PRELIMINARY

DRAINAGE REPORT
FOR
HOUGHTON ROAD,
TANQUE VERDE ROAD TO SPEEDWAY BOULEVARD

SUBMITTED TO:

CITY OF TUCSON DEPARTMENT OF TRANSPORTATION
201 N STONE AVE
TUCSON, AZ 85701

COT JOB NO. SR1C
COT PLAN NO. I-2007-019

SUBMITTED BY:

PB AMERICAS
177 N. CHURCH AVE, STE 500
TUCSON, AZ 85701
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Registered Professional Engineer (Civil)
CERTIFICATE NO. 37844
GREGORY ALLEN BAMBAUER
Date Signed 8/27/10
ARIZONA U.S.A.

Expires 9/30/2011

TABLE OF CONTENTS **Page No.**

1.0 INTRODUCTION 1
- 1.1 Project Description 1
- 1.2 Key Points of Interest 3
- 1.3 Scope of Work 5
- 1.4 Basis of Survey Control 5
- 1.5 Design Criteria 6

2.0 HYDROLOGIC ANALYSIS 7
- 2.1 General 7
- 2.2 TSMS Hydrologic Data 7
- 2.3 Offsite Hydrologic Analyses 9

3.0 HYDRAULIC ANALYSIS 14
- 3.1 General 14
- 3.2 Existing Condition 14
- 3.3 Proposed Condition 25

4.0 MAJOR WASHES 36
- 4.1 General 36
- 4.2 Agua Caliente Wash 36
- 4.3 Tanque Verde Creek 41
- 4.4 Scour Analysis 45

5.0 SUMMARY & CONCLUSIONS 47
- 5.1 On-Site Drainage 47
- 5.2 Off-Site Drainage 47

6.0 REFERENCES 50

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FIGURES **Page No.**

Figure 1 Location Map 2
Figure 2 TSMS Node Overview 8
Figure 3 Existing Condition Offsite Hydrologic Map 10
Figure 4 Proposed Condition Offsite Hydrologic 12
Figure 5 TVB Existing Condition At Tanque Verde Rd. 15
Figure 6 TV A Existing Condition At Tanque Verde Rd. 20
Figure 7 Channel Along West Side of Houghton Rd. Exisitng Condition 21
Figure 8 Vista Verde Estates Floodplain 23
Figure 9 Ponding Limit at CP A (Windstorm Drive) 24
Figure 10 Tanque Verse Road East (TV-B) 26
Figure 11 Tanque Verde Road (TV-A) 32
Figure 12 West Speedway Boulevard 33
Figure 13 Vista Verde Estates Floodplain Encroachment Evaluation 35
Figure 14 Agua Caliente Wash (Existing Condition) 39
Figure 15 Agua Caliente Wash (Proposed Condition) 40
Figure 16 Tanque Verde Creek (Existing Condition) 43
Figure 17 Tanque Verde Creek (Proposed Condition) 44

TABLES **Page No.**

Table 1: TSMS Node Information 7
Table 2: TV-B HECRAS Results Existing Condition (25-Yr w/100-Yr TW) 16
Table 3: TB-B HECRAS Results Existing Condition (100-Yr w/ 25-Yr TW) 17
Table 4: TV-B HECRAS Results Proposed Condition (25-Yr w/100-Yr TW) 27
Table 5: TV-B HECRAS Results Proposed Condition (100-Yr w/25-Yr TW) 28
Table 6: CP-C HECRAS Results Proposed Condition (10-Yr w/100-Yr TW) 30
Table 7: CP-C HECRAS Results Proposed Condition (100-Yr w/10-Yr TW) 31
Table 8: Agua Caliente Wash HECRAS Results (100-Yr Event) 38
Table 9: Tanque Verde Creek HECRAS Results (100-Yr Event) 42
Table 10: Scour Analysis Results 46
Table 11: Summary of Drainage Improvements 49

APPENDICES

A. HYDROLOGY
   1. TSMS
   2. Existing Condition
   3. Proposed Condition
B. EXISITING CONDITION HYDRAULIC ANALYSIS
   1. Tanque Verde Road Structures
   2. Speedway Boulevard Structures
   3. Vista Verde Estates
   4. Windstorm Drive
C. PROPOSED CONDITION HYDRAULIC ANALYSIS
   1. Tanque Verde Road Structures
   2. Speedway Boulevard Structures
   3. Vista Verde Estates
   4. Windstorm Drive
D. AGUA CALIENTE WASH
   1. Existing Condition
   2. Proposed Condition
E. TANQUE VERDE CREEK
   1. Existing Condition
   2. Proposed Condition
F. SCOUR ANALYSIS
   1. General

1.0

INTRODUCTION

1.1 Project Description

Houghton Road is located on the east side of Tucson, Arizona and extends from Snyder Road within the Catalina Mountain foothills to the south approximately 26 miles to the Santa Rita Mountain foothills just south of Sahuarita Road. Houghton Road is a major thoroughfare for east Tucson which provides I-10 traffic access to the east and northeast portions of Tucson. This project is the northern most project included in the "Houghton Road – Tanque Verde to Interstate 10" corridor projects.

This project consists of preparing a conceptual cross drainage design to be included in a Design Concept Report for approximately a 1½ mile segment of Houghton Road, from Tanque Verde Road to 5th Street. The Houghton Road Corridor is located on the section line located along the division of Sections 14 and 13, Township 15 South, Range 14 East of the Gila and Salt River Meridian, within southeast Tucson, Arizona. Figure 1 provides a schematic layout showing the project limits. This portion of Houghton Road will be upgraded from an uncurbed 2 & 3 lane roadway to a 4 lane divided between Tanque Verde Road and Speedway Boulevard, and a 6 lane divided roadway with a 20' median from Speedway Boulevard to 5th Street with 6 inch curbs and two 6 foot bicycle lanes. As a result, both onsite (pavement) and offsite (cross-drainage) drainage facilities will be required to mitigate runoff hazards within the project limits. However, not all of the onsite will be evaluated in this report. The pavement drainage will be evaluated in more detail during the design segment of this project. A conceptual design of the onsite pavement drainage system was approximated based on experience using a standard inlet spacing and approximate storm drain size based on the number of inlets contributing to the segment of storm drain. The onsite concept design is addressed in Section 3.3 of the Report.

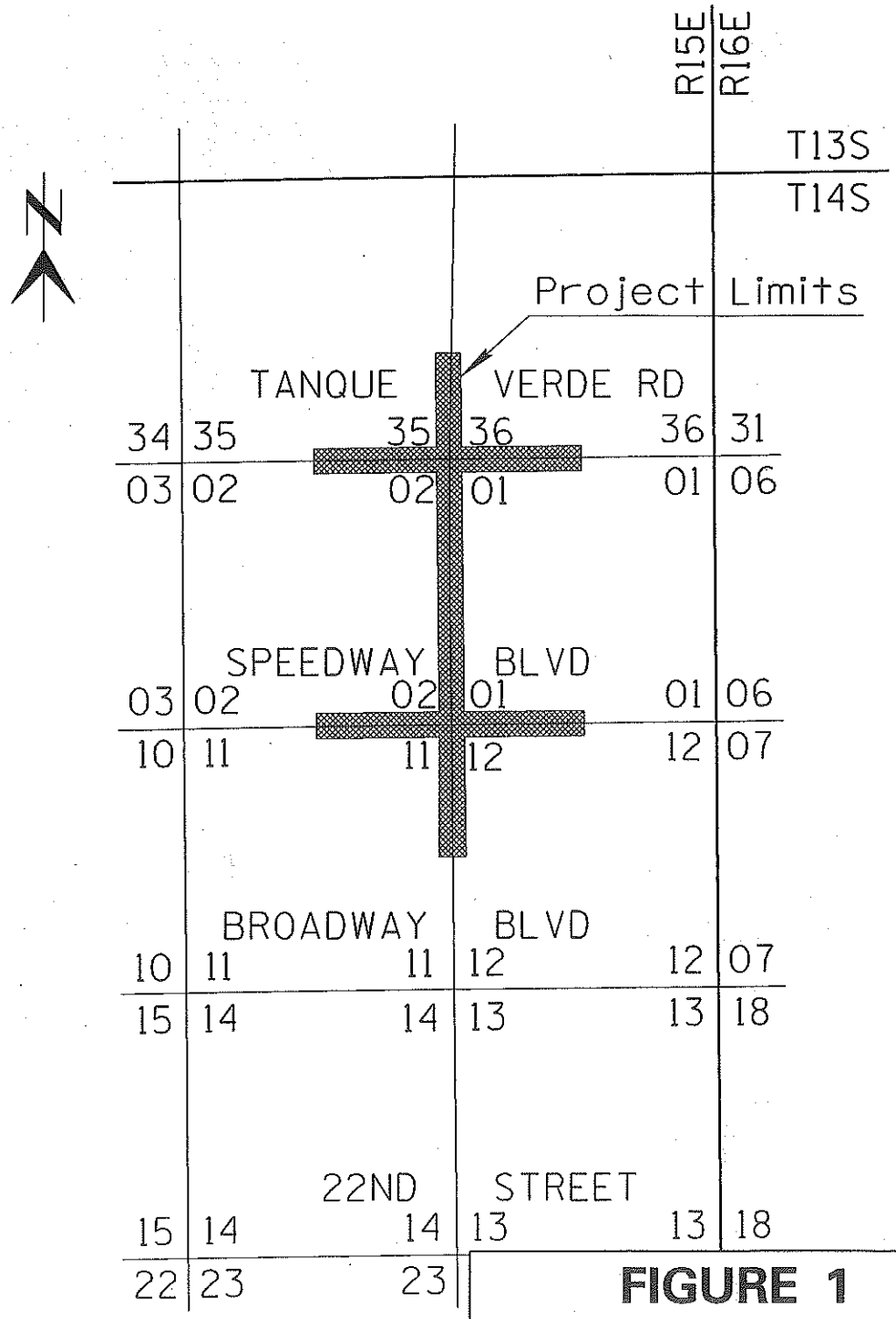


FIGURE 1

HOUGHTON ROAD
TANQUE VERDE RD TO SPEEDWAY BLVD
PROJECT LOCATION & LIMITS

1.2 Key Points of Interest

Most of the drainage patterns throughout the project are typical in nature. The runoff travels from the southeast towards Speedway Boulevard. Once this runoff reaches Speedway Boulevard it generally runs along Houghton Road. Runoff north of Tanque Verde travels from the northeast to the intersection of Tanque Verde Road and Houghton Road. However, a few locations warrant further discussion.

TANQUE VERDE CREEK

Tanque Verde Creek is a FEMA regulated wash located just north of Speedway Boulevard in east Tucson. Houghton Road crosses the creek via an existing 1100 foot bridge which spans the majority of the floodplain. Under proposed condition, a second bridge will be added downstream of the existing bridge resulting in a 100-foot wider structure. The watercourse flows in a westerly direction through the Houghton Road Bridge. The Agua Caliente combines with the Tanque Verde Creek about 5250-ft downstream from Houghton Road.

The effective FEMA FIS model was obtained from the Pima County Regional Flood Control District (PCRFCD). The FEMA FIS model was done in NGVD 29 and the new topography that was generated for this analysis was done in NAVD 88. The model was used as the effective existing condition, after the model was vertically adjusted to NAVD 88 and the cross sections within the area of the new topography were replaced with the updated topography.

AGUA CALIENTE WASH

Agua Caliente Wash is located just south of the intersection of Houghton Road and Tanque Verde Road. The wash crosses Houghton Road under an existing 300-foot bridge. Under proposed condition, a second bridge will be added downstream of the existing bridge resulting in a 100-foot wider structure. The Agua Caliente Wash will be affected by the widening of the Houghton Road Bridge. Furthermore, the widening of the road will also affect the pipe culverts at the Tanque Verde and Houghton intersections.

The Agua Caliente Existing Condition was based on a non-approved Letter of Map Revision (LOMR) model that has not yet been submitted to FEMA, due to missing geotechnical data. This LOMR model is a HEC-RAS model. As with the Tanque Verde Model, this HEC-RAS model was updated using the new topography.

TANQUE VERDE ROAD

There are two drainage structures at Tanque Verde Road, one on either side of Houghton Road. There currently is a box culvert east of Houghton Road and a pipe culvert to the west. These structures are impacted by the widening of Tanque Verde Road. The structures will be extended on each side to accommodate the widening. The two Tanque Verde Road structures are impacted by the Agua Caliente Wash. The wash water surface will create tailwater conditions for each structure. Additional evaluation will be necessary to properly evaluate the impact from the roadway widening. HEC-RAS model dictates how the wash water surface is going to impact the tailwater for both of the structures.

SPEEDWAY BOULEVARD

Currently, the two culverts east and west of Houghton Road convey flow from the South to the Tanque Verde Creek. The culvert east of Houghton Road conveys flow via a roadside ditch. The box culvert to the west uses a concrete channel to direct the runoff to grated inlets. Since the proposed curbed roadway will prevent the water from leaving the road, the flow that currently runs off will now captured using storm drain, and carried to a proposed trunk line that will replace the existing channel of the west side of Houghton Road. The existing structures will continue to convey flow but minor improvements will be necessary to accommodate for the Proposed Condition.

WINDSTORM DRIVE

Runoff that reaches Windstorm Drive is currently conveyed through a pipe culvert under the road. Past the culvert, the flow continues north until it exits the Vista Verde Estates Development, and then it is directed northeast and away from Houghton Road. The wider footprint of the Proposed Houghton Road will deem the pipe culvert unusable. The flow that currently reaches the pipe culvert will be captured using an area inlet, from where it will direct runoff to the proposed storm drain.

VISTA VERDE ESTATES

Since the aerial mapping for this project was created in December of 2008, Vista Verde Estates Development has been begun construction on the 10-acre residential site. The residential project is located about 650-feet south of Speedway Blvd. along the east side of Houghton Road. Analyses have shown that runoff entering and exiting this site travels from south to north parallel to Houghton Road. There are culverts in the vicinity of the roadway entering the development. The proposed improvements for Houghton Road will directly impact the culverts at the entrance but will have little to no impact any other drainage facilities for the Vista Verde Estates.

1.3 Scope of Work

The purpose of this report is to document the analyses and conceptual designs for drainage considerations and calculations made in conjunction with the conceptual design of this roadway project. The drainage design proposes to accommodate both onsite and offsite runoff, and is described in qualitative terms within the body of this report. Only offsite drainage analyses are evaluated for this preliminary drainage report. Onsite (Pavement) drainage analyses will be addressed during the design segment(s) of the project. All applicable offsite hydrologic and hydraulic computations are included in the appendices.

More specifically, the scope of work for the drainage portion of this project is as follows:

A. To determine the quantity of runoff affecting this project based on future projections for growth in this area. The methods used are:

   1. The City of Tucson Stormwater Management Study (TSMS), Reference 1, which generates the currently accepted value for the 100-year peak flows, as well as the 10-year event peak flows. Additional information regarding the TSMS is included in the hydrologic analysis portion of this report.

   2. The City of Tucson Method for Estimating Flood Peaks and Flood Hydrographs, Reference 2, herein referred to as the City of Tucson Method. This hydrologic analysis was used to generate both offsite and onsite peak discharge rates. The concept of Balanced Watersheds provides that the current "existing" condition will be the same as those in the future.

1.4 Basis of Survey Control

The project basis of survey for location and elevation parameters is as follows:

BASIS OF BEARING

The Basis of Bearing is a straight line along Houghton Road between a found BCSM in casing at 22nd Street and a found BCSM in casing at 29th Street. Said Bearing being South 00°39'51" East.

BASIS OF ELEVATION

COT BM 339E Field Book 1989E1, Page 29 "X" on wheel chair ramp. Said Elevation = 2750.78. Also COT BM 895E, Field Book 1989E2, Page 6. RR Spike "14 & 54". Said Elevation = 2841.70. All elevations pertaining to this project are based on NAVD88 datum with the exception of the Tanque Verde Creek and Agua Caliente Wash analyses which have an original datum of NGVD29. More detailed description is included in the Tanque Verde and Agua Caliente sections of this report.

1.5 Design Criteria

In general, the drainage improvements designed and documented in this report shall meet the following criteria:

OFFSITE/CROSS DRAINAGE

1. Cross Drainage facilities shall be designed such that the 100-Year event will be conveyed under the roadway providing for "All Weather Access". The City of Tucson Drainage Manual identifies "All Weather Access" as flow being conveyed through a culvert or no deeper than one-foot over the roadway, Reference 1. However, due to the arterial classification of this roadway with projected high traffic volume and its urban configuration (curbs, raised median and pedestrian facilities), the cross drainage culverts will be designed to convey the entire 100-Year event under the roadway.
2. Proposed water surface elevations for regulatory washes shall not increase more than 0.1-feet in accordance with Section 26-5.2 of the City of Tucson Floodplain and Erosion Hazard Area Regulations. A possible solution to an increased water surface elevation, is to purchase an easement to surround the limits of the increased water surface elevation.
3. Culverts shall be designed such that the structure will convey the sediment load of the upstream segment. Sediment carrying capacity will be analyzed during the design stage of this project in accordance with Section 11.5, Reference 2.
4. ERZ/WASH Ordinance washes shall be designed in accordance with current regulations, Chapter 23 and Chapter 29 of the City of Tucson Code, with the exception of the structure height requirement. This project is in the process of obtaining a variance for structure height. It is expected that some areas will not meet the required structure height due to roadway profile limitations. Each area will be evaluated to determine if the structure height can meet the requirements.
5. Culverts shall have a minimum height requirement of 4-feet for reinforced concrete boxes and a minimum diameter of 24-inches for pipe culverts in accordance with Section 11.2, Reference 2.
6. Culvert material shall be reinforced concrete unless extending an existing culvert In accordance with section 10.3, Reference 2. Culvert extensions shall match the existing culvert material given that the existing culvert is in good condition. Each non concrete culvert will be evaluated to determine its condition. If the existing culvert is found to be in poor condition, it will be replaced with reinforced concrete.

2.0

HYDROLOGIC ANALYSIS

2.1 General

Houghton Road is a north-south arterial roadway located in southeastern Tucson, Arizona. In general, runoff typically flows from south of Speedway Blvd., north into the Tanque Verde Creek. North of Tanque Verde Road, flow runs down to the Houghton Road culvert and then into Agua Caliente. Existing facilities include culverts and two bridges.

Two approaches are applied to the hydrologic analyses for this project. The first uses Tucson Stormwater Management Study (TSMS) flow rates obtained from the City of Tucson. The second approach evaluates local watersheds for runoff discharge rates using either previous drainage reports and/or the City of Tucson's Flood Peak Estimator to establish both existing and proposed condition flow rates. This project used one of these two methods except for the two major washes. Since the two major washes are FEMA regulated watercourses, the FEMA regulated flows were used.

2.2 TSMS Hydrologic Data

There are a number of TSMS node locations that are within the limits of this project. Figure 2 provides an aerial view identifying the location of each TSMS node that is within the limits of our projects. No hydrologic computations are included for the TSMS nodes, shown on Figure 2. The City of Tucson's Storm Water Group conducted all verification and hydrologic computations regarding the TSMS nodes associated with this study. Table 1, below, provides all TSMS flow rates, and node descriptions. The column listed as "adjusted 100-Year discharge" in the table below show the estimated increase in discharge that is expected of future development, recommended by the City of Tucson Stormwater Group. For the other nodes, the same TSMS flow rates are adequate to use for existing and proposed condition. Emails documenting the recommendations and the coordination with the City are included in Appendix A.

Table 1: TSMS Node Information

TSMS NODE	Description	10-YEAR DISCHARGE (ft^3/sec)	100- YEAR DISCHARGE (ft^3/sec)	Adjusted 100- YEAR DISCHARGE (ft^3/sec)
MG-N0170 (Este)	Coronado Ridge Wash NW of Houghton Road Crossing, 500-ft Upstream of 5th Street.	338	951	N/A
MG-N0175 (Este)	At Packard street	N/A	892	N/A
MC- N0100 (Reyes)	Flow through Windstorm Development, East of Houghton, 600-ft Upstream of Speedway	146	370	407
MC- N0090 (Reyes)	Flow that crosses Speedway, 650-ft Upstream of Speedway	192	480	N/A
MC- N0120 (Reyes)	Flow that crosses at Speedway	616	1584	1742

The TSMS Concentration points near this project are not impacted by the proposed improvements for Houghton Road. As a result, the TSMS flow rates were not required for this study. Figure 2 and the TSMS flow rate table are provided for informational purposes only.

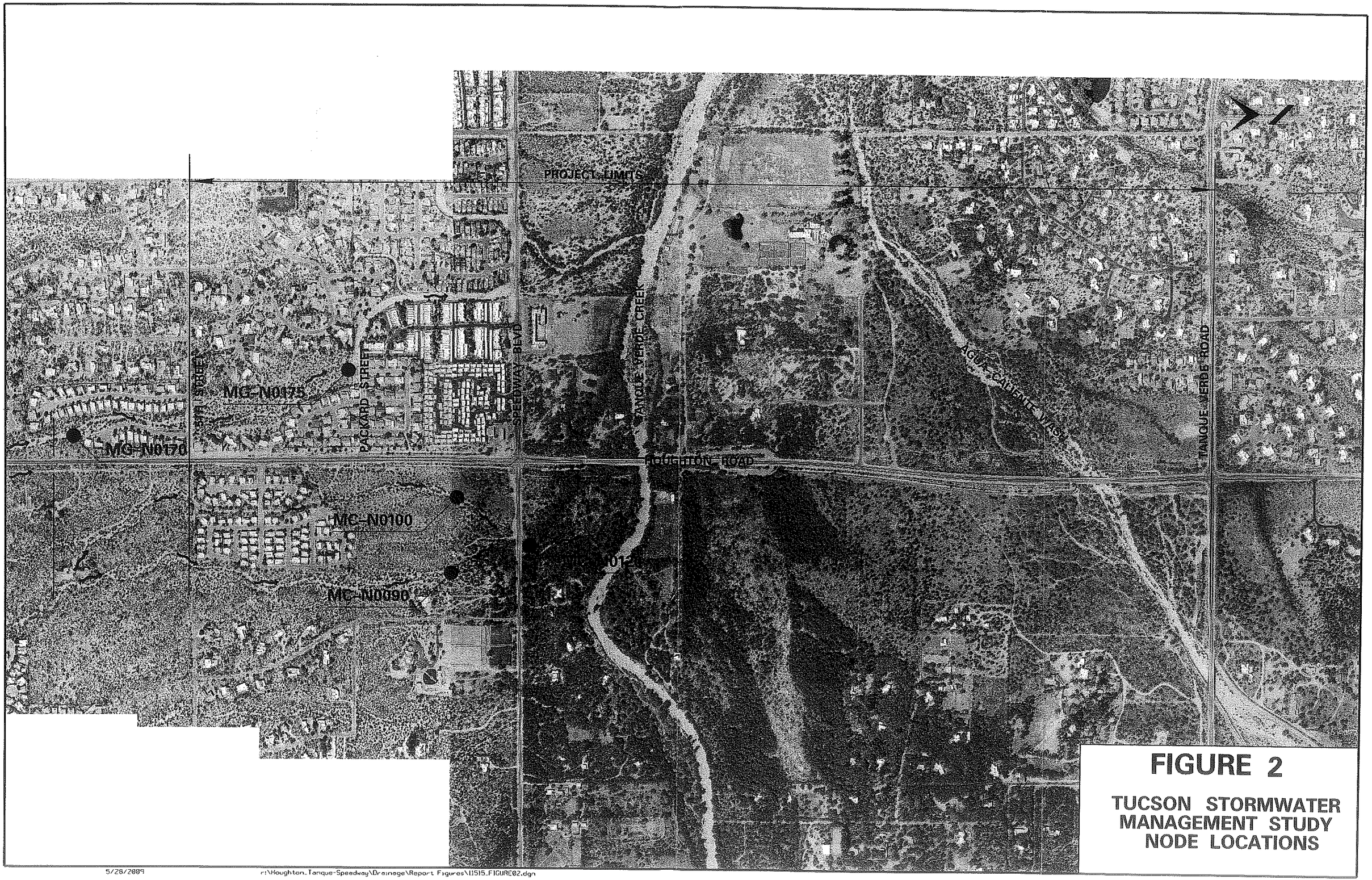


FIGURE 2

TUCSON STORMWATER MANAGEMENT STUDY NODE LOCATIONS

5/28/2009 r:\Houghton_Tanque-Speedway\Drainage\Report Figures\11515_FIGURE02.dgn

2.3 Offsite Hydrologic Analyses

EXISTING CONDITION

Hydrologic analyses were used to compute flow rates for offsite watersheds contributing runoff to the project. Delineation of watershed boundaries is necessary in order to conduct the hydrologic analysis, discharge calculation. The mapping used in the analysis was the project aerial survey, flown specifically for this project (December 08), and 1998 2-foot contour mapping provided through the Pima Association of Governments (PAG). Aerial photographs from both sources were combined along with the topography for the analyses. Key concentration points were identified based on the existing and conceptual roadway layout.

Watersheds that have a number of logical concentration points either upstream or downstream in series typically occur when flow parallels Houghton Road. When this condition occurs; the procedure to compute flow rates is to use the Flood Peak Estimator for each concentration point (CP) in series. Typically, a downstream CP includes the upstream area and land use in addition to the longest flow-path length. No hydrologic routing was applied to this analysis. In most cases, some type of hydraulic structure is located at each CP. All hydrologic computations are included in Appendix A. Figure 3 provides an overview of the existing condition hydrology. Summary tables are provided on the figure showing flow rates for Existing Condition analysis.

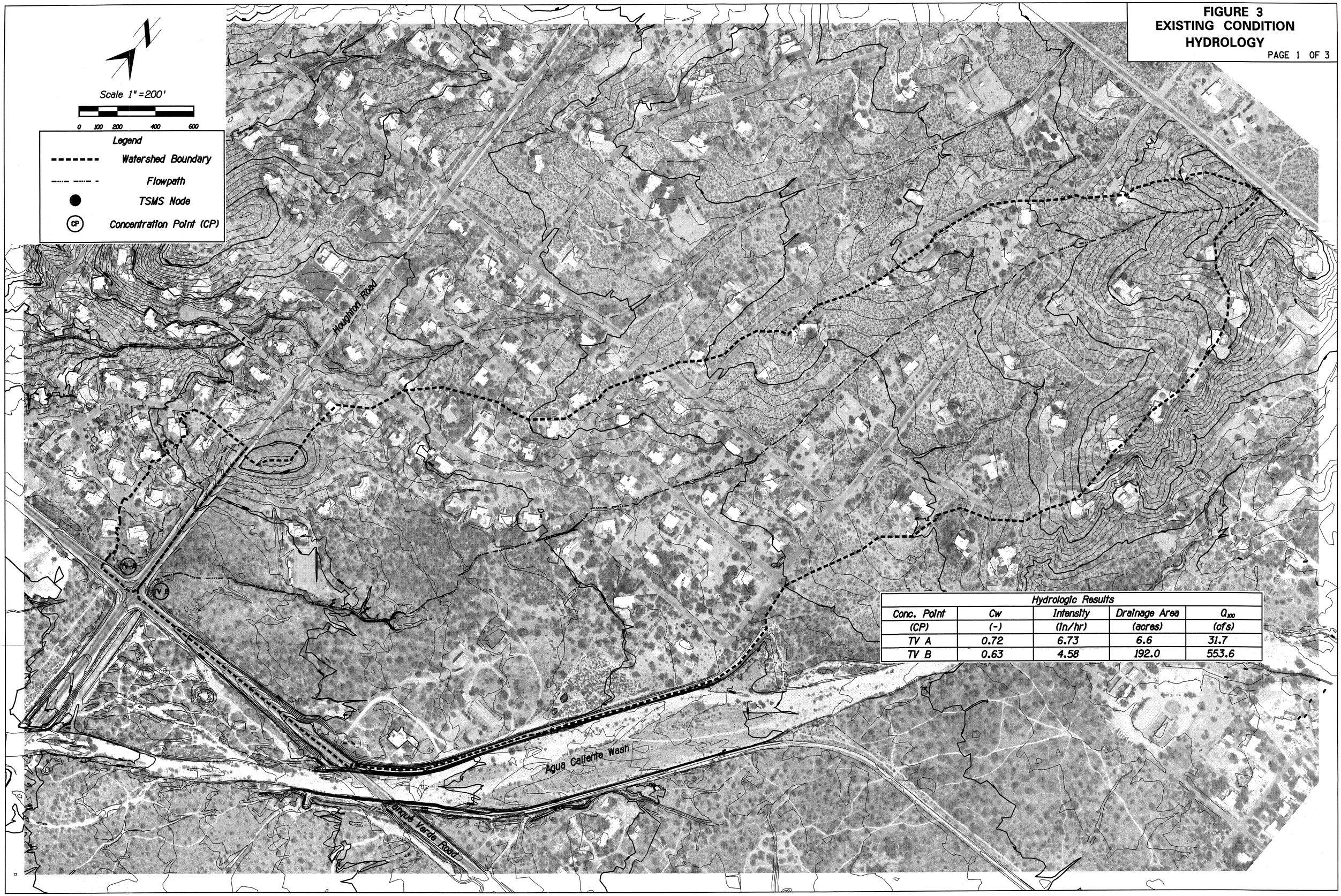
Even though no hydrologic analyses were conducted for Vista Verde Estates, extensive research was conducted in the form of reviewing of the approved drainage report for the development. Flow rates obtained from report are provided on Figure 3. Each discharge is identified within that project.

PROPOSED CONDITION

The majority of the offsite hydrologic computations can be used for both the existing and proposed condition analyses. However, some drainage areas paralleling roadways that will be widened and have a significant amount of runoff contributed by the roadway will need revised hydrologic computations for the proposed condition. In some cases areas that contributed flow to a certain CP will now flow to another. The new roadway will increase the impervious area of the watershed and result in increased flow rates, as well. A detailed explanation of each drainage area will be provided in Section 3. As stated in the existing condition, there was no hydrologic analysis performed for the Vista Verde Estates Development. Some of the existing drainage areas will be reduced in size due to the improvements to Houghton Road. These small areas will be captured within the proposed stormdrain system and will be analyzed, in detail, during the final design phase of the project.

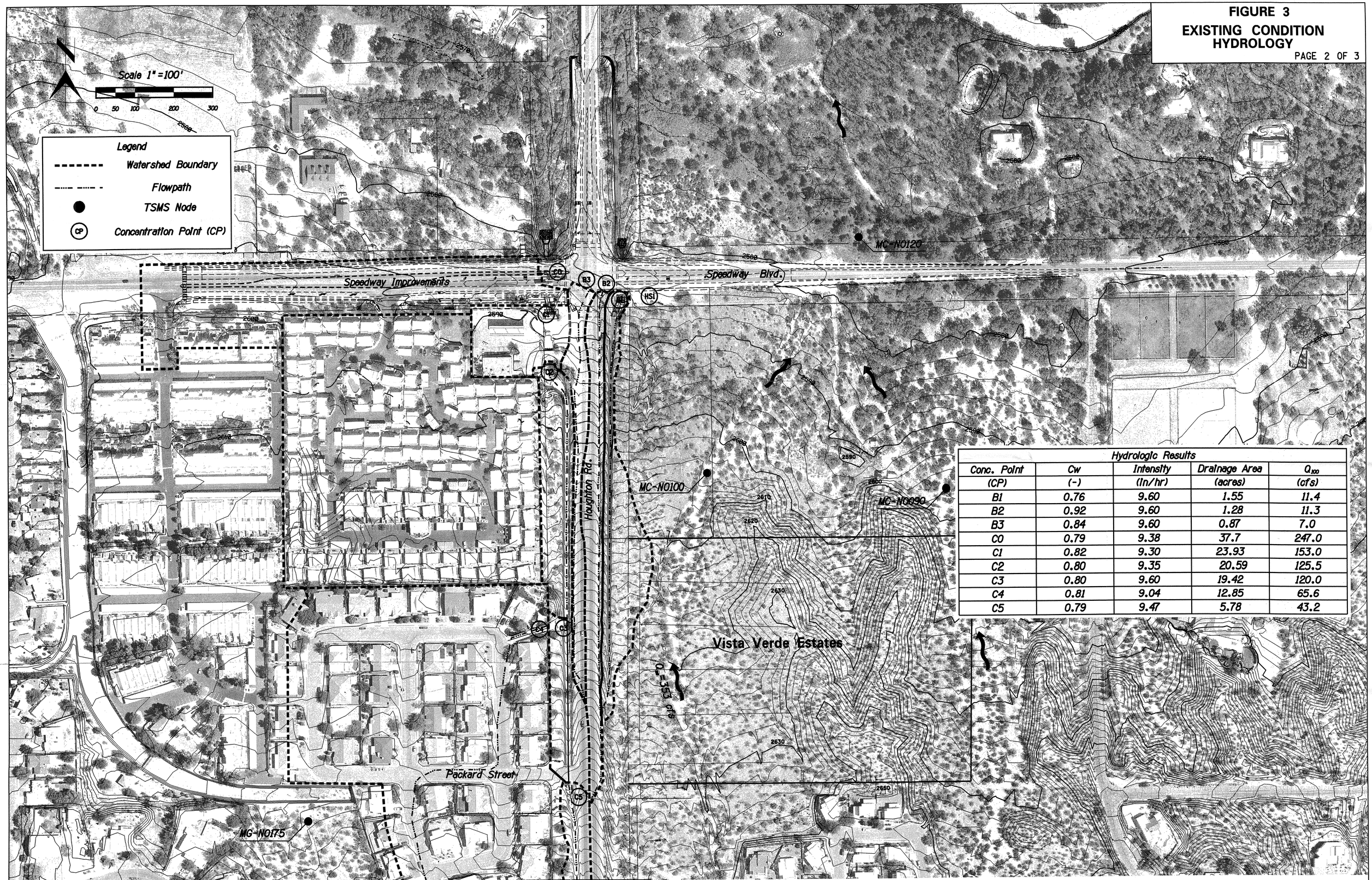
Figure 4 displays the proposed watersheds and the flow rates that will be used later in this report to size the different structures, and to decide how to manage the pavement drainage.

FIGURE 3
EXISTING CONDITION HYDROLOGY



Hydrologic Results				
Conc. Point	Cw	Intensity	Drainage Area	Q_{100}
(CP)	(-)	(In/hr)	(acres)	(cfs)
TV A	0.72	6.73	6.6	31.7
TV B	0.63	4.58	192.0	553.6

FIGURE 3
EXISTING CONDITION HYDROLOGY



Hydrologic Results				
Conc. Point	Cw	Intensity	Drainage Area	Q_{100}
(CP)	(-)	(in/hr)	(acres)	(cfs)
B1	0.76	9.60	1.55	11.4
B2	0.92	9.60	1.28	11.3
B3	0.84	9.60	0.87	7.0
C0	0.79	9.38	37.7	247.0
C1	0.82	9.30	23.93	153.0
C2	0.80	9.35	20.59	125.5
C3	0.80	9.60	19.42	120.0
C4	0.81	9.04	12.85	65.6
C5	0.79	9.47	5.78	43.2

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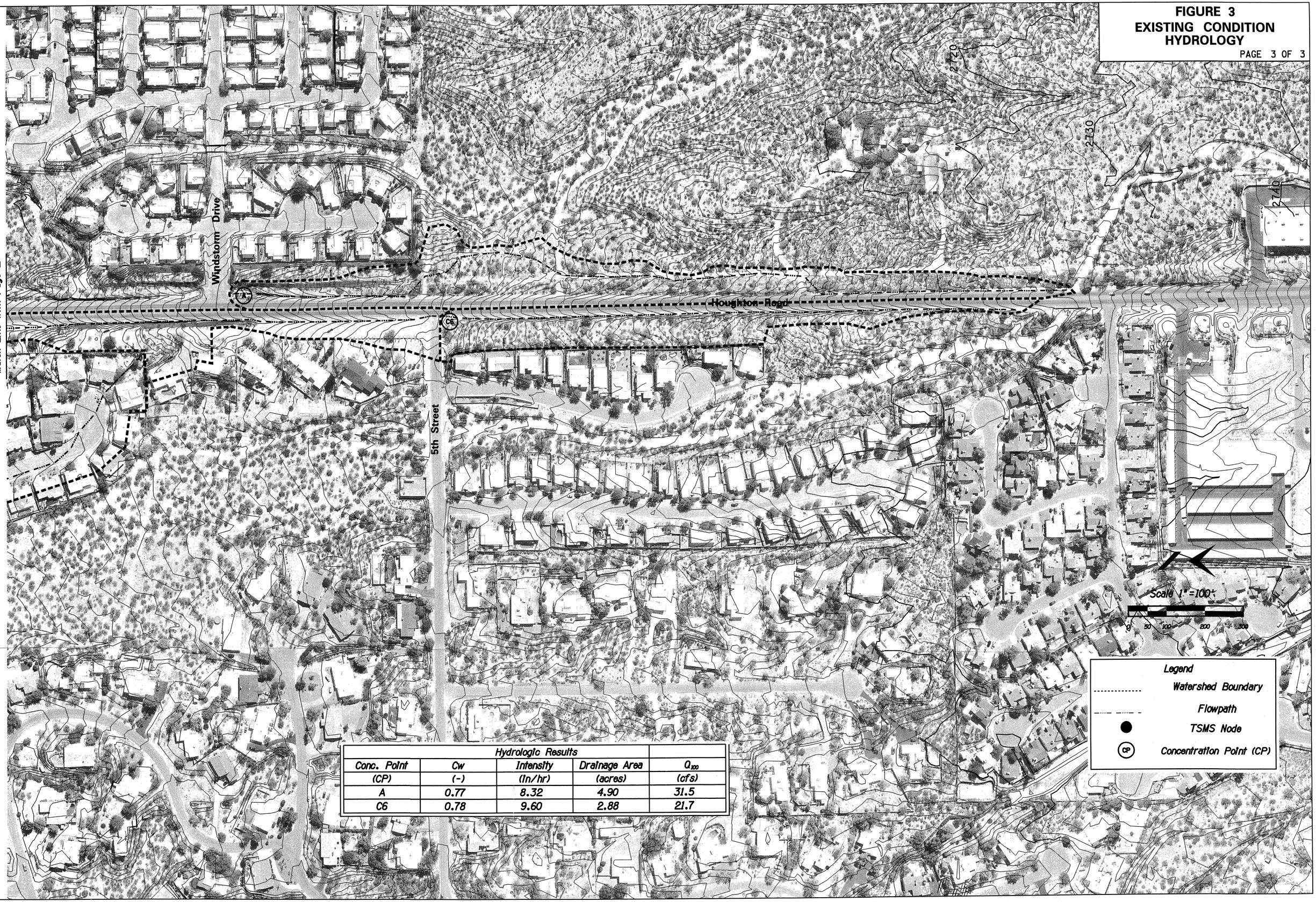
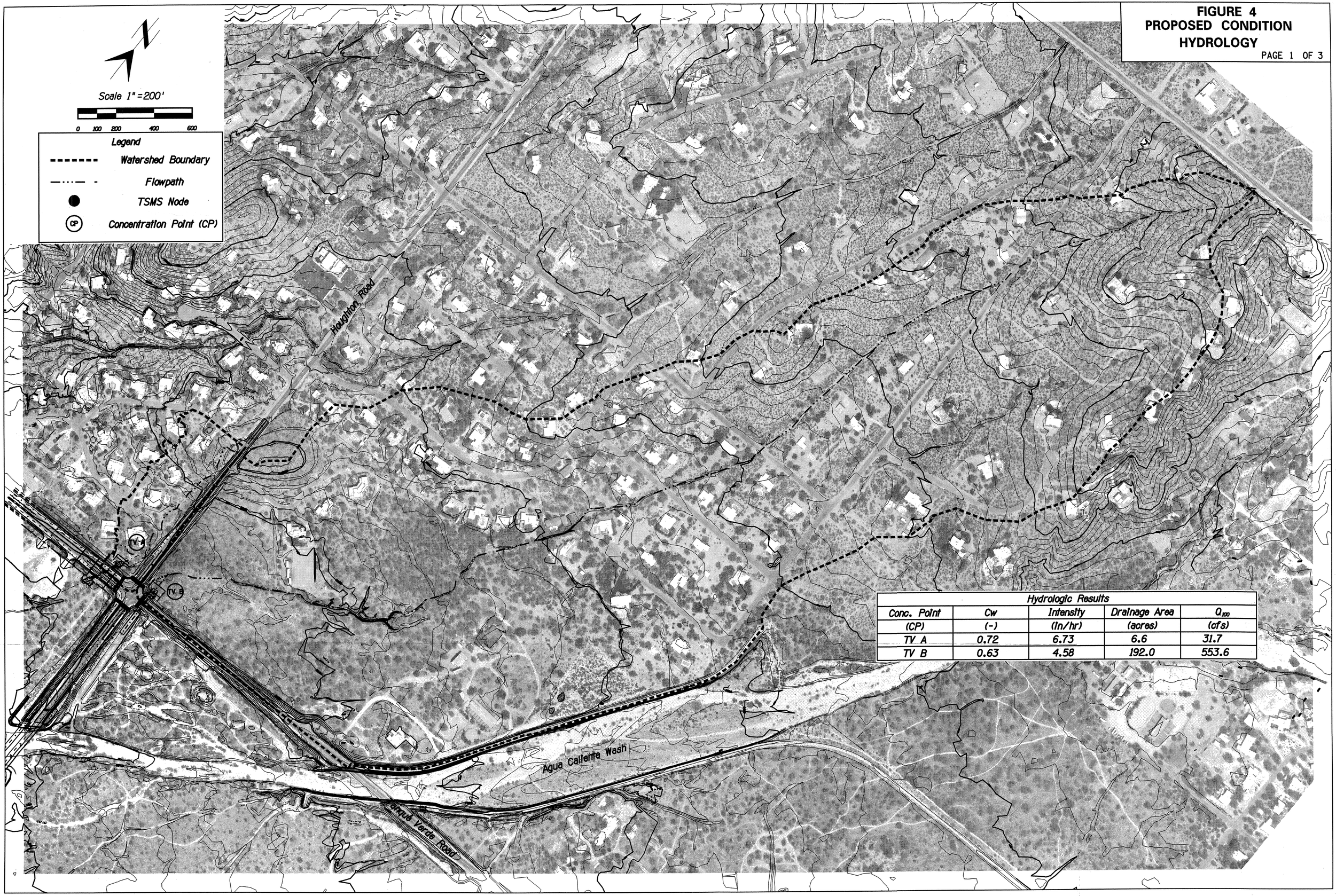
FIGURE 3
EXISTING CONDITION HYDROLOGY



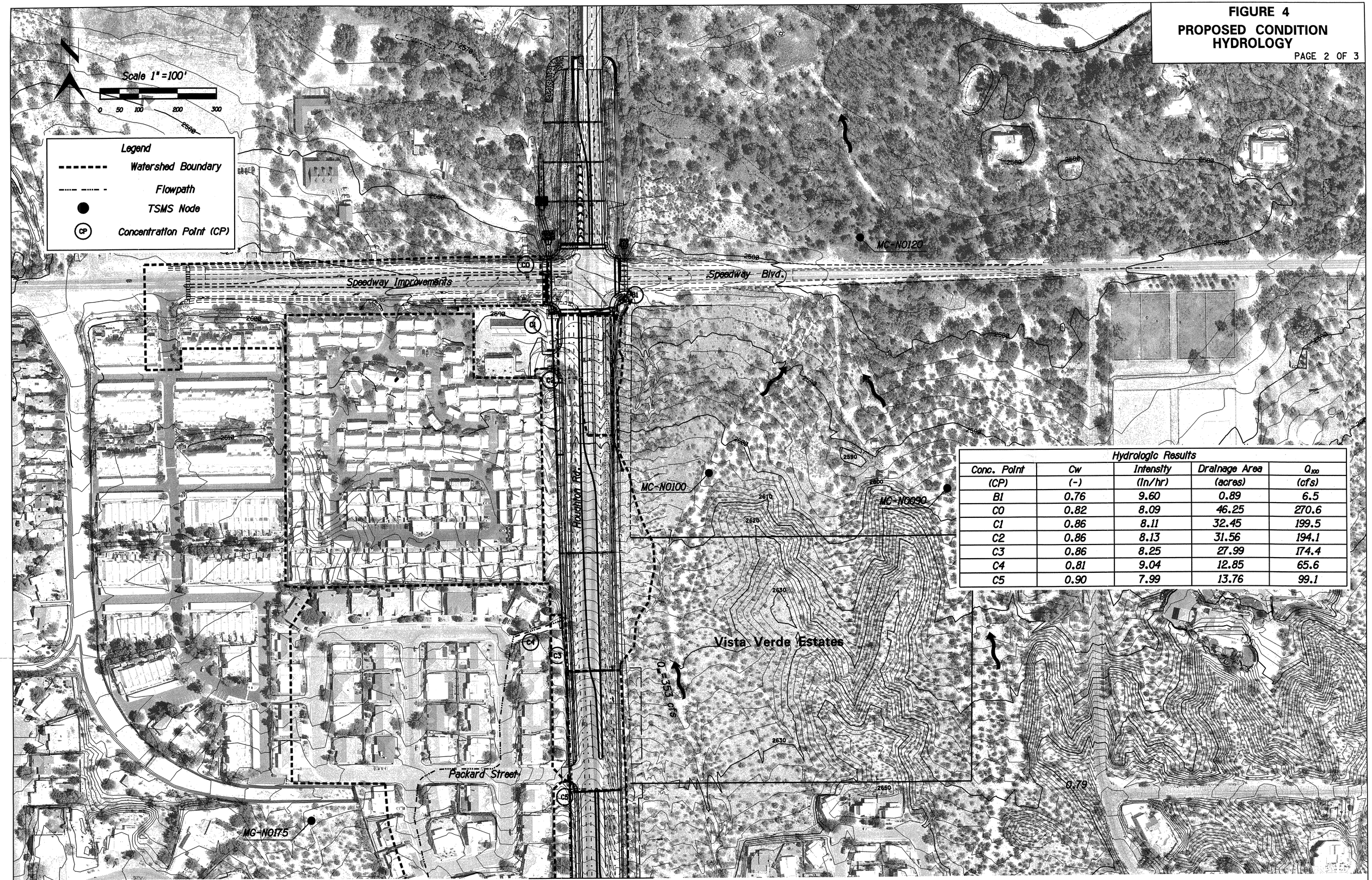
Hydrologic Results				
Conc. Point	Cw	Intensity	Drainage Area	Q_{100}
(CP)	(-)	(In/hr)	(acres)	(cfs)
A	0.77	8.32	4.90	31.5
C6	0.78	9.60	2.88	21.7

FIGURE 4
PROPOSED CONDITION HYDROLOGY



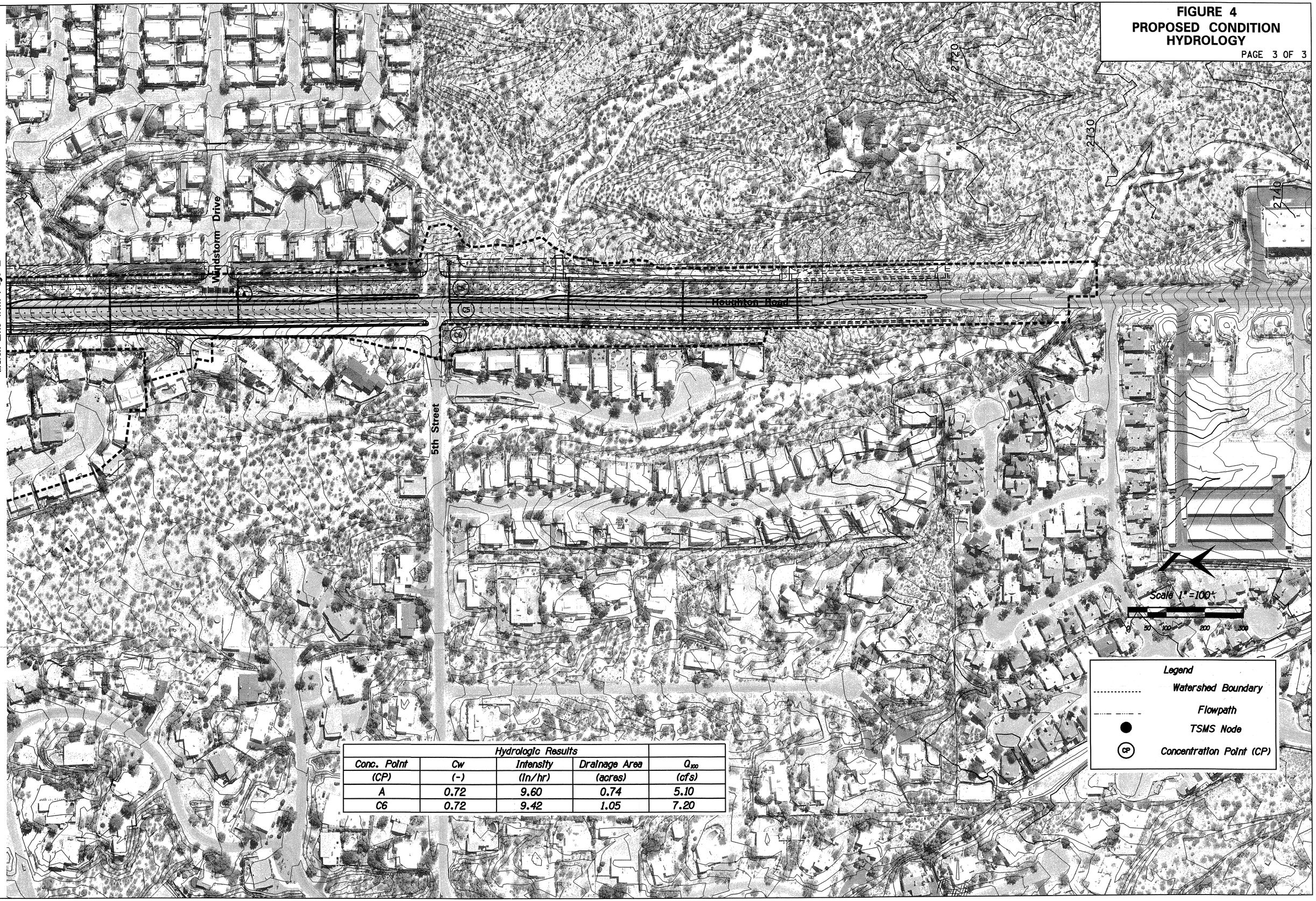
Hydrologic Results				
Conc. Point	Cw	Intensity	Drainage Area	Q_{100}
(CP)	(-)	(in/hr)	(acres)	(cfs)
TV A	0.72	6.73	6.6	31.7
TV B	0.63	4.58	192.0	553.6

FIGURE 4
PROPOSED CONDITION HYDROLOGY



Hydrologic Results				
Conc. Point	Cw	Intensity	Drainage Area	Q_{100}
(CP)	(-)	(In/hr)	(acres)	(cfs)
B1	0.76	9.60	0.89	6.5
C0	0.82	8.09	46.25	270.6
C1	0.86	8.11	32.45	199.5
C2	0.86	8.13	31.56	194.1
C3	0.86	8.25	27.99	174.4
C4	0.81	9.04	12.85	65.6
C5	0.90	7.99	13.76	99.1

FIGURE 4
PROPOSED CONDITION HYDROLOGY



Hydrologic Results				
Conc. Point	Cw	Intensity	Drainage Area	Q_{100}
(CP)	(-)	(in/hr)	(acres)	(cfs)
A	0.72	9.60	0.74	5.10
C6	0.72	9.42	1.05	7.20

3.0
HYDRAULIC ANALYSIS

3.1 General

Typical engineering methods are applied to determine the hydraulic response for both existing and proposed drainage facilities. The culverts were analyzed using either HEC-RAS or CulvertMaster. Swales and channels were evaluated using Manning's Equation and/or HEC-RAS. Channel and swale characteristics were matched to the table of typical Manning's roughness, "n", values in the City of Tucson Drainage Design Manual. These "n" values are applied to the existing and proposed geometry for each to determine the hydraulic characteristics for open channel flow. When modeling culverts and abrupt changes in channel alignment, a 1:1 contraction and 4:1 or 2:1 expansion rates are used for the computer models to describe the effective flow regions. Generally, channels with flow rates of 100-ft^3/sec or greater, a computer model is necessary to establish water surface elevations to account for backwater effects. In addition, some special circumstances can warrant split flow analysis. In this case computer modeling is necessary to evaluate the amount of flowing water leaving the channel. Even though, most of the hydraulic calculations were done using HEC-RAS, like in the case of Agua Caliente, Tanque Verde was modeled using HEC-2. HEC-2 was used to model the Tanque Verde Creek in order to maintain consistency with the existing FIS for potential future FEMA submittals.

Frequencies for coincidental occurrence (Reference 3) were applied to the four structures described in this section of the report in order to determine the appropriate flowrates. This method was needed due to the relationship between the main washes and the drainage structures on Tanque Verde Road and Speedway Boulevard. The two structures on the Speedway Boulevard and the two on Tanque Verde Road outlet into the major washes, therefore the main washes dictate the tailwater at each structure. The concept behind the frequency for coincidental occurrence focuses on the probability of the peak discharges for tributary and main wash occurring simultaneously. As described in HEC-22, Reference 3, contributing areas for both the tributary and the receiving areas are compared and the appropriate frequencies are read from a table. Flowrates, which were provided by the Flood Insurance Study (Reference 4) for the main washes, from each frequency are used in the hydraulic analysis to determine the worst case scenario. Table and calculations of the Frequencies for coincidental occurrence are in Appendix B-1.

3.2 Existing Condition

<u>EAST OF TANQUE VERDE RD AND HOUGHTON RD INTERSECTION (CP-TV B)</u>

The existing drainage structure west of Houghton Road on Tanque Verde Road is a 3-cell 8'x4' box culvert. HEC-RAS was used to establish the existing condition for this culvert. Since the Agua Caliente Wash acts as a tail water control for this channel, it was necessary to establish the correct starting condition. Based on contributing areas and coincidental occurrence, it was determined that a 25-year event and 100-year event should be modeled to establish the tail water for this structure. Two hydraulic models were created for the existing condition analysis, 25-year flow rate with a 100-year tail water and vice-versa. Both models were compared and the condition creating the highest upstream water surface was used to establish the existing condition, which was a result of the 100-Yr culvert and the 25-Yr Agua Caliente. Results are shown in Figure 5 and Tables 2 and 3; both HEC-RAS models are included in Appendix B-1.

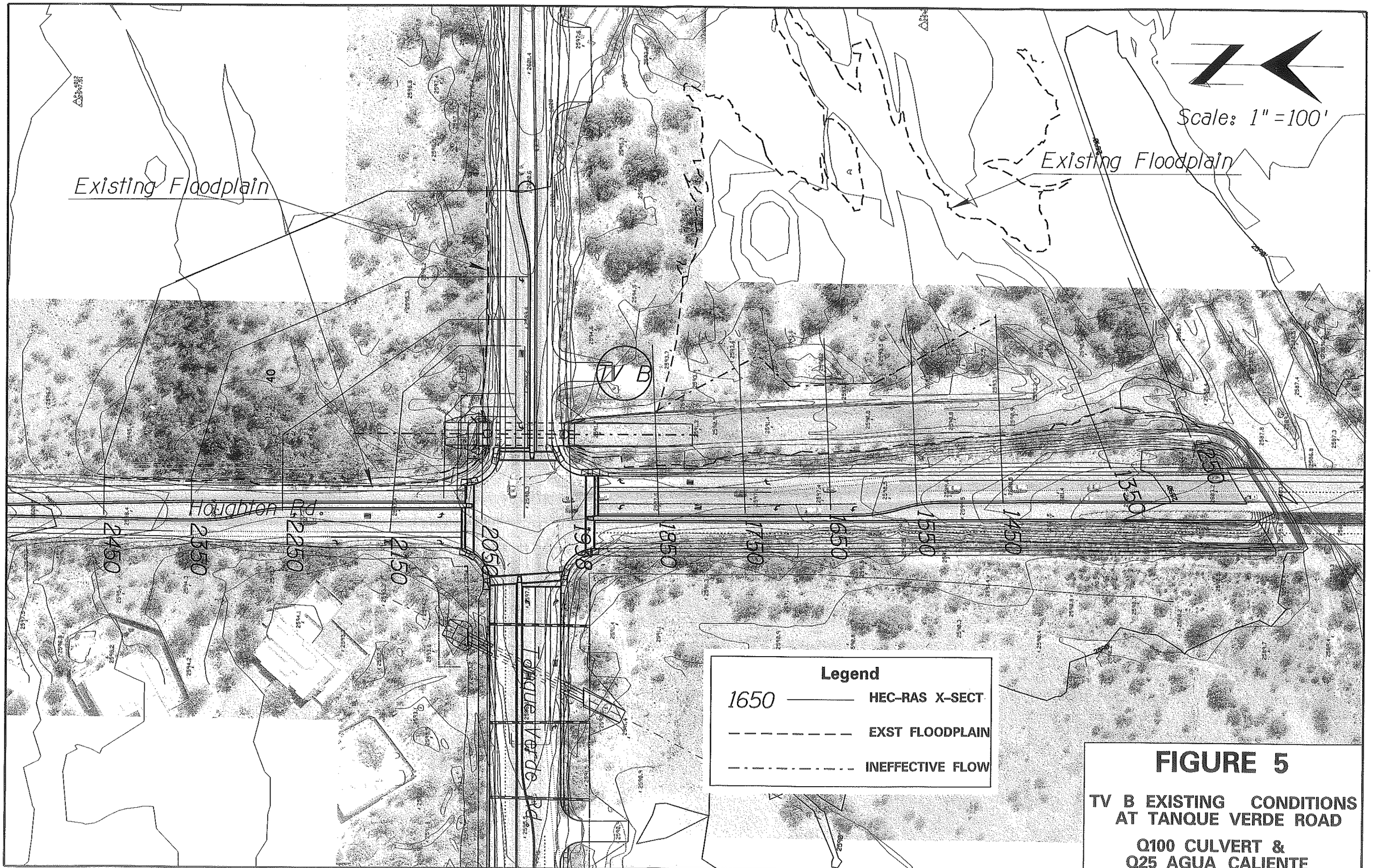


FIGURE 5

TV B EXISTING CONDITIONS AT TANQUE VERDE ROAD

Q100 CULVERT & Q25 AGUA CALIENTE

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Table 2: TV-B HECRAS Results Existing Condition (25-Yr w/100-Yr TW)

River Station (RS)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)
(--)	(ft^3/sec)	(feet)	(ft/sec)
2450	325	2596.24	2.27
2350	325	2596.13	1.59
2250	325	2596.07	1.58
2150	325	2596.03	1.43
2050	325	2594.41	3.49
1950	325	2593.58	6.02
1850	325	2593.63	3.26
1750	325	2593.41	3.83
1650	325	2593.26	3.59
1550	325	2593.05	3.89
1450	325	2592.91	3.54
1350	325	2592.92	1.8
1250	325	2592.93	2.46

Table 3: TB-B HECRAS Results Existing Condition (100-Yr w/ 25-Yr TW)

River Station (RS)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)
(--)	(ft^3/sec)	(feet)	(ft/sec)
2450	555	2596.71	1.90
2350	555	2596.66	1.66
2250	555	2596.61	1.81
2150	555	2596.57	1.73
2050	555	2595.66	3.65
1950	555	2593.98	8.45
1850	555	2594.25	4.26
1750	555	2593.98	5.05
1650	555	2593.75	5.00
1550	555	2593.40	5.14
1450	555	2592.74	6.53
1350	555	2591.90	3.10
1250	555	2591.85	1.51

WEST OF TANQUE VERDE ROAD AND HOUGHTON ROAD (CP-TV A)

Like the structure on the east side of the intersection, the structure on the west is close to the intersection. This existing structure is a 24"x38"x105' Horizontal Elliptical Reinforced Concrete Pipe (HERCP) with a riprap protected drop inlet. This pipe is skewed at an angle of 30 degrees with Tanque Verde Road. CulvertMaster was used to calculate the headwater elevation due to the tail water effect from Agua Caliente Wash. A coincidental occurrence analysis requires a 25-Year Culvert and 100-Year Agua Caliente Wash and a 100-Year Culvert and 25-Year Agua Caliente Wash with the worst case being used to establish existing condition.

Due to the existing topography of the area, a couple of natural weirs were analyzed. There is a natural ridge line west of the culvert that when compared with the headwater of the culvert seems to have flow breaking over this weir. Also it was determined that the headwater of the drop inlet created a backwater. As a result, the drop inlet was modeled using a submerged weir analysis. The resulting headwater from the submerged weir is then compared to the runoff breaking over the existing weir. Therefore, the flow distribution was determined based on the headwater from the submerged drop inlet compared to the headwater created by the runoff breaking over the natural weir. The analyses showed that 9.5 ft^3/sec enter into the culvert and the remaining 22.2-ft^3/sec ponds and breaks over the weir to the west of the pipes. The resulting headwater elevation is 2593.48. As shown in Figure 6.

It should be noted that there is a difference between the flow rates calculated in this study and a previous drainage report for a Tanque Verde Report (Reference 5). In the previous study it was found that 16-ft^3/sec reached the CP, where as in this study 32-ft^3/sec was found reaching the CP. Due to this difference, the flow rate found in this study was used. See Appendix B-1 for all the calculations.

EAST OF SPEEDWAY BLVD. AND HOUGHTON ROAD (CP-B)

There is currently an improvement planned for the Speedway Blvd. and Houghton Road intersection. Therefore the concept proposed in the Speedway Boulevard Improvement Project drainage report for this project (Reference 6) will be used as the existing condition for this Houghton Road project. The improvements proposed on the east side of the Houghton Road and Speedway Boulevard Intersection will result in 2-36"x132' RCP's with a 6'x10' catch basin as the inlet. The total flow reaching the structure is 11-ft^3/sec. Similar to the tributaries on the Agua Caliente Wash, it was necessary to evaluate for coincidental occurrences for this structure. 10-Year Culvert and 100-Year Tanque Verde Creek and 100-Year Culvert and 10-Year Tanque Verde Creek was used to establish the headwater elevation with the worst case being chosen to represent the existing condition. Analysis shows that the 100-Year Culvert and 10-Year TW creates the worst condition, creating a headwater inside the catch basin of 2580.98, which is below the grated inlet to this structure. The calculations for this concentration point are calculated in Appendix B-2.

WEST OF SPEEDWAY BLVD. AND HOUGHTON ROAD (CP-C)

Similar to the culvert east of Houghton Road, the existing condition analysis will be based on the proposed improvements for Speedway Boulevard Improvement Project (Reference 6). CP-C is a system of several watersheds all which where analyzed separately. Ultimately all the flow in the structures ends up merging into the Tanque Verde Creek. All the runoff reaches the 10'x4'x100' box culvert under Speedway Boulevard. The structure is currently 100' long, but will be 172' once the Speedway Boulevard improvements are completed. The flow arrives at the inlet of the structure after going through the pipe culvert that is at concentration point C2, the total flow at the structure inlet, C1 is about 150 ft^3/sec, and the

total flow at the outlet of the structure, C0, is 250 ft^3/sec. The entrance to the structure is a drop inlet that is located at the corner of the Circle K parking lot. All of the flow rates and drainage areas are shown in Figure 3.

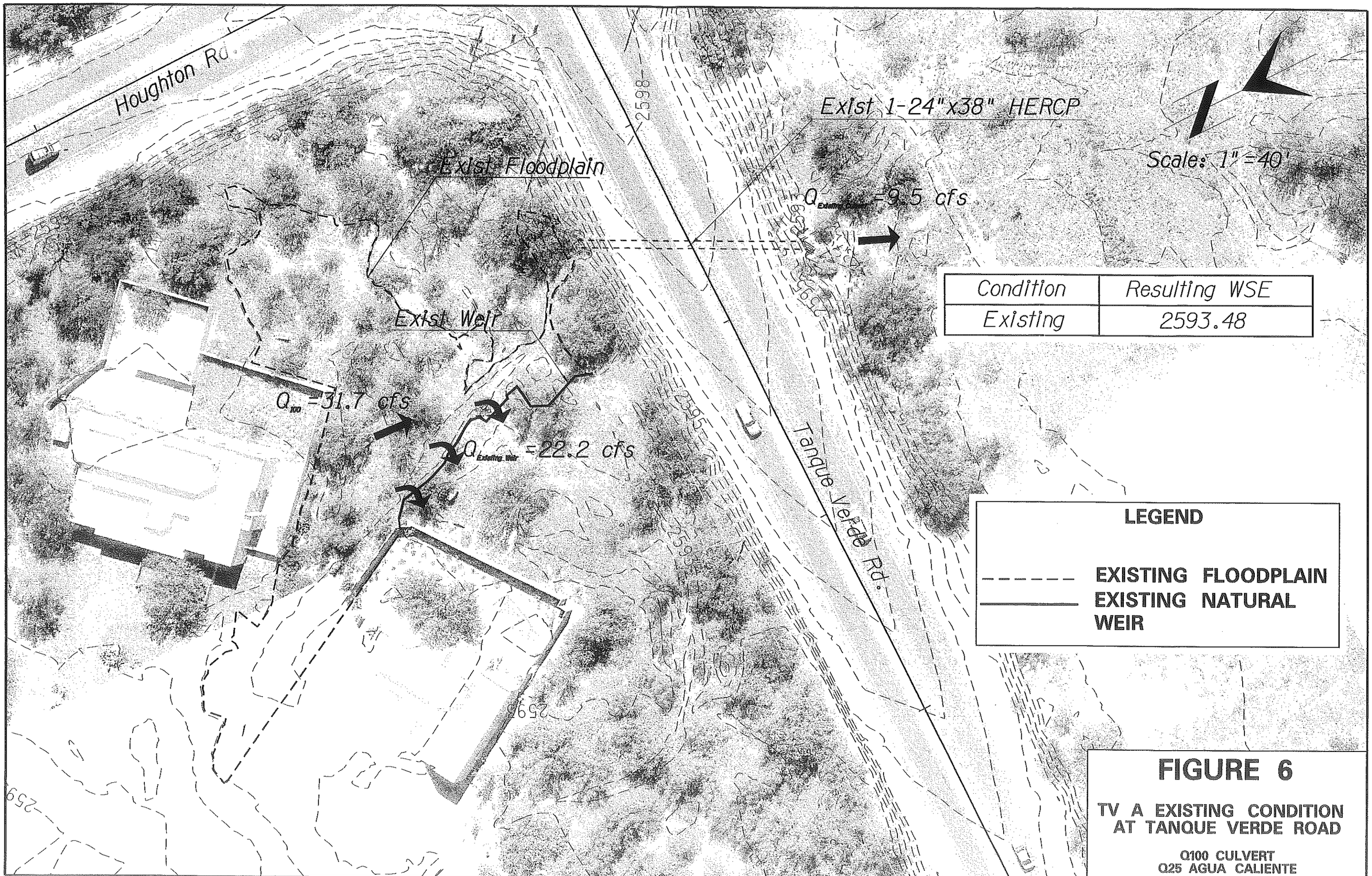
HEC-RAS was used to analyze the channel along Houghton Road, both north and south of Speedway Boulevard. The model was run under the assumption that the most downstream cross section will be at the same water surface elevation as the corresponding location in the Tanque Verde Creek. Information needed for this model was obtained from either aerial photos of the area, or from survey. Results are provided on Figure 7. As shown in the figure, runoff is primarily contained within the concrete lined channel upstream of CP C. the existing 4-36"x57' RCP's convey flow towards the grated inlet located at the southwest corner of the Houghton Road-Speedway Boulevard. Calculations are provided in Appendix B-2.

VISTA VERDE ESTATES

No direct hydraulic analyses were conducted for the Vista Verde Estates. Data obtained from the approved drainage report is presented in Figure 8 to show the existing condition floodplain limits.

CP A

Runoff flows along the east side of Houghton Road within a roadside ditch to CP A at Windstorm Drive. The current structure is a 4-24"x83' Pipe Culvert. Headwater for this structure was computed to be 2659.68. Ponding limits are provided as Figure 9. Computations, and CulvertMaster Output, are included as Appendix B-4.



Condition	Resulting WSE
Existing	2593.48

FIGURE 6

TV A EXISTING CONDITION AT TANQUE VERDE ROAD

Q100 CULVERT
Q25 AGUA CALIENTE

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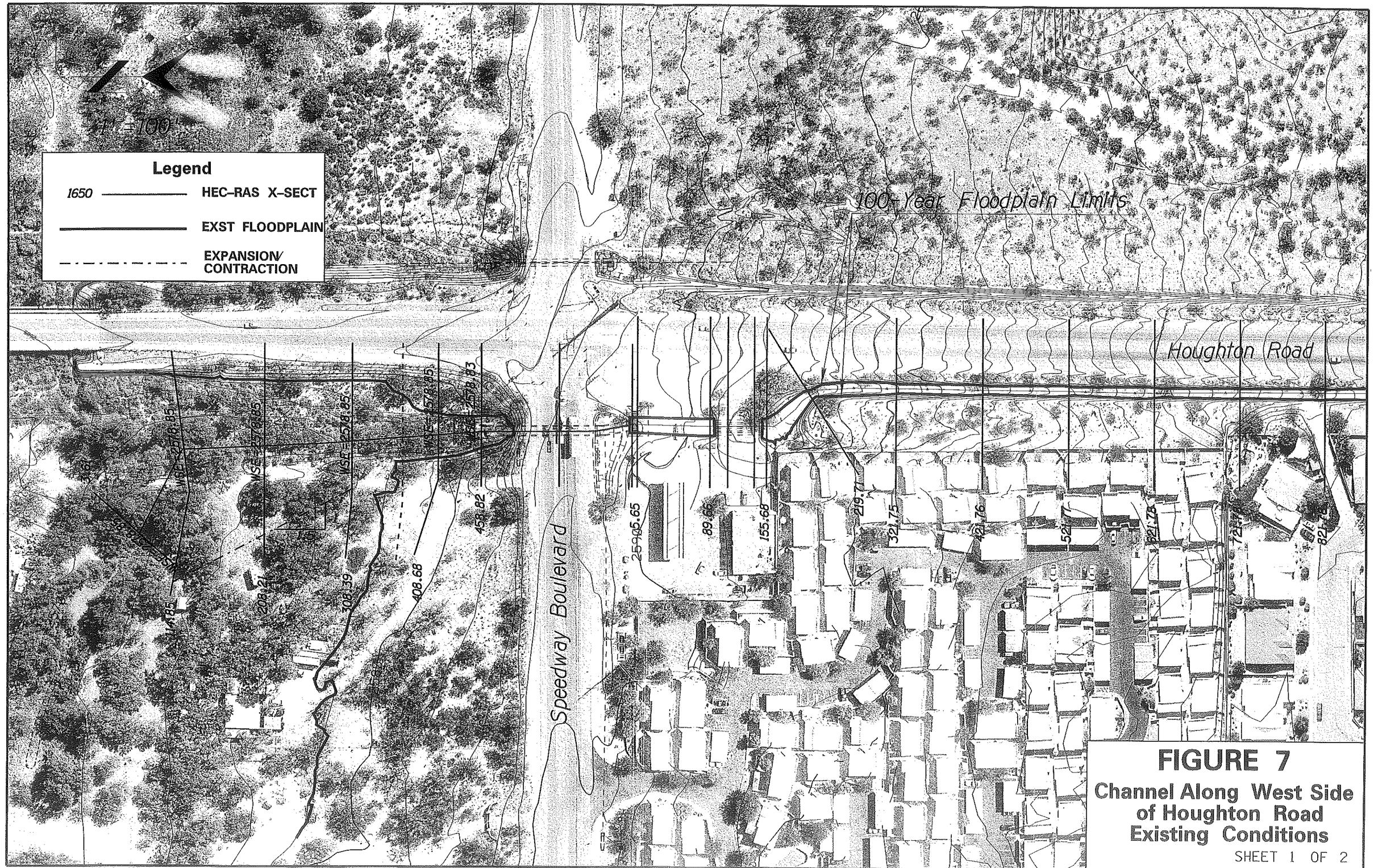

FIGURE 7

Channel Along West Side of Houghton Road Existing Conditions

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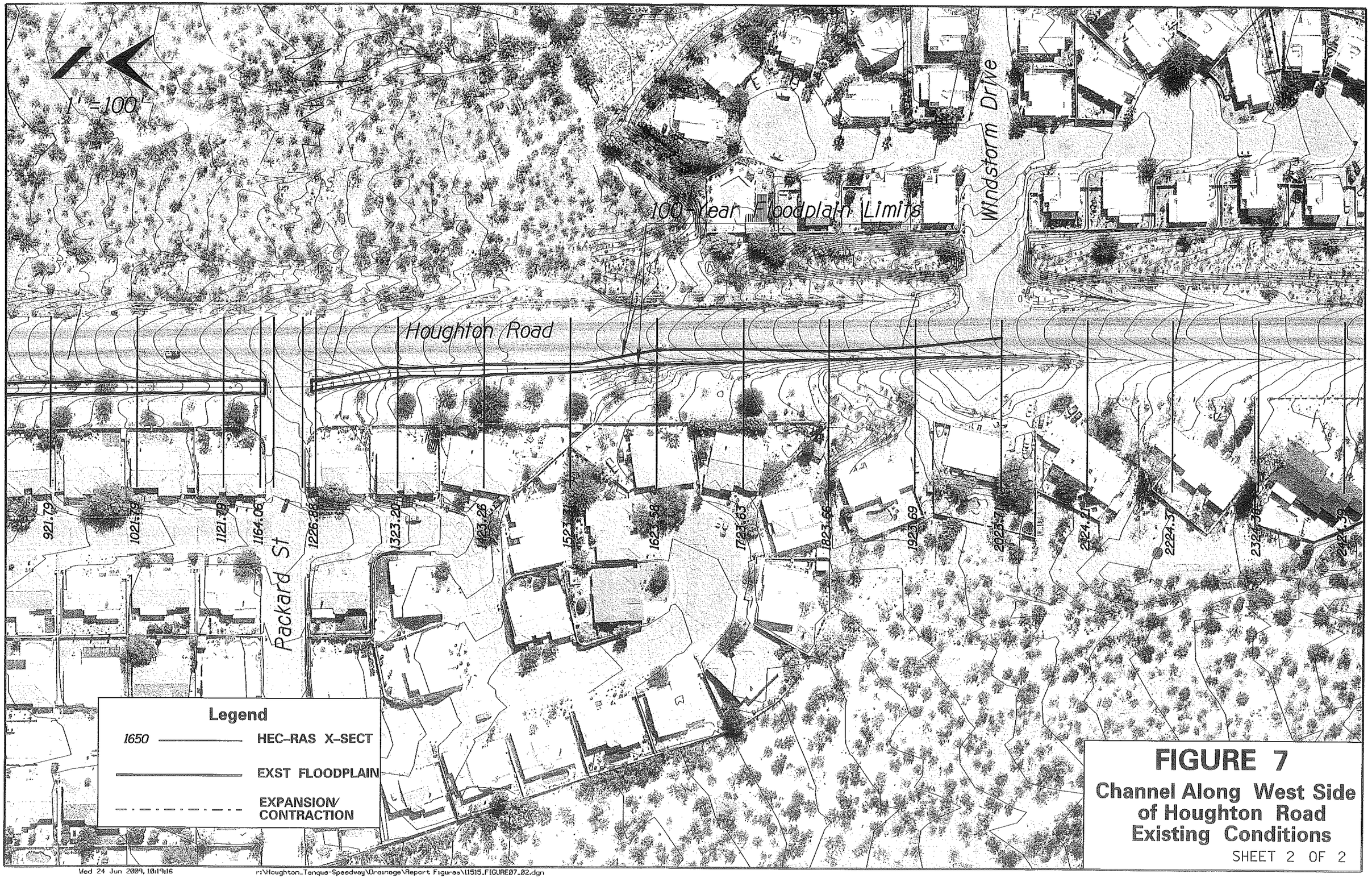

FIGURE 7

Channel Along West Side of Houghton Road Existing Conditions

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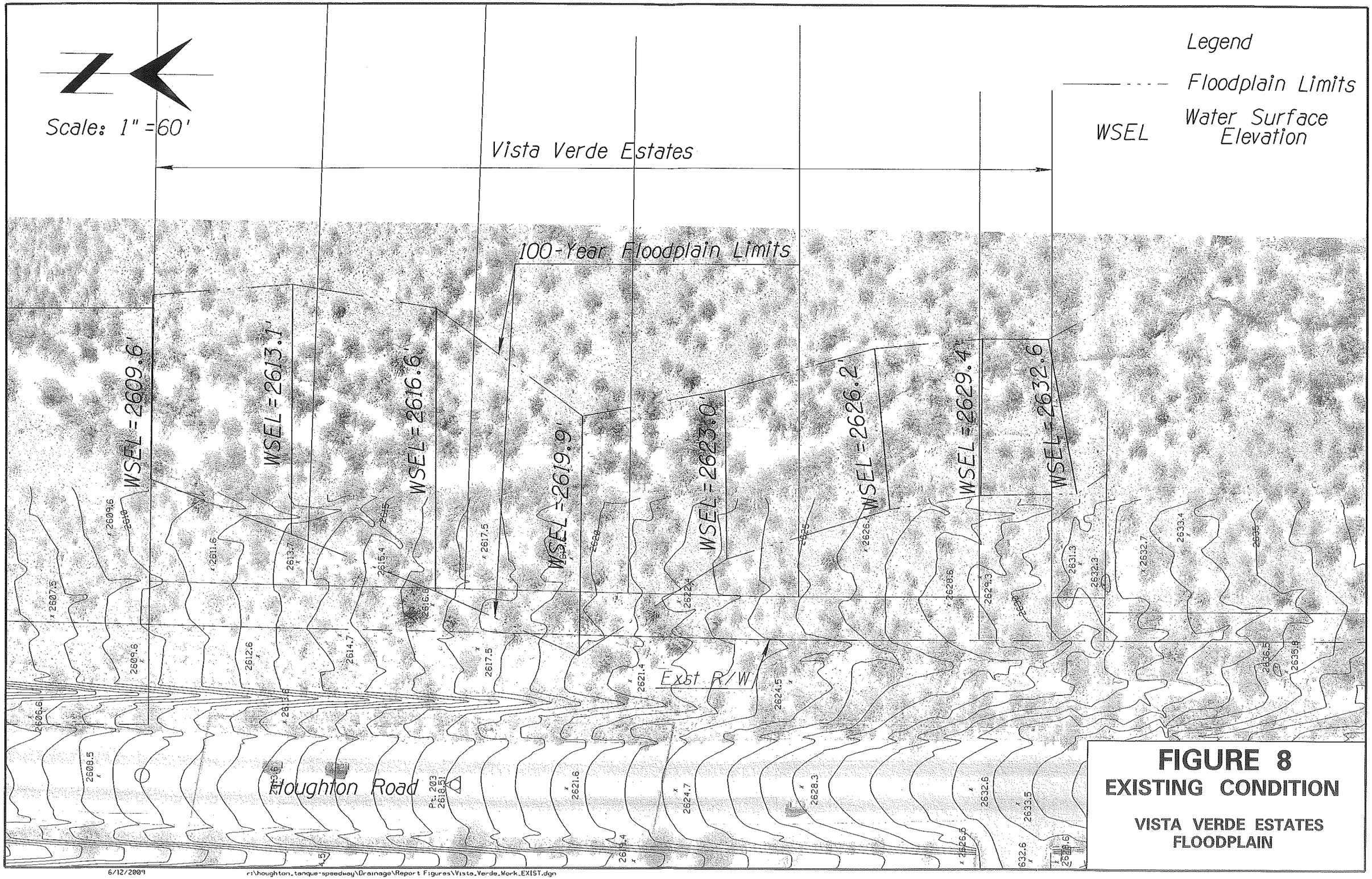

FIGURE 8
EXISTING CONDITION

VISTA VERDE ESTATES
FLOODPLAIN

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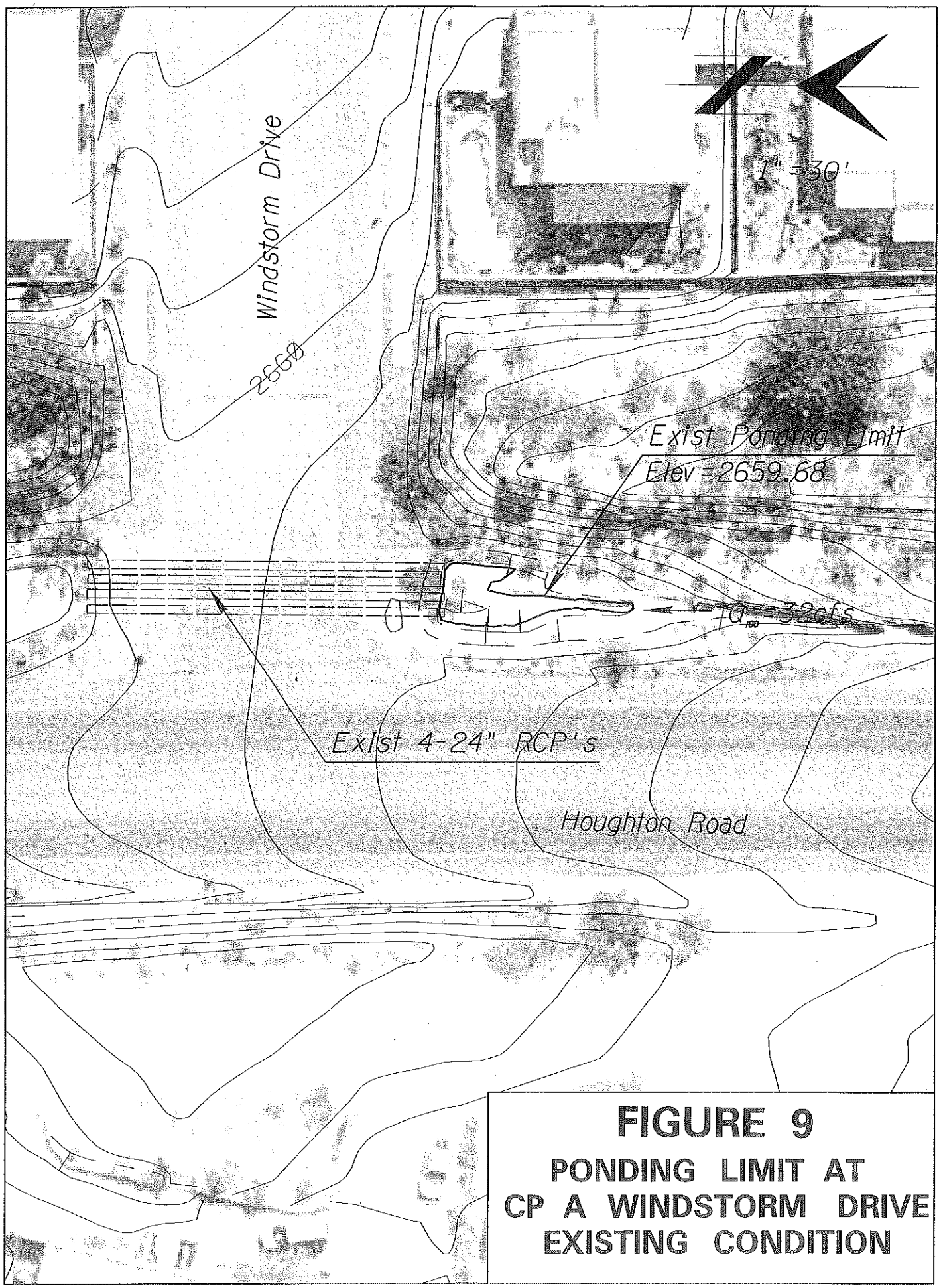

FIGURE 9

PONDING LIMIT AT CP A WINDSTORM DRIVE EXISTING CONDITION

3.3 Proposed Condition

The conceptual roadway layout has been established and includes four lanes, 2 in each direction from Tanque Verde Road to Speedway Boulevard, and 6 lanes, 3 in each direction from Speedway Boulevard to 5th Street. The footprint of the conceptual roadway will require drainage improvements to accommodate the drainage impacting Houghton Road. Roadway improvements will extend east and west of Houghton Road for Tanque Verde Road.

The following explains the planned drainage improvements for this project. It should be noted that once under design there will be a pavement drainage system located within the new roadway. This "on-site" drainage will be addressed in more detail under the final design portions of the project. This section of the report addresses conceptual design at a 30% level for the major cross drainage facilities. Specifics for each location grouping follow below.

ONSITE/PAVEMENT DRAINAGE

As previously stated no hydrologic or hydraulic analyses were prepared for the pavement drainage system for this concept level design. There is a need, however, to estimate the cost of the onsite drainage system. To approximate the onsite system, for estimating purposes, the onsite system was determined by using an approximate "300-foot spacing" for pavement catch basins. The sag just north of Speedway Boulevard is the only location that was not based on the general approach. At this location, 100-foot catch basin spacing was used to account for the flanking catch basins on either side of the sag.

Stormdrain pipes were placed to connect the inlets in a logical manner. The sizes for each pipe were based on the number inlets upstream of the pipe in question. Standard manhole spacing was used for long runs of stormdrain as well as junctions for connection of onsite drainage systems. In accordance with the City of Tucson Design Standards, 18" diameter pipes are proposed for draining a single catch basin. 24" diameter pipes are proposed for two to four catch basins in series. For five to eight catch basins, a 36" diameter pipe and anything greater than eight uses a 42" diameter pipe.

EAST SIDE OF TANQUE VERDE RD AND HOUGHTON RD INTERSECTION (CP-TV B)

Since the Houghton Road improvement project will not affect the watershed of CP-TV B, the same amount of runoff will reach the existing structure on the east side of the intersection of Houghton Road and Tanque Verde Road. However, the improvements will require a wider Tanque Verde Road and this will warrant an extension on the existing culvert; the culvert will be extended by 12 feet on both the upstream and downstream of the structure. Figure 10 shows the hydraulic results for the proposed and existing condition analyses. Tables 4 and 5 below show a comparison between existing and proposed water surface elevations (WSEs) to show the effects of the culvert extension. Calculations are included in Appendix C-1.

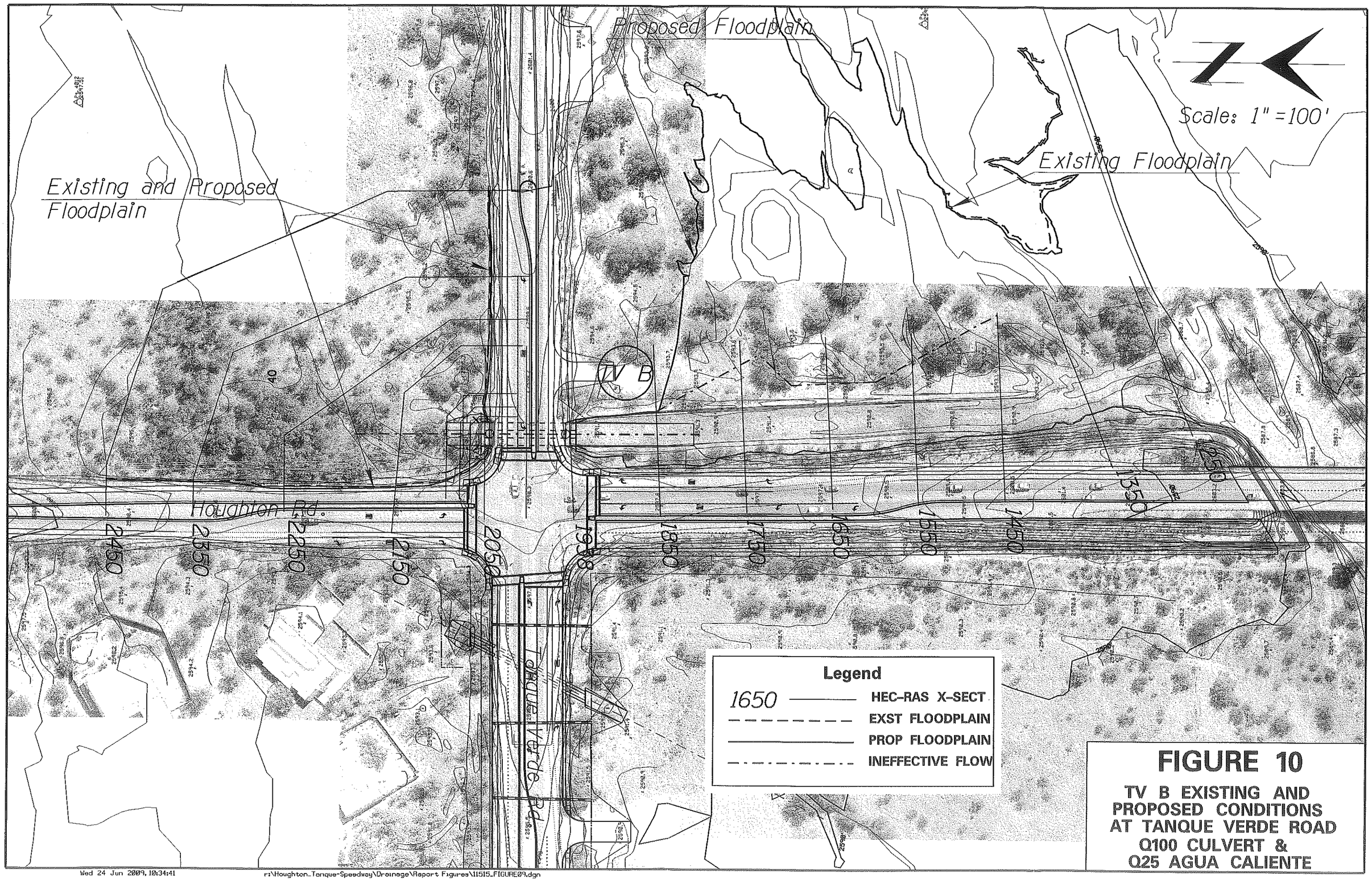

FIGURE 10

TV B EXISTING AND PROPOSED CONDITIONS AT TANQUE VERDE ROAD Q100 CULVERT & Q25 AGUA CALIENTE

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Table 4: TV-B HECRAS Results Proposed Condition (25-Yr w/100-Yr TW)

	Existing Condition			Proposed Condition			
River Station (RS)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)	WSE CHANGE
(--)	(ft^3/sec)	(feet)	(ft/sec)		(feet)	(ft/sec)	(ft)
2450	325	2596.24	2.27	325	2596.19	2.52	-0.05
2350	325	2596.13	1.59	325	2596.00	1.88	-0.13
2250	325	2596.07	1.58	325	2595.89	1.88	-0.18
2150	325	2596.03	1.43	325	2595.83	1.69	-0.2
2095	325	N/A	N/A	325	2595.40	4.48	N/A
2067	325	N/A	N/A	325	2594.75	6.18	N/A
2050	325	2594.41	3.49	325	N/A	N/A	N/A
1950	325	2593.58	6.02	325	N/A	N/A	N/A
1938	325	N/A	N/A	325	2593.51	6.24	N/A
1850	325	2593.63	3.26	325	2593.61	3.30	-0.02
1750	325	2593.41	3.83	325	2593.37	3.92	-0.04
1650	325	2593.26	3.59	325	2593.21	3.69	-0.05
1550	325	2593.05	3.89	325	2592.95	4.15	-0.1
1450	325	2592.91	3.54	325	2592.36	5.70	-0.55
1350	325	2592.92	1.80	325	2592.40	2.52	-0.52
1250	325	2592.93	2.46	325	2592.42	1.09	-0.51

Table 5: TV-B HECRAS Results Proposed Condition (100-Yr w/25-Yr TW)

	Existing Condition			Proposed Condition			
River Station (RS)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)	WSE CHANGE
(--)	(ft^3/sec)	(feet)	(ft/sec)	(ft^3/sec)	(feet)	(ft/sec)	(ft)
2450	555	2596.71	1.90	555	2596.52	2.45	-0.19
2350	555	2596.66	1.66	555	2596.40	2.06	-0.26
2250	555	2596.61	1.81	555	2596.31	2.21	-0.3
2150	555	2596.57	1.73	555	2596.23	2.12	-0.34
2095	555	N/A	N/A	555	2595.89	4.15	N/A
2067	555	N/A	N/A	555	2595.24	7.19	N/A
2050	555	2595.66	3.65	555	N/A	N/A	N/A
1950	555	2593.98	8.41	555	N/A	N/A	N/A
1938	555	N/A	N/A	555	2593.97	8.45	N/A
1850	555	2594.25	4.25	555	2594.25	4.25	0.00
1750	555	2593.98	4.82	555	2593.99	4.81	0.01
1650	555	2593.75	4.85	555	2593.75	4.84	0.00
1550	555	2593.40	5.49	555	2593.42	5.44	0.02
1450	555	2592.74	6.87	555	2592.78	6.78	0.04
1350	555	2591.90	6.43	555	2591.90	6.43	0.00
1250	555	2591.85	2.46	555	2591.52	2.92	-0.33

WEST OF TANQUE VERDE ROAD AND HOUGHTON ROAD (CP-TV A)

The approach for this culvert is to extend the culvert like CP-TV B. Due to the configuration of the existing ground, extending the pipe will move the catch point of the proposed drop inlet into an existing high point restricting runoff from reaching the proposed pipe. To remedy this issue, a channel will be constructed to drain the runoff that stacks behind the natural weir in the vicinity allowing positive drainage to the culvert. This design results in four hundredths of a foot increase in headwater and only an increase of 0.5-ft3/sec bypassing the structure. Using cross sections from the proposed channel and the natural weir, it was determined that the channel has a capacity of approximately 20.1-ft3/sec. Although the channel has the capacity, the headwater from the culvert will create a backwater on the new channel. Therefore, the flow distribution was determined comparing the culvert headwater elevation and the natural weir water surface. Figure 11 shows the plan view of the structure at CP-TV A and the resulting pond limits. Calculations are in Appendix C-1.

EAST OF SPEEDWAY AND HOUGHTON ROAD (CP-B)

The proposed roadway will capture the majority of the run-off that previously reached this location. Since most of the existing runoff is now captured by the proposed roadway, it is necessary to capture and convey the stormwater within a storm drain system. The logical outfall for this pavement is the proposed trunk line west of Houghton Road. There is, however, a small portion of flow that still drains to CP-B. Under the proposed condition approximately 7 cfs will drain to CP-B. The headwater inside the grated inlet resulting from the change in starting conditions downstream is 2580.69. The analysis for this location is in Appendix C-2. No analysis was performed for run-off directly contributing to the grate since the contributing area is less than 0.1 acre resulting in only nuisance flow.

WEST OF SPEEDWAY AND HOUGHTON ROAD (CP-C)

With the proposed Houghton Road improvements, most of the runoff that would drain to CP-B now is connected directly to CP-C through a stormdrain system, which increases the flow rate to the structure. The pavement drainage system throughout the new roadway directs flow to the trunk line which minimizes the need for two parallel storm drains. The existing drainage area of CP-C is 37.73 acres and with the new roadway, the new area is 46.3 acres. This extra contributing area will increase the flow rate from 250 ft^3/sec to 275 ft^3/sec, which results in a 10% increase at the outlet of the culvert under Speedway Boulevard.

Two alternatives were evaluated along the west side of Houghton Road. The first alternative is to replace the existing concrete lined channel along the west side of Houghton Road with a similar channel. The steep slopes through this stretch of Houghton Road necessitate the use of a lined channel. A 10'-bottom width concrete channel is proposed for this alternative as a result of the 100-Year flow rates and the City of Tucson standard requirement. Hydraulic analysis concludes that the channel will flow approximately 3 feet deep. With this alternative, there will be a need for a culvert to convey flow south of Packard Street to the north. With preliminary inlet control computations, a 3-30" pipe culvert will be required at this location. The footprint of the proposed roadway encroaches to the west of Houghton Road by about 50-feet. Placement of the channel behind the west side sidewalk takes up the majority of the remaining Right-of-Way; which in-turn, limits the ability to re-vegetate that area between the roadway and the existing homes along the west Right-of-Way. As a result, a storm drain alternative was evaluated to allow for more vegetative screening.

The second alternative is to collect the runoff in this drainage area and direct it to a storm drain trunk line. Using Manning's Equation with a 25% higher roughness coefficient to account for minor losses, the trunk line needs to be at least 48" in diameter. The trunk line option provides logical outfall for the pavement inlet system as in the first open channel

option. It will, however, be more visually pleasing and provide sufficient space for vegetative screening. A construction cost estimate was developed for both alternatives and is included in appendix C-2 along with the analyses. Comparison of the costs associated with each alternative shows that storm drain option will be the most cost effective alternative. The open channel construction cost was estimated to be around $500,000; whereas the storm drain option was estimated at $300,000. Clearly from a cost standpoint and aesthetics, the storm drain option was chosen as the preferred option. The only issue with the storm drain option is that velocities are in the high range of 20-ft/sec. It is recommended that some type of velocity reduction be applied during the design stage for this trunk line. It will more than likely entail roughness elements strategically placed within each trunk line reach. Figure 12 shows the trunk line option.

The analysis done on the downstream of the structure at Speedway Boulevard took into account the widening of the Houghton Road, which encroaches on the existing channel. The tailwater, Tanque Verde Creek, has changed due to the new bridge structure. Table 6 and 7, provide the results and comparison to existing conditions. The starting condition for this reach of interest is just under a foot higher due to the interpolated WSE for Tanque Verde Creek. Even though the proposed channel will contain the discharge for the first couple cross sections downstream, the discharge breaks over the bank. The downstream analysis is the initial condition for the upstream analysis. The upstream analysis uses the worse condition of ponding over the grated inlet, or the headwater created by the downstream. Calculations are provided in Appendix C-2.

Table 6: CP-C HECRAS Results Proposed Condition (10-Yr w/100-Yr TW)

	Existing Condition			Proposed Condition			
River Station (RS)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)	WSE CHANGE
(--)	(ft^3/sec)	(feet)	(ft/sec)	(ft^3/sec)	(feet)	(ft/sec)	(ft)
635	110	2583.24	4.60	125	2583.46	4.80	*0.22
470	Culvert						
459	110	2578.83	2.81	N/A	N/A	N/A	N/A
409	110	2578.85	0.74	N/A	N/A	N/A	N/A
367	N/A	N/A	N/A	125	2578.93	1.23	N/A
308	110	2578.85	0.26	125	2578.94	0.54	0.09
208	110	2578.85	0.16	125	2578.94	0.14	0.09
115	110	2578.85	0.01	125	2578.94	0.02	0.09
4	110	2578.85	0.13	125	2578.94	0.19	0.09

*Even with the change in elevation of 0.22' the WSE is below grate elevation 2586.19

Table 7: CP-C HECRAS Results Proposed Condition (100-Yr w/10-Yr TW)

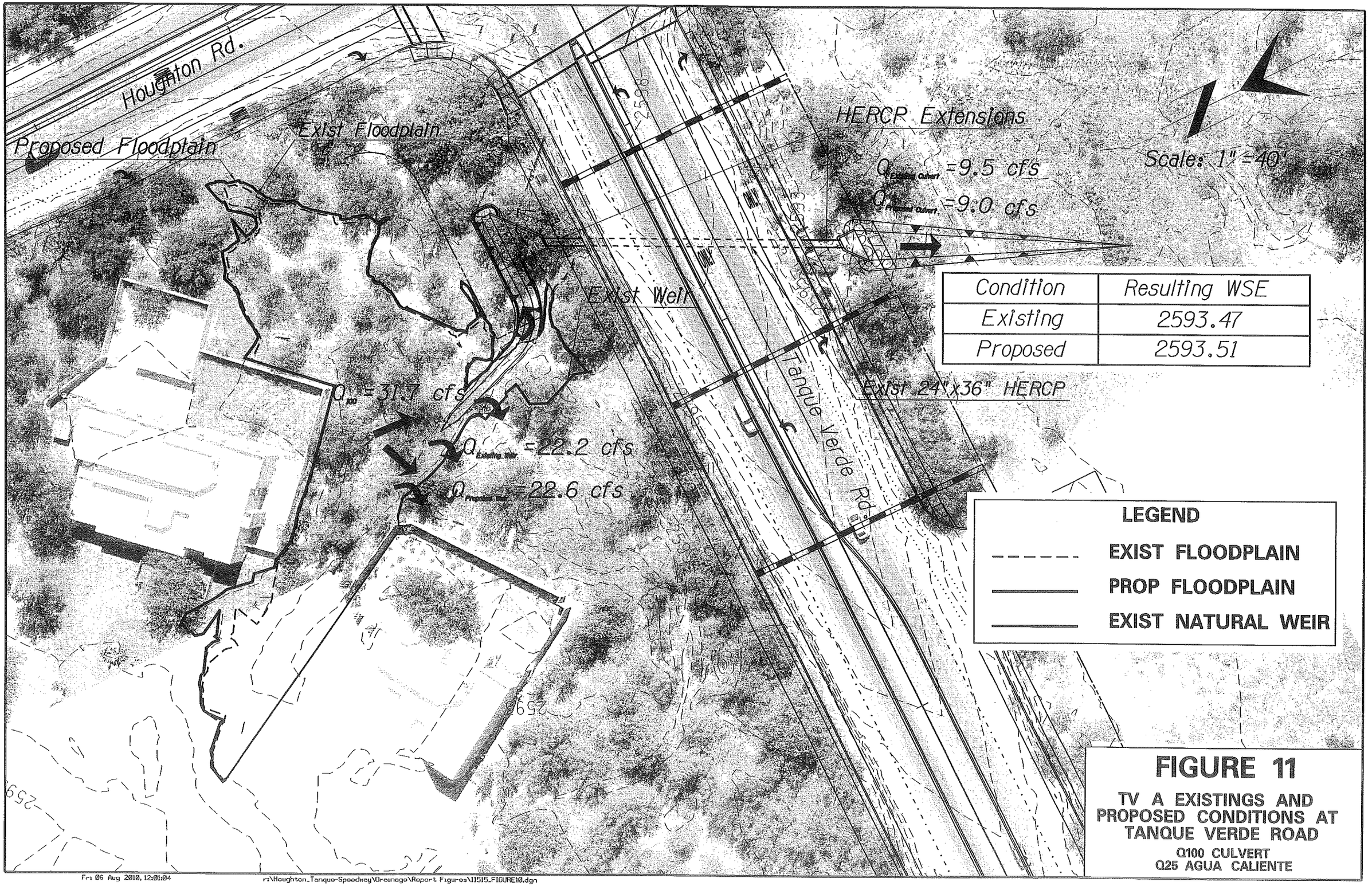
	Existing Condition			Proposed Condition			
River Station (RS)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)	Flow Rate (Q)	Water Surface Elevation (WSE)	Channel Velocity (V)	WSE CHANGE
(--)	(ft^3/sec)	(feet)	(ft/sec)	(ft^3/sec)	(feet)	(ft/sec)	(ft)
635	250	2584.99	6.05	275	2585.26	6.24	0.27
470	Culvert						
459	250	2576.69	16.52	N/A	N/A	N/A	N/A
409	250	2577.68	2.86	N/A	N/A	N/A	N/A
367	N/A	N/A	N/A	275	2577.05	4.48	N/A
308	250	2576.21	3.31	275	2576.32	7.14	**0.11
208	250	2576.07	1.14	275	2576.08	1.90	0.01
115	250	2576.08	0.22	275	2576.10	0.63	0.02
4	250	2576.07	0.53	275	2576.09	0.74	0.02

*Even with the change in elevation of 0.22' the WSE is below grate elevation 2586.19

**Even though increase is higher than 0.1', WSE is lower than in the other scenario, therefore this change is disregarded.

VISTA VERDE ESTATES

Data obtained from the Drainage Report for Vista Verde Estates is presented with the proposed improvements for Houghton Road as Figure 13. As shown, only a small portion of the existing floodplain will be directly impacted by the new roadway. Cross sections showing the existing floodplain and proposed roadway were examined to confirm the minimal impact. Water surface elevations were interpolated to obtain estimates for the cross sections that are not in the same location as the HEC-RAS cross section from the report, Reference 7. The cross sections used in the evaluation are included as Appendix C-3. It should be noted that a hydraulic analysis should be conducted during the final design stage of this project to confirm that there is no adverse impact to the existing floodplain. Any increases in water surface elevation should be limited a maximum of 0.1-foot.



Condition	Resulting WSE
Existing	2593.47
Proposed	2593.51

FIGURE 11

TV A EXISTINGS AND PROPOSED CONDITIONS AT TANQUE VERDE ROAD

Q100 CULVERT
Q25 AGUA CALIENTE

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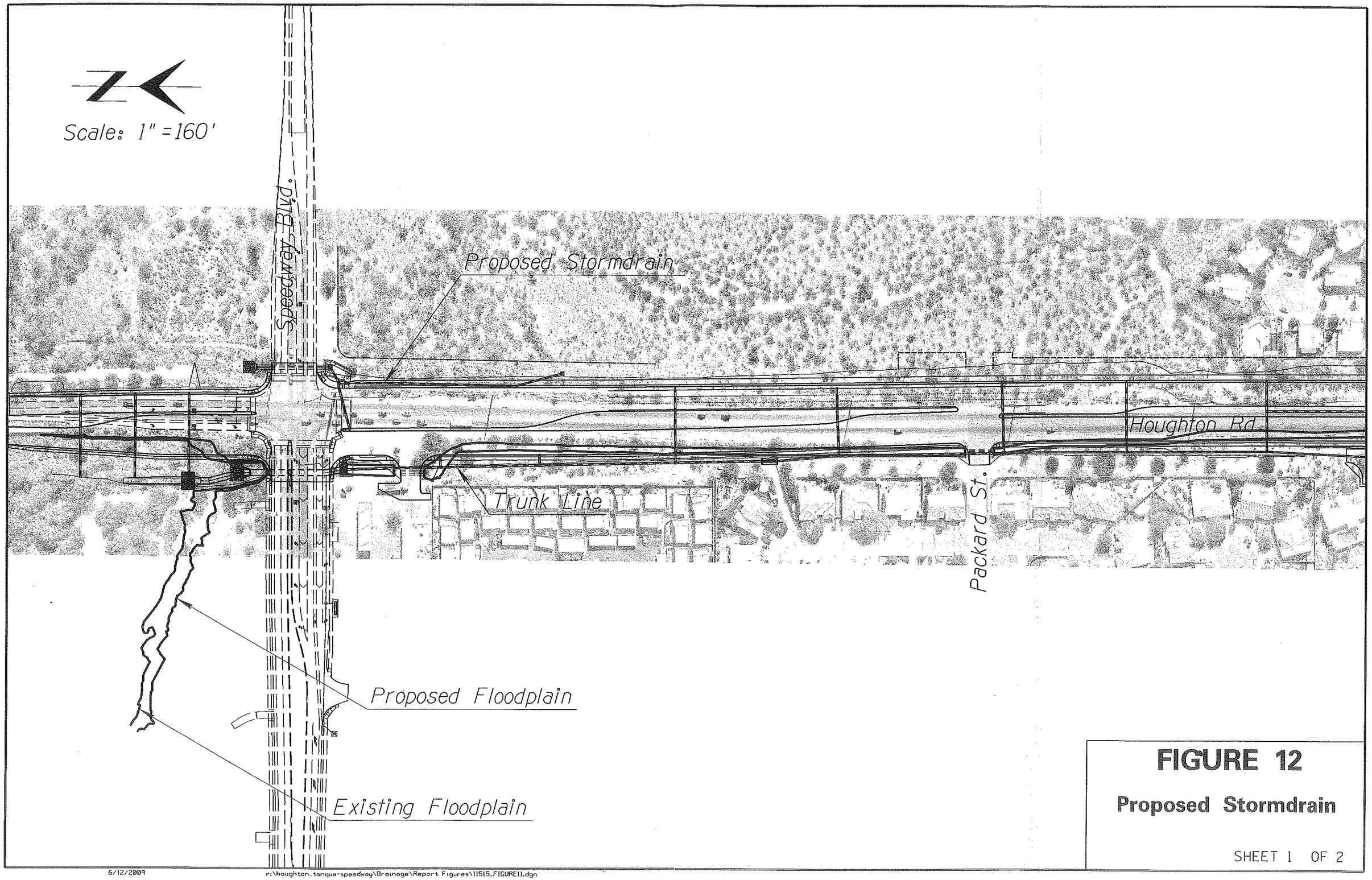

FIGURE 12

Proposed Stormdrain

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Scale: 1" = 160'

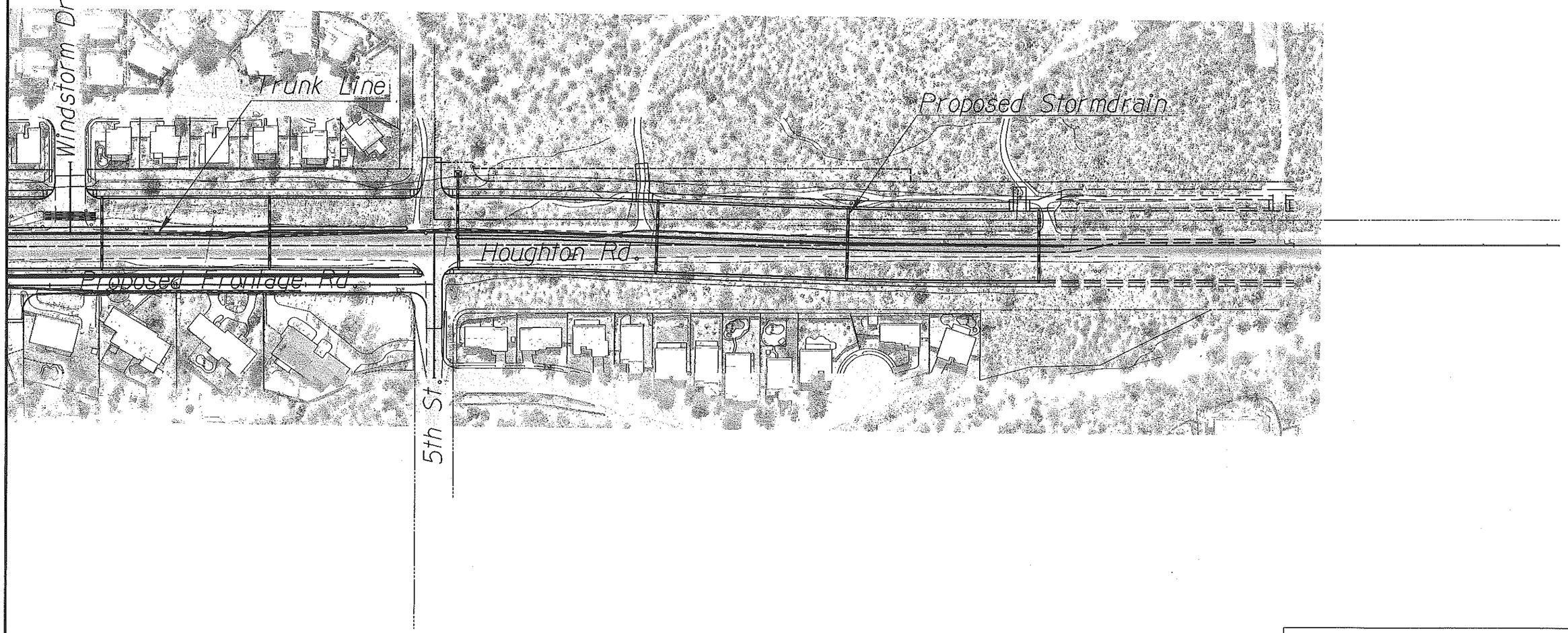

FIGURE 12

Proposed Stormdrain

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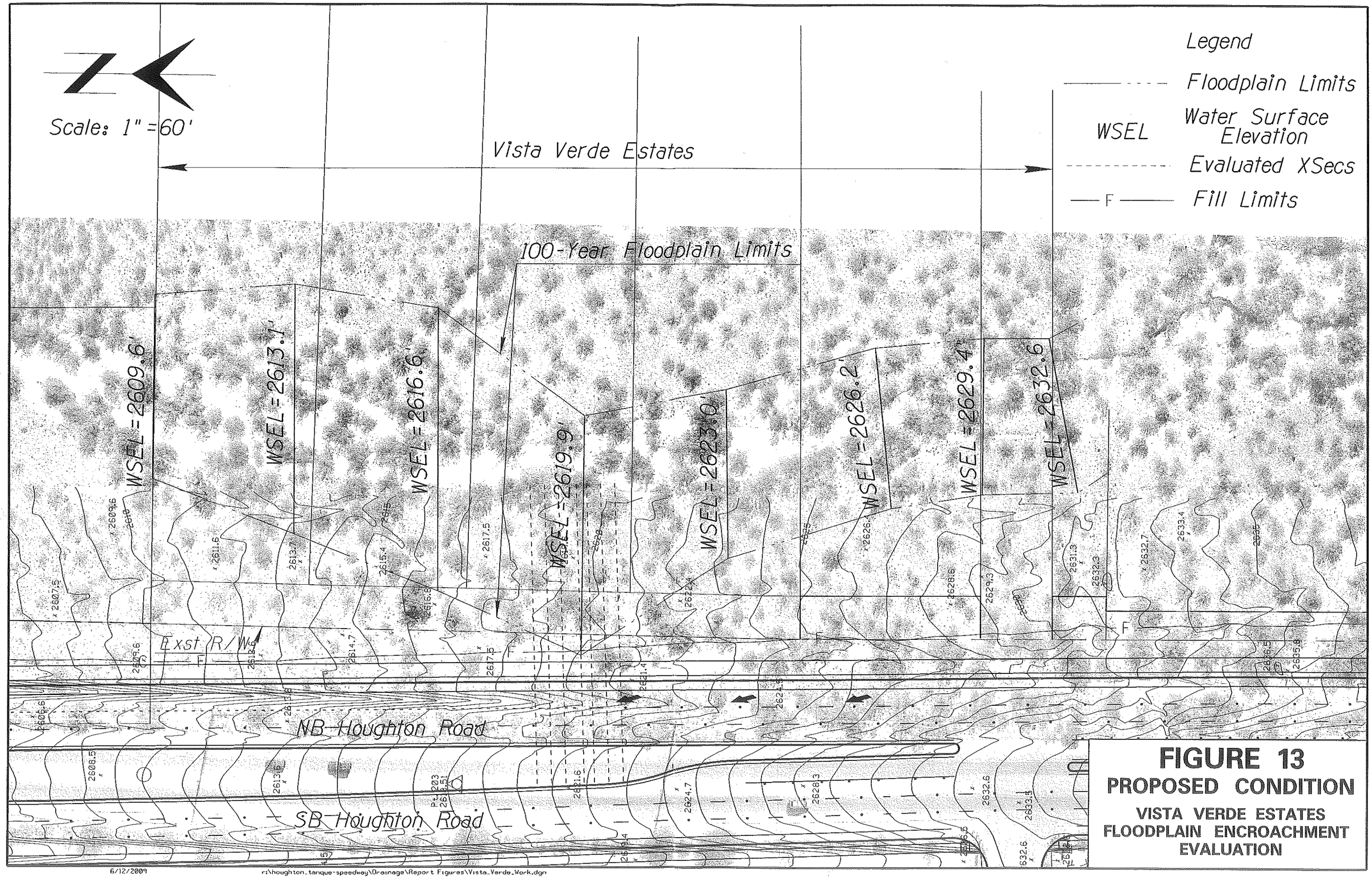

FIGURE 13
PROPOSED CONDITION
VISTA VERDE ESTATES FLOODPLAIN ENCROACHMENT EVALUATION

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4.0
MAJOR WASHES

4.1 General

The improvements on Houghton Road will make the Agua Caliente Bridge and the Tanque Verde Bridge wider. The existing width of the both bridges is 50 feet. The Houghton Road improvements will place an identical bridge parallel to the existing bridge, with a 20-foot median. Both Agua Caliente Wash and Tanque Verde Creek models obtained are based on a vertical datum NGVD 29, Agua Caliente Wash topography is dated to March 1995 and the Tanque Verde Creek topography is dated to August 1993. The models were updated to NAVD 88 using latitude and longitude, and VERTCON website (Reference 8). The vertical shift between the two data is approximately 2.2'. There was a meeting to discuss the analyses process of Tanque Verde Creek and Agua Caliente Wash, the meeting minutes are included in Appendix D.

4.2 Agua Caliente Wash

EXISTING CONDITION

The crossing of Agua Caliente Wash and Houghton Road is located approximately 950 feet south of the intersection of Houghton Road and Tanque Verde Road. The wash crosses Houghton Road under an existing 300-foot bridge. The regulatory flow rates were provided by PCRFCD, 10-Year is 4,000 ft^3/sec, and the 100-Year is 13,000 ft^3/sec. The discharges provided by PCRFCD are upstream of the existing Spur Dike. A series of split flows occur between the spur dike and the Houghton Road Bridge. A schematic of the split flows is provided in Appendix D-1. The 25-Year discharge (Q25) was not provided with the 10-Year and 100-Year discharge rates. The Q25 was determined by interpolating the values that were given by the PCRFCD using log-log analysis. The flow rate obtained from this method was 6,400 ft^3/sec. The second method that was evaluated to obtain a 25-year flow rate was using the ratio given in the City of Tucson Department of Transportation Standards Manual for Drainage Design and Floodplain Management. The ratio of the 25-year event to the 100-year event in a predominant watershed type suburban is 0.61, therefore the flow rate using the second method is 7,930 ft^3/sec. Thus, 7,930 ft^3/sec was used to obtain the highest possible water surface elevations for the 25-Year Event.

The Agua Caliente Wash around the Houghton Road crossing is a complex system, with junctions and splits. As previously described, the LOMR model (Reference 9) that was obtained from PCRFCD was used as a preliminary existing condition model with the project topography. All the cross sections within the new topography limits were updated. Those cross sections that were on the boundary of the new topography were trimmed to only reflect the new topography. The limits where the new topography is included are cross section 1261.13 on the lower reach of Agua Caliente, to cross section 8587.35 on the middle reach, all of river AC Split, and cross section 1600.02 on river AC Spur to the junction with Agua Caliente middle.

The LOMR model was reviewed for accuracy and approach, and a discrepancy was found in the model. Based on the bridge as-builts and the topographic aerial photo, the bridge is skewed at 31° to the wash. The LOMR HECRAS model does not use a hand coded skew but rather uses a 270' bridge opening to represent the 295' opening between the abutments. For a 31° skew the effective opening should be 253'. The updated model was revised to include a 31° skew. Buildings and other obstructions within the cross-sections were dealt with by being coded as ineffective area blocks. Figure 14 is a map of Agua Caliente, and it

includes cross section locations, corresponding WSEs, and floodplain delineation representing results for the existing condition analysis. Computations are included in Appendix D-1.

PROPOSED CONDITION

The existing bridge crossing is 50-ft wide. With the proposed roadway widening to the west a parallel bridge will be placed just downstream of the existing bridge. The proposed structure will be the identical size as the existing. There will be approximately 20' space between the old and new bridges. Rather than modeling parallel structures, one 100' wide structure was modeled for proposed conditions. Due to the proposed widening of the road, the downstream face of the bridge was revised for a new location and is represented by the new cross section location. The ineffective flow lines were adjusted in the HEC-RAS model to account for the change to the bridge configuration. The HEC-RAS modeling results show that the proposed WSEL will be slightly lower than the existing upstream of the bridge and slightly higher (<0.1') just downstream of the bridge. The reduced WSEL upstream is probably due to a lower flow rate. The lower flow rate occurs because of the change in flow distribution upstream of the bridge.

Due to the wider bridge there is additional headloss through the bridge. This results in an increase of water surface elevation at the upstream face of bridge, which propagates upstream. The increased WSE directly impacts the junction located between cross section 5365 and 5640. Discharges are distributed across the junction resulting in an increase flow to reach AC Split and a reduction flow rate to the bridge. A schematic has been included showing the split flows in Appendix D-2. As shown in Table 8, there is a change in flow rate and water surface elevations. Results for the proposed condition analysis are shown in Figure 15 and computations can be found in Appendix D-2.

The proposed bridge will be designed using the same low chord elevation as the existing structure. As a result, freeboard for the proposed condition will depend on the grading in the new channel. During the final design stage for this project grading will be investigated with the thought given to 404 permitting and the overall impact to the project scope and schedule. Similarly, both the CLOMR and LOMR needs will be evaluated during the final design stage for this project.

Table 8: Agua Caliente Wash HECRAS Results (100-Yr Event)

River	River Station (RS)	Existing Water Surface Elevation (WSE)	Q Exist	Proposed Water Surface Elevation (WSE)	Q Prop	Change in WSE (V)
	(--)	(feet)	(ft^3/sec)	(feet)	(ft^3/sec)	(ft/sec)
Agua Caliente	5365.23	2593.47	6728	2593.56	6619	0.09
Agua Caliente	5242.33	2592.93	6728	2592.42	6619	-0.51
Agua Caliente	5189.01	2592.67	6728	2592.35	6619	-0.32
Bridge						
Agua Caliente	5083.33	2591.07	6728	*2591.53*	6619	0.46
Agua Caliente	5007.33	2590.87	6728	2590.94	6619	0.07
Agua Caliente	4808.89	2588.99	6728	2589.06	6619	0.07
Agua Caliente	4640.59	2587.72	6728	2587.77	6619	0.05
Agua Caliente	4293.46	2585.31	6728	2585.30	6619	-0.01
Agua Caliente	3943.83	2583.69	6728	2583.66	6619	-0.03
Agua Caliente	3579.38	2581.54	6728	2581.52	6619	-0.02
Agua Caliente	3344.57	2579.91	6728	2579.94	6619	0.03
Agua Caliente	3039.07	2577.45	6728	2577.35	6619	-0.1
Agua Caliente	2734.71	2575.07	6728	2575.05	6619	-0.02
Agua Caliente	2590.18	2574.04	6728	2574.03	6619	-0.01
Agua Caliente	2425.08	2573.38	6728	2573.36	6619	-0.02
Agua Caliente	2225.50	2572.24	6728	2572.23	6619	-0.01
Agua Caliente	1877.58	2569.40	6728	2569.37	6619	-0.03
Agua Caliente	1549.86	2566.92	6728	2566.90	6619	-0.02
Agua Caliente	1261.13	2565.36	6728	2565.34	6619	-0.02
AC Split	3599.08	2593.60	3812	2593.63	3921	0.03
AC Split	3235.95	2591.97	3812	2591.99	3921	0.02
AC Split	2853.27	2590.22	6273	2590.24	6381	0.02
AC Split	2508.63	2588.43	6273	2588.45	6381	0.02
AC Split	2214.26	2586.04	6273	2586.07	6381	0.03
AC Split	1933.96	2584.94	6273	2584.96	6381	0.02
AC Split	1426.38	2582.95	6273	2582.97	6381	0.02

Itallics denotes interpolated values.

FIGURE 14
AGUA CALIENTE
EXISTING CONDITIONS

FIGURE 14
AGUA CALIENTE
EXISTING CONDITIONS

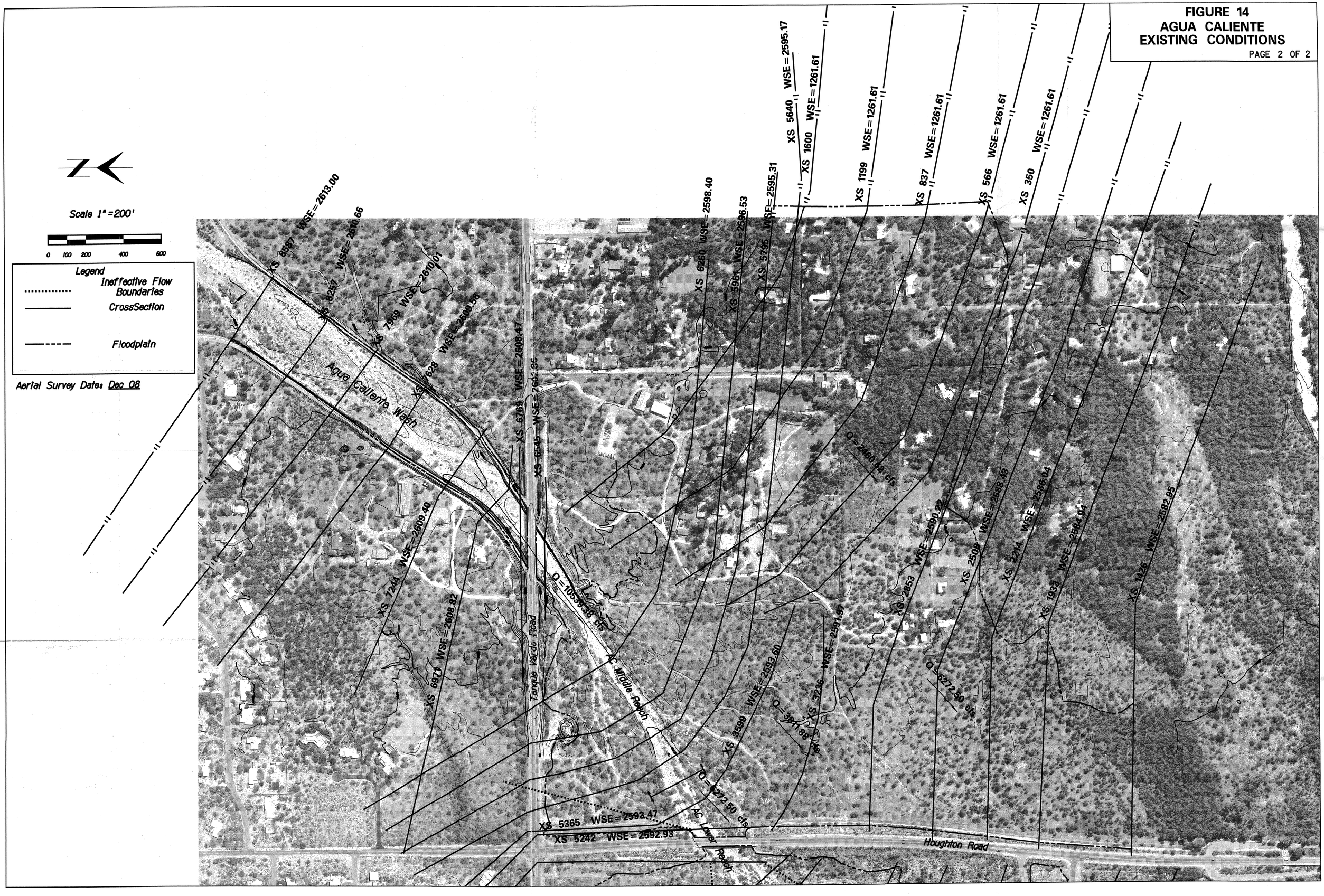
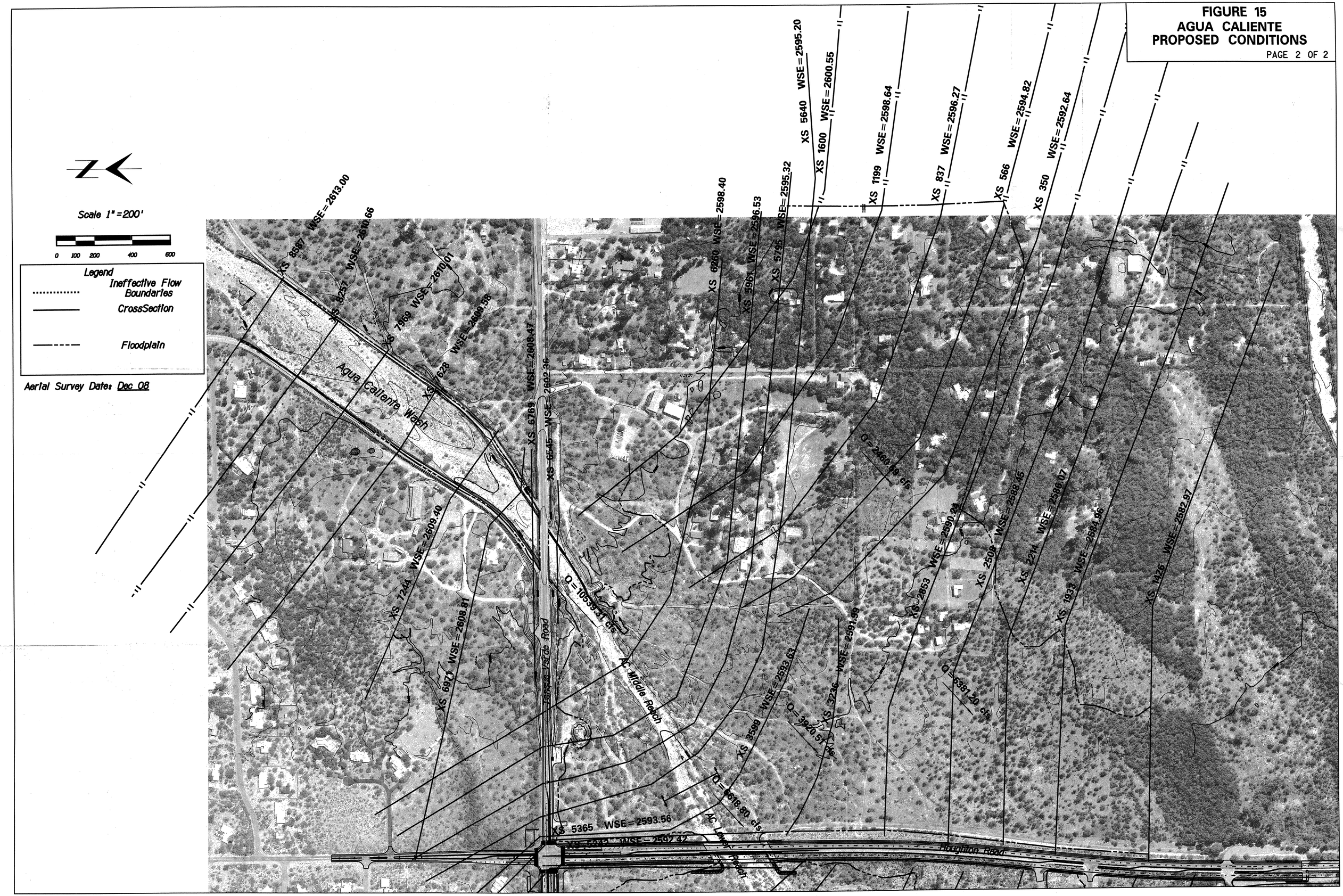


FIGURE 15
AGUA CALIENTE
PROPOSED CONDITIONS

FIGURE 15
AGUA CALIENTE
PROPOSED CONDITIONS



4.3 Tanque Verde Creek

EXISTING CONDITION

The Tanque Verde Creek crosses Houghton Road under an existing 1100-foot bridge. As-builts for the bridge and the FEMA Regulatory hydraulic model (Reference 10) were obtained to conduct the evaluation of the existing condition of the bridge. PCRFCD provided the effective FIS HEC-2 hydraulic model and work map for the Houghton Road area. Due to the culverts near the Speedway and Houghton intersection, and the effects that Tanque Verde WSE has on them, it was necessary to determine the proper frequency of coincidental occurrence. The 10-Year/100-Year combinations were determined to be the best frequency combination to evaluate the tributary hydraulics. The flow rate was determined using the method of Frequencies for Coincidental Occurrence. The flow rates used in the FIS are: 100-Year is 23,000 ft^3/sec, and the 10-Year is 7,300 ft^3/sec.

