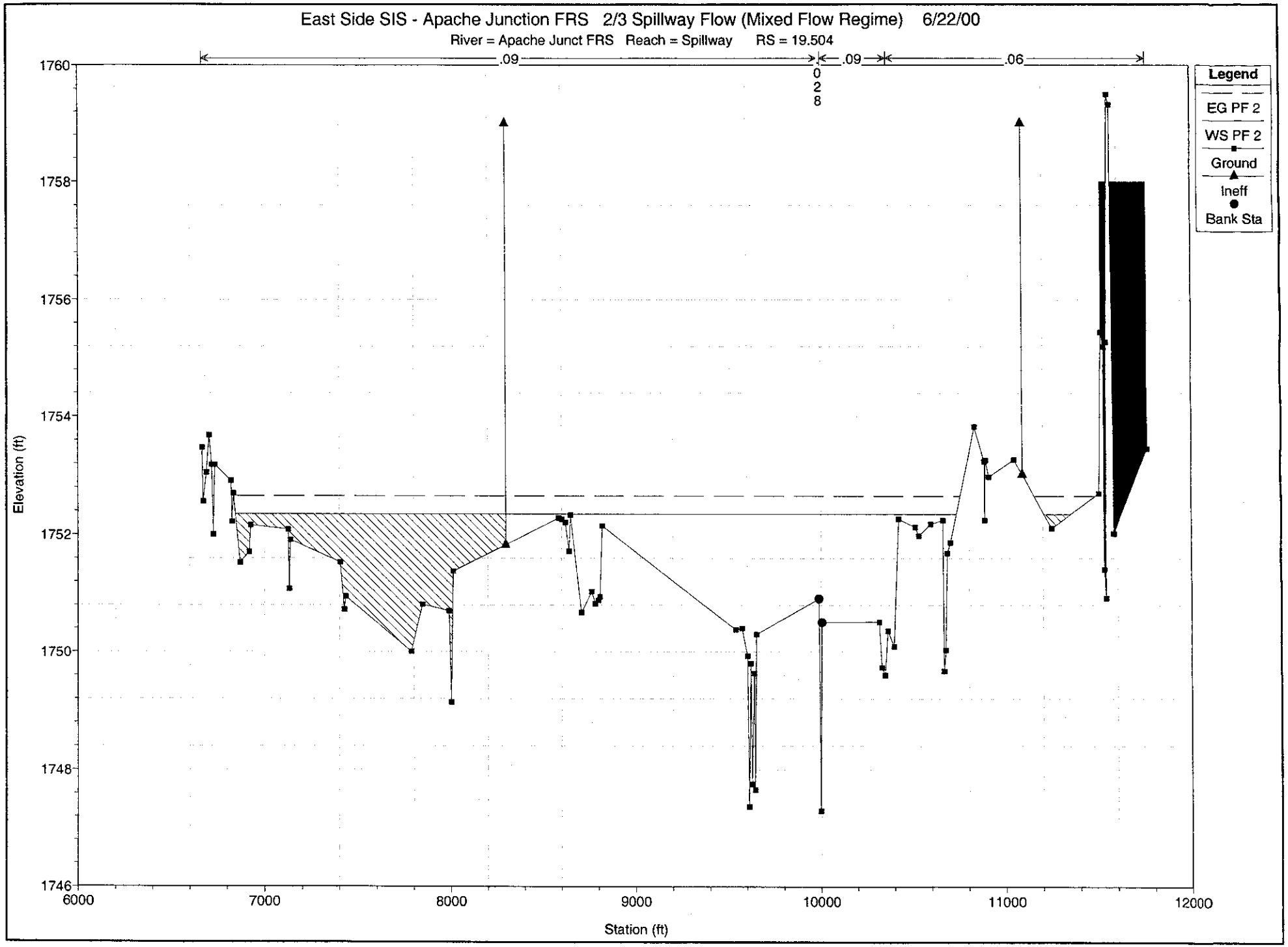

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.896
.06
.028
.06
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1815
1810
1805
1800
1795
1790
1785
1780
1775
7500
8000
8500
9000
9500
10000
10500
11000
Station (ft)

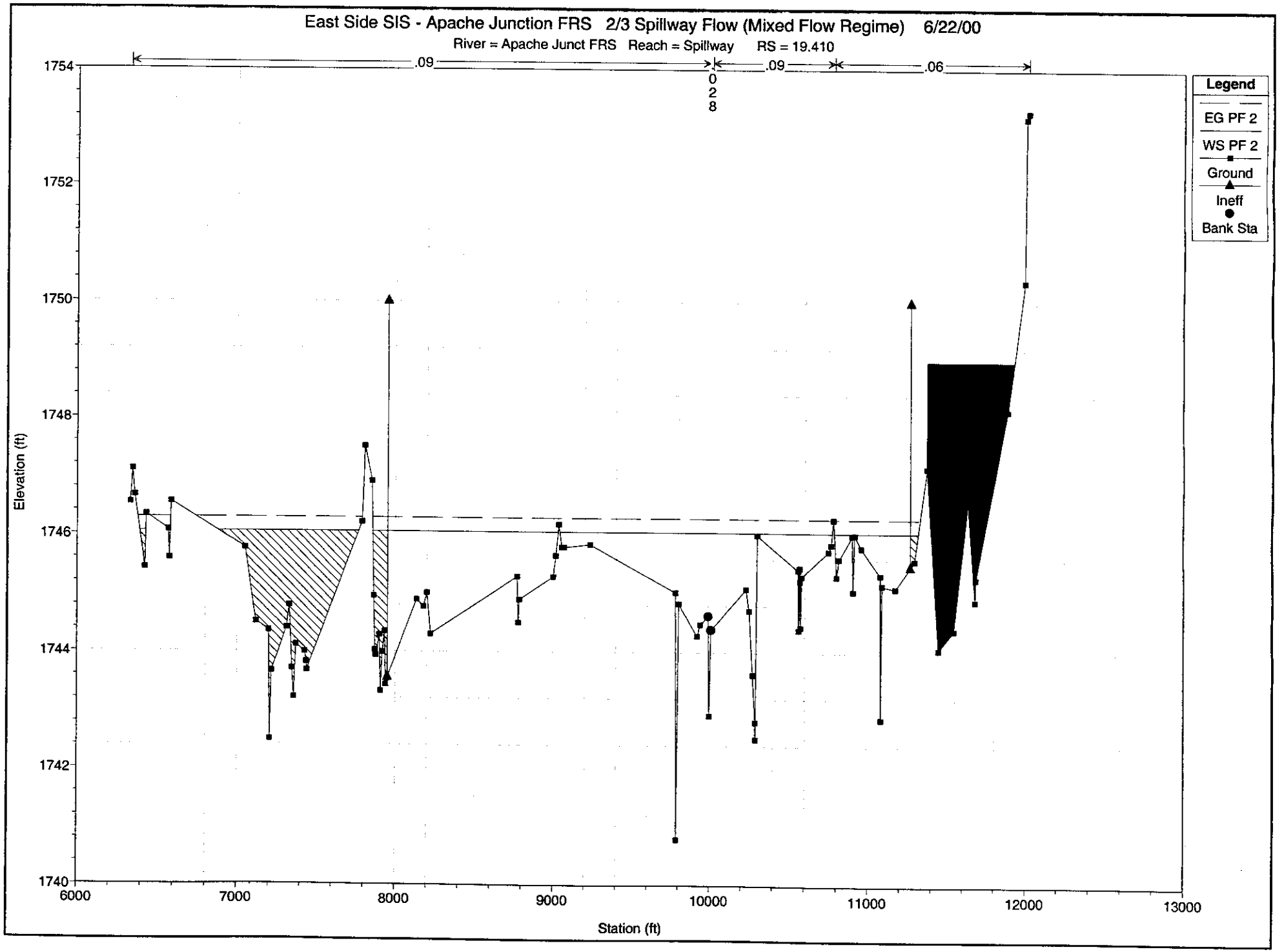

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.812
.09
.06
.028
.06
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1778
1776
1774
1772
1770
6000
7000
8000
9000
10000
11000
Station (ft)

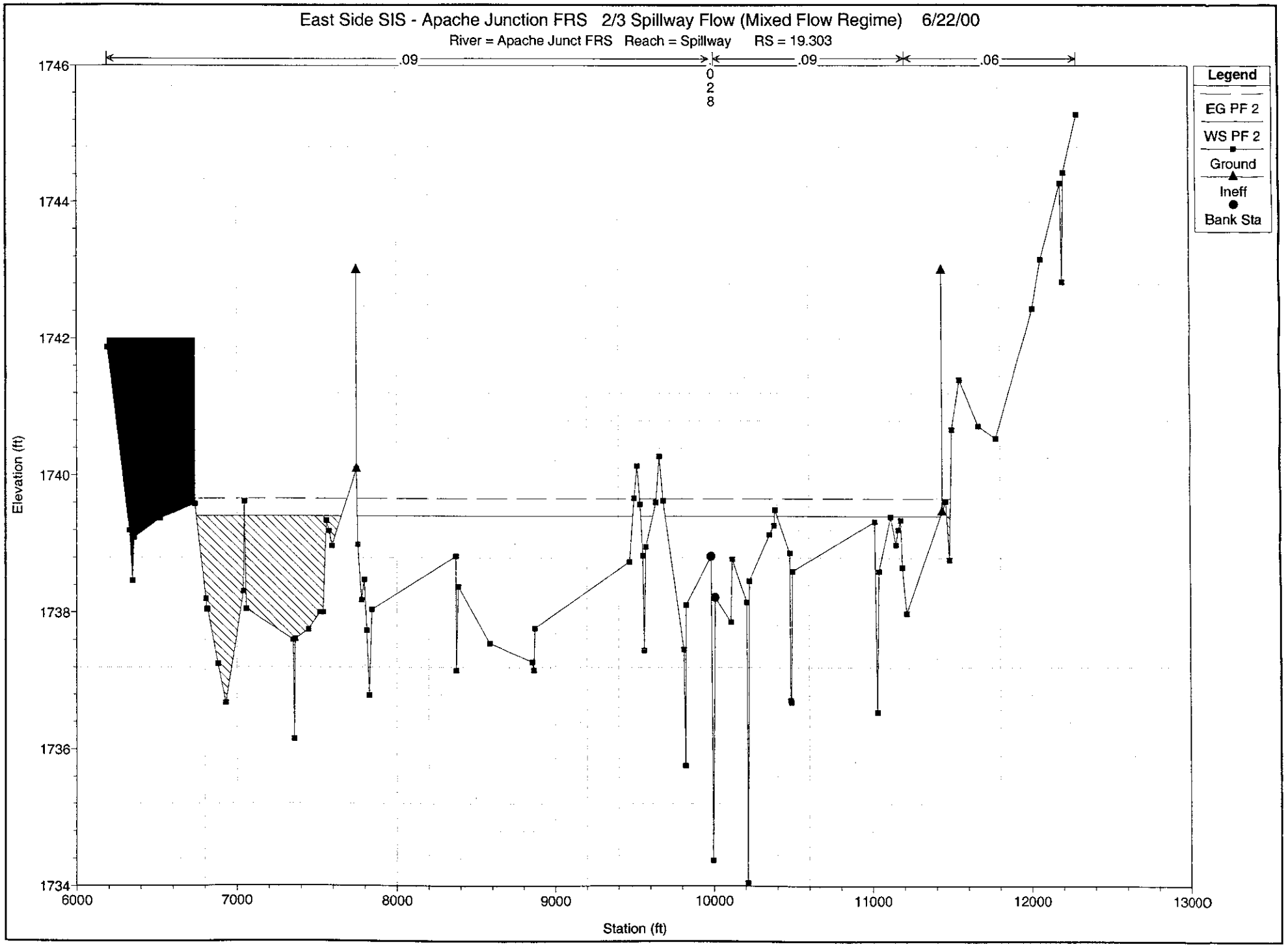

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.735
.09
.06
.028
.06
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1776
1774
1772
1770
1768
1766
1764
6000
7000
8000
9000
10000
11000
12000
Station (ft)

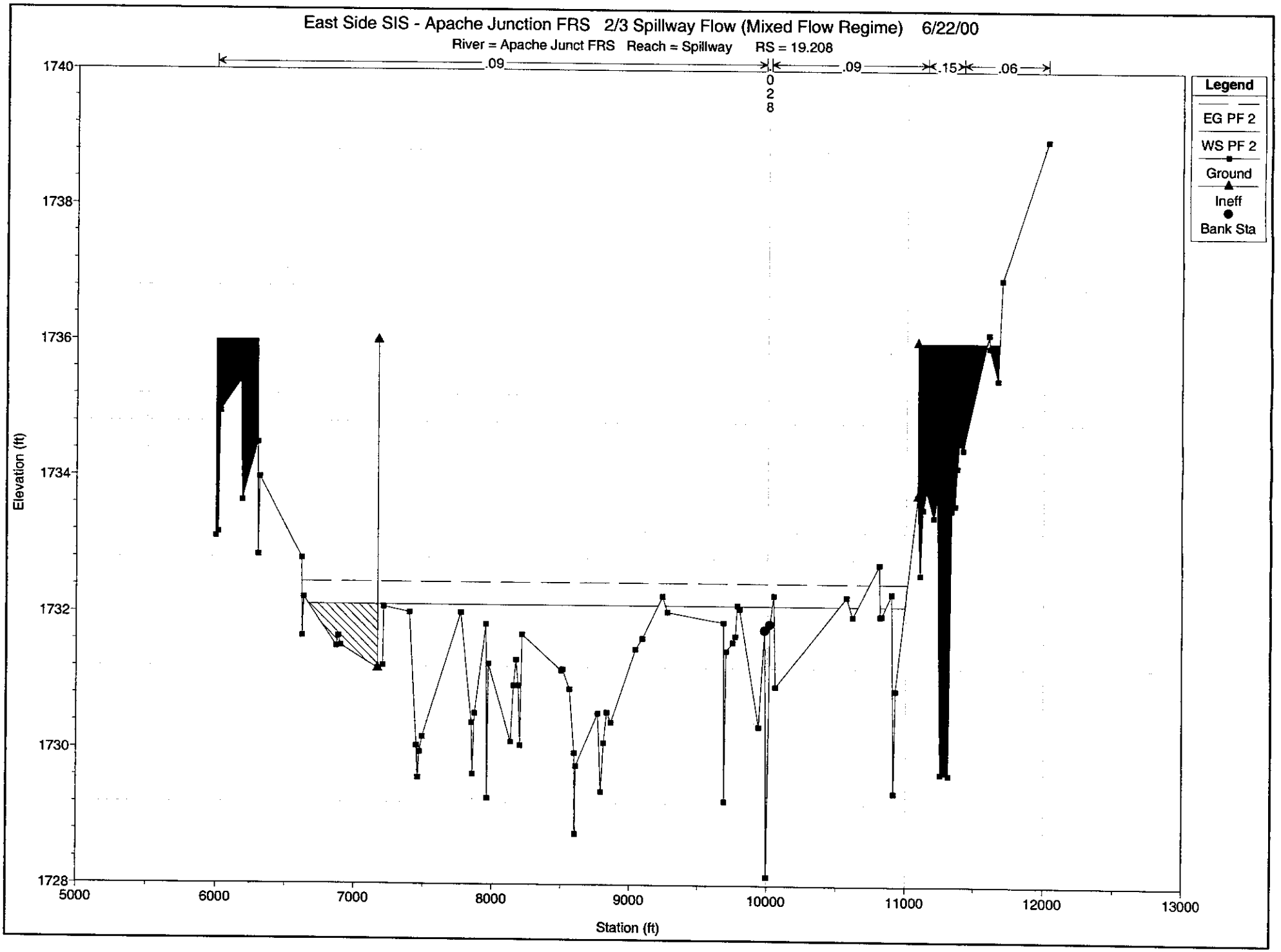

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.665
.09
.06
.028
.06
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1770
1768
1766
1764
1762
1760
1758
6000
7000
8000
9000
10000
11000
12000
Station (ft)

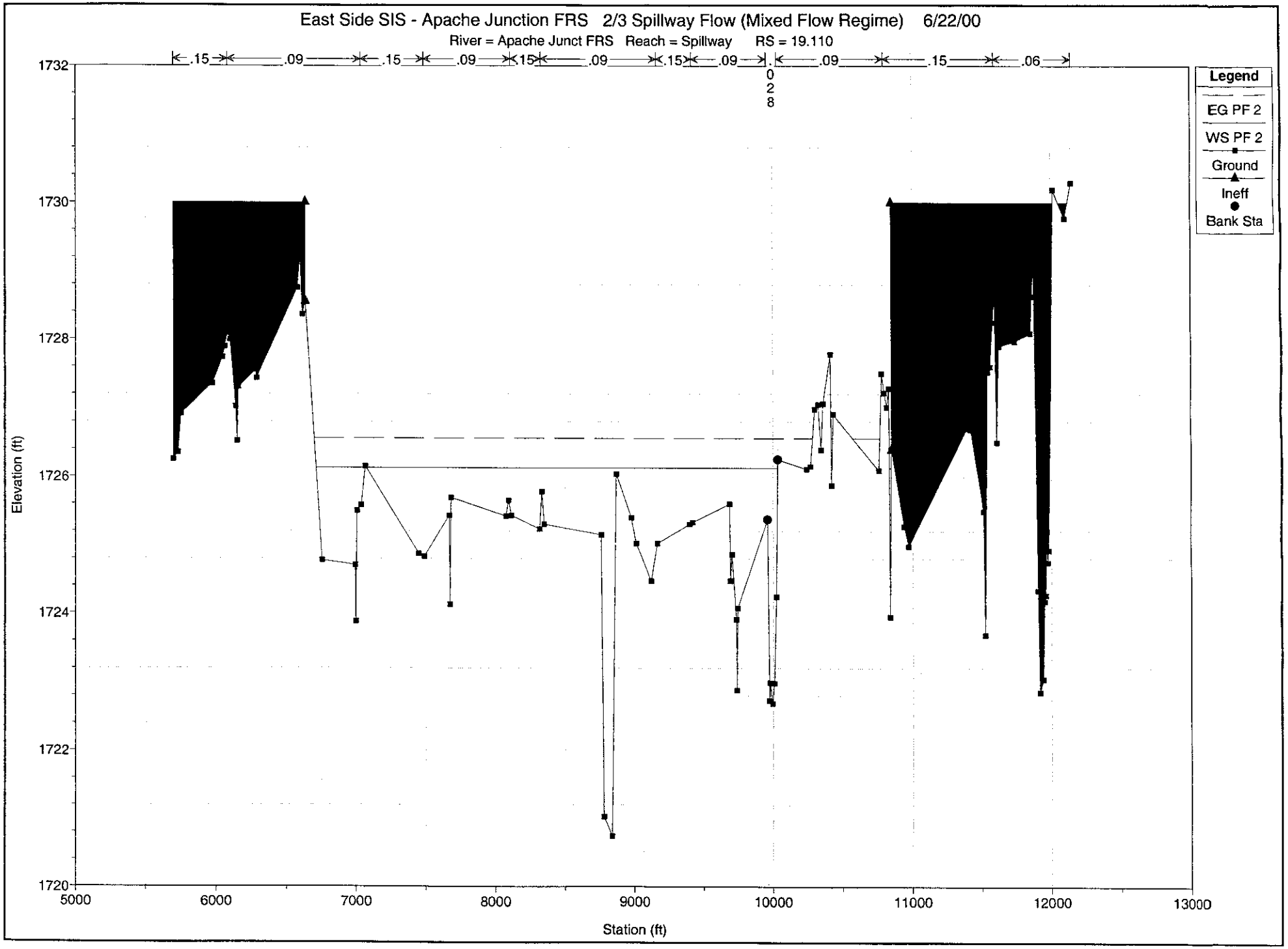

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.581
.09
.06
0
2
8
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1764
1762
1760
1758
1756
1754
1752
6000
7000
8000
9000
10000
11000
12000
Station (ft)

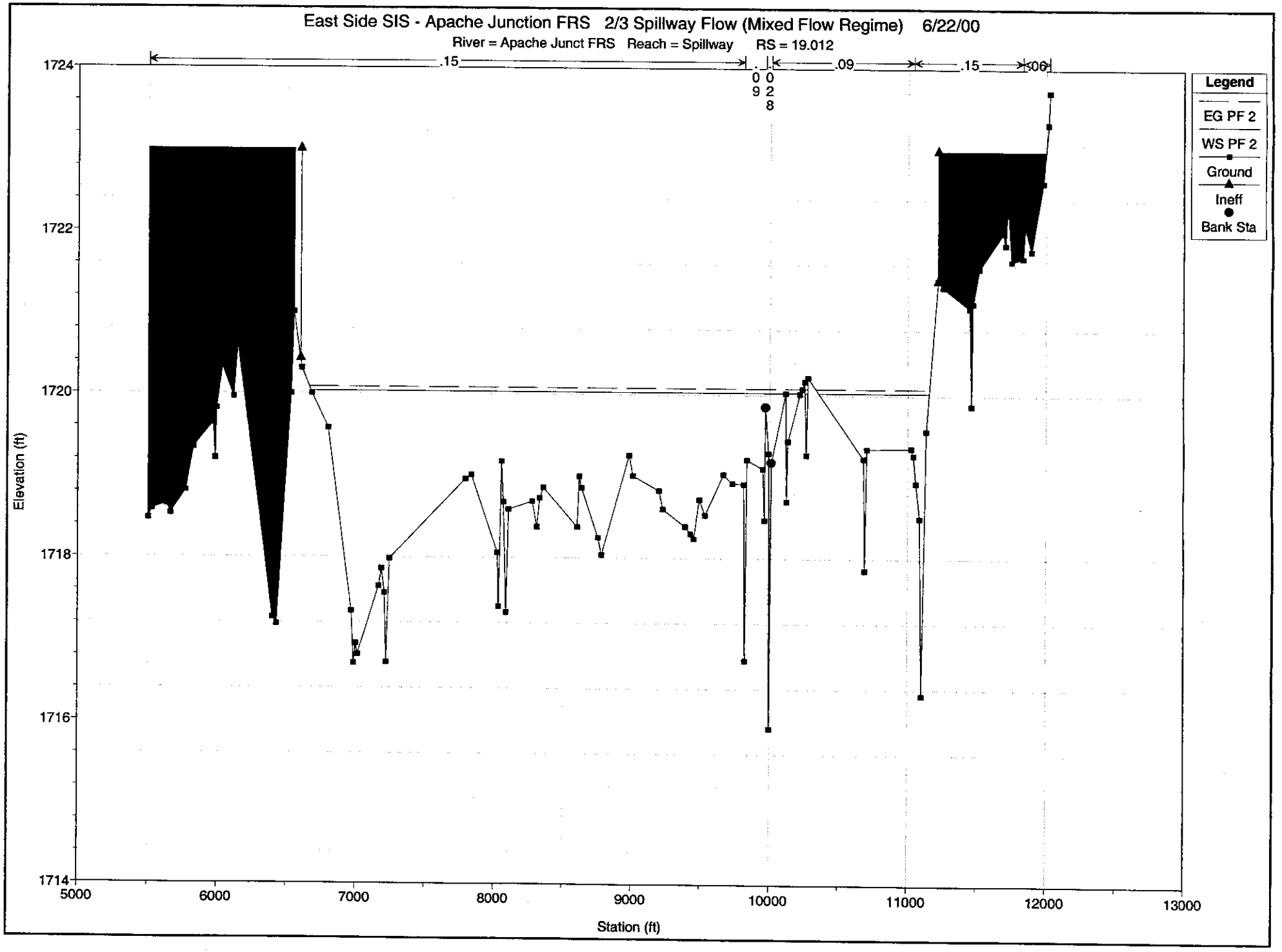

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.504
.09
.09
.06
0
2
8
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1760
1758
1756
1754
1752
1750
1748
1746
6000
7000
8000
9000
10000
11000
12000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.410
.09
.09
.06
0
2
8
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1754
1752
1750
1748
1746
1744
1742
1740
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.303
.09
.09
.06
0
2
8
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1746
1744
1742
1740
1738
1736
1734
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

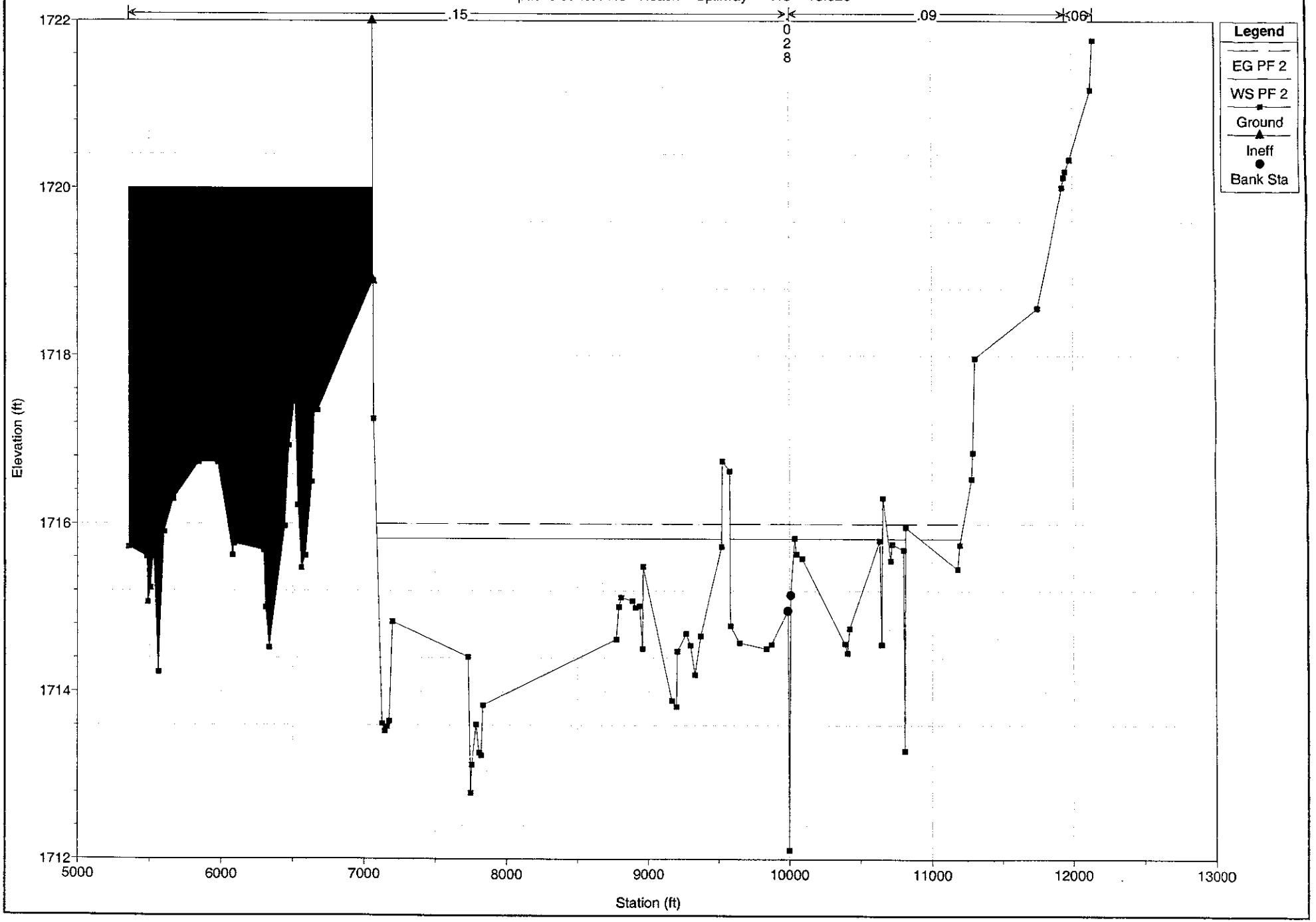

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.208
.09
.09
.15
.06
0
2
8
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1740
1738
1736
1734
1732
1730
1728
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

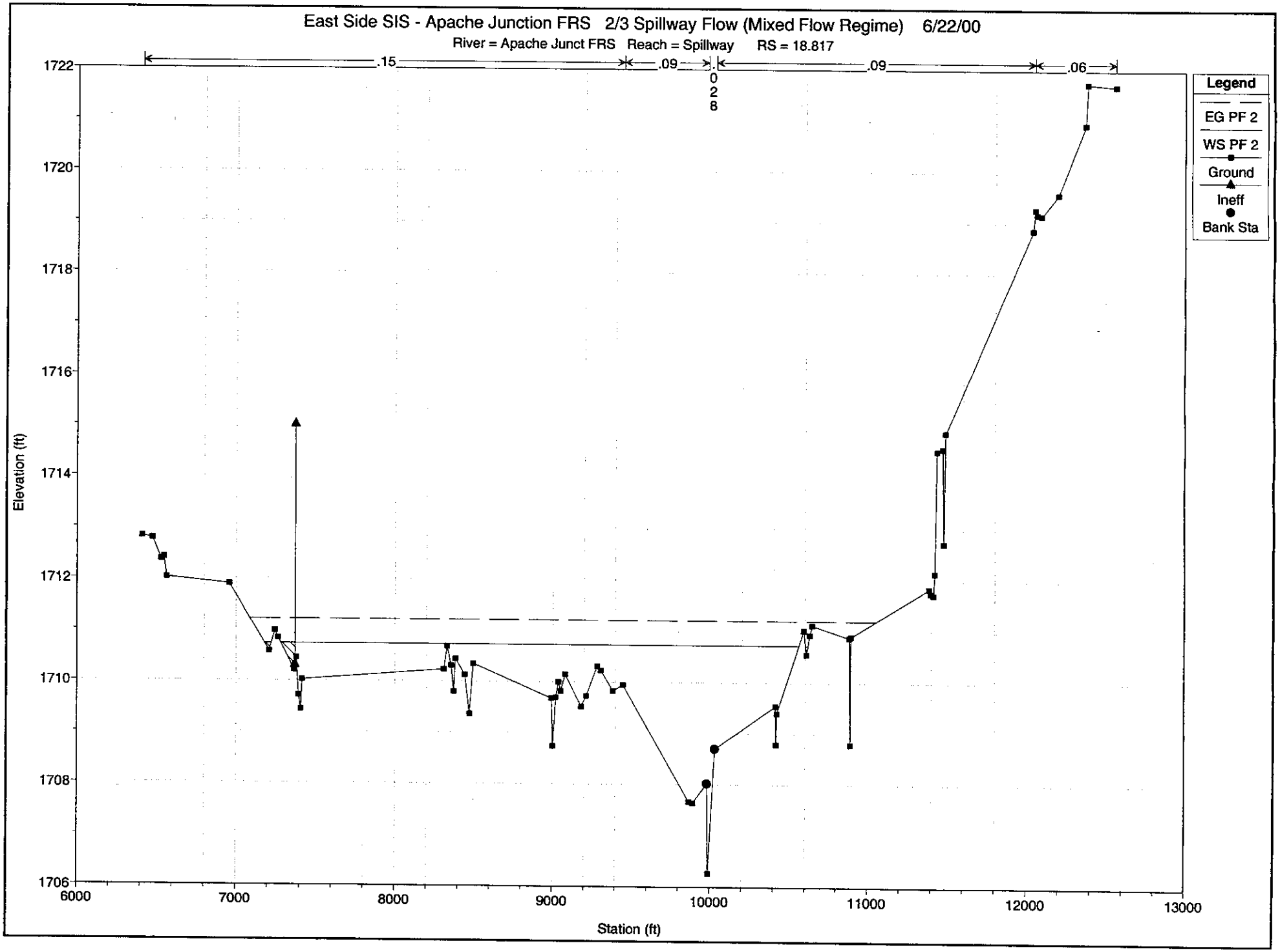

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.110
.15
.09
.15
.09
.15
.09
.15
.09
.09
.15
.06
0
2
8
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1732
1730
1728
1726
1724
1722
1720
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

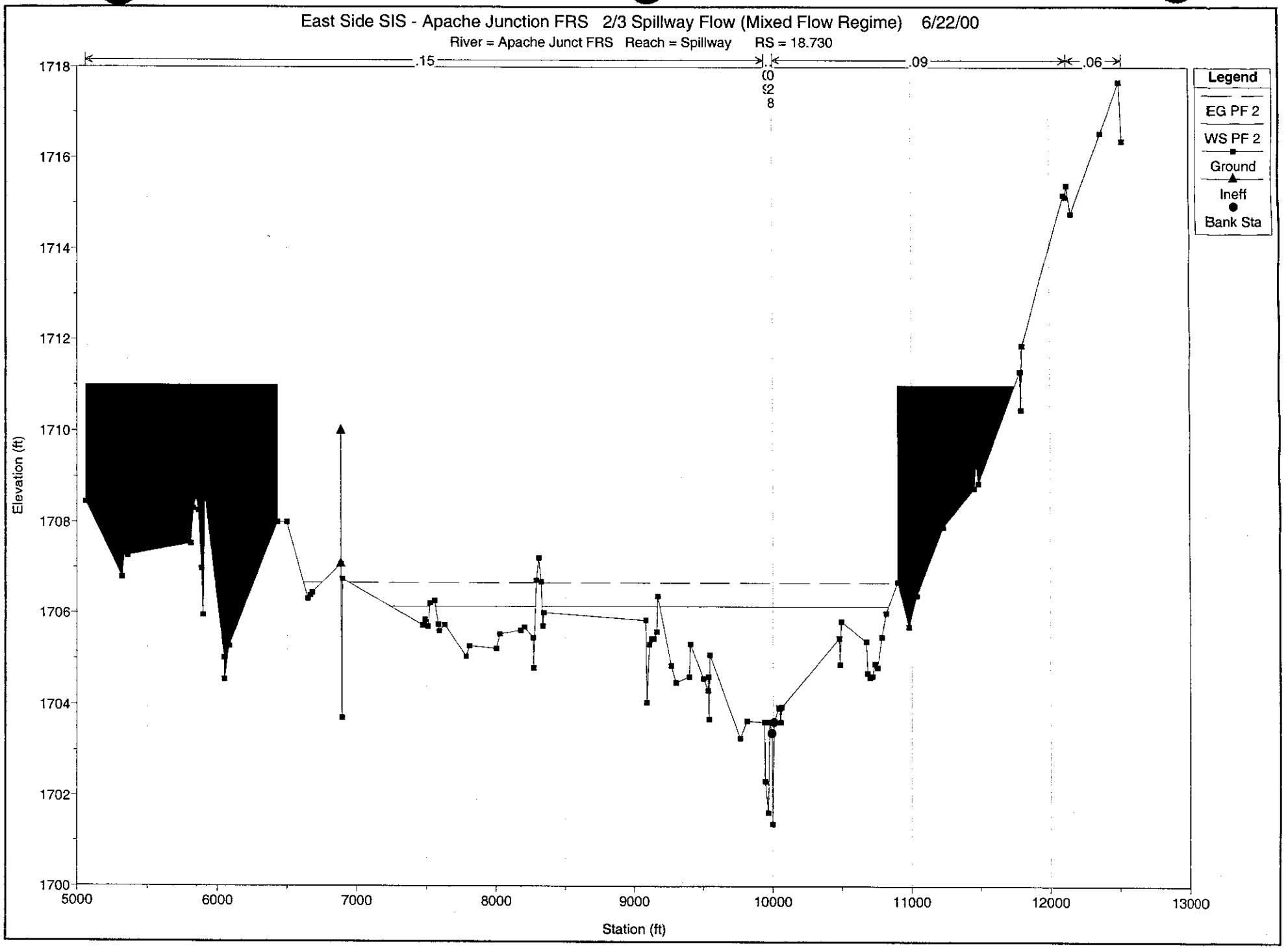

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 19.012
.15
.09
.15
.06
.0928
.0028
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1724
1722
1720
1718
1716
1714
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

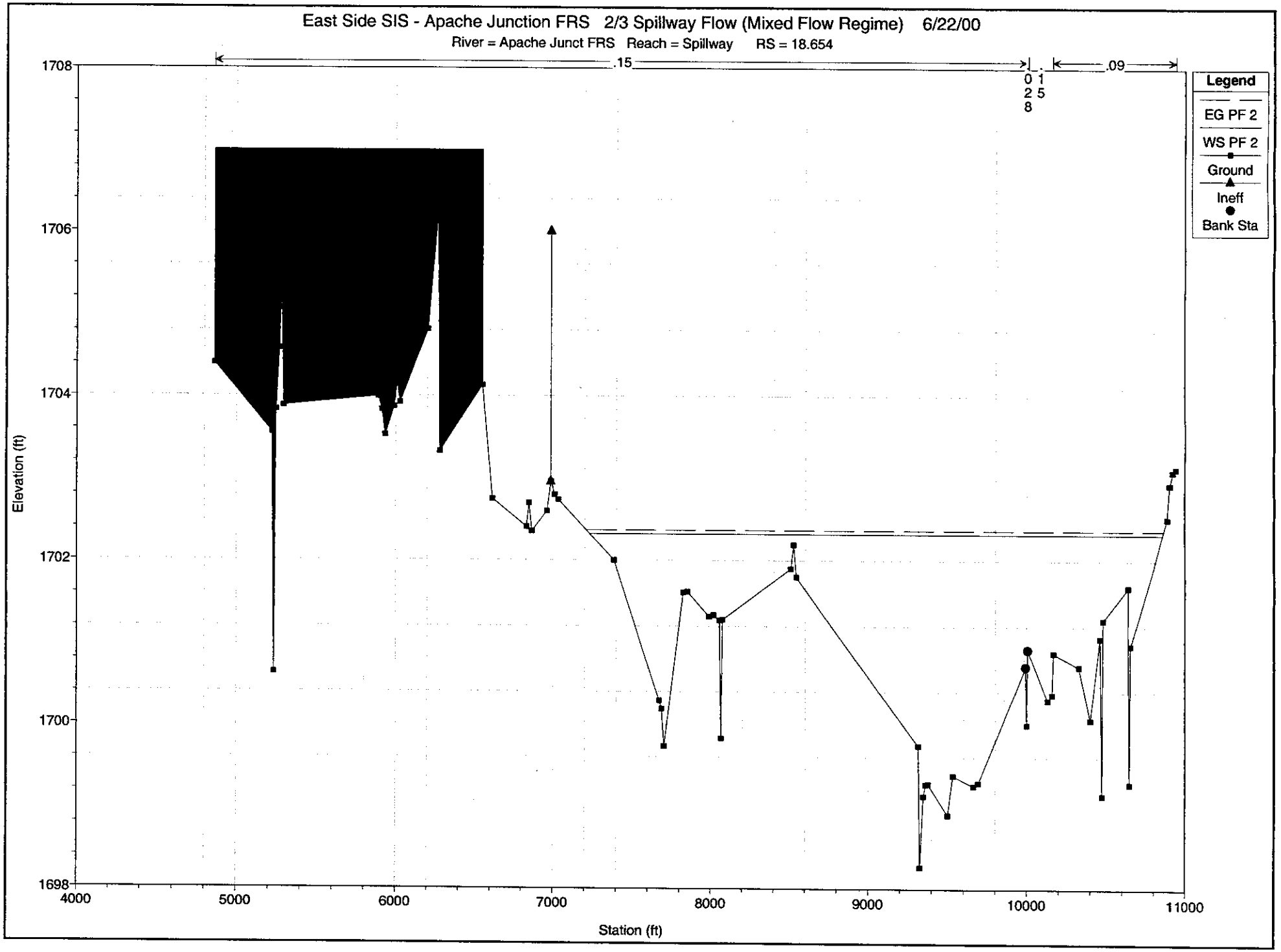
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

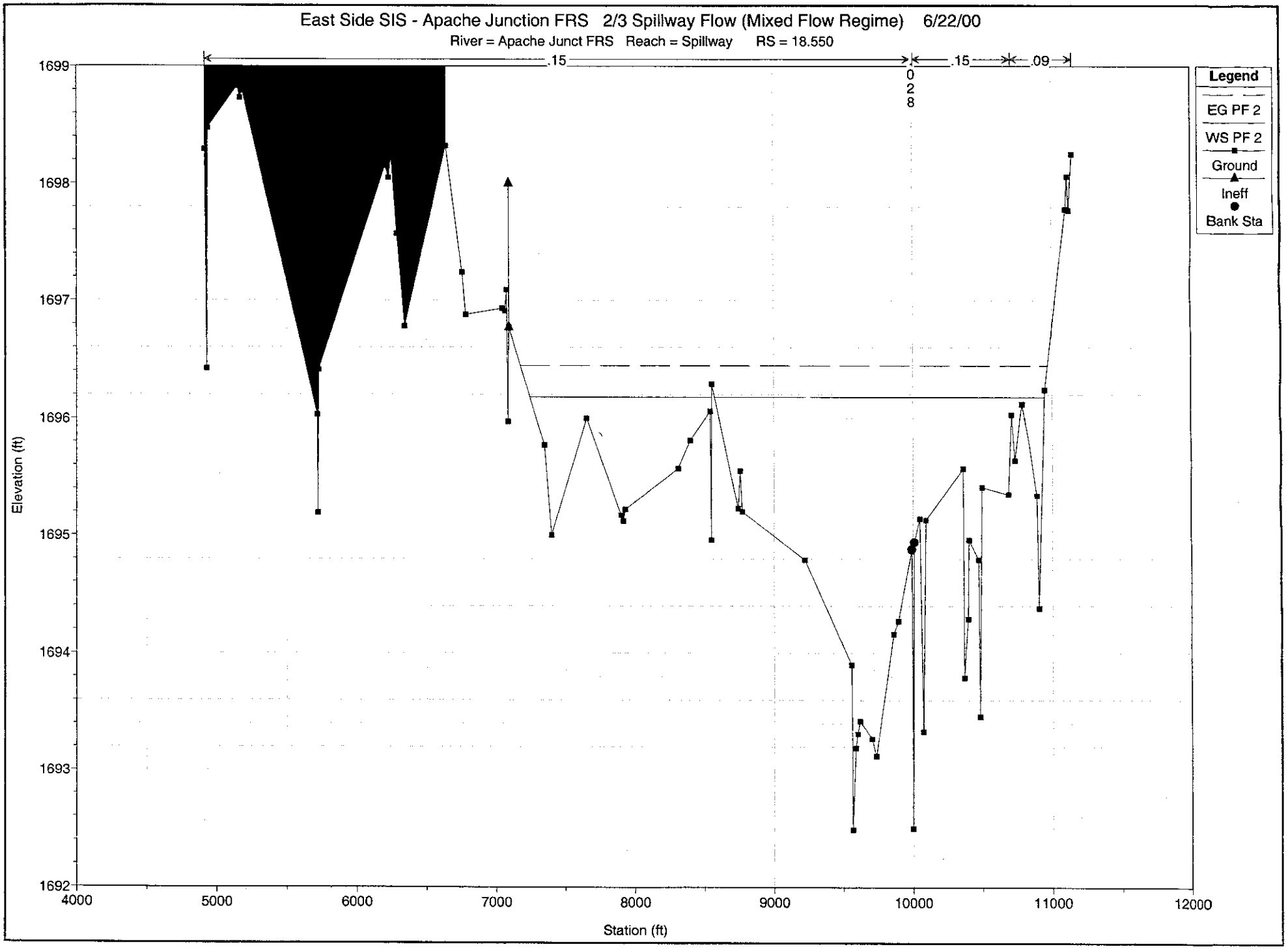
River = Apache Junct FRS Reach = Spillway RS = 18.920

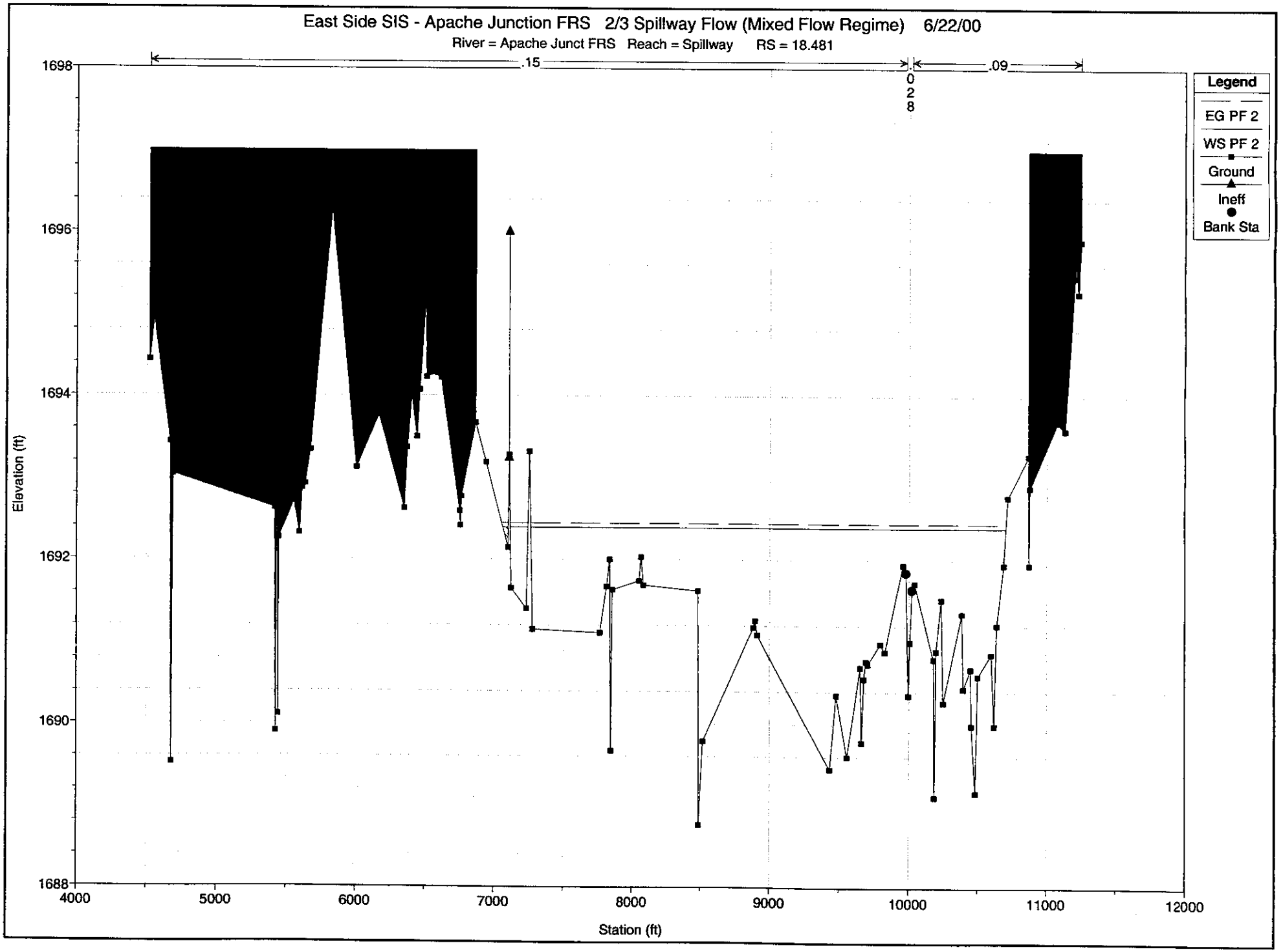


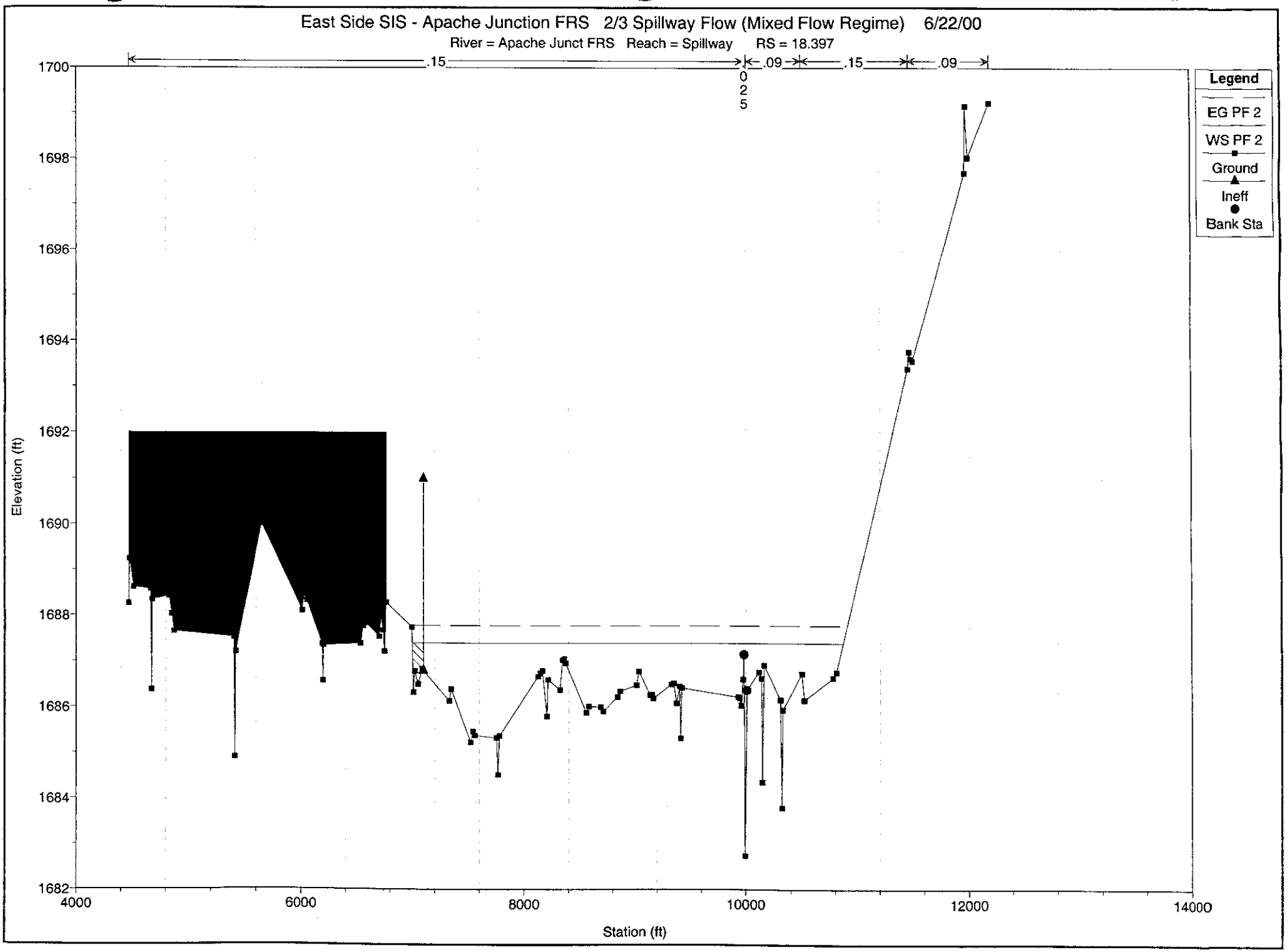

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 18.817
.15
.09
.028
.09
.06
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1722
1720
1718
1716
1714
1712
1710
1708
1706
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

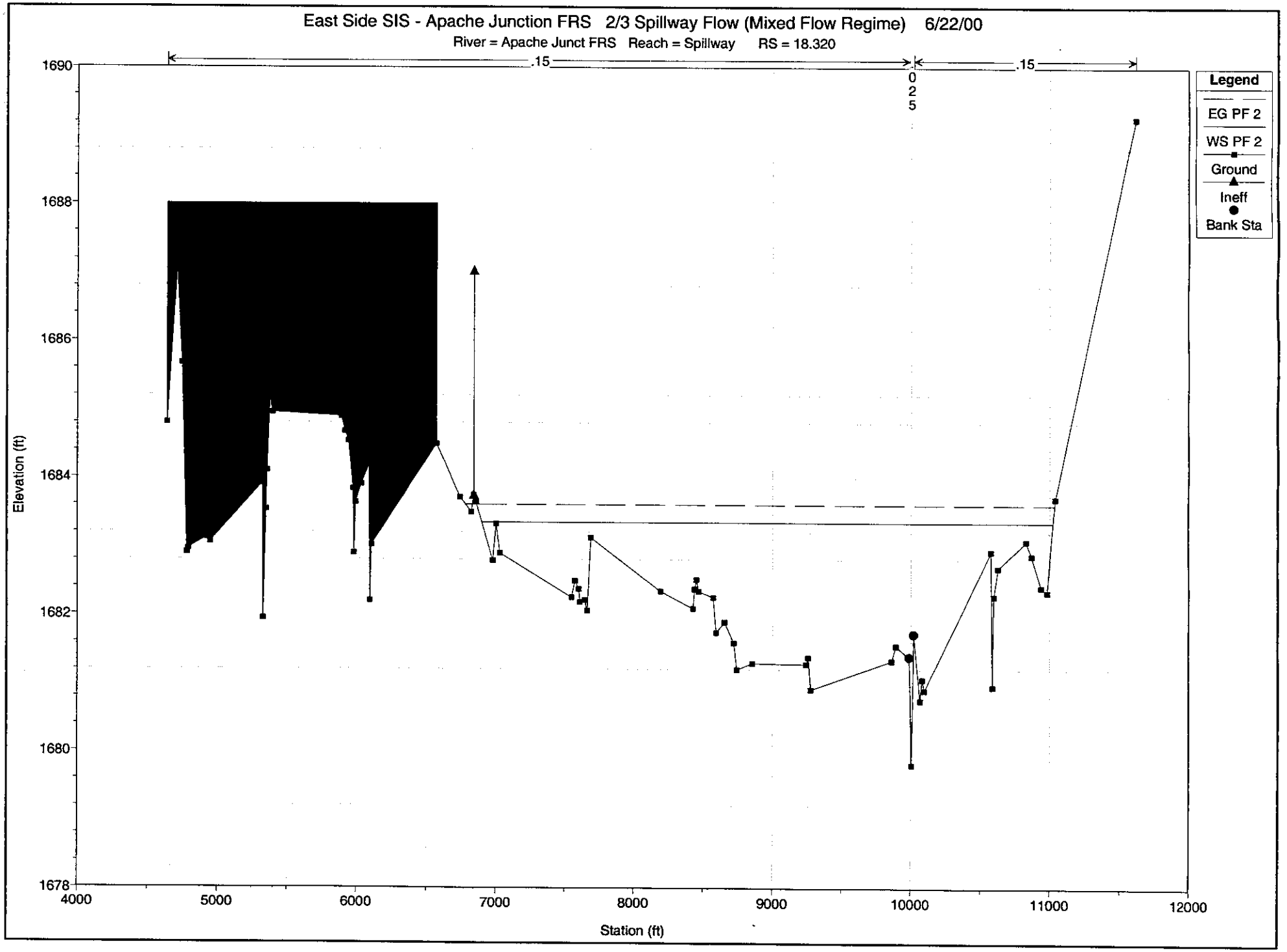

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 18.730
.15
.09
.06
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1718
1716
1714
1712
1710
1708
1706
1704
1702
1700
5000
6000
7000
8000
9000
10000
11000
12000
13000


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 18.654
.15
.09
0 1
2 5
8
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1708
1706
1704
1702
1700
1698
4000
5000
6000
7000
8000
9000
10000
11000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 18.550
.15
.15
.09
0
2
8
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1699
1698
1697
1696
1695
1694
1693
1692
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

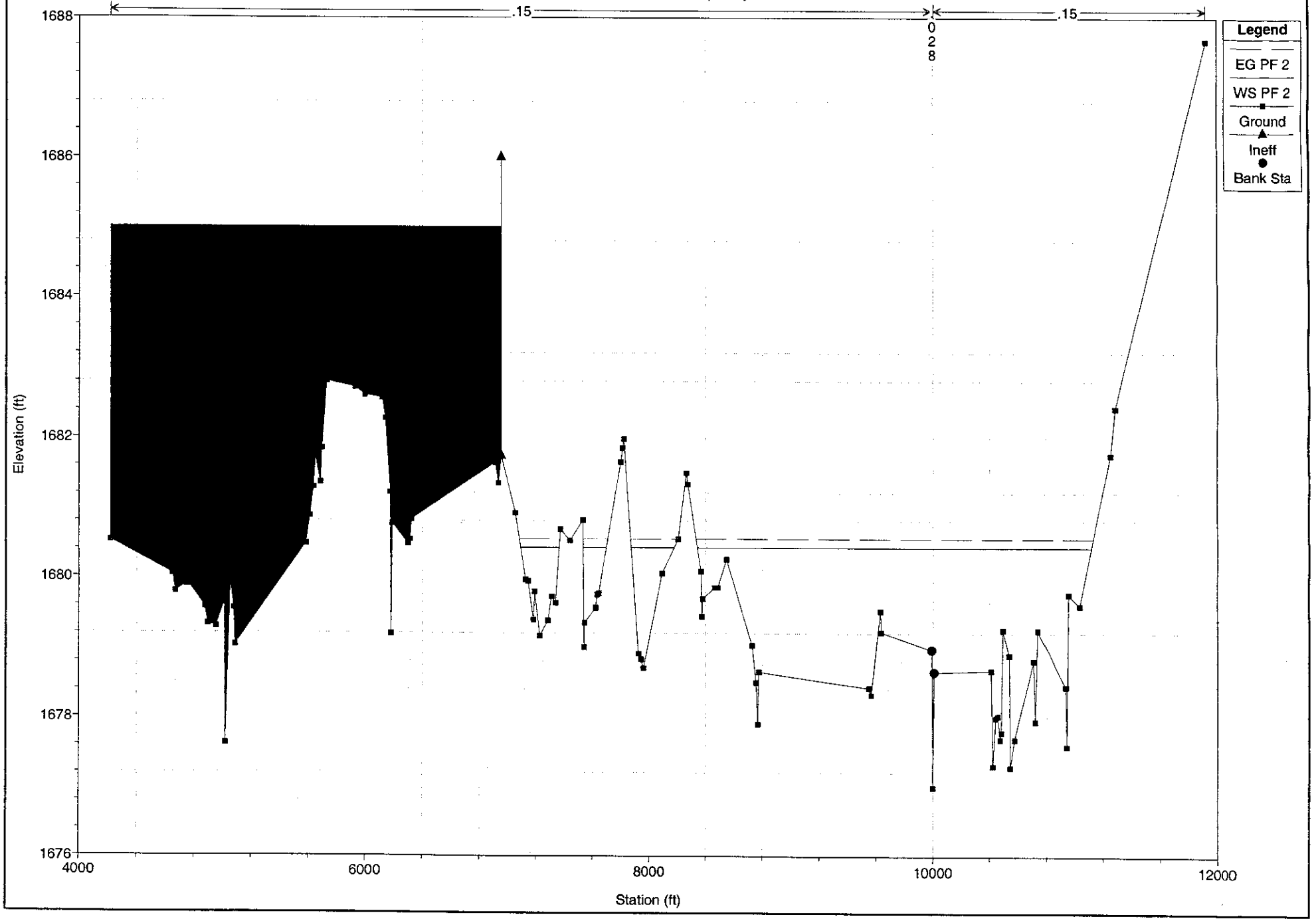

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 18.481
.15
.028
.09
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1698
1696
1694
1692
1690
1688
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

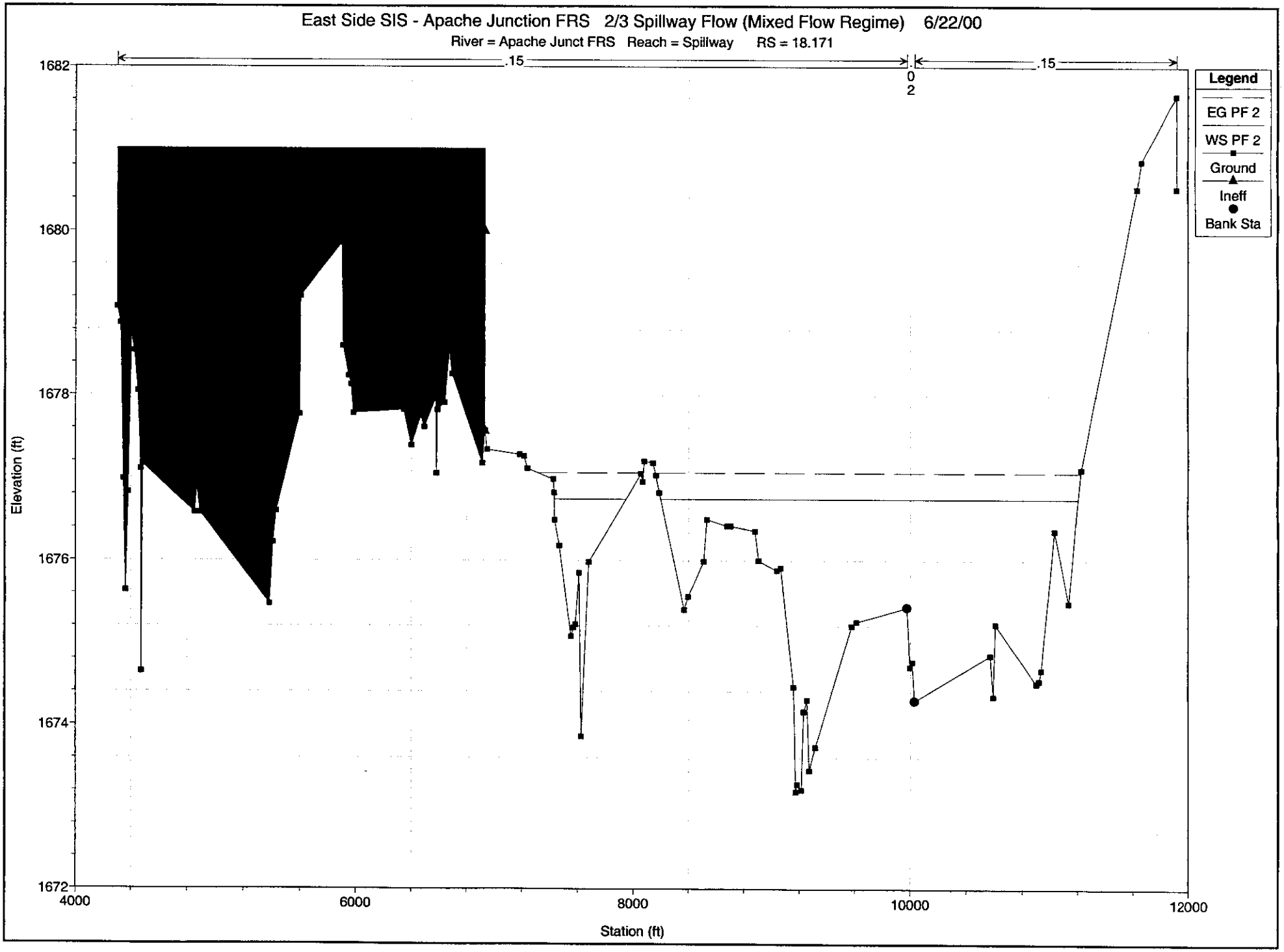

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 18.397
.15
.025
.09
.15
.09
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1700
1698
1696
1694
1692
1690
1688
1686
1684
1682
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 18.320
.15
.025
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1690
1688
1686
1684
1682
1680
1678
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

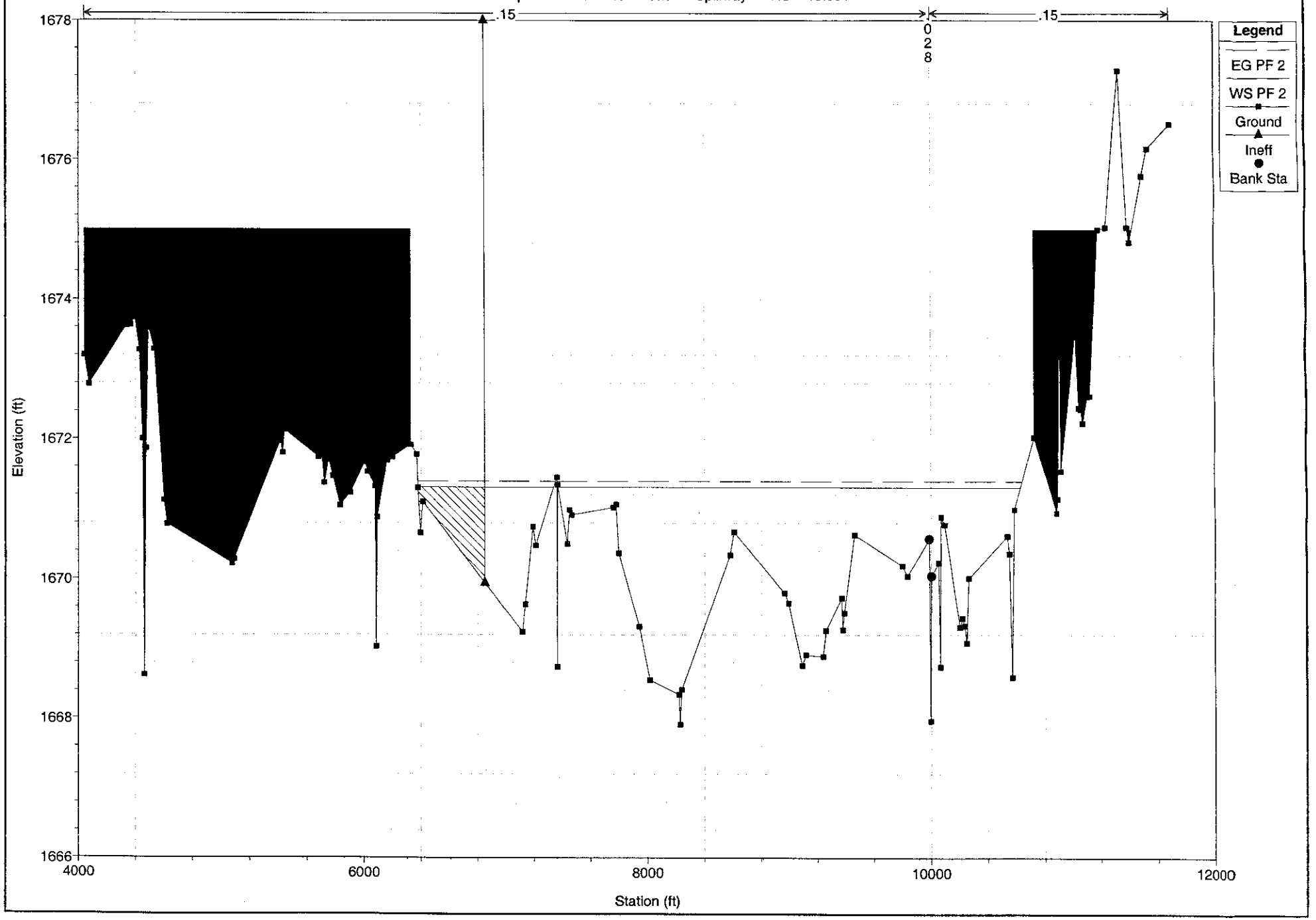
River = Apache Junct FRS Reach = Spillway RS = 18.247




East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 18.171
.15
.02
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1682
1680
1678
1676
1674
1672
4000
6000
8000
10000
12000
Station (ft)

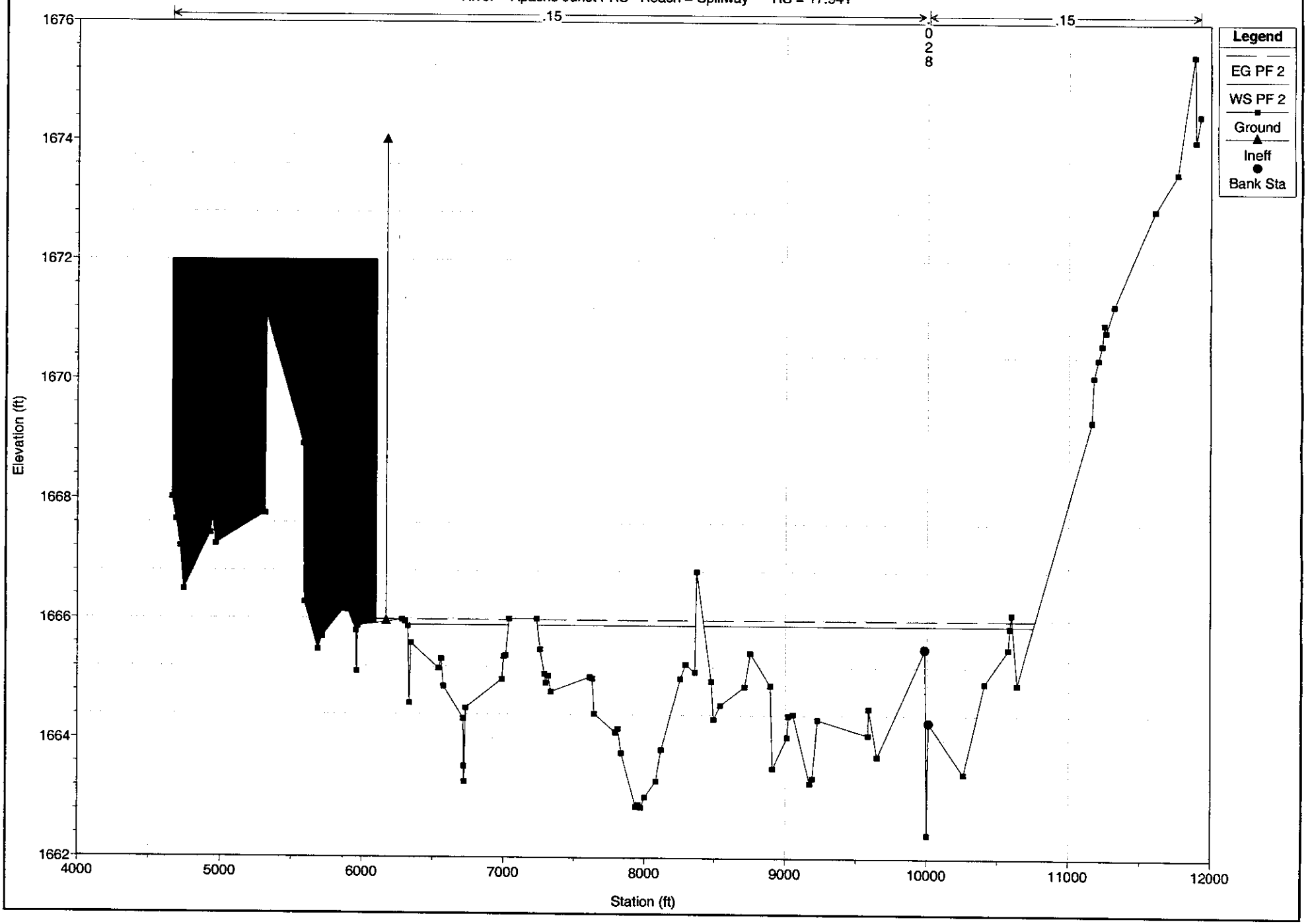
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

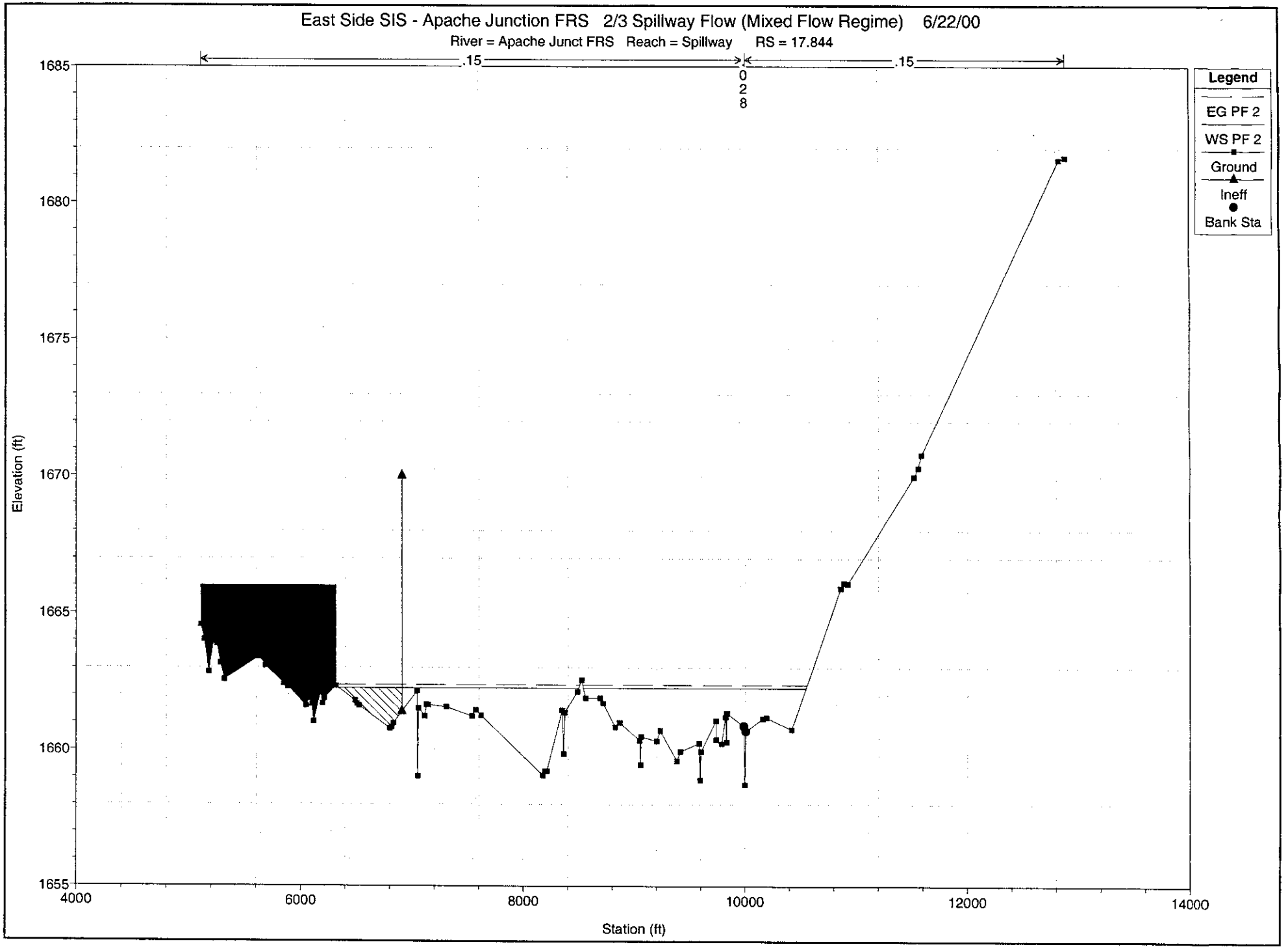
River = Apache Junct FRS Reach = Spillway RS = 18.051

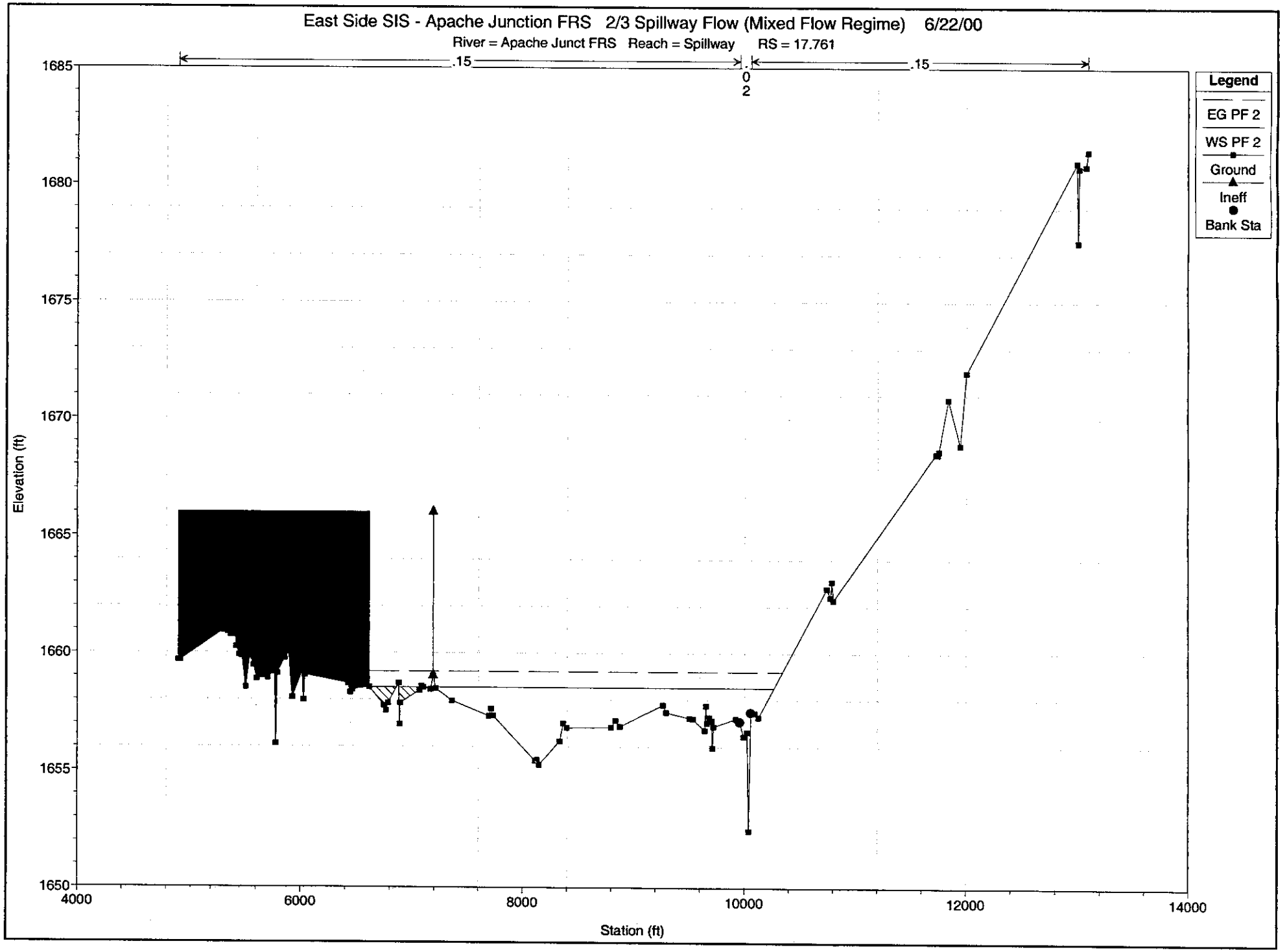


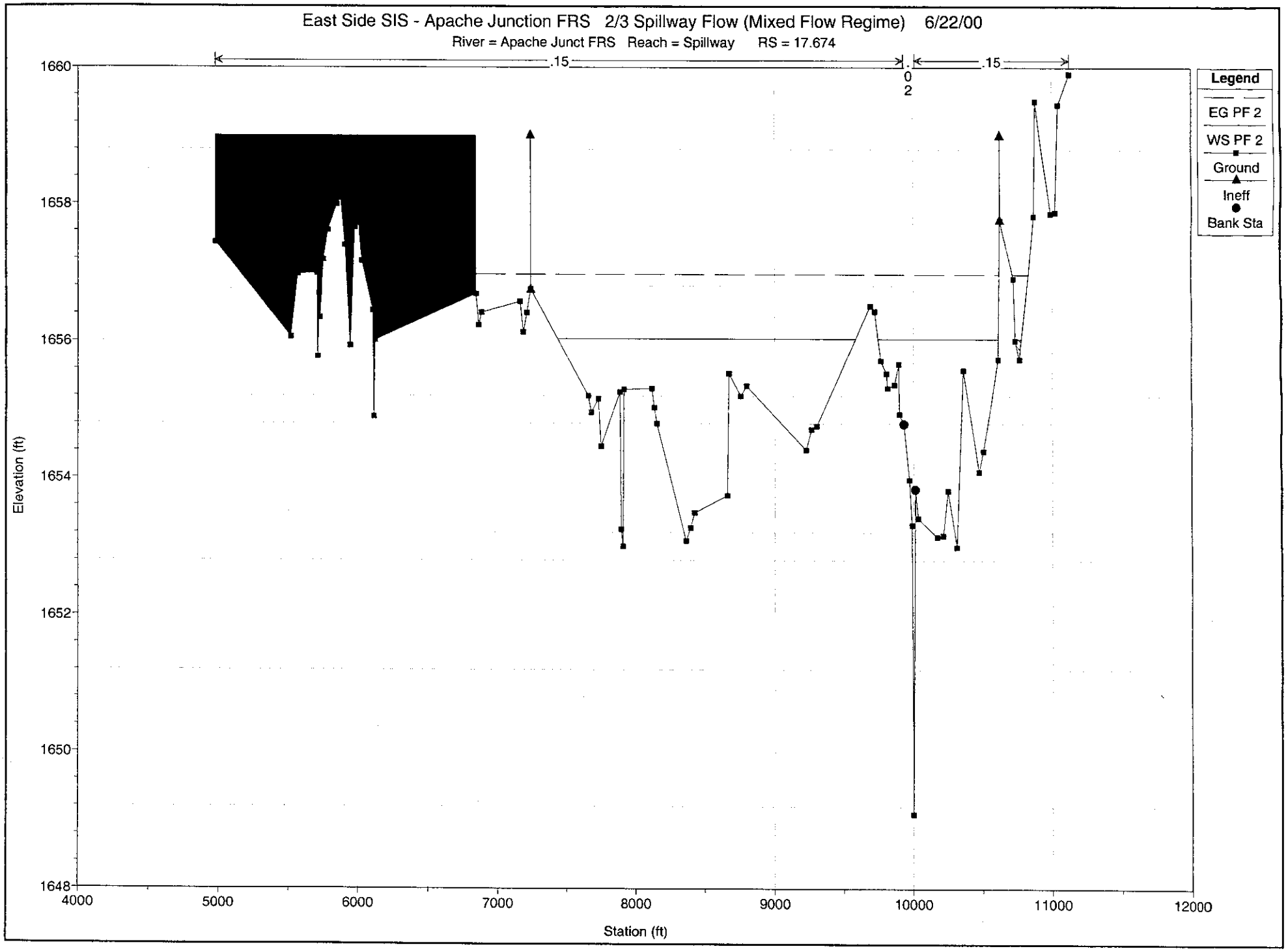
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

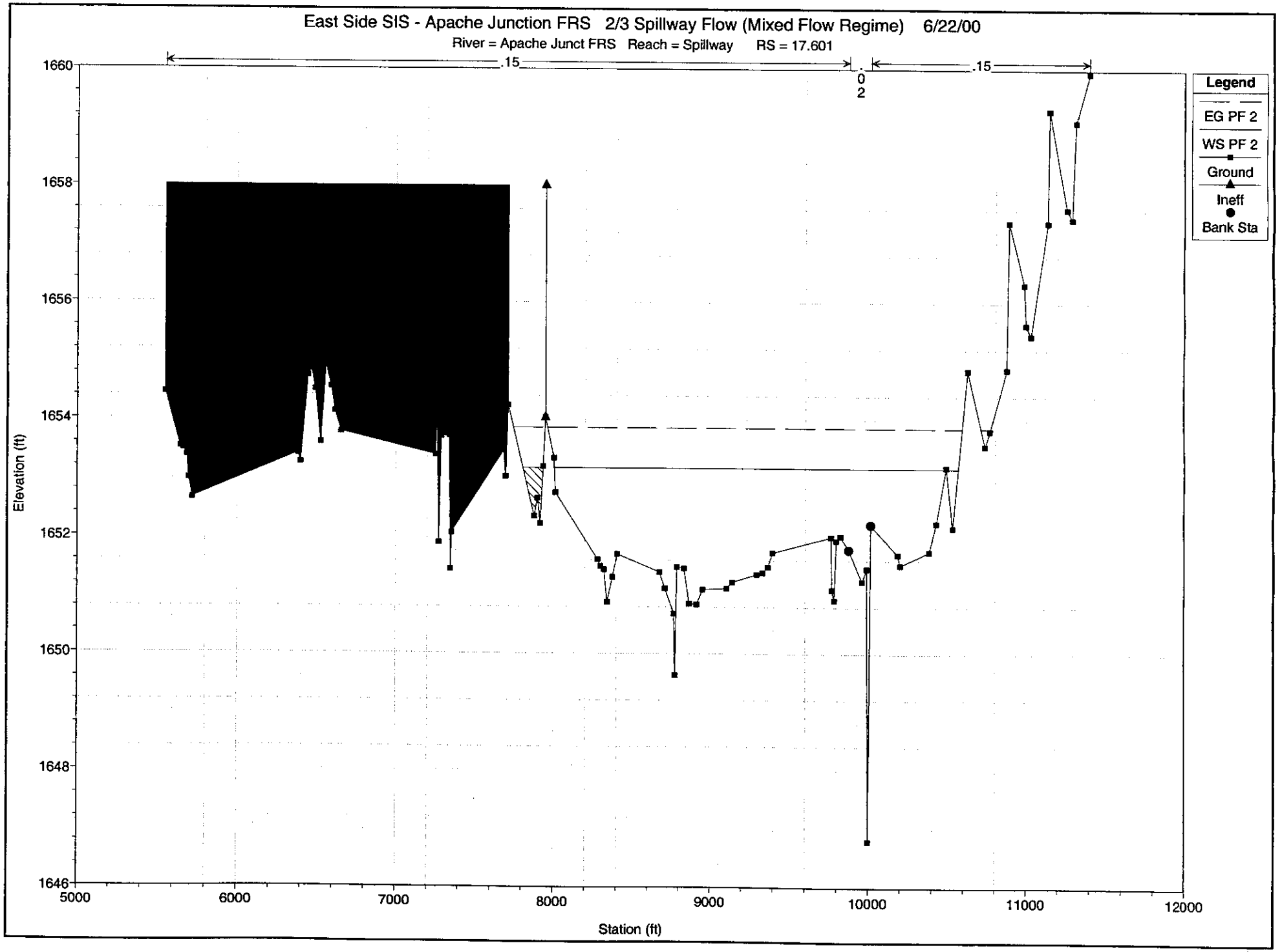
River = Apache Junct FRS Reach = Spillway RS = 17.941




East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 17.844
.15
0
2
8
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1685
1680
1675
1670
1665
1660
1655
4000
6000
8000
10000
12000
14000
Station (ft)

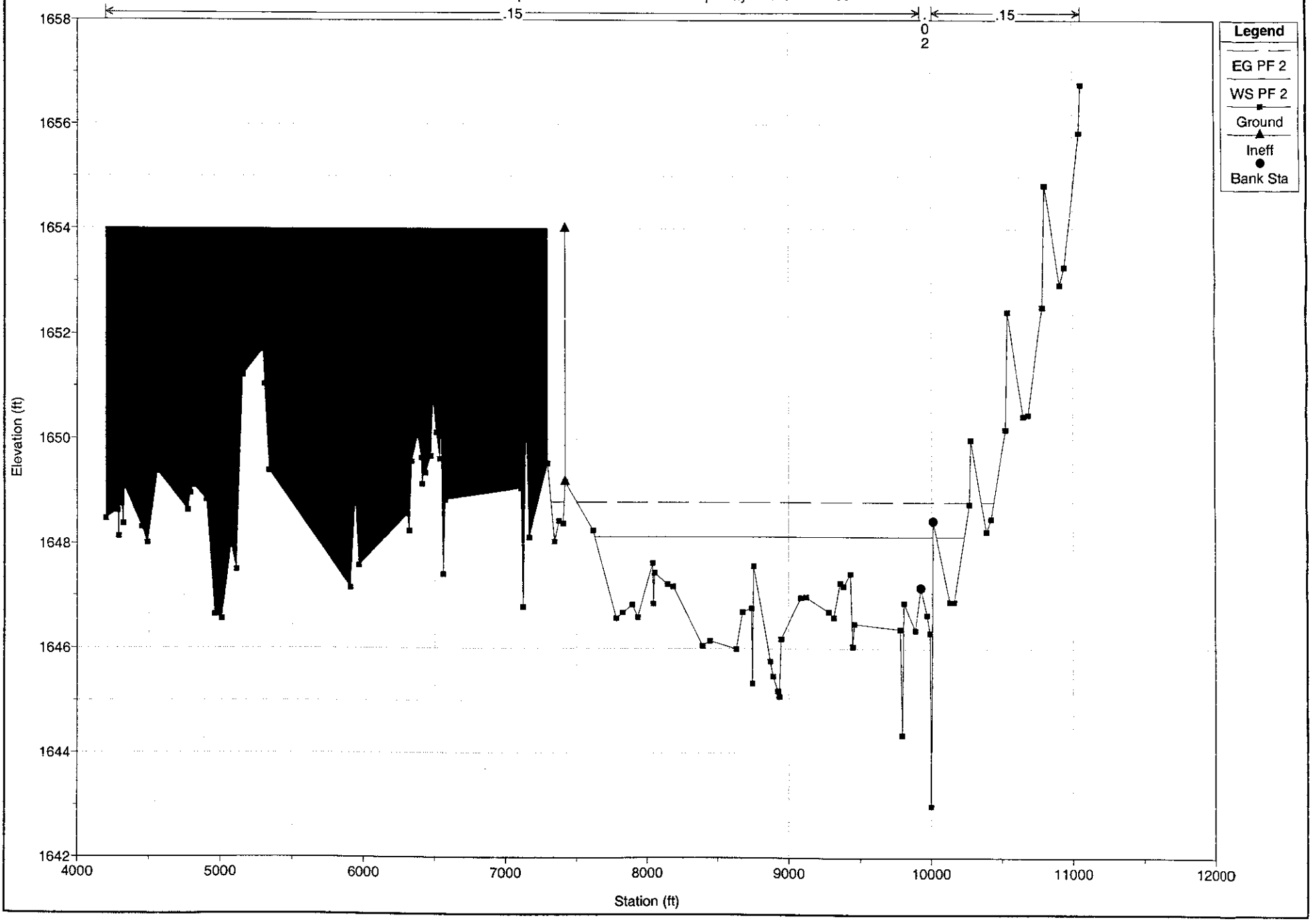

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 17.761
.15
.15
0
2
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1685
1680
1675
1670
1665
1660
1655
1650
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 17.674
.15
.02
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1660
1658
1656
1654
1652
1650
1648
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 17.601
.15
.02
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1660
1658
1656
1654
1652
1650
1648
1646
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

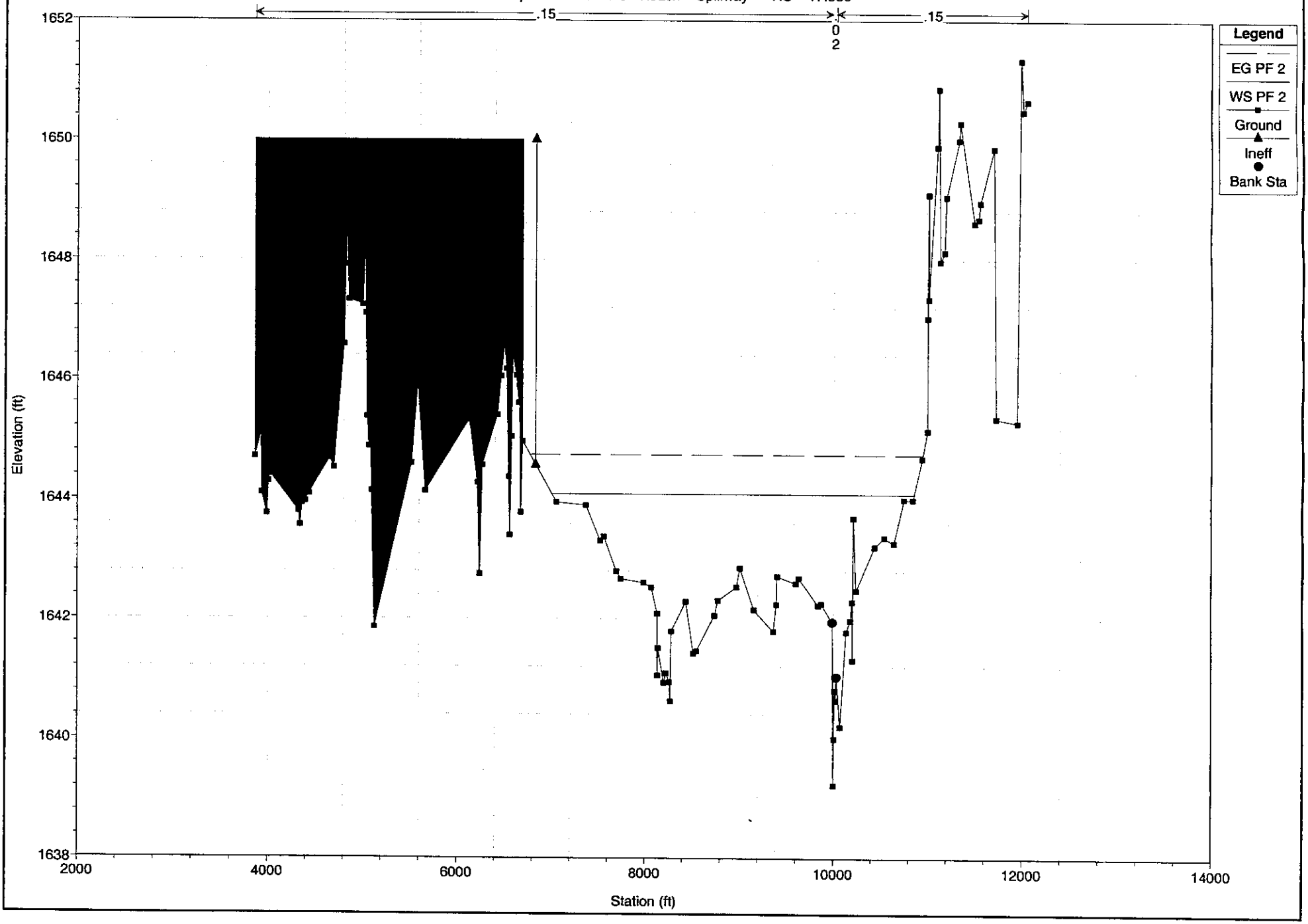
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

River = Apache Junct FRS Reach = Spillway RS = 17.480



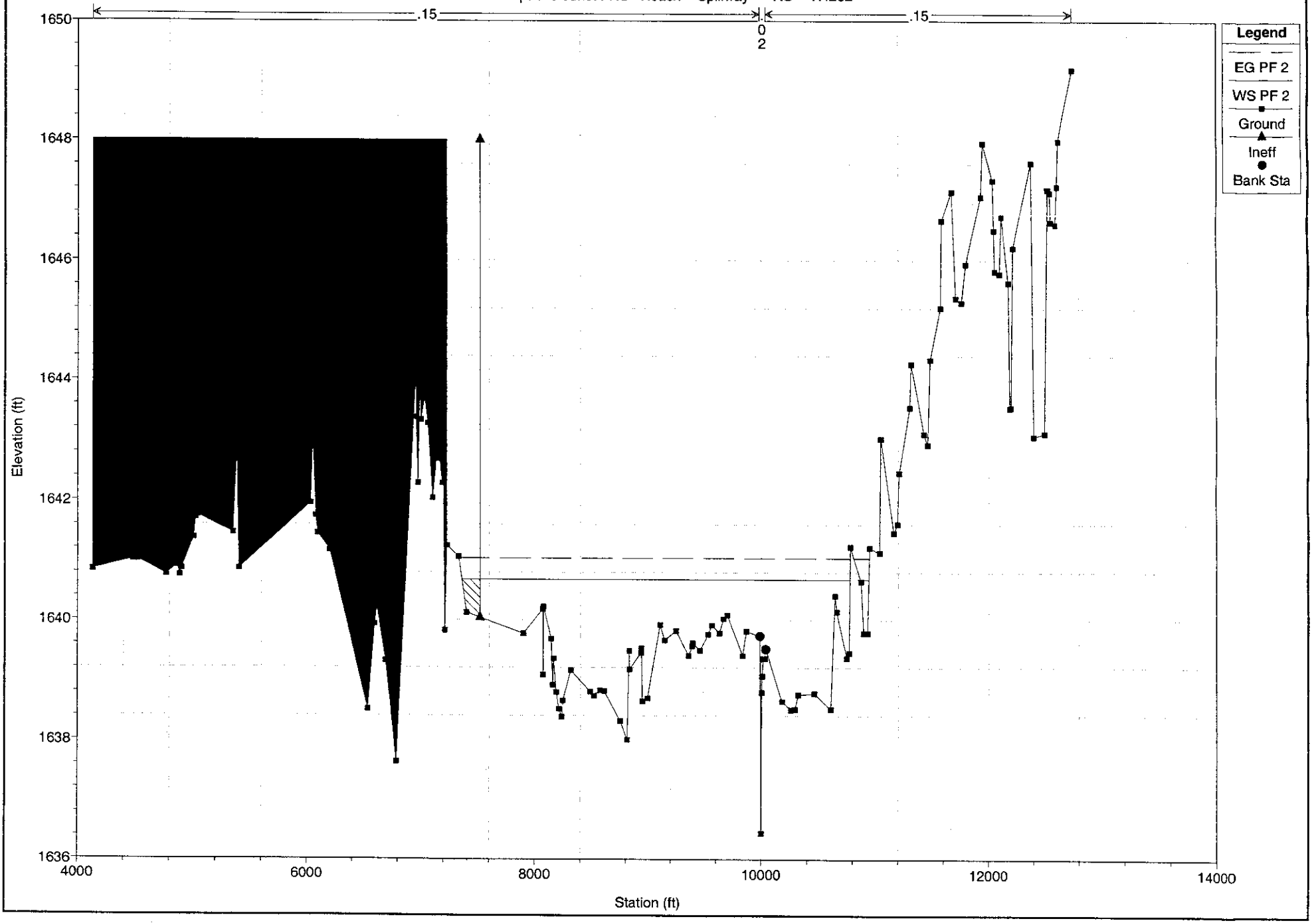
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

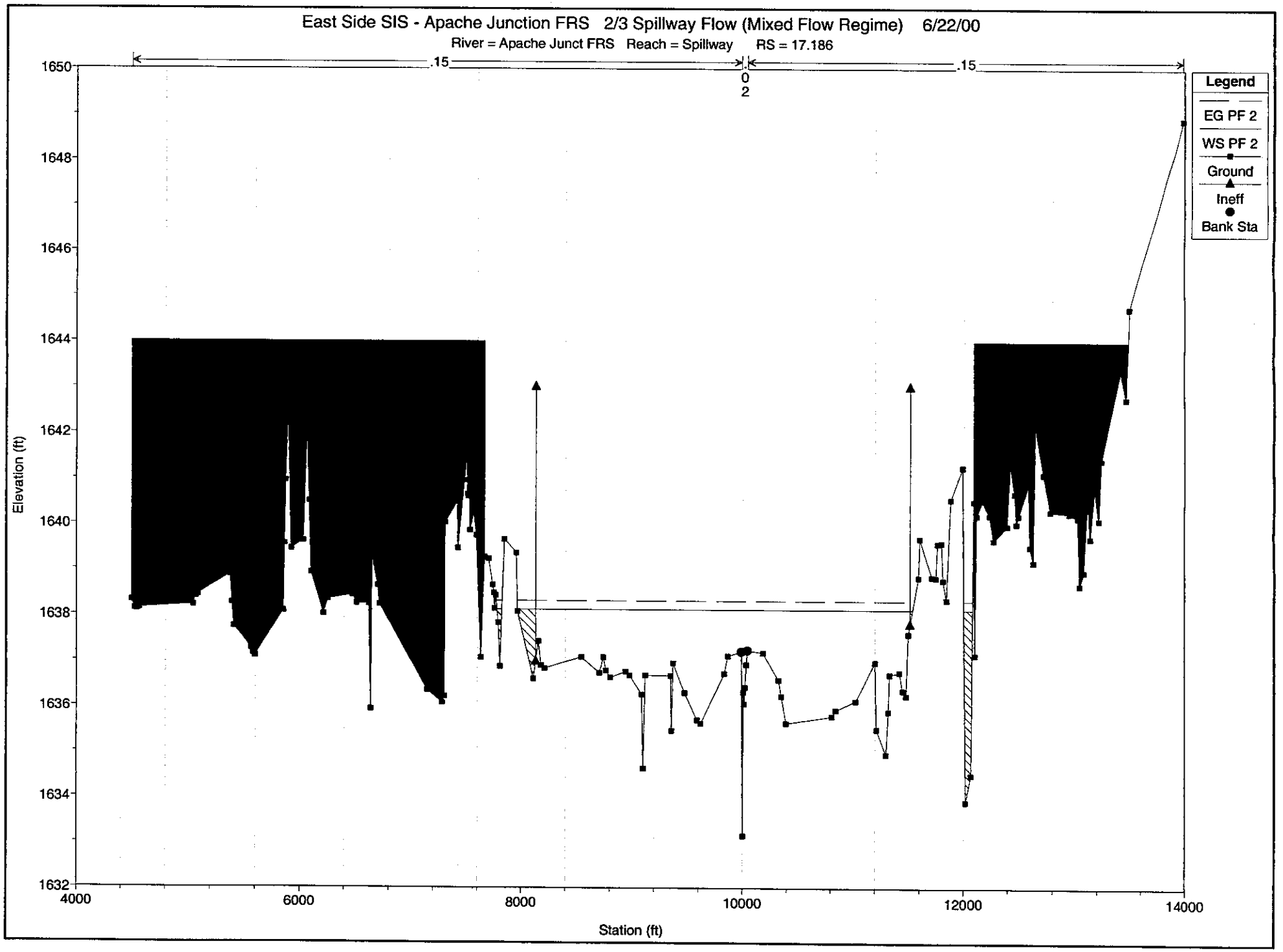
River = Apache Junct FRS Reach = Spillway RS = 17.336

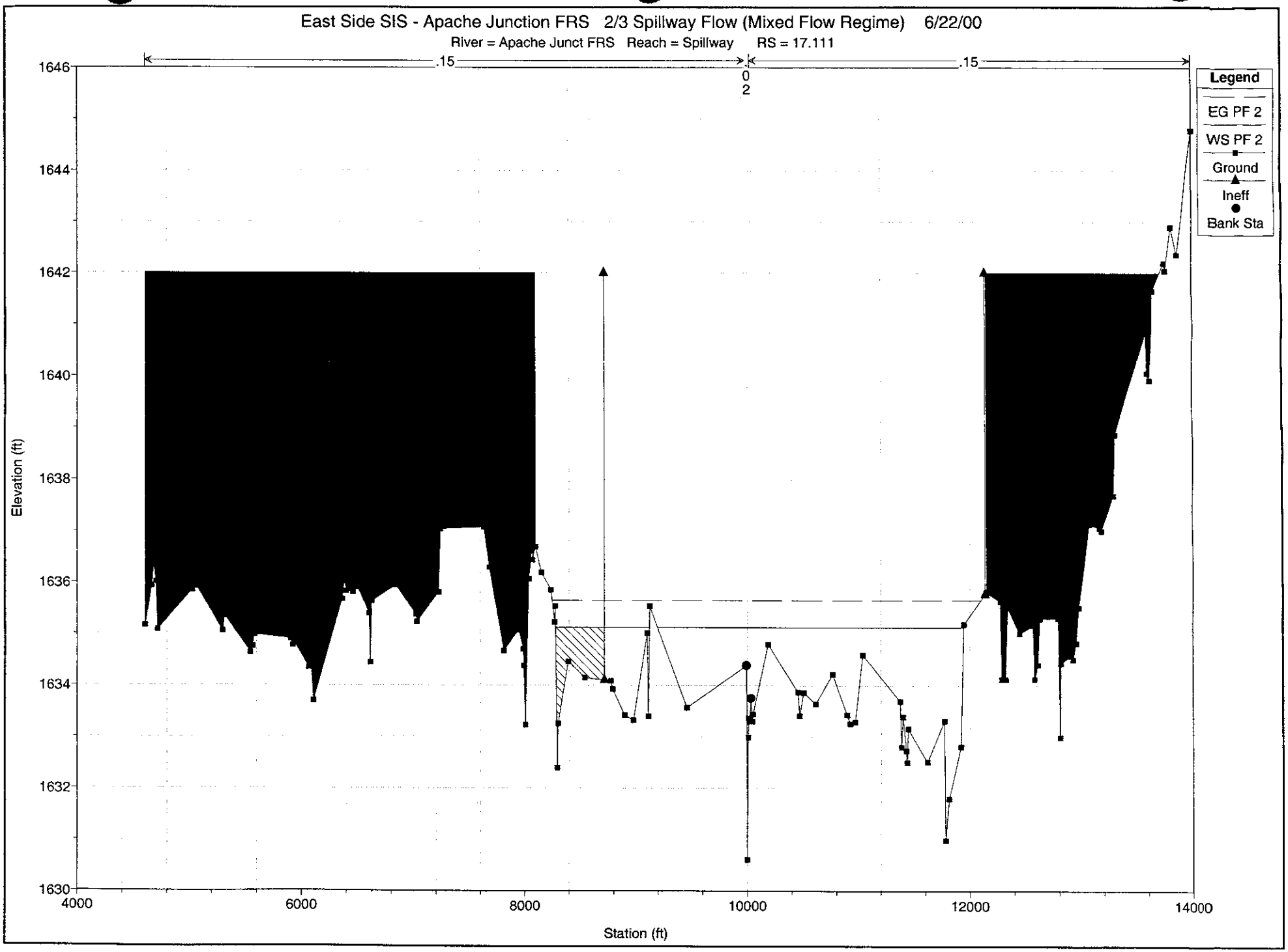


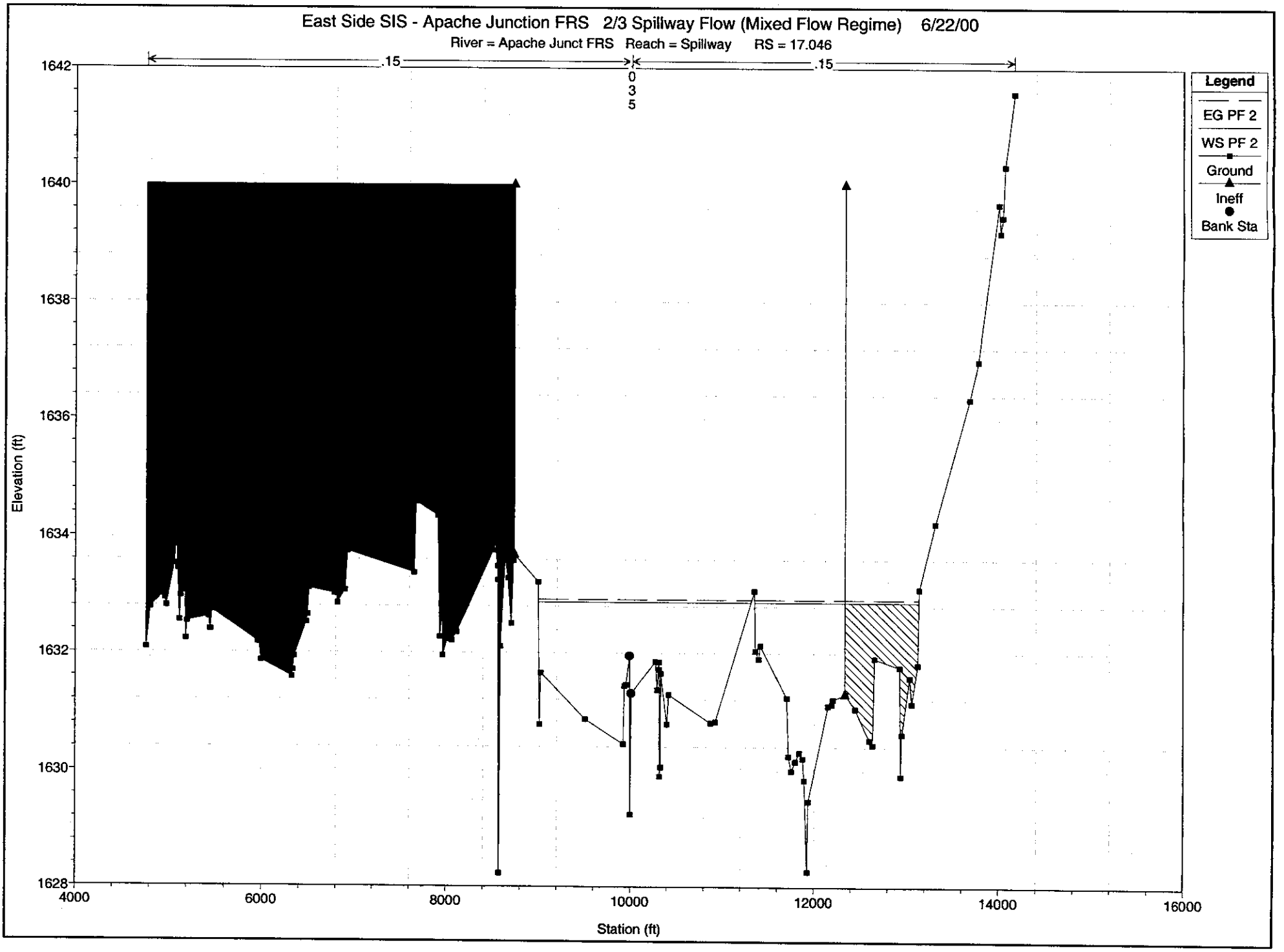
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

River = Apache Junct FRS Reach = Spillway RS = 17.262



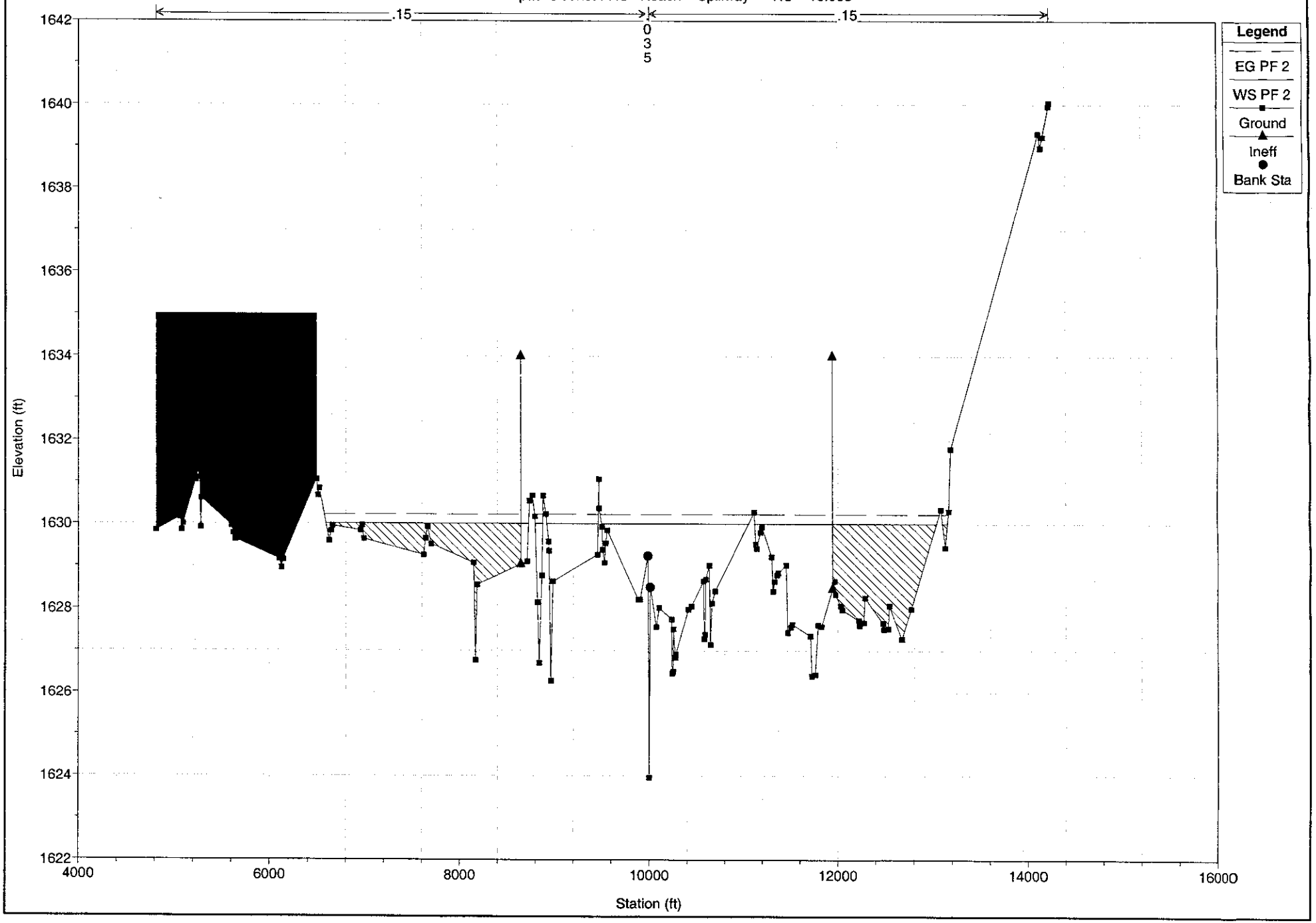

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 17.186
.15
.02
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1650
1648
1646
1644
1642
1640
1638
1636
1634
1632
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 17.111
.15
.02
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1646
1644
1642
1640
1638
1636
1634
1632
1630
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 17.046
.15
.15
0
3
5
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1642
1640
1638
1636
1634
1632
1630
1628
4000
6000
8000
10000
12000
14000
16000
Station (ft)

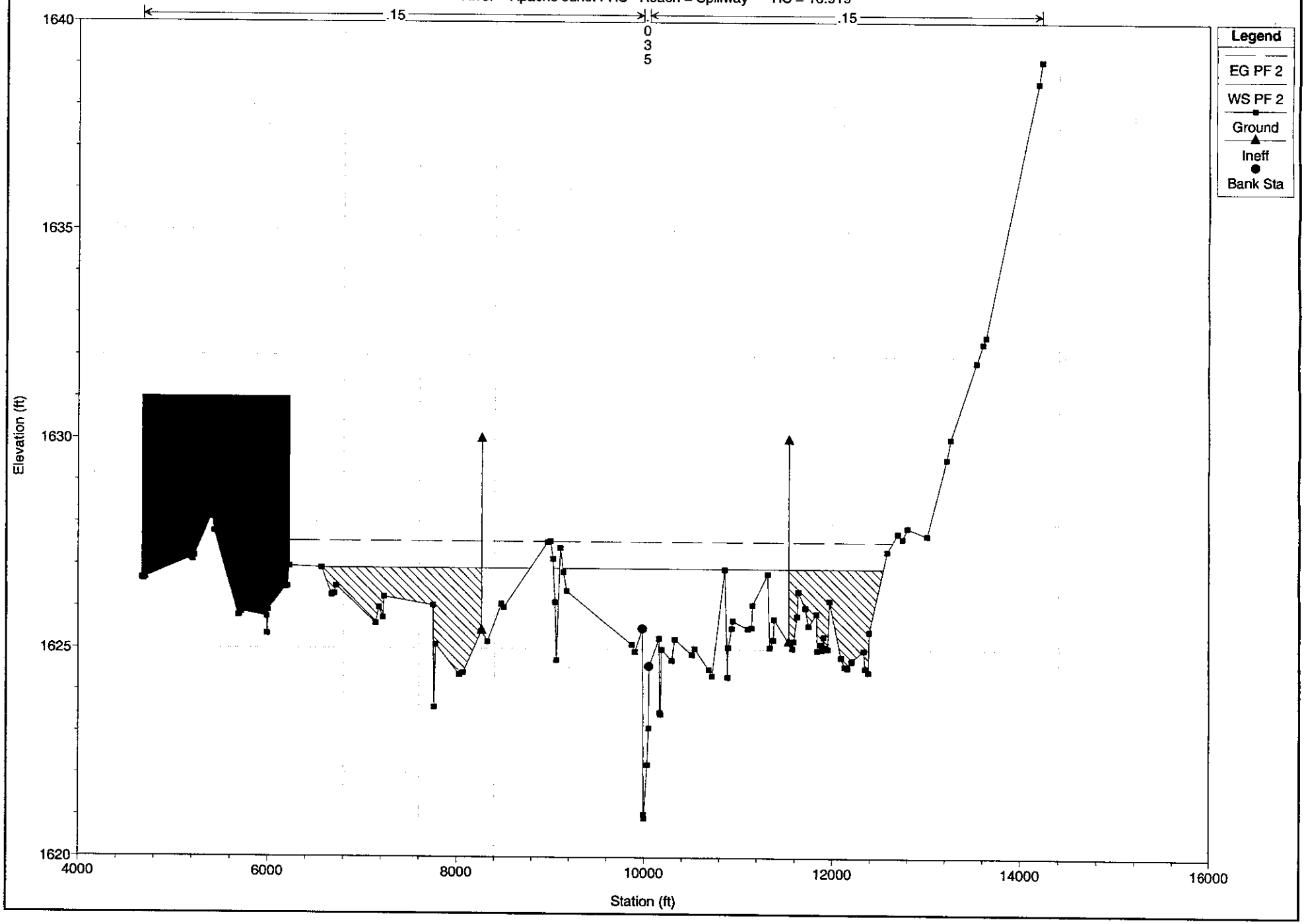
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

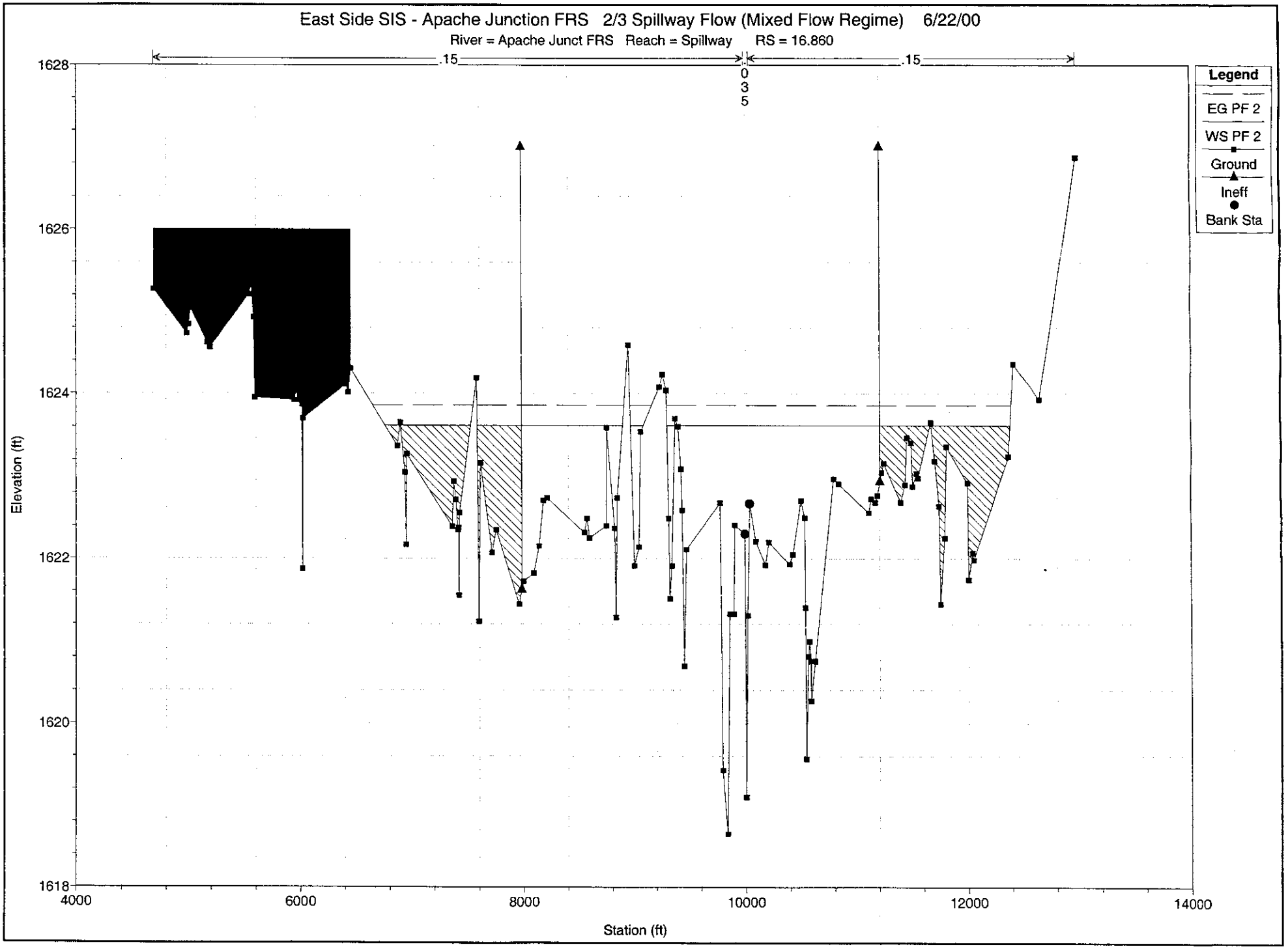
River = Apache Junct FRS Reach = Spillway RS = 16.983

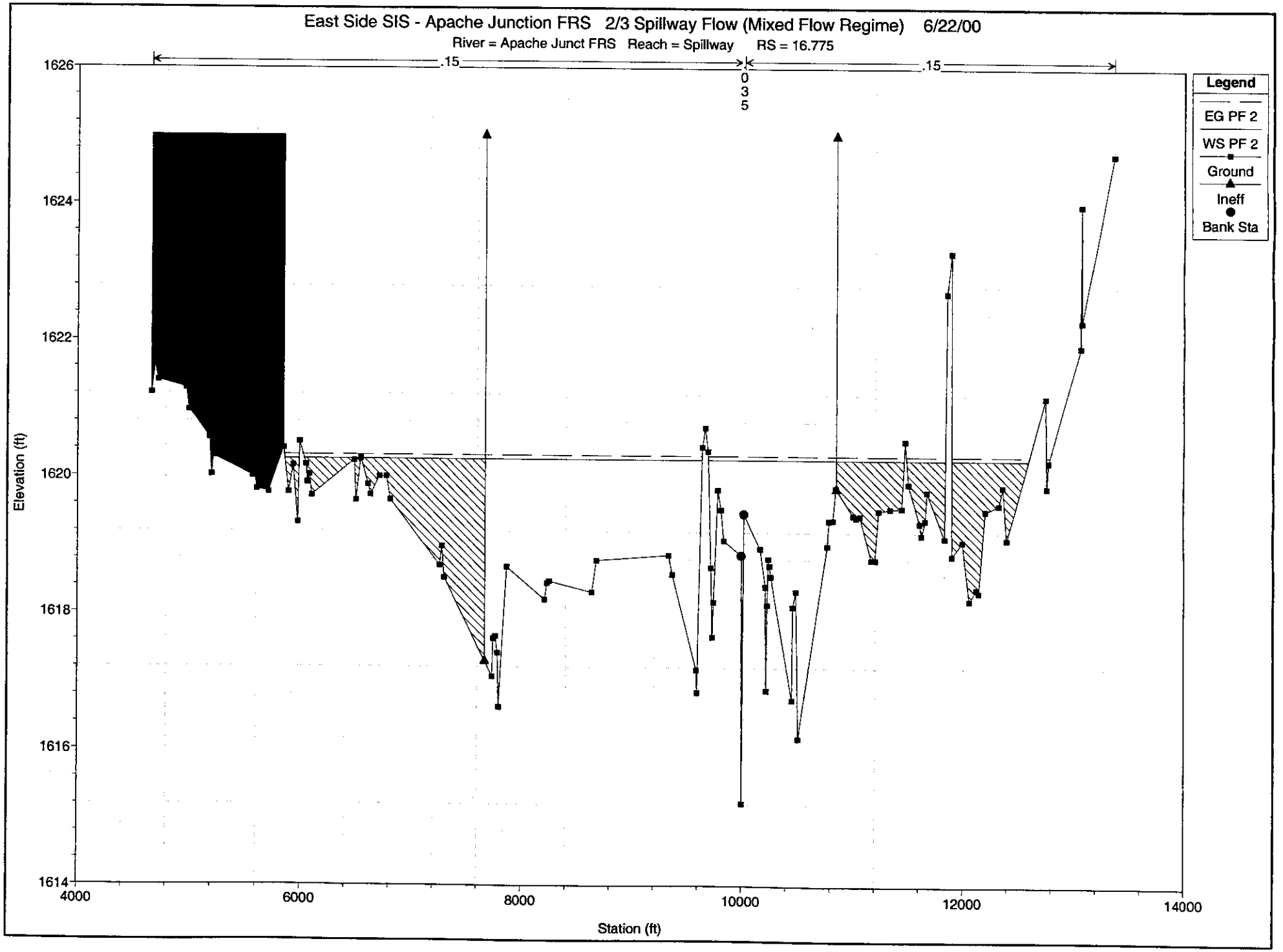


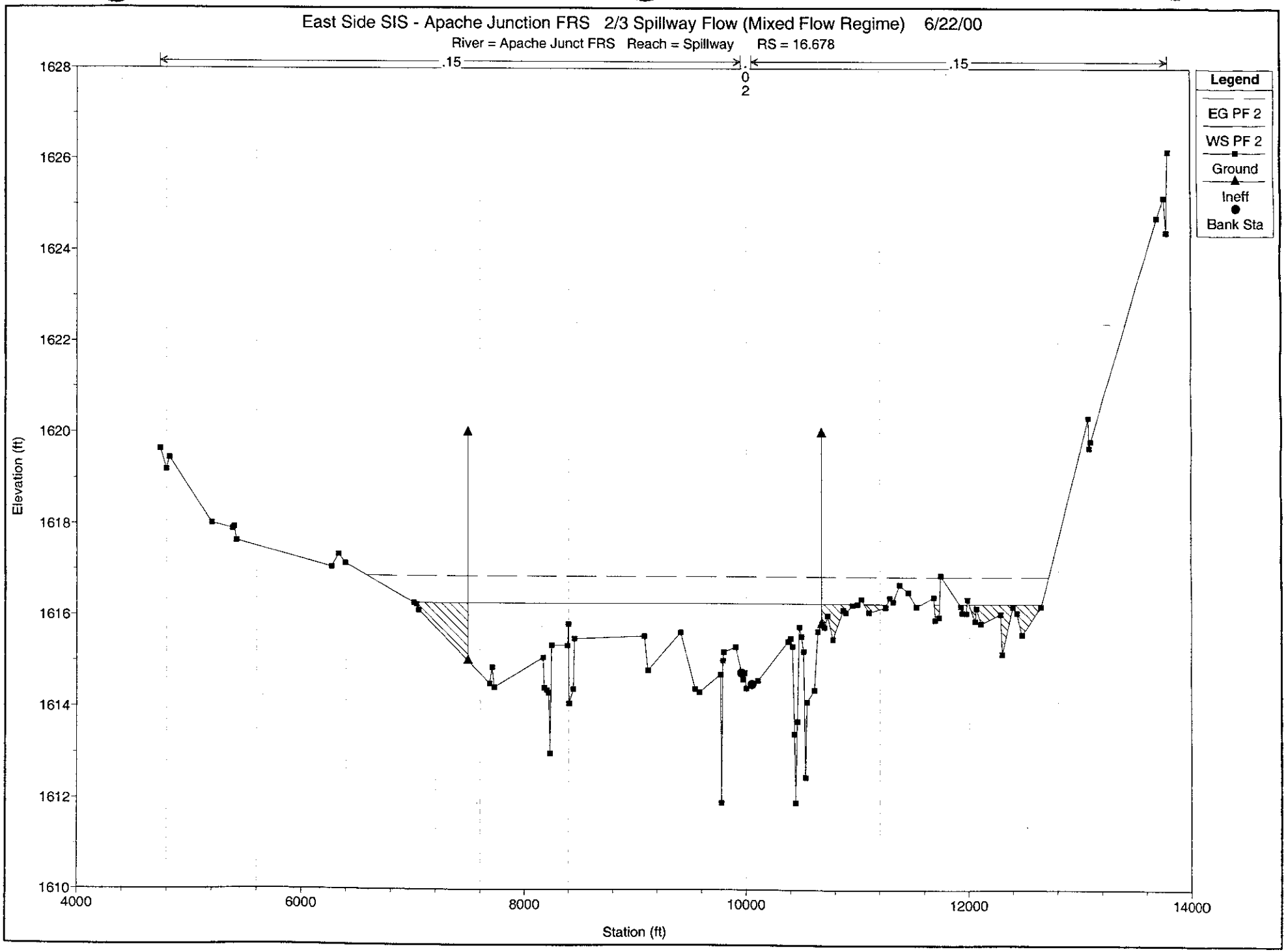
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

River = Apache Junct FRS Reach = Spillway RS = 16.919



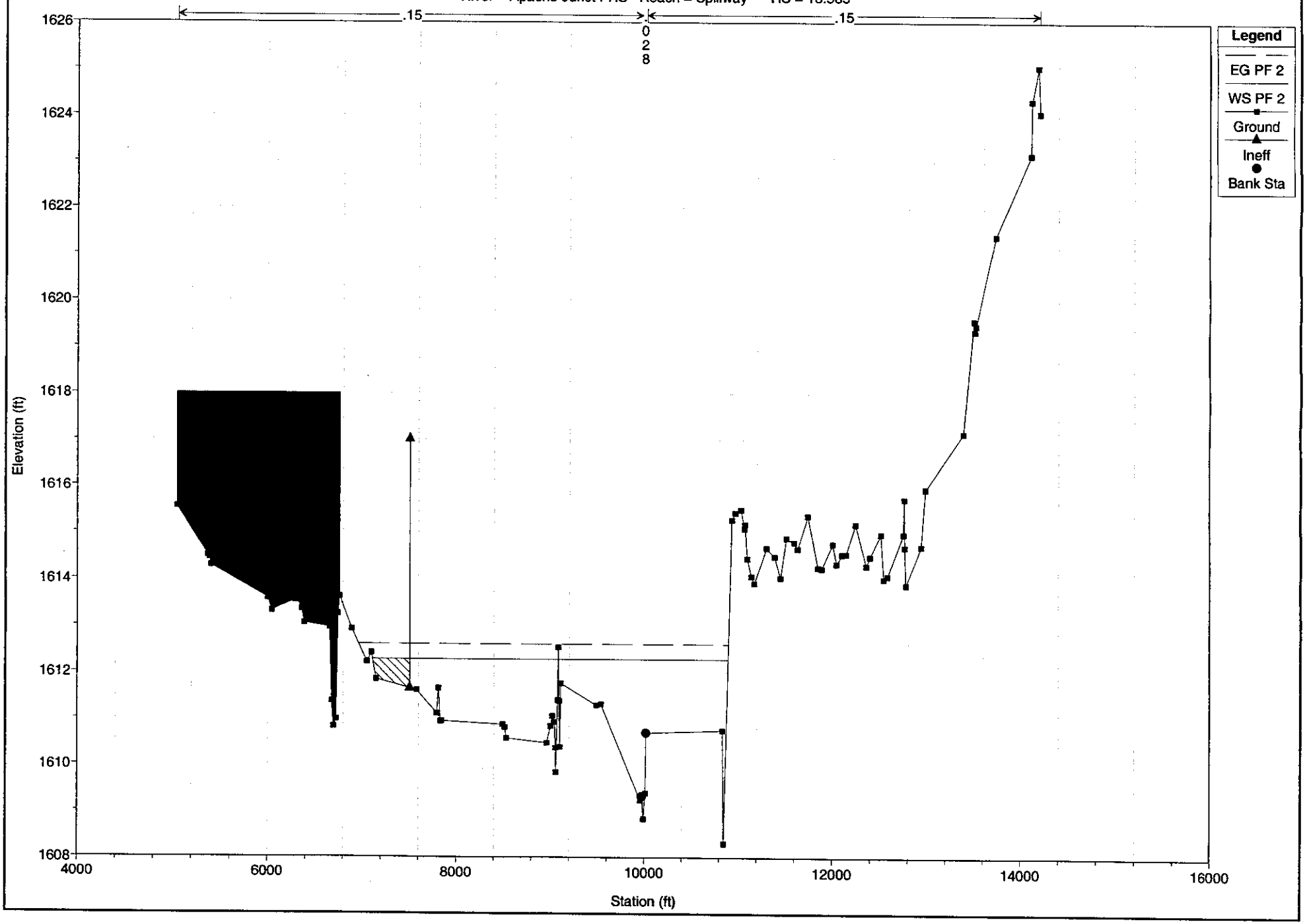

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 16.860
.15
0
3
5
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1628
1626
1624
1622
1620
1618
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 16.775
.15
.15
0
3
5
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1626
1624
1622
1620
1618
1616
1614
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 16.678
.15
.02
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1628
1626
1624
1622
1620
1618
1616
1614
1612
1610
4000
6000
8000
10000
12000
14000
Station (ft)

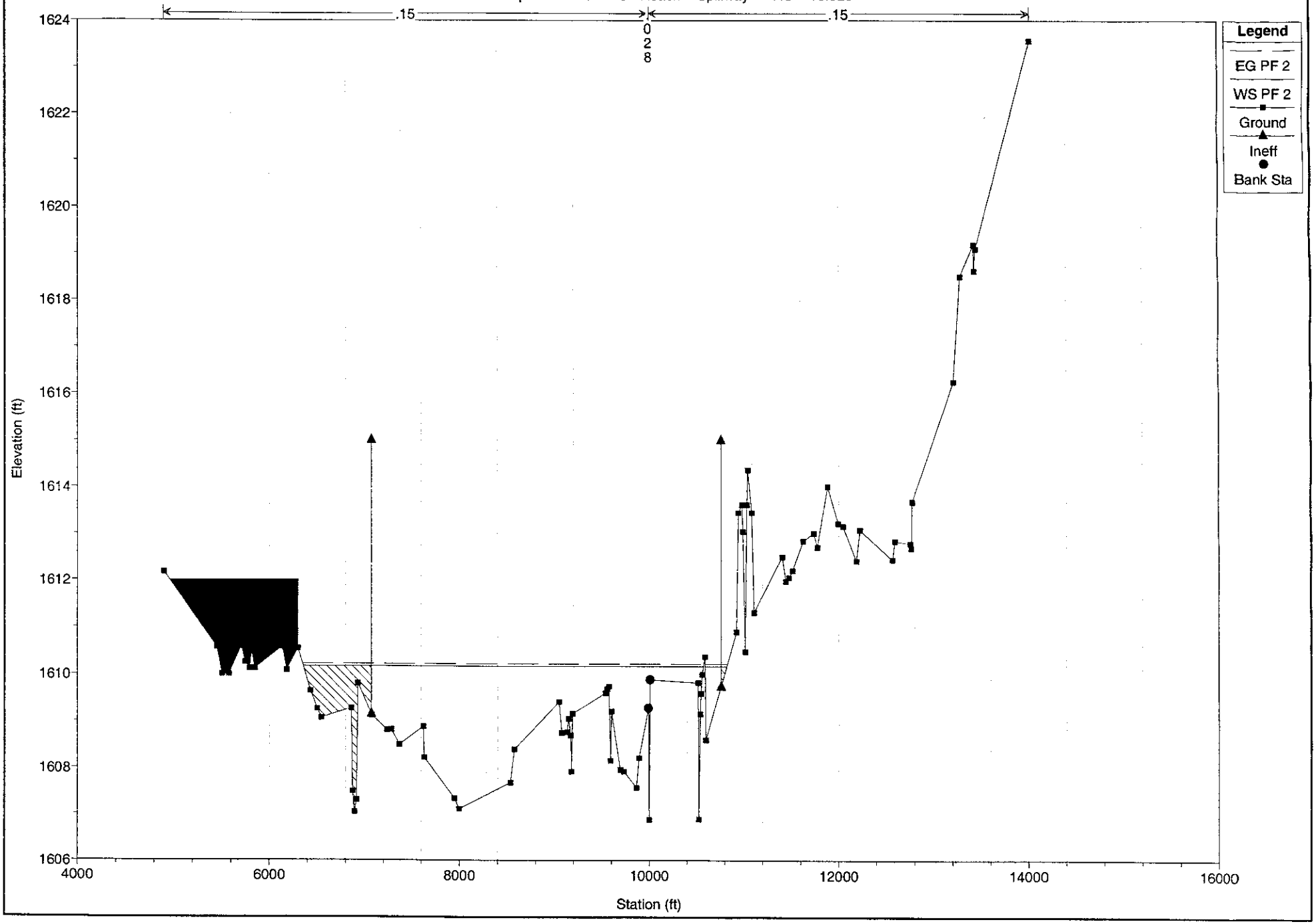
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

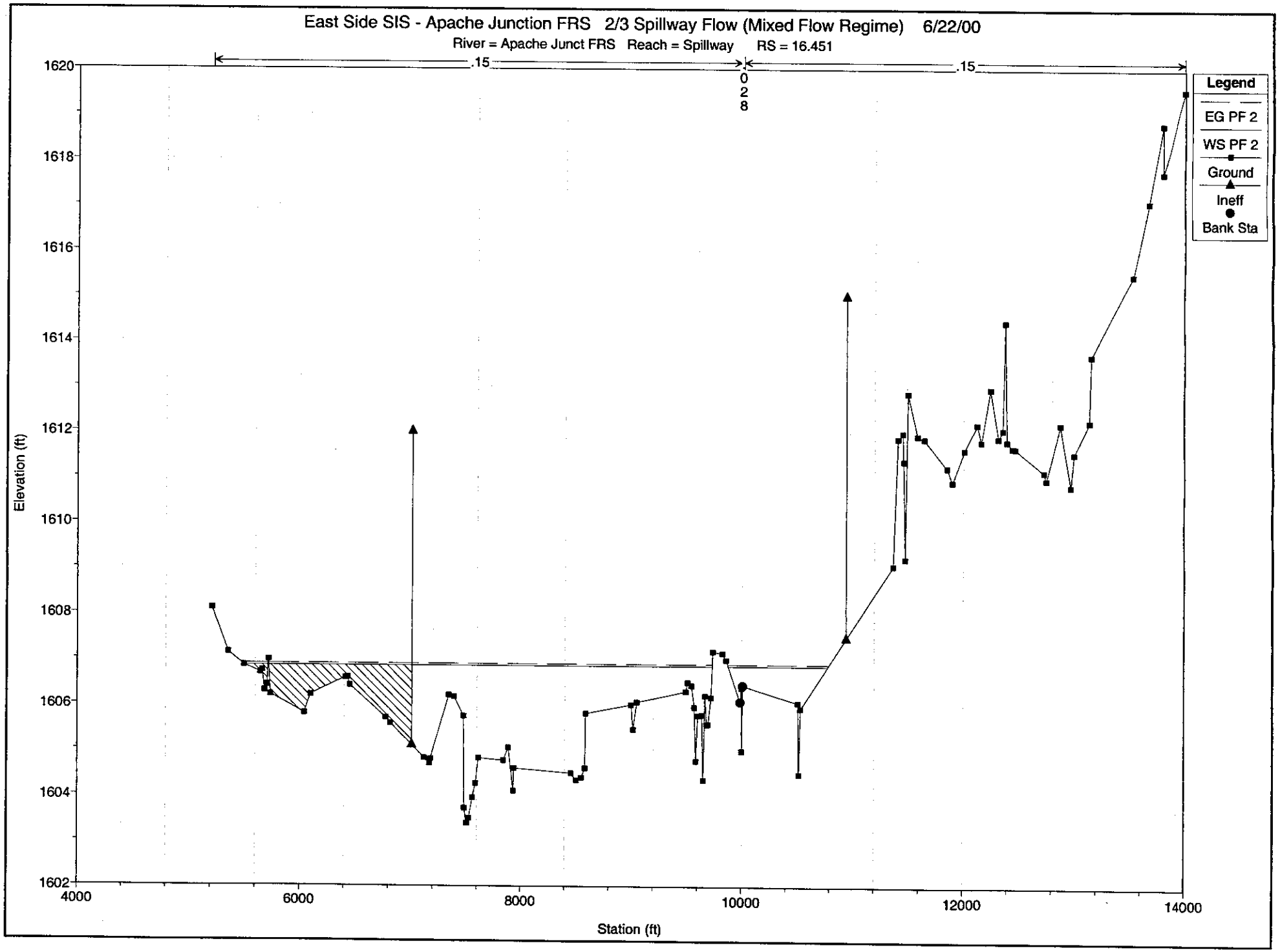
River = Apache Junct FRS Reach = Spillway RS = 16.585

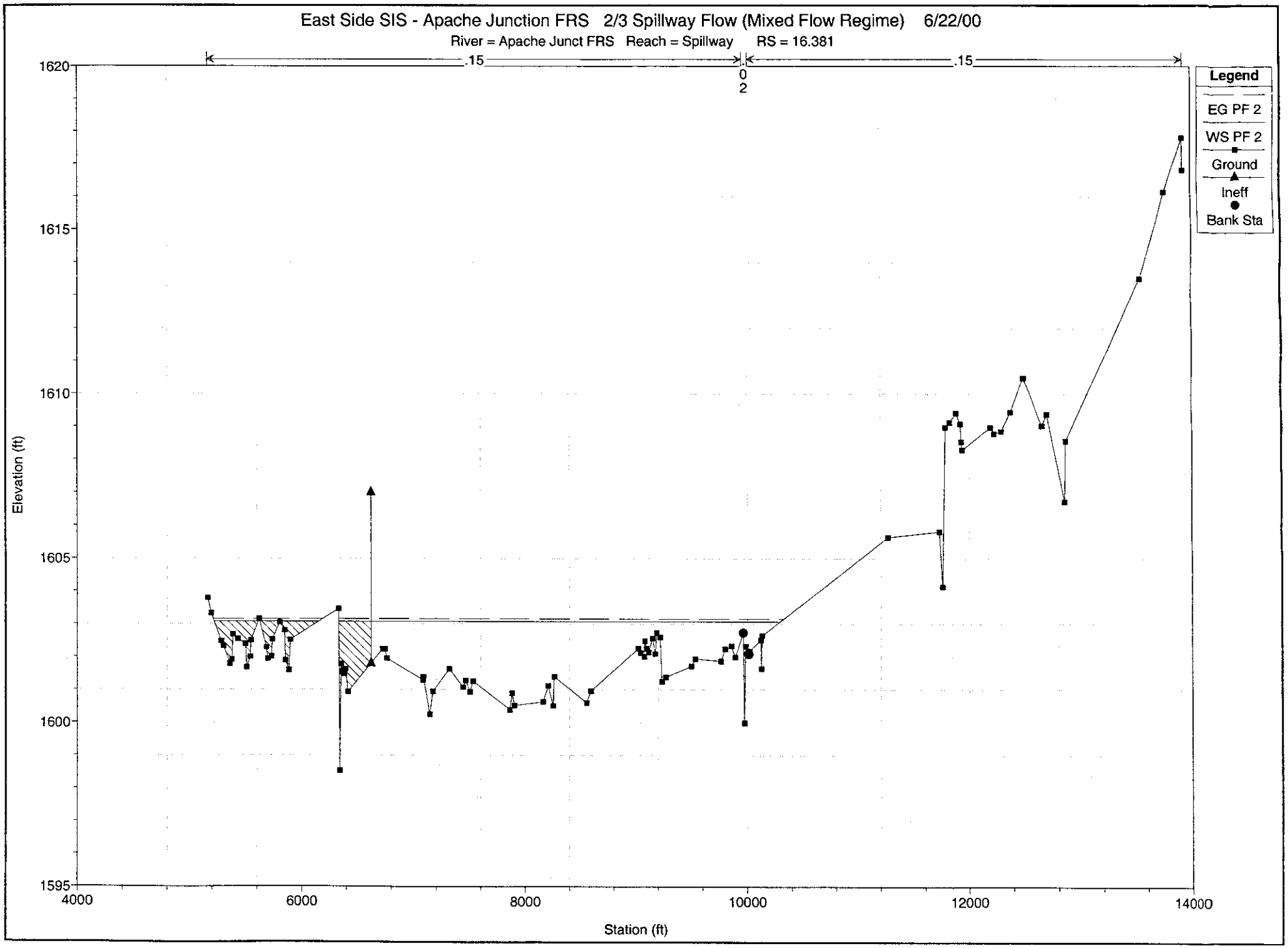


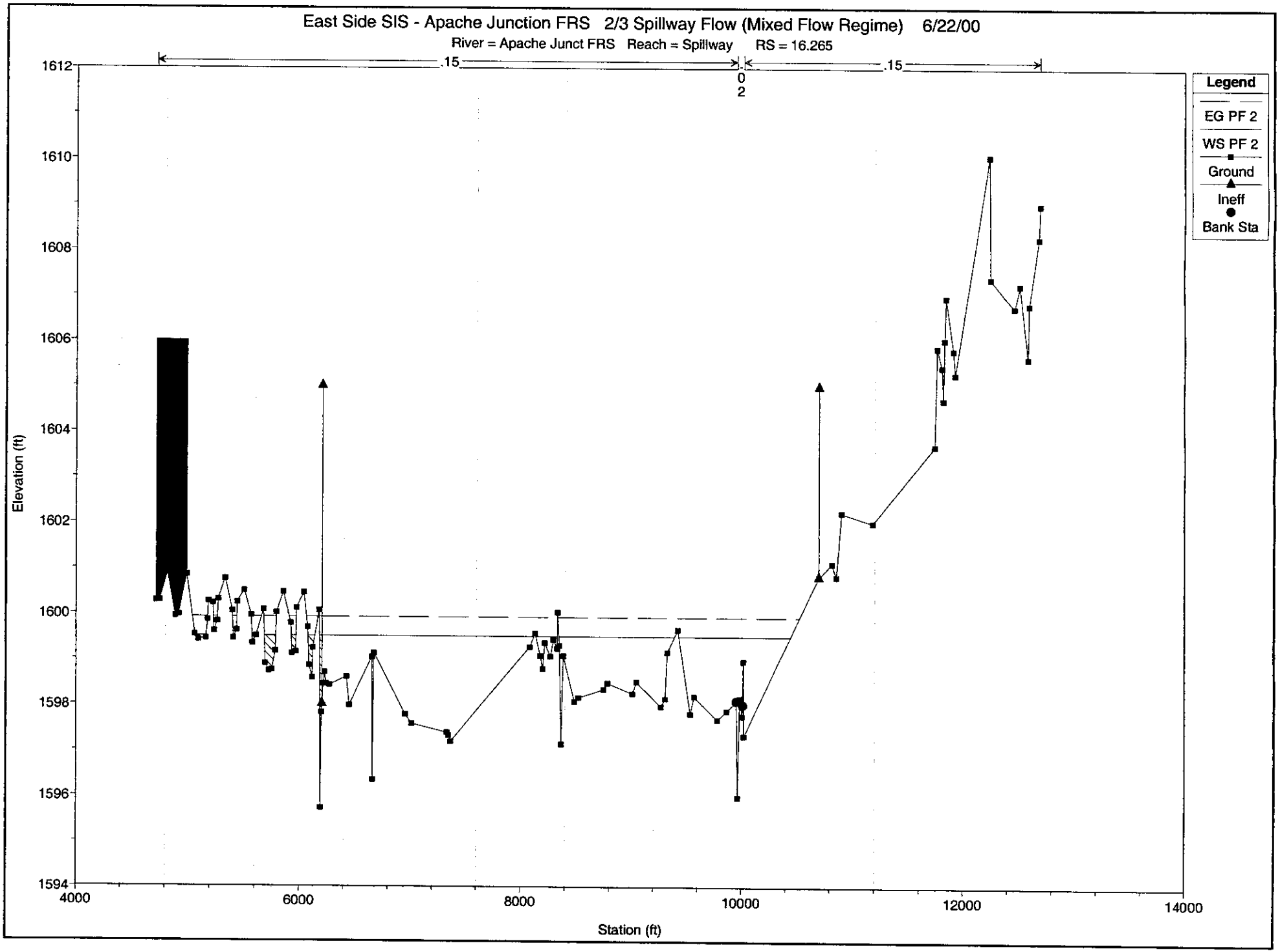
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

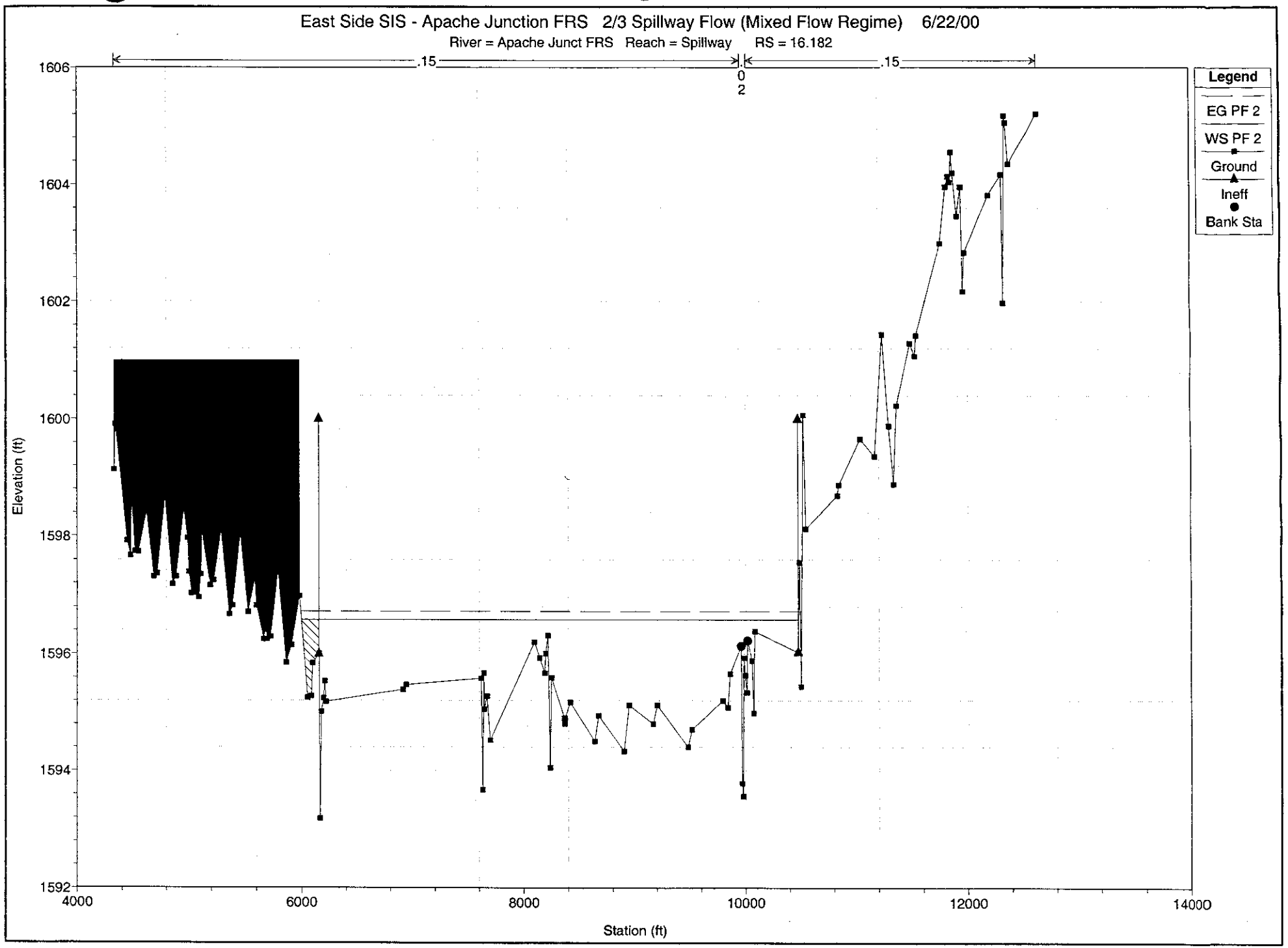
River = Apache Junct FRS Reach = Spillway RS = 16.525

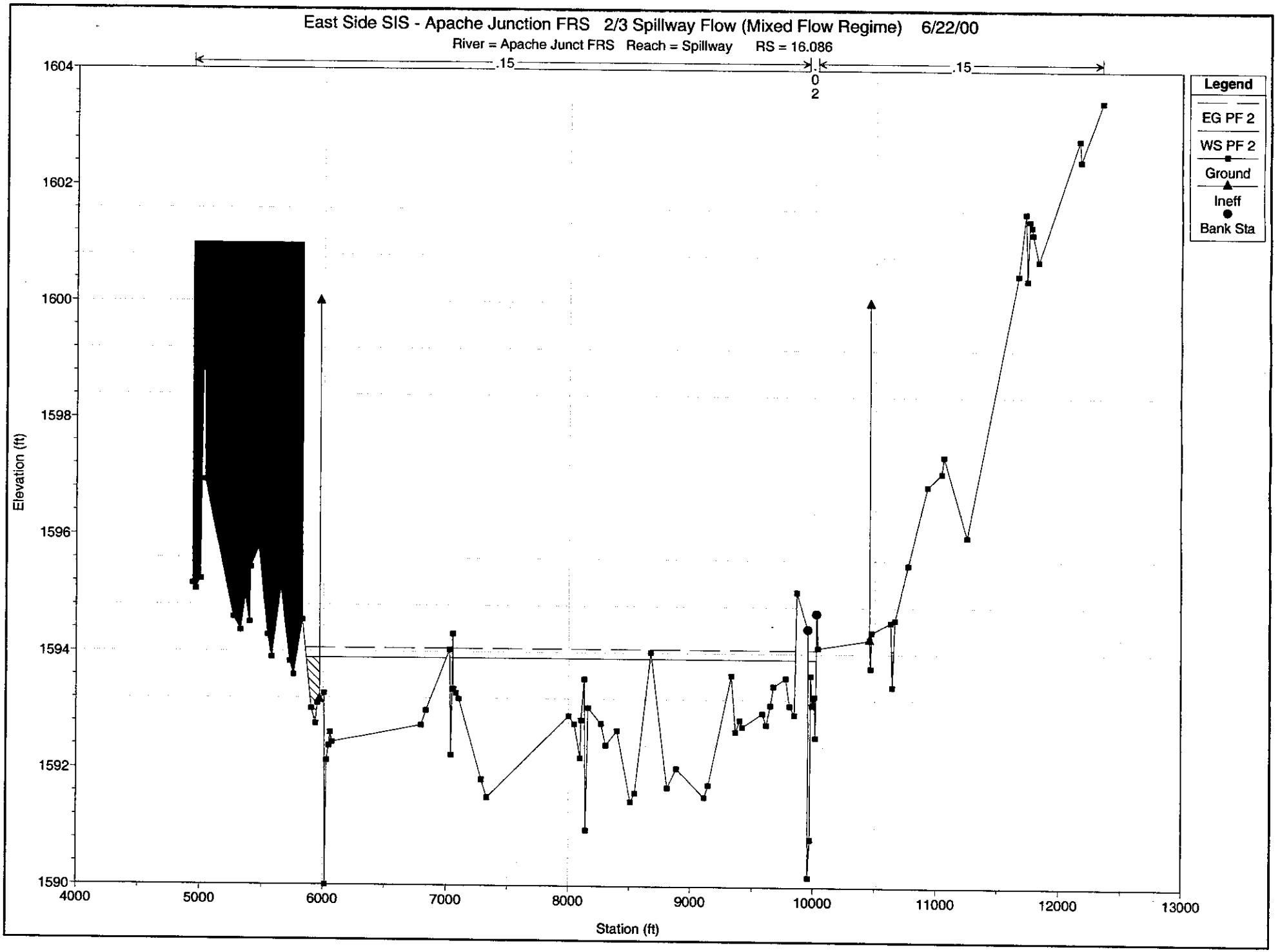



East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 16.451
.15
.028
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1620
1618
1616
1614
1612
1610
1608
1606
1604
1602
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 16.381
.15
0
2
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1620
1615
1610
1605
1600
1595
4000
6000
8000
10000
12000
14000
Station (ft)

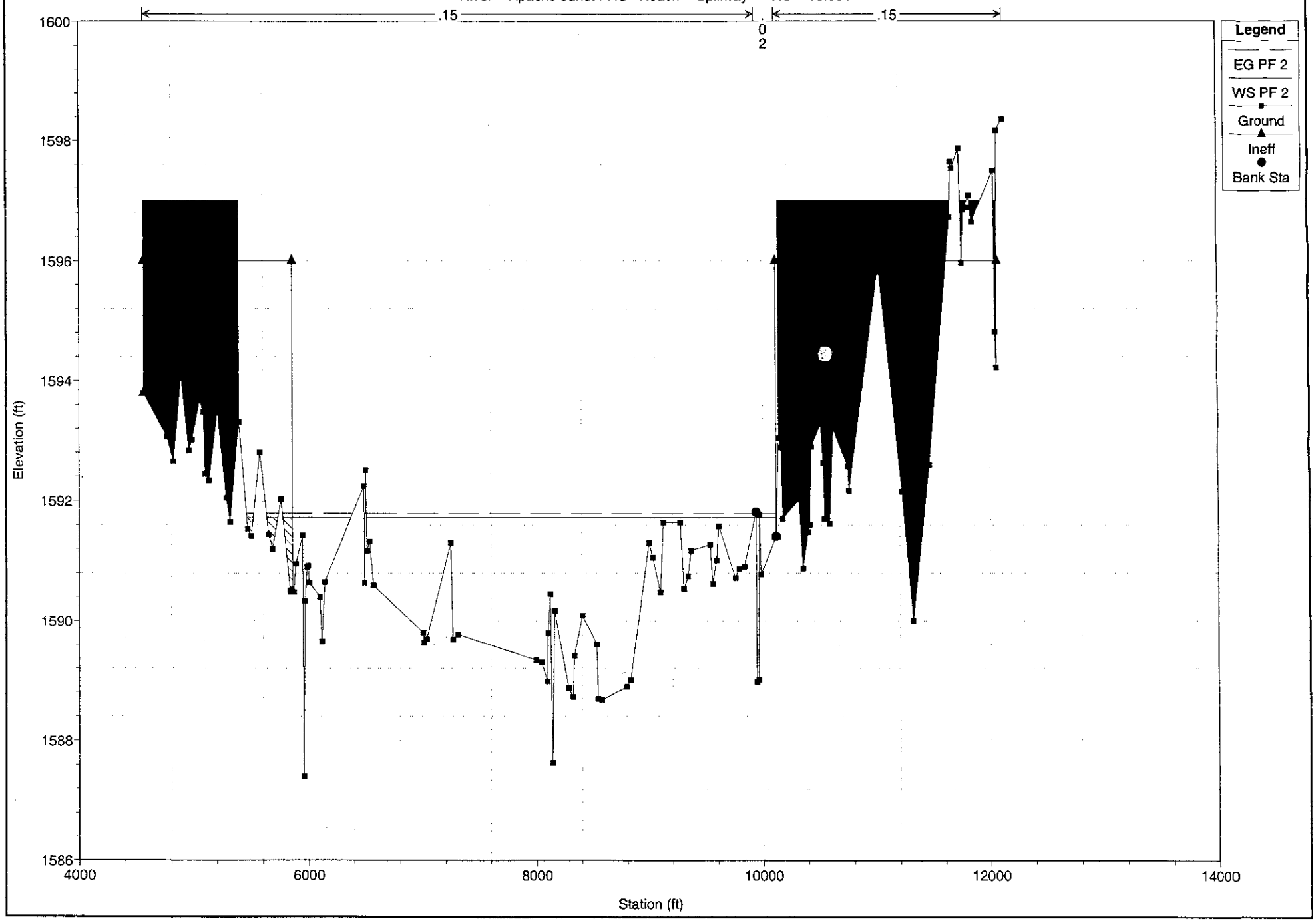

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 16.265
.15
.02
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1612
1610
1608
1606
1604
1602
1600
1598
1596
1594
4000
6000
8000
10000
12000
14000
Station (ft)

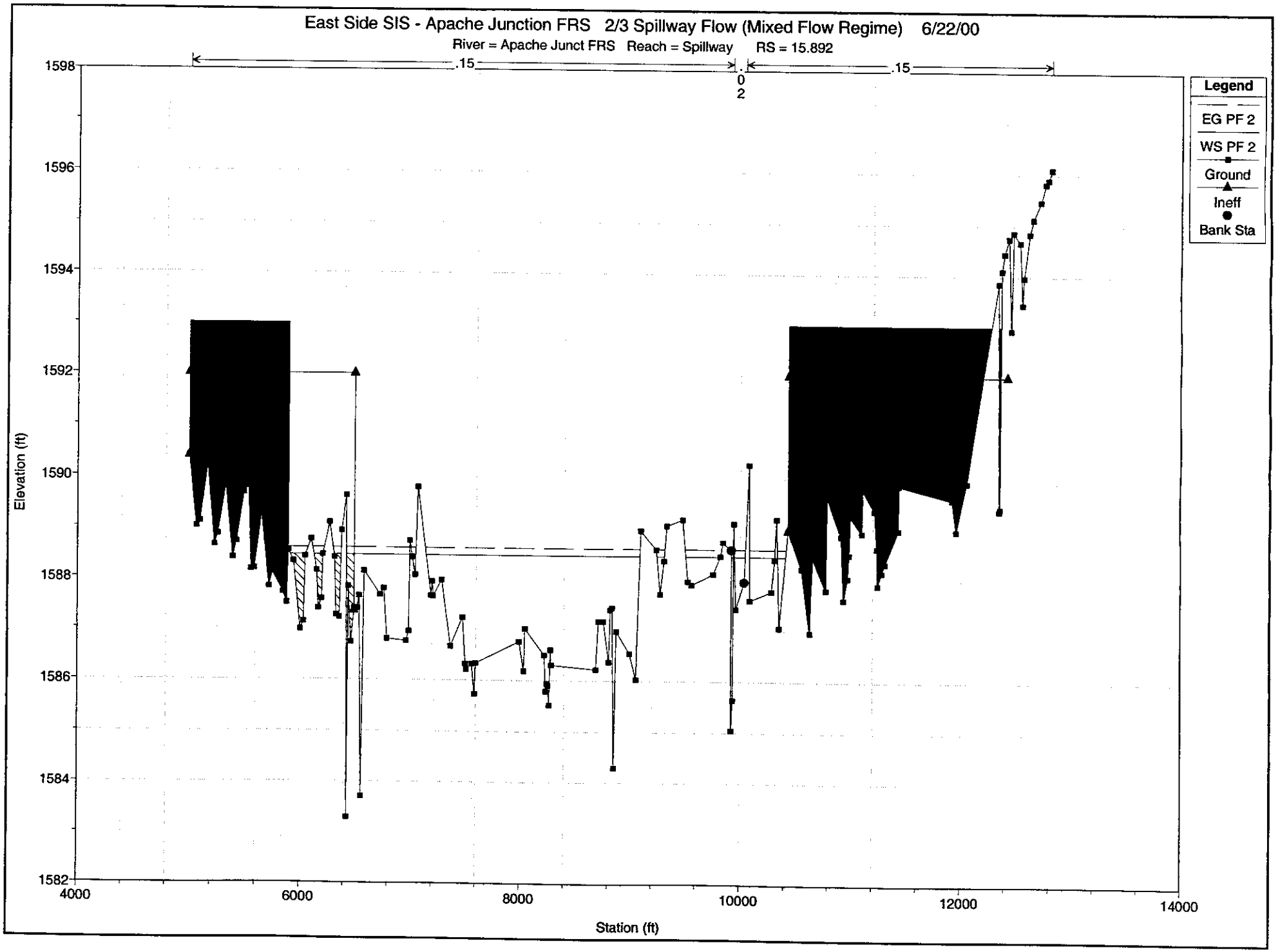

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 16.182
.15
.15
0
2
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1606
1604
1602
1600
1598
1596
1594
1592
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 16.086
.15
0
2
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1604
1602
1600
1598
1596
1594
1592
1590
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

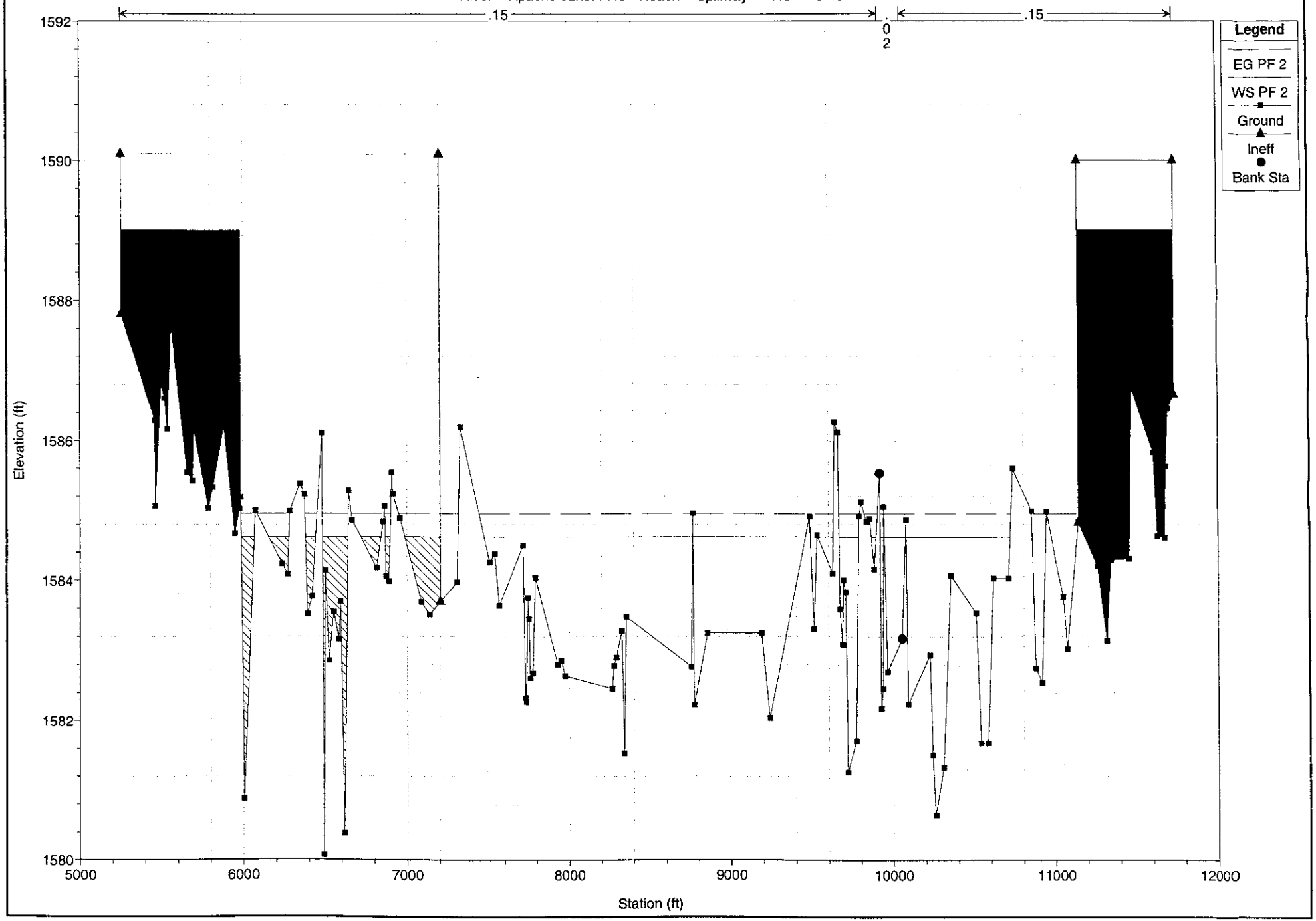
River = Apache Junct FRS Reach = Spillway RS = 16.001

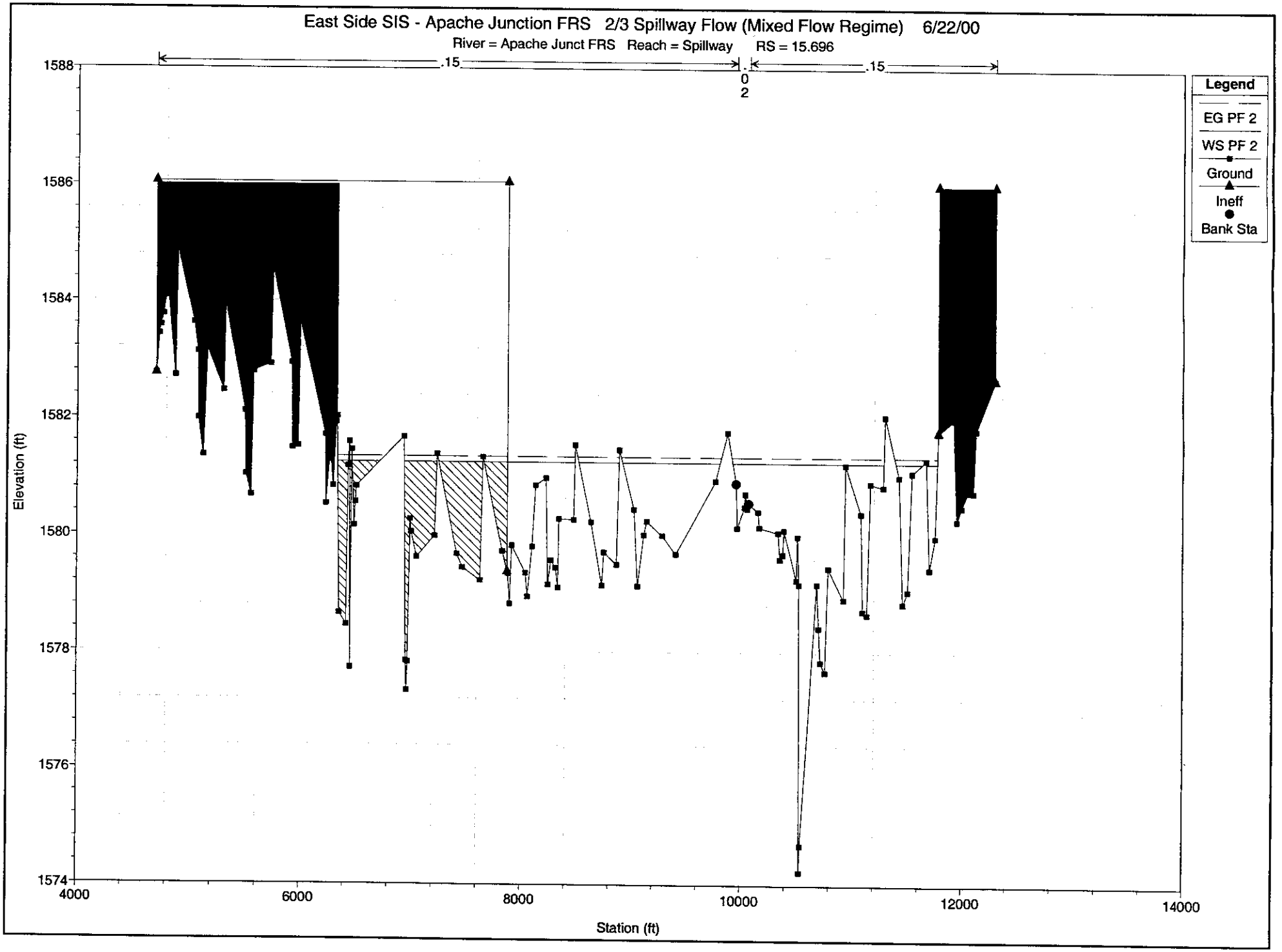


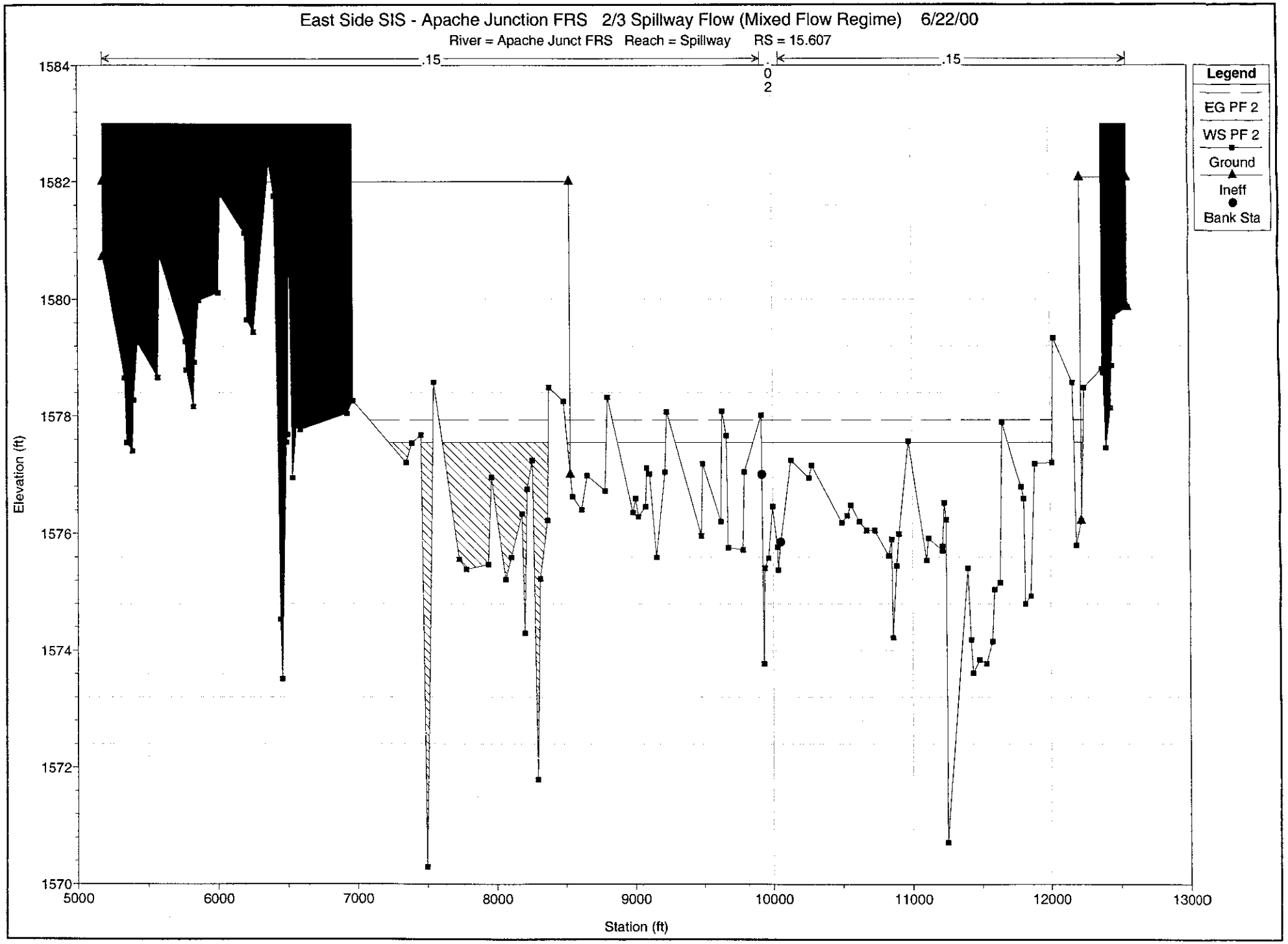

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 15.892
.15
.15
0
2
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1598
1596
1594
1592
1590
1588
1586
1584
1582
4000
6000
8000
10000
12000
14000
Station (ft)

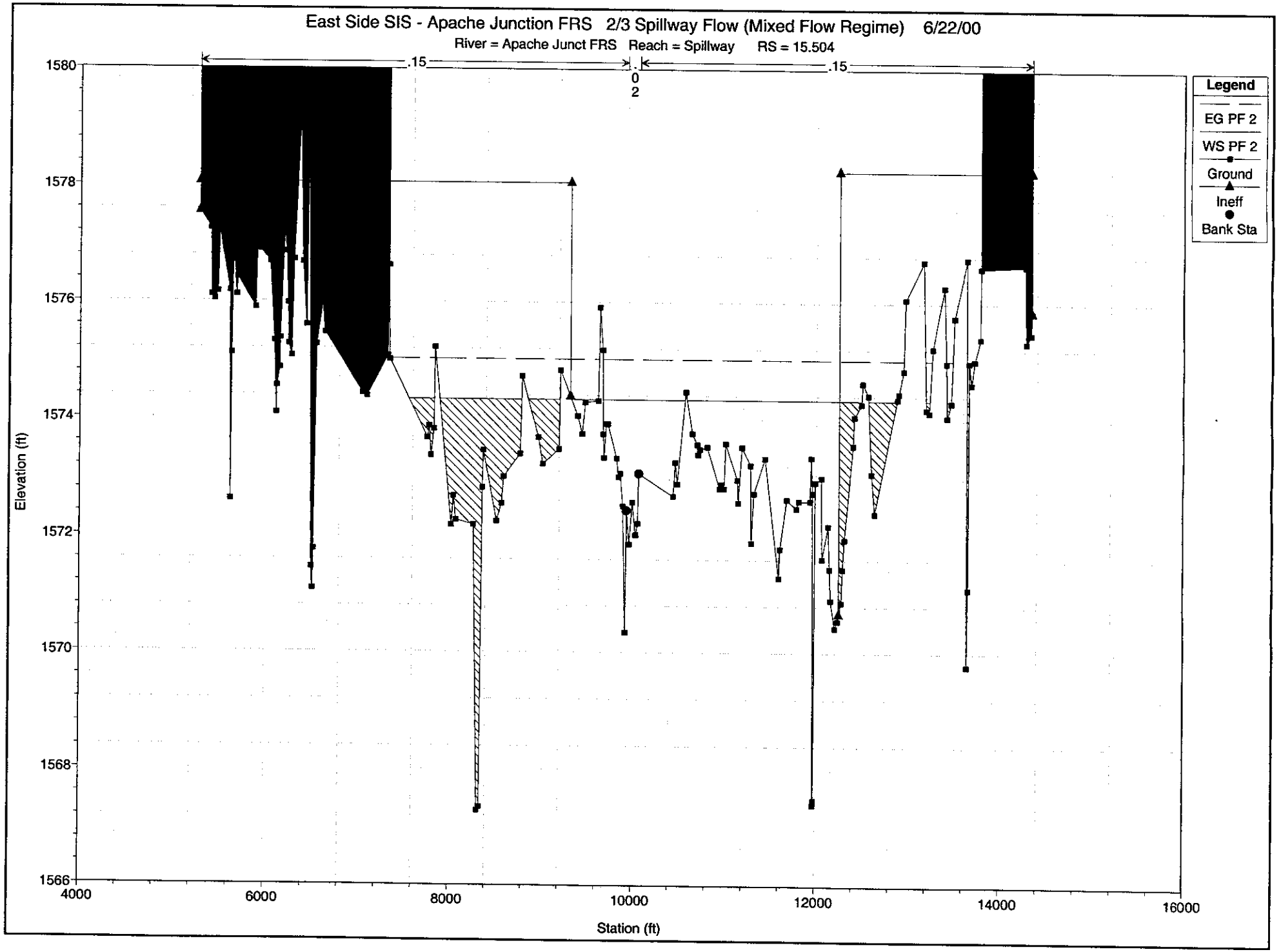
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

River = Apache Junct FRS Reach = Spillway RS = 15.784



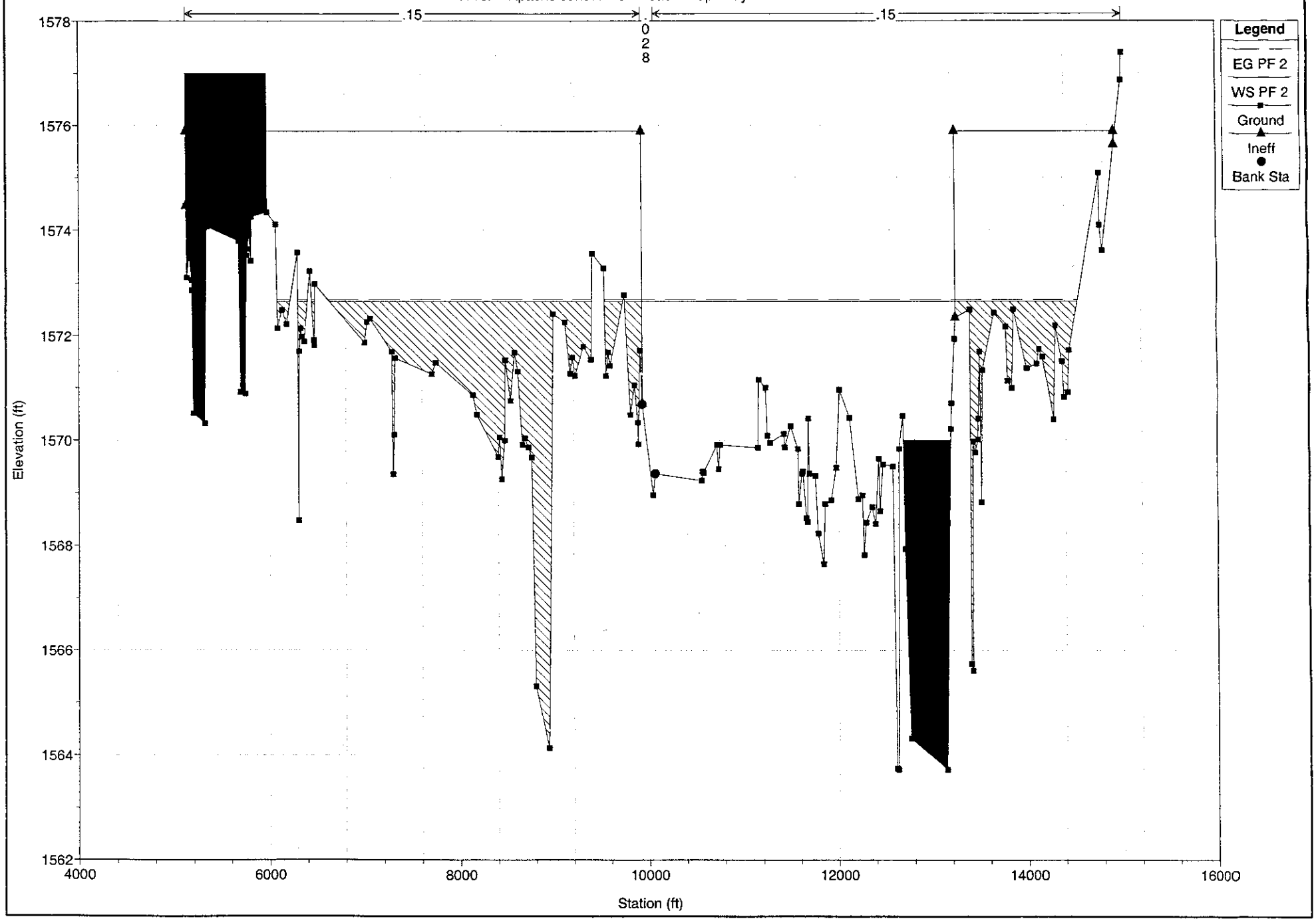

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 15.696
.15
.02
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1588
1586
1584
1582
1580
1578
1576
1574
4000
6000
8000
10000
12000
14000
Station (ft)

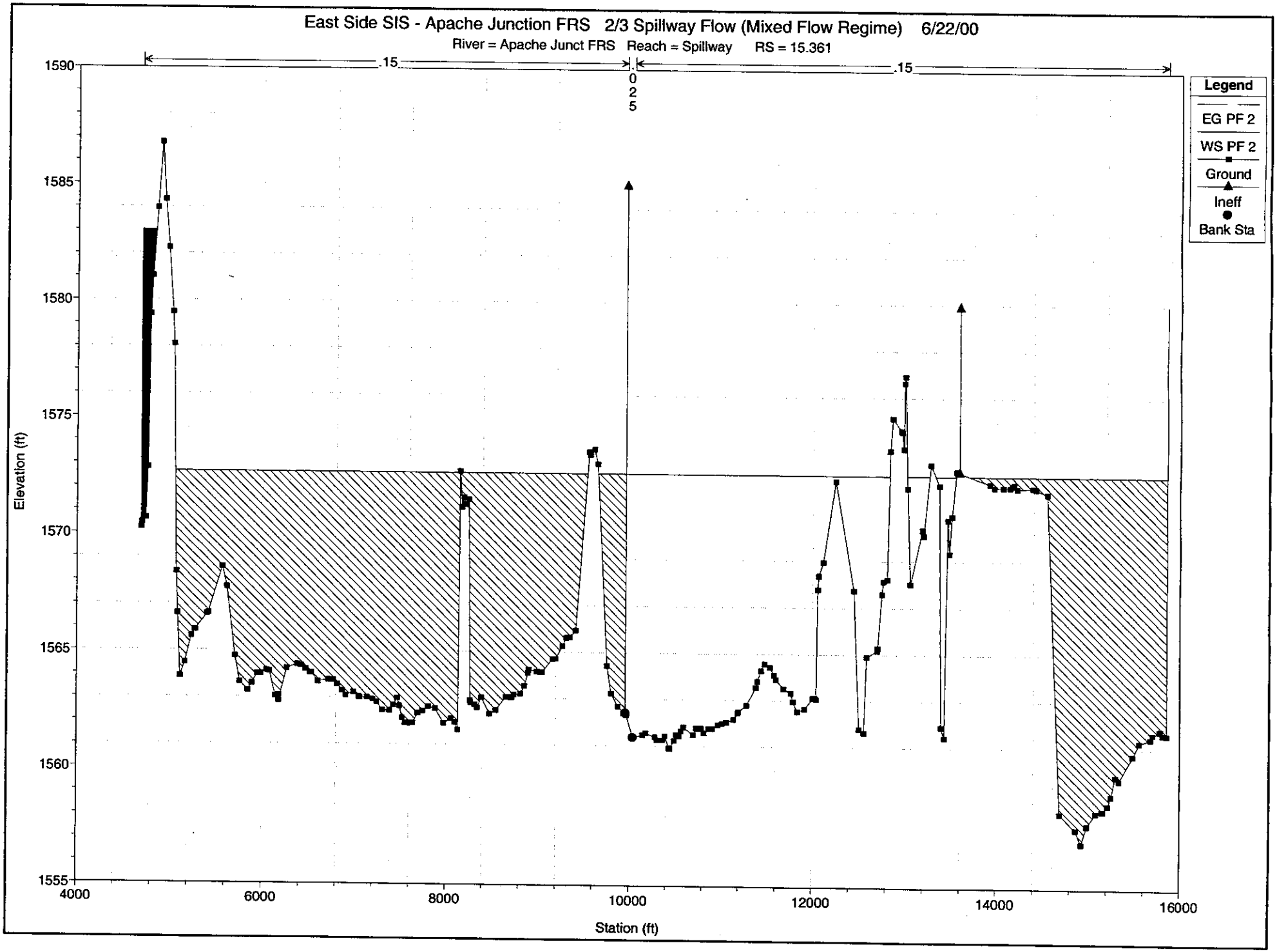

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 15.607
.15
.15
0
2
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1584
1582
1580
1578
1576
1574
1572
1570
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

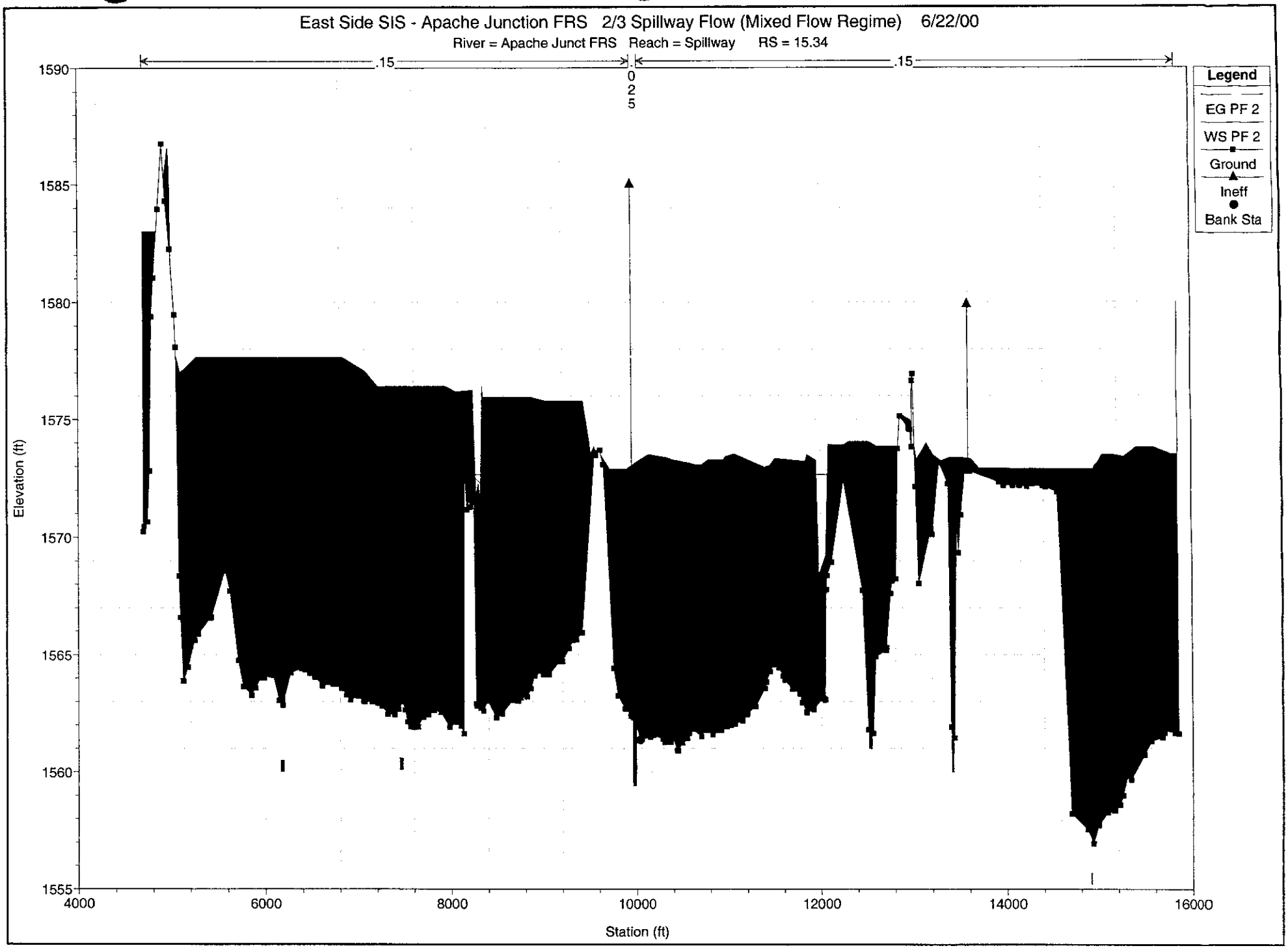

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 15.504
.15
.02
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1580
1578
1576
1574
1572
1570
1568
1566
4000
6000
8000
10000
12000
14000
16000
Station (ft)

East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

River = Apache Junct FRS Reach = Spillway RS = 15.419

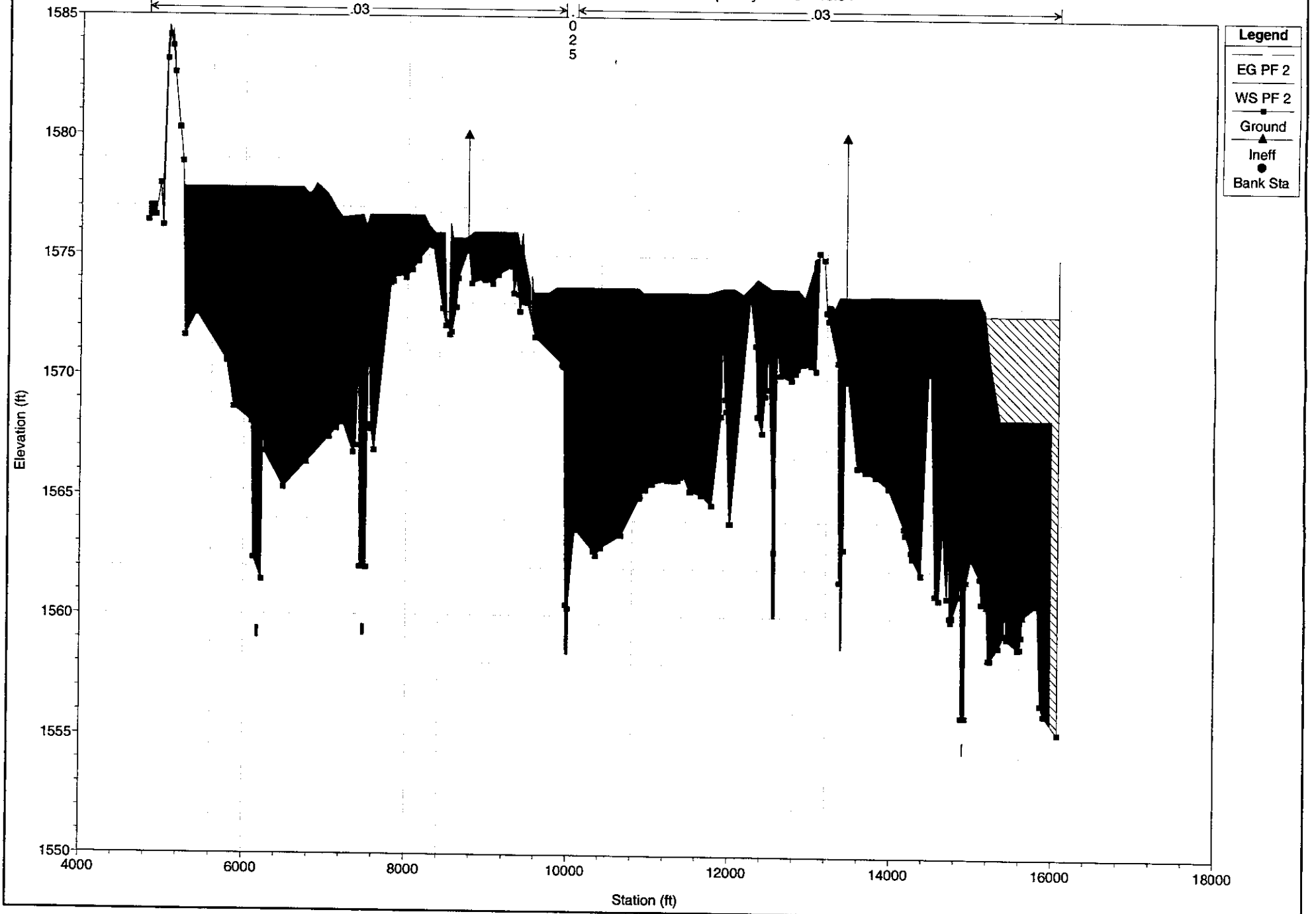



East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 15.361
.15
.025
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1590
1585
1580
1575
1570
1565
1560
1555
4000
6000
8000
10000
12000
14000
16000
Station (ft)


East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 15.34
.15
.15
0
2
5
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1590
1585
1580
1575
1570
1565
1560
1555
4000
6000
8000
10000
12000
14000
16000
Station (ft)

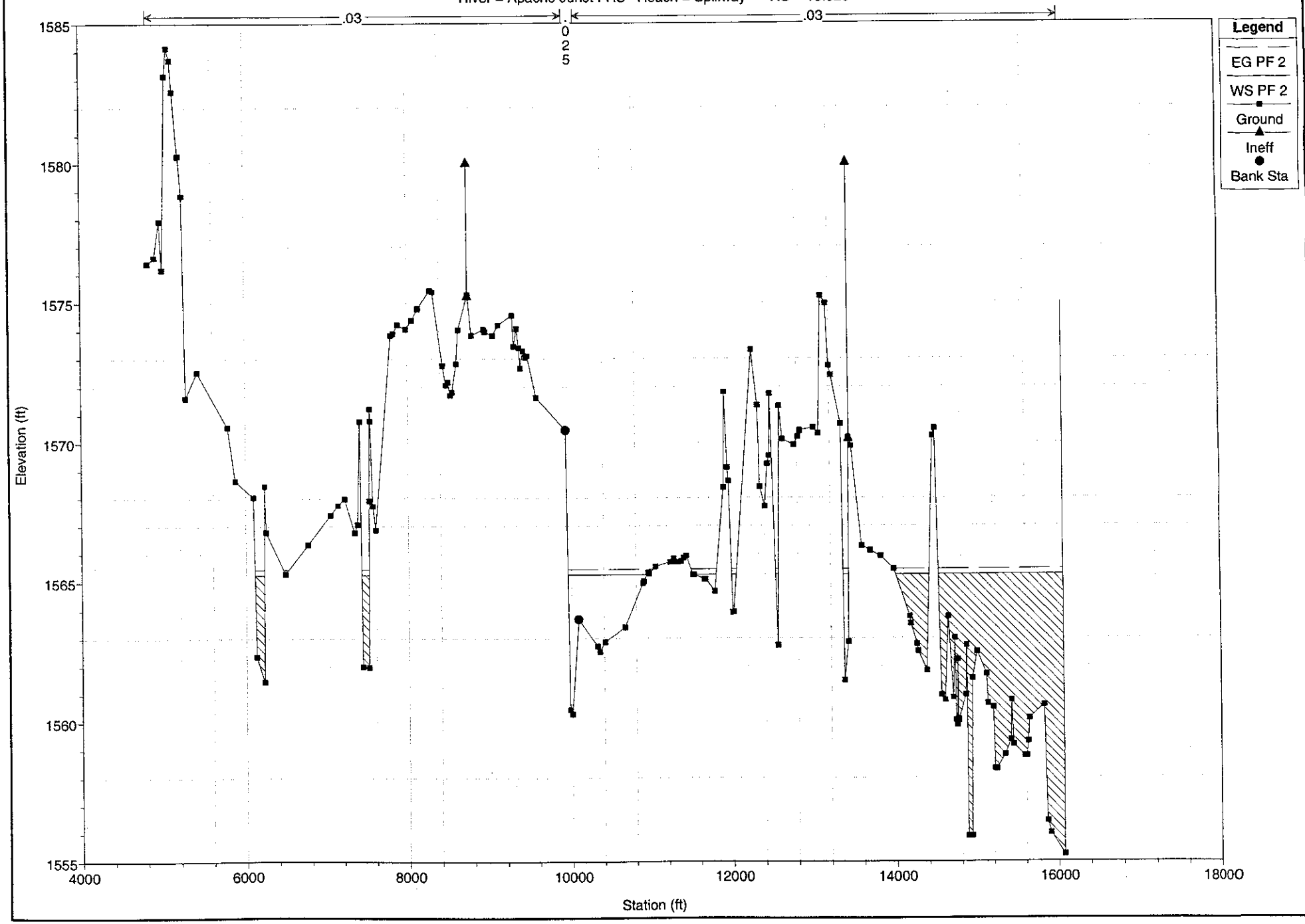
East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

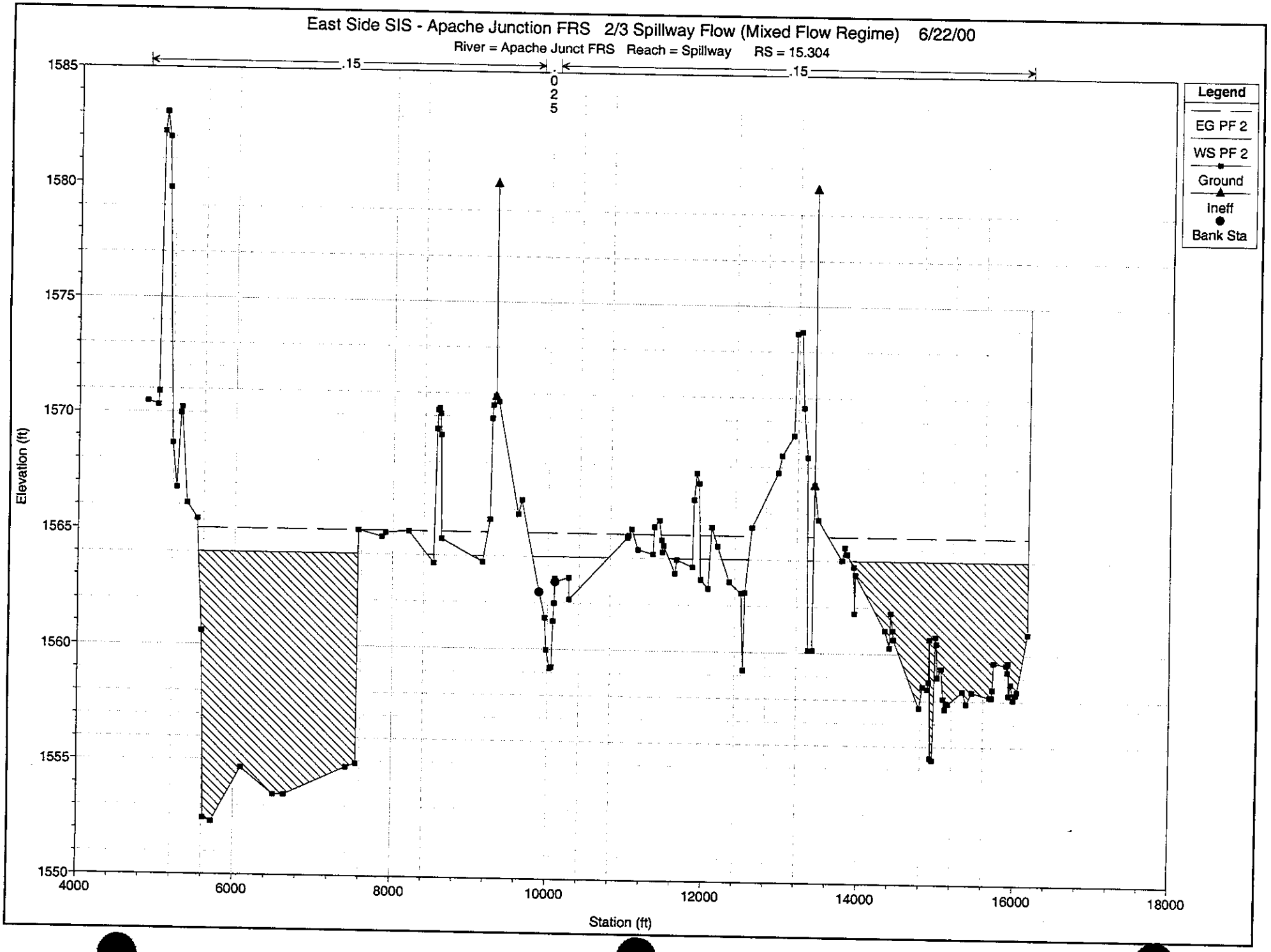
River = Apache Junct FRS Reach = Spillway RS = 15.34



East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00

River = Apache Junct FRS Reach = Spillway RS = 15.320




East Side SIS - Apache Junction FRS 2/3 Spillway Flow (Mixed Flow Regime) 6/22/00
River = Apache Junct FRS Reach = Spillway RS = 15.304
.15
.025
.15
Legend
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1585
1580
1575
1570
1565
1560
1555
1550
4000
6000
8000
10000
12000
14000
16000
18000
Station (ft)