The Tanque Verde Creek regulatory model was reviewed for accuracy and approach. A couple of discrepancies were found in the regulatory model. The Houghton Road bridge pier width does not correspond to the as-built plans. The total obstruction identified on the Special Bridge card was 150-feet. As-built plans show a pier width of 4-feet and a pier cap width of 6-feet. After adjusting for debris (2 X Width) the total obstruction should be 80-feet or 120-feet (if pier cap width is used) neither of which result in the 150-foot obstruction width that was used in the model. This obstructed width was adjusted to an 80-foot width (10-4-ft diameter piers with debris) for both the new effective existing condition model and the proposed condition model. Also, the most downstream cross section reach length should be zero and the regulatory model length was not zero. This was not adjusted as it is outside of the reach under investigation and does not impact the hydraulic results. The upstream cross sections were located in slightly different location in order to update the cross section geometry which necessitated a change in reach length from the FIS Model. Cross section locations & floodplain limits are provided in Figure 16 and calculations can be found in Appendix E-1.

PROPOSED CONDITION

The hydraulic modeling shows that there is a slight increase in water surface elevation for the cross sections in the vicinity of the proposed bridge. Table 9 provides a comparison of water surface elevations for the updated cross sections through the reach of interest. It should be noted that the location of the downstream cross section is not in the same location as the existing condition results; cross section number "72.4" is location "72.5" in the proposed condition. Results show a maximum increase in water surface elevation of approximately 0.14'. During the final design for this project grading can be implemented to negate the increase shown in this study. Another possibility is to submit a LOMR to change the flood elevation through this segment of the creek depending on grading and more specifically if the 404 permit becomes an issue. Either approach will be addressed in the future during the final design project. For this level of analysis the proposed bridge will produce slightly higher elevations if no additional grading is proposed. Figure 17 shows the proposed condition Cross Section locations and resulting Floodplain Limits, and Appendix E-2 is where the proposed condition calculations can be found.

The proposed bridge will be designed using the same low chord elevation as the existing structure. As a result, freeboard for the proposed condition will depend on the grading in the new channel. During the final design stage for this project grading will be investigated with the thought given to 404 permitting and the overall impact to the project scope and schedule. Similarly, both the CLOMR and LOMR needs will be evaluated during the final design stage for this project.

Table 9: Tanque Verde Creek HECRAS Results (100-Yr Event)

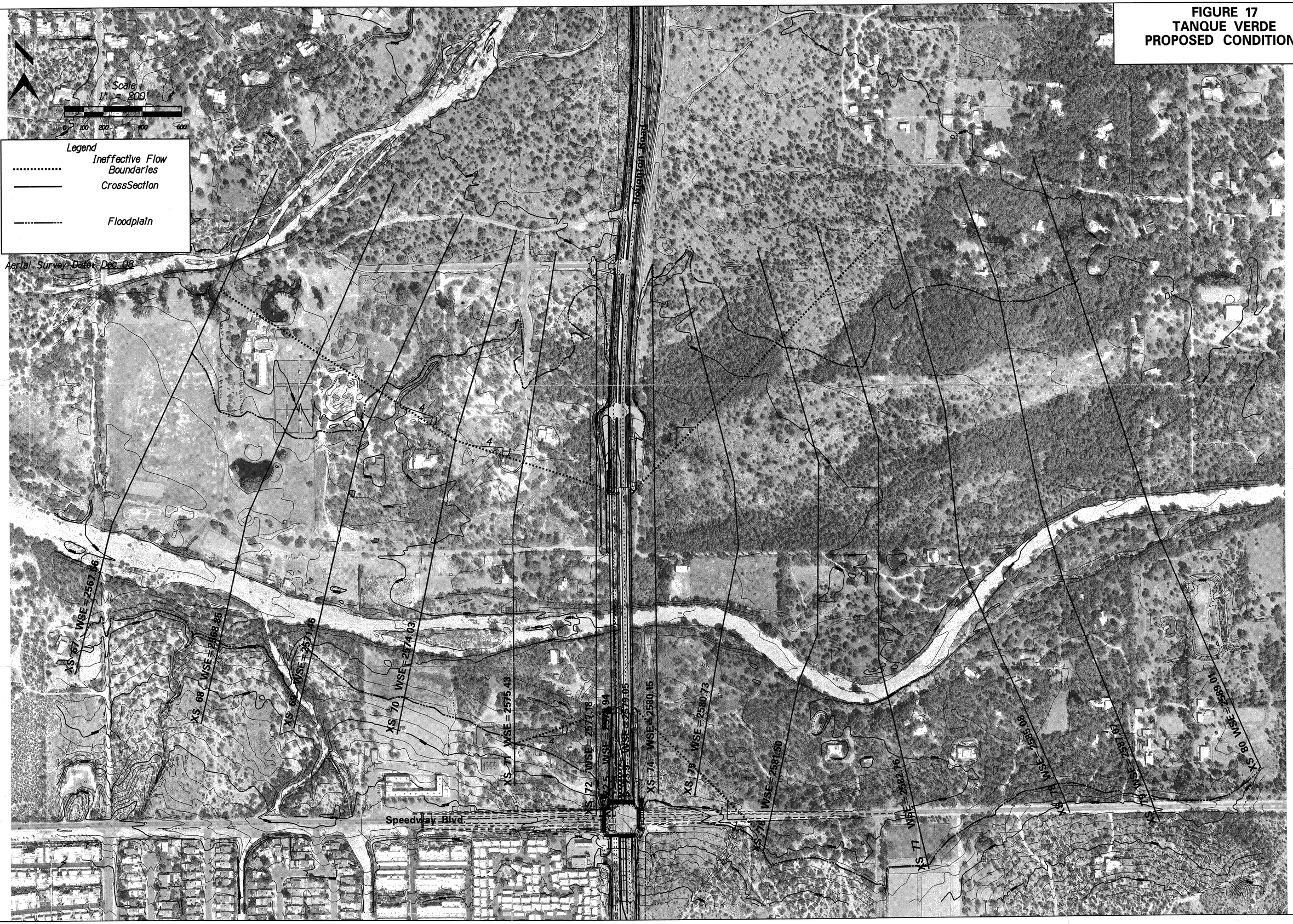
River Station (RS)	Existing Water Surface Elevation (WSE)	Proposed Water Surface Elevation (WSE)	Change in WSE
(--)	(feet)	(feet)	(feet)
67	2567.56	2567.56	0
68	2568.85	2568.85	0
69	2571.47	2571.46	-0.01
70	2574.03	2574.03	0
71	2575.42	2575.43	+0.01
72	2577.27	2577.18	-0.09
*72.4 Exist/ 72.5 Prop	2578.85	2578.94	+0.09
72.5	2578.72	*2578.40*	-0.32
Bridge			
73.5	2578.97	2579.05	+0.08
74	2580.12	2580.15	+0.03
75	2580.71	2580.73	+0.02
76	2581.49	2581.50	+0.01
77	2582.72	2582.76	+0.04
78	2585.08	2585.08	0
79	2587.07	2587.07	0
80	2589.01	2589.01	0

Italics denotes interpolated values.

* 72.4 in Existing is at 72.5 in Proposed

FIGURE 16
TANQUE VERDE
EXISTING CONDITIONS

FIGURE 17
TANQUE VERDE
PROPOSED CONDITIONS



4.4 Scour Analysis

Preliminary scour analyses were performed for the two major washes, Agua Caliente Wash and Tanque Verde Creek. Additional hydraulic models were required to perform the scour studies. The PCRFCD requested that design discharges are 20% higher than the 100-Year event discharges be used for design. Results from these models were used to compute design scour depths for each bridge.

The scour computation procedures followed for the major washes for this project are summarized below:

Step 1. Long Term Degradation/Aggregation

One component of scour that impacts design of foundations is the long term bed elevation change, degradation or aggregation. Research was conducted to evaluate the potential for bed elevation change for both the Agua Caliente Wash and the Tanque Verde Creek. Two previous bridge scour studies were reviewed for pertinent data to incorporate into this study, one of the Agua Caliente Wash and one for the Tanque Verde Creek, Reference 11 and 12, respectively. A third study which specifically addresses the geomorphic condition of the Tanque Verde Creek, Reference 13, was also reviewed for important data.

The Agua Caliente Wash data review shows that an assumption of 4-foot degradation was made for long term scour. This assumption was compared against an approximate method outlined in the Arizona State Standard 5-96 (Watercourse System Sediment Balance), Reference 14. The state standard was applied to estimate the long term scour which resulted in a 5-foot degradation for the Agua Caliente Wash.

The Tanque Verde Creek study review determined that the watercourse is in equilibrium. As a result no long term change is included in the total scour calculation.

Step 2. Contraction Scour

Hydraulic data was used to compute the magnitude of contraction scour based on either "clear water" or "live bed" scour. Clear water scour occurs if discharge velocities are less than the critical velocity for the average sediment diameter. Live Bed scour occurs if the velocities are greater than the critical velocity for the sediment.

Step 3. Pier Scour

Local pier scour was computed in accordance with the procedures within FHWA's HEC-18, Reference 15. A minimum attack angle of 15° was used within the computation. This approach is in accordance with ADOT design procedures and accounts for meandering approach flow. The bed form of the channel was required in the analysis and was estimated based on a nomograph from a sediment transport text book by Yang, Reference 16. The bedform nomograph plots the type of bed form based on stream power versus median fall diameter. All other procedures are provided in HEC-18.

Step 4. Abutment Scour
Similar to all other procedures, the abutment scour procedure follows the HEC-18 procedure. Flow distribution in the bridge face and upstream cross sections were used to estimate the actual width of encroachment.

Step 5. Total Scour
The total scour was determined by summing up the three components of scour: long term, contraction and pier/abutment scour.

Results from the scour analyses are provided in Table 10, below. Depths of scour are in-line with depths computed at other locations within Pima County and should be used for the foundation design for the new bridges. Computations are included in Appendix F.

Table 10: Scour Analysis Results

Reach	Long Term Scour	Contraction Scour	Pier Scour	Total Pier Scour	Abutment Scour	Total Abutment Scour
(--)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
Agua Caliente Wash	5	3.3	18.8	27	15.4	21
Tanque Verde Creek	0	1.3	25.4	27	25.5-Lt 14.9-Rt	26-Lt 15-Rt

The total scour calculated for this concept level analysis is based on sediment samples taken in the upper 1-foot of the main channel. Discussions with PCRFCD have determined that a more representative sample should be evaluated in the final design stage of this project. As a result it is recommended that the scour analysis be revised during the final design with a sediment sample at a more representative depth, 0-20'.

5.0
SUMMARY
&
CONCLUSIONS

Proposed drainage improvements for the Houghton Road-Tanque Verde Road to Speedway Boulevard project include the following:

- New bridges across the Agua Caliente Wash and Tanque Verde Creek parallel to the existing bridges at these washes
- Culvert extensions
- Stormdrain trunk line
- Pavement drainage system
- Removal of existing concrete lined channels

Improvements described below begin at the Houghton Road and Tanque Verde Road intersection and extend south to approximately 5th Street.

5.1 On-Site Drainage

The on-site proposed pavement runoff will be routed to properly-spaced catch basins, scuppers, and storm drain pipes along the proposed roadway. For cost estimating purposes, a conceptual storm drain system was laid out for the accompanying plans. Hydrologic or hydraulic analyses for this system will be completed during the design phase for this project.

Catch basins for the pavement drainage system were located at curb returns and along the roadway with a minimum spacing of approximately 300-foot spacing.
The storm-drain sizes were typically based on the following:

- Single Catch Basin – 24"
- Four Catch Basins – 30"
- Five to Eight Catch Basins (In Series) – 36"
- Greater than Eight Catch Basins – 42"

Pavement drainage inlets will be sized based on the 10-Year event meeting the pavement drainage design criteria. The stormdrain systems that contain what is considered offsite runoff will be designed for the 100-Year event from the offsite drainage confluence to the outfall; whereas, the upstream portion will be designed for the 10-Year event. Please refer to the roadway plan and profile sheets for an overview of the conceptual storm-drain systems.

5.2 Off-Site Drainage

Offsite drainage structures were preliminarily designed to accommodate runoff without significant impact to the existing washes and adjacent residences. The improvements consisted of constructing two new bridges, extending existing culverts and adding minor drainage components along Houghton Road.

The drainage improvements on the east side of the Tanque Verde Road and Houghton Road intersection include the extension of the existing box culvert to accommodate the larger roadway footprint. The existing box culvert is a 3-8'x4'x89' and is recommended to be extended 12' upstream and downstream.

On the west side of the Tanque Verde Road and Houghton Road intersection the existing structure is a 24"x38"x105' HERCP pipe culvert. It is recommended that the structure be extended 16' upstream and 17' downstream to accommodate the wider roadway footprint for Tanque Verde Road.

The existing box culvert crossing Speedway Boulevard, west of Houghton Road, is the cross drainage structure that is most impacted by the widening of Houghton Road. The existing box is a 1-10'x4'x172' and needs to be extended downstream by 92'. The downstream extension includes 2-15° angle points to shift the outlet away from the proposed fill slope for Houghton Road. The existing riprap plunge basin will be removed and reconstructed at the proposed outlet. The inlet requires modification as well. First, the existing grated inlet will be reconstructed and second, a 48" diameter stormdrain trunk line will connect to the existing box. This trunk line replaces the existing concrete line channel along the west side of Houghton Road south of Speedway Boulevard.

Just east of the Speedway Boulevard-Houghton Road intersection the existing pipe culvert, a 2-36"'x132' RCP, will remain without the need to extend the existing culvert. It is necessary, however, to reconstruct either a grated inlet or junction structure at the upstream side. This is the logical outfall for the proposed stormdrain since the proposed roadway eliminates the need for the existing concrete lined ditch and reduces the majority of the contributing watershed.

New bridges will be constructed downstream of the existing bridges at both the Agua Caliente Wash and Tanque Verde Creek. This will effectively "widen" each structure. The widening of the Agua Caliente Bridge results in a slight increase in the amount of flow that breaks out of the wash and flows south to the Tanque Verde Creek on the upstream side of Houghton Road. However, this does not result in significant changes to the water surface elevations (WSELs) or floodplains for either Tanque Verde Creek or Agua Caliente Wash, as the increase in WSELs are <0.1' in most places. The only location that the proposed condition WSEL increases by more than 0.1' is on Tanque Verde Creek immediately upstream and downstream of Tanque Verde Bridge (0.14' max). Grading can most likely mitigate the increase of WSE in this area and will be addressed during the final design stage for this project. Another possibility to mitigate the increased water surface elevation is to revise the regulatory flood elevations for the Tanque Verde Creek by submitting a CLOMR/LOMR to FEMA.

A summary of the proposed drainage improvements is included in Table 11. Additional analysis for these improvements may be needed during the final design phase depending on the limits of potential break-out projects.

Table 11: Summary of Drainage Improvements

Location	Existing Structure	Preliminary Structure	Comments
Sta 97+39 Tanque Verde Rd	24"x38"x105' HERCP	24"x38"x138' HERCP	Extending existing pipes. 16' North, and 17' South
Sta 100+10 Tanque Verde Rd.	3-8'x4' RCBC 89'Long	3-8'x4' RCBC 113' Long	Extending existing box. 12' North and 12' South
Tanque Verde Bridge	50-ft wide bridge that spans Tanque Verde Creek	Identical structure to be placed parallel to existing	The parallel structures will be divided by a 20' open median.
Agua Caliente Bridge	50-ft wide bridge that spans Agua Caliente Wash	Identical structure to be placed parallel to existing	The parallel structures will be divided by a 20' open median.
Sta 51+00 Speedway Blvd.	2-36"x132' RCBC	2-36"x132' RCP	Construct new area inlet Catch Basin. Proposed storm drain will insert flow into the existing structure.
Sta 49+10 Speedway Blvd.	1-10'x4'x172' RCBC	1-10'x4'x265' RCBC 48" Diameter Storm drain	Extend existing structure 90' North. Replace existing channel along west side of Houghton Road south of Speedway with a storm drain trunk line.
Sta 102+00 Houghton Road	4-36"x57' RCP	To be removed	To be replaced with an underground trunk line that will carry the runoff from the roadway.
Sta 112+50 Houghton Road	3-24"x53' RCP	To be removed	To be replaced with an underground trunk line that will carry the runoff from the roadway.
Sta 121+80 Houghton Road	4-24"x83' RCP	2'x3' Grated inlet	Most of the existing runoff is cut off by the footprint of the proposed road way. Located under Windstorm Dr.

During the next stage of this project (design stage), more detailed analyses will be performed. The design segment for this project will, most likely, be broken into multiple smaller segments. This report will be referenced for each of those segments.

6.0
REFERENCES

1) *Tucson Stormwater Management Study, Phase II, Stormwater Master Plan (Task 11),* Simons, Li & Associates, Inc., December 15, 1995.

2) *Standards Manual for Drainage Design and Floodplain Management in Tucson, Arizona*, Simons, Li & Associates, December 1989, updated July 29, 1998.

3) Urban Drainage Design Manual Hydraulic Engineering Circular No. 22, U.S. Department of Transportation. November 1996

4) *Flood Insurance Study, Pima County Arizona and Incorporated Areas Vol 1 of 3,* Federal Emergency Management Agency, February 8, 1999.

5) *Tanque Verde Road – Catalina Highway to Houghton Road,* CMG Drainage Engineering, Inc., September '09

6) *Speedway Boulevard – Camino Seco to Houghton Road*, HDR Engineering, Inc. In progress; Draft Final Drainage Report and Draft Final Drainage Plans provided by HDR in March '09.

7) *Drainage Report for Vista Verde Estates,* Delph Engineering, Inc. January, 2007.

8) VERTCON. National Geodetic Survey 18 Feb 2009
<http://www.ngs.noaa.gov/TOOLS/Vertcon/vertcon.html>

9) *Agua Caliente Wash Flood Study and FEMA Conditional Letter of Map Revision Submittal,* WEST Consultants, Inc., January 26, 2007.

10) HEC-2 FEMA 1994 FIS Tanque Verde Creek Floodplain Model. MMLA. 1994

11) *Bridge Scour Evaluation Report, Houghton Road Bridge at Agua Caliente Creek*, Cannon & Associates Inc, November 26, 1997

12) *Bridge Scour Evaluation Report Houghton Road Bridge at Tanque Verde Wash*, Cannon & Associates Inc., November 26, 1997

13) *Tanque Verde Creek Management Study Phase I – Attachment 3 Geomorphic Assessment*, CMG Drainage Engineering, July 30 1993.

14) *State Standards 5-96, State Standard for Watercourse System Sediment & Balance*, Arizona Department of Water Resources Flood Warning and Dam Safety Section, September 1996

15) *Evaluating Scour at Bridges Hydraulic Engineering Circular No. 18*, Us Department of Transportation. May 2001.

16) *Sediment Transport: Theory and Practice*. Yang, Chih Ted. New York: The McGraw-Hill Companies, Inc., 1996

APPENDIX A

HYDROLOGY

A-1

TSMS HYDROLOGY

Bambauer, Gregory

From: Frank Sousa [Frank.Sousa@tucsonaz.gov]
Sent: Thursday, January 03, 2008 4:54 PM
To: Bambauer, Gregory
Cc: Blau, Jeff; Pargas, Rick; MJ Dillard
Subject: RE: Houghton Road TSMS Modeling

MG009510.DAT (3 KB) MC00610T.DAT (7 KB) MC00700T.DAT (3 KB) MC00710T.DAT (3 KB) MC00800T.DAT (3 KB) MC00810T.DAT (3 KB) MC00900T.DAT (5 KB)

MC00910T.DAT (5 KB) MC01100T.DAT (3 KB) MC01110T.DAT (3 KB) MC0120.CR2 (11 KB) MG004500.DAT (6 KB) MG004510.DAT (3 KB) MG0090.CR2 (4 KB)

MG00900T.DAT (4 KB) MG00910T.DAT (4 KB) MG0095.CR2 (2 KB) MG009500.DAT (3 KB) MC00600T.DAT (7 KB) MG00510T.DAT (6 KB) MG00500T.DAT (6 KB)

MG0050.CR2 (6 KB) houghton 22nd north sheds2.shx... houghton 22nd north lusoilsshe... houghton 22nd north lusoilsshe... houghton 22nd north lusoilsshe... houghton 22nd north sheds2.dbf... houghton 22nd north sheds2.shp...

houghton 22nd north lusheds2.x...

Here is the requested data.

Node Speedway Blvd.	Q100	Q10
MC-N0060	905 cfs	341 cfs
MC-N0090	480 cfs	192 cfs
MC-N0110	295 cfs	112 cfs

Broadway Blvd.	Q100	Q10
MC-N0080	151cfs	56 cfs
MC-N0070	193 cfs	77 cfs
MG-N0045	1,142 cfs	439 cfs
MG-N0090	567 cfs	232 cfs
MG-N0095	137 cfs	57 cfs

Attached are the HEC-1 input files (.dat), watershed summary reports (.CR2), shape file sets for the additional watersheds west of Houghton Rd.(houghton 22nd north sheds2,....), and an excel spreadsheet with the updated watershed data.

future condition changes:

MG-N0095, same as for MG0N0080, little expected change unless redeveloped MG-N0090 some undeveloped property exists. Probable 10% or less increase in discharge.

The new discharge rates will not be posted on the web page until tomorrow or Monday.

Let me know if you need anything else. All are labeled as verified 7/07

Francis X. Sousa

Lead Hydrologist
Office of Conservation and Sustainable Development City of Tucson 520-837-6581, voice 520-791-4373, fax frank.sousa@tucsonaz.gov

>>> "Bambauer, Gregory" <Bambauer@pbworld.com> 12/5/2007 10:51 AM >>>
Mr. Sousa;
I would like to extend my thanks for your previous assistance with the above referenced project. Upon further investigation on the roadway limits, we have found the need for additional information on TSMS nodes.
We have identified that the extent of roadway improvements may impact the washes with the following TSMS nodes:

Node
Speedway Blvd.
MC-N0060
MC-N0090
MC-N0110

Broadway Blvd.
MC-N0080
MC-N0070
MG-N0090
MG-N0095

If possible can you please provide us with the same information on the previous nodes?
Your assistance is greatly appreciated.

Best Regards

Gregory A. Bambauer, PE

PB
177 N. Church Avenue, Suite 500
Tucson, Arizona 85701

Direct: 520.838.3410
Cellular: 520.403.6241
Fax: 520.822.8830
Email: bambauer@pbworld.com

www.pbworld.com

-----Original Message-----
From: Blau, Jeff
Sent: Wednesday, September 05, 2007 9:14 AM
To: Bambauer, Gregory
Subject: FW: Houghton Road TSMS Modeling

FYI

-----Original Message-----
From: Frank Sousa [mailto:Frank.Sousa@tucsonaz.gov]
Sent: Tuesday, June 26, 2007 3:50 PM
To: Blau, Jeff
Subject: RE: Houghton Road TSMS Modeling

Here are the 10-year results. Attached are the HEC-1 input files.

Node	Q100	Q10
MC-N0100	370 cfs	146 cfs
MC-N0120	1584 cfs	616 cfs

MG-N0030	1098 cfs	412 cfs
MG-N0040	202 cfs	71 cfs
MG-N0080	465 cfs	184 cfs
MG-N0100	118 cfs	55 cfs
MG-N0160	947 cfs	383 cfs
MG-N0170	951 cfs	388 cfs

>>> "Blau, Jeff" <Blau@pbworld.com> 6/26/2007 8:57 AM >>>
Frank,

Thank-you for doing this verification and getting me the results so quickly.

Will you be able to also give me the 10-year models?

Thanks,
Jeff

-----Original Message-----
From: Frank Sousa [mailto:Frank.Sousa@tucsonaz.gov]
Sent: Monday, June 25, 2007 3:09 PM
To: Blau, Jeff
Cc: Pargas, Rick
Subject: Re: Houghton Road TSMS Modeling

Hi Jeff

Verification of TSMS hydrology for the requested locations is complete.

Land uses and soils changed, subwatershed areas changes little. Routing parameters did not change due to watercourse preservation by new developments. Non contributing area verification was densified and updated.

The flow rates are for existing conditions.

Node	Q100
MC-N0100	370 cfs
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MG-N0160	947 cfs
MG-N0170	951 cfs

Most flow rates changed little since the last verification for the watersheds in 2001.

Future conditions corrections:

Vacant land parcels were classified (true or false in the "developabl" column in the "Houghton rd speedway south lusouls sheds" shape file) as developable or non-developable (NUOS, common area, etc.). The attached image (Houghton Rd vacant land inventory) shows the vacant land distribution with developable land shown in yellow, and non-developable land shown in green. Recommended future conditions corrections are as follows:

Node MG-N0030 has significant vacant land that probably will not be developed unless the Tucson Catholic Diocese sells the land, Since the downstream land is already developed and there are no 100-yr drainage structures in place, development of the properties would require detention to mitigate adverse impacts downstream. Worst case, add 10%

Node MG-N0040 has significant percentages of developable land. Changing the vacant land to RETAIL (as with most intersection lots) increases the flow rate from 202 cfs to 243 cfs assuming no detention/retention and not changing the overland flow data values. Revised overland flow data would increase the flow rate further. The site will undoubtedly be required to provide detention/retention so using the 243 cfs should be adequate (about

10%).

Node MG-N0080 flow rates could only change if the existing housing was demolished and redeveloped. No flow change for this location is anticipated barring redevelopment.

Nodes MG-N0160 is fully developed and node N0170 has only a small portion of developable land just upstream of Houghton Rd. No changes are anticipated for these locations without redevelopment of existing uses.

The watershed for node MC-N0100 is 65.5% developable vacant land. The watershed is non-designated. The Silverado Hills subdivision did not provide detention. Future development will have to provide detention/retention as per the Houghton East Basin Management Plan. Section 3.4 states that most of this area should be treated as a critical basin with a 10% reduction from existing in discharge rates.
Section 5 requires detention/retention unless no adverse impact can be demonstrated. A 10% future flow rate safety factor appears adequate.

Node MC-0120 is subject to the same conditions as MC-N0100.

Attachments

Attached are the HEC-1 input files (.dat) watershed summary reports (.cr2)

Attached is an Excel spread sheet with the land use and soil percentages (Houghton rd speedway south lusouls sheds.xls)

Also attached are the following ArcView shape files (three files, .dbf, .shp, and .shx)

Houghton 22 north sheds (mislabeled) = subwatersheds only for the study Houghton rd speedway south lusouls sheds = subwatershed with soils and land uses breakdowns.

Let me know if you need more information.
Enjoy!!!

Francis X. Sousa
Lead Hydrologist
Department of Transportation
Engineering Division
Stormwater Section
City of Tucson
520-837-6581, voice
520-791-4373, fax
frank.sousa@tucsonaz.gov

>>> "Blau, Jeff" <Blau@pbworld.com> 6/7/2007 9:22 AM >>>

Frank,

As a follow up to our phone conversation yesterday, you said that you will do the TSMS model verification and future conditions parameter estimates for the TSMS nodes impacting the Houghton Road Speedway to Old Spanish Trail segment project. Your estimated time to finish the verification, data input and model runs is about 2 weeks.

Following are the TSMS Nodes that we will need the Q10 and Q100 discharges for:

MC-N0100, MC-N0120, MG-N0030, MG-N0040, MG-N0080, MG-N0160 and MG-N0170.

As we discussed on the phone, we will need the existing conditions as well as the future conditions discharges.
Also, in addition to the HEC-1 model output, can we please get an electronic copy of the watershed mapping including aerial photos with contours.

Please let me know if you need anything from me or have any questions.

Thank-you,

Jeff Blau, PE
Drainage Engineer

PB
177 N. Church Avenue, Suite 500
Tucson, Arizona 85701

Direct: 520-838-3412
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Bambauer, Gregory

From: Blau, Jeff
Sent: Wednesday, September 05, 2007 9:14 AM
To: Bambauer, Gregory
Subject: FW: Houghton Road TSMS Modeling

MG01710T.DAT (5 KB) MC01210T.DAT (10 KB) MG00310T.DAT (5 KB) MG00410T.DAT (3 KB) MG00810T.DAT (3 KB) MG01010T.DAT (3 KB) MG01610T.DAT (4 KB)

MC01010T.DAT (3 KB)

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A-2

EXISTING CONDITION HYDROLOGY

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - TANQUE VERDE ROAD to SPEEDWAY BLVD.	
CP Desc:	TV_A	R/O to 24"x38" West of Houghton Road @ Tanque Verde Road. (Existing Condition)

DA:	6.6	-Acres
Lc:	1156.1	-Feet
Lca:	578.1	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	[illegible]	Date:	6/06/10

Slope Computation --

CPi	Dli	Dhi	Si
	136.3	2.6	0.0190
	280.2	9.8	0.0350
	223.4	2.8	0.0125
	516.2	0.6	0.0012
Lc:	1156.1	Sc:	0.0035

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	DF	0.055	1.00
Natural/Rural	DF	0.055	1.00
Natural/Rural	NC	0.045	1.00
Natural/Rural	NC	0.045	1.00
		n_{bw100}:	0.046
		F_{ACW}:	1.00

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	3.55	100	0.60					20	0.96	0.67
	Natural/Rural	3.05			65	0.70	35	0.77	20	0.96	0.77
										Cw:	0.72

	Calc'd	Used
T_{C100}=	15.68	15.68

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{B100})^{0.4}} + 1.31 \right)$$

i_{100}=	6.73

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr	50-Yr Ratio	F_{ACW}
Natural/Rural	3.55	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	3.05	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	31.7
Q_{50}=	24.4
Q_{25}=	18.4
Q_{10}=	11.7
Q_5=	7.3
Q_2=	3.2

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - TANQUE VERDE ROAD - SPEEDWAY BLVD.	
CP Desc:	TV_B	R/O to Box East of Houghton Road @ Tanque Verde Road (Existing Conditon)

DA:	192.00	-Acres
Lc:	6661.0	-Feet
Lca:	3199.0	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	JB	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
	118.0	6.0	0.0508
	1201.0	34.0	0.0283
	4629.0	48.0	0.0104
	713.0	4.0	0.0056
Lc:	6661.0	Sc:	0.0113

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	NC	0.045	1.00
Natural/Rural	NC	0.045	1.00
Natural/Rural	NC	0.045	1.00
Natural/Rural	CC	0.035	1.00
	n_{bw100}:	0.043	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	76.75	100	0.60					5	0.96	0.62
	Natural/Rural	71.43			35	0.70	35	0.77	12	0.96	0.57
	Natural/Rural	43.84			50	0.70	50	0.77	7	0.96	0.75
										Cw:	0.63

	Calc'd	Used
T_{C100}=	32.37	32.37

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	4.58

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	76.75	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	71.43	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	43.84	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	553.6
Q_{50}=	426.3
Q_{25}=	321.1
Q_{10}=	204.8
Q_5=	127.3
Q_2=	55.4

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - TANQUE VERDE ROAD - SPEEDWAY BLVD.	
CP Desc:	CP A	Flow reaching culvert under Windstorm Drive on the east side of Houghton (Existing Condition

DA:	4.90	-Acres
Lc:	2256.2	-Feet
Lca:	1021.5	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	J. B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
	621.0	14.5	0.0233
	65.0	2.5	0.0385
	1141.3	30.5	0.0267
	428.9	13.0	0.0303
Lc:	2256.2	Sc:	0.0266

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	NC	0.045	1.00
Natural/Rural	NC	0.045	1.00
Natural/Rural	NC	0.045	1.00
Natural/Rural	NC	0.045	1.00
	n_{bw100}:	0.045	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	4.90			65	0.70	35	0.77	20	0.96	0.77
										Cw:	0.77

	Calc'd	Used
T_{C100}=	8.83	8.83

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100}C_{B100})^{0.4}} + 1.31 \right)$$

i_{100}=	8.32

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	4.90	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	31.5
Q_{50}=	24.2
Q_{25}=	18.3
Q_{10}=	11.6
Q_5=	7.2
Q_2=	3.1

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	B1	SOUTHEAST CORNER OF HOUGHTON & SPEEDWAY
	B, NORTH EAST Vee DITCH ALONG HOUGHTON TO CMP @ SPEEDWAY	

DA:	1.55	-Acres
Lc:	1055.0	-Feet
Lca:	593.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J.B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
	156.0	7.0	0.0449
	899.0	35.1	0.0390
Lc:	1055.0	Sc:	0.0398

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
		n_{bw100}: 0.024	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	1.55	24	0.60	49	0.70	27	0.77	26	0.96	0.76
										Cw:	0.76

	Calc'd	Used
T_{C100}=	3.30	5.00

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.60

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	CAF
Natural/Rural	1.55	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	11.4
Q_{50}=	8.8
Q_{25}=	6.6
Q_{10}=	4.2
Q_5=	2.6
Q_2=	1.1

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	B2	MINOR ROADSIDE SWALE ALONG HOUGHTON @ SPEEDWAY - NORTHBOUND
	B, HOUGHTON & SPEEDWAY INTERSECTION	

DA:	1.28	-Acres
Lc:	1302.0	-Feet
Lca:	617.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J. B	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
	1302.0	49.3	0.0379
Lc:	1302.0	Sc:	0.0379

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
	n_{bw100}:	0.024	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_i (-)	C (-)
	Natural/Rural	1.28	38	0.60	40	0.70	22	0.77	87	0.96	0.92
										Cw:	0.92

	Calc'd	Used
T_{C100}=	3.34	5.00

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{IF100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.60

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C\,100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	CAF
Natural/Rural	1.28	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	11.3
Q_{50}=	8.7
Q_{25}=	6.6
Q_{10}=	4.2
Q_5=	2.6
Q_2=	1.1

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	B3	MINOR ROADSIDE SWALE ALONG HOUGHTON @ SPEEDWAY - SOUTHBOUND
	B, HOUGHTON & SPEEDWAY INTERSECTION	

DA:	0.87	-Acres
Lc:	1053.0	-Feet
Lca:	448.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J.B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
	1053.0	39.0	0.0370
Lc:	1053.0	Sc:	0.0370

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
	n_{bw100}:	0.024	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	0.87	59	0.60	27	0.70	14	0.77	61	0.96	0.84
										Cw:	0.84

	Calc'd	Used
T_{C100}=	3.12	5.00

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{B100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.60

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C\,100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	CAF
Natural/Rural	0.87	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	7.0
Q_{50}=	5.4
Q_{25}=	4.1
Q_{10}=	2.6
Q_5=	1.6
Q_2=	0.7

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C0	OUTLET OF STRUCTURE WEST OF SPEEDWAY HOUGHTON INTERSECTION
	EXISTING CONDITION	

DA:	37.73	-Acres
Lc:	4247.0	-Feet
Lca:	1167.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J. B.	Date:	5/8./09

Slope Computation --

CPi	Dli	Dhi	Si
6	1507.0	42.0	0.0279
5	481.0	13.0	0.0270
5	545.0	18.0	0.0330
5	260.0	9.0	0.0346
5	90.0	8.0	0.0889
3	423.0	13.0	0.0307
2	78.0	1.2	0.0154
2	566.0	22.0	0.0389
1	122.0	6.4	0.0523
0	175.0	6.0	0.0341
Lc:	4247.0	Sc:	0.0312

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
	n_{bw100}:	0.024	F_{ACW}: 1.00

P_{1-100}: 3.00 Inches

F_{ACW} OVERRIDE: 0.89

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Natural/Rural	2.88			65	0.70	35	0.77	23	0.96	0.78
5	Natural/Rural	2.90			65	0.70	35	0.77	31	0.96	0.80
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
3	Natural/Rural	0.79			65	0.70	35	0.77	50	0.96	0.84
2	Natural/Rural	1.17			65	0.70	35	0.77	30	0.96	0.80
1	Commercial/Industr	3.34	100	0.60					90	0.96	0.92
Spdwy	Commercial/Industr	3.90	100	0.60					92	0.96	0.93
HDR	Natural/Rural	9.90									0.65
										Cw:	0.79

	Calc'd	Used
T_{C100}=	5.58	5.58

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{w100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.38

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C\,100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	2.88	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	2.90	0.10	0.23	0.37	0.58	0.77	1.00
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Natural/Rural	0.79	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	1.17	0.10	0.23	0.37	0.58	0.77	1.00
Commercial/Indus	3.34	0.22	0.35	0.50	0.70	0.90	1.00
Commercial/Indus	3.90	0.22	0.35	0.50	0.70	0.90	0.90

Q_{100}=	247.1
Q_{50}=	203.2
Q_{25}=	154.9
Q_{10}=	105.2
Q_5=	68.4

Q_2=	**37.1**

Natural/Rural	9.90	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		**0.15**	**0.28**	**0.43**	**0.63**	**0.82**	**0.89**

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C1	GRATED INLET @ SW CORNER OF HOUGHTON ROAD & SPEEDWAY

DA:	23.93	-Acres
Lc:	4072.0	-Feet
Lca:	1480.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J.B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
6	1507.0	42.0	0.0279
5	481.0	13.0	0.0270
5	545.0	18.0	0.0330
5	260.0	9.0	0.0346
5	90.0	8.0	0.0889
3	423.0	13.0	0.0307
2	78.0	1.2	0.0154
2	566.0	22.0	0.0389
1	122.0	6.4	0.0523
Lc:	4072.0	Sc:	0.0311

$P_{1\text{-}100}$: 3.00 Inches

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
	n_{bw100}:	0.024	F_{ACW}: 1.00

F_{ACW} OVERRIDE: 0.84

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Natural/Rural	2.88			65	0.70	35	0.77	23	0.96	0.78
5	Natural/Rural	2.90			65	0.70	35	0.77	31	0.96	0.80
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
3	Natural/Rural	0.79			65	0.70	35	0.77	50	0.96	0.84
2	Natural/Rural	1.17			65	0.70	35	0.77	30	0.96	0.80
1	Commercial/Indust	3.34	100	0.60					90	0.96	0.92
										Cw:	0.82

	Calc'd	Used
T_{C100}=	5.80	5.80

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100}C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.30

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	2.88	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	2.90	0.10	0.23	0.37	0.58	0.77	1.00
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Natural/Rural	0.79	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	1.17	0.10	0.23	0.37	0.58	0.77	1.00
Commercial/Indus	3.34	0.22	0.35	0.50	0.70	0.90	1.00

Q_{100}=	153.0
Q_{50}=	127.2
Q_{25}=	97.1
Q_{10}=	66.8
Q_5=	43.5
Q_2=	24.4

Weighted Average:	0.16	0.28	0.44	0.63	0.83	0.84

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C2	SOUTHERN MOST CIRCLE K DRIVEWAY CROSSING
	C -- EXISTING CONDITION, NEXT LOWER SUBBASIN - (C3 UPSTREAM)	

DA:	20.59	-Acres
Lc:	3950.0	-Feet
Lca:	1341.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J.B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
6	1507.0	42.0	0.0279
5	481.0	13.0	0.0270
5	545.0	18.0	0.0330
5	260.0	9.0	0.0346
5	90.0	8.0	0.0889
3	423.0	13.0	0.0307
2	78.0	1.2	0.0154
2	566.0	22.0	0.0389
	Lc: 3950.0	Sc:	0.0306

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
	n_{bw100}:	0.024	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 0.81

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Natural/Rural	2.88			65	0.70	35	0.77	23	0.96	0.78
5	Natural/Rural	2.90			65	0.70	35	0.77	31	0.96	0.80
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
3	Natural/Rural	0.79			65	0.70	35	0.77	50	0.96	0.84
2	Natural/Rural	1.17			65	0.70	35	0.77	30	0.96	0.80
										Cw:	0.80

	Calc'd	Used
T_{C100}=	5.67	5.67

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{ff100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.35

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C\,100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	2.88	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	2.90	0.10	0.23	0.37	0.58	0.77	1.00
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Natural/Rural	0.79	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	1.17	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.15	0.27	0.43	0.62	0.82	0.81

Q_{100}=	125.5
Q_{50}=	102.9
Q_{25}=	78.3
Q_{10}=	53.5
Q_5=	34.4
Q_2=	18.8

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C3	CONFLUENCE OF SUBDIVISION AND CHANNEL NORTH OF 5TH STREET
	C -- EXISTING CONDITION, (C5 & C4 UPSTREAM)	

DA:	19.42	-Acres
Lc:	3306.0	-Feet
Lca:	782.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J.B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
6	1507.0	42.0	0.0279
5	481.0	13.0	0.0270
5	545.0	18.0	0.0330
5	260.0	9.0	0.0346
5	90.0	8.0	0.0889
3	423.0	13.0	0.0307
Lc:	3306.0	Sc:	0.0301

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
	n_{bw100}:	0.024	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 0.80

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Natural/Rural	2.88			65	0.70	35	0.77	23	0.96	0.78
5	Natural/Rural	2.90			65	0.70	35	0.77	31	0.96	0.80
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
3	Natural/Rural	0.79			65	0.70	35	0.77	50	0.96	0.84
		19.42								Cw:	0.80

	Calc'd	Used
T_{C100}=	4.75	5.00

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100}C_{B100})^{0.4}} + 1.31 \right)$$

i_{100}= 9.60

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C\,100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	2.88	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	2.90	0.10	0.23	0.37	0.58	0.77	1.00
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Natural/Rural	0.79	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.15	0.28	0.43	0.63	0.82	0.80

Q_{100}=	120.0
Q_{50}=	98.7
Q_{25}=	75.1
Q_{10}=	51.5
Q_5=	33.1
Q_2=	18.3

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C4	DIRT DRIVEWAY NORTH OF 5TH STREET WEST SIDE OF HOUGHTON
	C -- EXISTING CONDITION, SUBDIVISION WEST OF CHANNEL ->DRAINS TO CHANNEL	

DA:	12.85	-Acres
Lc:	1406.0	-Feet
Lca:	569.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J.B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
4	150.0	3.0	0.0200
4	1256.0	37.0	0.0295
Lc:	1406.0	Sc:	0.0282

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Moderately Urban	DF	0.048	0.70
Moderately Urban	DF	0.048	0.70
	n_{bw100}:	0.048	F_{ACW}: 0.70

$P_{1\text{-}100}$: 3.00 Inches

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
										Cw:	0.81

	Calc'd	Used
T_{C100}=	6.56	6.56

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.04

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	CAF
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Weighted Average:		0.18	0.30	0.46	0.65	0.85	0.70

Q_{100}=	65.6
Q_{50}=	55.7
Q_{25}=	42.6
Q_{10}=	30.2
Q_5=	19.7
Q_2=	11.8

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C5	DIRT DRIVEWAY NORTH OF 5TH STREET WEST SIDE OF HOUGHTON
	C -- EXISTING CONDITION, NEXT LOWER SUBBASIN (C6 UPSTREAM)	

DA:	5.78	-Acres
Lc:	2883.0	-Feet
Lca:	1376.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J.B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
6	1507.0	42.0	0.0279
5	481.0	13.0	0.0270
5	545.0	18.0	0.0330
5	260.0	9.0	0.0346
5	90.0	8.0	0.0889
Lc:	2883.0	Sc:	0.0300

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
	n_{bw100}:	0.024	F_{ACW}: 1.00

P_{1-100}: 3.00 Inches

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Natural/Rural	2.88			65	0.70	35	0.77	23	0.96	0.78
5	Natural/Rural	2.90			65	0.70	35	0.77	31	0.96	0.80
										Cw:	0.79

	Calc'd	Used
T_{C100}=	5.33	5.33

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{B100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.47

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	CAF
Natural/Rural	2.88	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	2.90	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	43.2
Q_{50}=	33.2
Q_{25}=	25.0
Q_{10}=	16.0
Q_5=	9.9
Q_2=	4.3

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C6	SOUTHWEST CROSSING @ 5TH & HOUGHTON
	C -- EXISTING CONDITION, UPPERMOST CONTRIBUTING SUBBASIN	

DA:	2.88	-Acres
Lc:	1507.0	-Feet
Lca:	613.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	J.B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
6	1507.0	42.0	0.0279
Lc:	1507.0	Sc:	0.0279

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
	n_{bw100}:	0.024	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Natural/Rural	2.88			65	0.70	35	0.77	25	0.96	0.78
										Cw:	0.78

	Calc'd	Used
T_{C100}=	3.88	5.00

$$T_{c\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.60

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	CAF
Natural/Rural	2.88	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	21.7
Q_{50}=	16.7
Q_{25}=	12.6
Q_{10}=	8.0
Q_5=	5.0
Q_2=	2.2

A-3

PROPOSED CONDITION HYDROLOGY

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515
Project Name:	HOUGHTON ROAD - TANQUE VERDE ROAD to SPEEDWAY BLVD.
CP Desc:	TV_A R/O to 24"x38" HERCP West of Houghton Road @ Tanque Verde Road. Proposed Condition)

DA:	6.6	-Acres
Lc:	1156.1	-Feet
Lca:	578.1	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	[illegible]	Date:	06 Aug 10

Slope Computation --

CPi	Dli	Dhi	Si
	136.3	2.6	0.0190
	280.2	9.8	0.0350
	223.4	2.8	0.0125
	516.2	0.6	0.0012
Lc:	1156.1	Sc:	0.0035

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	DF	0.055	1.00
Natural/Rural	DF	0.055	1.00
Natural/Rural	NC	0.045	1.00
Natural/Rural	NC	0.045	1.00
	n_{bw100}:	0.046	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	3.55	100	0.60					20	0.96	0.67
	Natural/Rural	3.05			65	0.70	35	0.77	20	0.96	0.77
										Cw:	0.72

	Calc'd	Used
T_{C100}=	15.68	15.68

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100}C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	6.73

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	3.55	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	3.05	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	31.7
Q_{50}=	24.4
Q_{25}=	18.4
Q_{10}=	11.7
Q_5=	7.3
Q_2=	3.2

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - TANQUE VERDE ROAD - SPEEDWAY BLVD.	
CP Desc:	TV_B	R/O to Box East of Houghton Road @ Tanque Verde Road Proposed Conditon)

DA:	192.00	-Acres
Lc:	6661.0	-Feet
Lca:	3199.0	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	J.B.	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
	118.0	6.0	0.0508
	1201.0	34.0	0.0283
	4629.0	48.0	0.0104
	713.0	4.0	0.0056
Lc:	6661.0	Sc:	0.0113

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	NC	0.045	1.00
Natural/Rural	NC	0.045	1.00
Natural/Rural	NC	0.045	1.00
Natural/Rural	CC	0.035	1.00
		n_{bw100}: 0.043	F_{ACW}: 1.00

P_{1-100}: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	76.75	100	0.60					5	0.96	0.62
	Natural/Rural	71.43			35	0.70	35	0.77	12	0.96	0.57
	Natural/Rural	43.84			50	0.70	50	0.77	7	0.96	0.75
										Cw:	0.63

	Calc'd	Used
T_{C100}=	32.37	32.37

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100}C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	4.58

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	76.75	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	71.43	0.10	0.23	0.37	0.58	0.77	1.00
Natural/Rural	43.84	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	553.6
Q_{50}=	426.3
Q_{25}=	321.1
Q_{10}=	204.8
Q_5=	127.3
Q_2=	55.4

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - TANQUE VERDE ROAD - SPEEDWAY BLVD.	
CP Desc:	CP A	Large portion being cut-off by proposed roadway (Proposed Condition)

DA:	0.74	-Acres
Lc:	579.7	-Feet
Lca:	290.6	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	BLSU	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
	579.7	15.5	0.0267
Lc:	579.7	Sc:	0.0267

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	NC	0.045	1.00
	n_{bw100}:	0.045	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	4.90			65	0.70	35	0.77	0		0.72
										Cw:	0.72

	Calc'd	Used
T_{C100}=	4.38	5.00

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{IF100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.60

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	4.90	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	5.1
Q_{50}=	4.0
Q_{25}=	3.0
Q_{10}=	1.9
Q_5=	1.2
Q_2=	0.5

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	CP-B1	SOUTHEAST CORNER OF HOUGHTON & SPEEDWAY
	CP B, NORTH EAST Vee DITCH ALONG HOUGHTON TO CMP @ SPEEDWAY	

DA:	0.89	-Acres
Lc:	312.0	-Feet
Lca:	156.0	-Feet

Calc'd:	Bambauer	Date:	
Chk'd:	Blm	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
	312.0	14.0	0.0449
Lc:	312.0	Sc:	0.0449

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
Natural/Rural	IC	0.024	1.00
	n_{bw100}:	0.024	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	0.09	24	0.60	49	0.70	27	0.77	26	0.96	0.76
										Cw:	0.76

	Calc'd	Used
T_{C100}=	2.26	5.00

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100}C_{w100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.60

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	CAF
Natural/Rural	0.09	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	6.5
Q_{50}=	5.0
Q_{25}=	3.8
Q_{10}=	2.4
Q_5=	1.5
Q_2=	0.7

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C0	OUTLET OF STRUCTURE WEST OF SPEEDWAY HOUGHTON INTERSECTION
	PROPOSED CONDITION	

DA:	46.25	-Acres
Lc:	4476.9	-Feet
Lca:	1734.5	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	Blan	Date:	5/11/09

Slope Computation --

CPi	Dli	Dhi	Si
5	50.0	1.0	0.0200
5	2710.0	74.3	0.0274
5	26.8	0.5	0.0200
5	300.0	13.6	0.0453
3	450.0	16.2	0.0360
2	617.0	22.2	0.0360
1	153.1	5.2	0.0341
0	170.0	5.8	0.0341
Lc:	4476.9	Sc:	0.0304

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Commercial/Indus	DF	0.048	0.90
Commercial/Indus	DF	0.048	0.90
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
	n_{bw100}:	0.037	F_{ACW}: 0.87

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 0.88

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Commercial/Indust	1.05			65	0.70	35	0.77	0		0.72
5	Commercial/Indust	12.71			65	0.70	35	0.77	81	0.96	0.92
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
2&3	Highly Urban	3.95			65	0.70	35	0.77	68	0.96	0.88
1&2	Highly Urban	1.87	100	0.60					84	0.96	0.90
Spdwy	Commercial/Indust	3.90	100	0.60					92	0.96	0.93
HDR	Natural/Rural	9.90									0.65
										Cw:	0.82

	Calc'd	Used
T_{C100}=	9.68	9.68

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{100})^{0.4}} + 1.31 \right)$$

i_{100}=	8.09

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Q_{100}=	270.6
Q_{50}=	232.2
Q_{25}=	178.7
Q_{10}=	124.7
Q_5=	84.0
Q_2=	49.6

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Commercial/Indus	1.05	0.22	0.35	0.50	0.70	0.90	0.90
Commercial/Indus	12.71	0.22	0.35	0.50	0.70	0.90	0.90
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Highly Urban	3.95	0.22	0.35	0.50	0.70	0.90	0.80
Highly Urban	1.87	0.22	0.35	0.50	0.70	0.90	0.80
Commercial/Indus	3.90	0.22	0.35	0.50	0.70	0.90	0.90
Natural/Rural	9.90	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.18	0.31	0.46	0.66	0.86	0.85

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL
CP Desc:	HDR CP Speedway East of Schrader
	PROPOSED CONDITION

DA:	9.90	-Acres
Lc:	1125.0	-Feet
Lca:	600.0	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	Blay	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
P	1125.0	40.0	0.0356
Lc:	1125.0	Sc:	0.0356

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Natural/Rural	IC	0.024	1.00
n_{bw100}:		0.024	F_{ACW}: 1.00

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
	Natural/Rural	9.84	82	0.60			18	0.77	5	0.96	0.65
	Highly Urban	0.06	100	0.60					60	0.96	0.82
										Cw:	0.65

	Calc'd	Used
T_{C100}=	3.59	5.00

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.60

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C\,100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	9.84	0.10	0.23	0.37	0.58	0.77	1.00
Highly Urban	0.06	0.22	0.35	0.50	0.70	0.90	0.80
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	61.6
Q_{50}=	47.5
Q_{25}=	35.8
Q_{10}=	22.8
Q_5=	14.2
Q_2=	6.2

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C1	GRATED INLET @ SW CORNER OF HOUGHTON ROAD & SPEEDWAY
	PROPOSED CONDITION	

DA:	32.45	-Acres
Lc:	4306.9	-Feet
Lca:	1734.5	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	J. B Ian	Date:	5/11/09

Slope Computation --

CPi	Dli	Dhi	Si
5	50.0	1.0	0.0200
5	2710.0	74.3	0.0274
5	26.8	0.5	0.0200
5	300.0	13.6	0.0453
3	450.0	16.2	0.0360
2	617.0	22.2	0.0360
1	153.1	5.2	0.0340
	Lc: 4306.9	Sc:	0.0302

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Commercial/Indus	DF	0.048	0.90
Commercial/Indus	DF	0.048	0.90
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Moderately Urban	LC	0.016	0.70
Highly Urban	LC	0.016	0.80
	n_{bw100}:	0.038	F_{ACW}: 0.85

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 0.88

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Commercial/Industr	1.05			65	0.70	35	0.77	0		0.72
5	Commercial/Industr	12.71			65	0.70	35	0.77	81	0.96	0.92
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
3	Highly Urban	1.38			65	0.70	35	0.77	68	0.96	0.88
2	Highly Urban	2.57			65	0.70	35	0.77	68	0.96	0.88
2	Highly Urban	0.98	100	0.60					79	0.96	0.88
1	Highly Urban	0.89	100	0.60					90	0.96	0.92
										Cw:	0.86

	Calc'd	Used
T_{C100}=	9.60	9.60

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	8.11

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C\,100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Commercial/Indus	1.05	0.22	0.35	0.50	0.70	0.90	0.90
Commercial/Indus	12.71	0.22	0.35	0.50	0.70	0.90	0.90
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Highly Urban	1.38	0.22	0.35	0.50	0.70	0.90	0.80
Highly Urban	2.57	0.22	0.35	0.50	0.70	0.90	0.80
Highly Urban	0.98	0.22	0.35	0.50	0.70	0.90	0.80
Highly Urban	0.89	0.22	0.35	0.50	0.70	0.90	0.80
Weighted Average:		0.20	0.33	0.48	0.68	0.88	0.80

Q_{100}=	199.5
Q_{50}=	175.6
Q_{25}=	135.7
Q_{10}=	96.6
Q_5=	65.9
Q_2=	40.7

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C2	SOUTHERN MOST CIRCLE K DRIVEWAY CROSSING
	C -- PROPOSED CONDITION, NEXT LOWER SUBBASIN - (C3 UPSTREAM)	

DA:	31.56	-Acres
Lc:	4153.8	-Feet
Lca:	1631.4	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	J. B Ray	Date:	5/11/09

Slope Computation --

CPi	Dli	Dhi	Si
5	50.0	1.0	0.0200
5	2710.0	74.3	0.0274
5	26.8	0.5	0.0200
5	300.0	13.6	0.0453
3	450.0	16.2	0.0360
2	617.0	22.2	0.0360
Lc:	4153.8	Sc:	0.0301

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Commercial/Indus	DF	0.048	0.90
Commercial/Indus	DF	0.048	0.90
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Moderately Urban	LC	0.016	0.70
	n_{bw100}:	0.038	F_{ACW}: 0.86

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 0.88

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Commercial/Indust	1.05			65	0.70	35	0.77	0		0.72
5	Commercial/Indust	12.71			65	0.70	35	0.77	81	0.96	0.92
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
3	Highly Urban	1.38			65	0.70	35	0.77	68	0.96	0.88
2	Highly Urban	2.57			65	0.70	35	0.77	68	0.96	0.88
2	Highly Urban	0.98	100	0.60					79	0.96	0.88
										Cw:	0.86

	Calc'd	Used
T_{C100}=	9.53	9.53

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100}C_{IF100})^{0.4}} + 1.31 \right)$$

i_{100}=	8.13

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Commercial/Indus	1.05	0.22	0.35	0.50	0.70	0.90	0.90
Commercial/Indus	12.71	0.22	0.35	0.50	0.70	0.90	0.90
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Highly Urban	1.38	0.22	0.35	0.50	0.70	0.90	0.80
Highly Urban	2.57	0.22	0.35	0.50	0.70	0.90	0.80
Highly Urban	0.98	0.22	0.35	0.50	0.70	0.90	0.80
Weighted Average:		0.20	0.33	0.48	0.68	0.88	0.80

Q_{100}=	194.1
Q_{50}=	170.8
Q_{25}=	131.9
Q_{10}=	93.9
Q_5=	64.0
Q_2=	39.5

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C3	CONFLUENCE OF SUBDIVISION AND CHANNEL NORTH OF 5TH STREET without C4 contributi
	C -- PROPOSED CONDITION, (C5 UPSTREAM)	

DA:	15.14	-Acres
Lc:	3536.8	-Feet
Lca:	1176.9	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:		Date:	

Slope Computation --

CPi	Dli	Dhi	Si
5	50.0	1.0	0.0200
5	2710.0	74.3	0.0274
5	26.8	0.5	0.0200
5	300.0	13.6	0.0453
3	450.0	16.2	0.0360
Lc:	3536.8	Sc:	0.0292

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Commercial/Indus	DF	0.048	0.90
Commercial/Indus	DF	0.048	0.90
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
	n_{bw100}:	0.042	F_{ACW}: 0.88

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Commercial/Indust	1.05			65	0.70	35	0.77	0		0.72
5	Commercial/Indust	12.71			65	0.70	35	0.77	81	0.96	0.92
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
3	Highly Urban	1.38			65	0.70	35	0.77	68	0.96	0.88
										Cw:	0.86

	Calc'd	Used
T_{C100}=	9.07	9.07

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100}C_{F100})^{0.4}} + 1.31 \right)$$

i_{100}=	8.25

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Commercial/Indus	1.05	0.22	0.35	0.50	0.70	0.90	0.90
Commercial/Indus	12.71	0.22	0.35	0.50	0.70	0.90	0.90
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Highly Urban	1.38	0.22	0.35	0.50	0.70	0.90	0.80
Weighted Average:		0.20	0.33	0.48	0.68	0.88	0.80

Q_{100}=	107.1
Q_{50}=	93.9
Q_{25}=	72.5
Q_{10}=	51.6
Q_5=	35.0
Q_2=	21.6

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C3	CONFLUENCE OF SUBDIVISION AND CHANNEL NORTH OF 5TH STREET
	C -- PROPOSED CONDITION, (C5 & C4 UPSTREAM)	

DA:	27.99	-Acres
Lc:	3536.8	-Feet
Lca:	1176.9	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	J.Blan	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
5	50.0	1.0	0.0200
5	2710.0	74.3	0.0274
5	26.8	0.5	0.0200
5	300.0	13.6	0.0453
3	450.0	16.2	0.0360
Lc:	3536.8	Sc:	0.0292

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Commercial/Indus	DF	0.048	0.90
Commercial/Indus	DF	0.048	0.90
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
	n_{bw100}:	0.042	F_{ACW}: 0.88

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 0.86

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Commercial/Industr	1.05			65	0.70	35	0.77	0		0.72
5	Commercial/Industr	12.71			65	0.70	35	0.77	81	0.96	0.92
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
3	Highly Urban	1.38			65	0.70	35	0.77	68	0.96	0.88
										Cw:	0.86

	Calc'd	Used
T_{C100}=	9.07	9.07

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	8.25

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Commercial/Indus	1.05	0.22	0.35	0.50	0.70	0.90	0.90
Commercial/Indus	12.71	0.22	0.35	0.50	0.70	0.90	0.90
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Highly Urban	1.38	0.22	0.35	0.50	0.70	0.90	0.80
Weighted Average:		0.20	0.33	0.48	0.68	0.88	0.80

Q_{100}=	174.4
Q_{50}=	152.9
Q_{25}=	118.1
Q_{10}=	84.0
Q_5=	57.0
Q_2=	35.2

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C4	DIRT DRIVEWAY NORTH OF 5TH STREET WEST SIDE OF HOUGHTON
	C -- EXISTING CONDITION, SUBDIVISION WEST OF CHANNEL ->DRAINS TO CHANNEL (ASSUMED TO	

DA:	12.85	-Acres
Lc:	1406.0	-Feet
Lca:	569.0	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	JGB	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
4	150.0	3.0	0.0200
4	1256.0	37.0	0.0295
Lc:	1406.0	Sc:	0.0282

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Moderately Urban	DF	0.048	0.70
Moderately Urban	DF	0.048	0.70
	n_{bw100}:	0.048	F_{ACW}: 0.70

$P_{1\text{-}100}$: 3.00 Inches

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
4	Moderately Urban	12.85			65	0.70	35	0.77	35	0.96	0.81
										Cw:	0.81

	Calc'd	Used
T_{C100}=	6.56	6.56

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{W100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.04

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Moderately Urban	12.85	0.18	0.30	0.46	0.65	0.85	0.70
Weighted Average:		0.18	0.30	0.46	0.65	0.85	0.70

Q_{100}=	65.6
Q_{50}=	55.7
Q_{25}=	42.6
Q_{10}=	30.2
Q_5=	19.7
Q_2=	11.8

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C5	DIRT DRIVEWAY NORTH OF 5TH STREET WEST SIDE OF HOUGHTON
	C -- PROPOSED CONDITION, NEXT LOWER SUBBASIN (C6 UPSTREAM)	

DA:	13.76	-Acres
Lc:	3086.8	-Feet
Lca:	1458.0	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	JB	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
5	50.0	1.0	0.0200
5	2710.0	74.3	0.0274
5	26.8	0.5	0.0200
5	300.0	13.6	0.0453
Lc:	3086.8	Sc:	0.0284

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Commercial/Indus	DF	0.048	0.90
Commercial/Indus	DF	0.048	0.90
Highly Urban	LC	0.016	0.80
Highly Urban	LC	0.016	0.80
	n_{bw100}:	0.045	F_{ACW}: 0.89

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Commercial/Indust	1.05			65	0.70	35	0.77	0		0.72
5	Commercial/Indust	12.71			65	0.70	35	0.77	81	0.96	0.92
										Cw:	0.90

	Calc'd	Used
T_{C100}=	10.03	10.03

$$T_{C-100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{B100})^{0.4}} + 1.31 \right)$$

i_{100}=	7.99

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Commercial/Indus	1.05	0.22	0.35	0.50	0.70	0.90	0.90
Commercial/Indus	12.71	0.22	0.35	0.50	0.70	0.90	0.90
Weighted Average:		0.22	0.35	0.50	0.70	0.90	0.90

Q_{100}=	99.1
Q_{50}=	89.1
Q_{25}=	69.3
Q_{10}=	49.5
Q_5=	34.7
Q_2=	21.8

CITY OF TUCSON
HYDROLOGIC DATA SHEET FOR COMPUTING 100-YEAR PEAK DISCHARGE (Qp100)

PB Project No.:	11515	
Project Name:	HOUGHTON ROAD - SPEEDWAY TO OLD SPANISH TRAIL	
CP Desc:	C6	SOUTHWEST CROSSING @ 5TH & HOUGHTON
	C -- PROPOSED CONDITION, UPPERMOST CONTRIBUTING SUBBASIN	

DA:	1.05	-Acres
Lc:	919.8	-Feet
Lca:	417.7	-Feet

Calc'd:	Ruvalcaba	Date:	
Chk'd:	JB	Date:	5/8/09

Slope Computation --

CPi	Dli	Dhi	Si
6	919.8	27.3	0.0296
Lc:	919.8	Sc:	0.0296

Land Use --

Description	Channel Type	Basin Factor	Area Factor
Commercial/Indus	DF	0.048	0.90
		n_{bw100}:	0.048
		F_{ACW}:	0.90

$P_{1\text{-}100}$: 3.00 Inches

F_{ACW} OVERRIDE: 1.00

Soils--

CPi	Description	Sub-area (acres)	B (%)	C_B (-)	C (%)	C_C (-)	D (%)	C_D (-)	I (%)	C_I (-)	C (-)
6	Natural/Rural	1.05			65	0.70	35	0.77	0		0.72
										Cw:	0.72

	Calc'd	Used
T_{C100}=	5.48	5.48

$$T_{C\text{-}100} = \left(\frac{0.23 n_{bw100} (LcLca)^{0.3}}{(ScP_{1,100} C_{B100})^{0.4}} + 1.31 \right)$$

i_{100}=	9.42

$$i_{100} = \frac{4 \times P_{1,100}}{(1 + 0.05\, T_{C\,100})}$$

Aerial Weight Computation --

Description	Area (Ac)	2-Yr Ratio	5-Yr Ratio	10-Yr Ratio	25-Yr Ratio	50-Yr Ratio	F_{ACW}
Natural/Rural	1.05	0.10	0.23	0.37	0.58	0.77	1.00
Weighted Average:		0.10	0.23	0.37	0.58	0.77	1.00

Q_{100}=	7.2
Q_{50}=	5.5
Q_{25}=	4.2
Q_{10}=	2.7
Q_5=	1.6
Q_2=	0.7

APPENDIX B

EXISTING CONDITION HYDRAULICS

B-1

Tanque Verde Road

West of Intersection

PARSONS BRINCKERHOFF

CALC'D BY: D. Ruvalcaba DATE: 8-5-10

CHECKED BY: [illegible] DATE: 8/5/10

Houghton Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A

Output from Submerged Weir Calculation
Culvert Diameter = 24x38

Weir Discharge (cfs)	HW Elev. (ft)	Culvert Discharge (cfs)	Culvert HW Elevation (cfs)	Total Discharge (cfs)
4.4	2593.25	6.0	2593.18	10.4
6.6	2593.30	7.0	2593.27	13.6
22.3	2593.48	9.5	2593.47	31.8
17.6	2593.44	9.0	2593.43	26.6
26.3	2593.51	10.0	2593.50	36.3
22.3	2593.48	9.5	2593.47	31.8
13.7	2593.40			
9.7	2593.35			
12.0	2593.38			
12.8	2593.39			
25.0	2593.50			

22.2	2593.48	9.5	2593.47	31.7

Houghton Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A

Cw = 2.4

Qw : Weir Discharge
DL : Incremental Weir Length
d : Average depth of flow over segment

Notes:
DL shown below are only applied if flow covers the entire segment.
Otherwise DL is prorated for amount of flow each weir segment.

Irregular Weir Cross-Section:

	STA (ft)	ELEV (ft)	SEGMENT
1	0	2593.64	
			A
2	8.1	2593.07	
			B
3	16.3	2593.65	
			C
4	96.5	2593.31	
			D
5	115.1	2593.18	
			E
6	124.4	2593.02	
			F
7	133.5	2593.00	
			G
8			
			H
9			
			I
10			
			J
11			
			K
12			
			L
13			

Rating Table

WSE	Qweir
93.25	4.4
93.30	6.6
93.51	26.3
93.44	17.6
93.48	22.3
93.30	6.6
93.40	13.7
93.35	9.7
93.38	12.0
93.39	12.8
93.50	25.0
-2500.00	0.0

Base Elevation *2500 feet*

Irregular Weir Analysis

Segmt	STA	ELEV	DL	So	WSE = 93.25 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.30 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.51 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)
A	0.0	93.64														
	8.1	93.07	8.1	-0.0704	2.56	0.18	0.09	0.2	3.27	0.23	0.12	0.3	6.25	0.44	0.22	1.5
B	8.1	93.07				0.18				0.23				0.44		
	16.3	93.65	8.2	0.0707	2.54		0.09	0.2	3.25		0.12	0.3	6.22		0.22	1.5
C	16.3	93.65														
	96.5	93.31	80.2	-0.0042	0.00			0.0	0.00			0.0	47.18	0.20	0.10	3.6
D	96.5	93.31												0.20		
	115.1	93.18	18.6	-0.0070	10.02	0.07	0.04	0.2	17.17	0.12	0.06	0.6	18.60	0.33	0.27	6.1
E	115.1	93.18				0.07				0.12				0.33		
	124.4	93.02	9.3	-0.0172	9.30	0.23	0.15	1.3	9.30	0.28	0.20	2.0	9.30	0.49	0.41	5.9
F	124.4	93.02				0.23				0.28				0.49		
	133.5	93.00	9.1	-0.0022	9.10	0.25	0.24	2.6	9.10	0.30	0.29	3.4	9.10	0.51	0.50	7.7
G	133.5	93.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
H	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
I	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
J	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
K	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
L	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
								4.4				6.6				26.3

Ho. n Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A

Cw = 2.4

Qw : Weir Discharge
DL : Incremental Weir Length
d : Average depth of flow over segment

Notes:
DL shown below are only applied if flow covers the entire segment.
Otherwise DL is prorated for amount of flow each weir segment.

Base Elevation *2500 feet*

Irregular Weir Analysis

Segmt	STA	ELEV	DL	So	WSE = 93.44 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.48 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.30 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)
A	0.0	93.64														
	8.1	93.07	8.1	-0.0704	5.26	0.37	0.18	1.0	5.83	0.41	0.20	1.3	3.27	0.23	0.12	0.3
B	8.1	93.07				0.37				0.41				0.23		
	16.3	93.65	8.2	0.0707	5.23		0.18	1.0	5.80		0.20	1.3	3.25		0.12	0.3
C	16.3	93.65														
	96.5	93.31	80.2	-0.0042	30.66	0.13	0.07	1.2	40.10	0.17	0.09	2.4	0.00			0.0
D	96.5	93.31				0.13				0.17						
	115.1	93.18	18.6	-0.0070	18.60	0.26	0.20	3.8	18.60	0.30	0.24	5.1	17.17	0.12	0.06	0.6
E	115.1	93.18				0.26				0.30				0.12		
	124.4	93.02	9.3	-0.0172	9.30	0.42	0.34	4.4	9.30	0.46	0.38	5.2	9.30	0.28	0.20	2.0
F	124.4	93.02				0.42				0.46				0.28		
	133.5	93.00	9.1	-0.0022	9.10	0.44	0.43	6.2	9.10	0.48	0.47	7.0	9.10	0.30	0.29	3.4
G	133.5	93.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
H	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
I	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
J	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
K	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
L	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
								17.6				22.3				6.6

Houghton Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A

Cw = 2.4

Qw : Weir Discharge
DL : Incremental Weir Length
d : Average depth of flow over segment

Notes:
DL shown below are only applied if flow covers the entire segment.
Otherwise DL is prorated for amount of flow each weir segment.

Base Elevation *2500 feet*

Irregular Weir Analysis

Segmt	STA	ELEV	DL	So	WSE = 93.40 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.35 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.38 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)
A	0.0	93.64														
	8.1	93.07	8.1	-0.0704	4.69	0.33	0.16	0.8	3.98	0.28	0.14	0.5	4.41	0.31	0.15	0.6
B	8.1	93.07				0.33				0.28				0.31		
	16.3	93.65	8.2	0.0707	4.67		0.16	0.8	3.96		0.14	0.5	4.38		0.15	0.6
C	16.3	93.65														
	96.5	93.31	80.2	-0.0042	21.23	0.09	0.05	0.5	9.44	0.04	0.02	0.1	16.51	0.07	0.04	0.3
D	96.5	93.31				0.09				0.04				0.07		
	115.1	93.18	18.6	-0.0070	18.60	0.22	0.16	2.7	18.60	0.17	0.11	1.5	18.60	0.20	0.14	2.2
E	115.1	93.18				0.22				0.17				0.20		
	124.4	93.02	9.3	-0.0172	9.30	0.38	0.30	3.7	9.30	0.33	0.25	2.8	9.30	0.36	0.28	3.3
F	124.4	93.02				0.38				0.33				0.36		
	133.5	93.00	9.1	-0.0022	9.10	0.40	0.39	5.3	9.10	0.35	0.34	4.3	9.10	0.38	0.37	4.9
G	133.5	93.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
H	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
I	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
J	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
K	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
L	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
								13.7				9.7				12.0

Ho. ,n Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A

Cw = 2.4

Qw : Weir Discharge
DL : Incremental Weir Length
d : Average depth of flow over segment

Notes:
DL shown below are only applied if flow covers the entire segment.
Otherwise DL is prorated for amount of flow each weir segment.

Base Elevation *2500 feet*

Irregular Weir Analysis					WSE =			93.39	WSE =			93.50	WSE =			-2500.00
Segmt	STA	ELEV	DL	So	Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)
A	0.0	93.64														
	8.1	93.07	8.1	-0.0704	4.55	0.32	0.16	0.7	6.11	0.43	0.21	1.5	0.00			0.0
B	8.1	93.07				0.32				0.43						
	16.3	93.65	8.2	0.0707	4.52		0.16	0.7	6.08		0.21	1.5	0.00			0.0
C	16.3	93.65														
	96.5	93.31	80.2	-0.0042	18.87	0.08	0.04	0.4	44.82	0.19	0.10	3.1	0.00			0.0
D	96.5	93.31				0.08				0.19						
	115.1	93.18	18.6	-0.0070	18.60	0.21	0.14	2.5	18.60	0.32	0.26	5.7	0.00			0.0
E	115.1	93.18				0.21				0.32						
	124.4	93.02	9.3	-0.0172	9.30	0.37	0.29	3.5	9.30	0.48	0.40	5.6	0.00			0.0
F	124.4	93.02				0.37				0.48						
	133.5	93.00	9.1	-0.0022	9.10	0.39	0.38	5.1	9.10	0.50	0.49	7.5	0.00			0.0
G	133.5	93.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
H	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
I	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
J	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
K	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
L	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
								12.8				25.0				0.0

PARSONS BRINCKERHOFF

CALC'D BY: D. RUVALCABA DATE: 7-22-10

CHECKED BY: CB DATE: 8/5/10

Houghton Tanque Verde Segment
PB Proj: 11515TV
Date: 22JUL10

Weir Analysis For Exist Drop Inlet
Weir Calc Based on Submerged Weir

Culv Q	Culv HW	Adj Drop Inlet HW	Weir Q	Q total
6	2593.18	2593.25	4.4	10.4
7	2593.27	2593.3	6.6	13.6
9.5	2593.47	2593.48	22.3	31.8
9	2593.43	2593.44	17.6	26.6
10	2593.5	2593.51	26.3	36.3
9.5	2593.47	2593.48	22.3	31.8

Culvert Designer/Analyzer Report
West 24x38 HERCP

Comments: 25 Year TW with 100 Year storm

Analysis Component			
Storm Event	Design	Discharge	9.50 cfs

Peak Discharge Method: User-Specified			
Design Discharge	9.50 cfs	Check Discharge	0.00 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	2,590.44 ft

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	1-24x38 inch Horiz Ellipse	9.50 cfs	2,593.47 ft	4.96 ft/s
Weir	Not Considered	N/A	N/A	N/A

Culvert Designer/Analyzer Report
West 24x38 HERCP

Component:Culvert-1

Culvert Summary					
Computed Headwater Elev	2,593.47	ft	Discharge	9.50	cfs
Inlet Control HW Elev.	2,593.41	ft	Tailwater Elevation	2,590.44	ft
Outlet Control HW Elev.	2,593.47	ft	Control Type	Entrance Control	
Headwater Depth/Height	0.63				

Grades					
Upstream Invert	2,592.20	ft	Downstream Invert	2,591.71	ft
Length	105.00	ft	Constructed Slope	0.004667	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	0.82	ft
Slope Type	Steep		Normal Depth	0.82	ft
Flow Regime	Supercritical		Critical Depth	0.87	ft
Velocity Downstream	4.96	ft/s	Critical Slope	0.003767	ft/ft

Section					
Section Shape	Horizontal Ellipse		Mannings Coefficient	0.013	
Section Material	Concrete		Span	3.15	ft
Section Size	24x38 inch		Rise	2.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	2,593.47	ft	Upstream Velocity Head	0.33	ft
Ke	0.20		Entrance Loss	0.07	ft

Inlet Control Properties					
Inlet Control HW Elev.	2,593.41	ft	Flow Control	N/A	
Inlet Type	projecting (horizontal ellipse)		Area Full	5.1	ft2
K	0.00450		HDS 5 Chart	29	
M	2.00000		HDS 5 Scale	3	
C	0.03170		Equation Form	1	
Y	0.69000				

Rating Table Report
West 24x38 HERCP

Range Data:				
	Minimum	Maximum	Increment	
Discharge	6.00	10.00	0.50	cfs

Discharge (cfs	HW Elev. (ft)
6.00	2,593.18
6.50	2,593.23
7.00	2,593.27
7.50	2,593.31
8.00	2,593.35
8.50	2,593.39
9.00	2,593.43
9.50	2,593.47
10.00	2,593.50

Houghton Tanque Verde Segment
PB Proj: 11515TV
Date: 22JUL10

Weir Analysis For Exist Drop Inlet
Weir Calc Based on Submerged Weir

CP TV 100-Year Event, Q100=6cfs

Trial	HWCULV	Weir Elev	Yweir	Yweir-us	Hwweir	Qweir-ff	Fsub	Qweirsub
1	2593.18	2593.13	0.05	0.06	2593.19	2.332404	0.576600386	1.3
2				0.06	2593.19	2.332404	0.576600386	1.3
3				0.1	2593.23	5.018535	0.845386046	4.2
4				0.2	2593.33	14.19456	0.949889529	13.5
5				0.12	2593.25	6.597035	0.886375993	5.8

CP TV 100-Year Event, Q100=7cfs

Trial	HWCULV	Weir Elev	Yweir	Yweir-us	Hwweir	Qweir-ff	Fsub	Qweirsub
1	2593.27	2593.13	0.14	0.2	2593.33	14.19456	0.712330561	10.1
2				0.15	2593.28	9.219637	0.409409096	3.8
3				0.16	2593.29	10.1568	0.518416682	5.3
4				0.17	2593.3	11.12373	0.588811175	6.5
5				0.174	2593.304	11.51863	0.611119479	7.0

CP TV 100-Year Event, Q100=10cfs

Trial	HWCULV	Weir Elev	Yweir	Yweir-us	Hwweir	Qweir-ff	Fsub	Qweirsub
1	2593.5	2593.13	0.37	0.4	2593.53	40.14828	0.42804338	17.2
2				0.5	2593.63	56.10892	0.677268763	38.0
3				0.38	2593.51	37.17512	0.287388833	10.7
4				0.37	2593.5	35.71737	1.75263E-05	0.0
5				0.378	2593.508	36.88201	0.26439927	9.8

CP TV 100-Year Event, Q100=9cfs

Trial	HWCULV	Weir Elev	Yweir	Yweir-us	Hwweir	Qweir-ff	Fsub	Qweirsub
1	2593.43	2593.13	0.3	0.3	2593.43	26.07707	2.70354E-05	0.0
2				0.4	2593.53	40.14828	0.667875941	26.8
3				0.35	2593.48	32.86087	0.544747898	17.9
4				0.31	2593.44	27.39173	0.310641592	8.5
5				0.311	2593.441	27.52438	0.321754474	8.9

CP TV 100-Year Event, Q100=9.5cfs

Trial	HWCULV	Weir Elev	Yweir	Yweir-us	Hwweir	Qweir-ff	Fsub	Qweirsub
1	2593.47	2593.13	0.34	0.34	2593.47	31.46265	2.70371E-05	0.0
2				0.4	2593.53	40.14828	0.554659798	22.3
3				0.35	2593.48	32.86087	0.29656818	9.7
4				0.3495	2593.48	32.79047	0.290968668	9.5
5				0.345	2593.475	32.15922	0.228680877	7.4

East of Intersection

TANQUE VERDE ROAD BOX EAST OF INTERSECTION, EXISTING CONDITION

HEC-RAS Plan: TVBOX_EX River: TV_BOX Reach: TV_BOX

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
TV_BOX	2450	100Yr w/ 25TW	2596.75	2596.71	0.04	0.07	0.00	59.72	359.34	135.94	631.30
TV_BOX	2450	25Yr w/100YrTW	2596.30	2596.24	0.06	0.14	0.01	2.54	239.28	83.19	566.42
TV_BOX	2350	100Yr w/ 25TW	2596.68	2596.66	0.02	0.04	0.00	147.73	241.47	165.80	474.85
TV_BOX	2350	25Yr w/100YrTW	2596.15	2596.13	0.02	0.06	0.00	66.91	146.15	111.94	455.27
TV_BOX	2250	100Yr w/ 25TW	2596.64	2596.61	0.03	0.03	0.00	194.18	277.42	83.40	343.14
TV_BOX	2250	25Yr w/100YrTW	2596.09	2596.07	0.02	0.03	0.00	102.16	175.54	47.31	333.77
TV_BOX	2150	100Yr w/ 25TW	2596.61	2596.57	0.04	0.06	0.06	82.42	468.52	4.06	229.88
TV_BOX	2150	25Yr w/100YrTW	2596.06	2596.03	0.03	0.06	0.04	36.76	286.51	1.73	223.40
TV_BOX	2078	100Yr w/ 25TW	2596.49	2595.90	0.59	0.06	0.12	90.08	462.08	2.84	93.00
TV_BOX	2078	25Yr w/100YrTW	2595.95	2595.53	0.43	0.08	0.07	40.38	283.84	0.78	88.38
TV_BOX	2050	100Yr w/ 25TW	2595.86	2595.66	0.21			0.00	555.00		93.35
TV_BOX	2050	25Yr w/100YrTW	2594.60	2594.41	0.19				325.00		45.01
TV_BOX	2045		Culvert								
TV_BOX	1950	100Yr w/ 25TW	2595.08	2593.98	1.10	0.30	0.25		555.00		29.90
TV_BOX	1950	25Yr w/100YrTW	2594.14	2593.58	0.56	0.22	0.12		325.00		29.89
TV_BOX	1850	100Yr w/ 25TW	2594.53	2594.25	0.28	0.18	0.01		554.08	0.92	138.79
TV_BOX	1850	25Yr w/100YrTW	2593.80	2593.63	0.17	0.15	0.01		325.00		48.87
TV_BOX	1750	100Yr w/ 25TW	2594.34	2593.98	0.35	0.22	0.00	12.71	542.24	0.05	133.84
TV_BOX	1750	25Yr w/100YrTW	2593.64	2593.41	0.23	0.17	0.01	0.03	324.97		70.76
TV_BOX	1650	100Yr w/ 25TW	2594.11	2593.75	0.36	0.26	0.01	2.53	551.01	1.46	77.60
TV_BOX	1650	25Yr w/100YrTW	2593.46	2593.26	0.20	0.18	0.00		324.98	0.02	49.31
TV_BOX	1550	100Yr w/ 25TW	2593.84	2593.40	0.45	0.47	0.02	26.36	528.10	0.54	127.23
TV_BOX	1550	25Yr w/100YrTW	2593.28	2593.05	0.23	0.19	0.02	10.41	314.57	0.02	111.17
TV_BOX	1450	100Yr w/ 25TW	2593.36	2592.74	0.62	0.79	0.02	102.60	452.40		128.56

HEC-RAS Plan: TVBOX_EX River: TV_BOX Reach: TV_BOX (Continued)

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
TV_BOX	1450	25Yr w/100YrTW	2593.07	2592.91	0.16	0.07	0.04	66.24	258.76		133.62
TV_BOX	1350	100Yr w/ 25TW	2592.45	2591.90	0.55	0.16	0.14	98.65	456.35		100.85
TV_BOX	1350	25Yr w/100YrTW	2592.96	2592.92	0.04	0.01	0.01	78.22	246.78		159.03
TV_BOX	1250	100Yr w/ 25TW	2591.94	2591.85	0.09			2.43	552.57		147.86
TV_BOX	1250	25Yr w/100YrTW	2592.94	2592.93	0.01			21.48	303.52	0.00	189.16

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

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

PROJECT DATA
Project Title: TV_ROAD_BOX
Project File : TVROADBOX.prj
Run Date and Time: 6/4/2009 5:07:47 AM

Project in English units

PLAN DATA

Plan Title: EXISTING CONDITION TV Road BOX Culvert
Plan File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.p01

Geometry Title: Existing Geometry TVBOX
Geometry File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.g01

Flow Title : TV Road BOX FLOW
Flow File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.f01

Plan Summary Information:

Number of:	Cross Sections	= 14	Multiple Openings	=	0
	Culverts	= 1	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

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

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

FLOW DATA

Flow Title: TV Road BOX FLOW
Flow File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.f01

Flow Data (cfs)

River	Reach	RS	100Yr w/ 25TW	25Yr w/100YrTW	100Yr w/100YrTW
TV_BOX	TV_BOX	2450	555	325	555

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
TV_BOX	TV_BOX	100Yr w/ 25TW	Critical	Known WS = 2591.85
TV_BOX	TV_BOX	25Yr w/100YrTW	Critical	Known WS = 2592.93
TV_BOX	TV_BOX	100Yr w/100YrTW	Critical	Known WS = 2592.93

GEOMETRY DATA

Geometry Title: Existing Geometry TVBOX
Geometry File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.g01

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2450

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2600.56	23.62	2600.14	28.55	2599.6	32.04	2599.23	33.07	2599.08
34.44	2598.94	36.5	2598.8	39.56	2597.95	41.69	2597.47	47.46	2596.34
52.49	2596.27	60.31	2596.09	63.65	2596.29	66.96	2596.44	72.9	2596.47
76.56	2596.5	83.4	2596.6	83.95	2596.6	85.15	2596.62	87.18	2596.62
89.49	2596.56	91.86	2596.44	95.6	2596.29	97.12	2596.22	101.51	2596
103.24	2596.01	104.51	2596	108.43	2596.21	109.73	2596.2	112.01	2596.22
124.32	2596.37	125.03	2596.33	129.12	2596.36	129.16	2596.35	139.23	2596.14
140.68	2596.12	146.83	2596.14	156.33	2596.19	162.6	2596.19	170.35	2596.19
172.93	2596.2	182.35	2596.17	202.48	2596.2	205.25	2596.21	214.9	2596.19
226.04	2596.22	240.46	2596.23	257.7	2596.21	266.45	2596.09	272.2	2595.99
291.03	2595.84	315.81	2595.72	327.08	2594.98	327.1	2594.98	329.88	2594.8
342.48	2595.46	347.49	2595.7	355.64	2595.6	368.78	2595.53	391.84	2595.42
393	2595.51	399.76	2595.67	400.06	2595.65	415.45	2595.71	435.04	2595.87
446.11	2595.87	448.58	2595.83	450.8	2595.83	453.21	2595.82	464.11	2595.67
470.1	2595.66	472.8	2595.6	494.83	2595.74	497.03	2595.73	500.02	2595.54
506.48	2595.83	511.45	2595.84	521.92	2595.78	526.45	2595.79	529.41	2595.76
530.87	2595.74	551.66	2595.71	564.41	2595.65	577.7	2595.55	579.55	2595.58
588.27	2595.75	596.25	2595.77	600.08	2595.77	606.62	2595.75	635.46	2595.58
659.39	2595.66	660.06	2595.66	663.8	2595.76	672.69	2595.99	676.42	2596.64
682.35	2597.64	684.2	2597.84	685.31	2598	694.01	2598.63	719.22	2599.12

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	257.7	.025	435.04	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
257.7	435.04	100	100	100	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2350

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2600	7.35	2599.97	23.76	2599.67	29.86	2599.22	35.2	2598.93
36	2598.84	36.08	2598.8	36.29	2598.73	36.7	2598.68	37.29	2598.51
38.58	2598.11	39.54	2597.84	42.9	2596.85	46.79	2595.9	51.32	2595.52
55.52	2595.13	56.39	2595.15	58.73	2595.22	68.42	2595.46	70.06	2595.48
72.19	2595.52	82.09	2595.53	82.26	2595.54	95.95	2595.52	106.63	2596.08
115.37	2596.25	115.84	2596.27	119.63	2596.37	123.1	2596.16	130.27	2595.68
131.93	2595.69	133.63	2595.62	142.05	2595.53	147.11	2595.46	149.17	2595.46
158.91	2595.35	164.79	2595.33	169.32	2595.28	173.55	2595.26	181.61	2595.79
182.83	2595.85	191.7	2595.62	209.31	2595.47	215.72	2595.32	222.56	2595.47
229.22	2595.77	235.4	2595.44	245.03	2595.1	247.49	2595	253.5	2595.21
260.85	2595.14	273.07	2595.16	278.55	2595.13	285.89	2594.64	286.82	2594.73
286.84	2594.73	291.27	2595.13	293.41	2595.31	313.84	2595.33	320.46	2595.38
325.26	2595.38	326.26	2595.4	330.5	2595.42	332.65	2595.3	334.1	2595.19
336	2595.2	350.94	2595.17	359.48	2595.29	363.05	2595.32	368.3	2595.15
381.24	2595	386.16	2594.99	394.3	2595.06	396.89	2595.06	398.17	2595.03
400.98	2594.99	402.57	2594.99	404.26	2595.03	406.73	2595.07	410.25	2595.06
411.63	2595.07	424.01	2595.11	428.66	2595.14	432.6	2595.15	434.38	2595.11
444.33	2595.01	453.39	2594.89	469.42	2594.72	470.87	2594.73	476.25	2594.7
496.56	2594.97	498.59	2595.02	509.6	2595.17	512.49	2595.64	518.72	2596.69
520.47	2596.82	524.43	2597.07	530.13	2597.41	554.26	2597.91	557.58	2597.83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	229.22	.025	330.5	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.22	330.5	85	100	115	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2250

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2599.68	2.98	2599.66	5.77	2599.63	22.17	2599.38	30.25	2598.37
31.74	2598.2	33.08	2598	34.17	2597.87	36.96	2597.57	38.84	2597.33
39.57	2597.19	40.16	2597.03	40.23	2596.99	41.27	2596.67	43.36	2596.23
45.66	2595.79	47.53	2595.42	48.74	2595.18	50.75	2595.19	53.35	2595.19
58.79	2595.19	61.29	2595.21	63.49	2595.21	68.02	2595.26	75.28	2595.32
76.43	2595.31	78.03	2595.28	81.84	2595.27	88.29	2595.22	89.46	2595.21
[illegible]2.29	2595.17	95.73	2595.12	96.51	2595.12	98.95	2595.16	101.07	2595.18
[illegible].88	2595.18	103.42	2595.18	105.58	2595.17	107.91	2595.18	108.86	2595.19
[illegible]1.53	2595.19	115.07	2595.21	117.92	2595.19	118.62	2595.2	119.4	2595.21
124.92	2595.24	128.4	2595.25	129.21	2595.25	131.61	2595.23	132.12	2595.23
132.57	2595.22	132.9	2595.2	133.34	2595.2	133.81	2595.2	136.47	2595.17
138.36	2595.17	139.22	2595.16	141.05	2595.13	153.81	2594.91	155.22	2594.89
157.64	2594.87	170.08	2594.74	177.55	2594.72	189.33	2594.67	194.86	2594.7
194.95	2594.72	196.81	2594.68	197.61	2594.67	206.37	2594.48	219.76	2594.65
227.78	2594.76	249.73	2594.87	251.28	2594.88	254.31	2594.68	260.32	2594.29
262.95	2594.36	262.96	2594.36	266.22	2594.45	273.16	2594.65	282.32	2594.7
288.98	2594.75	294.76	2594.78	298.56	2594.79	318.55	2594.88	321.5	2594.9
323	2594.9	323.93	2594.9	328.71	2594.92	331.78	2594.93	332.66	2594.93
332.98	2594.93	333.28	2594.93	338.05	2594.98	359.52	2595.1	364.08	2595.13
375.79	2595.89	380.06	2596.24	389.37	2596.98	408.75	2597.22	411.9	2597.15

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	194.95	.025	273.16	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
194.95	273.16	40	100	133	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2150

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2599.42	16.61	2599.18	21.91	2598.51	23.12	2598.38	24.91	2598.43
25.31	2598.43	25.9	2598.3	27.87	2597.83	33.58	2597.3	39.93	2595.83
42.62	2595.22	43.31	2595.22	45.55	2595.18	53.2	2595.06	61.98	2595.01
62.01	2595	62.69	2595.04	64.85	2595.08	67.01	2595.08	71.6	2595.09
[illegible].36	2595.09	76.82	2595.08	79.38	2595.08	82.15	2595.11	83.19	2595.1
[illegible].15	2595.11	87.57	2595.15	88.98	2595.16	91.56	2595.26	92.31	2595.27
[illegible]3.52	2595.3	96.74	2595.31	97.42	2595.32	98.5	2595.32	101.53	2595.33
101.98	2595.33	103.59	2595.34	103.92	2595.33	105.34	2595.33	105.66	2595.33
108.87	2595.32	109.54	2595.3	114.05	2595.3	114.27	2595.29	118.22	2595.29
118.38	2595.28	121.81	2595.22	121.9	2595.22	123.59	2595.16	124.13	2595.14
128.51	2595	130.76	2594.87	132.27	2594.74	132.68	2594.72	133.84	2594.69
134.49	2594.68	137.83	2594.48	139.02	2594.49	146.26	2594.4	153.97	2594.41
156.03	2594.52	157.43	2594.56	162.1	2594.5	164.61	2594.47	167.37	2594.42
171.5	2594.54	172.3	2594.54	174.49	2594.58	174.97	2594.58	181.76	2594.79
184.1	2594.81	185.69	2594.83	186.4	2594.82	186.99	2594.81	188.37	2594.82
188.96	2594.81	189.61	2594.82	197.81	2594.57	198.76	2594.52	204.38	2594.5
208.43	2594.47	209.52	2594.45	213.48	2594.46	219.92	2594.21	223.77	2594.06
226.89	2593.95	228.13	2593.99	232.11	2594.09	243	2594.37	251.07	2594.59
253.02	2594.64	260.17	2595.69	261.85	2595.95	270.92	2597.12	273.96	2597.18
288	2597.47	300.57	2597.34	318.58	2597.09	319.92	2596.97		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	121.81	.025	253.02	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
121.81	253.02	50	72	77	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2078

INPUT
Description:
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2598.97	3.24	2598.94	10.05	2598.89	15.78	2598.6	20.72	2598.4
21.15	2598.37	27.77	2597.51	30.07	2597.22	32.59	2596.88	42.75	2595.26
[illegible].27	2595.16	45.21	2595.09	46.14	2595.07	47.11	2595.07	48.12	2595.08
[illegible].19	2595.07	59.93	2594.98	60	2594.98	60.7	2595.01	63.57	2594.83
64.54	2594.79	65.23	2594.75	66.67	2594.68	66.69	2594.68	66.73	2594.68
71.05	2594.84	72.03	2594.87	72.4	2594.89	72.83	2594.9	73.22	2594.89
76.47	2594.88	78.11	2594.86	80.53	2594.82	81.54	2594.8	82.52	2594.77
84.31	2594.73	85.86	2594.69	87.07	2594.68	87.84	2594.66	88.15	2594.66
89.15	2594.62	89.87	2594.59	90.81	2594.5	91.65	2594.47	93.04	2594.38

98.06	2594.33	99.25	2594.27	100.28	2594.21	107.12	2594.38	113.27	2594.39
121.29	2594.34	122.01	2594.43	125.77	2594.95	136.37	2596.62	141.03	2597.19
142.03	2597.2	142.11	2597.2	147.62	2597.47	152.67	2598.01	153.31	2598.01
162.06	2597.99								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	76.47	.025	125.77	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
76.47	125.77	28	28	28	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2050

INPUT
Description: 5-feet US Box Culvert
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2595.21	3	2595.21	3.27	2595.21	3.47	2595.21	4.62	2595.21
8.31	2595.23	10.73	2595.23	15.37	2595.23	16.84	2595.24	18.53	2595.28
18.61	2595.28	23.07	2595.36	23.22	2595.36	23.61	2595.37	27.65	2595.43
28.33	2595.43	32.1	2595.53	32.8	2595.52	35.36	2595.53	36.55	2595.52
39.33	2595.57	42.63	2595.66	44.18	2595.67	45.75	2595.75	47.5	2595.76
49.99	2595.92	51.88	2595.89	54.56	2596.02	55.59	2596.03	57.7	2596.13
59.66	2596.16	61.11	2596.19	63.33	2596.21	64.93	2596.27	67.47	2596.28
77.14	2595.65	77.69	2595.66	78.57	2595.57	80.62	2594.53	84.38	2593.24
84.68	2593.2	86.08	2593.06	87.97	2592.73	91.48	2592.6	94.14	2592.29
97.29	2592.16	99.17	2592.08	100	2592.02	101.89	2591.89	103.84	2591.85
105.47	2591.7	107.77	2591.57	110.04	2591.55	111.88	2591.49	113.49	2591.49
114.9	2591.43	119.15	2591.36	119.2	2591.71	119.21	2592.6	120.27	2592.57
120.55	2592.64	120.98	2592.71	123.41	2593.49	123.42	2593.49	123.43	2593.5
125.24	2593.99	126.16	2594.51	127.65	2595.44	129.33	2596.24	129.94	2596.91
132.3	2597.14	132.79	2597.18	140.36	2597.88	143.02	2598.08	144.24	2598.2
145.64	2598.38	146	2598.44	147.57	2598.47	148.46	2598.49	150.6	2598.53
154.68	2598.62	157.5	2598.68	160.37	2598.76	160.43	2598.48	160.48	2598.26
174.87	2598.25	178.87	2598.25	179.39	2598.25	180.7	2598.25	181.3	2598.25
182.75	2598.24	183.39	2598.24	195.15	2598.18	197.15	2598.13	198.4	2598.1
198.5	2598.1	198.72	2598.09	199.99	2598.06				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	78.57	.025	129.94	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
78.57	129.94	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	67.47	2597	F

CULVERT

RIVER: TV_BOX
REACH: TV_BOX RS: 2045

INPUT
Description: 3-8'x4' CBC
Distance from Upstream XS = 28
Deck/Roadway Width = 47
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2599.47		49	2599.17		140	2598.73	
200	2598.23							

Upstream Bridge Cross Section Data
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2595.21	3	2595.21	3.27	2595.21	3.47	2595.21	4.62	2595.21
8.31	2595.23	10.73	2595.23	15.37	2595.23	16.84	2595.24	18.53	2595.28
18.61	2595.28	23.07	2595.36	23.22	2595.36	23.61	2595.37	27.65	2595.43
28.33	2595.43	32.1	2595.53	32.8	2595.52	35.36	2595.53	36.55	2595.52
39.33	2595.57	42.63	2595.66	44.18	2595.67	45.75	2595.75	47.5	2595.76
49.99	2595.92	51.88	2595.89	54.56	2596.02	55.59	2596.03	57.7	2596.13
59.66	2596.16	61.11	2596.19	63.33	2596.21	64.93	2596.27	67.47	2596.28
77.14	2595.65	77.69	2595.66	78.57	2595.57	80.62	2594.53	84.38	2593.24
84.68	2593.2	86.08	2593.06	87.97	2592.73	91.48	2592.6	94.14	2592.29
97.29	2592.16	99.17	2592.08	100	2592.02	101.89	2591.89	103.84	2591.85
105.47	2591.7	107.77	2591.57	110.04	2591.55	111.88	2591.49	113.49	2591.49
114.9	2591.43	119.15	2591.36	119.2	2591.71	119.21	2592.6	120.27	2592.57
120.55	2592.64	120.98	2592.71	123.41	2593.49	123.42	2593.49	123.43	2593.5

125.24	2593.99	126.16	2594.51	127.65	2595.44	129.33	2596.24	129.94	2596.91
132.3	2597.14	132.79	2597.18	140.36	2597.88	143.02	2598.08	144.24	2598.2
145.64	2598.38	146	2598.44	147.57	2598.47	148.46	2598.49	150.6	2598.53
154.68	2598.62	157.5	2598.68	160.37	2598.76	160.43	2598.48	160.48	2598.26
174.87	2598.25	178.87	2598.25	179.39	2598.25	180.7	2598.25	181.3	2598.25
182.75	2598.24	183.39	2598.24	195.15	2598.18	197.15	2598.13	198.4	2598.1
198.5	2598.1	198.72	2598.09	199.99	2598.06				

ng's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	78.57	.025	129.94	.08

Bank Sta: Left	Right	Coeff Contr.	Expan.
78.57	129.94	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	67.47	2597	F

Downstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2599.47		49	2599.17		140	2598.73	
200	2598.23							

Downstream Bridge Cross Section Data
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2596.22	.33	2596.22	1.55	2596.2	2.54	2596.2	3.25	2596.2
11.27	2596.11	11.65	2596.12	12.02	2596.12	13.08	2596.15	13.89	2596.17
15.04	2596.2	15.45	2596.21	15.51	2596.21	15.63	2596.2	21.3	2596.11
24.21	2596.05	25.83	2596.01	26.29	2596	26.78	2595.99	28.93	2595.96
38.23	2595.52	38.24	2595.52	38.59	2595.54	46.38	2595.66	48.43	2595.71
48.97	2595.72	49.46	2595.73	51.86	2595.76	54.59	2595.8	66.31	2595.89
67.34	2595.87	68.27	2595.82	74.43	2595.5	85.69	2595.55	85.71	2594.61
85.75	2591.77	92.17	2591.71	94.88	2591.71	96.94	2591.69	99.95	2591.73
100	2591.73	104.89	2591.73	111.32	2591.85	112.05	2591.86	114.7	2591.99
115.56	2592.02	115.66	2595.14	120.23	2595.5	122.47	2595.86	123.85	2596.11
126.84	2596.79	127.68	2596.99	132.09	2597.52	133.27	2597.64	137.43	2598.07
139.27	2598.3	139.59	2598.35	139.67	2598.37	141.69	2598.57	145.28	2598.66
147.36	2598.68	150.79	2598.76	157.01	2598.77	157.13	2598.27	157.42	2598.27
169.54	2598.24	173.52	2598.23	179.88	2598.26	191.07	2598.12	192.27	2598.09
193.92	2598.07	194.74	2598.07	197.01	2598.03	200	2597.98		

M ing's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	85.69	.025	115.66	.08

Bank Sta: Left	Right	Coeff Contr.	Expan.
85.69	115.66	.1	.3

Upstream Embankment side slope = 4 horiz. to 1.0 vertical
Downstream Embankment side slope = 4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
3-8x4 CBC	Box	4	8

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
	5	90	.013	.013	0	.2	1

Number of Barrels = 3
Upstream Elevation = 2591.75
Centerline Stations

Sta.	Sta.	Sta.
91.7	100.4	109.2

Downstream Elevation = 2591.5
Centerline Stations

Sta.	Sta.	Sta.
91.7	100.4	109.2

CROSS SECTION

R : TV_BOX
REACH: TV_BOX RS: 1950

INPUT
Description: 5-feet +/- DS BOX Culvert
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2596.22	.33	2596.22	1.55	2596.2	2.54	2596.2	3.25	2596.2
11.27	2596.11	11.65	2596.12	12.02	2596.12	13.08	2596.15	13.89	2596.17
15.04	2596.2	15.45	2596.21	15.51	2596.21	15.63	2596.2	21.3	2596.11
24.21	2596.05	25.83	2596.01	26.29	2596	26.78	2595.99	28.93	2595.96
38.23	2595.52	38.24	2595.52	38.59	2595.54	46.38	2595.66	48.43	2595.71
48.97	2595.72	49.46	2595.73	51.86	2595.76	54.59	2595.8	66.31	2595.89
67.34	2595.87	68.27	2595.82	74.43	2595.5	85.69	2595.55	85.71	2594.61
85.75	2591.77	92.17	2591.71	94.88	2591.71	96.94	2591.69	99.95	2591.73
100	2591.73	104.89	2591.73	111.32	2591.85	112.05	2591.86	114.7	2591.99
115.56	2592.02	115.66	2595.14	120.23	2595.5	122.47	2595.86	123.85	2596.11
126.84	2596.79	127.68	2596.99	132.09	2597.52	133.27	2597.64	137.43	2598.07
139.27	2598.3	139.59	2598.35	139.67	2598.37	141.69	2598.57	145.28	2598.66
147.36	2598.68	150.79	2598.76	157.01	2598.77	157.13	2598.27	157.42	2598.27
169.54	2598.24	173.52	2598.23	179.88	2598.26	191.07	2598.12	192.27	2598.09
193.92	2598.07	194.74	2598.07	197.01	2598.03	200	2597.98		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	85.69	.025	115.66	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
85.69	115.66	100	100	100	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1850

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2593.64	7.47	2593.75	7.76	2593.75	7.98	2593.75	8.7	2593.75
15.13	2593.75	17	2593.76	18.24	2593.77	19.38	2593.77	19.8	2593.77
20.28	2593.77	20.7	2593.77	21.92	2593.77	30.43	2593.81	30.69	2593.81
30.85	2593.81	32.03	2593.82	32.35	2593.82	32.59	2593.82	33.1	2593.83
34.44	2593.82	34.93	2593.82	35.26	2593.83	35.97	2593.83	36.37	2593.83
37.36	2593.83	37.63	2593.83	38.16	2593.83	38.43	2593.83	38.97	2593.82
39.52	2593.82	39.94	2593.83	40.3	2593.82	41.04	2593.82	41.79	2593.81
42.46	2593.82	42.83	2593.82	43.4	2593.82	43.67	2593.82	44.24	2593.82
44.62	2593.83	44.9	2593.83	45.27	2593.83	45.46	2593.83	45.73	2593.83
46.06	2593.85	46.47	2593.85	46.77	2593.85	47.15	2593.86	47.39	2593.87
47.84	2593.87	48.33	2593.89	48.57	2593.91	49.07	2593.9	50	2593.91
50.53	2593.92	51.1	2593.95	52.01	2593.96	52.59	2593.98	53.34	2594
53.7	2594	61.59	2594.03	62.27	2594.03	62.58	2594.02	63.43	2594.02
68.74	2594.05	68.89	2594.06	73.77	2594.2	77.94	2594.27	77.95	2594.27
77.99	2594.22	78.22	2593.98	80.59	2591.41	80.75	2591.23	81.41	2591.23
84.47	2591.23	90.29	2591.22	93.54	2591.22	95.67	2591.24	100	2591.3
106.41	2591.38	109.8	2591.31	115.63	2591.18	125.81	2593.3	128.36	2593.83
139.05	2594.1	139.43	2594.11	140.16	2594.23	155.8	2596.88	161.55	2597.08
162.74	2597.12	163.68	2597.16	165.15	2597.2	180.97	2597.63	185.31	2597.59
190.82	2597.55	192.74	2597.53	193.89	2597.49	200	2597.26		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	77.95	.025	128.36	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
77.95	128.36	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	77.95	2595.27	F

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1750

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2593.23	1.57	2593.28	2.11	2593.29	7.92	2593.36	9.23	2593.38
10.67	2593.41	11.32	2593.42	19.56	2593.43	20.03	2593.43	20.91	2593.45
21.12	2593.38	21.46	2593.39	22.39	2593.38	25.76	2593.4	26.72	2593.38
31.91	2593.4	33.51	2593.39	35.58	2593.45	38.84	2593.57	41.73	2593.64
45.02	2593.78	46.25	2593.76	48.16	2593.74	48.83	2593.73	60.04	2593.71
60.89	2593.7	64.5	2593.68	66.48	2593.83	67.11	2593.88	69.42	2593.89
72.86	2593.96	75.97	2593.91	76.8	2593.91	79.28	2592.28	81.23	2590.92
88.11	2591.19	92.09	2591.34	99.04	2591.37	100.01	2591.38	105.41	2591.41
108.4	2591.32	112.97	2591.2	118.55	2592.31	126.63	2593.88	131.6	2593.95
133.81	2593.98	137.23	2594.32	142.49	2594.83	147.81	2595.56	148.21	2595.62
148.42	2595.64	149.91	2595.9	153.47	2596.51	161.82	2596.85	162.61	2596.88

163.6	2596.92	166.34	2596.95	177.97	2597.06	181.43	2597.13	183.6	2597.09
190.53	2597.03	191.3	2597.02	192.49	2597.01	193.63	2596.99	200	2596.83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	76.8	.025	126.63	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
76.8	126.63	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	23	2596	F

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1650

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2593.78	4.1	2593.79	4.63	2593.8	5.65	2593.75	6.42	2593.75
7.16	2593.79	8.71	2593.86	10.17	2593.91	10.37	2593.92	11.72	2593.94
12.29	2593.96	13.14	2594	14.15	2594.07	15.05	2594.15	21.63	2594.85
24.51	2595.11	25.46	2595.19	27.87	2595.31	32.11	2595.92	32.3	2595.94
34.01	2596.07	36.01	2596.27	38.32	2596.19	38.84	2596.18	38.88	2596.18
40.71	2596.14	44.85	2596.04	46.53	2595.61	53.36	2593.73	56.13	2593.64
67.58	2593.3	69.31	2593.5	73.18	2593.86	77.08	2593.57	77.12	2593.57
79.31	2591.84	80.42	2590.97	80.72	2590.96	90.25	2590.92	91.17	2590.91
95.23	2590.97	100	2591.04	105.05	2591.12	109.62	2590.94	111.69	2590.87
117.06	2591.83	124.47	2593.13	129.23	2593.39	132.78	2593.58	135.88	2594.22
138.54	2594.77	142.46	2595.52	147.93	2596.56	150.03	2596.47	151.29	2596.43
153.25	2596.67	157.63	2597.23	161.44	2597.36	162.81	2597.42	163.09	2597.43
163.54	2597.45	164.84	2597.45	191.85	2597.53	193.86	2597.51	200	2597.46

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	77.12	.025	124.47	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
77.12	124.47	100	100	100	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1550

INPUT
Description:
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2592.67	.24	2592.66	2.93	2592.63	4.96	2592.55	10.18	2592.38
11.05	2592.34	11.45	2592.32	16.09	2592.03	18.32	2591.95	21.35	2592.27
22.1	2592.31	22.84	2592.34	23.72	2592.39	27.69	2592.71	29.71	2592.8
30.95	2592.88	35.05	2593.04	36.37	2593.09	36.64	2593.08	37.15	2593.05
39.9	2593.13	41.41	2593.11	42.58	2593.03	48.6	2592.79	50.75	2592.71
52.15	2592.63	53.8	2592.52	60.82	2592.43	66.61	2592.37	68.16	2592.33
68.86	2592.47	72.87	2593.22	76.33	2593.36	77.41	2593.42	79.15	2592.15
81.11	2590.73	82.51	2590.76	83.57	2590.8	88.3	2590.93	88.55	2590.93
88.81	2590.93	100	2590.85	100.09	2590.85	104.03	2590.82	108.79	2590.77
115.36	2591.83	122.1	2592.9	122.2	2592.91	128.03	2593.43	128.27	2593.45
128.52	2593.49	132.79	2594.25	135.88	2594.85	141.37	2597.53	141.57	2597.63
141.64	2597.63	141.74	2597.63	144.22	2597.64	152.71	2597.87	153.32	2597.88
153.74	2597.89	155.22	2597.95	162.22	2598.41	164.18	2598.55	164.26	2598.56
165.5	2598.59	191.46	2598.98	192.63	2598.97	200	2598.84		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	77.41	.025	122.2	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
77.41	122.2	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	53.6	2594	F

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1450

INPUT

Description:
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-50	2592.51	-24.49	2592.19	-20	2591.61	-15	2591.77	-10	2591.94
-5	2591.83	0	2591.65	1.68	2591.6	4.76	2591.49	5.67	2591.52
5.99	2591.53	6.31	2591.54	10.79	2591.71	13.94	2591.78	16.43	2591.81
17.34	2591.83	18.24	2591.85	23.92	2592.16	25.07	2592.22	27.45	2592.4
27.77	2592.42	29.75	2592.58	31.11	2592.61	31.82	2592.63	34.62	2592.7
36.56	2592.76	37.58	2592.8	38.95	2592.86	39.89	2592.9	43.51	2593.04
44.87	2593.08	47.18	2593.19	48.15	2593.21	48.73	2593.23	52.94	2593.4
53.07	2593.4	60.65	2593.29	63.54	2593.12	65.58	2593	71.12	2593.15
73.76	2593.22	74.76	2593.2	76.2	2593.17	78.02	2593.13	80.07	2591.87
81.15	2591.18	84.28	2591.16	87.22	2591.09	99.38	2590.84	100.01	2590.83
102.54	2590.79	110.36	2591.02	110.55	2591.02	110.64	2591.02	110.89	2591.04
115.03	2591.25	121.47	2592.82	124.47	2593.57	128.38	2594.75	131.15	2595.53
132.23	2595.9	133.31	2596.25	134.13	2596.44	135.06	2596.61	135.45	2596.73
142.4	2598.83	142.93	2598.93	143.17	2599.13	144	2599.35	145.07	2599.34
153.91	2599.36	154.71	2599.37	156.61	2599.45	166.97	2599.88	185.75	2600.38
190.07	2600.49	191.67	2600.54	197.37	2600.48	200	2600.46		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-50	.045	78.02	.025	124.47	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
78.02	124.47	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
-50	-16.09	2596	F

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1350

INPUT
Description:
Station Elevation Data num= 103

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-20	2592.93	-15	2592.92	-10	2592.73	-5	2592.59	0	2592.43
.55	2592.41	1.73	2592.35	2.4	2592.32	3.49	2592.25	4.98	2592.12
6.19	2592.05	7.85	2591.97	8.85	2591.88	9.88	2591.82	10.42	2591.77
10.8	2591.75	11.67	2591.7	12.74	2591.61	15.76	2591.48	16.53	2591.43
18.11	2591.39	18.8	2591.39	19.41	2591.38	19.85	2591.36	20.41	2591.28
22	2591.21	22.37	2591.23	23.04	2591.19	27.05	2590.72	31.49	2590.49
31.78	2590.5	34.45	2590.53	35.19	2590.55	36.47	2590.57	39.24	2590.62
40.22	2590.63	42.36	2590.66	43.12	2590.73	46.64	2591.04	48.8	2591.23
50.91	2591.44	52.01	2591.56	54.34	2591.78	56.11	2591.97	57.4	2592.1
60.29	2592.32	61.03	2592.39	63.41	2592.56	63.49	2592.57	64.22	2592.61
69.97	2592.44	71.24	2592.38	72.02	2592.33	72.61	2592.27	81.07	2591.45
83.56	2591.18	83.77	2591.17	83.89	2591.17	85.39	2591.04	85.47	2591.03
85.59	2591.01	88.39	2590.66	88.48	2590.64	89.58	2590.53	89.62	2590.52
89.77	2590.5	90.79	2590.38	91.1	2590.33	92.29	2590.16	93.5	2589.97
94.12	2589.84	95.7	2589.67	95.92	2589.65	96.46	2589.63	98	2589.51
98.26	2589.54	100.01	2589.31	100.95	2589.18	102.05	2589.04	106.52	2589.71
109.26	2590.12	124.15	2591.38	126.45	2591.56	135.06	2592.28	135.7	2592.33
135.83	2592.34	143.65	2592.92	145.24	2593.04	147.6	2593.56	158.33	2595.98
159.83	2596.3	162.35	2596.86	177.14	2601.2	177.73	2601.21	179.03	2601.19
181.62	2601.2	182.81	2601.16	188.29	2601.04	191.79	2601	194.52	2601.01
196.15	2601.03	198.16	2601.01	200.01	2601.13				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-20	.045	69.97	.025	145.24	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
69.97	145.24	100	100	100	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1250

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2591.45	2	2591.45	2.39	2591.46	4.64	2591.48	5.14	2591.49
9.83	2591.56	10.25	2591.57	10.88	2591.56	13.26	2591.6	16.97	2591.55
23.39	2591.9	25.87	2591.9	28.93	2591.87	34.9	2591.89	52.33	2591.84
56.25	2591.86	58.57	2591.85	59.19	2591.84	61.8	2591.83	64.85	2591.77
71.25	2591.63	74.84	2591.22	75.02	2591.23	75.16	2591.24	76.92	2590.94
80.93	2590.49	81.4	2590.46	82.99	2590.24	84.66	2590.12	86.12	2589.95
87.79	2589.73	90.4	2589.31	90.68	2589.3	94.87	2589.26	97.11	2588.83

97.73	2588.77	98.81	2588.68	99.21	2588.72	99.5	2588.74	100	2588.75
101.22	2588.78	103.22	2588.79	104.07	2588.85	106.65	2588.86	107.29	2588.89
108.26	2588.89	108.75	2588.9	109.22	2588.9	109.87	2588.92	111.55	2588.93
113.71	2589.01	119.13	2589.07	121.66	2589.1	122.94	2589.06	125.1	2588.95
125.5	2588.93	127.09	2588.91	128.94	2588.83	130.61	2588.83	133.46	2589.52
137.38	2590.27	137.95	2590.3	142.66	2590.64	144.11	2590.64	145.39	2590.6
149.42	2590.16	150.18	2590.01	150.48	2589.98	151	2589.81	152.4	2589.16
[illegible]3.21	2589.27	153.6	2589.34	154.45	2589.44	156.31	2589.63	156.4	2589.62
[illegible].01	2589.77	160.64	2589.75	161.3	2589.76	162.32	2589.78	165.5	2589.78
[illegible].16	2589.76	166.74	2589.76	167.54	2589.76	168.61	2589.82	169.91	2590.07
170.01	2590.09	172.31	2590.55	173.23	2590.77	175.05	2591.19	176.55	2591.46
178.74	2591.9	180.08	2592.19	182.79	2592.91	185.69	2592.91	189.05	2592.84
192.11	2595.38	193.49	2596.51	198.37	2597.12	200	2597.25		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	71.25	.025	182.79	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
71.25	182.79	100	0	100	.1	.3

SUMMARY OF MANNING'S N VALUES

River:TV_BOX

Reach	River Sta.	n1	n2	n3
TV_BOX	2450	.045	.025	.08
TV_BOX	2350	.045	.025	.08
TV_BOX	2250	.045	.025	.08
TV_BOX	2150	.045	.025	.08
TV_BOX	2078	.045	.025	.08
TV_BOX	2050	.045	.025	.08
TV_BOX	2045	Culvert		
TV_BOX	1950	.045	.025	.08
TV_BOX	1850	.045	.025	.08
TV_BOX	1750	.045	.025	.08
TV_BOX	1650	.045	.025	.08
TV_BOX	1550	.045	.025	.08
TV_BOX	1450	.045	.025	.08
TV_BOX	1350	.045	.025	.08
[illegible]BOX	1250	.045	.025	.08

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
TV_BOX	2450	100Yr w/ 25TW	555.00	2594.80	2596.71		2596.75	0.000944	1.90	526.74	631.30	0.33
TV_BOX	2450	25Yr w/100YrTW	325.00	2594.80	2596.24		2596.30	0.002923	2.27	240.77	566.42	0.52
TV_BOX	2450	100Yr w/100YrTW	555.00	2594.80	2596.71		2596.75	0.000944	1.90	526.74	631.30	0.33
TV_BOX	2350	100Yr w/ 25TW	555.00	2594.64	2596.66		2596.68	0.000485	1.66	639.30	474.85	0.24
TV_BOX	2350	25Yr w/100YrTW	325.00	2594.64	2596.13		2596.15	0.000822	1.59	391.55	455.27	0.30
TV_BOX	2350	100Yr w/100YrTW	555.00	2594.64	2596.66		2596.68	0.000485	1.66	639.30	474.85	0.24
TV_BOX	2250	100Yr w/ 25TW	555.00	2594.29	2596.61		2596.64	0.000377	1.81	556.99	343.14	0.23
TV_BOX	2250	25Yr w/100YrTW	325.00	2594.29	2596.07		2596.09	0.000441	1.58	374.29	333.77	0.23
TV_BOX	2250	100Yr w/100YrTW	555.00	2594.29	2596.61		2596.64	0.000377	1.81	556.99	343.14	0.23
BOX	2150	100Yr w/ 25TW	555.00	2593.95	2596.57		2596.61	0.000325	[illegible]3	397.03	229.88	0.21
TV_BOX	2150	25Yr w/100YrTW	325.00	2593.95	2596.03		2596.06	0.000333	1.43	275.30	223.40	0.20
TV_BOX	2150	100Yr w/100YrTW	555.00	2593.95	2596.57		2596.61	0.000325	1.73	397.03	229.88	0.21

TV_BOX	2078	100Yr w/ 25TW	555.00	2594.21	2595.90	2595.90	2596.49	0.008028	6.67	105.27	93.00	0.99
TV_BOX	2078	25Yr w/100YrTW	325.00	2594.21	2595.53	2595.53	2595.95	0.008298	5.55	72.03	88.38	0.96
TV_BOX	2078	100Yr w/100YrTW	555.00	2594.21	2595.90	2595.90	2596.49	0.008028	6.67	105.27	93.00	0.99
TV_BOX	2050	100Yr w/ 25TW	555.00	2591.36	2595.66	2593.98	2595.86	0.000897	3.65	152.23	93.35	0.37
TV_BOX	2050	25Yr w/100YrTW	325.00	2591.36	2594.41	2593.41	2594.60	0.001376	3.49	93.16	45.01	0.43
TV_BOX	2050	100Yr w/100YrTW	555.00	2591.36	2595.66	2593.98	2595.86	0.000897	3.65	152.23	93.35	0.37
TV_BOX	2045		Culvert									
TV_BOX	1950	100Yr w/ 25TW	555.00	2591.69	2593.98	2593.97	2595.08	0.008273	8.41	65.97	29.90	1.00
TV_BOX	1950	25Yr w/100YrTW	325.00	2591.69	2593.58		2594.14	0.005356	6.02	54.00	29.89	0.79
TV_BOX	1950	100Yr w/100YrTW	555.00	2591.69	2593.97	2593.97	2595.08	0.008398	8.45	65.66	29.90	1.01
TV_BOX	1850	100Yr w/ 25TW	555.00	2591.18	2594.25	2593.14	2594.53	0.001506	4.25	133.34	138.79	0.47
TV_BOX	1850	25Yr w/100YrTW	325.00	2591.18	2593.63	2592.60	2593.80	0.001209	3.26	99.57	48.87	0.40
TV_BOX	1850	100Yr w/100YrTW	555.00	2591.18	2594.24	2593.14	2594.52	0.001519	4.27	132.92	138.33	0.47
TV_BOX	1750	100Yr w/ 25TW	555.00	2590.92	2593.98	2593.22	2594.34	0.002294	4.82	130.03	133.84	0.57
TV_BOX	1750	25Yr w/100YrTW	325.00	2590.92	2593.41	2592.65	2593.64	0.001930	3.83	85.01	70.76	0.50
TV_BOX	1750	100Yr w/100YrTW	555.00	2590.92	2593.97	2593.22	2594.33	0.002354	4.86	128.36	132.91	0.57
TV_BOX	1650	100Yr w/ 25TW	555.00	2590.87	2593.75		2594.11	0.002135	4.85	121.50	77.60	0.55
TV_BOX	1650	25Yr w/100YrTW	325.00	2590.87	2593.26		2593.46	0.001565	3.59	90.65	49.31	0.46
TV_BOX	1650	100Yr w/100YrTW	555.00	2590.87	2593.73		2594.10	0.002193	4.89	120.10	77.01	0.56
TV_BOX	1550	100Yr w/ 25TW	555.00	2590.73	2593.40	2592.98	2593.84	0.003173	5.49	114.87	127.23	0.66
TV_BOX	1550	25Yr w/100YrTW	325.00	2590.73	2593.05	2592.35	2593.28	0.001974	3.89	91.36	111.17	0.51
TV_BOX	1550	100Yr w/100YrTW	555.00	2590.73	2593.34	2592.98	2593.82	0.003482	5.66	110.68	125.33	0.69
TV_BOX	1450	100Yr w/ 25TW	555.00	2590.79	2592.74	2592.74	2593.36	0.007606	6.87	107.35	128.56	0.97
TV_BOX	1450	25Yr w/100YrTW	325.00	2590.79	2592.91	2592.36	2593.07	0.001820	3.54	123.54	133.62	0.48
TV_BOX	1450	100Yr w/100YrTW	555.00	2590.79	2592.86	2592.74	2593.37	0.005913	6.29	118.45	132.09	0.87
TV_BOX	1350	100Yr w/ 25TW	555.00	2589.04	2591.90	2591.90	2592.45	0.008212	6.43	108.92	100.85	0.99
TV_BOX	1350	25Yr w/100YrTW	325.00	2589.04	2592.92		2592.96	0.000401	1.80	241.33	159.03	0.23
TV_BOX	1350	100Yr w/100YrTW	555.00	2589.04	2592.90		2593.02	0.001206	3.10	238.35	157.93	0.40
TV_BOX	1250	100Yr w/ 25TW	555.00	2588.68	2591.85	2590.53	2591.94	0.000644	2.46	232.33	147.86	0.30
TV_BOX	1250	25Yr w/100YrTW	325.00	2588.68	2592.93	2590.14	2592.94	0.000050	0.88	427.06	189.16	0.09
TV_BOX	1250	100Yr w/100YrTW	555.00	2588.68	2592.93	2590.53	2592.96	0.000146	1.51	427.06	189.16	0.15

Profile Output Table - Standard Table 2

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
TV_BOX	2450	100Yr w/ 25TW	2596.75	2596.71	0.04	0.07	0.00	59.72	359.34	135.94	631.30
TV_BOX	2450	25Yr w/100YrTW	2596.30	2596.24	0.06	0.14	0.01	2.54	239.28	83.19	566.42
TV_BOX	2450	100Yr w/100YrTW	2596.75	2596.71	0.04	0.07	0.00	59.72	359.34	135.94	631.30
TV_BOX	2350	100Yr w/ 25TW	2596.68	2596.66	0.02	0.04	0.00	147.73	241.47	165.80	474.85
TV_BOX	2350	25Yr w/100YrTW	2596.15	2596.13	0.02	0.06	0.00	66.91	146.15	111.94	455.27
TV_BOX	2350	100Yr w/100YrTW	2596.68	2596.66	0.02	0.04	0.00	147.73	241.47	165.80	474.85
TV_BOX	2250	100Yr w/ 25TW	2596.64	2596.61	0.03	0.03	0.00	194.18	277.42	83.40	343.14
TV_BOX	2250	25Yr w/100YrTW	2596.09	2596.07	0.02	0.03	0.00	102.16	175.54	47.31	333.77
TV_BOX	2250	100Yr w/100YrTW	2596.64	2596.61	0.03	0.03	0.00	194.18	277.42	83.40	343.14
TV_BOX	2150	100Yr w/ 25TW	2596.61	2596.57	0.04	0.06	0.06	82.42	468.52	4.06	229.88
TV_BOX	2150	25Yr w/100YrTW	2596.06	2596.03	0.03	0.06	0.04	36.76	286.51	1.73	223.40
TV_BOX	2150	100Yr w/100YrTW	2596.61	2596.57	0.04	0.06	0.06	82.42	468.52	4.06	229.88
TV_BOX	2078	100Yr w/ 25TW	2596.49	2595.90	0.59	0.06	0.12	90.08	462.08	2.84	93.00
BOX	2078	25Yr w/100YrTW	2595.95	2595.53	0.43	0.08	0.07	40.38	[illegible]4	0.78	88.38
TV_BOX	2078	100Yr w/100YrTW	2596.49	2595.90	0.59	0.06	0.12	90.08	462.08	2.84	93.00
TV_BOX	2050	100Yr w/ 25TW	2595.86	2595.66	0.21			0.00	555.00		93.35
TV_BOX	2050	25Yr w/100YrTW	2594.60	2594.41	0.19				325.00		45.01
TV_BOX	2050	100Yr w/100YrTW	2595.86	2595.66	0.21			0.00	555.00		93.35
TV_BOX	2045		Culvert								
TV_BOX	1950	100Yr w/ 25TW	2595.08	2593.98	1.10	0.30	0.25		555.00		29.90
TV_BOX	1950	25Yr w/100YrTW	2594.14	2593.58	0.56	0.22	0.12		325.00		29.89
TV_BOX	1950	100Yr w/100YrTW	2595.08	2593.97	1.11	0.30	0.25		555.00		29.90
TV_BOX	1850	100Yr w/ 25TW	2594.53	2594.25	0.28	0.18	0.01		554.08	0.92	138.79
TV_BOX	1850	25Yr w/100YrTW	2593.80	2593.63	0.17	0.15	0.01		325.00		48.87
TV_BOX	1850	100Yr w/100YrTW	2594.52	2594.24	0.28	0.19	0.01		554.12	0.88	138.33
TV_BOX	1750	100Yr w/ 25TW	2594.34	2593.98	0.35	0.22	0.00	12.71	542.24	0.05	133.84
BOX	1750	25Yr w/100YrTW	2593.64	2593.41	0.23	0.17	0.01	0.03	3[illegible]7		70.76
TV_BOX	1750	100Yr w/100YrTW	2594.33	2593.97	0.36	0.23	0.00	11.88	543.09	0.03	132.91
TV_BOX	1650	100Yr w/ 25TW	2594.11	2593.75	0.36	0.26	0.01	2.53			

```
551.01      1.46        77.60
  TV_BOX        1650            25Yr w/100YrTW      2593.46     2593.26       0.20          0.18          0.00
324.98      0.02        49.31
  TV_BOX        1650            100Yr w/100YrTW     2594.10     2593.73       0.37          0.27          0.01      2.25
551.38      1.37        77.01


  TV_BOX        1550            100Yr w/ 25TW       2593.84     2593.40       0.45          0.47          0.02     26.36
528.10      0.54       127.23
  TV_BOX        1550            25Yr w/100YrTW      2593.28     2593.05       0.23          0.19          0.02     10.41
314.57      0.02       111.17
  TV_BOX        1550            100Yr w/100YrTW     2593.82     2593.34       0.48          0.45          0.00     25.05
529.54      0.41       125.33


  TV_BOX        1450            100Yr w/ 25TW       2593.36     2592.74       0.62          0.79          0.02    102.60
452.40                 128.56
  TV_BOX        1450            25Yr w/100YrTW      2593.07     2592.91       0.16          0.07          0.04     66.24
258.76                 133.62
  TV_BOX        1450            100Yr w/100YrTW     2593.37     2592.86       0.51          0.23          0.12    109.96
445.04                 132.09


  TV_BOX        1350            100Yr w/ 25TW       2592.45     2591.90       0.55          0.16          0.14     98.65
456.35                 100.85
  TV_BOX        1350            25Yr w/100YrTW      2592.96     2592.92       0.04          0.01          0.01     78.22
246.78                 159.03
  TV_BOX        1350            100Yr w/100YrTW     2593.02     2592.90       0.12          0.03          0.03    133.10
421.90                 157.93


  TV_BOX        1250            100Yr w/ 25TW       2591.94     2591.85       0.09                                   2.43
552.57                 147.86
  TV_BOX        1250            25Yr w/100YrTW      2592.94     2592.93       0.01                                  21.48
303.52      0.00       189.16
  TV_BOX        1250            100Yr w/100YrTW     2592.96     2592.93       0.03                                  36.67
518.32      0.01       189.16
```

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : TVBOX_EX

River: TV_BOX Reach: TV_BOX RS: 2450 Profile: 25Yr w/100YrTW
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.
River: TV_BOX Reach: TV_BOX RS: 2350 Profile: 25Yr w/100YrTW
Warning:Divided flow computed for this cross-section.
River: TV_BOX Reach: TV_BOX RS: 2150 Profile: 100Yr w/ 25TW
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TV_BOX Reach: TV_BOX RS: 2150 Profile: 25Yr w/100YrTW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TV_BOX Reach: TV_BOX RS: 2150 Profile: 100Yr w/100YrTW
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TV_BOX Reach: TV_BOX RS: 2078 Profile: 100Yr w/ 25TW
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:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2078 Profile: 25Yr w/100YrTW
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.
program defaulted to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2078 Profile: 100Yr w/100YrTW
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:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2050 Profile: 100Yr w/ 25TW
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: TV_BOX Reach: TV_BOX RS: 2050 Profile: 25Yr w/100YrTW
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: TV_BOX Reach: TV_BOX RS: 2050 Profile: 100Yr w/100YrTW
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: TV_BOX Reach: TV_BOX RS: 1950 Profile: 100Yr w/ 25TW
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TV_BOX Reach: TV_BOX RS: 1950 Profile: 25Yr w/100YrTW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TV_BOX Reach: TV_BOX RS: 1950 Profile: 100Yr w/100YrTW
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 1.4.
This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: TV_BOX Reach: TV_BOX RS: 1850 Profile: 100Yr w/ 25TW
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1850 Profile: 25Yr w/100YrTW
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1850 Profile: 100Yr w/100YrTW
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1750 Profile: 100Yr w/ 25TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1750 Profile: 25Yr w/100YrTW
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1750 Profile: 100Yr w/100YrTW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1650 Profile: 100Yr w/ 25TW
Warning:Divided flow computed for this cross-section.
River: TV_BOX Reach: TV_BOX RS: 1650 Profile: 100Yr w/100YrTW

```
     Warning:Divided flow computed for this cross-section.
River: TV_BOX  Reach: TV_BOX     RS: 1550     Profile: 100Yr w/ 25TW
     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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater
than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water
surface was
             used.
River: TV_BOX  Reach: TV_BOX     RS: 1550     Profile: 25Yr w/100YrTW
     Warning:Divided flow computed for this cross-section.
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water
surface was
             used.
River: TV_BOX  Reach: TV_BOX     RS: 1550     Profile: 100Yr w/100YrTW
     Warning:Divided flow computed for this cross-section.
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water
surface was
             used.
River: TV_BOX  Reach: TV_BOX     RS: 1450     Profile: 100Yr w/ 25TW
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program selected
the water
             surface that had the least amount of error between computed and assumed values.
     Warning:Divided flow computed for this cross-section.
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     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.
River: TV_BOX  Reach: TV_BOX     RS: 1450     Profile: 25Yr w/100YrTW
     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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater
than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water
surface was
             used.
River: TV_BOX  Reach: TV_BOX     RS: 1450     Profile: 100Yr w/100YrTW
     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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater
than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water
surface was
             used.
River: TV_BOX  Reach: TV_BOX     RS: 1350     Profile: 100Yr w/ 25TW
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program selected
the water
             surface that had the least amount of error between computed and assumed values.
     Warning: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:During the standard step iterations, when the assumed water surface was set equal to critical depth, the
calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.
 The
             program defaulted to critical depth.
River: TV_BOX  Reach: TV_BOX     RS: 1350     Profile: 25Yr w/100YrTW
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater
than 1.4.
             This may indicate the need for additional cross sections.
River: TV_BOX  Reach: TV_BOX     RS: 1350     Profile: 100Yr w/100YrTW
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater
than 1.4.
             This may indicate the need for additional cross sections.
River: TV_BOX  Reach: TV_BOX     RS: 1250     Profile: 100Yr w/ 25TW
     Warning:Divided flow computed for this cross-section.
```

B-2

Speedway Boulevard

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of 1

Made by D. RUVALCABA

Date 5/18/09

Checked by

Date

Subject HOUGHTON ROAD - TANQUE VERDE ROAD TO SPEEDWAY
CT-B, EXISTING HEADWATER FOR EXISTING FLOWRATE

WEIR FLOW

$P = 2(W) + L$

$P = 2(6) + 10 = 22$

$Q = 11.4 \ ft^3/sec$

GRATE WIDTH = 6'

GRATE LENGTH = 10'

ASSUMED 50% CLOGGED

∴ 0.5(P) WILL BE USED

AND THE NEW (P) WILL BE 11

$Q = 3.0(P)(Y)^{3/2}$

$11.4 = 3.0(11)(Y)^{3/2}$

$Y = 0.49'$

PONDING WSEL = 2583.9 + 0.49 = 2584.39

Culvert Analysis Report
Speedway Houghton2

Comments: 100 Year with 10 Year TW

Analysis Component			
Storm Event	Design	Discharge	11.40 cfs

Peak Discharge Method: User-Specified			
Design Discharge	11.40 cfs	Check Discharge	0.00 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	2,576.19 ft

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	2-36 inch Circular	11.40 cfs	2,580.98 ft	7.88 ft/s
Weir	Not Considered	N/A	N/A	N/A

Culvert Analysis Report
Speedway Houghton2

Component:Culvert-1

Culvert Summary			
Computed Headwater Elevation	2,580.98 ft	Discharge	11.40 cfs
Inlet Control HW Elev.	2,580.82 ft	Tailwater Elevation	2,576.19 ft
Outlet Control HW Elev.	2,580.98 ft	Control Type	Entrance Control
Headwater Depth/Height	0.38		

Grades			
Upstream Invert	2,579.83 ft	Downstream Invert	2,577.10 ft
Length	132.00 ft	Constructed Slope	0.020682 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.48 ft
Slope Type	Steep	Normal Depth	0.48 ft
Flow Regime	Supercritical	Critical Depth	0.75 ft
Velocity Downstream	7.88 ft/s	Critical Slope	0.003333 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	2,580.98 ft	Upstream Velocity Head	0.27 ft
Ke	0.50	Entrance Loss	0.13 ft

Inlet Control Properties			
Inlet Control HW Elev.	2,580.82 ft	Flow Control	Unsubmerged
Inlet Type	Square edge w/headwall	Area Full	14.1 ft2
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

WEST SIDE OF SPEEDWAY BLVD - HOUGHTON Rd INTERSECTION DS (EXISTING)

HEC-RAS Plan: SHW River: Stream Reach: Reach

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Reach	634.56	100Yr w/ 10TW	2585.55	2584.99	0.57				250.00		10.00
Reach	634.56	10Yr w/ 100TW	2583.57	2583.24	0.33				110.00		10.00
Reach	470		Culvert								
Reach	458.82	100Yr w/ 10TW	2580.92	2576.69	4.24				250.00		25.55
Reach	458.82	10Yr w/ 100TW	2578.95	2578.83	0.12	0.05	0.03		110.00		44.00
Reach	408.68	100Yr w/ 10TW	2577.81	2577.68	0.13	1.42	0.00		250.00		48.06
Reach	408.68	10Yr w/ 100TW	2578.86	2578.85	0.01	0.01	0.00		110.00		64.15
Reach	308.39	100Yr w/ 10TW	2576.38	2576.21	0.17	0.24	0.04		250.00		51.12
Reach	308.39	10Yr w/ 100TW	2578.85	2578.85	0.00	0.00	0.00	43.74	57.59	8.67	211.11
Reach	208.21	100Yr w/ 10TW	2576.09	2576.07	0.02	0.01	0.01	109.34	127.30	13.36	286.47
Reach	208.21	10Yr w/ 100TW	2578.85	2578.85	0.00	0.00	0.00	60.14	34.16	15.70	600.40
Reach	114.85	100Yr w/ 10TW	2576.08	2576.08	0.00	0.00	0.00	209.76	24.26	15.98	1752.91
Reach	114.85	10Yr w/ 100TW	2578.85	2578.85	0.00	0.00	0.00	106.87	1.46	1.67	1891.05
Reach	3.61	100Yr w/ 10TW	2576.08	2576.07	0.01			75.87	127.78	46.35	124.70
Reach	3.61	10Yr w/ 100TW	2578.85	2578.85	0.00			34.83	50.91	24.26	124.70

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

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

PROJECT DATA
Project Title: Speedway-Houghton West Drainage
Project File : Spe_Hou_West.prj
Run Date and Time: 6/16/2009 7:15:41 AM

Project in English units

Project Description:
Drainage Analysis West of Houghton and Speedway Blvd.

PLAN DATA

Plan Title: Speedway Houghton West
Plan File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.p01

Geometry Title: Speedway Houghton West2
Geometry File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.g02

Flow Title : Speedway Houghton West
Flow File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.f01

Summary Information:
r of: Cross Sections = 7 Multiple Openings = 0
Culverts = 1 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

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

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

FLOW DATA

Flow Title: Speedway Houghton West
Flow File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.f01

Flow Data (cfs)

River	Reach	RS	100Yr w/ 10TW	10Yr w/ 100TW	100Yr w/ 100TW
Stream	Reach	634.56	250	110	250

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
eam	Reach	100Yr w/ 10TW	Critical	Known WS = 2576.07
eam	Reach	10Yr w/ 100TW	Critical	Known WS = 2578.85
Stream	Reach	100Yr w/ 100TW	Critical	Known WS = 2578.85

GEOMETRY DATA

Geometry Title: Speedway Houghton West2
Geometry File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.g02

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 634.56

INPUT
Description: DS Reach legth was added 6 extra feet to place the crossection 5 feet away from inlet of culvert

Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2589.86	3.69	2589.94	4.39	2589.94	8.36	2589.95	16.52	2590
17.08	2590	17.24	2590.44	17.27	2590.5	20.47	2590.17	21.94	2590.15
23.3	2590.01	25.27	2589.82	27.56	2589.59	29.57	2589.42	31	2589.3
34.66	2588.98	39.42	2588.58	39.7	2588.56	40.01	2588.55	43.46	2588.44
45.14	2588.34	47.68	2588.16	54.75	2587.63	57.28	2587.53	60.83	2587.35
67.35	2587.04	67.98	2587.04	67.98	2580.85	77.98	2580.85	77.98	2588.37
80.14	2588.37	80.93	2588.29	82.24	2588.17	85.02	2588.29	86.38	2588.33
91.99	2588.34	106.24	2588.37	107.96	2588.38	108.02	2588.39	111.17	2588.38
121.18	2588.49	125.02	2588.54	125.65	2588.58	133.62	2588.77	135.11	2588.82
135.47	2588.82	147.4	2588.47	148.21	2588.31	152.14	2588.38	152.16	2588.38
152.22	2588.39	152.47	2588.39	166.73	2588.34				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.012	67.98	.012	77.98	.012

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
67.98	77.98	182	182	182	.1	.3

CULVERT

RIVER: Stream
REACH: Reach RS: 470

INPUT
Description:
Distance from Upstream XS = 5
Deck/Roadway Width = 140
Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates
num= 20

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2587.86	0	20.51	2587.67	0	21.91	2587.66	0
38.64	2587.54	0	44.17	2587.5	0	64.66	2587.42	0
66.52	2587.41	0	87.62	2587.12	0	109.59	2586.93	0
122.4	2586.84	0	124.68	2586.83	0	135.87	2586.74	0
144.65	2586.65	0	144.71	2586.65	0	144.76	2586.65	0
144.8	2586.65	0	145.36	2586.65	0	154.28	2586.54	0
158.9	2586.46	0	166.73	2586.45	0			

Upstream Bridge Cross Section Data
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2589.86	3.69	2589.94	4.39	2589.94	8.36	2589.95	16.52	2590
17.08	2590	17.24	2590.44	17.27	2590.5	20.47	2590.17	21.94	2590.15
23.3	2590.01	25.27	2589.82	27.56	2589.59	29.57	2589.42	31	2589.3
34.66	2588.98	39.42	2588.58	39.7	2588.56	40.01	2588.55	43.46	2588.44
45.14	2588.34	47.68	2588.16	54.75	2587.63	57.28	2587.53	60.83	2587.35
67.35	2587.04	67.98	2587.04	67.98	2580.85	77.98	2580.85	77.98	2588.37
80.14	2588.37	80.93	2588.29	82.24	2588.17	85.02	2588.29	86.38	2588.33
91.99	2588.34	106.24	2588.37	107.96	2588.38	108.02	2588.39	111.17	2588.38
121.18	2588.49	125.02	2588.54	125.65	2588.58	133.62	2588.77	135.11	2588.82
135.47	2588.82	147.4	2588.47	148.21	2588.31	152.14	2588.38	152.16	2588.38
152.22	2588.39	152.47	2588.39	166.73	2588.34				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.012	67.98	.012	77.98	.012

Bank Sta: Left	Right	Coeff Contr.	Expan.
67.98	77.98	.1	.3

Downstream Deck/Roadway Coordinates
num= 20

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2587.86	0	20.51	2587.67	0	21.91	2587.66	0
38.64	2587.54	0	44.17	2587.5	0	64.66	2587.42	0
66.52	2587.41	0	87.62	2587.12	0	109.59	2586.93	0
122.4	2586.84	0	124.68	2586.83	0	135.87	2586.74	0

144.65	2586.65	0	144.71	2586.65	0	144.76	2586.65	0
144.8	2586.65	0	145.36	2586.65	0	154.28	2586.54	0
158.9	2586.46	0	166.73	2586.45	0			

Downstream Bridge Cross Section Data
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2581.78	2.03	2581.79	8.46	2581.66	10.62	2581.68	14.62	2581.38
7.2	2581.27	18.38	2581.21	25.36	2580.79	32.94	2580.32	33.5	2580.29
40.3	2578.99	47.12	2577.63	55.16	2575.96	58.25	2575.93	58.8	2575.34
63.87	2575.34	70.03	2575.34	73.57	2575.73	81.84	2577.91	86.66	2579.25
88.79	2579.82	91.9	2580.05	99.25	2580.65	103.74	2580.91	113.6	2581.49
114.99	2581.61	117.56	2581.89	123.5	2582.57	127.31	2583.4	132.83	2584.75
137.64	2584.97	144.29	2585.28	145.31	2585.24	151.24	2584.9	154.16	2584.99
159.34	2585.15	164.74	2585.07	166.73	2585.02				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	58.8	.08	70.03	.08

Bank Sta: Left	Right	Coeff Contr.	Expan.
58.8	70.03	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	58.8	2580.35	F
70.03	166.73	2580.35	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .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 = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	4	10

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
	5	172	.013	.013	0	.5	1

U eam Elevation = 2580.85
Centerline Station = 72.98
Downstream Elevation = 2575.34
Centerline Station = 63.88

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 458.82

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2581.78	2.03	2581.79	8.46	2581.66	10.62	2581.68	14.62	2581.38
17.2	2581.27	18.38	2581.21	25.36	2580.79	32.94	2580.32	33.5	2580.29
40.3	2578.99	47.12	2577.63	55.16	2575.96	58.25	2575.93	58.8	2575.34
63.87	2575.34	70.03	2575.34	73.57	2575.73	81.84	2577.91	86.66	2579.25
88.79	2579.82	91.9	2580.05	99.25	2580.65	103.74	2580.91	113.6	2581.49
114.99	2581.61	117.56	2581.89	123.5	2582.57	127.31	2583.4	132.83	2584.75
137.64	2584.97	144.29	2585.28	145.31	2585.24	151.24	2584.9	154.16	2584.99
159.34	2585.15	164.74	2585.07	166.73	2585.02				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	58.8	.08	70.03	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
58.8	70.03	50.14	50.14	50.14	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	58.8	2580.35	F
70.03	166.73	2580.35	F

C SECTION

RIVER: Stream
REACH: Reach RS: 408.68

INPUT

Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2579.21	3.77	2579.07	5.38	2579.01	7.69	2579.27	9.79	2579.38
11.88	2579.35	12.67	2579.33	13.8	2579.27	28.08	2579.03	32.92	2578.97
36.04	2579.02	39.09	2579.05	39.6	2579.06	39.93	2579.07	40.06	2579.07
40.14	2579.07	40.17	2579.07	40.22	2579.07	40.26	2579.07	40.36	2579.07
40.44	2579.07	40.57	2579.07	41.01	2579.07	41.09	2579.07	41.29	2579.07
41.52	2579.07	41.84	2579.07	42.01	2579.07	42.34	2579.07	42.51	2579.07
42.91	2579.07	43.43	2579.08	47.69	2579.09	48.03	2579.09	48.32	2579.09
48.87	2579.1	49.35	2579.12	51.16	2579.17	51.32	2579.17	51.52	2579.17
51.61	2579.18	51.86	2579.18	52.13	2579.18	54.15	2579.17	54.48	2579.17
56.71	2579.1	59	2579.06	60.74	2579.1	62.63	2579.17	66.62	2579.22
66.76	2579.23	70.52	2579.14	72.44	2579.1	73.82	2579.08	74.56	2579.09
74.89	2579.1	75.19	2579.11	76.14	2579.12	88.95	2579.33	89.08	2579.33
91.87	2579.29	95.32	2579.2	96.18	2579.2	99.52	2579.22	105.75	2579.09
108.89	2579.09	113.19	2579.08	126.65	2576.13	129.64	2575.47	131.01	2575.2
131.71	2575.21	144.33	2575.44	145.6	2575.47	147.35	2575.5	151.7	2575.48
154.9	2575.43	156.71	2575.33	157.34	2575.28	161.91	2576.34	171.25	2578.54
179.65	2578.91	186.13	2579.18	200.75	2579.37	202.73	2579.41	208.18	2580.42
209.75	2580.67	213.06	2581.12	213.17	2581.13	213.29	2581.16	223.07	2583.47
226.04	2583.71	227.66	2583.83	229.82	2584.06	230.38	2584.09	232.05	2584.02
236.87	2584.26	239.97	2584.28	243.62	2584.41	250.93	2584.39		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	113.19	.08	171.25	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
113.19	171.25	100.29	100.29	100.29	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	109.67	2586	F
170.9	250.93	2586	F

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 308.39

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2577.12	4.69	2577.11	4.73	2577.11	4.78	2577.11	4.83	2577.11
5.23	2577.1	5.44	2577.1	5.54	2577.1	5.73	2577.1	6.25	2577.09
8.69	2577.07	25.18	2576.91	27.19	2576.89	30.36	2576.93	40.23	2576.97
52.7	2576.93	56.26	2576.94	58.54	2576.94	70.05	2577.05	74.44	2577.08
79.39	2577.03	79.74	2577.02	85.53	2576.87	90.4	2576.84	96.48	2576.73
101.24	2576.96	101.52	2576.98	102	2576.97	113.18	2576.89	115.92	2576.37
117.21	2576.15	122.96	2574.79	125.29	2574.26	132.53	2574.24	134.11	2574.23
136.83	2574.25	137.04	2574.25	137.05	2574.25	138.77	2574.24	148.64	2574.43
155	2574.49	155.65	2574.58	170.6	2576.56	170.95	2576.58	183.91	2577.04
184.1	2577.04	201.09	2577.55	205.29	2577.6	208.74	2578.3	210.85	2578.78
214.6	2579.82	215.08	2579.94	223.82	2582.05	228.55	2583.13	229.67	2583.15
232.22	2583.29	233.64	2583.37	237.47	2583.63	239.22	2583.72	241.14	2583.68
245.32	2583.52	250.76	2583.49	251.26	2583.49				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	113.18	.08	170.6	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
113.18	170.6	100.18	100.18	100.18	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	41.16	2584	F
204.56	251.26	2584	F

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 208.21

INPUT
Description:
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-500	2579.39	-497.22	2579.6	-496.86	2579.6	-496.08	2579.57	-494.38	2579.56
-479.39	2578.99	-477.46	2578.96	-475.4	2578.99	-467.72	2579.23	-466.19	2579.26
-463.38	2579.26	-459.91	2579.3	-456.77	2579.32	-452.9	2579.37	-450.52	2579.39
-448.91	2579.42	-443.37	2579.46	-439.73	2579.36	-436.11	2579.35	-434.4	2579.35
-433.37	2579.31	-429.23	2579.31	-428.46	2579.26	-411.58	2579.25	-404.52	2579.21
-402.76	2579.23	-402.25	2579.23	-401.16	2579.19	-399.74	2579.1	-397.36	2579.06

-396.35	2579	-395.82	2578.98	-394.61	2578.98	-388.97	2578.82	-387.84	2578.82
-386.4	2578.76	-382.86	2578.57	-380.11	2578.4	-374.53	2578.11	-374.18	2578.11
-370.37	2577.94	-364.38	2577.75	-360.85	2577.69	-359.38	2577.64	-357.62	2577.55
-355.88	2577.43	-355.15	2577.41	-353.95	2577.35	-350.37	2577.28	-347.27	2577.18
-344.06	2577.03	-342.73	2576.95	-339.03	2576.77	-336.16	2576.64	-330.97	2576.43
-327.45	2576.36	-325.05	2576.34	-319.16	2576.33	-318.09	2576.32	-314.45	2576.34
-313.59	2576.36	-284.78	2576.26	-283.29	2576.26	-279.4	2576.32	-274.25	2576.44
-70.41	2576.49	-265.67	2576.25	-264.82	2576.24	-259.85	2576.29	-256.12	2576.31
7.54	2576.5	-230.18	2576.52	-211.72	2576.67	-200.43	2576.85	-151.58	2576.58
-147.54	2576.42	-146.12	2576.41	-141.34	2576.51	-138.61	2576.52	-132.85	2576.43
-126.14	2576.27	-122.74	2576.32	-116.32	2576.33	-112.8	2576.3	-82.2	2575.71
-79.97	2575.68	-74.58	2575.53	-71.81	2575.52	-68.13	2575.63	-26.48	2575.15
-24.48	2575.13	-23.36	2575.11	-18.28	2575.12	-15.44	2575.09	-8.83	2575.09
-5.98	2575.06	-3.98	2575.01	-.59	2574.89	0	2574.89	14.51	2574.77
23.46	2574.8	24.43	2574.8	24.93	2574.81	26.63	2574.78	28.98	2574.73
31.56	2574.67	32.48	2574.65	34.61	2574.62	34.93	2574.61	37.7	2574.59
40.63	2574.58	42.68	2574.59	45.93	2574.59	46.57	2574.6	48	2574.66
60.31	2574.97	75.23	2575.21	78.44	2575.27	84.92	2574.86	89.32	2574.57
94.95	2573.99	95.91	2573.9	96.8	2573.97	102.01	2574.36	104.27	2574.45
108.3	2574.44	111.02	2574.44	112.52	2574.35	116.32	2574.11	123.58	2573.01
127.57	2572.39	129.48	2572.41	130.8	2572.42	132.52	2572.43	140.83	2573.01
144.26	2573.31	154.64	2574.14	166.54	2575.13	174.24	2575.48	181.29	2575.81
183.66	2575.95	191.99	2576.47	195.13	2576.63	202.54	2576.97	205.2	2577.57
207.64	2578.09	211.3	2579.11	216.6	2580.56	222.1	2581.86	224.6	2582.44
225.72	2582.52	230.45	2582.77	230.72	2582.85	231.02	2582.86	231.06	2582.86
233.84	2583	235.41	2583.07	235.55	2583.08	235.7	2583.09	238.1	2583.27
238.85	2583.32	239.21	2583.35	239.44	2583.37	239.91	2583.42	240.4	2583.44
241.22	2583.43	247.33	2583.37	250.87	2583.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-500	.04	116.32	.08	154.64	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
116.32	154.64	93.36	93.36	93.36	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-500	59.61	2584	F
237.5	250.87	2584	F

CROSS SECTION

R[illegible]R: Stream
[illegible]: Reach RS: 114.85

INPUT
Description:
Station Elevation Data num= 171

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1629.52	2577.35	-1606.98	2576.98	-1568.61	2577.11	-1559.49	2576.98	-1554.81	2577.1
-1543.17	2577.12	-1543.03	2577.19	-1520.26	2576.56	-1515.81	2576.56	-1497.65	2576.11
-1492.57	2575.14	-1489.6	2574.44	-1482.01	2572.87	-1468.31	2569.39	-1435.84	2569.76
-1420.68	2570.39	-1404.94	2571.62	-1385.85	2572.85	-1364.86	2574.06	-1353.48	2574.94
-1350.02	2575.04	-1347.85	2575.29	-1342.32	2575.5	-1315.9	2575.92	-1296.58	2575.37
-1225.46	2574.49	-1141.31	2574.54	-1116.76	2574.12	-1107.49	2574.13	-1096.44	2573.97
-1054.01	2574.81	-1036.56	2574.18	-1029.68	2574.14	-1021.35	2574.33	-999.36	2574.15
-947.99	2574.05	-928.47	2573.78	-878.51	2574.62	-857.03	2574.86	-828.96	2574.86
-821.16	2574.73	-776.39	2574.55	-771.37	2574.43	-738.25	2574.35	-712.08	2574.44
-706.319	2574.3	-680.2	2574.35	-663.73	2574.24	-641.04	2574.29	-594.63	2573.57
-583.9	2573.94	-576.04	2573.88	-560.49	2574.06	-527.97	2573.9	-499.41	2573.64
-463.06	2573.1	-456.1	2573.08	-445.91	2572.83	-435.2	2572.73	-422.27	2572.92
-415.61	2572.71	-398.6	2572.5	-380.58	2572.61	-377.22	2572.53	-344.26	2572.7
-319.52	2572.38	-243.26	2572.72	-225.96	2573.01	-200.189	2573.02	-159.1	2573.67
-151.87	2573.56	-129.319	2573.5	-114.56	2573.61	-89.01	2573.37	-76.7399	2573.45
-74.5999	2573.38	-56.5	2573.47	-39.6999	2573.37	-18.87	2573.62	-9.06994	2573.59
0	2573.35	1.58	2573.34	3.72	2573.32	6.31	2573.3	25.99	2573.02
26.87	2573.02	31.61	2572.99	32.44	2572.96	33.25	2572.93	33.89	2572.93
38.7	2573.05	39.24	2573.05	43.92	2573.02	49.76	2573.12	49.97	2573.12
50.14	2573.11	50.28	2573.11	50.52	2573.11	50.72	2573.11	50.93	2573.12
59.43	2573.28	62.69	2573.35	63.4	2573.37	63.48	2573.36	69.22	2573.45
69.88	2573.45	74.15	2573.47	75.36	2573.48	78.88	2573.52	86.45	2573.47
86.77	2573.47	87.3	2573.48	88.18	2573.48	89.64	2573.52	97.34	2573.63
101.91	2573.77	104.57	2573.76	105.02	2573.77	108.99	2573.86	109.09	2573.86
110.28	2573.89	112.88	2573.92	113.65	2573.92	113.95	2573.92	116.34	2573.95
123.91	2573.91	135.17	2573.88	138.61	2573.89	139.69	2573.94	141.52	2573.97
145.44	2574.03	151.44	2574.23	160.89	2573.41	161.76	2573.34	162.67	2573.29
162.87	2573.27	166.58	2572.93	168.9	2572.65	173.77	2572.05	174.28	2571.99
181.46	2572.72	188.08	2573.35	188.52	2573.4	191.67	2573.45	198.61	2573.59
.07	2573.61	207.63	2573.92	213.59	2574.24	218.85	2574.43	234.46	2574.74
.88	2575.11	242.75	2575.18	245.5	2575.18	250.13	2575.2	250.98	2575.26
254.01	2575.55	254.93	2575.87	256.29	2576.43	266.53	2581.16	268.46	2581.6
269.36	2581.81	270.23	2581.76	270.9	2581.79	271.4	2581.85	271.43	2581.87
273.53	2582.32	273.64	2582.29	276.97	2582.6	282.66	2583.29	287.72	2583.56
289.13	2583.63								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1629.52	.04	151.44	.08	188.08	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
151.44	188.08	5	111.25	150	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
-1629.52	-58.78	2578	F

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 3.61

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2572.97	3.32	2572.94	3.71	2572.93	5.79	2572.88	13.98	2572.66
20.48	2572.67	21.27	2572.66	27.93	2572.61	33.93	2572.05	46.34	2570.82
46.84	2570.85	47.85	2570.9	53.01	2571.18	53.38	2571.2	55.32	2571.29
60.02	2571.44	62.24	2571.53	68	2571.74	71.44	2571.87	76.39	2572.09
82.69	2572.41	85.77	2572.55	87.08	2572.6	94.58	2572.9	102.86	2573.26
106.22	2573.37	111.82	2573.49	112.06	2573.49	114.17	2573.54	115.52	2573.57
124.7	2573.76								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	27.93	.08	82.69	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
27.93	82.69	3.61	3.61	3.61	.1	.3

SUMMARY OF MANNING'S N VALUES

River:Stream

Reach	River Sta.	n1	n2	n3
Reach	634.56	.012	.012	.012
Reach	470	Culvert		
Reach	458.82	.04	.08	.08
Reach	408.68	.04	.08	.08
Reach	308.39	.04	.08	.08
Reach	208.21	.04	.08	.08
Reach	114.85	.04	.08	.08
Reach	3.61	.04	.08	.08

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach	634.56	100Yr w/ 10TW	250.00	2580.85	2584.99	2583.53	2585.55	0.000803	6.05	41.35	10.00	0.52
Reach	634.56	10Yr w/ 100TW	110.00	2580.85	2583.24	2582.40	2583.57	0.000726	4.60	23.92	10.00	0.52
Reach	470		Culvert									
Reach	458.82	100Yr w/ 10TW	250.00	2575.34	2576.69	2577.84	2580.92	0.531028	16.52	15.14	25.55	0.52
Reach	458.82	10Yr w/ 100TW	110.00	2575.34	2578.83	2576.79	2578.95	0.004335	2.81	39.13	44.00	0.27
Reach	408.68	100Yr w/ 10TW	250.00	2575.20	2577.68	2576.65	2577.81	0.010887	2.86	87.31	48.06	0.37
Reach	408.68	10Yr w/ 100TW	110.00	2575.20	2578.85	2576.14	2578.86	0.000441	0.74	149.20	64.15	0.08
Reach	308.39	100Yr w/ 10TW	250.00	2574.23	2576.21	2575.54	2576.38	0.019045	3.31	75.53	51.12	0.48

Reach	308.39	10Yr w/ 100TW	110.00	2574.23	2578.85	2575.05	2578.85	0.000031	0.26	421.50	211.11
										0.02	
Reach	208.21	100Yr w/ 10TW	250.00	2572.39	2576.07	2574.31	2576.09	0.000904	1.14	217.23	286.47
										0.12	
Reach	208.21	10Yr w/ 100TW	110.00	2572.39	2578.85	2573.69	2578.85	0.000007	0.[illegible]	614.08	600.40
										0.01	
Reach	114.85	100Yr w/ 10TW	250.00	2571.99	2576.08	2573.64	2576.08	0.000030	0.22	767.78	1752.91
										0.02	
Reach	114.85	10Yr w/ 100TW	110.00	2571.99	2578.85	2573.37	2578.85	0.000000	0.01	9282.63	1891.05
										0.00	
Reach	3.61	100Yr w/ 10TW	250.00	2570.82	2576.07	2572.50	2576.08	0.000112	0.53	455.47	124.70
										0.04	
Reach	3.61	10Yr w/ 100TW	110.00	2570.82	2578.85	2572.06	2578.85	0.000003	0.13	802.14	124.70
										0.01	

Profile Output Table - Standard Table 2

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Reach	634.56	100Yr w/ 10TW	2585.55	2584.99	0.57						
250.00											10.00
Reach	634.56	10Yr w/ 100TW	2583.57	2583.24	0.33						
110.00											10.00
Reach	470		Culvert								
Reach	458.82	100Yr w/ 10TW	2580.92	2576.69	4.24						
2[illegible]00											25.55
[illegible]ch	458.82	10Yr w/ 100TW	2578.95	2578.83	0.12	0.05	0.03				
11[illegible].00											44.00
Reach	408.68	100Yr w/ 10TW	2577.81	2577.68	0.13	1.42	0.00				
250.00											48.06
Reach	408.68	10Yr w/ 100TW	2578.86	2578.85	0.01	0.01	0.00				
110.00											64.15
Reach	308.39	100Yr w/ 10TW	2576.38	2576.21	0.17	0.24	0.04				
250.00											51.12
Reach	308.39	10Yr w/ 100TW	2578.85	2578.85	0.00	0.00	0.00	43.74	57.59	8.67	211.11
Reach	208.21	100Yr w/ 10TW	2576.09	2576.07	0.02	0.01	0.01	109.34	127.30	13.36	286.47
Reach	208.21	10Yr w/ 100TW	2578.85	2578.85	0.00	0.00	0.00	60.14	34.16	15.70	600.40
Reach	114.85	100Yr w/ 10TW	2576.08	2576.08	0.00	0.00	0.00	209.76	24.26	15.98	1752.91
Reach	114.85	10Yr w/ 100TW	2578.85	2578.85	0.00	0.00	0.00	106.87	1.46	1.67	1891.05
Reach	3.61	100Yr w/ 10TW	2576.08	2576.07	0.01			75.87	127.78	46.35	124.70
Reach	3.61	10Yr w/ 100TW	2578.85	2578.85	0.00			34.83	50.91	24.26	124.70

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : SHW

River: Stream Reach: Reach RS: 470 Profile: 100Yr w/ 10TW
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy

was used.
River: Stream Reach: Reach RS: 470 Profile: 100Yr w/ 10TW Culv: Culvert #1
Note: The flow in the culvert is entirely supercritical.
River: Stream Reach: Reach RS: 470 Profile: 10Yr w/ 100TW
Note: During the supercritical calculations a hydraulic jump occurred at the outlet of (leaving) the culvert.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: Stream Reach: Reach RS: 470 Profile: 10Yr w/ 100TW Culv: Culvert #1
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.
River: Stream Reach: Reach RS: 458.82 Profile: 10Yr w/ 100TW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: Stream Reach: Reach RS: 408.68 Profile: 100Yr w/ 10TW
Warning:The energy loss was 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Stream Reach: Reach RS: 408.68 Profile: 10Yr w/ 100TW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 308.39 Profile: 100Yr w/ 10TW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 308.39 Profile: 10Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 208.21 Profile: 100Yr w/ 10TW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 208.21 Profile: 10Yr w/ 100TW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 114.85 Profile: 100Yr w/ 10TW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 114.85 Profile: 10Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of 1

Made by DAVID RUNALCABA

Date 5/18/09

Checked by J.B.

Date 5/22/09

Subject HOUGHTON ROAD - TANQUE VERDE TO SPEEDWAY
CP-C1, EXISTING CONDITION, WSE @ GRATE

ORIFICE FLOW

$Q = 155$

$A = 107$ sq ft

$A_{50\%} \approx 55$ sq ft

$Q = 5.35(A)Y^{1/2}$

$155 = 5.35(55)(Y)^{1/2}$

$Y = 0.277'$ ✓

WEIR FLOW

$P = 2(W) + L$

$.5 \cdot P = 2(5) + 20 = 30 \cdot .50 = 15$

$Q = 155$

$Q = 3.0\,P\,Y^{3/2}$

$155 = 3.0(15)(Y)^{3/2}$

$3.44 = Y^{3/2} \Rightarrow Y = 2.28$ ✓

Ponding WSEL $= 2586.10 + 2.28' = \underline{2588.38}$ ✓

Grate Elev. = 2586.10 (from Reference #6)

FIGURE B–2

Existing Flowrates From Corresponding Watersheds

Q100

5/15/2009 r:\Houghton_Tanque-Speedway\Drainage\Report Figures\11515_FIGURE-B-2.dgn

B-3

Vista Verde Estates

B-4

Windstorm Drive

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of 1

Made by Bambauer

Date 10 APR 09

Checked by J. Blau

Date 5-May-09

Subject Houghton Road TV - 5th
CP A Existing Conditions

Q_{100} = 32 cfs

STR. 4-24" RCPs projecting

Ave INLET INV = 2658.04
Ave Outlet INV = 2656.85
Ave Length = 83.28' ~83.3'
S_{AVE} = 1.43%

TAILWATER XSEC:

STA	ELEV	
0	2659.67	n=.016
9.8	59.47	
17.8	58.76	n=.0032±
20.8	58.77	
27.3	57.92	
39.3	57.66	
41.0	57.75	
51.4	60.69	

WEIR XSEC:

STA	ELEV
0	2661.99
17	61.78
33	61.95
38	61.95
65	61.49

Culvert Analysis Report
CP A (Exist)

Analysis Component			
Storm Event	Design	Discharge	32.00 cfs

Peak Discharge Method: User-Specified			
Design Discharge	32.00 cfs	Check Discharge	40.00 cfs

Tailwater properties: Irregular Channel

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	0+10	0.016
0+10	0+51	0.032

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	2,659.67
0+10	2,659.47
0+18	2,658.76
0+21	2,658.77
0+27	2,657.92
0+34	2,657.66
0+41	2,657.75
0+51	2,660.69

Tailwater conditions for Design Storm.

Discharge	32.00 cfs	Actual Depth	0.00 ft
Velocity	0.00 ft/s		

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	4-24 inch Circular	32.02 cfs	2,659.68 ft	5.05 ft/s
Weir	Roadway	0.00 cfs	2,659.68 ft	N/A
Total	----------	32.02 cfs	2,659.68 ft	N/A

Culvert Analysis Report
CP A (Exist)

Component:Culvert-1

Culvert Summary			
Computed Headwater Elevation	2,659.68 ft	Discharge	32.02 cfs
Inlet Control HW Elev.	2,659.47 ft	Tailwater Elevation	2,657.66 ft
Outlet Control HW Elev.	2,659.68 ft	Control Type	Outlet Control
Headwater Depth/Height	0.82		

Grades			
Upstream Invert	2,658.04 ft	Downstream Invert	2,656.85 ft
Length	83.30 ft	Constructed Slope	0.000000 ft/ft

Hydraulic Profile			
Profile	H2	Depth, Downstream	1.01 ft
Slope Type	Horizontal	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	1.01 ft
Velocity Downstream	5.05 ft/s	Critical Slope	0.004890 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	4		

Outlet Control Properties			
Outlet Control HW Elev.	2,659.68 ft	Upstream Velocity Head	0.17 ft
Ke	0.20	Entrance Loss	0.03 ft

Inlet Control Properties			
Inlet Control HW Elev.	2,659.47 ft	Flow Control	N/A
Inlet Type	Groove end projecting	Area Full	12.6 ft2
K	0.00450	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	3
C	0.03170	Equation Form	1
Y	0.69000		

Culvert Analysis Report
CP A (Exist)

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	0.00	cfs	Allowable HW Elevation	2,659.68	ft
Roadway Width	47.00	ft	Overtopping Coefficient	2.90	US
Low Point	2,661.49	ft	Headwater Elevation	N/A	ft
Discharge Coefficient (Cr)	2.90		Submergence Factor (Kt)	1.00	
Tailwater Elevation	2,657.66	ft			

Sta (ft)	Elev. (ft)
0.00	2,661.99
17.00	2,661.78
33.00	2,661.95
38.00	2,661.95
65.00	2,661.49

APPENDIX C

PROPOSED CONDITION HYDRAULICS

C-1

Tanque Verde Road

West of Intersection

PARSONS BRINCKERHOFF

CALC'D BY: D. RUALCABA DATE: 8-5-10

CHECKED BY: CAS DATE: 8/5/10

Houghton Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A Proposed Condition

OUTPUT FROM CULVERT MASTER

Culvert Diameter = 24x38

Total Discharge (cfs)	Weir Discharge (cfs)	Culvert (cfs)	HW Elev. (ft)
4.4	0.4	4.0	2593.07
6.9	1.9	5.0	2593.17
10.9	4.9	6.0	2593.26
16.8	9.8	7.0	2593.35
23.7	15.7	8.0	2593.43
31.6	22.6	9.0	2593.51
39.3	29.3	10.0	2593.58
47.6	36.6	11.0	2593.65
56.5	44.5	12.0	2593.72
59.9	46.9	13.0	2593.74
69.4	55.4	14.0	2593.81
78.2	63.2	15.0	2593.87

Proposed Extentions on 24"x38" HERCP pipes

Houghton Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A Prop Side Weir

$Qw = Cw \times DL \times d^{3/2}$ Cw = 2.4

Qw : Weir Discharge
DL : Incremental Weir Length
d : Average depth of flow over segment

Notes:
DL shown below are only applied if flow covers the entire segment.
Otherwise DL is prorated for amount of flow each weir segment.

Irregular Weir Cross-Section:

	STA (ft)	ELEV (ft)	SEGMENT
1	0	2593.00	
2	5.5	2593.00	A
3	7.8	2593.00	B
4	9.1	2593.02	C
5	18.4	2593.18	D
6	26.6	2593.20	E
7	29.9	2593.17	F
8	37.0	2593.31	G
9	43.3	2593.31	H
10			I
11			J
12			K
13			L

Rating Table

WSE	Qweir
93.07	0.4
93.17	1.9
93.26	4.9
93.35	9.8
93.43	15.7
93.51	22.6
93.58	29.3
93.65	36.6
93.72	44.5
93.74	46.9
93.81	55.4
93.87	63.2

Base Elevation 2500 feet

Irregular Weir Analysis

Segmt	STA	ELEV	DL	So	WSE = 93.07 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.17 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.26 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)
A	0.0	93.00				0.07				0.17				0.26		
	5.5	93.00	5.5	0.0000	5.50	0.07	0.07	0.2	5.50	0.17	0.17	0.9	5.50	0.26	0.26	1.7
B	5.5	93.00				0.07				0.17				0.26		
	7.8	93.00	2.3	0.0000	2.30	0.07	0.07	0.1	2.30	0.17	0.17	0.4	2.30	0.26	0.26	0.7
C	7.8	93.00				0.07				0.17				0.26		
	9.1	93.02	1.3	0.0154	1.30	0.05	0.06	0.0	1.30	0.15	0.16	0.2	1.30	0.24	0.25	0.4
D	9.1	93.02				0.05				0.15				0.24		
	18.4	93.18	9.3	0.0172	2.91		0.03	0.0	8.72		0.08	0.4	9.30	0.08	0.16	1.4
E	18.4	93.18												0.08		
	26.6	93.20	8.2	0.0024	0.00			0.0	0.00			0.0	8.20	0.06	0.07	0.4
F	26.6	93.20												0.06		
	29.9	93.17	3.3	-0.0091	0.00			0.0	0.00			0.0	3.31	0.09	0.08	0.2
G	29.9	93.17												0.09		
	37.0	93.31	7.1	0.0197	0.00			0.0	0.00			0.0	4.58		0.05	0.1
H	37.0	93.31														
	43.3	93.31	6.3	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
I	43.3	93.31														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
J	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
K	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
L	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
								0.4				1.9				4.9

Ho[illegible]on Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A Prop Side Weir

$Qw = Cw \times DL \times d^{3/2}$ Cw = 2.4

Qw : Weir Discharge
DL : Incremental Weir Length
d : Average depth of flow over segment

Notes:
DL shown below are only applied if flow covers the entire segment.
Otherwise DL is prorated for amount of flow each weir segment.

Base Elevation 2500 feet

Irregular Weir Analysis

Segmt	STA	ELEV	DL	So	WSE = 93.35 Adj'd DL	Yi / Yii	Yave	Qweir (ft³/sec)	WSE = 93.43 Adj'd DL	Yi / Yii	Yave	Qweir (ft³/sec)	WSE = 93.51 Adj'd DL	Yi / Yii	Yave	Qweir (ft³/sec)
A	0.0	93.00				0.35				0.43				0.51		
	5.5	93.00	5.5	0.0000	5.50	0.35	0.35	2.7	5.50	0.43	0.43	3.7	5.50	0.51	0.51	4.8
B	5.5	93.00				0.35				0.43				0.51		
	7.8	93.00	2.3	0.0000	2.30	0.35	0.35	1.1	2.30	0.43	0.43	1.6	2.30	0.51	0.51	2.0
C	7.8	93.00				0.35				0.43				0.51		
	9.1	93.02	1.3	0.0154	1.30	0.33	0.34	0.6	1.30	0.41	0.42	0.8	1.30	0.49	0.50	1.1
D	9.1	93.02				0.33				0.41				0.49		
	18.4	93.18	9.3	0.0172	9.30	0.17	0.25	2.8	9.30	0.25	0.33	4.2	9.30	0.33	0.41	5.9
E	18.4	93.18				0.17				0.25				0.33		
	26.6	93.20	8.2	0.0024	8.20	0.15	0.16	1.3	8.20	0.23	0.24	2.3	8.20	0.31	0.32	3.6
F	26.6	93.20				0.15				0.23				0.31		
	29.9	93.17	3.3	-0.0091	3.31	0.18	0.16	0.5	3.31	0.26	0.24	1.0	3.31	0.34	0.33	1.5
G	29.9	93.17				0.18				0.26				0.34		
	37.0	93.31	7.1	0.0197	7.12	0.04	0.11	0.6	7.12	0.12	0.19	1.4	7.12	0.20	0.27	2.4
H	37.0	93.31				0.04				0.12				0.20		
	43.3	93.31	6.3	0.0000	6.27	0.04	0.04	0.1	6.27	0.12	0.12	0.6	6.27	0.20	0.20	1.3
I	43.3	93.31														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
J	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
K	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
L	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
								9.8				15.7				22.6

Houghton Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A Prop Side Weir

$Qw = Cw \times DL \times d^{3/2}$ Cw = 2.4

Qw : Weir Discharge
DL : Incremental Weir Length
d : Average depth of flow over segment

Notes:
DL shown below are only applied if flow covers the entire segment.
Otherwise DL is prorated for amount of flow each weir segment.

Base Elevation 2500 feet

Irregular Weir Analysis

Segmt	STA	ELEV	DL	So	WSE = 93.58 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.65 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.72 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)
A	0.0	93.00				0.58				0.65				0.72		
	5.5	93.00	5.5	0.0000	5.50	0.58	0.58	5.8	5.50	0.65	0.65	6.9	5.50	0.72	0.72	8.1
B	5.5	93.00				0.58				0.65				0.72		
	7.8	93.00	2.3	0.0000	2.30	0.58	0.58	2.4	2.30	0.65	0.65	2.9	2.30	0.72	0.72	3.4
C	7.8	93.00				0.58				0.65				0.72		
	9.1	93.02	1.3	0.0154	1.30	0.56	0.57	1.3	1.30	0.63	0.64	1.6	1.30	0.70	0.71	1.9
D	9.1	93.02				0.56				0.63				0.70		
	18.4	93.18	9.3	0.0172	9.30	0.40	0.48	7.4	9.30	0.47	0.55	9.1	9.30	0.54	0.62	10.9
E	18.4	93.18				0.40				0.47				0.54		
	26.6	93.20	8.2	0.0024	8.20	0.38	0.39	4.8	8.20	0.45	0.46	6.1	8.20	0.52	0.53	7.6
F	26.6	93.20				0.38				0.45				0.52		
	29.9	93.17	3.3	-0.0091	3.31	0.41	0.39	2.0	3.31	0.48	0.47	2.5	3.31	0.55	0.53	3.1
G	29.9	93.17				0.41				0.48				0.55		
	37.0	93.31	7.1	0.0197	7.12	0.27	0.34	3.4	7.12	0.34	0.41	4.5	7.12	0.41	0.48	5.7
H	37.0	93.31				0.27				0.34				0.41		
	43.3	93.31	6.3	0.0000	6.27	0.27	0.27	2.1	6.27	0.34	0.34	3.0	6.27	0.41	0.41	4.0
I	43.3	93.31														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
J	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
K	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
L	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
								29.3				36.6				44.5

Ho... on Rd Tanque Verde Road-Speedway Blvd.
PB Project No. 11515
Hydraulic Analysis
CP TV_A Prop Side Weir

$Qw = Cw \times DL \times d^{3/2}$ Cw = 2.4

Qw : Weir Discharge
DL : Incremental Weir Length
d : Average depth of flow over segment

Notes:
DL shown below are only applied if flow covers the entire segment.
Otherwise DL is prorated for amount of flow each weir segment.

Base Elevation *2500 feet*

Irregular Weir Analysis

Segmt	STA	ELEV	DL	So	WSE = 93.74 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.81 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)	WSE = 93.87 Adj'd DL	Yi Yii	Yave	Qweir (ft³/sec)
A	0.0	93.00				0.74				0.81				0.87		
	5.5	93.00	5.5	0.0000	5.50	0.74	0.74	8.4	5.50	0.81	0.81	9.6	5.50	0.87	0.87	10.7
B	5.5	93.00				0.74				0.81				0.87		
	7.8	93.00	2.3	0.0000	2.30	0.74	0.74	3.5	2.30	0.81	0.81	4.0	2.30	0.87	0.87	4.5
C	7.8	93.00				0.74				0.81				0.87		
	9.1	93.02	1.3	0.0154	1.30	0.72	0.73	1.9	1.30	0.79	0.80	2.2	1.30	0.85	0.86	2.5
D	9.1	93.02				0.72				0.79				0.85		
	18.4	93.18	9.3	0.0172	9.30	0.56	0.64	11.4	9.30	0.63	0.71	13.4	9.30	0.69	0.77	15.1
E	18.4	93.18				0.56				0.63				0.69		
	26.6	93.20	8.2	0.0024	8.20	0.54	0.55	8.0	8.20	0.61	0.62	9.6	8.20	0.67	0.68	11.0
F	26.6	93.20				0.54				0.61				0.67		
	29.9	93.17	3.3	-0.0091	3.31	0.57	0.55	3.3	3.31	0.64	0.63	3.9	3.31	0.70	0.68	4.5
G	29.9	93.17				0.57				0.64				0.70		
	37.0	93.31	7.1	0.0197	7.12	0.43	0.50	6.0	7.12	0.50	0.57	7.4	7.12	0.56	0.63	8.5
H	37.0	93.31				0.43				0.50				0.56		
	43.3	93.31	6.3	0.0000	6.27	0.43	0.43	4.2	6.27	0.50	0.50	5.3	6.27	0.56	0.56	6.3
I	43.3	93.31														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
J	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
K	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
L	0.0	0.00														
	0.0	0.00	0.0	0.0000	0.00			0.0	0.00			0.0	0.00			0.0
								46.9				55.4				63.2

Culvert Designer/Analyzer Report
West 24x38 HERCP Proposed

Analysis Component			
Storm Event	Design	Discharge	9.00 cfs

Peak Discharge Method: User-Specified			
Design Discharge	9.00 cfs	Check Discharge	0.00 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	N/A ft

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	1-24x38 inch Horiz Ellipse	9.00 cfs	2,593.51 ft	4.89 ft/s
Weir	Not Considered	N/A	N/A	N/A

Culvert Designer/Analyzer Report
West 24x38 HERCP Proposed

Component:Culvert-1

Culvert Summary					
Computed Headwater Elev	2,593.51	ft	Discharge	9.00	cfs
Inlet Control HW Elev.	2,593.45	ft	Tailwater Elevation	N/A	ft
Outlet Control HW Elev.	2,593.51	ft	Control Type	Entrance Control	
Headwater Depth/Height	0.61				

Grades					
Upstream Invert	2,592.28	ft	Downstream Invert	2,591.63	ft
Length	138.00	ft	Constructed Slope	0.004710	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	0.80	ft
Slope Type	Steep		Normal Depth	0.80	ft
Flow Regime	Supercritical		Critical Depth	0.85	ft
Velocity Downstream	4.89	ft/s	Critical Slope	0.003771	ft/ft

Section					
Section Shape	Horizontal Ellipse		Mannings Coefficient	0.013	
Section Material	Concrete		Span	3.15	ft
Section Size	24x38 inch		Rise	2.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	2,593.51	ft	Upstream Velocity Head	0.32	ft
Ke	0.20		Entrance Loss	0.06	ft

Inlet Control Properties					
Inlet Control HW Elev.	2,593.45	ft	Flow Control	Unsubmerged	
Inlet Type	Groove end with headwall (horizontal ellipse)		Area Full	5.1	ft2
K	0.00180		HDS 5 Chart	29	
M	2.50000		HDS 5 Scale	2	
C	0.02920		Equation Form	1	
Y	0.74000				

PARSONS BRINCKERHOFF

CALC'D BY: D. RUWACCABA DATE: 8-5-10

CHECKED BY: GB DATE: 8/5/10

PB Project No.:	11515									
Project Name:	HOUGHTON ROAD - TANQUE VERDE ROAD to SPEEDWAY BLVD.									
	Desc:	TV_A	R/O to Prop Channel West of Houghton Road (Proposed Condition)							
Station	Q begin	WSE	Weir Elev	Y	Prev WSE	Y ave	L	Qweir	Q final	
0+00	24	2593.32	2593.31	0	--				24.0	DONE
0+10	24	2593.56	2593.33	0.23	0	0.115	10.3	1.0	23.0	TRY AGAIN
	23.0	2593.55	2593.33	0.22	0	0.11	10.3	0.9	23.1	DONE
0+20	23.0	2593.48	2593.29	0.19	0.22	0.205	13.3	3.0	20.0	TRY AGAIN
	20.0	2593.44	2593.29	0.15	0.22	0.185	13.3	2.5	20.5	TRY AGAIN
	20.5	2593.45	2593.29	0.16	0.22	0.19	13.3	2.6	20.4	DONE
0+30	20.5	2593.43	2593.45	-0.02	0.16	0.07	10	0.4	20.1	TRY AGAIN
	20.1	2593.43	2593.45	-0.02	0.16	0.07	10	0.4	20.0	DONE
0+40	20.1	2593.51	2593.61	-0.1	-0.02	0	10.7	0.0	20.1	DONE
0+50	20.1	2593.39	2593.68	-0.29	-0.09	0	12	0.0	20.1	DONE
Mass Balance Evaluation										
Using manning's equation, the cross sections of the proposed channel were taken to evaluate how much runoff reaches the culvert and how much breakes over the weir. 2.4 was used for the Weir Coefficient in the Weir calculations.										

Worksheet for 0+00.0

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00574	ft/ft
Discharge	24.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	2593.18
0+24	2593.11
0+31	2592.99
0+37	2592.51
0+41	2593.31

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 2593.18)	(0+41, 2593.31)	0.022

Results

Normal Depth	0.81	ft
Elevation Range	2592.51 to 2593.31 ft	
Flow Area	11.20	ft²
Wetted Perimeter	41.39	ft
Top Width	41.15	ft
Normal Depth	0.81	ft
Critical Depth	0.76	ft
Critical Slope	0.01174	ft/ft
Velocity	2.14	ft/s
Velocity Head	0.07	ft
Specific Energy	0.88	ft
Froude Number	0.72	
Flow Type	Subcritical	

Worksheet for 0+00.0

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.81	ft
Critical Depth	0.76	ft
Channel Slope	0.00574	ft/ft
Critical Slope	0.01174	ft/ft

Worksheet for 0+10.0

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00574	ft/ft
Discharge	23.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	2593.14
0+01	2592.98
0+02	2592.76
0+07	2592.76
0+10	2593.33

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 2593.14)	(0+10, 2593.33)	0.022

Results

Normal Depth	0.79	ft
Elevation Range	2592.76 to 2593.33 ft	
Flow Area	6.35	ft²
Wetted Perimeter	10.65	ft
Top Width	9.94	ft
Normal Depth	0.79	ft
Critical Depth	0.70	ft
Critical Slope	0.00923	ft/ft
Velocity	3.62	ft/s
Velocity Head	0.20	ft
Specific Energy	0.99	ft
Froude Number	0.80	
Flow Type	Subcritical	

Worksheet for 0+10.0

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.79	ft
Critical Depth	0.70	ft
Channel Slope	0.00574	ft/ft
Critical Slope	0.00923	ft/ft

Worksheet for 0+20.0

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00574	ft/ft
Discharge	20.50	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	2593.29
0+00	2593.24
0+02	2592.71
0+06	2592.71
0+06	2592.90
0+10	2593.18
0+13	2593.15
0+15	2593.29

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 2593.29)	(0+15, 2593.29)	0.022

Results

Normal Depth	0.74	ft
Elevation Range	2592.71 to 2593.29 ft	
Flow Area	6.84	ft^2
Wetted Perimeter	15.25	ft
Top Width	14.79	ft
Normal Depth	0.74	ft
Critical Depth	0.67	ft
Critical Slope	0.00992	ft/ft
Velocity	3.00	ft/s
Velocity Head	0.14	ft

Worksheet for 0+20.0

Results

Specific Energy		0.88	ft
Froude Number		0.78	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.74	ft
Critical Depth	0.67	ft
Channel Slope	0.00574	ft/ft
Critical Slope	0.00992	ft/ft

Worksheet for 0+30.0

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00574	ft/ft
Discharge	20.10	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	2593.45
0+03	2592.65
0+07	2592.65
0+07	2592.85
0+15	2593.45

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 2593.45)	(0+15, 2593.45)	0.022

Results

Normal Depth	0.78	ft
Elevation Range	2592.65 to 2593.45 ft	
Flow Area	6.72	ft²
Wetted Perimeter	15.06	ft
Top Width	14.89	ft
Normal Depth	0.78	ft
Critical Depth	0.69	ft
Critical Slope	0.00964	ft/ft
Velocity	2.99	ft/s
Velocity Head	0.14	ft
Specific Energy	0.91	ft
Froude Number	0.78	
Flow Type	Subcritical	

Worksheet for 0+30.0

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.78	ft
Critical Depth	0.69	ft
Channel Slope	0.00574	ft/ft
Critical Slope	0.00964	ft/ft

Worksheet for 0+40.0

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00574	ft/ft
Discharge	20.10	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	2593.61
0+21	2593.30
0+26	2593.56
0+27	2593.44
0+29	2592.59
0+33	2592.59
0+34	2592.85
0+39	2593.61

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 2593.61)	(0+39, 2593.61)	0.022

Results

Normal Depth	0.92	ft
Elevation Range	2592.59 to 2593.61 ft	
Flow Area	8.95	ft^2
Wetted Perimeter	30.77	ft
Top Width	30.52	ft
Normal Depth	0.92	ft
Critical Depth	0.82	ft
Critical Slope	0.01054	ft/ft
Velocity	2.25	ft/s
Velocity Head	0.08	ft

Worksheet for 0+40.0

Results

Specific Energy		1.00	ft
Froude Number		0.73	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.92	ft
Critical Depth	0.82	ft
Channel Slope	0.00574	ft/ft
Critical Slope	0.01054	ft/ft

Worksheet for 0+50.0

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00574	ft/ft
Discharge	20.10	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	2593.68
0+03	2592.53
0+07	2592.53
0+09	2593.08
0+13	2593.58
0+16	2593.68

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 2593.68)	(0+16, 2593.68)	0.022

Results

Normal Depth	0.86	ft
Elevation Range	2592.53 to 2593.68 ft	
Flow Area	5.95	ft²
Wetted Perimeter	11.07	ft
Top Width	10.82	ft
Normal Depth	0.86	ft
Critical Depth	0.77	ft
Critical Slope	0.00911	ft/ft
Velocity	3.38	ft/s
Velocity Head	0.18	ft
Specific Energy	1.04	ft
Froude Number	0.80	

Worksheet for 0+50.0

Results

Flow Type	Subcritical

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.86	ft
Critical Depth	0.77	ft
Channel Slope	0.00574	ft/ft
Critical Slope	0.00911	ft/ft

East of Intersection

TANQUE VERDE ROAD BOX, EAST OF INTERSECTION, PROPOSED CONDITION

HEC-RAS Plan: Prop River: TV_BOX Reach: TV_BOX

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
TV_BOX	2450	100Yr w/ 25TW	2596.58	2596.52	0.07	0.14	0.01	38.31	377.31	139.38	616.65
TV_BOX	2450	25Yr w/100YrTW	2596.27	2596.19	0.08	0.22	0.01	0.93	242.01	82.06	470.22
TV_BOX	2350	100Yr w/ 25TW	2596.44	2596.40	0.03	0.08	0.00	132.47	246.30	176.23	472.29
TV_BOX	2350	25Yr w/100YrTW	2596.03	2596.00	0.03	0.10	0.00	59.61	147.05	118.34	447.74
TV_BOX	2250	100Yr w/ 25TW	2596.36	2596.31	0.05	0.06	0.00	185.02	287.84	82.14	337.97
TV_BOX	2250	25Yr w/100YrTW	2595.93	2595.89	0.03	0.06	0.00	95.86	182.63	46.52	330.68
TV_BOX	2150	100Yr w/ 25TW	2596.30	2596.23	0.06	0.11	0.02	71.59	480.05	3.36	225.87
TV_BOX	2150	25Yr w/100YrTW	2595.87	2595.83	0.04	0.13	0.03	30.28	293.24	1.48	221.10
TV_BOX	2095	100Yr w/ 25TW	2596.16	2595.89	0.27	0.16	0.04		555.00		126.51
TV_BOX	2095	25Yr w/100YrTW	2595.71	2595.40	0.31	0.28	0.02		325.00		118.92
TV_BOX	2067	100Yr w/ 25TW	2595.95	2595.24	0.72			68.97	483.62	2.42	70.25
TV_BOX	2067	25Yr w/100YrTW	2595.29	2594.75	0.54			33.41	291.28	0.31	62.15
TV_BOX	2045		Culvert								
TV_BOX	1938	100Yr w/ 25TW	2595.08	2593.97	1.11	0.26	0.25		555.00		29.90
TV_BOX	1938	25Yr w/100YrTW	2594.12	2593.51	0.61	0.21	0.13		325.00		29.88
TV_BOX	1850	100Yr w/ 25TW	2594.53	2594.25	0.28	0.18	0.01		554.07	0.93	138.92
TV_BOX	1850	25Yr w/100YrTW	2593.78	2593.61	0.17	0.16	0.01		325.00		48.73
TV_BOX	1750	100Yr w/ 25TW	2594.34	2593.99	0.35	0.22	0.00	12.90	542.04	0.05	133.87
TV_BOX	1750	25Yr w/100YrTW	2593.61	2593.37	0.24	0.19	0.01		325.00		55.25
TV_BOX	1650	100Yr w/ 25TW	2594.12	2593.75	0.36	0.25	0.01	2.62	550.89	1.49	78.74
TV_BOX	1650	25Yr w/100YrTW	2593.42	2593.21	0.21	0.20	0.00		325.00	0.00	48.26
TV_BOX	1550	100Yr w/ 25TW	2593.85	2593.42	0.44	0.45	0.02	26.78	527.63	0.59	127.76
TV_BOX	1550	25Yr w/100YrTW	2593.21	2592.95	0.26	0.38	0.02	8.42	316.58	0.00	104.08
TV_BOX	1450	100Yr w/ 25TW	2593.39	2592.78	0.60	0.77	0.02	97.85	457.15		99.81

HEC-RAS Plan: Prop River: TV_BOX Reach: TV_BOX (Continued)

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
TV_BOX	1450	25Yr w/100YrTW	2592.81	2592.36	0.45			40.58	284.42		87.20
TV_BOX	1350	100Yr w/ 25TW	2592.45	2591.90	0.55	0.24	0.12	98.65	456.35		100.85
TV_BOX	1350	25Yr w/100YrTW	2592.48	2592.40	0.08	0.02	0.02	71.29	253.71		126.14
TV_BOX	1250	100Yr w/ 25TW	2591.65	2591.52	0.13			0.05	554.95		111.79
TV_BOX	1250	25Yr w/100YrTW	2592.44	2592.42	0.02			11.51	313.49		180.95

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

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

PROJECT DATA
Project Title: TV_ROAD_BOX
Project File : TVROADBOX.prj
Run Date and Time: 6/4/2009 5:10:19 AM

Project in English units

PLAN DATA

Plan Title: PROPOSED CONDITION TV Road BOX Culvert
Plan File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.p02

Geometry Title: Proposed Geometry TVBOX
Geometry File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.g02

Flow Title : TV Road BOX FLOW Proposed
Flow File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.f02

Plan Summary Information:

Number of:	Cross Sections	= 14	Multiple Openings	=	0
	Culverts	= 1	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

Computational Information

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

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

FLOW DATA

Flow Title: TV Road BOX FLOW Proposed
Flow File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.f02

Flow Data (cfs)

River	Reach	RS	100Yr w/ 25TW	25Yr w/100YrTW	100Yr w/100YrTW
TV_BOX	TV_BOX	2450	555	325	555

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
TV_BOX	TV_BOX	100Yr w/ 25TW	Critical	Known WS = 2591.52
TV_BOX	TV_BOX	25Yr w/100YrTW	Critical	Known WS = 2592.42
TV_BOX	TV_BOX	100Yr w/100YrTW	Critical	Known WS = 2592.42

GEOMETRY DATA

Geometry Title: Proposed Geometry TVBOX
Geometry File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Tanque Verde East\TVROADBOX.g02

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2450

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2600.56	23.62	2600.14	28.55	2599.6	32.04	2599.23	33.07	2599.08
34.44	2598.94	36.5	2598.8	39.56	2597.95	41.69	2597.47	47.46	2596.34
52.49	2596.27	60.31	2596.09	63.65	2596.29	66.96	2596.44	72.9	2596.47
76.56	2596.5	83.4	2596.6	83.95	2596.6	85.15	2596.62	87.18	2596.62
89.49	2596.56	91.86	2596.44	95.6	2596.29	97.12	2596.22	101.51	2596
103.24	2596.01	104.51	2596	108.43	2596.21	109.73	2596.2	112.01	2596.22
124.32	2596.37	125.03	2596.33	129.12	2596.36	129.16	2596.35	139.23	2596.14
140.68	2596.12	146.83	2596.14	156.33	2596.19	162.6	2596.19	170.35	2596.19
172.93	2596.2	182.35	2596.17	202.48	2596.2	205.25	2596.21	214.9	2596.19
226.04	2596.22	240.46	2596.23	257.7	2596.21	266.45	2596.09	272.2	2595.99
291.03	2595.84	315.81	2595.72	327.08	2594.98	327.1	2594.98	329.88	2594.8
342.48	2595.46	347.49	2595.7	355.64	2595.6	368.78	2595.53	391.84	2595.42
393	2595.51	399.76	2595.67	400.06	2595.65	415.45	2595.71	435.04	2595.87
446.11	2595.87	448.58	2595.83	450.8	2595.83	453.21	2595.82	464.11	2595.67
470.1	2595.66	472.8	2595.6	494.83	2595.74	497.03	2595.73	500.02	2595.54
506.48	2595.83	511.45	2595.84	521.92	2595.78	526.45	2595.79	529.41	2595.76
530.87	2595.74	551.66	2595.71	564.41	2595.65	577.7	2595.55	579.55	2595.58
588.27	2595.75	596.25	2595.77	600.08	2595.77	606.62	2595.75	635.46	2595.58
659.39	2595.66	660.06	2595.66	663.8	2595.76	672.69	2595.99	676.42	2596.64
682.35	2597.64	684.2	2597.84	685.31	2598	694.01	2598.63	719.22	2599.12

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	257.7	.025	435.04	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
257.7	435.04	100	100	100	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2350

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2600	7.35	2599.97	23.76	2599.67	29.86	2599.22	35.2	2598.93
36	2598.84	36.08	2598.8	36.29	2598.73	36.7	2598.68	37.29	2598.51
38.58	2598.11	39.54	2597.84	42.9	2596.85	46.79	2595.9	51.32	2595.52
55.52	2595.13	56.39	2595.15	58.73	2595.22	68.42	2595.46	70.06	2595.48
72.19	2595.52	82.09	2595.53	82.26	2595.54	95.95	2595.52	106.63	2596.08
115.37	2596.25	115.84	2596.27	119.63	2596.37	123.1	2596.16	130.27	2595.68
131.93	2595.69	133.63	2595.62	142.05	2595.53	147.11	2595.46	149.17	2595.46
158.91	2595.35	164.79	2595.33	169.32	2595.28	173.55	2595.26	181.61	2595.79
182.83	2595.85	191.7	2595.62	209.31	2595.47	215.72	2595.32	222.56	2595.47
229.22	2595.77	235.4	2595.44	245.03	2595.1	247.49	2595	253.5	2595.21
260.85	2595.14	273.07	2595.16	278.55	2595.13	285.89	2594.64	286.82	2594.73
286.84	2594.73	291.27	2595.13	293.41	2595.31	313.84	2595.33	320.46	2595.38
325.26	2595.38	326.26	2595.4	330.5	2595.42	332.65	2595.3	334.1	2595.19
336	2595.2	350.94	2595.17	359.48	2595.29	363.05	2595.32	368.3	2595.15
381.24	2595	386.16	2594.99	394.3	2595.06	396.89	2595.06	398.17	2595.03
400.98	2594.99	402.57	2594.99	404.26	2595.03	406.73	2595.07	410.25	2595.06
411.63	2595.07	424.01	2595.11	428.66	2595.14	432.6	2595.15	434.38	2595.11
444.33	2595.01	453.39	2594.89	469.42	2594.72	470.87	2594.73	476.25	2594.7
496.56	2594.97	498.59	2595.02	509.6	2595.17	512.49	2595.64	518.72	2596.69
520.47	2596.82	524.43	2597.07	530.13	2597.41	554.26	2597.91	557.58	2597.83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	229.22	.025	330.5	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.22	330.5	85	100	115	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2250

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2599.68	2.98	2599.66	5.77	2599.63	22.17	2599.38	30.25	2598.37
31.74	2598.2	33.08	2598	34.17	2597.87	36.96	2597.57	38.84	2597.33
39.57	2597.19	40.16	2597.03	40.23	2596.99	41.27	2596.67	43.36	2596.23
45.66	2595.79	47.53	2595.42	48.74	2595.18	50.75	2595.19	53.35	2595.19
58.79	2595.19	61.29	2595.21	63.49	2595.21	68.02	2595.26	75.28	2595.32
76.43	2595.31	78.03	2595.28	81.84	2595.27	88.29	2595.22	89.46	2595.21
92.29	2595.17	95.73	2595.12	96.51	2595.12	98.95	2595.16	101.07	2595.18
[illegible].88	2595.18	103.42	2595.18	105.58	2595.17	107.91	2595.18	108.86	2595.19
111.53	2595.19	115.07	2595.21	117.92	2595.19	118.62	2595.2	119.4	2595.21
124.92	2595.24	128.4	2595.25	129.21	2595.25	131.61	2595.23	132.12	2595.23
132.57	2595.22	132.9	2595.2	133.34	2595.2	133.81	2595.2	136.47	2595.17
138.36	2595.17	139.22	2595.16	141.05	2595.13	153.81	2594.91	155.22	2594.89
157.64	2594.87	170.08	2594.74	177.55	2594.72	189.33	2594.67	194.86	2594.7
194.95	2594.72	196.81	2594.68	197.61	2594.67	206.37	2594.48	219.76	2594.65
227.78	2594.76	249.73	2594.87	251.28	2594.88	254.31	2594.68	260.32	2594.29
262.95	2594.36	262.96	2594.36	266.22	2594.45	273.16	2594.65	282.32	2594.7
288.98	2594.75	294.76	2594.78	298.56	2594.79	318.55	2594.88	321.5	2594.9
323	2594.9	323.93	2594.9	328.71	2594.92	331.78	2594.93	332.66	2594.93
332.98	2594.93	333.28	2594.93	338.05	2594.98	359.52	2595.1	364.08	2595.13
375.79	2595.89	380.06	2596.24	389.37	2596.98	408.75	2597.22	411.9	2597.15

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	194.95	.025	273.16	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
194.95	273.16	40	100	133	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2150

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2599.42	16.61	2599.18	21.91	2598.51	23.12	2598.38	24.91	2598.43
25.31	2598.43	25.9	2598.3	27.87	2597.83	33.58	2597.3	39.93	2595.83
42.62	2595.22	43.31	2595.22	45.55	2595.18	53.2	2595.06	61.98	2595.01
62.01	2595	62.69	2595.04	64.85	2595.08	67.01	2595.08	71.6	2595.09
[illegible].36	2595.09	76.82	2595.08	79.38	2595.08	82.15	2595.11	83.19	2595.1
[illegible].15	2595.11	87.57	2595.15	88.98	2595.16	91.56	2595.26	92.31	2595.27
[illegible]3.52	2595.3	96.74	2595.31	97.42	2595.32	98.5	2595.32	101.53	2595.33
101.98	2595.33	103.59	2595.34	103.92	2595.33	105.34	2595.33	105.66	2595.33
108.87	2595.32	109.54	2595.3	114.05	2595.3	114.27	2595.29	118.22	2595.29
118.38	2595.28	121.81	2595.22	121.9	2595.22	123.59	2595.16	124.13	2595.14
128.51	2595	130.76	2594.87	132.27	2594.74	132.68	2594.72	133.84	2594.69
134.49	2594.68	137.83	2594.48	139.02	2594.49	146.26	2594.4	153.97	2594.41
156.03	2594.52	157.43	2594.56	162.1	2594.5	164.61	2594.47	167.37	2594.42
171.5	2594.54	172.3	2594.54	174.49	2594.58	174.97	2594.58	181.76	2594.79
184.1	2594.81	185.69	2594.83	186.4	2594.82	186.99	2594.81	188.37	2594.82
188.96	2594.81	189.61	2594.82	197.81	2594.57	198.76	2594.52	204.38	2594.5
208.43	2594.47	209.52	2594.45	213.48	2594.46	219.92	2594.21	223.77	2594.06
226.89	2593.95	228.13	2593.99	232.11	2594.09	243	2594.37	251.07	2594.59
253.02	2594.64	260.17	2595.69	261.85	2595.95	270.92	2597.12	273.96	2597.18
288	2597.47	300.57	2597.34	318.58	2597.09	319.92	2596.97		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	121.81	.025	253.02	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
121.81	253.02	66	88	93	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2095

INPUT
Description:
Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2599.03	10.1	2598.95	19.75	2598.31	20.39	2598.27	21.77	2598.11
29.03	2597.25	32.01	2596.73	43.21	2595.01	46.37	2595.01	50.19	2595.02
[illegible].82	2594.87	59.11	2594.73	60.77	2594.7	60.9	2594.7	62.35	2594.7
[illegible].64	2594.71	66.13	2594.81	66.26	2594.82	67.87	2594.83	68.2	2594.84
[illegible]9.55	2594.84	70.8	2594.85	72.24	2594.84	73.3	2594.85	73.9	2594.86
74.62	2594.86	75.5	2594.85	76.39	2594.87	76.44	2594.87	77.75	2594.93
77.94	2594.93	78.81	2594.98	83.15	2595.11	83.31	2595.11	86	2595.03
91.83	2594.95	101.43	2594.84	113.39	2594.7	115.84	2594.67	119.27	2594.62
119.52	2594.61	120.05	2594.6	120.4	2594.6	126.22	2594.56	129.27	2594.54

130.88	2594.52	134.53	2594.5	135.7	2594.51	138.41	2594.51	150.33	2594.48
151.63	2594.48	164.72	2595.98	170.71	2596.65	174.74	2597.16	177.3	2597.49
177.93	2597.57	178.74	2597.68	179.93	2597.69	187.64	2597.77		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	32.01	.025	164.72	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
32.01	164.72	28	28	28	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 2067

INPUT
Description:
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2598.93	.11	2598.93	6.44	2598.89	10	2598.86	12.64	2598.76
21.72	2598.41	26.43	2597.77	30.69	2597.21	33.2	2596.4	34.28	2595.84
34.3	2595.5	34.85	2595.24	35.87	2594.97	37.25	2594.71	39.25	2594.88
42.75	2594.61	43.42	2594.59	45.72	2594.13	51.8	2593.62	52.56	2593.64
53.76	2593.69	55.81	2593.8	58.4	2593.95	65.11	2593.86	65.35	2593.86
65.8	2593.86	66.1	2593.86	66.26	2593.87	66.9	2593.85	68.06	2593.85
68.14	2593.85	69.71	2593.83	72.28	2593.76	72.73	2593.74	73.56	2593.7
73.86	2593.69	77.09	2593.63	77.12	2593.63	80.64	2593.45	85.98	2593.58
91.13	2593.6	96.62	2592.7	97.01	2592.65	99.73	2594.4	100.01	2594.43
100.92	2594.53	101.67	2594.62	103.57	2594.95	106.07	2595.41	110.15	2596.07
114.22	2596.78	115.34	2597	119.51	2597.68	121.59	2597.79	132.58	2598.56
132.63	2598.29	132.68	2598.06	143.6	2598.08				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	58.4	.025	99.73	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
58.4	99.73	129	129	129	.1	.3

CULVERT

RIVER: TV_BOX
REACH: TV_BOX RS: 2045

INPUT
Description: 3-8'x4' CBC
Distance from Upstream XS = 28
Deck/Roadway Width = 47
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2599.47		49	2599.17		140	2598.73	
200	2598.23							

Upstream Bridge Cross Section Data
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2598.93	.11	2598.93	6.44	2598.89	10	2598.86	12.64	2598.76
21.72	2598.41	26.43	2597.77	30.69	2597.21	33.2	2596.4	34.28	2595.84
34.3	2595.5	34.85	2595.24	35.87	2594.97	37.25	2594.71	39.25	2594.88
42.75	2594.61	43.42	2594.59	45.72	2594.13	51.8	2593.62	52.56	2593.64
53.76	2593.69	55.81	2593.8	58.4	2593.95	65.11	2593.86	65.35	2593.86
65.8	2593.86	66.1	2593.86	66.26	2593.87	66.9	2593.85	68.06	2593.85
68.14	2593.85	69.71	2593.83	72.28	2593.76	72.73	2593.74	73.56	2593.7
73.86	2593.69	77.09	2593.63	77.12	2593.63	80.64	2593.45	85.98	2593.58
91.13	2593.6	96.62	2592.7	97.01	2592.65	99.73	2594.4	100.01	2594.43
100.92	2594.53	101.67	2594.62	103.57	2594.95	106.07	2595.41	110.15	2596.07
114.22	2596.78	115.34	2597	119.51	2597.68	121.59	2597.79	132.58	2598.56
132.63	2598.29	132.68	2598.06	143.6	2598.08				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	58.4	.025	99.73	.08

Bank Sta: Left	Right	Coeff Contr.	Expan.
58.4	99.73	.1	.3

Downstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2599.47		49	2599.17		140	2598.73	
200	2598.23							

Downstream Bridge Cross Section Data
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2596.22	.33	2596.22	1.55	2596.2	2.54	2596.2	3.25	2596.2
11.27	2596.11	11.65	2596.12	12.02	2596.12	13.08	2596.15	13.89	2596.17
15.04	2596.2	15.45	2596.21	15.51	2596.21	15.63	2596.2	21.3	2596.11
24.21	2596.05	25.83	2596.01	26.29	2596	26.78	2595.99	28.93	2595.96
38.23	2595.52	38.24	2595.52	38.59	2595.54	46.38	2595.66	48.43	2595.71
48.97	2595.72	49.46	2595.73	51.86	2595.76	54.59	2595.8	66.31	2595.89
67.34	2595.87	68.27	2595.82	74.43	2595.5	85.69	2595.55	85.71	2594.61
85.75	2591.77	92.17	2591.71	94.88	2591.71	96.94	2591.69	99.95	2591.73
100	2591.73	104.89	2591.73	111.32	2591.85	112.05	2591.86	114.7	2591.99
115.56	2592.02	115.66	2595.14	120.23	2595.5	122.47	2595.86	123.85	2596.11
126.84	2596.79	127.68	2596.99	132.09	2597.52	133.27	2597.64	137.43	2598.07
139.27	2598.3	139.59	2598.35	139.67	2598.37	141.69	2598.57	145.28	2598.66
147.36	2598.68	150.79	2598.76	157.01	2598.77	157.13	2598.27	157.42	2598.27
169.54	2598.24	173.52	2598.23	179.88	2598.26	191.07	2598.12	192.27	2598.09
193.92	2598.07	194.74	2598.07	197.01	2598.03	200	2597.98		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	85.69	.025	115.66	.08

Bank Sta: Left	Right	Coeff Contr.	Expan.
85.69	115.66	.1	.3

Upstream Embankment side slope = 4 horiz. to 1.0 vertical
Downstream Embankment side slope = 4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
3-8x4 CBC	Box	4	8

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
	5	112.77	.013	.013	0	.2	1

Number of Barrels = 3
Upstream Elevation = 2591.79
Centerline Stations

Sta.	Sta.	Sta.
59.45	68.15	76.95

Downstream Elevation = 2591.43
Centerline Stations

Sta.	Sta.	Sta.
91.7	100.4	109.2

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1938

INPUT
Description: 5-feet +/- DS BOX Culvert
moved 12 to represent ground in
proposed condition and to maintain the 5 feet away from pipe
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2596.22	.33	2596.22	1.55	2596.2	2.54	2596.2	3.25	2596.2
11.27	2596.11	11.65	2596.12	12.02	2596.12	13.08	2596.15	13.89	2596.17
15.04	2596.2	15.45	2596.21	15.51	2596.21	15.63	2596.2	21.3	2596.11
24.21	2596.05	25.83	2596.01	26.29	2596	26.78	2595.99	28.93	2595.96
38.23	2595.52	38.24	2595.52	38.59	2595.54	46.38	2595.66	48.43	2595.71
48.97	2595.72	49.46	2595.73	51.86	2595.76	54.59	2595.8	66.31	2595.89
67.34	2595.87	68.27	2595.82	74.43	2595.5	85.69	2595.55	85.71	2594.61
85.75	2591.77	92.17	2591.71	94.88	2591.71	96.94	2591.69	99.95	2591.73
100	2591.73	104.89	2591.73	111.32	2591.85	112.05	2591.86	114.7	2591.99
115.56	2592.02	115.66	2595.14	120.23	2595.5	122.47	2595.86	123.85	2596.11
126.84	2596.79	127.68	2596.99	132.09	2597.52	133.27	2597.64	137.43	2598.07
139.27	2598.3	139.59	2598.35	139.67	2598.37	141.69	2598.57	145.28	2598.66
147.36	2598.68	150.79	2598.76	157.01	2598.77	157.13	2598.27	157.42	2598.27
[illegible].54	2598.24	173.52	2598.23	179.88	2598.26	191.07	2598.12	192.27	2598.09
[illegible].92	2598.07	194.74	2598.07	197.01	2598.03	200	2597.98		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	85.69	.025	115.66	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
85.69	115.66	88	88	88	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1850

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2593.64	7.47	2593.75	7.76	2593.75	7.98	2593.75	8.7	2593.75
15.13	2593.75	17	2593.76	18.24	2593.77	19.38	2593.77	19.8	2593.77
20.28	2593.77	20.7	2593.77	21.92	2593.77	30.43	2593.81	30.69	2593.81
30.85	2593.81	32.03	2593.82	32.35	2593.82	32.59	2593.82	33.1	2593.83
34.44	2593.82	34.93	2593.82	35.26	2593.83	35.97	2593.83	36.37	2593.83
37.36	2593.83	37.63	2593.83	38.16	2593.83	38.43	2593.83	38.97	2593.82
39.52	2593.82	39.94	2593.83	40.3	2593.82	41.04	2593.82	41.79	2593.81
42.46	2593.82	42.83	2593.82	43.4	2593.82	43.67	2593.82	44.24	2593.82
44.62	2593.83	44.9	2593.83	45.27	2593.83	45.46	2593.83	45.73	2593.83
46.06	2593.85	46.47	2593.85	46.77	2593.85	47.15	2593.86	47.39	2593.87
47.84	2593.87	48.33	2593.89	48.57	2593.91	49.07	2593.9	50	2593.91
50.53	2593.92	51.1	2593.95	52.01	2593.96	52.59	2593.98	53.34	2594
53.7	2594	61.59	2594.03	62.27	2594.03	62.58	2594.02	63.43	2594.02
68.74	2594.05	68.89	2594.06	73.77	2594.2	77.94	2594.27	77.95	2594.27
77.99	2594.22	78.22	2593.98	80.59	2591.41	80.75	2591.23	81.41	2591.23
84.47	2591.23	90.29	2591.22	93.54	2591.22	95.67	2591.24	100	2591.3
106.41	2591.38	109.8	2591.31	115.63	2591.18	125.81	2593.3	128.36	2593.83
139.05	2594.1	139.43	2594.11	140.16	2594.23	155.8	2596.88	161.55	2597.08
162.74	2597.12	163.68	2597.16	165.15	2597.2	180.97	2597.63	185.31	2597.59
190.82	2597.55	192.74	2597.53	193.89	2597.49	200	2597.26		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	77.95	.025	128.36	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
77.95	128.36	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	77.95	2595.27	F

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1750

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2593.23	1.57	2593.28	2.11	2593.29	7.92	2593.36	9.23	2593.38
10.67	2593.41	11.32	2593.42	19.56	2593.43	20.03	2593.43	20.91	2593.45
21.12	2593.38	21.46	2593.39	22.39	2593.38	25.76	2593.4	26.72	2593.38
31.91	2593.4	33.51	2593.39	35.58	2593.45	38.84	2593.57	41.73	2593.64
45.02	2593.78	46.25	2593.76	48.16	2593.74	48.83	2593.73	60.04	2593.71
60.89	2593.7	64.5	2593.68	66.48	2593.83	67.11	2593.88	69.42	2593.89
72.86	2593.96	75.97	2593.91	76.8	2593.91	79.28	2592.28	81.23	2590.92
88.11	2591.19	92.09	2591.34	99.04	2591.37	100.01	2591.38	105.41	2591.41
108.4	2591.32	112.97	2591.2	118.55	2592.31	126.63	2593.88	131.6	2593.95
133.81	2593.98	137.23	2594.32	142.49	2594.83	147.81	2595.56	148.21	2595.62
148.42	2595.64	149.91	2595.9	153.47	2596.51	161.82	2596.85	162.61	2596.88
163.6	2596.92	166.34	2596.95	177.97	2597.06	181.43	2597.13	183.6	2597.09
190.53	2597.03	191.3	2597.02	192.49	2597.01	193.63	2596.99	200	2596.83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	76.8	.025	126.63	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
76.8	126.63	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	23	2596	F

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1650

INPUT
Description:

Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2593.78	4.1	2593.79	4.63	2593.8	5.65	2593.75	6.42	2593.75
7.16	2593.79	8.71	2593.86	10.17	2593.91	10.37	2593.92	11.72	2593.94
12.29	2593.96	13.14	2594	14.15	2594.07	15.05	2594.15	21.63	2594.85
24.51	2595.11	25.46	2595.19	27.87	2595.31	32.11	2595.92	32.3	2595.94
34.01	2596.07	36.01	2596.27	38.32	2596.19	38.84	2596.18	38.88	2596.18
[illegible]0.71	2596.14	44.85	2596.04	46.53	2595.61	53.36	2593.73	56.13	2593.64
[illegible].58	2593.3	69.31	2593.5	73.18	2593.86	77.08	2593.57	77.12	2593.57
[illegible]9.31	2591.84	80.42	2590.97	80.72	2590.96	90.25	2590.92	91.17	2590.91
95.23	2590.97	100	2591.04	105.05	2591.12	109.62	2590.94	111.69	2590.87
117.06	2591.83	124.47	2593.13	129.23	2593.39	132.78	2593.58	135.88	2594.22
138.54	2594.77	142.46	2595.52	147.93	2596.56	150.03	2596.47	151.29	2596.43
153.25	2596.67	157.63	2597.23	161.44	2597.36	162.81	2597.42	163.09	2597.43
163.54	2597.45	164.84	2597.45	191.85	2597.53	193.86	2597.51	200	2597.46

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	77.12	.025	124.47	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
77.12	124.47	100	100	100	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1550

INPUT
Description:
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2592.67	.24	2592.66	2.93	2592.63	4.96	2592.55	10.18	2592.38
11.05	2592.34	11.45	2592.32	16.09	2592.03	18.32	2591.95	21.35	2592.27
22.1	2592.31	22.84	2592.34	23.72	2592.39	27.69	2592.71	29.71	2592.8
30.95	2592.88	35.05	2593.04	36.37	2593.09	36.64	2593.08	37.15	2593.05
39.9	2593.13	41.41	2593.11	42.58	2593.03	48.6	2592.79	50.75	2592.71
52.15	2592.63	53.8	2592.52	60.82	2592.43	66.61	2592.37	68.16	2592.33
68.86	2592.47	72.87	2593.22	76.33	2593.36	77.41	2593.42	79.15	2592.15
81.11	2590.73	82.51	2590.76	83.57	2590.8	88.3	2590.93	88.55	2590.93
88.81	2590.93	100	2590.85	100.09	2590.85	104.03	2590.82	108.79	2590.77
115.36	2591.83	122.1	2592.9	122.2	2592.91	128.03	2593.43	128.27	2593.45
[illegible]8.52	2593.49	132.79	2594.25	135.88	2594.85	141.37	2597.53	141.57	2597.63
[illegible].64	2597.63	141.74	2597.63	144.22	2597.64	152.71	2597.87	153.32	2597.88
[illegible]3.74	2597.89	155.22	2597.95	162.22	2598.41	164.18	2598.55	164.26	2598.56
165.5	2598.59	191.46	2598.98	192.63	2598.97	200	2598.84		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	77.41	.025	122.2	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
77.41	122.2	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	53.6	2594	F

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1450

INPUT
Description:
Station Elevation Data num= 76

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-20	2591.61	-15	2591.77	-10	2591.94	0	2591.65	1.68	2591.6
4.76	2591.49	5.67	2591.52	5.99	2591.53	6.31	2591.54	10.79	2591.71
13.94	2591.78	16.43	2591.81	17.34	2591.83	18.24	2591.85	23.92	2592.16
25.07	2592.22	27.45	2592.4	27.77	2592.42	29.75	2592.58	31.11	2592.61
31.82	2592.63	34.62	2592.7	36.56	2592.76	37.58	2592.8	38.95	2592.86
39.89	2592.9	43.51	2593.04	44.87	2593.08	47.18	2593.19	48.15	2593.21
48.73	2593.23	52.94	2593.4	53.07	2593.4	60.65	2593.29	63.54	2593.12
65.58	2593	71.12	2593.15	73.76	2593.22	74.76	2593.2	76.2	2593.17
78.02	2593.13	80.07	2591.87	81.15	2591.18	84.28	2591.16	87.22	2591.09
99.38	2590.84	100.01	2590.83	102.54	2590.79	110.36	2591.02	110.55	2591.02
110.64	2591.02	110.89	2591.04	115.03	2591.25	121.47	2592.82	124.47	2593.57
[illegible].38	2594.75	131.15	2595.53	132.23	2595.9	133.31	2596.25	134.13	2596.44
[illegible].06	2596.61	135.45	2596.73	142.4	2598.83	142.93	2598.93	143.17	2599.13
[illegible]144	2599.35	145.07	2599.34	153.91	2599.36	154.71	2599.37	156.61	2599.45
166.97	2599.88	185.75	2600.38	190.07	2600.49	191.67	2600.54	197.37	2600.48
200	2600.46								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-20	.045	78.02	.025	124.47	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
78.02	124.47	100	100	100	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
-20	-12.62	2596	F

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1350

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2592.43	.55	2592.41	1.73	2592.35	2.4	2592.32	3.49	2592.25
4.98	2592.12	6.19	2592.05	7.85	2591.97	8.85	2591.88	9.88	2591.82
10.42	2591.77	10.8	2591.75	11.67	2591.7	12.74	2591.61	15.76	2591.48
16.53	2591.43	18.11	2591.39	18.8	2591.39	19.41	2591.38	19.85	2591.36
20.41	2591.28	22	2591.21	22.37	2591.23	23.04	2591.19	27.05	2590.72
31.49	2590.49	31.78	2590.5	34.45	2590.53	35.19	2590.55	36.47	2590.57
39.24	2590.62	40.22	2590.63	42.36	2590.66	43.12	2590.73	46.64	2591.04
48.8	2591.23	50.91	2591.44	52.01	2591.56	54.34	2591.78	56.11	2591.97
57.4	2592.1	60.29	2592.32	61.03	2592.39	63.41	2592.56	63.49	2592.57
64.22	2592.61	69.97	2592.44	71.24	2592.38	72.02	2592.33	72.61	2592.27
81.07	2591.45	83.56	2591.18	83.77	2591.17	83.89	2591.17	85.39	2591.04
85.47	2591.03	85.59	2591.01	88.39	2590.66	88.48	2590.64	89.58	2590.53
89.62	2590.52	89.77	2590.5	90.79	2590.38	91.1	2590.33	92.29	2590.16
93.5	2589.97	94.12	2589.84	95.7	2589.67	95.92	2589.65	96.46	2589.63
98	2589.51	98.26	2589.54	100.01	2589.31	100.95	2589.18	102.05	2589.04
106.52	2589.71	109.26	2590.12	124.15	2591.38	126.45	2591.56	135.06	2592.28
135.7	2592.33	135.83	2592.34	143.65	2592.92	145.24	2593.04	147.6	2593.56
158.33	2595.98	159.83	2596.3	162.35	2596.86	177.14	2601.2	177.73	2601.21
179.03	2601.19	181.62	2601.2	182.81	2601.16	188.29	2601.04	191.79	2601
194.52	2601.01	196.15	2601.03	198.16	2601.01	200.01	2601.13		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	69.97	.025	145.24	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
69.97	145.24	100	100	100	.1	.3

CROSS SECTION

RIVER: TV_BOX
REACH: TV_BOX RS: 1250

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2591.45	2	2591.45	2.39	2591.46	4.64	2591.48	5.14	2591.49
9.83	2591.56	10.25	2591.57	10.88	2591.56	13.26	2591.6	16.97	2591.55
23.39	2591.9	25.87	2591.9	28.93	2591.87	34.9	2591.89	52.33	2591.84
56.25	2591.86	58.57	2591.85	59.19	2591.84	61.8	2591.83	64.85	2591.77
71.25	2591.63	74.84	2591.22	75.02	2591.23	75.16	2591.24	76.92	2590.94
80.93	2590.49	81.4	2590.46	82.99	2590.24	84.66	2590.12	86.12	2589.95
87.79	2589.73	90.4	2589.31	90.68	2589.3	94.87	2589.26	97.11	2588.83
97.73	2588.77	98.81	2588.68	99.21	2588.72	99.5	2588.74	100	2588.75
101.22	2588.78	103.22	2588.79	104.07	2588.85	106.65	2588.86	107.29	2588.89
108.26	2588.89	108.75	2588.9	109.22	2588.9	109.87	2588.92	111.55	2588.93
113.71	2589.01	119.13	2589.07	121.66	2589.1	122.94	2589.06	125.1	2588.95
125.5	2588.93	127.09	2588.91	128.94	2588.83	130.61	2588.83	133.46	2589.52
137.38	2590.27	137.95	2590.3	142.66	2590.64	144.11	2590.64	145.39	2590.6
149.42	2590.16	150.18	2590.01	150.48	2589.98	151	2589.81	152.4	2589.16
153.21	2589.27	153.6	2589.34	154.45	2589.44	156.31	2589.63	156.4	2589.62
158.01	2589.77	160.64	2589.75	161.3	2589.76	162.32	2589.78	165.5	2589.78
166.16	2589.76	166.74	2589.76	167.54	2589.76	168.61	2589.82	169.91	2590.07
170.01	2590.09	172.31	2590.55	173.23	2590.77	175.05	2591.19	176.55	2591.46
178.74	2591.9	180.08	2592.19	182.79	2592.91	185.69	2592.91	189.05	2592.84
192.11	2595.38	193.49	2596.51	198.37	2597.12	200	2597.25		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	71.25	.025	182.79	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
71.25	182.79	100	0	100	.1	.3

SUMMARY OF MANNING'S N VALUES

River:TV_BOX

Reach	River Sta.	n1	n2	n3
[illegible] BOX	2450	.045	.025	.08
[illegible] OX	2350	.045	.025	.08
[illegible] BOX	2250	.045	.025	.08
TV_BOX	2150	.045	.025	.08
TV_BOX	2095	.045	.025	.08
TV_BOX	2067	.045	.025	.08
TV_BOX	2045	Culvert		
TV_BOX	1938	.045	.025	.08
TV_BOX	1850	.045	.025	.08
TV_BOX	1750	.045	.025	.08
TV_BOX	1650	.045	.025	.08
TV_BOX	1550	.045	.025	.08
TV_BOX	1450	.045	.025	.08
TV_BOX	1350	.045	.025	.08
TV_BOX	1250	.045	.025	.08

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
TV_BOX	2450	100Yr w/ 25TW	555.00	2594.80	2596.52		2596.58	0.002048	2.45	404.27	616.65	0.46
TV_BOX	2450	25Yr w/100YrTW	325.00	2594.80	2596.19		2596.27	0.004047	2.52	212.24	470.22	0.60
TV_BOX	2450	100Yr w/100YrTW	555.00	2594.80	2596.52		2596.58	0.002048	2.45	404.27	616.65	0.46
TV_BOX	2350	100Yr w/ 25TW	555.00	2594.64	2596.40		2596.44	0.000971	2.06	518.36	472.29	0.34
[illegible] BOX	2350	25Yr w/100YrTW	325.00	2594.64	2596.00		2596.03	0.001418	[illegible]8	331.32	447.74	0.38
[illegible] BOX	2350	100Yr w/100YrTW	555.00	2594.64	2596.40		2596.44	0.000971	2.06	518.36	472.29	0.34
TV_BOX	2250	100Yr w/ 25TW	555.00	2594.29	2596.31		2596.36	0.000704	2.21	455.31	337.97	0.30
TV_BOX	2250	25Yr w/100YrTW	325.00	2594.29	2595.89		2595.93	0.000745	1.88	315.24	330.68	0.30
TV_BOX	2250	100Yr w/100YrTW	555.00	2594.29	2596.31		2596.36	0.000704	2.21	455.31	337.97	0.30
TV_BOX	2150	100Yr w/ 25TW	555.00	2593.95	2596.23		2596.30	0.000613	2.12	321.31	225.87	0.28
TV_BOX	2150	25Yr w/100YrTW	325.00	2593.95	2595.83		2595.87	0.000562	1.69	230.06	221.10	0.26
TV_BOX	2150	100Yr w/100YrTW	555.00	2593.95	2596.23		2596.30	0.000613	2.12	321.31	225.87	0.28
TV_BOX	2095	100Yr w/ 25TW	555.00	2594.48	2595.89		2596.16	0.004543	4.15	133.66	126.51	0.71
TV_BOX	2095	25Yr w/100YrTW	325.00	2594.48	2595.40	2595.40	2595.71	0.010993	4.48	72.55	118.92	1.01
TV_BOX	2095	100Yr w/100YrTW	555.00	2594.48	2595.89		2596.16	0.004543	4.15	133.66	126.51	0.71
TV_BOX	2067	100Yr w/ 25TW	555.00	2592.65	2595.24	2595.24	2595.95	0.007806	7.19	93.37	70.25	0.99
TV_BOX	2067	25Yr w/100YrTW	325.00	2592.65	2594.75	2594.75	2595.29	0.009227	6.18	60.62	62.15	1.02
TV_BOX	2067	100Yr w/100YrTW	555.00	2592.65	2595.24	2595.24	2595.95	0.007806	7.19	93.37	70.25	0.99
TV_BOX	2045		Culvert									
TV_BOX	1938	100Yr w/ 25TW	555.00	2591.69	2593.97	2593.97	2595.08	0.008396				

8.45	65.66	29.90	1.01								
TV_BOX	1938	25Yr w/100YrTW	325.00	2591.69	2593.51		2594.12	0.006017			
6.24	52.07	29.88	0.83								
TV_BOX	1938	100Yr w/100YrTW	555.00	2591.69	2593.97	2593.97	2595.08	0.008366			
8.44	65.74	29.90	1.00								
TV_BOX	1850	100Yr w/ 25TW	555.00	2591.18	2594.25	2593.14	2594.53	0.001502			
4.25	133.47	138.92	0.47								
TV_BOX	1850	25Yr w/100YrTW	325.00	2591.18	2593.61	2592.60	2593.78	0.001253			
3.30	98.41	48.73	0.41								
TV_BOX	1850	100Yr w/100YrTW	555.00	2591.18	2594.25	2593.14	2594.53	0.001502			
4.25	133.47	138.92	0.47								
TV_BOX	1750	100Yr w/ 25TW	555.00	2590.92	2593.99	2593.22	2594.34	0.002281			
4.81	130.41	133.87	0.56								
TV_BOX	1750	25Yr w/100YrTW	325.00	2590.92	2593.37	2592.65	2593.61	0.002056			
3.92	82.99	55.25	0.52								
TV_BOX	1750	100Yr w/100YrTW	555.00	2590.92	2593.99	2593.22	2594.34	0.002281			
4.81	130.41	133.87	0.56								
TV_BOX	1650	100Yr w/ 25TW	555.00	2590.87	2593.75		2594.12	0.002117			
4.84	121.96	78.74	0.55								
TV_BOX	1650	25Yr w/100YrTW	325.00	2590.87	2593.21		2593.42	0.001714			
3.69	88.05	48.26	0.48								
TV_BOX	1650	100Yr w/100YrTW	555.00	2590.87	2593.75		2594.12	0.002117			
4.84	121.96	78.74	0.55								
TV_BOX	1550	100Yr w/ 25TW	555.00	2590.73	2593.42	2592.98	2593.85	0.003086			
5.44	116.15	127.76	0.65								
TV_BOX	1550	25Yr w/100YrTW	325.00	2590.73	2592.95	2592.35	2593.21	0.002420			
4.15	84.75	104.08	0.56								
TV_BOX	1550	100Yr w/100YrTW	555.00	2590.73	2593.42	2592.98	2593.85	0.003086			
5.44	116.15	127.76	0.65								
TV_BOX	1450	100Yr w/ 25TW	555.00	2590.79	2592.78	2592.78	2593.39	0.007233			
6.78	107.59	99.81	0.95								
TV_BOX	1450	25Yr w/100YrTW	325.00	2590.79	2592.36	2592.36	2592.81	0.007044			
5.70	71.65	87.20	0.90								
TV_BOX	1450	100Yr w/100YrTW	555.00	2590.79	2592.78	2592.78	2593.39	0.007233			
6.78	107.59	99.81	0.95								
TV_BOX	1350	100Yr w/ 25TW	555.00	2589.04	2591.90	2591.90	2592.45	0.008212			
6.43	108.92	100.85	0.99								
TV_BOX	1350	25Yr w/100YrTW	325.00	2589.04	2592.40		2592.48	0.001023			
2.52	165.41	126.14	0.36								
TV_BOX	1350	100Yr w/100YrTW	555.00	2589.04	2592.34		2592.60	0.003287			
4.48	158.51	122.70	0.64								
TV_BOX	1250	100Yr w/ 25TW	555.00	2588.68	2591.52	2590.53	2591.65	0.001106			
2.92	190.09	111.79	0.38								
TV_BOX	1250	25Yr w/100YrTW	325.00	2588.68	2592.42	2590.14	2592.44	0.000095			
1.09	334.04	180.95	0.12								
TV_BOX	1250	100Yr w/100YrTW	555.00	2588.68	2592.42	2590.53	2592.47	0.000277			
1.87	334.04	180.95	0.20								

Profile Output Table - Standard Table 2

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
TV_BOX	2450	100Yr w/ 25TW	2596.58	2596.52	0.07	0.14	0.01	38.31	377.31	139.38	616.65
TV_BOX	2450	25Yr w/100YrTW	2596.27	2596.19	0.08	0.22	0.01	0.93	242.01	82.06	470.22
TV_BOX	2450	100Yr w/100YrTW	2596.58	2596.52	0.07	0.14	0.01	38.31	377.31	139.38	616.65
TV_BOX	2350	100Yr w/ 25TW	2596.44	2596.40	0.03	0.08	0.00	132.47	246.30	176.23	472.29
TV_BOX	2350	25Yr w/100YrTW	2596.03	2596.00	0.03	0.10	0.00	59.61	147.05	118.34	447.74
TV_BOX	2350	100Yr w/100YrTW	2596.44	2596.40	0.03	0.08	0.00	132.47			

246.30	176.23	472.29								
TV_BOX	2250		100Yr w/ 25TW	2596.36	2596.31	0.05	0.06	0.00	185.02	
287.84	82.14	337.97								
TV_BOX	2250		25Yr w/100YrTW	2595.93	2595.89	0.03	0.06	0.00	95.86	
182.63	46.52	330.68								
TV_BOX	2250		100Yr w/100YrTW	2596.36	2596.31	0.05	0.06	0.00	185.02	
[illegible]4	82.14	337.97								
TV_BOX	2150		100Yr w/ 25TW	2596.30	2596.23	0.06	0.11	0.02	71.59	
480.05	3.36	225.87								
TV_BOX	2150		25Yr w/100YrTW	2595.87	2595.83	0.04	0.13	0.03	30.28	
293.24	1.48	221.10								
TV_BOX	2150		100Yr w/100YrTW	2596.30	2596.23	0.06	0.11	0.02	71.59	
480.05	3.36	225.87								
TV_BOX	2095		100Yr w/ 25TW	2596.16	2595.89	0.27	0.16	0.04		
555.00		126.51								
TV_BOX	2095		25Yr w/100YrTW	2595.71	2595.40	0.31	0.28	0.02		
325.00		118.92								
TV_BOX	2095		100Yr w/100YrTW	2596.16	2595.89	0.27	0.16	0.04		
555.00		126.51								
TV_BOX	2067		100Yr w/ 25TW	2595.95	2595.24	0.72			68.97	
483.62	2.42	70.25								
TV_BOX	2067		25Yr w/100YrTW	2595.29	2594.75	0.54			33.41	
291.28	0.31	62.15								
TV_BOX	2067		100Yr w/100YrTW	2595.95	2595.24	0.72			68.97	
483.62	2.42	70.25								
TV_BOX	2045			Culvert						
TV_BOX	1938		100Yr w/ 25TW	2595.08	2593.97	1.11	0.26	0.25		
555.00		29.90								
TV_BOX	1938		25Yr w/100YrTW	2594.12	2593.51	0.61	0.21	0.13		
325.00		29.88								
[illegible]BOX	1938		100Yr w/100YrTW	2595.08	2593.97	1.11	0.26	0.25		
[illegible]0		29.90								
TV_BOX	1850		100Yr w/ 25TW	2594.53	2594.25	0.28	0.18	0.01		
554.07	0.93	138.92								
TV_BOX	1850		25Yr w/100YrTW	2593.78	2593.61	0.17	0.16	0.01		
325.00		48.73								
TV_BOX	1850		100Yr w/100YrTW	2594.53	2594.25	0.28	0.18	0.01		
554.07	0.93	138.92								
TV_BOX	1750		100Yr w/ 25TW	2594.34	2593.99	0.35	0.22	0.00	12.90	
542.04	0.05	133.87								
TV_BOX	1750		25Yr w/100YrTW	2593.61	2593.37	0.24	0.19	0.01		
325.00		55.25								
TV_BOX	1750		100Yr w/100YrTW	2594.34	2593.99	0.35	0.22	0.00	12.90	
542.04	0.05	133.87								
TV_BOX	1650		100Yr w/ 25TW	2594.12	2593.75	0.36	0.25	0.01	2.62	
550.89	1.49	78.74								
TV_BOX	1650		25Yr w/100YrTW	2593.42	2593.21	0.21	0.20	0.00		
325.00	0.00	48.26								
TV_BOX	1650		100Yr w/100YrTW	2594.12	2593.75	0.36	0.25	0.01	2.62	
550.89	1.49	78.74								
TV_BOX	1550		100Yr w/ 25TW	2593.85	2593.42	0.44	0.45	0.02	26.78	
527.63	0.59	127.76								
TV_BOX	1550		25Yr w/100YrTW	2593.21	2592.95	0.26	0.38	0.02	8.42	
316.58	0.00	104.08								
TV_BOX	1550		100Yr w/100YrTW	2593.85	2593.42	0.44	0.45	0.02	26.78	
527.63	0.59	127.76								
[illegible]BOX	1450		100Yr w/ 25TW	2593.39	2592.78	0.60	0.77	0.02	97.85	
4[illegible]5		99.81								
[illegible]BOX	1450		25Yr w/100YrTW	2592.81	2592.36	0.45			40.58	
284.42		87.20								
TV_BOX	1450		100Yr w/100YrTW	2593.39	2592.78	0.60	0.47	0.10	97.85	
457.15		99.81								

TV_BOX	1350		100Yr w/ 25TW	2592.45	2591.90	0.55	0.24	0.12	98.65	456.35
		100.85								
TV_BOX	1350		25Yr w/100YrTW	2592.48	2592.40	0.08	0.02	0.02	71.29	253.71
		126.14								
TV_BOX	1350		100Yr w/100YrTW	2592.60	2592.34	0.26	0.07	0.06	119.38	435.62
		122.70								
TV_BOX	1250		100Yr w/ 25TW	2591.65	2591.52	0.13			0.05	554.95
		111.79								
TV_BOX	1250		25Yr w/100YrTW	2592.44	2592.42	0.02			11.51	313.49
		180.95								
TV_BOX	1250		100Yr w/100YrTW	2592.47	2592.42	0.05			19.65	535.35
		180.95								

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : Prop

River: TV_BOX Reach: TV_BOX RS: 2450 Profile: 100Yr w/ 25TW
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.
River: TV_BOX Reach: TV_BOX RS: 2450 Profile: 25Yr w/100YrTW
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.
River: TV_BOX Reach: TV_BOX RS: 2450 Profile: 100Yr w/100YrTW
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.
River: TV_BOX Reach: TV_BOX RS: 2350 Profile: 25Yr w/100YrTW
Warning:Divided flow computed for this cross-section.
River: TV_BOX Reach: TV_BOX RS: 2150 Profile: 100Yr w/ 25TW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TV_BOX Reach: TV_BOX RS: 2150 Profile: 25Yr w/100YrTW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TV_BOX Reach: TV_BOX RS: 2150 Profile: 100Yr w/100YrTW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TV_BOX Reach: TV_BOX RS: 2095 Profile: 25Yr w/100YrTW
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2067 Profile: 100Yr w/ 25TW
Warning:During subcritical analysis, the water surface upstream of culvert went to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2067 Profile: 25Yr w/100YrTW
Warning:During subcritical analysis, the water surface upstream of culvert went to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2067 Profile: 100Yr w/100YrTW
Warning:During subcritical analysis, the water surface upstream of culvert went to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2045 Profile: 100Yr w/ 25TW
Warning:During subcritical analysis, the water surface upstream of culvert went to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2045 Profile: 100Yr w/ 25TW Culv: 3-8x4 CBC
Note: During subcritical analysis, the culvert direct step method, the solution went to normal depth.
River: TV_BOX Reach: TV_BOX RS: 2045 Profile: 25Yr w/100YrTW
Warning:During subcritical analysis, the water surface upstream of culvert went to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2045 Profile: 25Yr w/100YrTW Culv: 3-8x4 CBC
Note: During subcritical analysis, the culvert direct step method, the solution went to normal depth.
River: TV_BOX Reach: TV_BOX RS: 2045 Profile: 100Yr w/100YrTW
Warning:During subcritical analysis, the water surface upstream of culvert went to critical depth.
River: TV_BOX Reach: TV_BOX RS: 2045 Profile: 100Yr w/100YrTW Culv: 3-8x4 CBC
Note: During subcritical analysis, the culvert direct step method, the solution went to normal depth.
River: TV_BOX Reach: TV_BOX RS: 1938 Profile: 100Yr w/ 25TW
Warning:The energy equation could not be balanced within the specified number of iterations. The program selec the water
surface that had the least amount of error between computed and assumed values.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater

than 1.4.
This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: TV_BOX Reach: TV_BOX RS: 1938 Profile: 25Yr w/100YrTW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: TV_BOX Reach: TV_BOX RS: 1938 Profile: 100Yr w/100YrTW
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: TV_BOX Reach: TV_BOX RS: 1850 Profile: 100Yr w/ 25TW
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1850 Profile: 25Yr w/100YrTW
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1850 Profile: 100Yr w/100YrTW
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1750 Profile: 100Yr w/ 25TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1750 Profile: 25Yr w/100YrTW
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1750 Profile: 100Yr w/100YrTW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1650 Profile: 100Yr w/ 25TW
Warning:Divided flow computed for this cross-section.
River: TV_BOX Reach: TV_BOX RS: 1650 Profile: 100Yr w/100YrTW
Warning:Divided flow computed for this cross-section.
River: TV_BOX Reach: TV_BOX RS: 1550 Profile: 100Yr w/ 25TW
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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1550 Profile: 25Yr w/100YrTW
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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1550 Profile: 100Yr w/100YrTW
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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water

surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1450 Profile: 100Yr w/ 25TW
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, th 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.
River: TV_BOX Reach: TV_BOX RS: 1450 Profile: 25Yr w/100YrTW
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 cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1450 Profile: 100Yr w/100YrTW
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning: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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: TV_BOX Reach: TV_BOX RS: 1350 Profile: 100Yr w/ 25TW
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:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: TV_BOX Reach: TV_BOX RS: 1350 Profile: 25Yr w/100YrTW
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.
River: TV_BOX Reach: TV_BOX RS: 1350 Profile: 100Yr w/100YrTW
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.
River: TV_BOX Reach: TV_BOX RS: 1250 Profile: 100Yr w/ 25TW
Warning:Divided flow computed for this cross-section.

C-2

Speedway Boulevard

Culvert Analysis Report
Speedway Houghton2 Proposed

Comments: 100 Year with 10 Year TW

Analysis Component			
Storm Event	Design	Discharge	6.50 cfs

Peak Discharge Method: User-Specified			
Design Discharge	6.50 cfs	Check Discharge	0.00 cfs

Tailwater Conditions: Constant Tailwater	
Tailwater Elevation	2,576.10 ft

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	2-36 inch Circular	6.50 cfs	2,580.69 ft	6.66 ft/s
Weir	Not Considered	N/A	N/A	N/A

Culvert Analysis Report
Speedway Houghton2 Proposed

Component:Culvert-1

Culvert Summary			
Computed Headwater Elevation	2,580.69 ft	Discharge	6.50 cfs
Inlet Control HW Elev.	2,580.56 ft	Tailwater Elevation	2,576.10 ft
Outlet Control HW Elev.	2,580.69 ft	Control Type	Entrance Control
Headwater Depth/Height	0.29		

Grades			
Upstream Invert	2,579.83 ft	Downstream Invert	2,577.10 ft
Length	132.00 ft	Constructed Slope	0.020682 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.36 ft
Slope Type	Steep	Normal Depth	0.36 ft
Flow Regime	Supercritical	Critical Depth	0.56 ft
Velocity Downstream	6.66 ft/s	Critical Slope	0.003451 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	2,580.69 ft	Upstream Velocity Head	0.20 ft
Ke	0.50	Entrance Loss	0.10 ft

Inlet Control Properties			
Inlet Control HW Elev.	2,580.56 ft	Flow Control	Unsubmerged
Inlet Type	Square edge w/headwall	Area Full	14.1 ft2
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of 1

Made by DAVID RUVALCABA

Date 5/18/09

Checked by J. Bley

Date 5/22/09

Subject HOUGHTON ROAD - TANQUE VERDE ROAD TO SPEEDWAY
CP-C1, PROPOSED CONDITION, GRATE ELEVATION

WEIR FLOW

$P = 2(1.) + L$

$.5P = .5(2 + 20) = 11$

$Q = 27$

$Q = 3.0(11)(Y)^{3/2}$

$27 = 3.0(11)(Y)^{3/2}$

$0.82 = Y^{3/2} \Rightarrow Y = 0.87$

Ponding WSEL = 2588.38' = GRATE ELEVATION + Y

$\Rightarrow$ GRATE ELEV = 2588.38' - Y = 2587.51

Proposed Grate Elev. = 2587.51

Pavement Inlet analysis

To account for a pavement inlet system is was necessary to conduct a preliminary analysis for the pavement inlet system. The preliminary roadway profile for Houghton Road was used and broken into the four separate longitudinal slope segments. Each slope segment is described in the table X.

Table X

Description	Station to station	Slope
Speedway Blvd.	100+00 – 102+50	3.0% average
	102+50 – 113+00	3.9%
	113+00 – 127+00	3.3%
5th Street	127+00 – 136+00	2.6%

The preliminary hydrology was estimated using a Tc = 5 minutes and a 100-Year precipitation value of 9.6 in/hr. Typical widths of roadway section (70-feet NB lanes & 66-feet SB lanes) were used to compute the drainage area for 300-foot inlet spacing. The area of the NB lanes of 0.48-acres resulted in a 10-Year flow rate of 2.2-ft^3/sec and an area of 0.45-acres for the SB lanes resulted in a 2.1-ft^3/sec flow rate. These flow rates were used to evaluate the spread for each longitudinal slope segment. Results are provided in Table X

Table X

Description	Station to station	Slope	T_{NB}	T_{SB}
Speedway Blvd.	100+00 – 102+50	3.0% average	7.9-ft	7.7-ft
	102+50 – 113+00	3.9%	7.5-ft	7.4-ft
	113+00 – 127+00	3.3%	7.5-ft	7.6-ft
5th Street	127+00 – 136+00	2.6%	8.1-ft	8.0-ft

Evaluation for a curb opening inlet was conducted based on inlet depressions of 0.0", 1.5", 2.0" and 2.5". HY-22 Visual Urban was used to evaluate each configuration for 100% capture for 2.2-ft^3/sec. Results show that a custom inlet with a 20-ft wing will be necessary for 300-ft spacing. All computations are included in Appendix X. Stormdrain sizoing was based on the number of inlets contributing to the trunk-line at any given point. (FILL IN THE SAME DESCRIPTION FROM PREVIOUSE REPORT). The ultimate design for the onsite system will be fine tuned during the design segment of this project and was only addressed with in the DCR for cost purposes.

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of 3

Made by [illegible]

Date 10 APR 07

Checked by

Date

Subject Hawthorne Road TV - 5th
Pavement Inlet Preliminary Sizing

Width of Roadway 70' (℄ to 2' back of curb) - NB

" " 66' (℄ to 2' Back of c/w) - SB

Assume 300' Inlet Spacing

DA NB = 300' x 70' = 21,000 Sq ft → 0.48 ac

DA SB = 300' x 66' = 19,800 Sq ft → 0.45 ac

Q_{100} NB = (0.95)(9.6)(.48) = 4.4 cfs

Q_{10} NB = (0.5)(Q_{100} NB) = 2.2 cfs

Q_{100} SB = (0.95)(9.6)(.45) = 4.1 cfs

Q_{10} SB = (0.5)(Q_{100} SB) = 2.1 cfs

$$i_{100} = \frac{4(P_{1,100})}{(1+0.25\,T_{c_{100}})} = \frac{4(3)}{(1+.05(5))} = 9.6 \text{ in/hr}$$

Allowable Spread for Multi Lane Roadway: 30' for both NB & SB.

Longitudinal Slopes range from: 2.0% @ Speedway Blvd, to 3.9% Just South of Speedway.

	STA	-	STA	S_o
Speedway	100+00	-	102+50	3.0% ave
	102+50	-	113+00	3.9%
	113+00	-	127+00	3.3%
5th	127+00	-	136+00	2.6%

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject: Houghton Road TV - 5th

Page 2 of 3

Made by: Bambauer

Date: 10 APR 09

Checked by:

Date:

Compute Spread for each Slope:

$$Q = 0.56 \left(\frac{S_x^{5/3} \, T^{8/3} \, S_o^{1/2}}{n} \right) ; \quad S_x = 2\%$$

$n = .016$

$Q_{NB} = 2.2$

$Q_{SB} = 2.1$

S_o varies see table

STA - STA	S_o	T_{NB}	T_{SB}	$L_{T\,NB}$	$L_{T\,SB}$
100+00 to 107+50	3.0%	7.9'	7.7'	36.5'	35.8
	3.9%	7.5'	7.4'	39.5'	38.7'
	3.3%	7.7'	7.6	37.5'	36.8'
	3.6%	8.1	8.0	34.9'	34.3'

100% Capture

$$L_T = 0.6 \left(Q^{0.42} \, S_o^{0.3} \right) \left(\frac{1}{(.016)(.02)} \right)^{0.6}$$

For $Q = 2.2$ cfs

Results above show a need for Inlet Depression

Used FHWA Urban Drainage Design HY-22 to Evaluate 2-Slope Conditions w/ 3-Inlet Depressions for $Q = 2.2$ cfs

Total Lengths Range from:

$S_o = 0.026$ '/ft (No Clogging)

a	L_T	L_{NEED}
1.5	18.9'	23.6'
2.0	16.8'	21.0'
2.5	15.3'	19.1'

$S_o = 0.039$ '/ft (No Clogging)

a	L_T	L_{NEED}
1.5	20.8'	26.0'
2.0	18.5'	23.1'
2.5	16.7'	20.9'

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject: Houghton Road TV - 5th
Pentagon Inlet Preliminary Sizing

Page 3 of 3
Made by Bambauer
Date 10 APR 09
Checked by
Date

PC/COT STD 308 Wing Lengths: 4', 8', 12', & 16'

Adj Inlet Length: 7.5, 11.5, 15.5 or 19.5'

Based on Linear Average using 2.0 Depression 22'

USE Custom [illegible] → Adj [illegible] 22.5' ±

with Capture 100% Flow for 300' [illegible]

FHWA Urban Drainage Design Program, HY-22
Drainage of Highway Pavements

Inlets on Grade
Date: 04/10/2009

Project No. :11515
Project Name.:Houghton Road TV-5th
Computed by :Bambauer

Project Description
Curb Inlet 100% Capture Lengths
Compound Gutter Section (1.5" Inlet Depression)

Inlets on Grade: Curb Opening Inlet

Roadway and Discharge Data

	Cross Slope	Uniform
S	Longitudinal Slope (ft/ft)	0.0260
Sx	Pavement Cross Slope (ft/ft)	0.0200
Sw	Gutter Cross Slope (ft/ft)	0.0200
n	Manning's Coefficient	0.016
W	Gutter Width (ft)	1.33
a	Gutter Depression (inch)	1.50
Q	Discharge (cfs)	2.200
T	Width of Spread (ft)	8.10

Gutter Flow

Eo	Gutter Flow Ratio	0.380
d	Depth of Flow (ft)	0.16
V	Average Velocity (ft/sec)	3.35

Inlet Interception

	Inlet Type	Curb-Opening
LT	Length for 100% Inteception (ft)	18.89
L	Curb-Opening Length (ft)	17.89
e	Inlet Efficiency	1.000
Qi	Intercepted Flow (cfs)	2.200
Qb	By-pass Flow (cfs)	0.000

FHWA Urban Drainage Design Program, HY-22
Drainage of Highway Pavements

Inlets on Grade
Date: 04/10/2009

Project No. :11515
Project Name.:Houghton Road TV-5th
Computed by :Bambauer

Project Description
Curb Inlet 100% Capture Lengths
Compound Gutter Section (a inch Inlet depression)

Inlets on Grade: Curb Opening Inlet

Roadway and Discharge Data

	Cross Slope	Uniform
S	Longitudinal Slope (ft/ft)	0.0260
Sx	Pavement Cross Slope (ft/ft)	0.0200
Sw	Gutter Cross Slope (ft/ft)	0.0200
n	Manning's Coefficient	0.016
W	Gutter Width (ft)	1.33
a	Gutter Depression (inch)	2.00
Q	Discharge (cfs)	2.200
T	Width of Spread (ft)	8.10

Gutter Flow

Eo	Gutter Flow Ratio	0.380
d	Depth of Flow (ft)	0.16
V	Average Velocity (ft/sec)	3.35

Inlet Interception

	Inlet Type	Curb-Opening
LT	Length for 100% Inteception (ft)	16.82
L	Curb-Opening Length (ft)	15.82
e	Inlet Efficiency	1.000
Qi	Intercepted Flow (cfs)	2.200
Qb	By-pass Flow (cfs)	0.000

FHWA Urban Drainage Design Program, HY-22
Drainage of Highway Pavements

Inlets on Grade
Date: 04/10/2009

Project No. :11515
Project Name.:Houghton Road TV-5th
Computed by :Bambauer

Project Description
Curb Inlet 100% Capture Lengths
Compound Gutter Section (a inch Inlet depression)

Inlets on Grade: Curb Opening Inlet

Roadway and Discharge Data

	Cross Slope	Uniform
S	Longitudinal Slope (ft/ft)	0.0260
Sx	Pavement Cross Slope (ft/ft)	0.0200
Sw	Gutter Cross Slope (ft/ft)	0.0200
n	Manning's Coefficient	0.016
W	Gutter Width (ft)	1.33
a	Gutter Depression (inch)	2.50
Q	Discharge (cfs)	2.200
T	Width of Spread (ft)	8.10

Gutter Flow

Eo	Gutter Flow Ratio	0.380
d	Depth of Flow (ft)	0.16
V	Average Velocity (ft/sec)	3.35

Inlet Interception

	Inlet Type	Curb-Opening
LT	Length for 100% Inteception (ft)	15.26
L	Curb-Opening Length (ft)	14.26
e	Inlet Efficiency	1.000
Qi	Intercepted Flow (cfs)	2.200
Qb	By-pass Flow (cfs)	0.000

FHWA Urban Drainage Design Program, HY-22
Drainage of Highway Pavements

Inlets on Grade
Date: 04/10/2009

Project No. :11515
Project Name.:Houghton Road TV-5th
Computed by :Bambauer

Project Description
Curb Inlet 100% Capture Lengths
Compound Gutter Section (1.5" Inlet Depression)

Inlets on Grade: Curb Opening Inlet

Roadway and Discharge Data

	Cross Slope	Uniform
S	Longitudinal Slope (ft/ft)	0.0390
Sx	Pavement Cross Slope (ft/ft)	0.0200
Sw	Gutter Cross Slope (ft/ft)	0.0200
n	Manning's Coefficient	0.016
W	Gutter Width (ft)	1.33
a	Gutter Depression (inch)	1.50
Q	Discharge (cfs)	2.200
T	Width of Spread (ft)	7.51

Gutter Flow

Eo	Gutter Flow Ratio	0.405
d	Depth of Flow (ft)	0.15
V	Average Velocity (ft/sec)	3.90

Inlet Interception

	Inlet Type	Curb-Opening
LT	Length for 100% Inteception (ft)	20.81
L	Curb-Opening Length (ft)	19.81
e	Inlet Efficiency	0.996
Qi	Intercepted Flow (cfs)	2.191
Qb	By-pass Flow (cfs)	0.009

WEST SIDE OF SPEEDWAY BLVD. – HOUGHTON RD. INTERSECTION DS (PROP)

HEC-RAS Plan: SHWP Alt 1 River: Stream Reach: Reach

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Reach	634.56	100Yr w/ 10TW	2585.86	2585.26	0.61				275.00		10.00
Reach	634.56	10Yr w/ 100TW	2583.81	2583.46	0.36				125.00		10.00
Reach	470		Culvert								
Reach	367.45	100Yr w/ 10TW	2577.36	2577.05	0.31	0.28	0.04		275.00		14.18
Reach	367.45	10Yr w/ 100TW	2578.95	2578.93	0.02	0.00	0.01	16.33	108.47	0.20	147.95
Reach	308.39	100Yr w/ 10TW	2577.04	2576.32	0.72	0.11	0.21		236.33	38.67	29.11
Reach	308.39	10Yr w/ 100TW	2578.94	2578.94	0.00	0.00	0.00	60.56	50.84	13.60	155.81
Reach	208.21	100Yr w/ 10TW	2576.12	2576.08	0.03	0.01	0.01	120.75	134.36	19.89	253.08
Reach	208.21	10Yr w/ 100TW	2578.94	2578.94	0.00	0.00	0.00	101.45	18.43	5.11	555.78
Reach	114.85	100Yr w/ 10TW	2576.10	2576.10	0.00	0.00	0.00	192.96	78.12	3.92	1700.33
Reach	114.85	10Yr w/ 100TW	2578.94	2578.94	0.00	0.00	0.00	119.97	4.49	0.54	1837.74
Reach	3.61	100Yr w/ 10TW	2576.10	2576.09	0.01			42.80	179.82	52.38	124.70
Reach	3.61	10Yr w/ 100TW	2578.94	2578.94	0.00			20.68	75.44	28.88	124.70

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

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

PROJECT DATA
Project Title: Speedway-Houghton West Drainage
Project File : Spe_Hou_West.prj
Run Date and Time: 6/3/2009 5:54:23 AM

Project in English units

Project Description:
Drainage Analysis West of Houghton and Speedway Blvd.