HYDRAULIC DATA

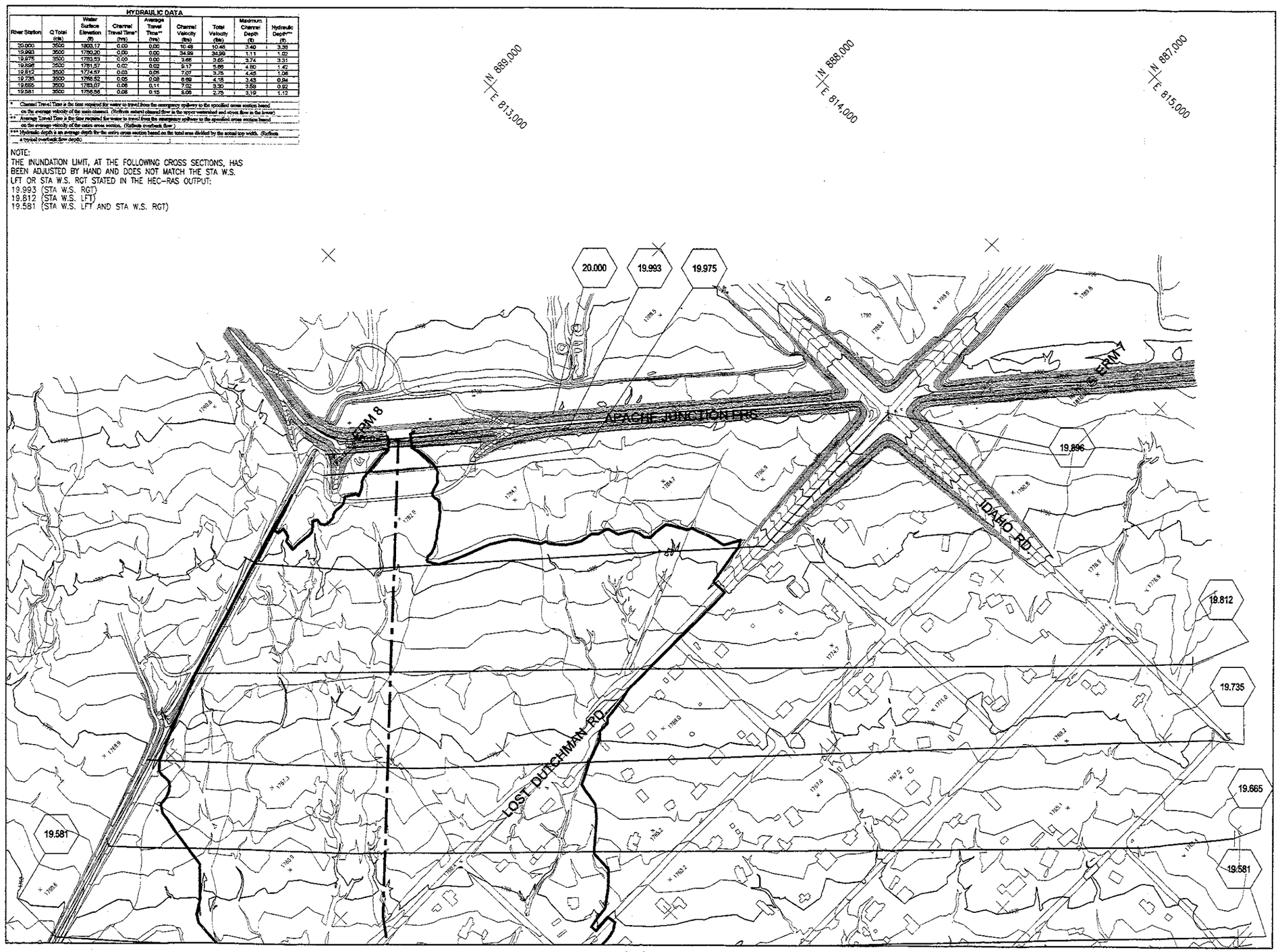
River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (fps)	Total Velocity (fps)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
20.000	3500	1803.17	0.00	0.00	10.48	10.48	3.40	3.39
19.993	3500	1790.00	0.00	0.00	34.99	34.99	1.11	1.02
19.975	3500	1783.53	0.00	0.00	3.66	3.66	3.74	3.31
19.896	3500	1781.57	0.02	0.02	9.17	5.66	4.90	1.42
19.812	3500	1774.97	0.03	0.05	7.07	3.75	4.45	1.06
19.735	3500	1768.52	0.05	0.08	6.69	4.18	3.43	0.94
19.665	3500	1763.07	0.08	0.11	7.02	3.30	3.59	0.92
19.581	3500	1756.56	0.08	0.15	8.05	2.75	3.19	1.12

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and cross flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.993 (STA W.S. RGT)
19.812 (STA W.S. LFT)
19.581 (STA W.S. LFT AND STA W.S. RGT)



LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M17.0 — M15.0
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	- - - - - - - -

ELEVATION REFERENCE MARKS

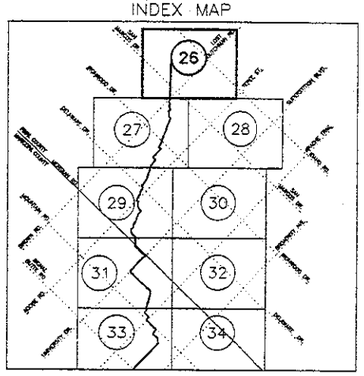
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
7	1810.22	SET ⅜" REBAR APPROX. 600' EAST OF IDAHO RD. ON TOP OF FLOOD CONTROL DIKE. N: 886292.650 E: 813877.132
8	1810.14	SET ⅜" REBAR ON FLOOD CONTROL DIKE 120' WEST OF APACHE JUNCTION F.R.S. SPILLWAY. N: 888378.058 E: 811485.508

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY

1/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/6/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 26 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA

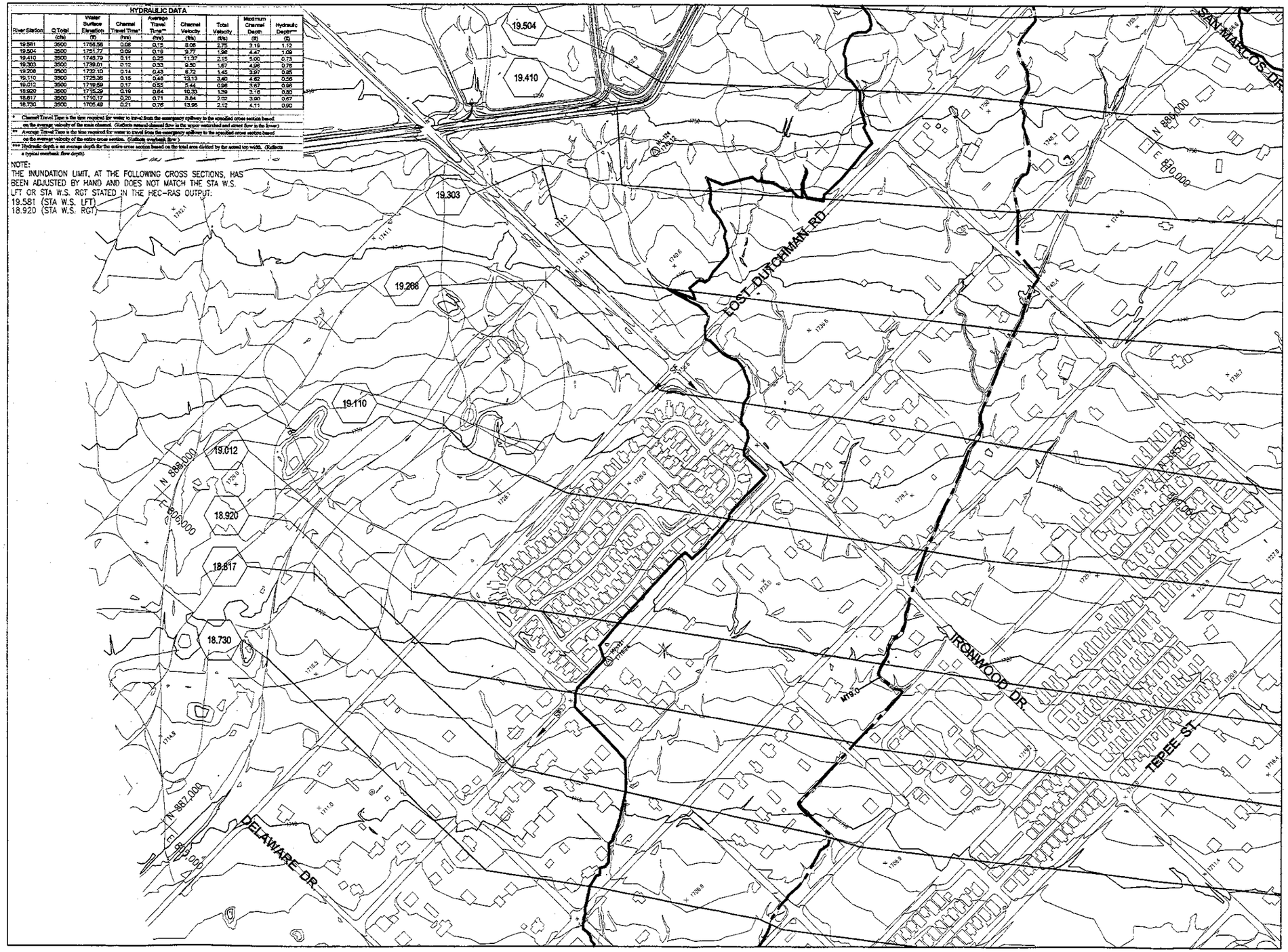
River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
19.581	3500	1756.56	0.08	0.15	8.06	2.75	3.19	1.12
19.504	3500	1751.77	0.09	0.19	9.77	1.98	4.47	1.09
19.410	3500	1745.79	0.11	0.25	11.37	2.15	5.00	0.73
19.303	3500	1739.01	0.12	0.33	9.50	1.67	4.98	0.78
19.208	3500	1732.10	0.14	0.43	6.72	1.42	3.97	0.85
19.110	3500	1725.36	0.15	0.46	13.13	3.40	4.62	0.56
19.012	3500	1719.59	0.17	0.53	5.44	0.98	3.67	0.98
18.920	3500	1715.29	0.19	0.64	10.33	1.29	3.16	0.80
18.817	3500	1710.17	0.20	0.71	8.84	2.02	3.90	0.67
18.730	3500	1705.49	0.21	0.76	13.96	2.12	4.11	0.90

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Gallotia natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Gallotia overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Gallotia a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.581 (STA W.S. LFT)
18.920 (STA W.S. RGT)



LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 M13.0
CROSS SECTION	2.147 WSE 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

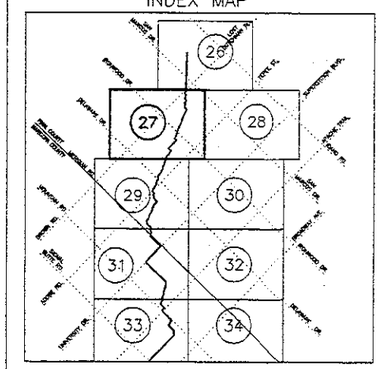
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/1/99 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

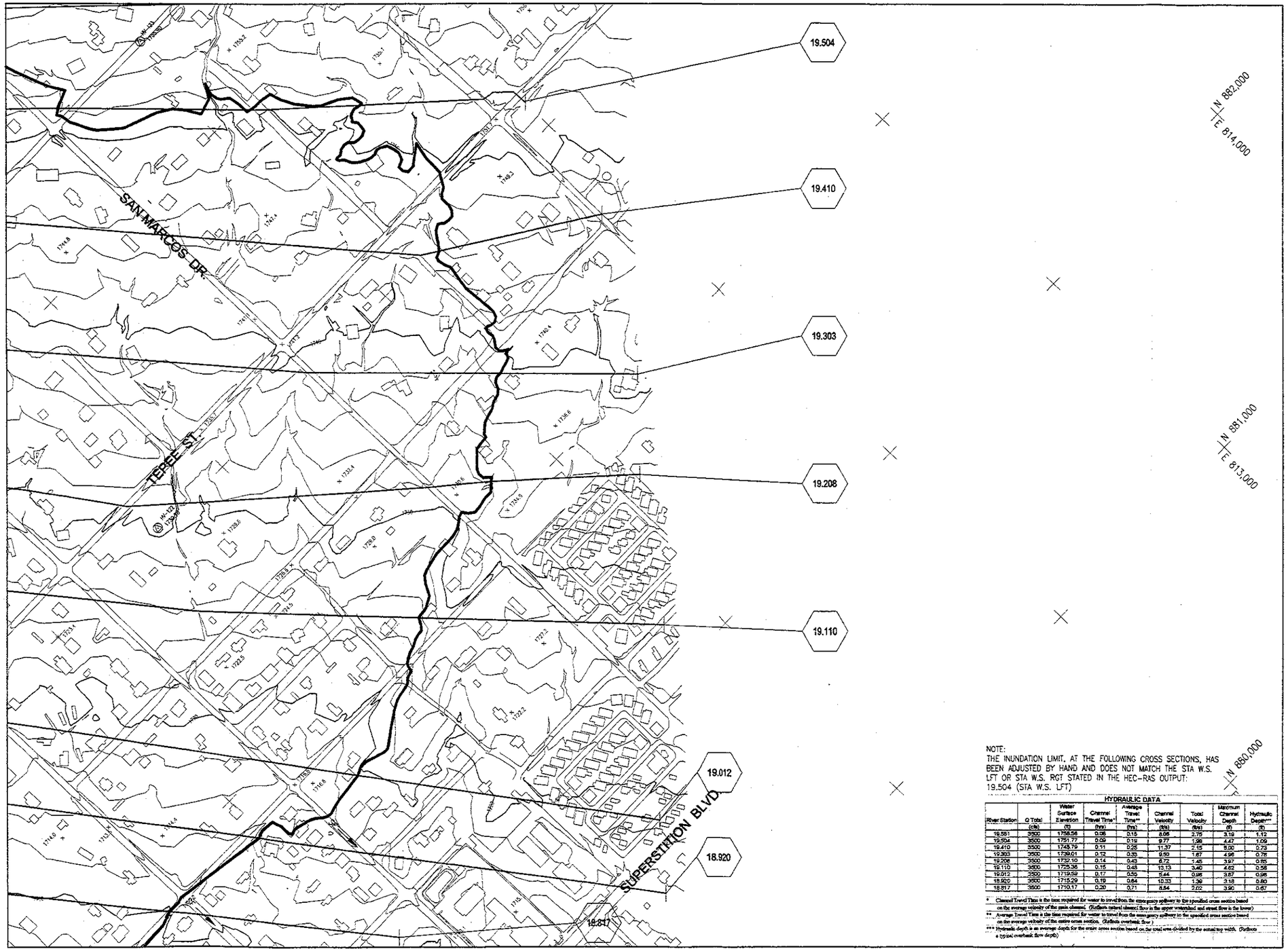
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 27 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.504 (STA W.S. LFT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
19.581	3500	1756.56	0.06	0.15	8.06	2.75	3.19	1.12
19.504	3500	1751.77	0.09	0.19	9.77	1.98	4.47	1.09
19.410	3500	1745.79	0.11	0.25	11.37	2.15	5.20	0.73
19.303	3500	1739.01	0.12	0.33	9.50	1.87	4.96	0.78
19.208	3500	1732.10	0.14	0.43	6.72	1.45	3.97	0.85
19.110	3500	1725.36	0.15	0.48	13.13	3.40	4.62	0.58
19.012	3500	1719.59	0.17	0.55	5.44	0.96	3.87	0.98
18.920	3500	1715.29	0.19	0.64	10.53	1.39	3.18	0.80
18.817	3500	1710.17	0.20	0.71	8.84	2.02	3.90	0.67

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Excludes natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Includes overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Includes a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M126 — M130

CROSS SECTION — 2.147 — WSE — 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

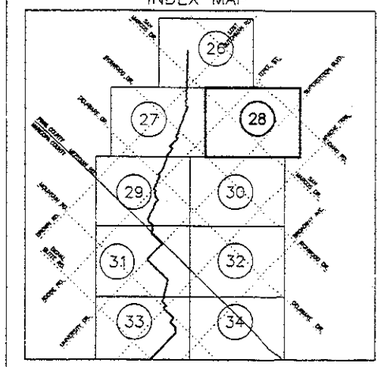
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= -1.86 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/6/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

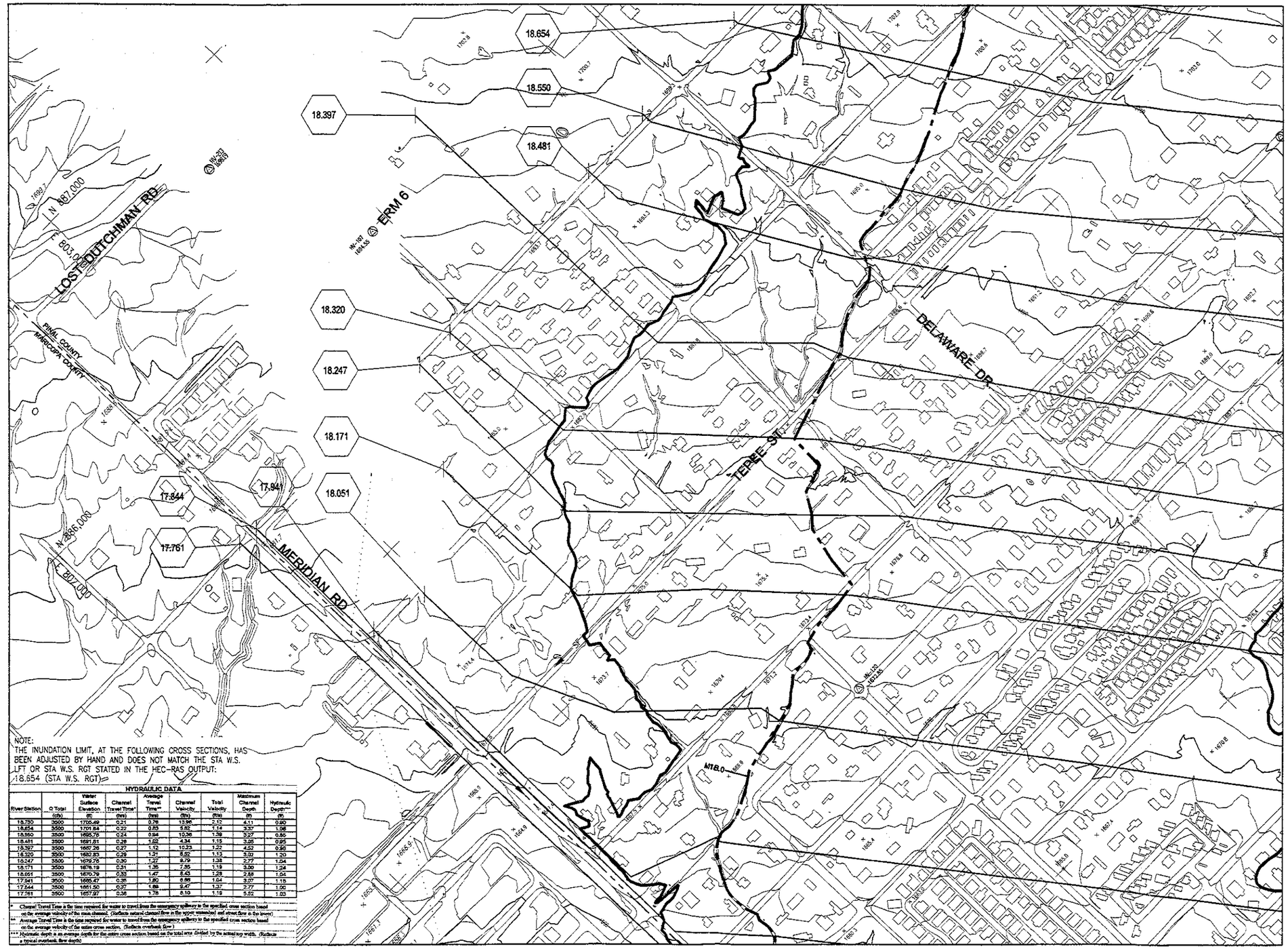
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 28 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
18.654 (STA W.S. RGT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.730	3500	1705.49	0.21	0.78	13.98	2.12	4.11	0.80
18.654	3500	1701.84	0.22	0.83	9.82	1.14	3.37	1.08
18.550	3500	1695.76	0.24	0.94	10.06	1.39	3.27	0.85
18.481	3500	1691.51	0.28	1.02	4.34	1.15	3.05	0.95
18.397	3500	1687.26	0.27	1.12	10.23	1.22	4.52	0.95
18.320	3500	1682.83	0.29	1.21	8.55	1.13	3.02	1.20
18.247	3500	1679.76	0.30	1.27	8.79	1.38	2.77	1.04
18.171	3500	1676.19	0.31	1.35	7.35	1.19	3.00	1.24
18.051	3500	1670.79	0.33	1.47	5.43	1.28	2.58	1.04
17.941	3500	1665.47	0.35	1.60	6.86	1.04	3.07	1.18
17.844	3500	1661.50	0.37	1.69	9.47	1.37	2.77	1.00
17.761	3500	1657.97	0.36	1.78	6.10	1.19	3.52	1.03

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the report, meandered and street flow in the inset)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M13.0 M13.0
CROSS SECTION	2.147 WSE 2.147
STREET FLOW	SF
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

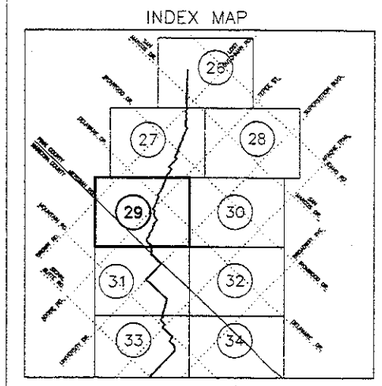
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
6	1694.55	SET ½" REBAR W. SIDE WARNER DR. APPROX. 400' NORTH OF FOOTHILL ST. N: 885989.687 E: 803916.006

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
1			
2			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/6/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

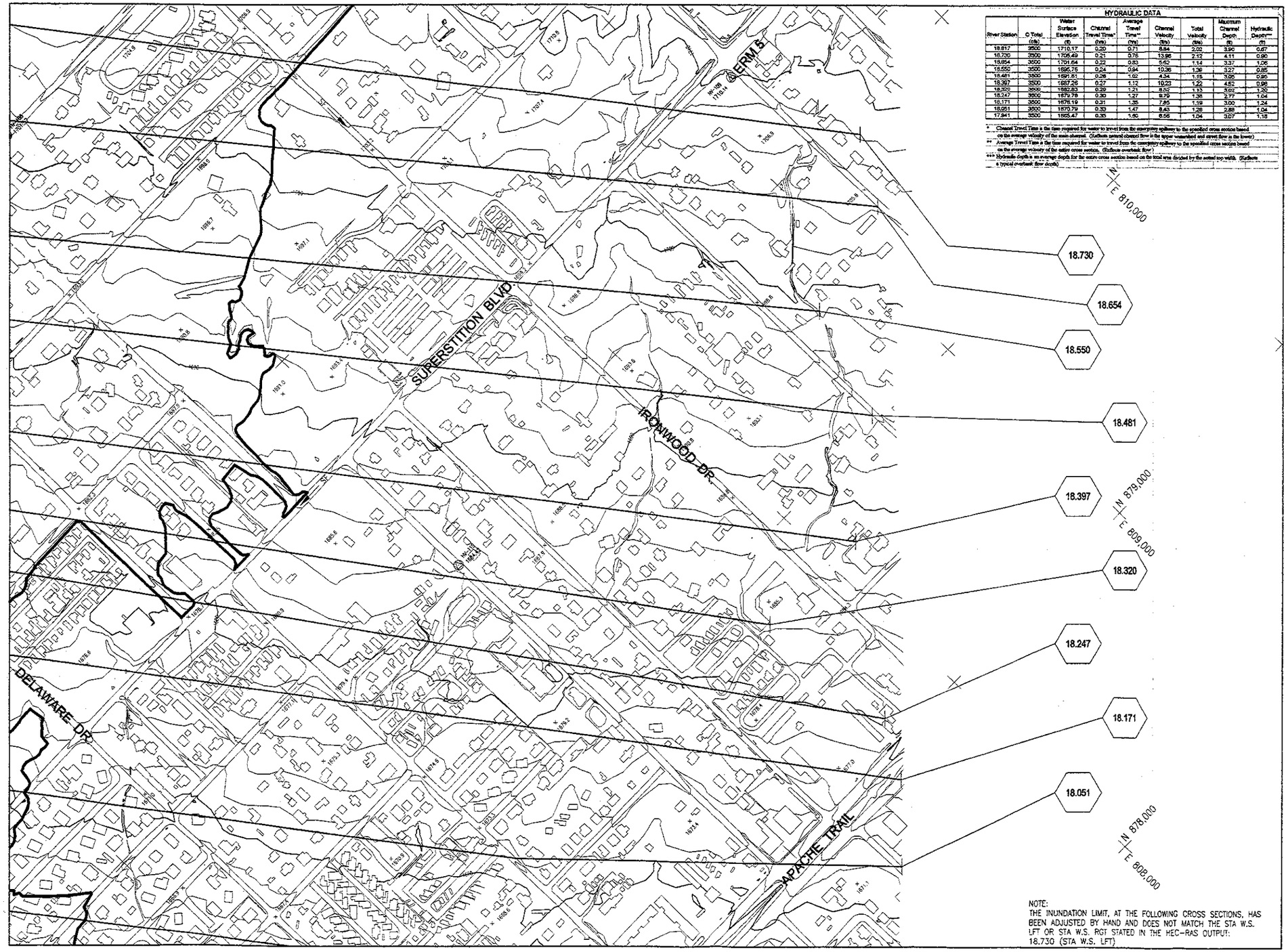
SHEET 29 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7205 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
18.730 (STA W.S. LFT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.817	3500	1710.17	0.20	0.71	8.84	2.02	3.90	0.67
18.730	3500	1706.49	0.21	0.76	13.98	2.12	4.11	0.90
18.654	3500	1701.64	0.22	0.83	5.62	1.14	3.37	1.06
18.550	3500	1695.76	0.24	0.94	10.36	1.39	3.27	0.85
18.481	3500	1691.51	0.26	1.02	4.34	1.15	3.05	0.95
18.397	3500	1687.26	0.27	1.12	10.23	1.22	4.52	0.98
18.320	3500	1682.83	0.29	1.21	8.52	1.13	3.62	1.20
18.247	3500	1679.78	0.30	1.27	9.79	1.38	2.77	1.04
18.171	3500	1676.19	0.31	1.35	7.85	1.19	3.00	1.24
18.051	3500	1670.79	0.33	1.47	8.43	1.28	2.88	1.04
17.941	3500	1665.47	0.35	1.60	8.56	1.04	3.07	1.18

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — 12.0 — 13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF →

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

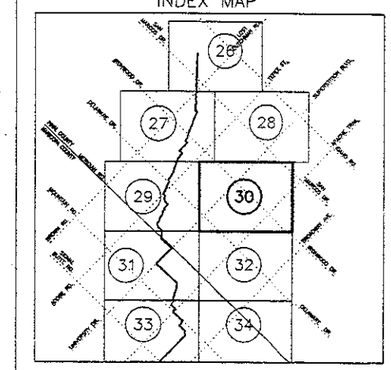
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
5	1710.14	SET ½" REBAR AT THE S.W. CORNER VALLEY DR. & SUPERSTITION BLVD. N: 881464.645 E: 809198.764

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/11/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 30 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&B MAPPING, LLC. 7206 N. 55TH AVE. #201. GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA PROVIDED BY: AZTEC ENGINEERING. 3747 East Grove Street. Phoenix, AZ 85040

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.844	3500	1861.50	0.37	1.69	9.47	1.37	2.77	1.00
17.781	3500	1857.97	0.38	1.78	8.10	1.19	5.82	1.03
17.674	3500	1855.20	0.40	1.84	10.41	1.88	6.11	1.04
17.601	3500	1852.56	0.41	1.90	8.17	1.45	5.78	0.99
17.480	3500	1847.61	0.43	2.01	9.51	1.46	4.62	0.98
17.336	3500	1843.30	0.45	2.13	10.54	1.14	4.07	1.04
17.262	3500	1840.13	0.46	2.20	9.97	1.30	3.71	0.85
17.186	3500	1837.54	0.48	2.29	7.11	0.98	4.39	1.09
17.111	3500	1834.61	0.49	2.37	11.29	1.30	4.00	0.91
17.046	3500	1832.20	0.50	2.44	5.25	0.96	3.93	1.12
16.983	3500	1828.94	0.51	2.55	9.62	1.35	4.98	0.95
16.919	3500	1826.05	0.52	2.59	7.53	1.40	5.11	0.99
16.850	3500	1823.16	0.53	2.64	8.32	1.44	4.51	0.90

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.046 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	2.147 WSE 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

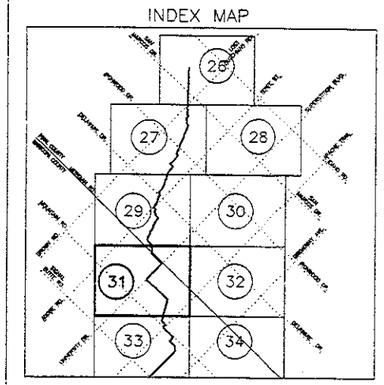
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
4	1651.54	FOUND MCDOT BRASS CAP IN HANDHOLE AT THE INTERSECTION OF MERIDIAN RD. & UNIVERSITY DR. N: 881501.698 E: 802654.718

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/13/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

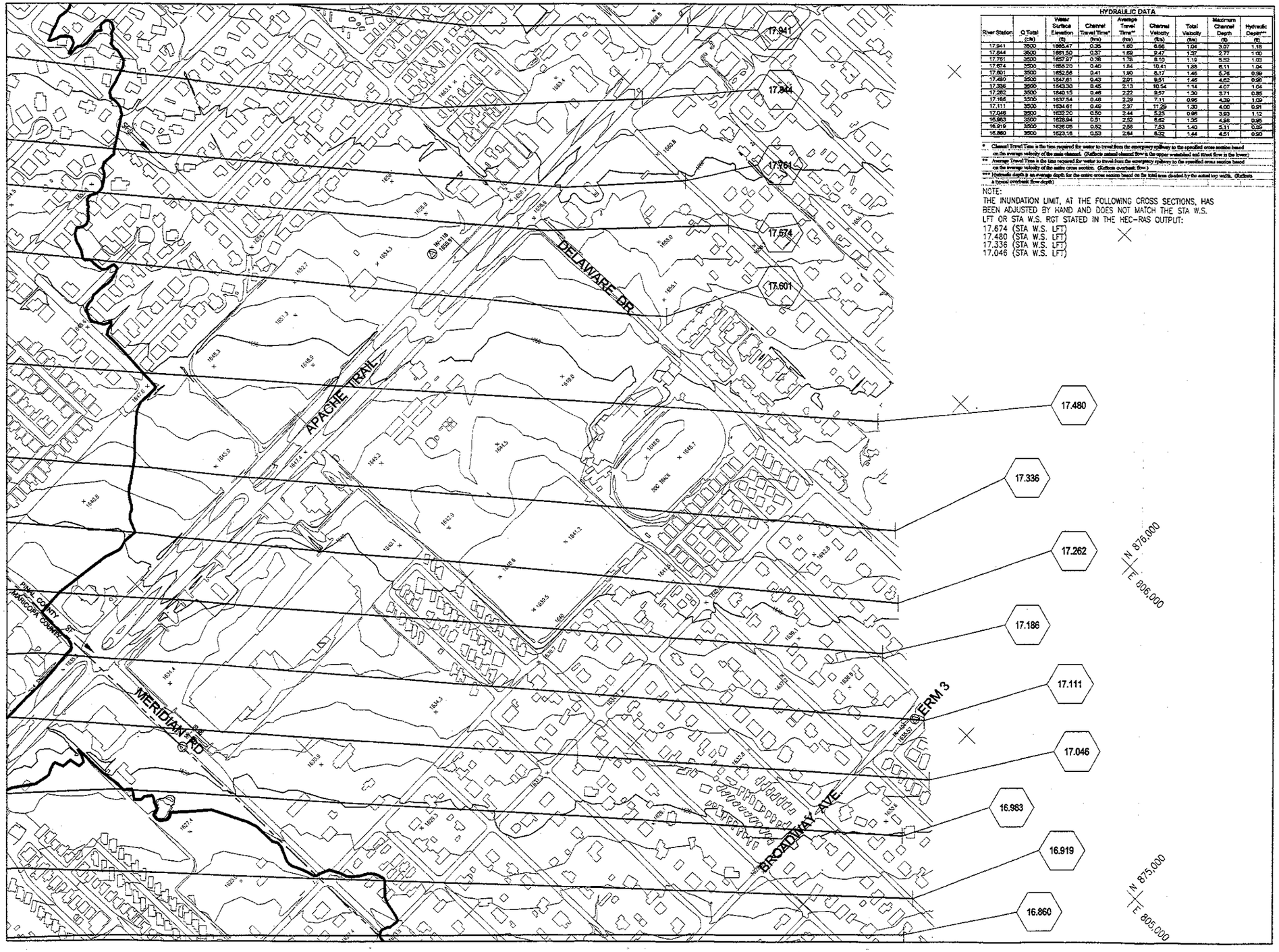
SHEET 31 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #96-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.941	3500	1665.47	0.35	1.62	6.66	1.04	3.07	1.18
17.844	3500	1661.50	0.37	1.69	9.47	1.37	2.77	1.00
17.761	3500	1657.97	0.38	1.78	8.10	1.19	5.52	1.03
17.674	3500	1655.20	0.40	1.84	10.41	1.28	6.11	1.04
17.601	3500	1652.58	0.41	1.90	8.17	1.46	5.76	0.99
17.480	3500	1647.61	0.43	2.01	9.51	1.46	4.62	0.96
17.336	3500	1643.30	0.45	2.13	10.54	1.14	4.07	1.04
17.262	3500	1640.13	0.46	2.22	9.57	1.30	5.71	0.85
17.186	3500	1637.54	0.48	2.29	7.11	0.96	4.39	1.09
17.111	3500	1634.61	0.49	2.37	11.29	1.30	4.00	0.91
17.046	3500	1632.20	0.50	2.44	5.25	0.96	3.93	1.12
16.983	3500	1628.94	0.51	2.52	6.62	1.35	4.98	0.95
16.919	3500	1626.05	0.52	2.58	7.53	1.40	5.11	0.99
16.860	3500	1623.16	0.53	2.64	8.32	1.44	4.51	0.90

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects actual channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.674 (STA W.S. LFT)
17.480 (STA W.S. LFT)
17.336 (STA W.S. LFT)
17.046 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M120 — M130
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

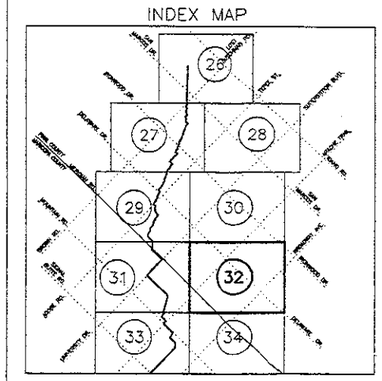
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
3	1635.57	SET ½" REBAR AT THE S.W. CORNER CORNWALL DR. & BROADWAY RD. N: 876207.307 E: 804896.947

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/1/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 32 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&B MAPPING, LLC. 7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA PROVIDED BY: AZTEC ENGINEERING, 3747 East Grove Street, Phoenix, AZ 85040

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
16.585 (STA W.S. RGT)
16.525 (STA W.S. RGT)
16.451 (STA W.S. RGT)
16.381 (STA W.S. RGT)
16.265 (STA W.S. RGT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (fps)	Total Velocity (fps)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.860	3500	1623.16	0.53	2.64	5.32	1.44	4.51	0.90
16.775	3500	1619.67	0.55	2.74	9.75	0.95	4.45	1.06
16.678	3500	1615.91	0.57	2.84	9.06	1.29	3.90	0.88
16.585	3500	1611.62	0.59	2.93	9.65	1.28	3.32	0.90
16.525	3500	1609.64	0.60	3.01	5.45	0.99	2.76	1.25
16.451	3500	1606.39	0.62	3.09	3.79	1.27	3.00	0.90
16.381	3500	1602.51	0.64	3.19	5.12	0.97	3.97	1.13
16.265	3500	1598.97	0.67	3.30	9.56	1.16	3.24	0.86
16.182	3500	1596.11	0.68	3.39	5.57	0.97	2.90	0.93
16.086	3500	1593.30	0.70	3.48	8.04	1.16	3.30	0.86
16.001	3500	1591.08	0.72	3.54	3.95	0.97	3.66	1.14
15.892	3500	1587.78	0.75	3.63	9.24	1.35	4.49	1.23

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects actual channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	10120 10130
CROSS SECTION	2.147 WSE 2.147
STREET FLOW	SF
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

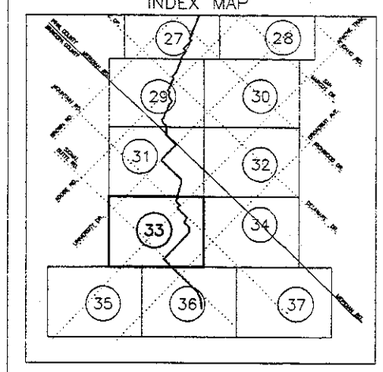
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.86 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE

SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Land Surveyor
CERTIFICATE NO.
24030
FELICIA TERRY
Date Signed 7/18/00
ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 33 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&S MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
15.892 (STA W.S. LFT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.775	3500	1619.67	0.85	2.24	5.75	0.95	4.45	1.06
16.678	3500	1615.91	0.57	2.84	9.09	1.29	3.89	0.88
16.585	3500	1611.62	0.59	2.93	9.85	1.28	3.32	0.90
16.525	3500	1609.04	0.60	3.01	5.45	0.99	2.76	1.25
16.451	3500	1606.39	0.62	3.09	3.78	1.27	3.00	0.90
16.381	3500	1602.51	0.64	3.19	5.12	0.97	3.97	1.13
16.265	3500	1598.97	0.67	3.30	9.56	1.16	3.24	0.86
16.182	3500	1596.11	0.68	3.39	8.52	0.97	2.60	0.95
16.086	3500	1593.30	0.70	3.48	8.04	1.16	3.30	0.98
16.001	3500	1591.06	0.72	3.54	3.96	0.97	3.68	1.14
15.892	3500	1587.78	0.75	3.63	6.24	1.36	4.48	1.03
15.784	3500	1584.12	0.78	3.72	6.43	1.10	4.05	1.07

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth.)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	14.20 — 14.10
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

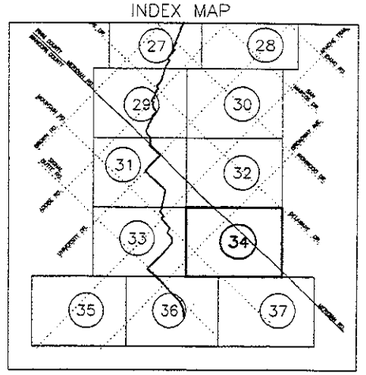
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 34 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA

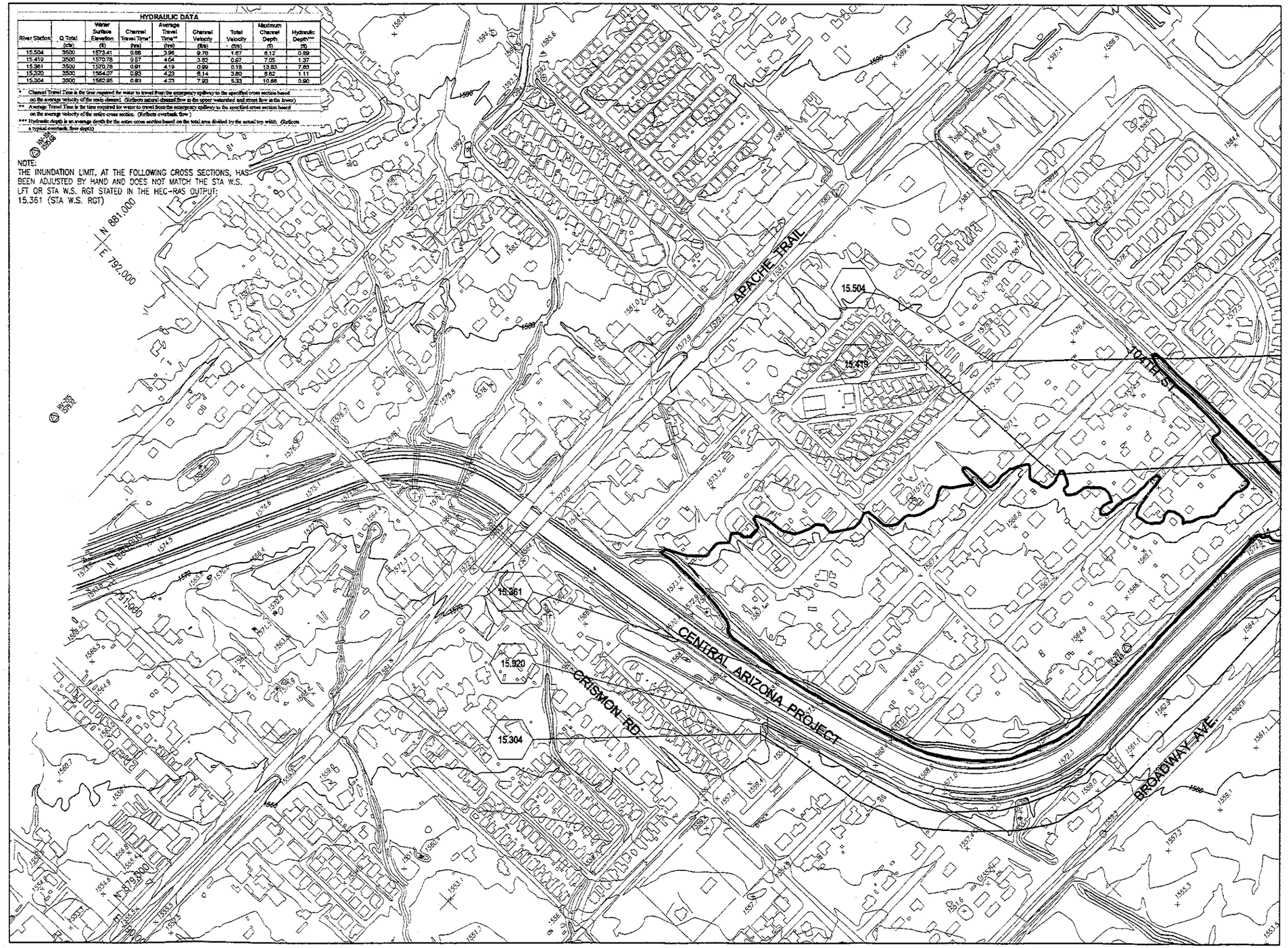
River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
15.504	3500	1573.41	0.88	3.96	9.70	1.87	6.12	0.89
15.419	3500	1570.78	0.87	4.04	3.82	0.87	7.05	1.37
15.361	3500	1570.78	0.91	4.19	0.99	0.18	13.83	7.63
15.320	3500	1564.07	0.93	4.23	6.14	3.80	8.62	1.11
15.304	3500	1562.95	0.93	4.23	7.93	5.33	10.66	0.90

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
15.361 (STA W.S. RGT)



LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	2.147 WSE 2.147
STREET FLOW	SF
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

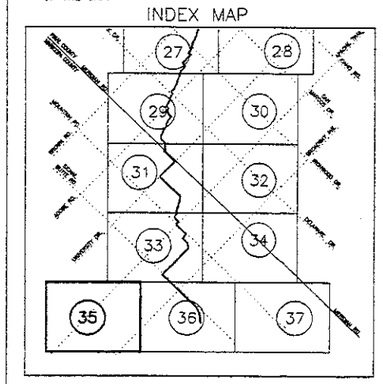
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.
3- FLOODING LIMITS SHOWN OVERTOPPING THE CAP AT VARIOUS LOCATIONS ALONG THE NORTH BANK ARE BASED ON AN ELEVATION DETERMINED IN THE HEC-RAS MODEL FROM THE CROSS SECTION DATA AND THE EFFECTIVE FLOW LIMITS. FLOWS MAY CROSS THE CAP AND CAUSE FLOODING DOWNSTREAM OF THE CAP. NO ATTEMPT WAS MADE UNDER THIS STUDY TO DETERMINE THE FLOODING LIMITS DOWNSTREAM OF THE CAP.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/1/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

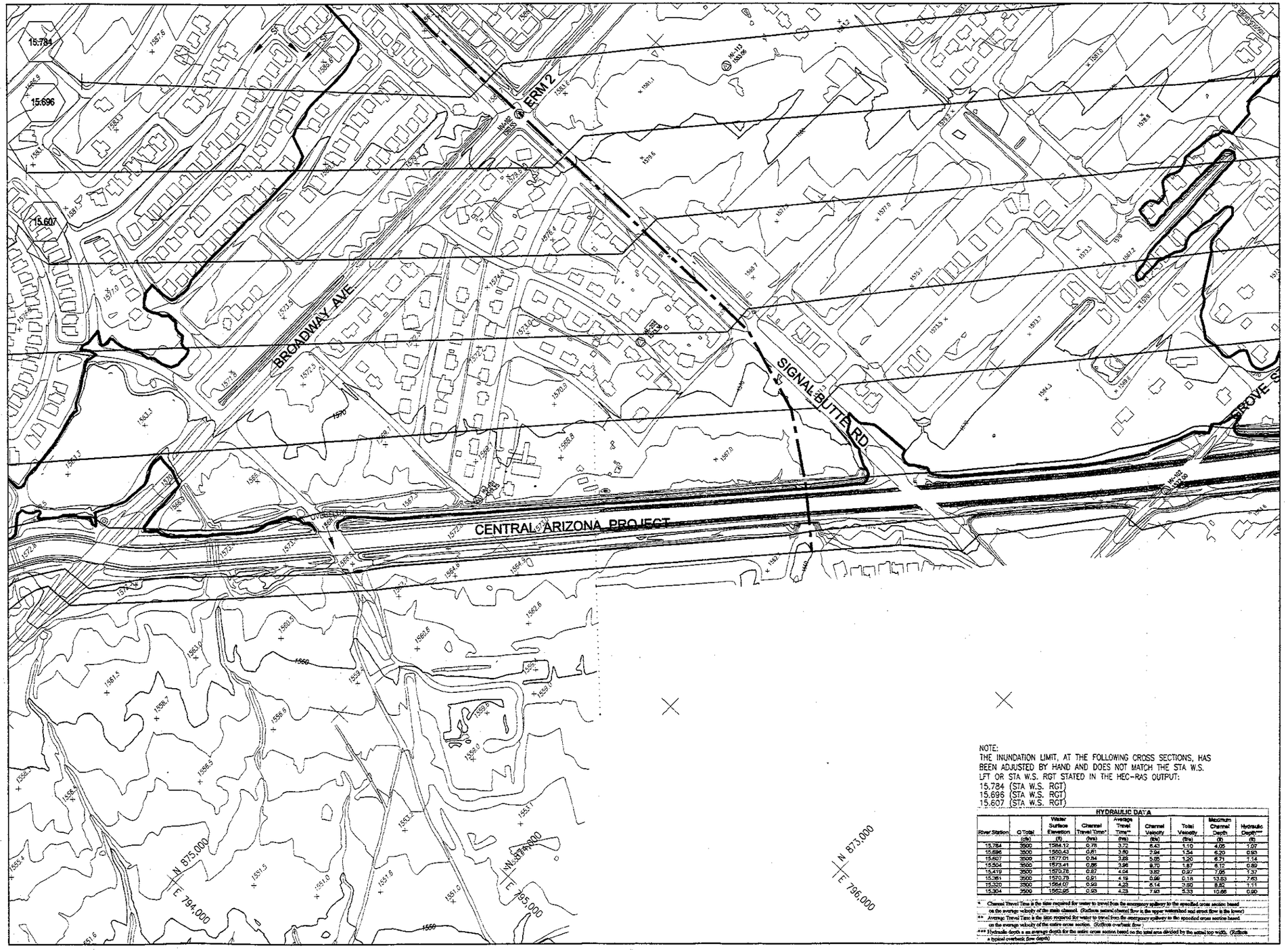
	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 35 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
15.784 (STA W.S. RGT)
15.696 (STA W.S. RGT)
15.607 (STA W.S. RGT)

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (fps)	Total Velocity (fps)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
15,784	3500	1584.12	0.78	3.72	6.43	1.10	4.05	1.07
15,696	3500	1580.43	0.81	3.80	2.94	1.34	6.20	0.93
15,607	3500	1577.01	0.94	3.88	5.85	1.20	6.71	1.14
15,504	3500	1573.41	0.96	3.96	9.70	1.87	6.12	0.89
15,419	3500	1570.78	0.87	4.04	3.82	0.97	7.05	1.37
15,361	3500	1570.78	0.91	4.19	0.96	0.18	13.63	7.63
15,320	3500	1564.07	0.93	4.23	6.14	3.90	8.92	1.11
15,304	3500	1562.95	0.93	4.23	7.93	5.33	10.66	0.90

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Surface natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Surface overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Surface a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — 4120 — 4130

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

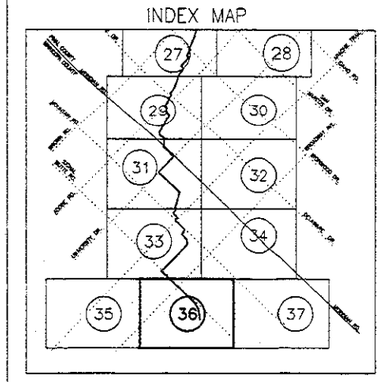
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
2	1581.30	FOUND MCDOT BRASS CAP IN HANDHOLE 0.25' BELOW RIM AT THE INTERSECTION OF SIGNAL BUTTE RD. & BROADWAY RD. N: 876208.930 E: 797374.562

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.
3- FLOODING LIMITS SHOWN OVERTOPPING THE CAP AT VARIOUS LOCATIONS ALONG THE NORTH BANK ARE BASED ON AN ELEVATION DETERMINED IN THE HEC-RAS MODEL FROM THE CROSS SECTION DATA AND THE EFFECTIVE FLOW LIMITS. FLOWS MAY CROSS THE CAP AND CAUSE FLOODING DOWNSTREAM OF THE CAP. NO ATTEMPT WAS MADE UNDER THIS STUDY TO DETERMINE THE FLOODING LIMITS DOWNSTREAM OF THE CAP.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/14/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

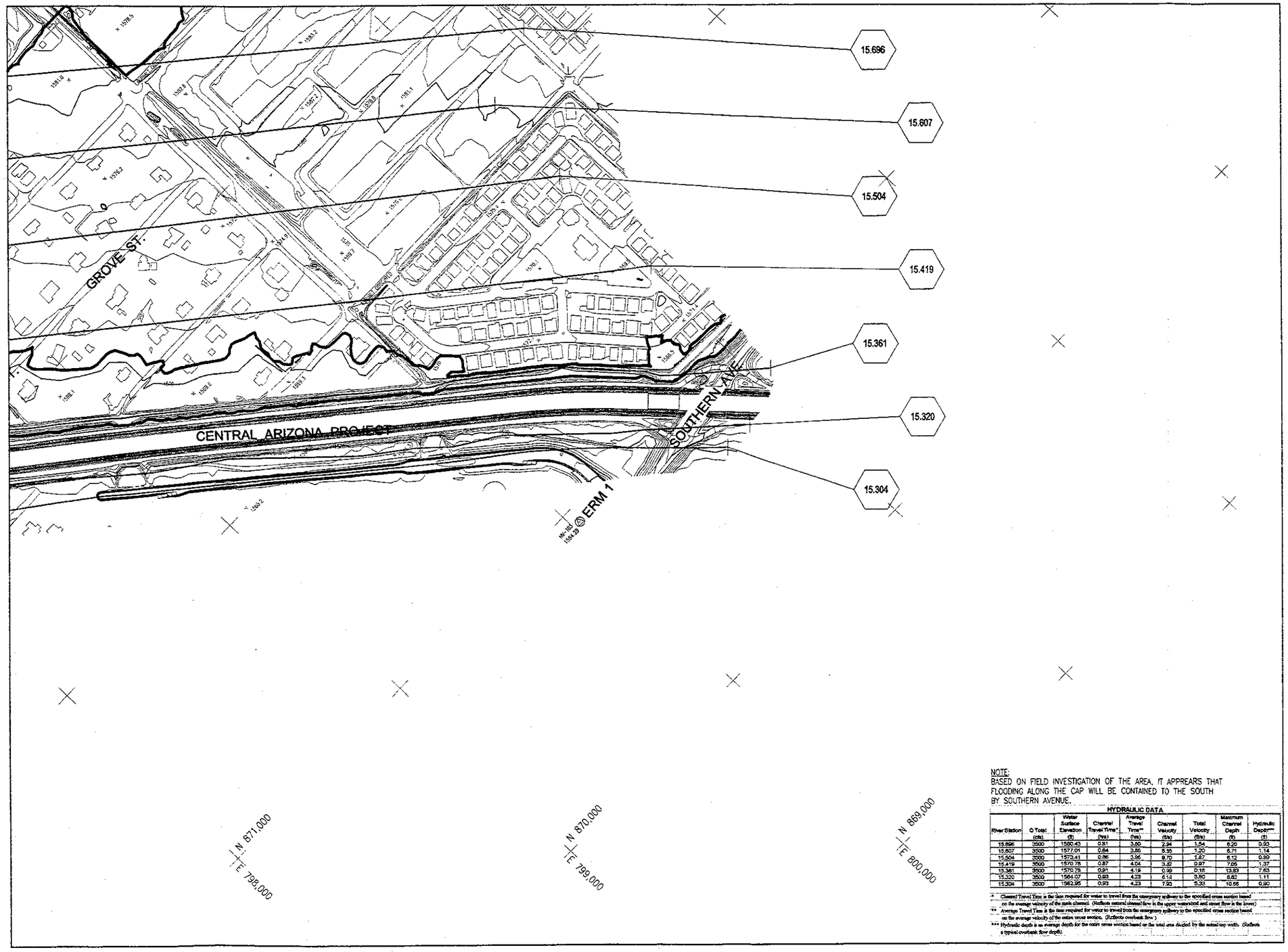
SHEET 36 OF 37

WEST SIDE AERIAL MAPPING
PROVIDED BY: COOPER AERIAL OF PHOENIX, INC.
FOR A-N WEST INC. UNDER FCD CONTRACT #98-17

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
BASED ON FIELD INVESTIGATION OF THE AREA, IT APPREARS THAT FLOODING ALONG THE CAP WILL BE CONTAINED TO THE SOUTH BY SOUTHERN AVENUE.

HYDRAULIC DATA

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
15.696	3500	1580.43	0.81	3.50	2.94	1.54	6.20	0.93
15.607	3500	1577.01	0.84	3.88	5.55	1.20	6.71	1.14
15.504	3500	1573.41	0.86	3.96	9.70	1.87	6.12	0.89
15.419	3500	1570.78	0.87	4.04	3.22	0.97	7.66	1.37
15.361	3500	1570.78	0.91	4.18	0.92	0.16	13.63	7.63
15.320	3500	1564.07	0.93	4.23	6.14	3.80	8.82	1.11
15.304	3500	1562.95	0.93	4.23	7.93	5.33	10.66	0.90

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow in the upper watershed and street flow in the lower)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	120 — 130
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

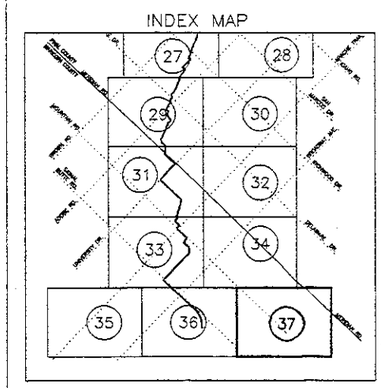
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
1	1564.29	FOUND BLM BRASS CAP NORTH SIDE SOUTHERN AVE. ½ MILE EAST OF SIGNAL BUTTE RD. N: 870934.187 E: 800036.284

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.
3- FLOODING LIMITS SHOWN OVERTOPPING THE CAP AT VARIOUS LOCATIONS ALONG THE NORTH BANK ARE BASED ON AN ELEVATION DETERMINED IN THE HEC-RAS MODEL FROM THE CROSS SECTION DATA AND THE EFFECTIVE FLOW LIMITS. FLOWS MAY CROSS THE CAP AND CAUSE FLOODING DOWNSTREAM OF THE CAP. NO ATTEMPT WAS MADE UNDER THIS STUDY TO DETERMINE THE FLOODING LIMITS DOWNSTREAM OF THE CAP.

INDEX MAP



200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATES: 5/13/99

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

APACHE JUNCTION FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 24030 FELICIA TERRY Date Signed 7/6/00 ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	12/99
DESIGN CHK.	R.L.D.	12/99
PLANS	H.D.T.	7/00
PLANS CHK.	F.T.	7/00

SHEET 37 OF 37

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING
PROVIDED BY: M&B MAPPING, LLC.
7206 N. 55TH AVE. #201, GLENDALE, AZ. 853011

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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

PROJECT DATA
Project Title: East Side SIS - Apache Junction FRS
Project File : AJ1third.prj
Run Date and Time: 6/1/00 1:46:54 PM

Project in English units

Project Description:
Spillway Inundation Study for Apache Junction FRS - 1/3 Spillway Flow Scenario

FCD 98-33
Michael Baker Jr., Inc.

Last Updates: June 1, 2000
Submitted to FCD: June 2000

PLAN DATA

Plan Title: 1/3 Spillway Flow (Mixed Flow Regime)
Plan File : d:\fcdspill\apache\HEC-RAS\100pcent\1third\AJ1third.p03

Geometry Title: Base Conditions Geometry
Geometry File : d:\fcdspill\apache\HEC-RAS\100pcent\1third\AJ1third.G01

Flow Title : 1/3 Spillway Flow (3,500 cfs)
Flow File : d:\fcdspill\apache\HEC-RAS\100pcent\1third\AJ1third.F01

Plan Summary Information:

Number of:	Cross Sections	= 58	Mulitple Openings	=	0
	Culverts	= 1	Inline Weirs	=	0
	Bridges	= 0			

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

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

FLOW DATA

Flow Title: 1/3 Spillway Flow (3,500 cfs)

Flow File : d:\fcdspill\apache\HEC-RAS\100pcent\1third\AJ1third.F01

Flow Data (cfs)

River	Reach	RS	PF 1
Apache Junct FRS	Spillway	20.000	3500

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Apache Junct FRS	Spillway	PF 1	Critical	Normal S = .014

GEOMETRY DATA

Geometry Title: Base Conditions Geometry
Geometry File : d:\fcdspill\apache\HEC-RAS\100pcent\1third\AJ1third.G01

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 20.000

INPUT
Description: Spillway Crest
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9494.58	1810.18	9929.29	1810.56	9936.72	1810.56	9939.16	1799.77	9991.54	1799.77
10027.79	1799.77	10036.85	1799.77	10038.14	1809.97	10039.87	1809.93	10242.44	1810.25
10305.53	1810.12	10372.15	1810	10413.17	1810.31				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9494.58	.06	9936.72	.02	10038.14	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9936.72	10038.14	43.28	34.75	44.55	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1804.87	Element			
Vel Head (ft)	1.70	Wt. n-Val.		0.020	
W.S. Elev (ft)	1803.17	Reach Len. (ft)	43.28	34.75	44.55
Crit W.S. (ft)	1803.17	Flow Area (sq ft)		334.04	
E.G. Slope (ft/ft)	0.004229	Area (sq ft)		334.04	
Q Total (cfs)	3500.00	Flow (cfs)		3500.00	
Top Width (ft)	98.89	Top Width (ft)		98.89	
Vel Total (ft/s)	10.48	Avg. Vel. (ft/s)		10.48	
Max Chl Dpth (ft)	3.40	Hydr. Depth (ft)		3.38	
Conv. Total (cfs)	53820.5	Conv. (cfs)		53820.5	
Length Wtd. (ft)	34.75	Wetted Per. (ft)		104.60	
Min Ch El (ft)	1799.77	Shear (lb/sq ft)		0.84	
Alpha	1.00	Stream Power (lb/ft s)		8.83	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	1192.93	58.54	626.05
C & E Loss (ft)	0.27	Cum SA (acres)	1040.99	35.15	427.56

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9936.72	9970.53	1106.34	107.91	34.85	31.61	3.36	10.25
9970.53	10004.33	1253.45	114.89	33.81	35.81	3.40	10.91
10004.33	RB 10038.14	1140.22	111.24	35.94	32.58	3.38	10.25

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.993

INPUT
Description: Downstream Toe of Spillway
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9635.13	1789.34	9929.61	1792.78	9932.18	1779.09	9932.85	1779.09	9984.44	1779.16
10020.4	1779.34	10030.42	1779.25	10031.45	1793.58	10098.95	1789.46	10229.67	1805.84
10257.6	1805.93	10295.32	1789.15	10303.38	1788.56				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9635.13	.06	9929.61	.032	10031.45	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9929.61	10031.45	94.49	99.29	88.53	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1799.21	Element			
Vel Head (ft)	19.01	Wt. n-Val.		0.032	
W.S. Elev (ft)	1780.20	Reach Len. (ft)	94.49	99.29	88.53
Crit W.S. (ft)	1782.57	Flow Area (sq ft)		100.03	
E.G. Slope (ft/ft)	0.569966	Area (sq ft)		100.03	
Q Total (cfs)	3500.00	Flow (cfs)		3500.00	
Top Width (ft)	98.52	Top Width (ft)		98.52	
Vel Total (ft/s)	34.99	Avg. Vel. (ft/s)		34.99	
Max Chl Dpth (ft)	1.11	Hydr. Depth (ft)		1.02	
Conv. Total (cfs)	4636.0	Conv. (cfs)		4636.0	
Length Wtd. (ft)	99.29	Wetted Per. (ft)		100.33	
Min Ch El (ft)	1779.09	Shear (lb/sq ft)		35.48	
Alpha	1.00	Stream Power (lb/ft s)		1241.34	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	1192.93	58.36	626.05
C & E Loss (ft)	5.18	Cum SA (acres)	1040.99	35.07	427.56

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9929.61	9963.56	1251.33	34.45	32.51	35.75	1.09	36.32
9963.56	9997.50	1267.94	35.33	33.95	36.23	1.04	35.89
9997.50	RB 10031.45	980.74	30.26	33.87	28.02	0.92	32.41

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.975

INPUT
Description: Downstream Edge of Spillway Rock Outfall Protection
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9664.74	1786.57	9674.21	1787.03	9692.15	1787.17	9726.44	1787.22	9732.47	1786.01
9741.55	1787.32	9809.19	1787.34	9820.56	1787.56	9846.36	1780.38	10112.27	1779.79
10137.51	1787.98	10165.36	1787.67	10227.12	1788.32	10250.52	1796	10266.1	1796.16
10289.41	1786.68	10301.12	1786.34	10314.18	1786.09				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9664.74	.06	9820.56	.03	10137.51	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9820.56	10137.51	416.52	415.95	409	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1783.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.032	
W.S. Elev (ft)	1783.53	Reach Len. (ft)	416.52	415.95	409.00
Crit W.S. (ft)	1781.82	Flow Area (sq ft)		955.65	
E.G. Slope (ft/ft)	0.001267	Area (sq ft)		955.65	
Q Total (cfs)	3500.00	Flow (cfs)		3500.00	
Top Width (ft)	288.76	Top Width (ft)		288.76	
Vel Total (ft/s)	3.66	Avg. Vel. (ft/s)		3.66	
Max Chl Dpth (ft)	3.74	Hydr. Depth (ft)		3.31	
Conv. Total (cfs)	98317.5	Conv. (cfs)		98317.5	
Length Wtd. (ft)	413.87	Wetted Per. (ft)		289.78	
Min Ch El (ft)	1779.79	Shear (lb/sq ft)		0.26	
Alpha	1.00	Stream Power (lb/ft s)		0.96	
Frctn Loss (ft)	1.31	Cum Volume (acre-ft)	1192.93	57.16	626.05
C & E Loss (ft)	0.15	Cum SA (acres)	1040.99	34.63	427.56

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9820.56	9926.21	952.82	276.50	91.60	27.22	3.03	3.45
9926.21	10031.86	1369.87	363.98	105.65	39.14	3.45	3.76
10031.86	RB 10137.51	1177.30	315.18	92.53	33.64	3.43	3.74

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.896

INPUT
Description:

Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7636.43	1811.94	8411.27	1788.69	8431.84	1787.96	8452.63	1787.31	8488.09	1785.23
8494.79	1785.31	8501.3	1785.01	8524.01	1781.45	8759.33	1780.85	8770.56	1780.08
8785.49	1779.97	8792	1779.31	8807.33	1780.27	8815.84	1779.29	8816.35	1779.82
8820	1779.6	8826.15	1780.05	8860.85	1779.87	8959.15	1780.26	9328.56	1780.82
9334.31	1779.7	9339.97	1781.51	9365.04	1780.99	9851.39	1781.53	9974.35	1780.46
9979.39	1779.41	9984.07	1780.31	0043.78	1780.67	10052.66	1777.78	10065.49	1780.46
10184.2	1778.96	10300.75	1780.57	10339.72	1779.29	10346.43	1777.59	10354.89	1778.84
10424.55	1780.02	10469.64	1779.69	10474.66	1777.81	10483.54	1779.47	10492.57	1779.73
10498.25	1778.84	10503.69	1779.42	10569.76	1779.87	10583.27	1779.83	10585.03	1779.79
10586.3	1776.77	10591.04	1779.54	10601.74	1783.29	10613.34	1783	10621.83	1781.27
10636.57	1779.94	10646.32	1781.22						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7636.43	.06	9974.35	.02	10065.49	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9974.35	10065.49	444.8	443.55	442.48	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7636.43	9850	1784	10284.43	10646.32	1784

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10601.74	10646.32	1788

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1782.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.060	0.028	0.060
W.S. Elev (ft)	1781.57	Reach Len. (ft)	444.80	443.55	442.48
Crit W.S. (ft)	1781.49	Flow Area (sq ft)	71.21	133.64	413.81
E.G. Slope (ft/ft)	0.018159	Area (sq ft)	1040.04	133.64	1036.78
Q Total (cfs)	3500.00	Flow (cfs)	163.87	1225.12	2111.01
Top Width (ft)	2073.62	Top Width (ft)	1451.13	91.14	531.35
Vel Total (ft/s)	5.66	Avg. Vel. (ft/s)	2.30	9.17	5.10
Max Chl Dpth (ft)	4.80	Hydr. Depth (ft)	0.57	1.47	1.89
Conv. Total (cfs)	25972.9	Conv. (cfs)	1216.0	9091.4	15665.5
Length Wtd. (ft)	443.04	Wetted Per. (ft)	124.35	92.07	218.96
Min Ch El (ft)	1777.78	Shear (lb/sq ft)	0.65	1.65	2.14
Alpha	1.42	Stream Power (lb/ft s)	1.49	15.09	10.93
Frctn Loss (ft)	7.20	Cum Volume (acre-ft)	1187.96	51.96	621.18
C & E Loss (ft)	0.19	Cum SA (acres)	1034.06	32.82	425.07

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9640.36	9974.35	163.87	71.21	124.35	4.68	0.57	2.30
LB 9974.35	10004.73	348.27	41.29	30.57	9.95	1.36	8.43
10004.73	10035.11	227.99	31.94	30.38	6.51	1.05	7.14
10035.11	RB 10065.49	648.85	60.40	31.12	18.54	1.99	10.74
10065.49	10148.47	618.84	135.90	82.98	17.68	1.64	4.55
10148.47	10231.44	1114.04	193.39	82.98	31.83	2.33	5.76
10231.44	·10314.42	378.13	84.52	52.99	10.80	1.60	4.47

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.812

INPUT
Description:
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6576.97	1774.26	6622.91	1775.62	6651.07	1776.69	6739.73	1773.88	6757.66	1773.37
6776.75	1772.85	6806.97	1773.07	7010.04	1772.51	7031.41	1773.13	7039.78	1772.47
7063.52	1772.59	7081.53	1772.73	7100.1	1772.73	7162.48	1773.01	7168.95	1771.67

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 7178.17 1772.37 7371.66 1771.91 7682.58 1772.93  7723.7  1772.9 7874.47 1772.89
 7879.76 1772.29  7888.4 1772.98 7968.69 1773.98 7984.38 1774.34 8018.75 1773.64
 8024.61 1774.34 8029.19  1774.1 8044.64 1772.11 8049.73 1773.78 8631.52 1773.48
 8679.59 1773.55 8897.55 1773.75 8914.73 1773.76 8930.13 1773.97 8953.31 1774.06
 9001.04 1773.03 9015.31 1774.96 9120.97 1774.05  9127.4 1771.84  9134.7 1773.94
 9263.36 1773.55  9381.4 1773.67 9576.26 1773.73 9644.79 1773.94 9991.41 1773.88
10066.96 1773.1610072.21 1772.23 10081.7 1773.5810204.88 1773.0810213.44  1771.7
10222.71    177310269.86 1772.3710277.26 1772.0710281.92 1772.1310294.57 1773.24
10412.77 1773.6910469.92    177210475.74 1770.1210484.05  1773.210709.06 1773.24
10765.68 1773.1510772.71 1771.5310787.98 1771.4710796.93 1773.36 10813.3 1772.84
10816.26 1770.4410834.47 1776.84

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
 6576.97     .09 8914.73     .06 9991.41    .028 10081.7     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9991.41 10081.7           410.21  406.82  401.03              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6576.97    9589    1776 10469.910834.47    1776
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 6576.97 9015.31    1777

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1774.89   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.32   Wt. n-Val.                  0.060      0.028      0.060
  W.S. Elev (ft)            1774.57   Reach Len. (ft)            410.21     406.82     401.03
  Crit W.S. (ft)            1774.38   Flow Area (sq ft)          267.45     104.69     561.56
  E.G. Slope (ft/ft)       0.014619   Area (sq ft)               703.65     104.69    1125.58
  Q Total (cfs)             3500.00   Flow (cfs)                 609.90     740.41    2149.69
  Top Width (ft)            1767.05   Top Width (ft)             930.46      90.29     746.30
  Vel Total (ft/s)             3.75   Avg. Vel. (ft/s)             2.28       7.07       3.83
  Max Chl Dpth (ft)            4.45   Hydr. Depth (ft)             0.66       1.16       1.45
  Conv. Total (cfs)         28947.2   Conv. (cfs)                5044.2     6123.7    17779.3
  Length Wtd. (ft)           404.13   Wetted Per. (ft)           402.41      90.47     388.49
  Min Ch El (ft)            1772.23   Shear (lb/sq ft)             0.61       1.06       1.32
  Alpha                        1.46   Stream Power (lb/ft s)       1.38       7.47       5.05
  Frctn Loss (ft)              5.90   Cum Volume (acre-ft)      1179.06      50.75     610.20
  C & E Loss (ft)              0.03   Cum SA (acres)            1021.90      31.89     418.58


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  9503.63       9991.41         609.89     267.45    402.41      17.43      0.66       2.28
  LB 9991.41    10021.51        137.07      24.99     30.10       3.92      0.83       5.49
  10021.51      10051.60        224.76      33.62     30.10       6.42      1.12       6.68
  10051.60      RB 10081.70     378.59      46.08     30.27      10.82      1.53       8.22
  10081.70      10189.24        426.89     129.60    107.54      12.20      1.21       3.29
  10189.24      10296.78        924.62     206.27    107.80      26.42      1.92       4.48
  10296.78      10404.32        374.32     119.78    107.54      10.69      1.11       3.13
  10404.32      10511.85        423.86     105.91     65.61      12.11      1.61       4.00


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

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 19.735

INPUT
Description:
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 6478.42 1768.48 6485.71 1768.74 6511.21 1769.61 6681.63 1772.14 6791.58 1769.48
 6868.37 1769.02 6874.81 1767.85 6884.19 1768.68 6952.18 1768.46 7279.82 1767.89
 7386.68 1768.78 7404.44 1769.25 7422.37  1769.3 7893.75 1768.17 7917.98 1767.47
 7924.07 1767.53 7932.05 1768.22 8091.89 1768.83 8098.25 1767.39 8107.21  1768.4
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 8131.62 1767.75 8135.57 1767.43 8141.34 1768.33 8282.58 1769.13 8334.13 1769.22
  8373.1 1768.73 8382.64 1769.01  9136.8 1768.69 9145.55 1765.78 9178.93 1768.28
 9262.25  1768.4 9267.95 1767.86 9286.08 1768.16 9302.57 1768.41 9364.61 1768.89
 9411.83 1768.98 9417.22 1768.12 9423.69 1769.32 9666.88 1768.34 9733.91 1767.43
 9742.14 1767.25 9754.94 1768.35 9858.81  1769.3 9940.13 1767.83 9946.75 1768.04
10010.48 1767.41 10045.6  1767.710171.86 1767.34 10184.1 1765.0910199.86 1767.99
10223.57  1767.910264.94 1766.8810318.16 1766.9910512.87 1767.8410565.54 1767.82
10574.13 1766.0110580.25 1767.4310681.01 1767.1810749.55 1767.5510759.11 1765.94
10768.53 1767.5510860.77 1767.6510868.78 1767.9610900.04 1766.9710911.24 1766.16
10924.55 1767.9110966.87 1768.1910977.26 1770.3110993.61 1769.7510995.92 1765.87
 11005.9 1765.6111007.84 1770.0211022.76 1774.57

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
 6478.42     .09 9286.08     .06 9946.75    .02810199.86     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9946.7510199.86           363.11  367.49     373              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6478.42    9350    177410630.4211022.76    1774
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6478.42 8382.64    177410977.2611022.76    1774

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1768.96   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.43   Wt. n-Val.                  0.060      0.028      0.060
  W.S. Elev (ft)            1768.52   Reach Len. (ft)            363.11     367.49     373.00
  Crit W.S. (ft)            1768.44   Flow Area (sq ft)           85.69     271.02     480.17
  E.G. Slope (ft/ft)       0.014546   Area (sq ft)               178.38     271.02     844.05
  Q Total (cfs)             3500.00   Flow (cfs)                 145.26    1813.24    1541.50
  Top Width (ft)            1403.72   Top Width (ft)             381.96     253.11     768.64
  Vel Total (ft/s)             4.18   Avg. Vel. (ft/s)             1.70       6.69       3.21
  Max Chl Dpth (ft)            3.43   Hydr. Depth (ft)             0.42       1.07       1.12
  Conv. Total (cfs)         29019.5   Conv. (cfs)                1204.4    15034.1    12781.0
  Length Wtd. (ft)           369.42   Wetted Per. (ft)           202.22     253.58     430.93
  Min Ch El (ft)            1765.09   Shear (lb/sq ft)             0.38       0.97       1.01
  Alpha                        1.59   Stream Power (lb/ft s)       0.65       6.49       3.25
  Frctn Loss (ft)              5.53   Cum Volume (acre-ft)      1174.90      48.99     601.13
  C & E Loss (ft)              0.07   Cum SA (acres)            1015.72      30.29     411.60

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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8955.80      9451.27          0.97       0.95      4.77       0.03       0.20       1.02
  9451.27      9946.75        144.30      84.74    197.45       4.12       0.43       1.70
  LB 9946.75   10031.12       402.25      72.07     84.37      11.49       0.85       5.58
  10031.12     10115.49       451.79      77.27     84.37      12.91       0.92       5.85
  10115.49     RB 10199.86    959.16     121.67     84.84      27.40       1.44       7.88
  10199.86     10317.42       483.60     143.96    117.57      13.82       1.22       3.36
  10317.42     10434.97       520.49     150.44    117.56      14.87       1.28       3.46
  10434.97     10552.53       237.04      93.85    117.56       6.77       0.80       2.53
  10552.53     10670.09       300.40      91.92     78.24       8.58       1.18       3.27

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

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 19.665

INPUT
Description:
Station Elevation Data     num=       95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 6372.62 1764.93 6776.54 1762.44 6782.34 1761.83 6787.32 1762.38 6822.11 1762.33
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 6825.83 1761.85 6858.42 1762.57 6862.09 1762.61 6904.56 1762.24 7003.93  1762.2
 7015.48 1760.87 7031.75 1762.92 7342.72 1763.48 7345.87 1762.46  7358.5 1762.03
 7366.47 1762.62 7467.11 1761.72 7474.88 1760.62 7480.45 1761.56  7513.1 1761.95
 7539.15  1761.6 7547.05 1760.18 7552.09 1761.39    7797 1762.48 7814.17 1762.31
 7833.64 1762.26 7887.19 1761.64 7895.32 1759.78 7904.18 1761.66 8407.01  1763.4
 8414.32 1762.74 8421.92 1763.62 8466.55 1762.89 8475.95 1762.57 8485.41 1763.38
 8734.57 1763.76 8768.89 1763.74 8878.45 1764.61 8899.03 1764.07 9100.02 1763.33
 9110.14 1762.28 9120.33 1763.49 9206.76 1763.69 9214.15 1762.35 9225.93 1763.91
 9238.72 1764.49 9249.54 1760.17 9258.98 1763.28 9444.15 1763.01 9451.15 1761.08
  9463.9 1763.13 9612.87  1762.1 9625.13 1760.62 9639.91 1760.74 9657.09 1761.03
 9695.93 1761.21 9734.57 1762.28 9893.65 1764.21 9993.65 1762.6710000.17 1761.45
10011.93 1762.4410018.29 1762.0110030.36 1762.4210055.47 1761.6610062.36 1759.98
10069.95  1762.210084.18 1761.94 10107.5 1762.3410114.38 1761.4310123.72 1761.57
10185.42 1762.45 10195.9 1759.4910212.66 1761.6510232.81 1761.47 10239.7 1760.65
10256.52 1762.53 10471.7 1761.6810552.33 1763.5610614.57 1762.4510619.85 1761.42
   10628  1762.710707.38 1762.6410742.42 1762.6210749.62 1761.3210763.02 1762.16
   10833 1763.0410958.28 1764.0111034.06  1764.211146.05 1763.4211157.78 1766.45
11172.33 1766.2211174.76 1762.7511187.36 1762.0411189.63 1766.4111205.11 1769.33

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
 6372.62     .09 9657.09     .06 9993.65    .028 10107.5     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9993.65 10107.5           435.66  441.94  435.91             .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6372.62 9130.33    1768   1076111205.11    1768
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6372.62 8878.45    176711157.7811205.11    1767

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1763.36   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.29   Wt. n-Val.                0.073      0.028      0.060
  W.S. Elev (ft)            1763.07   Reach Len. (ft)          435.66     441.94     435.91
  Crit W.S. (ft)            1762.84   Flow Area (sq ft)        367.21     127.84     566.43
  E.G. Slope (ft/ft)       0.015139   Area (sq ft)             372.85     127.84     601.36
  Q Total (cfs)             3500.00   Flow (cfs)               875.75     898.10    1726.15
  Top Width (ft)            1248.30   Top Width (ft)           453.53     113.85     680.92
  Vel Total (ft/s)             3.30   Avg. Vel. (ft/s)           2.38       7.02       3.05
  Max Chl Dpth (ft)            3.58   Hydr. Depth (ft)           0.84       1.12       0.94
  Conv. Total (cfs)         28445.9   Conv. (cfs)              7117.5     7299.2    14029.1
  Length Wtd. (ft)           436.73   Wetted Per. (ft)         440.94     114.56     606.16
  Min Ch El (ft)            1759.98   Shear (lb/sq ft)           0.79       1.05       0.88
  Alpha                        1.72   Stream Power (lb/ft s)     1.88       7.41       2.69
  Frctn Loss (ft)              6.57   Cum Volume (acre-ft)    1172.61      47.31     594.94
  C & E Loss (ft)              0.07   Cum SA (acres)          1012.23      28.74     405.40


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  8959.07       9476.36          65.86      47.47     91.49       1.88       0.53       1.39
  9476.36       9993.65         809.89     319.74    349.44      23.14       0.92       2.53
  LB 9993.65    10031.60        224.78      36.35     38.13       6.42       0.96       6.18
  10031.60      10069.55        448.42      55.20     38.46      12.81       1.45       8.12
  10069.55      RB 10107.50     224.89      36.30     37.97       6.43       0.96       6.20
  10107.50      10264.30        844.86     225.65    157.57      24.14       1.44       3.74
  10264.30      10421.10        373.85     138.08    156.80      10.68       0.88       2.71
  10421.10      10577.90        307.79     106.72    110.23       8.79       0.97       2.88
  10577.90      10734.71        117.77      68.75    155.12       3.36       0.44       1.71
  10734.71      10891.51         81.88      27.24     26.43       2.34       1.04       3.01


Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
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CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.581

INPUT
Description: Baseline crosses cross section just south of Lost Dutchman Blvd
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6372.33	1758.68	6468.78	1758.14	6498.72	1759	6646	1758	6923.13	1757.73
6931.11	1756.63	6942.12	1758.23	7197.64	1756.21	7208.68	1757.48	7262.09	1757.94
7271.14	1757.32	7318.36	1756.44	7587.57	1756.99	7598.69	1755.83	7607.62	1756.38
8038.12	1755.89	8045.47	1753.98	8052.93	1755.81	8187.64	1757.21	8213.76	1755.41
8228.87	1755.63	8246.59	1755.99	8256.73	1756.51	8268.78	1757.81	8499.88	1758.29
8526.68	1758.41	8781.33	1758.02	9137.72	1757.98	9164.16	1757.03	9201.66	1757.39
9211.53	1758.67	9252.09	1758.68	9263.28	1757.47	9283.67	1757.44	9303.7	1757.27
9327.01	1758.37	9332.78	1758.06	9419.36	1756.18	9426.04	1755.77	9438.85	1756.2
9466.26	1756.77	9478.06	1753.37	9494.12	1756.14	9501.48	1755.14	9664.67	1755.32
9670.45	1753.92	9687.88	1755.37	9688.94	1754.57	9842.48	1755.36	9864.46	1755.15
9880.85	1755.81	9996.13	1755.9	10000.34	1754.45	10009.83	1755.79	10056.19	1756.06
10072.29	1754.33	10086.49	1754.49	10103.01	1754.71	10128.56	1754.65	10157.11	1756.3
10264.44	1756.29	10273.31	1754.77	10286.99	1756.29	10375.82	1754.85	10383.95	1753.79
10391.41	1754.84	10414.78	1754.35	10428.71	1753.89	10439.05	1755.29	10532.86	1756.43
10538.07	1754.98	10545.3	1756.65	10693.11	1757.32	10704.71	1757.21	10715.96	1757.96
10810.03	1758.91	10818.95	1758.08	10822.03	1758.95	10880.26	1757.81	11187.27	1756.64
11242.66	1757.71	11373.24	1758.07	11384.37	1760.69	11397.44	1760.41	11399.04	1756.93
11408.74	1756.53	11410.77	1760.06	11421	1762.05				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6372.33	.09	9996.13	.02	10009.83	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9996.13	10009.83	432.12	407.92	355	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6372.33	8905	1762	10972.33	11421	1762

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6372.33	8905	1762	11384.37	11421	1763

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1756.72	Element			
Vel Head (ft)	0.16	Wt. n-Val.	0.090	0.028	0.060
W.S. Elev (ft)	1756.56	Reach Len. (ft)	432.12	407.92	355.00
Crit W.S. (ft)	1756.10	Flow Area (sq ft)	706.45	19.45	545.51
E.G. Slope (ft/ft)	0.014957	Area (sq ft)	706.45	19.45	545.51
Q Total (cfs)	3500.00	Flow (cfs)	1671.68	156.85	1671.47
Top Width (ft)	1132.53	Top Width (ft)	583.73	13.70	535.09
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)	2.37	8.06	3.06
Max Chl Dpth (ft)	3.19	Hydr. Depth (ft)	1.21	1.42	1.02
Conv. Total (cfs)	28618.7	Conv. (cfs)	13669.0	1282.5	13667.3
Length Wtd. (ft)	398.21	Wetted Per. (ft)	585.03	14.05	536.10
Min Ch El (ft)	1754.45	Shear (lb/sq ft)	1.13	1.29	0.95
Alpha	1.33	Stream Power (lb/ft s)	2.67	10.42	2.91
Frctn Loss (ft)	4.69	Cum Volume (acre-ft)	1167.21	46.56	589.20
C & E Loss (ft)	0.02	Cum SA (acres)	1007.05	28.09	399.31

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8960.76	9478.44	50.58	36.78	66.53	1.45	0.56	1.37
9478.44	9996.13	1621.11	669.67	518.50	46.32	1.29	2.42
LB 9996.13	10000.70	50.51	6.50	4.83	1.44	1.42	7.77
10000.70	10005.26	72.72	7.95	4.61	2.08	1.74	9.15
10005.26	RB 10009.83	33.61	5.00	4.61	0.96	1.10	6.72
10009.83	10211.43	644.96	208.40	201.74	18.43	1.03	3.09
10211.43	10413.02	616.75	202.98	201.97	17.62	1.01	3.04
10413.02	10614.62	409.75	134.13	132.39	11.71	1.02	3.05

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.504

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6666.65	1753.47	6672.19	1752.56	6689.97	1753.05	6704.09	1753.68	6717.27	1753.18
6727.07	1752	6734.36	1753.18	6821.65	1752.91	6826.62	1752.22	6834.65	1752.7
6869.19	1751.52	6918.33	1751.71	6926.7	1752.16	7126.24	1752.09	7131.66	1751.08
7138.29	1751.91	7404.33	1751.53	7426.2	1750.72	7433.53	1750.95	7785.36	1750
7846.28	1750.81	7990.26	1750.7	8000.69	1749.14	8012.09	1751.38	8583.38	1752.28
8601.12	1752.26	8618.93	1752.21	8638.56	1751.72	8646.33	1752.33	8706.39	1750.67
8760.94	1751.03	8780.06	1750.82	8797.8	1750.88	8806.36	1750.94	8819.5	1752.15
9538.72	1750.38	9571.89	1750.4	9601.4	1749.93	9609.76	1747.37	9618.4	1749.8
9625.31	1747.75	9637.65	1749.63	9641.81	1747.66	9650.05	1750.3	9988.41	1750.91
9996.47	1747.3	10004.87	1750.5	10314.98	1750.5	110329.16	1749.7	310345.61	1749.6
10362.09	1750.3	610395.39	1750.0	910420.82	1752.2	710509.85	1752.13	10530.6	1751.98
10594.25	1752.1	810659.18	1752.2	510665.06	1749.6	710674.21	1750.0	310682.29	1751.69
10700.36	1751.8	710830.58	1753.8	310882.72	1753.2	410885.41	1752.2	510889.75	1753.26
10907.47	1752.9	811042.83	1753.2	711247.28	1752.1	111500.96	1752.7	11512.92	1755.45
11527.38	1755.2	11529.78	1751.4	111538.75	1750.9	211540.47	1755.2	811551.85	1759.5
11563.89	1759.3	211580.68	1752.0	211760.15	1753.46				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6666.65	.09	9988.41	.02	810004.87	.09	10362.09	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.41	10004.87	443.61	495.7	479.53	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6666.65	8595	1759	11086.61	11760.15	1759

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6666.65	7138.29	1758	11512.92	11760.15	1758

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1752.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.090	0.028	0.083
W.S. Elev (ft)	1751.77	Reach Len. (ft)	443.61	495.70	479.53
Crit W.S. (ft)	1751.55	Flow Area (sq ft)	1142.60	45.57	577.52
E.G. Slope (ft/ft)	0.009683	Area (sq ft)	1952.32	45.57	577.52
Q Total (cfs)	3500.00	Flow (cfs)	1839.10	445.01	1215.89
Top Width (ft)	2643.75	Top Width (ft)	2187.24	16.46	440.04
Vel Total (ft/s)	1.98	Avg. Vel. (ft/s)	1.61	9.77	2.11
Max Chl Dpth (ft)	4.47	Hydr. Depth (ft)	0.98	2.77	1.31
Conv. Total (cfs)	35567.5	Conv. (cfs)	18689.2	4522.2	12356.1
Length Wtd. (ft)	461.45	Wetted Per. (ft)	1167.45	17.82	440.77
Min Ch El (ft)	1747.30	Shear (lb/sq ft)	0.59	1.55	0.79
Alpha	3.82	Stream Power (lb/ft s)	0.95	15.10	1.67
Frctn Loss (ft)	5.87	Cum Volume (acre-ft)	1154.02	46.26	584.63
C & E Loss (ft)	0.02	Cum SA (acres)	993.30	27.95	395.34

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8564.80	9039.34	124.40	120.75	216.36	3.55	0.56	1.03
9039.34	9513.87	440.39	352.98	474.54	12.58	0.74	1.25
9513.87	9988.41	1274.30	668.87	476.56	36.41	1.41	1.91
LB 9988.41	9993.90	87.79	11.45	6.01	2.51	2.09	7.67
9993.90	9999.38	251.33	21.42	5.94	7.18	3.90	11.73
9999.38	RB 10004.87	105.88	12.69	5.87	3.03	2.31	8.34

10004.87	10255.62	600.70	317.18	250.75	17.16	1.26	1.89
10255.62	10506.38	542.28	230.11	159.46	15.49	1.44	2.36
10506.38	10757.13	72.92	30.24	30.56	2.08	1.01	2.41

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.410

INPUT
Description: Baseline crosses cross section just north of Windsong St.
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6332.31	1746.54	6347.22	1747.11	6360.36	1746.66	6421.94	1745.43	6429.08	1746.33
6568.96	1746.07	6575.07	1745.59	6585.35	1746.55	7048	1745.77	7118.9	1744.5
7199.11	1744.35	7206.21	1742.49	7216.69	1743.66	7312.92	1744.4	7329.71	1744.79
7346.69	1743.7	7358.41	1743.21	7371.61	1744.11	7426.7	1743.99	7437.28	1743.81
7441.34	1743.67	7789.43	1746.21	7806.27	1747.51	7852.68	1746.91	7865.31	1744.95
7873.32	1744.02	7878.87	1743.93	7900.36	1744.28	7909.35	1743.32	7920.29	1743.99
7935.55	1744.34	7940.7	1743.43	7949.63	1743.53	8135.6	1744.89	8178.95	1744.77
8200.51	1745.01	8223.61	1744.3	8769.97	1745.29	8777.93	1744.5	8783.88	1744.9
8998.52	1745.29	9014.33	1745.65	9033.73	1746.18	9052.87	1745.79	9067.86	1745.79
9233.49	1745.84	9778.02	1745.03	9787.17	1740.79	9799.04	1744.84	9916.84	1744.28
9937.51	1744.48	9987.68	1744.63	9995.02	1742.92	10006.66	1744.39	10228.36	1745.09
10248.11	1744.72	10271.54	1743.62	10288.65	1742.81	10289.72	1742.52	10298.48	1746.01
10558.38	1745.42	10562.47	1744.39	10567.34	1745.46	10569.37	1745.23	10573.49	1744.44
10579.07	1745.31	10747.68	1745.74	10763.36	1745.85	10779.08	1746.28	10797.78	1745.31
10812.95	1745.61	10896.71	1746.01	10902.92	1745.06	10911.28	1746.02	10953.46	1745.8
11074.63	1745.34	11078.6	1742.87	11084.58	1745.16	11168.95	1745.11	11289.44	1745.58
11368.27	1747.16	11443.41	1744.06	11540.26	1744.39	11631.1	1746.59	11676.16	1744.89
11680.78	1745.27	11883.13	1748.15	11989.36	1750.37	11998.83	1753.18	12012.86	1753.28

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6332.31	.09	9987.68	.02	10006.66	.09	10779.08	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.68	10006.66	535	565.65	492.3	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6332.31	8280	1750	10890	12012.86	1750

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6332.31	6585.35	1749	11368.27	12012.86	1749

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1746.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.	0.090	0.028	0.090
W.S. Elev (ft)	1745.79	Reach Len. (ft)	535.00	565.65	492.30
Crit W.S. (ft)	1745.79	Flow Area (sq ft)	1129.60	39.73	455.87
E.G. Slope (ft/ft)	0.017495	Area (sq ft)	2657.27	39.73	615.60
Q Total (cfs)	3500.00	Flow (cfs)	2088.59	451.82	959.58
Top Width (ft)	3706.03	Top Width (ft)	2613.84	18.98	1073.22
Vel Total (ft/s)	2.15	Avg. Vel. (ft/s)	1.85	11.37	2.10
Max Chl Dpth (ft)	5.00	Hydr. Depth (ft)	0.76	2.09	0.64
Conv. Total (cfs)	26461.3	Conv. (cfs)	15790.5	3415.9	7254.8
Length Wtd. (ft)	530.57	Wetted Per. (ft)	1496.14	19.27	717.83
Min Ch El (ft)	1742.92	Shear (lb/sq ft)	0.82	2.25	0.69
Alpha	4.30	Stream Power (lb/ft s)	1.52	25.61	1.46
Frctn Loss (ft)		Cum Volume (acre-ft)	1130.55	45.77	578.06
C & E Loss (ft)		Cum SA (acres)	968.86	27.75	387.01

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7898.90	8421.09	425.34	178.45	141.09	12.15	1.26	2.38
8421.09	8943.29	739.08	419.60	522.25	21.12	0.80	1.76
8943.29	9465.48	48.69	66.51	308.99	1.39	0.22	0.73
9465.48	9987.68	875.51	465.05	523.80	25.01	0.89	1.88
LB 9987.68	9994.01	125.49	12.03	6.50	3.59	1.90	10.43
9994.01	10000.33	209.95	16.28	6.40	6.00	2.57	12.89
10000.33	RB 10006.66	116.37	11.42	6.38	3.32	1.80	10.19
10006.66	10293.26	858.22	346.08	286.96	24.52	1.21	2.48
10293.26	10579.86	50.04	53.56	192.01	1.43	0.28	0.93
10579.86	10866.46	51.31	56.23	238.86	1.47	0.24	0.91

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.303

INPUT
Description:
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6191.46	1741.87	6329.11	1739.2	6348.12	1738.46	6359.21	1739.09	6523	1739.37
6775	1739.03	6807.25	1738.2	6810.65	1738.04	6817.23	1738.05	6881.99	1737.25
6929.89	1736.68	7041.21	1738.31	7048.34	1739.62	7057.99	1738.05	7351.5	1737.6
7358.34	1736.15	7365.41	1737.61	7447.77	1737.75	7559.97	1739.34	7576.91	1739.19
7594.21	1738.97	7620	1738	7640	1738	7748.49	1740.09	7757.44	1738.99
7780.86	1738.18	7797.46	1738.48	7812.3	1737.74	7827.63	1736.79	7844.55	1738.04
8372.44	1738.82	8373.91	1737.15	8386.72	1738.38	8585.49	1737.55	8853.77	1737.28
8863.5	1737.16	8870.6	1737.77	9470.58	1738.74	9499.33	1739.67	9517.12	1740.14
9536.88	1739.58	9554.23	1738.83	9562.15	1737.45	9573.4	1738.96	9636.32	1739.61
9658.17	1740.28	9681.9	1739.63	9810.95	1737.46	9820.39	1735.76	9825.43	1738.11
9983.42	1738.82	9994.48	1734.37	10009.34	1738.22	10106.77	1737.86	10116.22	1738.78
10208.25	1738.15	10213.96	1734.05	10225.39	1738.46	10352.71	1739.14	10381.18	1739.27
10388.12	1739.5	10479.04	1738.87	10483.49	1736.72	10488.07	1736.69	10496.61	1738.6
11013.08	1739.33	11027.53	1736.55	11039.25	1738.6	11112.24	1739.4	11144.6	1738.99
11159.58	1739.21	11175.49	1739.35	11186.05	1738.66	11211.28	1737.99	11456.69	1739.62
11480.69	1738.77	11496.32	1740.67	11545.44	1741.4	11663.43	1740.72	11771.92	1740.54
12008.48	1742.44	12063.42	1743.16	12189.18	1744.27	12199.3	1742.83	12211.02	1744.43
12297.63	1745.28								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6191.46	.09	9983.42	.02	10009.34	.09	11211.28	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.42	10009.34	570	501.11	467.95	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6191.46	7935	1743	11434.41	12297.63	1743

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6191.46	6739	1742

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1739.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.090	0.028	0.083
W.S. Elev (ft)	1739.01	Reach Len. (ft)	570.00	501.11	467.95
Crit W.S. (ft)	1739.03	Flow Area (sq ft)	1575.46	67.17	456.97
E.G. Slope (ft/ft)	0.009641	Area (sq ft)	2734.42	67.17	458.06
Q Total (cfs)	3500.00	Flow (cfs)	2311.52	638.38	550.10
Top Width (ft)	3809.11	Top Width (ft)	2871.81	25.92	911.39
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	1.47	9.50	1.20
Max Chl Dpth (ft)	4.96	Hydr. Depth (ft)	0.86	2.59	0.51
Conv. Total (cfs)	35645.0	Conv. (cfs)	23541.1	6501.4	5602.4

Length Wtd. (ft)	545.59	Wetted Per. (ft)	1839.47	27.27	905.80
Min Ch El (ft)	1734.37	Shear (lb/sq ft)	0.52	1.48	0.30
Alpha	6.52	Stream Power (lb/ft s)	0.76	14.09	0.37
Frctn Loss (ft)	6.79	Cum Volume (acre-ft)	1097.44	45.08	571.99
C & E Loss (ft)	0.02	Cum SA (acres)	935.17	27.46	375.79

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7816.59	8358.29	221.01	223.56	423.29	6.31	0.53	0.99
8358.29	8900.00	1323.17	722.49	542.55	37.80	1.33	1.83
8900.00	9441.71	517.74	411.21	541.71	14.79	0.76	1.26
9441.71	9983.42	249.61	218.20	331.91	7.13	0.66	1.14
LB 9983.42	9992.06	119.53	16.70	9.31	3.42	1.93	7.16
9992.06	10000.70	397.87	33.94	9.03	11.37	3.93	11.72
10000.70	RB 10009.34	120.98	16.53	8.92	3.46	1.91	7.32
10009.34	10336.24	283.64	229.06	322.07	8.10	0.72	1.24
10336.24	10663.14	64.40	78.65	205.66	1.84	0.38	0.82
10663.14	10990.04	3.53	11.36	126.77	0.10	0.09	0.31
10990.04	11316.93	193.12	130.07	202.71	5.52	0.64	1.48
11316.93	11643.83	5.42	7.84	48.60	0.15	0.16	0.69