PLAN DATA

Plan Title: Speedway Houghton West Prop Alt 1
Plan File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.p03

Geometry Title: Speedway Houghton West Prop Alt 1
Geometry File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.g04

Flow Title : Speedway Houghton West Prop
Flow File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.f02

Summary Information:
Number of: Cross Sections = 6 Multiple Openings = 0
Culverts = 1 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

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

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

FLOW DATA

Flow Title: Speedway Houghton West Prop
Flow File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.f02

Flow Data (cfs)

River	Reach	RS	100Yr w/ 10TW	10Yr w/ 100TW	100Yr w/ 100TW
Stream	Reach	634.56	275	125	275

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Stream	Reach	100Yr w/ 10TW	Critical	Known WS = 2576.09
Stream	Reach	10Yr w/ 100TW	Critical	Known WS = 2578.94
Stream	Reach	100Yr w/ 100TW	Critical	Known WS = 2578.94

GEOMETRY DATA

Geometry Title: Speedway Houghton West Prop Alt 1
Geometry File : l:\11515\Tanque Verde Segment\Drainage\HEC-RAS\Speedway Houghton West\Spe_Hou_West.g04

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 634.56

INPUT
Description: DS Reach legth was added 6 extra feet to place the crossection 5 feet away from inlet of culvert
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2589.86	3.69	2589.94	4.39	2589.94	8.36	2589.95	16.52	2590
17.08	2590	17.24	2590.44	17.27	2590.5	20.47	2590.17	21.94	2590.15
23.3	2590.01	25.27	2589.82	27.56	2589.59	29.57	2589.42	31	2589.3
34.66	2588.98	39.42	2588.58	39.7	2588.56	40.01	2588.55	43.46	2588.44
45.14	2588.34	47.68	2588.16	54.75	2587.63	57.28	2587.53	60.83	2587.35
67.35	2587.04	67.98	2587.04	67.98	2580.85	77.98	2580.85	77.98	2588.37
80.14	2588.37	80.93	2588.29	82.24	2588.17	85.02	2588.29	86.38	2588.33
91.99	2588.34	106.24	2588.37	107.96	2588.38	108.02	2588.39	111.17	2588.38
121.18	2588.49	125.02	2588.54	125.65	2588.58	133.62	2588.77	135.11	2588.82
135.47	2588.82	147.4	2588.47	148.21	2588.31	152.14	2588.38	152.16	2588.38
152.22	2588.39	152.47	2588.39	166.73	2588.34				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.012	67.98	.012	77.98	.012

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
67.98	77.98	273.37	273.37	273.37	.1	.3

CULVERT

RIVER: Stream
REACH: Reach RS: 470

INPUT
Description:
Distance from Upstream XS = 5
Deck/Roadway Width = 140
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 20

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2587.86	0	20.51	2587.67	0	21.91	2587.66	0
38.64	2587.54	0	44.17	2587.5	0	64.66	2587.42	0
66.52	2587.41	0	87.62	2587.12	0	109.59	2586.93	0
122.4	2586.84	0	124.68	2586.83	0	135.87	2586.74	0
144.65	2586.65	0	144.71	2586.65	0	144.76	2586.65	0
144.8	2586.65	0	145.36	2586.65	0	154.28	2586.54	0
158.9	2586.46	0	166.73	2586.45	0			

Upstream Bridge Cross Section Data
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2589.86	3.69	2589.94	4.39	2589.94	8.36	2589.95	16.52	2590
17.08	2590	17.24	2590.44	17.27	2590.5	20.47	2590.17	21.94	2590.15
23.3	2590.01	25.27	2589.82	27.56	2589.59	29.57	2589.42	31	2589.3
34.66	2588.98	39.42	2588.58	39.7	2588.56	40.01	2588.55	43.46	2588.44
45.14	2588.34	47.68	2588.16	54.75	2587.63	57.28	2587.53	60.83	2587.35
67.35	2587.04	67.98	2587.04	67.98	2580.85	77.98	2580.85	77.98	2588.37
80.14	2588.37	80.93	2588.29	82.24	2588.17	85.02	2588.29	86.38	2588.33
91.99	2588.34	106.24	2588.37	107.96	2588.38	108.02	2588.39	111.17	2588.38
121.18	2588.49	125.02	2588.54	125.65	2588.58	133.62	2588.77	135.11	2588.82
135.47	2588.82	147.4	2588.47	148.21	2588.31	152.14	2588.38	152.16	2588.38
152.22	2588.39	152.47	2588.39	166.73	2588.34				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.012	67.98	.012	77.98	.012

Bank Sta: Left	Right	Coeff Contr.	Expan.
67.98	77.98	.1	.3

Downstream Deck/Roadway Coordinates
num= 20

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2587.86	0	20.51	2587.67	0	21.91	2587.66	0
38.64	2587.54	0	44.17	2587.5	0	64.66	2587.42	0
66.52	2587.41	0	87.62	2587.12	0	109.59	2586.93	0
122.4	2586.84	0	124.68	2586.83	0	135.87	2586.74	0

144.65	2586.65	0	144.71	2586.65	0	144.76	2586.65	0
144.8	2586.65	0	145.36	2586.65	0	154.28	2586.54	0
158.9	2586.46	0	166.73	2586.45	0			

Downstream Bridge Cross Section Data
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2579.18	2.16	2579.27	10.36	2579.03	19.38	2578.69	23.21	2578.46
3.01	2578.54	35.93	2578.61	38.6	2578.66	40.58	2578.68	42.3	2578.7
46.89	2578.74	46.93	2578.73	47.2	2578.73	47.35	2578.72	47.59	2578.71
47.88	2578.69	48	2578.68	48.15	2578.68	48.22	2578.68	48.37	2578.68
51.46	2578.59	51.86	2578.59	52.62	2578.59	53.34	2578.58	54.3	2578.59
54.81	2578.59	55.8	2578.59	57.72	2578.58	59	2578.58	60.4	2578.58
60.8	2578.58	61.93	2578.56	63.41	2578.53	70.86	2578.44	71.55	2578.43
72.51	2578.43	73.13	2578.42	79.19	2578.32	79.77	2578.31	80.25	2578.31
80.34	2578.31	80.48	2578.31	80.73	2578.31	80.98	2578.3	93.2	2578.19
93.95	2578.17	95.65	2578.15	95.7	2578.15	96.1	2578.15	96.16	2578.15
98.71	2578.3	101.06	2578.43	105.74	2578.25	107.94	2578.19	112.79	2578.15
119.37	2578.09	120.93	2577.78	130.9	2578.81	130.92	2574.91	131	2572.71
145.08	2572.71	145.09	2574.81	145.09	2578.81	160.99	2578.81		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	130.9	.032	145.09	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
130.9	145.09	.1	.3

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

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	4	10

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
	5	265	.013	.013	0	.5	1

Upstream Elevation = 2580.85
Centerline Station = 72.98
Downstream Elevation = 2572.71
Centerline Station = 139

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 367.45

INPUT
Description:
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2579.18	2.16	2579.27	10.36	2579.03	19.38	2578.69	23.21	2578.46
28.01	2578.54	35.93	2578.61	38.6	2578.66	40.58	2578.68	42.3	2578.7
46.89	2578.74	46.93	2578.73	47.2	2578.73	47.35	2578.72	47.59	2578.71
47.88	2578.69	48	2578.68	48.15	2578.68	48.22	2578.68	48.37	2578.68
51.46	2578.59	51.86	2578.59	52.62	2578.59	53.34	2578.58	54.3	2578.59
54.81	2578.59	55.8	2578.59	57.72	2578.58	59	2578.58	60.4	2578.58
60.8	2578.58	61.93	2578.56	63.41	2578.53	70.86	2578.44	71.55	2578.43
72.51	2578.43	73.13	2578.42	79.19	2578.32	79.77	2578.31	80.25	2578.31
80.34	2578.31	80.48	2578.31	80.73	2578.31	80.98	2578.3	93.2	2578.19
93.95	2578.17	95.65	2578.15	95.7	2578.15	96.1	2578.15	96.16	2578.15
98.71	2578.3	101.06	2578.43	105.74	2578.25	107.94	2578.19	112.79	2578.15
119.37	2578.09	120.93	2577.78	130.9	2578.81	130.92	2574.91	131	2572.71
145.08	2572.71	145.09	2574.81	145.09	2578.81	160.99	2578.81		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	130.9	.032	145.09	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
130.9	145.09	59.06	59.06	59.06	.1	.3

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 308.39

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2577.12	4.69	2577.11	4.73	2577.11	4.78	2577.11	4.83	2577.11
5.23	2577.1	5.44	2577.1	5.54	2577.1	5.73	2577.1	6.25	2577.09
8.69	2577.07	25.18	2576.91	27.19	2576.89	30.36	2576.93	40.23	2576.97
52.7	2576.93	56.26	2576.94	58.54	2576.94	70.05	2577.05	74.44	2577.08
79.39	2577.03	79.74	2577.02	85.53	2576.87	90.4	2576.84	96.48	2576.73
101.24	2576.96	101.52	2576.98	102	2576.97	113.18	2576.89	115.92	2576.37
117.21	2576.15	122.96	2574.79	125.29	2574.26	132.53	2574.24	134.11	2574.23
136.83	2574.25	137.04	2574.25	137.05	2574.25	161.05	2580.25		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	113.18	.032	136.83	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
113.18	136.83	100.18	100.18	100.18	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	81.33	2578	F

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 208.21

INPUT
Description:
Station Elevation Data num= 136

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-500	2579.39	-497.22	2579.6	-496.86	2579.6	-496.08	2579.57	-494.38	2579.56
-479.39	2578.99	-477.46	2578.96	-475.4	2578.99	-467.72	2579.23	-466.19	2579.26
-463.38	2579.26	-459.91	2579.3	-456.77	2579.32	-452.9	2579.37	-450.52	2579.39
-448.91	2579.42	-443.37	2579.46	-439.73	2579.36	-436.11	2579.35	-434.4	2579.35
-433.37	2579.31	-429.23	2579.31	-428.46	2579.26	-411.58	2579.25	-404.52	2579.21
-402.76	2579.23	-402.25	2579.23	-401.16	2579.19	-399.74	2579.1	-397.36	2579.06
-396.35	2579	-395.82	2578.98	-394.61	2578.98	-388.97	2578.82	-387.84	2578.82
-386.4	2578.76	-382.86	2578.57	-380.11	2578.4	-374.53	2578.11	-374.18	2578.11
-370.37	2577.94	-364.38	2577.75	-360.85	2577.69	-359.38	2577.64	-357.62	2577.55
-355.88	2577.43	-355.15	2577.41	-353.95	2577.35	-350.37	2577.28	-347.27	2577.18
-344.06	2577.03	-342.73	2576.95	-339.03	2576.77	-336.16	2576.64	-330.97	2576.43
-327.45	2576.36	-325.05	2576.34	-319.16	2576.33	-318.09	2576.32	-314.45	2576.34
-313.59	2576.36	-284.78	2576.26	-283.29	2576.26	-279.4	2576.32	-274.25	2576.44
-270.41	2576.49	-265.67	2576.25	-264.82	2576.24	-259.85	2576.29	-256.12	2576.31
-237.54	2576.5	-230.18	2576.52	-211.72	2576.67	-200.43	2576.85	-151.58	2576.58
-147.54	2576.42	-146.12	2576.41	-141.34	2576.51	-138.61	2576.52	-132.85	2576.43
-126.14	2576.27	-122.74	2576.32	-116.32	2576.33	-112.8	2576.3	-82.2	2575.71
-79.97	2575.68	-74.58	2575.53	-71.81	2575.52	-68.13	2575.63	-26.48	2575.15
-24.48	2575.13	-23.36	2575.11	-18.28	2575.12	-15.44	2575.09	-8.83	2575.09
-5.98	2575.06	-3.98	2575.01	-.59	2574.89	0	2574.89	14.51	2574.77
23.46	2574.8	24.43	2574.8	24.93	2574.81	26.63	2574.78	28.98	2574.73
31.56	2574.67	32.48	2574.65	34.61	2574.62	34.93	2574.61	37.7	2574.59
40.63	2574.58	42.68	2574.59	45.93	2574.59	46.57	2574.6	48	2574.66
60.31	2574.97	75.23	2575.21	78.44	2575.27	84.92	2574.86	89.32	2574.57
94.95	2573.99	95.91	2573.9	96.8	2573.97	102.01	2574.36	104.27	2574.45
108.3	2574.44	111.02	2574.44	112.52	2574.35	116.32	2574.11	123.58	2573.01
127.57	2572.39	129.48	2572.41	130.8	2572.42	132.52	2572.43	138.56	2572.85
162.56	2578.85								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-500	.04	116.32	.032	138.56	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
116.32	138.56	93.36	93.36	93.36	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
-500	16.97	2578	F

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 114.85

INPUT
Description:
Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1629.52	2577.35	-1606.98	2576.98	-1568.61	2577.11	-1559.49	2576.98	-1554.81	2577.1
-1543.17	2577.12	-1543.03	2577.19	-1520.26	2576.56	-1515.81	2576.56	-1497.65	2576.11
-1492.57	2575.14	-1489.6	2574.44	-1482.01	2572.87	-1468.31	2569.39	-1435.84	2569.76

-1420.68	2570.39	-1404.94	2571.62	-1385.85	2572.85	-1364.86	2574.06	-1353.48	2574.94
-1350.02	2575.04	-1347.85	2575.29	-1342.32	2575.5	-1315.9	2575.92	-1296.58	2575.37
-1225.46	2574.49	-1141.31	2574.54	-1116.76	2574.12	-1107.49	2574.13	-1096.44	2573.97
-1054.01	2574.81	-1036.56	2574.18	-1029.68	2574.14	-1021.35	2574.33	-999.36	2574.15
-947.99	2574.05	-928.47	2573.78	-878.51	2574.62	-857.03	2574.86	-828.96	2574.86
-821.16	2574.73	-776.39	2574.55	-771.37	2574.43	-738.25	2574.35	-712.08	2574.44
-706.319	2574.3	-680.2	2574.35	-663.73	2574.24	-641.04	2574.29	-594.63	2573.57
[illegible]83.9	2573.94	-576.04	2573.88	-560.49	2574.06	-527.97	2573.9	-499.41	2573.64
[illegible].06	2573.1	-456.1	2573.08	-445.91	2572.83	-435.2	2572.73	-422.27	2572.92
[illegible]5.61	2572.71	-398.6	2572.5	-380.58	2572.61	-377.22	2572.53	-344.26	2572.7
-319.52	2572.38	-243.26	2572.72	-225.96	2573.01	-200.189	2573.02	-159.1	2573.67
-151.87	2573.56	-129.319	2573.5	-114.56	2573.61	-89.01	2573.37	-76.7399	2573.45
-74.5999	2573.38	-56.5	2573.47	-39.6999	2573.37	-18.87	2573.62	-9.06994	2573.59
0	2573.35	1.58	2573.34	3.72	2573.32	6.31	2573.3	25.99	2573.02
26.87	2573.02	31.61	2572.99	32.44	2572.96	33.25	2572.93	33.89	2572.93
38.7	2573.05	39.24	2573.05	43.92	2573.02	49.76	2573.12	49.97	2573.12
50.14	2573.11	50.28	2573.11	50.52	2573.11	50.72	2573.11	50.93	2573.12
59.43	2573.28	62.69	2573.35	63.4	2573.37	63.48	2573.36	69.22	2573.45
69.88	2573.45	74.15	2573.47	75.36	2573.48	78.88	2573.52	86.45	2573.47
86.77	2573.47	87.3	2573.48	88.18	2573.48	89.64	2573.52	97.34	2573.63
101.91	2573.77	104.57	2573.76	105.02	2573.77	108.99	2573.86	109.09	2573.86
110.28	2573.89	112.88	2573.92	113.65	2573.92	113.95	2573.92	116.34	2573.95
123.91	2573.91	135.17	2573.88	138.61	2573.89	139.69	2573.94	141.52	2573.97
145.44	2574.03	151.44	2574.23	160.89	2573.41	161.76	2573.34	162.67	2573.29
162.87	2573.27	166.58	2572.93	168.9	2572.65	173.77	2572.05	174.28	2571.99
181.46	2572.72	188.08	2573.35	188.52	2573.4	191.67	2573.45	192.222	573.461
208.222	577.461								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1629.52	.04	151.44	.032	192.22	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
151.44	192.22	5	111.25	150	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
-1629.52	-11.81	2578	F

CROSS SECTION

RIVER: Stream
REACH: Reach RS: 3.61

[illegible]
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2572.97	3.32	2572.94	3.71	2572.93	5.79	2572.88	13.98	2572.66
20.48	2572.67	21.27	2572.66	27.93	2572.61	33.93	2572.05	46.34	2570.82
46.84	2570.85	47.85	2570.9	53.01	2571.18	53.38	2571.2	55.32	2571.29
60.02	2571.44	62.24	2571.53	68	2571.74	71.44	2571.87	76.39	2572.09
82.69	2572.41	85.77	2572.55	87.08	2572.6	94.58	2572.9	102.86	2573.26
106.22	2573.37	111.82	2573.49	112.06	2573.49	114.17	2573.54	115.52	2573.57
124.7	2573.76								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	27.93	.032	82.69	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
27.93	82.69	3.61	3.61	3.61	.1	.3

SUMMARY OF MANNING'S N VALUES

River:Stream

Reach	River Sta.	n1	n2	n3
Reach	634.56	.012	.012	.012
Reach	470	Culvert		
Reach	367.45	.04	.032	.04
Reach	308.39	.04	.032	.04
Reach	208.21	.04	.032	.04
Reach	114.85	.04	.032	.04
Reach	3.61	.04	.032	.04

[illegible]le Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)				

(ft/s) (sq ft) (ft)

Reach	634.56		100Yr w/ 10TW	275.00	2580.85	2585.26	2583.70	2585.86	0.000817			
6.24	44.06	10.00	0.52									
Reach	634.56		10Yr w/ 100TW	125.00	2580.85	2583.46	2582.54	2583.81	0.000733			
4.80	26.04	10.00	0.52									
Reach	634.56		100Yr w/ 100TW	275.00	2580.85	2585.26	2583.70	2585.86	0.000817			
6.24	44.06	10.00	0.52									
Reach	470			Culvert								
Reach	367.45		100Yr w/ 10TW	275.00	2572.71	2577.05		2577.36	0.002472			
4.48	61.45	14.18	0.38									
Reach	367.45		10Yr w/ 100TW	125.00	2572.71	2578.93		2578.95	0.000140			
1.23	148.90	147.95	0.09									
Reach	367.45		100Yr w/ 100TW	275.00	2572.71	2578.88		2578.99	0.000723			
2.78	141.95	146.70	0.20									
Reach	308.39		100Yr w/ 10TW	275.00	2574.23	2576.32	2576.32	2577.04	0.012778			
7.14	42.11	29.11	0.99									
Reach	308.39		10Yr w/ 100TW	125.00	2574.23	2578.94	2575.57	2578.94	0.000022			
0.54	363.24	155.81	0.05									
Reach	308.39		100Yr w/ 100TW	275.00	2574.23	2578.94	2576.32	2578.95	0.000106			
1.19	362.59	155.79	0.11									
Reach	208.21		100Yr w/ 10TW	275.00	2572.39	2576.08	2574.66	2576.12	0.000360			
1.90	229.54	253.08	0.19									
Reach	208.21		10Yr w/ 100TW	125.00	2572.39	2578.94	2573.84	2578.94	0.000001			
0.14	1700.06	555.78	0.01									
Reach	208.21		100Yr w/ 100TW	275.00	2572.39	2578.94	2574.66	2578.94	0.000004			
0.30	1700.88	555.83	0.02									
Reach	114.85		100Yr w/ 10TW	275.00	2571.99	2576.10	2573.76	2576.10	0.000042			
0.63	563.03	1700.33	0.06									
Reach	114.85		10Yr w/ 100TW	125.00	2571.99	2578.94	2573.46	2578.94	0.000000			
0.02	9217.47	1837.74	0.00									
Reach	114.85		100Yr w/ 100TW	275.00	2571.99	2578.94	2573.76	2578.94	0.000000			
0.04	9220.61	1837.74	0.00									
Reach	3.61		100Yr w/ 10TW	275.00	2570.82	2576.09	2572.58	2576.10	0.000035			
0.74	457.96	124.70	0.06									
Reach	3.61		10Yr w/ 100TW	125.00	2570.82	2578.94	2572.11	2578.94	0.000001			
0.19	813.34	124.70	0.01									
Reach	3.61		100Yr w/ 100TW	275.00	2570.82	2578.94	2572.58	2578.94	0.000006			
0.42	813.34	124.70	0.03									

Profile Output Table - Standard Table 2

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Reach	634.56	100Yr w/ 10TW	2585.86	2585.26	0.61				275.00		10.00
Reach	634.56	10Yr w/ 100TW	2583.81	2583.46	0.36				125.00		10.00
Reach	634.56	100Yr w/ 100TW	2585.86	2585.26	0.61				275.00		10.00
Reach	470		Culvert								
Reach	367.45	100Yr w/ 10TW	2577.36	2577.05	0.31	0.28	0.04		275.00		14.18
Reach	367.45	10Yr w/ 100TW	2578.95	2578.93	0.02	0.00	0.01	16.33	108.47	0.20	147.95
Reach	367.45	100Yr w/ 100TW	2578.99	2578.88	0.11	0.01	0.03	31.68	243.12	0.20	146.70
Reach	308.39	100Yr w/ 10TW	2577.04	2576.32	0.72	0.11	0.21				

236.33 38.67 29.11
Reach 308.39 10Yr w/ 100TW 2578.94 2578.94 0.00 0.00 0.00 60.56
50.84 13.60 155.81
Reach 308.39 100Yr w/ 100TW 2578.95 2578.94 0.01 0.00 0.00 133.13
111.95 29.92 155.79

ach 208.21 100Yr w/ 10TW 2576.12 2576.08 0.03 0.01 0.01 120.75
36 19.89 253.08
each 208.21 10Yr w/ 100TW 2578.94 2578.94 0.00 0.00 0.00 101.45
18.43 5.11 555.78
Reach 208.21 100Yr w/ 100TW 2578.94 2578.94 0.00 0.00 0.00 223.21
40.54 11.25 555.83

Reach 114.85 100Yr w/ 10TW 2576.10 2576.10 0.00 0.00 0.00 192.96
78.12 3.92 1700.33
Reach 114.85 10Yr w/ 100TW 2578.94 2578.94 0.00 0.00 0.00 119.97
4.49 0.54 1837.74
Reach 114.85 100Yr w/ 100TW 2578.94 2578.94 0.00 0.00 0.00 263.92
9.88 1.20 1837.74

Reach 3.61 100Yr w/ 10TW 2576.10 2576.09 0.01 42.80
179.82 52.38 124.70
Reach 3.61 10Yr w/ 100TW 2578.94 2578.94 0.00 20.68
75.44 28.88 124.70
Reach 3.61 100Yr w/ 100TW 2578.94 2578.94 0.00 45.50
165.97 63.54 124.70

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : SHWP Alt 1

River: Stream Reach: Reach RS: 470 Profile: 100Yr w/ 10TW
Note: During the supercritical calculations a hydraulic jump occurred at the outlet of (leaving) the culvert.
River: Stream Reach: Reach RS: 470 Profile: 100Yr w/ 10TW Culv: Culvert #1
Note: The flow in the culvert is entirely supercritical.
River: Stream Reach: Reach RS: 470 Profile: 10Yr w/ 100TW Culv: Culvert #1
Note: During supercritical analysis, the culvert direct step method went to normal depth. The program then a ed normal
depth at the outlet.
Note: During the supercritical calculations a hydraulic jump occurred inside of the culvert.
River: Stream Reach: Reach RS: 470 Profile: 100Yr w/ 100TW Culv: Culvert #1
Note: During the supercritical calculations a hydraulic jump occurred inside of the culvert.
River: Stream Reach: Reach RS: 367.45 Profile: 100Yr w/ 10TW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Stream Reach: Reach RS: 367.45 Profile: 10Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Stream Reach: Reach RS: 367.45 Profile: 100Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Stream Reach: Reach RS: 308.39 Profile: 100Yr w/ 10TW
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
R : Stream Reach: Reach RS: 308.39 Profile: 10Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: Stream Reach: Reach RS: 308.39 Profile: 100Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 208.21 Profile: 100Yr w/ 10TW
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Stream Reach: Reach RS: 208.21 Profile: 10Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 208.21 Profile: 100Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 114.85 Profile: 100Yr w/ 10TW
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 114.85 Profile: 10Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Stream Reach: Reach RS: 114.85 Profile: 100Yr w/ 100TW
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of 12

Made by Bambuwa

Date 12 May 09

Checked by J. Blau

Date 5/14/09

Subject Houghton Rd Tv – Speedway / 5th
Houghton Speedway to 5th
Proposed Drainage Scheme

PRELIMINARY CULVERT DESIGN @ PACKARD STREET

Q_{100} = 99.1 cfs ~ 100 cfs (INCLUDES 100% Roadway Contributing)

HW/D ~ 1.0 FOR INLET CONTROL → 10' BW or 8' BW CONC. LINED CHANNEL APPROACHING CULVERT

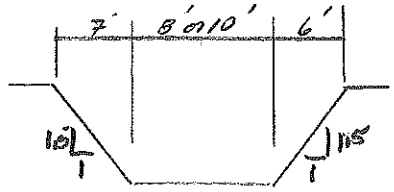
TRY 2-36" RCPS HW/D = 1.35 → HW = 4.05' Too High

TRY 3-30" RCPS HW/D = 1.42 → HW = 3.55' May be ?
3-30" GROOVE END H/W HW/D = 1.28 → HW = 3.2' ✓ ok

TRY 3-36" RCPS HW/D = 0.95 → HW = 2.85' ✓ ok

CHECK CAPACITY OF APPROACH CHANNEL

TYPICAL SECTION



S_0 = 3.5% ±
n = 0.018
Q_{100} = 100 → Qn = 1.8

PACKARD ST.

$d/B_{8'}$ = 0.10 → d = 0.8'
$d/B_{10'}$ = .075 → d = 0.75'

S_0 ~ 3.5% ±
n = .018
Q_{100} = 194.1 ~ 200 cfs
Qn = 3.6

CIRCLE 'K'

$d/B_{8'}$ = 0.15 → d = 1.2'
$d/B_{10'}$ = 0.11 → d = 1.1'
V_{10} = 15 fps

$FB = 1/6\left(y_{max} + \frac{V^2}{2g}\right)$

$FB = 1/6\left(1.1 + 15^2/64.4\right) = 0.76$ use 1'

PARSONS BRINCKERHOFF COMPUTATION SHEET

Made by Bamberger
Date 12 May 09
Checked by JB
Date 5/14/09

Subject Houghton Rd TV - Speedway / 5th
Houghton Speedway to 5th
Proposed Drainage Scheme

Channel Backslope Catch pt.

STA	OFFSET, RT
102+50	~~98.31~~
3+00	98.31
+50	99.95
4+00	99.84
+50	98.54
5+00	98.27
+50	96.08
6+00	94.35
+50	92.77
7+00	91.18
+50	91.00
8+00	96.30
+50	94.30
9+00	90.25
+50	89.69
110+00	89.46
+50	89.14
11+00	83.40
+50	87.69
12+00	87.17
+50	99.85
13+00	100.35
+50	88.86
14+00	
+50	
15+00	
+50	
16+00	

FL/GL = 66' RT
FL/GL = 66' RT

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject: HOUGHTON Rd TV-SPEEDWAY / 5TH
HOUGHTON SPEEDWAY TO 5TH
PROPOSED DRAINAGE SCHEME

Page 3 of 12
Made by Bombauer
Date 12 May 09
Checked by J.B.
Date 5/14/09

Cost Comparison:

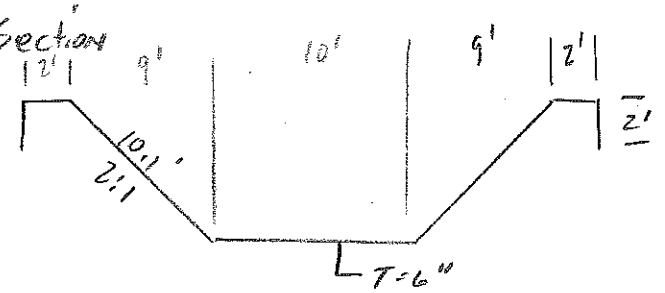
Open Channel (STA 102+40 to STA 115+60 ±)

Culvert UNDER Packard St. STA 112+17 to STA 113+05
→ Preliminary Sizing 3 - 30" x 90' RCPS w/headwalls

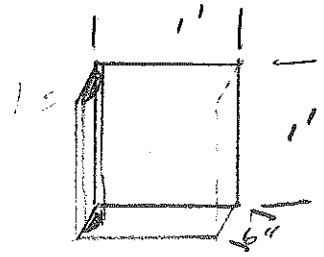
L - 30" RCP = 270 LF x $195/LF = $39,150

Headwall 2 x B-11.11 Single HW 2.1 CY ΔC = 0.5 CY
Vol Conc. = 2.1 + 2(0.5) = 3.1 CY x $350
lbs Steel = 97 + 2(19) = 135 lbs x $1.00/lb = $1,220 ±
USE $5000 per Costen
USE 2x5K = $10,000

CHANNEL Section



#4 bars @ 12" OC EAWY



L = 2+2+10+10+10+2+2 = 38'
T = 6"

A_{sect} = (0.5)(38) = 19 sq ft

Weight of Steel / CY conc.

1' x 1' x .5/27 = 0.019 CY

1 LF #4 bar each way
Wt = 2 x 0.668 lbs/LF
1.336 lbs / .019 CY = 70.3 lbs/CY

Length = (11560 - 10240) - 90' = 1230 LF
Vol = (19)(1230) = 23,370 ft³/27 = 865.6 CY

Conc 865.6 CY x $350 = $302,960
Steel = 865.6 CY x 70.3 lbs/CY x $1.00/lbs = $60,592

Cost Channel = 302960 + 60592 = $363552

PARSONS BRINCKERHOFF COMPUTATION SHEET

Made by Bambauer
Date 12 MAY 09
Checked by J.B.
Date 5/14/09

Subject HOUGHTON Rd TV- SPEEDWAY / 5TH
HOUGHTON SPEEDWAY TO 5TH
PROPOSED DRAINAGE SCHEME

Drainage Excavation ($20/CY)
Est @ y_{max} = 4.5'

Vol = A x L ; A = 10(4.5) + (2)(4.5)² = 85.5 ✓
L = 1230'

Vol = 85.5 x 1230 / 27 = 3,895 CY ✓

Cost = $20 x 3,895 = $77,900 ✓

Summary Channel option

Conc. Channel = $363,552
Culvert @ Packard = $ 49,150
Drn Excavation = 77,900

$490,602 ~ $500,000 ∴ ✓

(ASSUME NO HANDRAIL)

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject HOUGHTON Rd TV - SPEEDWAY/5TH
HOUGHTON SPEEDWAY TO 5TH
PROPOSED DRAINAGE SCHEME

Page 5 of 12
Made by Bambauer
Date 12 May 09
Checked by J.B.
Date 5/14/09

Stormdrain Alternative --

- Compare open channel option w/ Stormdrain option

Benefits:

1. Aesthetically Pleasing
2. More Space for Vegetation
3. Minor Swale for parking drainage

Subject Houghton Rd JV-Speedway/5th
Houghton Speedway to 5th
Proposed Drainage Scheme

Roadside Channel Cost Comparison w/ undergrounding the Drainage Facilities.

100-year Stormdrain Preliminary Sizing

USE: $Q = \frac{K_Q}{n} D^{2.67} S_o^{0.5}$ $n = .015$ (25% increase for minor losses)
$K_Q = 0.4644$

Reach	Q_{100}	S_o	Diam Calc	Diam Used
Speedway to Driveway	200 cfs	3.5%	3.77	48" (FF)
Driveway + Casa outlet	200 cfs	3.5	3.77	48" (FF)
Casa outlet to Packard	110 cfs	2.0	3.34	42" (FF)
US of Packard	100 cfs	3.5	2.91	36" (FF)

Area 48" = 12.57 sq ft $V_{Q=100}$ = 15.9 fps V_h = 3.9'

Area 42" = 9.62 sq ft $V_{Q=100}$ = 11.4 fps V_h = 2.0'

Note hydraulic losses will be high based on 100-year velocities → Upsize Pipes/Boxes for Reduction in Velocity

$A_{4'x4' box}$ = 16 sq ft

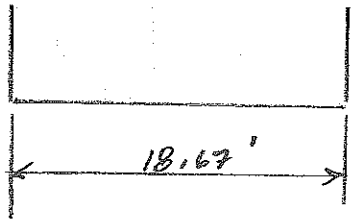
→ Another approach would be to add Roughness Elements to a Box Culvert to Reduce Velocities (HEC-14 Chapter VII).

Subject Houghton Rd TV- Speedway/5th
Houghton Speedway to 5th
Proposed Drainage Scheme

Inlet Design Casas De Santos outlet channel

$Q_{100} = 65.6$ cfs ~ 66 cfs

Approach Section



$Q_{100} = 66$ cfs
$n = 0.013$
$S_o = 1.13\%$ (As-Built)
$y_n = 0.53'$
$V_n = 6.67$ fps

Size Weir to Capture Flow From Casas De Santos

Specific Head: $y_n + \frac{V_n^2}{2g} = 0.53 + \frac{6.67^2}{64.4} = 1.22'$ ✓

Weir Flow: $Q_w = 3.0\, L\left[\left(y + \frac{V_{app}^2}{2g}\right)^{3/2} - \left(\frac{V_{app}^2}{2g}\right)^{3/2}\right]$; Accounts for Approach Velocity -.

$66 = (3.0)(L)\left(1.22^{3/2} - 0.69^{3/2}\right)$ ✓

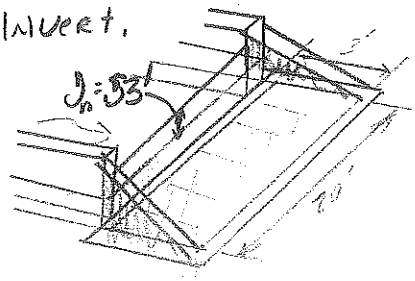
$L = 28.4'$

w/50% Clogging $L = 2 \times 28.4 = 56.8 \sim 57'$ ✓

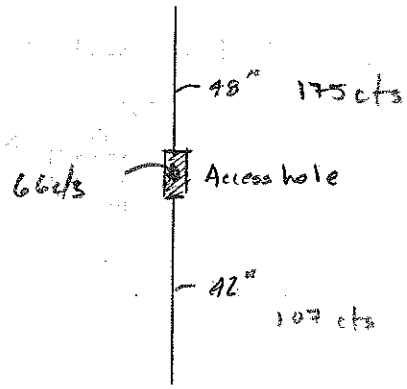
Use: 10- EF-1 Grates Set below channel Invert.

Perimeter $= 2(10 \times 2) + 2(3) = 46'$

$y_{weir\ 50\%\ clogging} = 0.97 \rightarrow$ Depress 6" ± below Channel.



Subject HOUGHTON Rd TV - SPEEDWAY / 5TH
HOUGHTON SPEEDWAY TO 5TH
PROPOSED DRAINAGE SCHEME



$y_{48''} = 2.6'$

$A_{48} = 12.57$ sq ft

$V_{48''} = 20.4$ fps

$V_{h_{48''}} = 6.5'$

$y_{42} = 2.4'$ *

$A_{36} =$

$V_{36} = 17.5$ fps *

$V_{h_{36}} = 4.8'$ *

$$H_{Ah} = K\left(\frac{V_o^2}{2g}\right)$$

$$K = K_o\, C_D\, C_d\, C_Q\, C_P\, C_B$$

$$K_o = 0.1\left(\frac{b}{D_o}\right)(1-\sin\theta) + 1.4\left(\frac{b}{D_o}\right)\sin\theta \;;\quad b = D_o = 4' \quad \theta = 180^\circ$$

$$K_o = 0.1$$

$$C_D = 1.0$$

$$C_d = 0.5\left(\frac{d_{ahw}}{D_o}\right)^{0.6} \;;\quad d_{ahw} = 2.6' \quad D_o = 4.0$$

$$C_d = 0.5\left(\frac{2.6}{4.0}\right)^{0.6} = 0.39 \sim$$

$$C_Q = (1-2\sin\theta)\left(1-\frac{Q_i}{Q_o}\right)^{0.75} + 1 \;;\quad \theta = 180^\circ \quad Q_i = 107 \quad Q_o = 175$$

$$= (1)\left(1-\frac{107}{175}\right)^{0.75} + 1 = 1.49$$

$$C_P = 1 + 0.2\left(\frac{h}{D_o}\right)\left(\frac{h - d_{aho}}{D_o}\right) \; ; \; h = 3.5' \quad d_{aho} = 2.6' \quad D_o = 4.0$$

$$= 1 + 0.2\left(\frac{3.5}{4}\right)\left(\frac{3.5 - 2.6}{4.0}\right) = 1.04$$

$C_B = 1.0$ FLAT → NO BENCH

$$K = (0.1)(1.0)(0.39)(1.49)(1.04)(1.0) = 0.06$$

$$H_{th} = 0.06\left(\frac{20.4^2}{64.4}\right) = 0.4' \therefore$$

No major losses Through Str. provided Partial Flow in DS Pipe.

→ Assume Full Flow in outlet Pipe

$V_o = 13.9$ fps

Coefficients: $K_o = 0.1$

$C_D = 1.0$

$C_d = 0.5\left(\frac{4.0}{4.0}\right)^{0.6} = 0.5$

$C_Q = 1.49$

$C_P = 1.0$

$C_B = 1.0$

$K = 0.07$

$$H_{th} = 0.07\left(\frac{13.9^2}{64.4}\right) = 0.21$$

No major losses ∴

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 10 of 12

Made by [illegible]

Date 12 May 09

Checked by J.B.

Date 5/14/09

Subject Houghton Rd TI – Speedway / 5th
Houghton Speedway to 5th
Proposed Drainage Scheme

Cost Analysis of SD Trunk Alternative --

STA 102+90 to STA 108+75 ± → 48" RCP

Special Inlet @ STA 108+75 ± → Junction w/ Casas De Santo

STA 108+75 to STA 115+60 ± → 36" RCP

48" pipe : LF = 585 LF w/ 2 MHs (300' max SD spacing)
42" Pipe : LF 425 LF w/ 2 MHs
36" pipe : LF = 260 LF w/ 1 MH (300' max SD Inlet Spacing)

Note 18" SD can "Tap" into 48" No Junction / MH Required
→ 24" cannot → use MHs to connect Point System to Trunk Line.

MHs 5 x $8,500 = $42,500

48" SD 585 LF x $200/LF = $117,000
42" SD 425 LF x $175/LF 74,375
36" SD 260 LF x $160/LF = $41,600

Inlet @ STA 108+75 ± = $25,000

$300,475 ~ $300,000

Est. 5 Area Inlets @ 2k each 10,000

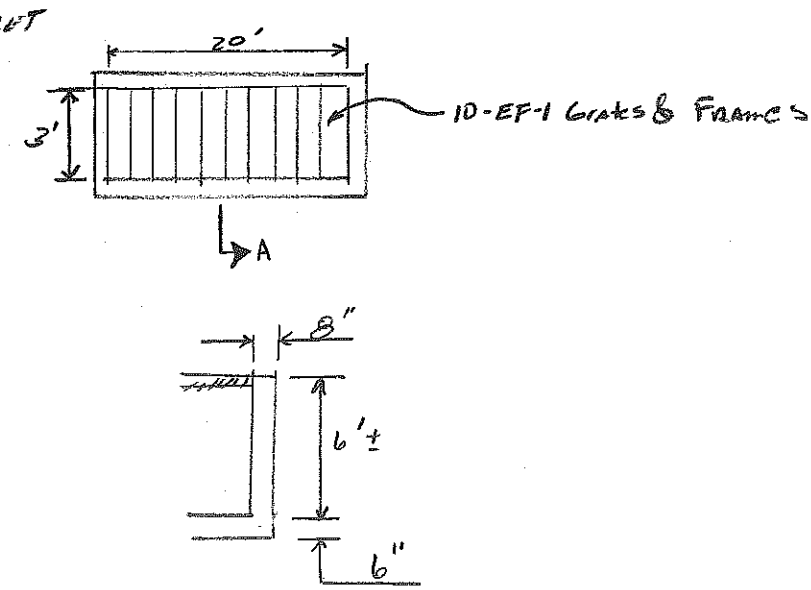
$300 - 350k System Less

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 11 of 12
Made by Bi-bauer
Date 12 May 09
Checked by J.B.
Date 5/14/09

Subject HOUGHTON Rd +V - SPEEDWAY / 5TH
HOUGHTON SPEEDWAY TO 5TH
PROPOSED DRAINAGE SCHEME

SPECIAL INLET



Bottom: (21'-4") x (4'-4") = 21.33 x 4.33 = 92.36 sq ft
T = 6" Vol = 92.36 sq ft x 0.5 ft = 46.18 CFT

Side Walls: L = 21'-4", T = 8", H = 6'
Vol = 6' x 21.33 x .67' = 85.75 CFT
2 walls Vol = 85.75 CFT x 2 = 171.5 CFT

End Walls: L = 3', T = 8", H = 6'

Vol = 2 (6' x 3' x 0.67) = 24.12 CFT

Total Vol Conc: 46.18 + 171.5 + 24.12 = 241.8 CFT → 8.96 ~ 9 CY
Cost 9 x $350 = 3,150

STEEL: use 1.34 lbs/cy x 1.5 (50% increase for tighter spacing)
use 2.10 lbs/cy

18 lbs steel @ $1.00/lb = $18

Est of $500/grate & Frame → 10 x $1000 = $10,000

use $15,000 for Inlet

12/12

FHWA Urban Drainage Design Program, HY-22
HYDRAULIC PARAMETERS OF OPEN CHANNELS

Trapezoidal, Rectangular, or Triangular X-Section
Date: 04/02/2009

Project No. :11515
Project Name.:Houghton Road Tanque Verde Road to 5th S
Computed by :Bambauer

Project Description
Casas De Santo - Outlet Channel
18'-8" Rectangle Channel

INPUT PARAMETERS

1.	Channel Slope (ft/ft)	0.0113
2.	Channel Bottom Width (ft)	18.67
3.	Left Side Slope (Horizontal to 1)	0.00
4.	Right Side Slope (Horizontal to 1)	0.00
5.	Manning's Coefficient	0.015
6.	Discharge (cfs)	66.00
7.	Depth of Flow (ft)	0.53

OUTPUT RESULTS

Cross Section Area (Sqft)	9.90
Average Velocity (ft/sec)	6.67
Top Width (ft)	18.67
Hydraulic Radius (ft)	0.50
Froude Number	1.61

FIGURE C–2

Proposed Flowrates From Corresponding Watersheds

Q100

5/15/2009 r:\Houghton_Tanque-Speedway\Drainage\Report Figures\11515_FIGURE-C-2.dgn

C-3

Vista Verde Estates

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of 1

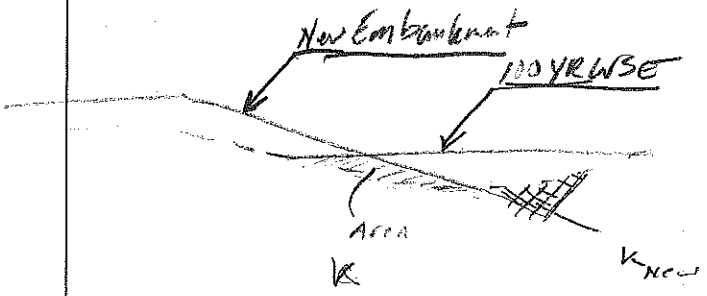
Made by [illegible]

Date 12 Jun 09

Checked by

Date

Subject Houghton Rd TV-SW
Vista Verde Work -
Flood Plain Encroachment



	WSE	Dist	Slope WSE
W4	16.6	102'	3.29%
W5	19.9	102	3.09%
W6	23.0		

Equal Conveyance Replacement Concept

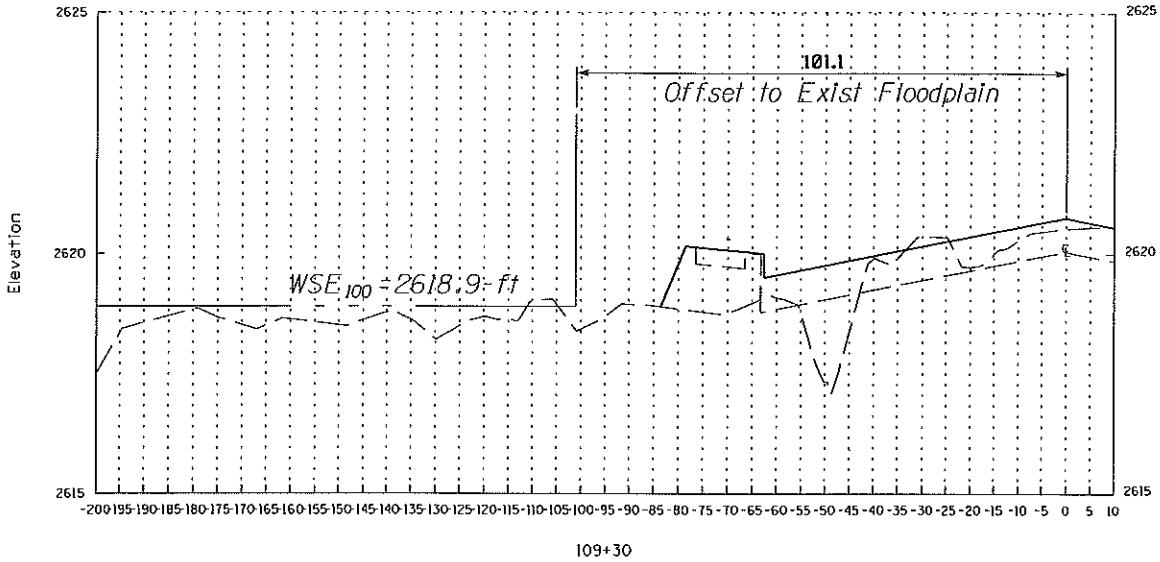
XSEC STA'S

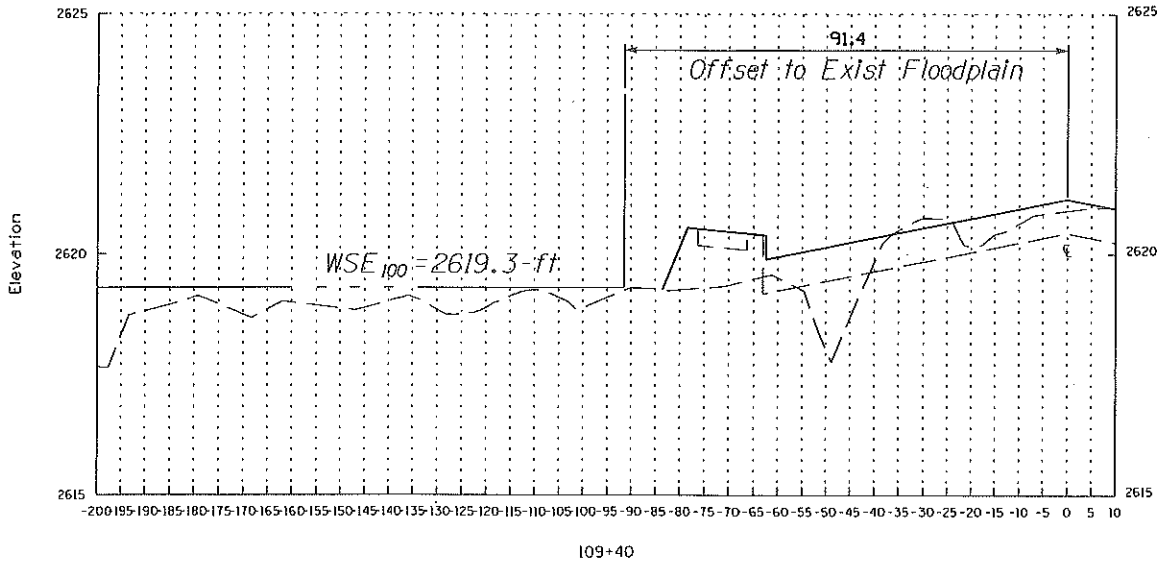
30		18.9	96.1
109+40		19.3	91.4
109+50		19.5	86.6
109+62.8 →	W5 WSE	2619.9	80.5
109+70		20.1	85.1 Lt
109+80		20.4	91.0 Lt
90		20.7	(97.1' Lt)

See Cross Sections for Comparison of Existing Floodplain and Proposed Roadway.

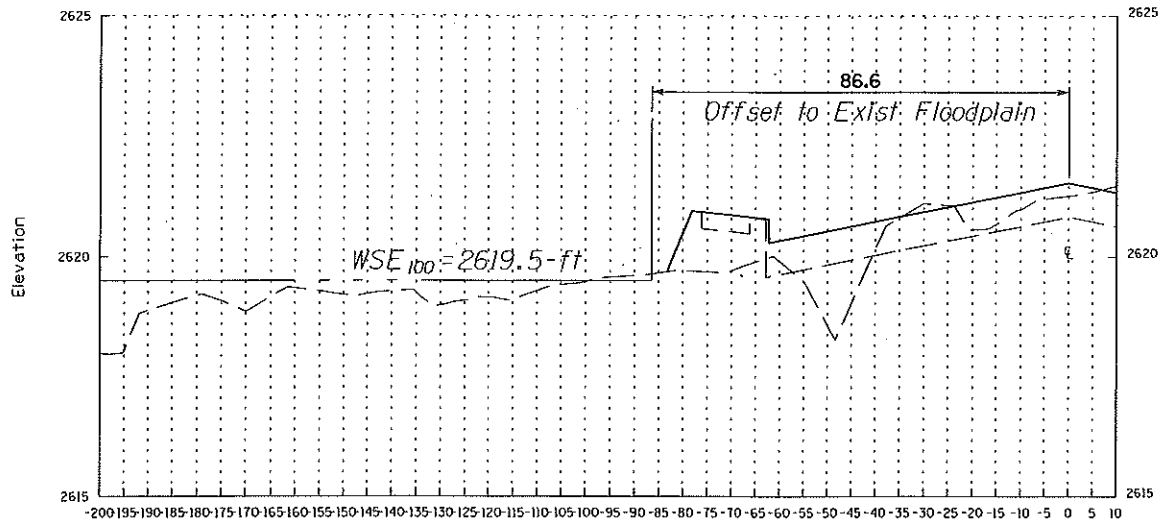
Minimal Impact → No Need to perform hydraulic analysis for DCR. Recommend Modeling Floodplain in final design to confirm "No Adverse Impact." IF negative impact during final design → use Equal Conveyance concept backed up w/ hydraulic model to show improvements negate adverse impacts.

VISTA VERDE DEVELOPMENT FLOODPLAIN ENCROACHMENT EVALUATION



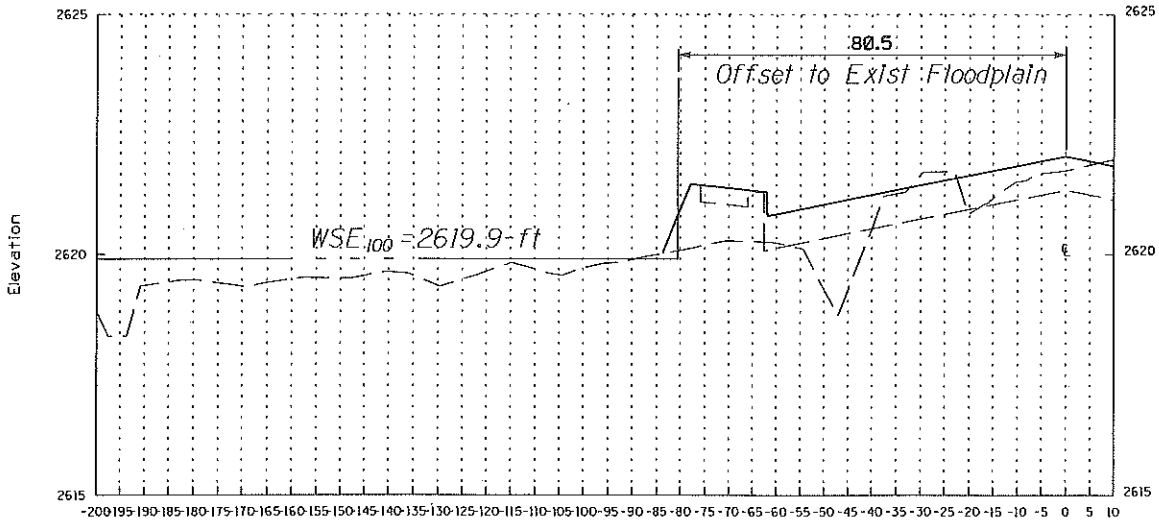


VISTA VERDE DEVELOPMENT FLOODPLAIN ENCROACHMENT EVALUATION



109+50

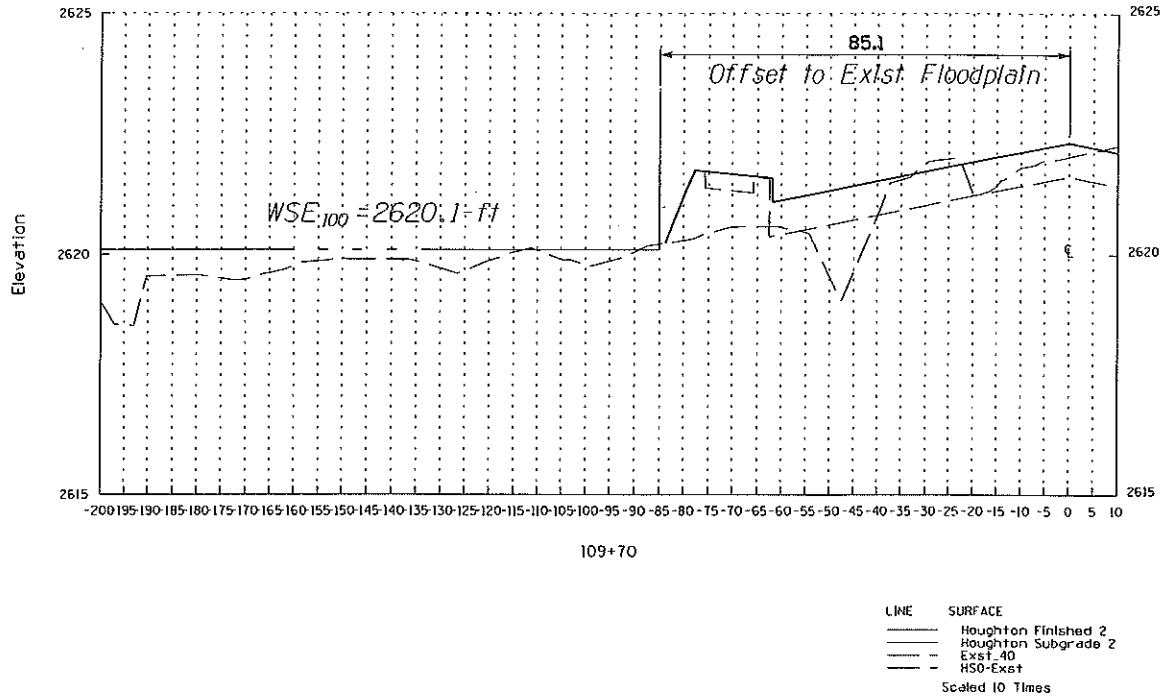
LINE SURFACE
Houghton Finished 2
Houghton Subgrade 2
Exst_40
HSO-Exst
Scaled 10 Times

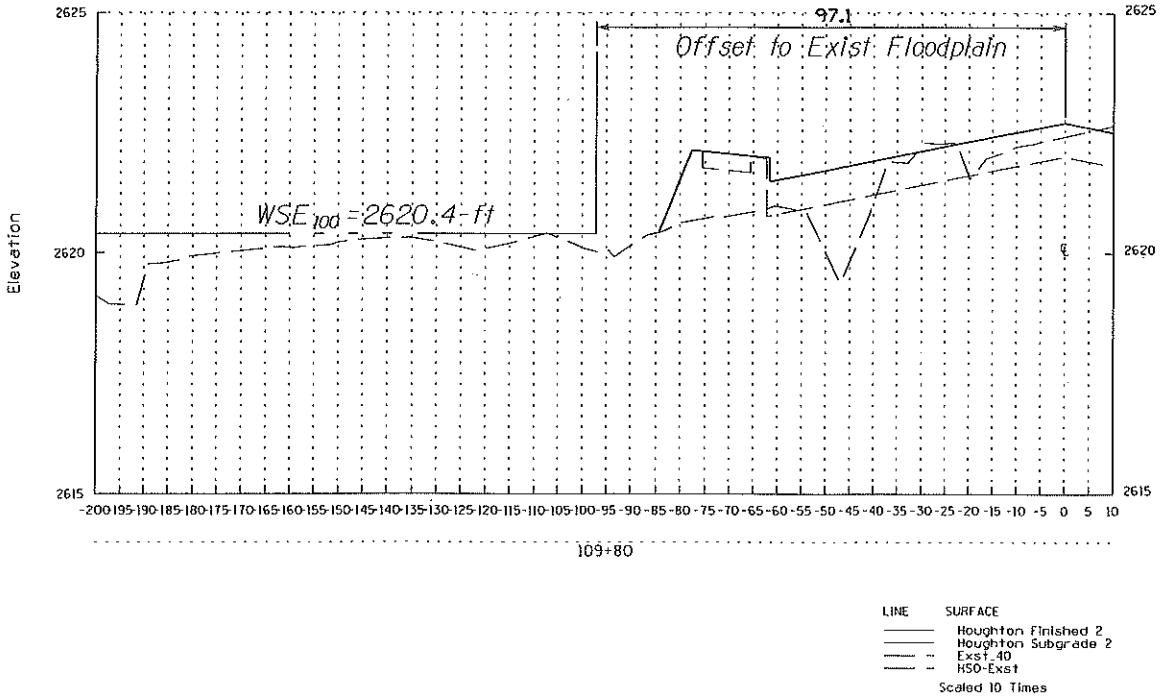


109+63

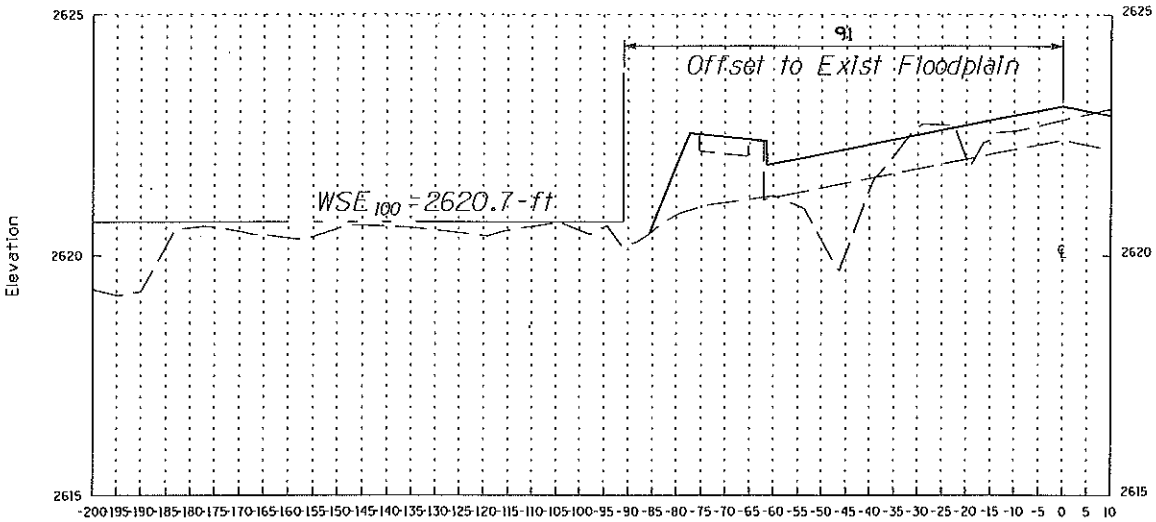
LINE SURFACE
Houghton Finished 2
Houghton Subgrade 2
Exst_40
HSO-Exst
Scaled 10 Times

VISTA VERDE DEVELOPMENT FLOODPLAIN ENCROACHMENT EVALUATION





VISTA VERDE DEVELOPMENT FLOODPLAIN ENCROACHMENT EVALUATION



109+90

LINE	SURFACE
———	Houghton Finished 2
———	Houghton Subgrade 2
— —	Exst_40
— —	HSO-Exst

Scaled 10 Times

C-4

Windstorm Drive

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of 1

Made by Bambauer

Date 10-APR-09

Checked by J. Blau

Date 5-13-09

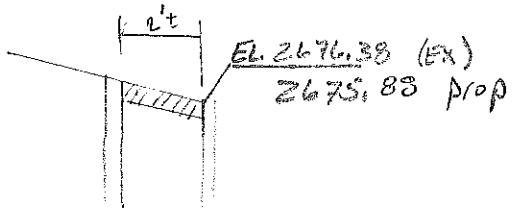
Subject Houghton Road - Tv → 5th
CP A Proposed Hydraulics

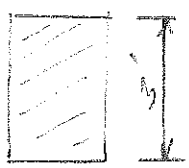
$Q_{100} = 5.1$ cfs

$Q_{10} = 1.9$ cfs

* Majority of Existing Drainage Area Cut-off from Proposed Roadway

Use off roadway area inlet placed on 4:1 slope





$Q_W = 3.0\,L\,y^{3/2}$; $L = 3' \times 50\%$ Clogging $= 1.5'$

$5.1 = (3.0)(1.5)(y^{3/2})$ using bottom weir only

$y = 1.09$

Depress inlet by 6" → ± 6" ponding ∴

SD Pipe: $S_o = 0.5\%$! , $n = .015$ ($n = .012$ ↑ 25%)

$$Q = \frac{0.4644}{n} D^{2.67} S^{1/2}$$

$$5.1 = \frac{0.4644}{0.015} D^{2.67} (.005)^{1/2} \rightarrow D = 1.37' \quad \text{USE } 18'' \phi$$

$HW/D_{18} \approx 0.9 \rightarrow HW_{14-18} = 1.4'$! USE 18" RCP ∴

APPENDIX D

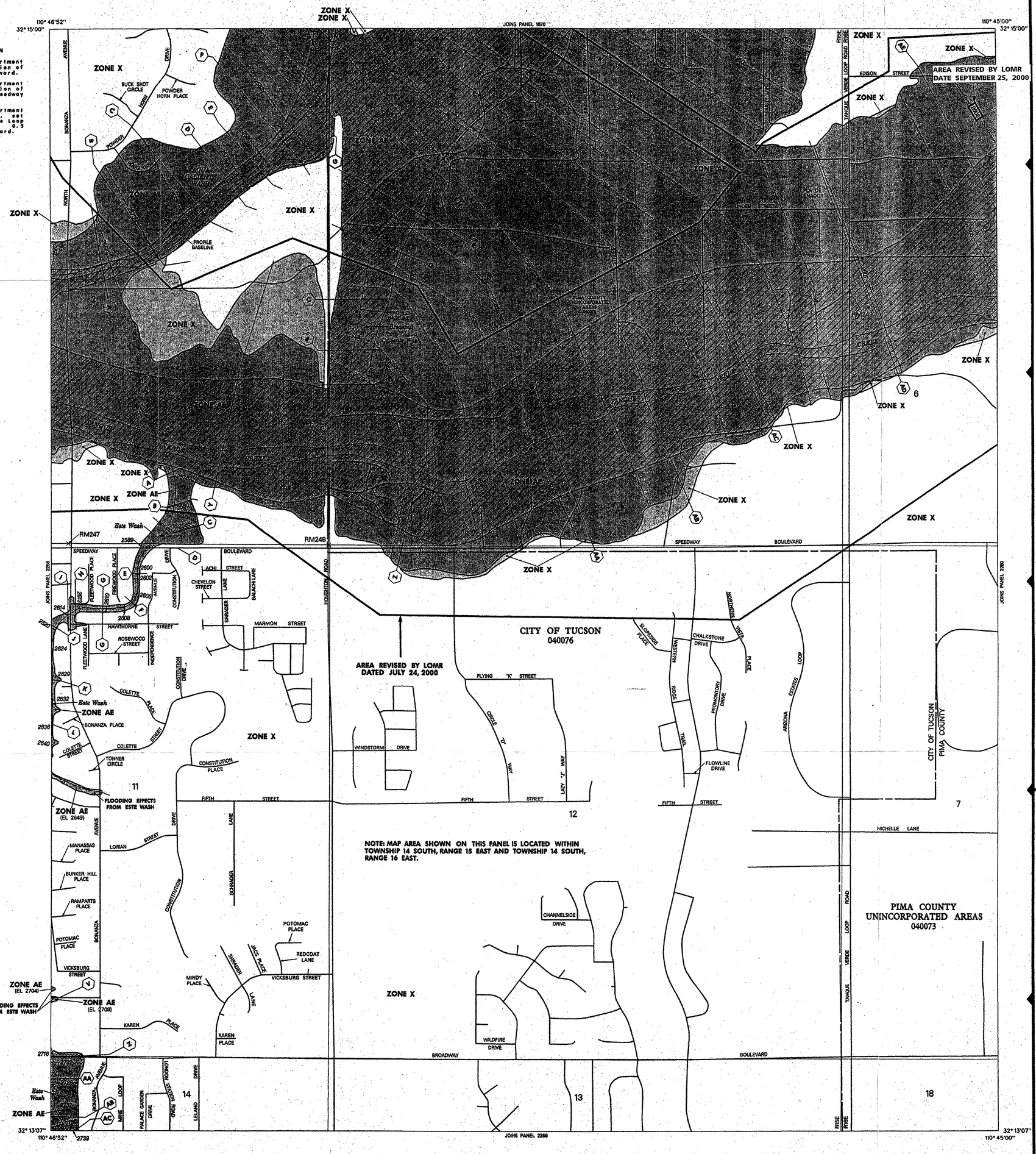
AGUA CALIENTE WASH

A B C D E F G

1 2 3 4 5 6

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM247	2598.80	Pima County Highway Department brass disk, set in intersection of Jones Road and Speedway Boulevard.
RM248	2583.09	Pima County Highway Department brass disk, set in intersection of Houghton Road and Speedway Boulevard.
RM249	2594.67	Pima County Highway Department aluminum cap stamped LS 4532, set in centerline of Tanque Verde Loop Road, located approximately 0.5 mile north of Speedway Boulevard.



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction ; no base flood elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

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

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

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

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
- 513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.
- D — D — Cross Section Line
- (EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.
- RM7 × — Elevation Reference Mark
- M2 — River Mile
- 97° 07'30"; 32° 22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

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

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

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

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

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

Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

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

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

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

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

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
FEBRUARY 8, 1999

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

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE DATE shown on this map to determine when actuarial rates apply to structures in zones where elevations or depths have been established.

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

N

APPROXIMATE SCALE IN FEET
500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

PIMA COUNTY,
ARIZONA AND
INCORPORATED AREAS

PANEL 2257 OF 4700
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
TUCSON, CITY OF	040076	2257	K
PIMA COUNTY UNINCORPORATED AREAS	040073	2257	K

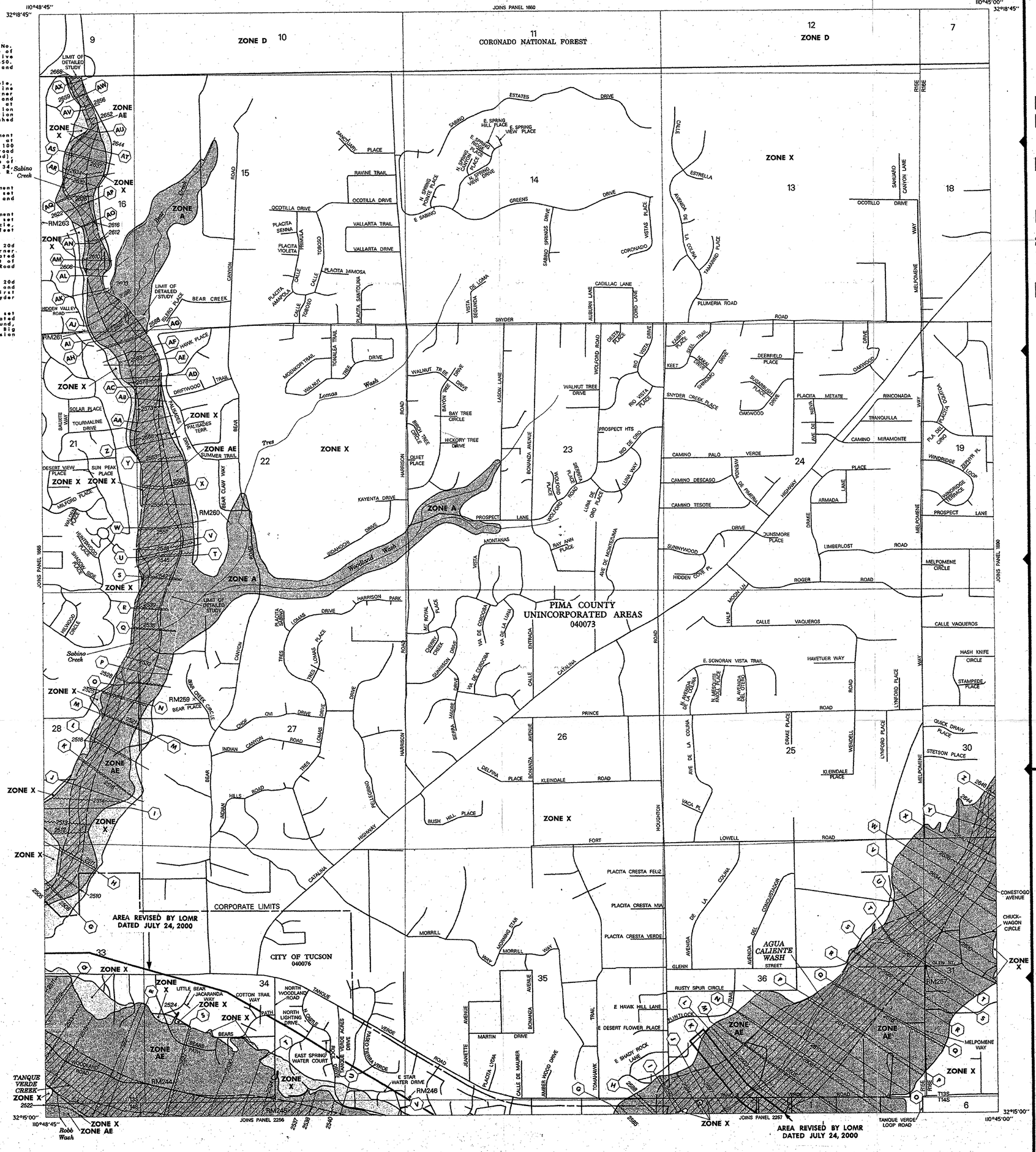
MAP NUMBER
04019C2257 K

EFFECTIVE DATE:
FEBRUARY 8, 1999

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM244	2524.12	Railroad spike in power pole No. 389 E/1/2, located south side of Woodland Road, east side of drive south to house No. 8650. Established by Kucera and Associates Inc.
RM245	2532.94	Railroad spike in power pole, located at T powerline intersection, at southeast corner where north-south road (Woodland Road) turns and runs east-west, at quarter section corner of section 34, T. 13 S., R. 15 E., and section 3, T. 14 S., R. 15 E. Established by Kucera and Associates Inc.
RM246	2553.92	Pima County Highway Department steel-capped pipe, located at section corner approximately 100 feet east of north-south dirt road (on line with Harrison Road), approximately 2,000 feet north of Tanque Verde Creek, sections 34, 35, 2, and 3, T. 13 S., 14 S., R. 15 E.
RM257	2623.26	Pima County Highway Department brass disk stamped PE 2663, set in intersection of Glenn Street and Melpomene Way.
RM259	2541.81	Pima County Highway Department brass disk stamped PE 2663, set in centerline of Bear Creek Circle, located approximately 180 feet northwest of Bear Place.
RM260	2575.23	Pima County Highway Department 20d nail set in top of northeast corner of dirt embankment located approximately 500 feet southwest of intersection of Bear Canyon Road and Bear Claw Way.
RM261	2608.31	Pima County Highway Department 20d bridge nail set in power and telephone pole, located of first pole at northwest corner of Snyder and Hidden Valley Roads.
RM263	2643.86	U.S. Geological Survey 30d nail set in power pole, located approximately 1 foot above ground, northeast of intersection of Big Horn Trail and dirt road extension of Hidden Valley Road.



LEGEND

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FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

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Floodplain Boundary

Floodway Boundary

Zone D Boundary

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

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

D — D — Cross Section Line

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

RM7 × — Elevation Reference Mark

● M2 — River Mile

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

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Refer to Repository Listing on Map Index

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FEBRUARY 8, 1999

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

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APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

PIMA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1670 OF 4700
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
TUCSON, CITY OF	040076	1670	K
PIMA COUNTY UNINCORPORATED AREAS	040073	1670	K

MAP NUMBER
04019C1670 K

EFFECTIVE DATE:
FEBRUARY 8, 1999

Federal Emergency Management Agency

177 N. Church Avenue
Suite 500
Tucson, AZ 85701

TO: MJ Dillard – City of Tucson PM

FROM: Joe Vaskovic. P.E.

RE: Meeting Minutes for Meeting held January 9, 2009
Houghton Road
Tanque Verde Road to Speedway Boulevard/
Speedway Boulevard to Old Spanish Trail
Plan No. I-2007-019
Job No. SR1C

DATE: January 6, 2009

ATTENDEES:
MJ Dillard, COTDOT
Steve Tineo, COTDOT
Bill Zimmerman, PCRFCD
Joe Vaskovic, PB
Greg Bambauer, PB

Meeting Topic:
Tanque Verde Creek & Agua Caliente Wash Drainage Approach

Meeting began with Greg passing out a sign-in sheet.

General:
Greg stated that the area incorporating both washes in the Houghton Road vicinity has been flown for topographic data. The contour interval is 2-foot and utilizes the 88 datum.

The general approach for both washes was presented for comment by Steve and Bill and is as follows:

1. Run current models as is to verify water surface elevations
2. Adjust all cross section elevations from the current 29' datum to 88' datum & rerun the model.
3. Update models with current cross sections from updated contours → This establishes the new existing/base model while updating each with current topography.
4. Update bridge data to incorporate new bridges → new bridge modeling will utilize a single bridge rather than parallel bridges due to the minimal width between existing and proposed bridges.

Steve and Bill did not have any issues with the above approach for these washes.

Tanque Verde Creek:
Greg mentioned that the original FEMA hydraulic model is in HEC-2 and that PB would like to keep the model in HEC-2. Both Bill and Steve agreed that would be alright.

Steve requested information on the bridge modeling approach for this model. Greg stated that the Special Bridge routine was used in the original model and that PB will continue to use this approach.

Agua Caliente Wash:
Steve questioned which model was being used for the Agua Caliente Wash. Greg stated that PB has received the most current LOMR model from the District.

Bill provided an update on the status of the LOMR which has not been submitted yet. He is waiting for geotechnical data in order to submit to FEMA.

Steve asked how the split flows will be handled for this wash. Greg stated that PB will use the same approach as being modeled in the current model.

General Discussion outside the approach to the wash analyses:

Scour Analyses: Steve asked if the 500-Year event will be modeled as ADOT requires. Greg stated that typically for County and City projects he only models the design event, 100-Year in this case. Bill stated that there is an increase of 20% in flow rate for the scour design. Greg also mentioned that a super critical regime will be modeled to determine the "worst-case" scour condition for each bridge.

Steve asked how PB will evaluate the long term scour component for each structure. Greg stated that PB will compare historical cross sections to estimate the long term scour. PB will contact Dave Zaleski to review historic bridge inspection reports; Greg mentioned that he can compare cross sections at the bridge from these reports. Bill mentioned that this portion of the Tanque Verde is aggrading.

Freeboard: PB requested clarification on Freeboard requirements. Bill stated that for a new bridge it is three (3) feet. However, since the widening will occur downstream and there is an existing bridge, Bill mentioned that he would like to be informed of the existing freeboard and then make a determination for the new structure. Steve was in agreement with this approach.

Guide Banks: Steve asked if there will be any guide banks or spur dikes associated with this design. Greg stated that the widening will be downstream

of the existing bridges and that there are no planned improvements upstream at this point.

Abutments: Steve asked if the existing abutments were going to be reconstructed. Greg stated that PB will tie into the existing soil cement and extend it downstream and wrap the new bridge matching the existing configuration.

Pvmt Drainage: Steve asked for input on the proposed pavement drainage for this segment. Greg mentioned that there may be median drainage facilities and that, most likely, spillways or down drains will be used at the bridge barrier termini. This roadway will be uncurbed.

Joe will contact Dave Zaleski to discuss potential bridge types for the new bridges.

Greg stated that due to the timing for construction on this segment, PB does not anticipate making any LOMR/CLOMR submittals at this time even if there is an increase in water surface elevation. There will be plenty of time during the final design portion for this segment. All agreed.

177 N. Church Avenue
Suite 500
Tucson, AZ 85701

AGENDA

HOUGHTON ROAD
TANQUE VERDE ROAD TO SPEEDWAY BLVD.
PLAN NO. I-2007-019
JOB NO. SR1C

Date and Time: **Friday, January 9, 2009 - 1:30 PM**

Place: **PB Office 177 N. Church Ave**

Discussion Topics:

1. **Tanque Verde Creek**
    a. **HEC-2 Vs HECRAS**
    b. **Approach**
        i. **Open & Run Current Model**
        ii. **Adjust Current Model to 88 Datum (NADCON)**
        iii. **Update with New cross sections through reach of interest creating a revised effective model**
        iv. **Revise Bridge Crossing to include wider Bridge (Model as one structure rather than Parallel Bridges.**
2. **Agua Caliente Wash**
    a. **LOMR Status, RFCD**
    b. **Approach**
        i. **Open & Run Current Model**
        ii. **Adjust Current Model to 88 Datum (NADCON)**
        iii. **Update with New cross sections through reach of interest creating a revised effective model**
        iv. **Revise Bridge Crossing to include wider Bridge (Model as one structure rather than Parallel Bridges.**
3. **Open Discussion**

177 N. Church Avenue
Suite 500
Tucson, AZ 85701

MEETING ATTENDANCE

January 9, 2009, 1:30 P.M.
PB Office 177 N. Church Ave.
Houghton Road: Tanque Verde Rd. to Speedway Blvd.

Check	Name	Affiliation	E-Mail Address	Phone No
x	MJ Dillard	COT	MJ.Dillard@tucsonaz.gov	(520) 837-6616
x	Steve Tineo	COT		
x	Bill Zimmerman	PCRFCD	bill.zimmerman@dot.pima.gov	(520) 740-6842
x	Joe Vaskovic	PB	vaskovic@pbworld.com	(520) 838-3404
	David Ruvalcaba	PB	ruvalcaba@pbworld.com	(520) 838-3405
x	Greg Bambauer	PB	bambauer@pbworld.com	(520) 838-3410

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of

Made by

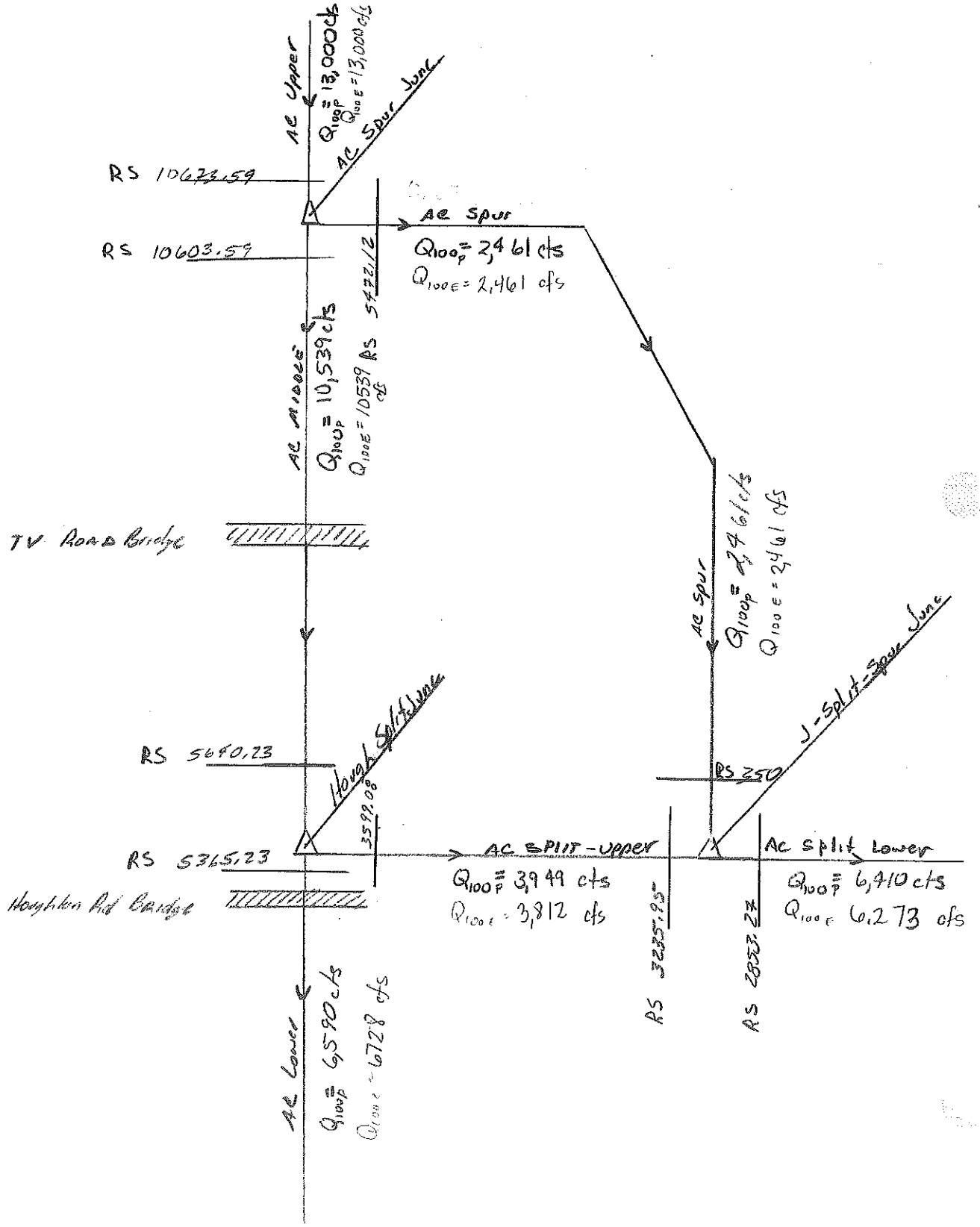
Date

Checked by

Date

Subject Houghton Road - Tanque Verde Rd. to Speedway Blvd
Agua Caliente Hydraulic Analysis

Split Flow Schematic & Results 100-Year Event



PB-CP001 (08/08)

HEC-RAS Plan: Prop

River	Reach	River Sta	Profile	W.S. Elev	E.G. Elev	Q Total
				(ft)	(ft)	(cfs)
Agua Caliente	upper	10673.59	100 Year	2623.79	2624.33	13000.00
Agua Caliente	upper	10673.59	25 Year	2623.20	2623.61	7930.00
Agua Caliente	upper	10673.59	Design	2624.07	2624.66	15600.00
Junction:	AC Spur					
Agua Caliente	middle	10603.59	100 Year	2623.46	2624.04	10539.08
Agua Caliente	middle	10603.59	25 Year	2622.64	2623.27	6995.64
Agua Caliente	middle	10603.59	Design	2623.79	2624.38	12270.29
AC Spur	AC Spur	5472.12	100 Year	2623.92	2624.04	2460.92
AC Spur	AC Spur	5472.12	25 Year	2623.21	2623.27	934.36
AC Spur	AC Spur	5472.12	Design	2624.23	2624.39	3329.71
AC Spur	AC Spur	350.	100 Year	2592.65	2593.02	2460.92
AC Spur	AC Spur	350.	25 Year	2592.24	2592.46	934.36
AC Spur	AC Spur	350.	Design	2592.82	2593.27	3329.71
AC Split	upper	3235.949	100 Year	2592.00	2592.10	3948.64
AC Split	upper	3235.949	25 Year	2591.31	2591.38	1855.34
AC Split	upper	3235.949	Design	2592.26	2592.38	5003.67
Junction:	J-Split-Spur					
AC Split	lower	2853.265	100 Year	2590.24	2590.42	6409.56
AC Split	lower	2853.265	25 Year	2589.50	2589.63	2789.70
AC Split	lower	2853.265	Design	2590.55	2590.75	8333.38
Agua Caliente	middle	5640.23	100 Year	2595.19	2595.41	10539.08
Agua Caliente	middle	5640.23	25 Year	2594.64	2594.81	6995.64
Agua Caliente	middle	5640.23	Design	2595.43	2595.67	12270.29
Junction:	Hough Split					
Agua Caliente	lower	5365.23	100 Year	2593.55	2593.82	6590.44
Agua Caliente	lower	5365.23	25 Year	2592.89	2593.16	5140.30
Agua Caliente	lower	5365.23	Design	2593.84	2594.12	7266.62
AC Split	upper	3599.078	100 Year	2593.63	2593.83	3948.64
AC Split	upper	3599.078	25 Year	2593.05	2593.15	1855.34
AC Split	upper	3599.078	Design	2593.88	2594.11	5003.67

HEC-RAS

River	Reach	River Sta	Profile	Plan	W.S. Elev	E.G. Elev	Q Total
					(ft)	(ft)	(cfs)
Agua Caliente	upper	10673.59	100 Year	Prop	2623.79	2624.33	13000.00
Agua Caliente	upper	10673.59	100 Year	New VAEC	2623.79	2624.33	13000.00
Agua Caliente	upper	10673.59	25 Year	Prop	2623.20	2623.61	7930.00
Agua Caliente	upper	10673.59	25 Year	New VAEC	2623.20	2623.61	7930.00
Agua Caliente	upper	10673.59	Design	Prop	2624.07	2624.66	15600.00
Agua Caliente	upper	10673.59	Design	New VAEC	2624.07	2624.66	15600.00
Junction:	AC Spur						
Agua Caliente	middle	10603.59	100 Year	Prop	2623.46	2624.04	10539.08
Agua Caliente	middle	10603.59	100 Year	New VAEC	2623.46	2624.04	10539.38
Agua Caliente	middle	10603.59	25 Year	Prop	2622.64	2623.27	6995.64
Agua Caliente	middle	10603.59	25 Year	New VAEC	2622.64	2623.27	6994.67
Agua Caliente	middle	10603.59	Design	Prop	2623.79	2624.38	12270.29
Agua Caliente	middle	10603.59	Design	New VAEC	2623.80	2624.38	12296.74
AC Spur	AC Spur	5472.12	100 Year	Prop	2623.92	2624.04	2460.92
AC Spur	AC Spur	5472.12	100 Year	New VAEC	2623.91	2624.04	2460.62
AC Spur	AC Spur	5472.12	25 Year	Prop	2623.21	2623.27	934.36
AC Spur	AC Spur	5472.12	25 Year	New VAEC	2623.22	2623.27	935.33
AC Spur	AC Spur	5472.12	Design	Prop	2624.23	2624.39	3329.71
AC Spur	AC Spur	5472.12	Design	New VAEC	2624.22	2624.38	3303.26
AC Spur	AC Spur	350.	100 Year	Prop	2592.65	2593.02	2460.92
AC Spur	AC Spur	350.	100 Year	New VAEC	2592.64	2593.02	2460.62
AC Spur	AC Spur	350.	25 Year	Prop	2592.24	2592.46	934.36
AC Spur	AC Spur	350.	25 Year	New VAEC	2592.24	2592.46	935.33
AC Spur	AC Spur	350.	Design	Prop	2592.82	2593.27	3329.71
AC Spur	AC Spur	350.	Design	New VAEC	2592.80	2593.27	3303.26
AC Split	upper	3235.949	100 Year	Prop	2592.00	2592.10	3948.64
AC Split	upper	3235.949	100 Year	New VAEC	2591.97	2592.07	3811.88
AC Split	upper	3235.949	25 Year	Prop	2591.31	2591.38	1855.34
AC Split	upper	3235.949	25 Year	New VAEC	2591.24	2591.31	1670.83
AC Split	upper	3235.949	Design	Prop	2592.26	2592.38	5003.67
AC Split	upper	3235.949	Design	New VAEC	2592.24	2592.36	4895.20
Junction:	J-Split-Spur						
AC Split	lower	2853.265	100 Year	Prop	2590.24	2590.42	6409.56
AC Split	lower	2853.265	100 Year	New VAEC	2590.22	2590.40	6272.50
AC Split	lower	2853.265	25 Year	Prop	2589.50	2589.63	2789.70
AC Split	lower	2853.265	25 Year	New VAEC	2589.44	2589.57	2606.16
AC Split	lower	2853.265	Design	Prop	2590.55	2590.75	8333.38
AC Split	lower	2853.265	Design	New VAEC	2590.53	2590.73	8198.45
Agua Caliente	middle	5640.23	100 Year	Prop	2595.19	2595.41	10539.08
Agua Caliente	middle	5640.23	100 Year	New VAEC	2595.17	2595.39	10539.38
Agua Caliente	middle	5640.23	25 Year	Prop	2594.64	2594.81	6995.64
Agua Caliente	middle	5640.23	25 Year	New VAEC	2594.63	2594.80	6994.67
Agua Caliente	middle	5640.23	Design	Prop	2595.43	2595.67	12270.29
Agua Caliente	middle	5640.23	Design	New VAEC	2595.41	2595.66	12296.74
Junction:	Hough Split						

HEC-RAS (Continued)

River	Reach	River Sta	Profile	Plan	W.S. Elev	E.G. Elev	Q Total
					(ft)	(ft)	(cfs)
Agua Caliente	lower	5365.23	100 Year	Prop	2593.55	2593.82	6590.44
Agua Caliente	lower	5365.23	100 Year	New VAEC	2593.47	2593.77	6727.50
Agua Caliente	lower	5365.23	25 Year	Prop	2592.89	2593.16	5140.30
Agua Caliente	lower	5365.23	25 Year	New VAEC	2592.80	2593.11	5323.84
Agua Caliente	lower	5365.23	Design	Prop	2593.84	2594.12	7266.62
Agua Caliente	lower	5365.23	Design	New VAEC	2593.78	2594.08	7401.55
AC Split	upper	3599.078	100 Year	Prop	2593.63	2593.83	3948.64
AC Split	upper	3599.078	100 Year	New VAEC	2593.60	2593.79	3811.88
AC Split	upper	3599.078	25 Year	Prop	2593.05	2593.15	1855.34
AC Split	upper	3599.078	25 Year	New VAEC	2592.97	2593.07	1670.83
AC Split	upper	3599.078	Design	Prop	2593.88	2594.11	5003.67
AC Split	upper	3599.078	Design	New VAEC	2593.85	2594.08	4895.20

Table 7-3 (HEC-22) Frequencies for coincedental occurrence

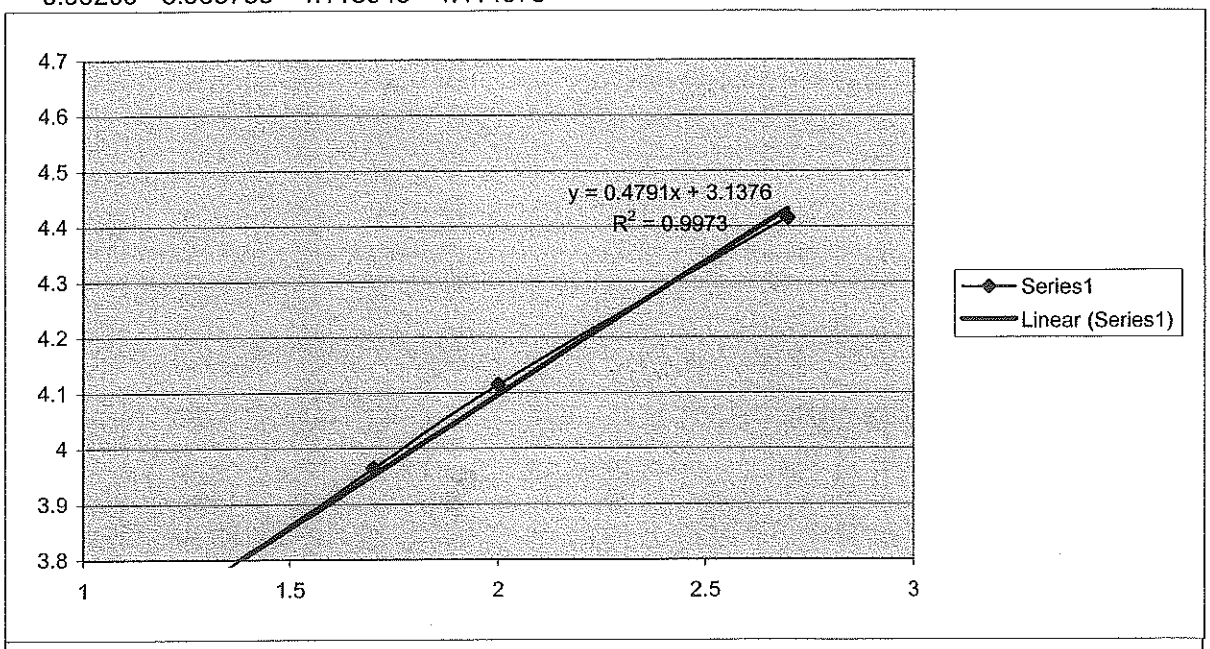
AREA RATIO	FREQUENCIES FOR COINCEDENTAL OCCURRENCE			
	10 Year Design		100 Year Design	
	Main Stream	Tributary	Main Stream	Tributary
10,000 to 1	1	10	2	100
	10	1	100	2
1,000 to 1	2	10	10	100
	10	2	100	10
100 to 1	5	10	25	100
	10	5	100	25
10 to 1	10	10	50	100
	10	10	100	50
1 to 1	10	10	100	100
	10	10	100	100

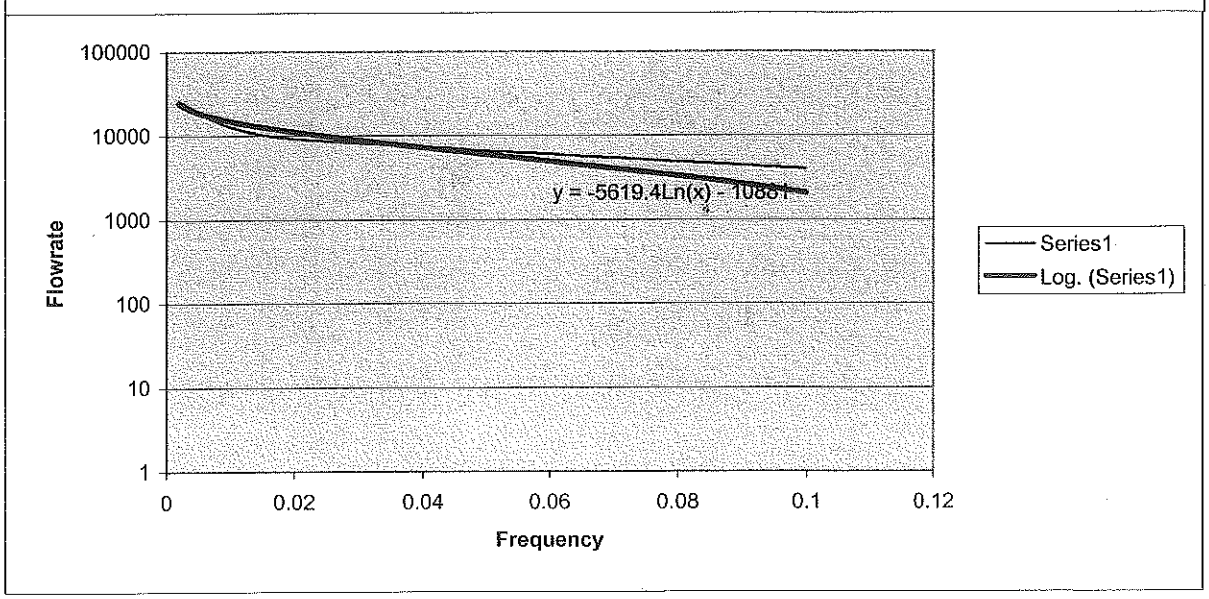
ID	DA in sq mi	ratio	ratio to be used	Q10	Q100
CP C1	0.0374	2663	1,000 to 1	66.7	152.9
TV@Houghton	99.6			7,300	23,000

ID	DA in sq mi	ratio	ratio to be used	Q25	Q100
CP TV_B	0.3	135	100 to 1	321.1	553.6
AC@Houghton	40.4			6,400	13,000

10	50	100	500
0.1	0.02	0.01	0.002
4000	9200	13000	26000

1	1.69897	2	2.69897
3.60206	3.963788	4.113943	4.414973





D-1

Agua Caliente Wash Existing Condition

(CLONE MODEL)

HEC-RAS Plan: Exist Cond Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	middle	10603.59	PF 1	10539.28	2618.00	2621.26	2620.83	2621.84	0.004081	6.83	2471.66	1288.04	0.67
Agua Caliente	middle	10465.1	PF 1	10539.28	2616.85	2620.59	2619.77	2621.22	0.003581	6.79	2381.30	1040.30	0.64
Agua Caliente	middle	10320.64	PF 1	10539.28	2615.51	2619.01	2619.01	2620.14	0.015922	8.77	1434.28	730.31	0.90
Agua Caliente	middle	10131.91	PF 1	10539.28	2614.00	2618.68	2616.93	2619.18	0.001813	5.72	2068.21	817.62	0.48
Agua Caliente	middle	9909.25	PF 1	10539.28	2614.00	2617.87	2616.94	2618.59	0.003819	6.89	1680.50	641.98	0.63
Agua Caliente	middle	9550.47	PF 1	10539.28	2612.00	2616.58	2614.91	2617.09	0.003968	5.78	1943.63	686.75	0.50
Agua Caliente	middle	9307.97	PF 1	10539.28	2610.00	2616.23	2612.98	2616.50	0.001126	4.13	2560.90	653.55	0.31
Agua Caliente	middle	9091.3	PF 1	10539.28	2609.54	2614.13	2614.00	2615.56	0.014060	9.59	1099.55	559.28	0.94
Agua Caliente	middle	8865.4	PF 1	10539.28	2607.24	2611.49	2611.14	2612.68	0.011037	8.73	1207.90	514.18	0.84
Agua Caliente	middle	8587.35	PF 1	10539.28	2606.00	2609.36	2608.92	2610.45	0.005839	8.39	1256.83	379.05	0.81
Agua Caliente	middle	8257.08	PF 1	10539.28	2604.00	2608.03	2607.06	2608.88	0.003632	7.39	1426.48	363.11	0.66
Agua Caliente	middle	7968.62	PF 1	10539.28	2602.00	2607.82	2605.08	2608.23	0.001074	5.14	2051.58	360.73	0.38
Agua Caliente	middle	7628.04	PF 1	10539.28	2600.00	2607.62	2603.44	2607.89	0.000717	4.16	2530.99	356.41	0.28
Agua Caliente	middle	7244.33	PF 1	10539.28	2598.00	2607.48	2601.63	2607.73	0.000250	3.99	2640.03	295.14	0.24
Agua Caliente	middle	6971.06	PF 1	10539.28	2596.00	2607.05	2601.24	2607.56	0.000453	5.74	1834.68	181.91	0.32
Agua Caliente	middle	6769.06	PF 1	10539.28	2595.90	2606.43	2602.04	2607.30	0.001642	7.48	1410.85	152.23	0.43
Agua Caliente	middle	6687.06		Bridge									
Agua Caliente	middle	6544.64	PF 1	10539.28	2594.00	2600.45	2600.45	2603.32	0.010367	13.60	775.05	135.06	1.00
Agua Caliente	middle	6260.16	PF 1	10539.28	2592.00	2597.05	2596.83	2597.71	0.005983	7.38	1998.19	2195.02	0.71
Agua Caliente	middle	5961.45	PF 1	10539.28	2590.00	2594.55	2594.55	2595.27	0.011342	7.52	1831.34	1718.42	0.82
Agua Caliente	middle	5794.74	PF 1	10539.28	2588.00	2593.66	2593.08	2594.00	0.004542	6.02	2627.98	1934.76	0.65
Agua Caliente	middle	5640.23	PF 1	10539.28	2588.00	2593.40	2591.94	2593.58	0.001707	4.42	3868.78	2282.03	0.42
Agua Caliente	lower	5365.23	PF 1	7179.32	2586.00	2590.98	2589.95	2591.37	0.002760	6.05	1645.33	767.41	0.50
Agua Caliente	lower	5242.33	PF 1	7179.32	2586.00	2590.80	2588.62	2591.09	0.001505	4.56	1664.39	1172.50	0.37
Agua Caliente	lower	5165.33	PF 1	7179.32	2586.00	2590.04	2589.00	2590.78	0.004392	6.91	1039.09	1118.03	0.62
Agua Caliente	lower	5164.33		Bridge									
Agua Caliente	lower	5083.33	PF 1	7179.32	2584.00	2588.54	2587.70	2589.37	0.005199	7.31	988.01	514.62	0.67
Agua Caliente	lower	5007.33	PF 1	7179.32	2584.00	2588.24	2587.52	2588.91	0.004913	6.76	1132.64	507.38	0.64
Agua Caliente	lower	4808.89	PF 1	7179.32	2582.00	2586.36	2586.27	2587.24	0.008158	8.52	1202.31	1285.18	0.80
Agua Caliente	lower	4640.59	PF 1	7179.32	2582.00	2585.31	2584.88	2585.79	0.006893	7.26	1661.28	1385.47	0.83
Agua Caliente	lower	4293.46	PF 1	7179.32	2580.00	2583.16	2582.68	2583.47	0.005201	6.11	2122.89	1639.66	0.72
Agua Caliente	lower	3943.83	PF 1	7179.32	2578.00	2581.58	2580.89	2581.90	0.003833	5.66	1937.15	1031.19	0.56
Agua Caliente	lower	3579.38	PF 1	7179.32	2576.00	2579.20	2579.11	2579.82	0.011753	7.60	1408.25	1054.04	0.86
Agua Caliente	lower	3344.57	PF 1	7179.32	2574.00	2577.41	2577.08	2577.85	0.005890	6.70	1790.62	1477.71	0.69
Agua Caliente	lower	3039.07	PF 1	7179.32	2572.00	2574.69	2573.96	2575.32	0.010573	7.72	1551.15	1381.53	0.88
Agua Caliente	lower	2734.71	PF 1	7179.32	2570.00	2572.74	2571.88	2573.05	0.005420	6.14	2189.35	1868.86	0.74
Agua Caliente	lower	2590.18	PF 1	7179.32	2570.00	2572.02	2571.16	2572.26	0.005795	5.72	2271.56	2283.64	0.74
Agua Caliente	lower	2425.08	PF 1	7179.32	2568.00	2571.28	2569.99	2571.50	0.003857	5.26	2480.77	2256.00	0.61
Agua Caliente	lower	2225.5	PF 1	7179.32	2567.58	2569.97	2569.52	2570.35	0.007623	7.02	1746.70	1891.42	0.86
Agua Caliente	lower	1877.58	PF 1	7179.32	2565.48	2567.62	2567.13	2567.90	0.007627	6.45	2005.66	2171.90	0.84
Agua Caliente	lower	1549.86	PF 1	7179.32	2562.00	2565.23	2564.97	2565.55	0.007246	6.73	2011.21	1972.04	0.74
Agua Caliente	lower	1261.13	PF 1	7179.32	2560.00	2563.38	2563.05	2563.69	0.006155	5.83	2052.39	2065.88	0.67

HEC-RAS Plan: Exist Cond Profile: PF 1 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	lower	968.69	PF 1	7179.32	2558.00	2561.27	2560.94	2561.56	0.007517	5.72	1999.34	1950.19	0.72
Agua Caliente	lower	760.51	PF 1	7179.32	2556.00	2559.31	2559.18	2559.72	0.009975	6.73	1802.45	1659.38	0.84
Agua Caliente	lower	554.81	PF 1	7179.32	2554.00	2557.76	2557.49	2558.13	0.005162	6.91	2228.29	1949.58	0.66
Agua Caliente	lower	0	PF 1	27809.32	2548.00	2555.88	2553.98	2556.58	0.002455	7.77	5934.13	1964.47	0.55
AC Spur	AC Spur	5472.12	PF 1	2460.73	2620.00	2621.71	2620.98	2621.84	0.009992	2.98	865.98	565.32	0.41
AC Spur	AC Spur	5178.24	PF 1	2460.73	2617.24	2618.94	2618.40	2619.03	0.008769	2.64	1053.98	897.80	0.38
AC Spur	AC Spur	4813.20	PF 1	2460.73	2614.00	2616.08	2615.44	2616.19	0.006913	2.71	1001.91	1086.34	0.39
AC Spur	AC Spur	4497.37	PF 1	2460.73	2612.00	2614.45	2613.56	2614.52	0.004110	2.14	1235.90	1029.29	0.30
AC Spur	AC Spur	4230.27	PF 1	2460.73	2611.59	2613.23	2612.62	2613.29	0.005067	2.09	1284.88	1243.39	0.32
AC Spur	AC Spur	3934.74	PF 1	2460.73	2609.99	2611.07	2610.65	2611.18	0.010825	2.69	953.70	999.89	0.46
AC Spur	AC Spur	3654.17	PF 1	2460.73	2608.00	2609.71	2608.86	2609.75	0.002811	1.67	1553.56	1223.35	0.25
AC Spur	AC Spur	3474.64	PF 1	2460.73	2608.00	2608.88	2608.47	2608.94	0.008258	2.06	1241.92	1587.93	0.39
AC Spur	AC Spur	3215.30	PF 1	2460.73	2604.64	2607.29	2606.62	2607.34	0.004714	1.90	1373.24	1620.23	0.31
AC Spur	AC Spur	2911.33	PF 1	2460.73	2602.00	2606.22	2605.20	2606.26	0.002833	1.52	1617.66	1980.94	0.24
AC Spur	AC Spur	2602.91	PF 1	2460.73	2603.88	2604.95	2604.48	2605.00	0.006410	1.92	1376.58	2384.80	0.35
AC Spur	AC Spur	2286.58	PF 1	2460.73	2601.37	2602.89	2602.40	2602.95	0.006198	2.11	1304.63	2321.08	0.35
AC Spur	AC Spur	1946.69	PF 1	2460.73	2599.38	2600.65	2600.28	2600.71	0.007899	1.98	1259.18	2472.80	0.38
AC Spur	AC Spur	1600.02	PF 1	2460.73	2597.03	2598.71	2598.24	2598.76	0.004237	2.05	1429.59	3336.20	0.32
AC Spur	AC Spur	1199.20	PF 1	2460.73	2594.62	2596.63	2596.26	2596.71	0.006227	2.50	1192.95	3232.76	0.39
AC Spur	AC Spur	837.50	PF 1	2460.73	2592.00	2594.33	2593.75	2594.45	0.006405	2.86	1006.17	2977.04	0.44
AC Spur	AC Spur	566.48	PF 1	2460.73	2591.21	2592.71	2592.27	2592.80	0.005867	2.55	1059.32	3016.51	0.41
AC Spur	AC Spur	350.	PF 1	2460.73	2589.01	2590.59	2590.40	2590.79	0.016430	3.53	704.81	2374.62	0.66
AC Split	upper	3599.078	PF 1	3359.95	2589.37	2591.11	2590.76	2591.36	0.011656	4.29	870.34	914.59	0.61
AC Split	upper	3235.949	PF 1	3359.95	2587.43	2589.68	2588.64	2589.75	0.002317	2.29	1663.75	1105.24	0.28
AC Split	lower	2853.265	PF 1	5820.68	2584.93	2588.04	2587.22	2588.25	0.005568	4.23	1855.25	1832.76	0.46
AC Split	lower	2508.632	PF 1	5820.68	2583.11	2586.04	2585.16	2586.26	0.005980	4.29	1776.15	1622.01	0.47
AC Split	lower	2214.257	PF 1	5820.68	2580.00	2583.59	2582.98	2584.03	0.009875	5.39	1157.50	822.05	0.60
AC Split	lower	1933.962	PF 1	5820.68	2578.39	2582.43	2581.00	2582.59	0.002837	3.42	1987.28	992.20	0.34
AC Split	lower	1426.381	PF 1	5820.68	2576.00	2580.38	2579.27	2580.58	0.006005	3.74	1725.83	994.95	0.40

VERTICALLY ADJUSTED FROM CLOMR

HEC-RAS Plan: VAEC Profile: 100 Year

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	middle	10603.59	100 Year	10539.31	2620.20	2623.46	2623.05	2624.04	0.004081	6.83	2471.63	1288.01	0.67
Agua Caliente	middle	10465.1	100 Year	10539.31	2619.05	2622.79	2621.97	2623.42	0.003581	6.79	2381.29	1040.30	0.64
Agua Caliente	middle	10320.64	100 Year	10539.31	2617.71	2621.21	2621.21	2622.34	0.015926	8.77	1434.11	730.26	0.90
Agua Caliente	middle	10131.91	100 Year	10539.31	2616.20	2620.88	2619.13	2621.38	0.001813	5.72	2068.21	817.62	0.48
Agua Caliente	middle	9909.25	100 Year	10539.31	2616.20	2620.07	2619.13	2620.79	0.003819	6.89	1680.53	641.98	0.63
Agua Caliente	middle	9550.47	100 Year	10539.31	2614.20	2618.78	2617.10	2619.29	0.003968	5.78	1943.66	686.75	0.50
Agua Caliente	middle	9307.97	100 Year	10539.31	2612.20	2618.43	2615.17	2618.70	0.001126	4.13	2560.88	653.55	0.31
Agua Caliente	middle	9091.3	100 Year	10539.31	2611.74	2616.33	2616.20	2617.76	0.014056	9.59	1099.63	559.29	0.94
Agua Caliente	middle	8865.4	100 Year	10539.31	2609.44	2613.69	2613.34	2614.88	0.011040	8.74	1207.81	514.18	0.84
Agua Caliente	middle	8587.35	100 Year	10539.31	2608.20	2611.56	2611.12	2612.65	0.005839	8.39	1256.83	379.05	0.81
Agua Caliente	middle	8257.08	100 Year	10539.31	2606.20	2610.23	2609.27	2611.08	0.003633	7.39	1426.39	363.11	0.66
Agua Caliente	middle	7968.62	100 Year	10539.31	2604.20	2610.02	2607.28	2610.43	0.001075	5.14	2051.40	360.73	0.38
Agua Caliente	middle	7628.04	100 Year	10539.31	2602.20	2609.82	2605.64	2610.09	0.000717	4.16	2530.82	356.40	0.28
Agua Caliente	middle	7244.33	100 Year	10539.31	2600.20	2609.68	2603.83	2609.93	0.000250	3.99	2639.86	295.14	0.24
Agua Caliente	middle	6971.06	100 Year	10539.31	2598.20	2609.25	2603.44	2609.76	0.000453	5.74	1834.61	181.91	0.32
Agua Caliente	middle	6769.06	100 Year	10539.31	2598.10	2608.63	2604.25	2609.50	0.001642	7.48	1410.78	152.22	0.43
Agua Caliente	middle	6687.06		Bridge									
Agua Caliente	middle	6544.64	100 Year	10539.31	2596.20	2602.67	2602.67	2605.52	0.010253	13.55	777.80	135.11	1.00
Agua Caliente	middle	6260.16	100 Year	10539.31	2594.20	2599.25	2599.03	2599.91	0.005981	7.38	1998.43	2195.06	0.71
Agua Caliente	middle	5961.45	100 Year	10539.31	2592.20	2596.75	2596.75	2597.47	0.011343	7.52	1831.33	1718.42	0.82
Agua Caliente	middle	5794.74	100 Year	10539.31	2590.20	2595.85	2595.28	2596.20	0.004542	6.02	2627.94	1934.76	0.65
Agua Caliente	middle	5640.23	100 Year	10539.31	2590.20	2595.60	2594.14	2595.78	0.001707	4.42	3869.10	2282.05	0.42
Agua Caliente	lower	5365.23	100 Year	7179.39	2588.20	2593.18	2592.15	2593.57	0.002758	6.05	1645.70	767.42	0.50
Agua Caliente	lower	5242.33	100 Year	7179.39	2588.20	2593.00	2590.82	2593.30	0.001504	4.56	1664.76	1172.50	0.37
Agua Caliente	lower	5165.33	100 Year	7179.39	2588.20	2592.24	2591.20	2592.98	0.004384	6.91	1039.68	1118.36	0.62
Agua Caliente	lower	5164.33		Bridge									
Agua Caliente	lower	5083.33	100 Year	7179.39	2586.20	2590.74	2589.90	2591.57	0.005200	7.31	988.01	514.62	0.67
Agua Caliente	lower	5007.33	100 Year	7179.39	2586.20	2590.44	2589.72	2591.11	0.004913	6.76	1132.63	507.38	0.64
Agua Caliente	lower	4808.89	100 Year	7179.39	2584.20	2588.56	2588.45	2589.44	0.008158	8.52	1202.30	1285.10	0.80
Agua Caliente	lower	4640.59	100 Year	7179.39	2584.20	2587.51	2587.07	2587.99	0.006893	7.26	1661.27	1385.47	0.83
Agua Caliente	lower	4293.46	100 Year	7179.39	2582.20	2585.36	2584.88	2585.67	0.005201	6.11	2122.86	1639.60	0.72
Agua Caliente	lower	3943.83	100 Year	7179.39	2580.20	2583.78	2583.08	2584.10	0.003833	5.66	1937.14	1031.15	0.56
Agua Caliente	lower	3579.38	100 Year	7179.39	2578.20	2581.40	2581.30	2582.02	0.011753	7.60	1408.24	1054.04	0.86
Agua Caliente	lower	3344.57	100 Year	7179.39	2576.20	2579.61	2579.25	2580.05	0.005889	6.70	1790.84	1477.79	0.69
Agua Caliente	lower	3039.07	100 Year	7179.39	2574.20	2576.89	2576.16	2577.52	0.010574	7.72	1551.13	1381.45	0.88
Agua Caliente	lower	2734.71	100 Year	7179.39	2572.20	2574.94	2574.06	2575.25	0.005421	6.14	2189.32	1868.85	0.74
Agua Caliente	lower	2590.18	100 Year	7179.39	2572.20	2574.22	2573.36	2574.46	0.005795	5.72	2271.53	2283.64	0.74
Agua Caliente	lower	2425.08	100 Year	7179.39	2570.20	2573.48	2572.19	2573.70	0.003858	5.26	2480.75	2256.00	0.61
Agua Caliente	lower	2225.5	100 Year	7179.39	2569.78	2572.17	2571.73	2572.55	0.007626	7.02	1746.43	1891.29	0.86
Agua Caliente	lower	1877.58	100 Year	7179.39	2567.68	2569.82	2569.34	2570.10	0.007623	6.45	2005.94	2171.92	0.84
Agua Caliente	lower	1549.86	100 Year	7179.39	2564.20	2567.43	2567.17	2567.75	0.007247	6.73	2011.18	1972.03	0.74
Agua Caliente	lower	1261.13	100 Year	7179.39	2562.20	2565.58	2565.25	2565.89	0.006155	5.83	2052.38	2065.88	0.67

HEC-RAS Plan: VAEC Profile: 100 Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	lower	968.69	100 Year	7179.39	2560.20	2563.47	2563.13	2563.76	0.007521	5.72	1998.99	1950.14	0.72
Agua Caliente	lower	760.51	100 Year	7179.39	2558.20	2561.51	2561.39	2561.92	0.009970	6.73	1802.76	1659.42	0.84
Agua Caliente	lower	554.81	100 Year	7179.39	2556.20	2559.96	2559.69	2560.33	0.005162	6.91	2228.26	1949.57	0.66
Agua Caliente	lower	0	100 Year	27809.39	2550.20	2558.08	2556.18	2558.78	0.002455	7.77	5934.54	1964.48	0.55
AC Spur	AC Spur	5472.12	100 Year	2460.69	2622.20	2623.91	2623.18	2624.04	0.010012	2.98	865.43	565.30	0.41
AC Spur	AC Spur	5178.24	100 Year	2460.69	2619.44	2621.14	2620.60	2621.23	0.008725	2.63	1055.67	897.91	0.38
AC Spur	AC Spur	4813.20	100 Year	2460.69	2616.20	2618.28	2617.64	2618.39	0.006914	2.71	1001.88	1086.33	0.39
AC Spur	AC Spur	4497.37	100 Year	2460.69	2614.20	2616.65	2615.75	2616.72	0.004110	2.14	1235.89	1029.27	0.30
AC Spur	AC Spur	4230.27	100 Year	2460.69	2613.79	2615.43	2614.82	2615.49	0.005067	2.09	1284.86	1243.39	0.32
AC Spur	AC Spur	3934.74	100 Year	2460.69	2612.19	2613.27	2612.85	2613.38	0.010825	2.69	953.69	999.86	0.46
AC Spur	AC Spur	3654.17	100 Year	2460.69	2610.20	2611.91	2611.06	2611.95	0.002811	1.67	1553.53	1223.35	0.25
AC Spur	AC Spur	3474.64	100 Year	2460.69	2610.20	2611.08	2610.67	2611.14	0.008258	2.06	1241.91	1587.92	0.39
AC Spur	AC Spur	3215.30	100 Year	2460.69	2606.84	2609.49	2608.83	2609.54	0.004714	1.90	1373.21	1620.21	0.31
AC Spur	AC Spur	2911.33	100 Year	2460.69	2604.20	2608.42	2607.40	2608.46	0.002834	1.52	1617.61	1980.89	0.24
AC Spur	AC Spur	2602.91	100 Year	2460.69	2606.08	2607.15	2606.68	2607.20	0.006411	1.92	1376.55	2384.78	0.35
AC Spur	AC Spur	2286.58	100 Year	2460.69	2603.57	2605.09	2604.60	2605.15	0.006204	2.11	1304.21	2321.07	0.35
AC Spur	AC Spur	1946.69	100 Year	2460.69	2601.58	2602.85	2602.48	2602.91	0.007876	1.98	1260.31	2473.10	0.38
AC Spur	AC Spur	1600.02	100 Year	2460.69	2599.23	2600.91	2600.44	2600.96	0.004251	2.05	1427.92	3335.64	0.32
AC Spur	AC Spur	1199.20	100 Year	2460.69	2596.82	2598.83	2598.45	2598.91	0.006186	2.49	1195.54	3233.01	0.39
AC Spur	AC Spur	837.50	100 Year	2460.69	2594.20	2596.53	2595.95	2596.65	0.006406	2.86	1006.15	2977.04	0.44
AC Spur	AC Spur	566.48	100 Year	2460.69	2593.41	2594.91	2594.46	2595.00	0.005867	2.55	1059.29	3016.51	0.41
AC Spur	AC Spur	350.	100 Year	2460.69	2591.21	2592.80	2592.60	2592.99	0.016311	3.52	706.37	2375.28	0.66
AC Split	upper	3599.078	100 Year	3359.92	2591.57	2593.31	2592.96	2593.56	0.011664	4.29	870.14	914.55	0.61
AC Split	upper	3235.949	100 Year	3359.92	2589.63	2591.88	2590.84	2591.95	0.002314	2.29	1664.48	1105.34	0.28
AC Split	lower	2853.265	100 Year	5820.61	2587.13	2590.24	2589.42	2590.45	0.005583	4.23	1853.39	1832.60	0.46
AC Split	lower	2508.632	100 Year	5820.61	2585.31	2588.24	2587.39	2588.46	0.005960	4.29	1778.34	1622.47	0.47
AC Split	lower	2214.257	100 Year	5820.61	2582.20	2585.79	2585.16	2586.23	0.009875	5.39	1157.45	822.01	0.60
AC Split	lower	1933.962	100 Year	5820.61	2580.59	2584.63	2583.18	2584.79	0.002837	3.42	1987.23	992.20	0.34
AC Split	lower	1426.381	100 Year	5820.61	2578.20	2582.58	2581.47	2582.78	0.006005	3.74	1725.80	994.95	0.40

VERTICALLY ADJUSTED WITH NEW TOPOGRAPHY

HEC-RAS Plan: New VAEC Profile: 100 Year

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	middle	10603.59	100 Year	10539.38	2620.20	2623.46	2623.05	2624.04	0.004081	6.83	2471.63	1288.01	0.67
Agua Caliente	middle	10465.1	100 Year	10539.38	2619.05	2622.79	2621.97	2623.42	0.003582	6.79	2381.29	1040.30	0.64
Agua Caliente	middle	10320.64	100 Year	10539.38	2617.71	2621.21	2621.21	2622.34	0.015926	8.77	1434.11	730.26	0.90
Agua Caliente	middle	10131.91	100 Year	10539.38	2616.20	2620.88	2619.13	2621.38	0.001810	5.71	2070.00	817.82	0.48
Agua Caliente	middle	9909.25	100 Year	10539.38	2616.20	2620.07	2619.13	2620.79	0.003795	6.88	1684.92	642.83	0.63
Agua Caliente	middle	9550.47	100 Year	10539.38	2614.20	2618.81	2617.10	2619.31	0.003879	5.73	1964.30	687.88	0.49
Agua Caliente	middle	9307.97	100 Year	10539.38	2612.20	2618.47	2615.17	2618.73	0.001100	4.10	2579.15	656.28	0.31
Agua Caliente	middle	9091.3	100 Year	10539.38	2611.74	2616.20	2616.20	2617.75	0.016030	9.98	1056.42	554.11	1.00
Agua Caliente	middle	8865.4	100 Year	10539.38	2609.44	2614.29	2613.34	2615.14	0.006358	7.40	1432.30	535.06	0.66
Agua Caliente	middle	8587.35	100 Year	10539.38	2607.96	2613.00	2612.05	2613.81	0.003628	7.24	1455.18	378.88	0.65
Agua Caliente	middle	8257.08	100 Year	10539.38	2605.51	2610.66	2610.51	2612.06	0.007858	9.48	1111.31	344.05	0.93
Agua Caliente	middle	7968.62	100 Year	10539.38	2604.09	2610.01	2608.52	2610.69	0.002420	6.58	1600.95	357.14	0.55
Agua Caliente	middle	7628.04	100 Year	10539.38	2601.69	2609.58	2606.58	2610.00	0.001383	5.21	2021.23	329.13	0.37
Agua Caliente	middle	7244.33	100 Year	10539.38	2599.87	2609.40	2604.31	2609.73	0.000362	4.64	2311.22	277.39	0.28
Agua Caliente	middle	6971.06	100 Year	10539.38	2598.09	2608.82	2603.80	2609.50	0.000641	6.63	1590.75	159.53	0.37
Agua Caliente	middle	6769.06	100 Year	10539.38	2596.77	2608.47	2603.59	2609.29	0.001076	7.26	1452.02	141.93	0.40
Agua Caliente	middle	6687.06		Bridge									
Agua Caliente	middle	6544.64	100 Year	10539.38	2595.60	2602.36	2602.36	2605.04	0.009462	13.19	818.05	182.34	0.95
Agua Caliente	middle	6260.16	100 Year	10539.38	2592.33	2598.40	2598.40	2599.32	0.007237	8.32	1720.39	2049.71	0.78
Agua Caliente	middle	5961.45	100 Year	10539.38	2590.42	2596.53	2596.53	2597.27	0.006665	8.65	2089.89	1683.52	0.69
Agua Caliente	middle	5794.74	100 Year	10539.38	2589.70	2595.31	2595.31	2596.07	0.005506	8.71	2220.43	1695.25	0.76
Agua Caliente	middle	5640.23	100 Year	10539.38	2588.76	2595.17	2594.04	2595.39	0.001740	4.59	3482.26	2226.10	0.42
Agua Caliente	lower	5365.23	100 Year	6727.50	2587.74	2593.47	2592.18	2593.77	0.002017	4.84	1676.26	1104.04	0.42
Agua Caliente	lower	5242.33	100 Year	6727.50	2586.65	2592.93	2591.41	2593.44	0.002867	5.78	1164.04	756.32	0.50
Agua Caliente	lower	5189.01	100 Year	6727.50	2586.56	2592.67	2591.03	2593.29	0.002940	6.29	1070.06	233.37	0.52
Agua Caliente	lower	5164.33		Bridge									
Agua Caliente	lower	5083.33	100 Year	6727.50	2586.31	2591.07	2590.54	2592.16	0.007238	8.37	803.32	225.76	0.78
Agua Caliente	lower	5007.33	100 Year	6727.50	2585.69	2590.87	2589.91	2591.56	0.004073	6.91	1085.90	607.07	0.60
Agua Caliente	lower	4808.89	100 Year	6727.50	2584.15	2588.99	2588.99	2589.97	0.010149	10.80	1084.54	1135.86	0.94
Agua Caliente	lower	4640.59	100 Year	6727.50	2583.27	2587.72	2587.31	2588.25	0.005930	6.90	1433.16	1363.16	0.69
Agua Caliente	lower	4293.46	100 Year	6727.50	2581.36	2585.31	2585.05	2585.75	0.007452	7.14	1727.51	1522.69	0.76
Agua Caliente	lower	3943.83	100 Year	6727.50	2578.93	2583.69	2582.91	2584.04	0.003307	5.38	1734.16	921.21	0.52
Agua Caliente	lower	3579.38	100 Year	6727.50	2577.11	2581.54	2581.54	2582.33	0.007964	8.25	1296.80	936.18	0.76
Agua Caliente	lower	3344.57	100 Year	6727.50	2575.66	2579.91	2579.72	2580.38	0.006013	6.69	1677.28	1632.00	0.69
Agua Caliente	lower	3039.07	100 Year	6727.50	2573.50	2577.45	2577.45	2578.11	0.008509	7.48	1465.73	1799.69	0.81
Agua Caliente	lower	2734.71	100 Year	6727.50	2571.40	2575.07	2574.76	2575.45	0.006614	6.93	2014.13	1771.45	0.81
Agua Caliente	lower	2590.18	100 Year	6727.50	2570.78	2574.04	2573.68	2574.42	0.008088	6.41	1758.50	1842.98	0.76
Agua Caliente	lower	2425.08	100 Year	6727.50	2569.69	2573.38	2572.58	2573.50	0.003548	4.21	2735.69	2309.06	0.51
Agua Caliente	lower	2225.5	100 Year	6727.50	2568.35	2572.24	2571.79	2572.41	0.007225	4.58	2160.70	2160.10	0.48
Agua Caliente	lower	1877.58	100 Year	6727.50	2566.10	2569.40	2569.40	2569.83	0.008538	7.86	1703.86	1806.61	0.92
Agua Caliente	lower	1549.86	100 Year	6727.50	2563.59	2566.92	2566.61	2567.16	0.006541	4.38	1761.75	2026.01	0.64
Agua Caliente	lower	1261.13	100 Year	6727.50	2561.37	2565.36	2565.00	2565.53	0.004658	3.90	2197.66	2078.44	0.50

HEC-RAS Plan: New VAEC Profile: 100 Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	lower	968.69	100 Year	6727.50	2560.20	2563.42	2563.08	2563.70	0.007426	5.58	1925.10	1941.15	0.71
Agua Caliente	lower	760.51	100 Year	6727.50	2558.20	2561.45	2561.34	2561.85	0.010134	6.64	1715.29	1648.54	0.84
Agua Caliente	lower	554.81	100 Year	6727.50	2556.20	2559.89	2559.66	2560.26	0.005134	6.80	2128.83	1931.88	0.65
Agua Caliente	lower	0	100 Year	27357.50	2550.20	2558.08	2556.18	2558.76	0.002376	7.64	5934.54	1964.48	0.54
AC Spur	AC Spur	5472.12	100 Year	2460.62	2622.20	2623.91	2623.18	2624.04	0.009996	2.98	865.84	565.32	0.41
AC Spur	AC Spur	5178.24	100 Year	2460.62	2619.44	2621.14	2620.60	2621.23	0.008752	2.63	1054.61	897.84	0.38
AC Spur	AC Spur	4813.20	100 Year	2460.62	2616.20	2618.28	2617.64	2618.39	0.006927	2.71	1001.16	1086.26	0.39
AC Spur	AC Spur	4497.37	100 Year	2460.62	2614.20	2616.66	2615.75	2616.72	0.004102	2.14	1236.65	1029.33	0.30
AC Spur	AC Spur	4230.27	100 Year	2460.62	2613.79	2615.43	2614.82	2615.49	0.005096	2.09	1282.44	1243.05	0.32
AC Spur	AC Spur	3934.74	100 Year	2460.62	2612.19	2613.27	2612.85	2613.38	0.010816	2.69	953.94	999.91	0.46
AC Spur	AC Spur	3654.17	100 Year	2460.62	2610.20	2611.91	2611.06	2611.95	0.002811	1.67	1553.53	1223.35	0.25
AC Spur	AC Spur	3474.64	100 Year	2460.62	2610.20	2611.08	2610.67	2611.14	0.008234	2.05	1243.02	1588.29	0.39
AC Spur	AC Spur	3215.30	100 Year	2460.62	2606.84	2609.49	2608.83	2609.54	0.004726	1.90	1371.94	1619.69	0.31
AC Spur	AC Spur	2911.33	100 Year	2460.62	2604.20	2608.42	2607.40	2608.46	0.002805	1.51	1622.86	1982.39	0.24
AC Spur	AC Spur	2602.91	100 Year	2460.62	2606.08	2607.14	2606.68	2607.19	0.006658	1.95	1360.22	2381.22	0.35
AC Spur	AC Spur	2286.58	100 Year	2460.62	2603.57	2605.11	2604.60	2605.17	0.005824	2.07	1330.41	2321.91	0.34
AC Spur	AC Spur	1946.69	100 Year	2460.62	2601.58	2602.83	2602.48	2602.90	0.008630	2.03	1225.33	2464.60	0.39
AC Spur	AC Spur	1600.02	100 Year	2460.62	2598.57	2600.55	2600.01	2600.62	0.005171	2.24	1248.59	3006.78	0.35
AC Spur	AC Spur	1199.20	100 Year	2460.62	2596.66	2598.64	2598.01	2598.71	0.004622	1.84	1265.52	3109.50	0.32
AC Spur	AC Spur	837.50	100 Year	2460.62	2594.52	2596.27	2595.83	2596.38	0.009301	2.83	980.89	2556.95	0.44
AC Spur	AC Spur	566.48	100 Year	2460.62	2592.62	2594.82	2594.12	2594.89	0.003713	2.48	1164.36	3018.62	0.35
AC Spur	AC Spur	350.	100 Year	2460.62	2591.56	2592.64	2592.64	2593.02	0.037698	5.10	514.91	1778.09	0.99
AC Split	upper	3599.078	100 Year	3811.88	2590.35	2593.60	2592.96	2593.79	0.006359	3.60	1125.67	943.24	0.46
AC Split	upper	3235.949	100 Year	3811.88	2589.07	2591.97	2591.09	2592.07	0.003682	2.81	1559.44	1114.88	0.36
AC Split	lower	2853.265	100 Year	6272.50	2586.16	2590.22	2589.65	2590.40	0.004816	3.94	2090.98	1494.36	0.43
AC Split	lower	2508.632	100 Year	6272.50	2584.20	2588.43	2587.75	2588.64	0.005481	4.28	1923.77	1397.00	0.46
AC Split	lower	2214.257	100 Year	6272.50	2581.17	2586.04	2585.43	2586.50	0.009981	5.62	1264.34	944.22	0.61
AC Split	lower	1933.962	100 Year	6272.50	2580.75	2584.94	2583.56	2585.09	0.002693	3.45	2209.24	1075.47	0.33
AC Split	lower	1426.381	100 Year	6272.50	2578.32	2582.95	2582.02	2583.17	0.006001	4.12	1821.98	1047.01	0.41

VERTICALLY ADJUSTED WITH NEW TOPOGRAPHY (25-YEAR)

HEC-RAS Plan: New VAEC Profile: 25 Year

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	upper	31333.21	25 Year	7320.00	2798.20	2803.60	2803.60	2805.37	0.018780	10.68	685.12	190.29	0.99
Agua Caliente	upper	31224.76	25 Year	7320.00	2794.20	2800.65	2800.65	2802.39	0.019182	10.59	691.05	195.81	0.99
Agua Caliente	upper	31089.71	25 Year	7320.00	2790.20	2796.73	2796.73	2798.63	0.018959	11.08	660.43	171.19	0.99
Agua Caliente	upper	30990.87	25 Year	7320.00	2788.20	2794.86	2794.77	2796.76	0.017915	11.06	661.93	162.05	0.96
Agua Caliente	upper	30898.84	25 Year	7320.00	2786.20	2793.69	2792.73	2795.49	0.010475	10.77	679.55	112.68	0.77
Agua Caliente	upper	30840.82	25 Year	7320.00	2784.50	2792.81	2791.86	2794.86	0.010485	11.48	637.97	98.40	0.79
Agua Caliente	upper	30690.61	25 Year	7320.00	2784.20	2790.43	2790.43	2792.82	0.017503	12.41	590.12	123.34	0.99
Agua Caliente	upper	30547.71	25 Year	7320.00	2782.20	2787.87	2787.87	2789.90	0.015314	11.79	672.22	171.76	0.94
Agua Caliente	upper	30481.41	25 Year	7320.00	2780.07	2786.20	2786.20	2788.22	0.017043	11.47	652.01	164.61	0.97
Agua Caliente	upper	30424.82	25 Year	7320.00	2778.20	2784.50	2784.50	2786.51	0.018275	11.38	645.01	161.97	0.99
Agua Caliente	upper	30362.48	25 Year	7320.00	2776.20	2782.51	2782.51	2784.78	0.018213	12.08	605.89	134.04	1.00
Agua Caliente	upper	30290.36	25 Year	7320.00	2773.03	2781.08	2781.08	2783.03	0.018713	11.20	653.53	165.09	0.99
Agua Caliente	upper	30232.14	25 Year	7320.00	2771.61	2780.73	2779.76	2782.02	0.009427	9.12	802.33	164.52	0.73
Agua Caliente	upper	30003.57	25 Year	7320.00	2770.20	2777.14	2777.02	2779.14	0.016814	11.34	645.46	147.20	0.95
Agua Caliente	upper	29768.97	25 Year	7320.00	2767.34	2773.24	2773.20	2775.16	0.016899	11.15	667.14	173.19	0.96
Agua Caliente	upper	29627.21	25 Year	7320.00	2766.03	2770.80	2770.80	2772.80	0.016337	11.47	665.97	173.50	0.95
Agua Caliente	upper	29558.97	25 Year	7320.00	2763.71	2769.61	2769.23	2771.30	0.013363	10.47	710.86	174.28	0.86
Agua Caliente	upper	29500.74	25 Year	7320.00	2762.20	2769.08	2768.32	2770.56	0.010269	9.77	761.52	170.24	0.77
Agua Caliente	upper	29369.94	25 Year	7320.00	2760.50	2767.83	2766.86	2769.19	0.010138	9.34	783.50	163.88	0.75
Agua Caliente	upper	29098.06	25 Year	7320.00	2758.20	2764.44	2763.99	2766.01	0.013402	10.06	729.60	179.80	0.85
Agua Caliente	upper	28875.2	25 Year	7320.00	2756.20	2761.33	2761.04	2762.83	0.014976	9.82	746.57	203.44	0.89
Agua Caliente	upper	28734.99	25 Year	7320.00	2754.20	2758.90	2758.90	2760.42	0.019978	9.88	745.76	255.88	0.99
Agua Caliente	upper	28592.81	25 Year	7320.00	2752.20	2756.45	2756.09	2757.51	0.013303	8.36	897.48	443.98	0.82
Agua Caliente	upper	28479.43	25 Year	7320.00	2750.18	2754.45	2754.45	2755.78	0.017090	9.27	789.84	498.43	0.99
Agua Caliente	upper	28394.36	25 Year	7320.00	2747.25	2752.75	2752.75	2753.98	0.014992	8.92	840.78	455.22	0.98
Agua Caliente	upper	28247.34	25 Year	7320.00	2744.20	2750.42	2750.42	2751.66	0.013992	8.93	819.30	417.22	1.00
Agua Caliente	upper	28136.75	25 Year	7320.00	2742.20	2748.49	2747.98	2749.50	0.010756	8.16	928.00	407.61	0.90
Agua Caliente	upper	28029.09	25 Year	7320.00	2740.20	2746.41	2746.41	2748.01	0.016863	10.15	721.52	244.23	1.00
Agua Caliente	upper	27892.68	25 Year	7320.00	2738.20	2745.14	2744.98	2746.02	0.009323	7.71	1013.62	459.65	0.87
Agua Caliente	upper	27758.38	25 Year	7320.00	2736.20	2743.07	2743.07	2744.49	0.012946	9.60	781.37	280.18	0.97
Agua Caliente	upper	27636.17	25 Year	7320.00	2733.15	2741.21	2740.93	2742.69	0.011577	9.80	752.68	229.21	0.95
Agua Caliente	upper	27415.17	25 Year	7320.00	2732.20	2739.25	2738.71	2740.27	0.009256	8.10	908.86	293.15	0.80
Agua Caliente	upper	27236.39	25 Year	7320.00	2730.20	2737.49	2736.88	2738.53	0.010288	8.17	901.77	268.93	0.78
Agua Caliente	upper	27073.54	25 Year	7320.00	2728.20	2735.86	2735.45	2736.90	0.009729	8.17	896.42	314.29	0.85
Agua Caliente	upper	26937.64	25 Year	7320.00	2726.20	2733.88	2733.46	2735.17	0.016588	9.14	800.63	245.67	0.87
Agua Caliente	upper	26827.35	25 Year	7320.00	2724.20	2733.00	2731.97	2733.90	0.007163	7.61	962.59	308.86	0.76
Agua Caliente	upper	26541.23	25 Year	7320.00	2722.20	2729.61	2729.61	2731.11	0.013440	9.82	745.60	247.74	1.00
Agua Caliente	upper	26354.97	25 Year	7320.00	2720.20	2728.13	2726.86	2728.71	0.008003	6.12	1196.50	342.47	0.58
Agua Caliente	upper	26188.3	25 Year	7320.00	2720.20	2726.35	2725.59	2727.23	0.009434	7.53	973.00	275.24	0.70
Agua Caliente	upper	25977.06	25 Year	7320.00	2718.20	2723.36	2723.15	2724.80	0.013751	9.82	818.14	259.29	0.82
Agua Caliente	upper	25817.13	25 Year	7320.00	2716.20	2721.71	2721.13	2722.87	0.009774	8.84	898.31	270.62	0.74
Agua Caliente	upper	25727.13	25 Year	7320.00	2714.20	2720.55	2720.40	2721.94	0.010050	9.81	859.50	293.71	0.81

HEC-RAS Plan: New VAEC Profile: 25 Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	upper	25613.79	25 Year	7320.00	2712.20	2719.60	2718.56	2720.81	0.009156	9.00	893.08	244.96	0.67
Agua Caliente	upper	25447.86	25 Year	7320.00	2710.20	2718.41	2717.14	2719.36	0.007527	8.07	1057.61	403.70	0.60
Agua Caliente	upper	25222.61	25 Year	7320.00	2708.20	2715.23	2715.04	2716.82	0.017510	10.14	724.49	294.02	0.92
Agua Caliente	upper	24991.27	25 Year	7320.00	2706.20	2712.76	2712.08	2714.06	0.008200	9.33	886.69	303.71	0.76
Agua Caliente	upper	24754.28	25 Year	7320.00	2703.34	2710.95	2709.97	2712.05	0.008207	8.56	945.11	339.09	0.68
Agua Caliente	upper	24588.07	25 Year	7320.00	2702.20	2709.71	2708.89	2710.77	0.007128	8.55	1010.81	360.47	0.65
Agua Caliente	upper	24317.77	25 Year	7320.00	2700.27	2706.13	2706.09	2707.57	0.022441	9.72	789.17	300.79	0.88
Agua Caliente	upper	24078.34	25 Year	7320.00	2698.20	2704.33	2702.69	2704.97	0.005529	6.52	1196.38	303.71	0.51
Agua Caliente	upper	23858.15	25 Year	7320.00	2695.58	2701.65	2701.31	2703.17	0.011615	9.90	739.42	187.29	0.88
Agua Caliente	upper	23410.62	25 Year	7320.00	2692.20	2698.55	2697.56	2699.64	0.005370	8.39	892.47	273.96	0.70
Agua Caliente	upper	23021.58	25 Year	7320.00	2691.50	2696.61	2696.10	2697.54	0.005172	8.14	1163.45	462.84	0.69
Agua Caliente	upper	22709.53	25 Year	7320.00	2689.29	2694.86	2694.13	2695.88	0.005429	8.49	1141.10	447.06	0.71
Agua Caliente	upper	22439.86	25 Year	7320.00	2686.84	2693.00	2692.75	2693.97	0.009256	8.18	1057.86	522.37	0.71
Agua Caliente	upper	22135.43	25 Year	7320.00	2683.58	2688.67	2688.67	2689.94	0.020003	9.63	839.00	332.72	0.94
Agua Caliente	upper	21893.26	25 Year	7320.00	2680.20	2687.73	2686.04	2688.19	0.002302	5.74	1411.19	369.18	0.46
Agua Caliente	upper	21722.29	25 Year	7930.00	2680.08	2686.61	2686.45	2687.52	0.007300	8.39	1102.98	493.04	0.78
Agua Caliente	upper	21619.14	25 Year	7930.00	2680.20	2686.07	2685.40	2686.83	0.005230	7.59	1187.20	396.11	0.68
Agua Caliente	upper	21161.08	25 Year	7930.00	2676.20	2683.35	2682.66	2684.29	0.006291	7.79	1017.54	563.76	0.73
Agua Caliente	upper	20689.67	25 Year	7930.00	2674.20	2680.84	2679.98	2681.64	0.004995	7.36	1280.81	592.51	0.66
Agua Caliente	upper	20224.2	25 Year	7930.00	2672.20	2678.80	2677.99	2679.64	0.003827	7.58	1327.25	840.15	0.68
Agua Caliente	upper	19962.61	25 Year	7930.00	2672.20	2677.15	2677.15	2678.10	0.009764	8.33	1266.82	827.04	0.73
Agua Caliente	upper	19774.66	25 Year	7930.00	2670.20	2675.97	2675.31	2676.71	0.003944	7.34	1406.98	533.50	0.60
Agua Caliente	upper	19584.44	25 Year	7930.00	2670.03	2674.59	2674.04	2675.70	0.005703	9.07	1203.46	510.24	0.82
Agua Caliente	upper	19356.98	25 Year	7930.00	2668.20	2673.44	2672.96	2674.33	0.005828	8.41	1271.69	417.17	0.72
Agua Caliente	upper	19010.68	25 Year	7930.00	2665.07	2670.99	2670.81	2671.99	0.008514	8.37	1085.56	525.42	0.83
Agua Caliente	upper	18727.05	25 Year	7930.00	2664.20	2669.65	2668.94	2670.28	0.003911	6.80	1442.84	711.60	0.59
Agua Caliente	upper	18351.98	25 Year	7930.00	2662.20	2667.43	2667.13	2668.24	0.007879	7.69	1455.10	1111.58	0.69
Agua Caliente	upper	17941.17	25 Year	7930.00	2660.20	2664.51	2664.12	2665.30	0.006439	8.13	1792.12	1336.77	0.74
Agua Caliente	upper	17531.27	25 Year	7930.00	2658.20	2661.92	2661.48	2662.63	0.006271	8.10	1892.99	1052.43	0.83
Agua Caliente	upper	17353.02	25 Year	7930.00	2656.20	2660.69	2660.15	2661.45	0.006359	8.25	1848.61	1117.38	0.84
Agua Caliente	upper	17186.91	25 Year	7930.00	2655.21	2659.76	2658.15	2660.37	0.005762	7.16	1807.79	844.58	0.71
Agua Caliente	upper	16713.82	25 Year	7930.00	2652.20	2656.80	2656.69	2657.63	0.005780	7.48	1269.99	838.64	0.79
Agua Caliente	upper	16317.38	25 Year	7930.00	2650.20	2655.00	2654.30	2655.64	0.004143	6.65	1387.85	611.74	0.67
Agua Caliente	upper	15833.59	25 Year	7930.00	2648.38	2653.08	2652.38	2653.69	0.003878	6.33	1320.76	523.59	0.64
Agua Caliente	upper	15499.03	25 Year	7930.00	2647.30	2650.90	2650.55	2651.63	0.011098	6.89	1193.60	664.47	0.76
Agua Caliente	upper	15303.96	25 Year	7930.00	2646.20	2649.31	2648.97	2650.14	0.005519	7.43	1203.96	607.26	0.78
Agua Caliente	upper	15139.89	25 Year	7930.00	2644.72	2648.75	2647.92	2649.27	0.004120	5.88	1437.26	536.64	0.60
Agua Caliente	upper	14880.52	25 Year	7930.00	2643.97	2647.49	2646.83	2648.18	0.004148	6.72	1222.47	444.19	0.68
Agua Caliente	upper	14549.94	25 Year	7930.00	2641.78	2644.99	2644.81	2645.87	0.013837	7.77	1123.03	529.64	0.86
Agua Caliente	upper	14469.1	25 Year	7930.00	2640.20	2644.51	2643.96	2645.22	0.004593	6.88	1253.21	684.02	0.71
Agua Caliente	upper	14378.58	25 Year	7930.00	2640.20	2644.28	2643.15	2644.87	0.002704	6.22	1351.95	928.30	0.56
Agua Caliente	upper	14287.58	25 Year	7930.00	2640.10	2643.82	2643.11	2644.50	0.006566	6.73	1320.77	836.74	0.65

HEC-RAS Plan: New VAEC Profile: 25 Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	upper	14202.59	25 Year	7930.00	2638.20	2643.78	2642.01	2644.15	0.001706	5.07	1928.72	1063.21	0.43
Agua Caliente	upper	13863.77	25 Year	7930.00	2638.12	2642.08	2641.55	2642.93	0.010690	7.56	1216.37	819.90	0.70
Agua Caliente	upper	13436.95	25 Year	7930.00	2634.71	2639.65	2638.84	2640.18	0.004072	6.25	1712.60	1271.23	0.55
Agua Caliente	upper	13118.88	25 Year	7930.00	2633.96	2637.53	2637.51	2638.28	0.009597	7.61	1517.82	1069.90	0.74
Agua Caliente	upper	13002.28	25 Year	7930.00	2632.20	2636.96	2636.19	2637.61	0.003451	7.02	1876.62	1921.95	0.64
Agua Caliente	upper	12894.15	25 Year	7930.00	2632.20	2636.18	2635.61	2636.99	0.010432	7.42	1185.90	606.39	0.72
Agua Caliente	upper	12790.35	25 Year	7930.00	2632.20	2635.71	2635.12	2636.25	0.004361	6.33	1866.61	1794.63	0.60
Agua Caliente	upper	12718.49	25 Year	7930.00	2632.20	2635.52	2634.19	2635.94	0.003272	5.86	2274.48	2212.36	0.57
Agua Caliente	upper	12546.41	25 Year	7930.00	2630.20	2634.98	2633.77	2635.37	0.003452	5.52	2253.36	2192.34	0.48
Agua Caliente	upper	12365.94	25 Year	7930.00	2630.20	2633.80	2633.79	2634.39	0.008788	7.12	1723.99	1761.78	0.67
Agua Caliente	upper	12212.12	25 Year	7930.00	2628.20	2632.76	2631.83	2633.28	0.005841	6.32	1834.84	1882.57	0.56
Agua Caliente	upper	11918.47	25 Year	7930.00	2626.92	2631.23	2630.99	2631.66	0.004821	6.10	2242.50	2034.30	0.56
Agua Caliente	upper	11673.91	25 Year	7930.00	2625.59	2629.96	2629.72	2630.48	0.004981	6.70	2073.26	1942.19	0.64
Agua Caliente	upper	11248.91	25 Year	7930.00	2624.20	2628.28	2627.63	2628.66	0.003776	6.12	2407.91	2282.38	0.54
Agua Caliente	upper	10901.11	25 Year	7930.00	2622.20	2624.58	2624.11	2625.46	0.020938	9.83	1801.04	1785.70	1.15
Agua Caliente	upper	10673.59	25 Year	7930.00	2620.20	2623.20	2622.83	2623.61	0.003569	5.65	2354.14	1754.59	0.58
Agua Caliente	middle	10603.59	25 Year	6991.58	2620.20	2622.64	2622.55	2623.27	0.005910	6.81	1517.50	1170.40	0.77
Agua Caliente	middle	10465.1	25 Year	6991.58	2619.05	2622.08	2621.36	2622.54	0.003395	5.76	1688.72	763.22	0.60
Agua Caliente	middle	10320.64	25 Year	6991.58	2617.71	2620.51	2620.51	2621.48	0.018337	7.95	949.85	655.81	0.92
Agua Caliente	middle	10131.91	25 Year	6991.58	2616.20	2619.98	2618.46	2620.34	0.001724	4.84	1443.08	398.14	0.45
Agua Caliente	middle	9909.25	25 Year	6991.58	2616.20	2619.15	2618.40	2619.74	0.004362	6.18	1147.58	494.91	0.64
Agua Caliente	middle	9550.47	25 Year	6991.58	2614.20	2617.66	2616.42	2618.09	0.004409	5.22	1338.59	403.04	0.51
Agua Caliente	middle	9307.97	25 Year	6991.58	2612.20	2617.32	2614.46	2617.51	0.001049	3.45	2031.15	518.53	0.29
Agua Caliente	middle	9091.3	25 Year	6991.58	2611.74	2615.41	2615.41	2616.62	0.017190	8.83	791.71	323.07	0.99
Agua Caliente	middle	8865.4	25 Year	6991.58	2609.44	2613.45	2612.60	2614.05	0.006262	6.25	1118.34	510.92	0.63
Agua Caliente	middle	8587.35	25 Year	6991.58	2607.96	2612.13	2611.34	2612.73	0.003712	6.21	1126.06	376.75	0.63
Agua Caliente	middle	8257.08	25 Year	6991.58	2605.51	2609.95	2609.76	2610.96	0.007914	8.08	865.15	343.26	0.90
Agua Caliente	middle	7968.62	25 Year	6991.58	2604.09	2608.31	2607.79	2609.07	0.005109	7.03	993.93	352.99	0.74
Agua Caliente	middle	7628.04	25 Year	6991.58	2601.69	2607.12	2605.81	2607.63	0.003217	5.75	1216.96	325.80	0.52
Agua Caliente	middle	7244.33	25 Year	6991.58	2599.87	2606.90	2603.41	2607.19	0.000477	4.32	1628.91	268.25	0.30
Agua Caliente	middle	6971.06	25 Year	6991.58	2598.09	2606.46	2602.54	2606.97	0.000654	5.74	1218.07	156.48	0.36
Agua Caliente	middle	6769.06	25 Year	6991.58	2596.77	2606.19	2602.22	2606.78	0.001030	6.18	1131.30	138.74	0.38
Agua Caliente	middle	6687.06		Bridge									
Agua Caliente	middle	6544.64	25 Year	6991.58	2595.60	2600.73	2600.73	2602.98	0.011490	12.02	581.45	129.96	1.00
Agua Caliente	middle	6260.16	25 Year	6991.58	2592.33	2597.83	2597.70	2598.62	0.007102	7.38	1167.87	1541.06	0.75
Agua Caliente	middle	5961.45	25 Year	6991.58	2590.42	2595.98	2595.98	2596.66	0.006286	7.75	1466.79	1193.17	0.66
Agua Caliente	middle	5794.74	25 Year	6991.58	2589.70	2594.59	2594.59	2595.43	0.006786	8.48	1367.79	1139.58	0.82
Agua Caliente	middle	5640.23	25 Year	6991.58	2588.76	2594.63	2593.56	2594.81	0.001568	3.92	2710.60	1825.72	0.39
Agua Caliente	lower	5365.23	25 Year	5136.78	2587.74	2592.54	2591.86	2592.91	0.003339	5.24	1184.63	1094.14	0.52
Agua Caliente	lower	5242.33	25 Year	5136.78	2586.65	2591.85	2590.96	2592.41	0.004480	5.97	860.65	613.73	0.60
Agua Caliente	lower	5189.01	25 Year	5136.78	2586.56	2591.58	2590.52	2592.19	0.004140	6.29	816.80	231.08	0.59
Agua Caliente	lower	5164.33		Bridge									

HEC-RAS Plan: New VAEC Profile: 25 Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	lower	5083.33	25 Year	5136.78	2586.31	2590.59	2590.02	2591.44	0.006797	7.40	694.46	224.62	0.74
Agua Caliente	lower	5007.33	25 Year	5136.78	2585.69	2590.36	2589.42	2590.91	0.003883	6.17	896.65	337.18	0.58
Agua Caliente	lower	4808.89	25 Year	5136.78	2584.15	2588.68	2588.68	2589.49	0.009042	9.67	937.82	1055.11	0.87
Agua Caliente	lower	4640.59	25 Year	5136.78	2583.27	2587.41	2586.98	2587.84	0.005321	6.10	1238.99	1243.66	0.64
Agua Caliente	lower	4293.46	25 Year	5136.78	2581.36	2584.95	2584.84	2585.39	0.008443	6.92	1373.39	1388.63	0.79
Agua Caliente	lower	3943.83	25 Year	5136.78	2578.93	2583.31	2582.61	2583.61	0.003220	4.88	1416.75	764.80	0.51
Agua Caliente	lower	3579.38	25 Year	5136.78	2577.11	2581.15	2581.15	2581.90	0.007975	7.72	998.35	768.24	0.75
Agua Caliente	lower	3344.57	25 Year	5136.78	2575.66	2579.63	2579.36	2580.05	0.005795	6.13	1380.00	1397.93	0.67
Agua Caliente	lower	3039.07	25 Year	5136.78	2573.50	2577.08	2577.08	2577.72	0.009424	7.15	1079.18	1293.30	0.83
Agua Caliente	lower	2734.71	25 Year	5136.78	2571.40	2574.78	2574.44	2575.13	0.006889	6.48	1573.67	1469.55	0.81
Agua Caliente	lower	2590.18	25 Year	5136.78	2570.78	2573.77	2573.39	2574.10	0.007727	5.82	1417.83	1455.43	0.73
Agua Caliente	lower	2425.08	25 Year	5136.78	2569.69	2573.12	2572.33	2573.23	0.003427	3.82	2299.83	2254.22	0.49
Agua Caliente	lower	2225.5	25 Year	5136.78	2568.35	2572.00	2571.63	2572.16	0.007399	4.37	1790.43	2065.97	0.48
Agua Caliente	lower	1877.58	25 Year	5136.78	2566.10	2569.18	2569.18	2569.59	0.008209	7.47	1416.68	1669.50	0.90
Agua Caliente	lower	1549.86	25 Year	5136.78	2563.59	2566.72	2566.46	2566.92	0.006764	4.04	1437.80	1784.99	0.64
Agua Caliente	lower	1261.13	25 Year	5136.78	2561.37	2565.16	2564.82	2565.32	0.004430	3.65	1830.50	2005.02	0.48
Agua Caliente	lower	968.69	25 Year	5136.78	2560.20	2563.12	2562.93	2563.39	0.008948	5.46	1521.30	1894.93	0.76
Agua Caliente	lower	760.51	25 Year	5136.78	2558.20	2561.33	2561.14	2561.62	0.007761	5.59	1561.97	1629.27	0.73
Agua Caliente	lower	554.81	25 Year	5136.78	2556.20	2559.42	2559.42	2559.92	0.007315	7.34	1479.24	1700.17	0.76
Agua Caliente	lower	0	25 Year	17721.08	2550.20	2559.08	2555.11	2559.24	0.000501	3.86	7822.90	2082.45	0.25
AC Spur	AC Spur	5472.12	25 Year	938.42	2622.20	2623.22	2622.71	2623.28	0.009282	2.01	481.13	523.70	0.36
AC Spur	AC Spur	5178.24	25 Year	938.42	2619.44	2620.58	2620.14	2620.63	0.008464	1.91	569.43	865.85	0.34
AC Spur	AC Spur	4813.20	25 Year	938.42	2616.20	2617.62	2617.15	2617.68	0.007652	1.94	502.74	677.30	0.37
AC Spur	AC Spur	4497.37	25 Year	938.42	2614.20	2615.98	2615.17	2616.02	0.003837	1.50	627.75	660.75	0.27
AC Spur	AC Spur	4230.27	25 Year	938.42	2613.79	2614.97	2614.50	2614.99	0.003778	1.34	735.91	1082.86	0.26
AC Spur	AC Spur	3934.74	25 Year	938.42	2612.19	2612.70	2612.56	2612.78	0.021527	2.28	418.73	879.96	0.57
AC Spur	AC Spur	3654.17	25 Year	938.42	2610.20	2611.38	2610.72	2611.39	0.002053	1.05	925.96	1112.78	0.19
AC Spur	AC Spur	3474.64	25 Year	938.42	2610.20	2610.70	2610.44	2610.73	0.008120	1.40	685.86	1438.07	0.35
AC Spur	AC Spur	3215.30	25 Year	938.42	2606.84	2608.88	2608.51	2608.91	0.006144	1.60	649.96	1203.15	0.33
AC Spur	AC Spur	2911.33	25 Year	938.42	2604.20	2607.85	2606.72	2607.87	0.002152	0.98	881.88	1450.65	0.19
AC Spur	AC Spur	2602.91	25 Year	938.42	2606.08	2606.71	2606.44	2606.74	0.007737	1.41	700.61	2156.57	0.34
AC Spur	AC Spur	2286.58	25 Year	938.42	2603.57	2604.67	2604.34	2604.69	0.005265	1.42	721.72	2104.56	0.30
AC Spur	AC Spur	1946.69	25 Year	938.42	2601.58	2602.48	2602.27	2602.52	0.008814	1.43	667.43	2378.48	0.36
AC Spur	AC Spur	1600.02	25 Year	938.42	2598.57	2600.00	2599.62	2600.05	0.005825	1.66	579.34	2206.43	0.34
AC Spur	AC Spur	1199.20	25 Year	938.42	2596.66	2598.12	2597.47	2598.17	0.004112	1.09	645.71	2328.58	0.27
AC Spur	AC Spur	837.50	25 Year	938.42	2594.52	2595.69	2595.32	2595.77	0.011772	2.24	444.21	1666.62	0.45
AC Spur	AC Spur	566.48	25 Year	938.42	2592.62	2594.23	2593.62	2594.27	0.003232	1.71	627.48	2457.13	0.30
AC Spur	AC Spur	350.	25 Year	936.47	2591.56	2592.25	2592.25	2592.46	0.048778	3.78	256.32	1350.91	1.01
AC Split	upper	3599.078	25 Year	1637.86	2590.35	2592.95	2592.37	2593.05	0.005490	2.52	682.41	776.64	0.40
AC Split	upper	3235.949	25 Year	1637.86	2589.07	2591.23	2590.63	2591.29	0.004344	2.22	805.39	890.81	0.36
AC Split	lower	2853.265	25 Year	2793.22	2586.16	2589.50	2588.68	2589.63	0.004652	3.15	1095.23	1208.83	0.40
AC Split	lower	2508.632	25 Year	2793.22	2584.20	2587.60	2587.06	2587.77	0.006264	3.62	927.31	947.35	0.46

HEC-RAS Plan: New VAEC Profile: 25 Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
AC Split	lower	2214.257	25 Year	2793.22	2581.17	2585.02	2584.61	2585.31	0.011624	4.39	660.15	509.14	0.61
AC Split	lower	1933.962	25 Year	2793.22	2580.75	2584.03	2582.68	2584.12	0.002007	2.44	1309.30	828.34	0.27
AC Split	lower	1426.381	25 Year	2793.22	2578.32	2581.34	2581.06	2581.71	0.021583	4.95	596.97	497.76	0.69

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

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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: Agua Caliente
Project File : AC.prj
Run Date and Time: 6/16/2009 9:44:56 AM

Project in English units

Project Description:
Model for Agua Caliente Wash, modeling for the wider bridge.

WEST
Consultants, Inc., revised model for Agua Caliente Wash CLOMR, 1-26-2007.
Project number 270c02. (Used as our Existing Conditions)

PLAN DATA

Plan Title: VAEC w/ replaced XSecs
Plan File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\AguaCaliente\AC.p03

Geometry Title: Existing Conditions w/ replaced XSecs
Geometry File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\AguaCaliente\AC.g06

Flow Title : VAEC Flow
Flow File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\AguaCaliente\AC.f01

Plan Description:
Existing Model Geometry with the Vertical Adjustment of 2.2'

Plan Summary Information:

Number of:	Cross Sections	= 169	Multiple Openings	=	0
	Culverts	= 0	Inline Structures	=	0
	Bridges	= 2	Lateral Structures	=	0

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

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

FLOW DATA

Flow Title: VAEC Flow
Flow File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\AguaCaliente\AC.f01

Flow Data (cfs)

River	Reach	RS	100 Year	25 Year	Design
AC Split	upper	3599.078	3170	1933.7	3804
AC Split	lower	2853.265	5630	3434.3	6756
AC Spur	AC Spur	5472.12	2460	1500.6	2952

Agua Caliente	upper	31333.21	12000	7320	14400
Agua Caliente	upper	21722.29	13000	7930	15600
Agua Caliente	middle	10603.59	10540	6429.4	12648
Agua Caliente	lower	5365.23	7370	4495.7	8844
Agua Caliente	lower	0	28000	17080	33600

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
AC Split	lower	100 Year		Normal S = 0.006
AC Split	lower	25 Year		Known WS = 2581.34
AC Split	lower	Design		Known WS = 2581.34
Agua Caliente	upper	100 Year	Normal S = 0.025	
Agua Caliente	upper	25 Year	Normal S = 0.025	
Agua Caliente	upper	Design	Normal S = 0.025	
Agua Caliente	lower	100 Year		Known WS = 2558.08
Agua Caliente	lower	25 Year		Known WS = 2559.08
Agua Caliente	lower	Design		Known WS = 2559.08

GEOMETRY DATA

Geometry Title: Existing Conditions w/ replaced XSecs
Geometry File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\AguaCaliente\AC.g06

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
AC Split	upper	Hough Split	J-Split-Spur
AC Split	lower	J-Split-Spur	
AC Spur	AC Spur	AC Spur	J-Split-Spur
Agua Caliente	upper		AC Spur
Agua Caliente	middle	AC Spur	Hough Split
Agua Caliente	lower	Hough Split	

JUNCTION INFORMATION

Name: AC Spur
Description:
Energy computation Method

Length across Junction		Tributary			
River	Reach	River	Reach	Length	Angle
Agua Caliente	upper	to Agua Caliente	middle	70	
Agua Caliente	upper	to AC Spur	AC Spur	90	

Name: J-Split-Spur
Description:
Energy computation Method

Length across Junction		Tributary			
River	Reach	River	Reach	Length	Angle
AC Spur	AC Spur	to AC Split	lower	350	
AC Split	upper	to AC Split	lower	380	

Name: Hough Split
Description:
Momentum computation Method
Add Friction
Do Not Add Weight

Length across Junction		Tributary			
River	Reach	River	Reach	Length	Angle
Agua Caliente	middle	to Agua Caliente	lower	275	
Agua Caliente	middle	to AC Split	upper	220	60

CROSS SECTION

RIVER: AC Split
REACH: upper RS: 3599.078

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-132.89	2592.97	-132.05	2593.01	-106.98	2593.1	-94.76	2593.18	-88.5	2593.25
-80.28	2593.28	-71.8	2593.34	-63.75	2593.34	-62.16	2593.32	-49.35	2593.28
-15.09	2593.21	12.39	2593.21	65.52	2592.57	82.06	2592.5	86.29	2592.51
94.79	2592.82	111.3	2592.24	122.11	2592.03	129.9	2592.19	133.08	2592.3

137.04	2592.29	145.29	2592.38	167.56	2592.69	172.34	2592.77	177.87	2592.84
188.81	2592.92	195.94	2592.92	201.01	2592.82	210.04	2592.76	228.06	2591.73
237.94	2591.97	254.76	2592.26	264.99	2592.42	268.87	2592.38	271.87	2592.35
282.84	2592.15	285.78	2592.25	289.61	2592.32	302.78	2592.46	307.32	2592.46
308.34	2592.44	309.79	2592.38	314.21	2592.14	322.27	2591.6	330.07	2591.95
332.18	2591.99	335.94	2592.04	338.27	2592.03	369.22	2592.37	384.49	2592.45
389.24	2592.4	398.69	2591.33	399.95	2591.26	401.91	2591.07	405.65	2591
407.15	2590.89	409.38	2590.85	418.16	2590.55	425.76	2590.68	436.26	2591.2
441.03	2591.37	447.55	2591.66	451.11	2591.88	453.72	2591.92	458.12	2591.94
481.15	2591.83	483.94	2591.83	488.22	2591.19	493.98	2590.35	496.09	2590.59
502.87	2591.52	515.78	2591.56	521.46	2591	525.47	2591.29	527.31	2591.44
540.1	2591.59	543.3	2591.57	548.97	2591.62	572.57	2591.45	575.02	2591.4
579.16	2591.36	584.33	2591.27	585.36	2591.29	595.39	2591.38	595.42	2591.38
629.88	2591.67	634.58	2591.15	636.41	2590.89	642.88	2590.92	649.71	2591.01
661.39	2590.82	674.06	2591.73	701.06	2591.87	710.95	2591.73	715.23	2591.68
720.42	2591.7	756.1	2591.73	789.21	2591.55	804.29	2591.48	810.35	2591.35

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-132.89	.05	-94.76	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
195.94	701.06	286.99	363.46	382.87	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-132.89	5.05	2594.56	F
701	810.35	2594.57	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2593.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	2593.60	Reach Len. (ft)	286.99	363.46	382.87
Crit W.S. (ft)	2592.96	Flow Area (sq ft)	180.17	945.50	
E.G. Slope (ft/ft)	0.006359	Area (sq ft)	233.51	945.60	212.30
Q Total (cfs)	3811.88	Flow (cfs)	410.76	3401.11	
Top Width (ft)	943.24	Top Width (ft)	328.83	505.12	109.29
Vel Total (ft/s)	3.39	Avg. Vel. (ft/s)	2.28	3.60	
Max Chl Dpth (ft)	3.25	Hydr. Depth (ft)	0.94	1.87	
Conv. Total (cfs)	47803.5	Conv. (cfs)	5151.3	42652.2	
Length Wtd. (ft)	352.60	Wetted Per. (ft)	190.92	505.57	
Min Ch El (ft)	2590.35	Shear (lb/sq ft)	0.37	0.74	
Alpha	1.06	Stream Power (lb/ft s)	0.85	2.67	
Frctn Loss (ft)	1.67	Cum Volume (acre-ft)	9.33	15.33	3.72
C & E Loss (ft)	0.04	Cum SA (acres)	2.80	3.85	1.25

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: AC Split
REACH: upper RS: 3235.949

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
47.13	2592.18	53.58	2592.12	95.22	2592.02	102.48	2591.87	118.54	2591.75
122.41	2591.66	125.66	2591.63	128.48	2591.52	133.4	2591.41	139.33	2591.41
193.9	2591.61	199.58	2591.25	203.17	2591.1	214.67	2591.51	224.84	2591.43
313.5	2591.05	335.6	2591.36	342.14	2591.4	350.11	2591.3	362.18	2591.23
386.41	2591.22	391.68	2591.25	411.27	2591.11	426.35	2591.11	436.48	2591.18
468.94	2591.02	471.14	2590.98	476.83	2590.99	492.79	2590.89	502.34	2590.39
506.4	2590.22	516.35	2590.41	521.09	2590.41	528.89	2590.2	533.56	2590.14
536.99	2590.18	541.7	2590.3	549.63	2590.64	563.03	2590.43	568.7	2590.41
571.69	2590.15	580.94	2589.56	591.29	2589.81	597.51	2589.83	618.22	2589.87
627.84	2589.96	637.73	2589.43	650.23	2590.34	681.5	2590.2	689.86	2589.61
719.87	2590.18	739.16	2590.42	776.33	2590.35	792.17	2589.8	804.74	2590.23
810.22	2590.25	810.27	2590.25	862.65	2590.41	878.67	2590.11	895.32	2589.72
896.8	2589.69	908.74	2589.98	923.52	2589.63	929.93	2589.79	939.11	2589.82
950.1	2589.24	955.75	2589.07	970.65	2589.9	974.74	2590.2	982.89	2590.03
1001.76	2589.45	1008.75	2589.68	1036.64	2590.18	1057.04	2590.1	1065.67	2590.31
1073.03	2589.96	1089.62	2590.34	1096.33	2590.33	1102.84	2590.41	1111.06	2589.6
1113.83	2589.82	1118.33	2590.02	1126.61	2589.94	1141.14	2590.63	1154.31	2590.49
1158.45	2590.11	1174.83	2590.17	1179.18	2590.39	1188.26	2589.96	1197.67	2589.38
1205.54	2589.59	1207.34	2590.07	1208.59	2590.55	1214.63	2592.61	1215.05	2592.79
1221.24	2594.38	1222.43	2594.63	1226.23	2595.69	1229.61	2596.73	1238.98	2599.27

Manning's n Values num= 1

Sta	n Val

47.13 .05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
618.22	1036.64	0	0	0	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
47.13	47	2596	F
1181.3	1238.98	2595.84	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2592.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	2591.97	Reach Len. (ft)	380.00	380.00	380.00
Crit W.S. (ft)	2591.09	Flow Area (sq ft)	487.88	815.69	255.87
E.G. Slope (ft/ft)	0.003682	Area (sq ft)	487.88	815.69	318.66
Q Total (cfs)	3811.88	Flow (cfs)	842.66	2294.72	674.50
Top Width (ft)	1114.88	Top Width (ft)	520.36	418.42	176.10
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	1.73	2.81	2.64
Max Chl Dpth (ft)	2.90	Hydr. Depth (ft)	0.94	1.95	1.77
Conv. Total (cfs)	62821.0	Conv. (cfs)	13887.3	37817.8	11116.0
Length Wtd. (ft)	380.00	Wetted Per. (ft)	520.46	418.60	144.77
Min Ch El (ft)	2589.07	Shear (lb/sq ft)	0.22	0.45	0.41
Alpha	1.11	Stream Power (lb/ft s)	0.37	1.26	1.07
Frctn Loss (ft)	1.65	Cum Volume (acre-ft)	6.95	7.98	1.39
C & E Loss (ft)	0.02	Cum SA (acres)			

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: AC Split
REACH: lower RS: 2853.265

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2596.25	7.26	2596.2	137.18	2596.2	144.28	2595.46	149.13	2595.1
153.54	2594.7	159.9	2594.2	175.71	2592.75	183.24	2592.29	183.57	2592.31
184.58	2592.3	185.54	2592.35	189.07	2592.51	190.87	2592.62	195.88	2592.89
200.8	2593.21	204.84	2593.44	207.41	2593.58	214.89	2594.08	215.35	2594.11
216.96	2594.2	221.75	2594.2	233.94	2594.31	245.19	2594.39	250.26	2594.44
309.32	2594.61	348.75	2594.82	353.5	2594.84	358.14	2594.87	394.28	2595.03
399.13	2595.06	400.47	2595.07	463.54	2594.97	590.37	2594.2	653.47	2594.2
679.15	2594	713.96	2594.02	719	2594	800.63	2594.2	988.18	2594.2
997.15	2593.73	1023.42	2592.2	1032.79	2590.98	1036.01	2590.57	1038.51	2590.2
1044.29	2590.2	1085.79	2590.99	1090.04	2591.06	1103.68	2591.31	1116.15	2591.52
1119.11	2591.56	1121.69	2591.61	1125.13	2591.63	1176.27	2592.2	1227.55	2592.5
1232.56	2592.12	1255.88	2591.98	1265.26	2591.71	1280.44	2591.99	1331.41	2590.21
1359.9	2592.01	1430.66	2592.57	1473.55	2591.94	1543.61	2592.69	1570.13	2592.55
1575.56	2592.78	1586.28	2592.71	1720.44	2592.7	1750.22	2592.15	1768.01	2592.21
1779.01	2591.95	1808.39	2591.62	1869.54	2591.94	1892.94	2591.88	1901.11	2592.14
1932.59	2592.55	1975.16	2591.98	2037.56	2592.07	2070	2591.92	2089.4	2592.46
2147.01	2591.71	2237.04	2592.01	2336.82	2591.15	2356.02	2591.12	2371.23	2590.79
2388.89	2590.68	2427.21	2590.88	2496.84	2591.64	2512.22	2591.43	2653.15	2591.42
2687.49	2591.14	2801.84	2591.15	2833.02	2591.28	2845.26	2591.05	2870.63	2590.93
2909.83	2590.46	2944.72	2590.58	3001.22	2590.19	3038.9	2590.44	3062.97	2590.99
3071.7	2591.49	3126.05	2591.36	3142.71	2589.98	3164.35	2589.65	3233.18	2589.88
3276.98	2589.53	3410.76	2589.44	3418.74	2589.28	3478.43	2589.28	3555.85	2589.69
3572.9	2589.47	3590.38	2589.03	3604.69	2589.46	3623.25	2588.95	3635.56	2589.74
3646.01	2589.78	3682.55	2589.21	3689.11	2589.6	3697.6	2589.4	3702.1	2589.49
3718.36	2588.84	3765.85	2589.24	3837.71	2588.99	3992.14	2589.27	4029.72	2589.13
4044.51	2589.27	4085.99	2588.95	4156.49	2588.69	4194.77	2588.35	4219.69	2587.08
4241.31	2587.9	4369.03	2587.88	4386.12	2587.61	4415.05	2587.76	4441.71	2587.6
4441.74	2587.6	4477.64	2587.34	4484.9	2587.42	4491.96	2587.2	4504.25	2587.3
4546.54	2587.15	4559.21	2587.35	4570.76	2587.27	4577.28	2587.92	4583.76	2586.78
4587.27	2586.65	4592.72	2586.16	4600.43	2586.71	4609.7	2586.88	4616.83	2587.99
4631.62	2592.07	4647.52	2597.41	4658.32	2600.84				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.055	1808.39	.06	2801.84	.05	4241.31	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4241.31	4631.62	340.96	344.63	341.12	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1930	2599.2	F
1932.73	3204.1	2592.69	F

Blocked Obstructions num= 3

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1023.68	1177.46	2592.2	1299.16	1419.92	2592.19	2281.94	2704.85	2590.8

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2590.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	2590.22	Reach Len. (ft)	340.96	344.63	341.12
Crit W.S. (ft)	2589.65	Flow Area (sq ft)	1076.59	1014.38	
E.G. Slope (ft/ft)	0.004816	Area (sq ft)	1105.95	1014.38	
Q Total (cfs)	6272.50	Flow (cfs)	2276.00	3996.51	
Top Width (ft)	1494.36	Top Width (ft)	1110.75	383.61	
Vel Total (ft/s)	3.00	Avg. Vel. (ft/s)	2.11	3.94	
Max Chl Dpth (ft)	4.06	Hydr. Depth (ft)	1.04	2.64	
Conv. Total (cfs)	90385.1	Conv. (cfs)	32796.5	57588.6	
Length Wtd. (ft)	343.28	Wetted Per. (ft)	1037.35	384.18	
Min Ch El (ft)	2586.16	Shear (lb/sq ft)	0.31	0.79	
Alpha	1.28	Stream Power (lb/ft s)	0.66	3.13	
Frctn Loss (ft)	1.76	Cum Volume (acre-ft)	25.05	36.60	
C & E Loss (ft)	0.00	Cum SA (acres)	25.15	12.39	

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: AC Split
REACH: lower RS: 2508.632

INPUT
Description:
Station Elevation Data num= 136

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2594.28	31.45	2594.2	51.78	2594.2	58.1	2593.4	67	2592.2
73.57	2591.56	79.69	2590.94	88.97	2590.51	90.1	2590.61	92.21	2590.79
93.09	2590.83	98.72	2591.35	101.63	2591.59	107.9	2592.2	137.27	2593.4
146.97	2593.75	148.99	2593.84	154.47	2593.94	156.43	2594.01	157.07	2594.03
162.14	2594.04	162.66	2594.06	163.09	2594.07	168.6	2594.05	169.03	2594.07
173.74	2594.2	254.6	2594.2	457.06	2592.32	461.25	2592.3	466.07	2592.29
471.45	2592.26	487.25	2592.2	754.37	2592.2	800.73	2591	802.48	2591
823.04	2590.2	835.9	2590.2	850.95	2591.39	855.43	2591.04	858.61	2591.71
860.12	2590.72	863.27	2589.57	881.99	2589.63	892.62	2589.42	930.68	2589.33
955.14	2590.81	993.26	2590.58	997.97	2590.93	1004.89	2590.54	1012.99	2590.43
1019.59	2590.16	1031.05	2589.36	1044.74	2589.21	1075.31	2591.24	1109.2	2591.94
1222.92	2591.92	1277.34	2591.49	1387.35	2591.14	1429.51	2590.76	1489.79	2590.48
1567.25	2590.4	1575.47	2590.48	1599.47	2590.35	1666.81	2590.56	1716.17	2590.52
1786.16	2590.76	1797.67	2590.24	1824.29	2590.44	1861.8	2590.22	1967.6	2589.98
2030.89	2589.41	2122.37	2589.69	2214.46	2589.79	2265.45	2589.47	2480.33	2589.05
2593.93	2589.08	2634.71	2588.92	2656.28	2589.08	2666.18	2588.88	2684.96	2589.24
2830.25	2588.28	2851.44	2588.55	2885.95	2588.48	3009.55	2587.79	3132.35	2587.59
3140.76	2587.7	3142.47	2587.85	3167.42	2587.68	3171.74	2587.12	3177.5	2587.11
3191.05	2587.39	3225.05	2587.3	3293.48	2587.45	3331.72	2587.94	3387.59	2587.85
3421.05	2587.45	3451.55	2587.43	3481.23	2587.63	3525.13	2587.33	3556.72	2587.76
3591.19	2587.5	3623.11	2587.1	3639.22	2586.75	3674.41	2587.24	3697.92	2586.99
3766.78	2586.86	3775.01	2587.08	3792.68	2586.84	3814.9	2587.02	3840.53	2586.67
3887.88	2586.32	3902.8	2586.71	3921.43	2586.32	3974.94	2585.97	4003.28	2585.93
4036.63	2586.17	4075.71	2585.91	4075.79	2585.91	4099.78	2585.55	4123.21	2585.54
4140.7	2585.14	4153.12	2585.98	4175.84	2585.5	4192.19	2585.47	4211.58	2584.6
4224.84	2584.63	4229.6	2584.2	4234.95	2584.75	4243.68	2584.54	4251.96	2586.29
4268.24	2590.99	4285.96	2597.15	4290.95	2597.68	4294.88	2597.27	4297.02	2596.49
4315.29	2596.54								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.055	1429.51	.06	3009.55	.05	3921.43	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
3921.43	4290.95	284.51	294.38	290.18	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1813	2596.2	F
1813	2998.86	2590.35	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2588.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	2588.43	Reach Len. (ft)	284.51	294.38	290.18
Crit W.S. (ft)	2587.75	Flow Area (sq ft)	1005.87	917.90	
E.G. Slope (ft/ft)	0.005481	Area (sq ft)	1037.97	917.90	
Q Total (cfs)	6272.50	Flow (cfs)	2345.66	3926.84	

Top Width (ft)	1397.00	Top Width (ft)	1059.07	337.93
Vel Total (ft/s)	3.26	Avg. Vel. (ft/s)	2.33	4.28
Max Chl Dpth (ft)	4.23	Hydr. Depth (ft)	1.09	2.72
Conv. Total (cfs)	84726.4	Conv. (cfs)	31684.2	53042.2
Length Wtd. (ft)	292.09	Wetted Per. (ft)	922.66	338.52
Min Ch El (ft)	2584.20	Shear (lb/sq ft)	0.37	0.93
Alpha	1.27	Stream Power (lb/ft s)	0.87	3.97
Frctn Loss (ft)	2.11	Cum Volume (acre-ft)	16.66	28.95
C & E Loss (ft)	0.02	Cum SA (acres)	16.66	9.53

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: AC Split
REACH: lower RS: 2214.257

INPUT
Description:
Station Elevation Data num= 114

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2592.42	34.83	2592.2	98.03	2592.93	100.73	2592.9	141.78	2592.2
198.87	2592.2	364.68	2591.18	366.9	2591.16	368.01	2591.16	368.63	2591.15
370.11	2591.15	370.16	2591.14	371.09	2591.14	371.57	2591.15	372.53	2591.15
373.98	2591.17	490.22	2590.34	492.48	2590.17	497.37	2591.17	518.52	2591.71
529.65	2591.36	588.51	2588.48	627.08	2588.59	649.89	2588.18	661.46	2588.17
693.89	2588.67	710.86	2588.65	719.43	2588.81	730.13	2588.76	789.67	2590.31
796.83	2590.13	842.9	2591.22	868.73	2591.06	896.89	2591.29	932.06	2591.15
956.24	2590.46	988.71	2590.62	994.54	2590.62	998.75	2590.35	1031.34	2589.78
1074.04	2589.73	1119.51	2589.23	1131.84	2589.25	1141.78	2589.49	1174.17	2589.68
1219.22	2589.44	1224.96	2589.54	1271.72	2589.27	1294.68	2589.34	1393.44	2588.7
1457.36	2589.25	1486.88	2589.23	1541.98	2590.19	1564.49	2590.43	1575.1	2590.38
1610.36	2589.52	1693.26	2588.94	1707.87	2589.02	1729.9	2587.57	1736.94	2587.37
1746.74	2587.65	1761.47	2589.29	1813.72	2589.5	1877.42	2588.97	1918.16	2588.92
1929.82	2588.63	2050.63	2588.16	2141.85	2588.41	2201.86	2588.4	2245.62	2588.13
2294.55	2588.27	2376.95	2587.55	2415.93	2587.43	2439.32	2587.57	2562.96	2587.32
2617.68	2587.04	2752.39	2586.78	2782.19	2586.93	2878.17	2586.8	2913.62	2586.68
2937.48	2586.28	2964.18	2586.29	3010.22	2585.13	3027.43	2584.45	3059.17	2585.25
3125.69	2585.95	3171.78	2586.06	3219	2585.65	3249.53	2585.92	3269.17	2585.65
3421.62	2585.51	3473.63	2584.65	3538.68	2584.2	3604.93	2584.04	3613.78	2584.52
3639.86	2584.22	3691.42	2584.2	3703.82	2583.96	3721.66	2583.31	3771.33	2583.16
3777.78	2582.97	3790.17	2582.55	3805.05	2582.79	3825.53	2582.64	3873.64	2582.94
3878.34	2582.69	3884.07	2581.77	3895.63	2581.59	3901.29	2581.17	3909.99	2581.76
3925.26	2585.36	3944.18	2590.86	3949.47	2591.76	3950	2591.72		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.065	627.08	.055	1294.68	.06	2376.95	.05	3538.68	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
3538.68	3950	288.6	280.29	277.7	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1642	2595.46	F
2945.05	3124.54	2586.21	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2586.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	2586.04	Reach Len. (ft)	288.60	280.29	277.70
Crit W.S. (ft)	2585.43	Flow Area (sq ft)	249.49	1014.85	
E.G. Slope (ft/ft)	0.009981	Area (sq ft)	354.75	1014.85	
Q Total (cfs)	6272.50	Flow (cfs)	568.35	5704.15	
Top Width (ft)	944.22	Top Width (ft)	555.29	388.93	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)	2.28	5.62	
Max Chl Dpth (ft)	4.87	Hydr. Depth (ft)	0.62	2.61	
Conv. Total (cfs)	62786.0	Conv. (cfs)	5689.0	57097.0	
Length Wtd. (ft)	281.61	Wetted Per. (ft)	404.77	389.60	
Min Ch El (ft)	2581.17	Shear (lb/sq ft)	0.38	1.62	
Alpha	1.19	Stream Power (lb/ft s)	0.87	9.12	
Frctn Loss (ft)	1.31	Cum Volume (acre-ft)	12.11	22.42	
C & E Loss (ft)	0.09	Cum SA (acres)	11.39	7.08	

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: AC Split
REACH: lower RS: 1933.962

INPUT
Description:
Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2590.2	8.34	2590.2	9.29	2590.2	10.18	2590.2	18.61	2590.2
19.21	2590.2	27.61	2590.2	27.92	2590.2	35.86	2590.2	35.95	2590.2
36.9	2590.21	40.68	2590.2	43.25	2590.2	48.83	2590.2	49.15	2590.2
50.06	2590.2	51.01	2590.2	53.3	2590.2	65.46	2590.2	68.52	2590.2
80.1	2590.2	88.23	2590.2	95.07	2590.2	110.16	2590.2	115.74	2590.2
117.99	2590.2	118.5	2590.2	121.13	2590.2	152.64	2589.3	154.26	2589.37
157.13	2589.2	191.26	2589.34	210.71	2589.85	227.59	2590.46	315.57	2590.64
403.53	2589.03	435.87	2587.01	460.08	2587.42	481.49	2586.75	507.61	2588.12
546.53	2588.12	560.34	2588.49	584.81	2590.03	655.79	2590.22	670.85	2590.5
680.41	2590.21	703.47	2590.02	719.07	2589.61	750.85	2589.3	762.03	2589.32
778.33	2589.16	845.7	2588.48	849.63	2588.33	912.43	2588.46	941.32	2588.12
943.86	2588.26	1061.51	2588.37	1101.52	2588.63	1159.09	2587.94	1221.51	2587.63
1287.29	2587.82	1303.38	2587.6	1420.12	2587.53	1470.33	2587.26	1642.81	2587.18
1660.24	2587.34	1712.56	2587.2	1784.97	2587.41	1863.87	2586.92	1887.58	2586.94
2012.65	2586.38	2070.06	2586.24	2072.26	2586.44	2090.51	2586.02	2131.02	2586.2
2152.84	2586.11	2217.11	2586.16	2326.25	2586.47	2340.25	2586.42	2391.7	2585.73
2413.64	2585.99	2437.86	2585.86	2454.56	2585.62	2545.14	2584.91	2591.98	2584.36
2610.41	2584.41	2668.72	2584.18	2738.39	2584.25	2803.48	2583.95	2876.06	2583.9
2914.7	2583.71	2939.86	2583.12	2949.93	2583.18	2975.13	2583.04	3030.69	2583.64
3040.27	2583.61	3046.84	2583.44	3127.5	2582.84	3186.41	2582.56	3198.61	2582.29
3229.66	2582.01	3243.72	2581.49	3287.68	2581.67	3289.31	2581.51	3350.35	2581.08
3384.15	2581.31	3411.81	2581.84	3430.15	2581.89	3430.24	2581.89	3450.97	2581.85
3484.51	2581.53	3490.93	2581.84	3506.77	2582.07	3512.94	2581.51	3523.69	2581.65
3542.71	2581.58	3559.42	2580.91	3564.33	2581.02	3571.25	2580.75	3582.16	2581.01
3590.35	2580.92	3595.97	2581.16	3602.01	2580.81	3615.46	2584.5	3631.03	2588.6
3637.23	2587.23	3654.92	2587.81						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.065	157.13	.05	1159.09	.06	2326.25	.05	3198.61	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
3198.61	3631.03	474.55	507.58	489.42	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	1550	2593.74	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2585.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	2584.94	Reach Len. (ft)	474.55	507.58	489.42
Crit W.S. (ft)	2583.56	Flow Area (sq ft)	804.23	1405.01	
E.G. Slope (ft/ft)	0.002693	Area (sq ft)	804.23	1405.01	
Q Total (cfs)	6272.50	Flow (cfs)	1419.33	4853.17	
Top Width (ft)	1075.47	Top Width (ft)	656.96	418.51	
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)	1.76	3.45	
Max Chl Dpth (ft)	4.19	Hydr. Depth (ft)	1.22	3.36	
Conv. Total (cfs)	120868.9	Conv. (cfs)	27350.1	93518.8	
Length Wtd. (ft)	499.35	Wetted Per. (ft)	656.98	419.17	
Min Ch El (ft)	2580.75	Shear (lb/sq ft)	0.21	0.56	
Alpha	1.23	Stream Power (lb/ft s)	0.36	1.95	
Frctn Loss (ft)	1.93	Cum Volume (acre-ft)	8.27	14.64	
C & E Loss (ft)	0.01	Cum SA (acres)	7.37	4.48	

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: AC Split
REACH: lower RS: 1426.381

INPUT
Description: Ending limits of new topography
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2589.03	25.97	2588.8	66.15	2588.08	86.4	2588	94.72	2587.3
110.68	2586.29	158.69	2586.6	176.78	2586.18	196.38	2586.04	216.39	2586.02

233.44	2586.38	237.16	2586.77	242.72	2587.07	281.95	2587.44	299.56	2587.43
309.11	2587.08	364.13	2586.91	389.71	2586.97	420.4	2587.46	428.1	2587.44
447.37	2587.81	482.08	2587.83	492.41	2587.66	544.95	2587.29	581.96	2587.35
726.37	2587.01	805.11	2586.14	820.95	2585.81	865.18	2586.43	910.28	2586.64
921.86	2586.51	935.1	2586.56	961.3	2586.34	1021.5	2585.54	1034.57	2585.51
1044.34	2585.71	1057.36	2585.77	1064.39	2585.61	1160.87	2585.53	1191.67	2585.14
1276.94	2584.8	1346.44	2584.27	1408.87	2584.45	1428.96	2584.99	1559.16	2585.29
1621.14	2584.98	1632.2	2585.06	1675.2	2584.94	1730.7	2584.96	1763.43	2584.84
1853.62	2584.05	1912.89	2583.84	1968.12	2583.54	2093.35	2583.48	2144.51	2583.23
2161.73	2582.97	2229.72	2582.65	2254.27	2582.36	2277.4	2582.55	2329.38	2582.33
2358.57	2582.53	2422.48	2582.44	2487.11	2582	2621.74	2581.77	2641.47	2581.56
2683.29	2581.48	2759.47	2581.08	2862.67	2580.77	2888.31	2580.4	2929.02	2580.17
2937.6	2580.31	2966.76	2580.09	2990.5	2580.18	3021.58	2580.02	3033.06	2579.8
3040.89	2579.41	3055.25	2579.39	3060.09	2579.27	3060.2	2579.27	3068.43	2579.09
3081.51	2579.14	3097.32	2579.44	3108.41	2579.3	3127.48	2579.38	3139.91	2579.19
3146.42	2578.32	3155.21	2578.99	3167.76	2579.16	3175.39	2579.56	3180.32	2579.57
3185.95	2578.54	3191.61	2579.41	3201.74	2579.58	3214.33	2583.3	3222.45	2585.23
3223.39	2585.38	3228.31	2585.4	3231.6	2584.81	3245.63	2585.26	3250.57	2585.29

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.065	1021.5	.05	1559.16	.06	2229.72	.05	2621.74	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2862.67	3250.57	0	0	0	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	1550	2593.91	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2583.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.057	0.060	
W.S. Elev (ft)	2582.95	Reach Len. (ft)			
Crit W.S. (ft)	2582.02	Flow Area (sq ft)	714.70	1107.28	
E.G. Slope (ft/ft)	0.006001	Area (sq ft)	714.70	1107.28	
Q Total (cfs)	6272.50	Flow (cfs)	1705.16	4567.34	
Top Width (ft)	1047.01	Top Width (ft)	696.53	350.47	
Vel Total (ft/s)	3.44	Avg. Vel. (ft/s)	2.39	4.12	
Max Chl Dpth (ft)	4.63	Hydr. Depth (ft)	1.03	3.16	
Conv. Total (cfs)	80967.6	Conv. (cfs)	22010.8	58956.7	
Length Wtd. (ft)		Wetted Per. (ft)	696.54	351.24	
Min Ch El (ft)	2578.32	Shear (lb/sq ft)	0.38	1.18	
Alpha	1.18	Stream Power (lb/ft s)	0.92	4.87	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: AC Spur
REACH: AC Spur RS: 5472.12

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2630.2	27.19	2630.2	33.08	2629.95	65.39	2628.66	78.61	2628.2
91.79	2627.8	93.68	2627.76	100.13	2627.57	102.91	2627.52	111.28	2627.27
115.34	2627.22	119.18	2627.1	141.86	2626.2	204.36	2626.2	215.97	2625.49
220.24	2625.31	226.61	2625.03	242.56	2624.2	268.55	2624.2	274.17	2623.96
275.14	2623.95	280.99	2623.7	283.06	2623.66	285.49	2623.63	290.61	2623.43
328.43	2622.2	421.96	2622.2	443.26	2622.76	448.41	2622.91	453.78	2623.12
455.54	2623.18	459.75	2623.36	476.63	2623.17	477.9	2623.25	480.61	2623.01
482.08	2623.03	486.5	2622.7	487.61	2622.66	494.23	2622.31	494.49	2622.29
497.53	2622.2	670.02	2622.2	673.34	2622.8	679.65	2622.2	832.89	2622.2
840.45	2623.73	842.63	2624.2	843.37	2624.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.07	477.9	.07	840.45	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
477.9	840.45	327.05	293.88	267.62	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2624.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.070	0.070	0.070
W.S. Elev (ft)	2623.91	Reach Len. (ft)	327.05	293.88	267.62
Crit W.S. (ft)	2623.18	Flow Area (sq ft)	262.32	603.44	0.08
E.G. Slope (ft/ft)	0.009996	Area (sq ft)	262.32	603.44	0.08

Q Total (cfs)	2460.62	Flow (cfs)	662.75	1797.84	0.03
Top Width (ft)	565.32	Top Width (ft)	201.91	362.55	0.85
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)	2.53	2.98	0.43
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)	1.30	1.66	0.09
Conv. Total (cfs)	24610.6	Conv. (cfs)	6628.7	17981.6	0.3
Length Wtd. (ft)	299.96	Wetted Per. (ft)	201.97	362.82	0.87
Min Ch El (ft)	2622.20	Shear (lb/sq ft)	0.81	1.04	0.06
Alpha	1.02	Stream Power (lb/ft s)	2.05	3.09	0.02
Frctn Loss (ft)	2.80	Cum Volume (acre-ft)	104.65	98.59	37.00
C & E Loss (ft)	0.01	Cum SA (acres)	92.59	76.66	57.34

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: AC Spur
REACH: AC Spur RS: 5178.24

INPUT
Description:
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2626.99	2.54	2626.9	5.54	2626.8	13.43	2626.57	20.51	2626.39
25.04	2626.2	28.81	2626.2	110.97	2624.2	169.82	2624.2	177.72	2624
181.57	2623.99	182.43	2623.95	187.94	2623.88	189.45	2623.82	195.9	2623.7
198.58	2623.6	204.71	2623.46	209.33	2623.25	214.18	2623.14	220.36	2622.82
223.27	2622.73	228.33	2622.47	229.52	2622.44	230.34	2622.41	230.93	2622.39
231.42	2622.37	233.64	2622.37	237.52	2622.2	295.73	2622.2	346.04	2620.69
356.62	2620.3	357.07	2620.3	359.49	2620.2	627.25	2620.2	668.09	2619.46
671.58	2619.44	687.12	2619.52	721.19	2619.49	724.39	2619.48	731.71	2619.48
735.75	2619.47	739.41	2619.47	760.62	2619.58	797.55	2619.57	799.64	2619.56
801.63	2619.56	803.48	2619.55	807.69	2619.54	809.28	2619.54	866.54	2619.45
893.47	2619.49	894.75	2619.49	985.18	2619.75	989	2619.75	1005.72	2619.8
1006.93	2619.8	1013.35	2619.85	1018.91	2619.88	1020.08	2619.88	1025.86	2619.9
1026.93	2619.91	1032.77	2619.92	1034.6	2619.94	1040.63	2619.95	1112.59	2620.2
1183.72	2620.2	1191.33	2620.39	1195.97	2620.34	1196.33	2620.35	1196.79	2620.37
1201.94	2620.34	1202.37	2620.36	1202.95	2620.39	1208.66	2620.41	1209.43	2620.44
1210.58	2620.5	1216.96	2620.61	1218.92	2620.72	1224.83	2620.89	1228.24	2621.11
1232.48	2621.28	1237.87	2621.69	1239.85	2621.79	1244.52	2622.2	1259.85	2623.79

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.07	627.25	.07	1040.63	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
627.25	1040.63	381.53	365.04	360.26	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1203.32	1259.85	2623.79	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2621.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.070	0.070	0.070
W.S. Elev (ft)	2621.14	Reach Len. (ft)	381.53	365.04	360.26
Crit W.S. (ft)	2620.60	Flow Area (sq ft)	263.90	631.72	158.99
E.G. Slope (ft/ft)	0.008752	Area (sq ft)	263.90	631.72	171.34
Q Total (cfs)	2460.62	Flow (cfs)	485.29	1664.42	310.91
Top Width (ft)	897.84	Top Width (ft)	296.14	413.38	188.31
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)	1.84	2.63	1.96
Max Chl Dpth (ft)	1.70	Hydr. Depth (ft)	0.89	1.53	0.98
Conv. Total (cfs)	26301.9	Conv. (cfs)	5187.3	17791.2	3323.4
Length Wtd. (ft)	366.76	Wetted Per. (ft)	296.16	413.39	162.69
Min Ch El (ft)	2619.44	Shear (lb/sq ft)	0.49	0.83	0.53
Alpha	1.07	Stream Power (lb/ft s)	0.90	2.20	1.04
Frctn Loss (ft)	2.85	Cum Volume (acre-ft)	102.67	94.42	36.47
C & E Loss (ft)	0.00	Cum SA (acres)	90.72	74.05	56.76

Warning: The energy loss was 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: AC Spur
REACH: AC Spur RS: 4813.20

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2630.08	2.61	2629.94	3.37	2629.91	9.35	2629.61	13.95	2629.4

15.87	2629.38	19.69	2629.23	22.34	2629.11	25.08	2629.15	26.86	2629.06
29.9	2629.12	49.61	2628.99	70.07	2628.2	91.11	2628.2	94.19	2628.1
94.6	2628.09	95.14	2628.07	95.87	2628.05	97	2628	99.33	2627.89
110.26	2627.43	121.81	2626.84	133.78	2626.2	145.58	2625.35	161.1	2624.2
198.47	2622.2	202.4	2622.05	236.59	2620.8	254.08	2620.2	260.58	2620.03
261.98	2619.99	264.12	2619.94	285.05	2619.4	321.39	2618.4	328.32	2618.2
332.94	2618.2	379.16	2617.61	380.63	2617.61	409.48	2617.43	412.22	2617.4
416.52	2617.37	432.24	2617.2	452.8	2617.02	458.41	2616.95	461.21	2616.93
481.85	2616.7	483.96	2616.68	525.46	2616.2	590.3	2616.2	643.6	2616.65
646.13	2616.64	655.22	2616.66	655.9	2616.65	666.36	2616.67	671.64	2616.67
679.45	2616.69	680.37	2616.69	705.01	2616.61	742.73	2616.97	750.71	2617.07
759.03	2617.15	763.08	2617.21	838.85	2617.58	840.64	2617.56	844.33	2617.5
846.29	2617.46	848.61	2617.49	852.63	2617.41	854.95	2617.36	857.53	2617.32
860.38	2617.32	863.2	2617.27	866.4	2617.23	869.64	2617.21	873.14	2617.17
876.44	2617.15	883.16	2617.08	887.29	2617.05	889.72	2617.01	894.1	2616.98
902.52	2616.9	904.34	2616.87	907.91	2616.85	911.42	2616.84	912.85	2616.8
931.23	2616.54	935.74	2616.55	940.43	2616.57	959.08	2616.6	964.26	2616.63
965.49	2616.63	1002.9	2617	1103.94	2618.2	1405.92	2618.2	1414.94	2618.33
1416.22	2618.35	1417.82	2618.37	1432.37	2618.53	1528.25	2619.57	1532.52	2619.61
1586.46	2620.2	1587.4	2620.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	452.8	.06	1002.9	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
452.8	1002.9	345.86	315.83	290.78	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1300	1587.4	2620.4	F

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2618.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2618.28	Reach Len. (ft)	345.86	315.83	290.78
Crit W.S. (ft)	2617.64	Flow Area (sq ft)	87.05	828.76	85.36
E.G. Slope (ft/ft)	0.006927	Area (sq ft)	87.05	828.76	94.41
Q Total (cfs)	2460.62	Flow (cfs)	139.20	2244.83	76.60
Top Width (ft)	1086.26	Top Width (ft)	127.37	550.10	408.79
Vel Total (ft/s)	2.46	Avg. Vel. (ft/s)	1.60	2.71	0.90
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)	0.68	1.51	0.29
Conv. Total (cfs)	29565.3	Conv. (cfs)	1672.5	26972.5	920.4
Length Wtd. (ft)	315.97	Wetted Per. (ft)	127.37	550.12	297.11
Min Ch El (ft)	2616.20	Shear (lb/sq ft)	0.30	0.65	0.12
Alpha	1.14	Stream Power (lb/ft s)	0.47	1.76	0.11
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)	101.13	88.30	35.37
C & E Loss (ft)	0.01	Cum SA (acres)	88.86	70.01	54.29

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.

CROSS SECTION

RIVER: AC Spur
REACH: AC Spur RS: 4497.37

INPUT
Description:
Station Elevation Data num= 138

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2626.59	2.23	2626.64	6.61	2626.66	7.99	2626.71	12.73	2626.75
14.44	2626.81	18.87	2626.91	28.12	2627.19	31.44	2627.27	34.54	2627.38
37.25	2627.44	39.68	2627.52	41.7	2627.57	43.5	2627.61	44.91	2627.58
50.46	2627.61	88.79	2626.2	92.91	2626.2	107.96	2625.2	124.34	2624.2
131.21	2623.91	134.96	2623.77	148.12	2623.23	160.65	2622.76	165.44	2622.56
175.43	2622.2	180.47	2621.95	182.29	2621.87	211.98	2620.39	215.61	2620.2
246.4	2618.2	253.35	2618.2	271.59	2616.96	277.9	2616.23	277.99	2616.23
278.21	2616.2	305.54	2616.2	308.19	2616.1	308.59	2616.09	309.12	2616.08
317.38	2615.77	322.55	2615.66	329.73	2615.42	334.3	2615.33	340.11	2615.15
344.38	2615.01	350.47	2614.91	353.79	2614.82	360.93	2614.7	363.32	2614.64
371.48	2614.51	372.95	2614.47	382.26	2614.32	382.82	2614.3	388.9	2614.2
397.73	2614.2	401.72	2614.26	404.41	2614.24	410.95	2614.29	411.2	2614.29
416.96	2614.34	441.61	2614.32	610.66	2614.68	623.43	2614.76	626.74	2614.72
628.02	2614.73	631.6	2614.7	633.04	2614.71	650.92	2614.81	653.79	2614.8
657.57	2614.84	659.94	2614.86	662.25	2614.87	664.79	2614.89	667.17	2614.9
668.98	2614.9	670.52	2614.93	671.71	2614.92	746.14	2615.63	748.02	2615.63
837.75	2615.39	839.94	2615.39	1020.96	2616.2	1270.51	2616.2	1273.65	2616.25
1274.19	2616.25	1294.69	2616.55	1298.97	2616.59	1327.33	2616.99	1335.5	2617.06
1345.69	2617.2	1417.9	2617.95	1418.71	2617.95	1420.5	2617.94	1434.33	2617.94
1434.97	2617.93	1439.21	2617.98	1439.79	2617.97	1440.4	2617.97	1441.06	2617.96
1445.55	2617.99	1446.14	2617.99	1446.75	2617.98	1447.36	2617.98	1448	2617.97
1448.68	2617.97	1450.11	2617.95	1455.7	2617.95	1457.46	2617.93	1462.82	2617.91
1463.8	2617.9	1469.44	2617.87	1470.45	2617.86	1486.12	2617.74	1487.41	2617.74

1500.14	2617.61	1501.66	2617.61	1517.58	2617.49	1519.28	2617.51	1522.67	2617.48
1634.45	2617.76	1636.39	2617.78	1641.09	2617.81	1642.75	2617.83	1647.29	2617.85
1648.63	2617.86	1673.81	2618.2	1808.14	2618.2	1809.2	2618.22	1809.29	2618.22
1817.7	2618.44	1818.89	2618.49	1820.8	2618.59	1828.94	2618.89	1833.53	2619.15
1838.72	2619.39	1851.97	2620.2	1859.43	2622.13				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	329.73	.06	1020.96	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
329.73	1020.96	269.42	267.1	302.78	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1445	1859.43	2622.13	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2616.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2616.66	Reach Len. (ft)	269.42	267.10	302.78
Crit W.S. (ft)	2615.75	Flow Area (sq ft)	34.10	1081.74	120.81
E.G. Slope (ft/ft)	0.004102	Area (sq ft)	34.10	1081.74	120.81
Q Total (cfs)	2460.62	Flow (cfs)	39.07	2312.81	108.74
Top Width (ft)	1029.33	Top Width (ft)	55.50	691.23	282.60
Vel Total (ft/s)	1.99	Avg. Vel. (ft/s)	1.15	2.14	0.90
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)	0.61	1.56	0.43
Conv. Total (cfs)	38417.6	Conv. (cfs)	610.0	36109.8	1697.7
Length Wtd. (ft)	269.84	Wetted Per. (ft)	55.54	691.25	282.60
Min Ch El (ft)	2614.20	Shear (lb/sq ft)	0.16	0.40	0.11
Alpha	1.10	Stream Power (lb/ft s)	0.18	0.86	0.10
Frctn Loss (ft)	1.23	Cum Volume (acre-ft)	100.65	81.38	34.65
C & E Loss (ft)	0.00	Cum SA (acres)	88.14	65.51	51.98

Warning: The energy loss was 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: AC Spur
REACH: AC Spur RS: 4230.27

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2628.06	4.44	2627.87	7.36	2627.73	17.18	2627.29	29.62	2626.68
38.94	2626.2	75.99	2624.98	91.45	2624.44	93.53	2624.37	98.29	2624.2
123.77	2622.81	134.56	2622.2	159.23	2622.2	176.08	2621.65	179.35	2621.65
180.22	2621.64	183	2621.58	185.21	2621.5	188.36	2621.35	193	2621.09
196.07	2620.98	202.89	2620.55	208.1	2620.2	217.52	2619.81	257.01	2618.2
280.49	2617.05	296.27	2616.2	400.11	2614.2	525.04	2614.2	533.52	2614.06
535.31	2614.04	540.68	2614	546.6	2613.94	552.51	2613.86	566.48	2614.2
756.77	2614.2	763.93	2614.08	768.86	2614.13	769.52	2614.13	774.32	2614.16
787.62	2614.15	800.19	2614.08	800.51	2614.08	806.61	2614.04	812.07	2613.98
812.48	2613.99	878.8	2613.79	894.92	2613.83	895.61	2613.84	900.79	2613.84
940.72	2614.2	1196.85	2614.2	1240.16	2614.66	1270.9	2614.63	1364.97	2614.79
1381.15	2614.89	1385.23	2614.89	1387.42	2614.9	1391.74	2614.91	1402.73	2614.96
1407	2614.99	1490.44	2614.95	1520.31	2615.11	1522.59	2615.13	1528.52	2615.15
1530.46	2615.16	1533.39	2615.16	1535.19	2615.18	1552.82	2615.29	1558.63	2615.31
1561.76	2615.3	1564.49	2615.31	1566.34	2615.32	1673.87	2616.2	1809.59	2616.2
1823.97	2616.42	1828.31	2616.4	1828.88	2616.42	1829.66	2616.44	1834.4	2616.45
1835.39	2616.48	1836.56	2616.5	1841.81	2616.56	1854.75	2616.75	1865.05	2616.92
1878.02	2617.08	1880.11	2617.09	1883.7	2617.14	1886.4	2617.19	1888.35	2617.17
1890.34	2617.22	1892.2	2617.19	1949.27	2617.07	1954.01	2617.12	1956.56	2617.13
2140.19	2618.2	2163.54	2618.2	2168.69	2619.23	2173.49	2620.17		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	400.11	.06	1196.85	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
400.11	1196.85	276.75	295.53	280.69	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	82.81	2628.07	F
1673.87	2173.49	2620.17	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2615.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2615.43	Reach Len. (ft)	276.75	295.53	280.69
Crit W.S. (ft)	2614.82	Flow Area (sq ft)	39.10	1026.20	217.13

E.G. Slope (ft/ft)	0.005096	Area (sq ft)	39.10	1026.20	217.13
Q Total (cfs)	2460.62	Flow (cfs)	49.91	2147.59	263.12
Top Width (ft)	1243.05	Top Width (ft)	63.72	796.74	382.59
Vel Total (ft/s)	1.92	Avg. Vel. (ft/s)	1.28	2.09	1.21
Max Chl Dpth (ft)	1.64	Hydr. Depth (ft)	0.61	1.29	0.57
Conv. Total (cfs)	34470.3	Conv. (cfs)	699.2	30085.1	3686.0
Length Wtd. (ft)	293.97	Wetted Per. (ft)	63.73	796.75	382.59
Min Ch El (ft)	2613.79	Shear (lb/sq ft)	0.20	0.41	0.18
Alpha	1.09	Stream Power (lb/ft s)	0.25	0.86	0.22
Frctn Loss (ft)	2.11	Cum Volume (acre-ft)	100.43	74.91	33.48
C & E Loss (ft)	0.00	Cum SA (acres)	87.77	60.95	49.67

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: AC Spur
REACH: AC Spur RS: 3934.74

INPUT
Description:
Station Elevation Data num= 140

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2623.06	25.51	2622.83	27.74	2622.79	28.97	2622.79	39.2	2622.75
57.56	2622.2	82.18	2622.2	90.93	2621.97	92.6	2621.89	102.91	2621.57
114.24	2620.93	119.29	2620.72	127.55	2620.2	129.96	2620.2	143.24	2619.56
168.93	2618.2	191.1	2618.2	192.4	2618.12	192.79	2618.09	199.95	2617.57
203.23	2617.39	207.79	2617.05	213.91	2616.75	224.22	2616.2	228.54	2616.2
238.72	2615.85	242.11	2615.75	253.73	2615.44	261.35	2615.21	269.2	2615
295.49	2614.2	317.2	2613.84	320.51	2613.79	352.26	2613.28	358.86	2613.19
370.71	2613	378.6	2612.9	382.89	2612.83	386.32	2612.78	394.83	2612.68
397.48	2612.64	406.71	2612.55	408.64	2612.52	410.26	2612.49	419.75	2612.4
419.9	2612.4	435.73	2612.2	972.88	2612.2	977.39	2612.19	980.14	2612.2
1034.85	2612.2	1035.73	2612.21	1035.78	2612.21	1041.5	2612.24	1041.64	2612.24
1232.47	2612.2	1241.92	2612.25	1293.18	2613	1297.61	2612.96	1305.94	2612.92
1360.08	2613.33	1362.59	2613.4	1363.86	2613.39	1367.15	2613.44	1370.69	2613.47
1371.94	2613.49	1375.2	2613.49	1376.53	2613.52	1404.92	2613.78	1406.36	2613.77
1408.43	2613.76	1410.05	2613.76	1430.44	2614.2	1804.89	2614.2	1810.02	2614.3
1810.59	2614.31	1819.18	2614.51	1820.55	2614.52	1839.49	2614.96	1842.17	2614.97
1894.9	2615.68	1923.98	2615.57	1932.74	2615.57	1941.51	2615.55	1942.89	2615.54
1947.24	2615.53	1951.62	2615.51	1998.48	2616.2	2080.85	2616.2	2112.3	2615.24
2116.24	2615.34	2118.85	2615.38	2122.55	2615.45	2124.76	2615.5	2126.06	2615.54
2129.24	2615.55	2129.54	2615.57	2156.63	2615.59	2170.06	2615.48	2173.66	2615.43
2175.34	2615.41	2178.19	2615.34	2180.37	2615.33	2182.88	2615.25	2185.38	2615.26
2225.24	2615.02	2229.07	2615.03	2232.82	2615.03	2236.53	2615.04	2238.41	2615.06
2242.09	2615.06	2249.06	2615.04	2252.44	2615.02	2255.92	2614.99	2257.89	2615
2261.45	2614.97	2265.27	2614.95	2267.38	2614.95	2271.15	2614.94	2274.99	2614.94
2277.2	2614.92	2281.2	2614.93	2285.46	2614.93	2287.73	2614.9	2305.73	2614.91
2307.89	2614.94	2310.14	2614.96	2313.73	2614.97	2322.18	2615.06	2325.38	2615.08
2328.17	2615.12	2345.63	2615.24	2358.55	2615.16	2371.26	2615.11	2375.44	2615.13
2410.02	2616.2	2431.49	2616.2	2452.37	2617.53	2462.07	2618.2	2474.6	2618.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	435.73	.06	1232.47	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
435.73	1232.47	258.35	280.57	353.82	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	351.57	2623.06	F
1802	2474.6	2618.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2613.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2613.27	Reach Len. (ft)	258.35	280.57	353.82
Crit W.S. (ft)	2612.85	Flow Area (sq ft)	46.89	851.55	55.50
E.G. Slope (ft/ft)	0.010816	Area (sq ft)	46.89	851.55	55.50
Q Total (cfs)	2460.62	Flow (cfs)	82.52	2292.69	85.41
Top Width (ft)	999.91	Top Width (ft)	83.00	796.74	120.17
Vel Total (ft/s)	2.58	Avg. Vel. (ft/s)	1.76	2.69	1.54
Max Chl Dpth (ft)	1.08	Hydr. Depth (ft)	0.56	1.07	0.46
Conv. Total (cfs)	23659.9	Conv. (cfs)	793.5	22045.2	821.3
Length Wtd. (ft)	287.08	Wetted Per. (ft)	83.01	796.74	120.17
Min Ch El (ft)	2612.19	Shear (lb/sq ft)	0.38	0.72	0.31
Alpha	1.04	Stream Power (lb/ft s)	0.67	1.94	0.48
Frctn Loss (ft)	1.42	Cum Volume (acre-ft)	100.15	68.54	32.60
C & E Loss (ft)	0.02	Cum SA (acres)	87.30	55.54	48.05

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: AC Spur
REACH: AC Spur RS: 3654.17

INPUT
Description:
Station Elevation Data num= 248

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2620.2	10.17	2620.2	46.28	2621.28	49.93	2621.58	56.87	2622.09
57.2	2622.1	58.36	2622.2	65.22	2623.22	67.87	2623.57	68.14	2623.61
68.92	2623.53	95.5	2623.22	117.22	2622.2	118.62	2622.05	119.08	2622.02
124.51	2621.49	127.45	2621.26	129.39	2621.15	130.93	2621.09	133.28	2621.09
134.79	2621.03	151.04	2620.54	151.98	2620.49	157.85	2620.2	168.69	2619.14
174.19	2618.49	175.21	2618.38	177.1	2618.2	193.99	2618.2	209.91	2617.66
232.24	2616.2	245.04	2616.2	295.06	2614.57	297.01	2614.53	298.56	2614.49
303.45	2614.38	309.68	2614.2	322.63	2614.2	341.36	2613.33	345.01	2613.36
346.69	2613.31	350.85	2613.34	355.45	2613.35	357.55	2613.39	362.15	2613.38
364.72	2613.47	369.26	2613.46	371.87	2613.55	376.54	2613.54	381.11	2613.54
383.6	2613.61	388.48	2613.61	398.62	2613.58	403.29	2613.58	407.98	2613.57
408.96	2613.56	413.3	2613.54	417.48	2613.53	418.41	2613.55	422.74	2613.53
423.72	2613.56	428.2	2613.53	429.18	2613.56	437.93	2613.62	444.79	2613.55
450.42	2613.47	452.91	2613.44	455.58	2613.4	474.22	2612.2	554.27	2612.2
558.28	2612.2	581.75	2611.91	584.29	2611.85	610.78	2611.48	614.01	2611.41
624.52	2611.25	654.9	2610.2	902.23	2610.2	969.26	2610.59	1054.69	2610.98
1203.56	2610.68	1204.39	2610.69	1210.82	2610.81	1213.08	2610.79	1213.73	2610.8
1240.52	2610.8	1301.22	2610.46	1301.75	2610.45	1316.65	2610.2	1462.81	2610.2
1484.96	2611.07	1495.17	2611.02	1497.99	2611.01	1500.82	2610.99	1527.98	2610.89
1530.63	2610.87	1534.54	2610.85	1537	2610.83	1552.53	2610.76	1571.64	2610.76
1575.43	2610.75	1577.04	2610.75	1578.71	2610.76	1582.83	2610.75	1587.27	2610.73
1591.76	2610.72	1604.17	2610.78	1605.7	2610.8	1637.36	2611.49	1638.89	2611.47
1641.22	2611.56	1642.74	2611.54	1646.11	2611.52	1649.74	2611.48	1652	2611.58
1657.38	2611.52	1660.23	2611.62	1661.91	2611.6	1663.7	2611.59	1667.26	2611.68
1668.85	2611.66	1673.39	2611.73	1676.35	2611.69	1681.12	2611.72	1682.6	2611.7
1684.25	2611.67	1688.73	2611.65	1690.54	2611.62	1694.37	2611.55	1696.58	2611.5
1699.09	2611.45	1702.31	2611.33	1709.4	2611.16	1712.23	2611.02	1717.06	2610.92
1722.54	2610.82	1724.76	2610.71	1730.71	2610.63	1732.24	2610.56	1738.7	2610.49
1739.71	2610.44	1746.43	2610.39	1750.77	2610.29	1756.76	2610.26	1756.88	2610.26
1763	2610.23	1767.22	2610.2	1779.36	2610.2	1781.77	2610.33	1790.02	2610.83
1794.28	2611.11	1800.42	2611.54	1805.92	2611.97	1806.63	2612.02	1808.66	2612.2
1883.91	2612.2	1887.33	2612.29	1891.99	2612.41	1892.38	2612.41	1895.35	2612.57
1896.37	2612.56	1898.49	2612.77	1900.25	2612.76	1902.63	2612.97	1905.08	2612.96
1907.96	2613.14	1910.51	2613.27	1913.91	2613.27	1916.31	2613.37	1920.02	2613.37
1921.98	2613.45	1925.89	2613.46	1929.88	2613.46	1931.49	2613.53	1935.71	2613.53
1952.83	2613.75	1957.75	2613.74	1959.24	2613.72	1964.21	2613.71	1969.05	2613.71
1970.56	2613.69	1978.97	2613.67	1980.55	2613.65	1982.3	2613.64	1985.93	2613.6
1997.88	2613.53	2001.62	2613.54	2003.69	2613.53	2007.68	2613.54	2009.77	2613.52
2013.75	2613.53	2015.82	2613.51	2019.81	2613.51	2021.94	2613.49	2024.4	2613.46
2028.31	2613.46	2034.81	2613.43	2050.19	2612.84	2052.35	2612.83	2057.97	2612.4
2058.65	2612.4	2060.95	2612.2	2077.95	2612.2	2082.58	2612.55	2083.68	2612.55
2088.41	2612.86	2090.41	2612.86	2094.37	2613.07	2108.83	2613.11	2111.7	2613.11
2115.69	2612.96	2118.11	2612.96	2122.78	2612.75	2124.55	2612.75	2129.37	2612.56
2131.57	2612.56	2135.25	2612.47	2136.09	2612.47	2136.95	2612.48	2139.51	2612.54
2140.61	2612.55	2141.73	2612.55	2143.62	2612.71	2145.32	2612.72	2146.99	2612.72
2167.1	2613.63	2171.61	2613.63	2176.07	2613.64	2177.5	2613.66	2182.13	2613.67
2197.02	2613.74	2198.27	2613.77	2209.25	2613.82	2239.56	2614.2	2555.37	2614.2
2614.07	2615.26	2616.19	2615.24	2619.01	2615.24	2621.62	2615.33	2624.53	2615.35
2627.59	2615.38	2631.07	2615.47	2633.74	2615.51	2639.22	2615.61	2643.33	2615.65
2645.22	2615.65	2659.33	2616.2	2684.97	2616.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	624.52	.06	1484.96	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
624.52	1484.96	187.55	179.53	182.17	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	474.22	2620.2	F
1879	2684.97	2616.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2611.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2611.91	Reach Len. (ft)	187.55	179.53	182.17
Crit W.S. (ft)	2611.06	Flow Area (sq ft)	14.12	1238.18	301.23
E.G. Slope (ft/ft)	0.002811	Area (sq ft)	14.12	1238.18	301.23
Q Total (cfs)	2460.62	Flow (cfs)	8.86	2072.10	379.67

Top Width (ft)	1223.35	Top Width (ft)	42.73	860.44	320.18
Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)	0.63	1.67	1.26
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)	0.33	1.44	0.94
Conv. Total (cfs)	46411.6	Conv. (cfs)	167.1	39083.3	7161.2
Length Wtd. (ft)	180.22	Wetted Per. (ft)	42.73	860.48	320.27
Min Ch El (ft)	2610.20	Shear (lb/sq ft)	0.06	0.25	0.17
Alpha	1.04	Stream Power (lb/ft s)	0.04	0.42	0.21
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	99.97	61.81	31.15
C & E Loss (ft)	0.00	Cum SA (acres)	86.93	50.20	46.26

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: AC Spur
REACH: AC Spur RS: 3474.64

INPUT
Description:
Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2616.2	42.7	2616.2	59.66	2617.77	64.06	2618.2	65.98	2618.36
68.32	2618.54	89.45	2620.2	133.35	2620.2	135.78	2619.62	139.69	2618.77
140.29	2618.66	142.65	2618.56	147.63	2618.42	149.54	2618.2	159.87	2618.2
165.66	2618.34	166.03	2618.3	171.99	2618.37	174.41	2618.2	183.69	2618.2
195.52	2618.11	200.61	2618.12	200.86	2618.11	206.73	2618.11	207.03	2618.1
213.18	2618.07	213.62	2618.06	219.76	2617.99	220.47	2617.98	226.1	2617.88
227.19	2617.85	228.52	2617.8	233.95	2617.66	235.95	2617.57	238.92	2617.43
243.61	2617.27	248.42	2617	251.51	2616.88	258.28	2616.47	259.34	2616.42
263.49	2616.2	272.4	2616.2	275.78	2616.12	282.12	2616.2	282.52	2616.21
289.16	2616.3	294.96	2616.25	296.43	2616.2	300.2	2615.94	301.31	2615.75
308.76	2614.44	309.73	2614.28	310.11	2614.2	315.99	2613.35	319.35	2613.06
321.95	2612.73	330.36	2612.2	335.33	2612.13	335.73	2612.13	342.56	2612.02
343.13	2612.02	349.57	2611.91	350.28	2611.9	352.72	2611.87	353.9	2611.85
354.96	2611.83	361.95	2611.71	367.72	2611.6	372.56	2611.49	374.12	2611.48
386.29	2611.24	388.45	2611.24	391.01	2611.19	393.45	2611.2	425.35	2610.86
429.01	2610.87	431.92	2610.89	433.39	2610.88	495.62	2611.2	498.14	2611.23
500.91	2611.24	524.74	2611.29	527.63	2611.31	530.41	2611.31	533.86	2611.32
536.62	2611.32	560.15	2611.18	563.11	2611.18	564.73	2611.17	567.84	2611.16
606.35	2610.62	607.83	2610.61	612.55	2610.5	613.65	2610.49	614.68	2610.49
615.65	2610.48	616.62	2610.48	617.25	2610.47	618.11	2610.47	618.88	2610.46
619.57	2610.46	636.42	2610.2	791.44	2610.2	795.37	2610.26	797.26	2610.2
825.45	2610.2	830.46	2610.28	830.76	2610.28	833.65	2610.34	837.35	2610.46
838.21	2610.45	838.81	2610.45	844.51	2610.64	851.74	2610.2	1553.48	2610.2
1955.25	2610.2	1992.96	2610.49	2023.36	2610.62	2023.98	2610.63	2027.63	2610.63
2028.86	2610.64	2030.59	2610.65	2034.47	2610.68	2038.12	2610.7	2041.73	2610.73
2103.33	2611.14	2107.29	2611.16	2108.82	2611.15	2122.81	2611.09	2255.71	2612.2
2402.41	2612.2	2423.56	2613.53	2434.9	2614.2	2438.86	2614.2	2439.04	2614.14
2444.3	2612.2	2730.15	2612.2	2738.66	2612.43	2740.38	2612.58	2747.37	2612.86
2755.71	2613.73	2757.72	2613.88	2760.44	2614.2	2767.49	2614.2	2770.76	2613.79
2781.69	2612.36								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	636.42	.06	1553.48	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
636.42	1553.48	247.98	259.34	264.62	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	528	2616.2	F
2104	2781.69	2612.51	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2611.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2611.08	Reach Len. (ft)	247.98	259.34	264.62
Crit W.S. (ft)	2610.67	Flow Area (sq ft)	27.56	801.52	413.95
E.G. Slope (ft/ft)	0.008234	Area (sq ft)	35.36	801.52	413.95
Q Total (cfs)	2460.62	Flow (cfs)	35.73	1646.53	778.37
Top Width (ft)	1588.29	Top Width (ft)	130.41	917.06	540.82
Vel Total (ft/s)	1.98	Avg. Vel. (ft/s)	1.30	2.05	1.88
Max Chl Dpth (ft)	0.88	Hydr. Depth (ft)	0.44	0.87	0.77
Conv. Total (cfs)	27116.9	Conv. (cfs)	393.7	18145.3	8577.8
Length Wtd. (ft)	260.04	Wetted Per. (ft)	62.87	917.08	540.83
Min Ch El (ft)	2610.20	Shear (lb/sq ft)	0.23	0.45	0.39
Alpha	1.01	Stream Power (lb/ft s)	0.29	0.92	0.74
Frctn Loss (ft)	1.59	Cum Volume (acre-ft)	99.86	57.61	29.65
C & E Loss (ft)	0.00	Cum SA (acres)	86.56	46.54	44.46

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.

CROSS SECTION

RIVER: AC Spur
REACH: AC Spur RS: 3215.30

INPUT
Description:
Station Elevation Data num= 144

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2616.12	37.05	2614.2	93.22	2612.2	146.44	2612.2	189	2611.43
191.72	2611.33	195.67	2611.31	199.14	2611.18	205.62	2611.13	209.58	2610.98
211.99	2610.94	217.1	2610.76	224.05	2610.53	225.36	2610.5	233.7	2610.23
233.82	2610.22	234.59	2610.2	317.6	2610.2	390.49	2609.3	471.93	2609.23
474.43	2609.2	477.3	2609.18	480.48	2609.15	482.33	2609.15	485.87	2609.13
488.44	2609.13	492.04	2609.11	521.91	2609.03	524.51	2609.04	527.02	2609.04
557.38	2608.93	577.8	2608.74	579.43	2608.74	583.76	2608.68	588.42	2608.63
589.9	2608.63	591.45	2608.62	596.27	2608.56	597.37	2608.56	602.45	2608.51
602.99	2608.5	608.34	2608.46	625.84	2608.2	842.59	2608.2	1186.24	2608.2
1222.56	2608.27	1227.74	2608.2	1228.43	2608.14	1228.68	2608.13	1234.78	2607.68
1238.47	2607.39	1241.98	2607.33	1245.14	2607.13	1249.61	2607.09	1252.29	2606.97
1254.43	2606.9	1258.17	2606.88	1260.13	2606.85	1262.08	2606.84	1265.58	2606.84
1267.62	2606.85	1278.9	2608.2	1320.43	2608.2	1326.47	2608.42	1338.34	2608.69
1341.08	2608.73	1395.14	2610.2	1420.31	2610.2	1459.05	2609.65	1492.04	2609.41
1497.19	2609.38	1506.74	2609.31	1511.02	2609.27	1515.1	2609.24	1521.99	2610.2
1558.77	2610.2	1578.17	2609.62	1627.15	2609.23	1629	2609.22	1649.99	2609.02
1653.92	2608.99	1657.5	2608.95	1662.57	2608.91	1665.71	2608.88	1671.7	2608.84
1674.46	2608.81	1680.99	2608.77	1683.44	2608.74	1685.7	2608.72	1720.84	2608.65
1721.67	2608.66	1725.68	2608.63	1729.69	2608.61	1733.64	2608.61	1734.29	2608.62
1804.01	2608.28	1810.08	2608.2	1912.66	2608.2	1916.4	2608.22	1917.55	2608.21
1923.08	2608.23	1923.41	2608.23	1928	2608.26	2006.49	2608.53	2007.39	2608.53
2025.24	2608.56	2026.38	2608.57	2030.82	2608.59	2031.84	2608.59	2117.74	2609.04
2286.91	2610.2	2312.6	2610.2	2332.38	2610.54	2338.42	2610.57	2341.62	2610.61
2439.66	2611.2	2442.24	2611.19	2445.26	2611.19	2454.7	2611.16	2512.33	2610.2
2632.23	2610.2	2635.47	2610.25	2635.59	2610.25	2636.61	2610.28	2636.86	2610.28
2640.2	2610.3	2640.54	2610.31	2640.97	2610.32	2641.53	2610.34	2642.27	2610.36
2643.29	2610.39	2644.77	2610.44	2680.24	2612.2	2717.43	2612.2	2725.27	2610.54
2726.78	2610.2	2804.35	2610.2	2828.62	2610.82	2836.4	2610.98	2842.34	2611.13
2879.41	2610.95	2882.1	2610.71	2882.53	2610.73	2884.83	2610.49		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	842.59	.06	1627.15	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
842.59	1627.15	316.63	303.97	289.2	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	700	2616.12	F
2330	2884.83	2614.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2609.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2609.49	Reach Len. (ft)	316.63	303.97	289.20
Crit W.S. (ft)	2608.83	Flow Area (sq ft)	184.23	702.04	485.68
E.G. Slope (ft/ft)	0.004726	Area (sq ft)	398.14	702.04	485.68
Q Total (cfs)	2460.62	Flow (cfs)	372.04	1333.48	755.10
Top Width (ft)	1619.69	Top Width (ft)	467.64	595.55	556.50
Vel Total (ft/s)	1.79	Avg. Vel. (ft/s)	2.02	1.90	1.55
Max Chl Dpth (ft)	2.65	Hydr. Depth (ft)	1.29	1.18	0.87
Conv. Total (cfs)	35794.6	Conv. (cfs)	5412.1	19398.0	10984.5
Length Wtd. (ft)	302.89	Wetted Per. (ft)	142.59	595.71	556.51
Min Ch El (ft)	2606.84	Shear (lb/sq ft)	0.38	0.35	0.26
Alpha	1.03	Stream Power (lb/ft s)	0.77	0.66	0.40
Frctn Loss (ft)	1.08	Cum Volume (acre-ft)	98.63	53.13	26.92
C & E Loss (ft)	0.00	Cum SA (acres)	84.85	42.04	41.13

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: AC Spur
REACH: AC Spur RS: 2911.33

INPUT
Description:
Station Elevation Data num= 172

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2620.2	77.11	2620.2	84.86	2619.18	87.88	2619.05	91.52	2618.97
93.41	2618.88	97.92	2618.78	103.91	2618.59	112.08	2618.26	112.25	2618.25
113.72	2618.2	124.03	2618.2	129.94	2618.17	130.26	2618.2	185.53	2618.2
189.16	2618.05	189.79	2618.01	196.09	2617.65	198.65	2617.45	202.45	2617.13
207.67	2616.73	213.85	2616.2	216.17	2615.99	217.65	2615.87	223.56	2615.28
231.74	2614.2	234.24	2614.2	237.51	2613.88	260.01	2612.2	262.44	2612.11
262.95	2612.09	295.79	2611.47	297.29	2611.55	298.62	2611.4	301.15	2611.12
306.45	2610.52	306.96	2610.49	309.13	2610.2	320.63	2609.8	324.42	2609.66
345.97	2608.84	361.84	2608.2	381.08	2608.2	513.31	2607.49	568.93	2606.73
569.98	2606.74	572.2	2606.68	573.29	2606.67	577.23	2606.62	578.27	2606.61
583.47	2606.57	615.69	2606.2	838.26	2606.2	841.49	2606.21	847.54	2606.23
917.82	2606.32	923.92	2606.31	927.05	2606.31	943.71	2606.2	1008.02	2606.2
1016.97	2604.75	1020.08	2604.2	1036.74	2604.2	1038.44	2604.72	1043.32	2606.2
1102.6	2606.2	1129.42	2607.38	1131.9	2607.38	1134.26	2607.39	1136.43	2607.37
1142.5	2607.33	1144.75	2607.34	1147.88	2607.31	1150.91	2607.29	1238.43	2607.14
1241.39	2607.15	1242.91	2607.15	1409.22	2607.8	1410.92	2607.81	1464.19	2607.86
1467.11	2607.9	1467.64	2607.89	1472.44	2607.93	1477.73	2607.96	1478.25	2607.96
1482.48	2607.97	1483.03	2607.97	1485.49	2607.96	1498.25	2607.95	1579.24	2607.59
1615.75	2607.6	1713.04	2608	1713.45	2608	1720.01	2608.05	1727.15	2608.09
1727.49	2608.09	1751.55	2608.2	1856.42	2608.2	1862.26	2607.36	1864.48	2607.03
1867.41	2606.6	1868.67	2606.42	1870.09	2606.2	1873.49	2606.2	1879.58	2606.42
1880.94	2606.49	1894.21	2607	1897.22	2607.16	1901.09	2607.32	1903.98	2607.43
1906.9	2607.49	1909.12	2607.57	1910.87	2607.64	1913.72	2607.57	1916.87	2607.68
1919.9	2607.58	1921.4	2607.63	1932.97	2607.44	1935.2	2607.49	1938.32	2607.48
1940.38	2607.52	1942.23	2607.55	1944.43	2607.52	1946.23	2607.56	1947.83	2607.59
1949.27	2607.62	1950.58	2607.64	1951.78	2607.67	1953.9	2607.71	1954.85	2607.73
1956.25	2607.68	1958.17	2607.72	1959.05	2607.73	2023.75	2607.02	2026.37	2607.02
2100.69	2607.39	2103.97	2607.41	2107.08	2607.42	2110.07	2607.44	2115.74	2607.46
2187.32	2608.2	2219.9	2608.2	2229.09	2608.35	2332.66	2610.2	2469.51	2610.2
2494.64	2609.66	2495.06	2609.66	2496.78	2609.64	2498.19	2609.64	2507.15	2609.47
2511.82	2609.47	2514.67	2609.41	2516.17	2609.42	2561.02	2608.8	2584.98	2608.89
2588.78	2608.89	2655.33	2608.81	2656.05	2608.81	2732.41	2608.48	2733.24	2608.48
2759.85	2608.52	2760.68	2608.53	2792.47	2608.37	2792.84	2608.37	2797.51	2608.42
2798.08	2608.43	2798.77	2608.44	2806.98	2608.2	2890.44	2608.2	2892.94	2609.2
2896.19	2610.2	2912.86	2610.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	917.82	.06	1713.04	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
917.82	1713.04	308.15	308.42	299.73	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	800	2620.2	F
2505	2912.86	2620.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2608.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2608.42	Reach Len. (ft)	308.15	308.42	299.73
Crit W.S. (ft)	2607.40	Flow Area (sq ft)	255.94	985.23	381.69
E.G. Slope (ft/ft)	0.002805	Area (sq ft)	909.48	985.23	401.14
Q Total (cfs)	2460.62	Flow (cfs)	563.11	1490.14	407.37
Top Width (ft)	1982.39	Top Width (ft)	561.39	795.22	625.78
Vel Total (ft/s)	1.52	Avg. Vel. (ft/s)	2.20	1.51	1.07
Max Chl Dpth (ft)	4.22	Hydr. Depth (ft)	2.17	1.24	0.73
Conv. Total (cfs)	46457.0	Conv. (cfs)	10631.7	28134.2	7691.2
Length Wtd. (ft)	305.94	Wetted Per. (ft)	117.82	795.71	520.06
Min Ch El (ft)	2604.20	Shear (lb/sq ft)	0.38	0.22	0.13
Alpha	1.17	Stream Power (lb/ft s)	0.84	0.33	0.14
Frctn Loss (ft)	1.26	Cum Volume (acre-ft)	93.88	47.25	23.98
C & E Loss (ft)	0.00	Cum SA (acres)	81.11	37.19	37.20

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: AC Spur
REACH: AC Spur RS: 2602.91

INPUT
Description:
Station Elevation Data num= 167

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2615.76	1.12	2615.87	2.06	2615.9	4.83	2616.2	58.59	2616.2
62.59	2615.96	64.32	2615.89	65.4	2615.83	67.39	2615.77	92.69	2614.56
108.81	2614.2	118.35	2614.2	120.55	2613.88	132.5	2612.2	168.57	2610.44

173.34	2610.2	191.67	2609.07	207.57	2608.2	212.82	2608.2	226.3	2607.96
286.4	2607.22	317.02	2606.91	372.08	2606.2	402.78	2606.2	471.7	2605.61
476.11	2605.63	477.82	2605.63	481.76	2605.64	484.72	2605.64	487.86	2605.63
527.73	2605.2	542.33	2604.9	544.51	2604.87	561.9	2604.57	570.91	2604.45
572.07	2604.43	573.08	2604.41	581.8	2604.32	582.33	2604.31	590.86	2604.25
591.06	2604.24	591.22	2604.24	598.73	2604.21	599.14	2604.21	599.3	2604.2
605.6	2604.21	606.28	2604.21	613.62	2604.24	613.76	2604.24	621.59	2604.29
621.99	2604.3	637.5	2604.43	638.35	2604.44	645.57	2604.51	652.3	2604.59
670.53	2604.77	678.74	2604.9	681.71	2604.96	711.98	2605.37	885.73	2604.26
886.21	2604.26	886.54	2604.25	886.82	2604.25	892.04	2604.2	953.43	2604.2
953.91	2604.29	958.54	2605.25	959.38	2605.22	960.72	2605.51	964.76	2606.08
965	2606.09	968.15	2606.2	1090.67	2606.2	1112.16	2606.2	1126.38	2606.08
1126.9	2606.08	1127.44	2606.09	1127.98	2606.09	1133.29	2606.16	1133.65	2606.16
1133.79	2606.17	1138.33	2606.19	1777.45	2606.2	1783.45	2606.23	1783.66	2606.23
1791.64	2606.2	1976.34	2606.2	2074.4	2606.87	2076.17	2606.88	2078.02	2606.9
2079.96	2606.91	2081.96	2606.93	2084.83	2606.91	2086.87	2606.93	2096.88	2606.87
2102.46	2606.93	2105.93	2606.9	2107.87	2606.92	2111.6	2606.9	2113.56	2606.92
2126.86	2606.8	2130.19	2606.84	2132.04	2606.85	2134.64	2606.84	2143.01	2606.92
2145.3	2606.95	2147.23	2606.95	2149.54	2606.99	2151.96	2607.02	2154.56	2607.04
2160.98	2607.1	2175.45	2607.27	2191.34	2607.41	2205.6	2607.57	2214.57	2607.68
2215.31	2607.69	2222.1	2607.77	2229.38	2607.84	2237.81	2607.99	2238.51	2608
2242.89	2608.02	2251.24	2608.03	2270.15	2606.84	2279.37	2606.2	2301.06	2606.2
2319.31	2606.39	2324.8	2606.41	2330.44	2606.45	2440.8	2606.22	2441.97	2606.2
2576.8	2606.2	2585.4	2606.27	2590	2606.27	2590.92	2606.26	2595.41	2606.28
2606.74	2606.36	2607.07	2606.36	2630.36	2606.5	2634.13	2606.55	2634.67	2606.54
2742.25	2607.53	2744.92	2607.55	2749.93	2607.62	2773.09	2607.58	2774.61	2607.55
2776.42	2607.53	2778.96	2607.59	2783.04	2607.59	2786.63	2607.61	2788.27	2607.64
2820.41	2607.19	2827.09	2607.01	2836.32	2606.79	2838.17	2606.75	2862.3	2606.2
2890	2606.2	2899.97	2607.18	2902.64	2607.23	2906.81	2607.62	2908.07	2607.64
2912.81	2608.2	2914.93	2608.94	2918.67	2610.2	2925.54	2610.2	2929.83	2608.73
2931.08	2608.2	2963.49	2608.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1090.67	.06	1777.45	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1090.67	1777.45	273.09	316.33	350.04	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	968.15	2615.76	F
2784.35	2963.49	2614.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2607.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2607.14	Reach Len. (ft)	273.09	316.33	350.04
Crit W.S. (ft)	2606.68	Flow Area (sq ft)	114.95	649.10	596.17
E.G. Slope (ft/ft)	0.006658	Area (sq ft)	1443.51	649.10	645.82
Q Total (cfs)	2460.62	Flow (cfs)	222.63	1263.27	974.73
Top Width (ft)	2381.22	Top Width (ft)	796.19	686.78	898.24
Vel Total (ft/s)	1.81	Avg. Vel. (ft/s)	1.94	1.95	1.63
Max Chl Dpth (ft)	2.94	Hydr. Depth (ft)	0.94	0.95	0.73
Conv. Total (cfs)	30155.7	Conv. (cfs)	2728.4	15481.8	11945.6
Length Wtd. (ft)	324.71	Wetted Per. (ft)	122.52	686.78	821.07
Min Ch El (ft)	2606.08	Shear (lb/sq ft)	0.39	0.39	0.30
Alpha	1.02	Stream Power (lb/ft s)	0.76	0.76	0.49
Frctn Loss (ft)	2.02	Cum Volume (acre-ft)	85.56	41.46	20.38
C & E Loss (ft)	0.00	Cum SA (acres)	76.31	31.94	31.96

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: AC Spur
REACH: AC Spur RS: 2286.58

INPUT
Description:
Station Elevation Data num= 169

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2610.2	32.35	2610.2	44.83	2609.83	49.85	2609.66	87.15	2608.44
88.62	2608.39	94.19	2608.37	96.17	2608.2	125.91	2608.2	130.67	2607.92
137.08	2607.97	137.79	2607.91	144.15	2607.97	144.86	2607.9	150.38	2607.92
151.28	2607.85	154.77	2607.72	156.41	2607.65	157.9	2607.42	160.77	2607.38
171.79	2606.2	200.36	2606.2	204.99	2606.01	205.98	2605.95	206.88	2605.91
213.65	2605.49	236	2604.2	368.04	2604.2	467.1	2603.36	469.43	2603.36
471.75	2603.35	496.69	2603.36	504.61	2603.33	506.38	2603.32	512.11	2603.32
514.55	2603.33	653.87	2602.98	654.82	2602.98	668.06	2603.07	670.77	2603.1
673.16	2603.12	675.01	2603.11	681.12	2603.14	718.82	2603.21	720.33	2603.2
757.24	2603.14	763.69	2603.14	834.66	2602.93	839.71	2602.9	916.26	2603.31

919.48	2603.39	923.86	2603.47	925.95	2603.48	928.18	2603.5	941.03	2603.7
947.58	2603.78	954.73	2603.85	956.02	2603.88	980.92	2604.1	990.37	2604.2
1140.17	2604.2	1140.75	2604.2	1143.79	2604.19	1143.85	2604.19	1153.58	2604.13
1153.81	2604.13	1164.65	2604.08	1165.11	2604.07	1165.63	2604.07	1172.88	2604.02
1173.6	2604.01	1174.44	2603.99	1199.68	2604.2	1273.03	2604.2	1274.59	2604.16
1278.77	2604.04	1321.66	2603.86	1358.94	2604.2	1463.67	2604.2	1628.51	2603.62
1630.24	2603.61	1631.84	2603.62	1633.36	2603.61	1635.24	2603.61	1664.74	2603.66
1665.95	2603.65	1674	2603.67	1678.54	2603.67	1697.96	2603.61	1699.74	2603.59
1703.85	2603.6	1707.45	2603.58	1711.62	2603.59	1713.53	2603.58	1717.73	2603.58
1719.73	2603.57	1801.14	2603.91	1805.28	2603.95	1809.12	2603.95	1809.91	2603.94
1813.86	2603.96	1815.31	2603.96	1852.9	2604.05	1871.83	2604.15	1871.99	2604.15
1878.68	2604.19	1881.14	2604.2	1906.89	2604.3	1974.73	2604.39	2023.02	2604.22
2026.97	2604.2	2293.36	2604.2	2322.08	2604.79	2325.8	2604.83	2329.27	2604.86
2420.9	2604.92	2425.87	2604.89	2428.18	2604.88	2450.42	2604.75	2452.6	2604.74
2492.19	2604.76	2493.47	2604.78	2499.93	2604.7	2501.08	2604.72	2504.51	2604.67
2505.62	2604.69	2509.37	2604.64	2510.37	2604.66	2514.23	2604.59	2516.08	2604.63
2517.11	2604.65	2520.73	2604.59	2521.65	2604.61	2522.68	2604.64	2523.82	2604.66
2525.1	2604.69	2526.54	2604.72	2529.84	2604.7	2531.36	2604.73	2534.86	2604.84
2539.89	2605.03	2544.55	2605.19	2547.65	2605.25	2554.6	2605.48	2574.89	2606.2
2581.15	2606.55	2609.53	2608.2	2665.4	2608.2	2666.41	2608.07	2666.95	2607.99
2671.47	2607.37	2675.27	2606.72	2676.55	2606.53	2678.37	2606.2	2688.59	2604.2
2699.6	2604.2	2701.81	2604.37	2702.08	2604.37	2767.25	2606.2	2947.8	2606.2
2960.25	2606.83	2965.72	2606.98	2980.67	2607.74	2982.85	2607.84	2989.16	2608.2
3005.75	2608.2	3013.3	2609.44	3017.32	2610.2	3035.6	2610.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1140.17	.06	1881.14	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1140.17	1881.14	356.28	339.89	289.09	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1092.06	2610.2	F
2840.71	3035.6	2610.2	F

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2677.74	2768.14	2606.21	3155.6	3357.93	2606.86

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2605.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2605.11	Reach Len. (ft)	356.28	339.89	289.09
Crit W.S. (ft)	2604.60	Flow Area (sq ft)	43.71	846.81	439.89
E.G. Slope (ft/ft)	0.005824	Area (sq ft)	1373.92	846.81	439.89
Q Total (cfs)	2460.62	Flow (cfs)	77.48	1749.46	633.68
Top Width (ft)	2321.91	Top Width (ft)	919.91	740.97	661.03
Vel Total (ft/s)	1.85	Avg. Vel. (ft/s)	1.77	2.07	1.44
Max Chl Dpth (ft)	2.21	Hydr. Depth (ft)	0.91	1.14	0.67
Conv. Total (cfs)	32242.4	Conv. (cfs)	1015.3	22923.8	8303.3
Length Wtd. (ft)	321.90	Wetted Per. (ft)	48.11	740.98	661.05
Min Ch El (ft)	2603.57	Shear (lb/sq ft)	0.33	0.42	0.24
Alpha	1.07	Stream Power (lb/ft s)	0.59	0.86	0.35
Frctn Loss (ft)	2.26	Cum Volume (acre-ft)	76.72	36.03	16.01
C & E Loss (ft)	0.00	Cum SA (acres)	70.93	26.76	25.70

Warning: The energy loss was 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: AC Spur
REACH: AC Spur RS: 1946.69

INPUT
Description:
Station Elevation Data num= 202

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2606.78	.97	2606.82	34.61	2607.66	36.33	2607.67	39.01	2607.71
40.55	2607.73	43.44	2607.75	44.34	2607.76	46.94	2607.74	48.68	2607.75
49.35	2607.75	52.46	2607.69	67.29	2607.56	76.86	2607.39	81.15	2607.32
84.98	2607.27	88.44	2607.24	91.75	2607.22	94.99	2607.22	98.18	2607.19
101.35	2607.18	104.57	2607.15	108.03	2607.1	110.86	2607.09	114.48	2607.04
117.19	2607.03	121.01	2606.98	127.12	2606.93	129.42	2606.9	139.54	2606.84
143.58	2606.78	147.16	2606.77	148.84	2606.74	153.54	2606.74	155.16	2606.71
159.81	2606.71	174.54	2606.64	180.65	2606.58	181.98	2606.55	195.31	2606.4
202.78	2606.31	205.33	2606.29	209.95	2606.22	210.04	2606.23	210.12	2606.23
212.84	2606.2	263.32	2606.2	283.84	2605.96	289.16	2606	289.68	2606
295.31	2606.04	295.78	2606.04	301.56	2606.08	301.94	2606.08	307.82	2606.09
314.09	2606.09	314.42	2606.1	320.74	2606.1	326.7	2606.13	332.26	2606.18
332.32	2606.18	334.13	2606.2	346.53	2606.2	349.89	2606.12	366.67	2605.34
388.14	2604.2	451.41	2604.2	452.1	2604.18	452.32	2604.17	452.57	2604.17
469.75	2603.58	479.22	2603.22	497.43	2602.64	498.53	2602.61	518.4	2602.2

629.79	2602.2	634.06	2602.19	640.57	2602.15	640.88	2602.15	645.55	2602.1
724.73	2601.6	726.5	2601.61	731.86	2601.61	733.81	2601.62	735.66	2601.62
739.57	2601.61	740.96	2601.62	760.15	2601.65	764.68	2601.64	768.16	2601.64
829.07	2601.39	933.84	2601.44	935.18	2601.42	937.93	2601.45	939.16	2601.44
942.29	2601.47	945.06	2601.48	945.95	2601.48	1006.94	2601.9	1012.15	2601.98
1028.42	2602.17	1031.36	2602.2	1331.8	2602.2	1334.42	2602.2	1349.89	2602.11
1361.76	2602.09	1373.85	2602.11	1379.77	2602.11	1382.79	2602.12	1384.82	2602.12
1389.88	2602.11	1390.18	2602.1	1394.86	2602.08	1395.53	2602.08	1400.15	2602.05
1404.86	2602.01	1405.36	2602.01	1410.3	2602.02	1416.03	2601.98	1416.62	2601.98
1639.29	2601.58	1671.32	2601.78	1671.94	2601.78	1676	2601.81	1691.38	2601.87
1704.62	2601.85	1709.55	2601.87	1709.8	2601.87	1714.95	2601.88	1717.99	2601.87
1718.77	2601.87	1723.78	2601.86	1724.84	2601.86	1729.62	2601.85	1730.48	2601.85
1738.22	2601.81	1806.1	2602.2	2116.24	2602.2	2300.83	2602.2	2360.76	2601.7
2362.23	2601.68	2364.94	2601.69	2366.5	2601.67	2369.61	2601.61	2371.04	2601.59
2372.64	2601.56	2376.31	2601.55	2379.91	2601.49	2384.2	2601.45	2388.56	2601.4
2389.75	2601.4	2400.97	2601.26	2453.68	2601.71	2456.43	2601.74	2456.87	2601.75
2485.85	2602.2	2670.65	2602.2	2697.36	2602.55	2700.53	2602.55	2704.54	2602.56
2774.42	2602.36	2784.15	2602.3	2784.41	2602.3	2790.98	2602.27	2802.18	2602.2
2895.32	2602.2	2960.33	2602.9	2964.13	2602.86	2965.85	2602.88	2969.96	2602.82
2971.53	2602.85	2973.27	2602.89	2977.5	2602.83	2979.21	2602.86	2981.06	2602.9
2985.22	2602.85	2989.08	2602.94	2992.5	2602.91	2997.13	2603.04	2999.79	2603.11
3001.69	2603.12	3004.33	2603.2	3007.38	2603.28	3033.97	2604.07	3034.24	2604.08
3051.32	2604.55	3052.83	2604.6	3059.11	2604.76	3061.53	2604.84	3066.78	2604.98
3070.18	2605.09	3074.48	2605.2	3078.8	2605.35	3082.11	2605.44	3104.71	2606.2
3114.87	2608.2	3116.18	2608.45	3117.85	2608.76	3125.66	2610.2	3134.46	2611.43
3139.63	2612.2	3175.27	2612.2						

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.06	2485.85	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1331.8	2116.24	361.04	346.67	344.04	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1331.8	2606.78	F
3100	3200	2612.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2602.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.060	0.056
W.S. Elev (ft)	2602.83	Reach Len. (ft)	361.04	346.67	344.04
Crit W.S. (ft)	2602.48	Flow Area (sq ft)		652.05	573.28
E.G. Slope (ft/ft)	0.008630	Area (sq ft)	744.72	652.05	573.28
Q Total (cfs)	2460.62	Flow (cfs)		1326.25	1134.38
Top Width (ft)	2464.60	Top Width (ft)	840.42	784.44	839.73
Vel Total (ft/s)	2.01	Avg. Vel. (ft/s)		2.03	1.98
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		0.83	0.68
Conv. Total (cfs)	26486.9	Conv. (cfs)		14276.1	12210.8
Length Wtd. (ft)	347.39	Wetted Per. (ft)		784.44	839.75
Min Ch El (ft)	2601.58	Shear (lb/sq ft)		0.45	0.37
Alpha	1.00	Stream Power (lb/ft s)		0.91	0.73
Frctn Loss (ft)	2.28	Cum Volume (acre-ft)	68.06	30.18	12.65
C & E Loss (ft)	0.00	Cum SA (acres)	63.73	20.80	20.72

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.

CROSS SECTION

RIVER: AC Spur
REACH: AC Spur RS: 1600.02

INPUT
Description: Ending Limits of new topography
Station Elevation Data num= 189

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2602.2	278.29	2602.2	297.41	2601.49	301.09	2601.51	303	2601.45
306.79	2601.46	309.27	2601.38	312.92	2601.38	315.9	2601.29	319.25	2601.28
322.76	2601.17	326.08	2601.15	330.04	2601.01	333.01	2600.99	337.77	2600.81
342.28	2600.77	347.26	2600.57	348.51	2600.55	354.8	2600.33	355.2	2600.33
359.72	2600.2	542.89	2600.2	620.87	2598.92	622.3	2598.93	625.18	2598.85
626.55	2598.85	635.26	2598.88	638.48	2598.82	642.57	2598.8	646.1	2598.82
689.71	2599.63	692.06	2599.68	694.14	2599.74	695.71	2599.8	695.84	2599.8
696.97	2599.85	697.77	2599.9	704.92	2600.07	712.35	2600.01	713.15	2600
714.12	2599.98	759.23	2599.81	760.45	2599.78	761.91	2599.75	763.63	2599.71
765.68	2599.67	768.82	2599.62	771.28	2599.59	775.61	2599.49	778.46	2599.46
783.07	2599.35	812.94	2598.98	815.32	2598.98	819.09	2598.97	827.61	2598.97
839.12	2598.9	843.41	2598.86	845.53	2598.85	862.93	2599.12	865.82	2599.09
867.8	2599.13	870.89	2599.14	873.37	2599.16	876.33	2599.21	883.03	2599.25
886.53	2599.29	889.39	2599.35	892.7	2599.38	895.25	2599.44	898.5	2599.45
900.75	2599.5	904.14	2599.49	906.14	2599.54	907.83	2599.59	911.17	2599.56

912.85	2599.6	914.41	2599.64	915.8	2599.67	918.59	2599.63	919.6	2599.65
937.23	2599.49	955.05	2599.69	979.32	2599.76	982.86	2599.74	990.04	2599.72
1121.37	2600.2	1180.93	2600.2	1242.8	2598.95	1245.23	2598.95	1260	2600.2
1702.17	2598.94	1754.77	2599.37	1774.09	2599.43	1787.15	2599.3	1794.72	2599.34
1863.62	2598.61	1879.85	2598.71	1893.59	2598.91	1898.04	2598.91	1901.53	2599.01
1918.43	2599.06	1922.79	2599.19	1987.61	2599.08	2050.64	2598.54	2053.49	2598.56
2075.99	2599.52	2087.27	2599.56	2093.28	2599.45	2102.54	2599.96	2118.82	2600.66
2182.16	2600.64	2189.66	2600.34	2198.59	2599.87	2220.76	2598.57	2292.4	2599.2
2322.31	2599.24	2357.06	2599.4	2376.51	2599.34	2380.71	2599.26	2387.14	2599.27
2392.24	2599.36	2400.86	2599.63	2408.24	2599.71	2410.71	2599.6	2421.22	2598.94
2443.43	2599.26	2447.2	2598.96	2454.32	2598.93	2472.94	2599.15	2484.39	2599.19
2485.89	2599.21	2495.71	2599.31	2531	2599.38	2536.27	2599.45	2540.2	2599.42
2544.21	2599.56	2563.02	2599.76	2597.26	2599.38	2617.96	2599.36	2632.71	2599.09
2633.61	2598.97	2643.97	2599.09	2652.8	2599.55	2659.22	2599.54	2678.32	2599.76
2690.61	2600.04	2699.12	2599.97	2790.99	2599.78	2853.78	2599.26	2860.77	2599.4
2927.39	2600.01	2941.39	2599.75	2951.82	2600.05	2981.89	2599.91	2992.71	2600.03
3009.62	2599.81	3040.18	2600.05	3072.54	2599.92	3084.17	2600.1	3096.57	2600.5
3130.07	2600.21	3164.98	2600.38	3181.71	2599.99	3240.07	2600.13	3296.01	2600.43
3321.04	2600.18	3337.59	2600.33	3349.35	2600.32	3351.09	2600.41	3413.07	2600.89
3515.25	2601.1	3525.56	2600.4	3532.19	2600.09	3547.63	2601.24	3563.57	2600.43
3575.2	2599.45	3584.81	2600.14	3598.56	2600.87	3603.63	2601.02	3609.18	2601.04
3617.85	2601.2	3626.34	2601.27	3636.05	2601.18	3672.59	2601.52	3680.57	2601.51
3691.01	2600.67	3705.94	2600.44	3721.73	2601.58	3730.89	2602.01		

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.06	1987.61	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2182.16	2690.61	372.91	400.82	407.07	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1952.18	2602.2	F
3640	4000	2602.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2600.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.056	0.055	0.055
W.S. Elev (ft)	2600.55	Reach Len. (ft)	372.91	400.82	407.07
Crit W.S. (ft)	2600.01	Flow Area (sq ft)	229.55	627.42	391.62
E.G. Slope (ft/ft)	0.005171	Area (sq ft)	1768.41	627.42	392.08
Q Total (cfs)	2460.62	Flow (cfs)	547.41	1406.37	506.84
Top Width (ft)	3006.78	Top Width (ft)	1767.64	506.15	732.99
Vel Total (ft/s)	1.97	Avg. Vel. (ft/s)	2.38	2.24	1.29
Max Chl Dpth (ft)	2.01	Hydr. Depth (ft)	1.40	1.24	0.54
Conv. Total (cfs)	34217.6	Conv. (cfs)	7612.3	19557.1	7048.2
Length Wtd. (ft)	392.02	Wetted Per. (ft)	164.08	506.29	724.64
Min Ch El (ft)	2598.57	Shear (lb/sq ft)	0.45	0.40	0.17
Alpha	1.15	Stream Power (lb/ft s)	1.08	0.90	0.23
Frctn Loss (ft)	1.92	Cum Volume (acre-ft)	57.65	25.09	8.84
C & E Loss (ft)	0.00	Cum SA (acres)	52.92	15.67	14.51

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.

CROSS SECTION

RIVER: AC Spur
REACH: AC Spur RS: 1199.20

INPUT
Description:
Station Elevation Data num= 149

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2602.2	31.81	2602.2	211.38	2600.2	479.91	2600.2	607.07	2599.06
713.32	2598.2	1199.37	2598.2	1210.34	2598.07	1211.81	2598.05	1214.48	2597.99
1215.69	2597.96	1217.3	2597.93	1220.98	2597.89	1222.72	2597.85	1232.21	2597.65
1239.69	2597.52	1299.96	2596.2	1309.42	2596.2	1316.04	2596.37	1316.56	2596.37
1342.84	2596.99	1343.12	2596.99	1346.96	2597.07	1348.59	2597.07	1355.12	2597.2
1385.51	2597.45	1387.88	2597.44	1392.1	2597.44	1394.65	2597.42	1517.64	2598.07
1523.25	2598.17	1523.45	2598.17	1523.89	2598.18	1525.06	2598.18	1533.2	2598.2
1572.19	2598.2	1572.81	2598.19	1580.53	2598.08	1580.81	2598.07	1599.47	2597.72
1604.31	2597.62	1677.02	2597.86	1684.39	2598.04	1684.52	2598.04	1691.7	2598.2
1714.28	2598.2	1755.47	2598.08	1755.77	2598.08	1760.69	2598.06	1770.97	2598.07
1778.37	2597.08	1794.01	2597.24	1804.23	2597.73	1830.42	2597.29	1850.77	2597.69
1853.08	2599.45	1854.51	2600.23	1855.31	2600.41	1856.08	2600.68	1857.53	2600.91
1860.21	2601.07	1861.69	2600.98	1864.13	2599.65	1865.7	2599.14	1867.53	2597.93
1882.62	2597.8	1884.22	2597.65	1892.49	2597.47	1909.5	2597.28	1934.96	2597.17
2039.09	2597.53	2064.97	2597.39	2069.32	2597.46	2081.66	2597.34	2122.56	2597.36
2126.38	2597.43	2153.48	2597.4	2161.15	2597.48	2180.42	2596.98	2198.39	2597.5
2208.04	2597.3	2218.3	2597.29	2239.74	2596.9	2250.4	2597.02	2255.69	2597.21
2260.28	2597.18	2281.02	2597.43	2296.46	2597.35	2324.63	2597.39	2332.63	2596.75

2340.55	2596.58	2372.57	2596.69	2396.73	2596.57	2504.88	2596.63	2559.66	2596.51
2612.8	2597.24	2640.22	2596.91	2643.2	2596.94	2644.17	2596.81	2668.08	2596.94
2698.29	2596.44	2766.74	2596.83	2790.69	2597.52	2803.87	2598.02	2826	2597.26
2852.82	2597.2	2895.89	2596.95	2896.17	2596.95	2900.83	2596.93	2915.58	2596.66
2929.09	2597.03	3022.9	2597.65	3025.9	2597.77	3034.29	2597.82	3040.04	2597.75
3048.88	2597.84	3054.06	2597.79	3067.13	2597.88	3114.78	2597.87	3155.12	2598.02
3211.7	2598.04	3291.16	2597.61	3313.71	2598.03	3347.81	2598.18	3390.48	2598.04
3499.81	2598.09	3529.75	2597.85	3620.78	2598.03	3635.8	2597.86	3720.95	2598.6
3727.59	2598.31	3734.4	2598.18	3747.56	2598.14	3755.93	2599.01	3772.07	2598.86
3791.84	2598.87	3798.44	2597.71	3820	2598.12	3830.92	2599.47	3849.7	2599.33
3892.96	2599.47	3901.62	2598.75	3919.39	2598.97	3935.26	2599.35	3989.61	2599.63
4018.34	2599.14	4040.74	2599.81	4079.11	2600.03	4083.71	2599.87		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.055	1199.37	.06	2803.87	.055	3347.81	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2803.87	3347.81	381.86	361.7	338.53	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	2536.11	2602.2	F
3950	4500	2602.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2598.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.060	0.055	0.060
W.S. Elev (ft)	2598.64	Reach Len. (ft)	381.86	361.70	338.53
Crit W.S. (ft)	2598.01	Flow Area (sq ft)	477.05	544.80	243.67
E.G. Slope (ft/ft)	0.004622	Area (sq ft)	2380.44	544.80	243.67
Q Total (cfs)	2460.62	Flow (cfs)	1180.31	1001.70	278.61
Top Width (ft)	3109.50	Top Width (ft)	2130.03	543.94	435.53
Vel Total (ft/s)	1.94	Avg. Vel. (ft/s)	2.47	1.84	1.14
Max Chl Dpth (ft)	2.44	Hydr. Depth (ft)	1.78	1.00	0.56
Conv. Total (cfs)	36192.3	Conv. (cfs)	17360.8	14733.5	4098.0
Length Wtd. (ft)	364.06	Wetted Per. (ft)	267.80	543.97	435.69
Min Ch El (ft)	2596.66	Shear (lb/sq ft)	0.51	0.29	0.16
Alpha	1.18	Stream Power (lb/ft s)	1.27	0.53	0.18
Frctn Loss (ft)	2.32	Cum Volume (acre-ft)	39.89	19.70	5.87
C & E Loss (ft)	0.00	Cum SA (acres)	36.24	10.84	9.05

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.