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.208

INPUT
Description:
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5997.18	1733.11	6013.57	1733.17	6026.42	1734.95	6174.89	1735.4	6185.73	1733.64
6296.98	1734.49	6300.55	1732.84	6311.01	1733.98	6616.94	1732.79	6622.25	1731.65
6632.47	1732.22	6867.87	1731.5	6883.65	1731.65	6900.3	1731.51	7169.38	1731.17
7204.99	1731.22	7211.32	1732.08	7400	1732	7452.26	1730.04	7463.22	1729.57
7471.61	1729.95	7493.27	1730.17	7770	1732	7849.65	1730.38	7857.33	1729.63
7871.5	1730.52	7953.32	1731.83	7963.61	1729.27	7970.11	1731.25	8132.16	1730.1
8152.96	1730.93	8172.08	1731.31	8188.09	1730.93	8201.94	1730.05	8214.56	1731.68
8499.37	1731.15	8510.16	1731.17	8558.85	1730.88	8595.16	1729.94	8600.97	1728.75
8605.32	1729.75	8767.07	1730.52	8791.58	1729.37	8810.66	1730.09	8832.48	1730.54
8863.24	1730.39	9040.5	1731.47	9090.82	1731.63	9237.75	1732.25	9272.63	1732.02
9681.38	1731.87	9688.84	1729.24	9700.5	1731.45	9748.94	1731.58	9766.91	1731.67
9783.02	1732.12	9799.43	1732.07	9938.03	1730.34	9980.66	1731.76	9995.7	1728.13
10016.8	1731.85	10046.21	1732.27	10057.7	1730.93	10570.52	1732.25	10615.16	1731.96
10805.96	1732.73	10814.53	1731.97	10825.36	1731.98	10896.89	1732.31	10912.29	1729.37
10924.69	1730.88	11083.91	1733.74	11102.71	1732.58	11122.81	1733.55	11149.09	1733.82
11202.04	1733.43	11228.18	1733.72	11252.94	1729.66	11311.51	1729.64	11332.26	1733.54
11353.88	1733.61	11371.59	1734.16	11385.88	1734.53	11414.77	1734.43	11600.23	1736.13
11606.06	1735.93	11665.23	1735.45	11695.15	1736.93	12027.47	1738.97		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5997.18	.09	9980.66	.028	10016.8	.09	11149.09	.15	11414.77	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.66	10016.8	440	517.56	497.46	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

```
 5997.18    7770    173611083.9112027.47    1736
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5997.18 6296.98    173611083.9112027.47    1736
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1732.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.090	0.028	0.090
W.S. Elev (ft)	1732.10	Reach Len. (ft)	440.00	517.56	497.46
Crit W.S. (ft)	1731.79	Flow Area (sq ft)	1972.02	76.87	365.29
E.G. Slope (ft/ft)	0.006029	Area (sq ft)	2725.36	76.87	365.29
Q Total (cfs)	3500.00	Flow (cfs)	2636.48	516.69	346.83
Top Width (ft)	3957.89	Top Width (ft)	3251.65	36.14	670.10
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)	1.34	6.72	0.95
Max Chl Dpth (ft)	3.97	Hydr. Depth (ft)	0.92	2.13	0.55
Conv. Total (cfs)	45075.1	Conv. (cfs)	33954.2	6654.2	4466.7
Length Wtd. (ft)	468.56	Wetted Per. (ft)	2145.65	36.90	670.54
Min Ch El (ft)	1728.13	Shear (lb/sq ft)	0.35	0.78	0.21
Alpha	3.86	Stream Power (lb/ft s)	0.46	5.27	0.19
Frctn Loss (ft)	5.08	Cum Volume (acre-ft)	1061.72	44.25	567.57
C & E Loss (ft)	0.38	Cum SA (acres)	895.10	27.10	367.30

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7704.39	8273.45	835.56	584.15	504.32	23.87	1.16	1.43
8273.45	8842.52	1272.22	789.13	569.36	36.35	1.39	1.61
8842.52	9411.59	288.27	309.88	510.10	8.24	0.61	0.93
9411.59	9980.66	240.42	288.86	561.86	6.87	0.51	0.83
LB 9980.66	9992.71	118.69	21.59	12.39	3.39	1.79	5.50
9992.71	10004.75	326.95	39.50	12.27	9.34	3.28	8.28
10004.75	RB 10016.80	71.04	15.78	12.23	2.03	1.31	4.50
10016.80	10304.04	223.06	217.69	273.81	6.37	0.80	1.02
10304.04	10591.28	27.45	55.43	207.53	0.78	0.27	0.50
10591.28	10878.52	1.42	6.83	94.28	0.04	0.07	0.21
10878.52	11165.75	94.92	85.34	94.92	2.71	0.90	1.11

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.110

INPUT
Description: Baseline crosses cross section at Foothill St.
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5696.29	1726.25	5729.03	1726.35	5749.56	1726.91	5975.1	1727.35	6046.84	1727.73
6061.47	1727.89	6080.72	1728.09	6098.33	1727.99	6138.78	1727.02	6150	1726.52
6158.53	1727.3	6283.36	1727.55	6287.91	1727.43	6581.25	1728.75	6598.9	1729.2
6614.86	1728.36	6635.79	1728.55	6755.09	1724.77	6992.46	1724.7	6998.07	1723.88
7006.96	1725.5	7036	1725.58	7064.94	1726.15	7449.73	1724.87	7489.77	1724.83

7668.19	1725.43	7673.55	1724.13	7681.82	1725.69	8074.87	1725.42	8093.6	1725.65
8114.5	1725.43	8316.53	1725.23	8333.04	1725.78	8349.61	1725.3	8759.72	1725.15
8779.24	1721.03	8839.24	1720.74	8868.68	1726.04	8976.2	1725.4	9012.95	1725.02
9121.25	1724.47	9165.55	1725.02	9397.23	1725.3	9418.37	1725.33	9686.64	1725.6
9692.19	1724.47	9702.33	1724.86	9734.3	1723.91	9738.46	1722.88	9744.48	1724.07
9959.74	1725.37	9972.76	1722.73	9976.97	1722.99	9994.65	1722.69	10008.42	1722.98
10023.93	1724.24	10033.2	1726.25	10239.8	1726.11	10268.2	1726.15	10296.85	1726.98
10322.35	1727.05	10344.32	1726.39	10358.68	1727.06	10411.91	1727.78	10418.81	1725.87
10430.58	1726.91	10756.64	1726.09	10778.66	1727.51	10796.03	1727.22	10813.31	1727.01
10828.64	1727.28	10838.5	1723.95	10846.83	1726.41	10938.37	1725.27	10970.14	1724.98
11388.39	1726.71	11416.71	1726.68	11509.28	1725.49	11520.01	1723.68	11539.27	1727.52
11556.82	1727.61	11575.55	1728.25	11590.21	1728.62	11606.03	1726.5	11620.8	1727.9
11735.54	1727.97	11849.33	1728.09	11860.32	1728.63	11874.24	1729.07	11902.87	1724.33
11916.11	1722.85	11941.34	1723.04	11950.59	1724.17	11958.46	1724.26	11966.67	1725.2
11972.53	1724.74	11978.81	1724.92	12017.53	1730.19	12099.36	1729.77	12148.66	1730.29

Manning's n Values num= 12

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5696.29	.15	6080.72	.09	7036	.15	7489.77	.09	8114.5	.15
8333.04	.09	9165.55	.15	9418.37	.09	9959.74	.028	10033.2	.09
10796.03	.15	11590.21	.06						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9959.74	10033.2	545	521.08	508.11	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5696.29	7295	1730	10846.81	12148.66	1730

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5696.29	6635.79	1730	10846.81	12148.66	1730

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1726.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.40	Wt. n-Val.	0.092	0.028	0.150
W.S. Elev (ft)	1725.36	Reach Len. (ft)	545.00	521.08	508.11
Crit W.S. (ft)	1724.98	Flow Area (sq ft)	887.16	136.97	6.33
E.G. Slope (ft/ft)	0.024901	Area (sq ft)	1053.15	136.97	6.33
Q Total (cfs)	3500.00	Flow (cfs)	1693.79	1798.62	7.59
Top Width (ft)	2096.91	Top Width (ft)	2018.63	69.31	8.97
Vel Total (ft/s)	3.40	Avg. Vel. (ft/s)	1.91	13.13	1.20
Max Chl Dpth (ft)	4.62	Hydr. Depth (ft)	0.51	1.98	0.71
Conv. Total (cfs)	22179.9	Conv. (cfs)	10733.7	11398.0	48.1
Length Wtd. (ft)	537.58	Wetted Per. (ft)	1750.37	69.76	9.41
Min Ch El (ft)	1722.69	Shear (lb/sq ft)	0.79	3.05	1.05
Alpha	7.83	Stream Power (lb/ft s)	1.50	40.08	1.25
Frctn Loss (ft)	6.72	Cum Volume (acre-ft)	1042.63	42.98	565.45
C & E Loss (ft)	0.41	Cum SA (acres)	868.49	26.48	363.42

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6914.42	7523.48	50.11	72.57	221.20	1.43	0.33	0.69
7523.48	8132.55	25.76	33.00	135.88	0.74	0.24	0.78
8132.55	8741.61	28.63	60.72	529.78	0.82	0.11	0.47
8741.61	9350.68	1287.77	517.73	494.79	36.79	1.05	2.49
9350.68	9959.74	301.53	203.14	368.72	8.62	0.55	1.48
LB 9959.74	9984.23	550.28	45.24	24.71	15.72	1.85	12.16
9984.23	10008.71	945.82	62.39	24.49	27.02	2.55	15.16
10008.71	RB 10033.20	302.50	29.35	20.55	8.64	1.44	10.31
10033.20	10637.62						
10637.62	10939.83	7.59	6.33	9.41	0.22	0.71	1.20

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 19.012

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5501.8	1718.47	5528.38	1718.58	5636.44	1718.64	5663.14	1718.53	5773.74	1718.81
5829.06	1719.34	5972.13	1719.64	5985.11	1719.21	5994.83	1719.82	6037.06	1720.33
6118.17	1719.96	6150.5	1720.61	6401.71	1717.26	6429.84	1717.18	6531	1720
6552	1721	6610	1720.31	6681	1720	6800	1719.58	6968.34	1717.34
6986.87	1716.7	7001.35	1716.94	7014.75	1716.81	7165.25	1717.64	7185.21	1717.86
7206.71	1717.56	7220.95	1716.71	7243.27	1717.98	7792.89	1718.96	7834.7	1719.01
8023.59	1718.06	8032.05	1717.4	8052.46	1719.18	8067.14	1718.68	8086.87	1717.33
8103.74	1718.59	8277.53	1718.69	8310.58	1718.38	8331.6	1718.73	8356.78	1718.86
8603.34	1718.38	8619.31	1719	8635.77	1718.86	8754.46	1718.25	8780.08	1718.04
8980.86	1719.26	9008.58	1719.01	9198.69	1718.83	9227.19	1718.6	9388.99	1718.39
9427.4	1718.3	9449.8	1718.24	9490.41	1718.72	9532.55	1718.53	9663.46	1719.03
9729.69	1718.92	9811.31	1718.91	9820.64	1716.75	9833.63	1719.21	9949.66	1719.1
9961.28	1718.47	9967.84	1719.86	9990.23	1719.29	9998.46	1715.92	10010.53	1719.18
10114.4	1720.03	10120.76	1718.71	10129.95	1719.44	10218.5	1720.02	10235.74	1720.08
10252.29	1720.17	10264.22	1719.27	10275.85	1720.22	10678.5	1719.23	10688.85	1717.86
10703.05	1719.35	11024.41	1719.36	11041.58	1719.27	11059.4	1718.93	11085.81	1718.5
11103.12	1716.33	11134.84	1719.57	11218.85	1721.41	11255.78	1721.33	11448.79	1721.07
11461.49	1719.88	11471.79	1721.13	11517.06	1721.56	11690.22	1722	11707.09	1721.85
11724.07	1722.34	11749.04	1721.65	11832.63	1721.69	11848.96	1722.07	11892.77	1721.78
11979.88	1722.62	12015.18	1723.33	12025.36	1723.72				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5501.8	.15	9811.31	.09	9967.84	.02	10010.53	.09	11041.58	.15
11832.63	.06								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9967.84	10010.53	347.81	482.12	335	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5501.8	6681	1723	11025	12025.36	1723

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5501.8	6552	1723	11218.85	12025.36	1723

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1719.63	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.148	0.028	0.090
W.S. Elev (ft)	1719.59	Reach Len. (ft)	347.81	482.12	335.00
Crit W.S. (ft)	1719.16	Flow Area (sq ft)	3446.78	42.74	147.06
E.G. Slope (ft/ft)	0.007496	Area (sq ft)	3446.78	42.74	273.21
Q Total (cfs)	3500.00	Flow (cfs)	3183.92	232.38	83.70
Top Width (ft)	3900.28	Top Width (ft)	3169.54	32.10	698.63
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)	0.92	5.44	0.57
Max Chl Dpth (ft)	3.67	Hydr. Depth (ft)	1.09	1.33	0.25
Conv. Total (cfs)	40425.7	Conv. (cfs)	36774.9	2684.1	966.7
Length Wtd. (ft)	359.19	Wetted Per. (ft)	3170.49	33.20	588.18
Min Ch El (ft)	1715.92	Shear (lb/sq ft)	0.51	0.60	0.12
Alpha	2.97	Stream Power (lb/ft s)	0.47	3.28	0.07
Frctn Loss (ft)	4.12	Cum Volume (acre-ft)	1014.48	41.91	563.82
C & E Loss (ft)	0.02	Cum SA (acres)	836.03	25.87	359.30

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6777.81	7415.82	1292.65	1084.05	618.89	36.93	1.75	1.19
7415.82	8053.82	515.39	632.05	638.11	14.73	0.99	0.82
8053.82	8691.83	503.55	623.31	638.12	14.39	0.98	0.81
8691.83	9329.83	438.04	573.27	638.01	12.52	0.90	0.76
9329.83	9967.84	434.30	534.11	637.35	12.41	0.84	0.81
LB 9967.84	9982.07	0.08	0.17	3.64	0.00	0.05	0.49
9982.07	9996.30	34.15	10.97	14.72	0.98	0.77	3.11
9996.30	RB 10010.53	198.15	31.60	14.84	5.66	2.22	6.27
10010.53	10298.36	9.71	20.01	94.90	0.28	0.21	0.49
10298.36	10586.20	0.82	3.63	54.31	0.02	0.07	0.23
10586.20	10874.03	54.95	88.27	288.00	1.57	0.31	0.62
10874.03	11161.86	18.21	35.14	150.97	0.52	0.23	0.52

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.920

INPUT
Description: Baseline crosses cross section just east of Saguaro Dr.
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5356.31	1715.72	5481.67	1715.6	5489.91	1715.06	5509.65	1715.23	5528.48	1715.65
5563.5	1714.23	5603.02	1715.9	5667.49	1716.29	5845.62	1716.73	5975.71	1716.73
6081.89	1715.62	6091.96	1715.76	6296.97	1715.68	6310.2	1715	6334.84	1714.52
6445.79	1715.97	6476.47	1716.93	6516.09	1717.48	6535.91	1716.22	6562.38	1715.47
6591.11	1715.62	6635	1716.5	6656.3	1717.41	6676.23	1717.35	7065.86	1718.9
7067.66	1717.25	7126.39	1713.62	7145.19	1713.53	7159.98	1713.58	7174.86	1713.65
7200.13	1714.83	7731.35	1714.41	7748.72	1712.79	7756.91	1713.13	7785.94	1713.61
7807.11	1713.27	7822.52	1713.24	7834.52	1713.84	8773.73	1714.62	8790.84	1715.01
8807.76	1715.12	8887.09	1715.08	8909.49	1715	8937.58	1715.02	8958.89	1714.51
8963.38	1715.49	9164.99	1713.89	9197.77	1713.82	9203.91	1714.48	9266.53	1714.69
9297.03	1714.55	9330.46	1714.2	9370.18	1714.66	9518.92	1715.73	9524.4	1716.75
9576.91	1716.63	9582.12	1714.78	9646.03	1714.58	9835.13	1714.51	9870.85	1714.56
9987.01	1714.96	9997.76	1712.11	10008.86	1715.15	10037.16	1715.83	10049.55	1715.64
10088.38	1715.59	10387.32	1714.57	10403.99	1714.46	10420.82	1714.75	10633.94	1715.8
10644.49	1714.56	10653.45	1716.31	10708.64	1715.56	10719.81	1715.76	10798.64	1715.69
10805.04	1713.31	10813.45	1715.96	11179.15	1715.46	11194.86	1715.75	11278.22	1716.54
11287.55	1716.85	11304.15	1717.97	11748.42	1718.57	11925.88	1720.01	11937.36	1720.13
11949.28	1720.21	11979.82	1720.34	12130.33	1721.17	12148.38	1721.77		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5356.31	.15	9987.01	.028	10008.86	.09	11949.28	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.01	10008.86	404.5	544.04	400	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5356.31	7064.31	1722	10813.51	12148.38	1722

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5356.31	7064.31	1720

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1715.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.150	0.028	0.090
W.S. Elev (ft)	1715.29	Reach Len. (ft)	404.50	544.04	400.00
Crit W.S. (ft)	1715.21	Flow Area (sq ft)	2335.49	37.29	145.63
E.G. Slope (ft/ft)	0.019464	Area (sq ft)	2335.49	37.29	145.63
Q Total (cfs)	3500.00	Flow (cfs)	2931.21	385.24	183.55
Top Width (ft)	3142.00	Top Width (ft)	2738.60	21.85	381.54
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)	1.26	10.33	1.26
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)	0.85	1.71	0.38

Conv. Total (cfs)	25086.9	Conv. (cfs)	21010.0	2761.3	1315.6
Length Wtd. (ft)	435.24	Wetted Per. (ft)	2739.02	22.63	382.33
Min Ch El (ft)	1712.11	Shear (lb/sq ft)	1.04	2.00	0.46
Alpha	6.81	Stream Power (lb/ft s)	1.30	20.69	0.58
Frctn Loss (ft)	4.87	Cum Volume (acre-ft)	991.40	41.46	562.21
C & E Loss (ft)	0.02	Cum SA (acres)	812.44	25.57	355.14

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6679.37	7340.90	247.46	204.52	241.60	7.07	0.85	1.21
7340.90	8002.42	1008.15	710.83	661.63	28.80	1.07	1.42
8002.42	8663.95	948.66	685.31	661.53	27.10	1.04	1.38
8663.95	9325.48	395.59	399.04	635.56	11.30	0.63	0.99
9325.48	9987.01	331.35	335.83	538.70	9.47	0.62	0.99
LB 9987.01	9994.29	74.43	9.44	7.53	2.13	1.30	7.89
9994.29	10001.58	250.98	19.58	7.54	7.17	2.69	12.82
10001.58	RB 10008.86	59.82	8.28	7.55	1.71	1.14	7.22
10008.86	10314.51	27.46	33.01	144.06	0.78	0.23	0.83
10314.51	10620.15	127.34	97.44	215.93	3.64	0.45	1.31
10620.15	10925.80	28.76	15.19	22.35	0.82	0.70	1.89

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.817

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6408.06	1712.82	6474.87	1712.78	6526.68	1712.37	6546.36	1712.41	6563.9	1712.02
6956.73	1711.89	7208.24	1710.58	7243.21	1710.98	7263.6	1710.84	7364.6	1710.21
7378.51	1710.45	7393.31	1709.72	7406.61	1709.44	7416.77	1710.02	8310.03	1710.23
8330.9	1710.69	8356.44	1710.31	8373.45	1709.8	8382.5	1710.44	8442.15	1710.13
8472.25	1709.36	8495.62	1710.35	8992.85	1709.68	9001.22	1708.74	9021.34	1709.7
9037.36	1710	9051.42	1709.82	9079.68	1710.15	9180.76	1709.52	9213.57	1709.73
9285.01	1710.31	9306.43	1710.23	9384.21	1709.83	9446.97	1709.95	9866.48	1707.67
9891.14	1707.65	9980.7	1708.02	9987.83	1706.27	10029.66	1708.71	10412.77	1709.54
10416.16	1708.79	10420.79	1709.4	10591.9	1711.03	10608.72	1710.56	10630.25	1710.94
10646.25	1711.13	10882.62	1710.89	10888.19	1708.79	10892.14	1710.91	11387.12	1711.85
11397.5	1711.76	11415.24	1711.73	11422.77	1712.15	11434.87	1714.53	11471.68	1714.58
11479.33	1712.73	11488.46	1714.89	12036	1718.86	12048.65	1719.27	12059.81	1719.18
12088.51	1719.15	12195.24	1719.57	12365.68	1720.94	12382.03	1721.75	12559.42	1721.7

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
6408.06	.15	9446.97	.09	9980.7	.02	10029.66	.09	12048.65	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980.71	10029.66	402.59	458.21	415.84	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6408.06	6547.67	1715

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1710.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.094	0.028	0.090
W.S. Elev (ft)	1710.17	Reach Len. (ft)	402.59	458.21	415.84
Crit W.S. (ft)	1710.17	Flow Area (sq ft)	1152.28	133.93	446.50
E.G. Slope (ft/ft)	0.007306	Area (sq ft)	1152.28	133.93	446.50

Q Total (cfs)	3500.00	Flow (cfs)	1714.59	1183.63	601.77
Top Width (ft)	2578.60	Top Width (ft)	2051.35	48.96	478.29
Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)	1.49	8.84	1.35
Max Chl Dpth (ft)	3.90	Hydr. Depth (ft)	0.56	2.74	0.93
Conv. Total (cfs)	40948.6	Conv. (cfs)	20060.0	13848.0	7040.5
Length Wtd. (ft)	420.60	Wetted Per. (ft)	2051.52	49.24	479.01
Min Ch El (ft)	1706.27	Shear (lb/sq ft)	0.26	1.24	0.43
Alpha	6.82	Stream Power (lb/ft s)	0.38	10.96	0.57
Frctn Loss (ft)		Cum Volume (acre-ft)	975.20	40.39	559.49
C & E Loss (ft)		Cum SA (acres)	790.20	25.13	351.19

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6918.44	7428.81	6.83	16.20	44.68	0.20	0.36	0.42
7428.81	7939.19	7.38	44.95	510.38	0.21	0.09	0.16
7939.19	8449.57	0.59	6.11	152.40	0.02	0.04	0.10
8449.57	8959.95	30.86	93.57	373.26	0.88	0.25	0.33
8959.95	9470.32	64.59	156.07	460.42	1.85	0.34	0.41
9470.32	9980.70	1604.36	835.40	510.38	45.84	1.64	1.92
LB 9980.70	9997.02	541.46	54.97	16.55	15.47	3.37	9.85
9997.02	10013.34	423.59	47.21	16.35	12.10	2.89	8.97
10013.34	RB 10029.66	218.56	31.74	16.35	6.24	1.94	6.89
10029.66	10391.05	552.42	388.39	361.40	15.78	1.07	1.42
10391.05	10752.45	45.06	53.80	110.78	1.29	0.49	0.84
10752.45	11113.84	4.29	4.31	6.83	0.12	0.69	1.00

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.730

INPUT
Description: Baseline crosses cross section west of Juan Dr.
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5060.77	1708.45	5318.44	1706.79	5337.75	1707.32	5359.67	1707.26	5810.65	1707.53
5827.61	1708.31	5846.91	1708.55	5864.02	1708.26	5886.25	1706.98	5897.48	1705.95
5910.3	1708.55	6046.17	1705.02	6049.6	1704.55	6082.68	1705.27	6430	1708
6497	1708	6647.87	1706.31	6666.65	1706.39	6680.64	1706.45	6885.43	1707.08
6892.54	1703.71	6897.62	1706.75	7475.76	1705.73	7490.69	1705.85	7511.09	1705.71
7527.34	1706.22	7558.45	1706.27	7585.67	1705.75	7592.13	1705.61	7631.47	1705.74
7782.75	1705.05	7809.26	1705.28	8001.11	1705.22	8026.2	1705.54	8175.25	1705.62
8202.05	1705.69	8266.01	1705.46	8268.4	1704.8	8289.36	1706.73	8307.15	1707.22
8323.97	1706.69	8336	1705.72	8342.86	1706.01	9083.59	1705.84	9090.62	1704.05
9110.21	1705.31	9125.75	1705.43	9141.28	1705.44	9161.82	1705.59	9170.54	1706.37
9267.09	1704.85	9300.19	1704.48	9396.92	1704.61	9405.5	1705.32	9499.87	1704.57
9532.41	1704.31	9534.79	1704.61	9538.71	1703.69	9546.09	1705.09	9762.77	1703.27
9812.58	1703.65	9938.28	1703.62	9942.9	1702.33	9965.04	1701.63	9972.51	1703.62
9990.14	1703.38	9996.21	1701.38	10007.21	1703.62	10040.07	1703.94	10046.9	1703.93
10053.53	1703.62	10061.33	1703.95	10476.47	1705.45	10483.54	1704.88	10491.37	1705.82
10671.17	1705.38	10681.35	1704.69	10698.68	1704.59	10715.33	1704.62	10733.83	1704.89
10752.84	1704.81	10784	1705.47	10816	1706	10900	1706.69	10980.35	1705.7
11036.74	1706.38	11227.63	1707.91	11451.26	1708.75	11465.19	1709.27	11481.35	1708.86
11784.73	1711.31	11790.78	1710.46	11796.67	1711.87	12102.04	1715.18	12113.25	1715.14
12125.27	1715.39	12154.63	1714.77	12369.49	1716.54	12504.14	1717.67	12522.35	1716.37

Manning's n Values num= 5

```
     Sta    n Val      Sta    n Val      Sta    n Val      Sta    n Val      Sta    n Val
 5060.77      .15  9942.9      .09 9990.14     .02810007.21      .0912125.27      .06

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
       9990.1410007.21            429.44  402.72  399.74              .1        .3
Ineffective Flow      num=        1
   Sta L   Sta R    Elev
 5060.77 7631.47    1710
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev    Sta L   Sta R    Elev
 5060.77 7631.47    1711   1090012522.35    1711

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1706.15   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.66   Wt. n-Val.                 0.132      0.028      0.090
  W.S. Elev (ft)            1705.49   Reach Len. (ft)           429.44     402.72     399.74
  Crit W.S. (ft)            1705.69   Flow Area (sq ft)        1103.71      51.72     494.92
  E.G. Slope (ft/ft)       0.016448   Area (sq ft)             1103.71      51.72     494.92
  Q Total (cfs)             3500.00   Flow (cfs)               1867.43     721.84     910.74
  Top Width (ft)            1835.31   Top Width (ft)           1179.07      17.07     639.18
  Vel Total (ft/s)             2.12   Avg. Vel. (ft/s)            1.69      13.96       1.84
  Max Chl Dpth (ft)            4.11   Hydr. Depth (ft)            0.94       3.03       0.77
  Conv. Total (cfs)         27290.3   Conv. (cfs)              14560.7     5628.3     7101.2
  Length Wtd. (ft)                    Wetted Per. (ft)         1180.17      17.62     639.29
  Min Ch El (ft)            1701.38   Shear (lb/sq ft)            0.96       3.01       0.79
  Alpha                        9.47   Stream Power (lb/ft s)      1.62      42.07       1.46
  Frctn Loss (ft)              4.43   Cum Volume (acre-ft)      964.78      39.42     554.99
  C & E Loss (ft)              0.02   Cum SA (acres)            775.28      24.78     345.86


Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth 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.
Note:    Multiple critical depths were found at this location.  The critical depth with the
lowest, valid,
         water surface was used.
Note:    Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)            (cfs)    (sq ft)      (ft)                 (ft)     (ft/s)
  7173.36       7877.55         21.06      44.41     190.71       0.60       0.23       0.47
  7877.55       8581.75         17.30      36.98     162.14       0.49       0.23       0.47
  8581.75       9285.94         34.01      49.58     122.38       0.97       0.41       0.69
  9285.94       9990.14       1795.03     972.74     704.95      51.29       1.38       1.85
  LB 9990.14    9995.83        236.20      17.33       5.99       6.75       3.04      13.63
  9995.83       10001.52       318.13      20.47       5.82       9.09       3.60      15.54
  10001.52      RB 10007.21    167.51      13.92       5.81       4.79       2.45      12.03
  10007.21      10366.52       807.40     392.30     359.32      23.07       1.09       2.06
  10366.52      10725.82        69.98      74.42     220.72       2.00       0.34       0.94
  10725.82      11085.13        33.38      28.20      59.24       0.95       0.48       1.18


Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth 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.
Note:    Multiple critical depths were found at this location.  The critical depth with the
lowest, valid,
         water surface was used.
Note:    Program found supercritical flow starting at this cross section.

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 18.654

INPUT
Description:
Station Elevation Data    num=      66
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Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4865.26	1704.4	5223.52	1703.55	5235.85	1700.63	5248.98	1703.83	5269.9	1704.58
5283.15	1705.38	5295.7	1703.88	5891.7	1703.99	5913.64	1703.83	5933.45	1703.52
5990.93	1703.87	6010.45	1704.17	6027.5	1703.92	6204.73	1704.81	6270.37	1706.26
6280.87	1703.32	6550.92	1704.13	6615.01	1702.74	6831.95	1702.4	6847.61	1702.69
6867.15	1702.35	6962.6	1702.59	6986.55	1702.95	7010.08	1702.79	7034.14	1702.73
7385	1702	7671.55	1700.29	7686.72	1700.19	7701.88	1699.73	7822.56	1701.61
7849.75	1701.62	7987.83	1701.32	8015.65	1701.34	8053.48	1701.27	8063.39	1699.83
8072.74	1701.28	8507.25	1701.9	8525.74	1702.19	8542.79	1701.8	9314.25	1699.74
9324.2	1698.27	9346.26	1699.13	9361.68	1699.27	9377.06	1699.28	9501.32	1698.9
9532.32	1699.38	9662.45	1699.25	9691.42	1699.29	9992.49	1700.71	9998.26	1700
10005.92	1700.9210131.08		1700.310158.88		1700.3710167.48		1700.8810328.54		1700.71
10399.8	1700.0610462.76		1701.0610472.91		1699.1410481.39		1701.2810637.66		1701.68
10646.01	1699.2810654.41		1700.9710885.43		1702.5110900.63		1702.9210917.17		1703.08
10937.08	1703.12								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
4865.26	.15	9992.49	.02810005.92		.1510158.88		.09

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9992.4910005.92		492.04	551.96	536.77	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4865.26	6986.26	170610637.6610937.08			1706

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4865.26	6550.92	170710637.6610937.08			1707

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1701.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.150	0.028	0.106
W.S. Elev (ft)	1701.64	Reach Len. (ft)	492.04	551.96	536.77
Crit W.S. (ft)	1700.41	Flow Area (sq ft)	2530.04	16.46	520.89
E.G. Slope (ft/ft)	0.008627	Area (sq ft)	2530.04	16.46	520.89
Q Total (cfs)	3500.00	Flow (cfs)	2790.59	92.48	616.93
Top Width (ft)	2900.00	Top Width (ft)	2270.23	13.43	616.34
Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)	1.10	5.62	1.18
Max Chl Dpth (ft)	3.37	Hydr. Depth (ft)	1.11	1.23	0.85
Conv. Total (cfs)	37682.1	Conv. (cfs)	30044.4	995.7	6642.1
Length Wtd. (ft)	502.67	Wetted Per. (ft)	2270.61	13.53	616.81
Min Ch El (ft)	1700.00	Shear (lb/sq ft)	0.60	0.66	0.45
Alpha	1.58	Stream Power (lb/ft s)	0.66	3.68	0.54
Frctn Loss (ft)	5.68	Cum Volume (acre-ft)	946.87	39.10	550.33
C & E Loss (ft)	0.02	Cum SA (acres)	758.27	24.64	340.10

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7062.64	7795.11	238.73	309.99	349.91	6.82	0.89	0.77
7795.11	8527.57	36.59	118.84	530.57	1.05	0.22	0.31
8527.57	9260.03	441.89	577.27	657.54	12.63	0.88	0.77
9260.03	9992.49	2073.36	1523.95	732.60	59.24	2.08	1.36
LB 9992.49	9996.97	29.56	5.40	4.51	0.84	1.21	5.48
9996.97	10001.44	41.66	6.63	4.51	1.19	1.48	6.28
10001.44	RB 10005.92	21.26	4.43	4.51	0.61	0.99	4.80
10005.92	10138.94	121.68	139.45	133.02	3.48	1.05	0.87
10138.94	10271.97	143.00	119.81	133.04	4.09	0.90	1.19
10271.97	10404.99	225.01	148.42	133.03	6.43	1.12	1.52
10404.99	10538.01	124.35	104.13	133.48	3.55	0.78	1.19
10538.01	10671.03	2.90	9.09	84.25	0.08	0.11	0.32

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

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.550

INPUT
Description:
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4916.15	1698.29	4930.06	1696.42	4936.81	1698.47	5150.47	1698.83	5167.75	1698.73
5185.33	1698.79	5717.74	1696.03	5721.7	1695.19	5728.98	1696.41	6206.27	1698.15
6233.02	1698.05	6250.29	1698.23	6290.07	1697.57	6344.64	1696.78	6642.05	1698.32
6757.27	1697.24	6783.74	1696.88	7045.49	1696.93	7066.75	1696.91	7079.82	1697.09
7087.44	1695.97	7095.01	1696.77	7350	1695.77	7400	1695	7655	1696
7901.59	1695.17	7916.8	1695.12	7932.23	1695.22	8310.11	1695.57	8397.49	1695.81
8543	1696.06	8549.67	1694.96	8555.29	1696.29	8741.79	1695.23	8756.63	1695.55
8771.47	1695.2	9220.8	1694.79	9557	1693.9	9565.41	1692.49	9586.2	1693.19
9600.45	1693.31	9615.83	1693.42	9701.42	1693.27	9733.03	1693.12	9858.86	1694.16
9892.88	1694.27	9989.94	1694.88	9998.06	1692.51	10008.35	1694.94	10048.58	1695.14
10070.88	1693.33	10092.15	1695.13	10362.48	1695.57	10368.18	1693.79	10395.58	1694.29
10402.4	1694.96	10471.01	1694.79	10480.42	1693.46	10496.61	1695.41	10683.25	1695.35
10708.06	1696.03	10732.84	1695.64	10784.68	1696.12	10892.45	1695.34	10905.83	1694.38
10948.26	1696.24	11100.03	1697.78	11113	1698.06	11124.57	1697.77	11149.02	1698.25

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
4916.15	.15	9989.94	.02	10008.35	.15	10708.06	.09

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9989.94	10008.35	335	361.64	341.28	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4916.15	7095.15	1700	10708.11	11149.02	1700

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4916.15	6642.05	1699	10708.11	11149.02	1699

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1695.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1695.76	Reach Len. (ft)	335.00	361.64	341.28
Crit W.S. (ft)	1695.62	Flow Area (sq ft)	2048.51	37.85	440.71
E.G. Slope (ft/ft)	0.015240	Area (sq ft)	2048.51	37.85	440.71
Q Total (cfs)	3500.00	Flow (cfs)	2708.50	392.03	399.47
Top Width (ft)	2957.11	Top Width (ft)	2248.75	18.41	689.95
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)	1.32	10.36	0.91
Max Chl Dpth (ft)	3.27	Hydr. Depth (ft)	0.91	2.06	0.64
Conv. Total (cfs)	28351.1	Conv. (cfs)	21939.7	3175.5	3235.9
Length Wtd. (ft)	338.22	Wetted Per. (ft)	2249.07	19.04	690.63
Min Ch El (ft)	1692.50	Shear (lb/sq ft)	0.87	1.89	0.61
Alpha	7.02	Stream Power (lb/ft s)	1.15	19.59	0.55
Frctn Loss (ft)	4.08	Cum Volume (acre-ft)	921.01	38.76	544.41
C & E Loss (ft)	0.05	Cum SA (acres)	732.75	24.44	332.05

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7090.63	7815.46	55.57	106.63	333.90	1.59	0.32	0.52
7815.46	8540.29	114.23	202.75	564.75	3.26	0.36	0.56
8540.29	9265.11	373.80	430.14	625.45	10.68	0.69	0.87
9265.11	9989.94	2164.90	1308.99	724.97	61.85	1.81	1.65
LB 9989.94	9996.08	98.45	10.94	6.39	2.81	1.78	9.00
9996.08	10002.21	214.80	17.40	6.33	6.14	2.84	12.35
10002.21	RB 10008.35	78.77	9.51	6.31	2.25	1.55	8.28
10008.35	10171.30	140.15	140.71	163.10	4.00	0.86	1.00
10171.30	10334.25	34.33	60.48	162.95	0.98	0.37	0.57
10334.25	10497.21	182.89	165.22	163.47	5.23	1.01	1.11

10497.21	10660.16	35.54	61.75	162.95	1.02	0.38	0.58
10660.16	10823.11	6.57	12.55	38.15	0.19	0.33	0.52

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.481

INPUT
Description: Baseline crosses cross section at Delaware Dr., approx. 250 ft north of Tepee St.
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4520.48	1694.43	4555.86	1694.94	4669.7	1693.43	4678.37	1689.52	4689.65	1693.04
5415.99	1692.62	5424.53	1689.9	5429.42	1692.68	5437.03	1692.72	5441.68	1690.11
5446.39	1692.26	5554.97	1692.71	5595.02	1692.32	5614.7	1692.87	5635.97	1692.92
5671.83	1693.34	5827.06	1696.31	6005.91	1693.12	6167.83	1693.77	6351.3	1692.62
6373	1693.37	6406.33	1694.01	6444.06	1693.5	6462.59	1694.07	6508.09	1695.26
6512.74	1694.23	6588.83	1694.27	6616.23	1694.22	6751.28	1692.59	6757.1	1692.41
6763.42	1692.77	6866	1693.67	6941	1693.19	7099.09	1692.14	7107.77	1693.28
7122.04	1691.65	7233.08	1691.4	7254.15	1693.32	7278.14	1691.15	7765.4	1691.11
7813.98	1691.67	7835.73	1692	7846.38	1689.67	7855.49	1691.63	8050.73	1691.74
8065.25	1692.03	8080.89	1691.69	8480.28	1691.62	8487.16	1688.76	8516.98	1689.79
8880.67	1691.18	8894.1	1691.26	8909.59	1691.09	9431.1	1689.45	9475.08	1690.36
9553.4	1689.6	9648.81	1690.7	9657.59	1689.78	9674.91	1690.56	9689.11	1690.77
9703.15	1690.74	9792.97	1690.99	9826.2	1690.89	9956.73	1691.94	9976.5	1691.85
9995.49	1690.36	10007.55	1691.01	10022.68	1691.64	10039.93	1691.72	10178.86	1690.8
10186.69	1689.11	10196.82	1690.91	10234.05	1691.52	10248.8	1690.27	10384.44	1691.35
10394.81	1690.44	10448.81	1690.68	10453.82	1689.99	10483.21	1689.16	10500.24	1690.59
10598.36	1690.86	10618.97	1689.99	10638.33	1691.21	10688.88	1691.94	10715	1692.77
10866.17	1693.28	10870.31	1691.94	10876.18	1692.89	11077.55	1693.69	11132.02	1693.59
11201.96	1695.46	11214.34	1695.63	11226.93	1695.26	11245.61	1695.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4520.48	.15	9976.5	.028	10022.68	.09

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.5	10022.68	443.61	444.17	450	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4520.48	7300	1696	10584	11245.61	1696

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4520.48	6866	1697	10866.17	11245.61	1697

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1691.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.150	0.028	0.090
W.S. Elev (ft)	1691.81	Reach Len. (ft)	443.61	444.17	450.00
Crit W.S. (ft)	1690.79	Flow Area (sq ft)	2447.86	34.08	555.78
E.G. Slope (ft/ft)	0.009906	Area (sq ft)	2496.69	34.08	633.69
Q Total (cfs)	3500.00	Flow (cfs)	2445.30	148.06	906.65
Top Width (ft)	3453.07	Top Width (ft)	2750.59	45.61	656.87
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)	1.00	4.34	1.63
Max Chl Dpth (ft)	3.05	Hydr. Depth (ft)	0.94	0.75	0.99
Conv. Total (cfs)	35166.4	Conv. (cfs)	24569.2	1487.6	9109.6
Length Wtd. (ft)	445.19	Wetted Per. (ft)	2605.78	45.70	561.88
Min Ch El (ft)	1690.36	Shear (lb/sq ft)	0.58	0.46	0.61
Alpha	1.65	Stream Power (lb/ft s)	0.58	2.00	1.00
Frctn Loss (ft)	4.24	Cum Volume (acre-ft)	903.53	38.46	540.20
C & E Loss (ft)	0.03	Cum SA (acres)	713.53	24.17	326.77

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
6858.77	7638.21	156.95	226.88	338.21	4.48	0.67	0.69
7638.21	8417.64	76.47	202.08	744.55	2.18	0.27	0.38
8417.64	9197.07	945.82	931.11	780.03	27.02	1.19	1.02
9197.07	9976.50	1266.05	1087.78	743.00	36.17	1.46	1.16
LB 9976.50	9991.89	29.05	8.62	14.87	0.83	0.58	3.37
9991.89	10007.29	96.62	17.99	15.42	2.76	1.17	5.37
10007.29	RB 10022.68	22.38	7.48	15.41	0.64	0.49	2.99
10022.68	10197.38	128.41	111.13	175.04	3.67	0.64	1.16
10197.38	10372.09	245.48	163.83	174.77	7.01	0.94	1.50
10372.09	10546.79	471.03	242.28	174.86	13.46	1.39	1.94
10546.79	10721.50	61.73	38.54	37.21	1.76	1.04	1.60

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.397

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4469.19	1688.26	4477.13	1689.24	4513.74	1688.62	4668.57	1688.57	4675.09	1686.38
4680.7	1688.34	4830	1688.42	4853.39	1688.03	4875.72	1687.65	5403.8	1687.52
5411.05	1684.9	5419.91	1687.2	5651.12	1690.01	6011.97	1688.1	6030.15	1688.46
6052.45	1688.32	6190.75	1687.37	6198.15	1686.57	6203.21	1687.34	6535.58	1687.38
6559.56	1687.77	6584.34	1687.83	6703.64	1687.53	6722.17	1687.97	6738.98	1687.67
6750.85	1687.21	6765.9	1688.28	6996.82	1687.74	7009.97	1686.32	7021.09	1686.78
7053.33	1686.49	7087.41	1686.83	7329.03	1686.13	7347.78	1686.39	7522.77	1685.23
7541.99	1685.46	7560.38	1685.38	7752.77	1685.33	7766.01	1684.52	7777.98	1685.37
8124.91	1686.67	8146.19	1686.74	8163.85	1686.79	8205.94	1685.8	8214.55	1686.6
8321.47	1686.38	8346.44	1687.03	8361.34	1687.05	8374.7	1686.96	8559.13	1685.88
8583.66	1686.02	8688.02	1686	8713.14	1685.91	8841.91	1686.22	8866.37	1686.35
9014.25	1686.48	9035.54	1686.78	9138.05	1686.26	9152.38	1686.28	9166.52	1686.19
9328.78	1686.5	9351.36	1686.52	9374.65	1686.09	9402.93	1686.46	9411.85	1685.32
9423.45	1686.42	9931.26	1686.22	9945.34	1686.2	9958.73	1686.04	9975.41	1686.61
9985.92	1687.15	9995.2	1682.74	10010.68	1686.37	10117.98	1686.77	10141.8	1686.63
10148	1684.36	10164.57	1686.92	10311.41	1686.16	10324.45	1683.79	10331.03	1685.94
10501.88	1686.73	10523.48	1686.15	10778.42	1686.64	10808.39	1686.76	11447.05	1693.4
11459.82	1693.77	11471.18	1693.62	11490.21	1693.57	11964.11	1697.7	11973.6	1699.16
11993.56	1698.03	12188.18	1699.23						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
4469.19	.15	9985.92	.02	10010.68	.09	10501.88	.15	11459.82	.09

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.92	10010.68	347.84	408.99	396	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4469.19	7735	1691	10650	12188.18	1691

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4469.19	6765.9	1692

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1687.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.	0.150	0.025	0.100
W.S. Elev (ft)	1687.26	Reach Len. (ft)	347.84	408.99	396.00
Crit W.S. (ft)	1687.26	Flow Area (sq ft)	2228.12	63.25	574.44
E.G. Slope (ft/ft)	0.009142	Area (sq ft)	3141.33	63.25	697.81
Q Total (cfs)	3500.00	Flow (cfs)	2095.99	647.25	756.76
Top Width (ft)	3854.75	Top Width (ft)	2984.61	24.76	845.38
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)	0.94	10.23	1.32
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)	0.99	2.55	0.90
Conv. Total (cfs)	36604.7	Conv. (cfs)	21920.9	6769.3	7914.5
Length Wtd. (ft)	367.59	Wetted Per. (ft)	2251.20	26.17	640.49
Min Ch El (ft)	1682.74	Shear (lb/sq ft)	0.56	1.38	0.51
Alpha	13.59	Stream Power (lb/ft s)	0.53	14.11	0.67
Frctn Loss (ft)	3.03	Cum Volume (acre-ft)	874.82	37.96	533.32
C & E Loss (ft)	0.03	Cum SA (acres)	684.32	23.81	319.02

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 critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7621.61	8409.71	690.52	707.37	674.83	19.73	1.05	0.98
8409.71	9197.82	742.12	785.93	788.11	21.20	1.00	0.94
9197.82	9985.92	663.36	734.82	788.26	18.95	0.93	0.90
LB 9985.92	9994.17	138.04	17.05	9.14	3.94	2.07	8.09
9994.17	10002.43	388.18	30.90	8.56	11.09	3.74	12.56
10002.43	RB 10010.68	121.03	15.29	8.48	3.46	1.85	7.91
10010.68	10321.75	340.01	250.61	311.84	9.71	0.81	1.36
10321.75	10632.82	403.69	308.73	311.47	11.53	0.99	1.31
10632.82	10943.89	13.05	15.10	17.18	0.37	0.88	0.86

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 critical depth, the calculated water surface came back below critical depth. This indicates
that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.320

INPUT
Description:
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4641.39	1684.8	4716.41	1687.09	4750.82	1685.67	4782.39	1682.9	4792.34	1682.95
4926.69	1683.12	4947.95	1683.05	5321.36	1683.91	5327.25	1681.94	5347.31	1683.53
5354.37	1684.1	5375.65	1685.18	5396.12	1684.95	5891.37	1684.89	5917.33	1684.67
5941.42	1684.53	5974.19	1683.83	5981.03	1682.89	5992.66	1683.63	6033.76	1683.9
6089.34	1684.18	6096.17	1682.2	6105.95	1683.01	6571	1684.49	6740.55	1683.71
6821.31	1683.49	6838.39	1683.74	6854.33	1683.64	6976.46	1682.78	7000.75	1683.32
7027.57	1682.89	7549.52	1682.25	7576.07	1682.49	7601.86	1682.37	7610.93	1682.18
7645.63	1682.21	7665.49	1682.06	7689.74	1683.12	8193.8	1682.34	8427.21	1682.09
8438.11	1682.37	8452.1	1682.51	8466.6	1682.34	8573.09	1682.25	8594.18	1681.74
8654.29	1681.89	8721.69	1681.59	8743.23	1681.2	8854.65	1681.29	9244.72	1681.28
9258.71	1681.38	9275.73	1680.91	9859.75	1681.33	9891.65	1681.55	9988.34	1681.39
10004.8	1679.81	10020.19	1681.72	10066.02	1680.75	10081.14	1681.06	10096.53	1680.9
10577.91	1682.92	10589.51	1680.95	10598.99	1682.27	10628.98	1682.68	10830.48	1683.07
10871	1682.86	10939.17	1682.41	10981.12	1682.33	11039	1683.71	11616.31	1689.25

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4641.39	.15	9988.34	.02	10020.19	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.34	10020.19	268.13	380.9	331.29	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

4641.39 7689.74 1687 1047511616.31 1687
Blocked Obstructions num= 1

Sta L	Sta R	Elev
4641.39	6571	1688

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1683.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.150	0.025	0.150
W.S. Elev (ft)	1682.83	Reach Len. (ft)	268.13	380.90	331.29
Crit W.S. (ft)	1682.47	Flow Area (sq ft)	2481.28	68.47	560.34
E.G. Slope (ft/ft)	0.007466	Area (sq ft)	2688.54	68.47	651.00
Q Total (cfs)	3500.00	Flow (cfs)	2365.49	583.33	551.18
Top Width (ft)	3548.69	Top Width (ft)	2726.25	31.85	790.59
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)	0.95	8.52	0.98
Max Chl Dpth (ft)	3.02	Hydr. Depth (ft)	1.18	2.15	1.23
Conv. Total (cfs)	40507.5	Conv. (cfs)	27377.2	6751.2	6379.1
Length Wtd. (ft)	300.40	Wetted Per. (ft)	2110.88	32.04	454.83
Min Ch El (ft)	1679.81	Shear (lb/sq ft)	0.55	1.00	0.57
Alpha	10.16	Stream Power (lb/ft s)	0.52	8.48	0.56
Frctn Loss (ft)	3.10	Cum Volume (acre-ft)	851.55	37.34	527.19
C & E Loss (ft)	0.02	Cum SA (acres)	661.52	23.55	311.58

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7696.79	8460.64	100.00	235.99	583.16	2.86	0.40	0.42
8460.64	9224.49	911.80	990.18	763.86	26.05	1.30	0.92
9224.49	9988.34	1353.69	1255.12	763.86	38.68	1.64	1.08
LB 9988.34	9998.96	161.93	20.69	10.67	4.63	1.95	7.83
9998.96	10009.57	284.00	29.00	10.68	8.11	2.73	9.79
10009.57	RB 10020.19	137.40	18.77	10.70	3.93	1.77	7.32
10020.19	10248.21	420.74	375.02	228.03	12.02	1.64	1.12
10248.21	10476.22	130.43	185.32	226.79	3.73	0.82	0.70

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.247

INPUT
Description:
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4215.81	1680.52	4651.48	1680.04	4670.7	1679.79	4745.35	1679.89	4765.07	1679.89
4876.54	1679.57	4896.22	1679.33	4953.16	1679.29	5011.79	1679.63	5018.84	1677.62
5054.37	1679.92	5076.53	1679.55	5086.75	1679.03	5585.43	1680.47	5612.53	1680.87
5637.38	1681.28	5650.41	1681.72	5686.24	1681.35	5696.82	1681.84	5729.95	1682.8
5929.96	1682.71	5999.53	1682.6	6118.23	1682.56	6140.56	1682.27	6175.81	1681.21
6181.55	1679.19	6191.15	1680.76	6299.99	1680.47	6314.11	1680.53	6325.15	1680.82
6911.65	1681.64	6934.29	1681.34	6955.37	1681.73	7053.85	1680.91	7126.8	1679.96
7144.56	1679.94	7181.14	1679.39	7190.77	1679.79	7226.25	1679.16	7284.73	1679.38
7310.05	1679.72	7337.9	1679.63	7372.87	1680.68	7440.34	1680.52	7531.94	1680.81
7539.45	1679	7544.32	1679.35	7622.17	1679.56	7633.77	1679.75	7644.4	1679.77
7799.93	1681.65	7811.46	1681.85	7822.41	1681.98	7923.73	1678.91	7942.23	1678.83
7960.22	1678.7	8091.72	1680.05	8206.98	1680.54	8264.31	1681.49	8274.76	1681.33
8368.03	1680.08	8373.31	1679.44	8379.46	1679.69	8464.45	1679.85	8485.63	1679.85
8549.14	1680.25	8729.03	1679.03	8757.6	1678.5	8769.38	1677.9	8776.33	1678.65
9546.9	1678.42	9564.17	1678.32	9629.25	1679.52	9634.75	1679.22	9990.65	1678.97
9997.44	1676.99	10006.72	1678.65	10409.99	1678.67	10422.47	1677.31	10442.38	1677.99
10457.94	1678.02	10474.07	1677.68	10483.72	1677.78	10495.08	1679.25	10536.68	1678.89
10545.27	1677.28	10576.61	1677.68	10711.05	1678.81	10724.91	1677.94	10742.89	1679.24

10940.09 1678.4410946.98 1677.5810961.07 1679.7511038.91 1679.5911254.26 1681.75
11285.38 1682.4211919.97 1687.67

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4215.81	.15	9990.65	.02	10006.72	.15

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

9990.65	10006.72	361.88	401.35	317.5	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4215.81	7822.41	1686	10846	11919.97	1686

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4215.81	7190.77	1685

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1679.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1679.76	Reach Len. (ft)	361.88	401.35	317.50
Crit W.S. (ft)	1679.47	Flow Area (sq ft)	1466.62	30.14	1035.90
E.G. Slope (ft/ft)	0.015233	Area (sq ft)	1543.19	30.14	1178.72
Q Total (cfs)	3500.00	Flow (cfs)	1748.22	294.96	1456.82
Top Width (ft)	2905.53	Top Width (ft)	1840.01	16.07	1049.45
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)	1.19	9.79	1.41
Max Chl Dpth (ft)	2.77	Hydr. Depth (ft)	0.92	1.88	1.23
Conv. Total (cfs)	28358.0	Conv. (cfs)	14164.6	2389.8	11803.6
Length Wtd. (ft)	347.69	Wetted Per. (ft)	1585.67	16.50	839.70
Min Ch El (ft)	1676.99	Shear (lb/sq ft)	0.88	1.74	1.17
Alpha	5.03	Stream Power (lb/ft s)	1.05	17.00	1.65
Frctn Loss (ft)	3.55	Cum Volume (acre-ft)	838.52	36.91	520.23
C & E Loss (ft)	0.00	Cum SA (acres)	647.47	23.34	304.58

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7515.72	8340.70	90.28	101.53	168.21	2.58	0.60	0.89
8340.70	9165.67	663.41	555.93	592.47	18.95	0.94	1.19
9165.67	9990.65	994.53	809.17	825.00	28.42	0.98	1.23
LB 9990.65	9996.01	70.78	8.43	5.58	2.02	1.57	8.39
9996.01	10001.36	150.82	13.18	5.48	4.31	2.46	11.44
10001.36	RB 10006.72	73.36	8.53	5.44	2.10	1.59	8.60
10006.72	10280.04	393.74	302.37	273.32	11.25	1.11	1.30
10280.04	10553.36	530.44	361.75	273.66	15.16	1.32	1.47
10553.36	10826.68	512.83	354.36	273.40	14.65	1.30	1.45
10826.68	11100.01	19.81	17.43	19.32	0.57	0.90	1.14

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.171

INPUT
Description: Baseline crosses cross section at Shiprock St.
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4303.03	1679.08	4326.79	1678.88	4345.48	1676.98	4361.14	1675.63	4379.92	1676.82
4403.71	1678.75	4425.05	1678.54	4450.6	1678.05	4469.75	1677.1	4472.71	1674.64
4481.54	1677.16	4853.18	1676.58	4871.59	1676.9	4892.4	1676.58	5381.94	1675.47
5406.85	1676.22	5431.93	1676.6	5597.69	1677.77	5605.3	1679.21	5902.1	1679.86
5909.06	1678.6	5949.41	1678.24	5967.27	1678.13	5984.46	1677.78	6346.15	1677.82

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 6399.92 1677.39 6470.17 1677.75 6494.52 1677.61  6576.5 1677.96 6581.34 1677.05
 6589.08 1677.82 6640.91 1677.91  6675.4 1678.56 6695.63 1678.26 6911.59 1677.17
 6930.42 1677.57 6946.78 1677.34 7182.15 1677.28 7213.15 1677.26 7237.71 1677.11
 7422.45 1676.98 7428.25 1676.82 7431.62 1676.49 7465.62 1676.18 7551.47 1675.07
 7567.66 1675.18 7583.47 1675.22 7608.81 1675.85 7625.28 1673.86 7679.45 1675.98
 8055.31 1677.05 8066.72 1676.95 8078.64  1677.2  8141.7 1677.18 8162.81 1677.03
 8187.16 1676.82 8367.96  1675.4 8396.25 1675.56 8508.28 1675.99    8532  1676.5
 8678.19 1676.42 8702.23 1676.42 8878.19 1676.36 8903.21    1676 9036.87 1675.88
 9063.83 1675.91 9157.31 1674.46 9173.77 1673.19 9182.67 1673.28 9212.98 1673.21
 9230.21 1674.16 9253.32  1674.3 9269.78 1673.45 9314.12 1673.73 9575.49  1675.2
 9610.07 1675.25 9973.99 1675.43 9997.17  1674.710012.86 1674.7610029.12 1674.29
10570.79 1674.8410591.88 1674.34 10606.9 1675.22 10901.6  1674.510920.18 1674.53
10936.15 1674.6611033.06 1676.3611133.08 1675.48   11223  1677.111629.71 1680.52
11661.49 1680.8511908.84 1681.6511913.89 1680.52

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4303.03     .15 9973.99     .0210029.12     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9973.9910029.12              565  633.22  508.03             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4303.03 8078.64    1686   1103811913.89    1686
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4303.03 8078.64    1681
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1676.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1676.19	Reach Len. (ft)	565.00	633.22	508.03
Crit W.S. (ft)	1675.54	Flow Area (sq ft)	1429.56	75.89	1447.31
E.G. Slope (ft/ft)	0.007302	Area (sq ft)	1429.56	75.89	1489.58
Q Total (cfs)	3500.00	Flow (cfs)	1330.27	596.01	1573.71
Top Width (ft)	2502.23	Top Width (ft)	1333.44	55.13	1113.66
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)	0.93	7.85	1.09
Max Chl Dpth (ft)	3.00	Hydr. Depth (ft)	1.07	1.38	1.46
Conv. Total (cfs)	40959.9	Conv. (cfs)	15568.0	6975.0	18416.9
Length Wtd. (ft)	557.08	Wetted Per. (ft)	1333.56	55.15	994.12
Min Ch El (ft)	1674.29	Shear (lb/sq ft)	0.49	0.63	0.66
Alpha	8.09	Stream Power (lb/ft s)	0.45	4.93	0.72
Frctn Loss (ft)	5.46	Cum Volume (acre-ft)	826.17	36.42	510.51
C & E Loss (ft)	0.03	Cum SA (acres)	634.29	23.01	296.70

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7543.58	8353.72	11.24	29.01	85.95	0.32	0.34	0.39
8353.72	9163.85	116.47	226.14	437.39	3.33	0.52	0.52
9163.85	9973.99	1202.56	1174.41	810.22	34.36	1.45	1.02
LB 9973.99	9992.37	123.55	19.23	18.39	3.53	1.05	6.43
9992.37	10010.74	212.38	26.61	18.38	6.07	1.45	7.98
10010.74	RB 10029.12	260.08	30.05	18.38	7.43	1.64	8.65
10029.12	10298.37	578.23	473.94	269.25	16.52	1.76	1.22
10298.37	10567.63	436.45	400.33	269.25	12.47	1.49	1.09
10567.63	10836.88	342.34	346.06	269.29	9.78	1.29	0.99
10836.88	11106.13	216.70	227.00	186.33	6.19	1.22	0.95

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 18.051

INPUT

Description:
Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4039.67	1673.2	4073.2	1672.78	4336.57	1673.62	4366.31	1673.63	4394.77	1673.73
4426.75	1673.27	4449.82	1672	4461.54	1668.62	4473.53	1671.86	4491.36	1673.59
4532.18	1673.28	4601.02	1671.12	4620.95	1670.78	5076.35	1670.22	5091.11	1670.28
5414.45	1671.97	5430.43	1671.8	5443.5	1672.13	5681.49	1671.74	5704.1	1671.77
5722.58	1671.37	5751.69	1671.7	5780.97	1671.47	5831.75	1671.05	5905.26	1671.23
6007.11	1671.67	6025.35	1671.53	6077.01	1671.32	6084.19	1669.03	6091.88	1670.88
6162.49	1671.69	6200.08	1671.74	6326.05	1671.92	6369.77	1671.78	6377.7	1671.3
6395.09	1670.66	6412.35	1671.1	7116.05	1669.24	7134.92	1669.64	7190.02	1670.74
7209.69	1670.48	7360.43	1671.45	7362.52	1668.74	7365.53	1671.34	7432.92	1670.5
7449.18	1670.98	7466.28	1670.91	7759.37	1671.02	7778.83	1671.06	7796.51	1670.37
7940.37	1669.32	8015.95	1668.55	8220.5	1668.34	8228.29	1667.91	8238.46	1668.41
8579.66	1670.34	8608.99	1670.67	8964.47	1669.8	8995.64	1669.65	9090.45	1668.76
9115.56	1668.91	9237.72	1668.89	9258.84	1669.26	9369.31	1669.73	9377.01	1669.27
9387.39	1669.51	9462.31	1670.63	9797.84	1670.19	9833.08	1670.04	9986.91	1670.57
9995.72	1667.96	10002.38	1670.04	10052.53	1670.23	10063.45	1668.74	10069.39	1670.88
10095.52	1670.77	10201.11	1669.31	10217.64	1669.44	10234.25	1669.33	10249.64	1669.08
10264.49	1670.01	10536.04	1670.61	10548.68	1670.36	10568.71	1668.59	10584.84	1670.99
10722.17	1672.03	10885.08	1670.94	10892.64	1671.14	10906.86	1673.74	10916.67	1671.54
11019.98	1673.51	1043.41	1672.45	11056.33	1672.43	11069.55	1672.23	11102.63	1672.61
11119.46	1672.62	11181.25	167	511235.52	1675.03	11326.61	1677.28	11385.54	1675.03
11404.58	1674.82	11489.82	1675.77	11529.41	1676.16	11688.87	1676.51		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4039.67	.15	9986.91	.028	10002.38	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.91	10002.38		525	583.8	596.87	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4039.67	7930	1678

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4039.67	7778.83	167	10722.17	11688.87	1675

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1670.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1670.79	Reach Len. (ft)	525.00	583.80	596.87
Crit W.S. (ft)	1669.98	Flow Area (sq ft)	2312.25	25.32	397.10
E.G. Slope (ft/ft)	0.013881	Area (sq ft)	2435.22	25.32	397.10
Q Total (cfs)	3500.00	Flow (cfs)	2917.51	213.45	369.04
Top Width (ft)	2775.39	Top Width (ft)	2201.09	15.47	558.83
Vel Total (ft/s)	1.28	Avg. Vel. (ft/s)	1.26	8.43	0.93
Max Chl Dpth (ft)	2.88	Hydr. Depth (ft)	1.12	1.64	0.71
Conv. Total (cfs)	29707.3	Conv. (cfs)	24763.2	1811.7	3132.3
Length Wtd. (ft)	539.24	Wetted Per. (ft)	2056.98	16.17	559.57
Min Ch El (ft)	1667.96	Shear (lb/sq ft)	0.97	1.36	0.61
Alpha	3.51	Stream Power (lb/ft s)	1.23	11.44	0.57
Frctn Loss (ft)	5.33	Cum Volume (acre-ft)	801.11	35.69	499.51
C & E Loss (ft)	0.00	Cum SA (acres)	611.36	22.50	286.95

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7438.09	8287.70	1417.32	791.61	357.73	40.49	2.21	1.79
8287.70	9137.30	895.27	849.32	849.62	25.58	1.00	1.05
9137.30	9986.91	604.91	671.30	849.64	17.28	0.79	0.90
LB 9986.91	9992.07	28.44	5.06	5.38	0.81	0.98	5.62
9992.07	9997.22	124.08	12.25	5.39	3.55	2.38	10.13
9997.22	RB 10002.38	60.93	8.01	5.40	1.74	1.55	7.61
10002.38	10243.31	201.73	192.20	219.13	5.76	0.88	1.05
10243.31	10484.23	120.31	146.41	240.96	3.44	0.61	0.82
10484.23	10725.16	47.02	58.49	99.49	1.34	0.59	0.80

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.941

INPUT
Description:
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4661.93	1668.02	4692.52	1667.65	4721.92	1667.2	4745.08	1666.48	4927.78	1667.42
4945.07	1667.71	4963.6	1667.24	5309.51	1667.75	5319.22	1671.08	5583.24	1668.91
5590.75	1666.27	5686.15	1665.48	5716	1665.69	5869.24	1666.15	5898.35	1666.14
5954.82	1665.79	5960.71	1665.12	5966.77	1665.87	6281.96	1665.98	6302.3	1665.95
6322.84	1665.87	6333.92	1664.59	6342.77	1665.59	6539.88	1665.17	6558.75	1665.33
6573.74	1664.87	6714.4	1664.33	6719.38	1663.53	6722.81	1663.27	6731.72	1664.51
6985.2	1664.99	6999.05	1665.37	7013.07	1665.39	7037	1666	7231	1666
7256	1665.49	7285.88	1665.08	7296.65	1664.93	7314.94	1665.05	7332.23	1664.79
7608.51	1665.03	7626.38	1665.01	7641.04	1664.42	7790.56	1664.11	7809.16	1664.17
7832.63	1663.76	7937.68	1662.86	7953.81	1662.9	7972.31	1662.85	8000.02	1663.02
8082.18	1663.29	8116.97	1663.82	8253.73	1665.01	8290.91	1665.25	8356.77	1665.12
8369.62	1666.8	8474.57	1664.97	8491.07	1664.33	8537.38	1664.57	8710.32	1664.88
8750.35	1665.44	8892.93	1664.9	8909.95	1663.51	9012.01	1664.04	9021.12	1664.39
9051.89	1664.42	9171.06	1663.26	9189.36	1663.35	9225.96	1664.33	9581.29	1664.07
9586.74	1664.51	9646.12	1663.71	9983.74	1665.51	9998.24	1662.41	10009.41	1664.28
10257.57	1663.42	10405.19	1664.94	10574.03	1665.51	10586.1	1665.86	10598.85	1666.09
10635.61	1664.92	11161.19	1669.32	11176.96	1670.07	11208.12	1670.37	11234.82	1670.61
11247.87	1670.96	11260.05	1670.84	11316.72	1671.27	11602.91	1672.86	11761.29	1673.48
11881.97	1675.46	11889.14	1674.02	11922.18	1674.46				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4661.93	.15	9983.74	.02	10009.41	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.74	10009.41	368.92	509.5	343.39	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4661.93	7608.51	1674.07	10603	11922.18	1674

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4661.93	7146.5	1672

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1665.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1665.47	Reach Len. (ft)	368.92	509.50	343.39
Crit W.S. (ft)	1664.82	Flow Area (sq ft)	2698.80	45.83	635.59
E.G. Slope (ft/ft)	0.007383	Area (sq ft)	2883.32	45.83	658.63
Q Total (cfs)	3500.00	Flow (cfs)	2601.67	305.15	593.18
Top Width (ft)	3295.72	Top Width (ft)	2633.23	25.50	636.99
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)	0.96	6.66	0.93
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)	1.18	1.80	1.15
Conv. Total (cfs)	40732.7	Conv. (cfs)	30278.0	3551.3	6903.4
Length Wtd. (ft)	378.03	Wetted Per. (ft)	2282.17	25.98	553.60
Min Ch El (ft)	1662.40	Shear (lb/sq ft)	0.55	0.81	0.53
Alpha	4.39	Stream Power (lb/ft s)	0.53	5.41	0.49
Frctn Loss (ft)	3.89	Cum Volume (acre-ft)	769.06	35.21	492.27
C & E Loss (ft)	0.01	Cum SA (acres)	582.23	22.22	278.75

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6942.71	7702.96	71.79	88.37	94.47	2.05	0.94	0.81

7702.96	8463.22	1096.83	995.65	674.04	31.34	1.48	1.10
8463.22	9223.48	675.00	780.80	760.36	19.29	1.03	0.86
9223.48	9983.74	758.05	833.98	753.30	21.66	1.11	0.91
LB 9983.74	9992.30	29.13	7.54	8.57	0.83	0.90	3.87
9992.30	10000.85	170.74	21.93	8.73	4.88	2.56	7.79
10000.85	RB 10009.41	105.27	16.37	8.68	3.01	1.91	6.43
10009.41	10282.66	484.02	450.97	273.26	13.83	1.65	1.07
10282.66	10555.92	109.16	184.54	273.26	3.12	0.68	0.59
10555.92	10829.17	0.00	0.08	7.09	0.00	0.01	0.04

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.844

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5104.49	1664.56	5136.33	1664.02	5177.07	1662.83	5220.57	1663.96	5248.85	1663.85
5278.16	1663.16	5316.21	1662.55	5626.1	1663.38	5681.75	1663.06	5845.73	1662.41
5880.36	1662.31	6045.81	1661.6	6079.9	1661.87	6098.2	1661.65	6115.82	1661.02
6176.41	1662.08	6194.17	1661.68	6211.01	1661.86	6316	1662.32	6486.78	1661.78
6504.5	1661.67	6523.09	1661.6	6798.69	1660.77	6816.97	1660.82	6831.03	1660.96
7043.14	1662.13	7049.46	1659.03	7056.72	1661.51	7111.73	1661.22	7127.01	1661.64
7141.6	1661.63	7305	1661.55	7536.03	1661.22	7569.78	1661.44	7616.94	1661.25
8174.49	1659.06	8193.13	1659.2	8208.96	1659.21	8347.72	1661.43	8361	1659.85
8372.62	1661.36	8483.5	1662.12	8524.27	1662.54	8559.89	1661.89	8689.76	1661.89
8719.1	1661.69	8826.75	1660.82	8867.03	1660.98	9045.14	1660.35	9052.44	1659.46
9058.67	1660.48	9199.8	1660.31	9231.14	1660.7	9381.94	1659.59	9413.26	1659.94
9582.11	1660.24	9591.56	1658.89	9600.11	1659.93	9735.98	1661.06	9739.1	1660.37
9786.98	1660.23	9824.82	1661.2	9831.22	1660.29	9834.86	1661.33	9988.95	1660.86
9996.89	1658.73	10006.58	1660.68	10159.32	1661.13	10190.75	1661.17	10419.05	1660.74
10861.67	1665.91	10893.95	1666.11	10924.03	1666.08	11518.29	1669.97	11555.75	1670.3
11586.06	1670.79	12831.8	1681.58	12888.56	1681.67				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5104.49	.15	9988.95	.028	10006.58	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.95	10006.58	375	441.57	330	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5104.49	7569.78	1670

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5104.49	7127.01	1666

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1661.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1661.50	Reach Len. (ft)	375.00	441.57	330.00
Crit W.S. (ft)	1661.15	Flow Area (sq ft)	2270.16	30.99	252.60
E.G. Slope (ft/ft)	0.015558	Area (sq ft)	2304.10	30.99	252.60
Q Total (cfs)	3500.00	Flow (cfs)	3002.43	293.52	204.05
Top Width (ft)	2798.01	Top Width (ft)	2302.56	17.63	477.82
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)	1.32	9.47	0.81
Max Chl Dpth (ft)	2.77	Hydr. Depth (ft)	1.10	1.76	0.53
Conv. Total (cfs)	28060.2	Conv. (cfs)	24071.1	2353.2	1635.9
Length Wtd. (ft)	391.22	Wetted Per. (ft)	2071.33	18.10	477.82
Min Ch El (ft)	1658.73	Shear (lb/sq ft)	1.06	1.66	0.51
Alpha	4.82	Stream Power (lb/ft s)	1.41	15.75	0.41
Frctn Loss (ft)	3.18	Cum Volume (acre-ft)	747.09	34.76	488.68
C & E Loss (ft)	0.03	Cum SA (acres)	561.33	21.97	274.36

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7197.83	7895.61	217.91	230.57	325.83	6.23	0.71	0.95
7895.61	8593.39	1297.20	796.85	498.13	37.06	1.60	1.63
8593.39	9291.17	509.48	472.91	549.12	14.56	0.86	1.08
9291.17	9988.95	977.85	769.84	698.25	27.94	1.10	1.27
LB 9988.95	9994.83	66.47	8.41	6.08	1.90	1.43	7.90
9994.83	10000.70	161.24	14.26	6.03	4.61	2.43	11.31
10000.70	RB 10006.58	65.80	8.31	5.99	1.88	1.41	7.92
10006.58	10418.29	187.44	227.07	411.71	5.36	0.55	0.83
10418.29	10830.00	16.61	25.52	66.11	0.47	0.39	0.65

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.761

INPUT
Description: Baseline crosses cross section at Meridian Rd. approx. 900 ft north of University Dr./Superstition Blvd.
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4910.45	1659.67	4926.24	1659.67	5312.2	1660.95	5350.52	1660.89	5378.01	1660.76
5408.48	1660.76	5412.92	1660.87	5419.15	1660.78	5427.22	1660.25	5454.12	1659.9
5477.21	1659.87	5509.51	1658.52	5545.69	1659.88	5581.79	1659.45	5607.07	1658.87
5707.42	1658.92	5739.41	1659.16	5764.78	1659.53	5768.13	1659.31	5777.86	1656.13
5791.74	1659.11	5858.83	1659.77	5895.93	1660.03	5925.98	1658.09	6016.72	1659.21
6026.8	1657.98	6038.96	1659.05	6425.01	1658.69	6444.05	1658.3	6463.08	1658.43
6614	1658.53	6745.75	1657.74	6763.84	1657.54	6782.91	1657.86	6880.06	1658.7
6887.7	1656.95	6892.54	1657.85	7067.48	1658.39	7085.09	1658.57	7101.87	1658.52
7167.59	1658.44	7188.94	1659.02	7212.19	1658.48	7360	1657.96	7693.56	1657.31
7713.63	1657.62	7729.97	1657.33	8110.03	1655.42	8128.94	1655.45	8146.09	1655.24
8335.11	1656.24	8365.37	1657.01	8396.76	1656.82	8799.6	1656.84	8837.97	1657.13
8877.37	1656.87	9264.42	1657.79	9295	1657.48	9505.26	1657.24	9535.91	1657.21
9643.8	1656.72	9654.55	1657.76	9664.23	1657.03	9683.58	1657.27	9704.27	1657.12
9711.33	1655.98	9721.32	1656.88	9920.5	1657.21	9956.59	1657.09	9993.07	1656.46
10023.01	1656.6410038.96	1652.4510056.47	1657.48	10092.5	1657.4510125.36	1657.27			
10742.43	1662.7910775.58	1662.41	10786.3	1663.0910799.68	1662.2911726.92	1668.51			
11744.58	1668.4911751.93	1668.6311837.69	1670.8411944.25	1668.8712001.83	1672				
12992.8	1680.97	13002.7	1677.5613013.52	1680.7413074.63	1680.8213091.39	1681.44			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4910.45	.15	9956.59	.0210056.47		.15

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9956.5910056.47 192.33 457.84 585 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev
4910.45	7188.94	1666

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4910.45	7188.94	1666

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1658.43	Element			
Vel Head (ft)	0.46	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1657.97	Reach Len. (ft)	192.33	457.84	585.00
Crit W.S. (ft)	1657.97	Flow Area (sq ft)	2671.22	193.72	66.16
E.G. Slope (ft/ft)	0.004995	Area (sq ft)	2671.22	193.72	66.16
Q Total (cfs)	3500.00	Flow (cfs)	1903.91	1568.95	27.14
Top Width (ft)	2847.90	Top Width (ft)	2600.48	99.88	147.55
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)	0.71	8.10	0.41

Max Chl Dpth (ft)	5.52	Hydr. Depth (ft)	1.03	1.94	0.45
Conv. Total (cfs)	49519.8	Conv. (cfs)	26937.5	22198.3	384.0
Length Wtd. (ft)	360.80	Wetted Per. (ft)	2600.72	101.14	147.55
Min Ch El (ft)	1652.45	Shear (lb/sq ft)	0.32	0.60	0.14
Alpha	20.82	Stream Power (lb/ft s)	0.23	4.84	0.06
Frctn Loss (ft)		Cum Volume (acre-ft)	725.68	33.62	487.47
C & E Loss (ft)		Cum SA (acres)	540.23	21.38	271.99

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.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7073.08	7793.96	63.60	182.81	437.85	1.82	0.42	0.35
7793.96	8514.84	1170.89	1281.30	720.90	33.45	1.78	0.91
8514.84	9235.71	372.03	644.00	720.88	10.63	0.89	0.58
9235.71	9956.59	297.39	563.10	721.09	8.50	0.78	0.53
LB 9956.59	9989.88	204.96	38.99	33.30	5.86	1.17	5.26
9989.88	10023.18	285.66	47.59	33.30	8.16	1.43	6.00
10023.18	RB 10056.47	1078.33	107.14	34.54	30.81	3.22	10.06
10056.47	10490.03	27.14	66.16	147.55	0.78	0.45	0.41

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.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.674

INPUT
Description: Baseline crosses cross section at Meridian Rd. approx. 475 ft
north of University Dr./Superstition Blvd.
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4981.43	1657.43	5518.8	1656.06	5569.47	1656.97	5707.35	1656.98	5713.05	1655.77
5721.18	1656.69	5728.2	1656.34	5753.33	1657.18	5786.2	1657.61	5849.12	1657.99
5878.21	1658.08	5909.71	1657.39	5945.44	1655.93	5980.08	1657.65	6004.22	1657.72
6028.51	1657.16	6106.25	1656.44	6115.86	1654.9	6124.87	1656.01	6847.03	1656.68
6866.32	1656.23	6885.39	1656.41	7163.27	1656.57	7186.56	1656.13	7212.91	1656.41
7241.79	1656.75	7660	1655.2	7679.87	1654.96	7730.71	1655.16	7751.29	1654.46
7887.62	1655.26	7894.42	1653.25	7907.9	1653	7917.17	1655.3	8117.1	1655.31
8135.52	1655.03	8152.76	1654.8	8363.44	1653.08	8395.49	1653.27	8424.55	1653.49
8659.34	1653.74	8671.02	1655.53	8754.79	1655.2	8796.78	1655.35	9223.7	1654.41
9262.22	1654.71	9300.77	1654.76	9688.73	1656.51	9719.37	1656.43	9765.33	1655.72
9804.84	1655.53	9812.91	1655.32	9861.71	1655.37	9892.61	1655.67	9898.39	1654.94
9931.09	1654.79	9969.34	1653.97	9987.62	1653.31	9997.56	1649.09	10012.36	1653.83
10032.56	1653.41	10170.74	1653.14	10213.54	1653.16	10247.65	1653.81	10310.49	1652.99
10358.61	1655.58	10469.94	1654.09	10502.84	1654.39	10608.55	1655.74	10621.78	1657.76
10716.56	1656.91	10730.01	1656.01	10761.88	1655.74	10865.29	1657.82	10878.81	1659.51
10989.77	1657.86	11022.07	1657.88	11044.93	1659.46	11125.25	1659.91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4981.43	.15	9931.09	.02	10012.36	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9931.09	10012.36	317.78	384.64	153.53	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4981.43	7240.88	1659	10358.61	11125.25	1659

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4981.43	6847.03	1659

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1655.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1655.20	Reach Len. (ft)	317.78	384.64	153.53
Crit W.S. (ft)	1655.21	Flow Area (sq ft)	1099.29	155.34	604.06
E.G. Slope (ft/ft)	0.008502	Area (sq ft)	1099.29	155.34	708.12
Q Total (cfs)	3500.00	Flow (cfs)	1072.03	1617.55	810.42
Top Width (ft)	1966.87	Top Width (ft)	1366.41	81.27	519.18
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)	0.98	10.41	1.34
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)	0.80	1.91	1.78
Conv. Total (cfs)	37958.0	Conv. (cfs)	11626.4	17542.5	8789.1
Length Wtd. (ft)		Wetted Per. (ft)	1367.13	82.89	339.35
Min Ch El (ft)	1649.09	Shear (lb/sq ft)	0.43	0.99	0.94
Alpha	14.33	Stream Power (lb/ft s)	0.42	10.36	1.27
Frctn Loss (ft)	2.42	Cum Volume (acre-ft)	717.35	31.79	482.28
C & E Loss (ft)	0.03	Cum SA (acres)	531.47	20.42	267.51

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7102.71	7809.81	25.60	51.42	150.97	0.73	0.34	0.50
7809.81	8516.90	704.51	602.12	490.69	20.13	1.23	1.17
8516.90	9224.00	302.60	369.83	515.40	8.65	0.72	0.82
9224.00	9931.09	39.32	75.91	210.06	1.12	0.36	0.52
LB 9931.09	9958.18	84.81	19.09	27.10	2.42	0.70	4.44
9958.18	9985.27	251.89	36.68	27.10	7.20	1.35	6.87
9985.27	RB 10012.36	1280.86	99.57	28.69	36.60	3.68	12.86
10012.36	10171.34	410.28	299.83	158.99	11.72	1.89	1.37
10171.34	10330.33	392.59	292.03	159.02	11.22	1.84	1.34
10330.33	10489.31	7.55	12.21	21.33	0.22	0.57	0.62

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.601

INPUT
Description:
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5553.59	1654.45	5648.49	1653.52	5667.49	1653.49	5689.55	1653.38	5699.57	1652.98
5721.29	1652.65	6380.66	1653.41	6398.37	1653.26	6444.82	1654.74	6467.92	1654.85
6491.62	1654.5	6524.34	1653.6	6558.03	1654.93	6592.22	1654.55	6616.75	1654.13
6654.09	1653.78	7253.9	1653.39	7262.73	1654.26	7274.73	1651.89	7288.21	1653.7
7340	1653.72	7348.3	1651.44	7354.48	1652.06	7686.38	1653.47	7696.66	1653.02
7711.71	1654.24	7878.61	1652.34	7898.23	1652.65	7915.98	1652.22	7935.13	1653.19
7949.15	1654.03	8002.98	1653.34	8011.77	1652.75	8278.84	1651.61	8297.65	1651.5
8319.71	1651.44	8341.21	1650.88	8373.66	1651.31	8403.65	1651.7	8671.92	1651.4
8707.78	1651.12	8765.79	1650.69	8773.48	1649.63	8785.27	1651.48	8831.09	1651.46
8863.62	1650.86	8910.68	1650.85	8949.32	1651.1	9101.65	1651.12	9139.26	1651.23
9293.48	1651.36	9330.53	1651.39	9362.18	1651.49	9394.65	1651.73	9762.69	1652
9767.27	1651.1	9783.82	1650.92	9795.3	1651.94	9821.43	1652.01	9873.91	1651.78
9957.48	1651.24	9985.4	1651.46	9996.27	1646.8	10010.88	1652.2	110179.87	1651.7
10196.3	1651.5	210379.35	1651.7	510424.06	1652.2	410485.74	1653.19	10527.4	1652.16
10621.64	1654.8	510733.57	1653.5	610766.34	1653.8	210871.45	1654.8	710884.62	1657.39
10983.17	1656.32	10993.4	1655.6	311025.82	1655.4	511131.97	1657.3	911141.62	1659.3
11253.56	1657.6	211286.01	1657.4	511309.59	1659.1	111396.59	1659.95		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5553.59	.15	9873.91	.02	10010.88	.15

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

```
      9873.9110010.88          492.39   639.3     480              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 5553.59 7949.15    1658
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 5553.59 7949.15    1658
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1653.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1652.56	Reach Len. (ft)	492.39	639.30	480.00
Crit W.S. (ft)	1652.54	Flow Area (sq ft)	1877.30	203.39	321.60
E.G. Slope (ft/ft)	0.007275	Area (sq ft)	1877.30	203.39	321.60
Q Total (cfs)	3500.00	Flow (cfs)	1620.60	1662.03	217.37
Top Width (ft)	2418.59	Top Width (ft)	1817.53	136.97	464.09
Vel Total (ft/s)	1.46	Avg. Vel. (ft/s)	0.86	8.17	0.68
Max Chl Dpth (ft)	5.76	Hydr. Depth (ft)	1.03	1.48	0.69
Conv. Total (cfs)	41033.6	Conv. (cfs)	18999.7	19485.5	2548.5
Length Wtd. (ft)	549.11	Wetted Per. (ft)	1817.91	138.90	464.11
Min Ch El (ft)	1646.80	Shear (lb/sq ft)	0.47	0.67	0.31
Alpha	15.11	Stream Power (lb/ft s)	0.40	5.43	0.21
Frctn Loss (ft)	4.99	Cum Volume (acre-ft)	706.49	30.21	480.46
C & E Loss (ft)	0.02	Cum SA (acres)	519.85	19.46	265.78

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8022.34	8639.53	356.06	491.66	583.17	10.17	0.84	0.72
8639.53	9256.72	907.46	881.79	617.41	25.93	1.43	1.03
9256.72	9873.91	357.07	503.84	617.32	10.20	0.82	0.71
LB 9873.91	9919.57	236.22	42.33	45.66	6.75	0.93	5.58
9919.57	9965.22	369.59	55.37	45.66	10.56	1.21	6.68
9965.22	RB 10010.88	1056.23	105.69	47.58	30.18	2.32	9.99
10010.88	10208.84	81.04	130.71	197.96	2.32	0.66	0.62
10208.84	10406.80	131.03	174.40	197.96	3.74	0.88	0.75
10406.80	10604.76	5.30	16.49	68.19	0.15	0.24	0.32

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.480

INPUT
Description:
Station Elevation Data num= 105

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4197.31	1648.47	4282.47	1648.62	4287.42	1648.14	4295.04	1648.79	4308.89	1648.75
4319.81	1648.38	4328.87	1649.07	4452.14	1648.31	4490.11	1648.01	4561.96	1649.37
4772.28	1648.63	4790.28	1648.96	4809.52	1649.1	4902.94	1648.83	4957.89	1646.64
5009.44	1646.56	5072.61	1647.96	5111.33	1647.5	5155.94	1651.21	5296.31	1651.7
5306.98	1651.04	5338.1	1649.39	5906.16	1647.16	5941.63	1648.82	5967.65	1647.58
6310.77	1648.56	6320.81	1648.24	6338.1	1649.56	6381.39	1650.05	6407.05	1649.63
6412.21	1649.13	6425.71	1649.44	6436.64	1649.34	6473.85	1649.66	6488.54	1650.74
6512.54	1650.11	6536.5	1649.61	6545.04	1650.23	6560.11	1647.41	6575.45	1648.83
7107.93	1649.05	7123.57	1646.79	7145.36	1650.21	7165.53	1648.12	7297	1649.53
7344.53	1648.04	7376.24	1648.44	7406.66	1648.39	7419.39	1649.18	7617.41	1648.26
7780.43	1646.58	7826.34	1646.69	7892.8	1646.84	7931.23	1646.6	8037.88	1647.64
8041.96	1646.86	8051.04	1647.45	8142.7	1647.23	8183.27	1647.19	8391.47	1646.05
8442.47	1646.15	8630.45	1645.99	8673.85	1646.7	8737.25	1646.77	8744.03	1645.34
8752.97	1647.58	8868.67	1645.76	8889.24	1645.47	8922.81	1645.19	8931.69	1645.08

```
 8944.93 1646.18 9083.77 1646.97 9121.28 1646.98  9277.7  1646.7  9313.2 1646.59
 9358.66 1647.25 9382.36 1647.19 9430.34 1647.43 9445.78 1646.04 9457.47 1647.46
 9779.75 1646.37 9792.28 1644.36 9806.25 1646.87 9883.87 1646.35 9924.08 1647.16
 9967.66 1646.64 9987.56  1646.3 9998.36 1642.9910011.63 1648.4410127.94 1646.89
10160.09 1646.8910267.63 1648.7610276.29 1649.9810387.85 1648.2310420.29 1648.48
10521.53 1650.1810537.35 1652.4210647.91 1650.4310680.52 1650.4610783.13 1652.52
10797.76 1654.83 10907.8 1652.9410940.38 1653.2811045.96 1655.8411058.58 1656.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4197.31     .15 9924.08     .0210011.63     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9924.0810011.63            422.71  759.29  635.28             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4197.31 7257.31    1654 10276.311058.58    1654
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4197.31    7297    1654
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1648.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1647.61	Reach Len. (ft)	422.71	759.29	635.28
Crit W.S. (ft)	1647.61	Flow Area (sq ft)	2224.37	111.73	57.64
E.G. Slope (ft/ft)	0.011734	Area (sq ft)	2224.37	111.73	57.64
Q Total (cfs)	3500.00	Flow (cfs)	2400.80	1062.82	36.39
Top Width (ft)	2453.84	Top Width (ft)	2240.58	85.53	127.73
Vel Total (ft/s)	1.46	Avg. Vel. (ft/s)	1.08	9.51	0.63
Max Chl Dpth (ft)	4.62	Hydr. Depth (ft)	0.99	1.31	0.45
Conv. Total (cfs)	32310.6	Conv. (cfs)	22163.2	9811.5	335.9
Length Wtd. (ft)	547.46	Wetted Per. (ft)	2241.66	86.95	127.74
Min Ch El (ft)	1642.99	Shear (lb/sq ft)	0.73	0.94	0.33
Alpha	13.23	Stream Power (lb/ft s)	0.78	8.95	0.21
Frctn Loss (ft)		Cum Volume (acre-ft)	683.31	27.89	478.37
C & E Loss (ft)		Cum SA (acres)	496.92	17.83	262.52

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7469.75	8287.86	264.86	360.03	604.47	7.57	0.60	0.74
8287.86	9105.97	1315.24	1063.20	818.61	37.58	1.30	1.24
9105.97	9924.08	820.69	801.15	818.58	23.45	0.98	1.02
LB 9924.08	9953.26	92.54	18.25	29.19	2.64	0.63	5.07
9953.26	9982.45	199.98	28.97	29.19	5.71	0.99	6.90
9982.45	RB 10011.63	770.29	64.51	28.57	22.01	2.37	11.94
10011.63	10161.19	28.92	43.48	87.37	0.83	0.50	0.67
10161.19	10310.76	7.47	14.17	40.37	0.21	0.35	0.53

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS

REACH: Spillway RS: 17.336

INPUT
Description: Baseline crosses cross section on east side of 114th St. just south of intersection with University Dr.

Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3862.04	1644.7	3927.65	1645.09	3933.24	1644.1	3986.83	1643.75	4005.63	1644.29
4024.93	1644.41	4324.21	1643.79	4340.29	1643.56	4361.77	1643.93	4394.55	1643.96
4431.54	1644.08	4654.02	1644.67	4698.59	1644.52	4803.09	1646.58	4820.57	1647.91
4827.27	1648.81	4855.67	1647.33	5002.27	1647.24	5027.73	1648.46	5033.96	1647.09
5050.47	1645.37	5068.94	1644.87	5089	1645	5095.37	1644.14	5128.74	1641.85
5519.08	1644.59	5586.37	1645.96	5663.97	1644.13	6131.04	1645.32	6213.42	1644.27
6238.77	1642.75	6265.93	1644.56	6427.69	1645.4	6463.74	1646.05	6497.79	1646.59
6522.73	1646.17	6543.35	1644.37	6556.86	1643.4	6578.08	1645.04	6588.05	1646.43
6629.77	1646.06	6652.81	1645.6	6660.96	1645.89	6674.62	1643.78	6692.19	1644.96
7053.43	1643.95	7367.79	1643.9	7519.62	1643.31	7558.95	1643.38	7694.9	1642.8
7741.86	1642.67	7987.86	1642.61	8070.59	1642.53	8133.6	1642.09	8136.57	1641.05
8141.06	1641.51	8201.13	1640.93	8223.34	1641.09	8261.95	1640.94	8270.6	1640.62
8281.7	1641.79	8436.39	1642.29	8516.77	1641.42	8548.01	1641.46	8740.82	1642.06
8775.35	1642.31	8974.47	1642.54	9009.96	1642.86	9157.97	1642.16	9363.28	1641.79
9396.74	1642.25	9404.65	1642.72	9601.39	1642.6	9633.75	1642.69	9837.77	1642.23
9869.58	1642.26	9988.52	1641.95	10000	1639.23	10005.61	1640	10011.19	1640.8
10020.35	1640.64	10030.73	1641.03	10068.91	1640.21	10134.02	1641.78	10179.51	1641.98
10197.44	1642.29	10201.75	1641.31	10209.18	1643.69	10239.09	1642.48	10434.7	1643.21
10537.27	1643.37	10639.08	1643.27	10745.11	1644	10839.08	1644	10939.04	1644.68
10994.19	1645.14	10995.54	1647.03	11005.11	1649.09	11006.74	1647.35	11095.85	1649.89
11102	1649.89	11112.35	1650.86	11127.36	1647.97	11172.29	1648.13	11190.8	1649.05
11325.88	1650	11335.76	1650.29	11489.63	1648.61	11530.87	1648.68	11549.84	1648.96
11694.66	1649.86	11721.13	1645.35	11946.02	1645.28	11982.26	1651.34	12008.76	1650.48
12051.9	1650.65								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3862.04	.15	9988.52	.02	10030.73	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9988.52	10030.73	292.68	391.01	280	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3862.04	6952	1650

Blocked Obstructions num= 1

Sta L	Sta R	Elev
3862.04	6692.19	1650

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1643.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1643.30	Reach Len. (ft)	292.68	391.01	280.00
Crit W.S. (ft)	1643.43	Flow Area (sq ft)	2497.77	117.21	451.69
E.G. Slope (ft/ft)	0.005229	Area (sq ft)	2497.77	117.21	451.69
Q Total (cfs)	3500.00	Flow (cfs)	1831.82	1235.47	432.71
Top Width (ft)	2939.59	Top Width (ft)	2410.91	42.21	486.47
Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)	0.73	10.54	0.96
Max Chl Dpth (ft)	4.07	Hydr. Depth (ft)	1.04	2.78	0.93
Conv. Total (cfs)	48400.7	Conv. (cfs)	25331.8	17085.1	5983.9
Length Wtd. (ft)		Wetted Per. (ft)	2411.22	42.65	486.94
Min Ch El (ft)	1639.23	Shear (lb/sq ft)	0.34	0.90	0.30
Alpha	30.41	Stream Power (lb/ft s)	0.25	9.46	0.29
Frctn Loss (ft)	4.12	Cum Volume (acre-ft)	660.40	25.90	474.66
C & E Loss (ft)	0.02	Cum SA (acres)	474.35	16.71	258.04

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

7362.89	8238.10	359.62	564.28	660.70	10.27	0.85	0.64
8238.10	9113.31	868.02	1071.43	875.29	24.80	1.22	0.81
9113.31	9988.52	604.18	862.06	875.23	17.26	0.98	0.70
LB 9988.52	10002.59	444.88	41.20	14.41	12.71	2.93	10.80
10002.59	10016.66	441.48	40.72	14.16	12.61	2.89	10.84
10016.66	RB 10030.73	349.11	35.29	14.08	9.97	2.51	9.89
10030.73	10319.47	421.93	413.33	278.36	12.06	1.49	1.02
10319.47	10608.21	10.75	37.82	173.29	0.31	0.22	0.28
10608.21	10896.95	0.03	0.54	35.29	0.00	0.02	0.05

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.262

INPUT
Description: Baseline continues on east side of 114th St.
Station Elevation Data num= 137

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4129.86	1640.84	4482.22	1641.01	4501.53	1641.04	4519.84	1641.01	4769.86	1640.76
4870.09	1640.91	4887.4	1640.75	4903.46	1640.86	5013.05	1641.38	5027.22	1641.71
5042.15	1641.75	5350.86	1641.46	5385.18	1642.77	5402.86	1640.86	6032.07	1641.95
6049.86	1642.98	6076.09	1641.74	6091.55	1641.45	6197.67	1641.17	6534.96	1638.5
6595.15	1639.93	6614.14	1640.21	6691.11	1639.31	6784.15	1637.63	6956.81	1644.09
6959.78	1643.37	6975.47	1642.28	6995.2	1644.05	6999.8	1643.33	7034.77	1643.68
7060.81	1643.27	7103.28	1642.04	7142	1642.76	7165.35	1642.68	7187.37	1642.28
7196.71	1642.51	7212.37	1639.82	7227.84	1641.25	7331.32	1641.06	7400	1640.12
7898.35	1639.77	8070.76	1640.18	8072.76	1639.08	8076.39	1640.22	8143.74	1639.68
8156.65	1638.91	8165.23	1639.35	8185.99	1638.79	8208.61	1638.51	8234.83	1638.38
8244.98	1638.65	8315.09	1639.15	8485.56	1638.8	8520.13	1638.73	8573.81	1638.82
8610.01	1638.81	8752.66	1638.31	8811.12	1638	8831.81	1639.48	8835.12	1639.17
8939.07	1639.45	8940.3	1639.52	8948.04	1638.64	8993.4	1638.69	9104.84	1639.92
9146.52	1639.66	9246.25	1639.82	9358.24	1639.4	9390.53	1639.56	9395.66	1639.61
9459.52	1639.49	9530.34	1639.76	9564.5	1639.91	9629.63	1639.78	9666.65	1640.02
9701.85	1640.08	9834.91	1639.4	9867.03	1639.81	9989.29	1639.73	10000	1636.44
10002.89	1638.79	10008.19	1639.06	10017.37	1639.35	10030.13	1639.35	10040.44	1639.51
10181.88	1638.64	10259.1	1638.5	10296.9	1638.51	10323.3	1638.75	10464.71	1638.77
10608.03	1638.51	10646.31	1640.41	10660.94	1640.14	10748.17	1639.36	10769.64	1639.45
10780.67	1641.23	10874.5	1640.65	10897.75	1639.78	10931.42	1639.78	10948.88	1641.21
11038.58	1641.13	11048.72	1643.02	11162.62	1641.46	11194.85	1641.61	11209.08	1642.46
11302.57	1643.54	11314.53	1644.27	11427.48	1643.11	11460.65	1642.92	11481.45	1644.34
11573.11	1645.21	11582.05	1646.66	11670.77	1647.14	11706.82	1645.37	11758.45	1645.3
11795.87	1645.94	11930.87	1647.06	11947.7	1647.95	12034.24	1647.33	12045.5	1646.5
12052.71	1645.82	12094.88	1645.78	12111.71	1646.73	12174.9	1645.63	12188.46	1643.53
12197.73	1643.54	12215.1	1646.21	12373.68	1647.62	12398.23	1643.06	12495.41	1643.11
12522.26	1647.18	12538.6	1647.13	12545.53	1646.64	12588.38	1646.61	2604.94	1647.23
12619.66	1647.99	12743.25	1649.19						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4129.86	.15	9989.29	.02	10040.44	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9989.29	10040.44	320	403.01	280	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4129.86	7607	1648

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4129.86	7227.84	1648

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1640.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1640.15	Reach Len. (ft)	320.00	403.01	280.00
Crit W.S. (ft)	1639.79	Flow Area (sq ft)	1741.85	62.39	886.21
E.G. Slope (ft/ft)	0.013166	Area (sq ft)	1763.76	62.39	886.21
Q Total (cfs)	3500.00	Flow (cfs)	1716.51	596.82	1186.67

Top Width (ft)	3385.47	Top Width (ft)	2571.68	51.15	762.64
Vel Total (ft/s)	1.30	Avg. Vel. (ft/s)	0.99	9.57	1.34
Max Chl Dpth (ft)	3.71	Hydr. Depth (ft)	0.74	1.22	1.16
Conv. Total (cfs)	30503.3	Conv. (cfs)	14959.8	5201.4	10342.1
Length Wtd. (ft)	316.55	Wetted Per. (ft)	2362.90	52.49	762.76
Min Ch El (ft)	1636.44	Shear (lb/sq ft)	0.61	0.98	0.95
Alpha	9.86	Stream Power (lb/ft s)	0.60	9.35	1.28
Frctn Loss (ft)	2.70	Cum Volume (acre-ft)	646.08	25.09	470.36
C & E Loss (ft)	0.04	Cum SA (acres)	457.61	16.29	254.03

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7478.11	8315.17	243.88	355.08	688.64	6.97	0.52	0.69
8315.17	9152.23	1250.48	1023.76	837.19	35.73	1.22	1.22
9152.23	9989.29	222.15	363.01	837.07	6.35	0.43	0.61
LB 9989.29	10006.34	398.05	33.88	18.38	11.37	1.99	11.75
10006.34	10023.39	115.44	15.65	17.06	3.30	0.92	7.38
10023.39	RB 10040.44	83.34	12.87	17.05	2.38	0.75	6.48
10040.44	10426.56	749.36	521.30	386.12	21.41	1.35	1.44
10426.56	10812.67	428.96	349.64	328.43	12.26	1.06	1.23
10812.67	11198.79	8.34	15.26	48.21	0.24	0.32	0.55

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.186

INPUT
Description: Baseline continues on east side of 114th St.
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4497.19	1638.31	4525.25	1638.13	4543.59	1638.12	4562.55	1638.14	5048.57	1638.21
5070.78	1638.4	5088.24	1638.44	5377.01	1638.88	5394.1	1638.26	5411.94	1637.74
5567.34	1637.26	5582.63	1637.15	5599.19	1637.1	5854.65	1638.09	5864.97	1639.56
5872.72	1640.95	5896.55	1642.58	5924.08	1639.45	6032.03	1639.62	6065.76	1642.2
6087.3	1640.5	6104.39	1638.93	6214.23	1638.02	6254.41	1638.34	6472.11	1638.43
6511.33	1638.25	6622.85	1638.24	6638.49	1635.93	6650.37	1639.29	6700.3	1638.64
6716.74	1638.23	7143.54	1636.35	7281.81	1636.07	7302.36	1636.21	7306.2	1640.02
7419.45	1640.48	7422.99	1639.46	7480.52	1640.95	7503.1	1641.51	7510.63	1640.65
7518.8	1640.6	7525.4	1640.78	7531.03	1639.85	7564.79	1640.25	7590.6	1639.74
7630.38	1637.07	7664.26	1639.26	7699.68	1639.23	7736.98	1638.65	7749.63	1638.48
7756.73	1638.14	7767.54	1638.43	7789.42	1637.83	7807.24	1636.87	7845.27	1639.66
7952.53	1639.36	7965.06	1638.08	8108.85	1636.6	8155.34	1637.42	8178.78	1636.89
8211.88	1636.83	8543.74	1637.08	8706.48	1636.73	8742.12	1637.08	8765.97	1636.78
8804	1636.63	8943.96	1636.76	8977.91	1636.68	9088.6	1636.26	9101.7	1634.63
9120.05	1636.68	9348.12	1636.67	9357.01	1635.46	9371.84	1636.95	9473.98	1636.3
9584.39	1635.7	9617.8	1635.62	9831.4	1636.72	9864.69	1637.11	9989.15	1637.2
10000	1633.15	10005.86	1636.31	10010.88	1636.05	10021	1636.42	10032	1636.92
10043.19	1637.23	10184.63	1637.18	10326.04	1636.58	10350.74	1636.22	10393.75	1635.63
10808.86	1635.78	10843.2	1635.92	11023.95	1636.12	11200.61	1636.97	11211.39	1635.5
11299.63	1634.94	11319.97	1635.88	11332.56	1636.71	11421.69	1636.75	11448.28	1636.35
11481.74	1636.23	11501	1637.59	11591.52	1638.83	11602.06	1639.68	11712.68	1638.84
11745.99	1638.82	11761.98	1639.57	11797.3	1639.58	11811.6	1638.77	11844.55	1638.34
11879.65	1640.54	11987.95	1641.25	12015.58	1633.91	12065.42	1634.49	12088.83	1640.5
12097.7	1637.13	12112.78	1640.19	12167.46	1640.52	12232.91	1640.19	12269.27	1639.64
12391.11	1639.96	12419.37	1641.31	12458.26	1640.68	12472.89	1640.01	12490.65	1640.19
12582.26	1640.87	12595.94	1639.51	12625.31	1639.16	12641.09	1642.21	12718.64	1641.1

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   12782 1640.2812952.22 1640.2413029.67 1640.1413044.28 1638.6513081.52 1638.95
13115.02 1640.3313122.19  1640.513140.78 1639.6913180.12 1640.7613219.47 1640.09
 13237.9 1641.4113416.38 1643.3713466.53 1642.7513493.13 1644.7313982.62 1648.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4497.19     .15 9989.15     .0210043.19     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9989.1510043.19           297.26  396.01     290             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4497.19 8155.34    1643 11599.613982.62    1643
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4497.19 7845.27    164412088.8313982.62    1644

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1637.67   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.13   Wt. n-Val.                   0.150      0.020      0.150
  W.S. Elev (ft)            1637.54   Reach Len. (ft)             297.26     396.01     290.00
  Crit W.S. (ft)            1637.13   Flow Area (sq ft)          1639.99      76.86    1937.50
  E.G. Slope (ft/ft)       0.005951   Area (sq ft)               1707.38      76.86    2147.13
  Q Total (cfs)             3500.00   Flow (cfs)                 1163.14     546.68    1790.18
  Top Width (ft)            3558.02   Top Width (ft)             1971.50      54.04    1532.48
  Vel Total (ft/s)             0.96   Avg. Vel. (ft/s)              0.71       7.11       0.92
  Max Chl Dpth (ft)            4.39   Hydr. Depth (ft)              0.89       1.42       1.33
  Conv. Total (cfs)         45371.0   Conv. (cfs)                15077.9     7086.7    23206.4
  Length Wtd. (ft)           311.25   Wetted Per. (ft)           1834.20      55.60    1457.29
  Min Ch El (ft)            1633.15   Shear (lb/sq ft)              0.33       0.51       0.49
  Alpha                        9.27   Stream Power (lb/ft s)        0.24       3.65       0.46
  Frctn Loss (ft)              2.60   Cum Volume (acre-ft)        633.33      24.45     460.61
  C & E Loss (ft)              0.03   Cum SA (acres)              440.92      15.81     246.65

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  7635.45       8420.02          88.09     162.66    264.68      2.52      0.61       0.54
  8420.02       9204.58         411.32     633.37    784.79     11.75      0.81       0.65
  9204.58       9989.15         663.73     843.97    784.73     18.96      1.08       0.79
  LB 9989.15    10007.16        377.18      43.75     19.54     10.78      2.43       8.62
  10007.16      10025.18        132.79      22.64     18.03      3.79      1.26       5.86
  10025.18      RB 10043.19      36.71      10.47     18.03      1.05      0.58       3.51
  10043.19      10605.97        520.88     634.79    562.78     14.88      1.13       0.82
  10605.97      11168.74        850.22     851.74    562.78     24.29      1.51       1.00
  11168.74      11731.52        419.09     450.97    331.73     11.97      1.36       0.93

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 17.111

INPUT
Description: Baseline on east side of 114th St.
Station Elevation Data    num=     120
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 4606.86 1635.16 4665.45 1635.93  4683.9 1636.33 4701.41 1636.01 4718.53 1635.08
 5027.01 1635.85 5047.06 1635.97 5066.77 1635.92 5299.63 1635.06 5318.11 1635.35
 5546.56 1634.64 5564.78 1634.76 5582.85 1634.98 5903.62  1634.9 5922.61 1634.78
 5941.86 1634.81 6064.89 1634.35 6085.92 1634.41 6106.68  1633.7 6364.39 1635.67
 6381.78 1636.02 6399.33 1635.83 6457.73 1635.81 6497.77  1635.9 6603.63  1635.4
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 6613.39 1634.44 6625.33 1635.63  6841.9 1635.94 7019.88 1635.37  7030.2 1635.23
 7224.01 1635.81 7241.98 1637.03 7631.28 1637.07 7681.89 1636.29 7810.83 1634.67
  7945.2 1635.07 7986.27  1634.7 7990.11 1634.38 8005.12 1633.23 8039.39 1636.07
 8067.35 1636.68  8071.4 1636.44 8099.25 1636.69 8151.93 1636.19  8234.8 1635.86
 8268.93 1635.23 8274.79 1635.54 8291.04  1632.4 8299.39 1633.26 8392.34 1634.46
 8541.24 1634.15 8774.52 1634.09 8791.07 1633.93 8899.68 1633.42 8976.13 1633.32
  9102.7 1635.02 9110.79  1633.4 9125.13 1635.54 9458.29 1633.57 9993.67 1634.39
   10000 1630.6110007.16 1632.9910012.19 1633.3610020.97  1633.3 10032.9 1633.75
10044.92  1633.310050.15 1633.4410187.77  1634.810455.54 1633.87 10470.6 1633.41
10506.12 1633.86   10612 1633.6410764.85 1634.2210894.67 1633.43 10922.8 1633.26
10968.46 1633.2911036.32 1634.5911373.07 1633.6911383.79  1632.811397.17 1633.39
11425.73 1632.7311433.46  1632.511443.68 1633.16 11616.1 1632.51 11768.6 1633.31
11780.05 1630.9911809.58  1631.811918.36 1632.81 11945.6 1635.1912149.83 1635.81
12272.52 1635.6312287.99 1634.1212319.25 1634.1212337.37  1635.512446.21 1635.01
12566.14 1635.1612580.82 1634.1212612.67  1634.412629.62 1635.2912793.22  1635.3
12806.07 1632.9912815.86 1634.4312908.18 1634.5712925.55  1634.512953.67 1634.82
12975.98 1635.5113072.73 1637.1213163.98 1637.0513181.12    163713284.16 1637.68
13300.61 1638.8713578.82 1640.8413594.09 1640.0613616.87 1639.9213645.21 1641.65
13750.72  1642.213761.69 1642.04   13811  1642.913867.76 1642.3613997.43 1644.78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4606.86     .15 9993.67     .02 10032.9     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9993.67 10032.9           286.01  340.97     275             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4606.86 8716.86    164212138.3813997.43    1642
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4606.86 8099.25    164212149.8313997.43    1642

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1635.04   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.43   Wt. n-Val.                0.150      0.020      0.150
  W.S. Elev (ft)            1634.61   Reach Len. (ft)          286.01     340.97     275.00
  Crit W.S. (ft)            1634.51   Flow Area (sq ft)        735.75      64.90    1885.59
  E.G. Slope (ft/ft)       0.012380   Area (sq ft)             963.39      64.90    1885.59
  Q Total (cfs)             3500.00   Flow (cfs)               636.52     732.50    2130.98
  Top Width (ft)            3389.72   Top Width (ft)          1518.14      39.23    1832.35
  Vel Total (ft/s)             1.30   Avg. Vel. (ft/s)          0.87      11.29       1.13
  Max Chl Dpth (ft)            4.00   Hydr. Depth (ft)          0.68       1.65       1.03
  Conv. Total (cfs)         31456.6   Conv. (cfs)              5720.8     6583.4    19152.4
  Length Wtd. (ft)           286.34   Wetted Per. (ft)        1081.10      40.68    1832.81
  Min Ch El (ft)            1630.61   Shear (lb/sq ft)          0.53       1.23       0.80
  Alpha                       16.24   Stream Power (lb/ft s)    0.46      13.92       0.90
  Frctn Loss (ft)              2.69   Cum Volume (acre-ft)    624.22      23.80     447.18
  C & E Loss (ft)              0.12   Cum SA (acres)          429.02      15.38     235.45


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8454.58      9224.13         298.47     306.56     369.74       8.53       0.83      0.97
  9224.13      9993.67         338.05     429.19     711.37       9.66       0.60      0.79
  LB 9993.67   10006.75        442.80      32.79      14.48      12.65       2.51     13.51
  10006.75     10019.82        168.77      17.66      13.11       4.82       1.35      9.55
  10019.82     RB 10032.90     120.92      14.45      13.09       3.45       1.10      8.37
  10032.90     10599.26        206.86     296.02     492.67       5.91       0.60      0.70
  10599.26     11165.62        292.50     385.31     566.38       8.36       0.68      0.76
  11165.62     11731.98        908.64     760.65     566.45      25.96       1.34      1.19
  11731.98     12298.35        722.97     443.62     207.31      20.66       2.14      1.63


Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
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CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 17.046

INPUT
Description: Baseline on west side of 114th St.
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4766.12	1632.08	4813.95	1632.77	4950.97	1633	4965.08	1632.93	4981.28	1632.8
5069.69	1633.52	5089.28	1633.96	5107.9	1633.43	5123.98	1632.55	5136.01	1632.97
5184.91	1633.05	5190.34	1632.23	5205.52	1632.53	5434.22	1632.61	5451.89	1632.39
5465.49	1632.73	5956.29	1632.18	5974.36	1632.17	5990.21	1631.86	6323.58	1631.58
6337.64	1631.69	6351.09	1631.93	6481.59	1632.52	6497.02	1632.65	6510.59	1633.1
6786.51	1633.01	6802.14	1633.13	6818.76	1632.85	6902.15	1633.07	6928.18	1633.74
7654.5	1633.37	7671.44	1634.58	7910.57	1634.34	7930.69	1632.27	7958.64	1632.71
7962.88	1631.95	8011.36	1632.23	8058.43	1632.21	8114.17	1632.35	8507.41	1633.75
8532.85	1633.88	8554.34	1633.49	8558.74	1633.25	8573.34	1628.23	8586.7	1632.11
8635.16	1633.63	8666.85	1633.28	8702.08	1632.5	8724.91	1633.58	8727.61	1633.64
8730.73	1633.69	8995.91	1633.22	9010.91	1630.78	9024.64	1631.66	9507.98	1630.87
9922.69	1630.45	9936.97	1631.44	9953.58	1631.46	9991.67	1631.95	10000	1629.25
10011.15	1631.3110274.36	1631.8510295.73	1631.3710315.13	1631.8410317.54	1631.72				
10319.31	1629.910331.59	1630.0610333.38	1631.6510398.93	1630.79 10419.8	1631.29				
10873.91	1630.8110925.61	1630.8311350.91	1633.0711363.04	1632.04 11397	1631.9				
11415.31	1632.1311703.26	1631.2411721.53	1630.2511752.21	163011795.53	1630.16				
11838.85	1630.3111876.19	1630.2111891.08	1629.8411928.87	1628.27 11937.9	1629.48				
12150.46	1631.1 12192.3	1631.1312203.66	1631.2112342.68	1631.312443.69	1631.05				
12601.56	1630.52 12634.3	1630.4412655.21	1631.9112927.54	1631.7612939.82	1629.91				
12949.32	1630.6213035.51	1631.5813055.57	1631.1413121.94	1631.8 13135.5	1633.1				
13309.87	1634.2213678.23	1636.3413771.72	1636.99 13995.5	1639.6814013.28	1639.19				
14036	1639.4614063.36	1640.33 14160.5	1641.58						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4766.12	.15	9991.67	.03510011.15		.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9991.6710011.15		320.73	334.71	325	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4766.12	8734.12	1640	12430	14160.5	1640

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4766.12	8734.12	1640

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1632.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1632.20	Reach Len. (ft)	320.73	334.71	325.00
Crit W.S. (ft)	1631.51	Flow Area (sq ft)	1157.61	34.70	2439.48
E.G. Slope (ft/ft)	0.007368	Area (sq ft)	1157.61	34.70	3050.29
Q Total (cfs)	3500.00	Flow (cfs)	1092.76	182.00	2225.24
Top Width (ft)	3948.10	Top Width (ft)	989.48	19.48	2939.14
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)	0.94	5.25	0.91
Max Chl Dpth (ft)	3.93	Hydr. Depth (ft)	1.17	1.78	1.09
Conv. Total (cfs)	40775.1	Conv. (cfs)	12730.6	2120.4	25924.1
Length Wtd. (ft)	325.29	Wetted Per. (ft)	989.66	20.10	2244.62
Min Ch El (ft)	1629.25	Shear (lb/sq ft)	0.54	0.79	0.50
Alpha	2.41	Stream Power (lb/ft s)	0.51	4.17	0.46
Frctn Loss (ft)	3.08	Cum Volume (acre-ft)	617.26	23.41	431.60
C & E Loss (ft)	0.02	Cum SA (acres)	420.78	15.15	220.39

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8498.66	9245.16	119.84	178.02	243.11	3.42	0.73	0.67
9245.16	9991.67	972.93	979.60	746.54	27.80	1.31	0.99
LB 9991.67	9998.16	33.63	8.44	6.83	0.96	1.30	3.98
9998.16	10004.66	105.34	16.60	6.67	3.01	2.56	6.35
10004.66	RB 10011.15	43.03	9.66	6.60	1.23	1.49	4.45

10011.15	10603.92	355.68	493.26	594.17	10.16	0.83	0.72
10603.92	11196.68	479.75	585.19	581.47	13.71	1.01	0.82
11196.68	11789.44	224.62	328.43	428.30	6.42	0.77	0.68
11789.44	12382.21	1122.52	982.16	592.89	32.07	1.66	1.14
12382.21	12974.97	42.66	50.42	47.79	1.22	1.05	0.85

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.983

INPUT
Description:
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4815.86	1629.84	5067.59	1630.15	5082.87	1629.85	5097.69	1630	5230.63	1631.04
5250.1	1631.26	5268.08	1631.1	5282.94	1629.91	5288.81	1630.6	5604.04	1629.95
5620.39	1629.77	5641.8	1629.63	6101.83	1629.16	6124.4	1628.96	6141.08	1629.15
6491.26	1631.06	6505.48	1630.68	6522.55	1630.84	6626.58	1629.59	6644.67	1629.83
6661.32	1629.95	6955.95	1629.84	6972.63	1629.96	6990.9	1629.64	7621.23	1629.26
7642.33	1629.66	7662.54	1629.93	7698.16	1629.52	8148.88	1629.08	8167.78	1626.77
8185.35	1628.56	8711.12	1629.11	8739.44	1630.55	8768.59	1630.68	8794.16	1630.17
8821.2	1628.14	8840.78	1626.7	8869.94	1628.78	8883.09	1630.67	8910.85	1630.23
8940.94	1629.58	8943.29	1629.36	8962.93	1626.28	8985.18	1628.64	9455.42	1629.27
9470.22	1631.07	9474.26	1630.37	9502.09	1629.93	9508.9	1629.39	9528.92	1629.08
9542.37	1629.54	9559.56	1629.85	9883.7	1628.21	9903.94	1628.21	9987.38	1629.24
10000	1623.96	10012.88	1628.51	10074.41	1627.56	10106.37	1628.02	10237.85	1627.74
10240.37	1626.46	10252.1	1626.51	10254.58	1627.51	10274.99	1626.84	10280.73	1626.91
10414.79	1627.98	10446.56	1628.05	10573.54	1628.65	10582.28	1627.28	10590.87	1627.38
10597.95	1628.69	10633.96	1629.02	10647.3	1627.14	10660.4	1628.12	10697.26	1628.41
11112.1	1630.28	11129.21	1629.52	11139.14	1629.42	11177.62	1629.8	11194.87	1629.92
11296.42	1629.22	11312.25	1628.41	11325.97	1628.64	11356.48	1628.79	11366.02	1628.84
11451.84	1629.03	11467.94	1627.43	11504.46	1627.56	11516.42	1627.63	11709.45	1627.35
11722.8	1626.4	11759.94	1626.43	11790.71	1627.61	11826.69	1627.57	11965.4	1628.65
11975.69	1628.33	12031.97	1628.06	12046.1	1627.97	12219.51	1627.72	12230.19	1627.6
12272.67	1627.67	12284.63	1628.25	12474.89	1627.66	12482.78	1627.51	12527.84	1627.52
12539.13	1628.07	12671.3	1627.28	12767.06	1627.99	13078.45	1630.35	13125.08	1629.44
13160.63	1630.3	13180.99	1631.8	14117.88	1639.31	14140.01	1638.97	14163.93	1639.23
14223.38	1639.96	14231.28	1640.04						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4815.86	.15	9987.38	.035	10012.88	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.38	10012.88	314.66	337.78	317	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4815.86	8891	1634	12770	14231.28	1634

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4815.86	6491.26	1635

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1629.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1628.94	Reach Len. (ft)	314.66	337.78	317.00
Crit W.S. (ft)	1628.78	Flow Area (sq ft)	175.83	64.43	2353.05
E.G. Slope (ft/ft)	0.012631	Area (sq ft)	353.46	64.43	2409.25
Q Total (cfs)	3500.00	Flow (cfs)	100.25	555.15	2844.60
Top Width (ft)	3298.32	Top Width (ft)	936.41	24.77	2337.14
Vel Total (ft/s)	1.35	Avg. Vel. (ft/s)	0.57	8.62	1.21
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)	0.36	2.60	1.06
Conv. Total (cfs)	31142.6	Conv. (cfs)	892.0	4939.7	25311.0
Length Wtd. (ft)	324.49	Wetted Per. (ft)	482.28	26.55	2216.47
Min Ch El (ft)	1623.96	Shear (lb/sq ft)	0.29	1.91	0.84
Alpha	7.12	Stream Power (lb/ft s)	0.16	16.49	1.01
Frctn Loss (ft)	2.55	Cum Volume (acre-ft)	611.70	23.03	411.24
C & E Loss (ft)	0.03	Cum SA (acres)	413.69	14.98	200.70

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8509.80	9248.59	47.45	87.85	259.92	1.36	0.34	0.54
9248.59	9987.38	52.79	87.98	222.36	1.51	0.40	0.60
LB 9987.38	9995.88	71.58	12.64	8.42	2.05	1.63	5.66
9995.88	10004.38	377.54	35.36	9.11	10.79	4.16	10.68
10004.38	RB 10012.88	106.05	16.43	9.01	3.03	1.93	6.45
10012.88	10615.51	776.99	651.91	603.39	22.20	1.08	1.19
10615.51	11218.14	55.71	84.23	188.60	1.59	0.45	0.66
11218.14	11820.77	788.22	597.64	475.20	22.52	1.26	1.32
11820.77	12423.39	633.28	576.35	602.65	18.09	0.96	1.10
12423.39	13026.02	590.40	442.92	346.63	16.87	1.28	1.33

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.919

INPUT
Description:
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4676.97	1626.67	4693.99	1626.65	4709.33	1626.68	5191.23	1627.14	5209.16	1627.11
5226.06	1627.19	5396.64	1628.12	5414	1628.11	5433.72	1627.78	5685.9	1625.79
5703.44	1625.8	5722.11	1625.87	5986.74	1625.76	5990.77	1625.35	5999.2	1625.91
6189.63	1626.46	6206.51	1626.48	6225.08	1626.96	6566	1626.92	6675.71	1626.28
6701.43	1626.31	6722.45	1626.49	7140.68	1625.61	7176.11	1625.98	7215.34	1625.74
7229.76	1626.23	7748.32	1626.03	7760.17	1623.59	7774.88	1625.1	8026.52	1624.37
8065.08	1624.42	8263.51	1625.42	8326.7	1625.16	8474.24	1626.07	8500.23	1625.99
8968.5	1627.53	8997.13	1627.56	9023.67	1627.14	9046.98	1626.11	9061.74	1624.73
9102.68	1627.4	9136.7	1626.83	9171.92	1626.38	9865.52	1625.11	9898.94	1624.94
9981.04	1625.49	9995.11	1621.03	10000	1620.94	10032.49	1622.22	10046.62	1623.1
10050.55	1624.59	10159.19	1625.26	10164.82	1623.47	10173.28	1623.43	10183.39	1625
10292.91	1624.73	10323.58	1625.24	10506.09	1624.87	10536.38	1625.02	10688.98	1624.51
10721.71	1624.36	10855.82	1626.91	10887.68	1624.33	10893.76	1625.05	10930.94	1625.5
10941.87	1625.69	11100.02	1625.49	11140.51	1625.52	11151.91	1626.06	11313.18	1626.8
11332.99	1625.05	11370.31	1625.23	11380.37	1625.73	11571.91	1625.03	11585.72	1625.2
11622.95	1625.8	11635.53	1626.38	11710.77		16261	1744.05	1625.56	11827.73	1625.86
11837.24	1624.98	11874.54	1625.13	11886.19		16251	1902.37	1625.31	11911.02	1625.06
11949.12	1625.02	11967.19	1626.16	12088.77	1624.81	12126.98	1624.59	12157.28	1624.56
12197.41	1624.71	12206.96	1624.75	12330.9	1624.98	12342.61	1624.54	12378.62	1624.45
12389.46	1625.42	12579	1627.33	12691.81	1627.76	12742.91	1627.64	12795.02	1627.89
13003.12	1627.71	13211.85	1629.54	13255.94	1630.03	13527.86	1631.86	13596.27	1632.31
13631.22	1632.48	14181.85	1638.56	14215.61	1639.08				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4676.97	.15	9981.04	.035	10050.55	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.04	10050.55	294.82	311.56	321.17	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4676.97	8507	1630

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4676.97	6225.08	1631

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1626.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.150	0.035	0.150

W.S. Elev (ft)	1626.05	Reach Len. (ft)	294.82	311.56	321.17
Crit W.S. (ft)	1626.05	Flow Area (sq ft)	364.56	265.57	1878.25
E.G. Slope (ft/ft)	0.005369	Area (sq ft)	1196.93	265.57	1878.25
Q Total (cfs)	3500.00	Flow (cfs)	177.97	1999.52	1322.51
Top Width (ft)	3911.77	Top Width (ft)	1752.27	69.51	2090.00
Vel Total (ft/s)	1.40	Avg. Vel. (ft/s)	0.49	7.53	0.70
Max Chl Dpth (ft)	5.11	Hydr. Depth (ft)	0.54	3.82	0.90
Conv. Total (cfs)	47767.6	Conv. (cfs)	2428.9	27289.2	18049.5
Length Wtd. (ft)		Wetted Per. (ft)	671.67	70.53	2090.77
Min Ch El (ft)	1620.94	Shear (lb/sq ft)	0.18	1.26	0.30
Alpha	16.74	Stream Power (lb/ft s)	0.09	9.50	0.21
Frctn Loss (ft)		Cum Volume (acre-ft)	606.10	21.75	395.64
C & E Loss (ft)		Cum SA (acres)	403.98	14.62	184.60

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8465.59	9223.32	10.61	22.73	44.75	0.30	0.51	0.47
9223.32	9981.04	167.35	341.83	626.92	4.78	0.55	0.49
LB 9981.04	10004.21	611.60	85.10	23.86	17.47	3.67	7.19
10004.21	10027.38	869.41	103.90	23.19	24.84	4.48	8.37
10027.38	RB 10050.55	518.51	76.57	23.47	14.81	3.30	6.77
10050.55	10645.56	540.82	679.99	595.42	15.45	1.14	0.80
10645.56	11240.57	213.79	348.53	450.55	6.11	0.77	0.61
11240.57	11835.58	123.20	248.18	440.68	3.52	0.56	0.50
11835.58	12430.58	444.34	599.32	583.08	12.70	1.03	0.74
12430.58	13025.59	0.36	2.23	21.04	0.01	0.11	0.16

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.860

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4687.12	1625.27	4979.89	1624.73	4998.79	1624.84	5015.38	1625.04	5163.42	1624.62
5177.81	1624.64	5191.42	1624.56	5538.71	1625.21	5559.61	1625.32	5579.47	1624.93
5590.95	1623.95	5943.61	1623.92	5962.92	1624.03	5978.5	1623.92	6014.41	1623.87
6017.83	1621.87	6022.43	1623.7	6412.66	1624.11	6429.07	1624.01	6449.45	1624.3
6865.2	1623.37	6892.94	1623.65	6932.6	1623.05	6944.08	1622.17	6952.17	1623.27
7356.44	1622.39	7368.16	1622.94	7388.43	1622.72	7405.57	1622.35	7411.74	1622.38
7416.49	1621.55	7421.16	1622.56	7576.65	1624.19	7593.68	1621.23	7607.96	1623.16
7712.02	1622.07	7749.23	1622.35	7954.45	1621.44	7993.5	1621.72	8087.49	1621.82
8134.05	1622.15	8173.77	1622.71	8207.44	1622.74	8541.85	1622.32	8568.45	1622.49
8589.19	1622.25	8742.81	1622.4	8746.39	1623.59	8817.79	1622.37	8828.79	1621.28
8840.96	1622.74	8944.5	1624.59	8996.13	1621.91	9035.98	1622.14	9054	1623.54
9223.8	1624.08	9253.76	1624.23	9285.09	1624.04	9303.68	1622.49	9314.8	1621.51
9333.11	1621.91	9363.26	1623.7	9390.9	1623.6	9417.16	1623.09	9426.01	1622.59
9444.8	1620.69	9464.83	1622.11	9765.79	1622.68	9787.96	1619.43	9834.03	1618.65
9852.72	1621.32	9888.72	1621.32	9897.15	1622.41	9989.53	1622.3	10000	1619.1
10013.71	1621.3	10031.54	1622.67	10085.61	1622.21	10172.51	1621.92	10202.2	1622.2
10390.12	1621.93	10420.18	1622.05	10492.48	1622.71	10526.86	1622.5	10531.69	1621.4

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10539.66 1619.5710558.08 1620.8110568.26 1620.9910580.32 1620.7510582.43 1620.27
10618.24 1620.7510783.89 1622.9710832.13 1622.9111101.08 1622.5611123.71 1622.73
11158.49 1622.6911179.86 1622.7711216.14 1623.0511238.15 1623.1611389.81 1622.69
11430.67  1622.911446.42 1623.4711483.62 1623.4111495.24 1622.8811531.89 1623.04
11543.55 1622.9811660.74 1623.6511695.58 1623.1911732.83 1622.6411747.53 1621.44
11785.28 1622.2511802.58 1623.3611990.97 1622.9212000.89 1621.74 12037.4 1622.07
12047.92 1621.9812357.99 1623.2412407.52 1624.36 12643.3 1623.9312979.65 1626.87

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4687.12     .15 9989.53    .03510031.54     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9989.5310031.54              387  447.02  388.71             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4687.12 8754.84    1627   1217012979.65    1627
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4687.12 6449.45    1626
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1623.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1623.16	Reach Len. (ft)	387.00	447.02	388.71
Crit W.S. (ft)	1622.94	Flow Area (sq ft)	914.79	87.09	1432.62
E.G. Slope (ft/ft)	0.014863	Area (sq ft)	2152.92	87.09	1489.40
Q Total (cfs)	3500.00	Flow (cfs)	1238.57	724.82	1536.61
Top Width (ft)	4543.50	Top Width (ft)	2464.25	42.01	2037.24
Vel Total (ft/s)	1.44	Avg. Vel. (ft/s)	1.35	8.32	1.07
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)	1.14	2.07	0.77
Conv. Total (cfs)	28708.6	Conv. (cfs)	10159.3	5945.3	12604.0
Length Wtd. (ft)	396.54	Wetted Per. (ft)	804.43	42.72	1870.71
Min Ch El (ft)	1619.10	Shear (lb/sq ft)	1.06	1.89	0.71
Alpha	7.50	Stream Power (lb/ft s)	1.43	15.75	0.76
Frctn Loss (ft)	3.62	Cum Volume (acre-ft)	594.76	20.49	383.22
C & E Loss (ft)	0.06	Cum SA (acres)	389.71	14.22	169.38

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8474.56	9232.04	112.69	118.07	169.52	3.22	0.70	0.95
9232.04	9989.53	1125.88	796.72	634.90	32.17	1.26	1.41
LB 9989.53	10003.53	364.15	39.03	14.53	10.40	2.79	9.33
10003.53	10017.54	290.56	33.73	14.15	8.30	2.41	8.61
10017.54	RB 10031.54	70.10	14.33	14.04	2.00	1.02	4.89
10031.54	10452.70	507.99	437.01	421.16	14.51	1.04	1.16
10452.70	10873.86	662.62	512.78	421.61	18.93	1.22	1.29
10873.86	11295.02	88.28	152.58	418.74	2.52	0.36	0.58
11295.02	11716.17	27.05	60.66	246.01	0.77	0.25	0.45
11716.17	12137.33	227.95	245.24	330.52	6.51	0.74	0.93
12137.33	12558.49	22.72	24.36	32.67	0.65	0.75	0.93

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.775

INPUT
Description:
Station Elevation Data num= 107

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4668.44	1621.21	4699.63	1621.63	4729.4	1621.4	4981.66	1621.28	5009.63	1620.96
5187.75	1620.56	5205.22	1620.02	5219.57	1620.29	5572.44	1620	5587.74	1620.09
5606.86	1619.81	5713.28	1619.77	5848.92	1620.41	5892.38	1619.77	5933.2	1620.16
5973.98	1619.33	5992.07	1620.5	6048.56	1620.17	6061.45	1619.91	6079.97	1620.02
6100.25	1619.72	6484.42	1620.23	6498.75	1619.65	6544.18	1620.26	6606.7	1619.88
6631.36	1619.73	6713	1620	6773	1620	6810	1619.66	7258.37	1618.7
7279.01	1618.98	7299	1618.52	7736.63	1617.06	7744.52	1617.62	7764.85	1617.65
7783.5	1617.41	7794.46	1616.62	7865.7	1618.68	8208.74	1618.2	8229.07	1618.44
8248.04	1618.47	8635.34	1618.31	8677.15	1618.78	9331.52	1618.86	9365.68	1618.58
9584.32	1617.17	9589.9	1616.84	9634.89	1620.44	9663.81	1620.72	9690.06	1620.38
9717.7	1618.68	9731.01	1617.65	9741.65	1618.17	9777.83	1619.82	9805.37	1619.53
9833.48	1619.08	9992.97	1618.86	10000	1615.22	10014.93	1619.47	10163.14	1618.96
10211.85	1618.41	10219.25	1616.87	10228.18	1618.13	10236.79	1618.81	10247.58	1618.71
10260.92	1618.55	10452.16	1616.73	10458.69	1618.11	10487.77	1618.33	10507.34	1616.17
10767.4	1619	10784.52	1619.37	10818.39	1619.38	10845.21	1619.85	11002	1619.45
11027.74	1619.42	11062.03	1619.44	11165.85	1618.81	11198.77	1618.81	11229.38	1619.52
11333.49	1619.55	11437.99	1619.56	11470.5	1620.53	11496.95	1619.91	11598.57	1619.34
11614.68	1619.16	11650.87	1619.38	11666.6	1619.81	11826.35	1619.12	11846.09	1622.71
11884.65	1623.31	11892.42	1618.86	11985.9	1619.07	12051.62	1618.2	12114.4	1618.37
12138.3	1618.32	12194.13	1619.52	12317.88	1619.61	12350.51	1619.87	12387.69	1619.1
12739.65	1621.17	12751.11	1619.86	12766.35	1620.23	13057.74	1621.92	13063.39	1623.99
13070.34	1622.29	13362.64	1624.73						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4668.44	.15	9992.97	.035	10014.93	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9992.97	10014.93	361.96	513.4	490	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4668.44	7901	1625	11666	13362.64	1625

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4668.44	6743	1625

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1619.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.150	0.035	0.150
W.S. Elev (ft)	1619.67	Reach Len. (ft)	361.96	513.40	490.00
Crit W.S. (ft)	1619.13	Flow Area (sq ft)	2214.39	53.14	1419.69
E.G. Slope (ft/ft)	0.006155	Area (sq ft)	3597.95	53.14	1797.91
Q Total (cfs)	3500.00	Flow (cfs)	1868.65	305.50	1325.85
Top Width (ft)	5267.08	Top Width (ft)	3089.51	21.96	2155.61
Vel Total (ft/s)	0.95	Avg. Vel. (ft/s)	0.84	5.75	0.93
Max Chl Dpth (ft)	4.45	Hydr. Depth (ft)	1.11	2.42	0.97
Conv. Total (cfs)	44611.0	Conv. (cfs)	23817.8	3893.9	16899.3
Length Wtd. (ft)	431.00	Wetted Per. (ft)	1997.97	23.44	1466.67
Min Ch El (ft)	1615.22	Shear (lb/sq ft)	0.43	0.87	0.37
Alpha	3.99	Stream Power (lb/ft s)	0.36	5.01	0.35
Frctn Loss (ft)	3.35	Cum Volume (acre-ft)	569.21	19.77	368.55
C & E Loss (ft)	0.04	Cum SA (acres)	365.04	13.89	150.67

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7711.03	8471.68	648.94	713.80	570.68	18.54	1.25	0.91
8471.68	9232.32	565.54	737.31	760.65	16.16	0.97	0.77
9232.32	9992.97	654.16	763.25	666.64	18.69	1.15	0.86
LB 9992.97	10000.29	110.00	19.75	8.22	3.14	2.70	5.57
10000.29	10007.61	163.84	24.32	7.61	4.68	3.32	6.74
10007.61	RB 10014.93	31.66	9.07	7.61	0.90	1.24	3.49
10014.93	10493.17	618.63	636.97	478.71	17.68	1.33	0.97
10493.17	10971.42	642.70	604.33	396.35	18.36	1.53	1.06
10971.42	11449.66	53.86	146.19	470.18	1.54	0.31	0.37
11449.66	11927.91	10.67	32.20	121.43	0.30	0.27	0.33

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.678

INPUT
Description: Baseline crosses cross section on west side of Mountain Rd.
approx. 200 ft south of intersection with Apache Trail
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4743.95	1619.64	4796.8	1619.19	4825.27	1619.45	5201.51	1618.02	5384.27	1617.9
5400.58	1617.94	5419.31	1617.64	6270.55	1617.06	6333.78	1617.34	6393.97	1617.14
7006.72	1616.27	7027.33	1616.24	7049.26	1616.11	7685.56	1614.51	7706.83	1614.86
7725.64	1614.43	8169.81	1615.08	8179.78	1614.42	8200.84	1614.37	8220.18	1614.31
8231.64	1612.99	8246.45	1615.35	8391.63	1615.34	8397.66	1615.81	8403.47	1614.08
8440.51	1614.39	8452.94	1615.49	9085.28	1615.55	9116.63	1614.8	9409.04	1615.63
9539.89	1614.4	9577.07	1614.33	9767.93	1614.72	9777.03	1611.92	9788.36	1615.02
9798.49	1615.2	9903.46	1615.31	9957.5	1614.75	9971.01	1614.61	9983.27	1614.75
9997.61	1614.41	10050.85	1614.51	10104.08	1614.58	10376.9	1615.44	10396.51	1615.51
10414.04	1615.33	10430.26	1613.42	10442.39	1611.92	10457.97	1613.71	10475.15	1615.76
10494.19	1615.55	10514.07	1615.22	10530.02	1612.48	10542.42	1614.12	10609.73	1614.38
10641.6	1615.66	10678.34	1615.83	10701.69	1615.75	10728.25	1616.01	10777.36	1615.49
10870.39	1616.14	10894.03	1616.08	10953.73	1616.24	11000.63	1616.26	11031.46	1616.38
11099.71	1616.09	11247.87	1616.21	11286.75	1616.41	11315.75	1616.32	11374.67	1616.7
11450.46	1616.53	11525.5	1616.21	11681.31	1616.42	11694.66	1615.92	11730.47	1615.98
11742.04	1616.91	11926.26	1616.22	11937.54	1616.08	11973.21	1616.07	11982.79	1616.37
12053.31	1615.89	12064.96	1616.18	12105.7	1615.84	12282.14	1616.05	12297.51	1615.17
12391.69	1616.21	12429.55	1616.08	12474.72	1615.61	12646.11	1616.21	13073.91	1620.34
13079.58	1619.69	13094.2	1619.83	13690.71	1624.73	13759.43	1625.17	13776.9	1624.41
13795.69	1626.18								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4743.95	.15	9957.5	.02	10050.85	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9957.5	10050.85		430.64	490.1	305	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4743.95	7738	1620	11500	13795.69	1620

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1616.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1615.91	Reach Len. (ft)	430.64	490.10	305.00
Crit W.S. (ft)	1615.91	Flow Area (sq ft)	1862.62	127.86	717.05
E.G. Slope (ft/ft)	0.009835	Area (sq ft)	2317.95	127.86	765.98
Q Total (cfs)	3500.00	Flow (cfs)	1627.27	1161.81	710.92
Top Width (ft)	3946.73	Top Width (ft)	2827.12	93.35	1026.26
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	0.87	9.09	0.99
Max Chl Dpth (ft)	3.99	Hydr. Depth (ft)	0.84	1.37	0.94
Conv. Total (cfs)	35293.2	Conv. (cfs)	16409.0	11715.4	7168.8
Length Wtd. (ft)	421.41	Wetted Per. (ft)	2220.96	93.36	766.41
Min Ch El (ft)	1614.41	Shear (lb/sq ft)	0.51	0.84	0.57
Alpha	16.73	Stream Power (lb/ft s)	0.45	7.64	0.57
Frctn Loss (ft)		Cum Volume (acre-ft)	544.63	18.71	354.13
C & E Loss (ft)		Cum SA (acres)	340.46	13.21	132.78

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

7723.12	8467.91	770.34	787.46	730.52	22.01	1.08	0.98
8467.91	9212.71	200.54	353.91	744.80	5.73	0.48	0.57
9212.71	9957.50	656.38	721.23	745.64	18.75	0.97	0.91
LB 9957.50	9988.62	320.45	38.11	31.12	9.16	1.22	8.41
9988.62	10019.73	425.44	45.18	31.12	12.16	1.45	9.42
10019.73	RB 10050.85	415.94	44.57	31.12	11.88	1.43	9.33
10050.85	10585.83	659.20	620.80	535.75	18.83	1.16	1.06
10585.83	11120.80	51.72	96.24	230.66	1.48	0.42	0.54

Warning: The energy equation could not be balanced within the specified number of iterations. The
program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.585

INPUT
Description: Baseline on west side of Mountain Rd.
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5048.94	1615.54	5368.98	1614.49	5387.31	1614.45	5403.64	1614.28	6001.91	1613.58
6043.26	1613.31	6288.29	1613.53	6319.57	1613.53	6361.35	1613.35	6386.87	1613.05
6660.3	1612.95	6679.7	1611.37	6700.68	1610.82	6723.23	1610.98	6744.1	1613.25
6763.21	1613.62	6889.48	1612.92	7052.2	1612.21	7100	1612.41	7148.85	1611.84
7580	1611.61	7792.37	1611.1	7811.78	1611.65	7834.81	1610.93	7843.61	1610.94
8491.7	1610.87	8513.39	1610.81	8533.34	1610.57	8961.67	1610.47	9001.79	1610.83
9021.27	1611.05	9042.18	1610.92	9056	1610.36	9058.93	1609.83	9076.77	1611.4
9083.01	1612.53	9092.12	1611.38	9100.05	1610.38	9109.38	1611.76	9489.81	1611.29
9535.82	1611.31	9958.01	1609.23	9975.72	1609.31	9992.76	1608.83	10011.39	1609.38
10020.14	1610.69	10837.67	1610.74	10850.65	1608.31	10932.47	1615.27	10968.37	1615.42
11030.28	1615.49	11067.48	1615.08	11073.36	1615.17	11097.98	1614.44	11141.13	1614.06
11173.92	1613.91	11303.06	1614.67	11388.75	1614.48	11449	1614.03	11512.43	1614.88
11592.43	1614.79	11631.15	1614.65	11739.4	1615.36	11848.25	1614.25	11885.24	1614.23
12001.59	1614.76	12041.71	1614.33	12101.98	1614.53	12140.74	1614.54	12243.45	1615.18
12356.35	1614.29	12394.29	1614.48	12510.09	1614.97	12540.89	1614	12581.69	1614.07
12747.85	1614.97	12757.25	1615.72	12760.55	1614.68	12775.92	1613.88	12937.21	1614.7
12980.63	1615.94	13382.92	1617.15	13496.61	1619.57	13504.34	1619.34	13519.36	1619.47
13729.29	1621.39	14104.77	1623.15	14113.96	1624.31	14182.52	1625.04	14200.56	1624.05

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5048.94	.15	9975.72	.028	10020.14	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975.72	10020.14	290	318.41	208.83	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5048.94	7730	1617

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5048.94	6763.21	1618

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1612.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1611.62	Reach Len. (ft)	290.00	318.41	208.83
Crit W.S. (ft)	1611.68	Flow Area (sq ft)	1804.04	104.27	833.75
E.G. Slope (ft/ft)	0.010628	Area (sq ft)	1833.03	104.27	833.75
Q Total (cfs)	3500.00	Flow (cfs)	1666.38	1005.91	827.71
Top Width (ft)	3205.96	Top Width (ft)	2292.04	44.42	869.51
Vel Total (ft/s)	1.28	Avg. Vel. (ft/s)	0.92	9.65	0.99
Max Chl Dpth (ft)	3.32	Hydr. Depth (ft)	0.85	2.35	0.96
Conv. Total (cfs)	33950.7	Conv. (cfs)	16164.2	9757.5	8029.0
Length Wtd. (ft)		Wetted Per. (ft)	2119.50	44.53	869.88
Min Ch El (ft)	1608.83	Shear (lb/sq ft)	0.56	1.55	0.64
Alpha	16.81	Stream Power (lb/ft s)	0.52	14.99	0.63
Frctn Loss (ft)	4.29	Cum Volume (acre-ft)	524.12	17.40	348.53
C & E Loss (ft)	0.00	Cum SA (acres)	315.16	12.44	126.14

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7160.42	7864.24	36.37	60.52	132.39	1.04	0.46	0.60
7864.24	8568.07	434.50	522.96	703.83	12.41	0.74	0.83
8568.07	9271.89	538.21	550.14	579.45	15.38	0.95	0.98
9271.89	9975.72	657.30	670.41	703.83	18.78	0.95	0.98
LB 9975.72	9990.53	373.91	37.32	14.81	10.68	2.52	10.02
9990.53	10005.33	401.27	38.94	14.81	11.46	2.63	10.30
10005.33	RB 10020.14	230.75	28.01	14.91	6.59	1.89	8.24
10020.14	10617.34	523.58	545.81	597.20	14.96	0.91	0.96
10617.34	11214.54	304.10	287.92	272.67	8.69	1.06	1.06

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.525

INPUT
Description:
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4901.52	1612.18	5450	1610.57	5507	1610	5577	1610	5707.74	1610.58
5745.79	1610.25	5794.8	1610.12	5814.48	1610.47	5847.66	1610.12	6133.72	1610.57
6181.83	1610.08	6300	1610.54	6432	1609.64	6502.09	1609.26	6545.54	1609.07
6862.35	1609.27	6874.49	1607.49	6894.42	1607.04	6916	1607.3	6931.62	1609.8
7079.81	1609.12	7235.95	1608.81	7282.78	1608.82	7369.58	1608.5	7622.84	1608.88
7632.42	1608.22	7949.42	1607.34	7996.95	1607.11	8533.17	1607.68	8575.22	1608.4
9047.5	1609.41	9072.67	1608.75	9129.86	1608.77	9147.99	1609.05	9168.91	1608.7
9177.83	1607.92	9188.54	1609.16	9537.77	1609.6	9555.49	1609.68	9571.67	1609.74
9589.16	1608.15	9598.95	1609.21	9694.46	1607.96	9731.89	1607.92	9863.09	1607.57
9890.2	1608.21	9991.4	1609.28	9998.09	1606.88	10009.42	1609.88	10518.98	1609.82
10528.17	1606.89	10541.97	1609.15	10552.13	1609.59	10563.04	1609.99	10594.23	1610.37
10601.78	1608.6	10925.87	1610.9	10947.68	1613.46	10984.61	1613.63	10994.24	1613.05
11017.63	1610.48	11036.7	1613.63	11046.23	1614.37	11085.72	1613.46	11110.86	1611.31
11406.38	1612.51	11444.8	1611.98	11479.57	1612.06	11517.85	1612.21	11626.79	1612.85
11737.5	1613.02	11775.75	1612.72	11882.99	1614.02	11995.39	1613.23	12045.51	1613.17
12187.34	1612.42	12224.17	1613.09	12565.93	1612.45	12591.16	1612.85	12751.71	1612.8
12762.03	1612.7	12771.43	1613.69	13208.12	1616.26	13280.95	1618.52	13421.87	1619.2
13428.35	1618.64	13444.39	1619.11	14023.82	1623.57				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4901.52	.15	9991.4	.02	10009.42	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9991.4	10009.42	330	391.68	271.49	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4901.52	7327	1615	10761.5	14023.82	1615

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4901.52	6300	1612

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1609.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1609.64	Reach Len. (ft)	330.00	391.68	271.49
Crit W.S. (ft)	1608.40	Flow Area (sq ft)	3400.46	24.82	115.55
E.G. Slope (ft/ft)	0.006804	Area (sq ft)	3929.93	24.82	115.55
Q Total (cfs)	3500.00	Flow (cfs)	3291.70	135.18	73.12
Top Width (ft)	3699.63	Top Width (ft)	3497.53	17.11	184.98
Vel Total (ft/s)	0.99	Avg. Vel. (ft/s)	0.97	5.45	0.63

Max Chl Dpth (ft)	2.76	Hydr. Depth (ft)	1.29	1.45	0.62
Conv. Total (cfs)	42432.7	Conv. (cfs)	39907.3	1638.9	886.5
Length Wtd. (ft)	330.40	Wetted Per. (ft)	2638.62	17.89	185.72
Min Ch El (ft)	1606.88	Shear (lb/sq ft)	0.55	0.59	0.26
Alpha	2.08	Stream Power (lb/ft s)	0.53	3.21	0.17
Frctn Loss (ft)	3.26	Cum Volume (acre-ft)	504.93	16.93	346.26
C & E Loss (ft)	0.00	Cum SA (acres)	295.89	12.21	123.61

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7082.90	7810.02	496.77	592.35	483.05	14.19	1.23	0.84
7810.02	8537.15	2023.06	1620.09	727.13	57.80	2.23	1.25
8537.15	9264.27	341.27	556.96	727.25	9.75	0.77	0.61
9264.27	9991.40	430.61	631.06	701.19	12.30	0.90	0.68
LB 9991.40	9997.41	42.40	8.64	6.38	1.21	1.44	4.91
9997.41	10003.41	82.37	12.74	6.23	2.35	2.12	6.46
10003.41	RB 10009.42	10.40	3.45	5.28	0.30	0.68	3.02
10009.42	10582.91	31.63	37.00	34.58	0.90	1.09	0.85
10582.91	11156.39	41.49	78.55	151.14	1.19	0.52	0.53

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.451

INPUT
Description:
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5215.51	1608.11	5356.94	1607.14	5498.37	1606.85	5645.05	1606.69	5664.07	1606.74
5684.58	1606.3	5704.82	1606.42	5719.83	1606.98	5736.13	1606.21	6040.58	1605.8
6097.61	1606.21	6411.81	1606.58	6430.69	1606.59	6451.45	1606.41	6773.19	1605.7
6814.23	1605.58	7121.31	1604.82	7168.83	1604.7	7178.58	1604.8	7343.67	1606.2
7391.44	1606.17	7476.62	1605.74	7486.71	1603.72	7507.88	1603.39	7527.96	1603.5
7560.73	1603.95	7588.35	1604.26	7614.85	1604.82	7840.48	1604.77	7885.58	1605.05
7932.89	1604.1	7938.75	1604.6	8455.74	1604.5	8505.05	1604.34	8548.96	1604.4
8583.8	1604.61	8589.97	1605.81	8998.67	1606	9017.58	1605.46	9052.28	1606.06
9491.2	1606.3	9508.73	1606.5	9544.51	1606.43	9568.5	1605.95	9582.35	1604.77
9599.61	1605.77	9635.95	1605.78	9650.66	1604.35	9665.87	1606.2	9679.65	1605.57
9692.59	1605.58	9718.8	1606.17	9735.9	1607.18	9821.7	1607.14	9857.13	1606.99
9986.27	1606.07	9996.66	1606.38	9999.36	1604.99	10008.35	1606.43	10507.81	1606.05
10518.67	1604.48	10533.52	1605.93	11369.36	1609.07	11410.57	1611.87	11453.19	1612
11459.44	1611.37	11476.56	1609.22	11499.22	1612.87	11585.55	1611.93	11647.04	1611.87
11851.3	1611.23	11899.99	1610.92	12008.38	1611.63	12122.69	1612.19	12160.86	1611.81
12242.88	1612.97	12313.42	1611.89	12354.44	1612.07	12377.36	1614.44	12392.93	1611.82
12443.06	1611.68	12467.3	1611.67	12724.48	1611.15	12745.76	1610.97	12873.28	1612.19
12966.86	1610.83	12997.21	1611.55	13137.88	1612.25	13149.56	1613.71	13528.41	1615.48
13672.78	1617.09	13798.38	1618.81	13802.47	1617.74	13993.86	1619.55		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5215.51	.15	9986.27	.02	10008.35	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.27	10008.35	401.88	370.79	366.61	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

5215.51 7260 161210945.0513993.86 1615
Blocked Obstructions num= 1

Sta L	Sta R	Elev
5215.51	6430.69	1608

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1606.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1606.39	Reach Len. (ft)	401.88	370.79	366.61
Crit W.S. (ft)	1605.20	Flow Area (sq ft)	2617.23	9.68	132.48
E.G. Slope (ft/ft)	0.015448	Area (sq ft)	3314.19	9.68	132.48
Q Total (cfs)	3500.00	Flow (cfs)	3403.17	36.66	60.17
Top Width (ft)	3870.62	Top Width (ft)	3257.68	21.81	591.13
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)	1.30	3.79	0.45
Max Chl Dpth (ft)	3.00	Hydr. Depth (ft)	1.06	0.44	0.22
Conv. Total (cfs)	28159.5	Conv. (cfs)	27380.5	295.0	484.1
Length Wtd. (ft)	400.48	Wetted Per. (ft)	2459.98	22.27	591.31
Min Ch El (ft)	1604.99	Shear (lb/sq ft)	1.03	0.42	0.22
Alpha	1.12	Stream Power (lb/ft s)	1.33	1.59	0.10
Frctn Loss (ft)	3.87	Cum Volume (acre-ft)	477.49	16.77	345.48
C & E Loss (ft)	0.00	Cum SA (acres)	270.30	12.04	121.19

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6578.58	7260.12	0.11	0.11	0.12	0.00	0.90	0.98
7260.12	7941.66	1257.40	955.70	681.79	35.93	1.40	1.32
7941.66	8623.20	1894.88	1222.23	681.65	54.14	1.79	1.55
8623.20	9304.73	160.38	277.76	681.55	4.58	0.41	0.58
9304.73	9986.27	90.41	161.46	414.87	2.58	0.39	0.56
LB 9986.27	9993.63	3.28	1.53	7.36	0.09	0.21	2.15
9993.63	10000.99	16.59	4.12	7.72	0.47	0.56	4.03
10000.99	RB 10008.35	16.78	4.03	7.19	0.48	0.57	4.16
10008.35	10577.71	56.35	121.17	513.71	1.61	0.24	0.47
10577.71	11147.07	3.82	11.31	77.60	0.11	0.15	0.34

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.381

INPUT
Description: Baseline on 4th Ave. approx. 600 ft west of intersection with Mountain Rd.
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5162.11	1603.79	5194.62	1603.32	5282.46	1602.47	5302.31	1602.32	5358.74	1601.79
5378.04	1601.91	5386.9	1602.68	5430.61	1602.54	5497.9	1602.39	5508.89	1601.68
5542.44	1602	5548.23	1602.5	5620.07	1603.16	5683.84	1602.28	5694.95	1601.94
5728.87	1602.01	5736.58	1602.53	5806.62	1603.05	5846.37	1602.8	5855.11	1601.89
5884.86	1601.6	5897.44	1602.52	6331.66	1603.46	6341.97	1598.54	6351.73	1601.78
6365.45	1601.55	6380.17	1601.47	6390.47	1601.63	6414.93	1600.93	6723.47	1602.23
6743.33	1602.23	6760.85	1601.95	7082.21	1601.29	7085.74	1601.39	7141.89	1600.25
7169.6	1600.94	7317.72	1601.63	7442.32	1601.08	7463.7	1601.28	7504.04	1600.93
7530.61	1601.26	7860.67	1600.39	7881.05	1600.89	7902.49	1600.52	8159.84	1600.63
8206.79	1601.12	8252.57	1600.51	8262.58	1601.4	8555.84	1600.6	8594.08	1600.96
9021.66	1602.25	9041.68	1602.12	9074.7	1602.01	9079.27	1602.48	9095.11	1602.25
9115.73	1602.14	9148.79	1602.56	9173.93	1602.09	9186.31	1602.73	9218.72	1602.6
9232.67	1601.25	9269.21	1601.38	9498.55	1601.72	9534.8	1601.94	9764.26	1601.87
9800.53	1602.24	9855.38	1602.33	9891.66	1601.99	9963.89	1602.73	9974.09	1599.99
9986.14	1602.32	9996.4	1602.11	0006.08	1602.04	10015.21	1602.08	10019.78	1602.18

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 10123.8 1602.51 10128.5 1601.6510134.71 1602.6511263.66 1605.6511729.57 1605.82
11758.28 1604.1511783.97 1608.9911821.28 1609.1311881.87 1609.4211920.85 1609.09
11928.91 1608.5511937.24  1608.312190.54 1608.9812221.06 1608.7912287.18 1608.86
12368.18 1609.4512485.19 1610.4912656.02 1609.0312697.96 1609.3812856.31 1606.72
12865.06 1608.5713533.49 1613.5213758.44 1616.1413921.38 1617.8113927.39 1616.83

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 5162.11     .15 9963.89     .0210015.21     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9963.8910015.21           354.57  609.88  452.58             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 5162.11    6879    1607
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 5162.11 5806.62    1606
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1602.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1602.51	Reach Len. (ft)	354.57	609.88	452.58
Crit W.S. (ft)	1601.87	Flow Area (sq ft)	3528.78	39.48	22.94
E.G. Slope (ft/ft)	0.006683	Area (sq ft)	4043.77	39.48	22.94
Q Total (cfs)	3500.00	Flow (cfs)	3291.34	202.01	6.64
Top Width (ft)	3780.41	Top Width (ft)	3612.04	50.49	117.87
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)	0.93	5.12	0.29
Max Chl Dpth (ft)	3.97	Hydr. Depth (ft)	1.17	0.78	0.19
Conv. Total (cfs)	42813.1	Conv. (cfs)	40260.7	2471.1	81.3
Length Wtd. (ft)	396.00	Wetted Per. (ft)	3018.81	51.05	118.02
Min Ch El (ft)	1599.99	Shear (lb/sq ft)	0.49	0.32	0.08
Alpha	2.45	Stream Power (lb/ft s)	0.45	1.65	0.02
Frctn Loss (ft)	3.19	Cum Volume (acre-ft)	443.55	16.56	344.83
C & E Loss (ft)	0.03	Cum SA (acres)	238.61	11.73	118.21

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6534.05	7220.02	392.73	430.05	341.04	11.22	1.26	0.91
7220.02	7905.98	1028.07	1013.16	685.99	29.37	1.48	1.01
7905.98	8591.95	1297.48	1165.02	686.02	37.07	1.70	1.11
8591.95	9277.92	324.15	493.48	641.49	9.26	0.77	0.66
9277.92	9963.89	248.90	427.07	664.28	7.11	0.64	0.58
LB 9963.89	9981.00	159.15	24.58	16.74	4.55	1.51	6.48
9981.00	9998.10	20.58	7.28	17.21	0.59	0.43	2.83
9998.10	RB 10015.21	22.28	7.62	17.11	0.64	0.45	2.92
10015.21	10574.09	6.64	22.94	118.02	0.19	0.19	0.29

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.265

INPUT
Description: Baseline on 4th Ave.
Station Elevation Data num= 112

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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 4720.35 1600.28 4750.75 1600.29 4820.08  1600.9 4891.42 1599.94 4922.23 1599.98
 4992.04 1600.85  5062.2 1599.53 5095.32 1599.42 5162.12 1599.45 5178.21 1599.86
 5186.74 1600.27 5226.35 1600.23 5234.66 1599.61  5265.9 1599.83 5273.21 1600.31
 5334.01 1600.77  5398.2 1600.05 5406.14 1599.45 5437.11 1599.63 5443.64 1600.25
 5504.46  1600.5 5568.88 1599.96 5577.78 1599.34 5608.65 1599.51 5676.54 1600.09
 5690.19 1598.89 5722.21 1598.73 5749.51 1598.75  5782.3 1599.17  5792.1 1600.02
 5854.52 1600.47 5922.64 1599.78 5931.98 1599.12  5964.9 1599.15 5974.15 1600.12
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 6039.34 1600.46 6073.99 1599.69 6084.75 1598.85 6114.33 1598.58 6120.14 1599.24
 6179.35 1600.07 6189.31 1595.73 6198.18 1597.82 6214.48 1598.45  6225.9  1598.7
 6237.53 1598.45 6267.99 1598.42 6423.18  1598.6 6448.53 1597.98 6653.88 1599.04
 6659.51 1596.35 6670.43 1599.13 6953.87 1597.78 7010.68 1597.58 7331.79 1597.39
 7347.14 1597.33  7364.8 1597.19 8079.46 1599.27 8129.12 1599.57 8176.39 1599.08
 8198.92 1598.79 8217.28 1599.36 8267.35 1599.06 8295.92 1599.43 8328.58 1599.24
 8333.19 1600.04 8348.68  1599.3  8364.8 1597.14 8382.68 1599.08    8484 1598.07
 8520.12 1598.16 8746.42 1598.34 8782.25 1598.48 9007.38 1598.25 9044.19 1598.51
 9265.85 1597.97 9305.83 1598.14 9323.79 1599.16 9419.73 1599.66  9531.6 1597.81
 9567.68 1598.19 9778.91 1597.68 9863.35 1597.87 9951.96 1598.09 9964.71 1595.98
 9983.35 1598.15 9993.85 1598.0710002.75 1597.7610010.71    159810015.67 1598.96
10019.44 1597.3210696.79 1600.8310814.57 1601.1210865.49 1600.8310901.12 1602.23
11180.95 1602.0111737.46 1603.6911758.61 1605.8511803.59 1605.4311814.31 1604.71
11824.65 1606.0311836.99 1606.9611903.55  1605.811920.23 1605.2712229.97 1610.07
12238.21 1607.3812455.97 1606.7412503.98 1607.2312579.69 1605.6312589.23  1606.8
12676.89 1608.2712690.41    1609

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4720.35     .15 9951.96     .0210010.71     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9951.9610010.71           323.21  438.39  331.63             .1       .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4720.35    6203    1605   1026512690.41    1605
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 4720.35 6039.34    1606

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1599.32   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.35   Wt. n-Val.                0.150      0.020      0.150
  W.S. Elev (ft)            1598.97   Reach Len. (ft)          323.21     438.39     331.63
  Crit W.S. (ft)            1598.94   Flow Area (sq ft)       2671.47      87.38     254.97
  E.G. Slope (ft/ft)       0.009827   Area (sq ft)            2716.49      87.38     268.86
  Q Total (cfs)             3500.00   Flow (cfs)              2413.81     835.65     250.54
  Top Width (ft)            3636.86   Top Width (ft)          3250.61      58.75     327.50
  Vel Total (ft/s)             1.16   Avg. Vel. (ft/s)           0.90       9.56       0.98
  Max Chl Dpth (ft)            3.24   Hydr. Depth (ft)           0.84       1.49       1.00
  Conv. Total (cfs)         35307.0   Conv. (cfs)             24349.8     8429.8     2527.4
  Length Wtd. (ft)           343.29   Wetted Per. (ft)        3196.11      59.06     254.73
  Min Ch El (ft)            1595.98   Shear (lb/sq ft)           0.51       0.91       0.61
  Alpha                       16.66   Stream Power (lb/ft s)     0.46       8.68       0.60
  Frctn Loss (ft)              3.05   Cum Volume (acre-ft)     416.04      15.68     343.31
  C & E Loss (ft)              0.08   Cum SA (acres)           210.68      10.96     115.90


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)            (cfs)    (sq ft)      (ft)                 (ft)     (ft/s)
  5467.72       6215.10          6.69       8.85     12.10       0.19       0.73       0.76
  6215.10       6962.47        245.04     389.59    701.11       7.00       0.56       0.63
  6962.47       7709.84       1200.45    1036.97    747.38      34.30       1.39       1.16
  7709.84       8457.21         78.17     153.89    381.61       2.23       0.40       0.51
  8457.21       9204.59        354.50     498.81    747.38      10.13       0.67       0.71
  9204.59       9951.96        528.95     583.36    606.54      15.11       0.96       0.91
  LB 9951.96    9971.54        491.25      42.42     19.80      14.04       2.17      11.58
  9971.54       9991.13        196.87      24.44     19.66       5.62       1.25       8.06
  9991.13       RB 10010.71    147.53      20.52     19.59       4.22       1.05       7.19
  10010.71      10393.52       250.54     254.97    254.73       7.16       1.00       0.98


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

CROSS SECTION          RIVER: Apache Junct FRS
REACH: Spillway           RS: 16.182
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INPUT
Description: Baseline on 4th Ave.
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4328.73	1599.13	4343.06	1599.91	4444.51	1597.92	4476.64	1597.67	4487.72	1598.63
4519.1	1597.74	4549.22	1597.73	4621.45	1598.41	4686.86	1597.31	4717.02	1597.36
4785.93	1598.65	4854.78	1597.18	4884.81	1597.31	4953.81	1598.45	4987.62	1597.96
5001.3	1597.39	5023.12	1597.03	5088.16	1596.96	5107.02	1597.35	5116.85	1598.06
5190.53	1597.16	5220.77	1597.25	5286.44	1598.09	5358.3	1596.67	5388.5	1596.82
5455.95	1598.03	5526.12	1596.71	5584.89	1597.26	5599.78	1596.82	5663.54	1596.25
5676.1	1596.41	5682.26	1596.45	5694.44	1596.25	5724.25	1596.29	5790.67	1597.4
5862.03	1595.85	5909.99	1596.15	5981.23	1596.98	6054.04	1595.25	6086.04	1595.28
6097.9	1595.84	6156.16	1596	6165.84	1593.18	6177.1	1595.01	6194.51	1595.24
6205.95	1595.53	6218.24	1595.18	6910.84	1595.39	6940.25	1595.47	7615.06	1595.58
7628.46	1593.67	7641.14	1595.67	7644.61	1595.05	7667.9	1595.27	7696.38	1594.52
8096	1596.2	8142.64	1595.93	8188.18	1595.67	8195.67	1596	8216.36	1596.31
8234.9	1594.05	8249.3	1595.59	8364.06	1594.9	8367.62	1594.8	8370.06	1594.9
8416.09	1595.17	8635.75	1594.5	8672.16	1594.94	8899.23	1594.33	8945.26	1595.12
9161.55	1594.8	9198.79	1595.12	9475.72	1594.4	9512.02	1594.7	9790.99	1595.2
9837.73	1595.08	9858.59	1595.66	9959.07	1596.13	9967.23	1593.78	9975.9	1593.56
9982.65	1595.93	9993.99	1595.63	10010.09	1595.34	10017.42	1596.22	10056.85	1595.88
10071.65	1594.98	10082.56	1596.38	10472.82	1596.02	10485.61	1597.55	10498.64	1595.44
10520.79	1600.07	10543.5	1598.12	10827.04	1598.69	10841.47	1598.87	11033.1	1599.66
11163.43	1599.36	11232.45	1601.44	11289.63	1599.88	11332.57	1598.88	11361.71	1600.23
11483.23	1601.29	11525.47	1601.07	11536.86	1601.42	11755.82	1602.99	11808.84	1603.96
11830.2	1604.14	11846.38	1604.04	11858.62	1604.55	11871.61	1604.2	11909.2	1603.46
11942.38	1603.96	11959.97	1602.17	11973.27	1602.83	12190.42	1603.82	12308.91	1604.17
12320.54	1601.98	12337.82	1605.18	12345.79	1605.06	12373.64	1604.35	12633.19	1605.21

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4328.73	.15	9959.07	.02	10017.42	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9959.07	10017.42	255	507.2	380	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4328.73	6154	1600	10090	12633.19	1600

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4328.73	5981.23	1601

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1596.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1596.11	Reach Len. (ft)	255.00	507.20	380.00
Crit W.S. (ft)	1595.76	Flow Area (sq ft)	3528.95	56.12	18.15
E.G. Slope (ft/ft)	0.008075	Area (sq ft)	3589.02	56.12	25.12
Q Total (cfs)	3500.00	Flow (cfs)	3126.02	365.81	8.17
Top Width (ft)	4099.97	Top Width (ft)	3885.64	57.37	156.95
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)	0.89	6.52	0.45
Max Chl Dpth (ft)	2.93	Hydr. Depth (ft)	0.94	0.98	0.36
Conv. Total (cfs)	38948.1	Conv. (cfs)	34786.5	4070.7	90.9
Length Wtd. (ft)	284.60	Wetted Per. (ft)	3750.62	58.16	50.49
Min Ch El (ft)	1593.56	Shear (lb/sq ft)	0.47	0.49	0.18
Alpha	5.45	Stream Power (lb/ft s)	0.42	3.17	0.08
Frctn Loss (ft)	2.74	Cum Volume (acre-ft)	392.64	14.95	342.20
C & E Loss (ft)	0.01	Cum SA (acres)	184.20	10.38	114.05

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5937.40	6741.73	422.96	518.14	588.29	12.08	0.88	0.82
6741.73	7546.07	328.51	504.59	804.33	9.39	0.63	0.65
7546.07	8350.40	425.90	574.42	753.39	12.17	0.76	0.74
8350.40	9154.74	1101.63	1042.88	804.35	31.48	1.30	1.06
9154.74	9959.07	847.01	888.91	800.25	24.20	1.11	0.95

LB 9959.07	9978.52	294.22	36.07	19.87	8.41	1.86	8.16
9978.52	9997.97	32.29	9.55	19.70	0.92	0.49	3.38
9997.97	RB 10017.42	39.29	10.49	18.59	1.12	0.57	3.74
10017.42	10391.10	8.17	18.15	50.49	0.23	0.36	0.45

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.086

INPUT
Description: Baseline crosses cross section on 4th Ave. approx. 500 ft east of Signal Butte Rd.
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4938.55	1595.16	4964.22	1595.07	5000.82	1595.24	5018.16	1598.84	5034.14	1598.85
5036.63	1596.93	5265.96	1594.59	5324.57	1594.36	5364.68	1594.94	5397.57	1594.5
5406.63	1595.44	5472.02	1595.78	5544.35	1594.28	5576.92	1593.9	5652.57	1595.11
5724.11	1593.83	5756.81	1593.6	5827.8	1594.54	5903.65	1593.02	5936.52	1592.76
5952.66	1593.11	6007.73	1593.28	6017.8	1590	6028.37	1592.13	6046.96	1592.38
6057.99	1592.61	6071.39	1592.44	6794.6	1592.74	6835.62	1592.99	7025.43	1594.04
7036.86	1592.23	7050.29	1594.31	7056.18	1593.36	7075.51	1593.29	7099.49	1593.19
7284.66	1591.82	7284.72	1591.81	7329.93	1591.51	8002.12	1592.91	8047.65	1592.77
8097.01	1592.19	8102.94	1592.84	8127.77	1593.54	8141.6	1590.96	8161.2	1593.05
8266.87	1592.78	8305.16	1592.41	8397.36	1592.66	8509.63	1591.45	8544.17	1591.6
8674.53	1594.01	8809.81	1591.69	8882.48	1592.02	9110.59	1591.53	9144.75	1591.74
9329.6	1593.62	9363.16	1592.65	9396.79	1592.85	9419.32	1592.74	9582.77	1592.97
9613.74	1592.77	9648.47	1593.11	9672.58	1593.44	9772.69	1593.58	9804.95	1593.1
9842.97	1592.95	9861.49	1595.06	9954.74	1594.42	9958.14	1590.17	9972.49	1590.82
9977.1	1593.62	9987.84	1593.11	10006.36	1593.26	10014.38	1592.56	10024.66	1594.69
10036	1594.11	10455.96	1594.24	10464.29	1593.75	10473.7	1594.37	10630.19	1594.54
10643.85	1593.43	10662.98	1594.58	10769.26	1595.52	10925.83	1596.86	11042.12	1597.09
11060.05	1597.38	11249.86		159	11664.53	1600.49	11720.71	1601.56	11736.2 1600.41
11753.19	1601.43	11769.25	1601.33	11778.88	1601.21	11827.64	1600.74	12159.21	1602.82
12169.79	1602.46	12345.82	1603.47						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4938.55	.15	9954.74	.02	10024.66	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9954.74	10024.66	272.52	446.48	350	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4938.55	5969	1600	10455.96	12345.82	1600

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4938.55	5827.8	1601

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1593.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.150	0.020	
W.S. Elev (ft)	1593.30	Reach Len. (ft)	272.52	446.48	350.00
Crit W.S. (ft)	1593.24	Flow Area (sq ft)	2966.92	56.20	
E.G. Slope (ft/ft)	0.012037	Area (sq ft)	2990.94	56.20	
Q Total (cfs)	3500.00	Flow (cfs)	3048.24	451.76	
Top Width (ft)	3582.74	Top Width (ft)	3527.69	55.05	
Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)	1.03	8.04	
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)	0.86	1.02	
Conv. Total (cfs)	31901.8	Conv. (cfs)	27784.1	4117.7	
Length Wtd. (ft)	288.90	Wetted Per. (ft)	3449.74	57.38	
Min Ch El (ft)	1590.17	Shear (lb/sq ft)	0.65	0.74	
Alpha	6.91	Stream Power (lb/ft s)	0.66	5.92	
Frctn Loss (ft)	2.33	Cum Volume (acre-ft)	373.38	14.30	342.09
C & E Loss (ft)	0.04	Cum SA (acres)	162.50	9.73	113.37

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5655.15	6371.75	293.05	321.75	403.49	8.37	0.80	0.91
6371.75	7088.35	222.10	308.24	549.36	6.35	0.56	0.72
7088.35	7804.94	984.69	837.74	716.61	28.13	1.17	1.18
7804.94	8521.54	458.82	527.01	707.18	13.11	0.75	0.87
8521.54	9238.14	995.65	804.44	636.84	28.45	1.26	1.24
9238.14	9954.74	93.93	167.72	436.27	2.68	0.38	0.56
LB 9954.74	9978.05	437.72	49.24	23.15	12.51	2.35	8.89
9978.05	10001.35	2.99	2.21	17.52	0.09	0.13	1.35
10001.35	RB 10024.66	11.05	4.75	16.70	0.32	0.29	2.33

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 16.001

INPUT
Description: Baseline crosses cross section at intersection of 4th Ave. and Signal Butte Rd.
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4559	1593.79	4762.32	1593.06	4819.92	1592.65	4884.97	1594.05	4953.53	1592.83
4982.69	1593.01	5047.73	1593.66	5079.06	1593.47	5094.41	1592.44	5128.05	1592.33
5203.21	1593.47	5278.98	1592.04	5313.05	1591.64	5389.89	1593.31	5465.21	1591.53
5498.89	1591.41	5574.81	1592.8	5651.03	1591.44	5684.65	1591.2	5756.72	1592.02
5837.01	1590.51	5870.67	1590.48	5888.39	1590.95	5946.7	1591.42	5955.77	1587.4
5967.37	1590.33	5985.69	1590.9	5996.35	1590.92	6007.06	1590.64	6098.71	1590.4
6115.21	1589.65	6141.21	1590.65	6484.71	1592.24	6491.49	1590.64	6502.5	1592.5
6512.52	1591.17	6536.65	1591.32	6570.36	1590.59	7004.54	1589.8	7010.24	1589.63
7033.01	1589.69	7244.79	1591.3	7264.71	1589.68	7310.01	1589.77	7996.11	1589.34
8043.37	1589.3	8092.9	1588.98	8101.51	1589.79	8121.53	1590.45	8138.72	1587.63
8158.4	1590.17	8280.37	1588.87	8319.13	1588.72	8329.98	1589.41	8403.02	1590.09
8530.73	1589.61	8540.08	1588.69	8575.03	1588.67	8793.33	1588.89	8827.61	1589
8990.95	1591.3	9025.45	1591.06	9092.96	1590.48	9118.65	1591.64	9269.14	1591.64
9300.98	1590.54	9335.2	1590.75	9364.95	1591.18	9533.29	1591.27	9554	1590.62
9588.28	1591.01	9609.81	1591.58	9755.59	1590.72	9788.31	1590.87	9833.8	1590.91
9937.97	1591.81	9943.37	1588.97	9959.88	1589.01	9967.32	1591.77	9982.03	1590.78
10115.93	1591.41	10139.13	1593.04	10159.83	1592.88	10173.42	1591.71	10317.48	1592.01
10350.53	1590.88	10396.52	1591.48	10411.01	1591.61	10424.35	1592.89	10508.02	1593.27
10530.72	1592.62	10541.12	1591.7	10584.5	1591.62	10618.41	1593.19	10743.42	1592.57
10754.17	1592.16	11010.99	1595.83	11024.94	1595.81	11216.01	1592.15	11316.99	1590
11458.57	1592.59	11646.3	1596.72	11656.45	1597.64	11668.44	1597.53	11730.19	1597.87
11752.06	1595.97	11769.95	1596.84	11779.35	1596.88	11817.66	1597.08	11827.45	1596.88
11842.18	1596.64	12035.95	1597.5	12045.24	1594.82	12056.8	1594.22	12063.89	1598.17
12120.82	1598.36								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4559	.15	9937.97	.02	10115.93	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9937.97	10115.93	377.84	575.99	440	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4559	5858	1596	10115.93	12065.27	1596

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4559	5389.89	1597	10139.13	12120.82	1597

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1591.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.150	0.020	
W.S. Elev (ft)	1591.06	Reach Len. (ft)	377.84	575.99	440.00
Crit W.S. (ft)	1590.43	Flow Area (sq ft)	3552.47	52.51	

E.G. Slope (ft/ft)	0.005756	Area (sq ft)	3572.03	52.51	
Q Total (cfs)	3500.00	Flow (cfs)	3292.64	207.36	
Top Width (ft)	3209.02	Top Width (ft)	3120.38	88.64	
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)	0.93	3.95	
Max Chl Dpth (ft)	3.66	Hydr. Depth (ft)	1.16	0.59	
Conv. Total (cfs)	46134.3	Conv. (cfs)	43401.0	2733.3	
Length Wtd. (ft)	392.44	Wetted Per. (ft)	3072.31	89.53	
Min Ch El (ft)	1588.97	Shear (lb/sq ft)	0.42	0.21	
Alpha	1.84	Stream Power (lb/ft s)	0.39	0.83	
Frctn Loss (ft)	3.23	Cum Volume (acre-ft)	352.85	13.74	342.09
C & E Loss (ft)	0.00	Cum SA (acres)	141.71	8.99	113.37

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5327.42	6095.85	61.63	114.22	192.97	1.76	0.60	0.54
6095.85	6864.27	156.92	281.47	452.73	4.48	0.62	0.56
6864.27	7632.70	703.31	839.63	733.32	20.09	1.15	0.84
7632.70	8401.12	1338.92	1259.16	768.90	38.25	1.64	1.06
8401.12	9169.55	1015.44	998.72	652.27	29.01	1.53	1.02
9169.55	9937.97	16.41	59.26	272.11	0.47	0.22	0.28
LB 9937.97	9997.29	203.40	48.10	46.24	5.81	1.06	4.23
9997.29	10056.61	3.96	4.41	43.30	0.11	0.10	0.90

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.892

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5007.87	1590.39	5075.02	1589.01	5104.25	1589.11	5169.3	1590.22	5236.89	1588.64
5265.98	1588.86	5335.18	1589.83	5398.58	1588.39	5427.76	1588.71	5497.5	1589.67
5541	1589.8	5560.36	1588.16	5589.37	1588.18	5655.02	1589.3	5722.05	1587.82
5750.98	1588.11	5849.09	1587.71	5883.18	1587.5	5896.78	1588.53	5943.35	1588.32
6005.4	1586.98	6034.75	1587.13	6047.14	1588.42	6102.65	1588.76	6152.88	1588.14
6167.75	1587.39	6196.76	1587.58	6206.47	1588.45	6268.93	1589.09	6314.14	1588.4
6329.58	1587.26	6358.83	1587.22	6378.18	1588.93	6419.6	1589.62	6428.58	1583.29
6439.18	1587.82	6462.26	1586.73	6493.44	1587.4	6523.17	1587.39	6538.57	1587.64
6558.58	1583.71	6582.54	1588.13	6728.48	1587.66	6762.41	1587.79	6788.19	1586.8
6965.08	1586.76	6989.18	1586.95	6998.82	1588.73	7018.45	1588.41	7047.91	1588.06
7070.11	1589.79	7191.06	1587.65	7202.16	1587.93	7211.4	1587.64	7288.74	1587.96
7371.42	1586.66	7478.92	1587.23	7503.88	1586.32	7512.5	1586.21	7562.33	1586.32
7587.49	1585.73	7597.36	1586.33	7991.74	1586.76	8035.25	1586.18	8043.81	1587.01
8222.97	1586.5	8234.62	1585.79	8245.34	1585.94	8255.85	1585.91	8266.19	1585.52
8279.19	1586.6	8285.22	1586.3	8689.57	1586.22	8712.63	1587.16	8757.98	1587.16
8808.52	1586.37	8821.14	1587.39	8837.19	1587.43	8855.25	1584.3	8874.63	1586.97
8997.42	1586.54	9057.95	1586.03	9095.46	1588.96	9239.34	1588.58	9273.63	1587.71
9308.16	1588.36	9332.13	1589.06	9476.02	1589.18	9524.64	1587.96	9557.9	1587.89
9754.12	1588.11	9820.77	1588.46	9843.31	1588.74	9919.37	1588.59	9921.77	1585.05
9935.31	1585.64	9940.63	1589.11	9961.91	1587.42	10038.26	1587.95	10078.41	1590.26
10088.25	1587.59	10283.82	1587.77	10310.48	1588.41	10327.73	1589.21	10353.88	1587.05
10433.41	1588.97	10555.07	1588.22	10630.65	1586.96	10655.72	1588.43	10775.1	1587.8
10783.67	1589.63	10912.33	1588.87	10936.49	1587.61	10973.67	1588.04	10985.12	1588.5
10995.86	1589.26	11101.34	1588.93	11108.05	1589.78	11215.94	1589.37	11236.57	1588.63
11244.74	1587.91	11280.34	1588.15	11307.85	1588.33	11430.86	1588.99	11434.11	1589.87
11915.55	1589.59	11953.26	1588.98	12046.38	1589.93	12331.15	1593.86	12341.36	1589.39
12349.67	1589.43	12358.33	1594.11	12379.35	1594.45	12420.62	1594.75	12444.63	1592.93
12460.95	1594.86	12522.25	1594.67	12544.97	1593.44	12556.45	1593.98	12607.21	1594.84
12640.92	1595.13	12709.43	1595.47	12752.9	1595.82	12778.01	1595.91	12809.81	1596.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5007.87	.15	9919.37	.021	10038.26	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9919.37	10038.26	380	574.17	385.41	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5007.87	6491	1592	10433.41	12412.02	1592

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5007.87	5896.78	1593	10433.41	12809.81	1593

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1587.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1587.78	Reach Len. (ft)	380.00	574.17	385.41
Crit W.S. (ft)	1587.57	Flow Area (sq ft)	2517.95	48.86	32.96
E.G. Slope (ft/ft)	0.012816	Area (sq ft)	2655.74	48.86	32.96
Q Total (cfs)	3500.00	Flow (cfs)	3182.88	304.64	12.48
Top Width (ft)	2753.46	Top Width (ft)	2443.61	74.43	235.41
Vel Total (ft/s)	1.35	Avg. Vel. (ft/s)	1.26	6.24	0.38
Max Chl Dpth (ft)	4.49	Hydr. Depth (ft)	1.13	0.66	0.14
Conv. Total (cfs)	30916.9	Conv. (cfs)	28115.7	2691.0	110.2
Length Wtd. (ft)	414.62	Wetted Per. (ft)	2223.70	76.54	235.47
Min Ch El (ft)	1585.05	Shear (lb/sq ft)	0.91	0.51	0.11
Alpha	2.67	Stream Power (lb/ft s)	1.15	3.18	0.04
Frctn Loss (ft)	3.54	Cum Volume (acre-ft)	325.85	13.07	341.92
C & E Loss (ft)	0.01	Cum SA (acres)	117.58	7.91	112.18

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6411.16	7112.80	322.47	319.65	387.63	9.21	0.83	1.01
7112.80	7814.44	708.01	595.04	563.38	20.23	1.06	1.19
7814.44	8516.08	1227.20	903.71	701.77	35.06	1.29	1.36
8516.08	9217.73	925.18	699.36	564.81	26.43	1.24	1.32
9217.73	9919.37	0.02	0.20	6.11	0.00	0.03	0.12
LB 9919.37	9959.00	286.87	39.03	22.33	8.20	1.93	7.35
9959.00	9998.63	17.25	9.09	39.64	0.49	0.23	1.90
9998.63	RB 10038.26	0.51	0.74	14.57	0.01	0.05	0.69
10038.26	10434.20	12.48	32.96	235.47	0.36	0.14	0.38

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.784

INPUT
Description: Baseline crosses cross section on Signal Butte Rd. approx. 200 ft north of intersection with Broadway Ave.
Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5254.05	1587.8	5459.58	1586.29	5462.95	1585.06	5499.88	1586.78	5518.54	1586.6
5535.29	1586.17	5561.63	1587.61	5656.78	1585.54	5690.66	1585.42	5699.37	1586.14
5787.61	1585.03	5816.64	1585.33	5881.4	1586.19	5948.28	1584.67	5977.32	1585.02
5983.74	1585.19	6004.63	1580.88	6073.58	1585	6235.36	1584.24	6270.72	1584.09
6284.2	1584.99	6346.34	1585.38	6373.56	1585.23	6389.86	1583.52	6418.82	1583.77
6480.34	1586.11	6490.55	1580.07	6499.82	1584.14	6522.46	1582.86	6551.75	1583.55
6582.03	1583.16	6593.43	1583.7	6616.36	1580.38	6644.55	1585.28	6665.77	1584.86

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 6813.12 1584.18 6855.67 1584.84 6864.02 1585.06 6871.31 1584.06 6888.72 1583.99
 6908.38 1585.54 6914.32 1585.23 6957.81 1584.89 7088.18 1583.69 7138.11 1583.51
 7306.96 1583.97 7330.56 1586.19 7508.83 1584.26 7540.05 1584.38 7567.49 1583.64
 7715.57  1584.5 7728.56 1582.33 7733.25 1582.27 7746.59 1583.75 7750.76 1583.45
 7758.32 1582.61 7775.39 1582.68 7792.29 1584.04 7927.66  1582.8 7949.04 1582.86
 7972.55 1582.64 8265.93 1582.46 8277.22 1582.78 8290.49  1582.9 8325.25 1583.28
 8339.63 1581.53 8353.39 1583.48 8752.87 1582.77 8765.53 1584.96 8771.11 1582.23
 8854.59 1583.25 9187.33 1583.25 9236.98 1582.04 9484.51 1584.91 9509.47 1583.31
 9529.94 1584.65 9626.61  1584.1 9638.95 1586.27 9660.44 1586.12 9670.83 1583.59
 9684.45 1583.09 9691.49    1584 9705.26 1583.83 9715.57 1581.26 9767.02 1581.71
 9788.29 1584.92 9801.27 1585.12 9833.69 1584.84 9854.25 1584.88 9881.21 1584.16
 9916.79 1585.53 9922.04 1582.18 9933.08 1582.46  9939.8 1585.05 9960.74  1582.7
10051.58 1583.1710077.26 1584.87 10085.4 1582.2410220.51 1582.9410236.72 1581.51
10256.49 1580.6510303.77 1581.3310352.19 1584.0710505.91 1583.5310535.54 1581.68
10578.17 1581.6810615.34 1584.0310707.03 1584.0310733.87  1585.610849.91 1584.99
10876.42 1582.7510912.97 1582.5410940.76 1584.9811047.86 1583.7611072.93 1583.02
11140.45 1584.8311258.71  1584.211316.33 1583.14 11341.2 1584.2911452.26 1584.31
11472.57 1586.7311604.15 1585.8311627.65 1584.6311672.17 1584.6111681.08 1585.63
11692.27 1586.4611732.97 1586.66

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 5254.05     .15 9916.79     .0210051.58     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9916.7910051.58              370  461.26  344.31             .1       .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5254.05    7205 1590.0911140.4511732.97    1590
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5254.05 5983.74    158911140.4511732.97    1589

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1584.30   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.18   Wt. n-Val.                  0.150      0.020      0.150
  W.S. Elev (ft)            1584.12   Reach Len. (ft)            370.00     461.26     344.31
  Crit W.S. (ft)            1583.08   Flow Area (sq ft)         2141.70     143.31     907.67
  E.G. Slope (ft/ft)       0.006097   Area (sq ft)              2538.07     143.31     907.67
  Q Total (cfs)             3500.00   Flow (cfs)                1799.27     921.20     779.53
  Top Width (ft)            3433.55   Top Width (ft)            2499.41     121.91     812.23
  Vel Total (ft/s)             1.10   Avg. Vel. (ft/s)             0.84       6.43       0.86
  Max Chl Dpth (ft)            4.05   Hydr. Depth (ft)             1.05       1.18       1.12
  Conv. Total (cfs)         44822.4   Conv. (cfs)              23042.2    11797.2     9983.0
  Length Wtd. (ft)           369.98   Wetted Per. (ft)         2042.08     122.87     813.01
  Min Ch El (ft)            1582.18   Shear (lb/sq ft)             0.40       0.44       0.42
  Alpha                        9.49   Stream Power (lb/ft s)       0.34       2.85       0.36
  Frctn Loss (ft)              3.79   Cum Volume (acre-ft)       303.19      11.81     337.76
  C & E Loss (ft)              0.04   Cum SA (acres)              96.02       6.62     107.54


Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)          (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  6586.26       7252.37          6.95      17.31     47.37       0.20      0.37       0.40
  7252.37       7918.47        107.92     201.68    358.15       3.08      0.56       0.54
  7918.47       8584.58        777.97     845.75    666.36      22.23      1.27       0.92
  8584.58       9250.68        595.61     717.81    660.13      17.02      1.09       0.83
  9250.68       9916.79        310.82     359.15    310.08       8.88      1.16       0.87
  LB 9916.79    9961.72        228.98      36.84     33.01       6.54      1.15       6.22
  9961.72       10006.65       402.39      58.46     44.93      11.50      1.30       6.88
  10006.65      RB 10051.58    289.83      48.01     44.93       8.28      1.07       6.04
  10051.58      10291.78       463.35     423.85    227.00      13.24      1.87       1.09
  10291.78      10531.98       116.70     189.59    240.33       3.33      0.79       0.62
  10531.98      10772.18       117.17     168.06    176.71       3.35      0.95       0.70
  10772.18      11012.37        61.71      79.40     70.94       1.76      1.12       0.78
  11012.37      11252.57        20.60      46.78     98.03       0.59      0.48       0.44
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Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.696

INPUT
Description: Baseline crosses cross section on Signal Butte Rd. approx. 250 ft south of Broadway Ave.

Station Elevation Data num= 128

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4710.11	1582.75	4735.93	1583.42	4749.47	1583.57	4770.07	1583.76	4795.72	1584.07
4816.14	1584.09	4880.22	1582.71	4897.64	1584.89	5044.8	1583.62	5079.36	1583.12
5084.43	1581.99	5131.15	1581.36	5164.62	1583.17	5307.61	1582.46	5324.31	1583.95
5501.63	1582.11	5509.69	1581.03	5556.24	1580.68	5576.26	1582.78	5730.4	1582.91
5750.95	1584.56	5924	1582.93	5929.89	1581.49	5980.62	1581.52	6001.57	1583.63
6229.66	1581.71	6233.87	1580.53	6265.17	1581.28	6282.41	1581.28	6299.66	1580.84
6328.17	1581.93	6335.06	1582.03	6357.46	1578.65	6419.16	1578.45	6435.2	1581.18
6448.89	1581.59	6457.91	1577.72	6468.33	1581.46	6492.03	1580.16	6501.65	1580.56
6512.45	1580.83	6939.98	1581.68	6961.62	1577.84	6968.2	1577.34	6976.99	1577.82
6997.51	1580.27	7007.84	1580.05	7057.21	1579.61	7218.84	1579.98	7240.51	1581.39
7418.13	1579.67	7467.3	1579.44	7629.16	1579.22	7651.96	1581.34	7829.57	1579.72
7879.47	1579.34	7900.92	1578.82	7916.2	1579.82	8038.58	1579.35	8058.22	1578.94
8101.35	1579.8	8130.32	1580.86	8225.14	1580.98	8243.5	1579.15	8271.73	1579.57
8312.91	1579.44	8333.84	1579.1	8341.96	1580.28	8477.32	1580.27	8487.66	1581.55
8633.7	1580.23	8733.19	1579.14	8751.16	1579.71	8868.41	1579.5	8891	1581.47
9025.67	1580.45	9058.24	1579.13	9115.77	1580.01	9141.14	1580.25	9284.3	1580
9406.96	1579.68	9767.34	1580.94	9876.7	1581.77	9956.15	1580.9	9964.95	1580.14
10032.3	1580.51	10037.71	1580.72	10056.7	1580.47	10068.93	1580.56	10153.21	1580.42
10165	1580.15	10334.65	1580.06	10352.1	1579.61	10378.52	1579.68	10387.93	1580.1
10499.64	1579.24	10511.83	1579.99	10524.66	1579.17	10534.63	1574.23	10541.45	1574.69
10684.83	1579.17	10702.3	1578.42	10718.22	1577.84	10760.6	1577.67	10786.27	1579.45
10926.17	1578.91	10941.62	1581.22	11082.83	1580.39	11099.3	1578.71	11138.07	1578.65
11166.85	1580.91	11281.87	1580.85	11297.1	1582.05	11426.43	1581.02	11463.21	1578.84
11507.4	1579.05	11542.22	1581.09	11672.26	1581.31	11702.85	1579.43	11755.61	1579.98
11781.66	1581.78	11921.71	158	211951.65	1580.27	11996.13	1580.51	2056.04	1580.77
12101.72	1580.76	12126.35	1581.82	12300.01	1582.67				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4710.11	.15	9956.15	.02	10068.93	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9956.15	10068.93	376.56	470.47	385.16	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4710.11	7875	1586.05	11781.66	12300.01	1586

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4710.11	6335.06	1586	11781.66	12300.01	1586

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1580.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1580.43	Reach Len. (ft)	376.56	470.47	385.16
Crit W.S. (ft)	1579.31	Flow Area (sq ft)	828.14	8.32	1441.04
E.G. Slope (ft/ft)	0.020583	Area (sq ft)	1540.21	8.32	1441.04
Q Total (cfs)	3500.00	Flow (cfs)	890.63	24.44	2584.93
Top Width (ft)	3269.81	Top Width (ft)	2168.84	57.50	1043.47
Vel Total (ft/s)	1.54	Avg. Vel. (ft/s)	1.08	2.94	1.79
Max Chl Dpth (ft)	6.20	Hydr. Depth (ft)	0.61	0.14	1.38
Conv. Total (cfs)	24395.8	Conv. (cfs)	6207.9	170.4	18017.5
Length Wtd. (ft)	396.34	Wetted Per. (ft)	1354.39	57.51	1045.28
Min Ch El (ft)	1580.14	Shear (lb/sq ft)	0.79	0.19	1.77
Alpha	1.16	Stream Power (lb/ft s)	0.84	0.55	3.18
Frctn Loss (ft)	3.29	Cum Volume (acre-ft)	285.87	11.00	328.48
C & E Loss (ft)	0.01	Cum SA (acres)	76.19	5.67	100.21

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7707.85	8457.28	428.32	354.85	470.39	12.24	0.75	1.21
8457.28	9206.72	311.03	292.61	469.40	8.89	0.62	1.06
9206.72	9956.15	151.27	180.68	414.60	4.32	0.44	0.84
LB 9956.15	9993.74	21.74	6.60	32.16	0.62	0.21	3.29
9993.74	10031.34	2.70	1.72	25.36	0.08	0.07	1.57
10031.34	10068.93						
10068.93	10387.66	61.90	93.06	240.12	1.77	0.39	0.67
10387.66	10706.38	1555.52	722.46	320.04	44.44	2.27	2.15
10706.38	11025.11	640.93	371.95	230.14	18.31	1.62	1.72
11025.11	11343.83	145.81	102.60	84.76	4.17	1.21	1.42
11343.83	11662.56	136.68	103.15	94.64	3.91	1.09	1.33
11662.56	11981.28	44.08	47.81	75.58	1.26	0.63	0.92

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.607

INPUT
Description:
Station Elevation Data num= 130

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5179.7	1580.72	5333.58	1578.65	5346.94	1577.54	5389.24	1577.4	5396.84	1578.27
5426.09	1579.26	5569.93	1578.66	5585.24	1580.71	5768.68	1579.28	5776.12	1578.79
5824.45	1578.16	5832.18	1578.92	5864.05	1579.98	6003.16	1580.11	6020.4	1581.77
6191.47	1581.12	6206.09	1579.65	6253.83	1579.44	6369.26	1582.3	6404.63	1581.75
6443.5	1574.53	6456.25	1573.51	6490.33	1577.55	6498.52	1577.68	6509	1580.95
6531.74	1576.94	6561.51	1577.83	6588.33	1577.76	6926.03	1578.04	6969.04	1578.26
7348.91	1577.2	7391.37	1577.53	7457.74	1577.67	7496.62	1570.3	7549.87	1578.58
7730.97	1575.56	7782.17	1575.39	7941.28	1575.47	7963.93	1576.95	8064.75	1575.21
8106.97	1575.59	8183.94	1576.33	8202.59	1574.29	8220.89	1576.75	8259.36	1577.24
8293.63	1571.79	8315.05	1575.23	8368.8	1576.22	8380.74	1578.49	8485.31	1578.25
8548.63	1576.62	8614.38	1576.4	8654.57	1576.98	8784.12	1576.72	8802.89	1578.32
8983.59	1576.35	9003.65	1576.59	9024.35	1576.28	9076.57	1576.45	9084.65	1577.11
9106.17	1577.01	9154.23	1575.59	9217.7	1577.04	9231.45	1578.07	9480.55	1575.96
9492.4	1577.18	9621.48	1576.2	9633.29	1578.08	9664.28	1577.66	9674.08	1575.76
9781.84	1575.72	9793.34	1577.04	9917.2	1578.01	9920.71	1577	9931.94	1573.77
9939.82	1575.41	9966.62	1575.58	9996.57	1576.46	10030.22	1575.77	10036.4	1575.38
10054.92	1575.85	10128.08	1577.24	10256.81	1576.94	10278.21	1577.15	10492.91	1576.18
10531.75	1576.31	10557.34	1576.48	10620.29	1576.21	10670.18	1576.05	10729.19	1576.05
10828.84	1575.62	10849.17	1575.91	10859.07	1574.22	10886.08	1575.45	10902.23	1575.99
10970.51	1577.57	11100.98	1575.54	11114.12	1575.92	11215.27	1575.71	11215.28	1575.78
11227.02	1576.52	11239.95	1576.23	11248.23	1570.72	11398.42	1575.41	11419.89	1574.18
11434.73	1573.61	11481.07	1573.84	11530.54	1573.77	11575.86	1574.15	11593.06	1575.04
11630.85	1575.16	11648.51	1577.89	11784.81	1576.79	11802.9	1576.59	11813.63	1574.8
11858.45	1574.93	11889.72	1577.18	12011.41	1577.21	12025.88	1579.34	12162.92	1578.57
12187.04	1575.79	12222.76	1576.21	12246.12	1578.48	12377.69	1578.81	12385.72	1578.74
12398.98	1577.45	12438.19	1578.13	12446.98	1578.86	12457.52	1579.71	12561.22	1579.86

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5179.7	.15	9920.71	.02	10054.92	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9920.71	10054.92	409.72	545.69	344.4	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5179.7	8534	1582	12222.76	12561.22	1582.07

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

5179.7 6969.04 158312377.6912561.22 1583

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1577.17	Element			
Vel Head (ft)	0.16	Wt. n-Val.	0.150	0.020	0.150
W.S. Elev (ft)	1577.01	Reach Len. (ft)	409.72	545.69	344.40
Crit W.S. (ft)	1575.48	Flow Area (sq ft)	487.60	171.98	2267.28
E.G. Slope (ft/ft)	0.004491	Area (sq ft)	1695.43	171.98	2270.55
Q Total (cfs)	3500.00	Flow (cfs)	248.12	1006.91	2244.97
Top Width (ft)	3368.93	Top Width (ft)	1681.98	134.21	1552.74
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)	0.51	5.85	0.99
Max Chl Dpth (ft)	6.71	Hydr. Depth (ft)	0.55	1.28	1.47
Conv. Total (cfs)	52228.5	Conv. (cfs)	3702.6	15025.6	33500.4
Length Wtd. (ft)	419.67	Wetted Per. (ft)	894.49	134.87	1547.10
Min Ch El (ft)	1573.77	Shear (lb/sq ft)	0.15	0.36	0.41
Alpha	7.35	Stream Power (lb/ft s)	0.08	2.09	0.41
Frctn Loss (ft)	3.08	Cum Volume (acre-ft)	271.88	10.03	312.07
C & E Loss (ft)	0.05	Cum SA (acres)	59.55	4.63	88.73

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7888.85	8566.14	3.49	10.19	32.14	0.10	0.32	0.34
8566.14	9243.42	90.98	214.70	491.48	2.60	0.44	0.42
9243.42	9920.71	153.65	262.71	370.87	4.39	0.71	0.58
LB 9920.71	9965.45	517.31	76.10	45.36	14.78	1.70	6.80
9965.45	10010.18	183.08	40.59	44.75	5.23	0.91	4.51
10010.18	RB 10054.92	306.53	55.30	44.76	8.76	1.24	5.54
10054.92	10412.96	17.42	60.42	199.57	0.50	0.30	0.29
10412.96	10771.01	155.10	283.49	358.05	4.43	0.79	0.55
10771.01	11129.05	216.66	321.81	297.74	6.19	1.08	0.67
11129.05	11487.09	1281.34	1008.49	359.91	36.61	2.82	1.27
11487.09	11845.13	504.40	492.79	243.23	14.41	2.03	1.02
11845.13	12203.18	59.30	82.42	69.02	1.69	1.20	0.72
12203.18	12561.22	10.74	17.86	19.58	0.31	0.91	0.60

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.504

INPUT
Description:
Station Elevation Data num= 160

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5296.27	1577.54	5415.25	1577.25	5425.03	1576.11	5456	1576.04	5488.19	1576.16
5506.06	1577.22	5620.29	1576.18	5629.68	1572.61	5639.92	1575.11	5655.17	1576.73
5673.25	1576.7	5691.31	1576.11	5703.2	1576.41	5894.47	1575.89	5908.35	1576.93
5941.73	1576.9	6049.54	1576.68	6100.6	1575.32	6120.3	1574.09	6125.17	1574.55
6158.5	1574.86	6161.38	1575.37	6204.31	1577.22	6227.93	1576.86	6246.87	1575.97
6253.08	1575.27	6286.11	1575.07	6309.01	1576.72	6376.94	1579.25	6404.41	1576.68
6446.77	1575.6	6467.45	1579.17	6504.92	1571.45	6515.22	1571.08	6524.23	1571.76
6554.71	1575.26	6620.41	1575.98	6647.15	1575.47	7053.07	1574.43	7100.53	1574.38
7329.49	1575.07	7340.13	1576.63	7349.77	1575.01	7760.42	1573.67	7779.13	1573.87
7800.54	1573.37	7830.51	1573.82	7840.41	1575.22	8021.89	1572.18	8047.3	1572.68
8072.53	1572.27	8262	1572.19	8311.59	1567.29	8335.82	1567.35	8362.56	1572.82
8370.1	1573.46	8516.86	1572.25	8569.78	1572.55	8593.59	1573.01	8771.79	1573.4
8790.63	1574.73	8969.62	1573.68	9021.18	1573.23	9196.75	1573.48	9209.63	1574.83
9398.28	1574.05	9449.18	1573.74	9480.23	1574.28	9623.67	1574.31	9641.39	1575.91
9674.18	1575.18	9680.45	1573.74	9689.72	1573.34	9712.62	1573.92	9732.08	1573.91
9828.12	1573.33	9848.42	1573.01	9869.34	1573.07	9898.41	1572.51	9927.9	1570.34

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 9938.98 1572.44 9965.56 1571.86 9999.02 1572.5810034.84 1572.0210039.75 1572.03
10059.48 1572.22 10070.7 1573.0710444.65 1572.6910465.69 1573.2610487.98  1572.9
 10578.8 1574.47 10650.2 1573.7610705.93 1573.5710716.37  1573.410736.52 1573.49
10812.04 1573.5310951.69 1572.8210970.19 1572.8910999.42 1572.8211013.72 1573.59
11141.33 1572.9711150.35 1572.5811191.44 1573.5311286.85 1573.2211294.62 1571.89
11322.11 1572.74 11442.8 1573.3411595.51 1571.2911607.29 1571.7911680.87 1572.64
11787.18 1572.4911814.65 1572.6111938.17 1572.6111948.14 1573.35 11961.5 1572.75
 11975.6 1567.4111979.15 1567.4911991.67 1572.9312058.22 1573.0112068.19 1571.62
12134.92 1572.1912150.67 1571.4512163.18 1570.9112207.95 1570.43   12237 1570.55
12280.55 1570.8712291.48 1571.45   12312 1571.95 12405.3 1573.5612417.14 1574.05
 12495.1 1574.2712504.81 1574.6312567.86 1574.42 12605.3 1573.0812640.07  1572.4
12885.24 1574.3512900.49 1574.4512951.82 1574.8512972.19 1576.0713168.25 1576.72
13198.41 1574.1813231.25 1574.1313266.79 1575.2313394.17 1576.2813417.23 1574.98
13425.66 1574.0513470.14  1574.313504.21 1575.7613639.41 1576.7613646.28 1569.78
 13658.4  1571.113665.03 1574.9913688.93 1574.6113722.61 1575.0213785.17  1575.4
13791.61 1576.6114270.65 1576.6514281.09 1575.3314332.69 1575.4814343.18 1575.85

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 5296.27     .15 9938.98     .02 10070.7     .15

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9938.98 10070.7               370  445.22     390              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5296.27    9318 1578.05   1232014343.18 1578.25
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5296.27 7840.41    158013791.6114343.18    1580

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1574.04   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.64   Wt. n-Val.                0.150      0.020      0.150
  W.S. Elev (ft)            1573.41   Reach Len. (ft)          370.00     445.22     390.00
  Crit W.S. (ft)            1572.26   Flow Area (sq ft)        112.14     153.70    1608.39
  E.G. Slope (ft/ft)       0.013896   Area (sq ft)            1048.91     153.70    1794.78
  Q Total (cfs)             3500.00   Flow (cfs)               122.03    1491.59    1886.38
  Top Width (ft)            3340.65   Top Width (ft)          1091.34     131.72    2117.59
  Vel Total (ft/s)             1.87   Avg. Vel. (ft/s)           1.09       9.70       1.17
  Max Chl Dpth (ft)            6.12   Hydr. Depth (ft)           0.87       1.17       0.87
  Conv. Total (cfs)         29690.9   Conv. (cfs)              1035.2    12653.4    16002.4
  Length Wtd. (ft)           405.77   Wetted Per. (ft)         128.60     131.77    1853.07
  Min Ch El (ft)            1571.86   Shear (lb/sq ft)           0.76       1.01       0.75
  Alpha                       11.73   Stream Power (lb/ft s)     0.82       9.82       0.88
  Frctn Loss (ft)              3.05   Cum Volume (acre-ft)     258.98       7.99     296.00
  C & E Loss (ft)              0.18   Cum SA (acres)            46.50       2.97      74.22


Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need
for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  9275.74      9938.98        122.03     112.14    128.60       3.49       0.87       1.09
  LB 9938.98   9982.89        592.48      57.08     43.92      16.93       1.30      10.38
  9982.89      10026.79       402.14      45.24     43.91      11.49       1.03       8.89
  10026.79     RB 10070.70    496.98      51.38     43.94      14.20       1.17       9.67
  10070.70     10681.05       149.77     221.88    446.75       4.28       0.50       0.68
  10681.05     11291.41        54.17     112.42    375.34       1.55       0.30       0.48
  11291.41     11901.76       533.25     538.58    610.45      15.24       0.88       0.99
  11901.76     12512.12      1149.18     735.51    420.54      32.83       1.76       1.56


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
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additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.419

INPUT
Description: Blocked Obstruction Option used to remove detention basin from the effective conveyance area.