CROSS SECTION

RIVER: AC Spur
REACH: AC Spur RS: 837.50

INPUT
Description:
Station Elevation Data num= 196

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2600.2	69.03	2600.2	75.32	2600.15	75.78	2600.15	81.49	2600.12
82.37	2600.1	122.22	2599.71	124.02	2599.7	129.83	2599.64	134.46	2599.58
136.48	2599.58	187.84	2599.16	191.28	2599.15	226.79	2599.26	230.28	2599.28
233.29	2599.28	243.13	2599.31	245.9	2599.31	249.02	2599.33	251.17	2599.32
288.87	2599.42	291.31	2599.41	292.96	2599.41	330.21	2599.37	381.48	2599.16
428.14	2599.3	430.12	2599.29	436.19	2599.34	438.69	2599.34	445.06	2599.36
448.54	2599.36	500.23	2599.54	504	2599.56	506.63	2599.58	523.84	2599.67
525.73	2599.67	527.58	2599.68	563.67	2599.55	564.66	2599.55	568.3	2599.52
641.34	2599.51	642.52	2599.52	643.74	2599.52	647.17	2599.53	671.44	2599.55
673.79	2599.54	678.08	2599.53	680.39	2599.53	682.83	2599.52	711.92	2599.31
715.64	2599.29	723.88	2599.2	739.72	2599	742.17	2598.98	765.31	2598.69
773.77	2598.61	775.23	2598.59	813.27	2598.2	1099.84	2598.2	1195.29	2597.01
1198.35	2596.99	1203.4	2596.9	1204.88	2596.89	1210.91	2596.81	1234.85	2596.2
1331.74	2596.2	1398.5	2595.05	1401.2	2595.07	1405.19	2594.96	1407.62	2594.97
1411.83	2594.86	1414.03	2594.87	1417.51	2594.79	1419.62	2594.79	1421.78	2594.78
1423.83	2594.76	1425.74	2594.76	1427.29	2594.73	1463.91	2594.99	1466.78	2594.94
1470.92	2594.92	1474.97	2594.91	1482.05	2594.78	1491.97	2594.76	1532.12	2594.79
1534.1	2594.84	1538.57	2594.82	1540.72	2594.87	1545.04	2594.86	1562.76	2595.5
1565.2	2595.52	1575.26	2596.2	1625.65	2596.2	1661.08	2596.4	1667.61	2596.4
1692.49	2596.48	1719.8	2596.2	1761.02	2595.51	1761.93	2595.44	1764.54	2595.45
1768.23	2595.9	1785.92	2596	1792.36	2596.07	1855.63	2596.29	1860.83	2596.25
1876.04	2596.42	1888.36	2596.37	1936.49	2595.45	1963.84	2595.48	2031.49	2596.14
2090.34	2595.45	2104.01	2595.69	2107.63	2596.01	2107.74	2596.59	2107.89	2597.15
2119.85	2596.71	2125.61	2596.67	2140.41	2596.86	2147.28	2596.86	2175.81	2597.51
2185.93	2597.63	2222.9	2597.68	2223.22	2595.53	2230.73	2595.6	2263.27	2595.64
2298.81	2595.24	2316.42	2595.84	2330.59	2596.22	2348.22	2596	2412.57	2595.72
2419.2	2595.62	2508.06	2595.31	2526.87	2595.09	2550.97	2595.4	2562.58	2595.45

2592.61	2595.12	2638.2	2594.88	2687.79	2595.43	2703.55	2595.55	2706.87	2595.43
2715.67	2595.33	2802.92	2595.43	2810.7	2595.41	2814.31	2595.28	2829.36	2595.21
2859.68	2595.28	2894.66	2595.23	2901.07	2595.3	2944.12	2595.44	2971.45	2595.63
2977.61	2595.85	2996.83	2595.14	3016.68	2595.37	3025.92	2595.19	3039.52	2595.06
3046.39	2594.87	3061.25	2594.75	3079.67	2594.84	3092.21	2594.67	3131.37	2594.52
3193.83	2594.54	3194.01	2594.54	3204.06	2594.61	3208.7	2594.54	3224.04	2594.58
3232.53	2594.52	3304.73	2594.72	3395.39	2595.2	3407.49	2595.31	3490.31	2595.57
3537.51	2595.91	3580.25	2595.95	3617.65	2595.63	3638.47	2595.56	3696.61	2595.58
3708.56	2595.48	3726.12	2595.19	3747.63	2595.33	3752.38	2595.29	3758.43	2598.2
3759.72	2597.75	3765.29	2595.58	3776.1	2595.56	3836.74	2595.94	3852.91	2595.92
3877.06	2596.06	3930.43	2596.03	4010.54	2596.33	4032.43	2596.53	4060.22	2596.38
4082.14	2596.5	4102.64	2595.81	4117.79	2596.01	4128.95	2596.7	4174.5	2596.75
4210.4	2597.13								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.055	2419.2	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2977.61	3537.51	340.53	271.02	237.86	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	2917.86	2600.2	F
4100	4500	2600.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2596.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.060	0.060	0.060
W.S. Elev (ft)	2596.27	Reach Len. (ft)	340.53	271.02	237.86
Crit W.S. (ft)	2595.83	Flow Area (sq ft)	46.29	720.98	213.61
E.G. Slope (ft/ft)	0.009301	Area (sq ft)	1069.77	720.98	220.72
Q Total (cfs)	2460.62	Flow (cfs)	93.26	2038.18	329.19
Top Width (ft)	2556.95	Top Width (ft)	1516.06	559.90	480.99
Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	2.01	2.83	1.54
Max Chl Dpth (ft)	1.75	Hydr. Depth (ft)	0.77	1.29	0.47
Conv. Total (cfs)	25513.4	Conv. (cfs)	967.0	21133.2	3413.3
Length Wtd. (ft)	264.65	Wetted Per. (ft)	59.75	559.93	459.36
Min Ch El (ft)	2594.52	Shear (lb/sq ft)	0.45	0.75	0.27
Alpha	1.13	Stream Power (lb/ft s)	0.91	2.11	0.42
Frctn Loss (ft)	1.48	Cum Volume (acre-ft)	24.76	14.44	4.06
C & E Loss (ft)	0.01	Cum SA (acres)	20.26	6.26	5.48

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: AC Spur
REACH: AC Spur RS: 566.48

INPUT
Description:
Station Elevation Data num= 175

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2600.2	17.07	2600.2	19.15	2600.11	25.51	2600.11	25.79	2600.1
32.43	2600.05	32.89	2600.05	39.37	2599.96	50.28	2599.78	51.58	2599.79
56.52	2599.72	72.07	2599.56	74.85	2599.49	80.49	2599.42	96.52	2598.86
106.02	2598.46	107.5	2598.43	112.52	2598.2	116.13	2598.2	251.62	2596.41
254.23	2596.37	270.49	2596.2	334.04	2596.2	367.76	2596.45	369.22	2596.45
373.56	2596.46	374.35	2596.46	378.19	2596.5	378.94	2596.49	382.27	2596.55
382.86	2596.54	385.39	2596.52	385.83	2596.51	599.98	2597.28	601.35	2597.27
603.41	2597.3	607.51	2597.33	617.55	2597.38	619.6	2597.4	671.63	2597.52
673.49	2597.51	677.47	2597.51	679.16	2597.5	682.04	2597.49	708.42	2597.45
710.93	2597.44	713.19	2597.44	715.28	2597.42	717.52	2597.42	768.1	2597.26
772.27	2597.24	834.69	2596.78	897.88	2596.54	899.37	2596.53	900.45	2596.52
915.66	2596.44	930.15	2596.4	966.24	2596.2	1082.65	2596.2	1097.6	2596.03
1099.64	2596.01	1237.77	2594.3	1239.6	2594.28	1240.77	2594.26	1246.15	2594.2
1261.58	2594.2	1291.77	2593.33	1296.5	2593.26	1310.06	2592.88	1313.41	2592.81
1334.94	2592.2	1354.78	2592.2	1375.39	2592.62	1449.44	2594.01	1454.69	2594.12
1459.36	2594.2	1680.63	2594.13	1683.42	2593.91	1691.36	2593.95	1692.72	2594.11
1712.53	2593.93	1719.77	2594.03	1765.69	2594.26	1767.32	2594.21	1812.15	2594.26
1849.35	2594.43	1867.45	2594.42	1883.35	2594.61	1904.99	2594.7	1935.44	2594.68
1985.75	2594.09	2003.35	2594.29	2059.05	2594.04	2121.99	2593.57	2196.92	2593.46
2204.49	2594	2211.85	2593.79	2224.61	2593.76	2263.84	2593.92	2337.09	2593.78
2377.52	2593.57	2401.65	2593.67	2405.32	2593.62	2432.77	2593.75	2453.51	2594.03
2474.24	2594.11	2541.67	2593.92	2555.47	2592.84	2614.35	2592.98	2672.81	2593.01
2718.08	2592.56	2742.83	2592.58	2820.42	2592.95	2888.98	2592.94	2897.67	2593.03
2936.15	2593.14	2966.3	2593.68	2998.25	2593.8	3110.85	2593.33	3128.37	2593.17
3152.83	2592.62	3180.36	2593.25	3194.16	2593.09	3218.04	2592.93	3246.22	2593.02
3294.08	2593.34	3322.73	2592.98	3341.32	2592.88	3379.84	2592.98	3383.52	2593.07

3383.54	2593.07	3406.42	2593.51	3423.28	2593.57	3438.71	2592.69	3451.43	2593.83
3478.94	2593.82	3509.43	2593.91	3551.82	2593.92	3560.33	2593.74	3576.19	2593.58
3592.17	2593.62	3596.56	2593.55	3609.36	2592.87	3616.93	2592.75	3631.81	2593.81
3648.2	2593.79	3681.63	2593.56	3721.72	2593.8	3764.97	2594.29	3784.23	2594.41
3809.26	2594.01	3832.2	2594.36	3851.35	2594.11	3856.56	2593.98	3879.91	2594
3881.96	2593.65	3889.47	2593.06	3897.03	2592.74	3905.09	2592.64	3912.36	2592.81
3914.76	2592.85	3928.41	2593.45	3938.15	2593.99	4008.71	2594.8	4027.7	2594.84
4074.47	2594.41	4121.45	2594.87	4134.27	2594.32	4141.3	2594.53	4162.57	2594.61
4166.36	2594.52	4184.12	2594.7	4197	2594.66	4224.23	2594.08	4235.22	2593.63

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.055	2204.49	.06	2998.25	.05	3809.26	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2998.25	3509.43	237.54	216.48	206.63	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	3096.27	2600.2	F
4120	4500	2600.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2594.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.050	0.053
W.S. Elev (ft)	2594.82	Reach Len. (ft)	237.54	216.48	206.63
Crit W.S. (ft)	2594.12	Flow Area (sq ft)		663.89	500.47
E.G. Slope (ft/ft)	0.003713	Area (sq ft)	2034.21	783.56	540.43
Q Total (cfs)	2460.62	Flow (cfs)		1649.12	811.50
Top Width (ft)	3018.62	Top Width (ft)	1802.19	511.18	705.25
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)		2.48	1.62
Max Chl Dpth (ft)	2.62	Hydr. Depth (ft)		1.61	0.84
Conv. Total (cfs)	40379.1	Conv. (cfs)		27062.3	13316.8
Length Wtd. (ft)	214.31	Wetted Per. (ft)		413.26	592.90
Min Ch El (ft)	2592.62	Shear (lb/sq ft)		0.37	0.20
Alpha	1.12	Stream Power (lb/ft s)		0.93	0.32
Frctn Loss (ft)	1.84	Cum Volume (acre-ft)	12.63	9.76	1.99
C & E Loss (ft)	0.03	Cum SA (acres)	7.29	2.92	2.25

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 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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: AC Spur
REACH: AC Spur RS: 350.

INPUT
Description:
Station Elevation Data num= 173

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2598.2	82.73	2598.2	115.05	2598.09	120.77	2598.03	121.34	2598.02
122.12	2598.02	123.08	2598.01	187.51	2597.01	193.34	2596.93	237.11	2596.2
313.05	2596.2	320.7	2595.69	324.21	2595.71	325.07	2595.7	328.32	2595.65
329.37	2595.66	332.38	2595.57	333.58	2595.6	336.48	2595.5	341.53	2595.31
369.23	2595.02	461.71	2596.2	549.69	2596.2	681.09	2595.91	693.63	2595.95
694.41	2595.95	706.79	2595.99	707.53	2595.99	739.68	2595.85	744.61	2595.88
745.46	2595.86	746.44	2595.85	751.41	2595.87	752.4	2595.85	753.47	2595.84
757.56	2595.85	758.55	2595.83	761.8	2595.82	762.76	2595.81	782.66	2596.2
873.74	2596.2	904.74	2595.05	907.18	2595.02	1003.41	2595.54	1005.32	2595.53
1007.59	2595.53	1010.7	2595.6	1012.68	2595.6	1014.57	2595.59	1016.43	2595.57
1018.33	2595.56	1020.33	2595.54	1023.59	2595.61	1025.34	2595.61	1030.54	2595.68
1033.61	2595.7	1076.51	2594.2	1157.14	2594.2	1183.78	2593.29	1189.07	2593.07
1191.49	2593.01	1211.11	2592.2	1381.95	2592.2	1383.68	2592.25	1383.92	2592.25
1400.2	2592.71	1402.57	2592.74	1408.81	2592.91	1417.31	2593.12	1420.91	2593.14
1442.04	2593.45	1446.14	2593.44	1447.76	2593.46	1451.16	2593.43	1503.99	2593.15
1508.1	2592.83	1558.46	2592.61	1593.49	2592.72	1612.71	2592.91	1665.33	2593.03
1680.96	2593.09	1708.34	2593.56	1719.03	2593.29	1765.26	2593.19	1781.73	2593.25
1786.52	2593.13	1826.8	2592.94	1837.46	2593.05	1847.67	2592.9	1875.41	2592.91
1895.82	2593.19	1928.06	2593.31	1942.81	2593.16	2018.81	2592.79	2026.69	2592.85
2030.12	2592.65	2031.41	2592.83	2050.92	2592.66	2116.51	2592.79	2148.28	2592.47
2163.15	2593.33	2175.4	2593.79	2197.54	2593.8	2242.37	2593.41	2273.5	2592.83
2289.9	2592.08	2315.16	2592.32	2371.46	2592.27	2377.56	2592.51	2414.45	2592.62
2423.99	2592.22	2462.59	2592.23	2484.14	2592.38	2505.56	2592.31	2522.25	2592.47
2534.15	2592.19	2555.93	2592.21	2582.04	2592.57	2592.2	2592.43	2601.22	2592.18
2617.87	2591.91	2704.53	2591.67	2723.19	2591.94	2793.35	2592.29	2880.27	2591.85
2894.32	2591.89	2913.27	2592.19	2923.97	2592.07	2943.72	2591.57	2974.66	2591.56
3033.45	2591.61	3105.92	2591.86	3155.13	2591.61	3203.12	2591.69	3227.25	2591.93

3231.35	2591.86	3318.85	2591.83	3335.68	2592.04	3343.79	2591.79	3403.69	2591.68
3403.8	2591.68	3420.88	2591.62	3427.03	2591.74	3461.1	2591.94	3505.42	2591.85
3578.49	2592.04	3633.49	2592.47	3653.48	2591.55	3662.19	2592.5	3693.62	2593.19
3766.71	2593.18	3809.86	2592.26	3820.15	2592.2	3832.88	2592.2	3842.4	2591.36
3855.56	2591.4	3866.82	2592.51	3870.14	2592.44	3896.66	2592.46	3911.14	2592.88
3914	2593.19	3919.04	2593.21	3921.25	2593.06	3925.95	2593.15	3961.43	2593.03
3991.92	2591.75	4007.93	2592.47	4022.98	2593.36	4044.18	2593.31	4053.86	2593.61
4095.42	2593.84	4106.5	2594.04	4133.7	2594.04				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.055	2050.92	.06	2913.27	.05	3578.49	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2913.27	3578.49	0	0	0	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	3062.66	2594.2	F
3866.8	4154.22	2594.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2593.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.050	0.060
W.S. Elev (ft)	2592.64	Reach Len. (ft)	350.00	350.00	350.00
Crit W.S. (ft)	2592.64	Flow Area (sq ft)		429.15	85.76
E.G. Slope (ft/ft)	0.037698	Area (sq ft)	391.67	575.15	110.31
Q Total (cfs)	2460.62	Flow (cfs)		2190.38	270.24
Top Width (ft)	1778.09	Top Width (ft)	871.36	665.22	241.51
Vel Total (ft/s)	4.78	Avg. Vel. (ft/s)		5.10	3.15
Max Chl Dpth (ft)	1.28	Hydr. Depth (ft)		0.83	0.52
Conv. Total (cfs)	12673.2	Conv. (cfs)		11281.4	1391.9
Length Wtd. (ft)	350.00	Wetted Per. (ft)		515.84	165.30
Min Ch El (ft)	2591.56	Shear (lb/sq ft)		1.96	1.22
Alpha	1.06	Stream Power (lb/ft s)		9.99	3.85
Frctn Loss (ft)	2.51	Cum Volume (acre-ft)	6.02	6.39	0.44
C & E Loss (ft)	0.06	Cum SA (acres)			

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: 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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 31333.21

INPUT
Description:
Station Elevation Data num= 167

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2933.13	1.8	2932.2	10.04	2927.96	21.16	2922.2	25.78	2919.85
34.34	2915.54	40.87	2912.2	51.61	2907.06	61.58	2902.2	76.63	2894.71
81.68	2892.2	92.05	2886.95	101.96	2882.2	107.95	2879.41	116.14	2875.64
123.46	2872.2	127.68	2870.37	132.37	2868.31	139.73	2865.13	146.45	2862.2
152.85	2859.41	163.75	2853.96	166.17	2852.82	167.26	2852.2	174.67	2848.68
188.59	2842.2	209.93	2835.35	219.73	2832.2	226.88	2830.58	228.59	2830.2
229.91	2829.9	237.33	2828.2	241.31	2827.27	246.06	2826.2	251.53	2824.92
254.57	2824.2	257.33	2823.74	268.22	2822.2	275.69	2821.25	281.48	2820.54
283.91	2820.2	293.04	2818.34	293.76	2818.2	294.11	2818.14	295.44	2817.95
314.8	2815.05	321.35	2814.2	331.39	2813.45	340.82	2812.79	344.87	2812.51
349.07	2812.2	352.66	2810.92	354.45	2810.2	357.38	2809.09	359.74	2808.24
359.84	2808.2	362.94	2806.99	364.9	2806.2	365.04	2806.15	370.03	2804.34
370.4	2804.2	370.88	2804.04	376.13	2802.2	381.06	2800.79	382.93	2800.2
385.6	2799.91	399.25	2798.2	403.66	2798.2	406.22	2798.2	416.03	2798.2
439.37	2798.2	442.14	2798.2	443.31	2798.2	446.7	2798.2	448.69	2799.23
450.39	2800.2	452.77	2801.27	455.03	2802.2	460.27	2804.16	460.41	2804.2
464.71	2805.62	465.92	2805.98	466.69	2806.2	469.99	2807.31	472.98	2808.2
477.07	2809.36	479.81	2810.2	482.6	2811.01	487.11	2812.13	487.34	2812.2
492.4	2813.29	496.98	2813.48	503.13	2813.67	505.44	2813.91	510.91	2814.06
512.91	2814	513.48	2814.04	514	2814.06	514.21	2814.06	520.96	2813.97
521.36	2813.98	521.83	2813.99	522.4	2813.98	523.13	2813.97	529.61	2813.86
530.89	2813.83	532.57	2813.77	535.06	2813.66	541.38	2813.46	545.72	2813.2
554.64	2812.63	557.03	2812.51	561.21	2812.2	567.81	2811.24	573.85	2810.2
575.78	2808.8	576.51	2808.2	577.67	2807.38	579.24	2806.2	580.61	2805.37
582.56	2804.2	583.78	2803.4	585.55	2802.2	586.58	2801.65	589.2	2800.2

591.8	2799.6	604.37	2799.63	607.48	2800.2	615.04	2801.67	617.87	2802.2
631.8	2802.2	635.36	2802.2	639.37	2800.92	641.15	2800.2	644.26	2799.98
651.26	2799.53	653.37	2799.47	679.85	2799.94	680.83	2800.2	682.85	2801.28
684.72	2802.2	687.38	2803.75	688.22	2804.2	688.54	2804.36	691.94	2806.2
693.39	2807.01	702.71	2812.2	719.31	2822.13	719.44	2822.2	719.54	2822.26
736.1	2832.2	743.84	2836.74	753.28	2842.2	766.62	2849.47	771.73	2852.2
779.14	2856.07	790.89	2862.2	807.26	2871.08	809.28	2872.2	810.14	2872.65
821.74	2878.17	829.58	2881.91	829.88	2882.05	830.24	2882.2	843.07	2888.52
850.69	2892.2	854.9	2894.86						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	349.07	.045	464.71	.05	576.51	.045	702.71	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
349.07	702.71	107.84	108.45	92.73	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2807.42	Element			
Vel Head (ft)	2.35	Wt. n-Val.		0.045	
W.S. Elev (ft)	2805.07	Reach Len. (ft)	107.84	108.45	92.73
Crit W.S. (ft)	2805.07	Flow Area (sq ft)		974.80	
E.G. Slope (ft/ft)	0.017612	Area (sq ft)		974.80	
Q Total (cfs)	12000.00	Flow (cfs)		12000.00	
Top Width (ft)	203.78	Top Width (ft)		203.78	
Vel Total (ft/s)	12.31	Avg. Vel. (ft/s)		12.31	
Max Chl Dpth (ft)	6.87	Hydr. Depth (ft)		4.78	
Conv. Total (cfs)	90423.2	Conv. (cfs)		90423.2	
Length Wtd. (ft)	108.45	Wetted Per. (ft)		209.41	
Min Ch El (ft)	2798.20	Shear (lb/sq ft)		5.12	
Alpha	1.00	Stream Power (lb/ft s)		63.00	
Frctn Loss (ft)	1.89	Cum Volume (acre-ft)	256.16	546.14	176.78
C & E Loss (ft)	0.02	Cum SA (acres)	198.36	119.52	122.85

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: Agua Caliente
REACH: upper RS: 31224.76

INPUT
Description:
Station Elevation Data num= 180

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2939.05	1.26	2938.22	10.7	2932.2	15.67	2929.38	27.55	2922.2
32.73	2919.23	44.41	2912.2	58.95	2903.4	60.88	2902.2	65.22	2899.59
77.6	2892.2	84.1	2888.42	94.76	2882.2	101.53	2878.37	113.68	2872.2
120	2868.8	126.07	2865.61	132.82	2862.2	137.51	2859	146.37	2852.2
156.64	2843.48	158.08	2842.2	161	2840.23	173.2	2832.2	175.5	2830.87
176.69	2830.2	177.55	2829.72	180.26	2828.2	182.26	2827.21	184.59	2826.2
187.02	2825.15	189.46	2824.2	192.82	2823.11	195.45	2822.2	198.43	2821.26
202.06	2820.2	204.52	2819.79	226.13	2816.56	230.52	2816.14	238.25	2815.47
241.63	2815.14	251.91	2814.45	252.59	2814.39	253.02	2814.36	256.27	2814.2
260.48	2814.02	261.12	2814	265.8	2813.77	267.46	2813.71	269.96	2813.62
273.9	2813.37	279.1	2813.18	282.42	2812.97	284.93	2812.81	294.14	2812.55
295.65	2812.48	296.8	2812.44	307.79	2812.22	307.88	2812.22	308.91	2812.2
322.81	2811.33	328.61	2810.97	330.38	2810.44	331.82	2810.2	334.49	2810.2
336.64	2810.2	345.46	2808.68	347.39	2808.64	350.06	2808.2	350.25	2808.2
350.67	2808.12	356.77	2807.57	359.15	2807.13	362.09	2806.77	365.32	2806.2
368.19	2805.72	374.12	2804.45	374.98	2804.2	379.18	2803.06	380.44	2802.71
382.24	2802.2	388.28	2800.66	389.81	2800.2	395.48	2798.74	397.48	2798.2
400.5	2797.51	407.81	2796.3	408.23	2796.22	408.6	2796.2	410.23	2796.2
415.37	2796.2	416.07	2796.2	416.2	2796.2	423.36	2796.2	425.99	2796.2
435.61	2796.2	438.05	2795.74	445.89	2794.2	446.84	2794.2	451.18	2794.2
456.81	2795.38	460.18	2796.2	464.06	2797.23	467.68	2798.2	474.17	2800.02
474.81	2800.2	475.18	2800.29	477.39	2800.91	481.47	2802.03	482.09	2802.2
483.35	2802.55	487.29	2803.67	489.15	2804.2	492.26	2805.07	496.11	2806.2
498.5	2806.91	500.74	2807.38	503.71	2807.69	505.36	2807.94	511.03	2808.03
511.64	2808.09	516.56	2807.91	520.92	2807.65	530.13	2806.2	530.23	2806.11
532.44	2804.2	534.27	2802.81	535.08	2802.2	535.92	2801.46	537.38	2800.2
539.92	2798.23	539.95	2798.2	540.19	2797.96	541.94	2796.27	542.02	2796.2
542.28	2796.2	544.08	2796.2	558.83	2796.2	561.7	2796.2	568.3	2797.78
569.87	2798.2	575.67	2798.2	583.82	2798.2	584.6	2798.2	585.86	2798.2
603.23	2797.51	606.38	2797.5	611.97	2796.84	613.42	2796.75	618.43	2796.2
622.04	2796.2	622.49	2796.2	631.92	2797.65	635.57	2798.2	637.02	2798.59

643.31	2800.2	646.36	2801.29	648.89	2802.2	658.9	2807.68	666.97	2812.2
673.4	2816.13	683.3	2822.2	697.83	2830.79	700.14	2832.2	701.75	2833.16
710.8	2838.41	717.34	2842.2	734.84	2850.39	738.52	2852.2	747.99	2857.04
758.21	2862.2	765.18	2866.26	775.11	2872.2	780.03	2875.62	789.88	2882.2
793.55	2884.9	802.67	2890.65	804.32	2891.74	805.11	2892.2	809.45	2894.36

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	380.44	.045	475.18	.05	537.38	.045	658.9	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
380.44	658.9	122.58	135.05	125.48	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2804.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.29	Wt. n-Val.		0.045	
W.S. Elev (ft)	2802.10	Reach Len. (ft)	122.58	135.05	125.48
Crit W.S. (ft)	2802.10	Flow Area (sq ft)		988.06	
E.G. Slope (ft/ft)	0.017238	Area (sq ft)		988.06	
Q Total (cfs)	12000.00	Flow (cfs)		12000.00	
Top Width (ft)	212.51	Top Width (ft)		212.51	
Vel Total (ft/s)	12.15	Avg. Vel. (ft/s)		12.15	
Max Chl Dpth (ft)	7.90	Hydr. Depth (ft)		4.65	
Conv. Total (cfs)	91398.7	Conv. (cfs)		91398.7	
Length Wtd. (ft)	135.05	Wetted Per. (ft)		217.68	
Min Ch El (ft)	2794.20	Shear (lb/sq ft)		4.88	
Alpha	1.00	Stream Power (lb/ft s)		59.33	
Frctn Loss (ft)	2.25	Cum Volume (acre-ft)	256.16	543.69	176.78
C & E Loss (ft)	0.02	Cum SA (acres)	198.36	119.01	122.85

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: Agua Caliente
REACH: upper RS: 31089.71

INPUT
Description:
Station Elevation Data num= 170

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2961.48	3.04	2958.8	11.1	2952.2	15.37	2948.62	23.24	2942.2
25.09	2940.69	33.52	2933.86	35.2	2932.51	35.58	2932.2	46.83	2923.31
48.22	2922.2	51.6	2919.5	60.73	2912.2	63.53	2910.02	69.62	2905.27
73.56	2902.2	81.06	2896.34	86.42	2892.2	95.37	2885.42	99.66	2882.2
110.21	2875.61	115.4	2872.2	123.44	2866.94	130.35	2862.2	136.58	2857.69
144.37	2852.2	152.24	2847.2	160.22	2842.2	174.1	2835.03	179.29	2832.2
181.39	2831.31	183.89	2830.2	186.69	2829.05	188.7	2828.2	192.72	2826.51
193.46	2826.2	194.27	2825.87	198.33	2824.2	199.95	2823.54	203.11	2822.2
217.84	2818.62	236.46	2814.2	244.3	2813.22	252.73	2812.2	259.49	2811.37
270.37	2810.2	271.69	2810.09	272.5	2810.05	282.31	2809.29	286.22	2809.21
290.51	2808.9	297.39	2808.54	298.53	2808.52	303.95	2808.53	309.93	2808.56
311.18	2808.54	318.1	2808.56	344.9	2809.42	348.85	2809.46	355.2	2810.2
371.06	2810.2	376.95	2810.2	388.1	2810.2	389.19	2810.2	389.53	2810.2
390.66	2810.2	391.26	2810.2	394.22	2810.2	399.67	2810.2	400.84	2810.2
406.11	2810.2	408.66	2810.2	409.1	2810.2	414.72	2810.2	415.95	2810.2
417.98	2810.2	423.78	2808.5	424.92	2808.2	425.09	2808.11	428.62	2806.2
430.59	2805.16	432.33	2804.2	436.06	2802.3	436.27	2802.2	436.45	2802.11
440.1	2800.2	442.38	2799.1	444.12	2798.2	444.53	2797.98	447.4	2796.51
447.96	2796.2	448.19	2796.08	451.88	2794.2	452.17	2794.12	453.21	2793.81
454.24	2793.82	471.96	2792.2	477.26	2792.2	478.5	2792.2	480.06	2792.2
487.08	2792.2	488.22	2792.2	494.31	2793.23	500.67	2793.63	506.46	2794.2
509.96	2794.2	510.14	2794.2	512.41	2794.2	513.55	2794.2	516	2794.2
518.76	2794.2	521.55	2794.2	531.72	2794.2	534.27	2794.2	539.93	2794.2
555.72	2792.32	556.25	2792.29	557.15	2792.2	560.62	2792.2	561.94	2792.2
565.07	2792.2	568.43	2792.2	575.84	2791.56	580.39	2791	583.06	2790.92
588.03	2790.2	592.52	2790.2	593.53	2790.2	596.68	2790.62	609.41	2792.2
610.81	2792.95	613.34	2794.2	615.88	2795.56	617.15	2796.2	620.83	2798.09
628.55	2802.2	629.72	2802.8	642.28	2809.29	647.81	2812.2	651.01	2814
666.32	2822.2	673.82	2824.83	693.72	2832.2	705.89	2837.17	718.14	2842.2
728.24	2846.8	739.94	2852.2	743.79	2853.85	762.78	2862.2	768.54	2865.83
776.09	2868.88	783.76	2872.2	790.36	2874.44	792.94	2874.83	821.53	2882.2
821.81	2882.2	822.05	2882.2	834.37	2886.02	834.97	2886.2	835.21	2886.28
841.45	2888.2	844.07	2888.83	849.22	2890.2	853.78	2891.28	860.16	2892.2
862.22	2892.2	868.06	2892.2	870.01	2892.2	872.99	2892.2	874.6	2891.89

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	424.92	.045	629.72	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
424.92	629.72	111.24	98.84	75.92	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2800.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.49	Wt. n-Val.		0.045	
W.S. Elev (ft)	2798.37	Reach Len. (ft)	111.24	98.84	75.92
Crit W.S. (ft)	2798.23	Flow Area (sq ft)		947.57	
E.G. Slope (ft/ft)	0.016144	Area (sq ft)		947.57	
Q Total (cfs)	12000.00	Flow (cfs)		12000.00	
Top Width (ft)	177.57	Top Width (ft)		177.57	
Vel Total (ft/s)	12.66	Avg. Vel. (ft/s)		12.66	
Max Chl Dpth (ft)	8.17	Hydr. Depth (ft)		5.34	
Conv. Total (cfs)	94443.3	Conv. (cfs)		94443.3	
Length Wtd. (ft)	98.84	Wetted Per. (ft)		180.70	
Min Ch El (ft)	2790.20	Shear (lb/sq ft)		5.29	
Alpha	1.00	Stream Power (lb/ft s)		66.93	
Frctn Loss (ft)	1.09	Cum Volume (acre-ft)	256.16	540.69	176.78
C & E Loss (ft)	0.25	Cum SA (acres)	198.36	118.40	122.85

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: Agua Caliente
REACH: upper RS: 30990.87

INPUT
Description:
Station Elevation Data num= 195

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2982.73	.55	2982.2	12.26	2975.95	18.68	2972.2	23.75	2968.47
32.12	2962.2	38.82	2955.59	42.21	2952.2	46.38	2947.79	51.8	2942.2
59.9	2933.2	60.82	2932.2	64.27	2928.13	69.25	2922.2	71.46	2919.58
77.75	2912.2	86.47	2903.29	87.53	2902.2	88.82	2901.3	97.35	2895.59
102.37	2892.2	109.25	2885.74	113.08	2882.2	116.46	2879.67	126.53	2872.2
133.45	2867.28	140.31	2862.2	152.32	2854.84	156.41	2852.2	161.04	2849.43
172.86	2842.2	182.66	2836.78	191.07	2832.2	196.46	2829.31	198.48	2828.2
201.74	2826.51	202.31	2826.2	202.9	2825.91	206.13	2824.2	207.06	2823.73
210	2822.2	216.21	2819.12	226.04	2814.2	229.35	2813.25	232.3	2812.2
238.02	2811.38	247.16	2810.2	249.14	2809.86	252.64	2809.34	257.1	2808.63
260.43	2808.2	267.73	2807.29	276.56	2806.2	278.51	2806.1	278.88	2806.1
286.15	2805.76	307.83	2805.37	310.87	2805.39	313.76	2805.41	332.21	2805.94
337.55	2806.2	341.79	2806.2	343.45	2806.2	348.91	2806.2	356.53	2806.2
360.3	2806.29	367.77	2806.22	367.82	2806.22	367.89	2806.22	370.16	2806.2
375.24	2806.17	375.33	2806.18	382.86	2806.17	382.98	2806.17	390.48	2806.17
397.82	2806.17	397.95	2806.17	405.08	2806.17	412.18	2806.19	412.23	2806.19
412.42	2806.19	415.14	2806.2	419.19	2806.23	419.27	2806.23	426.02	2806.27
432.8	2806.3	433.06	2806.28	435.2	2806.2	435.63	2806.2	436.38	2806.2
443.94	2806.2	445.52	2806.2	452.05	2806.2	455.14	2806.2	458.42	2806.2
460.95	2806.2	462.03	2805.52	465.25	2804.2	465.84	2803.45	466.84	2802.2
467.23	2801.72	468.6	2800.2	469.15	2798.73	469.46	2798.2	469.96	2797.79
470.71	2797.15	471.83	2796.2	473.31	2794.36	473.45	2794.2	473.56	2794.07
475.49	2792.2	475.53	2792.16	477.5	2790.2	479.11	2788.48	479.44	2788.2
480.36	2788.2	482.97	2788.2	484.9	2788.2	493.63	2788.2	498.58	2788.41
499.35	2788.43	502.31	2788.47	503.25	2788.5	504.51	2788.58	507.25	2788.81
512.58	2789.22	522.95	2790.19	522.98	2790.2	523.02	2790.2	535.14	2791.7
538.9	2792.2	547.1	2792.91	552.67	2793.22	557.96	2793.62	564.8	2793.82
571.64	2793.93	572.58	2793.81	574.87	2793.54	578.34	2793.46	585.74	2792.2
586.24	2792.05	592.71	2790.2	593.06	2790.16	597.78	2789.66	599.98	2789.43
610.51	2788.31	611.86	2788.2	618.61	2788.2	620.04	2788.2	621.99	2789.34
623.28	2790.2	625.45	2790.77	629.46	2791.84	630.77	2792.2	632.08	2792.98
646.2	2802.2	654.07	2807.89	660.43	2812.2	671.86	2818.35	679.01	2822.2
686.72	2825.34	694.74	2828.6	699.12	2830.46	703.43	2832.2	714.69	2836.5
728.95	2842.2	731.7	2843.48	737.09	2846.07	749.61	2852.2	763.17	2859.08
769.43	2862.2	773.35	2863.86	792.79	2872.2	806.65	2877.23	819.55	2881.56
822.34	2882	825.77	2882.2	826.13	2882.2	826.56	2882.24	830.78	2882.3
831.15	2882.33	835.77	2882.4	836.64	2882.45	841.59	2882.62	843.58	2882.71
848.85	2882.97	852.94	2883.18	857.38	2883.41	863.93	2883.81	865.71	2883.91
869.81	2884.2	872.97	2884.42	873.68	2884.45	879.29	2884.7	879.74	2884.7

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	462.03	.045	469.15	.045	646.2	.05

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

469.15 646.2 66.01 92.03 95.75 .1 .3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2799.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.67	Wt. n-Val.		0.045	
W.S. Elev (ft)	2797.85	Reach Len. (ft)	66.01	92.03	95.75
Crit W.S. (ft)	2796.36	Flow Area (sq ft)		1157.09	
E.G. Slope (ft/ft)	0.008069	Area (sq ft)		1157.09	
Q Total (cfs)	12000.00	Flow (cfs)		12000.00	
Top Width (ft)	169.65	Top Width (ft)		169.65	
Vel Total (ft/s)	10.37	Avg. Vel. (ft/s)		10.37	
Max Chl Dpth (ft)	9.65	Hydr. Depth (ft)		6.82	
Conv. Total (cfs)	133593.3	Conv. (cfs)		133593.3	
Length Wtd. (ft)	92.03	Wetted Per. (ft)		176.98	
Min Ch El (ft)	2788.20	Shear (lb/sq ft)		3.29	
Alpha	1.00	Stream Power (lb/ft s)		34.15	
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	256.16	538.31	176.78
C & E Loss (ft)	0.06	Cum SA (acres)	198.36	118.01	122.85

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

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 30898.84

INPUT
Description:
Station Elevation Data num= 194

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2997.6	1.47	2996.58	7.32	2992.2	12.86	2987.12	17.83	2982.2
26.3	2973.69	27.74	2972.2	35.35	2965.9	39.41	2962.2	51.13	2954.84
54.97	2952.2	57.8	2949.46	65.09	2942.2	69.35	2938.34	73.83	2934.85
77.13	2932.2	80	2928.78	86.88	2922.2	90.72	2916.28	93.53	2912.2
102.04	2902.29	102.12	2902.2	102.14	2902.17	112.68	2892.2	116.55	2888.88
124.81	2882.2	133.63	2876.04	139.44	2872.2	150.22	2865.07	154.61	2862.2
166.78	2854.39	170.17	2852.2	179.62	2846.3	185.89	2842.2	191.57	2838.65
201.65	2832.2	204.02	2830.84	215.23	2824.29	218.2	2822.56	218.82	2822.2
220.26	2821.42	234.11	2814.2	238.08	2812.68	239.35	2812.2	240.34	2811.71
243.32	2810.2	246.34	2809.86	255.26	2808.97	261.6	2808.2	269.87	2807.15
278.05	2806.2	281.64	2805.78	288.08	2805.07	295.82	2804.2	301.81	2804.2
332.24	2803.05	335.49	2803.07	339.41	2803.04	342.61	2803.07	346.01	2803.11
349.99	2803.11	353.41	2803.15	357.18	2803.22	360.93	2803.24	365.09	2803.32
369.98	2803.42	373.13	2803.46	378.82	2803.59	381.35	2803.63	387.99	2803.81
396.05	2804.04	396.7	2804.05	402	2804.2	412.06	2804.2	421.78	2804.2
426.01	2804.09	426.1	2804.09	433.35	2803.89	434.68	2803.86	436.37	2803.81
443.61	2803.61	446.46	2803.5	450.7	2803.31	456.23	2803.13	463.13	2802.76
465.85	2802.66	473.87	2802.2	479.22	2801.9	487.78	2801.23	495.14	2800.72
497.52	2800.56	500.87	2800.2	501.54	2799.57	502.74	2798.42	502.97	2798.2
503.12	2798.03	504.74	2796.2	505.78	2795.15	506.7	2794.2	508.53	2792.24
508.57	2792.2	508.59	2792.18	508.71	2792.04	510.38	2790.2	510.72	2789.73
511.86	2788.2	512.93	2786.51	513.05	2786.32	513.13	2786.2	526.09	2786.2
536.19	2786.2	538.77	2786.61	549.03	2788.2	551.31	2788.51	553.42	2788.76
559.12	2789.36	561.69	2789.46	564.77	2789.56	566.68	2789.47	569.99	2789.03
571.96	2788.75	574.48	2788.2	580.28	2787.68	586.9	2786.9	590.51	2786.49
592.6	2786.2	595	2786.2	601.48	2786.2	606.08	2786.75	614.97	2788.2
615.51	2789	616.56	2790.2	616.86	2790.46	618.75	2792.2	620.01	2793.9
620.23	2794.2	620.66	2794.64	622.29	2796.2	623.44	2797.47	627.42	2802.2
627.71	2802.47	633.27	2807.62	638.07	2812.2	654.74	2817.13	671.03	2822.2
680.23	2827.26	688.78	2832.2	693.99	2835.89	703.36	2842.2	711.85	2843.98
716.66	2845.43	739.28	2851.69	740.82	2852.2	744.7	2852.96	750.32	2853.51
753.12	2853.85	754.32	2853.94	757.89	2854.2	762.83	2854.8	771.2	2855.93
772.46	2856.11	772.97	2856.2	779.95	2857.27	785.68	2858.2	786.71	2858.5
790.76	2860.2	791.73	2860.51	795.07	2861.21	797.93	2861.87	800.31	2862.2
806.64	2863.39	812.18	2864.2	814.07	2864.43	815.19	2864.55	820.68	2865.07
824.94	2865.47	827.48	2865.65	834.33	2866.2	834.65	2866.22	834.78	2866.24
841.75	2866.83	844.54	2867.03	848.57	2867.31	852.03	2867.27	854.94	2867.35
857.54	2867.24	860.49	2866.97	864.79	2866.39	865.83	2866.2	874.31	2864.49
875.77	2864.2	875.93	2864.18	876.21	2864.13	877.91	2863.88		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	495.14	.045	504.74	.045	622.29	.045	627.71	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
504.74	622.29	52.61	58.02	61.97	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2798.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.24	Wt. n-Val.	0.045	0.045	0.045
W.S. Elev (ft)	2796.47	Reach Len. (ft)	52.61	58.02	61.97

Crit W.S. (ft)	2794.77	Flow Area (sq ft)	0.03	999.63	0.03
E.G. Slope (ft/ft)	0.008390	Area (sq ft)	0.03	999.63	0.03
Q Total (cfs)	12000.00	Flow (cfs)	0.02	11999.96	0.02
Top Width (ft)	118.03	Top Width (ft)	0.24	117.55	0.24
Vel Total (ft/s)	12.00	Avg. Vel. (ft/s)	0.60	12.00	0.61
Max Chl Dpth (ft)	10.27	Hydr. Depth (ft)	0.13	8.50	0.13
Conv. Total (cfs)	131012.1	Conv. (cfs)	0.2	131011.7	0.2
Length Wtd. (ft)	58.02	Wetted Per. (ft)	0.36	126.42	0.36
Min Ch El (ft)	2786.20	Shear (lb/sq ft)	0.05	4.14	0.05
Alpha	1.00	Stream Power (lb/ft s)	0.03	49.72	0.03
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	256.16	536.03	176.78
C & E Loss (ft)	0.15	Cum SA (acres)	198.36	117.70	122.85

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

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 30840.82

INPUT
Description:
Station Elevation Data num= 199

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	3005.45	1.23	3004.86	2.62	3004.2	3.84	3003.51	6.05	3002.2
12.32	2998.09	20.5	2992.2	25.68	2986.7	30.2	2982.2	32.66	2980.2
43.06	2972.2	47.23	2968.95	56.2	2962.2	56.46	2962.05	71.19	2952.2
76.19	2947.49	80.1	2943.64	81.61	2942.2	85.35	2937.98	90.28	2932.2
92.56	2929.56	99.69	2922.2	104.34	2917.66	110.7	2912.2	110.74	2912.16
118.13	2904.24	119.62	2902.2	139.96	2892.89	141.78	2892.2	147.97	2887.2
153.35	2882.2	157.49	2878.06	162.85	2872.2	171.56	2863.78	173.14	2862.2
185.36	2852.48	185.7	2852.2	186.19	2851.84	199.65	2842.2	215.2	2834.52
217.61	2833.37	220.65	2832.2	227.33	2829.38	234.92	2825.81	238.86	2824.05
242.34	2822.2	254.88	2816.48	259.18	2814.2	260.35	2813.5	262.54	2812.23
262.6	2812.2	265.83	2810.43	266.25	2810.2	266.75	2810.01	272.24	2808.2
277.41	2807.63	291.95	2806.2	293.76	2805.99	308.65	2804.2	320.69	2802.67
324.31	2802.2	325.92	2802.1	334.9	2801.6	353.96	2801.01	356.91	2801.01
359.91	2801.03	363.69	2800.99	366.61	2801.03	369.92	2801.09	373.81	2801.08
377.03	2801.14	381.06	2801.15	384.94	2801.19	388.44	2801.23	391.65	2801.27
394.7	2801.3	429.62	2801.23	433.73	2801.25	437.62	2801.28	441.17	2801.32
460.55	2801.18	464.54	2801.05	465.24	2801.04	470.68	2800.86	478.2	2800.58
480.03	2800.54	487.34	2800.2	489.68	2800.05	499.62	2799.43	506.3	2798.97
507.62	2798.9	510.34	2798.75	512.61	2798.66	517.15	2798.2	520.44	2796.26
520.54	2796.2	520.64	2796.16	524.41	2794.2	525.47	2793.66	527.87	2792.2
530.57	2790.59	531.32	2790.2	532.42	2789.68	535.27	2788.2	538.74	2786.35
538.99	2786.2	542.02	2784.79	547.04	2784.5	549.26	2784.58	553.67	2784.83
556.33	2784.92	561.14	2785.18	564.57	2785.37	567.75	2785.37	570.39	2785.5
572.29	2785.59	604.93	2786.2	608.18	2786.2	616.1	2786.2	618.18	2786.2
620.08	2787.54	620.98	2788.2	621.25	2788.58	622.55	2790.2	623.76	2791.34
624.66	2792.2	625.47	2793.02	626.84	2794.2	633.93	2801.67	634.42	2802.2
634.52	2802.25	647.18	2807.95	657.34	2812.2	664.6	2814.6	671.82	2816.9
679.92	2819.53	686.62	2821.68	688.08	2822.2	690.85	2823.41	695.72	2825.6
696.98	2826.2	698.67	2827.3	700.07	2828.2	701.16	2829.06	702.61	2830.2
703.29	2830.74	705.06	2832.2	706.33	2833.31	707.49	2834.2	708.52	2834.54
709.6	2834.6	715.33	2835.02	718.81	2834.74	720.54	2834.77	725.04	2834.4
725.8	2834.43	731.13	2834.4	732.12	2834.52	736.85	2835.07	742.41	2836.2
742.84	2836.26	743.19	2836.34	748.04	2837.32	751.63	2838.2	752.87	2838.52
754.68	2839	757.45	2839.72	759.36	2840.2	762.77	2841.01	767.98	2842.2
768.34	2842.27	768.9	2842.38	774.45	2843.32	780.32	2844.2	781.35	2844.39
782.52	2844.54	788.63	2845.1	792.3	2845.21	796.06	2845.15	799.14	2845.03
803.51	2845	806.4	2845.01	810.4	2845.27	815.05	2845.58	817.07	2845.81
821.14	2846.2	823.38	2846.43	824.26	2846.48	829.2	2846.93	832.12	2847.14
835.39	2847.39	840.2	2847.71	841.87	2847.79	848.13	2848.03	848.7	2848.05
855.82	2848.17	855.95	2848.17	860.75	2848.2	863.3	2848.22		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	517.15	.045	527.87	.045	626.84	.045	634.52	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
527.87	626.84	137.74	150.21	160.6	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2797.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.69	Wt. n-Val.	0.045	0.045	0.000
W.S. Elev (ft)	2794.23	Reach Len. (ft)	137.74	150.21	160.60
Crit W.S. (ft)	2794.12	Flow Area (sq ft)	3.45	777.15	0.00
E.G. Slope (ft/ft)	0.014944	Area (sq ft)	3.45	777.15	0.00
Q Total (cfs)	12000.00	Flow (cfs)	12.48	11987.52	0.00
Top Width (ft)	102.53	Top Width (ft)	3.52	98.97	0.03
Vel Total (ft/s)	15.37	Avg. Vel. (ft/s)	3.62	15.42	0.21
Max Chl Dpth (ft)	9.73	Hydr. Depth (ft)	0.98	7.85	0.02

Conv. Total (cfs)	98163.9	Conv. (cfs)	102.1	98061.8	0.0
Length Wtd. (ft)	150.18	Wetted Per. (ft)	4.07	104.04	0.05
Min Ch El (ft)	2784.50	Shear (lb/sq ft)	0.79	6.97	
Alpha	1.01	Stream Power (lb/ft s)	2.86	107.50	
Frctn Loss (ft)	2.20	Cum Volume (acre-ft)	256.15	534.84	176.78
C & E Loss (ft)	0.19	Cum SA (acres)	198.35	117.56	122.85

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: Agua Caliente
REACH: upper RS: 30690.61

INPUT
Description:
Station Elevation Data num= 209

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	3010.2	6.5	3010.2	16.73	3010.2	18.01	3009.83	23.39	3008.2
23.74	3008.1	29.8	3006.2	34.44	3004.5	35.23	3004.2	35.89	3003.92
39.95	3002.2	46.52	2998.98	60.93	2992.2	63.21	2990.94	71.21	2986.82
78.04	2983.24	80.13	2982.2	95.85	2972.57	96.47	2972.2	105.19	2965.89
110.1	2962.2	121.07	2953.73	122.99	2952.2	128.3	2947.77	134.97	2942.2
136.32	2941.06	146.35	2932.2	150.38	2928.53	157	2922.2	162.63	2916.7
167.1	2912.2	173.22	2905.41	176.19	2902.2	185.29	2892.21	185.3	2892.2
185.31	2892.19	194.44	2882.2	203.61	2873.74	205.31	2872.2	206.88	2870.96
218.46	2862.2	227.11	2856.77	234.61	2852.2	238.8	2849.94	254.08	2842.2
268.39	2834.45	272.77	2832.2	276.43	2830.44	284.37	2826.61	290.64	2823.57
293.42	2822.2	307.75	2815.85	315.85	2812.2	319.86	2810.39	320.3	2810.2
320.89	2809.93	324.83	2808.2	328.64	2806.48	329.24	2806.2	331.62	2805.34
334.23	2804.43	334.85	2804.2	346.14	2802.52	348.13	2802.2	352.23	2801.44
359.08	2800.2	366.56	2799.07	372.2	2798.2	378.41	2797.62	387.53	2796.81
397.22	2796.2	397.66	2796.2	397.99	2796.2	403.08	2796.2	408.88	2795.84
416.65	2795.69	418.08	2795.63	424.56	2795.51	426.7	2795.48	432.09	2795.39
434.91	2795.38	439.65	2795.3	443.09	2795.29	447.31	2795.23	451.11	2795.22
454.95	2795.16	459.1	2795.14	462.61	2795.09	467.03	2795.06	470.27	2795
475.06	2794.95	477.89	2794.9	483.2	2794.8	489.49	2794.62	491.22	2794.59
498.25	2794.3	500.25	2794.2	506.86	2793.54	518.65	2792.2	526.25	2791.46
530.88	2790.85	535.64	2790.2	541.47	2789.13	543.09	2788.81	546.17	2788.2
553.1	2786.79	553.61	2786.69	556.11	2786.2	583.2	2784.28	584.33	2784.2
604.59	2784.2	613.41	2784.2	621.81	2784.2	637.44	2784.2	639.85	2784.2
641.15	2784.72	645.13	2786.2	646.78	2786.85	650.66	2788.2	653.56	2789.43
655.36	2790.2	659.83	2790.74	666.46	2791.55	670.21	2792.2	673.01	2792.99
678.39	2794.2	679.67	2794.63	684.49	2796.2	684.7	2796.28	688.98	2798.2
692.21	2799.61	693.71	2800.2	697.51	2802.08	697.76	2802.2	698.12	2802.35
702.19	2804.2	705.91	2805.5	707.7	2806.2	713.5	2807.81	714.95	2808.2
715.85	2808.42	722.73	2810.2	728.14	2811.53	730.72	2812.2	734.67	2813.11
739.32	2814.2	745.62	2815.45	749.14	2816.2	757.24	2817.55	760.37	2818.2
764.19	2818.6	773.72	2819.2	777.12	2819.23	780.03	2819.38	783.1	2819.36
787.08	2819.47	789.93	2819.4	794.32	2819.42	797.39	2819.29	801.32	2819.22
805.18	2819.04	808.13	2818.94	813	2818.69	820.37	2818.3	820.76	2818.28
822.69	2818.2	827.95	2817.98	828.82	2817.95	834.94	2817.68	837.03	2817.61
841.82	2817.39	845.08	2817.28	848.63	2817.08	853.26	2816.88	855.5	2816.73
861.59	2816.36	863.62	2816.2	868.42	2815.83	870.01	2815.73	873.17	2815.47
878.6	2815.01	886.89	2814.25	887.09	2814.23	887.37	2814.2	895.51	2813.42
901.23	2812.82	903.82	2812.55	906.85	2812.2	912.34	2811.7	915.41	2811.53
921.35	2811.06	927.92	2810.77	930.45	2810.62	931.98	2810.55	939.37	2810.21
939.41	2810.21	939.52	2810.2	947.33	2809.72	949	2809.7	954.82	2809.34
969.15	2809.5	976.75	2810.2	977.09	2810.23	978.06	2810.35	990.3	2811.77
994	2812.2	1010.38	2813.79	1014.67	2814.2	1015.12	2814.25		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	535.64	.045	659.83	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
535.64	659.83	139.26	142.9	146.77	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2795.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.05	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2792.48	Reach Len. (ft)	139.26	142.90	146.77
Crit W.S. (ft)	2792.48	Flow Area (sq ft)	20.77	844.15	11.28
E.G. Slope (ft/ft)	0.014361	Area (sq ft)	20.77	844.15	11.28
Q Total (cfs)	12000.00	Flow (cfs)	76.85	11883.53	39.62
Top Width (ft)	155.04	Top Width (ft)	19.47	124.19	11.38
Vel Total (ft/s)	13.70	Avg. Vel. (ft/s)	3.70	14.08	3.51
Max Chl Dpth (ft)	8.28	Hydr. Depth (ft)	1.07	6.80	0.99
Conv. Total (cfs)	100134.3	Conv. (cfs)	641.3	99162.4	330.6
Length Wtd. (ft)	142.93	Wetted Per. (ft)	19.61	125.81	11.52

Min Ch El (ft)	2784.20	Shear (lb/sq ft)	0.95	6.02	0.88
Alpha	1.05	Stream Power (lb/ft s)	3.51	84.69	3.08
Frctn Loss (ft)	2.00	Cum Volume (acre-ft)	256.12	532.05	176.76
C & E Loss (ft)	0.13	Cum SA (acres)	198.32	117.17	122.83

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 30547.71

INPUT
Description:
Station Elevation Data num= 187

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2989.09	5.17	2988.2	6.02	2988.05	7.79	2987.7	13.29	2986.67
15.51	2986.2	22.43	2984.76	24.98	2984.2	30.48	2982.96	33.69	2982.2
41.31	2979.58	48.32	2977.12	55.16	2974.76	62.38	2972.2	68.61	2969.52
76.87	2965.86	81.68	2963.78	85.22	2962.2	96.27	2957.62	108.25	2952.2
110.75	2950.28	122.14	2942.2	123.72	2940.95	127.91	2937.95	133.24	2933.98
135.75	2932.2	143.45	2926.65	149.47	2922.2	152.17	2920.24	163.23	2912.2
165.54	2910.62	177.29	2902.36	177.48	2902.23	177.51	2902.2	177.58	2902.15
191.59	2892.2	206.17	2882.26	206.26	2882.2	206.37	2882.12	221.26	2872.2
234.5	2864.03	237.44	2862.2	240.06	2860.62	254.33	2852.2	261.2	2848.27
272.05	2842.2	277.3	2839.42	291.02	2832.2	292.06	2831.67	294.23	2830.6
305.66	2824.93	311.3	2822.2	321.06	2817.94	334.96	2812.2	336.31	2811.75
341.3	2810.2	344.55	2809.23	348.1	2808.2	355.02	2806.35	355.56	2806.2
355.77	2806.15	356.23	2806.05	361.58	2804.79	364.27	2804.2	369.48	2803.13
373.68	2802.2	381.22	2800.73	383.74	2800.2	395.49	2798.29	396.05	2798.2
396.14	2798.19	396.35	2798.16	406.39	2796.76	410.53	2796.2	416.19	2795.52
421.45	2794.99	425.02	2794.6	429.72	2794.2	435.53	2793.73	442.2	2793.19
452.28	2792.34	452.99	2792.28	453.94	2792.2	464.08	2791.3	472.38	2790.6
476.54	2790.2	483.42	2789.39	494.26	2788.2	503.48	2787.08	510.3	2786.2
513.27	2786.2	514.53	2786.2	526.04	2786.2	527.55	2786.2	528.33	2786
532.58	2784.66	534.05	2784.2	535.36	2784.07	542.09	2783.41	565.45	2782.2
568.24	2782.2	578.92	2782.2	598.76	2782.2	600.91	2782.2	613.39	2782.77
618.94	2783	626.67	2783.34	631.27	2783.53	642.3	2783.97	643.77	2784.02
644.29	2784.05	647.12	2784.2	647.74	2784.2	653.43	2784.96	663.26	2786.2
664.12	2786.49	669.85	2788.2	670.34	2788.33	676.78	2790.2	680.85	2791.29
684.13	2792.2	689.01	2793.53	691.16	2794.2	695.41	2795.39	698.49	2796.2
702.5	2797.09	706.86	2798.2	710.36	2798.85	717.57	2800.2	718.8	2800.43
720.06	2800.57	725.54	2801.17	731.38	2801.9	732.94	2802.05	734.94	2802.2
738.02	2802.2	747.49	2802.42	748.17	2802.43	753.21	2802.22	753.67	2802.2
761.49	2801.79	764.27	2801.61	770.8	2801.23	777.97	2800.74	780.58	2800.57
786.16	2800.2	789.75	2800.05	790.47	2800.02	798.05	2799.72	799.46	2799.7
805.26	2799.47	823.77	2799.89	827.75	2800.2	832.42	2800.47	834.76	2800.63
845.39	2801.26	857.97	2802.14	858.34	2802.17	858.85	2802.2	859.09	2802.2
859.44	2802.2	876.2	2802.2	877.62	2802.2	883.36	2802.2	884.34	2802.2
892.51	2802.74	895.95	2803.1	899.22	2803.17	907.16	2804.2	909.71	2804.44
918.15	2805.17	926.22	2805.68	928.95	2805.86	930.42	2805.94	935.51	2806.2
939.57	2806.37	940.04	2806.39	940.92	2806.44	949.51	2806.8	952.61	2806.99
959.42	2807.45	963.88	2807.7	969.75	2808.2	981.4	2809.46	987.9	2810.2
992.46	2810.82	997.35	2811.49						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	527.55	.045	644.29	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
527.55	644.29	58.23	66.3	64.51	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2792.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.61	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2789.60	Reach Len. (ft)	58.23	66.30	64.51
Crit W.S. (ft)	2789.60	Flow Area (sq ft)	105.58	775.38	105.92
E.G. Slope (ft/ft)	0.013614	Area (sq ft)	105.58	775.38	105.92
Q Total (cfs)	12000.00	Flow (cfs)	636.38	10531.08	832.55
Top Width (ft)	193.02	Top Width (ft)	45.87	116.74	30.41
Vel Total (ft/s)	12.16	Avg. Vel. (ft/s)	6.03	13.58	7.86
Max Chl Dpth (ft)	7.39	Hydr. Depth (ft)	2.30	6.64	3.48
Conv. Total (cfs)	102845.5	Conv. (cfs)	5454.0	90256.2	7135.3
Length Wtd. (ft)	65.90	Wetted Per. (ft)	46.07	117.15	31.03
Min Ch El (ft)	2782.20	Shear (lb/sq ft)	1.95	5.63	2.90
Alpha	1.14	Stream Power (lb/ft s)	11.74	76.40	22.80
Frctn Loss (ft)	0.95	Cum Volume (acre-ft)	255.91	529.39	176.57

C & E Loss (ft)	0.01	Cum SA (acres)	198.21	116.78	122.76

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: The energy loss was 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: Agua Caliente
REACH: upper RS: 30481.41

INPUT
Description:
Station Elevation Data num= 190

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2983.52	5.81	2982.72	8.02	2982.43	9.44	2982.2	15.82	2981.18
21.2	2980.2	24.37	2979.47	29.48	2978.2	34.11	2977.01	37.17	2976.2
43.57	2974.34	44.08	2974.2	44.3	2974.13	50.49	2972.2	51.4	2971.92
52.94	2971.38	55.87	2970.3	68.44	2965.79	77.74	2962.2	87.03	2958.71
103.77	2952.2	115.64	2942.48	115.99	2942.2	116.71	2941.58	127.71	2932.2
135.54	2926.47	141.62	2922.2	154.36	2914.72	158.82	2912.2	175.18	2903.79
178.23	2902.2	185.73	2898.33	197.62	2892.2	207.29	2886.94	216.02	2882.2
224.72	2877.42	234.04	2872.2	241.03	2868.34	252.23	2862.2	266.84	2854.29
270.71	2852.2	283.93	2845.42	290.23	2842.2	299.17	2837.93	311.26	2832.2
313.59	2831.09	317.43	2829.27	326.56	2824.89	332.29	2822.2	340.39	2818.63
354.27	2812.72	355.02	2812.39	355.48	2812.2	356.62	2811.79	360.94	2810.2
361.78	2809.92	367.34	2808.2	369.94	2807.39	373.87	2806.2	380.64	2804.5
381.8	2804.2	382.35	2804.07	390.27	2802.2	390.64	2802.13	399.82	2800.2
405.94	2799.16	411.1	2798.2	420.46	2796.9	425.64	2796.2	428.62	2795.97
436.89	2795.36	448.18	2794.52	452.63	2794.2	460.78	2793.05	466.92	2792.2
469.26	2791.87	480.53	2790.2	485.23	2789.48	493.39	2788.2	498.73	2787.49
508.38	2786.2	517.38	2785.16	528.18	2784.2	530.02	2784.04	530.99	2783.96
532.59	2783.82	536.3	2783.46	541.46	2782.97	546.94	2782.45	549.29	2782.2
561.19	2781.14	573.72	2780.2	575.2	2780.07	575.47	2780.07	601.31	2780.12
602.42	2780.2	612.7	2780.74	618.35	2781.07	625.75	2781.45	637.41	2782.2
638.76	2782.3	640.38	2782.41	653.86	2783.34	654.92	2783.41	666.21	2784.2
668.85	2784.87	673	2786.2	676.21	2787.97	676.61	2788.2	677.13	2788.47
680.62	2790.2	685.04	2792.09	685.3	2792.2	685.76	2792.28	692.12	2793.25
697.99	2794.14	698.41	2794.2	698.88	2794.28	716.63	2796.2	717.89	2796.31
718.85	2796.4	727.6	2797.1	731.59	2797.4	736.98	2797.83	738.3	2797.93
743.89	2798.2	745.02	2798.2	745.69	2798.2	750.65	2798.2	754.16	2798.07
754.56	2798.08	754.93	2798.09	757.99	2798.02	767.34	2797.71	771.83	2797.53
776.76	2797.33	784.96	2797.01	789.64	2796.84	796.93	2796.68	798.45	2796.67
799.08	2796.65	810.04	2797.26	813.34	2797.69	814.21	2797.82	819.22	2798.2
822.47	2798.2	823.83	2798.2	829.99	2798.2	833.3	2798.2	835.93	2798.2
837.21	2798.2	840.04	2798.49	841.88	2798.58	860.95	2799.95	864.28	2800.2
876.82	2801.64	883.08	2802.2	890.74	2803.12	894.39	2803.52	901.45	2804.2
901.64	2804.22	901.75	2804.23	909.55	2804.91	913.7	2805.29	917.26	2805.59
924.19	2806.2	924.59	2806.24	924.82	2806.27	932.21	2806.98	935.61	2807.3
938.65	2807.58	944.29	2807.98	944.98	2808.05	947.64	2808.2	951.97	2808.42
953.11	2808.46	960.26	2808.85	964.62	2809.05	969.79	2809.32	972.44	2809.45
979.57	2809.78	980.51	2809.84	987.62	2810.2	989.11	2810.29	989.6	2810.33
995.44	2810.94	1000.44	2811.62	1003.93	2812.2	1009.77	2813.39	1013.8	2814.19

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	528.18	.045	685.76	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
528.18	685.76	53.11	56.59	55.26	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2790.54	Element			
Vel Head (ft)	2.66	Wt. n-Val.	0.050	0.045	
W.S. Elev (ft)	2787.88	Reach Len. (ft)	53.11	56.59	55.26
Crit W.S. (ft)	2787.88	Flow Area (sq ft)	64.89	876.73	
E.G. Slope (ft/ft)	0.015164	Area (sq ft)	64.89	876.73	
Q Total (cfs)	12000.00	Flow (cfs)	375.80	11624.20	
Top Width (ft)	180.24	Top Width (ft)	32.38	147.86	
Vel Total (ft/s)	12.74	Avg. Vel. (ft/s)	5.79	13.26	
Max Chl Dpth (ft)	7.81	Hydr. Depth (ft)	2.00	5.93	
Conv. Total (cfs)	97449.8	Conv. (cfs)	3051.8	94397.9	
Length Wtd. (ft)	56.52	Wetted Per. (ft)	32.59	148.90	
Min Ch El (ft)	2780.07	Shear (lb/sq ft)	1.88	5.57	
Alpha	1.05	Stream Power (lb/ft s)	10.92	73.90	
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	255.80	528.14	176.49
C & E Loss (ft)	0.00	Cum SA (acres)	198.16	116.58	122.74

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 30424.82

INPUT
Description:
Station Elevation Data num= 204

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2976.21	.17	2976.2	3.15	2975.94	4.62	2975.71	9.37	2975.07
14.42	2974.2	15.63	2973.97	24.22	2972.2	24.4	2972.17	25.15	2972.02
32.66	2970.55	34.3	2970.2	40.06	2969.05	43.68	2968.2	46.63	2967.62
52.08	2966.36	52.57	2966.25	52.77	2966.2	53.83	2965.93	60.74	2964.2
62.39	2963.77	68.01	2962.2	70.4	2961.41	72.58	2960.62	84.42	2956.51
96.64	2952.2	99.09	2951.12	109.2	2946.88	112.99	2945.34	117.47	2942.2
123.25	2937.98	130.31	2933.57	132.51	2932.2	137.83	2928.95	148.82	2922.2
162.66	2913.86	165.41	2912.2	168.31	2910.63	183.97	2902.2	191.06	2898.64
203.83	2892.2	220.59	2884.44	225.48	2882.2	229.06	2880.53	247.02	2872.2
261.97	2865.45	269.29	2862.2	287.51	2853.69	290.78	2852.2	304.72	2845.39
311.27	2842.2	326.77	2834.58	331.53	2832.2	335.48	2830.41	353.8	2822.2
367.22	2816.65	373.45	2814.07	378.11	2812.2	382.14	2810.69	383.47	2810.2
388.26	2808.46	388.96	2808.2	390.91	2807.58	395.26	2806.2	397.96	2805.34
401.67	2804.2	406.33	2802.99	409.41	2802.2	417.95	2800.35	418.64	2800.2
419.94	2799.97	430.26	2798.2	439.86	2796.87	444.52	2796.2	453.9	2794.88
458.53	2794.2	473.49	2792.75	478.9	2792.2	487.21	2790.71	490.01	2790.2
495.32	2789.24	501	2788.2	522.14	2786.3	523.28	2786.2	524.45	2786
534.23	2784.2	537.25	2783.59	542.53	2782.66	542.9	2782.6	544.21	2782.37
545.39	2782.2	547.23	2781.93	552.83	2781.12	559.29	2780.2	565.59	2779.61
577.54	2778.2	615.93	2778.2	615.99	2778.2	638.26	2779.79	643.15	2780.2
647.31	2780.6	661.64	2781.92	664	2782.14	664.75	2782.2	672.07	2782.96
672.94	2783.05	687.87	2784.2	690.86	2784.2	693.64	2784.2	698.76	2785.83
700.33	2786.2	703.43	2787.01	705.61	2787.17	708.13	2787.4	710.4	2787.4
714.16	2787.4	716.48	2787.37	720.55	2787.37	722.64	2787.45	726.54	2787.65
730.12	2788.2	731.6	2788.44	732.84	2788.79	737.44	2790.2	740.96	2791
743.78	2791.56	748.13	2792.2	750.15	2792.51	752.39	2792.87	756.76	2793.59
760.83	2794.2	763.99	2794.39	764.86	2794.41	771.68	2794.68	776.52	2794.76
780.72	2794.77	783.03	2794.8	786.71	2794.85	789.07	2794.84	810.55	2796.2
813.1	2796.2	820.99	2796.98	826.96	2797.52	833.11	2798.2	840.49	2799.14
848.55	2800.2	854.33	2801.28	860.25	2802.2	867.52	2803.5	871.2	2804.2
874.32	2804.77	881.74	2806.12	882.08	2806.18	882.22	2806.2	890.35	2807.45
892.4	2807.72	895.62	2808.2	900.66	2808.72	904.12	2809.04	909.48	2809.49
917.26	2810.2	917.4	2810.22	917.51	2810.23	923.63	2811.08	928.46	2811.74
929.88	2811.94	931.77	2812.2	938.25	2813.13	945.51	2814.2	946.45	2814.33
946.81	2814.37	951.6	2814.98	952.74	2815.01	953.7	2814.98	956.54	2815.22
958.67	2815.27	963.81	2815.61	965.36	2815.69	966.6	2815.73	971.34	2816.2
973.9	2816.73	976.9	2817.5	979.8	2818.2	987.82	2820.14	988.05	2820.2
988.08	2820.21	988.13	2820.22	993.07	2821.33	997.29	2822.2	998.4	2822.42
999.52	2822.65	1003.85	2823.41	1008.83	2824.2	1009.06	2824.24	1009.22	2824.26
1014.82	2824.84	1017.43	2825.04	1021.24	2825.25	1025.26	2825.37	1028.11	2825.46
1032.64	2825.54	1034.73	2825.63	1039.73	2825.87	1040.36	2825.95		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	537.25	.045	705.61	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
537.25	705.61	56.64	62.34	71.94	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2788.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.68	Wt. n-Val.	0.050	0.045	
W.S. Elev (ft)	2786.14	Reach Len. (ft)	56.64	62.34	71.94
Crit W.S. (ft)	2786.14	Flow Area (sq ft)	17.04	905.90	
E.G. Slope (ft/ft)	0.016246	Area (sq ft)	17.04	905.90	
Q Total (cfs)	12000.00	Flow (cfs)	74.06	11925.94	
Top Width (ft)	176.47	Top Width (ft)	13.63	162.84	
Vel Total (ft/s)	13.00	Avg. Vel. (ft/s)	4.35	13.16	
Max Chl Dpth (ft)	7.94	Hydr. Depth (ft)	1.25	5.56	
Conv. Total (cfs)	94148.1	Conv. (cfs)	581.1	93567.0	
Length Wtd. (ft)	62.32	Wetted Per. (ft)	13.87	163.75	
Min Ch El (ft)	2778.20	Shear (lb/sq ft)	1.25	5.61	
Alpha	1.02	Stream Power (lb/ft s)	5.41	73.86	
Frctn Loss (ft)	1.03	Cum Volume (acre-ft)	255.75	526.98	176.49
C & E Loss (ft)	0.01	Cum SA (acres)	198.13	116.38	122.74

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 30362.48

INPUT
Description:
Station Elevation Data num= 196

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2966.42	1.43	2966.2	6.98	2965.7	9.94	2965.35	14.17	2964.91
19.31	2964.2	21.23	2963.89	28.58	2962.61	30.46	2962.28	30.87	2962.2
40.3	2960.53	41.15	2960.39	41.65	2960.3	41.81	2960.26	44.06	2959.7
49.75	2958.4	71.1	2953.4	76.69	2952.2	86.94	2947.46	98.47	2942.2
107.01	2937.51	117.32	2932.2	120.37	2930.51	128.93	2925.89	133.88	2923.17
135.71	2922.2	148.55	2915.04	153.65	2912.2	154.54	2911.71	165.27	2905.61
170.82	2902.45	171.25	2902.2	184.57	2895.12	189.75	2892.2	193.55	2890.42
211.8	2882.2	225.47	2876.05	233.18	2873.02	235.2	2872.2	249.39	2865.88
257.81	2862.2	269.08	2857.35	280.63	2852.2	295.91	2845.59	303.49	2842.2
313.38	2838.14	327.87	2832.2	348.36	2824.17	353.45	2822.2	380.96	2812.64
382.24	2812.2	389.06	2810.21	389.11	2810.2	391.68	2809.51	396.58	2808.2
396.73	2808.16	404.45	2806.2	407.73	2805.4	412.74	2804.2	417.42	2803.18
421.91	2802.2	428	2800.96	431.58	2800.2	436.77	2799.13	441.28	2798.2
447.51	2796.89	450.73	2796.2	459.08	2794.32	459.62	2794.2	459.74	2794.18
475.08	2792.2	475.59	2792.09	484.38	2790.2	486.04	2789.86	493.87	2788.2
499.04	2787.02	503.39	2786.2	516.67	2784.87	522.19	2784.2	525.17	2782.91
526.91	2782.2	529.38	2781.18	531.77	2780.2	531.99	2780.15	535.03	2779.5
537.93	2778.83	540.64	2778.2	554.65	2776.22	554.8	2776.2	555.01	2776.2
555.15	2776.2	581.48	2776.2	598.02	2776.2	604.49	2776.2	607.07	2776.2
612.86	2776.2	622.21	2777.3	629.9	2778.2	634.5	2779.46	637.85	2780.2
642.02	2781.76	643.42	2782.2	647.02	2783.81	647.71	2784.2	652.18	2786.06
652.51	2786.2	653.33	2786.2	658.61	2786.2	667.09	2786.2	667.34	2786.2
668.16	2786.2	669.36	2785.99	671.43	2785.64	673.78	2785.29	679.63	2785.19
685.6	2784.2	691.35	2783.51	701.43	2782.2	703.95	2782.2	711.76	2782.2
713.68	2782.2	714.3	2782.2	715.36	2782.63	719.26	2784.2	724.1	2786.11
724.35	2786.2	724.84	2786.38	729.65	2788.2	733.28	2789.88	734.04	2790.2
739.42	2790.75	751.2	2791.93	753.71	2792.2	761.15	2793.51	765.25	2794.2
769.29	2794.72	780.14	2796.2	783.52	2796.6	792.13	2797.74	794.72	2798.08
795.63	2798.2	806.26	2799.64	810.41	2800.2	810.75	2800.26	813.91	2800.79
821.57	2802.06	822.37	2802.2	832.61	2804.1	833.16	2804.2	841.54	2805.93
842.86	2806.2	848.93	2807.47	852.44	2808.2	853.1	2808.34	855.97	2808.91
861.18	2809.95	862.45	2810.2	870.72	2812	871.65	2812.2	879.18	2813.94
880.34	2814.2	885.75	2815.44	888.83	2816.2	893.03	2817.11	895.58	2817.37
898.3	2817.82	900.83	2817.72	902.21	2817.87	912.23	2818.2	916.42	2818.2
921.41	2819.35	924.38	2820.2	930.27	2821.72	932.25	2822.2	933.38	2822.58
938.29	2824.2	942.22	2825.5	944.72	2826.2	954.42	2827.2	959.14	2827.64
964.18	2828.2	967.71	2828.81	974.56	2830.2	976.04	2830.61	981.85	2832.2
985.22	2833.2	988.62	2834.2	990.5	2834.76	995.26	2836.2	997.25	2836.82
1001.62	2838.2	1007.51	2840.16	1007.63	2840.2	1007.78	2840.25	1013.14	2842.2
1018.81	2842.59								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	522.19	.045	733.28	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
522.19	733.28	61.68	72.12	77.07	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2787.25	Element			
Vel Head (ft)	2.74	Wt. n-Val.	0.050	0.045	
W.S. Elev (ft)	2784.51	Reach Len. (ft)	61.68	72.12	77.07
Crit W.S. (ft)	2784.51	Flow Area (sq ft)	0.40	902.82	
E.G. Slope (ft/ft)	0.016881	Area (sq ft)	0.40	902.82	
Q Total (cfs)	12000.00	Flow (cfs)	0.44	11999.56	
Top Width (ft)	165.13	Top Width (ft)	2.55	162.58	
Vel Total (ft/s)	13.29	Avg. Vel. (ft/s)	1.11	13.29	
Max Chl Dpth (ft)	8.31	Hydr. Depth (ft)	0.15	5.55	
Conv. Total (cfs)	92360.5	Conv. (cfs)	3.4	92357.1	
Length Wtd. (ft)	72.12	Wetted Per. (ft)	2.57	165.57	
Min Ch El (ft)	2776.20	Shear (lb/sq ft)	0.16	5.75	
Alpha	1.00	Stream Power (lb/ft s)	0.18	76.38	
Frctn Loss (ft)	1.20	Cum Volume (acre-ft)	255.74	525.68	176.49
C & E Loss (ft)	0.05	Cum SA (acres)	198.12	116.14	122.74

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: Agua Caliente
REACH: upper RS: 30290.36

INPUT
Description:
Station Elevation Data num= 203

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2962.26	1.84	2962.2	3.66	2962.2	4.69	2962.2	6.56	2961.86
15.3	2960.2	15.39	2960.18	24.84	2958.2	27.54	2957.61	33.88	2956.2
34.7	2956	37.14	2955.41	40.88	2954.5	42.13	2954.2	49.12	2952.45
50.2	2952.2	55.32	2950.97	58.58	2950.2	58.95	2950.09	60.19	2949.68
63.82	2948.52	64.69	2948.2	69.65	2946.55	70.57	2946.2	74.59	2944.87
77.2	2943.91	81.73	2942.2	86.81	2940.42	97.8	2935.78	103.36	2933.49
105.83	2932.52	106.63	2932.2	107.88	2931.64	120.51	2925.56	127.56	2922.2
136.88	2917.3	145.78	2912.61	146.52	2912.2	163.78	2903.66	167	2902.2
179.62	2897.86	194.96	2892.2	206.42	2884.83	208.23	2883.62	210.72	2882.2
213.06	2881.02	214.45	2880.29	220.54	2876.99	229.4	2872.2	235.44	2869.83
255.03	2862.2	258.11	2861.04	281.56	2852.2	288.91	2849.14	305.53	2842.2
319.11	2836.75	330.58	2832.2	350.97	2825.42	360.94	2822.2	380.02	2816.22
392.74	2812.2	396.19	2811.12	399.08	2810.2	402.13	2809.2	405.4	2808.2
409.28	2807.03	411.98	2806.2	417.9	2804.32	418.29	2804.2	418.68	2804.09
425.32	2802.2	431.91	2800.38	432.58	2800.2	432.98	2800.1	440.52	2798.2
447.74	2796.67	449.95	2796.2	451.88	2795.88	462.22	2794.2	472.98	2792.48
474.7	2792.2	476.82	2791.94	492.09	2790.2	494.07	2789.7	499.85	2788.2
503.38	2787.2	506.98	2786.2	510.89	2785.07	513.95	2784.2	528.79	2782.95
537.84	2782.2	541.46	2780.27	541.6	2780.2	541.79	2780.07	542.86	2779.34
544.54	2778.2	545.47	2777.55	545.95	2777.25	547.64	2776.2	551.15	2775.18
555.79	2774.61	560.28	2774.2	560.86	2774.2	561.55	2774.2	562.82	2774.11
567.82	2773.99	568.84	2773.91	573.09	2773.78	574.99	2773.64	579.13	2773.37
580.94	2773.33	584.42	2773.03	595.76	2773.15	600.68	2773.68	605.24	2774.2
610.97	2775.05	618.35	2776.2	626.06	2777.23	632.83	2778.2	640.13	2778.84
652.36	2779.89	656	2780.2	677.23	2780.2	682.69	2780.2	687.65	2780.2
699.82	2780.2	703.02	2780.2	704.3	2780.77	707.7	2782.2	711.14	2783.71
712.22	2784.2	712.93	2784.55	717.18	2786.2	718.78	2786.9	722.16	2788.2
725.9	2789.51	727.86	2790.2	730.15	2790.2	750.36	2791.81	752.07	2791.87
755.3	2792.2	760.22	2793.3	764.42	2794.2	768.04	2794.57	770.94	2794.78
778.15	2795.35	788.48	2796.17	788.62	2796.18	788.79	2796.2	798.71	2798.02
799.5	2798.2	801.77	2798.62	809.05	2800.2	813.31	2801.08	818.43	2802.2
822.37	2803.13	826.37	2804.2	830.63	2805.21	834.36	2806.2	838.61	2807.32
842.33	2808.2	846.74	2808.93	854.69	2810.2	864.05	2811.94	864.96	2812.11
865.43	2812.2	865.87	2812.26	866.35	2812.31	868.76	2812.56	883.87	2814.2
886.67	2815.17	889.21	2816.2	891.41	2817.04	894.1	2818.2	896.8	2819.35
898.69	2820.2	901.23	2821.4	902.73	2822.2	910.7	2822.92	922	2823.49
924.89	2823.58	934.47	2824.2	935.11	2824.2	939.37	2824.61	946.32	2825.35
953.76	2826.2	956.16	2826.76	963.42	2828.2	965.13	2828.55	973.36	2830.2
974.24	2830.39	982	2832.2	984.49	2832.93	988.91	2834.2	992.79	2835.11
996.89	2836.2	1002.16	2837.42	1005.06	2838.2	1010.29	2839.41	1013.93	2840.2
1019.1	2841.27	1023.95	2842.2	1028.15	2842.58				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	537.84	.045	730.15	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
537.84	730.15		46.08	58.22	76.57	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2785.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.58	Wt. n-Val.	0.050	0.045	
W.S. Elev (ft)	2782.72	Reach Len. (ft)	46.08	58.22	76.57
Crit W.S. (ft)	2782.67	Flow Area (sq ft)	1.66	930.63	
E.G. Slope (ft/ft)	0.016290	Area (sq ft)	1.66	930.63	
Q Total (cfs)	12000.00	Flow (cfs)	2.57	11997.43	
Top Width (ft)	177.38	Top Width (ft)	6.32	171.05	
Vel Total (ft/s)	12.87	Avg. Vel. (ft/s)	1.55	12.89	
Max Chl Dpth (ft)	9.69	Hydr. Depth (ft)	0.26	5.44	
Conv. Total (cfs)	94020.6	Conv. (cfs)	20.1	94000.5	
Length Wtd. (ft)	58.22	Wetted Per. (ft)	6.34	173.95	
Min Ch El (ft)	2773.03	Shear (lb/sq ft)	0.27	5.44	
Alpha	1.00	Stream Power (lb/ft s)	0.41	70.14	
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	255.74	524.17	176.49
C & E Loss (ft)	0.23	Cum SA (acres)	198.12	115.87	122.74

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

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 30232.14

INPUT
Description:
Station Elevation Data num= 221

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2956.51	.53	2956.35	1.11	2956.2	6.22	2954.67	7.92	2954.2
14.17	2952.45	15.12	2952.2	17.82	2951.42	22.04	2950.2	22.97	2949.94
26.6	2949	28.99	2948.37	29.67	2948.2	36.57	2946.51	37.85	2946.2
43.28	2944.89	46.06	2944.2	51.1	2943.05	54.85	2942.2	58.8	2941.19
62.35	2940.2	65.67	2939.32	69.64	2938.2	72.58	2937.32	76.13	2936.2
79.95	2935.1	82.82	2934.2	88.85	2932.24	88.95	2932.2	89.02	2932.17
94.58	2930.2	96.47	2929.41	99.4	2928.2	100.24	2927.78	103.19	2926.2
104.28	2925.64	107.01	2924.2	108.94	2923.17	110.78	2922.2	113.86	2920.49
114.42	2920.2	115.27	2919.74	118.08	2918.2	120.32	2916.93	121.6	2916.2
123.21	2915.37	125.56	2914.2	129.31	2912.27	129.45	2912.2	129.65	2912.11
133.89	2910.2	137.85	2908.36	138.2	2908.2	139.39	2907.76	144.85	2905.87
145.69	2905.58	154.81	2902.24	154.9	2902.2	154.91	2902.2	154.95	2902.18
175.02	2892.2	178.35	2889.71	188.42	2882.2	203.09	2875.55	210.17	2872.2
220.54	2867.99	229.91	2864.2	231.66	2863.59	235.73	2862.2	248.1	2857.26
260.47	2852.2	271.9	2847.86	286.94	2842.2	308.46	2834.49	314.88	2832.2
322.09	2829.85	345.84	2822.2	364.96	2816.87	381.28	2812.2	383.38	2811.64
388.96	2810.2	390.41	2809.8	396.39	2808.2	397.5	2807.91	404.09	2806.2
406.52	2805.59	412.15	2804.2	419.14	2802.54	420.52	2802.2	421.96	2801.87
429.15	2800.2	434.44	2799.12	438.93	2798.2	445.56	2797.01	449.91	2796.2
452.52	2795.7	459.84	2794.2	462.72	2793.54	468.38	2792.2	474.46	2791.38
482.22	2790.2	489.17	2788.67	491.73	2788.2	493.69	2787.62	498.43	2786.2
503.1	2784.8	505.29	2784.2	509.36	2783.08	513.15	2782.71	514.61	2782.47
519.84	2782.29	520.11	2782.26	521.48	2782.2	527.47	2782.33	528.03	2780.94
529.75	2780.45	530.17	2780.2	530.61	2779.96	531.15	2779.69	534.1	2778.2
535.92	2777.19	537.79	2776.2	540.29	2774.88	541.6	2774.2	545.84	2773.23
551.14	2772.2	556.9	2771.61	580.21	2771.75	580.52	2771.76	594	2773.57
597.62	2774.2	601.05	2774.8	609.23	2776.2	620.29	2776.94	632.79	2777.68
641.82	2778.05	642.45	2778.07	645.94	2778.2	649.64	2778.51	650.41	2778.49
655.23	2778.77	668.85	2778.21	669.18	2778.2	678.2	2778.2	681.04	2778.2
684.43	2778.2	685.65	2778.55	691.46	2780.2	693.69	2780.85	695.6	2782
703.72	2783.86	704.78	2784.2	705.98	2784.54	711.7	2786.2	718.52	2788.12
718.8	2788.2	720.23	2788.63	725.44	2790.2	726.9	2790.59	732.95	2792.2
736.8	2793.1	741.83	2794.2	745.87	2795.03	752.02	2796.2	754.59	2796.66
763.54	2798.2	764.07	2798.29	766.73	2798.74	773.92	2799.95	775.45	2800.2
783.3	2801.5	787.91	2802.2	793.81	2803.17	800.33	2804.2	805.66	2805.09
812.06	2806.2	820.53	2807.7	823.25	2808.2	829.7	2809.44	833.65	2810.2
839.43	2811.5	842.36	2812.2	849.81	2814.11	850.14	2814.2	850.64	2814.34
857.66	2816.2	862.28	2817.47	864.94	2818.2	870.7	2819.68	872.56	2820.2
876.92	2821.1	881.98	2822.2	886.91	2823	893.3	2824.2	899.51	2825.36
904.46	2826.2	911.31	2826.77	917.61	2827.15	923.99	2827.61	934.09	2828.2
936.79	2828.5	940.71	2828.95	947.14	2829.71	951.31	2830.2	956.04	2830.92
963.49	2832.02	964.2	2832.13	964.69	2832.2	972.62	2833.54	976.6	2834.2
980.52	2834.88	987.16	2836.15	987.33	2836.18	987.42	2836.2	987.64	2836.25
996.47	2838.2	1004.1	2838.88	1019.89	2840.2	1022.01	2840.47	1035.28	2842.2
1035.37	2842.21								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	528.03	.045	695.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
528.03	695.6	237.12	228.57	229.56	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2784.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.81	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2782.57	Reach Len. (ft)	237.12	228.57	229.56
Crit W.S. (ft)	2781.37	Flow Area (sq ft)	3.98	1109.65	0.72
E.G. Slope (ft/ft)	0.008823	Area (sq ft)	3.98	1109.65	0.72
Q Total (cfs)	12000.00	Flow (cfs)	4.58	11994.56	0.86
Top Width (ft)	184.13	Top Width (ft)	14.05	167.57	2.51
Vel Total (ft/s)	10.77	Avg. Vel. (ft/s)	1.15	10.81	1.19
Max Chl Dpth (ft)	10.96	Hydr. Depth (ft)	0.28	6.62	0.29
Conv. Total (cfs)	127756.6	Conv. (cfs)	48.7	127698.7	9.1
Length Wtd. (ft)	228.57	Wetted Per. (ft)	15.01	170.55	2.57
Min Ch El (ft)	2771.61	Shear (lb/sq ft)	0.15	3.58	0.15
Alpha	1.01	Stream Power (lb/ft s)	0.17	38.74	0.18
Frctn Loss (ft)	2.71	Cum Volume (acre-ft)	255.73	522.80	176.49
C & E Loss (ft)	0.10	Cum SA (acres)	198.11	115.64	122.74

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: Agua Caliente
REACH: upper RS: 30003.57

INPUT
Description:
Station Elevation Data num= 219

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2887.06	.45	2887.03	5.84	2886.55	6.98	2886.46	10.01	2886.2
14.12	2885.88	15.7	2885.79	21.81	2885.4	25.56	2885.22	29.52	2885
34.98	2884.82	37.36	2884.67	44.48	2884.35	45.02	2884.3	46.48	2884.2
51.94	2883.75	54.14	2883.55	58.39	2883.04	64.23	2882.31	64.98	2882.2
75.36	2880.24	75.55	2880.2	76.12	2880.08	84.75	2878.2	87.79	2877.55
93.63	2876.2	97.53	2875.22	101.33	2874.2	107.14	2872.68	108.98	2872.2
112.22	2871.27	115.88	2870.2	118.47	2869.52	123.64	2868.2	126.34	2867.63
133.32	2866.2	134.25	2865.93	137.17	2864.97	139.39	2864.2	142.01	2862.37
142.24	2862.2	142.42	2862.1	160.02	2852.2	161.01	2851.68	163.66	2850.34
165.41	2849.39	175.28	2844.57	180.67	2842.2	198.21	2835.39	206.82	2832.2
217.05	2828.74	229.08	2824.64	236.15	2822.2	251.79	2817.09	267.32	2812.2
268.98	2811.7	274.04	2810.2	276.62	2809.46	280.87	2808.2	284.13	2807.38
288.66	2806.2	291.02	2805.61	296.61	2804.2	299.74	2803.47	305.13	2802.2
310.19	2801.06	313.86	2800.2	318.58	2799.15	322.77	2798.2	326.78	2797.3
331.71	2796.2	341.44	2794.22	341.51	2794.2	341.55	2794.19	351.95	2792.2
359.44	2791.07	365.69	2790.2	371.33	2789.28	378.06	2788.2	388.54	2787.32
401.52	2786.2	402.09	2786.2	409.33	2785.71	432.71	2784.2	447.22	2782.96
452.48	2782.5	455.98	2782.2	457.52	2781.36	459.48	2780.2	461.75	2778.93
463.08	2778.2	465.62	2776.85	466.81	2776.2	469.65	2774.58	470.33	2774.2
470.97	2773.85	474.06	2772.2	474.79	2771.81	477.77	2770.2	497.37	2770.2
511.9	2770.2	527.24	2771.37	537.07	2772.2	540.57	2773.01	545.71	2774.2
549.1	2774.2	554.01	2774.2	555.25	2774.2	555.65	2774.2	560.97	2774.2
565.66	2774.2	571.01	2774.2	571.9	2774.2	575.93	2774.2	579.93	2774.31
580.66	2774.35	585.39	2774.2	595.05	2774.2	595.73	2774.2	597.86	2774.2
601.49	2774.2	602.06	2774.2	602.77	2774.2	606.99	2775.64	608.94	2776.2
613.75	2777.55	616.05	2778.2	617.74	2778.63	623.94	2780.2	628.52	2781.57
630.72	2782.2	635.14	2783.53	637.54	2784.2	641.59	2785.41	644.44	2786.2
650.57	2787.94	651.58	2788.2	659.23	2789.85	661.22	2790.2	667.04	2791.18
674.25	2792.2	674.81	2792.28	675.62	2792.41	682.64	2793.43	687.52	2794.2
689.66	2794.56	691.63	2794.9	695.39	2795.52	699.34	2796.2	702.57	2796.76
710.4	2798.2	712.85	2798.67	721.64	2800.04	722.42	2800.17	722.52	2800.18
722.82	2800.2	729.04	2800.46	729.88	2800.47	736.17	2800.59	737.45	2800.6
743.48	2800.65	745.09	2800.68	747.05	2800.74	752.43	2800.84	755.24	2800.97
759.49	2801.18	764.01	2801.45	772.42	2802.03	773.21	2802.09	774.63	2802.2
781.18	2802.86	785.52	2803.37	788.7	2803.73	792.94	2804.2	796.66	2804.59
798.38	2804.68	804.54	2805.21	808.1	2805.33	811.38	2805.58	816.16	2805.71
822.81	2805.95	823.84	2806.02	828.12	2806.2	832.3	2806.75	841.31	2808.2
842.11	2808.34	843.51	2808.56	849.64	2809.61	853.18	2810.2	856.56	2810.73
860	2811.21	865.75	2812.2	869.59	2812.71	874.15	2813.28	880.52	2814.2
890.33	2815.06	903.78	2816.2	905.91	2816.42	912.43	2817.14	919.76	2817.95
921.99	2818.2	928.81	2819.51	932.65	2820.2	938.27	2821.34	942.58	2822.2
946.6	2823.03	952.15	2824.2	953.72	2824.53	959.84	2825.85	961.14	2826.13
961.49	2826.2	967.49	2827.45	971.46	2828.2	976.02	2828.96	979.73	2829.53
985.18	2829.84	986.29	2829.95	986.95	2829.98	990.1	2830		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	452.48	.045	635.14	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
452.48	635.14	241.51	234.6	233.82	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2781.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.82	Wt. n-Val.		0.045	
W.S. Elev (ft)	2778.75	Reach Len. (ft)	241.51	234.60	233.82
Crit W.S. (ft)	2778.75	Flow Area (sq ft)		889.94	
E.G. Slope (ft/ft)	0.016821	Area (sq ft)		889.94	
Q Total (cfs)	12000.00	Flow (cfs)		12000.00	
Top Width (ft)	156.14	Top Width (ft)		156.14	
Vel Total (ft/s)	13.48	Avg. Vel. (ft/s)		13.48	
Max Chl Dpth (ft)	8.55	Hydr. Depth (ft)		5.70	
Conv. Total (cfs)	92524.0	Conv. (cfs)		92524.0	
Length Wtd. (ft)	234.65	Wetted Per. (ft)		159.29	
Min Ch El (ft)	2770.20	Shear (lb/sq ft)		5.87	
Alpha	1.00	Stream Power (lb/ft s)		79.11	
Frctn Loss (ft)	3.75	Cum Volume (acre-ft)	255.72	517.56	176.48
C & E Loss (ft)	0.07	Cum SA (acres)	198.07	114.79	122.73

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 29768.97

INPUT
Description:
Station Elevation Data num= 210

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2836.63	4.79	2836.2	5.66	2836.1	6.32	2836	12.42	2835.09
17.3	2834.2	18.92	2833.93	20.88	2833.6	25.78	2832.82	30.01	2832.2
32.62	2831.85	34.75	2831.68	40.61	2831.18	43.75	2830.99	48.75	2830.68
50.24	2830.58	54.98	2830.2	56.35	2830.09	56.83	2830.03	58.66	2829.77
65.03	2828.89	68.88	2828.2	71.89	2827.57	76.92	2826.6	78.07	2826.36
78.88	2826.2	84.42	2824.98	88.05	2824.2	91.2	2823.51	96.64	2822.2
97.96	2821.77	102.54	2820.2	103.62	2819.85	108.44	2818.2	111.02	2817.21
113.51	2816.2	116.66	2814.96	118.59	2814.2	119.55	2813.89	121.98	2813.01
123.68	2812.39	124.22	2812.2	128.89	2810.99	131.94	2810.2	135.89	2809.61
142.85	2808.61	144.65	2808.35	145.72	2808.2	150.17	2806.8	151.97	2806.2
155.82	2805.29	159.91	2804.2	163.27	2803.39	168	2802.2	172.61	2801.1
176.23	2800.2	183.73	2798.36	184.34	2798.2	191.46	2796.59	193.11	2796.2
200.5	2794.44	201.44	2794.2	209.45	2792.98	214.46	2792.2	215.26	2792.08
222.17	2791.02	226.97	2790.28	227.51	2790.2	235.46	2788.98	240.45	2788.2
244.01	2787.65	251.5	2786.49	252.76	2786.29	253.35	2786.2	264.89	2784.45
266.52	2784.2	266.65	2784.19	266.89	2784.17	280.88	2782.91	289.05	2782.2
296.51	2781.57	313.36	2780.2	313.94	2780.16	314.76	2780.09	328.88	2778.98
338.27	2778.2	342.5	2777.84	348.18	2777.34	355.38	2776.71	361.04	2776.2
375.91	2774.31	376.71	2774.2	377.33	2774.09	387.78	2772.2	392.6	2771.33
396.45	2770.63	398.87	2770.2	400.58	2769.83	407.98	2768.2	413.1	2767.72
439.87	2767.34	446.16	2767.81	451.58	2768.2	459.25	2768.51	474.49	2769.04
479.33	2769.17	484.17	2769.35	497.45	2769.51	500.93	2769.72	501.9	2769.7
505.17	2769.9	505.87	2769.88	506.87	2769.86	508.82	2769.9	510.03	2769.86
511.31	2769.83	513.81	2769.62	515.04	2769.65	537.33	2770.11	537.53	2770.12
538.15	2770.2	547.7	2771.84	549.83	2772.2	553.01	2772.84	560.45	2774.2
567.39	2775.92	568.48	2776.2	569.07	2776.36	575.84	2778.2	577.95	2778.77
583.03	2780.2	584.84	2780.71	590.08	2782.2	593.19	2783.11	596.95	2784.2
603.33	2785.92	604.41	2786.2	605.74	2786.52	613.27	2788.2	625.29	2790.08
626.07	2790.2	627.57	2790.47	637.14	2792.2	640.26	2792.71	649.25	2794.2
659.22	2795.82	661.58	2796.2	665.32	2796.79	674.16	2798.2	682.46	2799.55
686.49	2800.2	690.11	2800.8	698.38	2802.2	706.21	2803.59	709.59	2804.2
714.46	2805.08	720.4	2806.2	729.61	2807.25	738.68	2808.2	745.31	2809.47
748.97	2810.2	754	2811.23	758.95	2812.2	765.31	2813.68	767.59	2814.2
794.62	2815.71	801.47	2816.08	803.48	2816.2	804.26	2816.25	812.95	2816.77
829.85	2817.3	832.79	2817.35	835.69	2817.37	839.52	2817.42	842.38	2817.43
847.01	2817.5	849.68	2817.5	852.37	2817.49	857.21	2817.57	859.57	2817.55
864.75	2817.63	866.85	2817.6	869.2	2817.56	874.25	2817.62	876.54	2817.55
881.68	2817.55	884.21	2817.46	887.61	2817.31	891.93	2817.23	896.59	2816.99
899.72	2816.88	906.13	2816.56	907.52	2816.49	915.05	2816.21	915.09	2816.21
915.13	2816.21	915.46	2816.2	922.88	2815.94	924.24	2815.85	930.7	2815.61
933.91	2815.37	938.43	2815.12	944.7	2814.56	946.08	2814.45	948.62	2814.2
954.53	2813.58	959.89	2812.97	963.23	2812.59	966.6	2812.2	971.78	2811.63

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	392.6	.045	547.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
392.6	547.7	140.85	141.76	144.46	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2777.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.60	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2774.82	Reach Len. (ft)	140.85	141.76	144.46
Crit W.S. (ft)	2774.82	Flow Area (sq ft)	34.04	895.88	23.67
E.G. Slope (ft/ft)	0.015201	Area (sq ft)	34.04	895.88	23.67
Q Total (cfs)	12000.00	Flow (cfs)	172.30	11712.86	114.84
Top Width (ft)	191.01	Top Width (ft)	20.67	155.10	15.24
Vel Total (ft/s)	12.58	Avg. Vel. (ft/s)	5.06	13.07	4.85
Max Chl Dpth (ft)	7.48	Hydr. Depth (ft)	1.65	5.78	1.55
Conv. Total (cfs)	97330.3	Conv. (cfs)	1397.5	95001.3	931.5
Length Wtd. (ft)	141.78	Wetted Per. (ft)	20.97	155.67	15.53
Min Ch El (ft)	2767.34	Shear (lb/sq ft)	1.54	5.46	1.45
Alpha	1.06	Stream Power (lb/ft s)	7.80	71.40	7.02
Frctn Loss (ft)	2.07	Cum Volume (acre-ft)	255.63	512.75	176.42
C & E Loss (ft)	0.01	Cum SA (acres)	198.01	113.95	122.69

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

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 29627.21

INPUT
Description:
Station Elevation Data num= 216

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2811.29	2.11	2811.29	5.52	2811.2	7.72	2811.16	11.95	2810.92
13.79	2810.85	20.11	2810.37	20.63	2810.34	22.48	2810.2	27.99	2809.87
33.82	2809.67	35.99	2809.66	41.48	2809.6	43.58	2809.61	48.37	2809.58
50.3	2809.57	52.37	2809.5	56.46	2809.44	59.48	2809.22	62.63	2809.06
68.31	2808.51	69.28	2808.42	71.31	2808.2	75.7	2807.7	79.69	2807.21
83.11	2806.76	86.64	2806.2	91.9	2805.45	96.93	2804.61	99.17	2804.2
105.45	2802.73	107.54	2802.2	113.18	2800.84	115.8	2800.2	116.98	2799.91
123.86	2798.2	125.73	2797.73	132.01	2796.2	135.21	2795.18	138.37	2794.2
142.77	2793.08	146.11	2792.2	149.55	2791.73	159.8	2790.2	164.6	2789.33
170.94	2788.2	176.19	2787.35	184.43	2786.2	185.52	2786.04	189.07	2785.43
196.11	2784.2	204.24	2783.04	211.8	2782.2	212.19	2782.2	214.28	2782.2
215.56	2782.2	228.44	2781.15	233.35	2780.87	240.71	2780.28	241.12	2780.26
241.91	2780.2	245.41	2780.2	246.51	2780.2	262.7	2779.14	269.98	2778.77
277.73	2778.2	277.89	2778.2	279.87	2778.2	299.03	2776.86	303.44	2776.6
308.78	2776.2	315.81	2775.35	325.45	2774.2	327.28	2773.97	335.44	2773.07
341.62	2772.37	343.33	2772.2	354.34	2771.27	364.28	2770.2	365.38	2770.05
379.2	2768.2	379.59	2768.11	383.51	2767.22	387.99	2766.2	400.04	2766.2
411.79	2766.2	422.57	2766.2	424.78	2766.2	426.42	2766.2	427.93	2766.2
430.05	2766.2	431.45	2766.2	434.21	2766.2	439.26	2766.2	450.34	2766.2
462.01	2766.2	470.63	2766.2	477.62	2766.2	480.88	2766.03	485.01	2766.2
492.94	2766.2	494.67	2766.2	507	2766.2	510.99	2766.2	512.5	2766.67
517.44	2768.2	522.54	2769.12	528.89	2770.2	537.24	2771.71	539.89	2772.2
542.25	2772.62	551.25	2774.2	560.1	2775.8	562.3	2776.2	570.62	2777.72
573.38	2778.2	582.81	2779.9	584.46	2780.2	586.74	2780.65	594.43	2782.2
599.74	2782.93	609.85	2784.2	611.86	2784.41	622.56	2786.2	624.7	2786.2
625.73	2786.2	626.98	2786.2	627.95	2786.2	628.19	2786.2	630.96	2786.47
646.88	2788.2	657.49	2789.81	660.12	2790.2	661.28	2790.43	669.59	2792.2
680.5	2794.1	681	2794.2	681.49	2794.27	695.27	2796.2	695.81	2796.28
696.77	2796.41	704.88	2797.56	709.05	2798.2	715.35	2799.66	717.8	2800.2
719.74	2800.7	725.26	2802.2	729.5	2803.36	732.37	2804.2	736.77	2805.23
743.36	2806.05	743.91	2806.14	744.84	2806.2	751.52	2806.65	753.21	2806.73
759.42	2807.09	763.48	2807.29	766.96	2807.28	770.25	2807.38	772.89	2807.39
776.38	2807.27	779.1	2807.24	781.95	2807.19	785.38	2807.11	787.84	2806.96
792.82	2806.87	801.48	2806.65	807.36	2806.55	814.35	2806.37	815	2806.38
818.87	2806.2	821.39	2805.85	823.14	2805.64	832.98	2804.2	833.22	2804.16
833.54	2804.12	840.61	2803.02	848.34	2802.26	848.57	2802.23	849.07	2802.2
855.03	2801.8	856.6	2801.74	861.89	2801.49	864.68	2801.4	868.91	2801.21
872.84	2801.09	876	2800.96	881.09	2800.76	883.08	2800.68	889.37	2800.41
890.11	2800.38	893.7	2800.2	897.3	2800.01	898.22	2799.95	904.8	2799.56
907.96	2799.34	912.19	2799.07	917.95	2798.62	919.49	2798.5	923.06	2798.2
926.85	2797.87	928.71	2797.71	934.48	2797.2	940.19	2796.7	942.08	2796.53
945.58	2796.2	949.79	2795.8	952.3	2795.57	957.71	2795.04	964.95	2794.35
965.55	2794.29	966.42	2794.2	974.02	2793.42	979.87	2792.82	982.51	2792.54
985.89	2792.22								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	379.59	.045	517.44	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
379.59	517.44	65.96	68.24	72.18	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2775.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.56	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2772.50	Reach Len. (ft)	65.96	68.24	72.18
Crit W.S. (ft)	2772.50	Flow Area (sq ft)	77.38	854.67	52.23
E.G. Slope (ft/ft)	0.014066	Area (sq ft)	77.38	854.67	52.23
Q Total (cfs)	12000.00	Flow (cfs)	427.86	11267.39	304.75
Top Width (ft)	201.11	Top Width (ft)	39.12	137.85	24.14
Vel Total (ft/s)	12.19	Avg. Vel. (ft/s)	5.53	13.18	5.84
Max Chl Dpth (ft)	6.47	Hydr. Depth (ft)	1.98	6.20	2.16
Conv. Total (cfs)	101181.6	Conv. (cfs)	3607.6	95004.4	2569.6
Length Wtd. (ft)	68.24	Wetted Per. (ft)	39.38	138.38	24.52
Min Ch El (ft)	2766.03	Shear (lb/sq ft)	1.73	5.42	1.87
Alpha	1.11	Stream Power (lb/ft s)	9.54	71.50	10.91

Frctn Loss (ft)	0.92	Cum Volume (acre-ft)	255.45	509.90	176.30
C & E Loss (ft)	0.06	Cum SA (acres)	197.91	113.48	122.62

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 29558.97

INPUT
Description:
Station Elevation Data num= 284

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2809.49	2.6	2809.52	5.04	2809.49	7.67	2809.47	30.27	2809.72
31.87	2809.71	33.61	2809.69	35.57	2809.67	43.01	2809.52	44.63	2809.47
55.29	2808.96	56.33	2808.95	60.97	2808.7	66.6	2808.58	72.58	2808.2
79.81	2808.2	82.67	2808.2	86.92	2808.2	90.25	2808.2	98.63	2807.58
107.87	2806.94	112.96	2806.6	115	2806.47	118.59	2806.2	127.12	2805.35
136.18	2804.2	141.96	2803.02	146.02	2802.2	151.84	2800.89	154.66	2800.2
158.56	2799.12	162.01	2798.2	165.57	2797.26	169.42	2796.2	172.52	2795.56
178.67	2794.2	187.2	2792.58	189.18	2792.2	190.41	2791.9	197.89	2790.2
203.78	2788.43	204.49	2788.2	207.27	2787.7	215.62	2786.2	218.6	2786.2
221.14	2786.2	222.77	2787.5	223.79	2788.2	225.27	2789.29	226.51	2790.2
229.44	2792.06	229.69	2792.2	230.1	2792.47	233.03	2794.2	233.8	2794.57
239.08	2796.2	239.21	2796.22	239.33	2796.22	245.68	2796.67	250.58	2796.93
253.88	2797.1	257.77	2797.4	260.98	2797.57	264.27	2797.94	265.2	2797.99
267.71	2798.18	267.78	2798.18	270.91	2798.18	274.5	2798.2	275.03	2798.2
279.78	2798.38	280.7	2798.49	285.41	2798.89	289.12	2799.33	291.85	2799.64
297.28	2800.2	298.38	2800.32	298.83	2800.35	304.59	2800.76	306.59	2800.81
311.26	2800.96	313.96	2800.97	318.45	2801	321.28	2800.99	325.92	2800.94
328.62	2800.91	333.71	2800.84	336.14	2800.8	341.9	2800.65	343.66	2800.61
350.26	2800.3	351.93	2800.2	357.29	2799.88	358.83	2799.74	363.66	2799.41
367.35	2799.07	369.84	2798.89	375.24	2798.48	375.96	2798.43	380.38	2798.2
381.65	2798.15	381.86	2798.14	386.87	2797.93	388.03	2797.88	392.51	2797.6
394.99	2797.45	398.69	2797.17	403.26	2796.78	405.22	2796.63	409.4	2796.2
411.45	2795.85	415.03	2795.19	418.37	2794.56	420.13	2794.2	424.87	2793.46
429.39	2792.85	431.33	2792.54	433.41	2792.2	439.23	2791.39	447.03	2790.2
448.93	2789.92	459.3	2788.2	460.49	2788.01	471.84	2786.2	472.6	2786.09
474.4	2785.8	481.86	2784.65	484.77	2784.2	493.48	2783.45	503.36	2782.59
505.84	2782.38	508	2782.2	518.78	2781.41	529.58	2780.54	531.82	2780.37
534	2780.2	544.8	2779.36	554.25	2778.74	557.77	2778.5	559.17	2778.41
562.8	2778.2	567.26	2777.92	568.27	2777.89	574.41	2777.57	576.81	2777.52
580.17	2777.43	585.56	2777.2	591.13	2776.99	600.64	2776.53	602.45	2776.46
606.85	2776.2	615.29	2775.32	625.15	2774.2	627.4	2773.9	635.45	2772.87
639.44	2772.34	640.55	2772.2	659.33	2770.77	666.33	2770.2	684.22	2768.56
688.14	2768.2	689.48	2767.88	696.38	2766.2	699.59	2765.99	705.44	2765.6
709.49	2765.38	718.32	2764.83	721.66	2764.62	729.68	2764.56	730.96	2764.74
734.9	2765.27	736.24	2765.38	742.11	2766.2	742.99	2766.2	743.97	2766.2
747.85	2765.73	761.11	2764.2	763.71	2764.2	765.4	2764.2	773.27	2764.2
776.68	2764.2	781.74	2764.2	783.88	2764.2	793.17	2763.74	794.83	2763.71
798.13	2763.71	800.09	2763.78	812	2764.2	819.64	2764.2	828.44	2765.95
829.67	2766.2	840.28	2768.19	840.33	2768.2	840.38	2768.21	849.92	2770.2
855.99	2771.86	857.24	2772.2	864.16	2774.03	864.81	2774.2	865.77	2774.45
872.46	2776.2	878.19	2777.72	880.08	2778.2	887.63	2780.18	887.72	2780.2
887.85	2780.23	895.42	2782.2	906.81	2783.86	909.32	2784.2	914.09	2784.71
929.63	2786.2	936.22	2787.1	940.22	2787.59	944.88	2788.2	951.36	2789.03
955.67	2789.58	961.22	2790.2	964.44	2790.57	966.97	2790.84	979.21	2792.2
979.26	2792.2	979.3	2792.21	987.73	2793.09	994.27	2793.75	998.17	2794.2
1005.22	2795.09	1014.47	2796.2	1030.75	2798.08	1031.82	2798.2	1036.47	2798.69
1050.78	2800.2	1061.35	2800.2	1069.81	2800.78	1075.17	2800.2	1077.79	2800.02
1086.24	2799.45	1091.4	2798.95	1094.58	2798.72	1100.04	2798.2	1102.98	2797.96
1103.97	2797.88	1110.48	2797.44	1113.59	2797.24	1117.46	2797.04	1122.31	2796.76
1124.25	2796.66	1130.97	2796.2	1131	2796.2	1139.78	2795.68	1142.6	2795.49
1148.18	2795.14	1152.79	2794.84	1155.37	2794.68	1160.88	2794.39	1161.59	2794.35
1164.72	2794.2	1168.46	2793.98	1174.43	2793.63	1178.84	2793.38	1190.97	2792.55
1192.49	2792.45	1193.29	2792.39	1196.07	2792.2	1206.93	2791.46	1209.79	2791.38
1213.39	2791.27	1215.36	2791.16	1220.4	2790.95	1223.47	2790.81	1230.56	2790.36
1232.44	2790.2	1241.83	2789.19	1248.6	2788.2	1253.31	2787.6	1264.75	2786.2
1267.11	2785.95	1275.06	2785.19	1283.73	2784.39	1284.63	2784.31	1285.8	2784.2
1293.64	2783.47	1301.13	2782.8	1304.1	2782.54	1305.2	2782.44		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	688.14	.045	840.38	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
688.14	840.38	61.64	58.23	53.44	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2773.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.37	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2771.19	Reach Len. (ft)	61.64	58.23	53.44
Crit W.S. (ft)	2770.95	Flow Area (sq ft)	49.44	936.13	20.71
E.G. Slope (ft/ft)	0.012810	Area (sq ft)	49.44	936.13	20.71
Q Total (cfs)	12000.00	Flow (cfs)	211.62	11695.70	92.69
Top Width (ft)	199.70	Top Width (ft)	34.31	152.24	13.15
Vel Total (ft/s)	11.93	Avg. Vel. (ft/s)	4.28	12.49	4.48
Max Chl Dpth (ft)	7.48	Hydr. Depth (ft)	1.44	6.15	1.57
Conv. Total (cfs)	106023.2	Conv. (cfs)	1869.7	103334.6	818.9
Length Wtd. (ft)	58.24	Wetted Per. (ft)	34.44	153.16	13.49
Min Ch El (ft)	2763.71	Shear (lb/sq ft)	1.15	4.89	1.23
Alpha	1.07	Stream Power (lb/ft s)	4.91	61.07	5.49
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	255.35	508.50	176.23
C & E Loss (ft)	0.05	Cum SA (acres)	197.86	113.25	122.59

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 29500.74

INPUT
Description:
Station Elevation Data num= 276

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2805.44	1.45	2805.31	5.33	2804.98	10.99	2804.58	12.28	2804.48
19.1	2804.27	19.33	2804.25	25.47	2804.2	26.55	2804.19	26.57	2804.19
33.64	2804.15	33.8	2804.16	40.69	2804.08	41.15	2804.09	47.88	2803.97
48.84	2803.98	55.17	2803.84	57.9	2803.72	58.63	2803.66	64.24	2803.52
65.6	2803.48	70.52	2803.39	72.99	2803.39	77.78	2803.35	81.13	2803.36
85.88	2803.31	89.77	2803.3	94.09	2803.21	98.58	2803.14	101.88	2803.01
107.15	2802.91	117.82	2802.34	119.41	2802.2	126.76	2801.08	132.67	2800.2
145.47	2798.59	148.13	2798.27	148.58	2798.2	149.62	2797.99	156.74	2796.58
158.64	2796.2	164.68	2795.09	169.62	2794.2	182.03	2792.95	189.02	2792.2
190.03	2792.06	191.1	2791.82	193.87	2791.32	198.27	2790.2	201.31	2789.15
203.9	2788.2	208.11	2786.84	210.12	2786.2	216.06	2784.71	218.61	2784.2
222.45	2784.2	233.14	2784.2	239	2785.44	242.55	2786.2	249.78	2787.65
254.05	2788.2	257.05	2788.71	260.87	2789.25	265.75	2790.2	267.1	2790.53
269.68	2790.98	273.2	2791.68	279.2	2792.2	281.62	2792.2	282.58	2792.2
286.44	2792.2	288.67	2792	289.23	2792	302.25	2791.55	304.14	2791.56
309.12	2791.58	311.12	2791.59	316.52	2791.62	318.54	2791.62	323.96	2791.62
326.01	2791.61	328.26	2791.56	333.37	2791.54	335.95	2791.44	339.57	2791.29
343.77	2791.22	348.53	2790.98	351.65	2790.9	358.09	2790.56	359.53	2790.51
365.28	2790.2	367.57	2790.08	368.28	2790.04	376.2	2789.61	379.64	2789.42
384.9	2789.13	391.33	2788.74	393.69	2788.6	399.17	2788.2	402	2788
403.12	2787.93	409.96	2787.4	414.43	2787.04	423.59	2786.2	425.49	2786.05
426.87	2785.96	436.59	2785.21	446.14	2784.54	448.05	2784.4	450.92	2784.2
462.18	2783.38	475.67	2782.2	476.46	2782.15	476.97	2782.12	478.64	2782.04
497.98	2780.98	513.82	2780.2	516.69	2779.97	520.14	2779.68	530.06	2778.85
537.24	2778.2	544.46	2777.49	557.29	2776.2	560.85	2775.8	575.32	2774.2
575.72	2774.16	576.97	2774.08	584.65	2773.54	600.79	2772.4	602.1	2772.31
603.64	2772.2	614.48	2771.58	618.77	2771.34	625.94	2770.95	634.82	2770.51
636.74	2770.41	640.99	2770.2	654.14	2769.55	675.93	2768.21	676	2768.2
676.04	2768.2	676.07	2768.2	692.37	2766.2	692.95	2766.09	694.6	2765.76
702.63	2764.2	724.13	2764.2	732.3	2764.2	754.38	2764.2	757.87	2764.2
761.01	2763.9	779.29	2762.2	786.49	2762.2	798.61	2762.2	807.46	2762.2
815.11	2763.87	816.58	2764.2	818.1	2764.57	824.16	2766.2	828.94	2767.91
829.72	2768.2	830.87	2768.66	834.8	2770.2	836.23	2770.55	843.69	2772.2
851.99	2773.68	854.81	2774.2	863.22	2776.07	863.81	2776.2	864.91	2776.44
872.64	2778.2	875.76	2778.89	881.32	2780.2	890.41	2781.58	894.52	2782.2
899.65	2783.49	903.07	2784.2	907.81	2785.41	910.76	2786.2	914.37	2787.18
917.93	2788.2	920.56	2788.92	924.96	2790.2	931.43	2791.94	932.34	2792.2
934.65	2792.43	940.77	2793.03	950.18	2793.95	952.57	2794.2	960.76	2795.33
967.07	2796.2	968.53	2796.34	970.39	2796.49	980.88	2797.4	992.78	2798.2
994.1	2798.27	994.46	2798.29	1003.8	2798.74	1006.98	2798.89	1013.1	2799.16
1019.39	2799.48	1022.42	2799.62	1031.26	2800.2	1031.61	2800.2	1034.16	2800.2
1047.39	2798.75	1049.9	2798.52	1050.97	2798.43	1052.74	2798.2	1059.54	2797.46
1063.3	2797.14	1065.96	2796.91	1067.76	2796.78	1068.83	2796.69	1071.82	2796.73
1072.79	2796.65	1080.69	2796.2	1084.86	2796.2	1088.84	2796.2	1090.32	2796.2
1091.2	2796.2	1093.52	2795.83	1097.87	2795.4	1108.74	2794.2	1113.16	2793.32
1120.01	2792.2	1122.07	2792.04	1123.56	2791.93	1132.64	2791.26	1140.36	2790.72
1143.03	2790.52	1147.84	2790.2	1151.3	2789.87	1153.3	2789.68	1158.37	2789.13
1165.41	2788.6	1166.87	2788.45	1171.17	2788.2	1174.59	2787.93	1175.23	2787.94
1180.62	2787.63	1182.02	2787.67	1185.04	2787.62	1187.74	2787.5	1193.48	2787.29
1198.08	2787.08	1201.83	2786.95	1208.21	2786.63	1209.96	2786.56	1216.3	2786.2
1217.81	2786.06	1218.52	2786.02	1225.5	2785.42	1229.74	2785.15	1233.54	2784.86
1240.95	2784.37	1241.61	2784.32	1243.19	2784.2	1252.67	2783.52	1258.62	2782.71
1261.17	2782.45	1262.41	2782.2	1270.15	2781.22	1273.5	2780.83	1282.81	2780.2
1284.33	2780.11	1285.39	2780	1295.86	2779.27	1303.17	2778.3	1303.65	2778.26
1304.16	2778.2	1304.69	2778.2	1309.05	2778.2	1314.67	2778.2	1316.06	2778.2
1317.4	2778.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	675.93	.045	824.16	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
675.93	824.16	124.07	130.8	139.78	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2772.82	Element			
Vel Head (ft)	2.21	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2770.61	Reach Len. (ft)	124.07	130.80	139.78
Crit W.S. (ft)	2770.01	Flow Area (sq ft)	49.04	969.97	26.47
E.G. Slope (ft/ft)	0.010993	Area (sq ft)	49.04	969.97	26.47
Q Total (cfs)	12000.00	Flow (cfs)	166.31	11701.95	131.74
Top Width (ft)	203.70	Top Width (ft)	43.13	148.23	12.34
Vel Total (ft/s)	11.48	Avg. Vel. (ft/s)	3.39	12.06	4.98
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)	1.14	6.54	2.15
Conv. Total (cfs)	114450.7	Conv. (cfs)	1586.2	111608.0	1256.4
Length Wtd. (ft)	130.73	Wetted Per. (ft)	43.19	149.12	13.12
Min Ch El (ft)	2762.20	Shear (lb/sq ft)	0.78	4.46	1.39
Alpha	1.08	Stream Power (lb/ft s)	2.64	53.86	6.89
Frctn Loss (ft)	1.34	Cum Volume (acre-ft)	255.28	507.22	176.21
C & E Loss (ft)	0.12	Cum SA (acres)	197.80	113.05	122.58

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 29369.94

INPUT
Description:
Station Elevation Data num= 288

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2794.69	.38	2794.64	3.78	2794.2	6.79	2793.92	19.86	2793.31
20.82	2793.28	23.05	2793.18	26.97	2792.98	29.73	2792.94	33.92	2792.73
35.89	2792.67	37.32	2792.63	40.51	2792.59	42.84	2792.68	44.41	2792.88
47.39	2793.05	51.44	2793.51	53.37	2793.69	59.46	2794.2	61.07	2794.26
61.33	2794.27	68.86	2794.41	76.03	2794.41	83.6	2794.31	84.02	2794.31
89.88	2794.2	91.79	2794.13	92.09	2794.14	98.94	2793.98	99.74	2793.99
105.62	2793.92	106.46	2793.94	111.89	2793.86	112.94	2793.86	114.22	2793.83
119.7	2793.7	121.55	2793.67	127.34	2793.52	132.59	2793.42	135	2793.45
139.88	2793.47	144.61	2793.65	150.58	2794.07	152.32	2794.2	156.08	2794.2
178.41	2794.2	180.41	2794.2	190.14	2793.53	194.81	2793.26	206.29	2792.41
208.94	2792.2	210.75	2791.65	216.28	2790.2	220.16	2788.53	220.92	2788.2
221.47	2787.98	225.99	2786.2	230.31	2784.46	230.97	2784.2	231.38	2784.03
236.13	2782.2	237.15	2781.82	241.83	2780.2	242.68	2780.2	243.41	2780.2
252.36	2780.2	258.24	2780.2	260.41	2780.2	264.01	2780.2	269.93	2780.2
275.41	2780.2	282.11	2780.2	284.36	2780.2	287.18	2780.2	290.99	2780.2
293.43	2780.2	297.49	2780.2	306.45	2780.2	307.86	2780.35	309.64	2780.57
317.29	2781.47	319.73	2781.71	323.38	2782.2	326.26	2782.41	327.11	2782.43
334.26	2782.78	339.35	2783	342.44	2783.03	354.01	2782.81	359.27	2782.47
360.19	2782.47	363.78	2782.2	366.11	2781.61	369.98	2780.67	371.21	2780.38
371.98	2780.2	376.62	2780.2	377.07	2780.2	382.22	2780.2	386.26	2780.2
428.39	2780.2	430.22	2780.2	442.03	2779.93	442.96	2779.91	443.95	2779.89
444.97	2779.87	448.78	2779.91	449.82	2779.88	451.19	2779.86	473.69	2778.63
475.52	2778.6	479.7	2778.2	487.46	2777.13	499.92	2776.32	500.75	2776.25
501.35	2776.22	501.4	2776.22	502.13	2776.2	507.43	2776.2	510.27	2776.01
518.74	2775.85	520.41	2775.76	527.53	2775.58	530.31	2775.45	533.9	2775.29
538.57	2775.09	543.13	2774.83	550.86	2774.25	551.08	2774.24	551.48	2774.2
560.34	2772.71	563.15	2772.2	570.37	2770.75	573.15	2770.2	574.15	2770
582.73	2768.2	584.44	2768.2	597.77	2768.2	599.94	2768.2	601.6	2768.2
606.55	2768.2	610.73	2768.2	613.53	2768.2	633.08	2768.2	635.12	2768.2
637.15	2768.2	640.5	2767.96	644.14	2767.68	651.25	2767.14	658.2	2766.59
663.41	2766.2	670.92	2765.4	680.15	2764.2	680.96	2764.17	726.73	2762.36
730.75	2762.2	731.66	2762.09	734.29	2761.88	750.52	2760.58	751.83	2760.52
754.65	2760.7	794.62	2760.5	797.33	2762.13	797.42	2762.2	797.57	2762.3
800.4	2764.2	802.36	2765.52	803.39	2766.2	804.17	2766.66	806.65	2768.2
808.07	2768.91	810.95	2770.2	812.64	2771.03	815.21	2772.2	818.35	2773.44
820.24	2774.2	822.61	2775.15	825.25	2776.2	830.15	2778.06	830.51	2778.2
830.9	2778.35	835.69	2780.2	840.19	2781.89	841	2782.2	846.15	2784.01
846.68	2784.2	851.21	2785.71	852.54	2786.2	852.78	2786.24	859.55	2787.42
863.68	2788.2	866.36	2788.49	876.19	2789.6	880.29	2790.06	881.54	2790.2
888.15	2791.19	894.94	2792.2	896.14	2792.27	906.89	2792.86	911.67	2793.07
917.73	2793.35	921.28	2793.5	929.43	2793.81	931.11	2793.88	940.28	2794.2
941.71	2794.26	941.91	2794.27	949.89	2794.58	967.26	2794.36	967.59	2794.37
970.04	2794.2	975.04	2793.81	977.72	2793.61	983.93	2793.16	990.78	2792.69
993.03	2792.55	994.35	2792.49	999.33	2792.2	1001.84	2792.05	1002.63	2792
1009.81	2791.64	1013.28	2791.42	1018.47	2791.14	1025.76	2790.63	1027.72	2790.5
1032.79	2790.2	1035.09	2790.06	1035.69	2790.04	1040.38	2790.03	1042.66	2790.2