Station Elevation Data num= 158

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5122.82	1574.46	5131.98	1573.1	5157.36	1573.49	5183.04	1573.06	5184.52	1572.86
5197.65	1570.51	5318.62	1570.32	5340.18	1574.07	5674.52	1573.79	5694.51	1570.92
5743.28	1570.89	5759.54	1573.52	5767.41	1573.64	5787.24	1573.92	5806.16	1573.42
5812.64	1574.25	5973.86	1574.34	6066.58	1574.11	6083.12	1572.14	6131	1572.49
6179.6	1572.22	6293.54	1573.58	6301.95	1568.48	6311.86	1571.7	6326.32	1572.14
6334.84	1571.98	6364.03	1571.89	6425.82	1573.22	6465.6	1571.92	6469.44	1571.82
6476.64	1572.98	6999.74	1571.86	7024.27	1572.26	7058.09	1572.32	7285.66	1571.69
7296.67	1569.35	7309.42	1570.1	7317.2	1571.57	7702.48	1571.26	7743.92	1571.48
8132.6	1570.86	8175.14	1570.48	8398.11	1569.68	8415.91	1570.05	8438.29	1569.26
8468.5	1569.99	8478.28	1571.53	8530.39	1570.75	8575.74	1571.67	8608.14	1571.31
8655.22	1569.91	8683.96	1570.03	8719.15	1569.86	8753.44	1569.67	8792.12	1565.31
8932.46	1564.13	8987.16	1572.41	9115.08	1572.25	9168.07	1571.27	9191.22	1571.58
9218.88	1571.23	9309.55	1571.79	9390.08	1571.54	9406.33	1573.56	9529.87	1573.28
9548.44	1571.23	9569.58	1571.68	9591.98	1571.42	9744.4	1572.77	9805.98	1570.48
9848.34	1571.05	9881.98	1570.33	9889.17	1569.92	9908.01	1571.71	9932.47	1570.68
10041.17	1568.96	10066.08	1569.36	10553.32	1569.23	10562.26	1569.41	0573.64	1569.38
10712.74	1569.91	10731.14	1569.45	10749.98	1569.91	11146.01	1569.85	11157.84	1571.15
11228.49	157	11245.71	1570.08	11275.48	1569.95	11420.79	1570.11	11426.77	1569.86
11491.32	1570.26	11568.92	1569.83	11576.12	1568.79	11611.9	1569.36	11619.75	1569.4
11657.04	1568.52	11668.36	1568.45	11678.89	1570.41	11687.04	1569.36	11750.44	1569.32
11780.61	1568.23	11837.28	1567.65	11854.93	1568.79	11918.94	1568.86	11971.8	1569.47
12009.36	1570.96	12115.03	1570.42	12205.54	1568.88	12249.68	1568.95	12264.87	1567.82
12288.38	1568.44	12350.83	1568.73	12388.51	1568.41	12424.6	1569.65	12434.96	1568.65
12466.62	1569.54	12573.46	1569.5	12608.89	1563.75	12624.01	1563.73	12636.8	1569.83
12678.48	1570.46	12700.68	1567.93	12755.27	1564.32	13135.54	1563.73	13185.73	1570.21
13192.38	1570.7	13227.39	1571.93	13238.05	1572.34	13390.67	1572.49	13394.78	1565.74
13409.5	1565.61	13416.3	1569.97	13439.2	1569.76	13471.82	1570.01	13475.87	1570.41
13490.53	1571.69	13508.08	1568.82	13519.83	1571.33	13645.55	1572.43	13770.1	1572.17
13787.46	1571.13	13830.53	1570.99	13849.91	1572.5	13988.78	1571.37	14094.99	1571.46
14120.87	1571.74	14155.08	1571.59	14268.64	1570.39	14292.98	1572.19	14367.55	1571.51
14385.63	1570.82	14422.56	1570.91	14438.12	1571.72	14763.96	1575.08	14770.2	1574.09
14796.9	1573.61	15000.41	1576.87	15011.51	1577.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5122.82	.15	9932.47	.02	10066.08	.15

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9932.47	10066.08	390	307.29	328.78	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5122.82	9932	1575.89	12685	14922.82	1575.89

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5122.82	7743.92	157	12678.48	13207.82	1570

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1570.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.150	0.028	0.150
W.S. Elev (ft)	1570.78	Reach Len. (ft)	390.00	307.29	328.78
Crit W.S. (ft)	1569.34	Flow Area (sq ft)	0.04	144.35	3457.40
E.G. Slope (ft/ft)	0.004686	Area (sq ft)	1479.47	144.35	4033.71
Q Total (cfs)	3500.00	Flow (cfs)	0.01	552.08	2947.91
Top Width (ft)	4049.61	Top Width (ft)	754.66	133.61	3161.34
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)	0.13	3.82	0.85
Max Chl Dpth (ft)	7.05	Hydr. Depth (ft)	0.09	1.08	1.38
Conv. Total (cfs)	51130.0	Conv. (cfs)	0.1	8065.1	43064.8
Length Wtd. (ft)	324.84	Wetted Per. (ft)	0.47	133.63	2502.91
Min Ch El (ft)	1568.96	Shear (lb/sq ft)	0.03	0.32	0.40
Alpha	3.09	Stream Power (lb/ft s)	0.00	1.21	0.34

Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	248.24	6.47	269.90
C & E Loss (ft)	0.02	Cum SA (acres)	38.66	1.61	50.59

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9245.38	9932.47	0.01	0.04	0.47	0.00	0.09	0.13
LB 9932.47	9977.01	38.26	20.03	44.54	1.09	0.45	1.91
9977.01	10021.54	184.16	51.41	44.54	5.26	1.15	3.58
10021.54	RB 10066.08	329.65	72.91	44.54	9.42	1.64	4.52
10066.08	10772.57	783.32	969.13	706.50	22.38	1.37	0.81
10772.57	11479.06	299.83	519.73	628.36	8.57	0.83	0.58
11479.06	12185.55	760.88	930.47	666.59	21.74	1.40	0.82
12185.55	12892.04	1103.89	1038.06	501.46	31.54	2.08	1.06

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

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.361

INPUT
Description: Immediately Upstream of CAP
Station Elevation Data num= 219

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4695.67	1570.24	4706.27	1570.46	4743.16	1570.65	4765.95	1572.8	4788.68	1579.39
4809.97	1581.02	4860.64	1583.94	4907.66	1586.76	4943.2	1584.3	4985.49	1582.25
5032.9	1579.47	5046.86	1578.1	5077.41	1568.36	5094.47	1566.58	5120.91	1563.87
5171.82	1564.47	5243.7	1565.6	5282.72	1565.87	5408.87	1566.55	5420.82	1566.6
5569.97	1568.57	5618.85	1567.71	5709.9	1564.75	5761.69	1563.64	5848.61	1563.27
5891	1563.58	5948.33	1564	5986.15	1564	6051.59	1564.14	6078.98	1564.1
6142.52	1563.05	6178.25	1563.08	6179.75	1562.84	6268.1	1564.23	6382.87	1564.4
6422.6	1564.35	6471.48	1564.2	6519.57	1564.05	6533.72	1564.04	6604.75	1563.67
6718.27	1563.75	6772.18	1563.73	6813.51	1563.56	6868.86	1563.29	6907.75	1563.08
6993.68	1563.22	7049.73	1563.03	7058.86	1563	7142.83	1563	7202.39	1562.92
7245.65	1562.81	7308.77	1562.46	7385.42	1562.44	7426.71	1562.67	7468.84	1562.98
7495.01	1562.64	7523.3	1562.13	7555.19	1561.92	7592.82	1561.9	7637.49	1561.92
7695.11	1562.34	7749.06	1562.43	7808.93	1562.62	7885.6	1562.53	7978.29	1561.91
8060.33	1562.11	8102.06	1561.95	8131.75	1561.63	8147.9	1572.7	8171.66	1571.16
8193.32	1571.57	8211.33	1571.28	8246.22	1571.5	8266.67	1562.9	8271.07	1562.81
8317.76	1562.72	8343.97	1562.59	8391.79	1563.03	8477.68	1562.32	8546.54	1562.48
8655.5	1563.05	8660.62	1563.05	8717.38	1563.02	8721.75	1563.05	8743.54	1563.16
8814.79	1563.21	8858.49	1563.54	8897.72	1564.09	8905.45	1564.24	8993.41	1564.16
9030.25	1564.14	9048.71	1564.14	9051.99	1564.14	9163.46	1564.7	9197.57	1564.72
9271.26	1565.27	9312.28	1565.62	9349.3	1565.65	9413.69	1565.94	9554.69	1573.58
9566.02	1573.46	9610.38	1573.69	9647.04	1573.06	9754.99	1564.42	9799.17	1563.25
9872.53	1562.69	9953.17	1562.42	9964.86	1562.32	10036.99	1561.37	10144.63	1561.47
10179.35	1561.55	10279.57	1561.39	10300.53	1561.26	10345.16	1561.26	10363.26	1561.26
10387.6	1561.44	10435.56	1560.92	10442.87	1560.91	10487.97	1561.24	10510.85	1561.5
10539.43	1561.43	10542.16	1561.43	10564.75	1561.65	10591.95	1561.83	10696.61	1561.51
10730.67	1561.79	10752.15	1561.78	10782.42	1561.81	10789.01	1561.78	10817.9	1561.58
10867.81	1561.77	10878.69	1561.77	10906.47	1561.77	10911.69	1561.77	10972.38	1561.94
11016.87	1562	11060.86	1562.05	11142.11	1562.18	11188.4	1562.44	11196.91	1562.5
11283.88	1562.79	11284.1	1562.79	11386.14	1563.56	11402.43	1563.83	11442.24	1564.28
11481.65	1564.57	11540.28	1564.43	11583.65	1564.09	11604.83	1563.92	11684.87	1563.53
11766.22	1563.33	11792.05	1562.96	11835.67	1562.55	11838.06	1562.53	11915.02	1562.65
12006.39	1563.13	12027.72	1563.13	12041.14	1563.07	12056.38	1567.78	12064.35	1568.37
12114.59	1568.94	12246.05	1572.4	12446.39	1567.74	12506.34	1561.8	12557.83	1561.65
12587.39	1564.91	12700.18	1565.18	12704.64	1565.29	12749.72	1567.6	12766.47	1568.14
12808.1	1568.22	12835.1	1573.74	12860.79	1575.13	12951.92	1574.6	12966.42	1574.55
12984.12	1573.82	12989.26	1576.65	12997.62	1576.94	13024.86	1572.12	13054.89	1568.03
13187.34	1570.35	13202.13	1570.11	13277.55	1573.14	13373.34	1572.25	13396.18	1561.91
13429.8	1561.45	13465.39	1570.77	13481.39	1569.33	13509.47	1570.93	13556.47	1572.85
13921.26	1572.33	13969.06	1572.18	14068.44	1572.18	14140.56	1572.18	14163.08	1572.26
14184.82	1572.32	14218.31	1572.13	14392.26	1572.17	14424.62	1572.12	14548.67	1571.89
14691.6	1558.23	14863.65	1557.56	14925.94	1556.95	14984.69	1557.73	15084.73	1558.28
15150.23	1558.35	15160.99	1558.36	15214.42	1558.61	5249.89	1559	15295.96	1559.82

15334.29 1559.6615481.87 1560.72 15554.1 1561.2915673.82 1561.4615700.15 1561.65
15769.85 1561.7915782.08 1561.8215807.25 1561.6415846.39 1561.62

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4695.67	.15	9953.17	.02510036.99		.15

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9953.1710036.99 224.47 218.48 231.22 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4695.67	9953.17	1585	1260015846.39		1579.89

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4695.67	4907.66	158315846.3915846.39			1580

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1570.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.025	0.150
W.S. Elev (ft)	1570.78	Reach Len. (ft)	224.47	218.48	231.22
Crit W.S. (ft)	1562.42	Flow Area (sq ft)		742.86	18463.87
E.G. Slope (ft/ft)	0.000015	Area (sq ft)	31488.65	742.86	34167.83
Q Total (cfs)	3500.00	Flow (cfs)		732.39	2767.61
Top Width (ft)	8944.87	Top Width (ft)	4608.04	83.82	4253.01
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.99	0.15
Max Chl Dpth (ft)	13.83	Hydr. Depth (ft)		8.86	7.59
Conv. Total (cfs)	903597.5	Conv. (cfs)		189080.7	714516.8
Length Wtd. (ft)	218.48	Wetted Per. (ft)		83.83	2433.17
Min Ch El (ft)	1561.37	Shear (lb/sq ft)		0.01	0.01
Alpha	6.66	Stream Power (lb/ft s)		0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	100.66	3.34	125.74
C & E Loss (ft)		Cum SA (acres)	14.66	0.84	22.61

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9953.17	9981.11	227.67	237.55	27.94	6.50	8.50	0.96
9981.11	10009.05	243.80	247.51	27.94	6.97	8.86	0.99
10009.05	RB 10036.99	260.92	257.80	27.94	7.45	9.23	1.01
10036.99	10866.90	1293.16	7718.26	829.93	36.95	9.30	0.17
10866.90	11696.82	959.90	6454.52	829.93	27.43	7.78	0.15
11696.82	12526.73	427.90	3712.99	699.87	12.23	5.31	0.12
12526.73	13356.65	86.66	578.10	73.45	2.48	7.89	0.15

CULVERT RIVER: Apache Junct FRS
REACH: Spillway RS: 15.340

INPUT
Description: Culverts under CAP.
Size of culverts in Culvert Groups #1, 2, and
6 reduced to 0.5 ft diam. in order to render culverts ineffective
in conveying flows (outside effective flow limits).
Distance from Upstream XS = 37
Deck/Roadway Width = 160
Weir Coefficient = 2.8
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 85

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4695.67	1577.06		4836.58	1577.06		4887.67	1583.09	
4897.95	1583.41		4937.04	1585.44		4971.52	1586.56	
4986.96	1585.63		5006.91	1578.26		5068.58	1577.47	
5098.17	1577		5268.7	1577.66		6834.57	1577.66	
7075.47	1577.08		7112.69	1576.89		7213.47	1576.42	
7944.34	1576.42		8060.62	1576.18		8239.49	1576.24	
8271.25	1571.82		8297.35	1572.24		8319.04	1571.7	
8341.34	1576.42		8349.18	1575.95		8865.58	1575.95	
9015.14	1575.8		9427.44	1575.8		9495.23	1574.1	
9506.02	1573.67		9521.59	1573.56		9548.32	1573.83	
9575.82	1573.57		9587.4	1573.69		9717.74	1572.88	
9897.14	1572.88		10033.15	1573.25		10139.42	1573.5	

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10336.36 1573.37        10389.85 1573.29        10593.28 1573.13
10636.73 1573.07        10711.86 1573.06        10784.85 1573.28
10948.47 1573.28        10971.54 1573.41        11066.84 1573.52
11090.22 1573.48        11397.82 1572.95        11434.84 1573.03
11448.89 1573.03        11508.61 1573.33        11835.58 1573.21
11854.55 1573.48        11951.45 1573.25        11979.72 1568.43
12049.27 1569.21        12086.18 1573.92         12260.5 1573.92
12309.37 1574.05        12516.75 1574.05        12604.05 1573.85
12851.79 1573.85        12874.03 1574.23        12875.15 1574.85
12897.18 1575.15        12974.66 1574.96        12986.34 1574.57
12986.91 1574.57        13038.29 1573.28        13142.09 1573.97
13212.82 1573.49        13297.88 1573.22        13394.82 1573.37
13515.62 1573.37        13621.95 1573.31        13709.39  1572.9
14938.89 1572.88         14958.6 1573.04        15001.26 1573.21
15037.33 1573.47        15144.96 1573.49        15274.32 1573.39
15406.53  1573.8        15591.14  1573.8        15783.07  1573.5
15854.25  1573.5

Upstream Bridge Cross Section Data
Station Elevation Data    num=     219
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 4695.67 1570.24 4706.27 1570.46 4743.16 1570.65 4765.95  1572.8 4788.68 1579.39
 4809.97 1581.02 4860.64 1583.94 4907.66 1586.76  4943.2  1584.3 4985.49 1582.25
  5032.9 1579.47 5046.86  1578.1 5077.41 1568.36 5094.47 1566.58 5120.91 1563.87
 5171.82 1564.47  5243.7  1565.6 5282.72 1565.87 5408.87 1566.55 5420.82  1566.6
 5569.97 1568.57 5618.85 1567.71  5709.9 1564.75 5761.69 1563.64 5848.61 1563.27
    5891 1563.58 5948.33    1564 5986.15    1564 6051.59 1564.14 6078.98  1564.1
 6142.52 1563.05 6178.25 1563.08 6179.75 1562.84  6268.1 1564.23 6382.87  1564.4
  6422.6 1564.35 6471.48  1564.2 6519.57 1564.05 6533.72 1564.04 6604.75 1563.67
 6718.27 1563.75 6772.18 1563.73 6813.51 1563.56 6868.86 1563.29 6907.75 1563.08
 6993.68 1563.22 7049.73 1563.03 7058.86    1563 7142.83    1563 7202.39 1562.92
 7245.65 1562.81 7308.77 1562.46 7385.42 1562.44 7426.71 1562.67 7468.84 1562.98
 7495.01 1562.64  7523.3 1562.13 7555.19 1561.92 7592.82  1561.9 7637.49 1561.92
 7695.11 1562.34 7749.06 1562.43 7808.93 1562.62  7885.6 1562.53 7978.29 1561.91
 8060.33 1562.11 8102.06 1561.95 8131.75 1561.63  8147.9  1572.7 8171.66 1571.16
 8193.32 1571.57 8211.33 1571.28 8246.22  1571.5 8266.67  1562.9 8271.07 1562.81
 8317.76 1562.72 8343.97 1562.59 8391.79 1563.03 8477.68 1562.32 8546.54 1562.48
  8655.5 1563.05 8660.62 1563.05 8717.38 1563.02 8721.75 1563.05 8743.54 1563.16
 8814.79 1563.21 8858.49 1563.54 8897.72 1564.09 8905.45 1564.24 8993.41 1564.16
 9030.25 1564.14 9048.71 1564.14 9051.99 1564.14 9163.46  1564.7 9197.57 1564.72
 9271.26 1565.27 9312.28 1565.62  9349.3 1565.65 9413.69 1565.94 9554.69 1573.58
 9566.02 1573.46 9610.38 1573.69 9647.04 1573.06 9754.99 1564.42 9799.17 1563.25
 9872.53 1562.69 9953.17 1562.42 9964.86 1562.3210036.99 1561.3710144.63 1561.47
10179.35 1561.5510279.57 1561.3910300.53 1561.2610345.16 1561.2610363.26 1561.26
 10387.6 1561.4410435.56 1560.9210442.87  1560.910487.97 1561.2410510.85  1561.5
10539.43 1561.4310542.16 1561.4310564.75 1561.6510591.95 1561.8310696.61 1561.51
10730.67 1561.7910752.15 1561.7810782.42  1561.810789.01 1561.78 10817.9 1561.58
10867.81 1561.7710878.69 1561.7710906.47 1561.7710911.69 1561.7710972.38 1561.94
11016.87    156211060.86 1562.0511142.11 1562.18 11188.4 1562.4411196.91  1562.5
11283.88 1562.79 11284.1 1562.7911386.14 1563.5611402.43 1563.8311442.24 1564.28
11481.65 1564.5711540.28 1564.4311583.65 1564.0911604.83 1563.9211684.87 1563.53
11766.22 1563.3311792.05 1562.9611835.67 1562.5511838.06 1562.5311915.02 1562.65
12006.39 1563.1312027.72 1563.1312041.14 1563.0712056.38 1567.7812064.35 1568.37
12114.59 1568.9412246.05  1572.412446.39 1567.7412506.34  1561.812557.83 1561.65
12587.39 1564.9112700.18 1565.1812704.64 1565.2912749.72  1567.612766.47 1568.14
 12808.1 1568.22 12835.1 1573.7412860.79 1575.1312951.92  1574.612966.42 1574.55
12984.12 1573.8212989.26 1576.6512997.62 1576.9413024.86 1572.1213054.89 1568.03
13187.34 1570.3513202.13 1570.1113277.55 1573.1413373.34 1572.2513396.18 1561.91
 13429.8 1561.4513465.39 1570.7713481.39 1569.3313509.47 1570.9313556.47 1572.85
13921.26 1572.3313969.06 1572.1814068.44 1572.1814140.56 1572.1814163.08 1572.26
14184.82 1572.3214218.31 1572.1314392.26 1572.1714424.62 1572.1214548.67 1571.89
 14691.6 1558.2314863.65 1557.5614925.94 1556.9514984.69 1557.7315084.73 1558.28
15150.23 1558.3515160.99 1558.3615214.42  1558.615249.89    155915295.96 1559.82
15334.29 1559.6615481.87 1560.72 15554.1 1561.2915673.82 1561.4615700.15 1561.65
15769.85 1561.7915782.08 1561.8215807.25 1561.6415846.39 1561.62

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4695.67     .15 9953.17    .02510036.99     .15

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9953.1710036.99              .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4695.67 9953.17    1585   1260015846.39 1579.89
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Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4695.67	4907.66	158	3158	46.39	3158	46.39	1580

Downstream Deck/Roadway Coordinates
num= 76

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4822.77	1577.11		4989.88	1577.11		5043.37	1583.6	
5070.25	1584.51		5104.75	1584		5108.2	1584.38	
5132.03	1583.41		5157.54	1577.11		5188	1576.74	
5223.03	1577.81		6713.48	1577.81		6770.88	1577.58	
6800.13	1577.57		6829.76	1577.65		6879.39	1577.96	
6942.54	1577.78		7007.81	1577.57		7078.71	1577.19	
7121.26	1576.93		7199.97	1576.57		7459.02	1576.67	
7497.45	1576.22		7519.39	1576.39		7539.28	1576.69	
8199.69	1576.69		8267.18	1576.22		8339.65	1575.95	
8454.26	1575.95		8487.58	1572.28		8512.54	1571.73	
8531.1	1576.33		8559.21	1575.73		8724.64	1575.73	
8820.46	1575.99		9351.88	1575.99		9396.42	1575.32	
9420.2	1575.95		9440.33	1575		9519.1	1573.72	
9531.16	1570.47		9539.73	1574.16		9553.87	1573.48	
9751.64	1573.48		9852.95	1573.7		10859.44	1573.7	
10920.37	1573.52		11735.3	1573.52		11919.2	1573.7	
11963.24	1573.7		12035.7	1573.7		12057.67	1573.7	
12166.33	1573.46		12341.21	1574.09		12342.86	1574.09	
12515.4	1573.7		12516.06	1573.7		12581.52	1573.7	
12835.59	1573.7		12928.3	1573.36		13022.83	1574.46	
13032.28	1574.52		13039.93	1574.96		13114.77	1575.11	
13121.92	1574.62		13189.61	1573.08		13257.49	1573.08	
13293.72	1572.93		13355.55	1573.39		13667.88	1573.39	
13848.57	1573.42		15081.06	1573.42		15129.21	1572.97	
15150.54	1572.88		15230.19	1570.61		15348.3	1568.34	
15982.46	1568.34							

Downstream Bridge Cross Section Data
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4822.77	1576.4	4910.4	1576.62	4969.53	1577.93	5001.36	1576.18	5047.52	1583.14
5075.79	1584.14	5113.38	1583.69	5138.77	1582.58	5199.14	1580.27	5204.38	1580.28
5241.26	1578.85	5275.56	1571.61	5416.69	1572.54	5785.12	1570.56	5874.18	1568.64
6092.67	1568.05	6122.6	1562.36	6219.64	1561.46	6233.7	1568.45	6248.4	1566.79
6483.43	1565.3	6766.26	1566.35	7044.87	1567.4	7136.51	1567.75	7218.49	1567.99
7340.67	1566.77	7376.48	1567.06	7410.01	1570.77	7431.66	1562	7509.75	1561.98
7521.83	1567.92	7532	1571.22	7538.45	1570.79	7565.72	1567.73	7600.54	1566.87
7802.73	1573.84	7829.55	1573.89	7888.24	1574.21	7987.05	1574.05	8064.1	1574.37
8135.03	1574.76	8140.14	1574.81	8290.01	1575.43	8317.2	1575.38	8434.95	1572.77
8474.11	1572.07	8501.46	1572.17	8527.52	1571.7	8548.91	1571.81	8603.13	1572.82
8629.96	1574.03	8750.98	1575.28	8793.25	1573.83	8945.62	1574.04	8957.92	1573.96
9051.62	1573.82	9120.76	1574.19	9292.54	1574.54	9311.21	1573.44	9347.96	1574.07
9375.17	1573.38	9389.01	1572.67	9423.09	1573.28	9455.48	1573.05	9476.82	1573.1
9581.24	1571.62	9939.51	1570.44	9973.2	1560.45	10001.02	1560.31	10087.53	1563.67
10319.18	1562.72	10346.17	1562.53	10412.02	1562.87	10661.77	1563.39	10884.74	1564.96
10884.8	1564.96	10896.07	1565.02	10950.52	1565.33	10962.44	1565.29	11045.15	1565.55
11228.48	1565.71	11271.64	1565.82	11298.49	1565.7	11324.7	1565.71	11362.94	1565.73
11393.16	1565.85	11429.48	1565.92	11508.31	1565.26	11518.89	1565.25	11522.34	1565.25
11652.17	1565.11	11664.71	1565.11	11779.49	1564.67	11896	1568.38	11911.22	1571.81
11940.99	1569.11	11958.16	1568.6	11999.7	1563.92	12009.68	1563.92	12252.33	1573.31
12320.73	1571.33	12342.5	1568.39	12402.65	1567.69	12437.24	1569.23	12459.56	1569.52
12470.65	1571.73	12552.98	1562.74	12586.76	1571.3	12623.5	1570.11	12761.35	1569.9
12813.55	1570.21	12834.96	1570.41	12836.11	1570.42	13003.98	1570.52	13064.71	1570.31
13105.27	1575.22	13165.27	1574.95	13195.95	1572.74	13222	1572.41	13337.24	1570.66
13363.21	1561.51	13410.96	1562.87	13426.97	1570.17	13462.55	1569.87	13582.87	1566.28
13687.98	1566.11	13812.76	1565.91	13973.38	1565.45	14167.15	1563.77	14180.69	1563.52
14252.91	1562.79	14265.62	1562.54	14372.17	1561.84	14460.67	1570.23	14486.65	1570.49
14552.95	1560.97	14596.39	1560.78	14642.5	1563.76	14696.54	1560.87	14722.5	1562.99
14731.35	1560.06	14745.38	1559.89	14755.53	1562.23	14759.09	1560.09	14760.26	1560.05
14852.43	1560.97	14865.32	1562.74	14875.38	1555.91	14922.85	1555.91	14934.31	1561.56
14995.03	1562.51	15110.39	1561.71	15124.8	1560.66	15192.19	1560.53	15212.48	1558.32
15236.55	1558.31	15338.69	1558.82	15408.87	1559.35	15419.37	1560.78	15438.81	1559.19
15575.47	1558.76	15605.22	1558.77	15619.71	1559.31	15636.17	1560.12	15820.21	1560.6
15857.24	1556.45	15897.42	1556.01	16072.17	1555.25				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4822.77	.03	9939.51	.025	10087.53	.03

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
       9939.5110087.53             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4822.77 9939.51    1580   1258016072.17    1580
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
16072.1716072.17    1575

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

Number of Culverts =  6

Culvert Name     Shape      Rise    Span
CULVERT#1       Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     170       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 6159.67 6167.67 6175.67 6183.67 6191.67
Downstream Elevation =  1559
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 6156.77 6164.77 6172.77 6180.77 6188.77

Culvert Name     Shape      Rise    Span
CULVERT#2       Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     170       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1560.1
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 7439.67 7447.67 7455.67 7463.67 7471.67
Downstream Elevation =  1559.1
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 7456.77 7464.77 7472.77 7480.77 7488.77

Culvert Name     Shape      Rise    Span
CULVERT#3       Circular       6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     170       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1559.4
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 9959.67 9967.67 9975.67 9983.67 9991.67
Downstream Elevation =  1558.4
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
 9976.77 9984.77 9992.7710000.7710008.77

Culvert Name     Shape      Rise    Span
CULVERT#4       Circular       6
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
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Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     162       .013                   .9                1
Number of Barrels =  5
Upstream   Elevation =  1561
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
12509.6712517.6712525.6712533.6712541.67
Downstream Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.
12536.7712544.7712552.7712560.7712568.77

Culvert Name     Shape      Rise    Span
CULVERT#5       Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     180       .013                   .9                1
Number of Barrels =  3
Upstream   Elevation =  1560
Centerline Stations
    Sta.    Sta.    Sta.
13402.6713410.6713418.67
Downstream Elevation =  1558.7
Centerline Stations
    Sta.    Sta.    Sta.
13379.7713387.7713395.77

Culvert Name     Shape      Rise    Span
CULVERT#6       Circular      .5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 3 - Groove end entrance; pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 37     190       .013                   .9                1
Number of Barrels =  2
Upstream   Elevation =  1555.2
Centerline Stations
    Sta.    Sta.
14903.6714910.67
Downstream Elevation =  1554.4
Centerline Stations
    Sta.    Sta.
14895.7714902.77

CULVERT OUTPUT    Profile #PF 1
Culvert ID : CULVERT#1

  Culv Q (cfs)              5.22   Culv Vel In (ft/s)        5.31
  # Barrels                    5   Culv Vel Out (ft/s)       5.31
  Q Barrel (cfs)            1.04   Culv Inv El Up (ft)    1560.00
  E.G. US. (ft)          1570.78   Culv Inv El Dn (ft)    1559.00
  W.S. US. (ft)          1570.78   Culv Frctn Ls (ft)        5.88
  Delta EG (ft)             6.35   Culv Ext Lss (ft)         0.07
  Delta WS (ft)             6.71   Culv Ent Lss (ft)         0.39
  E.G. IC (ft)           1561.24   Q Weir (cfs)
  E.G. OC (ft)           1570.78   Weir Sta Lft (ft)
  Culvert Control         Outlet   Weir Sta Rgt (ft)
  Culv WS In (ft)        1560.50   Weir Submerg
  Culv WS Out (ft)       1559.50   Weir Max Depth (ft)
  Culv Nml Depth (ft)       0.50   Weir Avg Depth (ft)
  Culv Crt Depth (ft)       0.50   Wr Flw Area (sq ft)
  Culv Ful Lngh (ft)      170.00   Min Top Rd (ft)        1573.46