1045.11	2790.39	1049.34	2790.56	1054.43	2790.25	1054.48	2790.25	1054.88	2790.2
1062.09	2789.17	1068.33	2788.2	1069.88	2787.95	1071.33	2787.67	1075.02	2786.86
1077.72	2786.2	1081.26	2785.77	1084.73	2785.32	1088.73	2784.73	1092.8	2784.2
1098.86	2783.62	1105.44	2783.01	1110.04	2782.56	1114	2782.2	1121.26	2781.6
1128.04	2781.05	1132.98	2780.65	1138.66	2780.2	1143.82	2779.88	1146.07	2779.74
1153.62	2779.27	1159.62	2778.96	1163.29	2778.74	1172.84	2778.33	1173.45	2778.29
1175.42	2778.2	1182.42	2777.85	1184.52	2777.79	1206.27	2776.2	1209.77	2776.2
1211.38	2776.2	1213.37	2776.2	1216.42	2776.2	1219.42	2776.2	1229.09	2775.6
1233.21	2775.29	1237.23	2775.05	1244.1	2774.58	1245.72	2774.45	1252.22	2774.21
1252.27	2774.21	1252.34	2774.21	1252.36	2774.21	1257.75	2774.23	1264.1	2774.32
1264.63	2774.32	1271.1	2774.44	1272.02	2774.43	1277.86	2774.55	1278.97	2774.52
1314.75	2774.6	1323.54	2774.45	1327.41	2774.36				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	637.15	.045	806.65	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
637.15	806.65	284.87	271.88	255.96	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2771.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.81	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2769.55	Reach Len. (ft)	284.87	271.88	255.96
Crit W.S. (ft)	2768.83	Flow Area (sq ft)	77.99	1074.27	1.88
E.G. Slope (ft/ft)	0.009511	Area (sq ft)	77.99	1074.27	1.88
Q Total (cfs)	12000.00	Flow (cfs)	266.27	11729.88	3.85
Top Width (ft)	233.22	Top Width (ft)	60.87	169.50	2.86
Vel Total (ft/s)	10.40	Avg. Vel. (ft/s)	3.41	10.92	2.05
Max Chl Dpth (ft)	9.05	Hydr. Depth (ft)	1.28	6.34	0.66
Conv. Total (cfs)	123044.6	Conv. (cfs)	2730.2	120274.8	39.5
Length Wtd. (ft)	272.10	Wetted Per. (ft)	61.01	172.07	3.16
Min Ch El (ft)	2760.50	Shear (lb/sq ft)	0.76	3.71	0.35
Alpha	1.08	Stream Power (lb/ft s)	2.59	40.48	0.72
Frctn Loss (ft)	3.18	Cum Volume (acre-ft)	255.10	504.15	176.16
C & E Loss (ft)	0.05	Cum SA (acres)	197.66	112.57	122.55

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: Agua Caliente
REACH: upper RS: 29098.06

INPUT
Description:
Station Elevation Data num= 254

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2789.67	9.49	2789.37	12.31	2789.12	18.52	2788.6	19.15	2788.56
23.45	2788.2	32.5	2787.35	37.48	2786.9	41.8	2786.49	42.92	2786.4
43.59	2786.35	46.16	2786.2	49.6	2786.2	50.16	2786.2	55.36	2786.2
58.32	2786.2	63.25	2786.2	65.74	2786.2	69.75	2786.2	93.27	2785.05
102.77	2784.68	105.85	2784.59	115.34	2784.2	116.69	2784.2	130.62	2783.24
141.09	2782.58	146.63	2782.2	149.25	2782.2	151.61	2782.2	165.46	2781.3
169.2	2781.24	173.02	2780.87	175.19	2780.75	181.84	2780.24	181.95	2780.23
182.42	2780.2	191.12	2779.84	197.58	2779.54	201.46	2779.23	211.41	2778.5
213.07	2778.39	215.58	2778.2	224.5	2777.74	227.53	2777.59	235.14	2777.2
241.86	2776.91	245.49	2776.73	256	2776.3	256.49	2776.28	256.79	2776.27
258.48	2776.2	267.76	2775.65	274.75	2775.13	279.82	2774.78	286.79	2774.2
293.67	2773.61	301.05	2773.01	305.82	2772.58	311.29	2772.2	316.07	2772.2
334.25	2771.84	335.16	2771.8	340.15	2771.83	343.9	2771.78	344.83	2771.76
362.05	2771.05	376.31	2770.2	379.66	2770.02	393.4	2769.34	400.17	2769.03
404.35	2768.87	407.4	2768.77	414.04	2768.58	415.69	2768.53	418.55	2768.51
419.44	2768.52	420.3	2768.52	424.43	2768.49	425.12	2768.48	428.65	2768.59
429.58	2768.55	463.78	2768.38	468.96	2768.2	477.41	2767.86	481.5	2767.65
500.11	2766.67	506.09	2766.38	509.09	2766.2	509.68	2766.2	532.21	2764.99
538.92	2764.78	541.14	2764.72	549.4	2764.51	555.14	2764.2	556.22	2764.2
560.56	2764.2	560.85	2764.2	561.34	2764.2	566.86	2763.66	570.85	2763.21
579.21	2762.2	581.12	2762.2	581.69	2762.2	596.85	2762.2	605.35	2761.54
619.99	2760.84	622.66	2760.82	627.98	2760.23	628.27	2760.2	629.96	2759.8
636.74	2758.2	645.92	2758.2	708.92	2758.2	709.47	2758.2	709.94	2758.2
710.47	2758.36	716.7	2760.2	717.56	2760.47	723.07	2762.2	725.03	2762.82
729.68	2764.2	731.85	2764.86	736.38	2766.2	738.58	2766.45	741.42	2766.77
753.71	2768.2	758.85	2768.6	767.09	2769.13	776.74	2769.79	779.04	2769.94
784.24	2770.2	790.71	2770.51	792.86	2770.62	801.82	2771.05	807.44	2771.26
812.57	2771.49	815.49	2771.62	817.39	2771.69	818.99	2771.73	826.33	2771.87
827.46	2771.89	828.54	2771.9	836.64	2772.02	837.3	2772.03	845.77	2772.19
846.38	2772.2	853.34	2772.47	854.44	2772.48	860.58	2772.71	862.61	2772.73
867.73	2772.86	870.31	2772.87	874.91	2772.92	879.53	2772.9	882.12	2772.91
886.96	2772.84	889.36	2772.84	894.49	2772.77	896.64	2772.77	902	2772.74

904.06	2772.74	909.54	2772.77	911.72	2772.77	916.95	2772.82	919.29	2772.82
924.32	2772.87	926.88	2772.87	931.79	2772.9	934.47	2772.9	939.61	2772.9
942.19	2772.9	947.41	2772.9	950.1	2772.91	954.65	2772.95	957.59	2772.96
960.77	2773	964.27	2773.08	967.93	2773.18	972.03	2773.3	976.74	2773.46
979.23	2773.59	984.46	2773.71	990.08	2773.94	995.44	2773.98	1001.49	2773.99
1002.17	2774.01	1008.78	2774.01	1009.49	2774.02	1016.49	2774.03	1017.14	2774.04
1018.24	2774.05	1018.78	2774.05	1025.86	2774.05	1026.4	2774.05	1033.45	2774.05
1034.02	2774.05	1041.09	2774.03	1041.71	2774.03	1048.59	2774.01	1049.32	2774.01
1050.03	2774.01	1056.87	2773.98	1057.68	2773.98	1064.29	2773.94	1065.24	2773.94
1066.24	2773.94	1072.94	2773.89	1074.14	2773.88	1075.42	2773.87	1076.85	2773.85
1083.5	2773.78	1085.41	2773.75	1100.17	2773.31	1106.14	2773.21	1109.58	2773.04
1114.19	2772.94	1120.05	2772.71	1122.84	2772.64	1131.44	2772.29	1131.95	2772.28
1133.84	2772.2	1143.16	2771.37	1154.46	2770.2	1154.7	2770.13	1155.68	2769.86
1160.38	2768.52	1161.44	2768.2	1167.21	2766.49	1168.12	2766.2	1170.09	2765.58
1174.39	2764.2	1178.05	2764.2	1184.46	2764.2	1190.68	2764.7	1214.32	2765.27
1217.03	2765.11	1218.36	2765.12	1221.65	2764.94	1226.83	2764.65	1228.31	2764.6
1234.38	2764.2	1235.86	2764.04	1240.48	2763.51	1272.83	2764.16	1273.43	2764.2
1274.39	2764.31	1293.69	2766.2	1295.71	2766.2	1304.5	2766.2	1306.14	2766.2
1313.09	2766.2	1315.84	2766.2	1321.1	2766.2	1323.61	2766.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	561.34	.045	738.58	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
561.34	738.58	222.87	222.86	224.67	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1006.41	1323.61	2774.08

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2768.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.36	Wt. n-Val.	0.050	0.045	
W.S. Elev (ft)	2765.78	Reach Len. (ft)	222.87	222.86	224.67
Crit W.S. (ft)	2765.70	Flow Area (sq ft)	41.53	956.32	
E.G. Slope (ft/ft)	0.014661	Area (sq ft)	41.53	956.32	
Q Total (cfs)	12000.00	Flow (cfs)	144.23	11855.77	
Top Width (ft)	217.38	Top Width (ft)	43.77	173.61	
Vel Total (ft/s)	12.03	Avg. Vel. (ft/s)	3.47	12.40	
Max Chl Dpth (ft)	7.58	Hydr. Depth (ft)	0.95	5.51	
Conv. Total (cfs)	99105.5	Conv. (cfs)	1191.2	97914.3	
Length Wtd. (ft)	222.86	Wetted Per. (ft)	43.80	175.15	
Min Ch El (ft)	2758.20	Shear (lb/sq ft)	0.87	5.00	
Alpha	1.05	Stream Power (lb/ft s)	3.01	61.95	
Frctn Loss (ft)	3.30	Cum Volume (acre-ft)	254.71	497.82	176.16
C & E Loss (ft)	0.09	Cum SA (acres)	197.31	111.50	122.55

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 28875.2

INPUT
Description:
Station Elevation Data num= 250

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2814.55	1.18	2814.3	1.68	2814.2	3.47	2813.87	12.58	2812.2
15.79	2811.53	21.8	2810.2	29.06	2808.42	29.94	2808.2	31.3	2807.95
40.47	2806.2	44.4	2805.54	52.33	2804.2	54.86	2803.7	61.93	2802.2
63.59	2801.79	69.67	2800.2	73.06	2799.3	76.85	2798.2	85	2796.57
86.7	2796.2	100.32	2794.22	100.47	2794.2	100.64	2794.17	111.26	2792.2
122.08	2790.31	122.71	2790.2	123.12	2790.13	134.57	2788.2	137.56	2787.56
144.72	2786.2	146.32	2785.94	150.35	2785.39	155.87	2784.55	158.91	2784.2
162.96	2783.3	167.61	2782.2	182.22	2780.47	185.5	2780.2	194.34	2779.38
198.47	2779.11	203.05	2778.71	208.68	2778.38	210.89	2778.2	218.24	2777.42
229.29	2776.2	230.77	2775.95	241.23	2774.2	247.85	2773.68	266.11	2772.2
271.69	2771.84	277.17	2771.51	287.37	2770.9	291.25	2770.69	299.65	2770.2
304.38	2769.75	311.88	2769.08	320.17	2768.2	320.97	2768.11	329.21	2767.21
336.69	2766.44	337.69	2766.33	339.17	2766.2	347	2765.3	350.07	2765.12
353.3	2764.78	357.27	2764.78	358.46	2764.65	363.31	2764.69	368.62	2764.73
380.84	2764.2	383.53	2764.2	389.21	2764.2	392.86	2764.2	395.41	2764.2
397	2764.2	405.33	2763.55	418	2762.2	425.9	2762.2	429.38	2762.2
440.55	2761.83	445.8	2761.82	446.9	2761.83	452.14	2761.77	453.71	2761.78
455.34	2761.8	460.71	2761.71	473.6	2761.48	478.07	2761.3	485.5	2761
490.34	2760.86	501.51	2760.37	505.59	2760.2	519.5	2758.65	523.48	2758.2
524.76	2757.63	528.4	2756.2	532.08	2756.2	542.15	2756.2	542.43	2756.2
542.56	2756.2	546.57	2756.2	552.49	2756.2	552.88	2756.2	554.03	2756.2
555.66	2756.2	559.96	2756.2	563.68	2756.45	572.92	2757.07	579.88	2757.65
581.86	2757.79	587.47	2758.2	590.2	2758.2	594.96	2758.2	600.15	2757.65
600.78	2757.58	608.12	2756.79	613.81	2756.2	614.34	2756.2	615.88	2756.2

633.27	2756.2	639.82	2756.2	648.25	2756.2	663.03	2756.2	669.5	2758.13
669.74	2758.2	669.91	2758.26	675.05	2760.2	676.72	2760.6	685.46	2762.2
693.64	2762.76	693.67	2762.76	711.13	2764.2	724.01	2765.26	738.72	2766.16
738.96	2766.18	739.34	2766.2	742.46	2766.2	743.1	2766.2	751.01	2766.42
760.62	2766.61	763	2766.65	771.33	2766.83	777.87	2766.97	792.39	2767.21
796.37	2767.24	800.69	2767.29	804.54	2767.32	808.1	2767.35	812.76	2767.4
824.82	2767.35	826.88	2767.33	830.89	2767.38	835.16	2767.44	839.84	2767.5
841.73	2767.5	846.7	2767.58	852.41	2767.66	854.15	2767.67	860.61	2767.76
862.2	2767.78	868.94	2767.85	870.14	2767.86	876.65	2767.89	882.28	2767.91
883.39	2767.89	884.73	2767.86	890.94	2767.83	892.5	2767.8	898.65	2767.7
900.69	2767.68	906.39	2767.55	909.1	2767.52	912.08	2767.49	917.54	2767.37
921.24	2767.31	933.27	2767.19	937.22	2767.11	940.63	2767.12	944.77	2767.01
947.67	2767.02	952.23	2766.88	954.62	2766.88	959.81	2766.71	961.57	2766.7
967.68	2766.52	968.78	2766.5	975.65	2766.33	976.11	2766.32	981.64	2766.2
983.71	2766.16	983.85	2766.16	984.01	2766.16	991.7	2766.03	992.4	2766.02
999.4	2765.89	1000.64	2765.87	1002.1	2765.83	1004	2765.77	1010.97	2765.61
1014	2765.48	1019.74	2765.32	1024.35	2765.12	1028.51	2764.98	1034.77	2764.72
1037.1	2764.64	1044.94	2764.33	1045.49	2764.31	1048.43	2764.2	1057.07	2763.86
1061.08	2763.59	1070.9	2763.11	1082.1	2762.2	1083.44	2761.98	1094.43	2760.2
1097.83	2759.67	1103.67	2758.82	1107.14	2758.3	1107.45	2758.25	1107.57	2758.24
1108.85	2758.2	1111.33	2758.2	1119.33	2758.2	1135.29	2758.2	1141.13	2758.2
1144.77	2758.2	1154.22	2759.95	1155.56	2760.2	1156.23	2760.23	1156.46	2760.24
1196.48	2761.09	1198.3	2761	1199.83	2761.05	1210.78	2762.2	1216.88	2762.2
1219.27	2762.5	1225.03	2763.05	1232.61	2763.87	1236.94	2764.2	1242.51	2764.93
1246.31	2765.4	1249.15	2765.78	1251.78	2766.2	1258.56	2767.38	1262.64	2768.2
1278.61	2769.34	1291.75	2770.2	1294.99	2770.51	1297.88	2770.78	1299.02	2770.88

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	485.5	.045	693.67	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
485.5	693.67	149.57	140.21	130.1	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
879.49	1299.02	2768.2

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2764.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.06	Wt. n-Val.	0.050	0.045	
W.S. Elev (ft)	2762.69	Reach Len. (ft)	149.57	140.21	130.10
Crit W.S. (ft)	2762.69	Flow Area (sq ft)	63.58	1016.17	
E.G. Slope (ft/ft)	0.014950	Area (sq ft)	63.58	1016.17	
Q Total (cfs)	12000.00	Flow (cfs)	212.40	11787.60	
Top Width (ft)	279.18	Top Width (ft)	72.08	207.10	
Vel Total (ft/s)	11.11	Avg. Vel. (ft/s)	3.34	11.60	
Max Chl Dpth (ft)	6.49	Hydr. Depth (ft)	0.88	4.91	
Conv. Total (cfs)	98143.1	Conv. (cfs)	1737.1	96406.0	
Length Wtd. (ft)	140.36	Wetted Per. (ft)	72.13	208.66	
Min Ch El (ft)	2756.20	Shear (lb/sq ft)	0.82	4.55	
Alpha	1.07	Stream Power (lb/ft s)	2.75	52.73	
Frctn Loss (ft)	2.23	Cum Volume (acre-ft)	254.44	492.77	176.16
C & E Loss (ft)	0.03	Cum SA (acres)	197.02	110.53	122.55

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 28734.99

INPUT
Description:
Station Elevation Data num= 204

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2805.66	5.64	2804.2	10.57	2803.17	14.84	2802.2	21.78	2800.71
24.22	2800.2	31.93	2798.6	33.85	2798.2	38.88	2797.05	42.72	2796.2
46.2	2795.44	51.8	2794.2	56.52	2793.23	61.85	2792.2	73.21	2790.31
73.83	2790.2	74.06	2790.16	87.2	2788.2	89.66	2787.79	99.08	2786.2
100.66	2785.9	110.64	2784.2	112.41	2783.97	118.3	2783.21	124.37	2782.44
126.13	2782.2	134.37	2781.13	140.2	2780.2	143.75	2779.61	151.95	2778.2
163.8	2776.74	168.61	2776.2	192.29	2774.66	199.42	2774.2	202.7	2773.74
213.53	2772.2	216.53	2771.64	224.78	2770.2	242.91	2768.22	243.1	2768.2
245	2768.2	246.46	2768.2	249.78	2768.2	260.2	2767.3	266.22	2766.84
269.32	2766.66	275.97	2766.2	280.61	2765.93	282.09	2765.84	291.12	2765.27
296.5	2764.91	305.63	2764.2	315.43	2762.77	319.21	2762.2	325.53	2762.2
328.11	2762.2	332.38	2762.2	341.9	2761.69	344.69	2761.54	349.85	2761.4

354.67	2761.17	358.76	2760.98	366.4	2760.66	368.52	2760.55	377.52	2760.2
378.66	2760.16	378.85	2760.15	388.25	2759.77	390.26	2759.68	397.04	2759.38
401.17	2759.21	405.66	2759	412.15	2758.74	422.84	2758.28	423.31	2758.26
424.71	2758.2	436.53	2757	442.94	2756.2	453.54	2755.7	461.55	2755.31
472.42	2754.78	483.21	2754.2	490.74	2754.2	499.36	2754.2	506.92	2755.44
511.68	2756.2	516.29	2756.63	523.26	2757.21	531.37	2757.65	533.31	2757.69
537.98	2757.78	539.51	2757.8	540.97	2757.82	547.06	2757.86	548.36	2757.88
553.24	2757.87	562.16	2757.57	566.98	2757.22	568.98	2757.13	581.24	2756.21
581.41	2756.2	581.95	2756.13	595.86	2754.2	605.21	2754.2	625.4	2754.2
644.96	2754.2	652.45	2755.99	653.35	2756.2	654.77	2756.54	661.28	2758.2
666.37	2759.53	669.06	2760.2	676.79	2761.06	678.74	2761.27	687.95	2762.2
690.17	2762.31	696.92	2762.59	702.33	2762.78	706.87	2762.93	730.35	2763.16
736.29	2763.28	760.53	2763.24	762.47	2763.35	765.74	2763.47	767.36	2763.44
771.77	2763.59	777.7	2763.8	778.85	2763.83	786.42	2764.2	786.43	2764.2
786.45	2764.2	786.46	2764.2	787.05	2764.2	836.53	2764.2	844.48	2763.71
847.54	2763.56	853.42	2763.27	860.46	2762.87	871.97	2762.33	872.83	2762.29
873.24	2762.27	874.67	2762.2	883.73	2761.57	890.93	2761.06	895.82	2760.72
897.92	2760.57	903.32	2760.2	908.44	2760.2	911.58	2760.2	911.74	2760.2
911.92	2760.2	913.82	2760.2	914.81	2760.2	931.13	2760.74	936.25	2760.83
972.25	2760.63	973.84	2760.61	978.92	2760.49	980.09	2760.47	985.54	2760.42
990.22	2760.4	990.81	2760.41	996.35	2760.41	997.06	2760.42	1002.47	2760.49
1003.52	2760.49	1034.46	2760.29	1037.76	2760.2	1044.23	2759.91	1046.63	2759.77
1055.29	2759.36	1062.31	2758.85	1065.86	2758.65	1070.72	2758.2	1080.5	2757.68
1082.59	2757.58	1092.99	2757.03	1097.41	2756.79	1099.84	2756.66	1112.76	2756.71
1114.94	2756.9	1119.44	2757.27	1130.19	2758.2	1141.43	2759.78	1144.75	2760.2
1150.77	2761.24	1156.3	2762.2	1161.77	2763.13	1167.95	2764.2	1175.06	2765.44
1179.53	2766.2	1188.23	2767.21	1197.99	2768.2	1217.22	2769.53	1227.04	2770.2
1253.14	2771.16	1267.98	2771.71	1274.74	2771.96	1276.97	2772.04	1282.09	2772.2
1283.68	2772.2	1284.39	2772.2	1287.96	2772.2	1289.13	2772.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	424.71	.045	676.79	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
424.71	676.79	153.98	142.18	130.44	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
836.42	1289.13	2764.21

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2762.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.95	Wt. n-Val.	0.050	0.045	
W.S. Elev (ft)	2760.18	Reach Len. (ft)	153.98	142.18	130.44
Crit W.S. (ft)	2760.18	Flow Area (sq ft)	45.66	1047.64	
E.G. Slope (ft/ft)	0.016889	Area (sq ft)	45.66	1047.64	
Q Total (cfs)	12000.00	Flow (cfs)	174.11	11825.89	
Top Width (ft)	290.75	Top Width (ft)	46.49	244.25	
Vel Total (ft/s)	10.98	Avg. Vel. (ft/s)	3.81	11.29	
Max Chl Dpth (ft)	5.98	Hydr. Depth (ft)	0.98	4.29	
Conv. Total (cfs)	92337.6	Conv. (cfs)	1339.7	90997.9	
Length Wtd. (ft)	142.74	Wetted Per. (ft)	46.54	245.56	
Min Ch El (ft)	2754.20	Shear (lb/sq ft)	1.03	4.50	
Alpha	1.04	Stream Power (lb/ft s)	3.94	50.78	
Frctn Loss (ft)	2.08	Cum Volume (acre-ft)	254.25	489.45	176.16
C & E Loss (ft)	0.14	Cum SA (acres)	196.81	109.80	122.55

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 28592.81

INPUT
Description:
Station Elevation Data num= 230

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2791.65	4.03	2791.3	14.99	2790.2	15.57	2790.1	16.63	2789.93
23.27	2788.8	27.42	2788.2	31.55	2787.59	38.67	2786.54	40.1	2786.32
40.87	2786.2	50.1	2785.19	55.83	2784.44	57.5	2784.2	67.67	2782.46
69.23	2782.2	70.44	2782.04	81.45	2780.59	84.93	2780.2	85.67	2780.2
90.62	2779.7	95.77	2779.2	101.03	2778.76	103.46	2778.58	106.62	2778.2
110.02	2777.81	114.3	2777.38	119.68	2776.85	125.71	2776.2	131.15	2775.71
140.25	2774.88	144.58	2774.47	148.09	2774.2	157.3	2773.36	161.79	2773.03
168.31	2772.52	169.41	2772.44	172.33	2772.2	178.18	2771.71	181.99	2771.34
186.93	2770.86	192.62	2770.2	195.96	2769.81	203.06	2768.87	206.63	2768.4

208	2768.2	217.1	2766.8	220.95	2766.2	226.47	2765.31	235.52	2764.2
235.92	2764.2	238.42	2764.2	239.89	2764.2	260.2	2762.86	264	2762.69
273.27	2762.2	329.92	2760.35	333.23	2760.2	333.65	2760.2	334.15	2760.2
335.33	2760.2	342.04	2759.59	351.57	2758.2	351.83	2758.15	363.35	2756.2
366.5	2755.67	375.73	2754.2	379.36	2754.2	382.87	2754.2	396.37	2754.2
402.16	2754.2	415.86	2754.2	423.31	2754.2	427.98	2754.2	440.23	2754.2
440.84	2754.2	442.51	2754.2	445.4	2753.9	464.88	2752.2	467.79	2752.2
490.77	2752.2	494.55	2752.99	496.93	2753.2	503.56	2753.52	508.24	2752.69
509.39	2752.61	511.08	2752.2	520.72	2752.2	529.62	2752.2	531.23	2752.36
533.16	2752.51	544.45	2753.47	555.37	2754.2	558.27	2754.2	562.47	2754.2
576.06	2754.2	582.64	2754.2	583.23	2754.12	595.7	2752.48	597.77	2752.2
617.95	2752.2	638.58	2752.2	640.1	2752.59	645.99	2754.2	651.93	2756.02
652.47	2756.2	656.91	2757.16	661.48	2758.2	662.35	2758.26	662.75	2758.28
669.59	2758.7	671.09	2758.78	674.9	2758.97	678.74	2759.15	683.44	2759.27
686.02	2759.39	692.09	2759.49	693.73	2759.59	699.67	2759.63	712.21	2759.8
713.99	2759.72	718.63	2759.68	721.02	2759.55	724.61	2759.35	731.15	2758.9
740.43	2758.2	743	2758	743.62	2757.99	745.66	2757.95	748.8	2757.86
759.89	2757.49	777.66	2756.83	791.51	2756.41	797.42	2756.2	819.37	2756.2
821.28	2756.2	822.29	2756.22	822.49	2756.23	822.76	2756.23	839.36	2756.6
842.55	2756.67	854.78	2756.94	858.28	2757.02	866.97	2757.22	873	2757.36
877.22	2757.46	901.03	2757.67	903.09	2757.7	904.8	2757.67	906.64	2757.64
908.63	2757.61	910.83	2757.56	913.61	2757.57	916.08	2757.5	919.94	2757.5
922.9	2757.41	927.06	2757.42	931.69	2757.43	934.39	2757.35	938.9	2757.34
948.67	2756.92	952.46	2756.71	954.56	2756.69	956.42	2756.65	962.54	2756.43
963.37	2756.41	971.96	2756.2	971.98	2756.2	972.09	2756.2	979.37	2756.2
981.2	2756.01	988.22	2755.83	989.36	2755.83	994.88	2755.69	996.62	2755.68
998.56	2755.65	1003.4	2755.56	1007.37	2755.51	1009.98	2755.46	1013.65	2755.44
1016.76	2755.42	1019.66	2755.39	1021.94	2755.32	1024.66	2755.35	1026.46	2755.27
1053.72	2756.2	1057.25	2756.2	1058.79	2756.2	1068	2756.2	1068.38	2756.2
1070.56	2756.2	1073.74	2757.22	1076.84	2758.2	1079.86	2759.17	1082.72	2760.2
1086.11	2761.53	1087.89	2762.2	1089.41	2762.48	1098.73	2764.2	1114.23	2765.82
1117.63	2766.2	1120.38	2766.36	1133.48	2767.12	1143.4	2767.66	1147.19	2767.87
1153.86	2768.2	1156.63	2768.2	1171.55	2768.2	1178.94	2768.2	1185.18	2768.2
1191.26	2768.2	1193.5	2768.05	1197.02	2767.8	1199.09	2767.66	1204.73	2768.2
1216.57	2768.2	1220.06	2768.2	1222.35	2768.2	1224.64	2768.2	1226.58	2768.2
1227.47	2768.2	1239.76	2768.9	1264.11	2770.18	1264.52	2770.2	1264.54	2770.2
1266.53	2770.2	1267.04	2770.2	1267.73	2770.2	1268.03	2770.2	1273.42	2770.61

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	363.35	.045	402.16	.045	671.09	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
402.16	671.09	104.55	113.38	103.28	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
711.54	1273.42	2759.86	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2759.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.47	Wt. n-Val.	0.045	0.045	
W.S. Elev (ft)	2757.61	Reach Len. (ft)	104.55	113.38	103.28
Crit W.S. (ft)	2757.19	Flow Area (sq ft)	125.86	1115.35	
E.G. Slope (ft/ft)	0.012751	Area (sq ft)	125.86	1115.35	325.21
Q Total (cfs)	12000.00	Flow (cfs)	962.49	11037.51	
Top Width (ft)	607.68	Top Width (ft)	47.13	256.72	303.84
Vel Total (ft/s)	9.67	Avg. Vel. (ft/s)	7.65	9.90	
Max Chl Dpth (ft)	5.41	Hydr. Depth (ft)	2.67	4.34	
Conv. Total (cfs)	106269.9	Conv. (cfs)	8523.6	97746.3	
Length Wtd. (ft)	113.02	Wetted Per. (ft)	47.41	257.96	
Min Ch El (ft)	2752.20	Shear (lb/sq ft)	2.11	3.44	
Alpha	1.01	Stream Power (lb/ft s)	16.16	34.06	
Frctn Loss (ft)	1.71	Cum Volume (acre-ft)	253.95	485.92	175.67
C & E Loss (ft)	0.03	Cum SA (acres)	196.65	108.98	122.09

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: Agua Caliente
REACH: upper RS: 28479.43

INPUT
Description:
Station Elevation Data num= 241

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2780.74	3.08	2780.46	4.16	2780.36	5.94	2780.2	11.72	2779.7
14.3	2779.49	19.02	2779.11	24.72	2778.66	26.41	2778.52	30.67	2778.2
33.99	2777.96	35.34	2777.86	41.85	2777.38	46.42	2777.04	49.7	2776.79
57.43	2776.2	57.45	2776.2	57.49	2776.2	67.55	2775.24	76.06	2774.2
77.66	2773.99	81.61	2773.43	87.85	2772.56	90.42	2772.2	93.32	2772.2

95.18	2772.2	96.71	2772.2	97.55	2772.12	98.15	2772.03	102.98	2771.24
111.06	2770.2	112.59	2770.1	113.14	2770.06	122.21	2769.5	126.08	2769.16
136.27	2768.2	137.87	2768.08	140.2	2767.89	153.92	2766.79	156.83	2766.57
163.22	2766.2	163.56	2766.2	163.83	2766.2	166.32	2766.07	176.07	2765.71
180.51	2765.37	187.66	2765.03	196.48	2764.34	197.38	2764.29	198.71	2764.2
199.15	2764.2	202.3	2764.2	204.31	2764.2	208.87	2764.2	219.09	2763.76
225.24	2763.73	227.86	2763.56	233.61	2763.45	237.97	2763.3	248.97	2762.2
250.13	2762.2	251.99	2762.2	258.47	2762.2	259.62	2762.2	260.19	2762.2
260.84	2762.2	267.44	2762.2	268.72	2762.1	269.07	2762.1	272.74	2761.98
289.29	2761.27	301.61	2760.78	306.32	2760.59	316.09	2760.2	319.88	2760.2
322.15	2760.2	337.17	2759.8	338.92	2759.7	341.76	2759.51	346.22	2759.36
351.29	2758.93	359.91	2758.2	367.16	2757.33	374.74	2756.29	375.43	2756.2
379.41	2755.15	382.91	2754.2	389.18	2752.58	390.75	2752.2	396.73	2750.63
399.49	2750.2	402.91	2750.2	409.27	2750.2	410.12	2750.2	410.43	2750.2
410.66	2750.2	416.62	2750.2	421.47	2750.2	421.85	2750.2	425.68	2750.2
440.66	2750.2	448.28	2750.2	449.01	2750.2	449.45	2750.2	450.45	2750.2
450.72	2750.2	451.03	2750.2	454.17	2750.2	482.7	2750.2	484.72	2750.2
487.85	2750.2	492.72	2751.33	496.96	2752.2	497.37	2752.2	498.77	2752.2
499.99	2752.2	512.86	2752.92	519.76	2753.2	526.67	2753.57	530.12	2753.73
538.38	2754.2	566.78	2754.2	575.41	2754.2	576.98	2754.1	596.57	2752.73
604.22	2752.2	615.6	2750.28	616.06	2750.2	616.36	2750.18	620.61	2750.2
658.75	2750.2	661.29	2751.13	664.05	2752.2	670.68	2754	671.37	2754.2
671.84	2754.25	674.55	2754.55	678.76	2755.01	683.2	2755.18	687.52	2755.54
691.57	2755.62	694.45	2755.67	705.98	2755.73	711.54	2755.84	711.88	2755.82
718.04	2755.88	718.53	2755.87	719.24	2755.84	724.81	2755.82	725.8	2755.75
727.75	2755.57	731.9	2755.4	736.51	2754.81	738.13	2754.63	741.19	2754.2
753.47	2754.2	761.93	2754.2	769.41	2754.2	774.43	2754.2	778.86	2754.2
780.98	2754.2	783.7	2754.2	788.32	2754.2	805.5	2754.58	810.41	2754.45
815.15	2754.36	815.51	2754.36	818.78	2754.37	819.11	2754.36	821.92	2754.34
856.35	2754.64	860.81	2754.57	862.1	2754.59	867.66	2754.51	874.54	2754.41
875.32	2754.41	882.81	2754.28	883.11	2754.27	887.65	2754.2	890.59	2754.13
897.07	2754.04	897.69	2754.01	903.68	2753.94	904.52	2753.92	910.17	2753.81
911.09	2753.83	916.49	2753.68	920.82	2753.51	922.11	2753.57	941.01	2754.02
944.72	2754.2	950.44	2754.2	952.95	2754.2	959.53	2754.2	963.88	2754.2
990.36	2754.2	991.48	2754.2	993.51	2754.2	1002.52	2755.42	1008.11	2756.2
1017.18	2758.16	1017.38	2758.2	1017.52	2758.23	1026.41	2760.2	1045.45	2761.95
1048.79	2762.2	1052.38	2762.2	1053.55	2762.2	1058.72	2762.2	1061.31	2762.2
1064.22	2762.2	1067.7	2762.2	1073.31	2762.2	1076.85	2762.2	1080.44	2762.2
1082.79	2762.2	1101.68	2763.17	1102.93	2763.18	1109.19	2763.58	1120.25	2764.2
1121.15	2764.2	1121.35	2764.2	1125.56	2764.37	1141.33	2764.86	1148.03	2765.12
1156.41	2765.4	1169.94	2765.95	1175.93	2766.2	1177.95	2766.31	1189.47	2766.96
1202.74	2767.69	1211.88	2768.2	1232.61	2769.01	1253.95	2769.85	1259.53	2770.07
1261.35	2770.15	1262.81	2770.2	1262.9	2770.2	1264.85	2770.2	1266.49	2770.2
1266.61	2770.2								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	382.91	.045	496.96	.06	615.6	.045	691.57	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
382.91	691.57	129.94	85.07	87.89	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
719.23	1266.61	2755.94	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2757.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.79	Wt. n-Val.	0.050	0.047	
W.S. Elev (ft)	2755.54	Reach Len. (ft)	129.94	85.07	87.89
Crit W.S. (ft)	2755.54	Flow Area (sq ft)	3.34	1115.88	
E.G. Slope (ft/ft)	0.018281	Area (sq ft)	3.34	1115.88	347.24
Q Total (cfs)	12000.00	Flow (cfs)	10.01	11989.99	
Top Width (ft)	584.84	Top Width (ft)	4.99	304.82	275.03
Vel Total (ft/s)	10.72	Avg. Vel. (ft/s)	3.00	10.74	
Max Chl Dpth (ft)	5.36	Hydr. Depth (ft)	0.67	3.66	
Conv. Total (cfs)	88752.5	Conv. (cfs)	74.0	88678.5	
Length Wtd. (ft)	85.17	Wetted Per. (ft)	5.17	306.51	
Min Ch El (ft)	2750.18	Shear (lb/sq ft)	0.74	4.15	
Alpha	1.00	Stream Power (lb/ft s)	2.21	44.64	
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	253.80	483.01	174.87
C & E Loss (ft)	0.10	Cum SA (acres)	196.59	108.25	121.40

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: Agua Caliente
REACH: upper RS: 28394.36

INPUT
Description:
Station Elevation Data num= 246

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2775.93	4.69	2775.56	15.14	2774.84	19.93	2774.49	21.2	2774.4
24.78	2774.2	32.15	2773.69	36.75	2773.27	42.32	2772.86	48.81	2772.2
52.88	2771.93	60.37	2771.44	64.57	2771.27	69.16	2771	74.94	2770.84
77.52	2770.7	90.47	2770.2	93.58	2770.2	94.69	2770.2	97.77	2770.2
99.38	2770.2	101.43	2770.2	102.65	2770.2	103.9	2770.12	104.7	2770.04
121.39	2768.47	123.78	2768.24	124.25	2768.2	133.99	2767.35	140.25	2766.66
142.53	2766.46	144.71	2766.2	151.45	2765.74	156.64	2765.39	163.32	2764.95
166.61	2764.73	175.49	2764.2	178.42	2764.03	181.84	2763.75	194.62	2762.88
202	2762.2	206.24	2762.2	207.97	2762.2	231.27	2761.02	233.64	2761.04
237.16	2760.98	241.2	2760.92	243.4	2760.88	248.08	2760.81	250.3	2760.74
255.66	2760.65	262.93	2760.42	263.94	2760.38	267.71	2760.2	274.22	2759.92
275.1	2759.87	283.58	2759.49	285.45	2759.4	287.66	2759.26	291.33	2759.01
295.2	2758.84	297.67	2758.77	302.64	2758.32	303.13	2758.31	304.6	2758.2
305.75	2758.2	309.24	2758.2	317.25	2757.77	327.46	2757.48	329.91	2757.32
335.46	2757.18	338.99	2757.11	341.47	2757.1	343.74	2757.12	346.34	2756.97
348.09	2756.96	352.52	2756.85	354.25	2756.79	360.52	2756.68	362.19	2756.6
370.1	2756.39	370.91	2756.35	374.8	2756.21	375.06	2756.2	382.34	2755.8
390.66	2755.12	397.45	2754.63	401.86	2754.2	409.27	2752.38	409.89	2752.2
411.06	2751.84	416.63	2750.2	425.82	2748.3	426.5	2748.2	426.9	2748.2
429.99	2748.2	434.02	2748.2	434.41	2748.2	437.1	2748.2	438.75	2748.12
439.1	2748.09	443.87	2747.86	448.4	2747.57	450.28	2747.52	454.13	2747.25
477.6	2747.39	484.03	2747.84	485.1	2747.85	488.79	2748.2	495.7	2748.9
502.38	2749.4	512.01	2750.2	518.87	2750.71	535.21	2751.58	540.77	2751.93
547.06	2752.2	554.59	2752.34	562.27	2752.49	585.14	2752.2	596.15	2752.2
604.29	2752.2	622.59	2752.2	624.54	2752.2	624.76	2752.16	627.03	2751.77
636.11	2750.2	650.22	2749.24	661.24	2748.61	668.11	2748.2	671.78	2747.74
684.05	2748.2	692.13	2748.2	694.03	2749.01	696.66	2750.2	700.33	2751.83
701.16	2752.2	708.56	2752.2	712.98	2752.2	714.62	2752.2	715.79	2752.2
720.44	2752.46	724.67	2752.37	726.88	2752.32	730.36	2752.2	735.18	2752.2
735.86	2752.2	736.89	2752.2	745.59	2752.2	748.8	2752.2	765.95	2752.2
766.53	2752.2	800.49	2753.46	807.67	2753.74	820.03	2754.2	823.84	2754.2
823.94	2754.2	824.07	2754.2	824.21	2754.2	829.25	2754.2	829.81	2754.2
830.8	2754.1	831.39	2754.03	836.03	2753.92	838.02	2753.62	847.06	2752.2
849.62	2751.33	852.7	2750.2	854.09	2750.06	854.38	2750.07	875.12	2749.85
881.63	2750.2	884.59	2750.2	885.81	2750.2	888.23	2750.2	891.39	2750.2
896.08	2750.2	898.78	2750.2	907.23	2750.2	908.06	2750.35	910.69	2750.76
917.25	2751.83	920.44	2752.2	926.53	2752.92	933.13	2753.61	935.83	2753.9
938.55	2754.2	943.73	2754.2	944.37	2754.2	950.48	2754.2	962.56	2754.2
968.76	2754.2	973.79	2754.2	976.66	2754.2	984.81	2754.2	985.16	2754.2
986.15	2754.2	986.74	2754.2	990.41	2754.2	1010.32	2754.2	1015.57	2754.2
1019.7	2754.2	1023.33	2754.64	1036.26	2756.2	1037.55	2756.32	1047.29	2757.23
1056.37	2758.2	1057.46	2758.3	1058.65	2758.39	1070	2759.32	1080.8	2760.2
1082.2	2760.29	1082.99	2760.34	1095.72	2761.2	1107.45	2761.61	1111.81	2761.87
1112.71	2761.85	1117.92	2762.2	1119.35	2762.27	1119.87	2762.31	1129.44	2762.83
1135.23	2763.38	1139.1	2763.66	1144.76	2764.2	1150.85	2764.43	1160.21	2764.71
1167.06	2764.88	1172.85	2764.99	1176.71	2765.14	1181.45	2765.2	1186.71	2765.42
1190.11	2765.47	1196.36	2765.77	1203.86	2766.2	1204.92	2766.24	1205.26	2766.25
1205.92	2766.28	1214.11	2766.63	1219.27	2766.86	1227.61	2767.13	1235.44	2767.47
1251.98	2767.95	1259.02	2768.2	1259.14	2768.2	1260.12	2768.2	1264.64	2768.29
1264.7	2768.29								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	409.89	.045	518.87	.06	627.03	.045	724.67	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
409.89	724.67	97.22	147.02	115.45	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
826.92	1264.7	2754.25	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2755.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.47	Wt. n-Val.	0.050	0.046	0.050
W.S. Elev (ft)	2753.88	Reach Len. (ft)	97.22	147.02	115.45
Crit W.S. (ft)	2753.78	Flow Area (sq ft)	5.57	1168.89	107.81
E.G. Slope (ft/ft)	0.013908	Area (sq ft)	5.57	1168.89	385.90
Q Total (cfs)	12000.00	Flow (cfs)	16.88	11546.64	436.49
Top Width (ft)	507.66	Top Width (ft)	6.73	314.78	186.15
Vel Total (ft/s)	9.36	Avg. Vel. (ft/s)	3.03	9.88	4.05
Max Chl Dpth (ft)	6.63	Hydr. Depth (ft)	0.83	3.71	1.24
Conv. Total (cfs)	101754.8	Conv. (cfs)	143.1	97910.5	3701.2
Length Wtd. (ft)	146.10	Wetted Per. (ft)	6.94	316.61	86.82
Min Ch El (ft)	2747.25	Shear (lb/sq ft)	0.70	3.21	1.08
Alpha	1.08	Stream Power (lb/ft s)	2.11	31.66	4.37
Frctn Loss (ft)	2.21	Cum Volume (acre-ft)	253.78	480.78	174.13
C & E Loss (ft)	0.03	Cum SA (acres)	196.57	107.65	120.94

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 28247.34

INPUT
Description:
Station Elevation Data num= 210

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2773.84	11.03	2772.6	15.47	2772.2	21.95	2771.76	27.74	2771.41
30.09	2771.28	33.72	2771.04	38.68	2770.92	41.08	2770.75	47.54	2770.65
49.59	2770.76	55.63	2770.66	57.77	2770.8	64.55	2770.71	66.62	2770.85
72.94	2770.78	75.01	2770.89	80.51	2770.8	82.56	2770.84	87.66	2770.71
89.37	2770.66	94.89	2770.57	96.09	2770.49	102.4	2770.58	103.63	2770.49
110.39	2770.64	111.78	2770.55	118.43	2770.62	119.77	2770.54	126.17	2770.54
132.63	2770.49	133.74	2770.44	140.91	2770.37	141.55	2770.34	149.58	2770.24
151.26	2770.2	157.12	2769.96	158.16	2769.93	163.9	2769.59	166.45	2769.52
169.31	2769.46	174.22	2769.17	178	2769.14	203.06	2768.2	204.25	2768.2
208.32	2767.94	213.39	2767.59	225.04	2766.81	234.34	2766.2	241.62	2765.95
277.01	2764.2	278.16	2764.2	279.75	2764.2	280.35	2764.2	280.99	2764.2
282.05	2764.2	282.56	2764.2	316.44	2762.4	320.17	2762.2	322.13	2762.1
357.87	2760.2	374.24	2758.3	375.07	2758.2	376.41	2758.03	391.02	2756.2
396.05	2755.48	401.27	2754.72	404.87	2754.2	410.85	2752.84	413.68	2752.2
418.26	2751.15	422.32	2750.2	429.33	2748.4	430.06	2748.2	432.63	2747.52
437.77	2746.2	448.41	2745.02	455.75	2744.2	457.45	2744.2	470.31	2744.2
470.72	2744.28	481.09	2746.2	493.37	2747.69	497.31	2748.2	499.24	2748.2
567.98	2750.15	568.58	2750.2	569.4	2750.2	570.77	2750.2	579.35	2750.2
588.76	2750.2	590.79	2750.2	597.41	2750.2	599.25	2750.24	599.37	2750.24
599.47	2750.24	602.69	2750.32	613.38	2750.2	624.53	2750.2	646.58	2750.2
653.78	2749.75	655.47	2749.64	665.96	2748.83	667.43	2748.71	673.99	2748.2
678.68	2746.78	680.67	2746.2	691.67	2745.72	729.2	2745.32	733.33	2745.65
734.31	2745.64	740.12	2745.98	740.71	2745.99	741.4	2745.99	747.18	2746.19
747.23	2746.19	747.25	2746.19	750.59	2746.18	753.34	2746.17	753.55	2746.2
753.75	2746.2	761.25	2746.2	763.63	2746.2	769.66	2746.2	776.66	2746.2
777.91	2746.42	782.94	2747.22	787.61	2747.98	789.07	2748.2	798.75	2748.2
805.48	2748.2	809.9	2748.2	811.7	2748.2	817.65	2748.2	819.38	2748.2
819.54	2748.2	821.73	2748.51	825.73	2748.72	831.27	2749.58	835.38	2750.2
852.59	2751.39	867	2752.2	867.34	2752.2	867.62	2752.2	869.36	2752.2
870.06	2752.2	907.27	2752.2	910.16	2752.2	912.15	2752.2	913.64	2752.2
916.43	2752.2	917.53	2752.2	918.57	2752.2	919.59	2752.2	923.45	2752.2
936.86	2752.2	938.53	2752.2	943.5	2751.97	944.55	2751.97	950.48	2751.69
952.66	2751.71	989.58	2751.75	998.15	2752.1	998.62	2752.1	1000.64	2752.2
1018.62	2752.2	1024.02	2752.2	1030.68	2752.2	1051.77	2752.2	1061.17	2753.62
1065.33	2754.2	1073.59	2755.41	1078.78	2756.2	1081.42	2756.69	1089.11	2758.2
1096.31	2759.22	1100.58	2759.75	1107.02	2760.2	1109.58	2760.2	1113.22	2760.13
1113.38	2760.14	1114.42	2760.2	1115.78	2760.2	1123.87	2760.2	1127.75	2760.2
1137.55	2761.39	1144.69	2762.2	1146.09	2762.32	1146.74	2762.37	1148.11	2762.45
1153.59	2762.86	1160.75	2763.33	1167.94	2763.66	1170.75	2763.81	1172.25	2763.88
1180.35	2764.2	1182.01	2764.27	1184.29	2764.42	1194.4	2765.01	1202.36	2765.47
1212.03	2766.2	1214.33	2766.2	1215.39	2766.2	1219.98	2766.2	1222.12	2766.2
1225.56	2766.2	1244.71	2766.82	1250.96	2766.9	1256.15	2766.97	1257.26	2766.98

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	422.32	.045	493.37	.06	653.78	.045	747.18	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
422.32	747.18	146.26	110.59	96.93	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
750.9	1257.26	2753.9	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2753.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.74	Wt. n-Val.	0.050	0.047	0.050
W.S. Elev (ft)	2751.38	Reach Len. (ft)	146.26	110.59	96.93
Crit W.S. (ft)	2751.38	Flow Area (sq ft)	2.97	1114.49	19.32
E.G. Slope (ft/ft)	0.016436	Area (sq ft)	2.97	1114.49	347.63
Q Total (cfs)	12000.00	Flow (cfs)	7.81	11771.34	220.85
Top Width (ft)	435.18	Top Width (ft)	5.06	324.86	105.26
Vel Total (ft/s)	10.56	Avg. Vel. (ft/s)	2.63	10.56	11.43
Max Chl Dpth (ft)	7.18	Hydr. Depth (ft)	0.59	3.43	5.19
Conv. Total (cfs)	93601.4	Conv. (cfs)	61.0	91817.8	1722.6
Length Wtd. (ft)	110.15	Wetted Per. (ft)	5.20	326.23	3.72
Min Ch El (ft)	2744.20	Shear (lb/sq ft)	0.59	3.51	5.33
Alpha	1.00	Stream Power (lb/ft s)	1.54	37.03	60.92
Frctn Loss (ft)	1.45	Cum Volume (acre-ft)	253.77	476.93	173.16
C & E Loss (ft)	0.16	Cum SA (acres)	196.55	106.57	120.55

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: Agua Caliente
REACH: upper RS: 28136.75

INPUT
Description:
Station Elevation Data num= 206

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2776.2	1.95	2776.2	29.21	2774.72	31.08	2774.67	32.24	2774.67
33.66	2774.6	56.77	2774.2	56.9	2774.2	57.01	2774.19	57.07	2774.19
65.93	2773.35	70.85	2772.88	78.6	2772.2	82.47	2771.86	85.34	2771.59
92.49	2770.95	94.96	2770.72	100.8	2770.2	102.54	2770.2	103.14	2770.2
109.03	2769.46	117.2	2768.72	120.98	2768.2	121.64	2768.2	122.54	2768.2
126.19	2768.2	129.09	2768.2	139.98	2766.63	141.53	2766.6	143.36	2766.3
143.74	2766.3	147.75	2766.29	148.12	2766.3	154.13	2766.54	155.71	2766.59
161.59	2766.91	165.57	2767.17	169.59	2767.25	172.59	2767.45	177.64	2767.46
180.11	2767.58	185.44	2767.54	187.79	2767.6	192.79	2767.51	195.36	2767.52
197.93	2767.51	202.82	2767.41	205.95	2767.36	210.3	2767.26	214.14	2767.17
217.81	2767.07	222.36	2766.96	227.7	2766.88	230.44	2766.78	236.52	2766.7
238.29	2766.62	245.14	2766.49	253.51	2766.24	254.48	2766.2	260.98	2765.87
262.47	2765.85	268.09	2765.53	270.94	2765.51	301.6	2764.53	309.52	2764.2
322.74	2762.94	331.99	2762.2	339.5	2761.87	342.85	2761.71	353.01	2761.25
362.44	2760.76	372.4	2760.2	387.97	2758.76	393.87	2758.2	398.53	2757.75
414.62	2756.2	424.3	2755.04	431.21	2754.2	441.98	2752.75	446.43	2752.2
450.76	2750.92	453.16	2750.2	454.19	2749.89	459.56	2748.2	462.47	2747.26
465.77	2746.2	465.78	2746.2	472.01	2744.2	476.41	2742.83	478.3	2742.24
478.48	2742.2	479.3	2742.2	508.18	2742.2	510	2742.7	515.03	2744.12
515.31	2744.2	522.35	2745.92	523.88	2746.2	525.35	2746.2	528.24	2746.2
531.95	2746.2	534.9	2746.2	545.23	2746.2	548.01	2746.2	549.74	2746.2
555.86	2746.2	560.39	2746.2	564.16	2746.2	568.91	2746.59	571.43	2746.73
578.07	2747.29	599.16	2748.2	601.25	2748.2	603.7	2748.2	608.72	2748.2
622.39	2748.2	624.03	2748.2	626.44	2748.2	626.78	2748.2	639.96	2748.2
644.45	2748.2	653.08	2748.2	707.37	2748.2	708.44	2748.2	708.98	2748.2
717.3	2746.95	722.72	2746.2	728.28	2745.01	730.49	2744.55	732.13	2744.2
735.81	2743.32	740.53	2742.2	756.46	2742.2	769.54	2742.2	773.93	2743.25
776.92	2743.93	778.41	2744.2	782.5	2744.75	786.08	2745.22	793.69	2745.87
795.24	2746.04	798.21	2746.2	798.8	2746.2	804.7	2746.2	807.23	2746.2
810.52	2746.2	815.48	2746.2	816.29	2746.28	833.1	2748.2	838.73	2748.45
860.5	2749.45	873.41	2750.04	876.87	2750.2	894.44	2750.2	944.02	2750.92
948.67	2750.79	954.24	2750.63	955.84	2750.64	962.05	2750.43	968.64	2750.2
970.07	2750.07	971.22	2749.96	988.61	2748.2	990.47	2748.2	1000.6	2748.2
1003.99	2748.2	1026.18	2748.97	1027.13	2749	1049.8	2749.68	1057.65	2749.79
1062.02	2750.2	1064.02	2750.51	1071.47	2751.65	1074.32	2752.09	1075.04	2752.2
1075.96	2752.31	1076.54	2752.36	1097.37	2754.2	1098.93	2754.2	1102.12	2755.61
1103.45	2756.2	1113.96	2757.59	1119.4	2758.2	1130.01	2759.3	1138.15	2760.2
1163.11	2761.85	1166.42	2762.06	1168.98	2762.2	1177.42	2762.2	1183.37	2762.2
1185.6	2762.2	1190.12	2762.2	1193.59	2762.2	1196.53	2762.2	1199.32	2762.2
1202.1	2762.2	1206.46	2762.52	1222.74	2763.7	1229.5	2764.03	1230.16	2764.03
1233.27	2764.2	1237.1	2764.2	1239.85	2764.2	1248.83	2764.2	1257.32	2764.2
1269.96	2764.2								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	459.56	.045	522.35	.06	717.3	.045	798.21	.05
798.8	.05								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
459.56	798.8	96.37	107.66	102.94	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
944.87	1269.96	2751.01	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2750.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.20	Wt. n-Val.	0.050	0.047	0.050
W.S. Elev (ft)	2749.70	Reach Len. (ft)	96.37	107.66	102.94
Crit W.S. (ft)	2749.28	Flow Area (sq ft)	3.55	1274.58	126.99
E.G. Slope (ft/ft)	0.010756	Area (sq ft)	3.55	1274.58	194.43
Q Total (cfs)	12000.00	Flow (cfs)	8.74	11393.10	598.15
Top Width (ft)	488.15	Top Width (ft)	4.75	339.24	144.16
Vel Total (ft/s)	8.54	Avg. Vel. (ft/s)	2.46	8.94	4.71
Max Chl Dpth (ft)	7.50	Hydr. Depth (ft)	0.75	3.76	1.89

Conv. Total (cfs)	115704.9	Conv. (cfs)	84.3	109853.1	5767.4
Length Wtd. (ft)	107.53	Wetted Per. (ft)	4.98	341.66	67.22
Min Ch El (ft)	2742.20	Shear (lb/sq ft)	0.48	2.51	1.27
Alpha	1.06	Stream Power (lb/ft s)	1.18	22.39	5.98
Frctn Loss (ft)	1.30	Cum Volume (acre-ft)	253.76	473.90	172.56
C & E Loss (ft)	0.04	Cum SA (acres)	196.54	105.72	120.28

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: Agua Caliente
REACH: upper RS: 28029.09

INPUT
Description:
Station Elevation Data num= 223

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2778.09	3.05	2777.93	36.32	2776.2	49.68	2775.22	65.62	2774.2
72.42	2773.92	80.16	2773.56	97.06	2772.82	109.14	2772.2	119.1	2771.61
129.69	2771.1	138.2	2770.64	148.32	2770.2	156.07	2769.56	169.24	2768.2
171.53	2768.02	174.43	2767.84	186.79	2767.01	191.06	2766.75	201.22	2766.2
202.85	2766.01	203.71	2765.97	205.24	2765.87	213.89	2765.13	220.05	2764.75
228.05	2764.2	230.08	2763.94	231.77	2763.78	232.71	2763.67	238.49	2762.97
240.31	2762.7	245.06	2762.2	257.2	2761	263.82	2760.55	268.96	2760.2
272.58	2759.87	274.19	2759.74	279.51	2759.27	284.01	2758.82	289.66	2758.2
292.32	2757.88	294.41	2757.63	305.56	2756.2	307.33	2756.01	321.6	2754.2
323.51	2754.2	326.73	2754.2	334.67	2754.2	343.1	2754.2	344.8	2754.34
351.33	2754.71	353.25	2754.78	358.43	2754.92	360.68	2754.89	365.55	2754.91
370.76	2754.81	372.73	2754.71	379.21	2754.48	380.16	2754.42	385.18	2754.2
387.41	2754.04	388.1	2754	393.84	2753.49	396.83	2753.29	402.64	2752.85
405.42	2752.61	411.61	2752.2	413.65	2752.09	414.18	2752.08	421.08	2751.79
423.01	2751.73	428.69	2751.53	431.34	2751.46	435.79	2751.28	438.72	2751.2
441.95	2751.08	445.25	2750.92	448.99	2750.76	453.64	2750.49	457.37	2750.2
461.74	2749.74	472.88	2748.2	473.2	2748.1	479.43	2746.2	482.01	2745.08
483.07	2744.63	484.08	2744.2	485.8	2743.34	487.66	2742.2	492.68	2740.76
494.44	2740.2	498.27	2740.2	517.82	2740.2	522.34	2741.08	527.22	2742.06
527.9	2742.2	532.57	2742.84	538.16	2743.45	544.72	2744.2	557.36	2745.13
570.69	2746.2	576.69	2746.43	578.49	2746.47	615.99	2747.46	617.85	2747.49
623.55	2747.56	653.31	2747.31	656.62	2747.32	659.63	2747.21	662.89	2747.17
667.49	2747.04	676.92	2746.93	681.85	2746.79	683.3	2746.78	689.52	2746.61
690.87	2746.58	698.51	2746.33	701.39	2746.2	709.54	2746.2	711.32	2746.2
729.07	2745.1	731.11	2744.99	732.38	2745.04	736.44	2744.87	737.82	2744.81
742.4	2744.59	743.21	2744.54	747.71	2744.2	751.13	2743.92	751.72	2743.84
754.73	2743.44	760.97	2742.63	763.88	2742.2	773.01	2740.66	775.55	2740.2
803.47	2740.2	804.92	2740.2	805.23	2740.33	809.76	2742.2	812.01	2743.34
813.89	2744.2	816.03	2745.07	818.74	2746.2	822.16	2746.4	823.98	2746.51
836.86	2747.27	844.56	2747.7	853.88	2748.2	864.23	2748.2	870.97	2748.2
884.56	2748.2	912.29	2748.43	917.92	2748.32	918.29	2748.32	919.23	2748.36
924.83	2748.23	924.88	2748.23	927.11	2748.2	931.91	2748.09	932.38	2748.07
939.61	2747.95	940.62	2747.91	947.29	2747.78	948.94	2747.72	951.17	2747.62
956.78	2747.39	960.58	2747.18	967.53	2746.73	969.99	2746.58	975.04	2746.2
980.04	2746.2	989.22	2746.2	991.31	2746.32	992.1	2746.37	1003.5	2747.07
1008.47	2747.4	1012.78	2747.67	1021.44	2748.13	1021.79	2748.15	1023.19	2748.2
1029.82	2748.54	1035.44	2748.72	1037.54	2748.87	1041.33	2748.95	1045.31	2749.31
1047.58	2749.41	1054.15	2750.2	1055.17	2750.32	1064.73	2752.2	1065.04	2752.26
1065.37	2752.32	1067.27	2752.64	1075.22	2754.01	1076.03	2754.16	1076.29	2754.2
1085.28	2755.4	1090.94	2756.2	1097.84	2756.52	1108.31	2756.99	1114.44	2757.24
1118.44	2757.41	1136.19	2758.2	1140.06	2758.2	1141.45	2758.2	1147.88	2758.2
1155.71	2758.2	1159.03	2758.47	1165.39	2758.92	1167.74	2758.93	1172.61	2759.17
1176.21	2759.29	1180.24	2759.3	1183.5	2759.36	1186.56	2759.36	1189.25	2759.38
1191.01	2759.4	1194.01	2759.38	1198.54	2759.44	1201.44	2759.4	1206.04	2759.45
1208.88	2759.39	1212.01	2759.31	1213.52	2759.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	473.2	.045	570.69	.06	729.07	.045	823.98	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
473.2	823.98	112.94	136.41	133.17	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
911.54	1213.52	2748.56	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2749.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.60	Wt. n-Val.		0.046	0.050
W.S. Elev (ft)	2747.95	Reach Len. (ft)	112.94	136.41	133.17
Crit W.S. (ft)	2747.95	Flow Area (sq ft)		1173.66	17.70
E.G. Slope (ft/ft)	0.013668	Area (sq ft)		1173.66	91.75
Q Total (cfs)	12000.00	Flow (cfs)		11951.39	48.61

Top Width (ft)	453.68	Top Width (ft)		350.27	103.41
Vel Total (ft/s)	10.07	Avg. Vel. (ft/s)		10.18	2.75
Max Chl Dpth (ft)	7.75	Hydr. Depth (ft)		3.35	0.70
Conv. Total (cfs)	102642.8	Conv. (cfs)		102227.0	415.8
Length Wtd. (ft)	136.23	Wetted Per. (ft)		353.81	25.20
Min Ch El (ft)	2740.20	Shear (lb/sq ft)		2.83	0.60
Alpha	1.02	Stream Power (lb/ft s)		28.82	1.65
Frctn Loss (ft)	1.41	Cum Volume (acre-ft)	253.76	470.87	172.22
C & E Loss (ft)	0.22	Cum SA (acres)	196.53	104.87	119.98

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 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: Agua Caliente
REACH: upper RS: 27892.68

INPUT
Description:
Station Elevation Data num= 188

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2774.29	6.05	2774.26	6.27	2774.26	13.8	2774.2	13.87	2774.2
21.14	2774.14	21.36	2774.14	28.59	2774.11	28.92	2774.11	36.04	2774.11
36.37	2774.12	43.72	2774.13	43.99	2774.13	51.34	2774.14	51.58	2774.14
58.91	2774.11	59.27	2774.11	59.62	2774.11	66.76	2774.03	67.42	2774.03
68.09	2774.03	74.93	2773.89	76.16	2773.88	77.51	2773.86	79.07	2773.81
81.2	2773.73	84.46	2773.6	92.06	2773.35	98.21	2773.04	111.64	2772.35
112.7	2772.3	114.52	2772.2	129.7	2771.39	140.56	2770.86	153.26	2770.2
167.42	2769.54	199.67	2768.2	201.02	2768.13	202.15	2768.07	218.32	2767.21
234.32	2766.4	238.23	2766.2	257.49	2765.35	274.82	2764.57	278.79	2764.39
283	2764.2	303.84	2762.81	308.08	2762.53	313.58	2762.2	321.19	2761.82
324.53	2761.66	333.71	2761.23	342.63	2760.76	352.99	2760.2	362.5	2759.63
379.9	2758.55	385.45	2758.2	412.91	2756.39	416.05	2756.2	434.77	2754.58
439.51	2754.2	450.55	2753.3	462.91	2752.2	465.21	2752.02	481.25	2750.75
487.31	2750.27	488.13	2750.2	501.23	2748.22	501.33	2748.2	501.41	2748.18
507.64	2746.2	513.09	2744.39	513.66	2744.2	514.68	2743.85	519.6	2742.2
523.97	2740.81	525.84	2740.2	535.57	2738.23	535.72	2738.2	535.79	2738.2
556.19	2738.2	556.43	2738.26	560.16	2739.37	562.83	2740.16	562.98	2740.2
564.75	2740.57	572.13	2742.2	573.85	2742.31	575.41	2742.47	583.19	2743.09
592.46	2744.2	608.18	2744.2	622.18	2744.2	664.1	2744.2	665.36	2744.2
666.95	2744.2	669.62	2744.2	671.92	2744.2	674.97	2744.2	676.4	2744.2
677	2744.2	677.32	2744.2	679.08	2744.2	679.75	2744.2	692.18	2744.45
700.59	2744.64	702.01	2744.65	771.02	2745.02	775	2744.92	779.37	2744.8
783.96	2744.65	789.28	2744.45	789.83	2744.45	791.32	2744.39	795.66	2744.2
796.05	2744.14	808.47	2742.2	815.27	2740.35	815.83	2740.2	816.88	2740.12
821.79	2739.74	841.6	2738.2	847.63	2738.2	859.54	2738.2	862.79	2739.7
863.92	2740.2	868.76	2741.55	871.05	2742.2	871.54	2742.27	871.62	2742.27
877.51	2742.91	883.34	2743	887.54	2742.63	888.65	2742.62	891.51	2742.2
894.89	2742.2	898.57	2742.2	901	2742.57	909.98	2744.2	910.02	2744.2
910.06	2744.2	910.1	2744.2	910.19	2744.2	917.28	2744.2	921.04	2744.2
925.25	2744.2	932.29	2744.2	933.21	2744.2	935.88	2744.2	942.65	2744.2
947.97	2744.2	954.21	2744.2	956.21	2744.2	965.81	2744.8	970.85	2745.16
976.48	2745.54	985.3	2746.17	985.42	2746.18	985.68	2746.2	993.78	2746.92
999.41	2747.43	1002.85	2747.74	1007.83	2748.2	1011.94	2748.58	1014.55	2748.84
1027.5	2750.2	1028.74	2750.26	1029.07	2750.28	1031.16	2750.39	1043.39	2751.09
1061.47	2752.2	1061.66	2752.2	1062.7	2752.2	1064.43	2752.27	1064.85	2752.28
1112.26	2753.07	1116.26	2752.87	1121.51	2752.57	1122.42	2752.58	1127.5	2752.2
1129.8	2751.86	1139.96	2750.2	1141.79	2750.2	1147.9	2750.2	1152.07	2750.2
1154.5	2750.2	1159.3	2750.2	1163.71	2750.2				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	513.09	.045	564.75	.06	796.05	.045	883.34	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
513.09	883.34	85.25	134.3	167.38	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
882.92	1163.71	2743.04	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2747.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.88	Wt. n-Val.	0.050	0.048	0.050
W.S. Elev (ft)	2746.47	Reach Len. (ft)	85.25	134.30	167.38

Crit W.S. (ft)	2745.81	Flow Area (sq ft)	6.52	1393.89	242.70
E.G. Slope (ft/ft)	0.008076	Area (sq ft)	6.52	1393.89	242.70
Q Total (cfs)	12000.00	Flow (cfs)	17.22	10854.57	1128.21
Top Width (ft)	481.94	Top Width (ft)	6.30	370.25	105.39
Vel Total (ft/s)	7.30	Avg. Vel. (ft/s)	2.64	7.79	4.65
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)	1.04	3.76	2.30
Conv. Total (cfs)	133527.3	Conv. (cfs)	191.7	120781.7	12553.9
Length Wtd. (ft)	136.33	Wetted Per. (ft)	6.64	373.00	105.69
Min Ch El (ft)	2738.20	Shear (lb/sq ft)	0.50	1.88	1.16
Alpha	1.07	Stream Power (lb/ft s)	1.31	14.67	5.38
Frctn Loss (ft)	1.32	Cum Volume (acre-ft)	253.75	466.85	171.71
C & E Loss (ft)	0.05	Cum SA (acres)	196.52	103.74	119.66

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: Agua Caliente
REACH: upper RS: 27758.38

INPUT
Description:
Station Elevation Data num= 223

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2769.06	2.33	2769.05	6.31	2769.16	9.88	2769.16	13.76	2769.25
17.8	2769.25	21.51	2769.33	25.93	2769.35	29.36	2769.41	34.05	2769.44
39.19	2769.51	42.09	2769.56	47.86	2769.68	50.01	2769.71	56.34	2769.87
57.64	2769.89	64.91	2770.08	65.37	2770.09	70.58	2770.2	72.92	2770.24
79.88	2770.32	80.34	2770.32	87.26	2770.36	94.21	2770.36	94.81	2770.36
101.99	2770.32	109.43	2770.25	112.8	2770.2	116.94	2770.11	117.3	2770.11
117.71	2770.1	125.69	2769.89	127.06	2769.87	134.1	2769.66	136.5	2769.61
139.42	2769.54	145.36	2769.36	149.59	2769.25	155.23	2769.09	159.08	2768.96
166.79	2768.73	178.06	2768.39	178.88	2768.35	183.91	2768.2	189.59	2767.94
190.92	2767.91	198.31	2767.57	201.65	2767.49	206.04	2767.37	212.2	2767.11
218.93	2766.91	229.48	2766.54	238.03	2766.2	249.81	2765.63	267.08	2764.67
272.57	2764.38	275.69	2764.2	304.3	2762.56	310.28	2762.2	315.04	2761.84
325.81	2761.02	332.98	2760.66	335.56	2760.48	341.82	2760.3	343.89	2760.2
344.09	2760.2	344.46	2760.2	348.3	2760.2	348.43	2760.2	348.77	2760.2
353.36	2760.09	353.81	2760.06	354.9	2760	361.8	2759.59	368.06	2759.26
373.58	2758.87	386.44	2758.3	387.01	2758.26	388.73	2758.2	396.96	2757.78
402.48	2757.49	406.5	2757.31	412.37	2757.03	415.81	2756.83	423.92	2756.4
426.64	2756.2	427.02	2756.2	443.74	2754.67	448.37	2754.2	451.96	2753.92
473.32	2752.2	489.08	2750.88	498.13	2750.2	513.31	2748.5	515.86	2748.2
519.4	2747.53	526.35	2746.2	529.88	2745.48	536.06	2744.2	542	2742.81
542.58	2742.67	544.57	2742.2	545.29	2741.96	551.19	2740.2	551.4	2740.17
564.63	2738.2	570.13	2738.2	594.97	2738.2	597.4	2739	600.94	2740.2
603.86	2740.67	613.71	2742.2	616.82	2742.2	644.95	2742.2	647.32	2742.2
649.94	2742.2	660.31	2742.2	665.06	2742.2	696.78	2743.42	706.74	2743.8
716.25	2744.2	719.06	2744.2	719.26	2744.2	719.51	2744.2	719.82	2744.2
722.52	2744.2	722.65	2744.2	722.87	2744.2	726.72	2744.2	728.45	2744.2
733.28	2744.2	736.35	2744.2	743.85	2744.2	752.43	2744.2	766.44	2744.2
770.7	2744.2	778.8	2744.2	796.31	2744.2	812.7	2743.28	830.8	2742.2
834.58	2741.45	835.65	2741.23	840.76	2740.2	847.58	2739.14	853.84	2738.2
863.95	2736.47	865.45	2736.2	877.51	2736.2	885.63	2736.2	888.22	2736.2
892.14	2736.2	892.83	2736.2	894.39	2736.2	897.16	2736.2	899.94	2736.2
901.02	2736.63	904.91	2738.2	906.17	2738.72	908.91	2739.84	909.83	2740.2
912.52	2741.23	915.51	2742.2	918.38	2742.2	921.53	2742.2	924.41	2742.2
928.69	2742.2	931.63	2742.2	936.46	2742.2	938.23	2742.2	942.73	2742.2
955.09	2743.77	961.4	2744	967.23	2744.2	969.78	2744.2	971.22	2744.2
975.85	2744.2	979.47	2744.2	982.25	2744.2	986.71	2744.2	990.41	2744.2
992.39	2744.2	1015.6	2746.01	1018.2	2746.2	1020.15	2746.2	1021.58	2746.2
1022.53	2746.2	1023.19	2746.2	1026.65	2746.2	1030.72	2746.2	1033.73	2746.2
1038.94	2746.2	1041.17	2746.2	1046.43	2746.2	1060.95	2747.43	1064.1	2747.49
1067.43	2748.2	1071.31	2748.2	1074.53	2748.2	1076.87	2748.2	1080.43	2748.2
1081.13	2748.2	1083.25	2748.2	1083.6	2748.2	1087.17	2748.34	1093.27	2748.52
1095.51	2748.59	1103.73	2748.82	1110.97	2748.99	1116.71	2749.09	1121.23	2749.24
1133.76	2750.2	1136.48	2750.2	1138.22	2750.2	1141.43	2750.2	1143.65	2750.2
1148.15	2750.2	1149.05	2750.2	1150.41	2750.2	1157.1	2750.58	1159.79	2750.77
1168.31	2751.4	1173.94	2751.8	1175.32	2751.91				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	536.06	.045	613.71	.06	834.58	.045	915.51	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
536.06	915.51	89.8	122.21	145.46	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2745.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.42	Wt. n-Val.	0.050	0.046	0.050

W.S. Elev (ft)	2744.56	Reach Len. (ft)	89.80	122.21	145.46
Crit W.S. (ft)	2744.56	Flow Area (sq ft)	0.31	1199.41	100.50
E.G. Slope (ft/ft)	0.011831	Area (sq ft)	0.31	1199.41	100.50
Q Total (cfs)	12000.00	Flow (cfs)	0.32	11626.44	373.25
Top Width (ft)	462.68	Top Width (ft)	1.74	379.45	81.49
Vel Total (ft/s)	9.23	Avg. Vel. (ft/s)	1.02	9.69	3.71
Max Chl Dpth (ft)	8.36	Hydr. Depth (ft)	0.18	3.16	1.23
Conv. Total (cfs)	110325.5	Conv. (cfs)	2.9	106891.0	3431.6
Length Wtd. (ft)	122.70	Wetted Per. (ft)	1.77	382.35	81.61
Min Ch El (ft)	2736.20	Shear (lb/sq ft)	0.13	2.32	0.91
Alpha	1.07	Stream Power (lb/ft s)	0.13	22.46	3.38
Frctn Loss (ft)	1.43	Cum Volume (acre-ft)	253.74	462.85	171.05
C & E Loss (ft)	0.01	Cum SA (acres)	196.52	102.59	119.30

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 27636.17

INPUT
Description:
Station Elevation Data num= 221

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2761.72	.66	2761.64	4.71	2761.12	8.29	2760.87	9.62	2760.62
15.76	2760.52	16.32	2760.44	16.93	2760.4	17.45	2760.42	24.98	2760.53
26.09	2760.58	28.02	2760.69	35.43	2760.94	39.25	2761.21	43.98	2761.4
49.63	2761.81	51.3	2761.88	56.26	2762.2	58.18	2762.32	58.72	2762.37
64.68	2762.72	67.21	2762.98	71.06	2763.3	76.24	2763.72	77.79	2763.88
84.95	2764.18	85.01	2764.19	89.99	2764.2	92.4	2764.2	92.41	2764.2
92.76	2764.2	99.64	2764.12	99.99	2764.13	106.85	2763.97	107.84	2763.98
114.1	2763.79	115.79	2763.79	121.32	2763.6	123.68	2763.6	128.42	2763.42
131.5	2763.41	135.13	2763.34	139.66	2763.19	145.05	2762.99	148.21	2762.89
156.3	2762.49	157.49	2762.46	162.64	2762.2	166.33	2762.01	177.57	2761.89
184.11	2762.15	184.28	2762.15	185.15	2762.2	192.41	2762.51	193.84	2762.54
200.82	2762.8	205.97	2762.96	209.13	2763.02	213.62	2763.14	217.63	2763.22
221.39	2763.3	226.34	2763.4	229.43	2763.46	234.64	2763.52	237.35	2763.55
239.79	2763.58	242.13	2763.57	246.86	2763.53	249.35	2763.5	252.24	2763.42
256.04	2763.27	259.85	2763.15	265.19	2762.89	273.66	2762.43	277.6	2762.2
284.07	2761.7	287.94	2761.42	301.29	2760.46	303.27	2760.3	304.86	2760.2
316.81	2759.32	328.36	2758.48	330.22	2758.34	332.19	2758.2	339.99	2757.58
344.46	2757.25	349.35	2756.87	358.36	2756.2	358.82	2756.16	359.23	2756.13
370.16	2755.21	381.04	2754.34	381.83	2754.27	382.72	2754.2	391.24	2753.59
396.23	2753.28	401.39	2752.92	412	2752.32	412.58	2752.28	413.97	2752.2
422.35	2751.83	424.38	2751.73	428.12	2751.53	435.54	2751.17	444.28	2750.64
446.69	2750.51	451.78	2750.2	457.74	2749.83	461.03	2749.64	469.04	2749.16
478.02	2748.62	480.43	2748.48	484.71	2748.2	502.24	2746.94	511.37	2746.2
518.24	2745.59	534.57	2744.2	538.22	2743.37	539.56	2743.06	543.24	2742.2
549.61	2740.71	551.8	2740.2	554.44	2739.63	561.14	2738.2	566.65	2737.41
575.06	2736.2	583.78	2736.2	584.95	2736.2	586	2736.32	589.16	2736.69
598.58	2737.76	602.16	2738.2	627.39	2739.9	631.57	2740.2	640.78	2740.55
648.13	2740.83	651.69	2740.89	658.02	2741.09	662.85	2741.25	706	2741.34
709.48	2741.37	712.08	2741.25	715.92	2741.25	717.57	2741.19	721.61	2741.17
725.62	2741.14	729.2	2741.13	729.75	2741.14	735.74	2741.24	739.75	2741.4
745.1	2741.62	752.07	2741.92	756.58	2742.2	757.86	2742.2	772.11	2742.2
796.11	2742.2	800.66	2741.92	803.86	2741.71	809.58	2741.35	812.61	2741.15
825.99	2740.2	826.34	2740.13	835.19	2738.2	835.2	2738.2	847.54	2736.2
847.77	2736.16	862.02	2734.2	863.21	2734.06	863.83	2734.02	871.28	2733.43
875.93	2733.19	878.28	2733.21	882.45	2733.15	892.91	2734.2	895.07	2734.2
898	2734.2	898.63	2734.44	903.47	2736.2	904.22	2736.85	905.74	2738.19
905.76	2738.2	905.83	2738.25	908.41	2740.2	909.67	2741.2	910.96	2742.2
912.27	2743.29	913.29	2744.2	914.55	2745.5	915.28	2746.2	922.92	2747.48
928.19	2748.2	943.13	2748.7	946.41	2748.8	957.82	2749.19	975.99	2749.86
985.11	2750.2	987.59	2750.43	993.58	2751	996.94	2751.3	1020.4	2752.2
1033.31	2752.2	1036.7	2752.2	1040.3	2752.2	1043.51	2752.2	1046.21	2752.2
1058.53	2752.2	1062.33	2752.2	1065.48	2752.2	1081.56	2752.2	1084.34	2752.2
1088.37	2752.2	1097.34	2752.2	1101.34	2752.2	1103	2752.2	1107.59	2752.2
1117	2752.2	1118.61	2752.2	1123.94	2752.2	1129.47	2752.2	1131.19	2752.2
1140.25	2752.2								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	543.24	.045	631.57	.06	825.99	.045	904.22	.045
905.76	.05								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
543.24	904.22	182.77	221	240.03	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2744.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.52	Wt. n-Val.	0.050	0.046	0.047
W.S. Elev (ft)	2742.65	Reach Len. (ft)	182.77	221.00	240.03
Crit W.S. (ft)	2742.57	Flow Area (sq ft)	0.43	1196.53	20.82
E.G. Slope (ft/ft)	0.011413	Area (sq ft)	0.43	1196.53	20.82
Q Total (cfs)	12000.00	Flow (cfs)	0.49	11870.82	128.69
Top Width (ft)	370.18	Top Width (ft)	1.92	360.98	7.28
Vel Total (ft/s)	9.85	Avg. Vel. (ft/s)	1.15	9.92	6.18
Max Chl Dpth (ft)	9.50	Hydr. Depth (ft)	0.22	3.31	2.86
Conv. Total (cfs)	112324.8	Conv. (cfs)	4.6	111115.6	1204.6
Length Wtd. (ft)	221.17	Wetted Per. (ft)	1.97	363.07	9.31
Min Ch El (ft)	2733.15	Shear (lb/sq ft)	0.16	2.35	1.59
Alpha	1.01	Stream Power (lb/ft s)	0.18	23.30	9.85
Frctn Loss (ft)	2.17	Cum Volume (acre-ft)	253.74	459.49	170.84
C & E Loss (ft)	0.11	Cum SA (acres)	196.51	101.55	119.16

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 27415.17

INPUT
Description:
Station Elevation Data num= 217

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2765.17	3.28	2765.11	8.16	2765.04	33.08	2764.2	34.83	2764.2
41.59	2763.92	45.46	2763.78	81.07	2762.2	82.89	2762.2	84.93	2762.2
86.01	2762.2	93.44	2761.61	99.8	2761.3	116.69	2760.47	121.6	2760.2
121.74	2760.2	122.22	2760.2	127.09	2759.69	129.69	2759.53	133.11	2759.16
138.37	2758.94	140.08	2758.73	147.04	2758.58	155.05	2758.44	155.94	2758.37
164.89	2758.3	165.26	2758.27	166.76	2758.2	174.39	2758.2	175.22	2758.18
175.31	2758.18	183.16	2757.82	184.61	2757.79	186.29	2757.75	193.37	2757.38
196.6	2757.35	201.48	2757.06	205.75	2757.08	208.87	2756.89	213.7	2756.92
218.29	2756.95	220.98	2756.81	226.16	2756.83	228.21	2756.72	233.85	2756.73
235.62	2756.64	241.43	2756.63	256.55	2756.2	261.26	2756.2	261.53	2756.2
261.71	2756.2	262.24	2756.15	262.44	2756.15	262.7	2756.14	270.15	2755.61
272.96	2755.56	278.67	2755.22	283.23	2755.16	287.45	2754.96	293	2754.91
296.04	2754.79	302.54	2754.72	325.85	2754.2	326.66	2754.2	327.36	2754.2
331.22	2753.98	332.21	2753.97	338.93	2753.58	341.89	2753.52	345.84	2753.42
351.65	2753.15	357.82	2752.99	361.38	2752.84	369.8	2752.65	371.71	2752.58
381.74	2752.36	382.44	2752.34	389.68	2752.2	392.3	2752.12	392.63	2752.12
400.04	2751.91	401.41	2751.89	403.05	2751.85	410.36	2751.65	413.26	2751.57
419.15	2751.38	423.32	2751.27	428.7	2751.11	433	2750.96	440.4	2750.74
451.24	2750.4	457.17	2750.2	463.46	2749.92	465.31	2749.84	469.1	2749.64
478.76	2749.15	489.68	2748.52	495.11	2748.2	511.8	2747.04	523.44	2746.2
534.84	2744.64	537.92	2744.2	540.13	2743.6	545.15	2742.2	549.71	2740.89
552.11	2740.2	556.54	2738.86	558.75	2738.2	560.09	2737.9	567.02	2736.2
578.01	2736.2	584.06	2736.2	604.9	2736.2	624.66	2736.55	628.79	2736.29
631.17	2736.2	631.98	2736.2	632.69	2736.2	634.56	2736.2	639.83	2735.9
663.48	2736.2	664.15	2736.2	664.33	2736.22	664.49	2736.23	674.86	2737.21
681.13	2737.65	683.8	2737.87	690.4	2738.2	691.79	2738.2	692.82	2738.2
695.91	2738.2	706.18	2738.36	707.17	2738.4	713.88	2738.46	715.7	2738.52
721.35	2738.64	725.15	2738.8	732.5	2739.09	737.53	2739.29	750.91	2739.78
753.21	2739.89	764.62	2740.2	768.26	2740.2	769.45	2740.19	769.47	2740.19
769.5	2740.19	775.97	2739.98	776.94	2739.95	778.45	2739.87	781.4	2739.71
790.38	2739.29	799.43	2738.69	802.96	2738.45	806.52	2738.2	812.52	2736.5
813.48	2736.2	816.39	2735.76	825.99	2734.2	831.54	2733.54	841.81	2732.2
851.42	2732.2	878.65	2732.2	883.34	2733.7	884.94	2734.2	886.54	2734.64
891.73	2736.2	894.2	2736.9	895.14	2737.16	899	2738.2	902.93	2739.33
906.07	2740.2	909.9	2741.36	912.71	2742.2	916.48	2743.24	920.82	2744.2
921.83	2744.25	928.5	2744.62	934.76	2744.94	945.02	2745.46	948.93	2745.65
951.16	2745.74	960.63	2746.2	961.64	2746.23	973.54	2746.58	975.86	2746.68
985.1	2746.96	989.48	2747.12	995.97	2747.36	1002.39	2747.56	1012.51	2747.87
1014.8	2747.96	1022.71	2748.2	1027.66	2748.26	1037.87	2748.4	1044.89	2748.5
1049.72	2748.57	1093.17	2749.77	1098.25	2749.88	1106.07	2750	1116.15	2750.11
1121.72	2750.2	1126.62	2750.2	1127.49	2750.2	1127.55	2750.2	1135.01	2750.2
1141.63	2750.2	1142.23	2750.2	1147.65	2750.2	1163.86	2750.66	1172.87	2750.8
1176.15	2750.9	1183.72	2751.04	1188.37	2751.16	1194.78	2751.33	1204.32	2751.62
1208.44	2751.71	1212.93	2751.86						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	552.11	.045	674.86	.06	813.48	.045	895.14	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
552.11	895.14	182.88	178.78	177.78	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2741.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.	0.050	0.046	0.050
W.S. Elev (ft)	2740.73	Reach Len. (ft)	182.88	178.78	177.78
Crit W.S. (ft)	2740.03	Flow Area (sq ft)	0.48	1374.62	22.94
E.G. Slope (ft/ft)	0.008557	Area (sq ft)	0.48	1374.62	22.94
Q Total (cfs)	12000.00	Flow (cfs)	0.53	11908.13	91.34
Top Width (ft)	357.53	Top Width (ft)	1.83	343.03	12.67
Vel Total (ft/s)	8.58	Avg. Vel. (ft/s)	1.10	8.66	3.98
Max Chl Dpth (ft)	8.53	Hydr. Depth (ft)	0.26	4.01	1.81
Conv. Total (cfs)	129727.8	Conv. (cfs)	5.7	128734.7	987.4
Length Wtd. (ft)	178.78	Wetted Per. (ft)	1.90	345.06	13.16
Min Ch El (ft)	2732.20	Shear (lb/sq ft)	0.14	2.13	0.93
Alpha	1.01	Stream Power (lb/ft s)	0.15	18.44	3.71
Frctn Loss (ft)	1.72	Cum Volume (acre-ft)	253.74	452.97	170.72
C & E Loss (ft)	0.01	Cum SA (acres)	196.50	99.76	119.10

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 27236.39

INPUT
Description:
Station Elevation Data num= 203

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2760.52	6.65	2760.2	9.43	2760.2	11.05	2760.2	14.55	2760.2
16.37	2760.2	19.55	2760.2	21.09	2760.2	22.86	2760.2	23.29	2760.18
23.41	2760.18	23.6	2760.17	24.04	2760.16	27.49	2760.02	72.87	2758.2
100.9	2756.32	102.99	2756.2	103.15	2756.2	106.06	2756.2	107.65	2756.2
110.22	2756.2	124.23	2755.7	129.87	2755.58	133.36	2755.49	139.05	2755.34
143.88	2755.2	149.11	2755.09	156.12	2754.91	159.74	2754.81	168.38	2754.56
170.22	2754.51	178.59	2754.26	178.89	2754.25	179.12	2754.25	180.99	2754.2
182.07	2754.2	186.07	2754.2	190.05	2754.2	197.73	2754.2	198.59	2754.2
205.42	2754.21	206.29	2754.2	206.8	2754.2	212.67	2754.16	212.84	2754.16
213.02	2754.15	213.23	2754.15	213.49	2754.14	222.11	2754	223.14	2753.97
231.02	2753.79	233.08	2753.74	235.87	2753.65	243.33	2753.46	247.88	2753.32
253.63	2753.15	260.04	2752.95	263.91	2752.83	272.13	2752.55	273.94	2752.5
282.55	2752.2	284.32	2752.14	284.81	2752.12	296.48	2751.7	300.58	2751.54
308.82	2751.24	316.37	2750.96	321.04	2750.79	332.28	2750.37	333.33	2750.33
336.84	2750.2	346.28	2749.84	349.46	2749.7	359.21	2749.32	367.2	2748.97
372.28	2748.77	384.87	2748.26	385.26	2748.24	385.49	2748.23	386.39	2748.2
396.79	2747.93	398.65	2747.88	408.14	2747.64	412.08	2747.5	419.7	2747.3
426.13	2747.08	431.46	2746.93	440.43	2746.61	442.78	2746.54	451.67	2746.2
454.59	2746.06	455.92	2746	468.1	2745.42	475.83	2745.12	482.07	2744.83
496.76	2744.29	497.4	2744.26	499.16	2744.2	512.33	2743.08	519.6	2742.2
523.23	2740.96	525.45	2740.2	530.74	2738.49	531.66	2738.2	536.06	2736.77
537.76	2736.2	537.96	2736.11	542.11	2734.2	543.25	2733.99	553.02	2732.2
553.85	2732.2	555.02	2732.2	563.62	2733.86	565.1	2734.2	574.39	2735.73
578.37	2736.2	579.83	2736.2	586.78	2736.2	587.24	2736.2	587.57	2736.2
599.35	2735.52	608	2734.67	611.02	2734.44	612.09	2734.37	613.28	2734.2
622.5	2734.2	625.99	2734.2	631.6	2734.2	636.13	2734.2	642.72	2734.2
655.44	2734.2	661.67	2734.2	665.74	2735.38	668.64	2736.2	675.31	2736.58
677.86	2736.69	686.37	2737.16	691.87	2737.31	696.82	2737.55	699.71	2737.69
707.23	2737.82	717.16	2738.04	723.04	2738.2	728.5	2738.2	729.99	2738.2
735	2738.2	741.6	2738.2	746.59	2738.2	758.52	2737.05	760.24	2736.89
767.72	2736.2	773.35	2735.14	778.49	2734.2	785.06	2733	789.38	2732.2
793.63	2730.93	796.08	2730.2	823.2	2730.2	832.37	2730.2	839.39	2731.7
841.59	2732.2	849.26	2734	850.04	2734.2	853.1	2735.12	854.81	2735.64
856.67	2736.2	856.93	2736.27	863.52	2738.2	867.07	2739.2	870.51	2740.17
870.6	2740.2	871.99	2740.37	878.19	2741.08	890.93	2742.2	909.67	2743.58
921.08	2744.2	954.56	2745.62	962.77	2746.13	963.97	2746.2	967.44	2746.2
968.11	2746.2	971.83	2746.2	973.04	2746.2	1018.89	2747.49	1026.18	2747.61
1029.08	2747.65	1031.63	2747.69	1039.1	2747.8	1047.53	2747.94	1057.84	2748.14
1058.16	2748.14	1060.87	2748.2	1068.68	2748.42	1076.66	2748.64	1078.71	2748.67
1085.42	2748.82	1091.18	2748.93	1096.32	2749.03	1099.63	2749.05	1104.2	2749.14
1107.61	2749.14	1110.78	2749.21	1160.68	2750.17				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	536.06	.045	574.39	.06	773.35	.045	853.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
536.06	853.1	137.11	162.85	170.54	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2740.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.29	Wt. n-Val.	0.050	0.048	0.050
W.S. Elev (ft)	2738.86	Reach Len. (ft)	137.11	162.85	170.54
Crit W.S. (ft)	2738.31	Flow Area (sq ft)	6.74	1295.83	23.59

E.G. Slope (ft/ft)	0.010867	Area (sq ft)	6.74	1295.83	23.59
Q Total (cfs)	12000.00	Flow (cfs)	20.76	11872.18	107.07
Top Width (ft)	336.27	Top Width (ft)	6.47	317.04	12.76
Vel Total (ft/s)	9.05	Avg. Vel. (ft/s)	3.08	9.16	4.54
Max Chl Dpth (ft)	8.66	Hydr. Depth (ft)	1.04	4.09	1.85
Conv. Total (cfs)	115111.6	Conv. (cfs)	199.1	113885.5	1027.1
Length Wtd. (ft)	162.87	Wetted Per. (ft)	6.80	319.85	13.30
Min Ch El (ft)	2730.20	Shear (lb/sq ft)	0.67	2.75	1.20
Alpha	1.02	Stream Power (lb/ft s)	2.07	25.18	5.46
Frctn Loss (ft)	1.65	Cum Volume (acre-ft)	253.73	447.49	170.63
C & E Loss (ft)	0.02	Cum SA (acres)	196.49	98.41	119.05

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 27073.54

INPUT
Description:
Station Elevation Data num= 212

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2758.15	5.26	2757.94	16.34	2757.51	21.97	2757.27	28.25	2757.01
38.5	2756.59	40.55	2756.5	48.57	2756.2	55.09	2755.85	64.38	2755.36
70.94	2754.9	74.8	2754.69	83.02	2754.2	86.2	2754.2	88.41	2754.1
94.09	2754.14	94.16	2754.14	99.94	2754.09	100.14	2754.09	100.37	2754.1
100.96	2754.1	106.68	2753.91	107.65	2753.89	112.4	2753.68	119.06	2753.5
120.62	2753.49	123.71	2753.47	126.57	2753.44	127.64	2753.49	130.11	2753.4
148.27	2753.3	154.19	2753.12	158.21	2753.01	166.53	2752.76	169.42	2752.67
180.6	2752.33	184.98	2752.2	194.09	2751.95	196.06	2751.89	207.24	2751.59
212.32	2751.43	220.76	2751.2	229.12	2750.92	243.06	2750.46	245.26	2750.4
251.08	2750.2	265.3	2749.77	274.11	2749.47	288.48	2749.01	310.37	2748.2
330.1	2747.33	337.89	2746.96	347.84	2746.69	366.16	2746.2	366.68	2746.2
368.2	2746.12	384.4	2745.41	391.41	2745.05	393.96	2744.99	397.68	2744.78
403.13	2744.74	405.42	2744.62	412.55	2744.6	429.55	2744.2	431.61	2744.2
435.76	2744.2	439.11	2744.2	443.72	2744.2	450.9	2743.68	454.23	2743.55
460.32	2743.15	467.2	2742.88	480.96	2742.22	481.1	2742.21	481.37	2742.2
491.94	2741.53	494.69	2741.4	498.71	2741.16	507.5	2740.61	510.41	2740.42
514.08	2740.2	523.11	2739.44	534.71	2738.2	537.55	2737.35	541.37	2736.2
546.69	2734.64	548.16	2734.2	548.83	2733.99	554.7	2732.2	559.49	2732.2
571.42	2732.2	582.75	2732.2	587.67	2732.61	590.82	2732.88	597.64	2733.46
602.97	2733.81	604.49	2733.94	608.45	2733.97	609.06	2734.02	612.93	2734.2
614.36	2734.2	620.41	2734.2	626.21	2734.2	630.95	2734.2	637.55	2734.2
641.74	2734.2	647.2	2734.2	650.84	2734.2	654.61	2734.2	663.53	2734.2
668.44	2734.2	685.68	2734.2	692.56	2735.17	695.59	2735.22	699.02	2735.59
700.41	2735.76	703.11	2735.67	717.27	2735.94	718.66	2735.9	720.43	2735.85
722.71	2735.79	729.71	2735.67	733.36	2735.55	739.95	2735.42	745.8	2735.22
755.62	2734.88	760.01	2734.76	767.61	2734.47	774.76	2734.2	775.87	2733.9
782.24	2732.2	789.13	2730.48	790.34	2730.2	792.1	2729.78	798.48	2728.2
810.02	2728.2	824.2	2728.2	838.22	2728.2	845.26	2729.69	847.7	2730.2
853.07	2732.13	853.26	2732.2	856.8	2733.81	857.64	2734.2	857.68	2734.22
858.04	2734.31	861.19	2735.13	864.2	2735.92	865.99	2736.2	873.43	2737.12
876.59	2737.4	881.78	2737.87	883.41	2738.04	885.24	2738.2	890.53	2738.69
892.87	2738.83	897.5	2739.18	902.16	2739.6	909.38	2740.2	911.52	2740.36
912.39	2740.42	920.44	2741.07	925.42	2741.34	929.26	2741.64	937.92	2742
938.85	2742.06	943.78	2742.2	947.44	2742.41	948.25	2742.44	954.75	2742.69
955.94	2742.67	960.75	2742.84	963.1	2743	964.28	2742.9	971.07	2742.78
973.77	2742.83	1000.68	2744.2	1001.64	2744.2	1004.02	2744.2	1006.17	2744.2
1006.37	2744.2	1038.7	2745.14	1040.82	2745.18	1056.99	2745.2	1088.73	2745.06
1090.59	2745.01	1094.99	2744.92	1097.01	2744.92	1100.84	2744.81	1106.65	2744.69
1108.43	2744.67	1110.24	2744.65	1115.39	2744.58	1116.84	2744.57	1119.52	2744.59
1121.12	2744.63	1123.18	2744.68	1125.73	2744.75	1129.38	2744.82	1132.37	2744.93
1135.65	2745.08	1140.04	2745.3	1147.21	2745.66	1155.84	2745.9	1159.61	2746.2
1161.05	2746.2	1162.03	2746.2	1165.15	2746.2	1173.51	2746.44	1179.83	2746.44
1180.81	2746.46	1184.58	2746.45						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	541.37	.045	608.45	.06	775.87	.045	861.19	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
541.37	861.19	158.03	135.9	129.24	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2738.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.	0.050	0.047	0.050
W.S. Elev (ft)	2737.25	Reach Len. (ft)	158.03	135.90	129.24
Crit W.S. (ft)	2736.57	Flow Area (sq ft)	1.83	1340.06	11.81
E.G. Slope (ft/ft)	0.009475	Area (sq ft)	1.83	1340.06	11.81
Q Total (cfs)	12000.00	Flow (cfs)	3.35	11965.99	30.66
Top Width (ft)	337.02	Top Width (ft)	3.49	319.82	13.71

Vel Total (ft/s)	8.86	Avg. Vel. (ft/s)	1.83	8.93	2.60
Max Chl Dpth (ft)	9.05	Hydr. Depth (ft)	0.53	4.19	0.86
Conv. Total (cfs)	123279.0	Conv. (cfs)	34.4	122929.7	314.9
Length Wtd. (ft)	135.90	Wetted Per. (ft)	3.64	322.48	13.90
Min Ch El (ft)	2728.20	Shear (lb/sq ft)	0.30	2.46	0.50
Alpha	1.01	Stream Power (lb/ft s)	0.54	21.95	1.31
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)	253.71	442.56	170.56
C & E Loss (ft)	0.01	Cum SA (acres)	196.47	97.22	119.00

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: Agua Caliente
REACH: upper RS: 26937.64

INPUT
Description:
Station Elevation Data num= 213

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2751.02	21.56	2750.97	29.48	2750.44	30.55	2750.41	33.35	2750.2
46.27	2749.21	58.59	2748.2	69.75	2748.2	70.43	2748.2	70.71	2748.23
70.97	2748.25	84.1	2749.36	87.98	2749.66	90.05	2749.78	95.89	2749.93
96.97	2749.97	97.79	2750.01	104.4	2750.05	104.95	2750.07	111.26	2750.03
114.84	2750.05	115.45	2750.03	116.3	2750	123.71	2749.89	125.24	2749.85
132.26	2749.67	134.62	2749.63	140.73	2749.45	154.68	2749.16	160.25	2748.99
164.02	2748.87	166.43	2748.78	208.72	2748.25	211.18	2748.2	222.39	2747.89
224.8	2747.83	235.55	2747.53	240.82	2747.39	248.6	2747.17	256.66	2746.96
261.5	2746.82	272.18	2746.53	274.29	2746.47	284.47	2746.2	287.25	2746.1
288.1	2746.07	300.27	2745.64	304.59	2745.5	312.92	2745.2	318.12	2745.01
324	2744.87	327.47	2744.75	329.95	2744.67	336.02	2744.56	348.2	2744.2
350.21	2744.2	351.08	2744.2	352.11	2744.2	352.43	2744.19	352.49	2744.19
362.4	2743.86	364.65	2743.79	367.9	2743.71	377.73	2743.36	384.19	2743.21
390.56	2742.99	404.57	2742.65	411.55	2742.52	412.87	2742.5	420.52	2742.36
427.66	2742.2	430.47	2742.13	431.07	2742.1	443.67	2741.73	447.68	2741.58
456.87	2741.27	465.05	2740.95	480.23	2740.32	482.88	2740.2	486.32	2739.68
495.96	2738.2	503.25	2736.58	504.98	2736.2	506.52	2735.87	514.19	2734.2
515.46	2733.86	521.28	2732.2	522.36	2731.8	526.71	2730.2	552.19	2730.2
559.31	2730.2	561.42	2730.34	564.48	2730.52	591.19	2732.2	605.21	2732.97
628.34	2734.2	646.22	2734.2	647.24	2734.2	651.5	2734.2	670.58	2734.2
682.41	2734.2	696.73	2734.2	700.58	2734.2	703.79	2734.08	705.19	2734.02
717.79	2733.51	725.67	2733.15	735.42	2732.67	745.02	2732.2	745.62	2731.99
750.23	2730.2	751.61	2729.65	755.23	2728.2	759.14	2727.01	761.65	2726.2
798.23	2726.2	799.49	2726.2	800.07	2726.28	814.44	2728.2	818.14	2729.47
820.38	2730.2	824.93	2731.54	827.35	2732.2	829.26	2732.79	830.27	2733.08
831.44	2733.43	834.08	2734.2	841.04	2735.53	843.09	2735.82	844.16	2735.9
845.81	2736.2	846.92	2736.2	851	2736.2	852.25	2736.2	859.08	2736.2
859.51	2736.15	859.75	2736.12	864.83	2735.14	868.95	2734.2	869.63	2734.03
870.54	2733.86	874.05	2733.22	878.04	2732.4	879.17	2732.52	884.99	2733.83
885.99	2734.2	886.35	2734.31	893.48	2736.2	894.09	2736.39	895.85	2736.8
899.66	2737.73	902.44	2738.2	906.73	2738.58	908.6	2738.74	913.84	2739.14
918.44	2739.49	921.18	2739.64	928.23	2740.11	928.58	2740.12	929.61	2740.2
936.55	2740.53	937.71	2740.6	944.1	2740.9	946.09	2740.99	950.83	2741.23
953.53	2741.31	956.79	2741.37	960.46	2741.54	964.87	2741.61	967.44	2741.72
972.64	2741.83	979.27	2742.02	980.14	2742.05	986.29	2742.2	987.7	2742.23
987.9	2742.24	996.02	2742.44	997.59	2742.53	1004.4	2742.77	1007.81	2742.97
1012.88	2743.29	1018.29	2743.61	1026.65	2744.2	1026.98	2744.21	1039.39	2744.67
1044.92	2744.9	1058.61	2745.1	1059.61	2745.07	1061.03	2745.05	1062.84	2745.03
1087.61	2745.51	1092.26	2745.79	1093.38	2745.79	1101.05	2746.1	1101.41	2746.11
1104.77	2746.2	1108.7	2746.2	1109.03	2746.2	1115.2	2746.2	1115.77	2746.2
1119.85	2746.36	1120.64	2746.39	1128.25	2746.49	1129.81	2746.53	1137.1	2746.66
1139.57	2746.72	1146.36	2746.86	1149.42	2746.93	1155.3	2747.05	1161.72	2747.26
1167.03	2747.49	1170.65	2747.57	1171.04	2747.58				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	514.19	.045	628.34	.06	745.62	.045	831.44	.05
834.08	.05								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
514.19	834.08	111.11	110.29	109.78	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
859.34	1171.04	2736.31	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2736.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.36	Wt. n-Val.	0.050	0.051	0.050
W.S. Elev (ft)	2735.45	Reach Len. (ft)	111.11	110.29	109.78
Crit W.S. (ft)	2734.99	Flow Area (sq ft)	3.58	1277.93	4.08
E.G. Slope (ft/ft)	0.016365	Area (sq ft)	3.58	1277.93	47.97
Q Total (cfs)	12000.00	Flow (cfs)	9.80	11979.00	11.20

Top Width (ft)	359.58	Top Width (ft)	5.74	319.89	33.95
Vel Total (ft/s)	9.33	Avg. Vel. (ft/s)	2.74	9.37	2.74
Max Chl Dpth (ft)	9.25	Hydr. Depth (ft)	0.62	3.99	0.62
Conv. Total (cfs)	93805.6	Conv. (cfs)	76.6	93641.4	87.6
Length Wtd. (ft)	110.29	Wetted Per. (ft)	5.87	322.78	6.65
Min Ch El (ft)	2726.20	Shear (lb/sq ft)	0.62	4.04	0.63
Alpha	1.01	Stream Power (lb/ft s)	1.71	37.92	1.72
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)	253.70	438.48	170.47
C & E Loss (ft)	0.07	Cum SA (acres)	196.46	96.22	118.93

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.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 26827.35

INPUT
Description:
Station Elevation Data num= 167

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2745.16	3	2744.91	8.34	2744.2	10.29	2744.2	15.43	2744.2
15.83	2744.2	23.74	2744.2	24.64	2744.2	26.22	2744.2	32.69	2744.2
37.72	2744.2	40.79	2744.37	45.85	2744.2	52.16	2744.2	60.93	2744.2
61.42	2744.2	62.04	2744.24	62.26	2744.24	71.91	2744.72	78.43	2744.98
83.28	2745.1	87.47	2745.14	91.46	2745.13	94.76	2745.18	98.5	2745.14
102.69	2745.11	106.03	2745.12	110.4	2745.09	113.8	2745.09	118.62	2745.04
122.07	2745.02	127.52	2744.91	134.21	2744.73	136.55	2744.69	142.8	2744.53
144.14	2744.49	146.94	2744.48	151.13	2744.51	152.31	2744.56	154.29	2744.63
158.94	2744.9	163.38	2745.01	168.12	2745.3	171.33	2745.47	176	2745.61
178.16	2745.63	184.69	2745.69	186.69	2745.71	192.17	2745.68	194.12	2745.7
195.68	2745.73	200.09	2745.65	201.59	2745.67	215.87	2745.49	220.99	2745.39
232.6	2745.26	235.72	2745.16	239.43	2745.16	243.18	2745.14	246.22	2745.09
249.38	2745.04	252.56	2745.07	255.14	2745	292.16	2744.68	304.01	2744.38
310.27	2744.2	320.9	2743.88	324.88	2743.77	333.32	2743.53	349.53	2743.04
372.48	2742.38	378.6	2742.2	413.56	2740.85	429.71	2740.2	443.59	2739.33
465.45	2738.2	467.04	2738.1	468.47	2737.98	481.13	2737.13	485.68	2736.83
491.94	2736.2	493.56	2735.99	499.19	2735.15	504.4	2734.4	505.46	2734.2
506.59	2733.83	511.4	2732.2	516.9	2730.38	517.42	2730.2	518	2730.03
524.24	2728.2	546.17	2728.2	553.99	2728.2	562.47	2730.11	562.86	2730.2
567.54	2730.63	584.45	2732.2	588.06	2732.39	607.03	2732.2	620.24	2732.2
663.45	2732.7	682.87	2732.2	718.57	2730.65	725.17	2730.43	728.61	2730.33
733.32	2730.2	736.14	2729.93	749.07	2728.2	750.03	2727.9	755.26	2726.2
756.77	2725.66	760.66	2724.2	783.91	2724.2	790.98	2724.2	795.27	2724.9
803.61	2726.2	807.76	2727.84	808.67	2728.2	808.96	2728.37	812.4	2730.2
812.95	2730.5	816.32	2732.2	819.05	2733.59	820.27	2734.2	820.93	2734.51
824.61	2736.2	826.46	2737.04	828.38	2737.98	828.83	2738.2	829.5	2738.25
835.62	2738.76	842.94	2739.35	855.65	2740.16	855.9	2740.17	856.34	2740.2
864.7	2740.65	866.85	2740.69	872.99	2740.99	876.99	2741.05	881.78	2741.26
909.66	2742.2	910.84	2742.2	913.25	2742.2	916.42	2742.2	917.13	2742.2
919.74	2742.2	969.32	2743.06	974.01	2743.14	979.39	2743.2	984.93	2743.29
991.78	2743.4	995.78	2743.46	1004.12	2743.6	1014.13	2743.77	1021.45	2743.87
1031.03	2744.04	1040.5	2744.2	1043.76	2744.27	1057.57	2744.56	1061.28	2744.65
1072.42	2744.89	1081.04	2745.08	1088.8	2745.29	1095.55	2745.46	1106.24	2745.73
1109.89	2745.82	1120.94	2746.09						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	511.4	.045	584.45	.06	736.14	.045	816.32	.045
829.5	.05								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
511.4	816.32	261.37	286.12	297.8	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2735.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.14	Wt. n-Val.	0.050	0.047	0.045
W.S. Elev (ft)	2734.42	Reach Len. (ft)	261.37	286.12	297.80
Crit W.S. (ft)	2733.51	Flow Area (sq ft)	7.35	1393.37	4.86
E.G. Slope (ft/ft)	0.007564	Area (sq ft)	7.35	1393.37	4.86
Q Total (cfs)	12000.00	Flow (cfs)	18.75	11967.47	13.78
Top Width (ft)	316.48	Top Width (ft)	7.14	304.92	4.42
Vel Total (ft/s)	8.54	Avg. Vel. (ft/s)	2.55	8.59	2.84
Max Chl Dpth (ft)	10.22	Hydr. Depth (ft)	1.03	4.57	1.10
Conv. Total (cfs)	137980.8	Conv. (cfs)	215.6	137606.8	158.5
Length Wtd. (ft)	286.11	Wetted Per. (ft)	7.49	308.23	4.95
Min Ch El (ft)	2724.20	Shear (lb/sq ft)	0.46	2.13	0.46
Alpha	1.01	Stream Power (lb/ft s)	1.18	18.33	1.32

Frctn Loss (ft)	2.88	Cum Volume (acre-ft)	253.69	435.10	170.40
C & E Loss (ft)	0.05	Cum SA (acres)	196.44	95.43	118.88

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: Agua Caliente
REACH: upper RS: 26541.23

INPUT
Description:
Station Elevation Data num= 190

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2744.23	.69	2744.2	2.45	2744.2	14.16	2743.69	21.14	2743.22
29.06	2742.72	34.84	2742.39	36.01	2742.31	37.88	2742.2	38.02	2742.2
40.95	2742.2	41.6	2742.2	47.12	2742.2	49.07	2742.2	53.03	2742.2
55.91	2742.2	57.68	2742.2	74	2741.31	94.34	2740.2	103.02	2739.58
109.32	2739.24	117.6	2738.7	128.79	2738.2	130.03	2738.2	130.45	2738.2
137.02	2737.89	153.09	2737.24	158.96	2736.93	164.57	2736.67	173.91	2736.31
174.55	2736.28	176.03	2736.24	177.7	2736.2	180.85	2736.2	181.73	2736.2
187.03	2736.2	188.67	2736.2	190.2	2736.2	196.15	2736.2	198.27	2736.2
203.89	2736.2	206.45	2736.2	211.51	2736.2	214.21	2736.2	218.87	2736.2
222.85	2736.2	226.01	2736.2	229.73	2736.2	232.93	2736.2	267.84	2734.74
270.36	2734.63	272.62	2734.58	274.54	2734.54	278.1	2734.44	279.15	2734.42
279.97	2734.41	280.7	2734.41	281.47	2734.41	286.29	2734.34	286.82	2734.34
293.02	2734.3	293.38	2734.29	300.37	2734.31	300.79	2734.31	301.18	2734.31
308.61	2734.39	309.32	2734.39	316.33	2734.48	317.43	2734.48	323.75	2734.54
335.24	2734.44	341.77	2734.28	344.26	2734.2	350.08	2733.98	351.25	2733.96
359.02	2733.68	365.02	2733.51	368.22	2733.44	373.37	2733.33	376.89	2733.23
380.91	2733.09	384.88	2733.01	389.54	2732.78	396.78	2732.38	397.61	2732.36
399.99	2732.2	408.36	2731.54	416.51	2730.81	420.13	2730.5	423.27	2730.2
431.89	2728.34	432.54	2728.2	435.41	2728.2	440.58	2728.2	480.38	2728.2
487.71	2728.2	497.64	2728.2	500.9	2728.2	506.32	2728.53	513.42	2729.1
521.37	2729.66	527.18	2730.2	529.89	2730.2	531.19	2730.2	533.05	2730.2
543.18	2730.2	550.03	2730.2	561.62	2730.2	579.34	2730.2	581.96	2730.2
582.09	2730.2	582.99	2730.2	585.94	2730.2	591.01	2730.2	594.06	2730.2
595.6	2730.2	598.27	2730.04	599.81	2729.96	603.68	2729.75	630.82	2728.2
638.27	2727.63	659.57	2726.9	661.44	2727	662.6	2727.06	667.14	2726.84
680.5	2726.2	680.54	2726.2	680.95	2726.2	681.7	2726.03	689.88	2724.2
698.41	2723.13	705.83	2722.2	725.2	2722.2	745.9	2722.2	748.5	2723.62
749.56	2724.2	749.96	2724.42	753.06	2726.2	755.3	2727.45	756.6	2728.2
760.24	2730.12	760.39	2730.2	760.57	2730.3	760.97	2730.53	763.34	2731.85
763.96	2732.2	764.38	2732.45	766.94	2733.91	767.45	2734.2	768.56	2734.44
777.94	2736.2	781.1	2736.45	815.98	2738.2	820.99	2738.2	823.56	2738.2
827.64	2738.2	830.6	2738.2	831.51	2738.2	834.69	2738.2	838.21	2738.2
866.29	2738.2	885.69	2738.2	908.81	2738.79	910.88	2738.84	917.19	2738.96
921.56	2739.05	924.05	2739.08	927.28	2739.14	930.26	2739.2	933.39	2739.24
936.73	2739.29	940.11	2739.34	943.39	2739.37	946.6	2739.39	988.15	2739.93
989.43	2739.94	990.55	2739.95	996.71	2740.07	997.25	2740.08	997.77	2740.08
1002.97	2740.14	1003.22	2740.15	1003.46	2740.15	1003.68	2740.15	1003.88	2740.15
1007.09	2740.14	1007.27	2740.14	1018.04	2740.2	1027	2740.2	1045.67	2740.2

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	420.13	.045	527.18	.06	667.14	.045	764.38	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
420.13	764.38	170.86	186.26	186.48	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2732.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.67	Wt. n-Val.	0.050	0.046	
W.S. Elev (ft)	2730.96	Reach Len. (ft)	170.86	186.26	186.48
Crit W.S. (ft)	2730.96	Flow Area (sq ft)	1.22	1156.73	
E.G. Slope (ft/ft)	0.014037	Area (sq ft)	1.22	1156.73	
Q Total (cfs)	12000.00	Flow (cfs)	1.62	11998.38	
Top Width (ft)	346.89	Top Width (ft)	5.28	341.61	
Vel Total (ft/s)	10.36	Avg. Vel. (ft/s)	1.33	10.37	
Max Chl Dpth (ft)	8.76	Hydr. Depth (ft)	0.23	3.39	
Conv. Total (cfs)	101284.6	Conv. (cfs)	13.7	101270.9	
Length Wtd. (ft)	186.25	Wetted Per. (ft)	5.30	344.64	
Min Ch El (ft)	2722.20	Shear (lb/sq ft)	0.20	2.94	
Alpha	1.00	Stream Power (lb/ft s)	0.27	30.51	
Frctn Loss (ft)	1.93	Cum Volume (acre-ft)	253.66	426.72	170.39
C & E Loss (ft)	0.27	Cum SA (acres)	196.40	93.31	118.86

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

assumed values.
Warning: The 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: Agua Caliente
REACH: upper RS: 26354.97

INPUT
Description:
Station Elevation Data num= 211

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2740.27	.84	2740.2	4.92	2739.38	8.09	2739.23	9.1	2739.16
12.74	2738.92	16.03	2738.83	21.37	2738.7	23.4	2738.58	30.49	2738.45
31.48	2738.39	39.73	2738.25	39.96	2738.24	41.94	2738.2	47.55	2738.2
49.3	2738.2	54.25	2738.2	57.38	2738.2	60.71	2738.2	65.74	2738.2
70.28	2738.2	73.45	2738.2	77.89	2738.2	80.62	2738.2	84.19	2738.2
86.06	2738.2	87.28	2738.2	95.78	2737.54	100.48	2737.31	104.2	2737.09
105.42	2737.05	107.96	2736.91	109.93	2736.84	111.74	2736.79	113.51	2736.75
116.63	2736.76	121.1	2736.76	126.59	2736.72	128.48	2736.68	135.17	2736.56
144.07	2736.35	144.69	2736.33	149.11	2736.2	153.72	2736.2	154.97	2736.2
161.22	2736.2	164.16	2736.2	168.53	2736.2	171.8	2736.2	175.21	2736.2
185.83	2736.2	189.58	2736.2	191.88	2736.2	220.79	2734.55	221.96	2734.53
227.62	2734.26	227.83	2734.26	229.02	2734.2	233.34	2734.2	234.77	2734.2
239.16	2734.2	240.85	2734.2	243.93	2734.2	246.68	2734.09	276.37	2732.95
281.91	2732.79	285.29	2732.7	288.94	2732.63	290.28	2732.62	294.22	2732.51
295.26	2732.5	301.18	2732.39	301.84	2732.38	309.44	2732.25	312.27	2732.2
315.89	2732.2	325.34	2731.72	336.51	2731.29	342.48	2731.05	345.93	2730.94
348.48	2730.75	350.15	2730.72	351.3	2730.71	352.17	2730.7	356.29	2730.59
356.91	2730.55	362.37	2730.58	363.21	2730.53	363.99	2730.47	370.05	2730.58
371.17	2730.52	383.82	2730.2	390.74	2730.2	395.74	2730.2	398.77	2730.2
402.52	2730.2	412.85	2728.75	416.87	2728.2	419.3	2727.26	422.4	2726.2
431.8	2726.2	438.15	2726.2	448.81	2726.88	456.58	2727.33	461.97	2727.58
465.46	2727.76	467.46	2727.86	468.75	2727.92	469.67	2727.96	484.9	2727.12
490.9	2726.55	494.91	2726.2	512.3	2724.94	517.59	2724.58	520.82	2724.2
523.48	2724	531.02	2723.54	536.07	2723.26	537.61	2723.27	555.02	2723.2
559.72	2723.45	567.99	2723.92	569.03	2723.95	573.49	2724.2	578.11	2724.64
580.95	2724.88	586.05	2725.27	588.4	2725.41	595.48	2726.15	595.61	2726.16
595.97	2726.2	617.62	2726.2	640.4	2726.2	643.13	2726.2	645.53	2726.2
647	2726.2	647.94	2726.2	657.32	2725.55	668.4	2724.62	668.7	2724.59
673.33	2724.2	674.87	2723.91	684.17	2722.2	687.32	2721.6	694.39	2720.2
697.35	2720.2	713.54	2720.2	739.14	2720.2	742.07	2721.78	742.88	2722.2
743.78	2722.58	747.4	2724.2	751.89	2725.77	752.99	2726.2	753.9	2726.47
759.77	2728.2	763.49	2729.45	765.21	2730.05	765.58	2730.2	766.47	2730.45
766.62	2730.49	775.03	2732.2	782.27	2732.52	785.9	2732.69	786.7	2732.73
797.58	2733.21	808.85	2733.76	812.04	2733.91	817.68	2734.2	824.11	2734.36
852.33	2734.92	857.76	2734.98	861.3	2735.02	866.7	2735.07	879.23	2735.12
879.98	2735.12	883.59	2735.17	887.55	2735.21	896.8	2735.24	900.82	2735.28
902.58	2735.28	906.74	2735.33	911.33	2735.37	916.4	2735.42	921.98	2735.48
923.87	2735.5	962.31	2736.2	962.59	2736.2	963.3	2736.2	971.51	2736.2
981.4	2736.2	984.97	2736.2	994.21	2736.2	997.09	2736.23	1001.46	2736.27
1003.54	2736.29	1004.27	2736.31	1012.79	2736.49	1015.07	2736.54	1024.45	2736.76
1028.25	2736.84	1036.72	2737.04	1043.47	2737.2	1060.24	2737.48	1073.7	2737.44
1075.85	2737.4	1079.01	2737.45	1080.39	2737.44	1084.28	2737.44	1088.16	2737.39
1123.86	2738.08								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	412.85	.06	416.87	.06	668.7	.053	766.47	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
416.87	766.47	167.45	166.67	174.11	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2730.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.	0.057	0.056	
W.S. Elev (ft)	2729.57	Reach Len. (ft)	167.45	166.67	174.11
Crit W.S. (ft)	2728.00	Flow Area (sq ft)	6.77	1692.85	
E.G. Slope (ft/ft)	0.007948	Area (sq ft)	6.77	1692.85	
Q Total (cfs)	12000.00	Flow (cfs)	13.66	11986.34	
Top Width (ft)	356.80	Top Width (ft)	9.84	346.96	
Vel Total (ft/s)	7.06	Avg. Vel. (ft/s)	2.02	7.08	
Max Chl Dpth (ft)	9.37	Hydr. Depth (ft)	0.69	4.88	
Conv. Total (cfs)	134603.7	Conv. (cfs)	153.3	134450.4	
Length Wtd. (ft)	166.67	Wetted Per. (ft)	9.94	349.89	
Min Ch El (ft)	2720.20	Shear (lb/sq ft)	0.34	2.40	
Alpha	1.00	Stream Power (lb/ft s)	0.68	17.00	
Frctn Loss (ft)	1.38	Cum Volume (acre-ft)	253.65	420.63	170.39

C & E Loss (ft)	0.04	Cum SA (acres)	196.37	91.83	118.86

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 26188.3

INPUT
Description:
Station Elevation Data num= 160

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2739.49	1.05	2739.48	4.48	2739.42	8.48	2739.38	12.75	2739.3
17.39	2739.23	22.33	2739.16	26.33	2739.08	31.32	2739.02	34.64	2738.95
38.49	2738.94	41.27	2738.87	69.23	2738.2	72.52	2738.2	76.65	2738.2
81.69	2738.2	96.67	2738.2	99.09	2738.2	101.71	2738.2	173.52	2736.6
177.97	2736.39	178.38	2736.4	181.51	2736.2	199.75	2736.2	203.3	2736.15
219.62	2735.95	220.37	2735.92	225.4	2736.2	226.71	2736.2	227.54	2736.2
233.33	2736.2	237.92	2736.2	238.31	2736.12	239.02	2735.96	244.13	2734.85
247.11	2734.2	249.75	2734.2	281	2732.43	284.92	2732.2	286.02	2732.12
297.97	2731.29	309.73	2730.2	309.84	2730.19	333.31	2728.2	333.48	2728.2
349.83	2728.2	406.61	2726.79	427.51	2726.27	428.27	2726.26	431.04	2726.2
432.22	2725.81	437.29	2724.2	442.42	2724.2	451.62	2724.2	453.23	2724.34
470.61	2725.1	473.66	2725.21	474.97	2725.24	478.87	2725.26	482.32	2725.19
484.52	2725.34	486.25	2725.49	489.63	2725.37	519.06	2724.95	527.64	2724.49
529.42	2724.42	533.4	2724.2	549.08	2723.19	565.62	2722.2	566.26	2722.2
567.92	2722.2	569.23	2722.2	569.75	2722.2	579.23	2722.2	581.05	2722.2
606.52	2720.93	613.02	2720.61	621.48	2720.2	623.21	2720.2	673.62	2720.2
688.57	2720.2	689.58	2720.75	692.28	2722.2	694.88	2723.76	695.59	2724.2
696.51	2724.7	699.12	2726.2	701.27	2727.43	702.66	2728.2	704.03	2728.99
706.32	2730.2	720.6	2730.59	728.67	2730.81	745.61	2731.27	754.3	2731.5
756.74	2731.57	759.37	2731.63	773.81	2732.02	775.15	2732.05	780.55	2732.2
782.75	2732.2	808.09	2732.2	811.39	2732.2	814.76	2732.2	818.42	2732.2
822.64	2732.2	826.82	2732.2	829.24	2732.2	861.22	2732.89	864.42	2732.87
866.3	2732.91	868.57	2732.94	870.51	2732.95	872.96	2732.98	875.57	2733
910.26	2732.96	912.31	2732.98	915.7	2732.9	918.57	2732.82	920.24	2732.84
921.99	2732.86	923.12	2732.84	924.8	2732.86	926.68	2732.9	928.79	2732.95
930.87	2732.99	945.47	2733.39	949.11	2733.52	954.24	2733.67	960.81	2733.8
961.19	2733.82	968.45	2733.93	975.72	2734.11	981.75	2734.14	981.88	2734.14
984.68	2734.2	985.56	2734.2	990.1	2734.2	991.27	2734.2	994.94	2734.2
995.96	2734.2	997.48	2734.2	998.35	2734.22	1032.91	2734.5	1033.47	2734.5
1038.39	2734.6	1039.32	2734.63	1042.61	2734.65	1047.03	2734.72	1051.78	2734.77
1056.46	2734.8	1060.68	2734.82	1061.73	2734.83	1065.28	2734.86	1067.95	2734.92
1069.25	2734.91	1122.83	2735.68	1125.88	2735.74	1128.61	2735.79	1129.46	2735.81

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	203.3	.05	406.61	.045	431.04	.045	706.32	.045
756.74	.05								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
431.04	706.32	199.73	211.24	199.87	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2728.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.20	Wt. n-Val.	0.046	0.045	
W.S. Elev (ft)	2727.73	Reach Len. (ft)	199.73	211.24	199.87
Crit W.S. (ft)	2726.74	Flow Area (sq ft)	47.80	1341.96	
E.G. Slope (ft/ft)	0.008587	Area (sq ft)	47.80	1341.96	
Q Total (cfs)	12000.00	Flow (cfs)	135.67	11864.33	
Top Width (ft)	332.83	Top Width (ft)	62.07	270.76	
Vel Total (ft/s)	8.63	Avg. Vel. (ft/s)	2.84	8.84	
Max Chl Dpth (ft)	7.52	Hydr. Depth (ft)	0.77	4.96	
Conv. Total (cfs)	129496.2	Conv. (cfs)	1464.1	128032.1	
Length Wtd. (ft)	210.56	Wetted Per. (ft)	62.09	273.24	
Min Ch El (ft)	2720.20	Shear (lb/sq ft)	0.41	2.63	
Alpha	1.04	Stream Power (lb/ft s)	1.17	23.28	
Frctn Loss (ft)	2.26	Cum Volume (acre-ft)	253.54	414.82	170.39
C & E Loss (ft)	0.07	Cum SA (acres)	196.23	90.65	118.86

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: Agua Caliente
REACH: upper RS: 25977.06

INPUT
Description:
Station Elevation Data num= 203

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2732.5	6.3	2732.29	7.05	2732.27	7.47	2732.25	9.2	2732.2
16.38	2732.2	21.7	2732.2	23.8	2732.2	27.41	2732.2	30.59	2732.38
31.25	2732.4	37.01	2732.66	38.34	2732.69	43.63	2732.85	48.27	2732.94
52.45	2732.98	54.71	2732.97	58.82	2732.95	63.28	2732.87	65.27	2732.85
70.19	2732.73	71.8	2732.7	76.47	2732.59	77.69	2732.57	81.24	2732.56
82.3	2732.54	85.21	2732.57	86.28	2732.55	92.5	2732.55	96.97	2732.46
103.81	2732.26	104	2732.25	105.9	2732.2	111.84	2732.08	112.15	2732.07
119.46	2731.94	125.66	2731.85	126.42	2731.84	131.95	2731.78	136.69	2731.73
137.81	2731.74	142.33	2731.7	146.5	2731.67	148.08	2731.69	152.04	2731.64
153.79	2731.67	162.92	2731.66	164.63	2731.64	178.01	2731.28	182.78	2731.12
186.92	2731.04	193.61	2730.81	196.64	2730.74	205.52	2730.43	206.68	2730.4
212.42	2730.2	224.29	2729.59	247.7	2728.2	250.77	2727.87	266.21	2726.2
274.24	2726.2	278.82	2726.2	280.53	2726.2	284.85	2726.2	330.09	2724.91
355.79	2724.2	362.19	2723.7	375.75	2722.82	382.09	2722.38	383.15	2722.3
385.91	2722.2	388.55	2722.2	389.37	2722.2	389.78	2722.2	389.98	2722.2
396.7	2722.2	399.05	2722.2	401.6	2722.2	404.06	2722.2	405.39	2722.2
406.61	2722.2	413.39	2722.2	424.84	2722.2	431.55	2722.2	439.06	2722.2
446.35	2722.2	449.15	2722.2	454.47	2722.2	459.29	2722.2	467.73	2722.2
468.12	2722.2	468.25	2722.19	470.87	2721.91	479.19	2721.04	486.24	2720.2
488.17	2719.57	492.07	2718.2	496.24	2718.2	500.41	2718.2	513.79	2718.2
528.42	2718.2	530.39	2718.2	533.31	2718.2	542.61	2718.2	547.74	2718.2
548.47	2718.2	550.61	2718.2	550.97	2718.2	551	2718.2	551.5	2718.2
554.72	2718.2	593.53	2718.2	593.81	2718.2	595.55	2718.2	597.62	2718.2
598.16	2718.2	598.94	2718.2	600.16	2718.2	601.84	2718.2	603.28	2718.2
603.96	2718.2	606.03	2718.41	609.04	2718.89	613.86	2719.63	617.08	2720.2
619.06	2720.85	623.12	2722.2	626.66	2723.36	629.26	2724.2	634.26	2725.9
635.15	2726.2	638.92	2727	644.45	2728.2	651.68	2728.37	654.57	2728.43
655.9	2728.45	657.51	2728.47	680.14	2728.87	709.49	2729.39	714.33	2729.44
717.1	2729.47	721.95	2729.51	724.46	2729.54	739.38	2729.66	741.05	2729.66
745.57	2729.69	747.19	2729.7	748.73	2729.7	750.22	2729.7	751.73	2729.7
756.2	2729.72	770.79	2729.59	777.09	2729.44	779.33	2729.38	782.84	2729.28
786.08	2729.27	790.45	2729.14	793.57	2729.13	798.2	2728.96	803.23	2728.77
808.79	2728.52	809.89	2728.51	815.91	2728.2	816.87	2728.2	825.99	2728.2
827.66	2728.2	828.73	2728.2	831.17	2728.2	832.12	2728.2	842.3	2728.71
843.49	2728.74	844.69	2728.74	870.1	2729	873.96	2728.87	875.86	2728.84
880.52	2728.69	882.07	2728.67	887.41	2728.5	888.4	2728.48	894.13	2728.26
895.33	2728.2	901.73	2728.2	903.38	2728.2	906.88	2728.46	932.4	2730.2
933.85	2730.2	935.82	2730.2	937.95	2730.2	940.39	2730.2	943.05	2730.2
946.41	2730.2	948.82	2730.2	953.35	2730.2	959.83	2730.2	961.54	2730.27
962.45	2730.32	977.91	2731.09	984.39	2731.42	994.36	2732.06	995.11	2732.1
996.62	2732.2	998.71	2732.2	1046.37	2733.85				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	385.91	.06	467.73	.048	635.15	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
467.73	635.15	170.82	159.93	174.27	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2726.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.89	Wt. n-Val.	0.059	0.048	
W.S. Elev (ft)	2724.71	Reach Len. (ft)	170.82	159.93	174.27
Crit W.S. (ft)	2724.55	Flow Area (sq ft)	256.58	927.64	
E.G. Slope (ft/ft)	0.013841	Area (sq ft)	256.58	927.64	
Q Total (cfs)	12000.00	Flow (cfs)	1289.60	10710.40	
Top Width (ft)	293.22	Top Width (ft)	130.21	163.01	
Vel Total (ft/s)	10.13	Avg. Vel. (ft/s)	5.03	11.55	
Max Chl Dpth (ft)	6.50	Hydr. Depth (ft)	1.97	5.69	
Conv. Total (cfs)	102001.2	Conv. (cfs)	10961.7	91039.5	
Length Wtd. (ft)	161.12	Wetted Per. (ft)	130.28	164.34	
Min Ch El (ft)	2718.20	Shear (lb/sq ft)	1.70	4.88	
Alpha	1.19	Stream Power (lb/ft s)	8.55	56.31	
Frctn Loss (ft)	1.91	Cum Volume (acre-ft)	252.84	409.32	170.39
C & E Loss (ft)	0.08	Cum SA (acres)	195.79	89.60	118.86