Warning: At least one culvert in the culvert group has supercritical flow at the outlet.
However, since
         more than one culvert in the culvert group has flow, the program cannot determine if the
         downstream cross section should be subcritical or supercritical flow.  The program used
the
         downstream subcritical answer, even though it may not be valid.
Note:    The normal depth exceeds the height of the culvert.  The program assumes that the normal
         depth is equal to the height of the culvert.
```

Note: Culvert critical depth exceeds the height of the culvert.

CULVERT OUTPUT Profile #PF 1
Culvert ID : CULVERT#2

Culv Q (cfs)	5.21	Culv Vel In (ft/s)	5.31
# Barrels	5	Culv Vel Out (ft/s)	5.31
Q Barrel (cfs)	1.04	Culv Inv El Up (ft)	1560.10
E.G. US. (ft)	1570.78	Culv Inv El Dn (ft)	1559.10
W.S. US. (ft)	1570.78	Culv Frctn Ls (ft)	5.88
Delta EG (ft)	6.35	Culv Ext Lss (ft)	0.07
Delta WS (ft)	6.71	Culv Ent Lss (ft)	0.39
E.G. IC (ft)	1561.34	Q Weir (cfs)	
E.G. OC (ft)	1570.78	Weir Sta Lft (ft)	
Culvert Control	Outlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	1560.60	Weir Submerg	
Culv WS Out (ft)	1559.60	Weir Max Depth (ft)	
Culv Nml Depth (ft)	0.50	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	0.50	Wr Flw Area (sq ft)	
Culv Ful Lngh (ft)	170.00	Min Top Rd (ft)	1573.46

Warning: At least one culvert in the culvert group has supercritical flow at the outlet.
However, since
more than one culvert in the culvert group has flow, the program cannot determine if the downstream cross section should be subcritical or supercritical flow. The program used the
downstream subcritical answer, even though it may not be valid.
Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.
Note: Culvert critical depth exceeds the height of the culvert.

CULVERT OUTPUT Profile #PF 1
Culvert ID : CULVERT#3

Culv Q (cfs)	1902.42	Culv Vel In (ft/s)	13.46
# Barrels	5	Culv Vel Out (ft/s)	13.75
Q Barrel (cfs)	380.48	Culv Inv El Up (ft)	1559.40
E.G. US. (ft)	1570.78	Culv Inv El Dn (ft)	1558.40
W.S. US. (ft)	1570.78	Culv Frctn Ls (ft)	1.24
Delta EG (ft)	6.35	Culv Ext Lss (ft)	2.57
Delta WS (ft)	6.71	Culv Ent Lss (ft)	2.53
E.G. IC (ft)	1569.26	Q Weir (cfs)	
E.G. OC (ft)	1570.79	Weir Sta Lft (ft)	
Culvert Control	Outlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	1565.40	Weir Submerg	
Culv WS Out (ft)	1564.07	Weir Max Depth (ft)	
Culv Nml Depth (ft)	6.00	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	5.24	Wr Flw Area (sq ft)	
Culv Ful Lngh (ft)	22.04	Min Top Rd (ft)	1573.46

Warning: At least one culvert in the culvert group has supercritical flow at the outlet.
However, since
more than one culvert in the culvert group has flow, the program cannot determine if the downstream cross section should be subcritical or supercritical flow. The program used the
downstream subcritical answer, even though it may not be valid.
Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.

CULVERT OUTPUT Profile #PF 1
Culvert ID : CULVERT#4

Culv Q (cfs)	1582.12	Culv Vel In (ft/s)	12.92
# Barrels	5	Culv Vel Out (ft/s)	13.39
Q Barrel (cfs)	316.42	Culv Inv El Up (ft)	1561.00
E.G. US. (ft)	1570.78	Culv Inv El Dn (ft)	1560.00
W.S. US. (ft)	1570.78	Culv Frctn Ls (ft)	0.99
Delta EG (ft)	6.35	Culv Ext Lss (ft)	3.02
Delta WS (ft)	6.71	Culv Ent Lss (ft)	2.33
E.G. IC (ft)	1569.09	Q Weir (cfs)	
E.G. OC (ft)	1570.78	Weir Sta Lft (ft)	
Culvert Control	Outlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	1565.85	Weir Submerg	

Culv WS Out (ft)	1564.67	Weir Max Depth (ft)	
Culv Nml Depth (ft)	4.67	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	4.85	Wr Flw Area (sq ft)	
Culv Ful Lngh (ft)		Min Top Rd (ft)	1573.46

Warning: At least one culvert in the culvert group has supercritical flow at the outlet. However, since
more than one culvert in the culvert group has flow, the program cannot determine if the downstream cross section should be subcritical or supercritical flow. The program used the
downstream subcritical answer, even though it may not be valid.
Warning: During the supercritical analysis, the program could not converge on a supercritical answer
in the downstream cross section. The program used the solution with the least error.
Note: During supercritical analysis, the culvert direct step method went to normal depth. The program then assumed normal depth at the outlet.
Note: The flow in the culvert is entirely supercritical.
Note: During the supercritical calculations a hydraulic jump occurred at the outlet of (leaving) the
culvert.

CULVERT OUTPUT Profile #PF 1
Culvert ID : CULVERT#5

Culv Q (cfs)	3.05	Culv Vel In (ft/s)	5.18
# Barrels	3	Culv Vel Out (ft/s)	5.18
Q Barrel (cfs)	1.02	Culv Inv El Up (ft)	1560.00
E.G. US. (ft)	1570.78	Culv Inv El Dn (ft)	1558.70
W.S. US. (ft)	1570.78	Culv Frctn Ls (ft)	5.92
Delta EG (ft)	6.35	Culv Ext Lss (ft)	0.05
Delta WS (ft)	6.71	Culv Ent Lss (ft)	0.38
E.G. IC (ft)	1561.40	Q Weir (cfs)	
E.G. OC (ft)	1570.78	Weir Sta Lft (ft)	
Culvert Control	Outlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	1560.50	Weir Submerg	
Culv WS Out (ft)	1559.20	Weir Max Depth (ft)	
Culv Nml Depth (ft)	0.50	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	0.50	Wr Flw Area (sq ft)	
Culv Ful Lngh (ft)	180.00	Min Top Rd (ft)	1573.46

Warning: At least one culvert in the culvert group has supercritical flow at the outlet. However, since
more than one culvert in the culvert group has flow, the program cannot determine if the downstream cross section should be subcritical or supercritical flow. The program used the
downstream subcritical answer, even though it may not be valid.
Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.
Note: Culvert critical depth exceeds the height of the culvert.

CULVERT OUTPUT Profile #PF 1
Culvert ID : CULVERT#6

Culv Q (cfs)	1.98	Culv Vel In (ft/s)	5.05
# Barrels	2	Culv Vel Out (ft/s)	5.05
Q Barrel (cfs)	0.99	Culv Inv El Up (ft)	1555.20
E.G. US. (ft)	1570.78	Culv Inv El Dn (ft)	1554.40
W.S. US. (ft)	1570.78	Culv Frctn Ls (ft)	5.96
Delta EG (ft)	6.35	Culv Ext Lss (ft)	0.03
Delta WS (ft)	6.71	Culv Ent Lss (ft)	0.36
E.G. IC (ft)	1556.35	Q Weir (cfs)	
E.G. OC (ft)	1570.76	Weir Sta Lft (ft)	
Culvert Control	Outlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	1555.70	Weir Submerg	
Culv WS Out (ft)	1554.90	Weir Max Depth (ft)	
Culv Nml Depth (ft)	0.50	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	0.50	Wr Flw Area (sq ft)	
Culv Ful Lngh (ft)	190.00	Min Top Rd (ft)	1573.46

Warning: At least one culvert in the culvert group has supercritical flow at the outlet. However, since
more than one culvert in the culvert group has flow, the program cannot determine if the

downstream cross section should be subcritical or supercritical flow. The program used the
downstream subcritical answer, even though it may not be valid.

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.

Note: Culvert critical depth exceeds the height of the culvert.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.320

INPUT
Description: Immediately Downstream of CAP
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4822.77	1576.4	4910.4	1576.62	4969.53	1577.93	5001.36	1576.18	5047.52	1583.14
5075.79	1584.14	5113.38	1583.69	5138.77	1582.58	5199.14	1580.27	5204.38	1580.28
5241.26	1578.85	5275.56	1571.61	5416.69	1572.54	5785.12	1570.56	5874.18	1568.64
6092.67	1568.05	6122.6	1562.36	6219.64	1561.46	6233.7	1568.45	6248.4	1566.79
6483.43	1565.3	6766.26	1566.35	7044.87	1567.4	7136.51	1567.75	7218.49	1567.99
7340.67	1566.77	7376.48	1567.06	7410.01	1570.77	7431.66	1562	7509.75	1561.98
7521.83	1567.92	7532	1571.22	7538.45	1570.79	7565.72	1567.73	7600.54	1566.87
7802.73	1573.84	7829.55	1573.89	7888.24	1574.21	7987.05	1574.05	8064.1	1574.37
8135.03	1574.76	8140.14	1574.81	8290.01	1575.43	8317.2	1575.38	8434.95	1572.77
8474.11	1572.07	8501.46	1572.17	8527.52	1571.7	8548.91	1571.81	8603.13	1572.82
8629.96	1574.03	8750.98	1575.28	8793.25	1573.83	8945.62	1574.04	8957.92	1573.96
9051.62	1573.82	9120.76	1574.19	9292.54	1574.54	9311.21	1573.44	9347.96	1574.07
9375.17	1573.38	9389.01	1572.67	9423.09	1573.28	9455.48	1573.05	9476.82	1573.1
9581.24	1571.62	9939.51	1570.44	9973.2	1560.4	10001.02	1560.3	10087.53	1563.67
10319.18	1562.7	10346.17	1562.5	10412.02	1562.8	10661.77	1563.3	10884.74	1564.96
10884.8	1564.9	10896.07	1565.02	10950.52	1565.3	10962.44	1565.2	11045.15	1565.55
11228.48	1565.7	11271.64	1565.8	11298.49	1565.7	11324.7	1565.7	11362.94	1565.73
11393.16	1565.8	11429.48	1565.9	11508.31	1565.2	11518.89	1565.2	11522.34	1565.25
11652.17	1565.1	11664.71	1565.1	11779.49	1564.67	11896	1568.3	11911.22	1571.81
11940.99	1569.1	11958.16	1568.6	11999.7	1563.9	12009.68	1563.9	12252.33	1573.31
12320.73	1571.33	12342.5	1568.3	12402.65	1567.6	12437.24	1569.2	12459.56	1569.52
12470.65	1571.7	12552.98	1562.7	12586.76	1571.3	12623.5	1570.1	12761.35	1569.9
12813.55	1570.2	12834.96	1570.4	12836.11	1570.4	13003.98	1570.5	13064.71	1570.31
13105.27	1575.2	13165.27	1574.9	13195.95	1572.74	13222	1572.4	13337.24	1570.66
13363.21	1561.5	13410.96	1562.8	13426.97	1570.1	13462.55	1569.8	13582.87	1566.28
13687.98	1566.1	13812.76	1565.9	13973.38	1565.4	14167.15	1563.7	14180.69	1563.52
14252.91	1562.7	14265.62	1562.5	14372.17	1561.8	14460.67	1570.2	14486.65	1570.49
14552.95	1560.9	14596.39	1560.78	14642.5	1563.7	14696.54	1560.87	14722.5	1562.99
14731.35	1560.0	14745.38	1559.8	14755.53	1562.2	14759.09	1560.0	14760.26	1560.05
14852.43	1560.9	14865.32	1562.7	14875.38	1555.9	14922.85	1555.9	14934.31	1561.56
14995.03	1562.5	15110.39	1561.71	15124.8	1560.6	15192.19	1560.5	15212.48	1558.32
15236.55	1558.3	15338.69	1558.8	15408.87	1559.3	15419.37	1560.7	15438.81	1559.19
15575.47	1558.7	15605.22	1558.7	15619.71	1559.3	15636.17	1560.1	15820.21	1560.6
15857.24	1556.4	15897.42	1556.0	16072.17	1555.25				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4822.77	.03	9939.51	.02	10087.53	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9939.51	10087.53	88.46	84.3	74.33	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4822.77	9939.51	1580	12580	16072.17	1580

Blocked Obstructions num= 1

Sta L	Sta R	Elev
16072.17	16072.17	1575

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1564.44	Element			
Vel Head (ft)	0.36	Wt. n-Val.		0.025	0.030
W.S. Elev (ft)	1564.07	Reach Len. (ft)	88.46	84.30	74.33
Crit W.S. (ft)	1563.96	Flow Area (sq ft)		305.67	615.26
E.G. Slope (ft/ft)	0.003317	Area (sq ft)	396.95	305.67	7996.76
Q Total (cfs)	3500.00	Flow (cfs)		1877.88	1622.12
Top Width (ft)	2891.41	Top Width (ft)	198.77	126.55	2566.09
Vel Total (ft/s)	3.80	Avg. Vel. (ft/s)		6.14	2.64
Max Chl Dpth (ft)	8.82	Hydr. Depth (ft)		2.42	0.87
Conv. Total (cfs)	60770.0	Conv. (cfs)		32605.3	28164.7
Length Wtd. (ft)	81.82	Wetted Per. (ft)		127.14	704.30

Min Ch El (ft)	1560.30	Shear (lb/sq ft)		0.50	0.18
Alpha	1.63	Stream Power (lb/ft s)		3.06	0.48
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	18.50	0.71	13.83
C & E Loss (ft)	0.17	Cum SA (acres)	2.27	0.32	4.51

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9939.51	9988.85	505.28	79.50	28.40	14.44	2.85	6.36
9988.85	10038.19	1107.84	158.86	49.37	31.65	3.22	6.97
10038.19	RB 10087.53	264.76	67.31	49.38	7.56	1.36	3.93
10087.53	10942.48	1600.62	601.68	671.28	45.73	0.90	2.66
10942.48	11797.43						
11797.43	12652.38	21.50	13.58	33.02	0.61	0.41	1.58

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Apache Junct FRS
REACH: Spillway RS: 15.304

INPUT
Description:
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4873.16	1570.48	5004.62	1570.32	5014.53	1570.91	5062.47	1582.22	5090.36	1583.06
5126.08	1581.98	5136.75	1579.79	5195.63	1568.68	5253.57	1566.76	5298.18	1569.97
5308.88	1570.22	5386.52	1566.09	5521.01	1565.43	5582.57	1560.6	5618.87	1552.45
5721.92	1552.29	6093.67	1554.66	6503.25	1553.5	6640.91	1553.5	7425.07	1554.73
7551.54	1554.89	7564.76	1565.02	7863.21	1564.75	7910.55	1564.92	8206.61	1565.01
8532.12	1563.65	8560.1	1569.44	8570.51	1570.26	8586.09	1570.34	8599.28	1570.11
8610.86	1569.19	8630.19	1564.71	9161.12	1563.73	9252.35	1565.56	9269.82	1569.93
9276.86	1570.5	9307.6	1570.9	9348.61	1570.65	9619.06	1565.8	9660.32	1566.42
9893.55	1562.47	9966.37	1561.36	9985.78	1559.97	10031.85	1559.19	10052.98	1559.24
10071.29	1561.23	10085.01	1562	10093.57	1563.06	10096.37	1562.91	10273.56	1563.1
10276.47	1562.17	11015.83	1564.87	11032.52	1564.96	11070.24	1565.24	11152.64	1564.36
11345.09	1564.17	11362.2	1565.35	11425.87	1565.62	11456.37	1564.79	11467.68	1564.27
11483.04	1564.55	11629.9	1563.36	11650.89	1563.94	11852.71	1563.64	11869.67	1566.54
11896.16	1567.69	11932.22	1567.25	11961.07	1563.11	12056.15	1562.73	12098.28	1565.37
12178.41	1564.56	12328.76	1563.03	12480.56	1562.54	12511.7	1559.23	12531.36	1562.58
12618.69	1565.38	12947.99	1567.76	12995.81	1568.5	13147.48	1569.37	13179.54	1573.78
13239.43	1573.86	13271.07	1570.57	13325.19	1568.44	13349.96	1560.12	13385.55	1560.12
13403.52	1560.12	13418.95	1567.23	13471.48	1565.74	13784.81	1564.01	13819.2	1564.57
13841.82	1564.3	13843.4	1564.28	13934.21	1563.74	13946.96	1561.73	13957.41	1563.39
14340.4	1561.02	14399.56	1560.27	14413.88	1561.76	14439.48	1561.02	14450.81	1560.63
14781.69	1557.68	14823.39	1558.61	14888.39	1558.5	14903.14	1558.81	14911.86	1560.65
14927.93	1555.49	14955.16	1555.41	14985.87	1560.76	15003.5	1560.46	15012.85	1559.01
15061.46	1559.4	15089.52	1558.09	15110.3	1557.65	15125.98	1557.91	15151.77	1557.88
15334.84	1558.41	15385.19	1557.88	15455.6	1558.38	15680.66	1558.17	15710.16	1558.16
15720.63	1558.51	15732.38	1559.66	15894.01	1559.57	15908.77	1559.27	15918.35	1559.68
15926.55	1558.26	15951.08	1558.75	15983.69	1558.07	16012.78	1558.28	16029.42	1558.42
16164.68	1560.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4873.16	.15	9893.55	.025	10096.37	.15

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
       9893.5510096.37             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4873.16    9860 1580.14   1266016164.68 1580.09
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
16164.6816164.68    1575
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1563.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.	0.150	0.025	0.150
W.S. Elev (ft)	1562.95	Reach Len. (ft)			
Crit W.S. (ft)	1562.95	Flow Area (sq ft)	6.83	425.75	224.52
E.G. Slope (ft/ft)	0.006510	Area (sq ft)	17823.22	425.75	8213.09
Q Total (cfs)	3500.00	Flow (cfs)	2.11	3377.02	120.87
Top Width (ft)	4960.28	Top Width (ft)	2037.84	199.90	2722.54
Vel Total (ft/s)	5.33	Avg. Vel. (ft/s)	0.31	7.93	0.54
Max Chl Dpth (ft)	10.66	Hydr. Depth (ft)	0.24	2.13	0.45
Conv. Total (cfs)	43378.3	Conv. (cfs)	26.1	41854.1	1498.1
Length Wtd. (ft)		Wetted Per. (ft)	28.39	200.15	503.28
Min Ch El (ft)	1559.19	Shear (lb/sq ft)	0.10	0.86	0.18
Alpha	2.14	Stream Power (lb/ft s)	0.03	6.86	0.10
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal
depth is below critical depth). Water surface set to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9176.35	9893.55	2.11	6.83	28.39	0.06	0.24	0.31
LB 9893.55	9961.16	296.50	67.34	67.61	8.47	1.00	4.40
9961.16	10028.76	1761.64	196.22	67.66	50.33	2.90	8.98
10028.76	RB 10096.37	1318.88	162.19	64.88	37.68	2.51	8.13
10096.37	10963.27	36.59	85.19	254.41	1.05	0.34	0.43
10963.27	11830.17						
11830.17	12697.07	84.28	139.32	248.87	2.41	0.56	0.60

Warning: Divided flow computed for this cross-section.
Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal
depth is below critical depth). Water surface set to critical depth.

SUMMARY OF MANNING'S N VALUES

River:Apache Junct FRS

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11	n12
Spillway	20.000	.06	.02	.06									
Spillway	19.993	.06	.032	.06									
Spillway	19.975	.06	.032	.06									
Spillway	19.896	.06	.028	.06									
Spillway	19.812	.09	.06	.028	.06								
Spillway	19.735	.09	.06	.028	.06								
Spillway	19.665	.09	.06	.028	.06								
Spillway	19.581	.09	.028	.06									
Spillway	19.504	.09	.028	.09	.06								
Spillway	19.410	.09	.028	.09	.06								
Spillway	19.303	.09	.028	.09	.06								
Spillway	19.208	.09	.028	.09	.15	.06							
Spillway	19.110	.15	.09	.15	.09	.15	.09	.15	.09	.028	.09	.15	.06
Spillway	19.012	.15	.09	.028	.09	.15	.06						

Spillway	18.920	.15	.028	.09	.06	
Spillway	18.817	.15	.09	.028	.09	.06
Spillway	18.730	.15	.09	.028	.09	.06
Spillway	18.654	.15	.028	.15	.09	
Spillway	18.550	.15	.028	.15	.09	
Spillway	18.481	.15	.028	.09		
Spillway	18.397	.15	.025	.09	.15	.09
Spillway	18.320	.15	.025	.15		
Spillway	18.247	.15	.028	.15		
Spillway	18.171	.15	.02	.15		
Spillway	18.051	.15	.028	.15		
Spillway	17.941	.15	.028	.15		
Spillway	17.844	.15	.028	.15		
Spillway	17.761	.15	.02	.15		
Spillway	17.674	.15	.02	.15		
Spillway	17.601	.15	.02	.15		
Spillway	17.480	.15	.02	.15		
Spillway	17.336	.15	.02	.15		
Spillway	17.262	.15	.02	.15		
Spillway	17.186	.15	.02	.15		
Spillway	17.111	.15	.02	.15		
Spillway	17.046	.15	.035	.15		
Spillway	16.983	.15	.035	.15		
Spillway	16.919	.15	.035	.15		
Spillway	16.860	.15	.035	.15		
Spillway	16.775	.15	.035	.15		
Spillway	16.678	.15	.02	.15		
Spillway	16.585	.15	.028	.15		
Spillway	16.525	.15	.028	.15		
Spillway	16.451	.15	.028	.15		
Spillway	16.381	.15	.02	.15		
Spillway	16.265	.15	.02	.15		
Spillway	16.182	.15	.02	.15		
Spillway	16.086	.15	.02	.15		
Spillway	16.001	.15	.02	.15		
Spillway	15.892	.15	.02	.15		
Spillway	15.784	.15	.02	.15		
Spillway	15.696	.15	.02	.15		
Spillway	15.607	.15	.02	.15		
Spillway	15.504	.15	.02	.15		
Spillway	15.419	.15	.028	.15		
Spillway	15.361	.15	.025	.15		
Spillway	15.340	Culvert				
Spillway	15.320	.03	.025	.03		
Spillway	15.304	.15	.025	.15		

SUMMARY OF REACH LENGTHS

River: Apache Junct FRS

Reach	River Sta.	Left	Channel	Right
Spillway	20.000	43.28	34.75	44.55
Spillway	19.993	94.49	99.29	88.53
Spillway	19.975	416.52	415.95	409
Spillway	19.896	444.8	443.55	442.48
Spillway	19.812	410.21	406.82	401.03
Spillway	19.735	363.11	367.49	373
Spillway	19.665	435.66	441.94	435.91
Spillway	19.581	432.12	407.92	355
Spillway	19.504	443.61	495.7	479.53
Spillway	19.410	535	565.65	492.3
Spillway	19.303	570	501.11	467.95
Spillway	19.208	440	517.56	497.46
Spillway	19.110	545	521.08	508.11
Spillway	19.012	347.81	482.12	335
Spillway	18.920	404.5	544.04	400
Spillway	18.817	402.59	458.21	415.84
Spillway	18.730	429.44	402.72	399.74
Spillway	18.654	492.04	551.96	536.77
Spillway	18.550	335	361.64	341.28
Spillway	18.481	443.61	444.17	450

Spillway	18.397	347.84	408.99	396
Spillway	18.320	268.13	380.9	331.29
Spillway	18.247	361.88	401.35	317.5
Spillway	18.171	565	633.22	508.03
Spillway	18.051	525	583.8	596.87
Spillway	17.941	368.92	509.5	343.39
Spillway	17.844	375	441.57	330
Spillway	17.761	192.33	457.84	585
Spillway	17.674	317.78	384.64	153.53
Spillway	17.601	492.39	639.3	480
Spillway	17.480	422.71	759.29	635.28
Spillway	17.336	292.68	391.01	280
Spillway	17.262	320	403.01	280
Spillway	17.186	297.26	396.01	290
Spillway	17.111	286.01	340.97	275
Spillway	17.046	320.73	334.71	325
Spillway	16.983	314.66	337.78	317
Spillway	16.919	294.82	311.56	321.17
Spillway	16.860	387	447.02	388.71
Spillway	16.775	361.96	513.4	490
Spillway	16.678	430.64	490.1	305
Spillway	16.585	290	318.41	208.83
Spillway	16.525	330	391.68	271.49
Spillway	16.451	401.88	370.79	366.61
Spillway	16.381	354.57	609.88	452.58
Spillway	16.265	323.21	438.39	331.63
Spillway	16.182	255	507.2	380
Spillway	16.086	272.52	446.48	350
Spillway	16.001	377.84	575.99	440
Spillway	15.892	380	574.17	385.41
Spillway	15.784	370	461.26	344.31
Spillway	15.696	376.56	470.47	385.16
Spillway	15.607	409.72	545.69	344.4
Spillway	15.504	370	445.22	390
Spillway	15.419	390	307.29	328.78
Spillway	15.361	224.47	218.48	231.22
Spillway	15.340	Culvert		
Spillway	15.320	88.46	84.3	74.33
Spillway	15.304			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Apache Junct FRS

Reach	River Sta.	Contr.	Expan.
Spillway	20.000	.3	.5
Spillway	19.993	.3	.5
Spillway	19.975	.3	.5
Spillway	19.896	.3	.5
Spillway	19.812	.3	.5
Spillway	19.735	.3	.5
Spillway	19.665	.3	.5
Spillway	19.581	.3	.5
Spillway	19.504	.3	.5
Spillway	19.410	.3	.5
Spillway	19.303	.3	.5
Spillway	19.208	.3	.5
Spillway	19.110	.1	.3
Spillway	19.012	.1	.3
Spillway	18.920	.1	.3
Spillway	18.817	.1	.3
Spillway	18.730	.1	.3
Spillway	18.654	.1	.3
Spillway	18.550	.1	.3
Spillway	18.481	.1	.3
Spillway	18.397	.1	.3
Spillway	18.320	.1	.3
Spillway	18.247	.1	.3
Spillway	18.171	.1	.3
Spillway	18.051	.1	.3
Spillway	17.941	.1	.3

Spillway	17.844	.1	.3
Spillway	17.761	.1	.3
Spillway	17.674	.1	.3
Spillway	17.601	.1	.3
Spillway	17.480	.1	.3
Spillway	17.336	.1	.3
Spillway	17.262	.1	.3
Spillway	17.186	.1	.3
Spillway	17.111	.1	.3
Spillway	17.046	.1	.3
Spillway	16.983	.1	.3
Spillway	16.919	.1	.3
Spillway	16.860	.1	.3
Spillway	16.775	.1	.3
Spillway	16.678	.1	.3
Spillway	16.585	.1	.3
Spillway	16.525	.1	.3
Spillway	16.451	.1	.3
Spillway	16.381	.1	.3
Spillway	16.265	.1	.3
Spillway	16.182	.1	.3
Spillway	16.086	.1	.3
Spillway	16.001	.1	.3
Spillway	15.892	.1	.3
Spillway	15.784	.1	.3
Spillway	15.696	.1	.3
Spillway	15.607	.1	.3
Spillway	15.504	.1	.3
Spillway	15.419	.3	.5
Spillway	15.361	.3	.5
Spillway	15.340	Culvert	
Spillway	15.320	.3	.5
Spillway	15.304	.3	.5

Profile Output Table - Standard Table 1

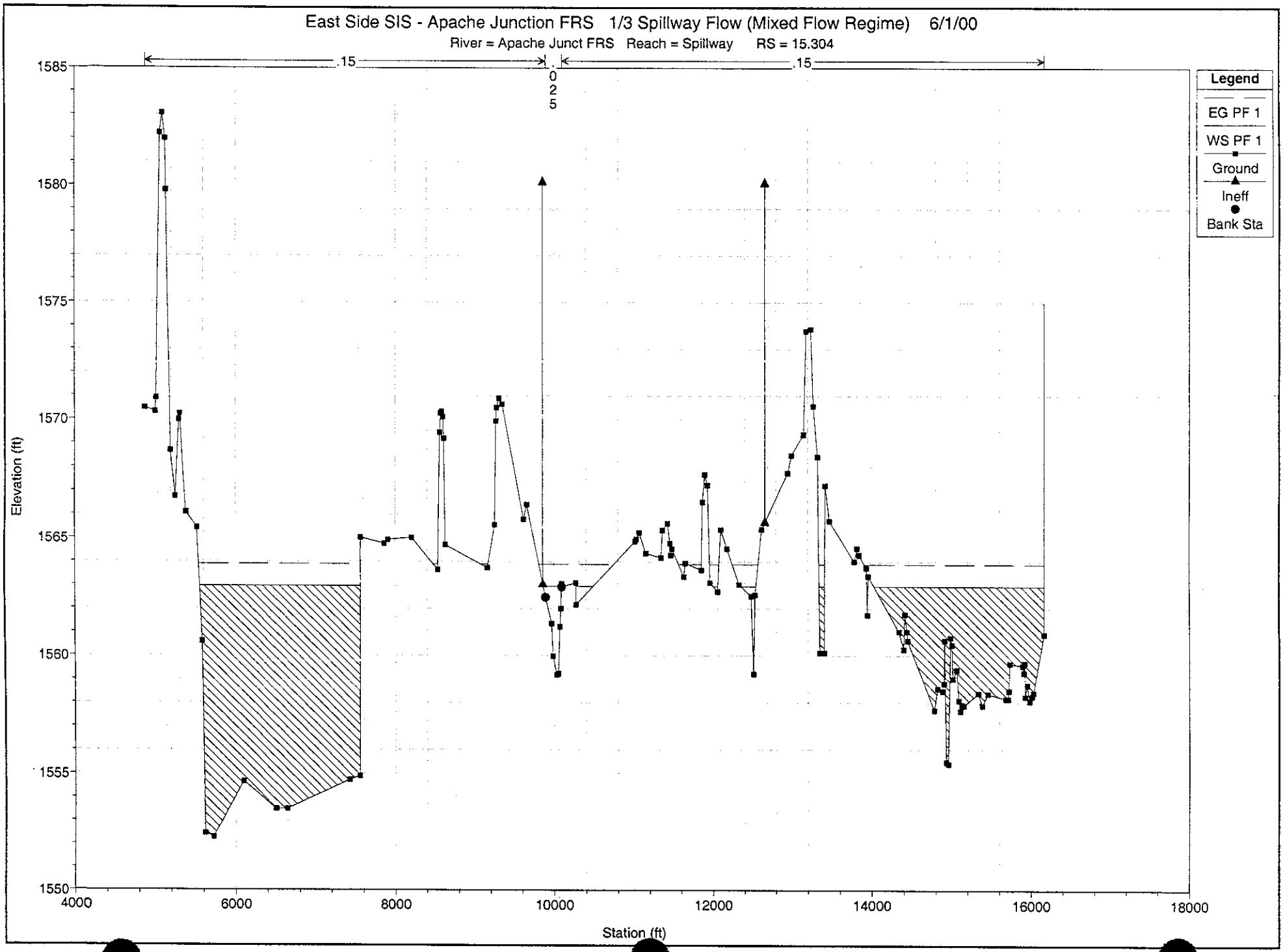
Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Spillway	20.000	3500.00	1799.77	1803.17	1803.17	1804.87	0.004229	10.48	334.04	98.89	1.00
Spillway	19.993	3500.00	1779.09	1780.20	1782.57	1799.21	0.569966	34.99	100.03	98.52	6.12
Spillway	19.975	3500.00	1779.79	1783.53	1781.82	1783.74	0.001267	3.66	955.65	288.76	0.35
Spillway	19.896	3500.00	1777.78	1781.57	1781.49	1782.28	0.018159	9.17	618.66	2073.62	1.33
Spillway	19.812	3500.00	1772.23	1774.57	1774.38	1774.89	0.014619	7.07	933.69	1767.05	1.16
Spillway	19.735	3500.00	1765.09	1768.52	1768.44	1768.96	0.014546	6.69	836.87	1403.72	1.14
Spillway	19.665	3500.00	1759.98	1763.07	1762.84	1763.36	0.015139	7.02	1061.49	1248.30	1.17
Spillway	19.581	3500.00	1754.45	1756.56	1756.10	1756.72	0.014957	8.06	1271.41	1132.53	1.19
Spillway	19.504	3500.00	1747.30	1751.77	1751.55	1752.00	0.009683	9.77	1765.69	2643.75	1.03
Spillway	19.410	3500.00	1742.92	1745.79	1745.79	1746.10	0.017495	11.37	1625.21	3706.03	1.39
Spillway	19.303	3500.00	1734.37	1739.01	1739.03	1739.30	0.009641	9.50	2099.61	3809.11	1.04
Spillway	19.208	3500.00	1728.13	1732.10	1731.79	1732.22	0.006029	6.72	2414.18	3957.89	0.81
Spillway	19.110	3500.00	1722.69	1725.36	1724.98	1726.76	0.024901	13.13	1030.46	2096.91	1.65
Spillway	19.012	3500.00	1715.92	1719.59	1719.16	1719.63	0.007496	5.44	3636.58	3900.28	0.83
Spillway	18.920	3500.00	1712.11	1715.29	1715.21	1715.49	0.019464	10.33	2518.42	3142.00	1.39
Spillway	18.817	3500.00	1706.27	1710.17	1710.17	1710.60	0.007306	8.84	1732.70	2578.60	0.94
Spillway	18.730	3500.00	1701.38	1705.49	1705.69	1706.15	0.016448	13.96	1650.35	1835.31	1.41
Spillway	18.654	3500.00	1700.00	1701.64	1700.41	1701.67	0.008627	5.62	3067.39	2900.00	0.89
Spillway	18.550	3500.00	1692.50	1695.76	1695.62	1695.97	0.015240	10.36	2527.06	2957.11	1.27
Spillway	18.481	3500.00	1690.36	1691.81	1690.79	1691.84	0.009906	4.34	3037.73	3453.07	0.89
Spillway	18.397	3500.00	1682.74	1687.26	1687.26	1687.57	0.009142	10.23	2865.80	3854.75	1.13
Spillway	18.320	3500.00	1679.81	1682.83	1682.47	1683.03	0.007466	8.52	3110.09	3548.69	1.02
Spillway	18.247	3500.00	1676.99	1679.76	1679.47	1679.91	0.015233	9.79	2532.66	2905.53	1.26
Spillway	18.171	3500.00	1674.29	1676.19	1675.54	1676.36	0.007302	7.85	2952.76	2502.23	1.18
Spillway	18.051	3500.00	1667.96	1670.79	1669.98	1670.88	0.013881	8.43	2734.66	2775.39	1.16
Spillway	17.941	3500.00	1662.40	1665.47	1664.82	1665.55	0.007383	6.66	3380.22	3295.72	0.88
Spillway	17.844	3500.00	1658.73	1661.50	1661.15	1661.64	0.015558	9.47	2553.74	2798.01	1.26
Spillway	17.761	3500.00	1652.45	1657.97	1657.97	1658.43	0.004995	8.10	2931.10	2847.90	1.02
Spillway	17.674	3500.00	1649.09	1655.20	1655.21	1655.99	0.008502	10.41	1858.69	1966.87	1.33
Spillway	17.601	3500.00	1646.80	1652.56	1652.54	1653.06	0.007275	8.17	2402.29	2418.59	1.18
Spillway	17.480	3500.00	1642.99	1647.61	1647.61	1648.05	0.011734	9.51	2393.74	2453.84	1.47
Spillway	17.336	3500.00	1639.23	1643.30	1643.43	1643.92	0.005229	10.54	3066.66	2939.59	1.11
Spillway	17.262	3500.00	1636.44	1640.15	1639.79	1640.41	0.013166	9.57	2690.45	3385.47	1.53
Spillway	17.186	3500.00	1633.15	1637.54	1637.13	1637.67	0.005951	7.11	3654.35	3558.02	1.05
Spillway	17.111	3500.00	1630.61	1634.61	1634.51	1635.04	0.012380	11.29	2686.24	3389.72	1.55
Spillway	17.046	3500.00	1629.25	1632.20	1631.51	1632.23	0.007368	5.25	3631.79	3948.10	0.69
Spillway	16.983	3500.00	1623.96	1628.94	1628.78	1629.14	0.012631	8.62	2593.30	3298.32	0.94
Spillway	16.919	3500.00	1620.94	1626.05	1626.05	1626.55	0.005369	7.53	2508.39	3911.77	0.68
Spillway	16.860	3500.00	1619.10	1623.16	1622.94	1623.40	0.014863	8.32	2434.51	4543.50	1.02
Spillway	16.775	3500.00	1615.22	1619.67	1619.13	1619.72	0.006155	5.75	3687.22	5267.08	0.65
Spillway	16.678	3500.00	1614.41	1615.91	1615.91	1616.34	0.009835	9.09	2707.52	3946.73	1.37
Spillway	16.585	3500.00	1608.83	1611.62	1611.68	1612.05	0.010628	9.65	2742.06	3205.96	1.11
Spillway	16.525	3500.00	1606.88	1609.64	1608.40	1609.67	0.006804	5.45	3540.84	3699.63	0.80
Spillway	16.451	3500.00	1604.99	1606.39	1605.20	1606.42	0.015448	3.79	2759.40	3870.62	1.00
Spillway	16.381	3500.00	1599.99	1602.51	1601.87	1602.54	0.006683	5.12	3591.20	3780.41	1.02
Spillway	16.265	3500.00	1595.98	1598.97	1598.94	1599.32	0.009827	9.56	3013.83	3636.86	1.38

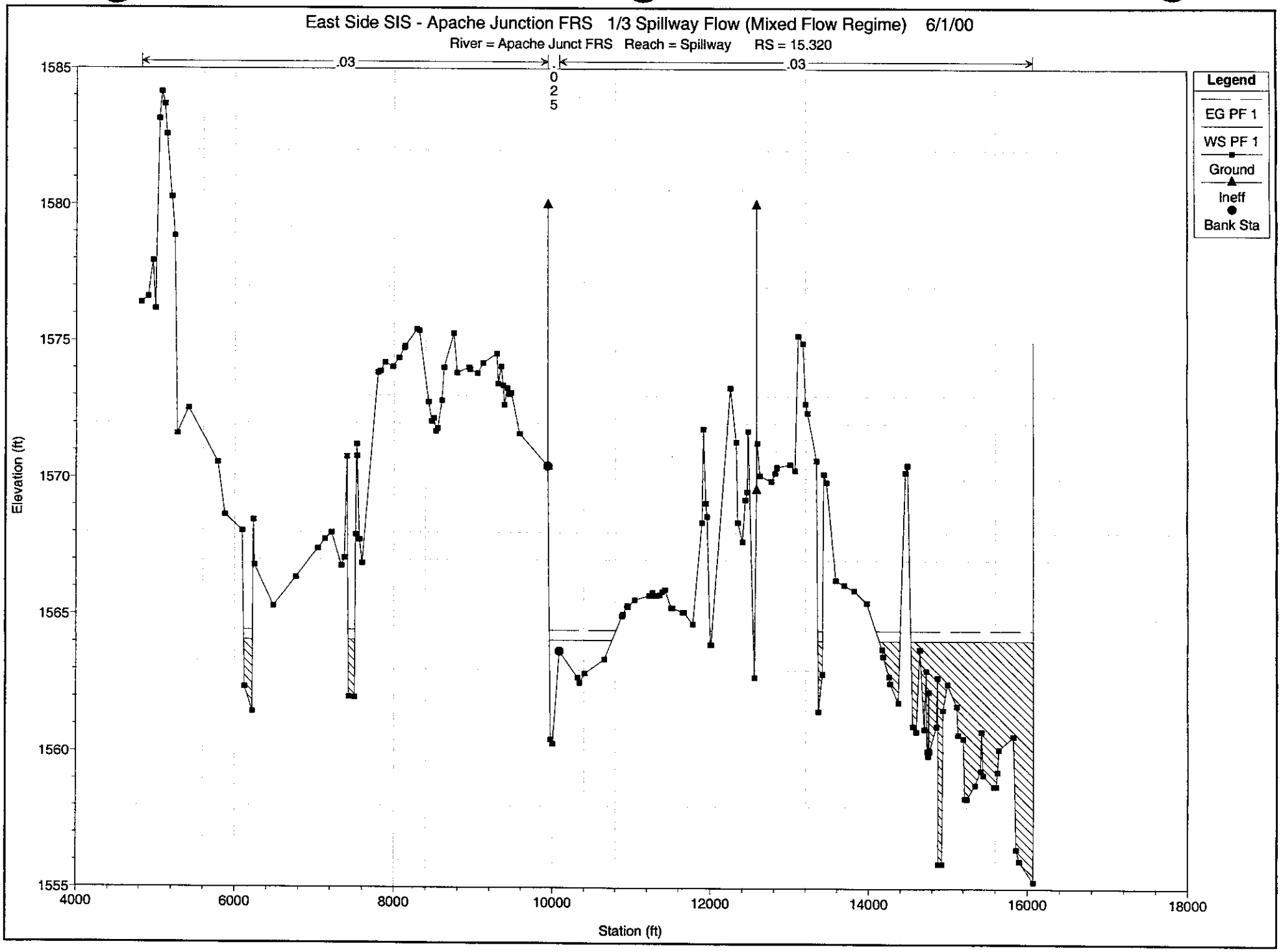
Spillway	16.182	3500.00	1593.56	1596.11	1595.76	1596.19	0.008075	6.52	3603.21	4099.97	1.16
Spillway	16.086	3500.00	1590.17	1593.30	1593.24	1593.44	0.012037	8.04	3023.11	3582.74	1.40
Spillway	16.001	3500.00	1588.97	1591.06	1590.43	1591.08	0.005756	3.95	3604.97	3209.02	0.90
Spillway	15.892	3500.00	1585.05	1587.78	1587.57	1587.85	0.012816	6.24	2599.77	2753.46	1.36
Spillway	15.784	3500.00	1582.18	1584.12	1583.08	1584.30	0.006097	6.43	3192.68	3433.55	1.04
Spillway	15.696	3500.00	1580.14	1580.43	1579.31	1580.47	0.020583	2.94	2277.50	3269.81	1.36
Spillway	15.607	3500.00	1573.77	1577.01	1575.48	1577.17	0.004491	5.85	2926.87	3368.93	0.91
Spillway	15.504	3500.00	1571.86	1573.41	1572.26	1574.04	0.013896	9.70	1874.23	3340.65	1.58
Spillway	15.419	3500.00	1568.96	1570.78	1569.34	1570.82	0.004686	3.82	3601.79	4049.61	0.65
Spillway	15.361	3500.00	1561.37	1570.78	1562.42	1570.78	0.000015	0.99	19206.73	8944.87	0.06
Spillway	15.340	Culvert									
Spillway	15.320	3500.00	1560.30	1564.07	1563.96	1564.44	0.003317	6.14	920.93	2891.41	0.70
Spillway	15.304	3500.00	1559.19	1562.95	1562.95	1563.89	0.006510	7.93	657.09	4960.28	0.96

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Spillway	20.000	1804.87	1803.17	1.70	0.17	0.27		3500.00		98.89
Spillway	19.993	1799.21	1780.20	19.01	0.50	5.18		3500.00		98.52
Spillway	19.975	1783.74	1783.53	0.21	1.31	0.15		3500.00		288.76
Spillway	19.896	1782.28	1781.57	0.70	7.20	0.19	163.87	1225.12	2111.01	2073.62
Spillway	19.812	1774.89	1774.57	0.32	5.90	0.03	609.90	740.41	2149.69	1767.05
Spillway	19.735	1768.96	1768.52	0.43	5.53	0.07	145.26	1813.24	1541.50	1403.72
Spillway	19.665	1763.36	1763.07	0.29	6.57	0.07	875.75	898.10	1726.15	1248.30
Spillway	19.581	1756.72	1756.56	0.16	4.69	0.02	1671.68	156.85	1671.47	1132.53
Spillway	19.504	1752.00	1751.77	0.23	5.87	0.02	1839.10	445.01	1215.89	2643.75
Spillway	19.410	1746.10	1745.79	0.31			2088.59	451.82	959.58	3706.03
Spillway	19.303	1739.30	1739.01	0.28	6.79	0.02	2311.52	638.38	550.10	3809.11
Spillway	19.208	1732.22	1732.10	0.13	5.08	0.38	2636.48	516.69	346.83	3957.89
Spillway	19.110	1726.76	1725.36	1.40	6.72	0.41	1693.79	1798.62	7.59	2096.91
Spillway	19.012	1719.63	1719.59	0.04	4.12	0.02	3183.92	232.38	83.70	3900.28
Spillway	18.920	1715.49	1715.29	0.20	4.87	0.02	2931.21	385.24	183.55	3142.00
Spillway	18.817	1710.60	1710.17	0.43			1714.59	1183.63	601.77	2578.60
Spillway	18.730	1706.15	1705.49	0.66	4.43	0.02	1867.43	721.84	910.74	1835.31
Spillway	18.654	1701.67	1701.64	0.03	5.68	0.02	2790.59	92.48	616.93	2900.00
Spillway	18.550	1695.97	1695.76	0.21	4.08	0.05	2708.50	392.03	399.47	2957.11
Spillway	18.481	1691.84	1691.81	0.03	4.24	0.03	2445.30	148.06	906.65	3453.07
Spillway	18.397	1687.57	1687.26	0.31	3.03	0.03	2095.99	647.25	756.76	3854.75
Spillway	18.320	1683.03	1682.83	0.20	3.10	0.02	2365.49	583.33	551.18	3548.69
Spillway	18.247	1679.91	1679.76	0.15	3.55	0.00	1748.22	294.96	1456.82	2905.53
Spillway	18.171	1676.36	1676.19	0.18	5.46	0.03	1330.27	596.01	1573.71	2502.23
Spillway	18.051	1670.88	1670.79	0.09	5.33	0.00	2917.51	213.45	369.04	2775.39
Spillway	17.941	1665.55	1665.47	0.07	3.89	0.01	2601.67	305.15	593.18	3295.72
Spillway	17.844	1661.64	1661.50	0.14	3.18	0.03	3002.43	293.52	204.05	2798.01
Spillway	17.761	1658.43	1657.97	0.46			1903.91	1568.95	27.14	2847.90
Spillway	17.674	1655.99	1655.20	0.79	2.42	0.03	1072.03	1617.55	810.42	1966.87
Spillway	17.601	1653.06	1652.56	0.50	4.99	0.02	1620.60	1662.03	217.37	2418.59
Spillway	17.480	1648.05	1647.61	0.44			2400.80	1062.82	36.39	2453.84

Spillway	17.336	1643.92	1643.30	0.62	4.12	0.02	1831.82	1235.47	432.71	2939.59
Spillway	17.262	1640.41	1640.15	0.26	2.70	0.04	1716.51	596.82	1186.67	3385.47
Spillway	17.186	1637.67	1637.54	0.13	2.60	0.03	1163.14	546.68	1790.18	3558.02
Spillway	17.111	1635.04	1634.61	0.43	2.69	0.12	636.52	732.50	2130.98	3389.72
Spillway	17.046	1632.23	1632.20	0.03	3.08	0.02	1092.76	182.00	2225.24	3948.10
Spillway	16.983	1629.14	1628.94	0.20	2.55	0.03	100.25	555.15	2844.60	3298.32
Spillway	16.919	1626.55	1626.05	0.51			177.97	1999.52	1322.51	3911.77
Spillway	16.860	1623.40	1623.16	0.24	3.62	0.06	1238.57	724.82	1536.61	4543.50
Spillway	16.775	1619.72	1619.67	0.06	3.35	0.04	1868.65	305.50	1325.85	5267.08
Spillway	16.678	1616.34	1615.91	0.43			1627.27	1161.81	710.92	3946.73
Spillway	16.585	1612.05	1611.62	0.43	4.29	0.00	1666.38	1005.91	827.71	3205.96
Spillway	16.525	1609.67	1609.64	0.03	3.26	0.00	3291.70	135.18	73.12	3699.63
Spillway	16.451	1606.42	1606.39	0.03	3.87	0.00	3403.17	36.66	60.17	3870.62
Spillway	16.381	1602.54	1602.51	0.04	3.19	0.03	3291.34	202.01	6.64	3780.41
Spillway	16.265	1599.32	1598.97	0.35	3.05	0.08	2413.81	835.65	250.54	3636.86
Spillway	16.182	1596.19	1596.11	0.08	2.74	0.01	3126.02	365.81	8.17	4099.97
Spillway	16.086	1593.44	1593.30	0.14	2.33	0.04	3048.24	451.76		3582.74
Spillway	16.001	1591.08	1591.06	0.03	3.23	0.00	3292.64	207.36		3209.02
Spillway	15.892	1587.85	1587.78	0.08	3.54	0.01	3182.88	304.64	12.48	2753.46
Spillway	15.784	1584.30	1584.12	0.18	3.79	0.04	1799.27	921.20	779.53	3433.55
Spillway	15.696	1580.47	1580.43	0.04	3.29	0.01	890.63	24.44	2584.93	3269.81
Spillway	15.607	1577.17	1577.01	0.16	3.08	0.05	248.12	1006.91	2244.97	3368.93
Spillway	15.504	1574.04	1573.41	0.64	3.05	0.18	122.03	1491.59	1886.38	3340.65
Spillway	15.419	1570.82	1570.78	0.05	0.02	0.02	0.01	552.08	2947.91	4049.61
Spillway	15.361	1570.78	1570.78	0.00				732.39	2767.61	8944.87
Spillway	15.340	Culvert								
Spillway	15.320	1564.44	1564.07	0.36	0.37	0.17		1877.88	1622.12	2891.41
Spillway	15.304	1563.89	1562.95	0.94			2.11	3377.02	120.87	4960.28


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 15.304
.15
.025
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1585
1580
1575
1570
1565
1560
1555
1550
4000
6000
8000
10000
12000
14000
16000
18000
Station (ft)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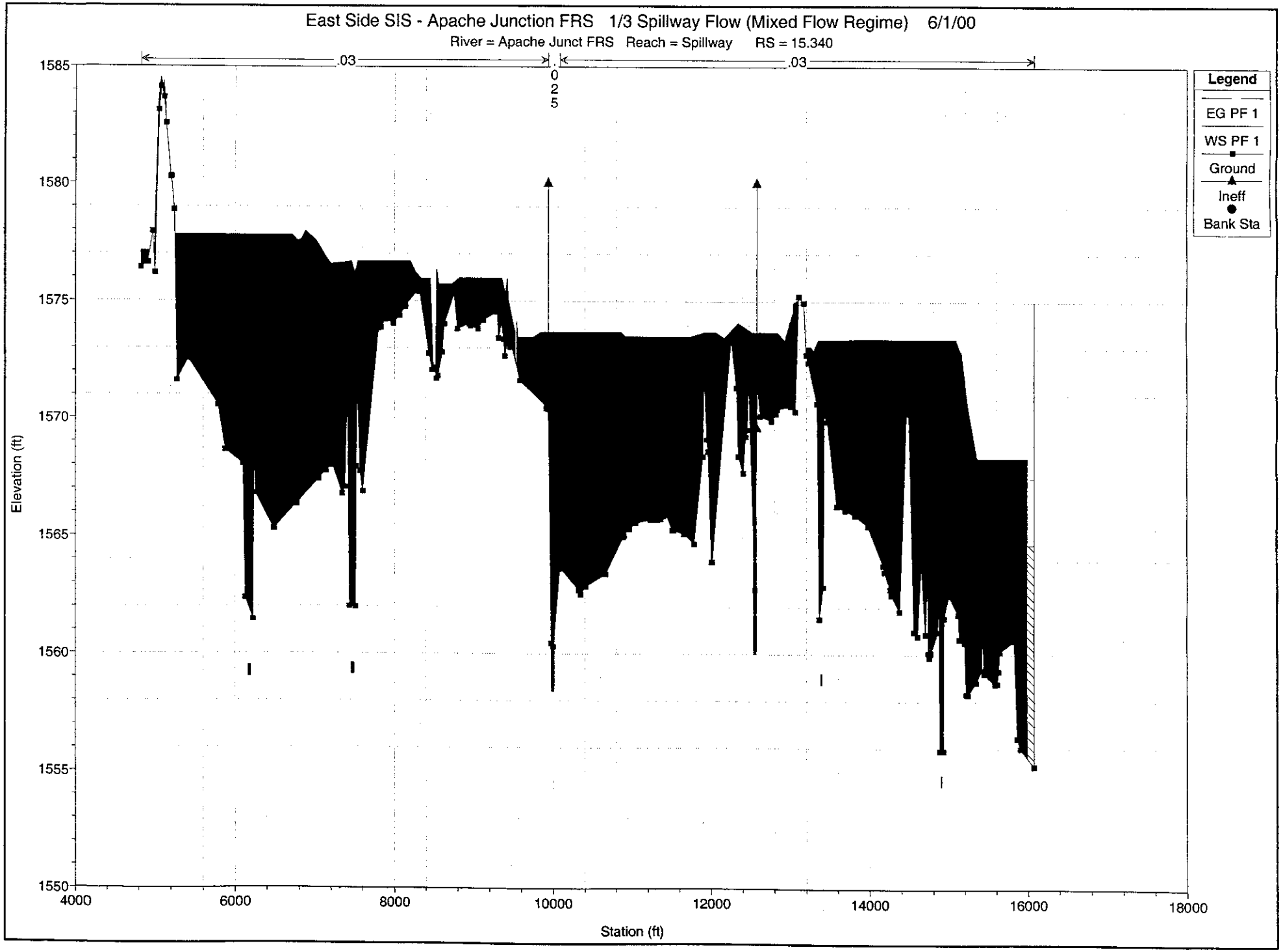
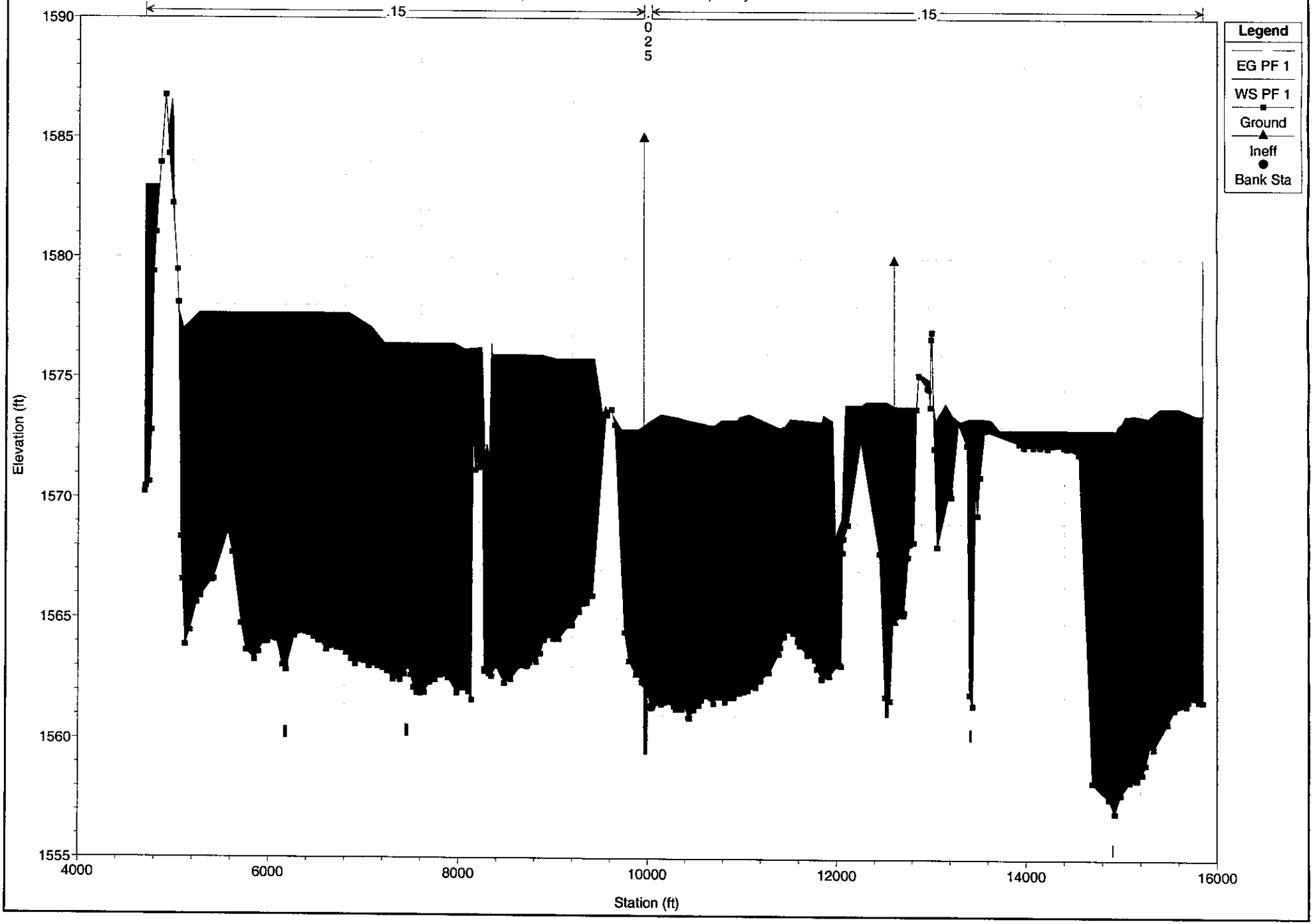
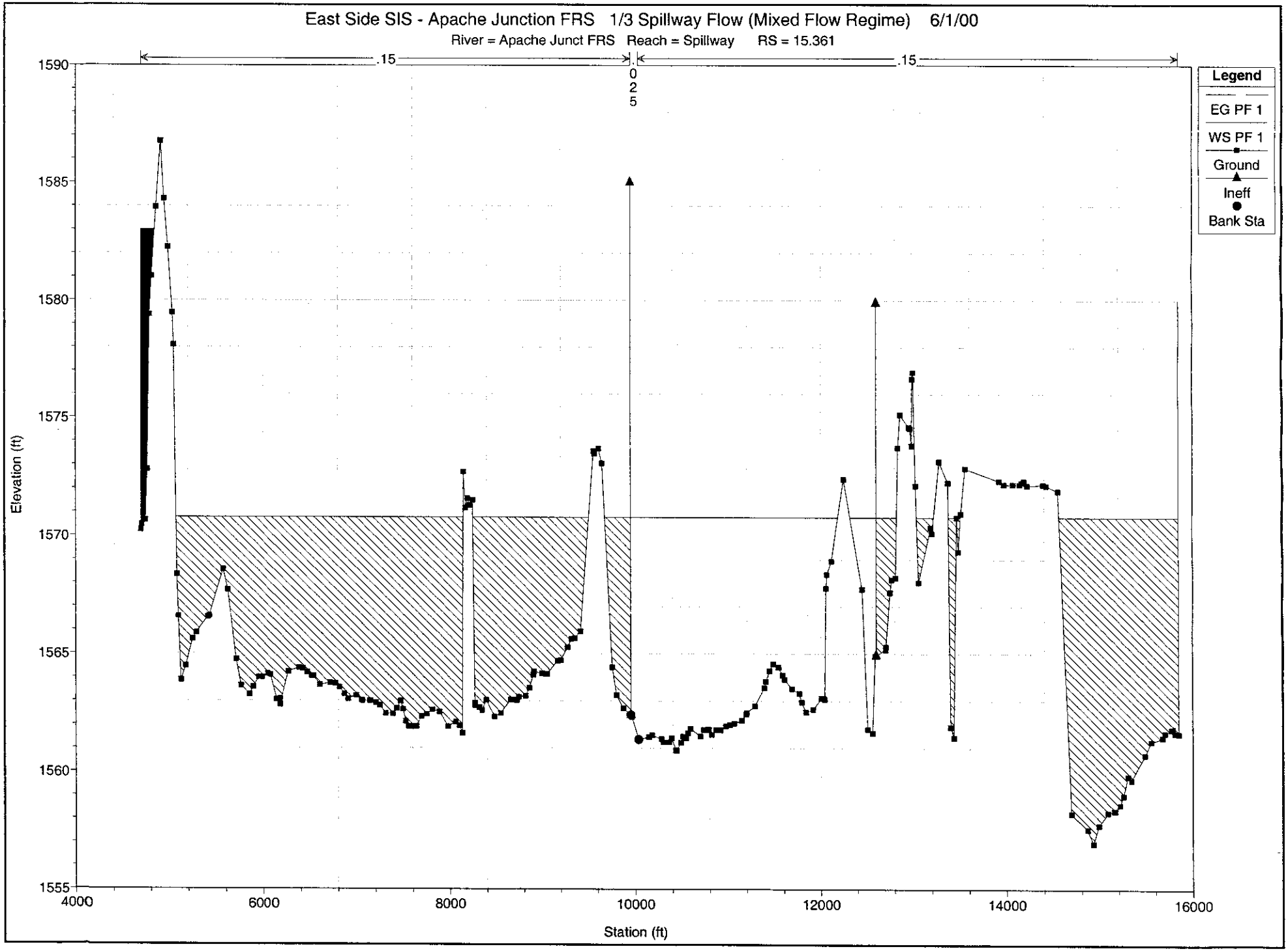
River = Apache Junct FRS Reach = Spillway RS = 15.320
.03
.025
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1585
1580
1575
1570
1565
1560
1555
4000
6000
8000
10000
12000
14000
16000
18000
Station (ft)

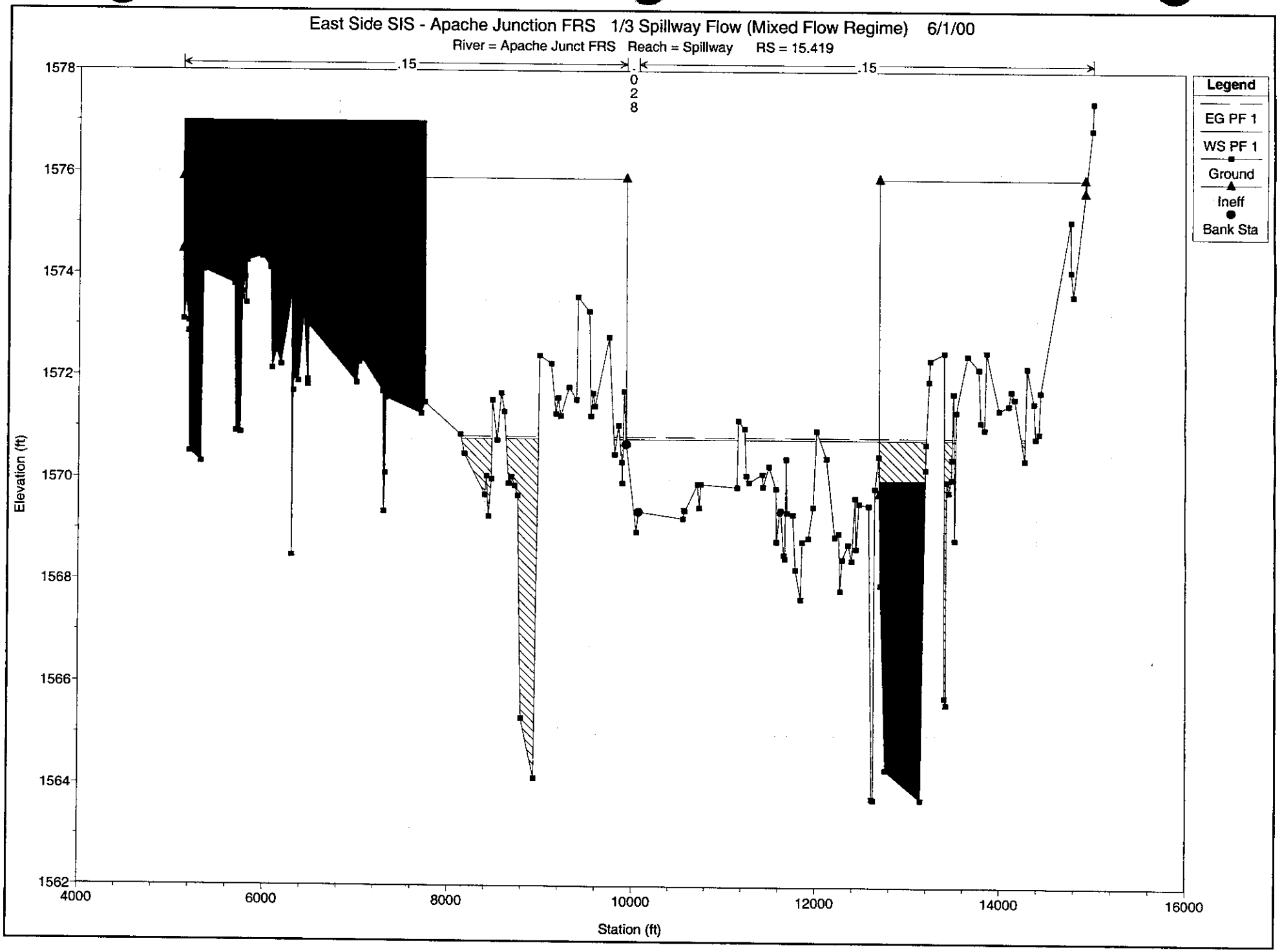

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 15.340
.03
.025
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1585
1580
1575
1570
1565
1560
1555
1550
4000
6000
8000
10000
12000
14000
16000
18000
Station (ft)

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00

River = Apache Junct FRS Reach = Spillway RS = 15.340




East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 15.361
.15
.025
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1590
1585
1580
1575
1570
1565
1560
1555
4000
6000
8000
10000
12000
14000
16000
Station (ft)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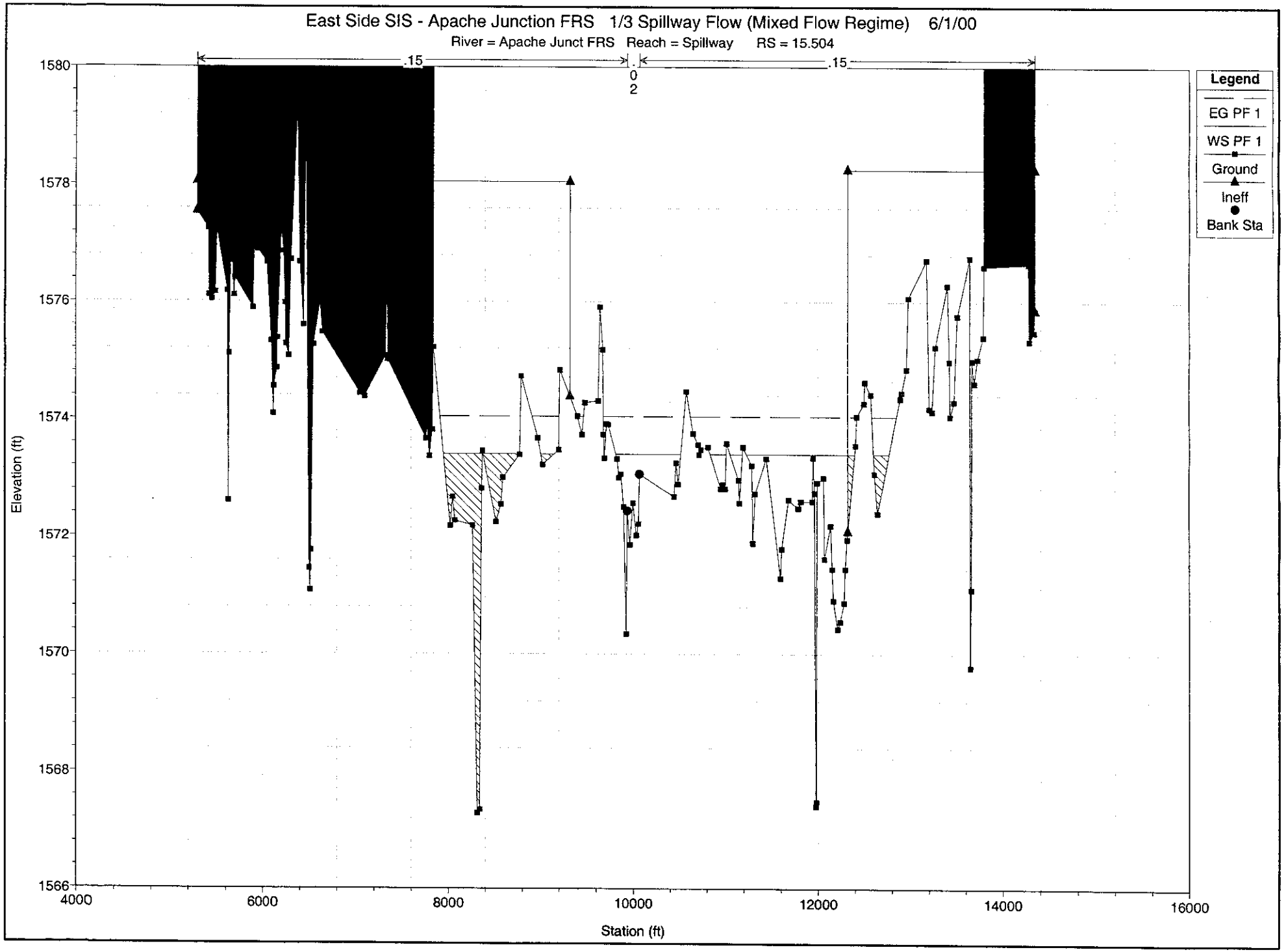
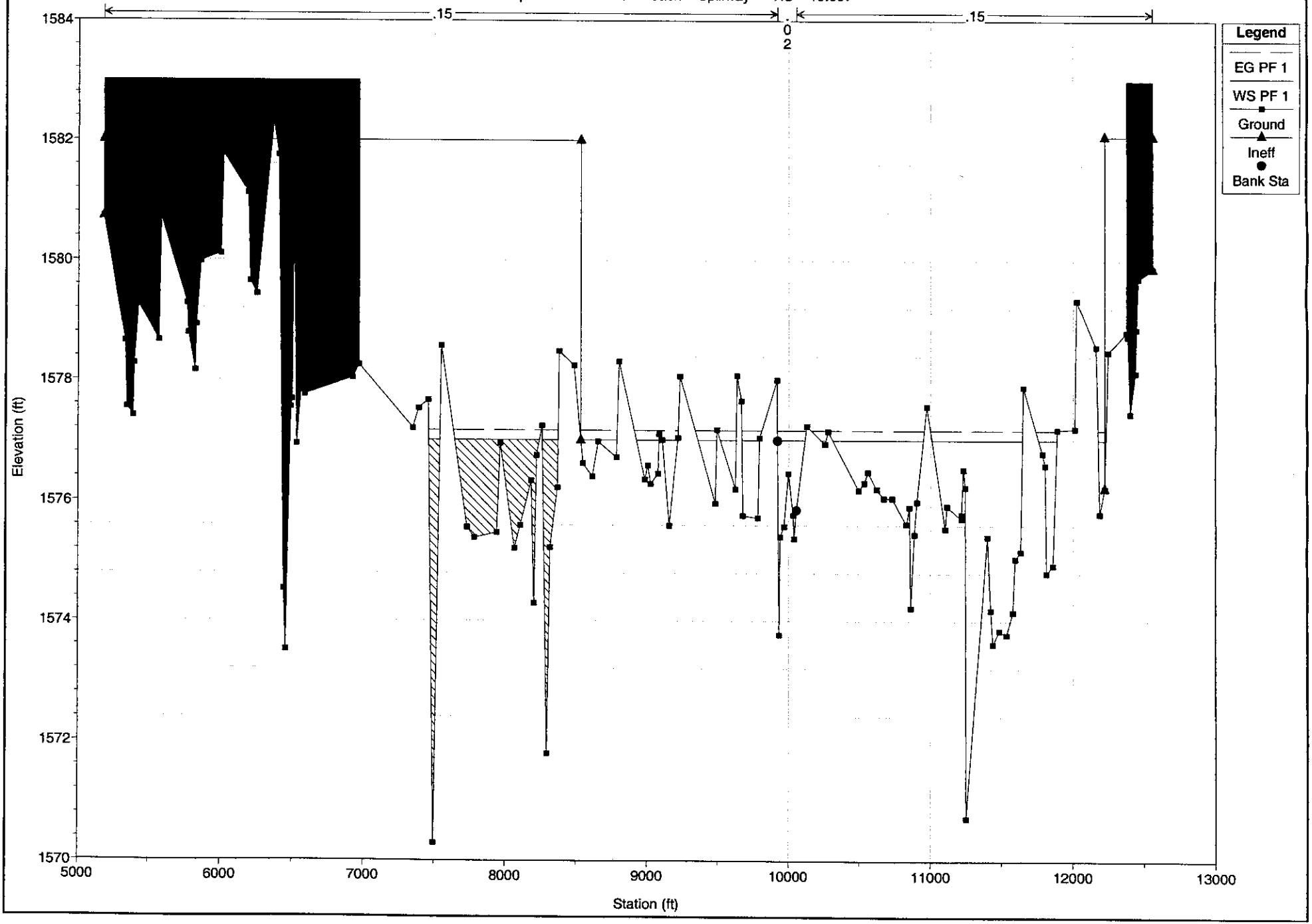
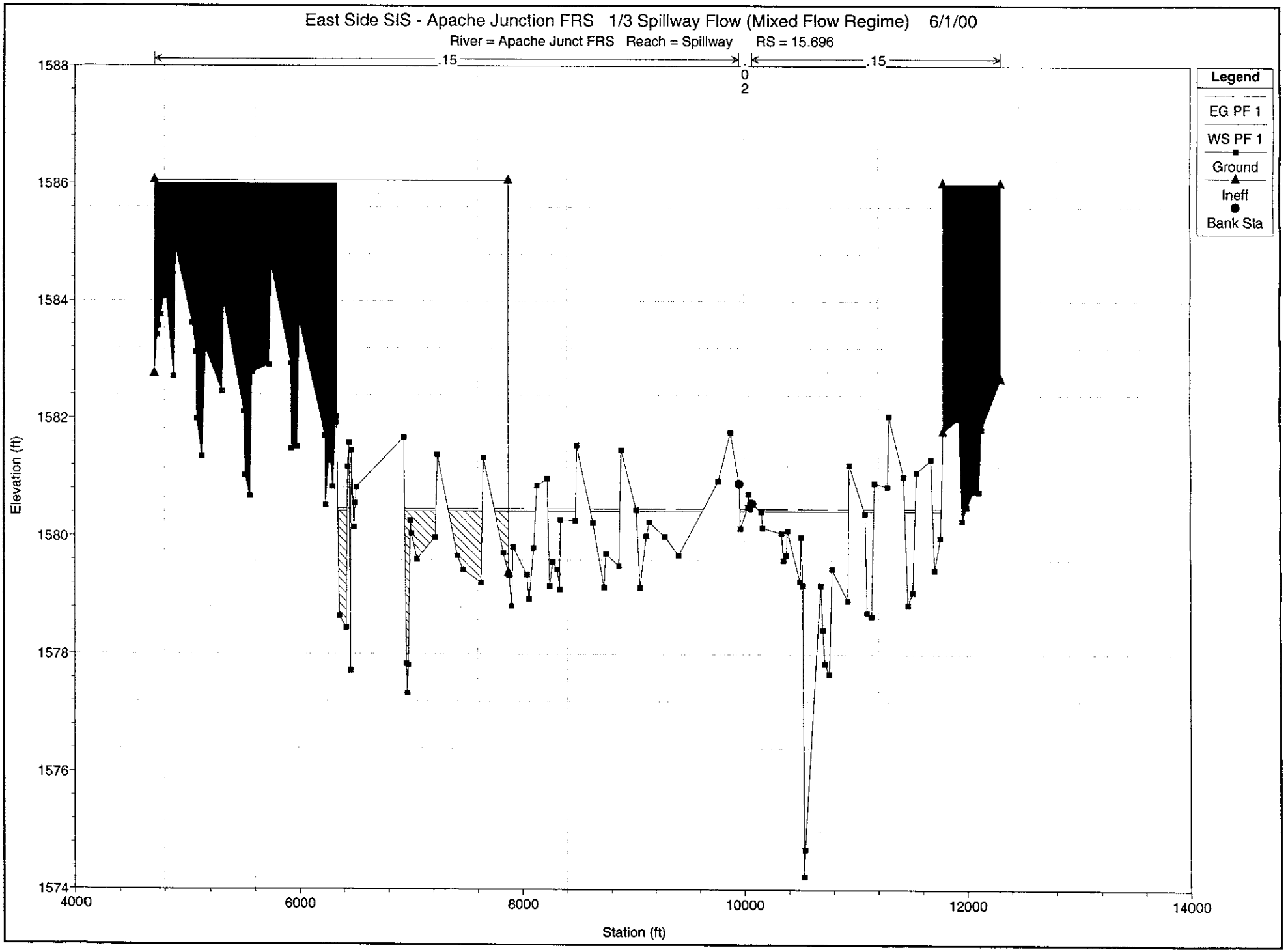
River = Apache Junct FRS Reach = Spillway RS = 15.419
.15
.028
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1578
1576
1574
1572
1570
1568
1566
1564
1562
4000
6000
8000
10000
12000
14000
16000
Station (ft)


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 15.504
.15
.15
0
2
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1580
1578
1576
1574
1572
1570
1568
1566
4000
6000
8000
10000
12000
14000
16000
Station (ft)

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00

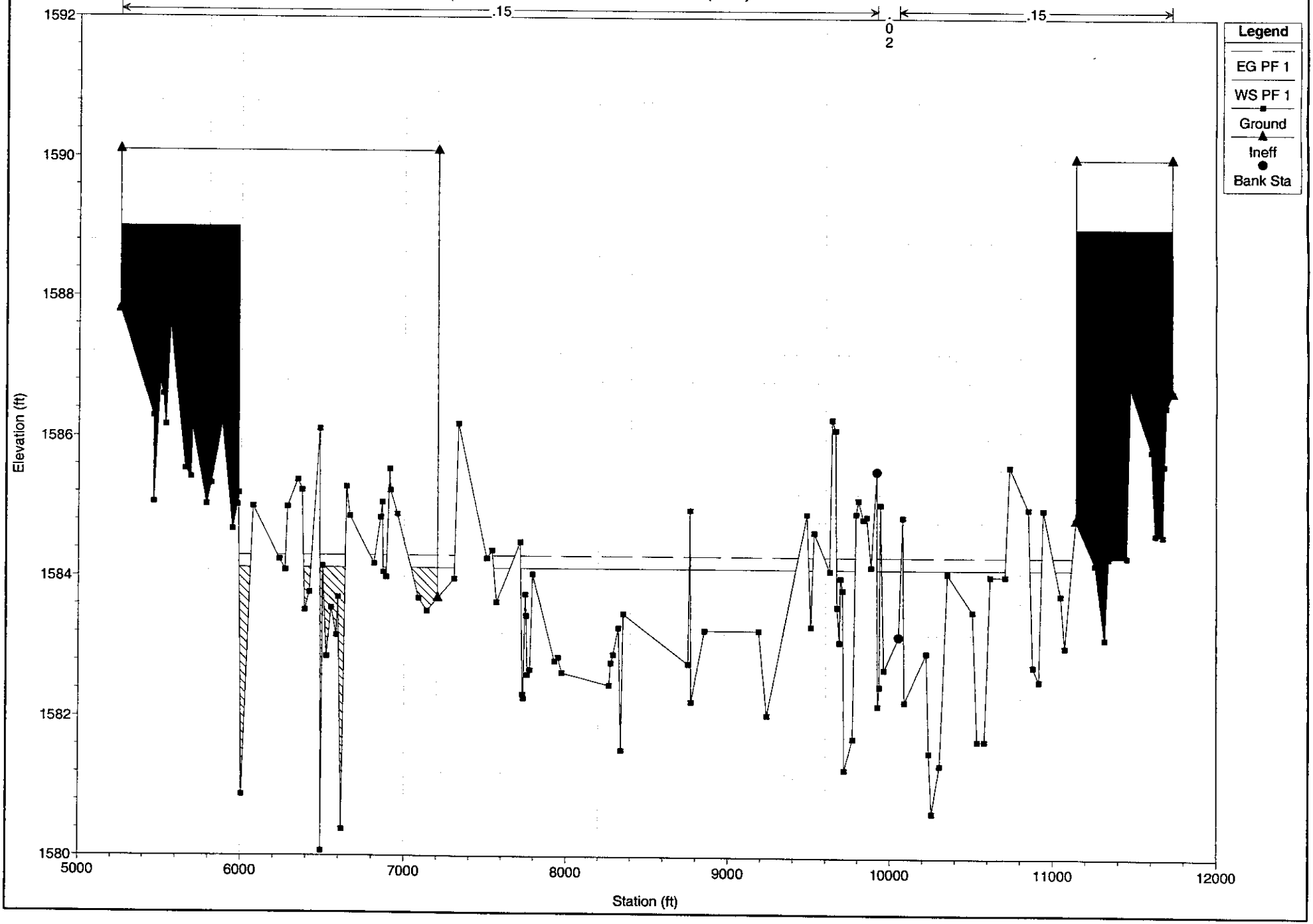
River = Apache Junct FRS Reach = Spillway RS = 15.607

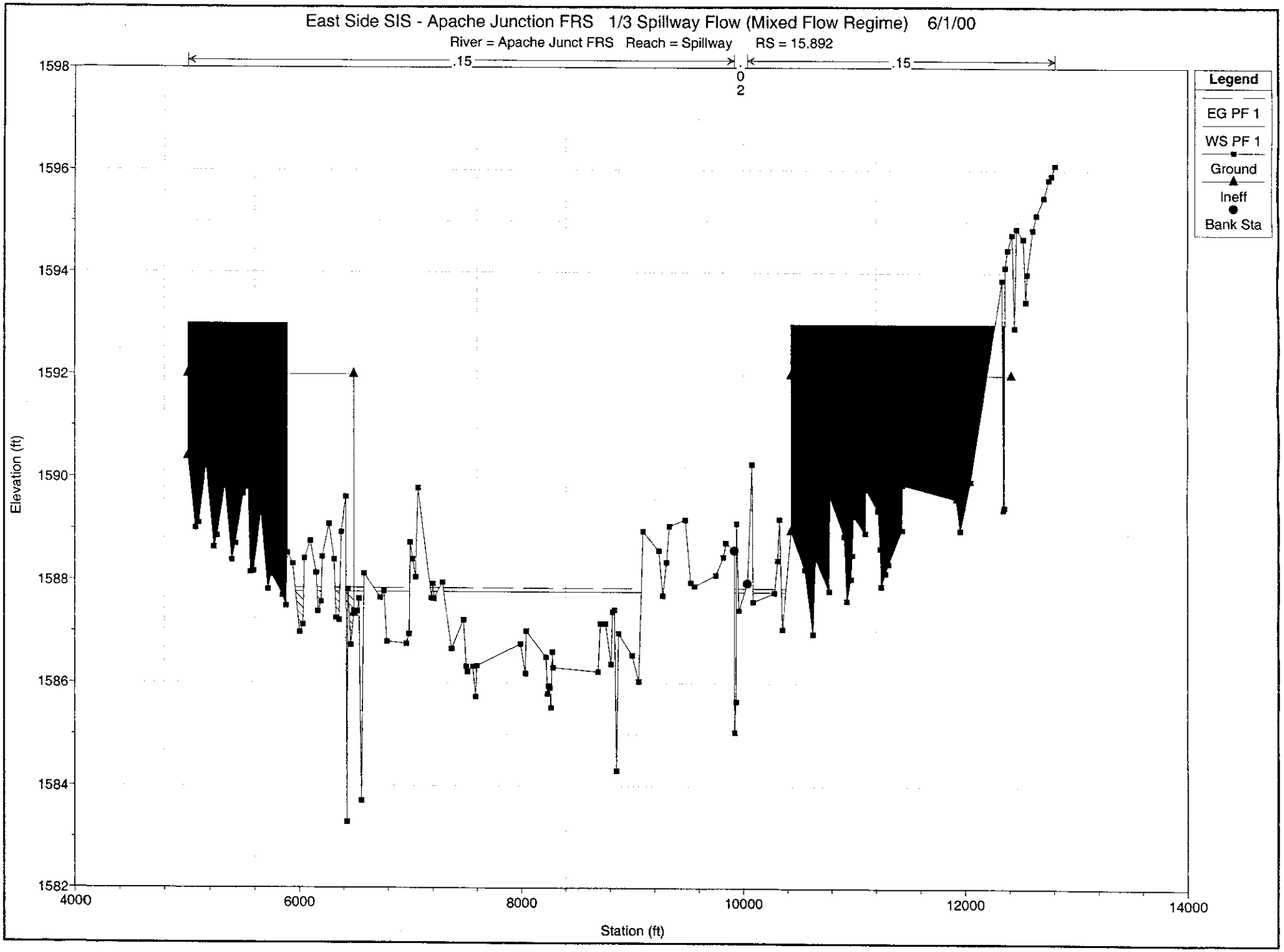


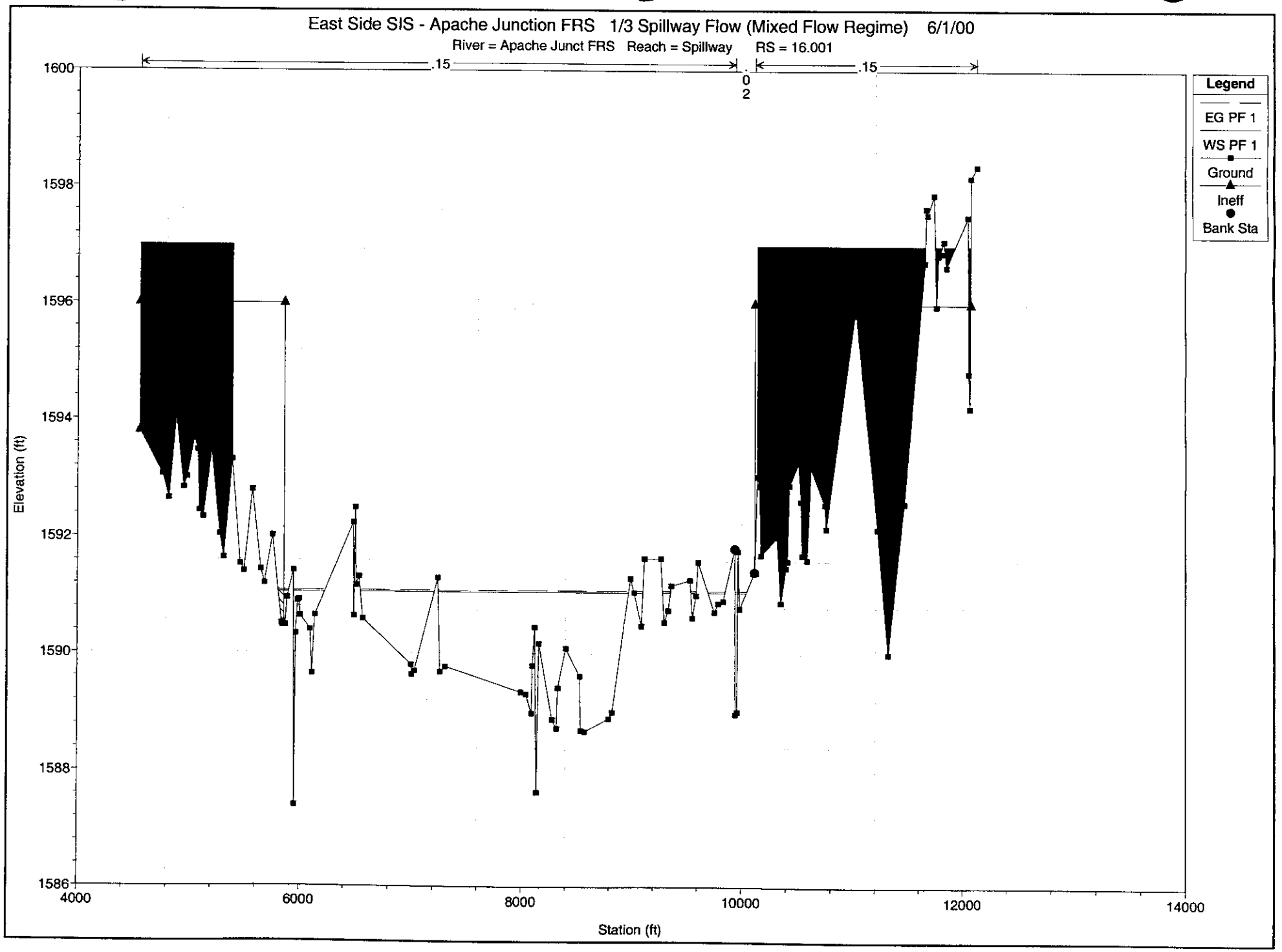

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 15.696
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1588
1586
1584
1582
1580
1578
1576
1574
4000
6000
8000
10000
12000
14000
Station (ft)

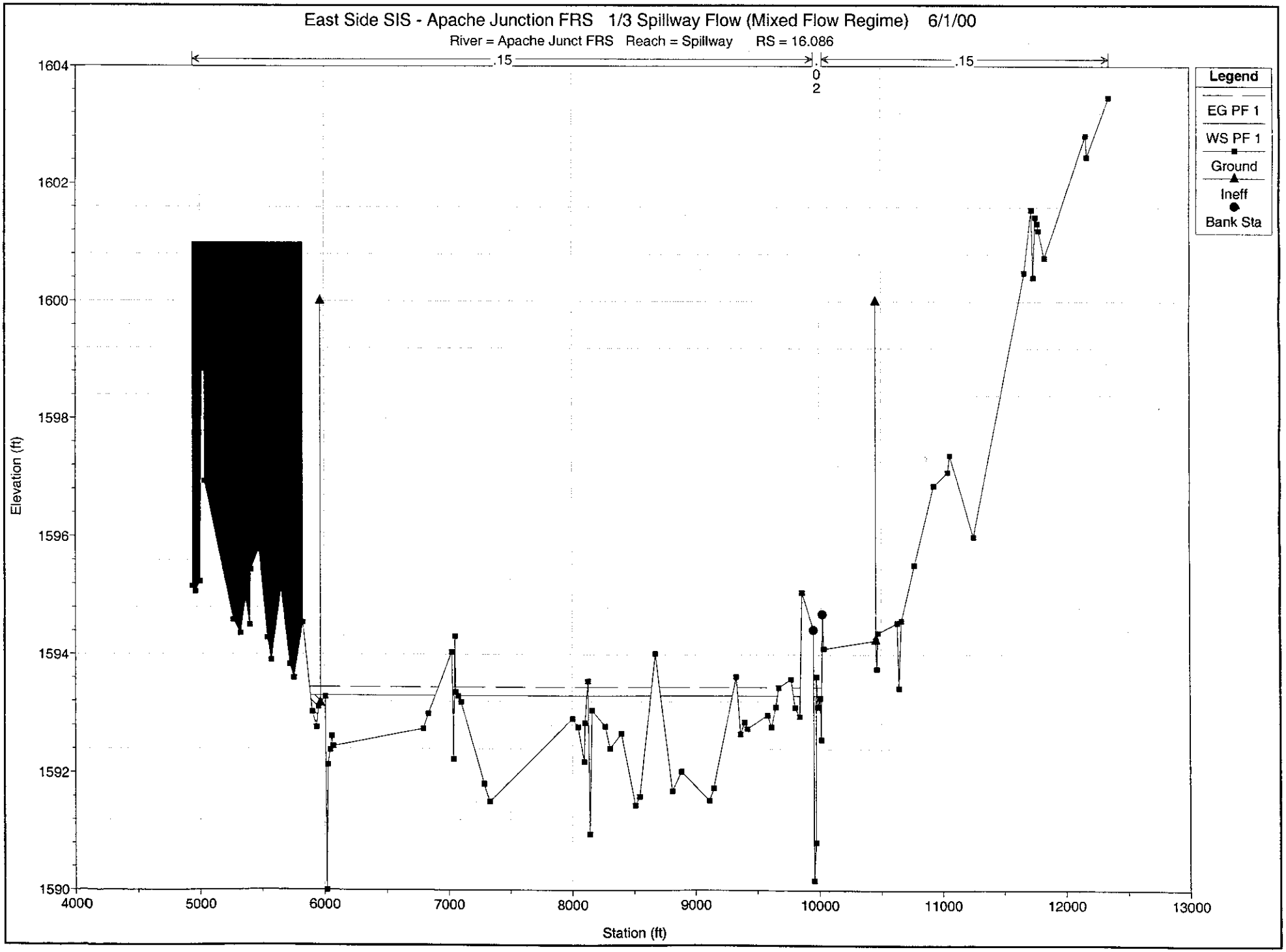
East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00

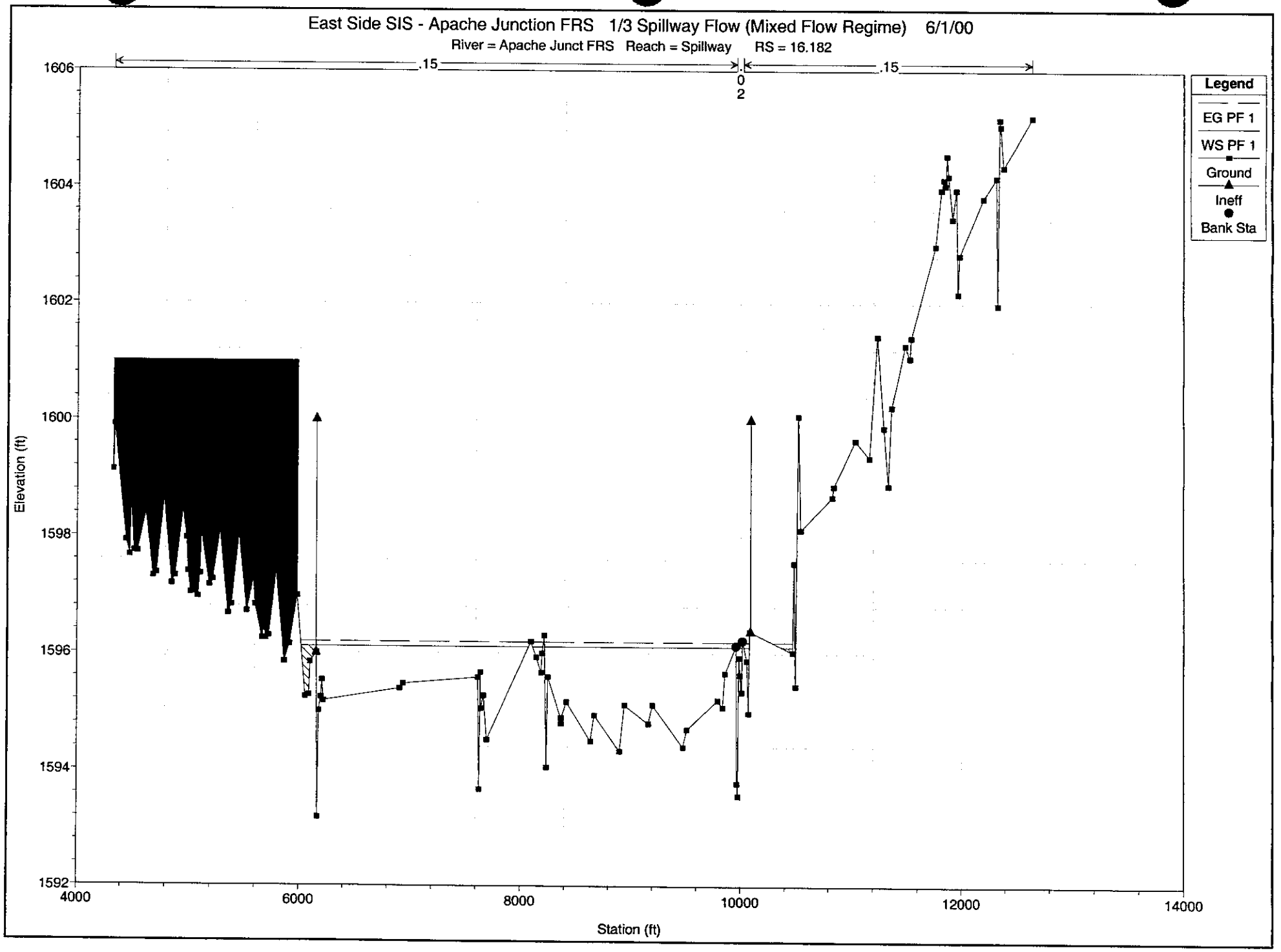
River = Apache Junct FRS Reach = Spillway RS = 15.784

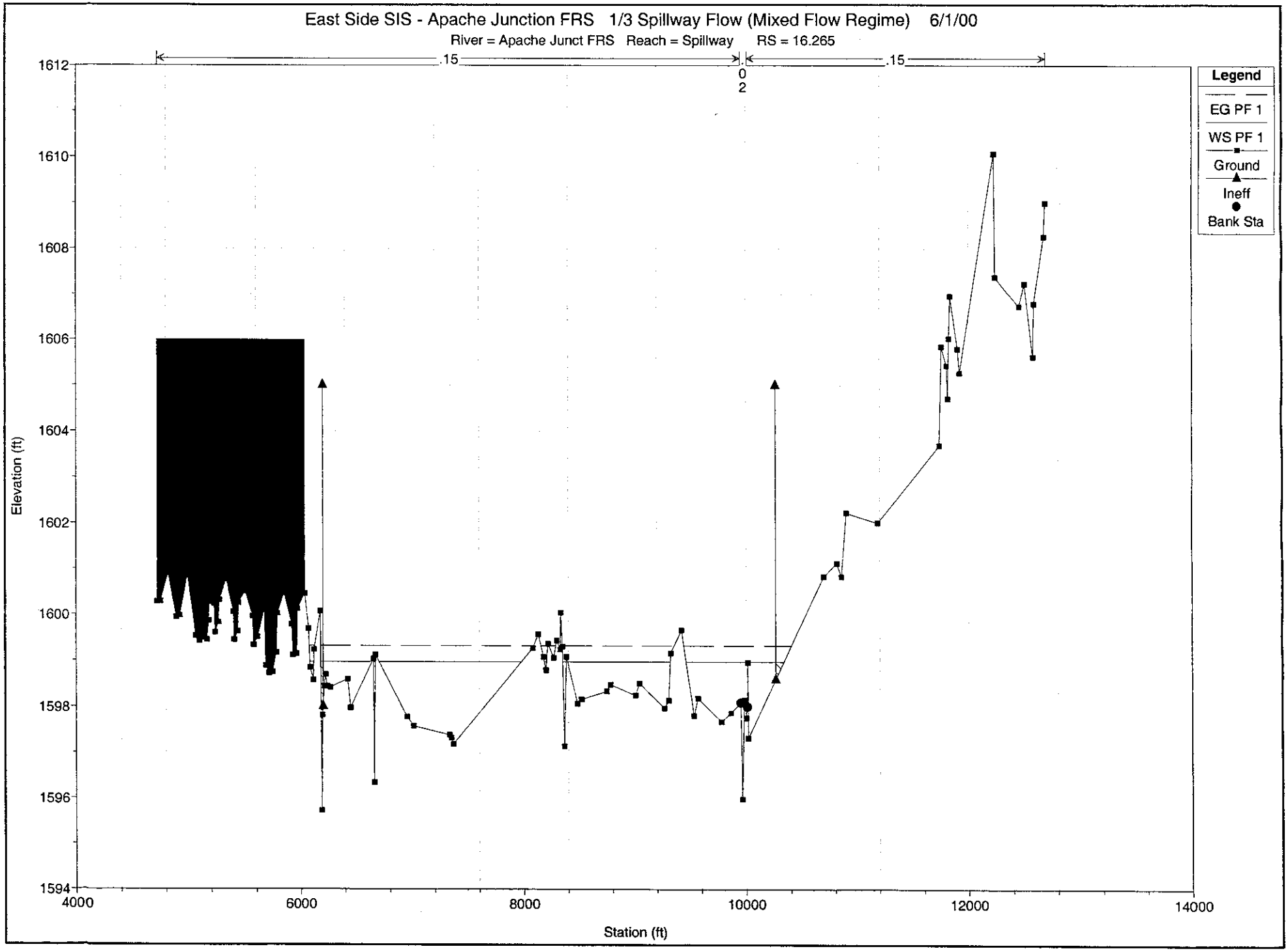



East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 15.892
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1598
1596
1594
1592
1590
1588
1586
1584
1582
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.001
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1600
1598
1596
1594
1592
1590
1588
1586
4000
6000
8000
10000
12000
14000
Station (ft)

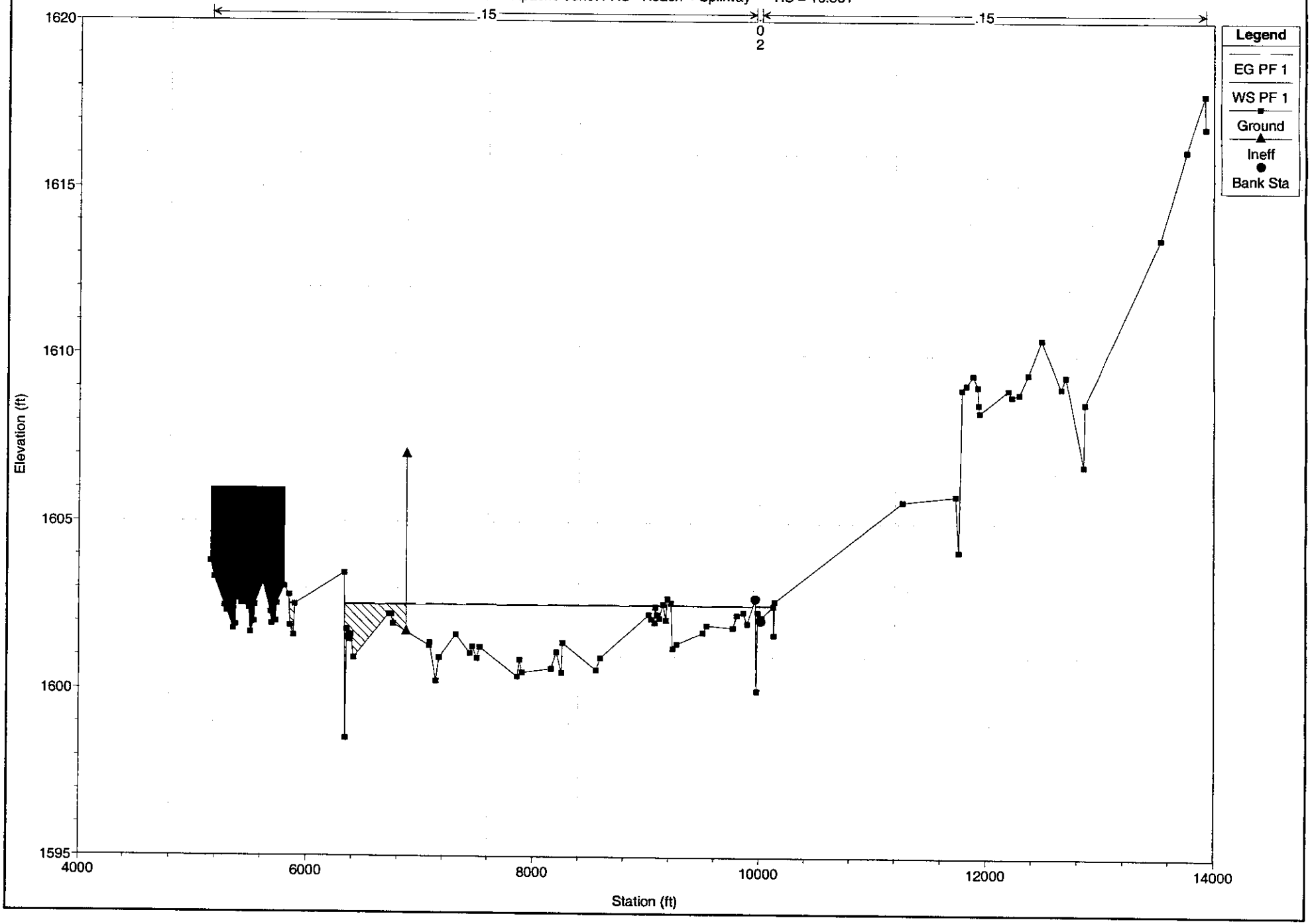

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.086
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1604
1602
1600
1598
1596
1594
1592
1590
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

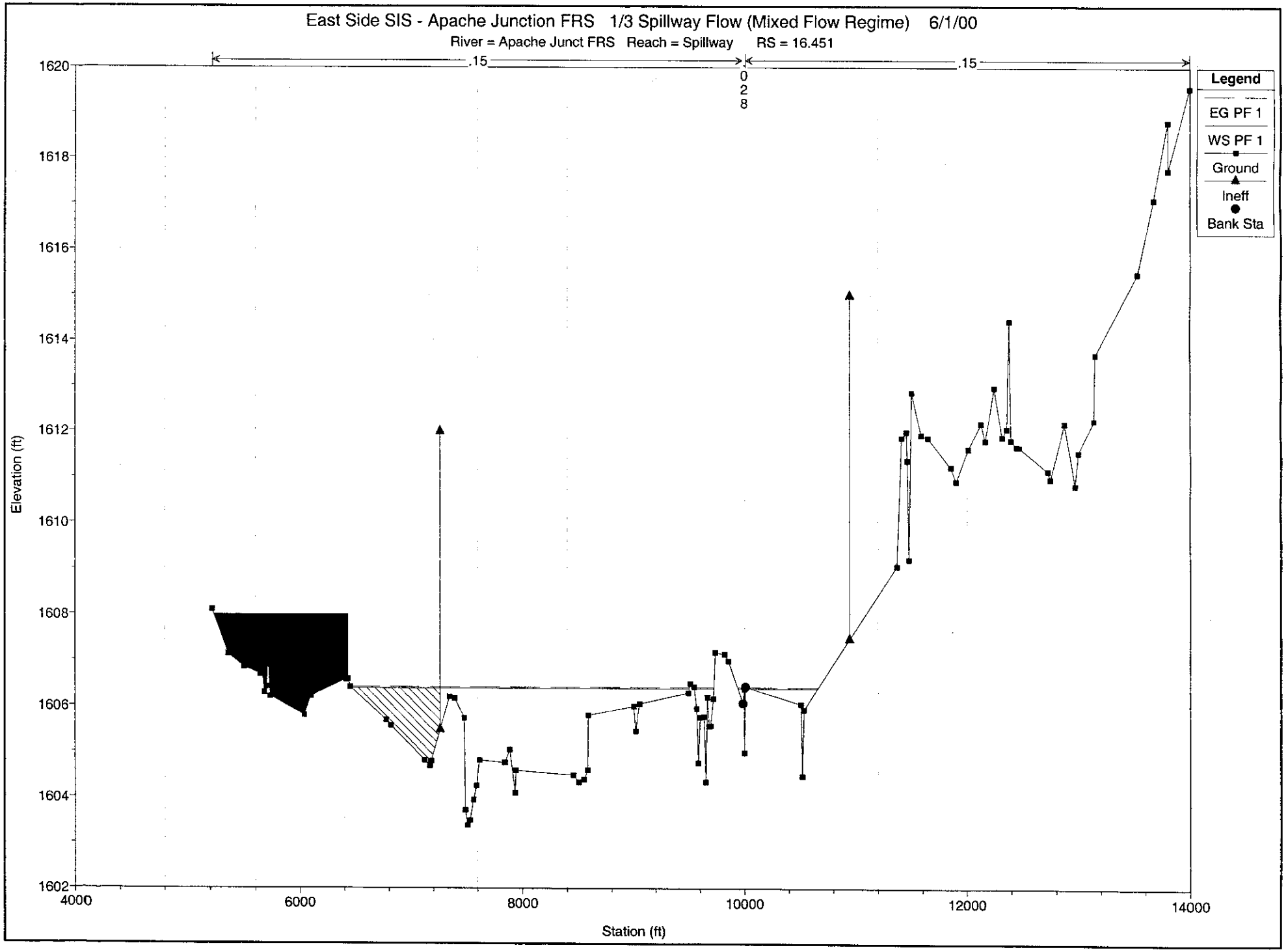

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.182
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1606
1604
1602
1600
1598
1596
1594
1592
4000
6000
8000
10000
12000
14000
Station (ft)

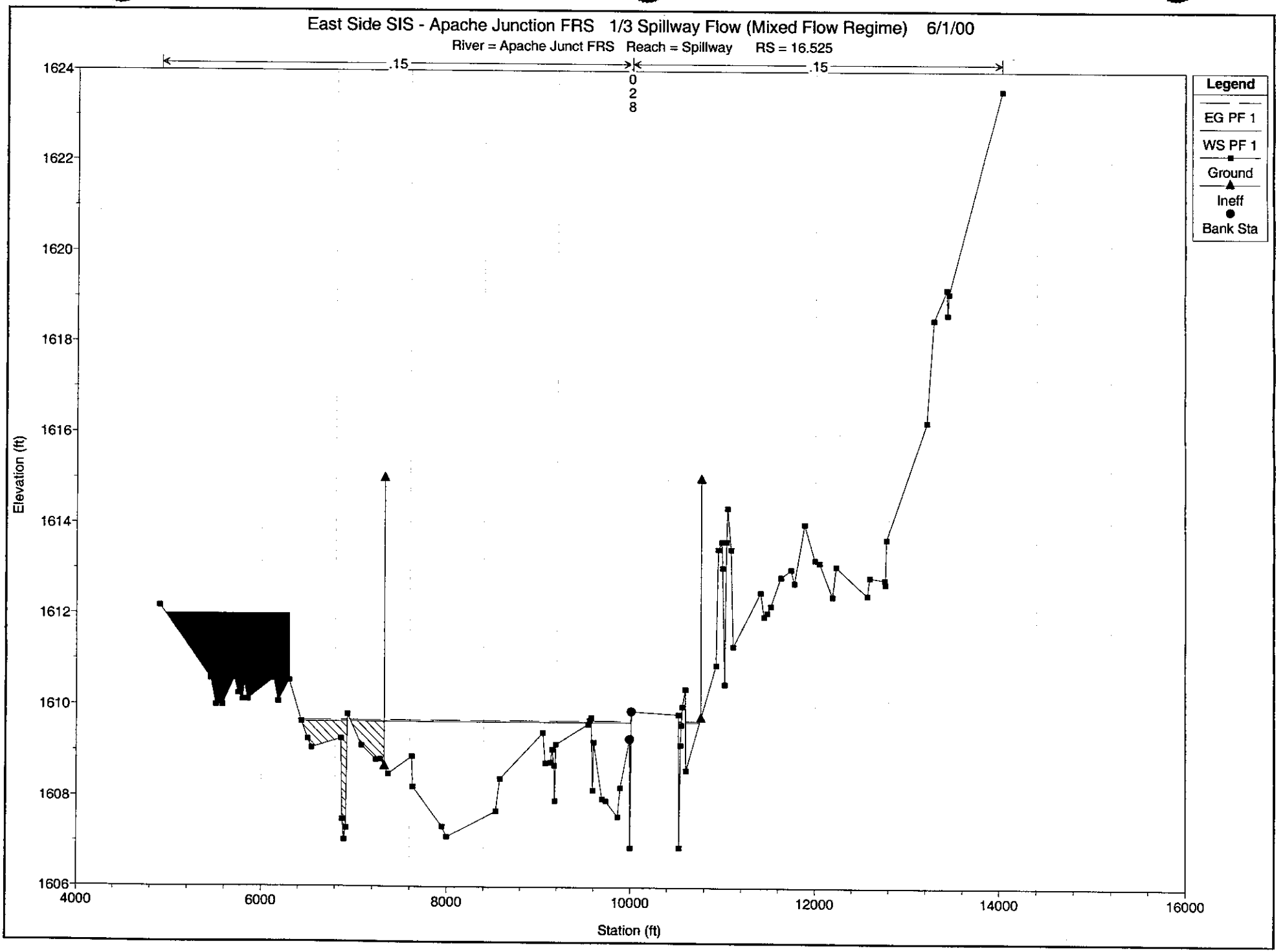

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.265
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1612
1610
1608
1606
1604
1602
1600
1598
1596
1594
4000
6000
8000
10000
12000
14000
Station (ft)

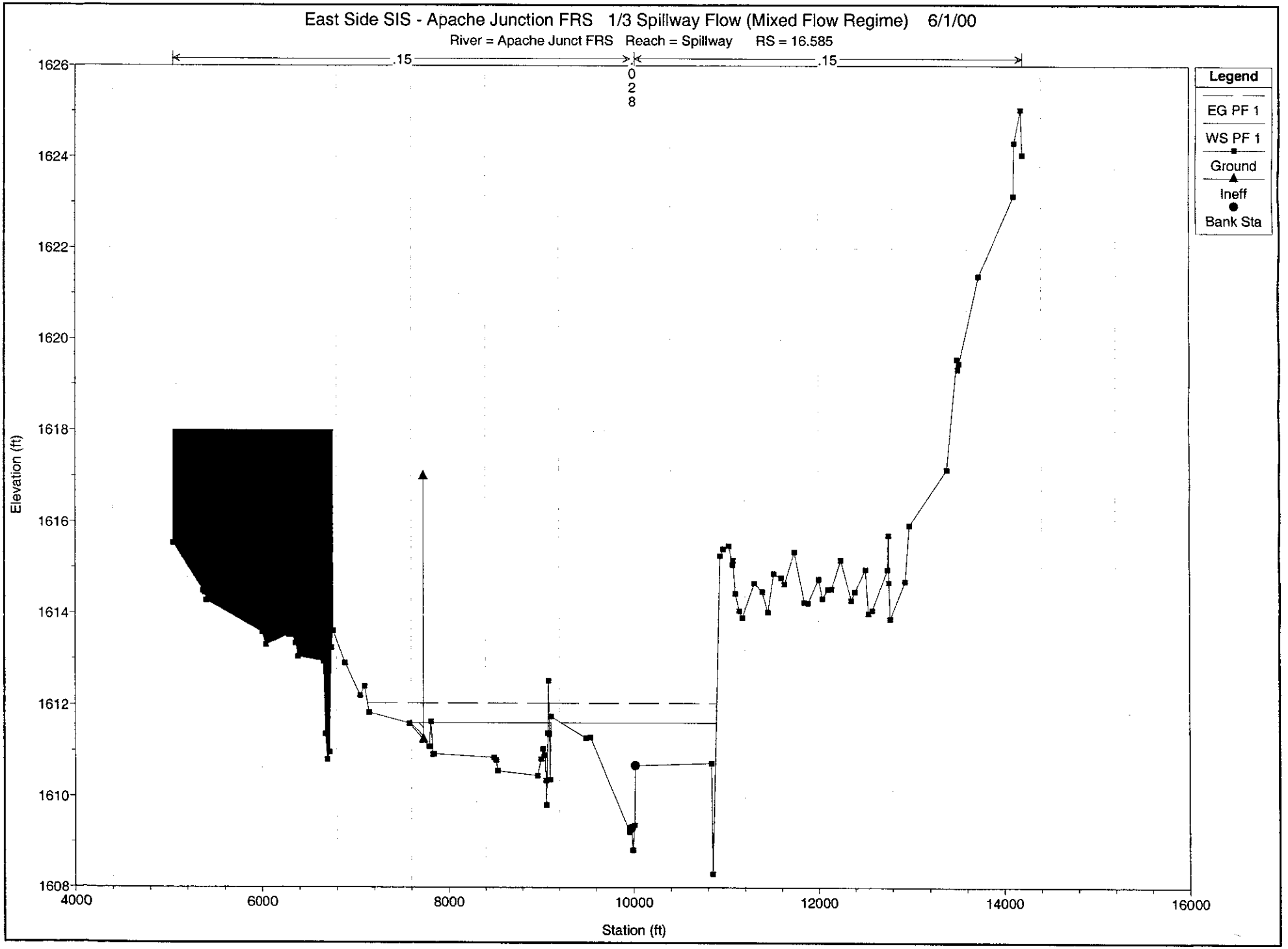
East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00

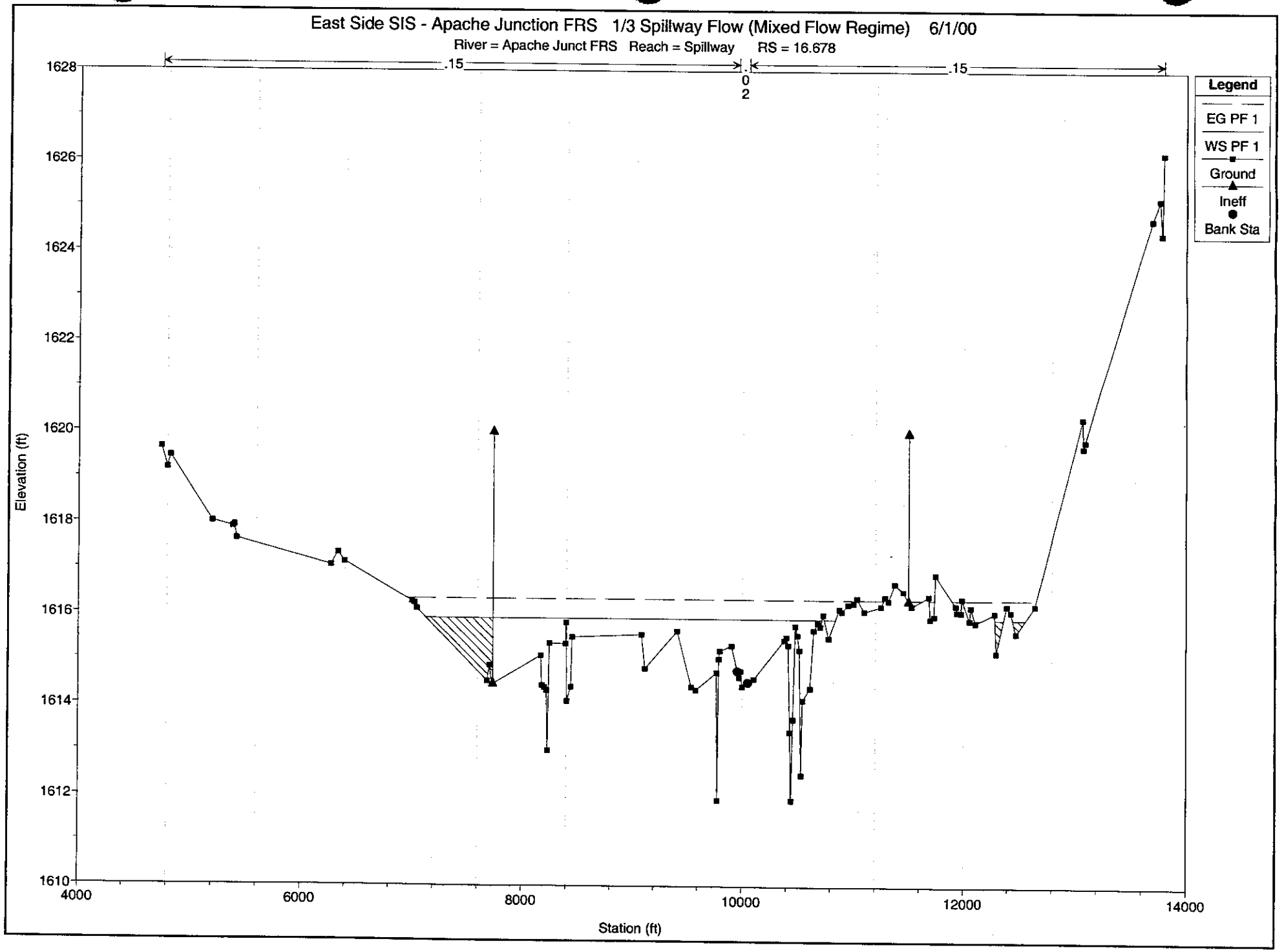
River = Apache Junct FRS Reach = Spillway RS = 16.381

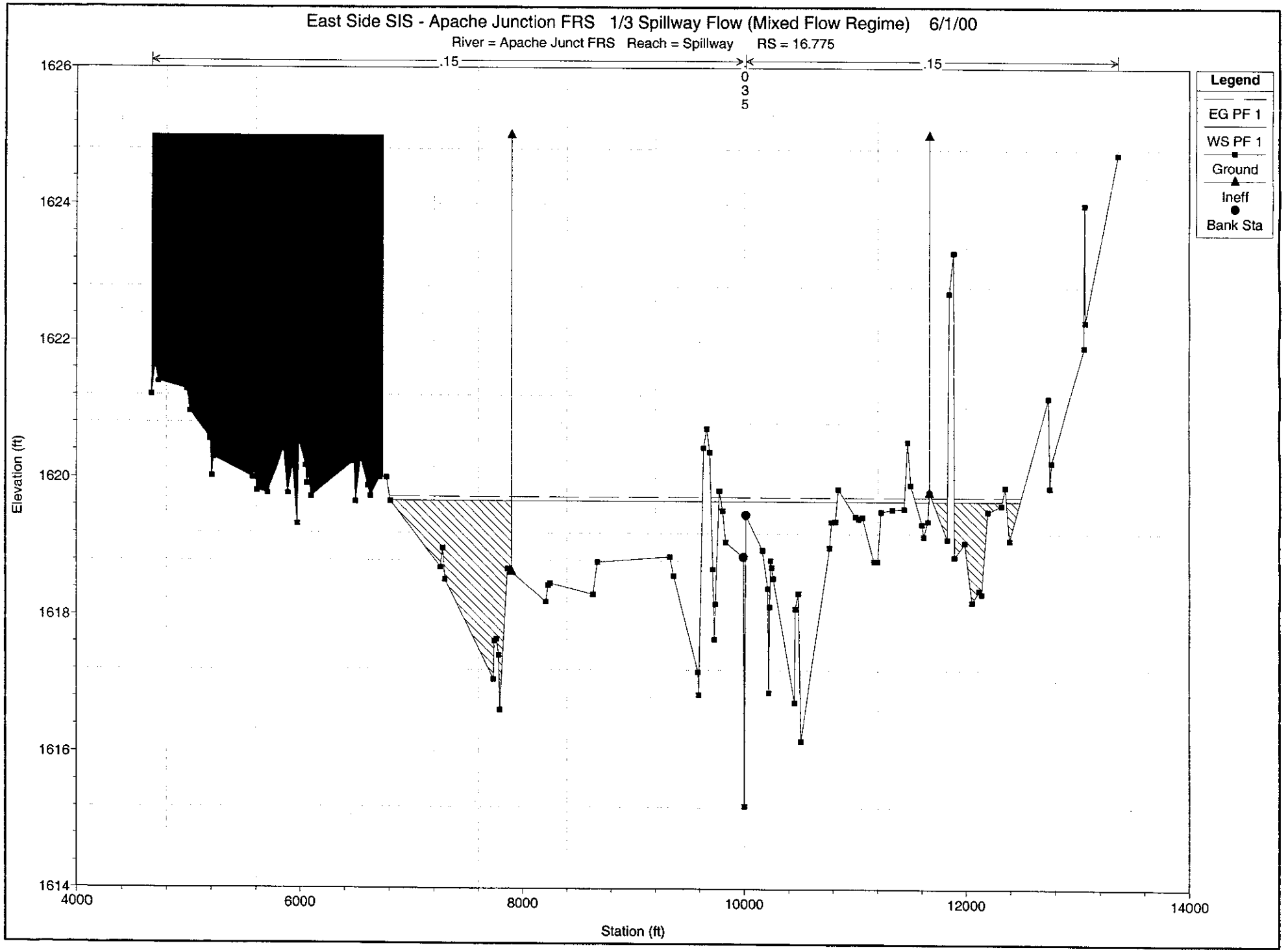


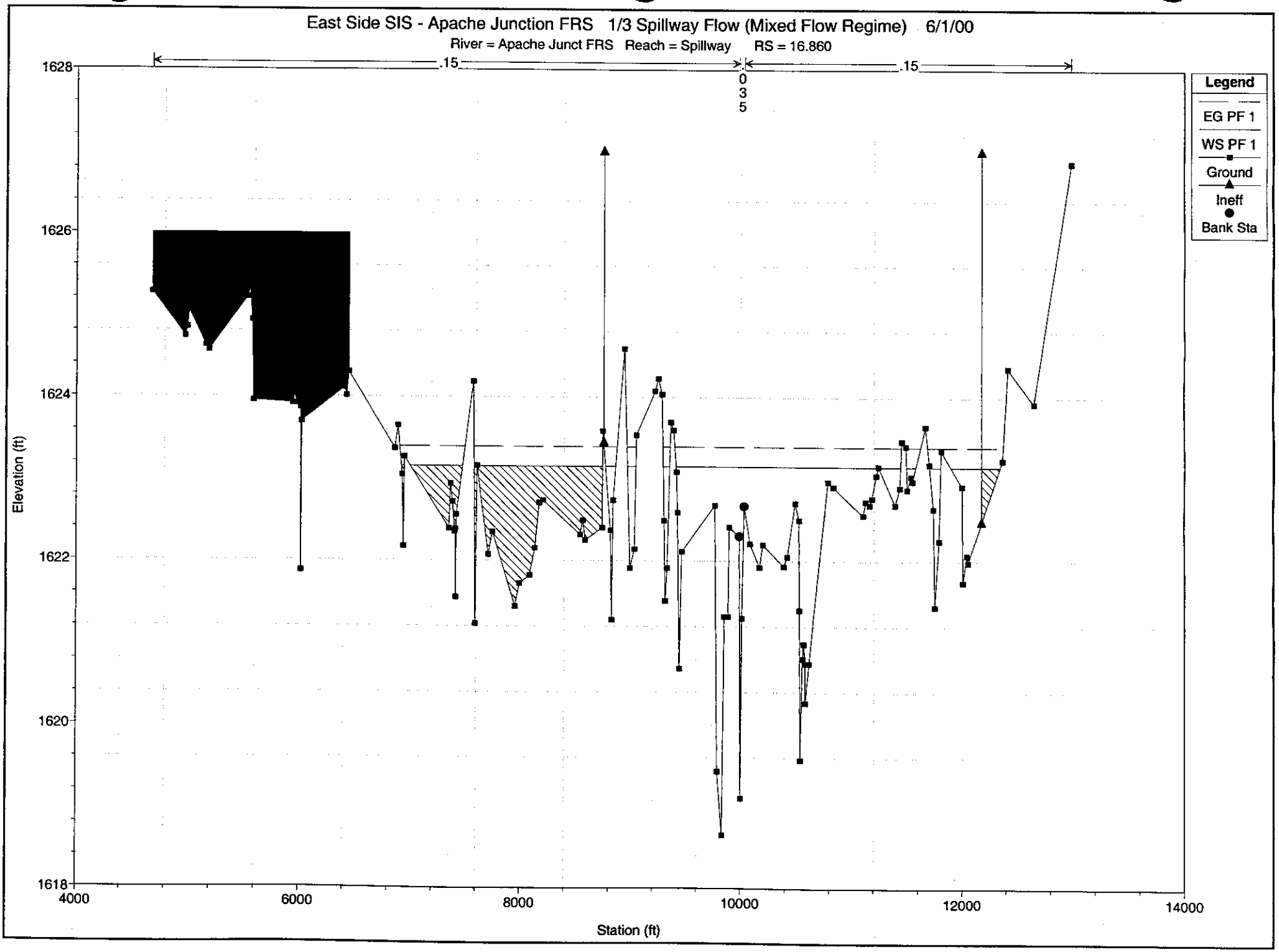

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.451
.15
0
2
8
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1620
1618
1616
1614
1612
1610
1608
1606
1604
1602
4000
6000
8000
10000
12000
14000
Station (ft)

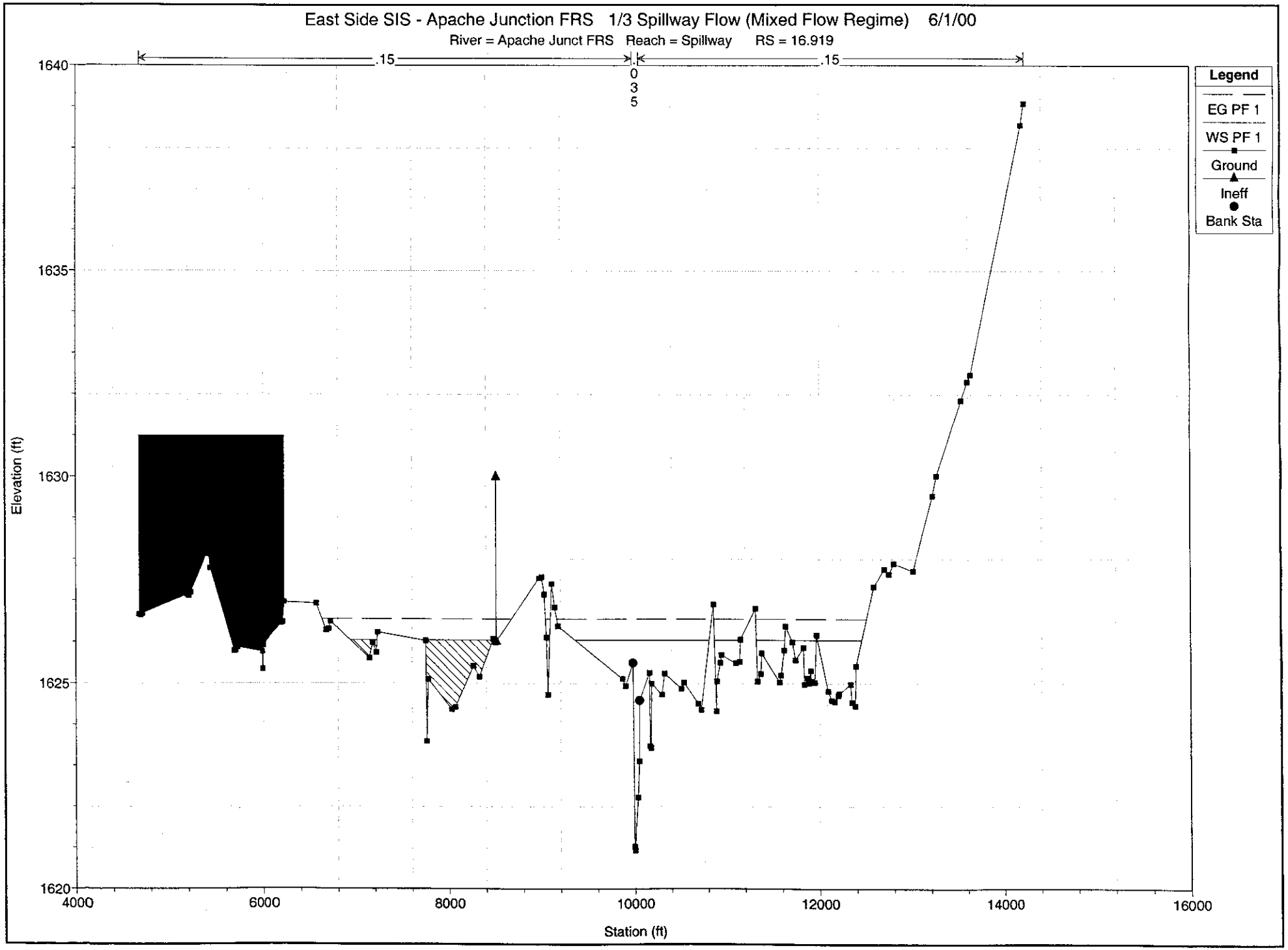

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.525
.15
.15
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1624
1622
1620
1618
1616
1614
1612
1610
1608
1606
4000
6000
8000
10000
12000
14000
16000
Station (ft)

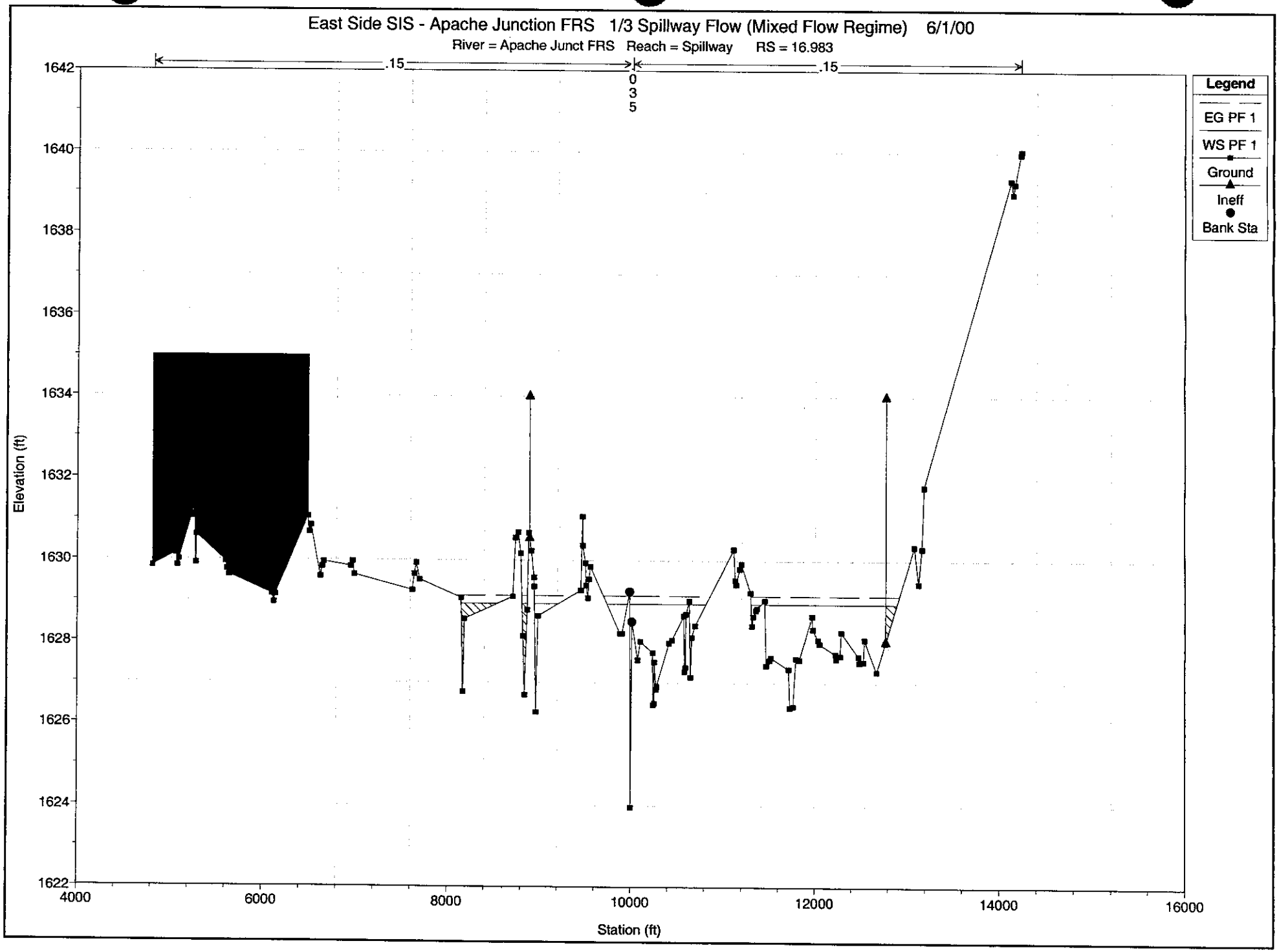

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.585
.15
.028
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1626
1624
1622
1620
1618
1616
1614
1612
1610
1608
4000
6000
8000
10000
12000
14000
16000
Station (ft)

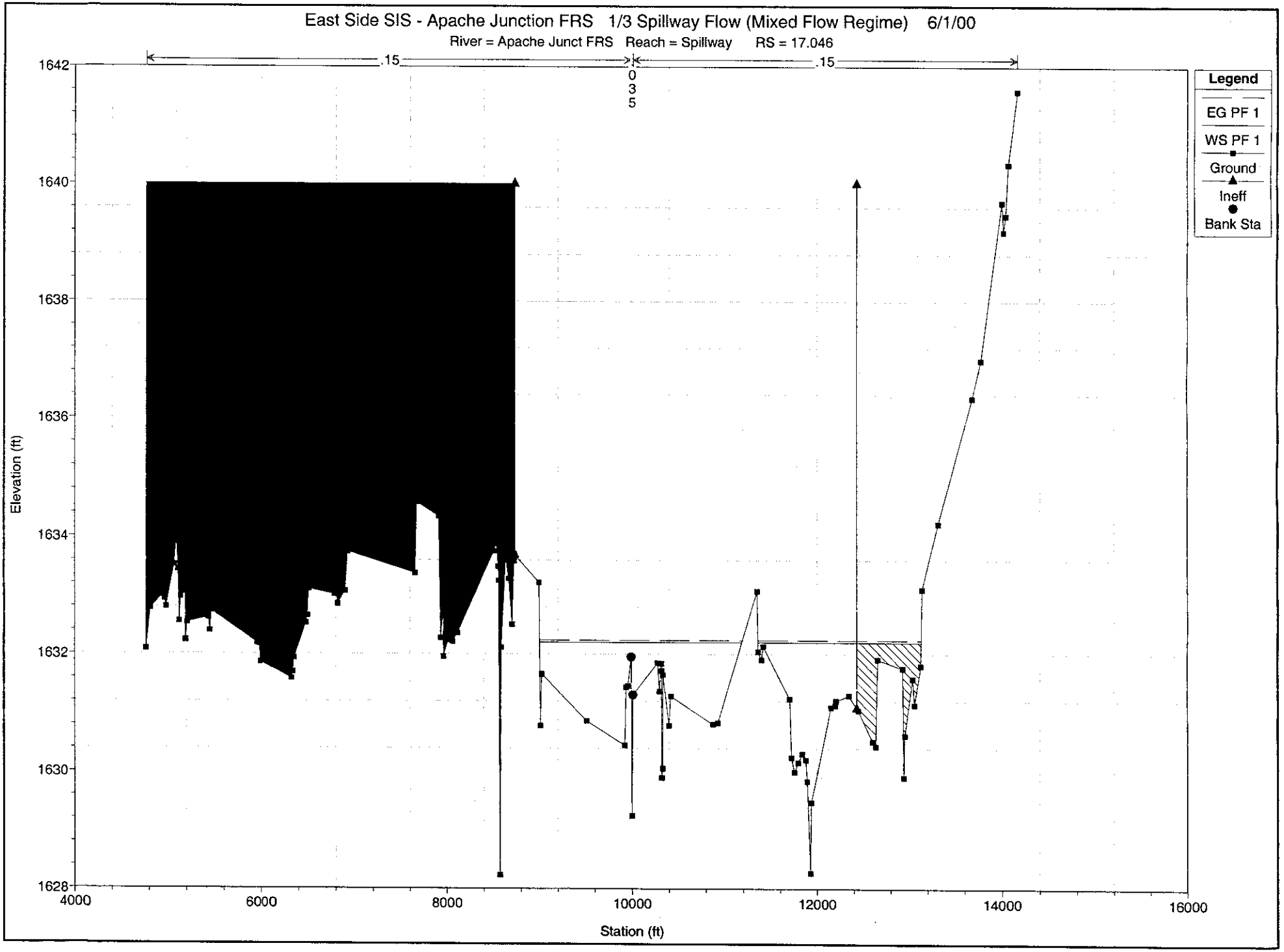

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.678
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1628
1626
1624
1622
1620
1618
1616
1614
1612
1610
4000
6000
8000
10000
12000
14000
Station (ft)

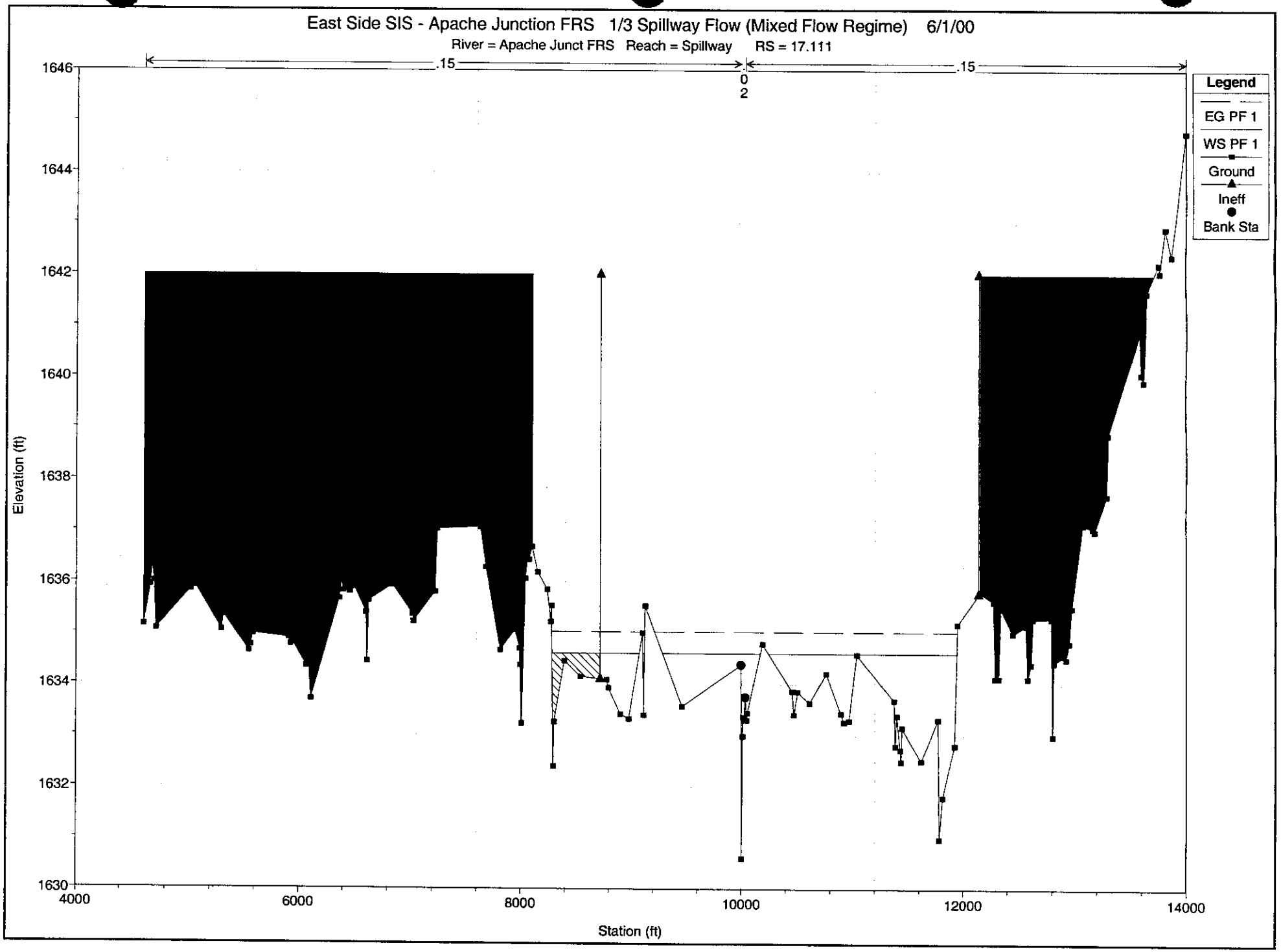

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.775
.15
.15
0
3
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1626
1624
1622
1620
1618
1616
1614
4000
6000
8000
10000
12000
14000
Station (ft)

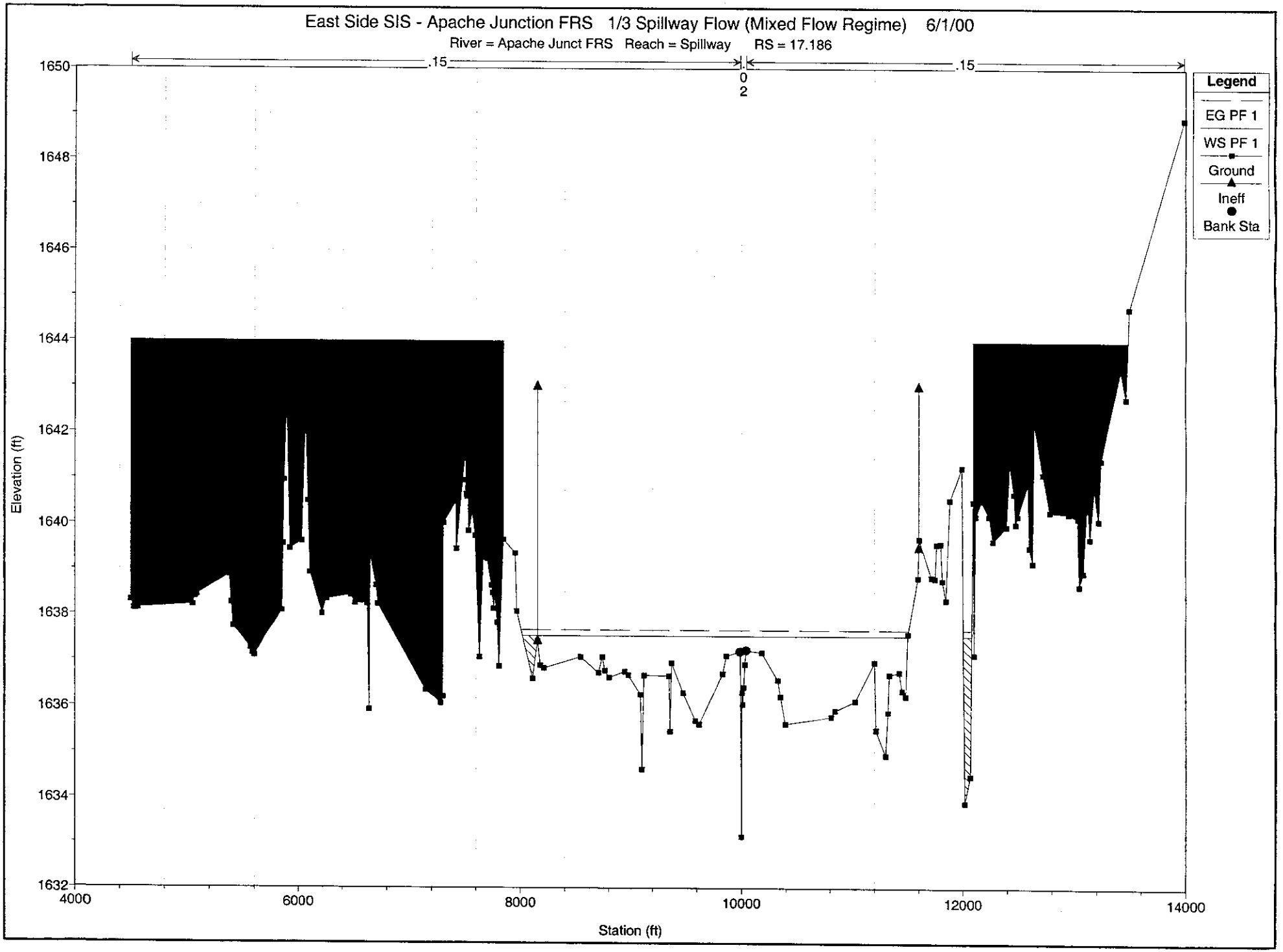

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.860
.15
.15
0
3
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1628
1626
1624
1622
1620
1618
4000
6000
8000
10000
12000
14000
Station (ft)


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.919
.15
.035
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1640
1635
1630
1625
1620
4000
6000
8000
10000
12000
14000
16000
Station (ft)


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 16.983
.15
.15
0
3
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1642
1640
1638
1636
1634
1632
1630
1628
1626
1624
1622
4000
6000
8000
10000
12000
14000
16000
Station (ft)

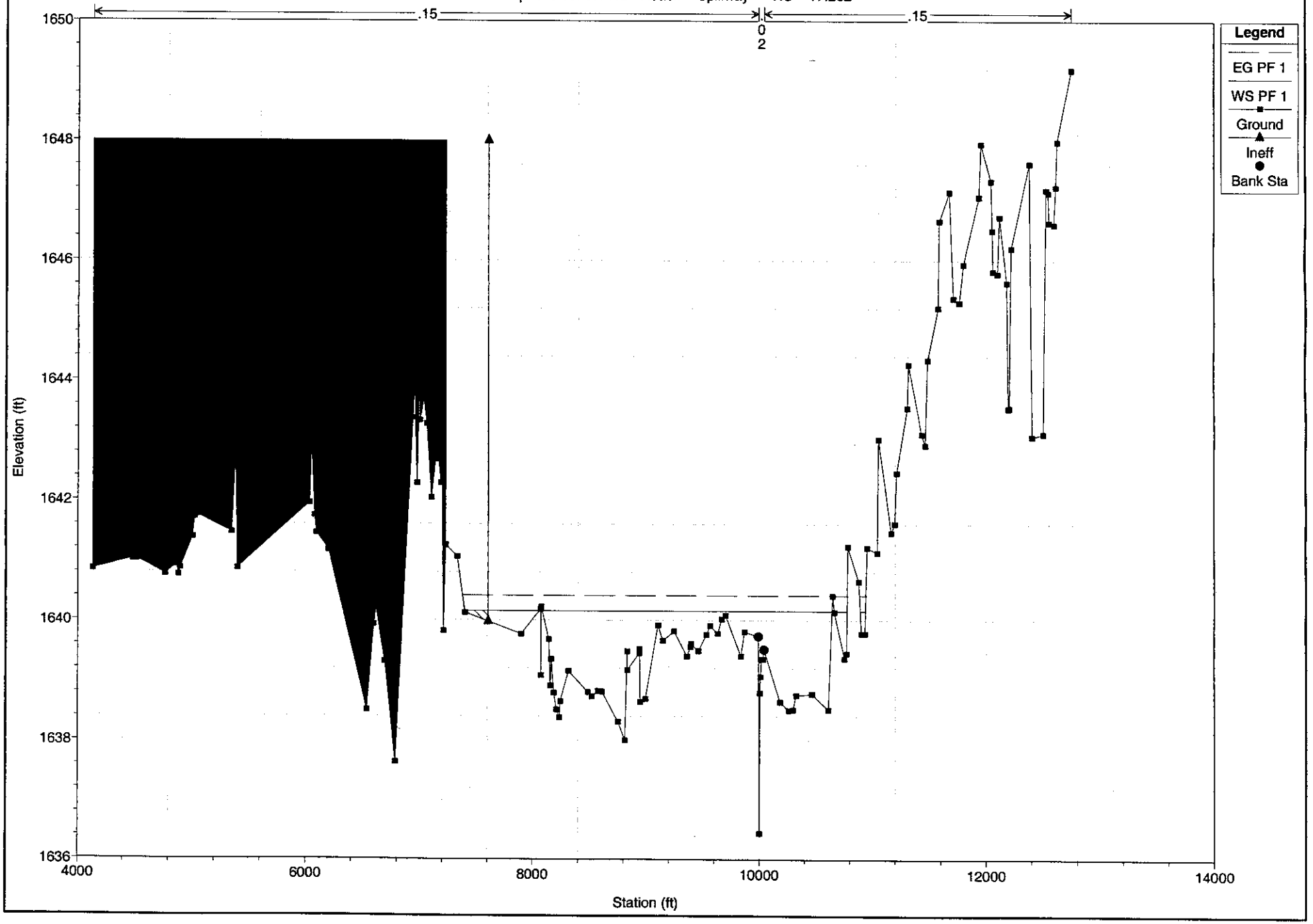

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.046
.15
0
3
5
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1642
1640
1638
1636
1634
1632
1630
1628
4000
6000
8000
10000
12000
14000
16000
Station (ft)

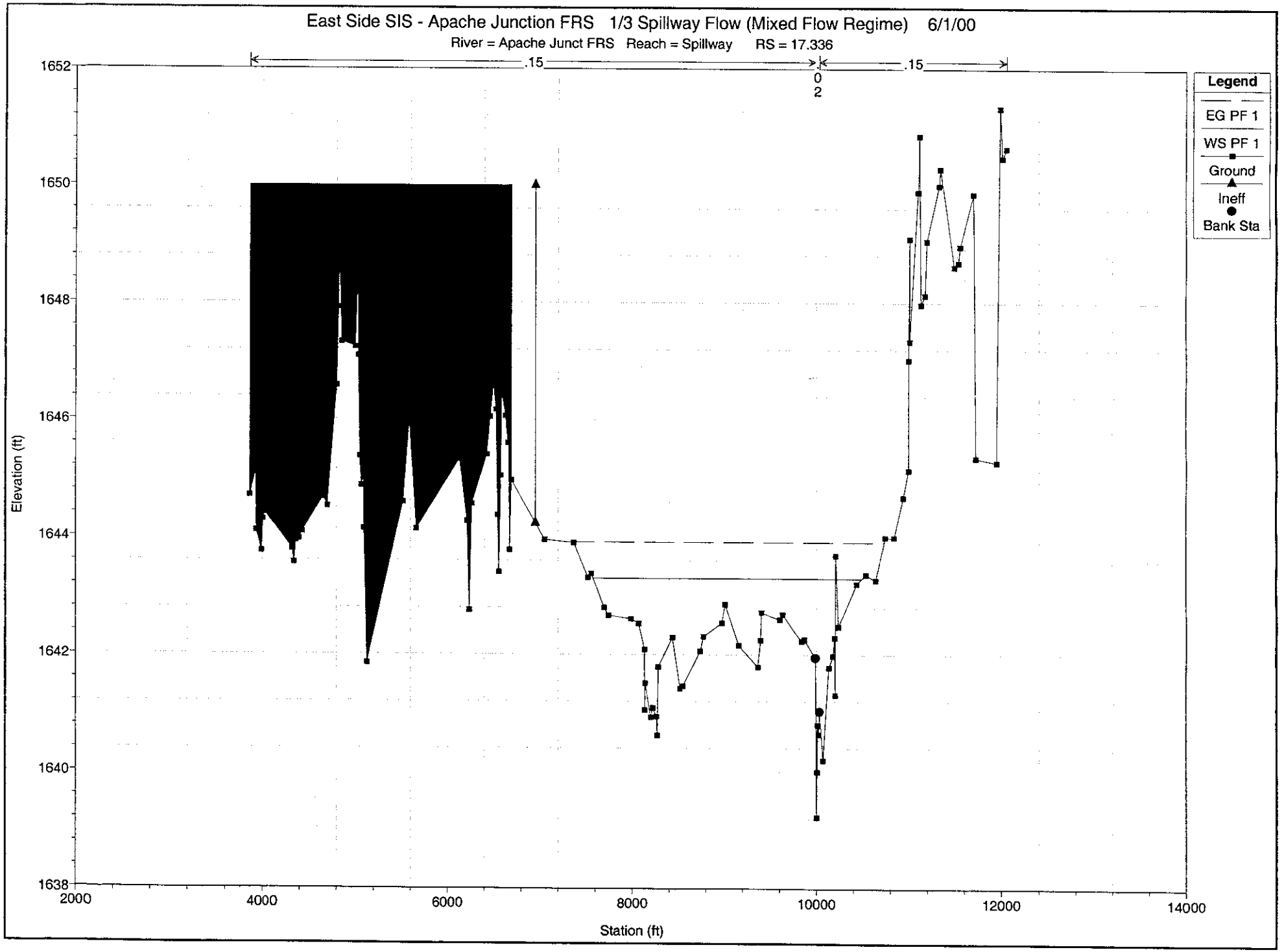

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.111
.15
.15
0
2
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1646
1644
1642
1640
1638
1636
1634
1632
1630
4000
6000
8000
10000
12000
14000
Station (ft)

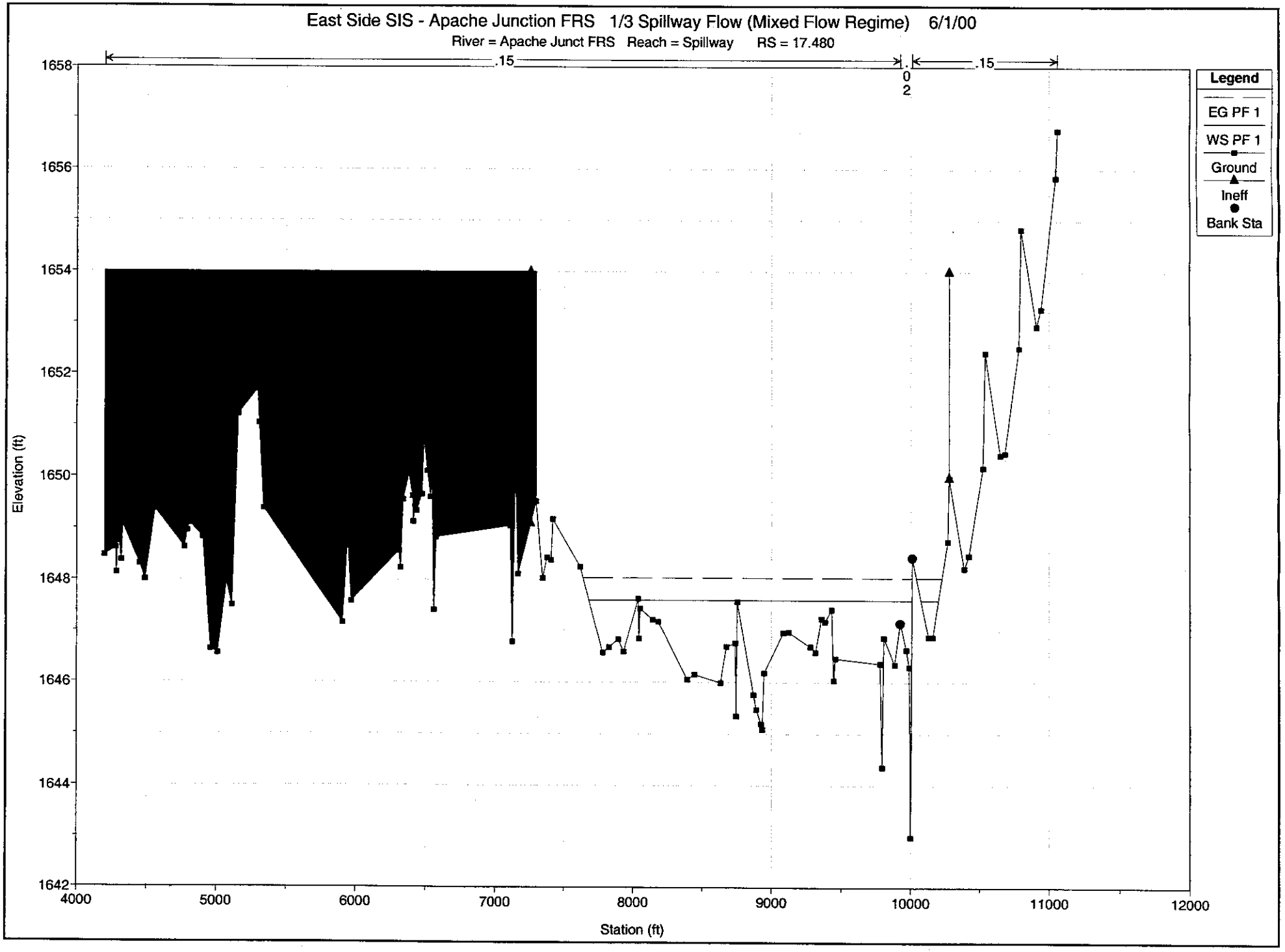

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.186
.15
0
2
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1650
1648
1646
1644
1642
1640
1638
1636
1634
1632
4000
6000
8000
10000
12000
14000
Station (ft)

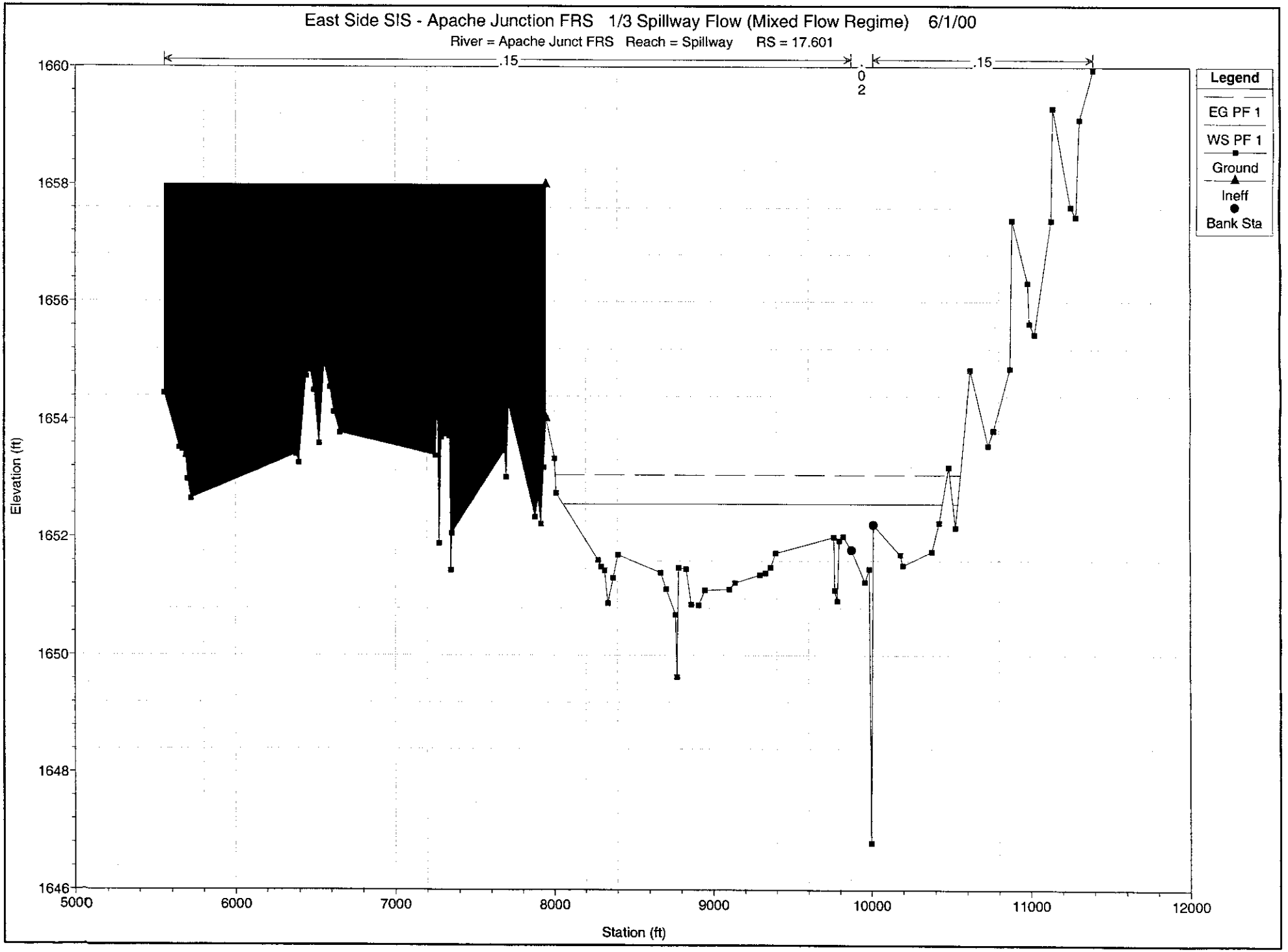
East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00

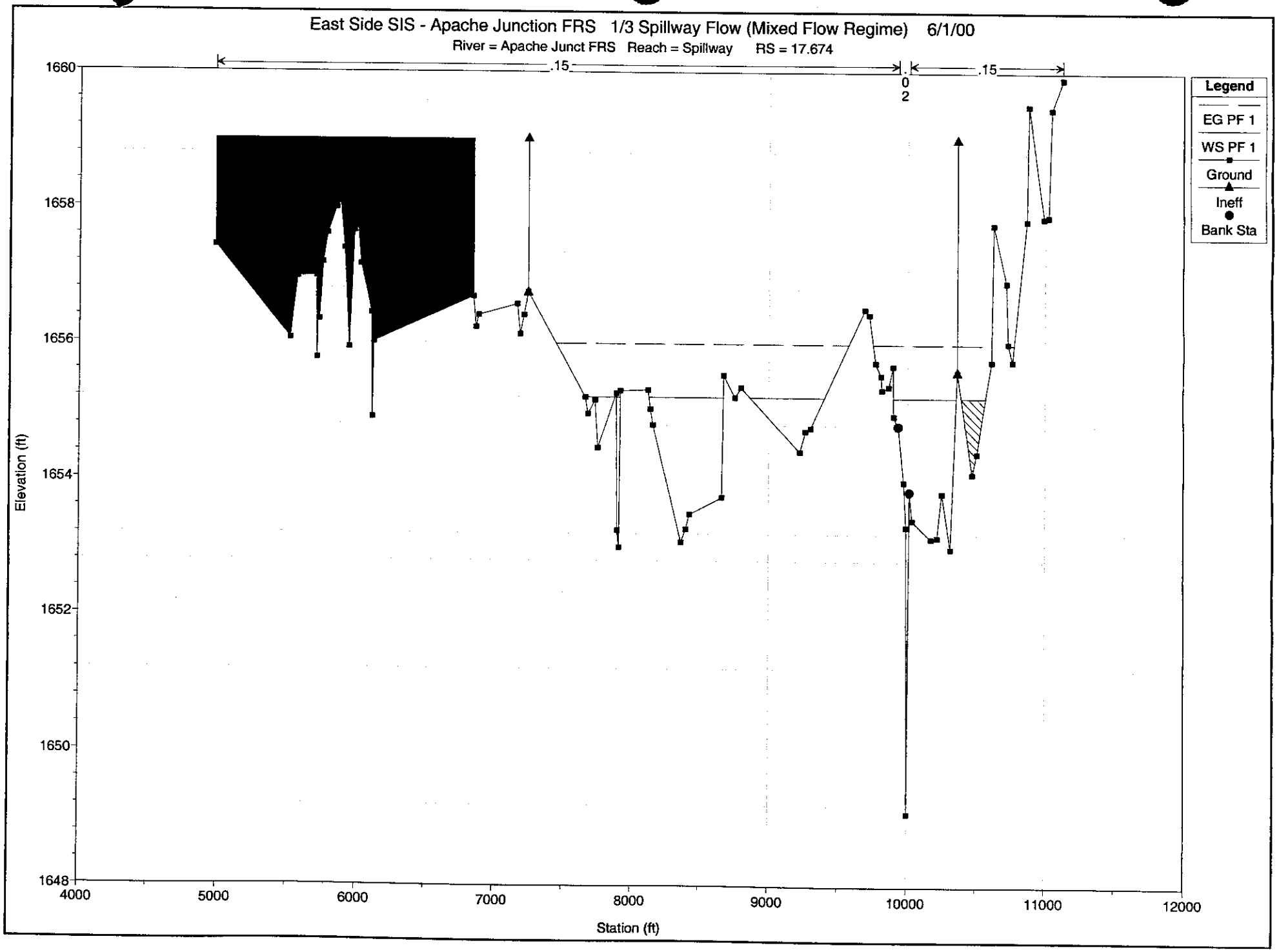
River = Apache Junct FRS Reach = Spillway RS = 17.262

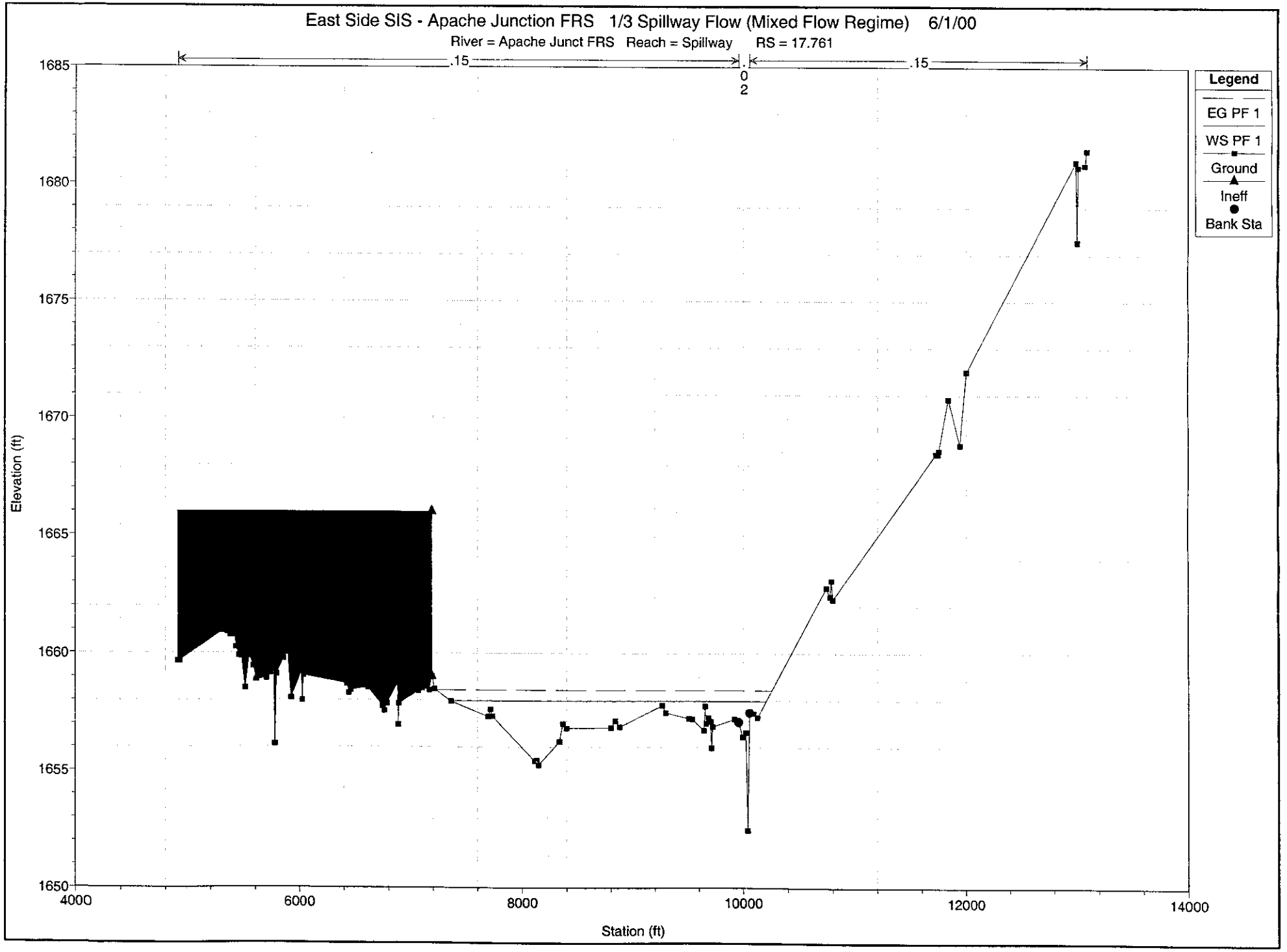


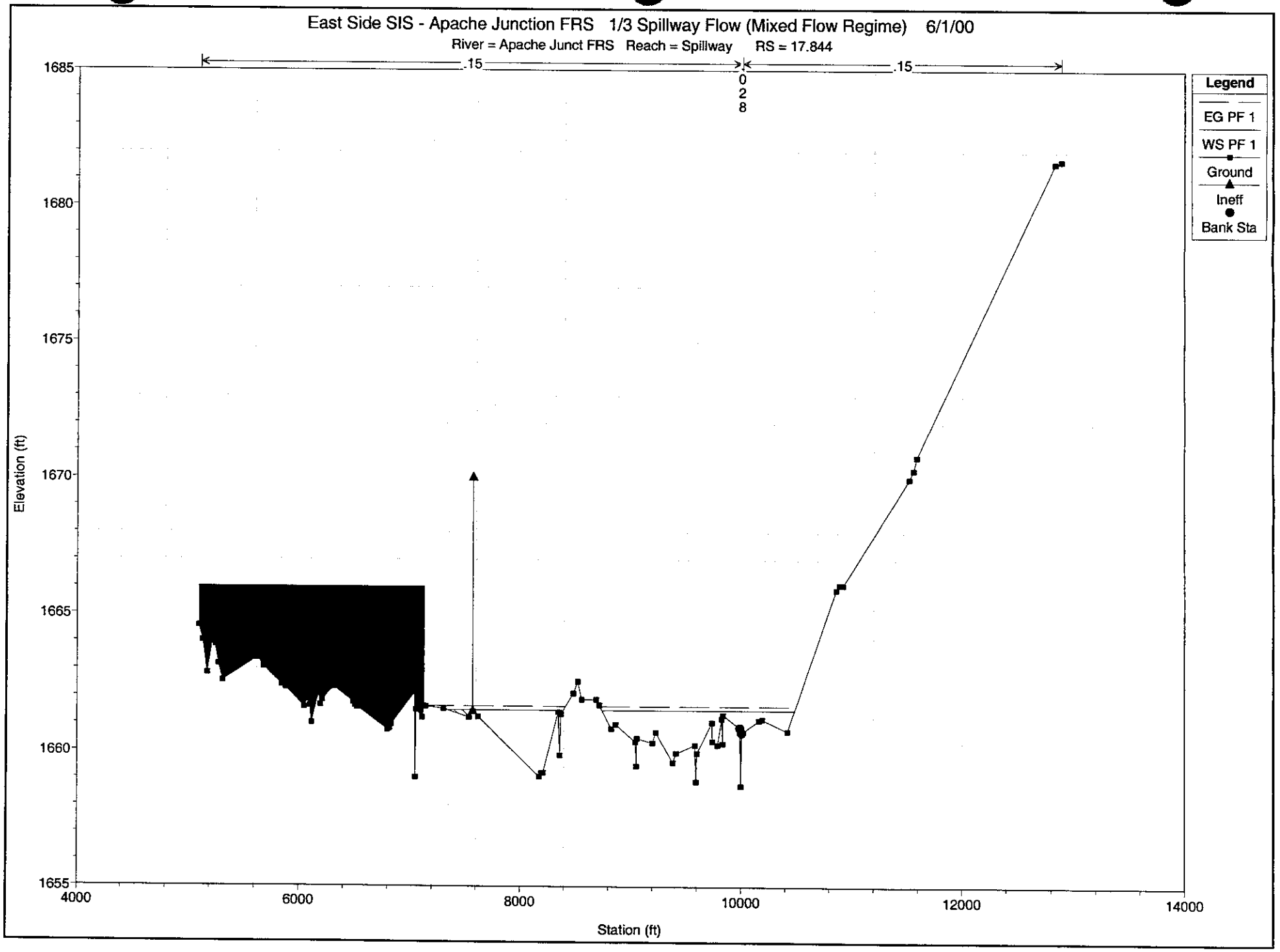

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.336
.15
0
2
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1652
1650
1648
1646
1644
1642
1640
1638
2000
4000
6000
8000
10000
12000
14000
Station (ft)

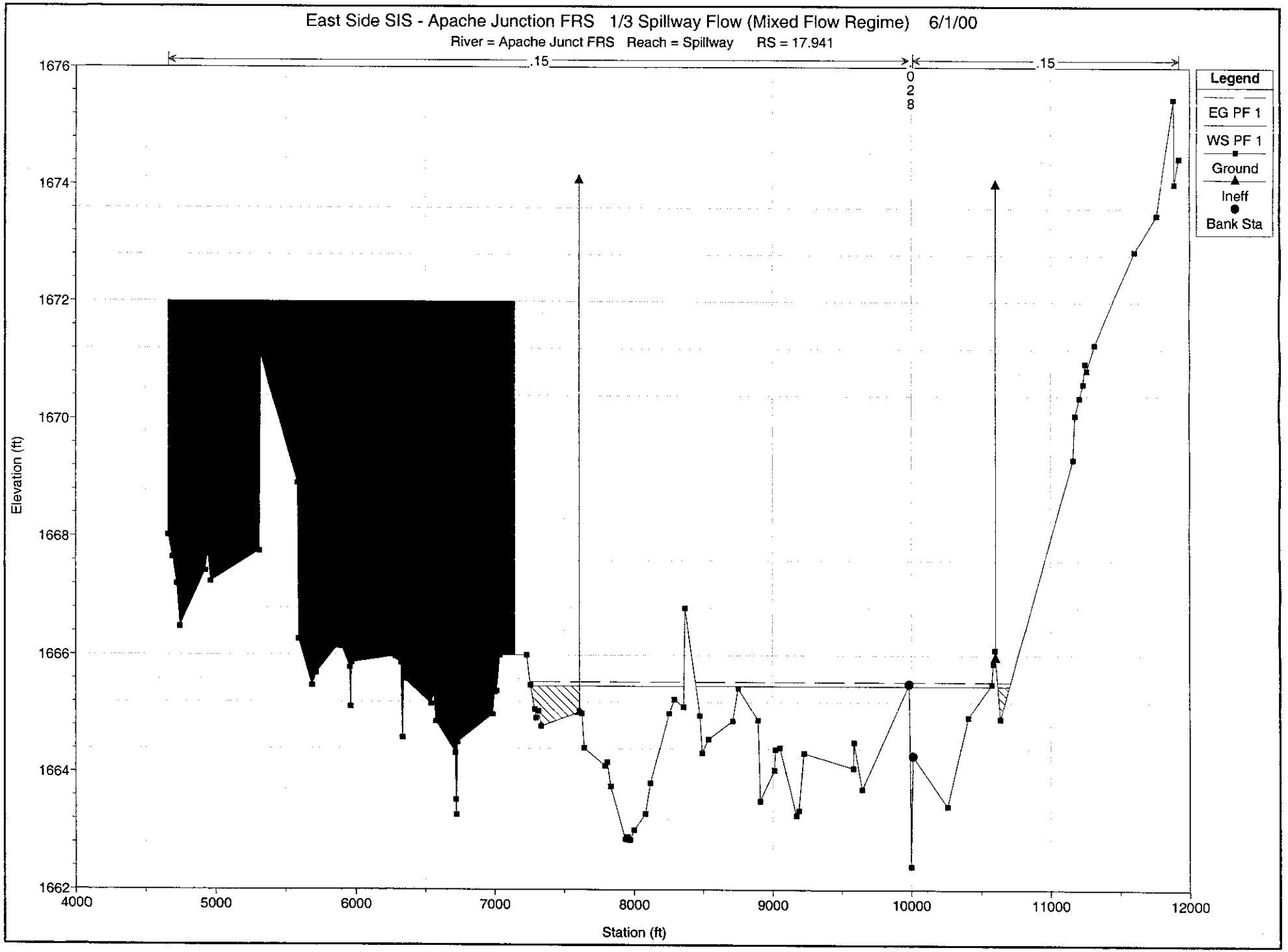

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.480
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1658
1656
1654
1652
1650
1648
1646
1644
1642
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

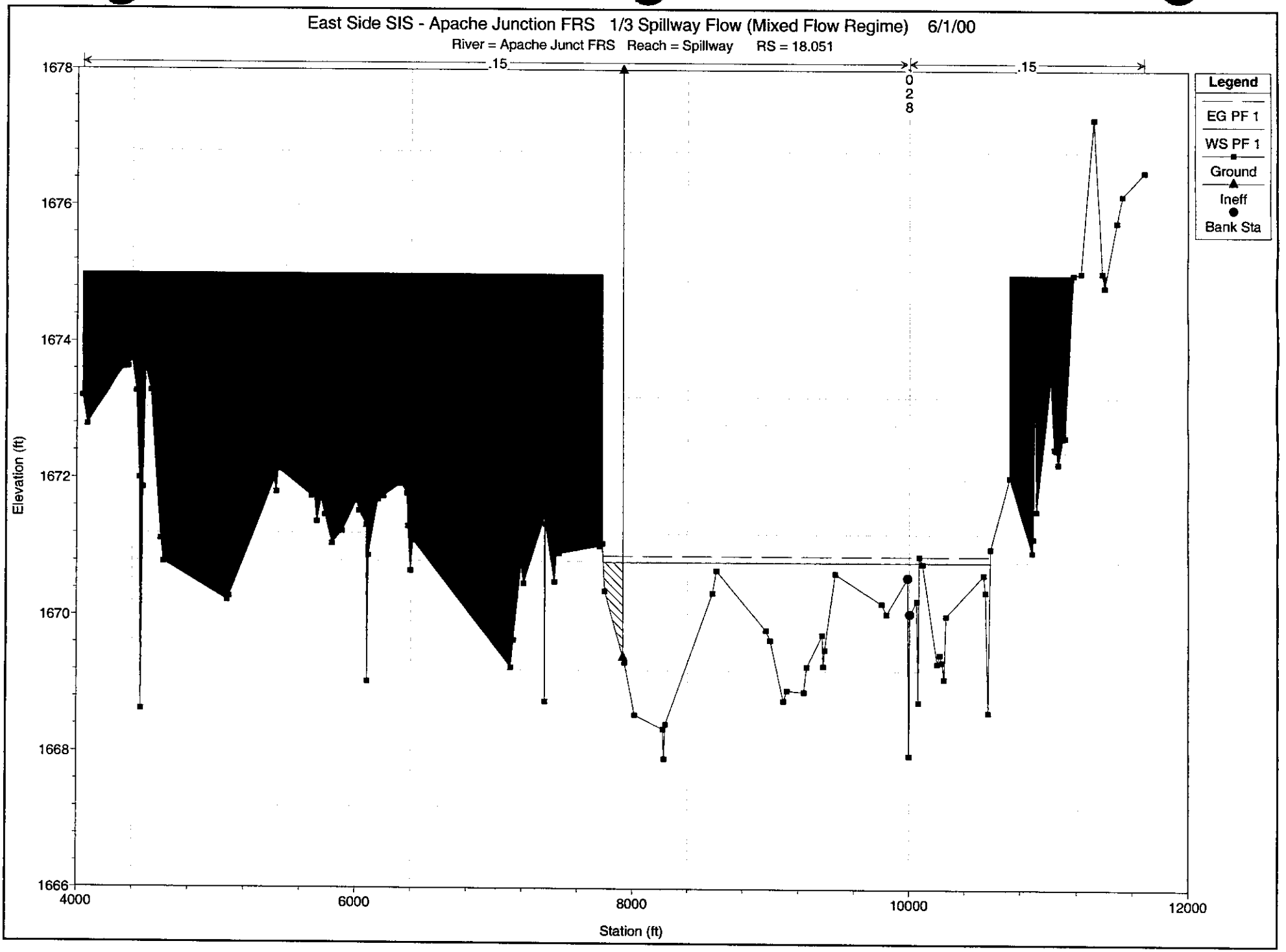

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.601
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1660
1658
1656
1654
1652
1650
1648
1646
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

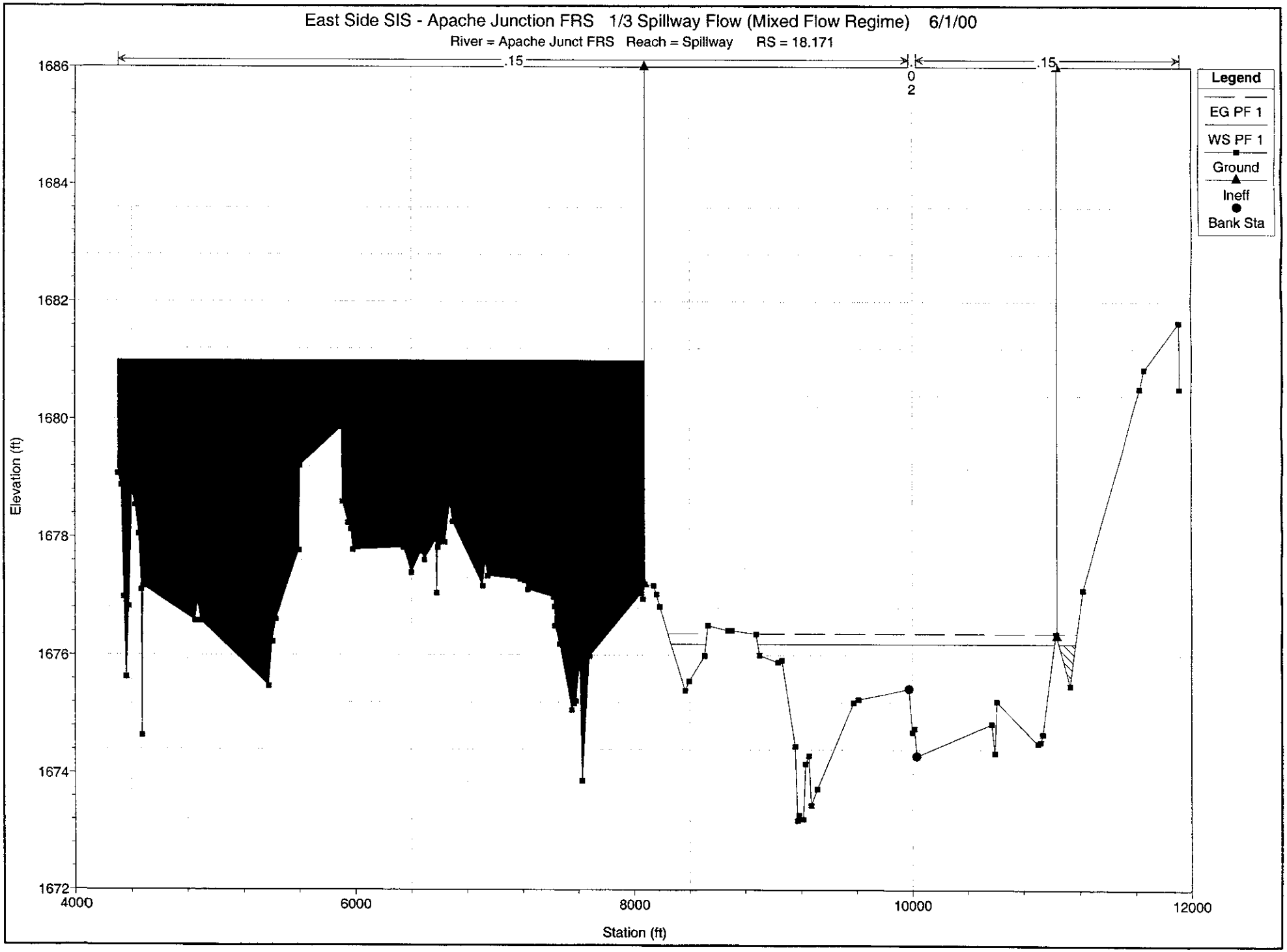

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.674
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1660
1658
1656
1654
1652
1650
1648
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

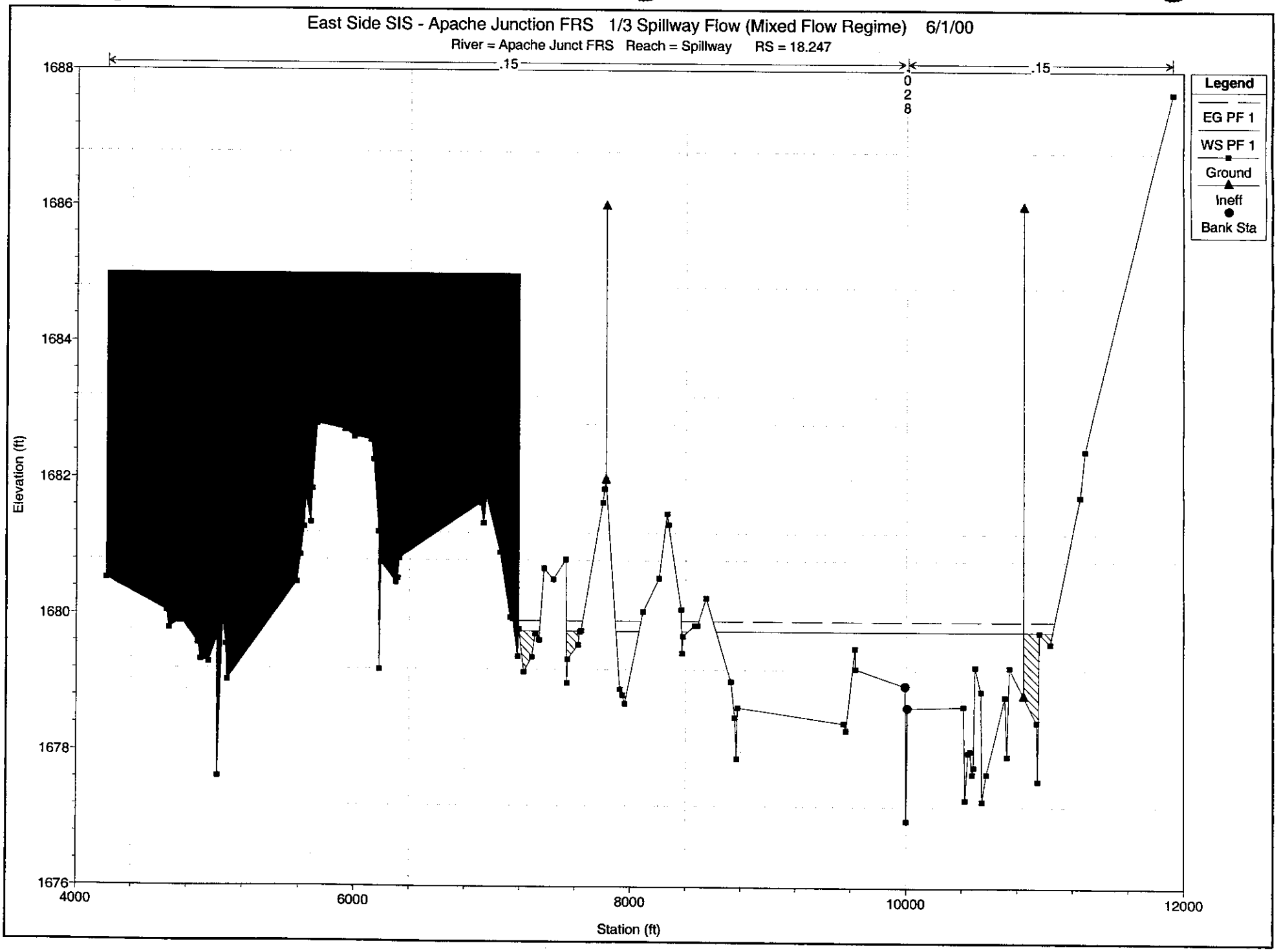

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.761
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1685
1680
1675
1670
1665
1660
1655
1650
4000
6000
8000
10000
12000
14000
Station (ft)

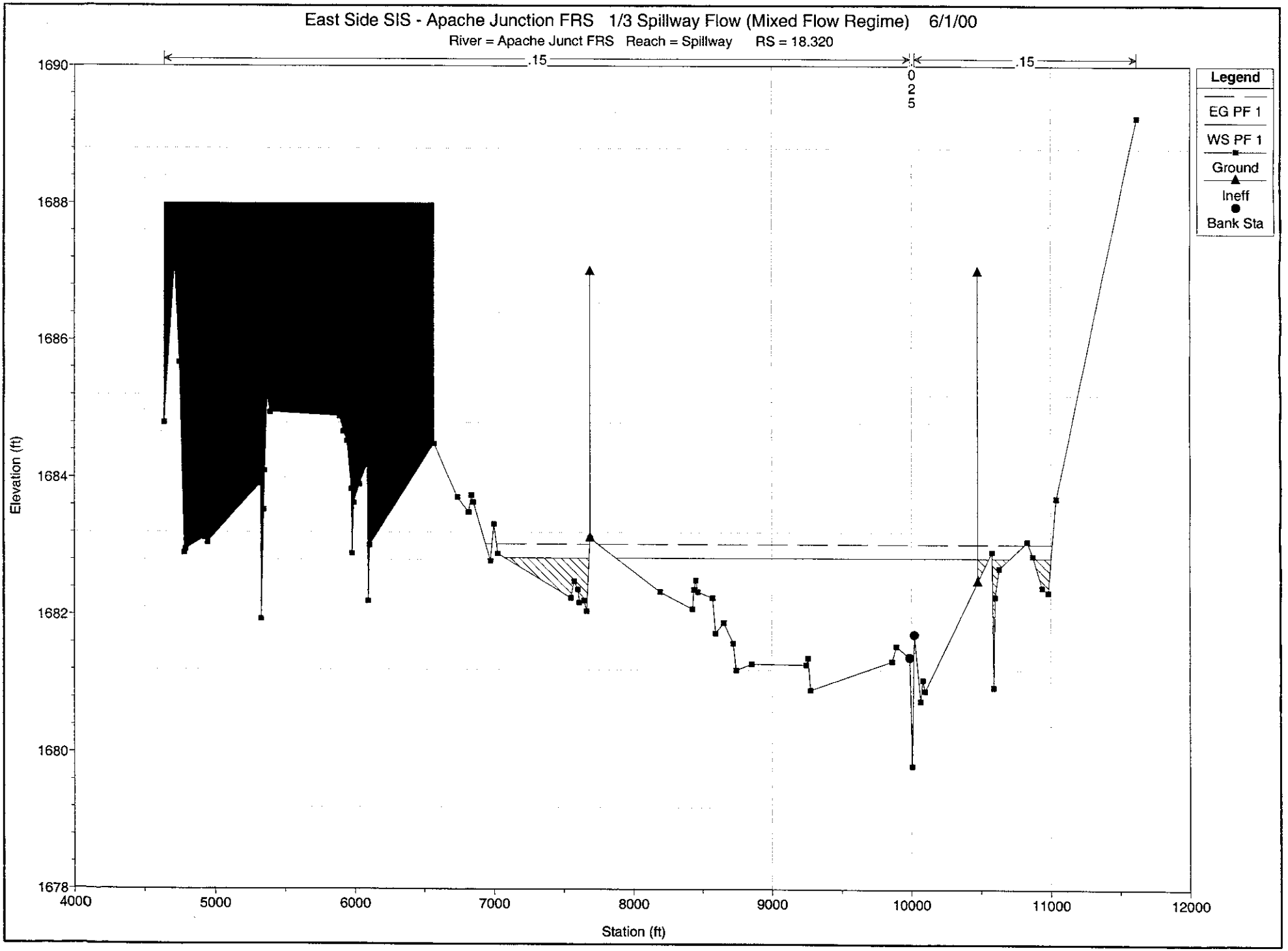

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.844
.15
.15
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1685
1680
1675
1670
1665
1660
1655
4000
6000
8000
10000
12000
14000
Station (ft)

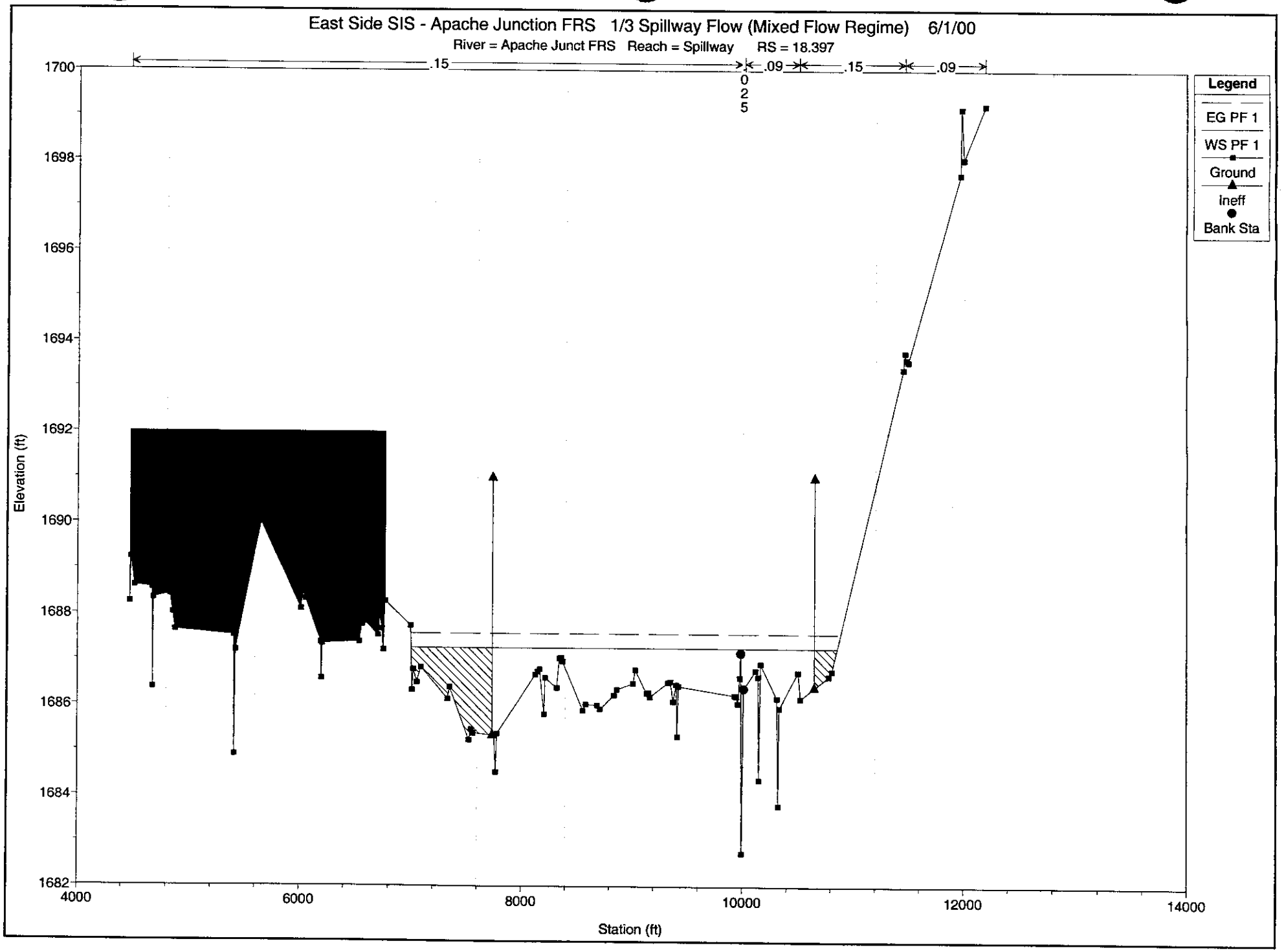

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 17.941
.15
.028
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1676
1674
1672
1670
1668
1666
1664
1662
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

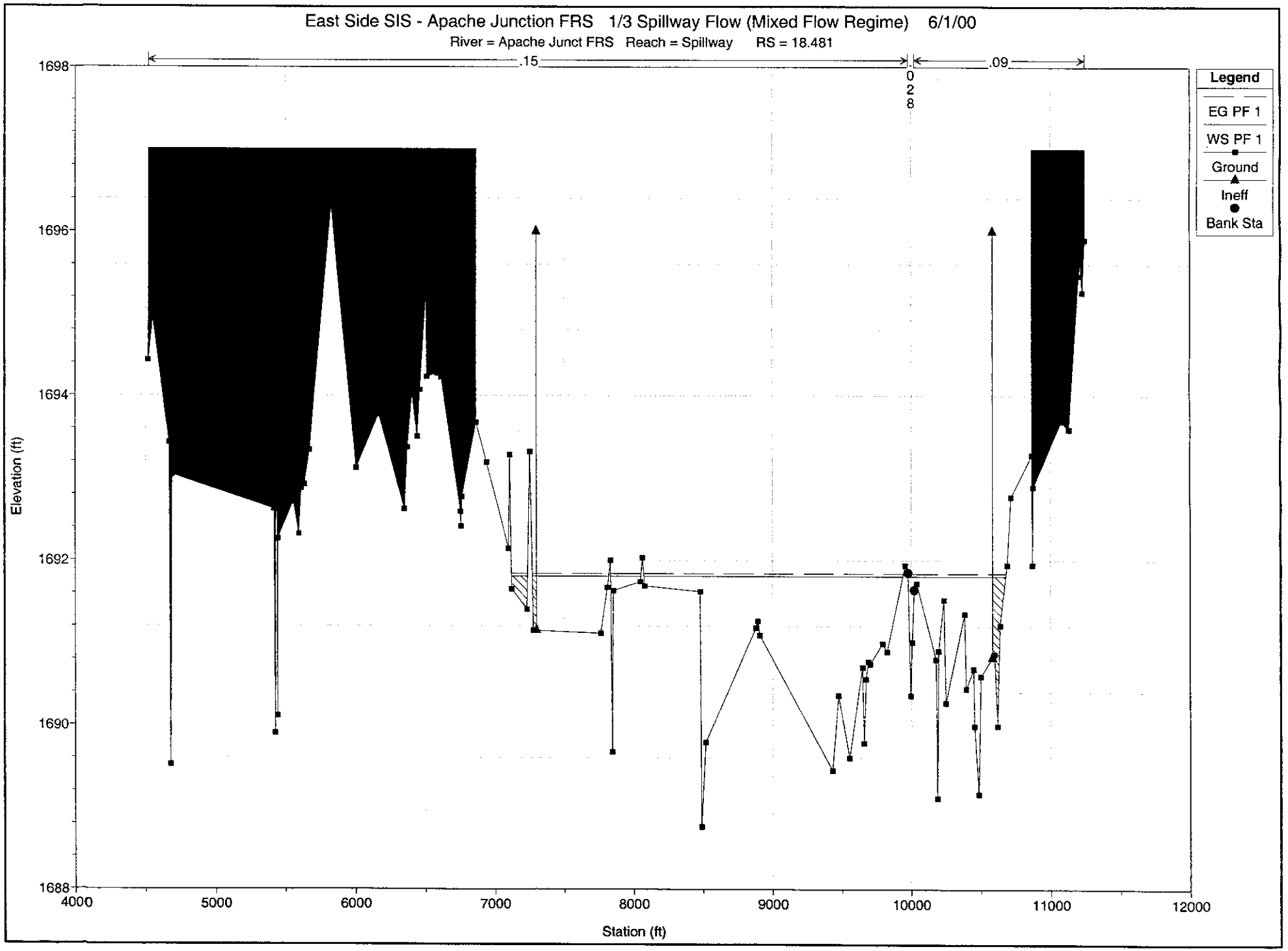

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.051
.15
.028
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1678
1676
1674
1672
1670
1668
1666
4000
6000
8000
10000
12000
Station (ft)

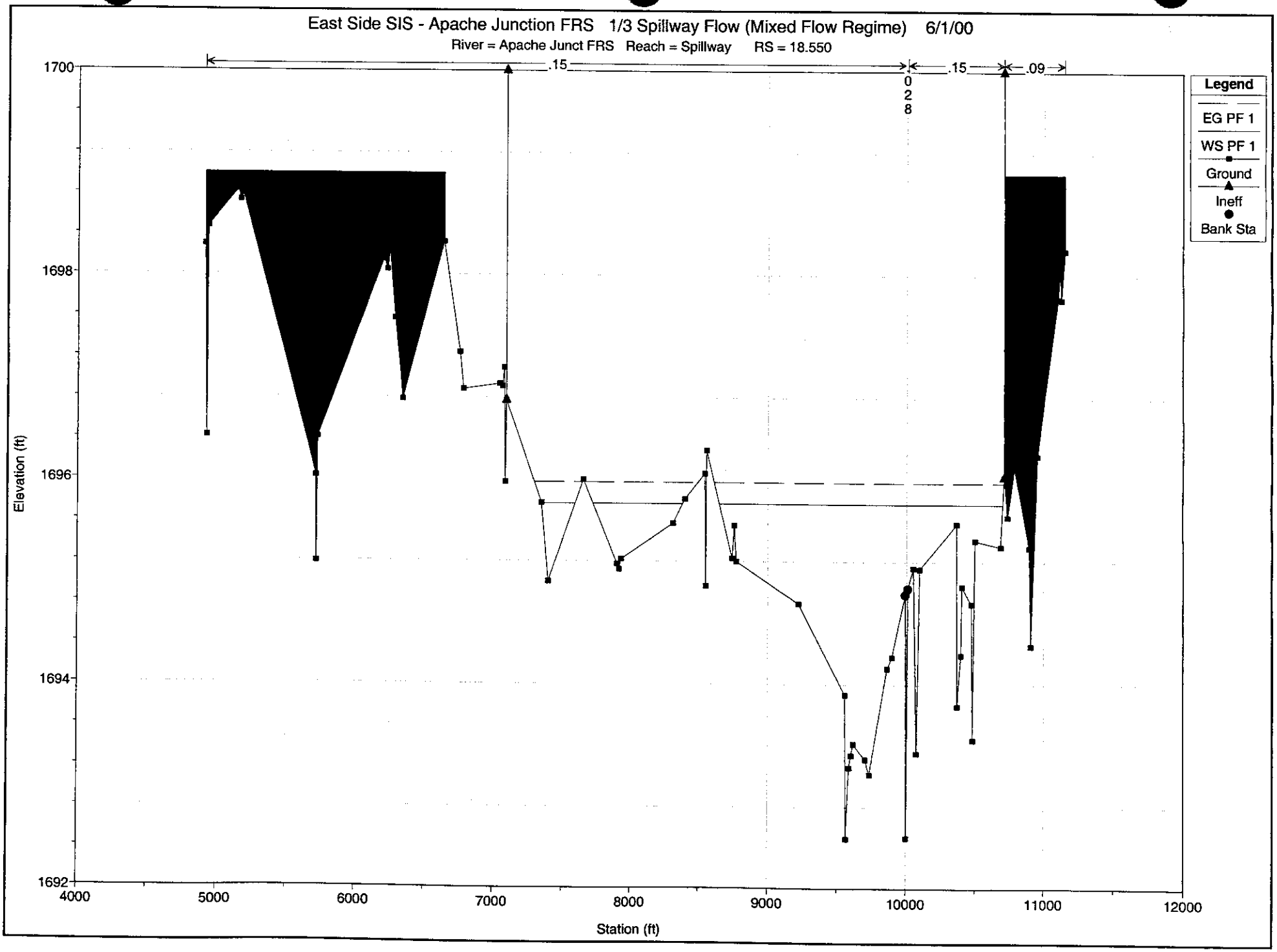

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.171
.15
.02
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1686
1684
1682
1680
1678
1676
1674
1672
4000
6000
8000
10000
12000
Station (ft)

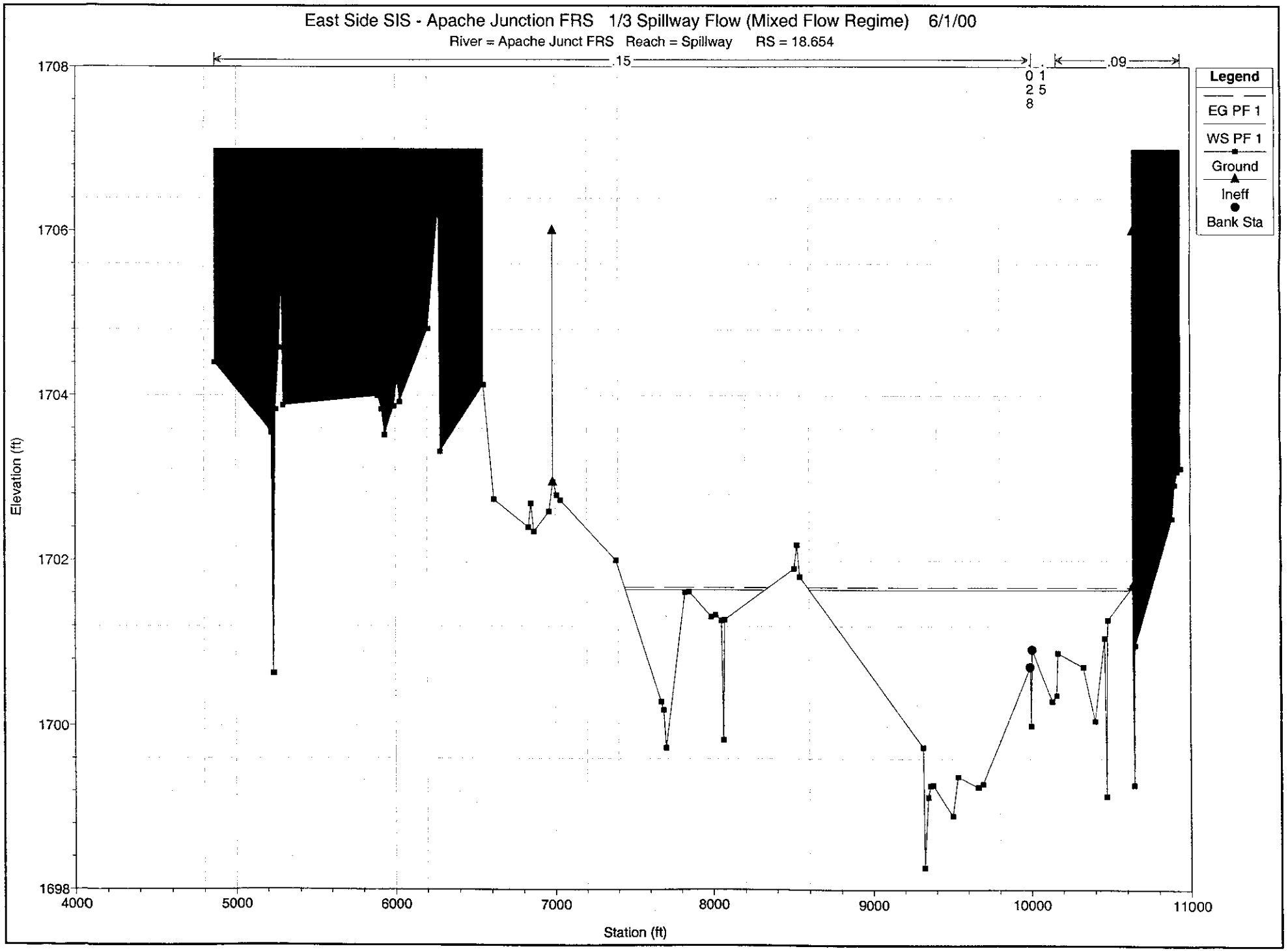

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.247
.15
.15
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1688
1686
1684
1682
1680
1678
1676
4000
6000
8000
10000
12000
Station (ft)

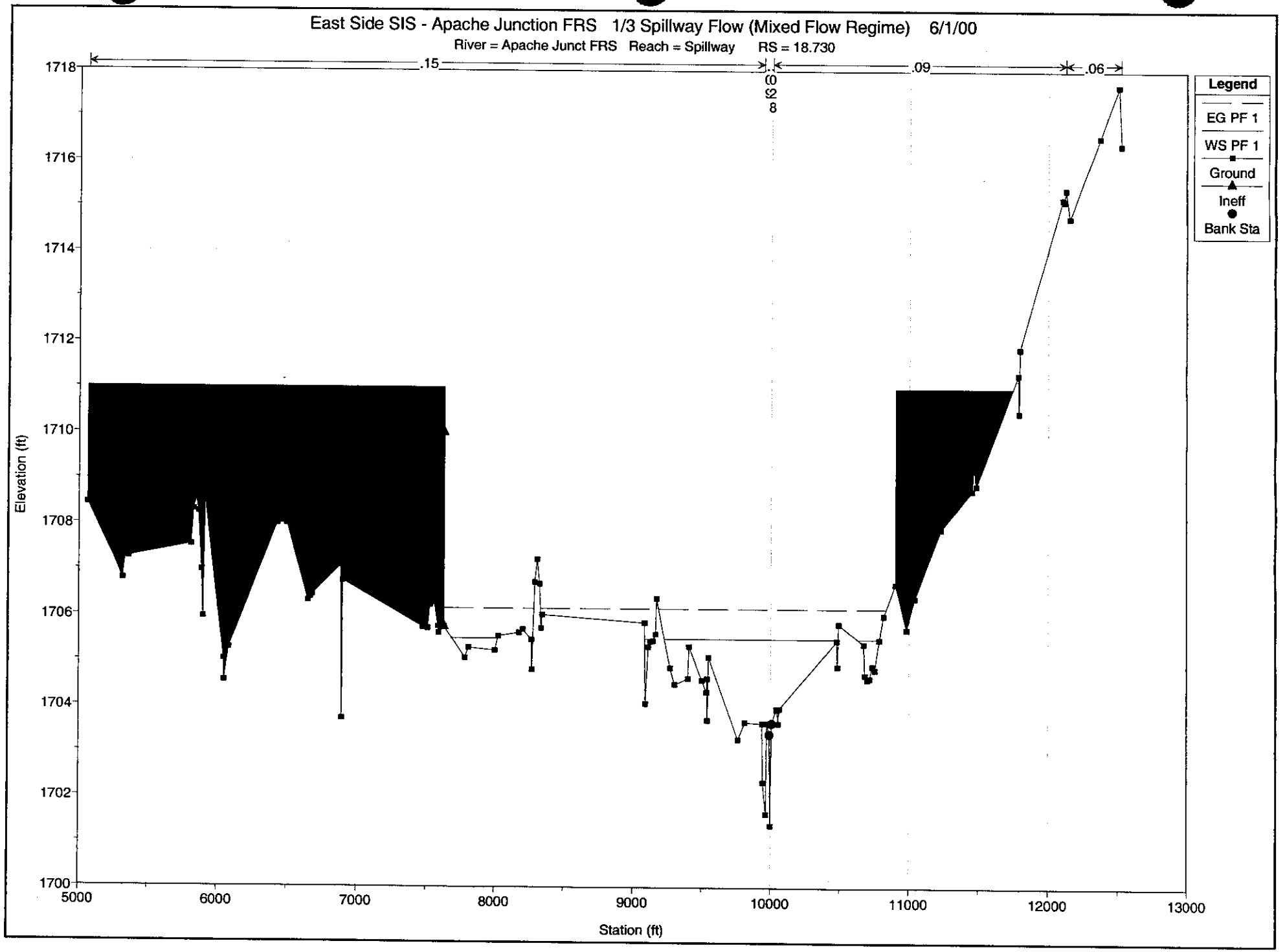

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.320
.15
0
2
5
.15
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1690
1688
1686
1684
1682
1680
1678
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

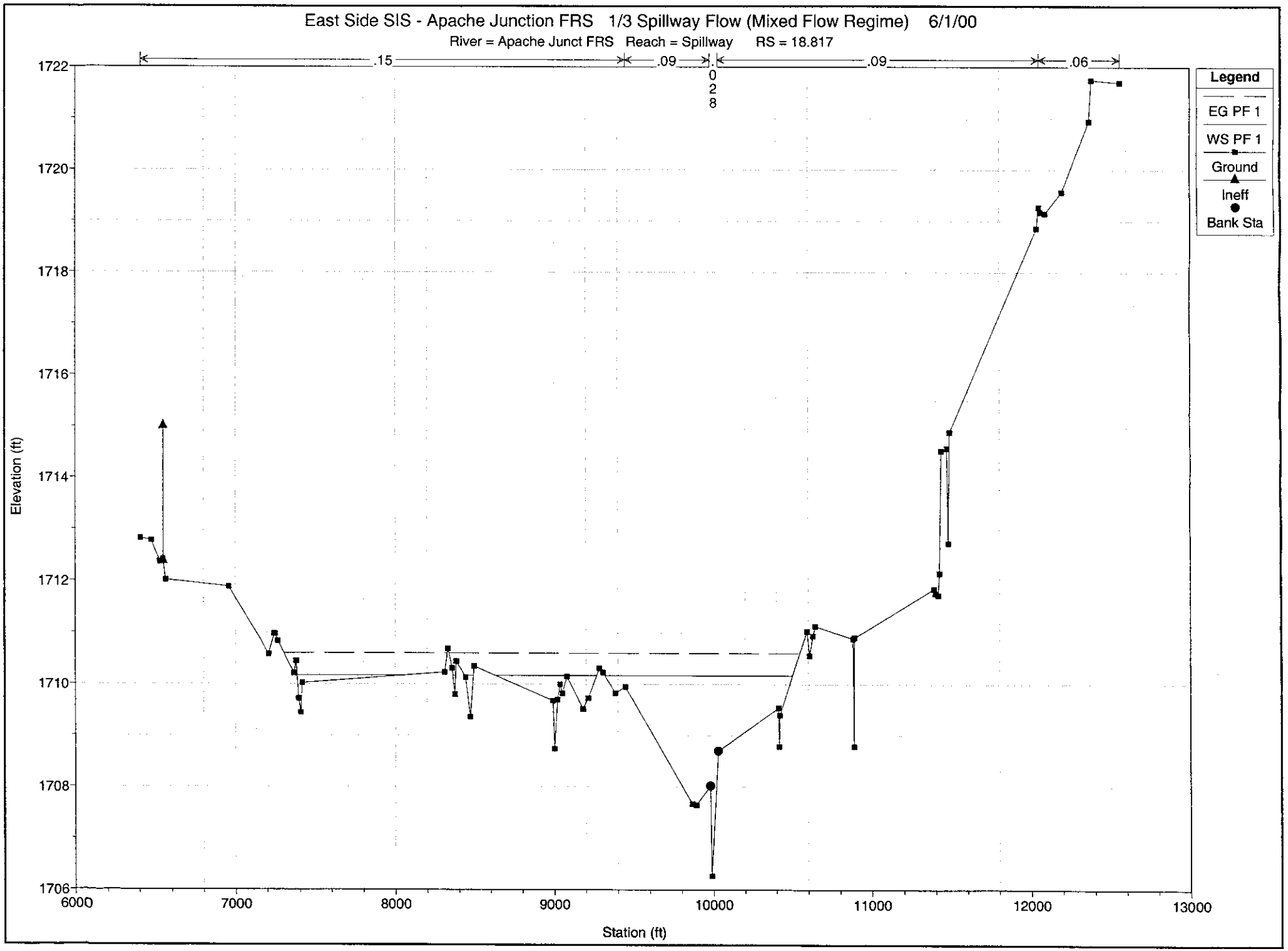

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.397
.15
.09
.15
.09
0
2
5
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1700
1698
1696
1694
1692
1690
1688
1686
1684
1682
4000
6000
8000
10000
12000
14000
Station (ft)

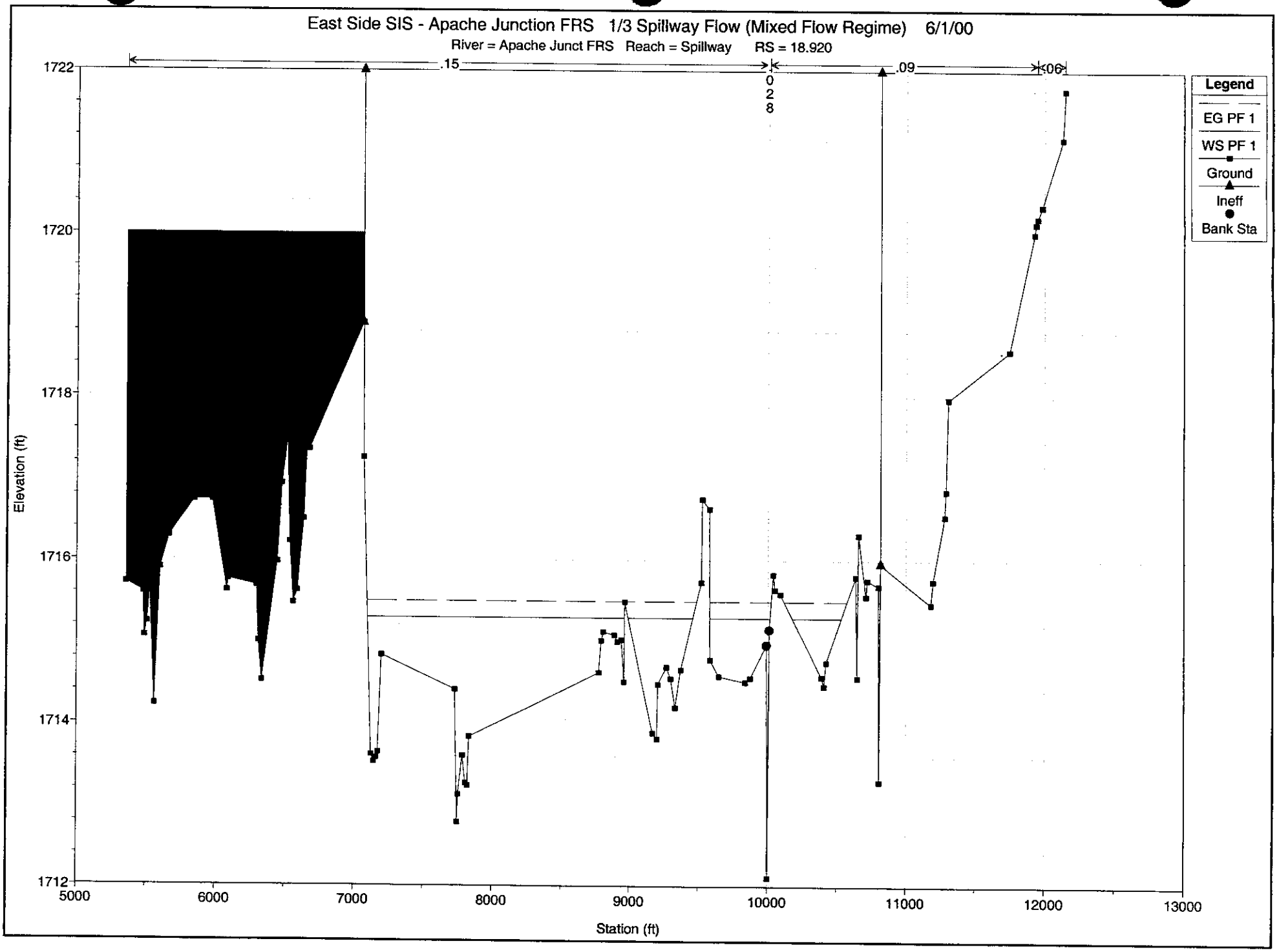

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.481
.15
.09
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1698
1696
1694
1692
1690
1688
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

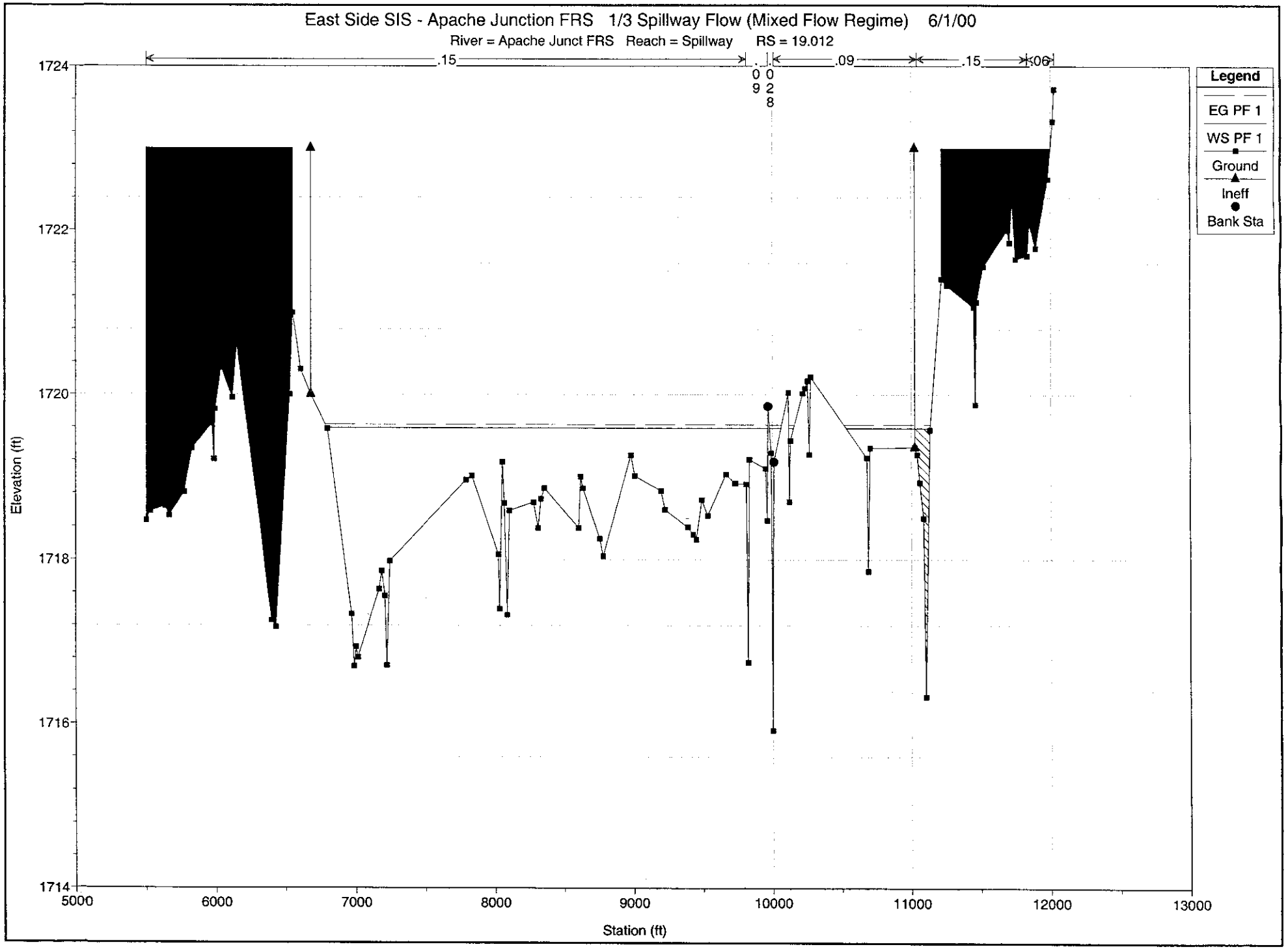

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.550
.15
.15
.09
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1700
1698
1696
1694
1692
4000
5000
6000
7000
8000
9000
10000
11000
12000
Station (ft)

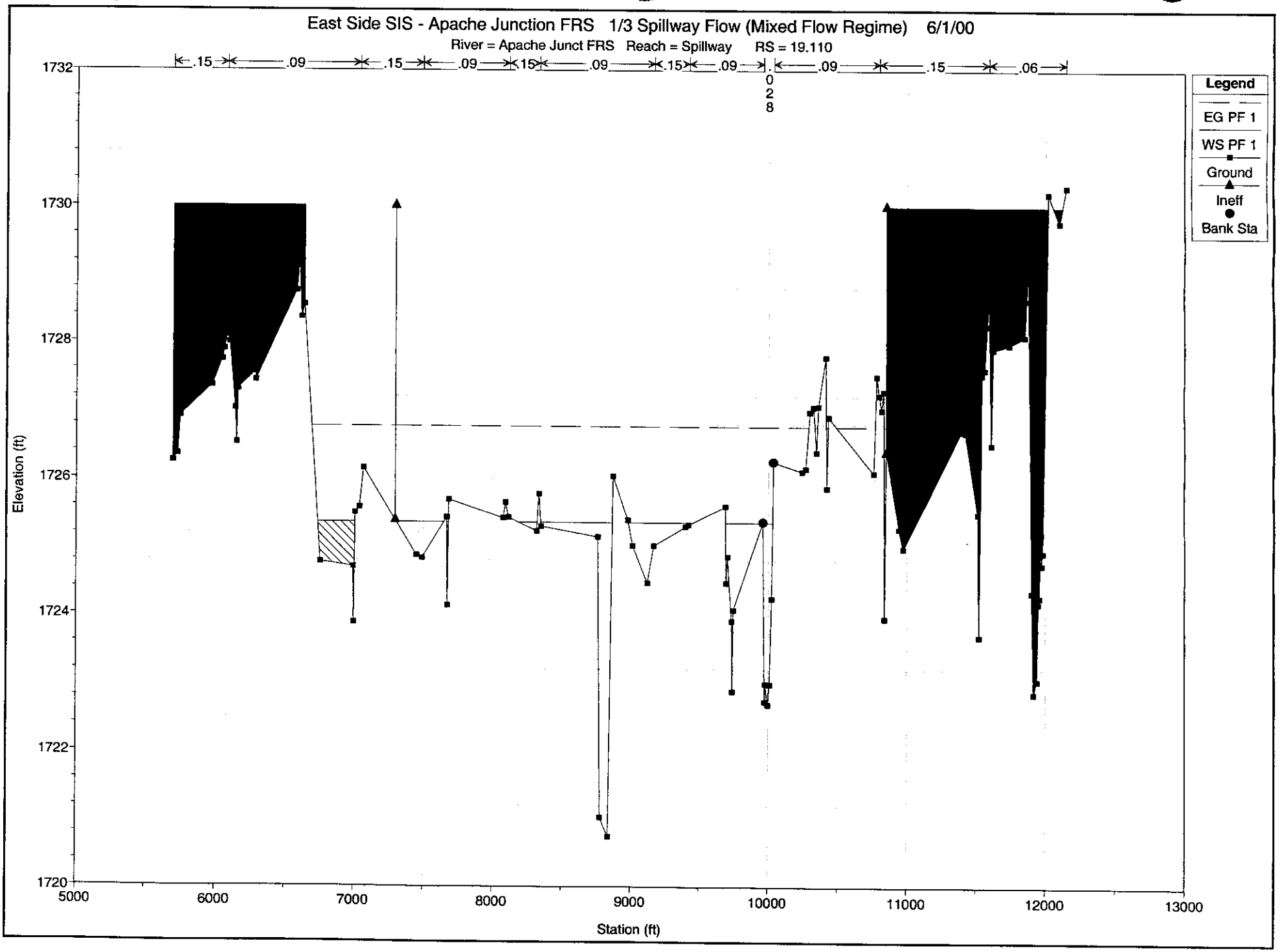

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.654
.15
.09
0 1
2 5
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1708
1706
1704
1702
1700
1698
4000
5000
6000
7000
8000
9000
10000
11000
Station (ft)

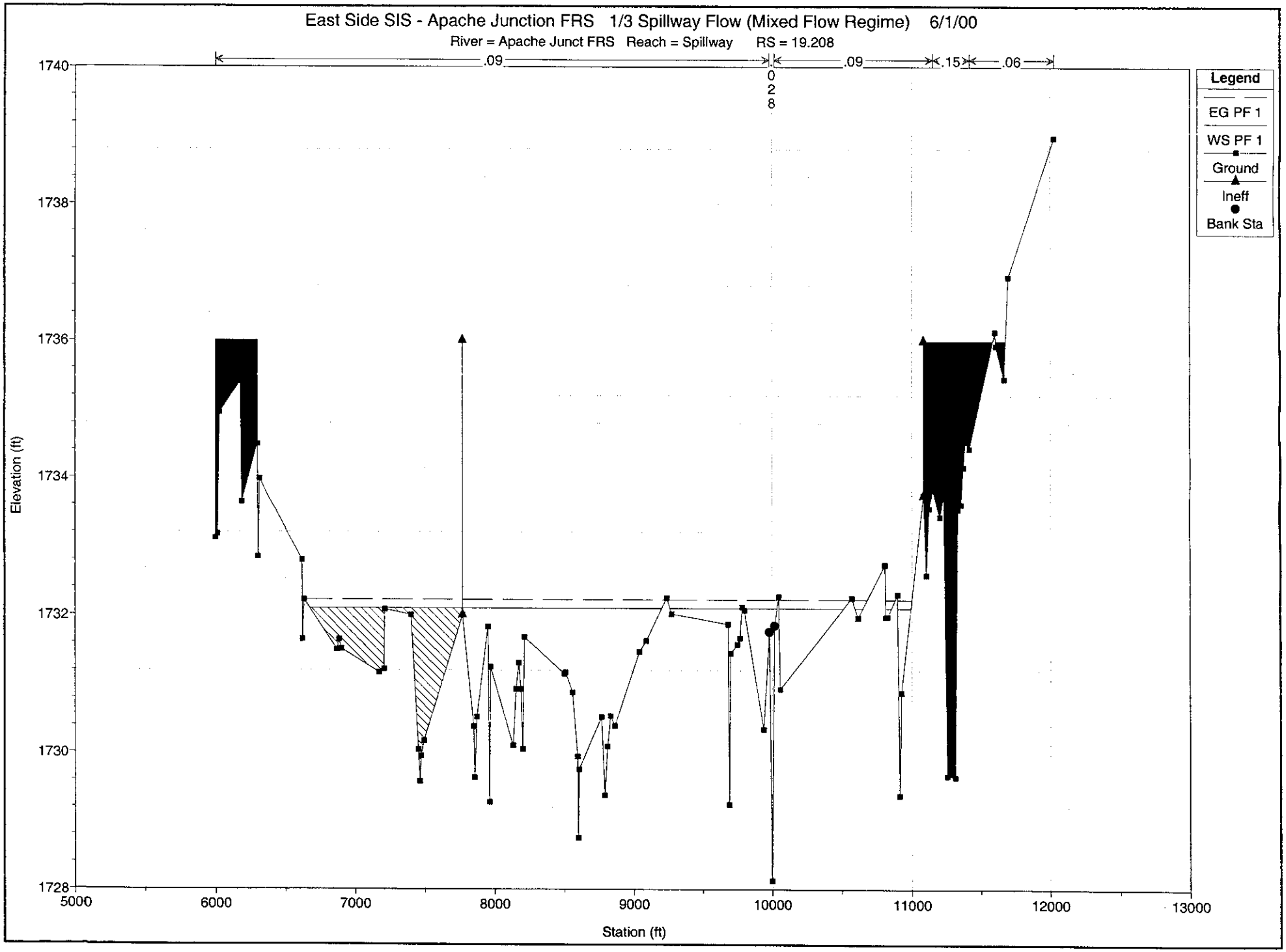

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.730
.15
.09
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1718
1716
1714
1712
1710
1708
1706
1704
1702
1700
5000
6000
7000
8000
9000
10000
11000
12000
13000

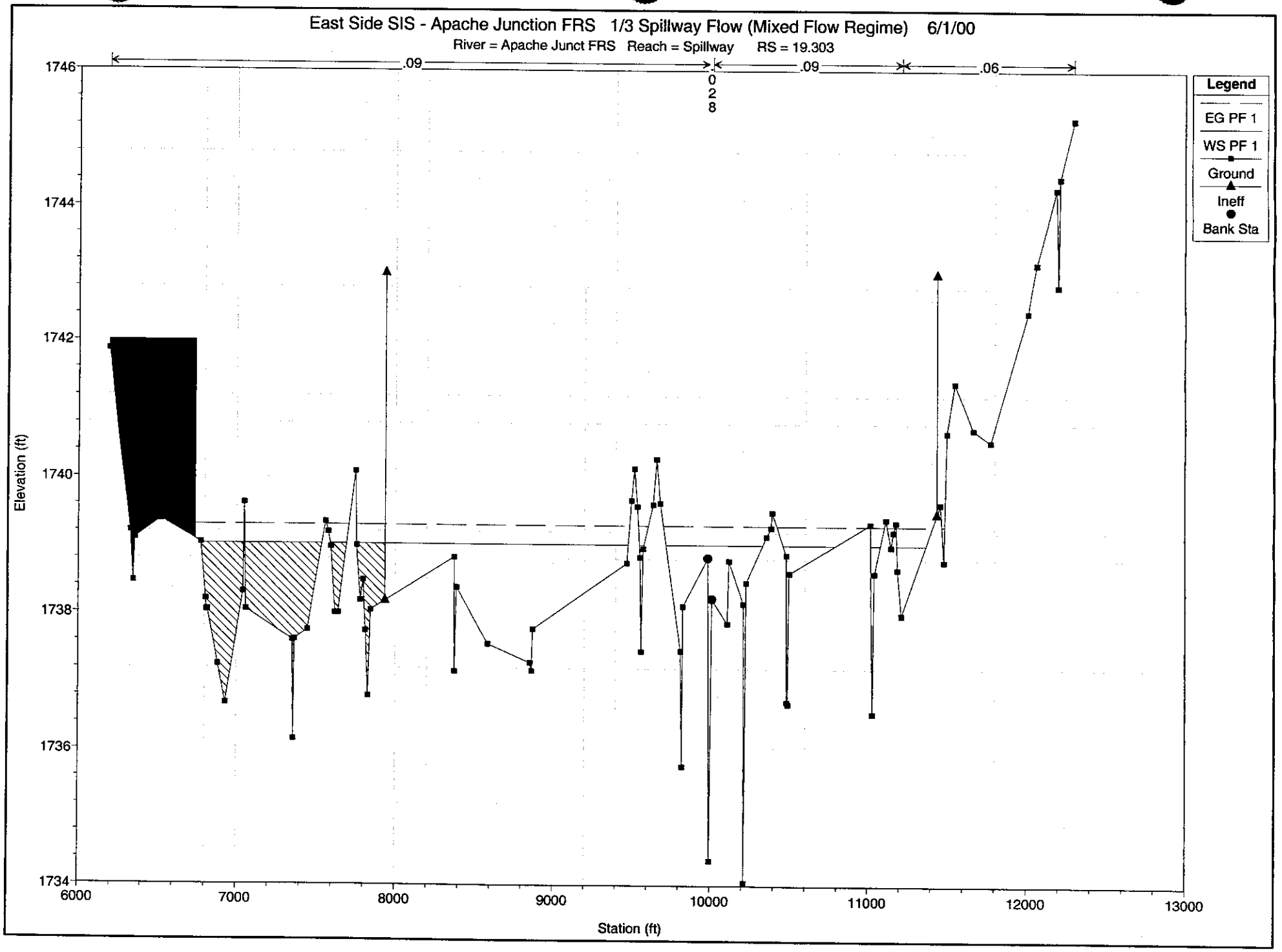

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.817
.15
.09
.028
.09
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1722
1720
1718
1716
1714
1712
1710
1708
1706
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

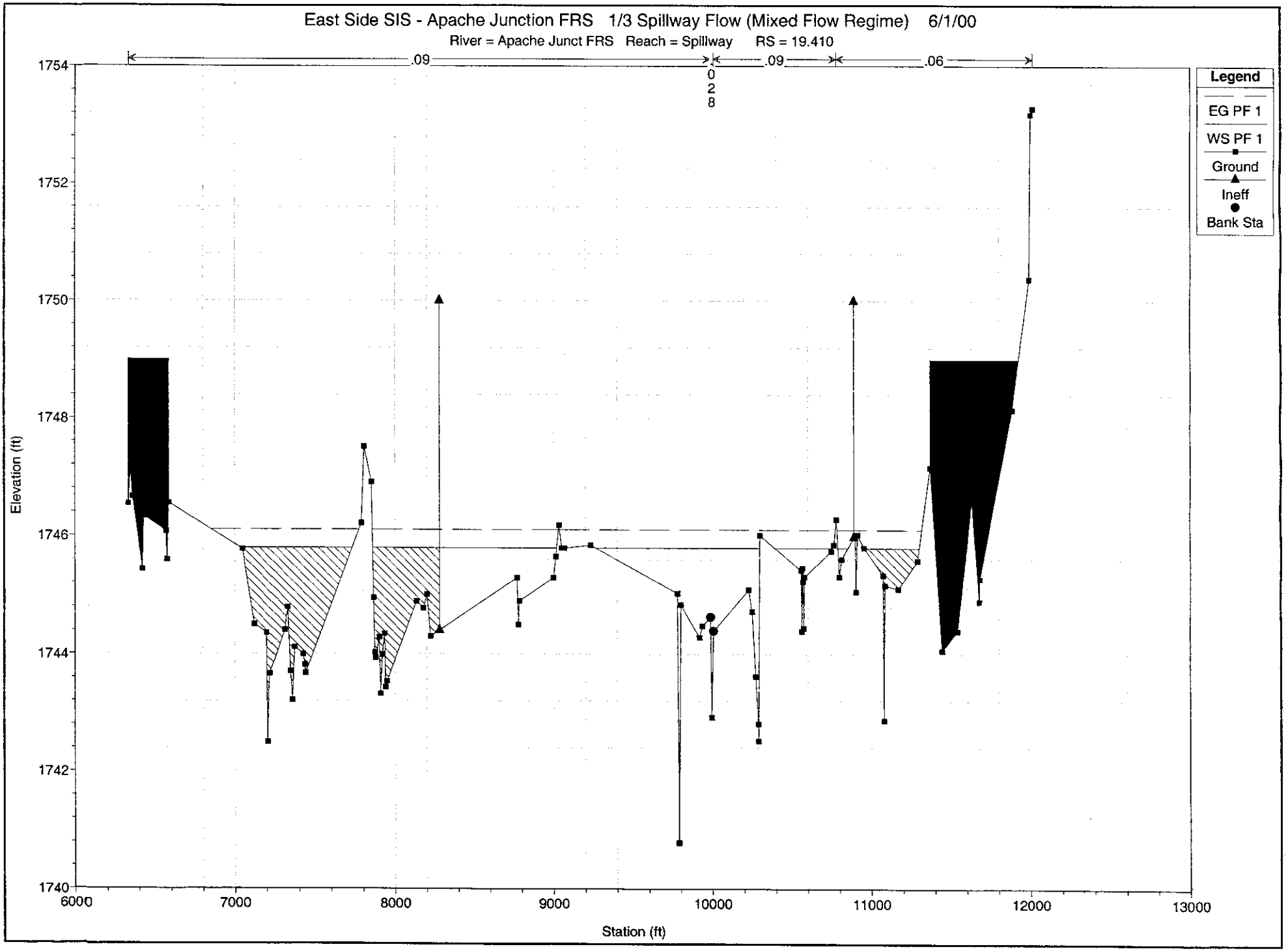

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 18.920
.15
.02
.08
.09
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1722
1720
1718
1716
1714
1712
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

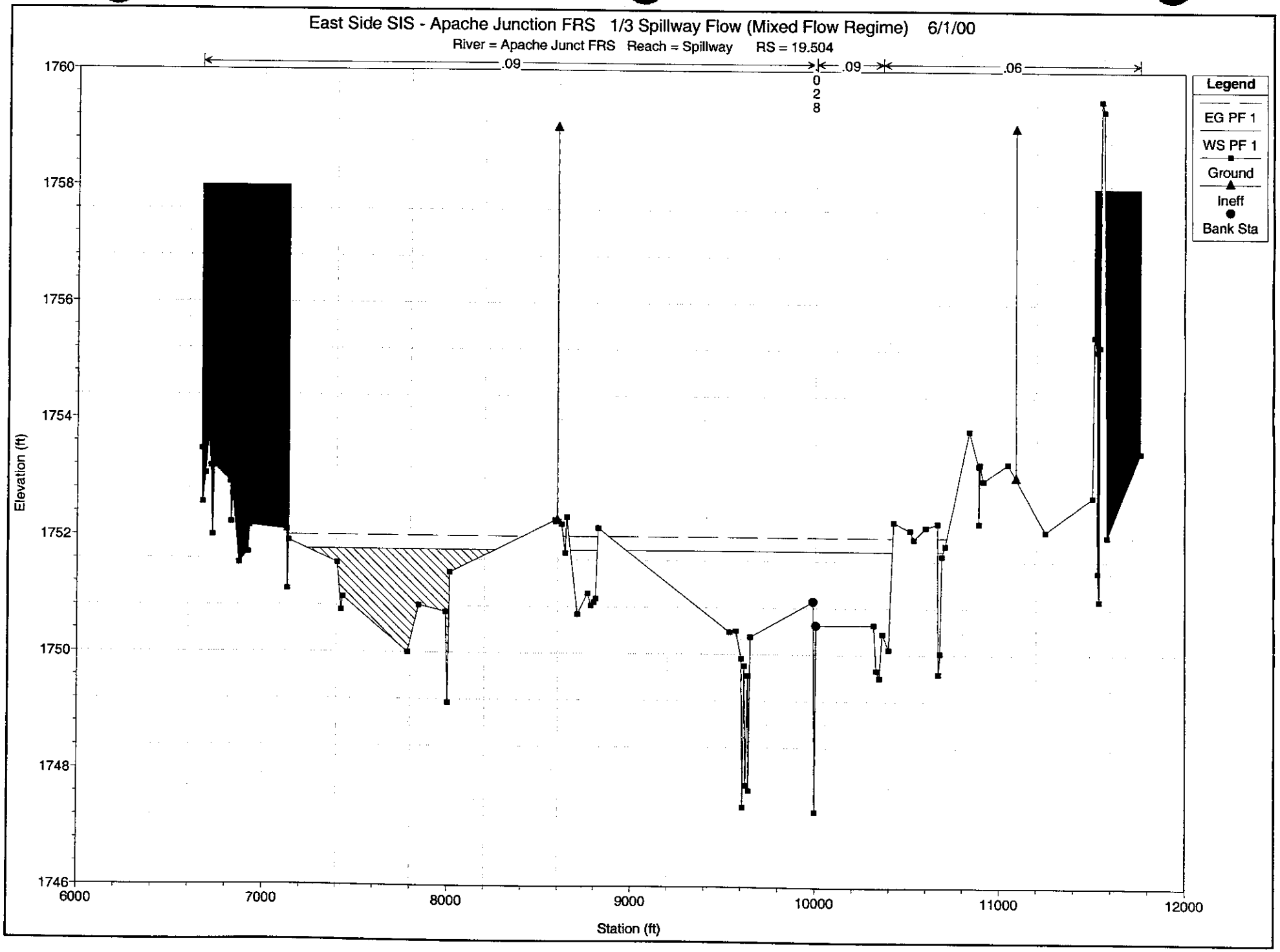

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.012
.15
.09
.15
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1724
1722
1720
1718
1716
1714
5000
6000
7000
8000
9000
10000
11000
12000
13000

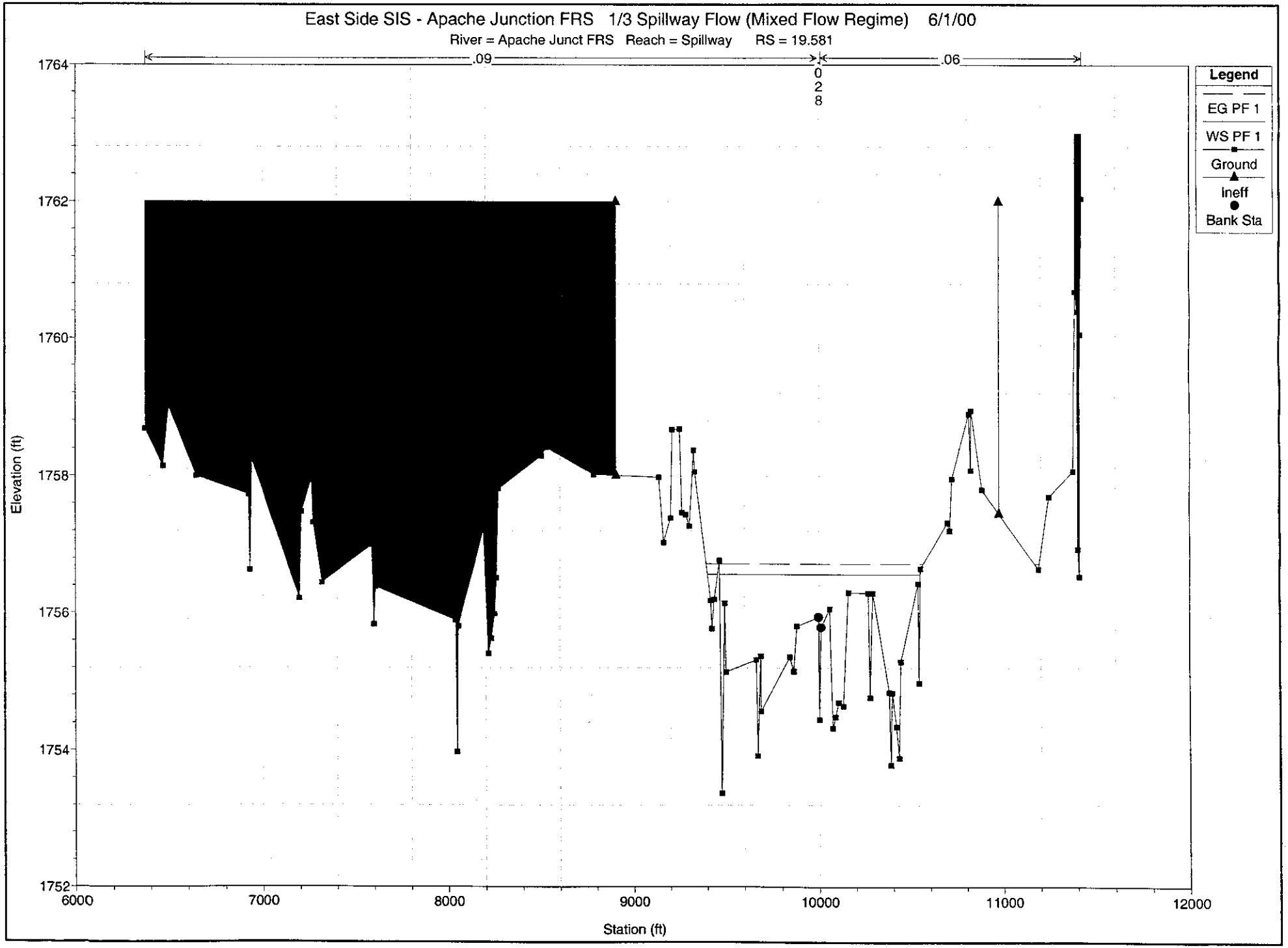

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.110
.15
.09
.15
.09
.15
.09
.15
.09
.09
.15
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1732
1730
1728
1726
1724
1722
1720
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

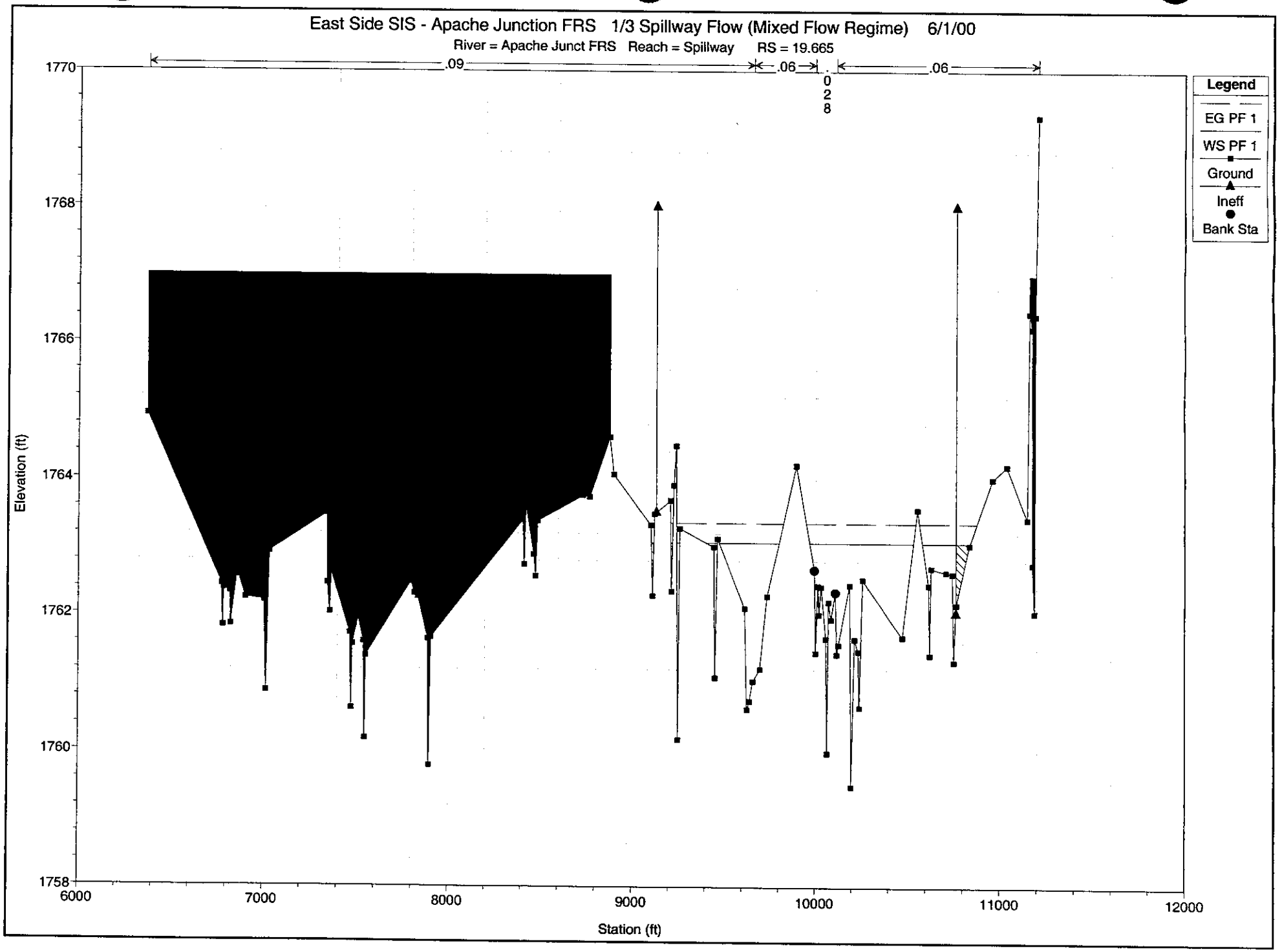

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.208
.09
.09
.15
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1740
1738
1736
1734
1732
1730
1728
5000
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.303
.09
.09
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1746
1744
1742
1740
1738
1736
1734
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.410
.09
.09
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1754
1752
1750
1748
1746
1744
1742
1740
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

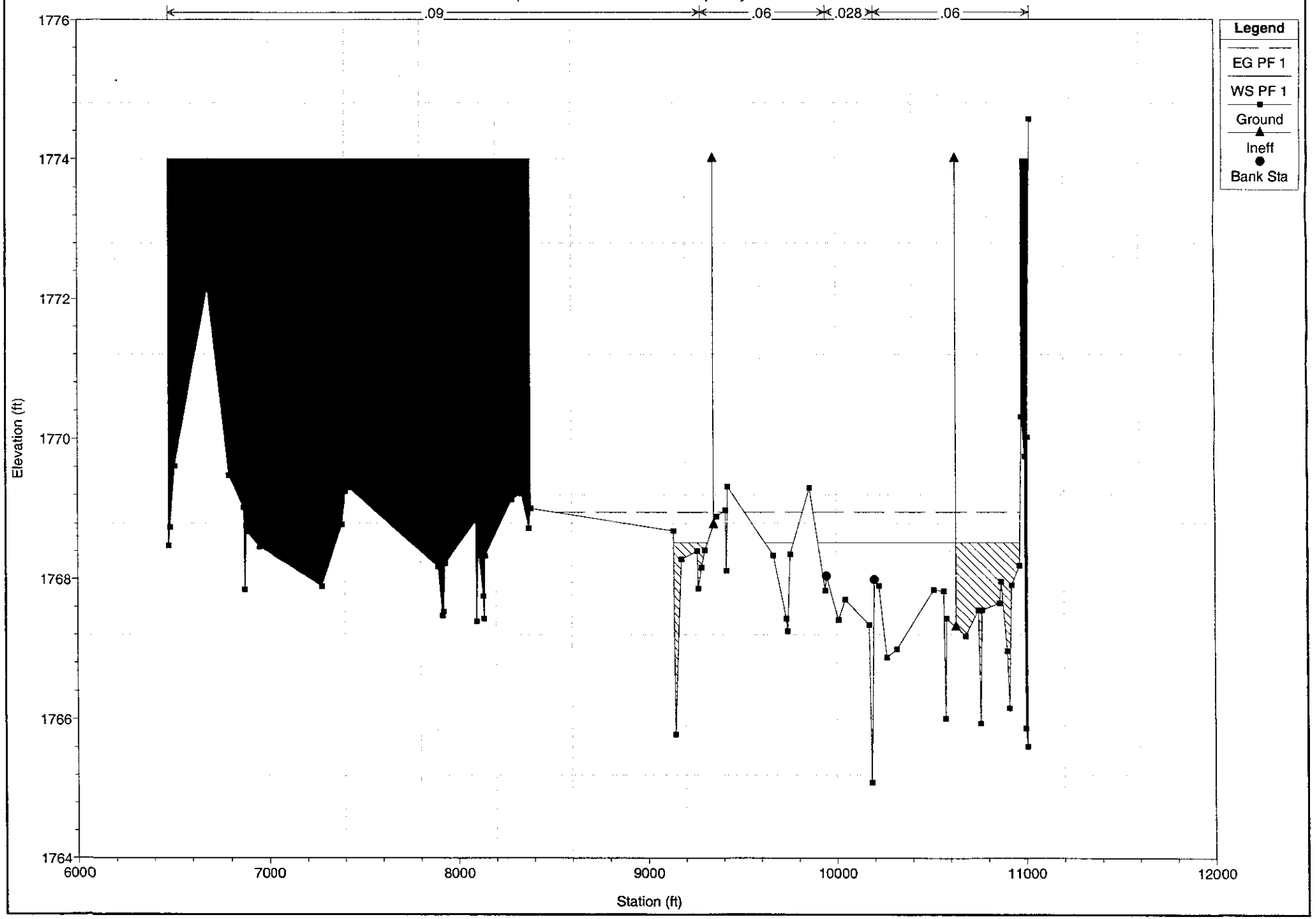

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.504
.09
.09
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1760
1758
1756
1754
1752
1750
1748
1746
6000
7000
8000
9000
10000
11000
12000
Station (ft)

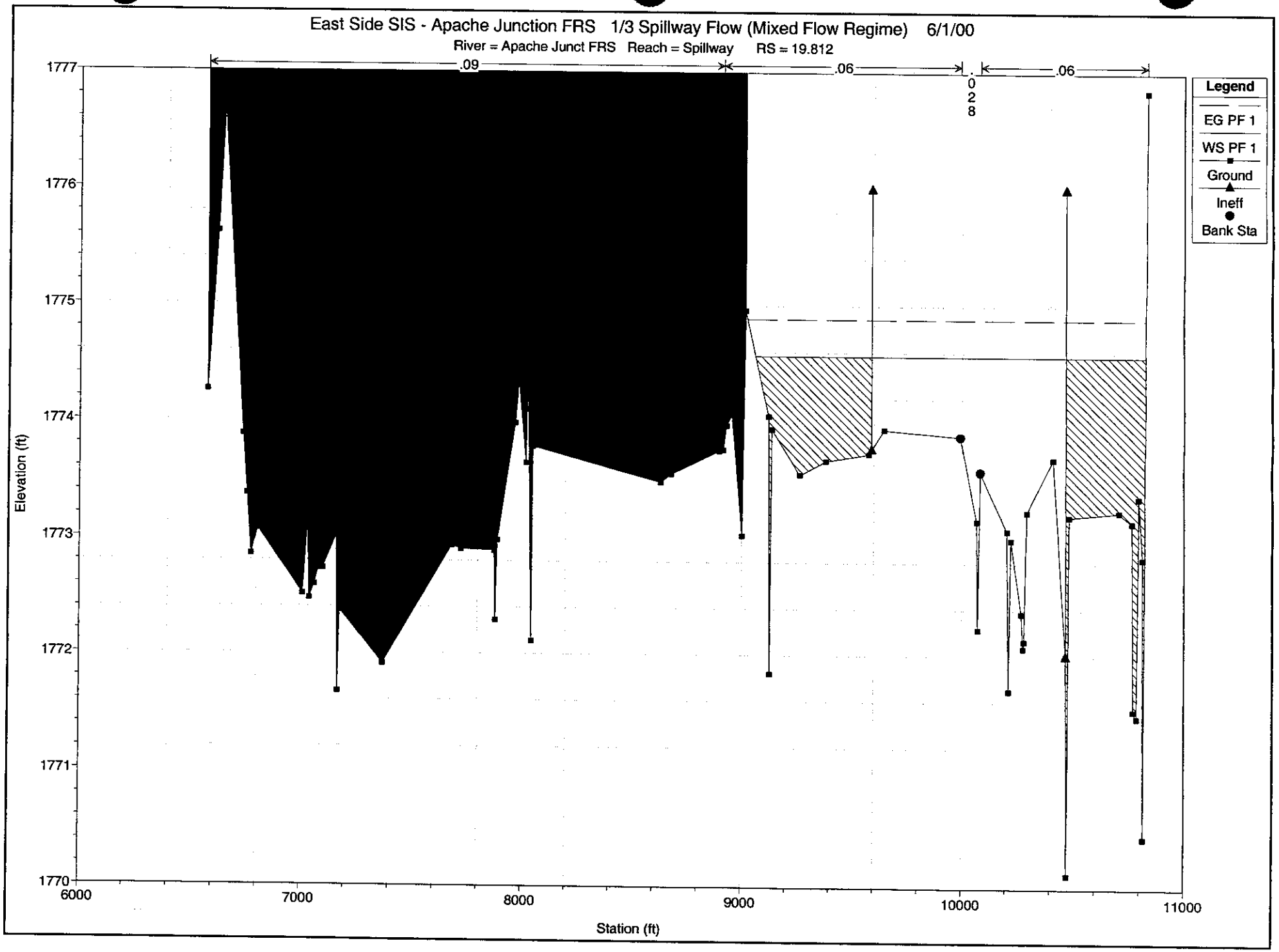

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.581
.09
.06
0
2
8
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1764
1762
1760
1758
1756
1754
1752
6000
7000
8000
9000
10000
11000
12000
Station (ft)


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.665
.09
.06
.028
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1770
1768
1766
1764
1762
1760
1758
6000
7000
8000
9000
10000
11000
12000
Station (ft)

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00

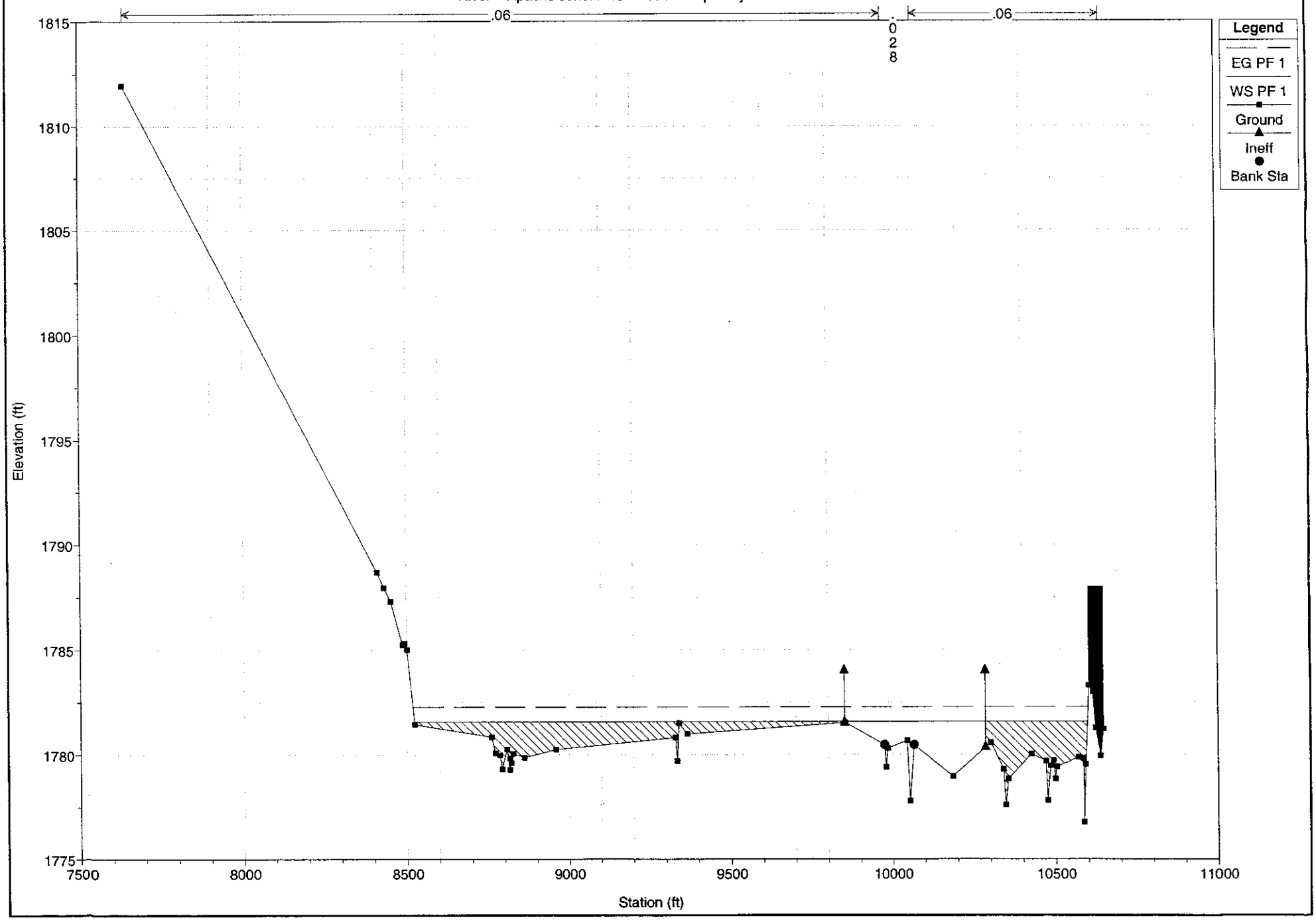
River = Apache Junct FRS Reach = Spillway RS = 19.735

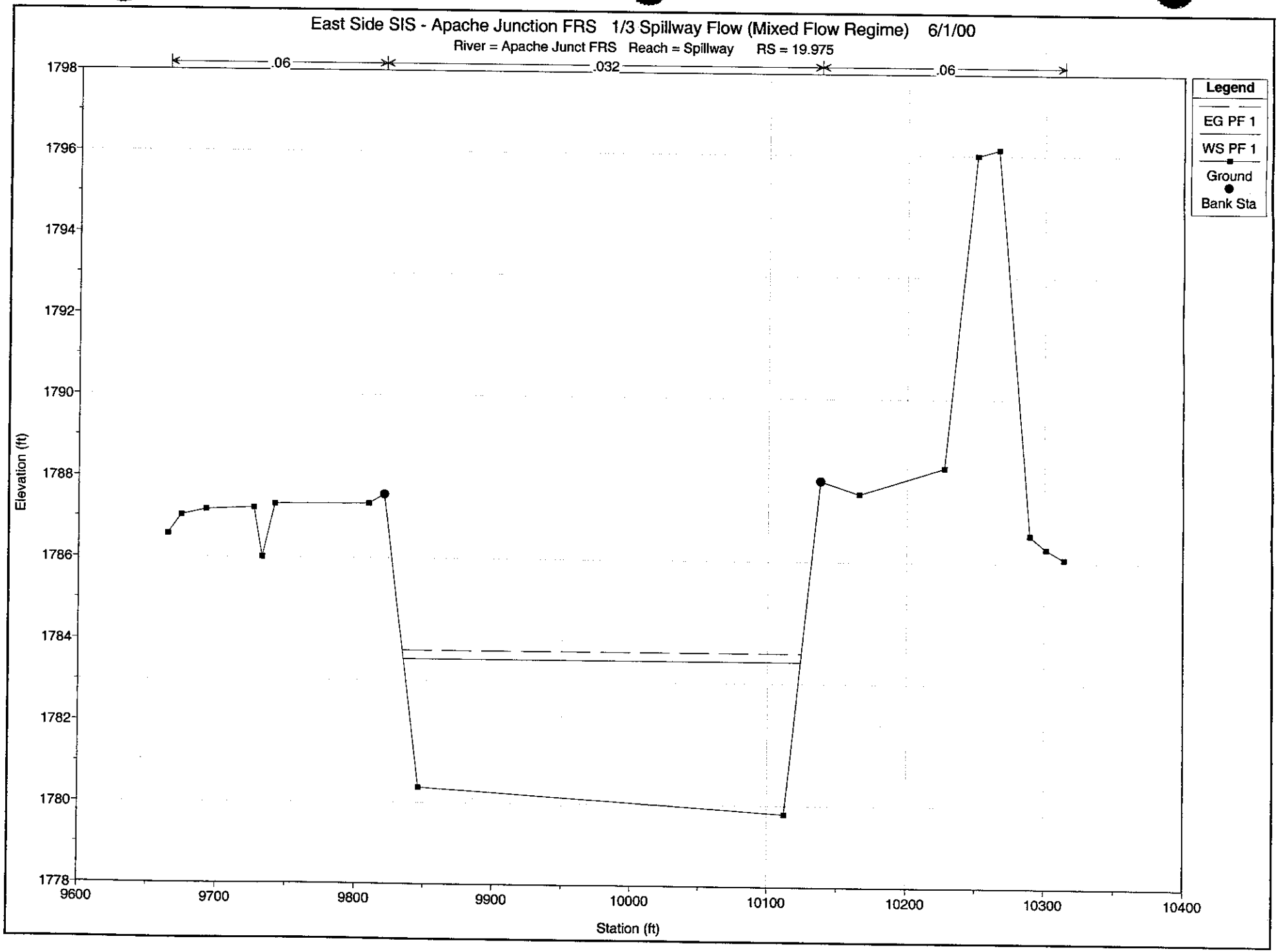


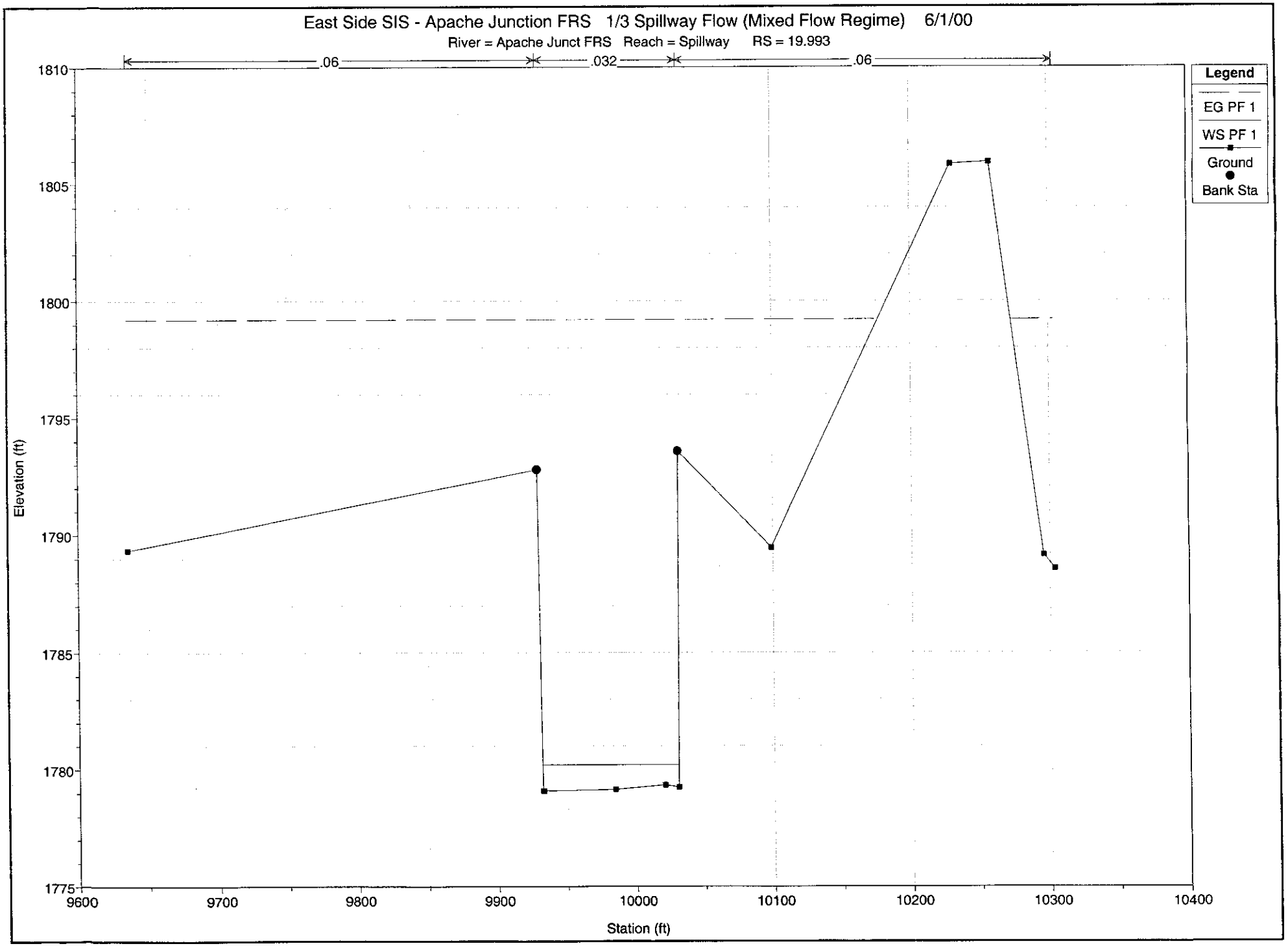

East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.812
.09
.06
.028
.06
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1777
1776
1775
1774
1773
1772
1771
1770
6000
7000
8000
9000
10000
11000
Station (ft)

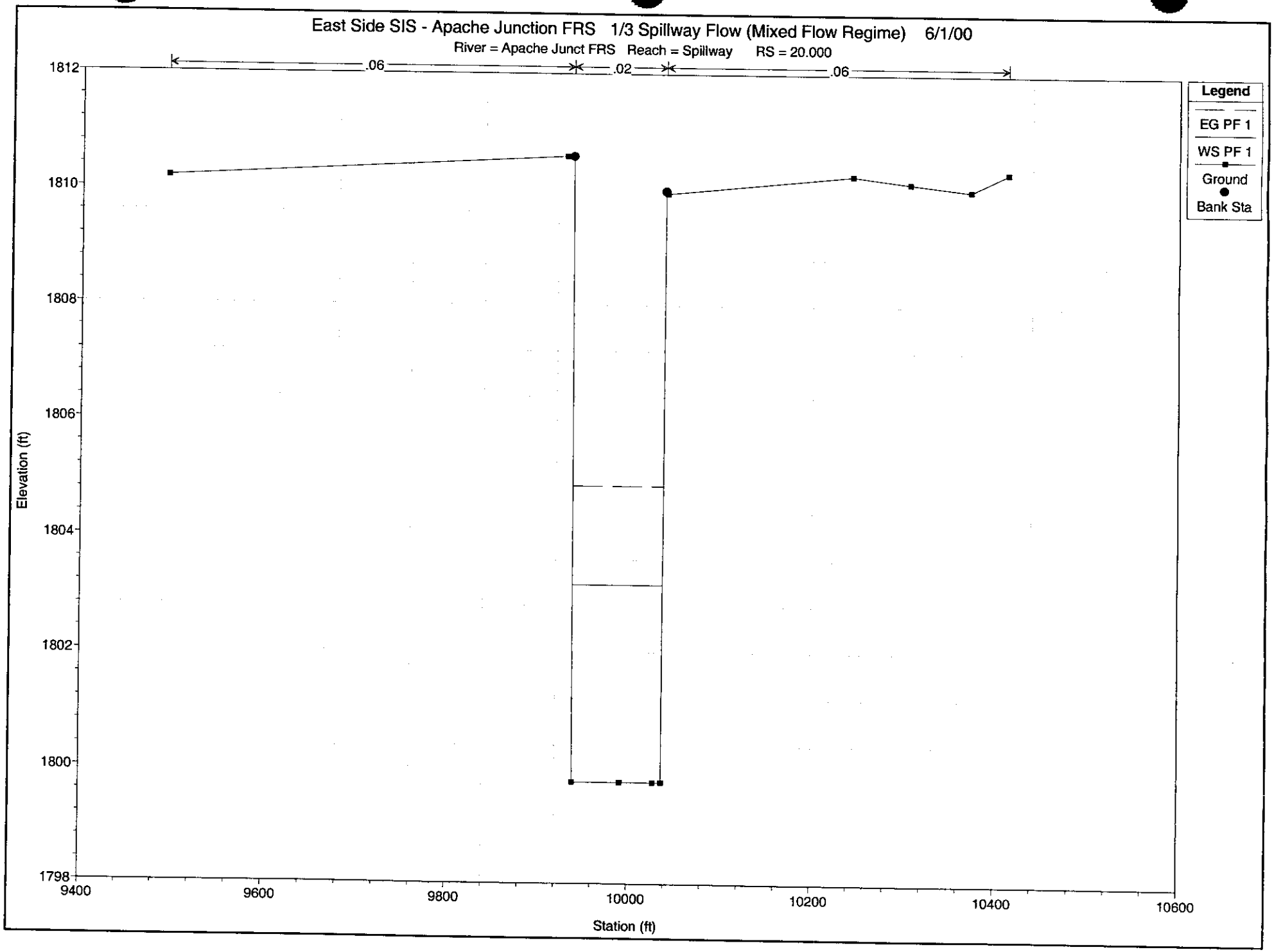
East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00

River = Apache Junct FRS Reach = Spillway RS = 19.896




East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.975
.06
.032
.06
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1798
1796
1794
1792
1790
1788
1786
1784
1782
1780
1778
9600
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 19.993
.06
.032
.06
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1810
1805
1800
1795
1790
1785
1780
1775
9600
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)


East Side SIS - Apache Junction FRS 1/3 Spillway Flow (Mixed Flow Regime) 6/1/00
River = Apache Junct FRS Reach = Spillway RS = 20.000
.06
.02
.06
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
1812
1810
1808
1806
1804
1802
1800
1798
9400
9600
9800
10000
10200
10400
10600
Station (ft)