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 25817.13

INPUT
Description:
Station Elevation Data num= 179

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	2734.2	4.97	2734.2	7.75	2734.2	8.5	2734.2	10.19	2734.2
11.43	2734.2	27.03	2732.87	29.24	2732.77	60.62	2732.2	61.73	2732.2
64.99	2732.2	65.57	2732.2	71.62	2732.2	79.07	2732.2	87.88	2732.2
90.99	2732.13	91.21	2732.13	98.86	2731.94	128.68	2731.18	138.91	2730.92
165.48	2730.2	170.43	2730.2	172.98	2730.2	180.86	2730.2	183.85	2730.2
188.63	2730.2	189.7	2730.2	209.43	2730.2	214.48	2730.2	214.76	2730.2
222.29	2730.2	224.92	2730.2	228.89	2730.06	229.45	2730.01	230.49	2729.93
238.56	2729.49	241.64	2729.32	244.78	2729.03	247.44	2728.84	251.7	2728.47
254.83	2728.2	257.01	2728.16	258.34	2728.14	258.66	2728.13	276.13	2727.52
313.03	2726.2	318.5	2726.02	319.35	2725.99	328.65	2725.69	331.41	2725.61
338.4	2725.38	362.48	2724.2	364.74	2724.2	366.77	2724.2	368.77	2724.2
370.24	2724.2	371.66	2724.2	372.15	2724.2	400.99	2722.78	413.07	2722.2
436.31	2721.41	449.69	2720.94	467.26	2720.41	467.91	2720.4	471.27	2720.2
473.51	2720.07	483.82	2719.47	489.99	2719.06	502.91	2718.2	521.73	2717.02
530.02	2716.53	535.58	2716.2	548.07	2716.2	567.94	2716.2	569.29	2716.2
570.08	2716.2	572.77	2716.2	574.53	2716.2	576.48	2716.2	578.62	2716.2
580.04	2716.2	582.3	2716.2	600.84	2716.67	621.38	2717.43	625.25	2717.52
634.21	2717.97	635.4	2718	636.26	2718.02	639.09	2718.2	654.6	2718.92
666.31	2719.47	681.71	2720.2	692.26	2721.17	703.51	2722.2	710.88	2722.91
713.9	2723.21	724.04	2724.2	726.77	2724.34	750.43	2725.18	759.24	2725.24
762.49	2725.29	765.24	2725.28	768.79	2725.33	771.43	2725.33	781.56	2725.13
784.09	2725.17	786.51	2725.05	788.6	2725.08	791.72	2724.95	793.65	2724.95
797.47	2724.83	799.18	2724.8	803.69	2724.68	805.12	2724.65	810.36	2724.5
816.65	2724.33	817.05	2724.32	822.63	2724.2	823.43	2724.2	829.23	2724.2
829.41	2724.2	835.49	2724.2	835.95	2724.2	836.48	2724.2	842.42	2724.2
843.29	2724.2	844.38	2724.2	845.9	2724.2	851.68	2724.2	854.33	2724.2
859.6	2724.2	864.54	2724.2	868.18	2724.84	871.49	2725.24	881.12	2726.2
881.28	2726.2	881.34	2726.2	884.37	2726.2	890.25	2726.52	891.39	2726.6
897.77	2726.87	901.19	2727.08	902.78	2727.15	904.33	2727.3	920.93	2727.56
940.52	2728.2	942.88	2728.2	943.62	2728.2	944.93	2728.2	947.05	2728.2
948.75	2728.2	950.54	2728.2	954.49	2728.37	955.31	2728.4	961.9	2728.71
964.26	2728.79	967.15	2728.9	970.74	2729.04	977.13	2729.32	982.32	2729.52
985.88	2729.68	992.51	2729.92	1000.69	2730.2	1001.55	2730.22	1007.62	2730.34
1010.22	2730.38	1018.08	2730.54	1019.75	2730.57	1021.97	2730.63	1024.89	2730.7
1032.99	2730.86	1044.84	2731.07	1050.04	2731.14	1053.78	2731.24	1058.27	2731.3
1062.27	2731.36	1078.85	2731.82	1080.7	2731.86	1081.66	2731.89		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	489.99	.045	666.31	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
489.99	666.31	90.46	90	116.64	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2724.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.63	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2722.97	Reach Len. (ft)	90.46	90.00	116.64
Crit W.S. (ft)	2722.57	Flow Area (sq ft)	170.54	1008.93	89.98
E.G. Slope (ft/ft)	0.010283	Area (sq ft)	170.54	1008.93	89.98
Q Total (cfs)	12000.00	Flow (cfs)	770.10	10801.67	428.24
Top Width (ft)	314.39	Top Width (ft)	92.88	176.32	45.19
Vel Total (ft/s)	9.45	Avg. Vel. (ft/s)	4.52	10.71	4.76
Max Chl Dpth (ft)	6.77	Hydr. Depth (ft)	1.84	5.72	1.99
Conv. Total (cfs)	118335.9	Conv. (cfs)	7594.2	106518.7	4223.0
Length Wtd. (ft)	92.25	Wetted Per. (ft)	92.97	176.48	45.33
Min Ch El (ft)	2716.20	Shear (lb/sq ft)	1.18	3.67	1.27
Alpha	1.18	Stream Power (lb/ft s)	5.32	39.29	6.06
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	252.01	405.77	170.21
C & E Loss (ft)	0.06	Cum SA (acres)	195.36	88.98	118.77

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 25727.13

INPUT
Description:
Station Elevation Data num= 210

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2732.97	29.05	2732.41	36.08	2732.2	39.42	2732.11	41.51	2732.06
55.42	2731.7	69.13	2731.35	90.55	2730.77	98.82	2730.56	102.53	2730.47
111.56	2730.2	121.7	2730.2	131.24	2730.2	131.93	2730.2	132.99	2730.2
134.77	2730.2	150.51	2730.2	153.61	2730.2	166.91	2730.2	173.43	2730.2
175.72	2730.2	180.46	2730.2	183.57	2730.2	188.49	2730.2	191.01	2730.2
193.54	2730.2	196.14	2730.2	207.75	2730.2	213.07	2730.2	215.02	2730.2
221.74	2730.2	222.48	2730.2	227	2730.2	231.03	2729.9	233.2	2729.69
240.07	2729.1	248.01	2728.2	262.63	2726.65	269.29	2726.2	269.82	2726.2
270.04	2726.2	270.19	2726.2	272.18	2726.2	281.92	2725.87	285.08	2725.72
292.68	2725.36	300.6	2725.05	316.78	2724.2	333.5	2723.77	337.83	2723.67
345.97	2723.47	362.09	2723.06	383.93	2722.58	391.96	2722.36	395.62	2722.2
397.7	2722.2	409.02	2721.74	425.28	2721.06	437.63	2720.55	445.91	2720.2
458.86	2719.37	476.59	2718.3	478.34	2718.2	480.59	2717.99	481.33	2717.95

482.42	2717.9	491.47	2717.22	495.43	2717.05	501.67	2716.73	506.68	2716.42
509.84	2716.22	510.19	2716.2	519.63	2714.27	519.95	2714.2	520.91	2714.2
523.85	2714.2	544.58	2714.2	550.76	2714.2	557.34	2715.67	558.6	2715.95
562.94	2716.18	562.98	2716.19	563.78	2716.2	567.88	2716.2	568.19	2716.2
574.24	2716.2	574.41	2716.2	579.2	2716.2	580.9	2716.19	580.92	2716.19
587.03	2716.17	592.9	2716.15	593.93	2716.2	594.54	2716.2	600.24	2716.2
602.76	2716.2	606.62	2716.2	610.96	2716.2	623.72	2717.79	627.13	2718.2
630.1	2718.2	665.01	2719.03	666.17	2719.06	668.03	2719.09	676.1	2719.2
677.07	2719.21	681.93	2719.31	718.2	2720.2	718.58	2720.2	720.25	2720.2
720.51	2720.2	722.81	2720.2	723.79	2720.2	726.25	2720.2	735.7	2720.87
738.96	2721.15	741.75	2721.3	748.16	2721.76	756.23	2722.2	756.91	2722.2
757.1	2722.2	761.2	2722.2	766.67	2722.44	772.87	2722.56	773.78	2722.62
778.48	2722.76	780.49	2722.85	784.18	2723.03	787.92	2723.18	793.51	2723.41
796.34	2723.58	803.68	2723.87	809.4	2724.2	810.94	2724.2	812.48	2724.2
813.41	2724.2	819.26	2724.2	825.45	2724.2	827.21	2724.2	831.96	2724.2
834.39	2724.2	838.26	2724.2	840.7	2724.2	840.93	2724.2	841.55	2724.2
844.06	2724.3	844.29	2724.31	847.99	2724.63	849.36	2724.67	851.11	2724.7
855.18	2725.01	858.51	2725.06	862.67	2725.13	882.94	2725.86	883.73	2725.85
889.03	2725.9	894.7	2725.95	895.34	2725.95	901.41	2726	907.2	2726.2
908.39	2726.2	912.37	2726.2	916.15	2726.2	916.4	2726.2	916.79	2726.2
923.06	2726.34	923.89	2726.37	950.94	2727.05	954.63	2727.11	957.85	2727.18
961.83	2727.26	965.24	2727.33	969.92	2727.42	972.78	2727.48	977.91	2727.57
980.24	2727.62	982.36	2727.66	987.35	2727.74	990.81	2727.78	992.25	2727.79
993.54	2727.79	997.79	2727.86	1002.66	2727.94	1003.42	2727.95	1008.62	2728.04
1014.64	2728.16	1016.56	2728.2	1021.71	2728.31	1022.17	2728.32	1022.75	2728.34
1030.22	2728.53	1031.79	2728.58	1038.32	2728.77	1041.04	2728.84	1046.59	2729.01
1050.13	2729.09	1054.52	2729.22	1058.08	2729.32	1061.09	2729.4	1064.98	2729.45
1067.62	2729.52	1078.21	2729.59	1079.24	2729.58	1081.19	2729.55	1092.89	2730.2
1095.52	2730.2	1098.34	2730.2	1101.13	2730.2	1103.59	2730.2	1108.35	2730.2

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	55.42	.05	476.59	.04	557.34	.045	627.13	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
476.59	627.13	113.09	113.34	94.97	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2723.75	Element			
Vel Head (ft)	1.42	Wt. n-Val.	0.050	0.042	0.050
W.S. Elev (ft)	2722.33	Reach Len. (ft)	113.09	113.34	94.97
Crit W.S. (ft)	2721.75	Flow Area (sq ft)	149.81	954.47	339.50
E.G. Slope (ft/ft)	0.007262	Area (sq ft)	149.81	954.47	339.50
Q Total (cfs)	12000.00	Flow (cfs)	557.55	9869.32	1573.13
Top Width (ft)	371.63	Top Width (ft)	84.00	150.54	137.09
Vel Total (ft/s)	8.31	Avg. Vel. (ft/s)	3.72	10.34	4.63
Max Chl Dpth (ft)	8.13	Hydr. Depth (ft)	1.78	6.34	2.48
Conv. Total (cfs)	140812.9	Conv. (cfs)	6542.5	115810.7	18459.8
Length Wtd. (ft)	111.63	Wetted Per. (ft)	84.10	151.14	137.19
Min Ch El (ft)	2714.20	Shear (lb/sq ft)	0.81	2.86	1.12
Alpha	1.32	Stream Power (lb/ft s)	3.01	29.61	5.20
Frctn Loss (ft)	1.02	Cum Volume (acre-ft)	251.67	403.74	169.63
C & E Loss (ft)	0.05	Cum SA (acres)	195.17	88.64	118.53

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 25613.79

INPUT
Description:
Station Elevation Data num= 195

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2729.94	28.25	2729.64	31.74	2729.76	32.32	2729.78	37.41	2729.9
39.38	2729.9	44.31	2729.95	44.92	2729.94	49.83	2729.91	50.67	2729.92
51.35	2729.93	55.89	2729.83	59.57	2729.7	60.43	2729.73	63.23	2729.61
103.53	2729.12	109.53	2728.99	113.14	2728.91	117.68	2728.8	121.25	2728.71
123.99	2728.64	126.1	2728.59	127.76	2728.56	129.14	2728.53	149.15	2728.2
150.99	2728.2	151.27	2728.2	152.56	2728.17	152.71	2728.17	153.61	2728.14
166.87	2727.77	169.33	2727.7	179	2727.43	185.57	2727.24	190.45	2727.1
195.15	2726.97	201.99	2726.79	204.96	2726.71	213.71	2726.51	215.26	2726.46
223.28	2726.2	223.81	2726.2	227.66	2726.2	227.82	2726.2	228.92	2726.2
236.43	2725.96	237.98	2725.87	245.72	2725.58	249.92	2725.31	254.43	2725.08
262.55	2724.53	267.35	2724.2	275.84	2723.52	283.69	2722.92	293	2722.2
300.4	2721.95	302.29	2721.9	312.31	2721.57	317.13	2721.45	343.18	2720.79
348.79	2720.66	350.38	2720.63	356.83	2720.48	357.9	2720.46	365.16	2720.3
365.54	2720.29	369.65	2720.2	373.49	2720.09	374	2720.08	381.89	2719.85
383.56	2719.79	390.32	2719.59	393.22	2719.48	397.33	2719.31	402.53	2719.13
408.66	2718.84	409.11	2718.82	421.57	2718.2	427.95	2717.31	431.61	2716.78
435.59	2716.2	449.18	2714.25	449.42	2714.22	449.6	2714.2	451.49	2714.07

465.46	2713.16	480.27	2712.2	485.34	2712.2	491.29	2712.2	495.71	2712.2
500.99	2712.2	502.42	2712.2	506.9	2712.2	507.38	2712.2	508.8	2712.26
508.93	2712.26	510.24	2712.31	510.95	2712.35	518.74	2712.62	521.76	2712.81
528.71	2713.29	541.87	2714.2	549.39	2715.86	550.82	2716.2	551.76	2716.32
552.29	2716.36	569.63	2718.2	571.66	2718.2	572.48	2718.2	574.51	2718.2
585.05	2718.2	592.42	2718.2	596.05	2718.2	600.92	2718.2	604.11	2718.2
605.63	2718.2	609.43	2718.4	609.9	2718.42	624.14	2719.09	625.2	2719.14
647.69	2720.2	648.78	2720.2	656.71	2720.2	662.49	2720.2	666.32	2720.2
678.28	2720.2	694.06	2720.2	707.25	2721.57	709.99	2721.84	717.04	2722.2
717.34	2722.2	720.65	2722.2	721.03	2722.2	723.58	2722.2	724.19	2722.2
724.68	2722.2	727.4	2722.41	730.74	2722.52	733.64	2722.67	742.72	2723.04
745.66	2723.13	786.43	2724.2	818.22	2724.2	818.63	2724.2	821.83	2724.2
822.09	2724.2	822.86	2724.2	824.22	2724.05	828.27	2723.61	831	2723.32
856.37	2723.12	857.41	2723.15	860.04	2723.22	888.68	2724.12	891.14	2724.2
892.25	2724.2	893.92	2724.2	897.86	2724.2	900.4	2724.2	901.32	2724.2
907.97	2724.2	911.66	2724.2	914.48	2724.2	915.9	2724.2	917.73	2724.2
920.48	2724.25	986.12	2726.2	987.02	2726.2	990.22	2726.2	994	2726.2
998.07	2726.2	998.56	2726.2	1003.05	2726.2	1003.22	2726.2	1003.42	2726.2
1004.53	2726.2	1011.32	2726.49	1012.61	2726.54	1020.01	2726.86	1022.58	2726.97
1025.54	2727.11	1029.18	2727.29	1033.93	2727.5	1036.79	2727.62	1041.07	2727.84
1042.51	2727.9	1048.01	2728.14	1048.24	2728.15	1048.41	2728.16	1049.69	2728.2
1050.37	2728.2	1050.82	2728.2	1054.32	2728.2	1055.35	2728.2	1057.87	2728.2

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	31.74	.05	431.61	.05	569.63	.06	707.25	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
431.61	569.63	180.48	165.93	144.25	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2722.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.90	Wt. n-Val.	0.050	0.050	0.060
W.S. Elev (ft)	2720.78	Reach Len. (ft)	180.48	165.93	144.25
Crit W.S. (ft)	2720.13	Flow Area (sq ft)	116.53	943.83	187.79
E.G. Slope (ft/ft)	0.011719	Area (sq ft)	116.53	943.83	187.79
Q Total (cfs)	12000.00	Flow (cfs)	451.28	10905.73	642.98
Top Width (ft)	356.15	Top Width (ft)	88.09	138.02	130.04
Vel Total (ft/s)	9.61	Avg. Vel. (ft/s)	3.87	11.55	3.42
Max Chl Dpth (ft)	8.58	Hydr. Depth (ft)	1.32	6.84	1.44
Conv. Total (cfs)	110851.2	Conv. (cfs)	4168.8	100742.8	5939.6
Length Wtd. (ft)	165.21	Wetted Per. (ft)	88.24	138.66	130.11
Min Ch El (ft)	2712.20	Shear (lb/sq ft)	0.97	4.98	1.06
Alpha	1.33	Stream Power (lb/ft s)	3.74	57.54	3.62
Frctn Loss (ft)	1.71	Cum Volume (acre-ft)	251.33	401.27	169.06
C & E Loss (ft)	0.17	Cum SA (acres)	194.95	88.27	118.24

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 25447.86

INPUT
Description:
Station Elevation Data num= 185

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2727.66	18.4	2727.42	24.98	2727.3	33.88	2727.14	41.92	2727.01
53.46	2726.81	69.7	2726.51	86.83	2726.2	110.25	2725.4	122.41	2724.98
130.9	2724.76	135.85	2724.6	138.64	2724.5	149.1	2724.2	149.45	2724.2
153.74	2724.2	154.03	2724.2	160.07	2724.2	166.55	2724.2	166.88	2724.2
172.76	2724.2	173.13	2724.2	178.45	2724.2	178.8	2724.2	179.14	2724.2
179.48	2724.2	179.86	2724.2	185.34	2724.2	185.77	2724.2	191.15	2724.2
191.64	2724.2	196.94	2724.2	202.02	2724.2	202.88	2724.2	207.7	2724.01
208.26	2724.01	211.25	2723.9	218.52	2723.59	222.35	2723.35	227	2723.11
234.13	2722.67	235.91	2722.56	241.57	2722.2	245.66	2721.93	247.19	2721.82
267.41	2720.2	268.04	2720.2	268.71	2720.2	271.46	2719.74	279.32	2718.2
288.66	2716.33	289.35	2716.2	289.54	2716.2	291.44	2716.2	294.96	2716.83
296.28	2716.85	299.53	2717.28	301.57	2717.2	304.11	2717.44	306.47	2717.35
308.77	2717.5	311.36	2717.47	313.99	2717.47	316.22	2717.55	318.13	2717.59
320.76	2717.59	322.59	2717.61	324.39	2717.61	327.28	2717.58	329.21	2717.57
331.22	2717.57	334.29	2717.5	334.67	2717.5	337.19	2717.44	357.88	2716.57
366.63	2716.2	366.7	2716.2	370.76	2715.04	373.68	2714.2	374.37	2714.03
381.53	2712.2	388.68	2711.57	394.09	2711.1	404.61	2710.2	421.55	2710.2
438.73	2710.2	446.45	2711.1	457.07	2712.2	460.02	2712.59	461.78	2712.81
472.05	2714.2	472.21	2714.21	472.37	2714.23	482.56	2715.05	492.01	2715.68
499.54	2716.2	505.76	2716.2	506.8	2716.2	508.06	2716.2	511.97	2716.2

525.21	2716.2	527.07	2716.2	528.5	2716.2	553.86	2717.31	561.77	2717.65
570.69	2718.15	571.7	2718.2	572.56	2718.2	580.58	2718.2	585.74	2718.2
591.68	2718.2	602.76	2718.2	604.14	2718.2	607.25	2718.2	621.04	2718.2
623.52	2718.2	636.46	2718.2	675.96	2718.2	676.01	2718.2	676.13	2718.2
690.26	2718.7	696.61	2718.93	713.82	2719.55	720.76	2719.8	732.03	2720.2
748.17	2720.65	757.28	2720.91	773.97	2721.38	781.65	2721.59	800.37	2722.14
800.97	2722.15	802.53	2722.2	802.97	2722.2	865.34	2723.25	868.56	2723.26
880.23	2723.14	882.27	2723.24	883.61	2723.2	886.28	2723.32	888.09	2723.3
891.14	2723.41	893.17	2723.41	896.2	2723.48	898.29	2723.48	900.53	2723.49
903.45	2723.5	905.65	2723.51	907.77	2723.51	910.56	2723.48	913.75	2723.44
917.01	2723.38	920.19	2723.33	923.2	2723.3	944.09	2722.74	945.76	2722.73
947.31	2722.73	948.92	2722.75	950.59	2722.76	952.29	2722.76	964.17	2722.2
966.54	2722.09	966.94	2722.06	967.52	2722.01	967.96	2721.97	981.46	2721.16
991.98	2722.2	992.96	2722.2	999.8	2722.2	1000.71	2722.2	1002.73	2722.2
1008.37	2722.84	1012.76	2723.29	1016.35	2723.68	1021.5	2724.2	1024.29	2724.39
1025.31	2724.45	1032.48	2724.92	1036.35	2725.17	1040.55	2725.46	1048.11	2725.97
1049.07	2726.03	1051.56	2726.2	1058.3	2726.63	1061.32	2726.88	1065.11	2727.15

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	357.88	.05	508.06	.06	690.26	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
357.88	511.97	248.96	225.25	190.53	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	325.27	2717.64	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2720.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.34	Wt. n-Val.	0.050	0.050	0.060
W.S. Elev (ft)	2719.47	Reach Len. (ft)	248.96	225.25	190.53
Crit W.S. (ft)	2718.18	Flow Area (sq ft)	180.59	1015.26	308.72
E.G. Slope (ft/ft)	0.009160	Area (sq ft)	180.59	1015.26	308.72
Q Total (cfs)	12000.00	Flow (cfs)	845.69	10133.20	1021.12
Top Width (ft)	438.68	Top Width (ft)	85.03	154.09	199.56
Vel Total (ft/s)	7.98	Avg. Vel. (ft/s)	4.68	9.98	3.31
Max Chl Dpth (ft)	9.27	Hydr. Depth (ft)	2.12	6.59	1.55
Conv. Total (cfs)	125383.0	Conv. (cfs)	8836.2	105877.5	10669.2
Length Wtd. (ft)	222.57	Wetted Per. (ft)	85.48	155.03	199.63
Min Ch El (ft)	2710.20	Shear (lb/sq ft)	1.21	3.74	0.88
Alpha	1.36	Stream Power (lb/ft s)	5.66	37.38	2.93
Frctn Loss (ft)	2.51	Cum Volume (acre-ft)	250.71	397.54	168.24
C & E Loss (ft)	0.02	Cum SA (acres)	194.59	87.71	117.69

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 25222.61

INPUT
Description:
Station Elevation Data num= 192

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2724.82	14.82	2724.73	18.71	2724.7	22.06	2724.68	78.95	2724.2
80.71	2724.2	80.87	2724.2	81.07	2724.2	81.25	2724.2	82.84	2724.2
84.63	2724.2	85.63	2724.2	88.39	2724.2	89.99	2724.2	91.87	2724.2
93.38	2724.2	94.38	2724.2	132.49	2723.23	142.42	2722.91	147.7	2722.79
162.08	2722.28	162.73	2722.26	164.43	2722.2	165.62	2722.15	165.95	2722.14
176.5	2721.76	179.7	2721.67	184.82	2721.51	194.03	2721.2	217.81	2720.39
220.43	2720.3	223.43	2720.2	245.53	2719.08	264.05	2718.2	266.55	2718.2
276.67	2718.2	277.73	2718.2	280.13	2718.2	290.49	2718.2	291.17	2718.2
300.56	2718.2	300.68	2718.13	303.59	2716.2	304.18	2715.88	307.48	2714.2
310	2712.69	310.8	2712.2	311.73	2711.75	315.07	2710.2	319.47	2708.64
320.7	2708.2	330.4	2708.2	379.15	2708.2	379.86	2708.2	380.49	2708.2
380.69	2708.25	389.91	2710.2	393.49	2710.67	405.69	2712.2	412.54	2713.84
414	2714.2	414.82	2714.2	424.91	2714.2	429.69	2713.69	441.64	2712.2
443.12	2712.2	446.24	2712.2	452.24	2713.7	454.21	2714.19	454.25	2714.2
460.11	2714.2	460.94	2714.2	465.27	2714.2	495.6	2714.98	496.98	2715.02
500.58	2715.04	502.61	2715.05	504.9	2715.05	507.42	2715.07	511.05	2715.11
513.95	2715.12	527.43	2715.3	530.63	2715.35	533.76	2715.4	536.73	2715.43
566.77	2715.3	569.13	2715.2	572.16	2715.09	574.19	2715.08	577.63	2714.97
579.79	2714.93	584.22	2714.81	590.15	2714.69	591.83	2714.64	599.23	2714.5
600.31	2714.47	608.83	2714.31	609.26	2714.3	609.6	2714.29	609.89	2714.28
610.14	2714.28	610.67	2714.27	613.48	2714.28	615.32	2714.33	616.26	2714.36
617.76	2714.4	620.37	2714.48	625.12	2714.62	642.32	2715.11	650.84	2715.36
662.85	2715.68	678.79	2716.03	679.24	2716.02	683.12	2716.16	683.21	2716.16
685.75	2716.2	686.88	2716.2	690.62	2716.2	691.19	2716.2	695.67	2716.2
696.08	2716.2	700.45	2716.2	700.79	2716.2	702.6	2716.25	708.14	2716.28
713.95	2716.3	720.05	2716.31	725.02	2716.2	728.95	2716.2	731.81	2716.2

738.3	2716.2	739.86	2716.2	744.66	2716.2	748.38	2716.2	752.45	2716.2
766.25	2717.17	772.96	2717.63	781	2718.2	781.47	2718.2	787.89	2718.46
789.62	2718.53	803.57	2719.06	811.06	2719.35	828.36	2720.2	829.15	2720.2
831.52	2720.2	832.62	2720.2	834.12	2720.2	837.48	2720.2	839	2720.2
840.92	2720.2	844.28	2720.2	846.09	2720.2	848.26	2720.2	849.47	2720.2
857.38	2720.72	863.23	2720.95	886.16	2722.02	886.75	2722.03	893.05	2722.1
893.38	2722.11	900.19	2722.16	901.67	2722.2	901.86	2722.2	902.16	2722.2
904.4	2722.2	907.28	2722.23	907.37	2722.23	907.5	2722.23	914.8	2722.36
915.49	2722.39	916.47	2722.43	917.9	2722.48	926.12	2722.72	929.52	2722.85
935.42	2723.09	942.51	2723.35	952.85	2723.78	963.01	2724.2	974.67	2724.91
995.16	2726.2	997.9	2726.52	1009.89	2727.82	1012.72	2728.13	1013.42	2728.2
1023.15	2729.5	1025.12	2729.76	1030.08	2730.08	1030.39	2730.11	1030.58	2730.12
1030.76	2730.13	1032.5	2730.18						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	300.68	.055	414	.06	496.98	.06	642.32	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
300.68	496.98	234.48	231.34	220.17	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
535.16	1032.5	2715.48	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2718.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.50	Wt. n-Val.		0.056	0.058
W.S. Elev (ft)	2716.78	Reach Len. (ft)	234.48	231.34	220.17
Crit W.S. (ft)	2716.78	Flow Area (sq ft)		1021.92	350.27
E.G. Slope (ft/ft)	0.014241	Area (sq ft)		1021.92	350.27
Q Total (cfs)	12000.00	Flow (cfs)		10593.18	1406.82
Top Width (ft)	458.02	Top Width (ft)		194.27	263.75
Vel Total (ft/s)	8.75	Avg. Vel. (ft/s)		10.37	4.02
Max Chl Dpth (ft)	8.58	Hydr. Depth (ft)		5.26	1.33
Conv. Total (cfs)	100557.4	Conv. (cfs)		88768.6	11788.8
Length Wtd. (ft)	230.08	Wetted Per. (ft)		197.22	263.82
Min Ch El (ft)	2708.20	Shear (lb/sq ft)		4.61	1.18
Alpha	1.27	Stream Power (lb/ft s)		47.75	4.74
Frctn Loss (ft)	2.47	Cum Volume (acre-ft)	250.20	392.27	166.80
C & E Loss (ft)	0.02	Cum SA (acres)	194.35	86.81	116.68

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 24991.27

INPUT
Description:
Station Elevation Data num= 188

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2721.89	10.37	2721.69	12.65	2721.65	77.5	2720.85	79.23	2720.86
80.76	2720.85	83.66	2720.83	85.18	2720.82	88.92	2720.81	90.6	2720.8
94.79	2720.8	96.38	2720.78	100.73	2720.78	105.13	2720.79	123.03	2720.73
127.52	2720.73	128.81	2720.74	133.26	2720.74	183.48	2720.32	183.77	2720.32
188.79	2720.22	188.86	2720.22	190.12	2720.2	195.88	2720.09	202.56	2719.97
203.46	2719.96	209.93	2719.84	211.29	2719.83	212.8	2719.8	218.87	2719.7
220.87	2719.67	223.18	2719.63	228.98	2719.53	231.97	2719.47	235.47	2719.41
240.81	2719.32	245.01	2719.23	249.51	2719.16	254.54	2719.06	258.32	2718.99
264.12	2718.87	271.21	2718.72	280.09	2718.53	281.86	2718.49	291.96	2718.25
293.91	2718.2	308.32	2717.17	322.43	2716.2	323.86	2715.58	326.09	2714.61
327.03	2714.2	331.42	2712.21	331.44	2712.2	333.22	2711.43	335.39	2710.48
336.03	2710.2	336.17	2710.14	340.42	2708.2	346.65	2706.37	347.23	2706.2
347.78	2706.2	348.26	2706.2	368.9	2706.2	372.62	2706.2	403.36	2706.2
436.43	2708.11	437.96	2708.2	438.57	2708.25	462.66	2710.2	467.73	2710.61
490.5	2712.09	491.78	2712.18	491.91	2712.19	491.96	2712.19	491.99	2712.19
492.16	2712.2	492.53	2712.2	493.1	2712.2	503.09	2712.2	513.57	2712.2
523.72	2712.2	528.39	2712.2	531.25	2711.58	533.7	2710.99	538.62	2710.82
540.16	2710.6	545.58	2710.62	546.79	2710.51	547.49	2710.44	552.17	2710.53
552.89	2710.47	573.28	2711.66	578.63	2712.2	579.07	2712.2	579.25	2712.2
581.38	2712.2	588.51	2712.2	589.04	2712.2	595.33	2712.2	600.56	2712.2
601.63	2712.2	606.21	2712.2	607.76	2712.2	611.85	2712.2	613.87	2712.2
617.59	2712.2	651.15	2713.35	653.75	2713.35	657.24	2713.43	659.65	2713.44
663.43	2713.5	665.59	2713.51	667.8	2713.51	671.19	2713.55	673.22	2713.56
675.07	2713.58	678.12	2713.57	679.9	2713.6	681.49	2713.63	684.39	2713.59

685.89	2713.62	687.11	2713.65	756.92	2714.2	758.7	2714.2	769.51	2714.2
769.88	2714.2	770.17	2714.2	770.51	2714.2	774.98	2714.2	776.78	2714.2
779.95	2714.2	804.93	2714.98	808.35	2715.15	812.23	2715.2	816.83	2715.46
819.43	2715.53	825.23	2715.89	828.76	2716.2	829.36	2716.2	830.44	2716.2
832.57	2716.72	834.39	2716.73	837.83	2717.19	841.19	2717.22	857.91	2718.2
859.64	2718.2	862.98	2718.2	865.8	2718.2	868.4	2718.2	871.14	2718.2
874.65	2718.2	875.64	2718.2	876.98	2718.2	887.52	2720.17	887.65	2720.2
887.84	2720.24	897.03	2722.2	898.98	2722.2	931.74	2724	935.8	2724.2
952.95	2724.2	958.48	2724.2	962.65	2724.2	965.94	2724.42	966.72	2724.51
968.57	2724.71	972.05	2724.89	978.6	2725.76	981.89	2726.2	983.82	2726.56
993.26	2728.2	994.1	2728.38	998.67	2729.38	1001.83	2730.07	1002.5	2730.2
1002.88	2730.2	1003.31	2730.2	1014.51	2730.75	1015.32	2730.73	1019.91	2730.7
1024.78	2730.65	1025.74	2730.59	1031.53	2730.47	1039.24	2730.2	1039.36	2730.2
1039.4	2730.2	1047.62	2730.2	1048.1	2730.2				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	323.86	.04	492.16	.06	651.15	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
323.86	492.16	209.24	236.99	269	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
528.03	1048.1	2712.21	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2715.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.70	Wt. n-Val.		0.040	0.060
W.S. Elev (ft)	2714.08	Reach Len. (ft)	209.24	236.99	269.00
Crit W.S. (ft)	2713.91	Flow Area (sq ft)		970.94	370.10
E.G. Slope (ft/ft)	0.008381	Area (sq ft)		970.94	370.10
Q Total (cfs)	12000.00	Flow (cfs)		10692.07	1307.93
Top Width (ft)	414.92	Top Width (ft)		164.87	250.04
Vel Total (ft/s)	8.95	Avg. Vel. (ft/s)		11.01	3.53
Max Chl Dpth (ft)	7.88	Hydr. Depth (ft)		5.89	1.48
Conv. Total (cfs)	131082.0	Conv. (cfs)		116794.8	14287.2
Length Wtd. (ft)	240.62	Wetted Per. (ft)		166.63	250.30
Min Ch El (ft)	2706.20	Shear (lb/sq ft)		3.05	0.77
Alpha	1.37	Stream Power (lb/ft s)		33.57	2.73
Frctn Loss (ft)	2.04	Cum Volume (acre-ft)	250.20	386.98	164.97
C & E Loss (ft)	0.08	Cum SA (acres)	194.35	85.85	115.38

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 24754.28

INPUT
Description:
Station Elevation Data num= 176

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2719.88	58.52	2718.93	60.91	2718.92	65.31	2718.86	70.08	2718.79
72.09	2718.78	77.18	2718.7	78.91	2718.69	84.4	2718.61	85.87	2718.6
87.22	2718.59	92.55	2718.51	98.43	2718.42	99.11	2718.41	105.42	2718.3
111.22	2718.2	112.48	2718.18	112.57	2718.18	120.08	2718.05	120.72	2718.04
127.98	2717.91	134.39	2717.8	135.94	2717.78	141.73	2717.69	143.74	2717.67
149.16	2717.57	163.85	2717.39	169.49	2717.3	174.05	2717.22	178.93	2717.14
184.25	2717.06	188.34	2716.99	194.52	2716.9	197.81	2716.85	228.03	2716.2
229.45	2716.2	231.35	2716.2	232.95	2716.2	234.86	2716.2	237.12	2716.2
238.08	2716.2	240.05	2716.2	240.47	2716.2	240.93	2716.2	245.77	2716.04
246.64	2716.02	252.15	2715.86	258.24	2715.66	280.18	2714.93	302.2	2714.2
305.54	2713.52	311.67	2712.2	314.21	2711.51	315.44	2711.18	319.11	2710.2
323.79	2708.94	326.7	2708.2	329.91	2707.5	335.24	2706.2	337.75	2705.75
342.51	2704.9	347.08	2704.2	348.33	2704.2	349.67	2704.2	359.73	2703.54
390.34	2703.34	392.72	2703.52	393.94	2703.51	398.18	2703.79	399.07	2703.82
404.71	2704.2	405.86	2704.28	413.93	2704.76	417.8	2705.11	421.75	2705.35
423.88	2705.46	430.28	2706.2	432.62	2706.52	440.97	2707.66	444.84	2708.2
453.51	2708.53	463.44	2708.88	469.9	2709.09	474.71	2709.24	478.98	2709.35
482.65	2709.46	485.45	2709.54	490.61	2709.64	492.76	2709.7	494.49	2709.75
499.28	2709.8	500.64	2709.84	501.51	2709.86	501.65	2709.87	505.2	2709.86
505.83	2709.88	510.73	2709.91	563.9	2710.2	580.36	2710.2	582.58	2710.2
589.13	2710.2	594.35	2710.26	605.93	2710.38	613.68	2710.47	619.35	2710.53
623.49	2710.58	626.78	2710.62	629.32	2710.65	631.4	2710.67	633.2	2710.69
634.78	2710.71	636.2	2710.72	637.47	2710.73	638.53	2710.74	639.42	2710.75
742.32	2712.02	743.48	2712.03	744.39	2712.04	745.19	2712.05	745.89	2712.06
746.53	2712.07	752.87	2712.15	753.11	2712.15	753.31	2712.15	758.91	2712.2
758.97	2712.2	761.4	2712.2	764.79	2712.2	769.41	2712.2	773.5	2712.2
779.73	2712.2	782.92	2712.29	789.03	2712.3	789.33	2712.32	795.74	2712.4
796.36	2712.43	802.96	2712.56	804.29	2712.62	810.59	2712.81	813.04	2712.91
816.78	2713.07	821.83	2713.26	827.66	2713.52	837.53	2713.99	837.98	2714.02

841.69	2714.2	851.08	2715.05	863.21	2716.2	864.34	2716.33	871.96	2717.23
879.81	2718.01	880.59	2718.1	881.73	2718.2	885.9	2719	892.91	2720.2
895.4	2720.2	903.58	2720.2	904.9	2720.2	905.27	2720.2	914.4	2720.8
917.62	2720.91	923.42	2721.25	928.14	2721.38	949.93	2722.2	950.53	2722.2
954.6	2722.49	959.09	2722.8	967.96	2723.44	979.01	2724.2	982.11	2724.47
984.74	2724.66	1001.36	2725.97	1003.46	2726.14	1004.26	2726.2	1016.84	2727.13
1023.5	2727.53								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	314.21	.045	485.45	.05	501.51	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
314.21	485.45	167.58	166.21	165.56	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2713.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.44	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2712.23	Reach Len. (ft)	167.58	166.21	165.56
Crit W.S. (ft)	2711.86	Flow Area (sq ft)	0.95	1042.44	406.00
E.G. Slope (ft/ft)	0.008586	Area (sq ft)	0.95	1042.44	406.00
Q Total (cfs)	12000.00	Flow (cfs)	1.28	10587.62	1411.10
Top Width (ft)	469.16	Top Width (ft)	2.67	171.24	295.26
Vel Total (ft/s)	8.28	Avg. Vel. (ft/s)	1.35	10.16	3.48
Max Chl Dpth (ft)	8.89	Hydr. Depth (ft)	0.36	6.09	1.38
Conv. Total (cfs)	129502.8	Conv. (cfs)	13.8	114260.5	15228.5
Length Wtd. (ft)	166.12	Wetted Per. (ft)	2.76	172.37	295.27
Min Ch El (ft)	2703.34	Shear (lb/sq ft)	0.18	3.24	0.74
Alpha	1.35	Stream Power (lb/ft s)	0.25	32.93	2.56
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	250.20	381.50	162.58
C & E Loss (ft)	0.02	Cum SA (acres)	194.34	84.94	113.70

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 24588.07

INPUT
Description:
Station Elevation Data num= 143

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2716.32	6.81	2716.2	6.87	2716.2	6.88	2716.2	6.89	2716.2
10.62	2716.2	11.02	2716.2	13.85	2716.2	14.5	2716.2	15.04	2716.2
36.8	2715.79	90.41	2715.14	94.43	2715.07	99.08	2714.98	104.64	2714.87
110.86	2714.74	118.43	2714.58	119.58	2714.57	128.22	2714.37	135.96	2714.2
140.33	2714.05	141.88	2714	156.26	2713.52	163.25	2713.32	172.01	2713.04
183.86	2712.71	196.02	2712.4	196.7	2712.4	203.05	2712.2	203.49	2712.16
211.34	2711.52	216.68	2711.02	225.05	2710.2	231.43	2708.58	232.85	2708.2
236.31	2707.34	239.09	2706.64	240.91	2706.2	248.26	2705.04	248.45	2705.01
253.96	2704.2	259.37	2703.76	279.26	2702.2	295.58	2702.2	311.27	2702.2
318.53	2703.98	319.42	2704.2	320.23	2704.2	322.54	2704.2	329.37	2704.2
336.89	2704.2	359.69	2705.97	362.59	2706.2	375.38	2707.45	382.07	2708.1
383.3	2708.2	384.48	2708.2	386.14	2708.2	387.91	2708.2	390.68	2708.2
406.47	2708.2	410.02	2708.2	417.81	2708.2	421.93	2708.2	422.96	2708.2
434.82	2708.2	442.27	2708.2	447.88	2708.2	458.67	2708.2	459.01	2708.2
468.29	2708.32	549.45	2709.33	553.83	2709.38	560.13	2709.44	564.02	2709.48
567.47	2709.51	570.73	2709.55	577.26	2709.61	580.1	2709.64	586.96	2709.7
594.66	2709.77	596.7	2709.8	605	2709.87	614	2709.96	624.02	2710.05
635.31	2710.16	635.54	2710.16	640.29	2710.2	642.66	2710.2	647.1	2710.2
649.96	2710.2	653.74	2710.2	657.85	2710.2	664	2710.2	671.58	2710.2
674.54	2710.2	694.31	2710.24	698.19	2710.23	702.64	2710.23	707.15	2710.24
711.83	2710.26	716.48	2710.27	720.96	2710.28	725.2	2710.29	729.17	2710.3
732.79	2710.31	735.9	2710.32	738.41	2710.33	762.94	2710.8	767.65	2710.85
771.96	2710.9	774.43	2710.93	778.47	2710.98	803.73	2711.39	809.66	2711.52
812.89	2711.57	815.79	2711.62	822.41	2711.74	824.54	2711.77	826.38	2711.8
827.99	2711.83	834.82	2711.94	835.87	2711.95	843.39	2712.06	851.71	2712.17
851.82	2712.18	853.53	2712.2	859.01	2712.54	860.53	2712.65	863.67	2712.89
869.53	2713.32	877.54	2713.97	878.55	2714.05	880.29	2714.2	886.87	2714.93
892.13	2715.48	895.08	2715.81	898.83	2716.2	903.79	2716.77	908.77	2717.29
912.9	2717.74	917.6	2718.2	919.48	2718.39				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	236.31	.045	383.3	.06	468.29	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
236.31	383.3	263.06	270.3	279.16	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2712.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.37	Wt. n-Val.	0.050	0.045	0.055
W.S. Elev (ft)	2710.92	Reach Len. (ft)	263.06	270.30	279.16
Crit W.S. (ft)	2710.77	Flow Area (sq ft)	26.93	973.07	581.95
E.G. Slope (ft/ft)	0.007732	Area (sq ft)	26.93	973.07	581.95
Q Total (cfs)	12000.00	Flow (cfs)	88.75	9926.03	1985.21
Top Width (ft)	556.09	Top Width (ft)	18.63	146.99	390.47
Vel Total (ft/s)	7.59	Avg. Vel. (ft/s)	3.30	10.20	3.41
Max Chl Dpth (ft)	8.72	Hydr. Depth (ft)	1.45	6.62	1.49
Conv. Total (cfs)	136466.0	Conv. (cfs)	1009.3	112880.5	22576.2
Length Wtd. (ft)	271.42	Wetted Per. (ft)	19.02	147.78	390.48
Min Ch El (ft)	2702.20	Shear (lb/sq ft)	0.68	3.18	0.72
Alpha	1.53	Stream Power (lb/ft s)	2.25	32.42	2.45
Frctn Loss (ft)	3.11	Cum Volume (acre-ft)	250.14	377.66	160.70
C & E Loss (ft)	0.03	Cum SA (acres)	194.30	84.33	112.39

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: Agua Caliente
REACH: upper RS: 24317.77

INPUT
Description:
Station Elevation Data num= 160

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2712.11	1.01	2712.01	9.93	2711.14	18.81	2710.29	19.26	2710.25
19.42	2710.24	19.52	2710.23	19.6	2710.23	19.69	2710.23	20.42	2710.2
21.9	2710.2	22.46	2710.2	27.03	2710.2	27.35	2710.2	30.08	2710.2
33.44	2710.32	33.84	2710.35	39.33	2710.66	40.95	2710.83	44.84	2711.32
47.88	2711.63	52.08	2712.2	72.73	2712.2	75	2712.2	75.36	2712.18
75.42	2712.18	80.55	2711.92	81.28	2711.92	85.87	2711.77	86.99	2711.79
91.28	2711.69	94.99	2711.58	96.55	2711.63	99.81	2711.51	101.42	2711.57
102.86	2711.61	104.32	2711.64	105.85	2711.65	109.91	2711.53	111.99	2711.53
121.99	2711.31	126.26	2711.16	132.51	2710.92	136.05	2710.81	144.92	2710.43
149.98	2710.2	152.87	2709.62	158.05	2708.57	159.7	2708.2	163.2	2707.39
168.41	2706.2	170.66	2705.67	176.84	2704.2	180.96	2703.19	185.19	2702.2
185.29	2702.19	193.72	2701.51	201.2	2700.91	207.6	2700.63	209.85	2700.48
211.03	2700.4	211.72	2700.36	217.75	2700.29	218.07	2700.28	218.26	2700.27
221.31	2700.29	228.58	2700.33	228.88	2700.35	229.46	2700.39	237.66	2700.57
239.41	2700.71	243.09	2700.99	254.42	2701.87	256.34	2702	258.62	2702.2
261.31	2702.2	264.32	2702.2	295.6	2702.2	298.78	2702.2	300.46	2702.2
307.71	2702.2	313.24	2702.2	314.82	2702.2	318.99	2702.2	322.93	2702.53
326.15	2702.96	331.65	2703.59	335.59	2704.2	339.14	2704.37	344.67	2704.61
349.09	2704.79	350.6	2704.79	354.71	2704.93	357.91	2705.05	365.52	2705.28
367.91	2705.33	391.9	2705.39	394.96	2705.43	397.72	2705.47	398.38	2705.48
400.01	2705.51	403.42	2705.52	405.42	2705.55	408.57	2705.59	417.05	2705.69
418.38	2705.7	451.72	2705.88	463.43	2706.03	470.16	2706.14	473.87	2706.2
479.14	2706.29	488.86	2706.47	490.27	2706.49	498.67	2706.64	505.71	2706.77
506.77	2706.79	512.3	2706.9	515.87	2706.95	521.7	2707.06	526.44	2707.15
530.75	2707.19	535.02	2707.27	538.71	2707.34	555.26	2707.5	558.53	2707.55
562.97	2707.59	565.7	2707.64	567.74	2707.68	572.38	2707.7	616.84	2708.2
618.92	2708.2	621.64	2708.2	624.6	2708.2	627.73	2708.2	631.83	2708.2
634.9	2708.2	640.1	2708.2	642.66	2708.2	654.07	2708.2	654.85	2708.2
655.58	2708.2	674.44	2708.52	677.29	2708.56	786.06	2710.2	787.01	2710.2
788.81	2710.2	790.59	2710.2	793.47	2710.2	795.68	2710.2	799.05	2710.2
803.64	2710.2	804.63	2710.2	807.72	2710.2	809	2710.2	885.38	2711.89
886.69	2711.91	887.89	2711.93	888.99	2711.95	896.8	2712.2	926.47	2713.02

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	170.66	.05	185.29	.05	258.62	.06	365.52	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
170.66	365.52	244.72	239.43	234.47	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2709.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.68	Wt. n-Val.	0.050	0.056	0.050
W.S. Elev (ft)	2707.46	Reach Len. (ft)	244.72	239.43	234.47
Crit W.S. (ft)	2707.37	Flow Area (sq ft)	6.89	998.23	238.04
E.G. Slope (ft/ft)	0.018741	Area (sq ft)	6.89	998.23	238.04
Q Total (cfs)	12000.00	Flow (cfs)	25.46	10830.42	1144.11
Top Width (ft)	387.98	Top Width (ft)	7.75	194.86	185.37
Vel Total (ft/s)	9.65	Avg. Vel. (ft/s)	3.70	10.85	4.81
Max Chl Dpth (ft)	7.19	Hydr. Depth (ft)	0.89	5.12	1.28
Conv. Total (cfs)	87655.6	Conv. (cfs)	186.0	79112.2	8357.3
Length Wtd. (ft)	239.04	Wetted Per. (ft)	7.96	195.55	185.39
Min Ch El (ft)	2700.27	Shear (lb/sq ft)	1.01	5.97	1.50

Alpha	1.16	Stream Power (lb/ft s)	3.74	64.80	7.22
Frctn Loss (ft)	2.08	Cum Volume (acre-ft)	250.04	371.54	158.07
C & E Loss (ft)	0.27	Cum SA (acres)	194.22	83.27	110.55

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: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 24078.34

INPUT
Description:
Station Elevation Data num= 161

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2712.2	4.41	2712.2	5.01	2712.2	8.25	2712.2	69	2710.36
69.8	2710.33	73.99	2710.2	85	2709.44	103.7	2708.2	104.29	2708.12
117.84	2706.2	125.28	2704.79	127.32	2704.44	128.88	2704.2	133.89	2703.48
134.91	2703.34	138.68	2702.95	142.24	2702.66	143.71	2702.54	148.36	2702.2
149.03	2702.2	149.41	2702.2	151.22	2702.2	153.3	2702.2	154.76	2702.2
157.03	2702.2	168.91	2700.22	168.96	2700.21	169.01	2700.2	178.96	2698.83
182.79	2698.3	183.57	2698.2	190.73	2698.2	198.01	2698.2	201.51	2698.83
208.32	2700.2	214.13	2700.2	222.84	2700.2	233.74	2700.2	234.73	2699.98
241.57	2698.49	242.74	2698.24	242.91	2698.2	252.32	2698.2	257.04	2698.2
262.18	2698.2	271.75	2698.2	272.65	2698.2	275.04	2698.2	278.44	2698.85
279.09	2698.83	288.59	2698.78	291.62	2698.57	292.37	2698.47	296.13	2698.37
300.81	2698.31	301.13	2698.28	307.2	2698.21	307.23	2698.21	307.79	2698.2
314.67	2698.2	315.09	2698.2	322.46	2698.2	323.66	2698.2	328.23	2698.2
329.83	2698.2	331.24	2698.2	335.86	2698.78	343.77	2700.2	347.53	2700.62
348.97	2700.79	360.67	2702.2	366.72	2702.2	371.47	2702.2	377.75	2702.2
383.53	2702.2	387.46	2702.2	389.17	2702.2	397.26	2702.2	403.62	2703.17
406.24	2703.39	413.85	2704.02	415.47	2704.2	415.94	2704.2	418.87	2704.2
419.09	2704.2	433.58	2704.35	446.61	2704.47	486.71	2704.72	488.97	2704.71
491.41	2704.72	493.55	2704.75	495.1	2704.78	510.93	2705.43	513.19	2705.45
515.44	2705.47	517.57	2705.49	519.55	2705.5	562.46	2706.2	565.42	2706.2
566.8	2706.2	570.53	2706.2	572.15	2706.2	576.51	2706.2	578.23	2706.2
580.04	2706.2	584.71	2706.2	586.04	2706.2	591.22	2706.2	594.08	2706.2
595.06	2706.2	598.68	2706.2	599.26	2706.2	601.79	2706.2	603.19	2706.21
603.23	2706.21	608.73	2706.28	616.49	2706.4	618.35	2706.42	628.77	2706.6
700.88	2707.57	705.18	2707.63	706.87	2707.64	708.61	2707.66	713.58	2707.71
716.48	2707.74	717.76	2707.75	722.96	2707.8	723.87	2707.81	729.18	2707.86
751.86	2708.2	753.47	2708.2	754.86	2708.2	756.71	2708.2	758.86	2708.2
761.05	2708.2	763.29	2708.2	766.25	2708.2	768.37	2708.2	771.91	2708.2
773.81	2708.2	777.83	2708.2	786.44	2708.2	786.66	2708.2	787.82	2708.2
788.07	2708.2	793.46	2708.2	798.11	2708.2	800.11	2708.2	804.44	2708.2
806.96	2708.2	810.53	2708.2	813.23	2708.2	815.74	2708.2	818.45	2708.2
820.58	2708.2	850.91	2708.77	854.49	2708.8	887.16	2709.35	891.8	2709.47
894.81	2709.56								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	151.22	.05	360.67	.06	403.62	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
151.22	360.67	226.46	220.19	214.17	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2706.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.050	0.050	0.056
W.S. Elev (ft)	2706.00	Reach Len. (ft)	226.46	220.19	214.17
Crit W.S. (ft)	2704.01	Flow Area (sq ft)	77.52	1416.33	332.65
E.G. Slope (ft/ft)	0.005021	Area (sq ft)	77.52	1416.33	332.65
Q Total (cfs)	12000.00	Flow (cfs)	290.99	10629.36	1079.65
Top Width (ft)	431.03	Top Width (ft)	32.30	209.45	189.28
Vel Total (ft/s)	6.57	Avg. Vel. (ft/s)	3.75	7.50	3.25
Max Chl Dpth (ft)	7.80	Hydr. Depth (ft)	2.40	6.76	1.76
Conv. Total (cfs)	169346.5	Conv. (cfs)	4106.6	150003.7	15236.2
Length Wtd. (ft)	219.92	Wetted Per. (ft)	32.57	210.52	189.42
Min Ch El (ft)	2698.20	Shear (lb/sq ft)	0.75	2.11	0.55
Alpha	1.19	Stream Power (lb/ft s)	2.80	15.83	1.79
Frctn Loss (ft)	1.55	Cum Volume (acre-ft)	249.80	364.90	156.54
C & E Loss (ft)	0.12	Cum SA (acres)	194.11	82.16	109.54

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: Agua Caliente
REACH: upper RS: 23858.15

INPUT
Description:
Station Elevation Data num= 178

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2712.2	.65	2712.2	1.31	2712.2	3.66	2712.2	3.98	2712.2
5.03	2712.2	5.96	2712.2	56.46	2710.88	64.09	2710.7	83.14	2710.2
83.38	2710.2	83.44	2710.2	86.75	2710.2	116.76	2710.2	120.88	2710.2
141.22	2709.01	144.77	2708.95	151.85	2708.81	168.44	2708.73	169.92	2708.75
174.22	2708.63	175.46	2708.64	180.46	2708.55	186.21	2708.48	187.01	2708.48
194.11	2708.2	197.34	2708.2	198.43	2708.2	200.46	2708.2	200.98	2708.2
203.74	2707.92	212.79	2708.2	217.62	2708.2	219.46	2708.2	221.19	2708.2
221.58	2708.2	225.19	2706.27	225.31	2706.2	225.45	2706.13	229.38	2704.2
231.51	2703.12	233.06	2702.34	233.34	2702.2	235.47	2701.12	237.22	2700.2
238.05	2699.78	241.1	2698.2	248.63	2697.26	257.35	2696.2	257.89	2696.2
259.16	2696.2	277.91	2696.2	279.7	2696.2	280.21	2696.43	284.17	2698.2
285.03	2698.59	288.62	2700.2	300.45	2700.2	313.17	2700.2	317.99	2700.2
323.41	2700.2	329.47	2698.85	332.48	2698.2	334.44	2697.82	341.97	2696.2
346.51	2695.89	347.18	2695.88	351.89	2695.58	388.43	2695.75	391.4	2695.76
396.65	2696.2	401.67	2697.37	405.28	2698.2	412.16	2699.81	413.84	2700.2
421.83	2701.67	424.6	2702.2	426.19	2702.2	426.97	2702.2	432.45	2702.2
435.03	2702.2	435.04	2702.2	438.57	2702.2	440.82	2702.2	444.85	2702.2
446.94	2702.2	467.17	2702.2	469.59	2702.2	473.41	2702.2	476.23	2702.2
479.2	2702.2	482.28	2702.2	486.7	2702.2	510.25	2702.2	521.14	2702.2
549.64	2702.2	550.15	2702.2	550.32	2702.2	577.12	2703.45	579.66	2703.51
584.64	2703.64	586.65	2703.69	591.92	2703.79	593.33	2703.83	598.85	2703.89
599.89	2703.92	600.76	2703.95	606.73	2703.99	607.37	2704.01	613.31	2704.03
613.83	2704.04	614.28	2704.05	620.04	2704.06	624.86	2704.06	625.27	2704.07
625.64	2704.08	648.23	2704.2	660.2	2704.2	661.14	2704.2	662.69	2704.2
663.93	2704.23	674.45	2704.47	675.52	2704.52	683.87	2704.72	690.66	2704.9
696.02	2705.04	698.6	2705.12	702.75	2705.24	720.88	2705.13	723.22	2705.19
724.35	2705.14	727.45	2705.16	730.38	2705.15	732.42	2705.14	733.04	2705.19
750.24	2705.38	754.74	2705.52	756.42	2705.61	766.32	2705.97	767.02	2705.98
770.77	2705.99	790.34	2706.2	799.04	2706.2	801.52	2706.2	804.97	2706.2
808.23	2706.2	813.83	2706.2	819.72	2706.2	832.71	2706.2	833.04	2706.2
833.17	2706.2	833.33	2706.2	836.7	2706.2	837.64	2706.2	838.51	2706.2
841.46	2706.2	845.32	2706.2	850.38	2706.2	861.93	2706.2	862.88	2706.2
865.73	2706.2	876.49	2706.37	886.79	2706.53	888.89	2706.58	898.17	2706.73
905.85	2706.87	909.77	2706.96	945.63	2708.2	947.7	2708.2	949.5	2708.2
951.61	2708.2	953.43	2708.2	955.35	2708.2	956.97	2708.2	958.34	2708.2
959.57	2708.2	960.07	2708.2	971.07	2708.72				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	219.46	.04	424.6	.06	577.12	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
231.51	424.6	441.41	447.53	454.63	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2705.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.00	Wt. n-Val.		0.040	0.060
W.S. Elev (ft)	2703.12	Reach Len. (ft)	441.41	447.53	454.63
Crit W.S. (ft)	2703.09	Flow Area (sq ft)		1019.98	124.40
E.G. Slope (ft/ft)	0.010624	Area (sq ft)		1019.98	124.40
Q Total (cfs)	12000.00	Flow (cfs)		11713.82	286.18
Top Width (ft)	338.48	Top Width (ft)		193.09	145.40
Vel Total (ft/s)	10.49	Avg. Vel. (ft/s)		11.48	2.30
Max Chl Dpth (ft)	7.54	Hydr. Depth (ft)		5.28	0.86
Conv. Total (cfs)	116422.0	Conv. (cfs)		113645.5	2776.5
Length Wtd. (ft)	447.73	Wetted Per. (ft)		196.36	145.42
Min Ch El (ft)	2695.58	Shear (lb/sq ft)		3.45	0.57
Alpha	1.17	Stream Power (lb/ft s)		39.57	1.31
Frctn Loss (ft)	3.67	Cum Volume (acre-ft)	249.60	358.75	155.41
C & E Loss (ft)	0.08	Cum SA (acres)	194.02	81.14	108.72

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 23410.62

INPUT
Description:
Station Elevation Data num= 202

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2713.64	.63	2713.63	3.7	2713.6	5.76	2713.57	8.65	2713.52
29.04	2713.28	31.65	2713.27	34.44	2713.26	37.17	2713.26	70.05	2712.81
71.98	2712.79	77.86	2712.65	92.22	2712.2	93.02	2712.2	95.62	2712.2
96.68	2712.2	100.02	2712.2	101.18	2712.2	102.69	2712.2	105.83	2712.2
111.26	2712.2	112.05	2712.2	117.9	2712.08	118.58	2712.07	126.24	2711.88
127.92	2711.86	211.57	2710.2	213.77	2710.2	214.48	2710.2	215.26	2710.2
217.57	2710.2	217.96	2710.2	218.34	2710.2	218.83	2710.2	220.82	2710.2
222.13	2710.2	222.37	2710.2	269.48	2709.06	275.52	2708.98	279.44	2708.91
282.75	2708.85	288.81	2708.79	291.4	2708.74	324.82	2708.2	326.38	2708.2
328.22	2708.2	330.2	2708.2	332.6	2708.2	333.43	2708.2	335.9	2708.2
336.27	2708.2	337.26	2708.18	337.34	2708.18	338.13	2708.17	338.34	2708.16
349.49	2707.95	351.02	2707.93	360.66	2707.74	363.38	2707.7	366.58	2707.66
375.09	2707.49	379.69	2707.43	432.51	2706.2	436.37	2706.2	454.36	2706.2
455.6	2706.2	457.1	2706.2	458.22	2706.2	459.78	2706.2	460.36	2706.2
461.49	2706.2	464.34	2706.05	496.77	2704.42	501.02	2704.2	511.78	2702.6
514.4	2702.2	516.22	2701.7	518.17	2701.15	521.51	2700.2	528.35	2698.25
528.48	2698.21	528.51	2698.2	528.73	2698.14	535.96	2696.2	537.92	2695.71
545.01	2694.2	549.72	2694.2	552.57	2694.2	562.24	2694.2	570.66	2694.2
576.81	2694.2	577.33	2694.2	582.93	2694.99	585.76	2695.32	588.62	2695.76
590.82	2696	591.29	2696.02	593.41	2695.98	593.8	2695.96	594.01	2695.95
594.25	2695.93	594.56	2695.92	594.89	2695.9	596.12	2695.82	596.58	2695.79
618.2	2694.2	618.48	2694.2	618.82	2694.2	620.2	2694.2	620.31	2694.2
620.83	2694.2	622.77	2694.2	624.61	2694.2	625.29	2694.2	625.67	2694.2
627.57	2694.2	635.88	2693.13	643.28	2692.2	673.7	2692.2	687.03	2692.2
699.43	2692.2	704.39	2693.56	706.91	2694.2	708.21	2694.73	708.94	2695.01
709.62	2695.27	710.23	2695.5	712.05	2696.2	714.66	2696.98	718.59	2697.62
720.26	2697.96	722.73	2698.2	724.55	2698.2	724.95	2698.2	731.06	2698.2
738.45	2698.2	743.99	2698.2	744.74	2698.2	745.17	2698.2	747.41	2698.2
758.72	2698.2	759.37	2698.2	759.51	2698.2	775.75	2698.2	777.42	2698.2
816.18	2698.76	820.18	2698.79	847.1	2698.91	856.92	2699.02	859.43	2699.05
861.81	2699.06	864.75	2699.1	867.83	2699.12	871.19	2699.14	874.16	2699.16
877.47	2699.19	880.26	2699.21	883.84	2699.24	940.17	2700.11	940.54	2700.11
944.63	2700.2	969.61	2700.95	979.39	2701.24	1012.48	2702.2	1013.76	2702.2
1034.33	2702.2	1044.45	2702.2	1047.96	2702.2	1055.28	2702.2	1061.83	2702.2
1066.72	2702.2	1088.26	2702.2	1090.71	2702.2	1091.33	2702.2	1093.43	2702.2
1093.56	2702.2	1093.71	2702.2	1100.72	2702.36	1120.86	2702.96	1155.29	2704.09
1157.19	2704.15	1158.56	2704.2	1158.59	2704.2	1158.62	2704.2	1160.73	2704.2
1161.4	2704.2	1163.41	2704.2	1164.32	2704.2	1166.12	2704.2	1221.99	2705.43
1226.62	2705.52	1244.94	2705.77	1246.29	2705.78	1247.6	2705.78	1248.9	2705.79
1250.2	2705.79	1251.53	2705.8	1273.41	2706.2	1275.43	2706.2	1280.44	2706.2
1281.25	2706.2	1288.98	2706.2						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	528.35	.05	528.48	.035	722.73	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
528.35	722.73	380.82	389.04	402.02	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2701.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.72	Wt. n-Val.	0.050	0.035	0.050
W.S. Elev (ft)	2699.65	Reach Len. (ft)	380.82	389.04	402.02
Crit W.S. (ft)	2699.32	Flow Area (sq ft)	3.42	1083.38	174.94
E.G. Slope (ft/ft)	0.006506	Area (sq ft)	3.42	1083.38	174.94
Q Total (cfs)	12000.00	Flow (cfs)	6.28	11593.14	400.58
Top Width (ft)	386.65	Top Width (ft)	4.90	194.38	187.38
Vel Total (ft/s)	9.51	Avg. Vel. (ft/s)	1.84	10.70	2.29
Max Chl Dpth (ft)	7.45	Hydr. Depth (ft)	0.70	5.57	0.93
Conv. Total (cfs)	148767.8	Conv. (cfs)	77.8	143723.8	4966.2
Length Wtd. (ft)	390.28	Wetted Per. (ft)	5.09	196.03	187.39
Min Ch El (ft)	2692.20	Shear (lb/sq ft)	0.27	2.24	0.38
Alpha	1.22	Stream Power (lb/ft s)	0.50	24.02	0.87
Frctn Loss (ft)	2.13	Cum Volume (acre-ft)	249.58	347.94	153.85
C & E Loss (ft)	0.19	Cum SA (acres)	194.00	79.15	106.98

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.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 23021.58

INPUT
Description:

Station Elevation Data num= 198

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2714.03	26.93	2713.42	27.52	2713.4	31.66	2713.31	34.4	2713.22
69.94	2712.2	103.06	2711.08	108.64	2710.94	133.49	2710.2	136.08	2710.2
136.9	2710.2	140.75	2710.2	141.24	2710.2	144.25	2710.2	150.06	2710.2
154.95	2710.2	158.74	2710.2	160.32	2710.2	163.65	2710.2	164.41	2710.2
167.85	2709.89	187.54	2708.84	197.31	2708.85	198.76	2708.82	239.83	2708.2
246.1	2708.2	246.15	2708.2	246.48	2708.2	247.11	2708.18	259.84	2707.86
269.27	2707.64	276.4	2707.47	280.38	2707.38	285.63	2707.27	291.43	2707.13
298.12	2706.99	302.33	2706.89	310.72	2706.72	313.36	2706.65	322.84	2706.49
334.97	2706.42	338.94	2706.3	339.02	2706.31	344.02	2706.22	345.38	2706.2
347.38	2706.2	347.73	2706.2	348.91	2706.2	351.08	2706.16	358.42	2706.11
358.86	2706.1	366.56	2706.01	367.49	2705.99	375.1	2705.89	376.46	2705.86
383.3	2705.76	389.66	2705.68	395.3	2705.61	397.13	2705.58	402.24	2705.5
406.55	2705.41	428.2	2705.16	431.9	2705.1	436.33	2705.01	439.96	2704.94
445.68	2704.84	448.18	2704.8	450.35	2704.77	452.29	2704.74	456.37	2704.71
458.12	2704.68	459.69	2704.66	461.16	2704.64	509.14	2704.2	512.57	2704.2
520.4	2703.97	528.58	2703.74	530.99	2703.67	537.93	2703.46	541.86	2703.36
547.31	2703.2	552.49	2703.08	556.39	2702.95	562.62	2702.83	565.32	2702.74
572.24	2702.61	574.05	2702.56	582.08	2702.42	592.41	2702.21	592.96	2702.2
604.73	2701.75	608.85	2701.55	617.27	2701.2	627.07	2700.71	630.47	2700.56
637.52	2700.2	650	2699.27	663.27	2698.2	668.95	2697.34	677.43	2696.2
687.46	2694.4	687.51	2694.39	688.5	2694.2	696.1	2693.74	705.65	2693.17
721.73	2692.2	722.66	2692.2	723.11	2692.2	727.84	2692.2	732.45	2692.2
772.81	2691.52	774.32	2691.52	775.47	2691.5	830.07	2692.2	840.39	2692.2
850.79	2692.2	853.8	2692.2	858.42	2692.2	859.38	2692.32	863.02	2692.77
865.99	2693.17	867.68	2693.14	880.27	2694.2	882.57	2694.2	885.14	2694.2
888.58	2694.2	899.92	2694.2	908.17	2694.2	909.04	2694.22	909.11	2694.22
917.3	2694.39	961.65	2695.11	964.65	2695.12	986.62	2695.28	990.44	2695.32
995.33	2695.37	998.64	2695.41	1003.84	2695.45	1009.02	2695.49	1011.65	2695.52
1053.65	2695.64	1057.34	2695.67	1061.3	2695.69	1065.39	2695.72	1066.37	2695.71
1070.41	2695.75	1074.64	2695.78	1079.09	2695.82	1096.32	2696.2	1098.7	2696.2
1101.1	2696.2	1103.63	2696.2	1106.85	2696.2	1108.96	2696.2	1112.79	2696.2
1116.65	2696.2	1127.12	2696.41	1137.39	2696.61	1217.95	2698.2	1220.28	2698.2
1220.77	2698.2	1229.67	2698.48	1243.63	2698.91	1272.03	2699.78	1277.43	2699.95
1285.27	2700.2	1286.86	2700.2	1287.49	2700.2	1290.14	2700.2	1291.34	2700.2
1302.99	2700.2	1320.16	2700.2	1324.41	2700.2	1325.83	2700.2	1330.36	2700.2
1335.05	2700.2	1340.12	2700.2	1342.78	2700.2	1344.23	2700.2	1349.4	2700.2
1350.64	2700.2	1351.92	2700.2	1356.68	2700.2	1357.49	2700.2	1361.8	2700.2
1362.25	2700.2	1365.67	2700.2	1373.76	2700.44	1377.99	2700.5	1408.18	2700.58
1412.8	2700.48	1418.21	2700.37	1423	2700.28	1423.03	2700.28	1425.57	2700.27
1429.18	2700.44	1431.36	2700.66	1432.31	2700.75				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	696.1	.035	880.27	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
696.1	880.27	315.4	312.05	297.49	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2699.05	Element			
Vel Head (ft)	1.10	Wt. n-Val.	0.050	0.035	0.060
W.S. Elev (ft)	2697.95	Reach Len. (ft)	315.40	312.05	297.49
Crit W.S. (ft)	2697.27	Flow Area (sq ft)	72.00	1050.93	716.62
E.G. Slope (ft/ft)	0.004641	Area (sq ft)	72.00	1050.93	716.62
Q Total (cfs)	12000.00	Flow (cfs)	252.78	9700.18	2047.05
Top Width (ft)	540.61	Top Width (ft)	31.21	184.17	325.23
Vel Total (ft/s)	6.52	Avg. Vel. (ft/s)	3.51	9.23	2.86
Max Chl Dpth (ft)	6.45	Hydr. Depth (ft)	2.31	5.71	2.20
Conv. Total (cfs)	176150.2	Conv. (cfs)	3710.6	142390.7	30049.0
Length Wtd. (ft)	309.73	Wetted Per. (ft)	31.52	184.33	325.27
Min Ch El (ft)	2691.50	Shear (lb/sq ft)	0.66	1.65	0.64
Alpha	1.66	Stream Power (lb/ft s)	2.32	15.25	1.82
Frctn Loss (ft)	1.65	Cum Volume (acre-ft)	249.25	338.41	149.74
C & E Loss (ft)	0.04	Cum SA (acres)	193.84	77.46	104.62

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 22709.53

INPUT
Description:
Station Elevation Data num= 286

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2712.53	8.53	2712.2	11.01	2712.2	11.53	2712.2	13.98	2712.2
29	2711.45	53.93	2710.2	70.34	2709.61	74.85	2709.45	91.46	2708.85
105.2	2708.43	107.4	2708.42	107.77	2708.42	108.15	2708.42	109.82	2708.44
110.2	2708.42	119.41	2708.2	124.55	2708.2	127.56	2708.2	132.9	2708.2

137.5	2708.2	141.36	2708.2	144.02	2708.2	146.05	2708.2	148.74	2708.2
148.98	2708.2	149.15	2708.2	153.13	2708.03	169.04	2707.3	183.86	2706.64
188.09	2706.45	189.79	2706.37	190.71	2706.33	195.19	2706.2	196.23	2706.2
196.92	2706.2	200.59	2706.2	201.74	2706.2	205.39	2706.2	206.53	2706.2
208.63	2706.2	209.49	2706.2	217.75	2705.91	218.59	2705.91	230.46	2705.71
233	2705.66	238.44	2705.53	242.47	2705.46	248.2	2705.35	282.37	2704.7
288.01	2704.6	289.39	2704.59	290.7	2704.58	296.47	2704.47	302.88	2704.37
303.47	2704.37	310.29	2704.26	314.79	2704.2	317.43	2704.16	317.55	2704.16
323.91	2704.07	324.35	2704.07	337.08	2703.76	348.06	2703.54	356.51	2703.37
362.47	2703.17	368.61	2703.03	373.35	2702.92	381.94	2702.64	384.39	2702.57
395.35	2702.22	395.47	2702.22	396.08	2702.2	396.2	2702.2	409.49	2702.2
413.02	2702.2	415.09	2702.2	418.68	2702.2	421.2	2702.2	424.36	2702.2
427.18	2702.2	429.77	2702.2	432.21	2702.2	434.76	2702.2	437.79	2702.2
441.66	2702.2	442.57	2702.2	448.11	2702.2	450.89	2702.2	454.66	2702.2
460.33	2702.2	466.94	2702.2	485.81	2702.2	490.22	2702.2	490.56	2702.2
495.22	2702.2	495.35	2702.2	497.85	2702.2	500.56	2702.2	509.42	2702.2
512.57	2702.2	512.85	2702.2	519.16	2702.2	520.31	2702.2	523.61	2702.2
526.11	2702.2	527.65	2702.2	529.67	2702.2	574.64	2700.66	575.95	2700.66
580.39	2700.58	585.85	2700.48	586.69	2700.48	592.46	2700.37	598.31	2700.26
598.53	2700.26	603.34	2700.21	603.38	2700.21	603.94	2700.2	604.12	2700.2
607.58	2700.2	607.79	2700.2	608.7	2700.2	610.61	2700.19	610.64	2700.19
610.68	2700.19	614.58	2700.12	614.91	2700.11	615.31	2700.1	620.92	2699.96
626.77	2699.8	628.45	2699.76	634.41	2699.61	639.42	2699.49	642.11	2699.45
646.64	2699.36	650.52	2699.28	653.74	2699.24	657.21	2699.17	660.27	2699.12
663.84	2699.08	666.62	2699.03	670.42	2699	674.61	2698.96	677.1	2698.91
681.58	2698.86	704.52	2698.2	706.9	2698.2	708.79	2698.2	710.84	2698.2
712.59	2698.2	714.01	2698.2	715.54	2698.2	716.24	2698.2	716.85	2698.2
733	2697.14	746.4	2696.2	757.96	2695.45	777.42	2694.2	781.34	2693.86
784.41	2693.59	789.89	2693.11	793.28	2692.82	801.09	2692.2	803.39	2691.57
807.82	2690.2	808.33	2690.2	808.39	2690.2	856.29	2689.71	858.66	2689.69
872.12	2689.3	872.95	2689.29	894.5	2689.88	897.9	2689.94	904.73	2690.04
915.04	2690.2	916.27	2690.2	917.18	2690.2	922.17	2690.2	929.32	2690.2
930.75	2690.2	932.31	2690.2	948.4	2690.2	948.95	2690.36	952.16	2691.29
953.6	2691.72	955.23	2692.2	959.64	2692.2	965.91	2692.2	978.93	2692.2
987.54	2692.2	989.71	2692.2	992.49	2692.27	992.64	2692.27	995.14	2692.23
995.2	2692.23	999.1	2692.25	999.2	2692.25	1004.32	2692.3	1004.5	2692.3
1010.3	2692.36	1015.35	2692.46	1015.78	2692.44	1019.09	2692.57	1019.61	2692.53
1032.38	2692.58	1034.24	2692.64	1068.81	2693.77	1073.04	2693.9	1081.72	2694.2
1082.4	2694.2	1083.82	2694.2	1086.14	2694.2	1090.7	2694.2	1091.66	2694.2
1098.13	2694.2	1098.55	2694.2	1098.57	2694.2	1098.62	2694.2	1106.41	2694.2
1106.76	2694.2	1107.17	2694.2	1114.83	2694.2	1115.75	2694.2	1123.07	2694.2
1124.76	2694.2	1126.81	2694.2	1134.06	2694.2	1169.17	2694.2	1171.03	2694.2
1173.19	2694.2	1175.46	2694.2	1177.82	2694.2	1180.83	2694.2	1184.67	2694.2
1186.6	2694.2	1191.47	2694.2	1198.6	2694.2	1199.5	2694.2	1204.02	2694.2
1222.84	2695.42	1237.5	2696.2	1237.87	2696.2	1238.19	2696.2	1241.16	2696.2
1242.14	2696.2	1245.79	2696.2	1247.15	2696.2	1251.09	2696.2	1252.56	2696.2
1256.46	2696.2	1257.98	2696.2	1261.76	2696.2	1263.29	2696.2	1266.89	2696.2
1268.43	2696.2	1319.45	2696.2	1320.43	2696.2	1325	2696.15	1327.96	2696.12
1344.93	2696.2	1346.61	2696.2	1350.07	2696.2	1357.71	2696.41	1359.03	2696.44
1368.83	2696.72	1372.05	2696.79	1379.4	2697.01	1422.2	2698.2	1424.7	2698.2
1426.46	2698.2	1428.88	2698.2	1431.24	2698.2	1433.97	2698.2	1436.44	2698.2
1439.6	2698.2	1444.13	2698.2	1445.5	2698.2	1450.75	2698.2	1451.46	2698.22
1451.56	2698.22	1460.45	2698.51	1461.74	2698.52	1467.67	2698.73	1469.61	2698.75
1538.07	2699.99								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	781.34	.035	955.23	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
781.34	955.23	250.24	269.67	316.62	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2697.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.45	Wt. n-Val.	0.050	0.035	0.070
W.S. Elev (ft)	2695.92	Reach Len. (ft)	250.24	269.67	316.62
Crit W.S. (ft)	2695.61	Flow Area (sq ft)	30.30	964.41	636.12
E.G. Slope (ft/ft)	0.006204	Area (sq ft)	30.30	964.41	636.12
Q Total (cfs)	12000.00	Flow (cfs)	70.40	10078.45	1851.15
Top Width (ft)	481.39	Top Width (ft)	30.56	173.89	276.93
Vel Total (ft/s)	7.36	Avg. Vel. (ft/s)	2.32	10.45	2.91
Max Chl Dpth (ft)	6.63	Hydr. Depth (ft)	0.99	5.55	2.30
Conv. Total (cfs)	152357.0	Conv. (cfs)	893.9	127960.1	23503.0
Length Wtd. (ft)	274.85	Wetted Per. (ft)	30.63	174.56	277.02
Min Ch El (ft)	2689.29	Shear (lb/sq ft)	0.38	2.14	0.89
Alpha	1.72	Stream Power (lb/ft s)	0.89	22.36	2.59
Frctn Loss (ft)	2.12	Cum Volume (acre-ft)	248.88	331.19	145.12
C & E Loss (ft)	0.06	Cum SA (acres)	193.62	76.18	102.56

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 22439.86

INPUT
Description:
Station Elevation Data num= 308

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2714.2	.64	2714.2	4.09	2714.2	5.37	2714.2	9.08	2714.2
9.51	2714.2	10.16	2714.2	10.91	2714.18	15.29	2714.15	15.46	2714.15
20.9	2714.07	21.38	2714.05	22.07	2714.02	28.66	2713.87	30.27	2713.8
36.74	2713.6	39.63	2713.47	44.26	2713.24	49.28	2713.04	56.82	2712.67
59.06	2712.56	66.12	2712.2	69.9	2712.02	71.7	2711.94	83.5	2711.37
91.92	2710.97	97.12	2710.71	108.17	2710.2	110.41	2710.08	111.42	2710.03
122.25	2709.46	128.52	2709.14	145.36	2708.25	145.82	2708.23	146.36	2708.2
163.39	2707.62	170.72	2707.37	180.96	2707.01	196.12	2706.49	204.4	2706.2
214.18	2705.82	217.58	2705.71	228.01	2705.32	236.18	2705.07	251.49	2704.58
255.04	2704.45	263.1	2704.2	269.82	2704.01	271.19	2703.97	281.63	2703.68
285.48	2703.58	294.04	2703.34	300.5	2703.19	306.7	2703.01	315.52	2702.8
319.28	2702.7	330.38	2702.44	340.71	2702.2	342.8	2702.15	349.04	2701.99
349.8	2701.98	355.47	2701.84	356.7	2701.83	362.04	2701.71	366.65	2701.61
368.58	2701.6	372.89	2701.51	375.08	2701.51	379.2	2701.43	381.8	2701.42
384.52	2701.41	388.55	2701.34	391.61	2701.32	395.45	2701.26	398.92	2701.21
402.28	2701.19	405.59	2701.15	409.1	2701.13	412.17	2701.09	429.18	2700.96
434.48	2700.91	446.45	2700.76	453.61	2700.67	477.56	2700.2	480.21	2700.2
480.93	2700.2	483.63	2700.2	484.15	2700.2	486.82	2700.2	487.92	2700.2
500.1	2699.91	503.09	2699.82	518.86	2699.42	528.6	2699.16	537.53	2698.92
553.83	2698.49	564.29	2698.2	565.49	2698.2	567.74	2698.2	570.34	2698.2
573.4	2698.2	576.55	2698.2	580.18	2698.2	580.6	2698.2	580.93	2698.2
583.77	2698.2	595.55	2697.57	607.3	2696.86	618.26	2696.2	620.07	2696.2
621.36	2696.2	626.76	2696.2	631.27	2696.2	634.36	2696.2	640.31	2696.2
642.35	2696.2	643.61	2696.2	644.57	2696.2	645.43	2696.2	652.02	2696.2
652.86	2696.2	659.15	2696.2	659.96	2696.2	666.24	2695.89	672.17	2695.87
677.68	2695.84	682.73	2695.8	683.7	2695.77	688.47	2695.73	693.06	2695.69
694.41	2695.68	698.92	2695.65	700.4	2695.63	701.84	2695.6	703.31	2695.56
707.36	2695.54	708.98	2695.47	711.28	2695.36	714.74	2695.35	717.68	2695.19
720.68	2695.18	724.46	2694.96	726.91	2694.93	731.66	2694.65	733.17	2694.62
739.15	2694.27	739.39	2694.26	740.55	2694.2	746.71	2694.07	757.8	2693.25
764.8	2692.87	770.58	2692.2	771.3	2692.2	771.91	2692.2	774.17	2692.2
775.41	2692.2	776.53	2692.2	777.77	2692.2	781.4	2692.2	783.42	2692.2
786.08	2692.2	788.57	2692.2	794.49	2692.2	799.06	2692.2	806.6	2692.2
812.43	2692.2	815.61	2692.2	818.2	2692.2	819.73	2692.2	843.35	2692.2
846.85	2692.2	849.34	2692.2	851.91	2692.2	855.79	2692.2	857.84	2692.2
864.51	2692.2	864.76	2692.2	864.95	2692.2	865.28	2692.2	871.52	2692.2
873.96	2692.2	875.3	2692.2	877.39	2692.2	879.96	2692.2	889.43	2692.2
894.21	2691.84	906.31	2690.94	913.74	2690.2	922.16	2689.88	928.64	2689.64
933.56	2689.47	968.55	2688.2	971.16	2688.2	972.34	2688.2	975.49	2688.2
979.56	2688.2	984.47	2688.2	985.95	2688.2	991.54	2688.2	998.19	2688.2
999.39	2688.2	1004.86	2688.44	1010.07	2688.33	1015	2688.2	1016.25	2688.1
1016.82	2688.03	1023.66	2687.36	1026.08	2687.25	1029.63	2686.97	1031.85	2686.84
1034.37	2687	1036.78	2686.93	1046.53	2688.2	1049.21	2688.2	1052.85	2688.2
1057.91	2688.2	1063.91	2688.2	1072.36	2688.2	1075.44	2688.2	1078.82	2688.2
1079.94	2688.62	1082.12	2689.45	1083.38	2689.91	1084.14	2690.2	1085.53	2690.78
1089.74	2692.2	1090.15	2692.2	1090.88	2692.2	1091.72	2692.2	1092.69	2692.2
1142.2	2692.2	1142.29	2692.2	1142.41	2692.2	1142.52	2692.2	1159.34	2692.2
1162.51	2692.2	1173.75	2692.2	1211.41	2692.2	1213.46	2692.2	1214.13	2692.2
1216.55	2692.2	1216.75	2692.2	1216.99	2692.2	1224.16	2692.32	1224.79	2692.32
1225.49	2692.33	1324.1	2693.44	1327.99	2693.47	1331.99	2693.49	1336.08	2693.52
1375.76	2693.92	1382.45	2694.02	1382.87	2694.02	1390.38	2694.12	1396.34	2694.2
1398.79	2694.26	1407.39	2694.5	1408.86	2694.53	1416.24	2694.72	1422.08	2694.88
1425.1	2694.93	1468.98	2696.2	1471.1	2696.2	1474	2696.2	1499.46	2696.2
1501.81	2696.2	1503.08	2696.2	1507.42	2696.2	1508.41	2696.2	1514.18	2696.2
1515.55	2696.2	1516.13	2696.2	1520.09	2696.2	1522.8	2696.2	1534	2696.2
1540.48	2696.2	1546.68	2696.2	1557.5	2696.2	1558.82	2696.2	1559.21	2696.2
1567.34	2696.2	1568.81	2696.2	1571.63	2696.2	1574.71	2696.2	1582.16	2696.2
1583.37	2696.2	1588.47	2696.2	1591.47	2696.23	1591.55	2696.23	1592.45	2696.24
1599.78	2696.32	1606.46	2696.41	1612.68	2696.48	1618.37	2696.54	1628.45	2696.75
1634.63	2696.84	1640.32	2696.94	1644.8	2697.04	1645.35	2697.04	1648.43	2697.07
1651.98	2697.17	1655.34	2697.18	1658.85	2697.2	1662.1	2697.29	1703.68	2698.2
1705.59	2698.2	1709.25	2698.2	1719.64	2698.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	889.43	.045	1090.15	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
889.43	1090.15	296.71	304.43	309.56	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	889.22	2692.22	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2695.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2693.95	Reach Len. (ft)	296.71	304.43	309.56

Crit W.S. (ft)	2693.87	Flow Area (sq ft)	224.95	1023.06	354.50
E.G. Slope (ft/ft)	0.009841	Area (sq ft)	224.95	1023.06	354.50
Q Total (cfs)	12000.00	Flow (cfs)	905.04	9892.59	1202.38
Top Width (ft)	629.00	Top Width (ft)	141.02	200.72	287.26
Vel Total (ft/s)	7.49	Avg. Vel. (ft/s)	4.02	9.67	3.39
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)	1.60	5.10	1.23
Conv. Total (cfs)	120968.2	Conv. (cfs)	9123.4	99724.1	12120.8
Length Wtd. (ft)	304.94	Wetted Per. (ft)	141.10	201.71	287.27
Min Ch El (ft)	2686.84	Shear (lb/sq ft)	0.98	3.12	0.76
Alpha	1.42	Stream Power (lb/ft s)	3.94	30.13	2.57
Frctn Loss (ft)	3.82	Cum Volume (acre-ft)	248.15	325.04	141.52
C & E Loss (ft)	0.02	Cum SA (acres)	193.12	75.02	100.51

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 22135.43

INPUT
Description:
Station Elevation Data num= 331

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2709.69	1.82	2709.63	24.88	2708.83	35.39	2708.47	43.01	2708.2
109.69	2706.24	110.94	2706.2	146.13	2704.88	153.46	2704.6	156.63	2704.48
158.38	2704.42	159.52	2704.38	160.34	2704.35	160.99	2704.34	161.52	2704.32
161.98	2704.31	162.37	2704.3	162.71	2704.3	165.33	2704.27	165.57	2704.27
168.99	2704.2	169.46	2704.2	170.41	2704.2	172.69	2704.2	177.41	2704.2
183.6	2704.2	184.02	2704.2	184.28	2704.2	184.76	2704.17	191.12	2703.72
191.94	2703.7	196.59	2703.37	199.67	2703.16	202.08	2703.16	237.04	2702.25
237.41	2702.24	238.57	2702.2	243.14	2701.97	243.29	2701.97	257.98	2701.68
270.46	2701.34	279.72	2701.07	286.91	2700.87	300.99	2700.46	303.17	2700.4
304.53	2700.37	310.32	2700.2	324.16	2699.74	337.31	2699.31	348.29	2698.93
354.55	2698.72	358.06	2698.61	369.33	2698.2	375.85	2698.02	384.46	2697.78
416.04	2696.9	425.15	2696.65	439.73	2696.2	449.47	2696.2	462.89	2696.2
465.05	2696.2	465.52	2696.2	466.4	2696.2	466.6	2696.2	467.29	2696.2
478.09	2696.2	478.8	2696.2	478.85	2696.2	479.07	2696.2	479.16	2696.2
485.99	2696.2	486.85	2696.2	487.87	2696.2	493.48	2696.2	495.39	2696.2
532.41	2695.29	540.45	2695.23	543.35	2695.28	545.43	2695.25	548.58	2695.29
550.57	2695.28	553.76	2695.3	557.27	2695.31	559.35	2695.33	562.99	2695.36
566.82	2695.41	569.09	2695.44	572.48	2695.47	583.33	2695.42	585.83	2695.42
587.39	2695.41	589.29	2695.41	591.67	2695.36	593.87	2695.38	596.05	2695.4
598.69	2695.32	622.82	2694.99	629.52	2694.82	632.43	2694.76	640.51	2694.55
642.21	2694.51	643.6	2694.48	644.75	2694.46	652.26	2694.27	652.55	2694.27
655.03	2694.2	662.49	2693.94	664.34	2693.86	673.39	2693.53	678.63	2693.32
684.77	2693.09	688.86	2692.93	696.66	2692.65	698.77	2692.57	700.26	2692.51
706.8	2692.31	710.27	2692.2	710.72	2692.2	716.88	2692.2	720.54	2692.2
721.08	2692.12	721.74	2692.04	729.43	2691.03	736.36	2690.2	737.18	2690.2
741.1	2690.2	741.53	2690.2	741.71	2690.2	749.41	2690.2	752.84	2690.2
757.38	2690.2	763.94	2690.2	765.3	2690.2	768.87	2690.2	771.72	2690.2
771.93	2690.2	776	2690.2	794.5	2688.81	797.98	2688.63	799.81	2688.53
800.95	2688.47	801.69	2688.42	805.91	2688.51	807.26	2688.6	808.08	2688.65
810.92	2688.82	813.98	2689.01	817.46	2689.21	820.76	2689.37	826.22	2689.68
828.17	2689.77	829.58	2689.84	836.07	2690.2	836.36	2690.2	836.47	2690.2
845.96	2690.2	848.96	2690.2	852	2690.2	854.05	2690.2	859.3	2689.94
861.03	2689.89	869.91	2689.51	875.79	2689.34	882.77	2689.07	893.88	2688.74
907.84	2688.34	911.62	2688.24	911.75	2688.24	912.49	2688.29	913.72	2688.2
914.22	2688.2	914.46	2688.26	926.35	2690.2	927.99	2690.2	931.22	2690.2
941.74	2689.5	956.03	2688.54	961.21	2688.2	963.15	2688.04	983.22	2686.41
985.74	2686.2	986.26	2686.2	986.62	2686.2	994.7	2686.2	997.47	2686.2
1001.55	2686.2	1003.1	2686.2	1011.42	2685.82	1012.9	2685.68	1016.42	2685.67
1019.08	2685.34	1022.3	2685.16	1028.55	2684.2	1028.86	2684.18	1034.17	2683.94
1038.56	2683.78	1042.07	2683.67	1044.59	2683.58	1096.36	2684.2	1111.07	2684.2
1113.25	2684.85	1117.13	2686.2	1118.74	2686.43	1121.37	2686.86	1137.58	2688.2
1141.51	2687.98	1143.29	2687.88	1169.22	2686.45	1169.87	2686.46	1170.52	2686.47
1171.21	2686.5	1174.7	2686.2	1176.05	2686.2	1176.87	2686.2	1179.68	2686.2
1180.12	2686.2	1181.11	2686.2	1182.2	2686.2	1186.79	2686.2	1192.55	2686.2
1194.36	2686.2	1196.68	2686.2	1203.27	2686.2	1207.05	2686.2	1209.03	2686.2
1213.33	2686.2	1215.72	2686.3	1221.95	2686.53	1241.42	2686.41	1242.03	2686.49
1243.57	2686.44	1244.41	2686.56	1247.17	2687.01	1250.31	2687.45	1254.1	2688.2
1258.44	2689.71	1259.95	2690.2	1271.86	2690.2	1276.97	2690.2	1281.6	2690.2
1288.62	2690.2	1289.45	2690.2	1289.8	2690.2	1293.45	2690.2	1294.91	2690.2
1296.24	2690.2	1299.81	2690.2	1301.83	2690.2	1303.93	2690.2	1307.25	2690.2
1310.03	2690.2	1312.85	2690.2	1315.82	2690.2	1319.08	2690.2	1322.26	2690.2
1325.06	2690.2	1336.24	2690.2	1340.69	2690.2	1345.18	2690.2	1349.95	2690.2
1355.08	2690.2	1356.19	2690.2	1361.61	2690.2	1366.78	2690.2	1410.12	2690.2
1412.75	2690.2	1416.89	2690.2	1424.22	2690.2	1433.35	2690.2	1439.6	2690.35
1466.24	2690.8	1470.44	2690.84	1472.53	2690.86	1476.78	2690.9	1479.06	2690.91
1483.2	2690.95	1485.66	2690.97	1507.47	2691.3	1512.65	2691.42	1515.95	2691.45
1519.07	2691.53	1521.79	2691.56	1524.26	2691.59	1537.17	2691.94	1538.26	2691.95
1541.07	2692.03	1541.72	2692.04	1547.35	2692.2	1554.39	2692.2	1558.19	2692.2
1561.48	2692.2	1569.01	2692.2	1578.2	2692.2	1589.34	2692.2	1590.04	2692.2

1590.92	2692.2	1600.44	2692.2	1600.85	2692.2	1600.86	2692.2	1605.12	2692.2
1605.23	2692.2	1611.48	2692.32	1612.26	2692.35	1619.45	2692.56	1645.73	2693.16
1649.1	2693.25	1652.51	2693.29	1655.72	2693.34	1659.76	2693.43	1662.35	2693.47
1666.99	2693.57	1672.36	2693.66	1674.22	2693.71	1679.89	2693.78	1685.81	2693.85
1687.08	2693.89	1693.17	2693.94	1700.27	2694.02	1703.16	2694.09	1709.75	2694.15
1709.93	2694.15	1715.93	2694.2	1717.28	2694.2	1725.22	2694.2	1727.32	2694.2
1730.43	2694.2	1731.9	2694.2	1750.28	2694.2	1760.88	2694.2	1777.39	2694.2
1783.61	2694.2								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	941.74	.048	1137.58	.05	1259.95	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
941.74	1137.58	185.03	242.17	282.88	.3	.5

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2691.34	Element			
Vel Head (ft)	1.47	Wt. n-Val.	0.050	0.048	0.050
W.S. Elev (ft)	2689.87	Reach Len. (ft)	185.03	242.17	282.88
Crit W.S. (ft)	2689.78	Flow Area (sq ft)	95.88	831.10	376.62
E.G. Slope (ft/ft)	0.016451	Area (sq ft)	95.88	831.10	376.62
Q Total (cfs)	12000.00	Flow (cfs)	324.33	8629.71	3045.96
Top Width (ft)	435.38	Top Width (ft)	118.19	195.84	121.36
Vel Total (ft/s)	9.21	Avg. Vel. (ft/s)	3.38	10.38	8.09
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)	0.81	4.24	3.10
Conv. Total (cfs)	93559.2	Conv. (cfs)	2528.7	67282.4	23748.1
Length Wtd. (ft)	250.95	Wetted Per. (ft)	118.46	196.52	121.86
Min Ch El (ft)	2683.58	Shear (lb/sq ft)	0.83	4.34	3.17
Alpha	1.11	Stream Power (lb/ft s)	2.81	45.10	25.67
Frctn Loss (ft)	1.51	Cum Volume (acre-ft)	247.06	318.56	138.92
C & E Loss (ft)	0.36	Cum SA (acres)	192.24	73.64	99.06

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: Agua Caliente
REACH: upper RS: 21893.26

INPUT
Description:
Station Elevation Data num= 278

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2710.2	2.82	2710.2	8.12	2710.2	14.57	2710.2	27.41	2709.44
39.04	2708.74	45.97	2708.2	46.76	2708.2	53	2707.99	64.77	2707.66
72.96	2707.44	78.04	2707.31	84.51	2707.15	89.28	2707.03	96.04	2706.87
104.95	2706.65	107.49	2706.58	118.39	2706.3	122.5	2706.2	132.55	2705.93
134.94	2705.85	146.45	2705.52	152.33	2705.34	160.16	2705.11	169.61	2704.84
173.97	2704.7	187.07	2704.33	191.46	2704.2	201.31	2703.79	204.85	2703.64
214.1	2703.24	222.51	2702.9	226.97	2702.71	239.77	2702.22	239.89	2702.21
240.28	2702.2	245.51	2702.2	246.06	2702.2	250.93	2702.2	308.08	2700.34
312.42	2700.2	389.95	2698.47	402.3	2698.2	408.35	2698.02	419.46	2697.73
454.83	2696.76	477.06	2696.2	484.39	2696.01	485.89	2695.98	497.96	2695.66
506.24	2695.43	511.07	2695.34	517.67	2695.17	526.6	2694.96	529.91	2694.89
532.78	2694.84	535.27	2694.8	540.81	2694.72	542.85	2694.69	544.55	2694.66
560	2694.2	563.68	2694.2	564.68	2694.2	565.79	2694.2	567.05	2694.2
568.48	2694.2	571.97	2694.2	573.46	2694.2	577.09	2694.2	578.83	2694.2
582.4	2694.2	584.64	2694.2	587.67	2694.2	590.46	2694.2	592.29	2694.2
595.13	2694.2	595.15	2694.2	607.69	2692.75	614.05	2692.2	617.65	2692.2
619.87	2692.2	626.04	2692.2	629.53	2692.2	636.54	2692.2	647.85	2692.2
648.29	2692.2	648.92	2692.2	652.78	2692.2	654.91	2692.2	669.45	2691.34
674.25	2691.13	679.58	2691	703.22	2690.2	704.63	2690.2	706.56	2690.2
707.04	2690.2	707.42	2690.2	709.58	2690.05	710.06	2690.04	727.57	2689.19
750.24	2688.33	752.51	2688.2	770.86	2688.2	790.59	2688.2	791.5	2688.21
794.65	2688.25	796.84	2688.28	828.27	2688.23	890.07	2688.22	891.4	2688.22
898.93	2688.2	904.84	2686.73	904.95	2686.71	907.12	2686.2	921.83	2685.54
931.69	2685.17	940.93	2684.78	944.86	2684.62	956.52	2684.25	956.87	2684.24
958.31	2684.2	968.96	2683.67	969.76	2683.62	976.76	2683.26	980.79	2682.98
991.94	2682.2	991.97	2682.2	992.42	2682.2	1012.91	2682.2	1031.58	2682.2
1035.37	2681.87	1053.98	2680.2	1056.48	2680.2	1061.99	2680.2	1073.39	2680.81
1091.86	2681.69	1102.25	2682.2	1102.39	2682.2	1105.57	2683.01	1107.97	2683.65
1110.01	2684.2	1112.23	2685.9	1112.59	2686.2	1112.72	2686.31	1115.12	2688.2
1120.85	2688.2	1121.64	2688.2	1164.98	2689.24	1183.12	2688.2	1187.68	2688.2
1188.69	2688.2	1193.57	2688.2	1197.03	2688.2	1199.96	2688.2	1202.86	2688.2
1206.79	2688.2	1211.64	2688.2	1214.2	2688.52	1215.23	2688.63	1220.73	2689.23
1223.33	2689.47	1225.41	2689.41	1227.46	2689.55	1229.07	2689.64	1232	2689.45

1233.82	2689.52	1240.44	2689.22	1246.89	2689.18	1250.13	2689.12	1252.86	2688.95
1257.1	2688.65	1258.61	2688.63	1263.13	2688.2	1267.2	2688.06	1270.9	2687.92
1293.98	2687.08	1315.74	2686.2	1330.9	2685.35	1345.63	2684.56	1352.31	2684.2
1371.35	2684.2	1380.52	2684.2	1406.16	2684.2	1425.44	2684.2	1427.77	2685.54
1428.93	2686.2	1429.87	2686.77	1432.26	2688.2	1434.82	2688.27	1451.31	2688.7
1507.21	2690.2	1511.81	2690.2	1511.86	2690.2	1512.43	2690.2	1518.19	2690.2
1519.37	2690.2	1524.96	2690.2	1529.62	2690.2	1532.31	2690.2	1536.52	2690.2
1539.75	2690.2	1543.3	2690.2	1546.98	2690.2	1549.9	2690.2	1553.98	2690.2
1556.32	2690.2	1558.22	2690.2	1559.92	2690.2	1564.32	2690.2	1565.88	2690.2
1567.25	2690.2	1571.97	2690.2	1573.05	2690.2	1577.7	2690.2	1582.04	2690.2
1583.08	2690.2	1587.06	2690.2	1596.97	2690.33	1601.91	2690.34	1606.7	2690.35
1611.43	2690.36	1616.09	2690.37	1635.21	2690.36	1640.16	2690.35	1644.99	2690.34
1675.18	2691.12	1678.2	2691.12	1680.81	2691.29	1684.87	2691.56	1691.46	2692.2
1692.22	2692.2	1692.64	2692.2	1694.67	2692.2	1695.59	2692.2	1700.24	2692.2
1703.05	2692.2	1705.91	2692.2	1709.85	2692.2	1711.96	2692.2	1716.38	2692.2
1722.47	2692.2	1723.82	2692.2	1728.48	2692.2	1729.79	2692.2	1734.32	2692.2
1738.56	2692.2	1739.93	2692.2	1744.22	2692.2	1745.48	2692.2	1749.84	2692.2
1754.03	2692.2	1758.04	2692.2	1762.31	2692.2	1764	2692.2	1768.65	2692.2
1773.94	2692.2	1779.65	2692.2	1786.03	2692.2	1787.24	2692.2	1794.19	2692.2
1801.95	2692.2	1804.53	2692.24	1807.26	2692.2	1809.86	2691.5	1815.13	2690.2
1816.3	2689.93	1817.9	2689.59	1821.47	2688.8	1824.22	2688.2	1826.49	2688.2
1827.43	2688.2	1831.28	2688.2	1833.72	2688.2	1836.22	2688.2	1839.39	2688.2
1842.97	2688.2	1844.82	2688.2	1846.62	2688.2				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	898.93	.035	1115.12	.05	1252.86	.035	1507.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
898.93	1115.12	180.96	170.97	129.31	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1688	1846.62	2692.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2689.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.050	0.035	0.035
W.S. Elev (ft)	2688.73	Reach Len. (ft)	180.96	170.97	129.31
Crit W.S. (ft)	2687.10	Flow Area (sq ft)	76.37	1233.16	590.84
E.G. Slope (ft/ft)	0.003087	Area (sq ft)	76.37	1233.16	603.23
Q Total (cfs)	12000.00	Flow (cfs)	77.31	9226.04	2696.66
Top Width (ft)	666.86	Top Width (ft)	159.10	216.19	291.56
Vel Total (ft/s)	6.31	Avg. Vel. (ft/s)	1.01	7.48	4.56
Max Chl Dpth (ft)	8.53	Hydr. Depth (ft)	0.48	5.70	2.21
Conv. Total (cfs)	215977.9	Conv. (cfs)	1391.4	166051.7	48534.9
Length Wtd. (ft)	158.78	Wetted Per. (ft)	159.12	218.31	268.02
Min Ch El (ft)	2680.20	Shear (lb/sq ft)	0.09	1.09	0.42
Alpha	1.20	Stream Power (lb/ft s)	0.09	8.14	1.94
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	246.69	312.82	135.74
C & E Loss (ft)	0.04	Cum SA (acres)	191.65	72.49	97.72

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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 21722.29

INPUT
Description:
Station Elevation Data num= 324

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2710.2	8.22	2710.2	11.68	2710.2	15.3	2710.2	69.15	2710.2
69.77	2710.2	71.46	2710.2	73.36	2710.2	75.43	2710.2	75.91	2710.2
82.54	2710.2	86.58	2710.2	94.25	2708.65	96.52	2708.2	104.11	2707.3
112.79	2706.44	115.16	2706.2	126.86	2705.76	130.94	2705.6	140.38	2705.22
165.25	2704.2	167.49	2704.13	231.74	2702.2	233.17	2702.2	236.11	2702.2
237.62	2702.2	241.2	2702.2	242.64	2702.2	246.45	2702.2	247.43	2702.2
250.87	2702.2	251.22	2702.2	262.88	2701.64	267.83	2701.41	285.28	2700.61
289.27	2700.42	294.21	2700.2	299.05	2700.2	300.5	2700.2	303.95	2700.2
304.84	2700.2	334.12	2699.04	338.56	2698.87	339.3	2698.82	342.87	2698.79
361.82	2698.2	363.22	2698.2	365.5	2698.2	369.76	2698.2	373.32	2698.2
380.46	2698.2	384.16	2698.2	385.69	2698.14	385.86	2698.14	390.96	2697.96
391.71	2697.96	422.66	2697.41	436.82	2697.12	451	2696.82	458.18	2696.67
462.58	2696.57	475.35	2696.32	476.44	2696.3	477.19	2696.28	478.81	2696.25
479.05	2696.25	482.21	2696.2	485.63	2695.92	487.16	2695.78	492.52	2695.36
497.32	2694.92	500.07	2694.7	505.43	2694.2	507.52	2694.2	511.45	2694.2
515.62	2694.2	517.77	2694.2	524.59	2694.2	531.12	2694.2	533.96	2694.2

540.6	2694.2	542.33	2694.2	544.22	2694.2	547.86	2694.2	550.26	2694.2
555.97	2694.2	562.61	2694.2	567.66	2694.2	569.29	2694.2	572.16	2694.2
573.75	2694.2	583.1	2694.2	585.16	2694.2	598.44	2693.62	600.43	2693.53
603.03	2693.41	606.63	2693.23	609.45	2693.14	614.73	2692.88	617.44	2692.76
625.55	2692.4	626.48	2692.36	630.3	2692.2	636.29	2691.8	639.73	2691.49
642.04	2691.26	652.77	2690.2	667.04	2689.07	678.64	2688.2	680.77	2688.2
681.18	2688.2	684.95	2688.2	686.82	2688.2	700.59	2687.52	702.51	2687.48
704.31	2687.5	744.21	2687.49	746.54	2687.5	750.77	2687.58	752.91	2687.59
754.99	2687.6	759.86	2687.68	761.59	2687.69	763.18	2687.69	764.48	2687.69
769.38	2687.76	770.09	2687.76	775.42	2687.85	780.82	2687.95	786.44	2688.08
790.22	2688.2	791.07	2688.2	792.56	2688.2	792.91	2688.2	793.32	2688.2
793.78	2688.2	794.42	2688.2	803.2	2688.2	805.98	2688.2	810.16	2688.2
818.26	2688.2	823.02	2688.2	831.19	2688.2	841.03	2687.41	849.4	2686.75
855.38	2686.2	857.47	2685.74	861.27	2684.9	864.49	2684.2	866.69	2684.2
871.8	2684.2	890.42	2684.2	925.69	2684.2	928.72	2684.2	931.35	2684.2
935.31	2684.2	937.42	2684.2	939.19	2684.2	940.75	2684.2	942.17	2684.2
943.46	2684.2	944.7	2684.2	945.86	2684.2	964.4	2683.44	966.17	2683.3
967.69	2683.34	969.8	2683.14	973.09	2682.81	979.11	2682.2	979.12	2682.2
979.16	2682.19	991.58	2680.2	998.58	2680.2	1003.68	2680.2	1026.91	2680.08
1033.55	2680.2	1033.83	2680.32	1037.3	2682.2	1039.68	2683.81	1040.24	2684.2
1041.89	2685.24	1043.4	2686.2	1049.97	2686.23	1051.1	2686.25	1114.39	2687.23
1153.77	2687.95	1166.77	2688.17	1168.02	2688.2	1168.08	2688.2	1168.14	2688.2
1168.88	2688.2	1176.54	2688.2	1181.52	2688.2	1189.91	2688.2	1192.65	2688.2
1194.63	2688.2	1205.98	2688.2	1208.52	2688.2	1210.44	2688.2	1215.46	2688.2
1220.35	2688.2	1229.72	2688.2	1231.03	2688.2	1235.14	2688.2	1236.19	2688.2
1239.77	2688.2	1240.29	2688.2	1241.77	2688.2	1245.36	2688.2	1250.52	2688.2
1254.54	2687.46	1260.66	2686.2	1266.32	2686.2	1274.36	2686.2	1276.23	2686.2
1278.46	2686.2	1281.06	2686.2	1302.69	2686.2	1315.77	2686.2	1322.71	2686.2
1329.57	2686.2	1346.21	2685.67	1347.32	2685.52	1349.88	2685.69	1351.24	2685.47
1355	2684.93	1356.58	2684.85	1360.16	2684.2	1363.19	2684.11	1367.54	2683.96
1370.67	2683.84	1397.86	2684.2	1403.38	2684.2	1407.28	2684.2	1410.69	2684.2
1413.15	2684.2	1417.52	2684.2	1432.28	2684.2	1432.42	2684.2	1433.82	2684.2
1434	2684.2	1434.23	2684.2	1441.18	2684.2	1442.55	2684.2	1448.31	2684.2
1450.88	2684.2	1455.48	2684.2	1459.37	2684.2	1462.89	2684.2	1467.6	2684.2
1470.13	2684.2	1471.54	2684.24	1489.16	2684.77	1493.67	2684.75	1510.57	2686.2
1515.16	2686.2	1515.75	2686.2	1521.03	2686.2	1527.22	2686.2	1527.27	2686.2
1527.94	2686.2	1528.41	2686.59	1530.45	2688.2	1534.27	2688.25	1534.53	2688.26
1555.61	2690.2	1556.51	2690.2	1556.6	2690.2	1557.91	2690.2	1561.55	2690.2
1566.86	2690.2	1572.61	2690.2	1574.67	2690.2	1577.01	2690.2	1582.79	2690.2
1585.53	2690.2	1590.93	2690.2	1594.01	2690.2	1598.76	2690.2	1602.32	2690.2
1606.29	2690.2	1610.46	2690.2	1614.98	2690.2	1632.84	2690.2	1636.1	2690.2
1639.67	2690.2	1641.06	2690.2	1644.86	2690.2	1645.81	2690.2	1646.73	2690.2
1650.06	2690.2	1650.46	2690.2	1652.72	2690.2	1687.3	2691.01	1706	2691.46
1714.51	2691.66	1728.25	2691.91	1731.21	2691.98	1745.5	2692.2	1745.64	2692.2
1745.67	2692.2	1749.01	2692.2	1749.4	2692.2	1753.03	2692.2	1756.35	2692.2
1757.19	2692.2	1760.63	2692.2	1761.5	2692.2	1762.17	2692.2	1762.75	2692.2
1766.7	2692.2	1767.46	2692.2	1772.02	2692.2	1772.67	2692.2	1778.39	2692.45
1784.2	2692.49	1784.57	2692.49	1789.88	2692.53	1812.97	2692.95	1816.83	2693.06
1821.99	2693.13	1827.42	2693.3	1834.71	2693.52	1844.03	2693.81		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	831.19	.035	1041.89	.05	1043.4	.05	1329.57	.035
1555.61	.05								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
831.19	1043.4	129.45	103.15	107.52	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2688.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.10	Wt. n-Val.	0.050	0.035	0.036
W.S. Elev (ft)	2687.60	Reach Len. (ft)	129.45	103.15	107.52
Crit W.S. (ft)	2687.38	Flow Area (sq ft)	5.44	886.73	747.95
E.G. Slope (ft/ft)	0.007142	Area (sq ft)	5.44	886.73	747.95
Q Total (cfs)	13000.00	Flow (cfs)	2.87	8357.53	4639.60
Top Width (ft)	628.59	Top Width (ft)	56.38	204.79	367.42
Vel Total (ft/s)	7.93	Avg. Vel. (ft/s)	0.53	9.43	6.20
Max Chl Dpth (ft)	7.52	Hydr. Depth (ft)	0.10	4.33	2.04
Conv. Total (cfs)	153823.8	Conv. (cfs)	34.0	98891.4	54898.5
Length Wtd. (ft)	104.92	Wetted Per. (ft)	56.38	207.01	368.28
Min Ch El (ft)	2680.08	Shear (lb/sq ft)	0.04	1.91	0.91
Alpha	1.13	Stream Power (lb/ft s)	0.02	18.00	5.62
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	246.52	308.66	133.73
C & E Loss (ft)	0.03	Cum SA (acres)	191.20	71.66	96.74

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 21619.14

INPUT
Description:
Station Elevation Data num= 320

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2705.97	4.51	2705.95	5.29	2705.92	6.36	2705.87	11.47	2705.74
13.28	2705.66	17.9	2705.45	20.85	2705.29	24.5	2705.09	28.82	2704.87
30.86	2704.76	36.51	2704.52	37.31	2704.48	37.88	2704.45	44.41	2704.2
44.42	2704.2	44.54	2704.2	51.83	2704.06	52.39	2704.03	53.18	2704
60.09	2703.81	62	2703.72	64.92	2703.58	71.43	2703.33	76.81	2703.08
81.07	2702.88	89.49	2702.54	91.15	2702.46	98.77	2702.2	104.09	2702.03
106.08	2701.93	115.2	2701.46	130.85	2700.76	139.81	2700.2	142.99	2700.2
145.1	2700.2	151.11	2700.2	156.6	2700.2	158.85	2700.2	160.02	2700.2
166.53	2700.2	167	2700.2	173.77	2700.2	173.81	2700.2	173.84	2700.2
178.39	2700.27	178.42	2700.27	181.27	2700.39	185.25	2700.31	258.64	2700.42
263.65	2700.33	269.21	2700.22	270.19	2700.2	277.65	2699.97	278.91	2699.92
286.67	2699.67	289.46	2699.57	295.81	2699.36	300.43	2699.2	304.97	2699.04
311.26	2698.82	314.11	2698.73	322.08	2698.46	323.27	2698.42	330.13	2698.2
332.72	2698.14	341.29	2697.97	342.41	2697.95	349.95	2697.8	351.91	2697.75
354.32	2697.68	357.41	2697.59	361.93	2697.44	369.22	2697.27	376.11	2697.03
381.11	2696.9	391.3	2696.56	393.54	2696.49	402.98	2696.2	405.52	2696.01
412.4	2695.56	415.52	2695.36	419.53	2695.11	425.13	2694.72	432.47	2694.2
434.22	2694.2	438.73	2694.2	440.84	2694.2	441.74	2694.2	449.61	2694.2
456.53	2694.2	458.37	2694.2	460.19	2694.2	473.37	2693.67	481.58	2693.27
490.58	2692.89	494.83	2692.71	504.34	2692.2	506.93	2692.2	508.59	2692.2
511.4	2692.2	512.83	2692.2	515.45	2692.2	516.77	2692.2	517.6	2692.2
520.05	2692.2	534.19	2691.72	536.46	2691.64	540.5	2691.56	543.8	2691.5
547.08	2691.38	549.82	2691.32	554.08	2691.17	556.91	2691.09	562.69	2690.89
565.28	2690.81	567.66	2690.75	575.13	2690.46	576.11	2690.43	582.11	2690.2
592.69	2690.2	601.67	2690.2	610.03	2690.12	610.14	2690.12	614.03	2690.2
618.68	2690.2	619	2690.2	619.69	2690.2	625.11	2690.04	625.61	2690.02
631.21	2689.76	632.57	2689.74	637.19	2689.48	646.26	2688.97	654.35	2688.2
655.26	2688.14	657.47	2687.99	675.91	2686.75	679.4	2686.52	683.8	2686.2
687.59	2686.2	688.23	2686.2	700.88	2686.2	715.34	2686.2	719.84	2686.2
732.95	2686.2	735.41	2686.2	742.49	2686.2	746.75	2686.2	747.44	2686.2
750.56	2686.2	751.41	2686.2	752.19	2686.2	752.9	2686.2	753.55	2686.2
762.85	2686.2	763.76	2686.2	768.39	2686.2	770.29	2686.2	772.8	2686.2
775.56	2686.2	781.66	2686.2	812.46	2686.2	817.03	2686.2	819.88	2686.2
824.85	2686.2	827.37	2686.2	829.66	2686.2	834.9	2686.2	836.87	2686.2
842.42	2686.2	844.05	2686.2	849.84	2686.2	856.14	2686.2	863.26	2686.2
869.71	2686.2	872.47	2686.2	873.09	2686.2	878.14	2684.73	880.11	2684.2
883.65	2684.2	884.2	2684.2	888.1	2684.2	888.93	2684.2	892.79	2684.2
894.06	2684.2	896.24	2684.2	899.44	2684.2	918.23	2683.35	918.48	2683.33
920.33	2683.32	947.69	2682.7	951.98	2682.56	959.07	2682.36	965.05	2682.2
969.06	2681.79	974.07	2681.07	978.18	2680.55	980.39	2680.2	983.57	2680.2
986.63	2680.2	988.76	2680.2	1035.64	2680.2	1043.91	2680.2	1050.37	2681.39
1054.37	2682.2	1058.04	2683.18	1062.16	2684.2	1067.94	2685.67	1070.02	2686.2
1072.87	2686.2	1074.63	2686.2	1082.8	2686.26	1136.93	2686.63	1137.17	2686.64
1137.37	2686.64	1137.55	2686.64	1137.69	2686.64	1139.42	2686.65	1139.56	2686.65
1139.69	2686.65	1139.82	2686.65	1139.95	2686.65	1155.48	2686.58	1161.23	2686.54
1226.1	2686.37	1227.75	2686.42	1272.01	2686.54	1280.86	2686.3	1284.54	2686.2
1295.63	2685.83	1317.6	2685.27	1321.04	2685.11	1325.21	2684.96	1326.18	2684.92
1331.4	2684.77	1337.92	2684.61	1339.13	2684.55	1340.44	2684.49	1341.57	2684.44
1342.49	2684.4	1350.46	2684.21	1350.77	2684.2	1351.54	2684.2	1353.19	2684.2
1354.2	2684.2	1357.42	2684.2	1359.52	2684.2	1362.68	2684.2	1371.67	2682.91
1374.65	2682.49	1378.83	2682.2	1383.13	2682.2	1384.55	2682.2	1386.66	2682.2
1390.02	2682.2	1391.37	2682.2	1392.76	2682.2	1392.82	2682.2	1435.63	2683.64
1437.8	2683.68	1439.77	2683.72	1445	2683.84	1446.28	2683.86	1453.16	2683.98
1453.88	2684	1462.21	2684.13	1464.75	2684.2	1465.04	2684.2	1468.09	2684.2
1471.1	2684.2	1472.92	2684.2	1476.49	2684.2	1479.98	2684.2	1485.1	2684.2
1487.57	2685.57	1488.7	2686.2	1493.86	2686.49	1504.86	2687.07	1514.49	2687.59
1519.44	2687.83	1521.54	2687.94	1526.24	2688.2	1530.74	2688.2	1563.21	2688.2
1566.95	2688.2	1569.44	2688.2	1572.95	2688.2	1575.29	2688.2	1578.15	2688.2
1580.41	2688.2	1582.42	2688.2	1584.69	2688.2	1586.69	2688.2	1622.6	2689.04
1626.41	2689.08	1629.6	2689.13	1699.6	2690.2	1702.68	2690.2	1750.25	2690.2
1752.68	2690.2	1755.73	2690.2	1759.39	2690.2	1759.46	2690.2	1760.26	2690.2
1762.96	2690.21	1774.47	2690.27	1846.89	2691.03	1855.29	2691.02	1864.77	2691.06
1866.5	2691.08	1868.63	2691.09	1871.05	2691.11	1873.83	2691.13	1954.17	2692.14
1958.69	2692.2	1963.13	2692.23	1967.52	2692.25	1971	2692.27	1986.8	2692.3

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	873.09	.035	1070.02	.06	1280.86	.035	1526.24	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
873.09	1070.02	461.47	458.06	331.31	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	872.18	2686.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2688.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.00	Wt. n-Val.	0.050	0.035	0.036
W.S. Elev (ft)	2687.01	Reach Len. (ft)	461.47	458.06	331.31
Crit W.S. (ft)	2686.76	Flow Area (sq ft)	157.76	949.75	737.30
E.G. Slope (ft/ft)	0.005665	Area (sq ft)	157.76	949.75	737.30

Q Total (cfs)	13000.00	Flow (cfs)	300.21	8629.97	4069.82
Top Width (ft)	831.64	Top Width (ft)	201.03	196.93	433.68
Vel Total (ft/s)	7.05	Avg. Vel. (ft/s)	1.90	9.09	5.52
Max Chl Dpth (ft)	6.81	Hydr. Depth (ft)	0.78	4.82	1.70
Conv. Total (cfs)	172714.8	Conv. (cfs)	3988.6	114655.6	54070.6
Length Wtd. (ft)	438.44	Wetted Per. (ft)	201.06	198.07	434.42
Min Ch El (ft)	2680.20	Shear (lb/sq ft)	0.28	1.70	0.60
Alpha	1.30	Stream Power (lb/ft s)	0.53	15.41	3.31
Frctn Loss (ft)	2.55	Cum Volume (acre-ft)	246.28	306.49	131.90
C & E Loss (ft)	0.01	Cum SA (acres)	190.82	71.19	95.75

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 21161.08

INPUT
Description:
Station Elevation Data num= 362

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2699.99	23.64	2702.2	23.9	2702.2	23.94	2702.2	33.99	2702.2
79.93	2702.66	81.4	2702.65	83.34	2702.64	103.14	2702.35	109.72	2702.2
122.64	2701.7	164.23	2700.2	166.16	2700.14	171.16	2699.95	206.05	2698.71
219.71	2698.2	221.85	2698.2	265.67	2696.22	265.76	2696.22	266.11	2696.2
269.13	2696.2	293.38	2696.2	298.65	2696.2	299.12	2696.2	299.69	2696.2
303.02	2696.2	304.65	2696.2	308.15	2696.2	311.04	2696.2	314.31	2696.2
315.39	2696.2	316.8	2696.2	321.04	2696	323.25	2695.89	332.47	2695.43
343.64	2694.87	357.35	2694.2	371.13	2693.64	382.23	2693.2	388.29	2692.98
392.16	2692.85	398.14	2692.58	400.01	2692.52	401.37	2692.48	406.22	2692.3
407.46	2692.2	407.72	2692.2	411.13	2692.2	411.19	2692.2	411.22	2692.2
414.5	2692.2	414.77	2692.2	414.9	2692.2	417.41	2692.2	426.17	2691.85
435.19	2691.52	440.84	2691.18	446.65	2690.9	458.73	2690.2	469.91	2689.21
474.5	2688.87	477.15	2688.7	485.27	2688.35	485.92	2688.31	488.73	2688.2
491.77	2688.2	494.49	2688.2	496.55	2688.2	499.25	2688.2	501.68	2688.32
505.92	2688.5	513.96	2688.64	518.44	2688.63	519.69	2688.59	531.07	2688.42
539	2688.21	539.34	2688.2	540.09	2688.2	552.23	2687.95	555.33	2688.2
556.71	2688.24	563.02	2688.38	563.69	2688.39	569.94	2688.52	575.43	2688.63
576.91	2688.65	581.87	2688.76	586.08	2688.85	604.19	2689.29	608.05	2689.38
611.27	2689.45	613.99	2689.51	615.26	2689.54	620.37	2689.69	622.22	2689.73
628.42	2689.92	636.5	2690.2	637.59	2690.2	639.65	2690.2	649.69	2690.2
652.53	2690.2	660.97	2689.36	675.52	2688.2	675.9	2688.16	676.11	2688.14
685.12	2687.31	690.86	2686.77	693.34	2686.54	697.22	2686.2	704.67	2685.64
711.48	2684.97	716.15	2684.56	719.52	2684.2	724.76	2684.2	730.3	2684.2
733.95	2684.2	736.55	2684.2	754.14	2684.2	755.3	2684.2	756.88	2684.2
838.08	2684.2	842.86	2684.2	843.38	2684.2	851.44	2684.11	858.37	2684.02
858.92	2684.01	862.08	2684	862.72	2683.99	863.43	2683.98	864.16	2683.96
869.4	2683.9	870.26	2683.89	876.27	2683.79	914.05	2683.48	917.18	2683.47
918.69	2683.46	921.16	2683.43	922.89	2683.44	924.81	2683.45	926.81	2683.46
928.35	2683.47	930.91	2683.42	933	2683.44	934.91	2683.45	936.87	2683.46
938.81	2683.47	986.76	2683.01	988.34	2683.01	991.86	2683.02	1039.19	2683.32
1075.75	2683.13	1076.93	2683.16	1078.53	2683.18	1090.17	2683.14	1090.99	2683.14
1117.72	2683.62	1120.89	2683.68	1124.6	2683.71	1125.24	2683.73	1128.93	2683.73
1137.96	2684.03	1154.02	2683.67	1157.77	2683.64	1159.89	2683.57	1162.55	2683.48
1166.06	2683.35	1170.64	2683.18	1177.35	2682.91	1180.21	2682.85	1189.12	2682.44
1194.42	2682.2	1197.39	2682.01	1202.51	2681.67	1203.27	2681.67	1207.08	2681.43
1242.47	2682.2	1243.47	2682.2	1244.14	2682.2	1254.79	2681.86	1258.84	2682.14
1258.95	2682.14	1259.88	2682.2	1260.55	2682.2	1261.28	2682.2	1266.22	2682.2
1270.06	2682.2	1284.85	2682.75	1286.97	2683.01	1289.39	2682.98	1294.07	2683.73
1295.21	2683.81	1297.05	2684.2	1303.96	2684.2	1304.89	2684.2	1307	2684.2
1307.87	2684.2	1308.5	2684.2	1311.75	2684.2	1312.98	2684.2	1320.45	2683.76
1322.45	2683.58	1328.46	2683.37	1331.12	2683.01	1331.94	2682.89	1334.39	2682.76
1335.57	2682.52	1337.12	2682.2	1339.8	2681.15	1342.48	2680.2	1344.42	2679.4
1347.3	2678.2	1353.48	2677.89	1383.21	2676.2	1385.37	2676.2	1387.04	2676.2
1389.22	2676.2	1391.14	2676.2	1393.17	2676.2	1395.2	2676.2	1396.76	2676.2
1407.79	2677.41	1409.17	2677.45	1415.6	2678.13	1415.74	2678.14	1416.25	2678.2
1418.19	2678.48	1430.22	2680.2	1433.19	2680.33	1439.47	2680.59	1485.59	2681.32
1488.58	2681.27	1491.43	2681.28	1494.5	2681.23	1520.09	2680.63	1521.69	2680.61
1526.25	2680.49	1527.41	2680.46	1531.7	2680.4	1532.4	2680.38	1535.87	2680.37
1535.9	2680.36	1536.35	2680.35	1551.48	2680.2	1551.7	2680.2	1557.4	2680.2
1558.06	2680.2	1558.25	2680.2	1558.31	2680.2	1558.45	2680.2	1558.62	2680.2
1560.94	2680.2	1570.49	2680.2	1572.45	2680.2	1572.81	2680.2	1573.22	2680.2
1576.21	2680.2	1578.72	2680.2	1592.23	2680.2	1599.57	2681.09	1603.34	2681.12
1605.85	2681.4	1608.25	2681.45	1612.34	2682.01	1612.82	2682.04	1613.84	2682.2
1616.59	2683.64	1617.65	2684.2	1620.41	2685.74	1621.32	2686.2	1622.5	2686.2
1632.99	2686.2	1634.58	2686.2	1681.33	2686.2	1683.78	2686.2	1685.64	2686.2
1687.5	2686.2	1694.8	2686.2	1696.79	2686.2	1699.03	2686.2	1701.25	2686.2
1703.67	2686.2	1706.22	2686.2	1709	2686.2	1753.62	2685.4	1754.14	2685.4
1754.75	2685.41	1755.44	2685.42	1756.22	2685.43	1757.14	2685.44	1758.18	2685.45
1759.44	2685.47	1761.09	2685.51	1763.61	2685.59	1768.84	2685.75	1782.35	2686.2
1784.74	2686.26	1785.23	2686.27	1798.28	2686.59	1801.41	2686.66	1811.96	2686.91
1817.45	2687.02	1855.46	2687.62	1857.15	2687.61	1861.19	2687.72	1862.54	2687.72

1867.09	2687.85	1872.48	2687.99	1873.02	2687.99	1878.95	2688.16	1879.04	2688.16
1880.71	2688.2	1887.29	2688.27	1895.4	2688.36	1903.08	2688.44	1910.02	2688.52
1911.38	2688.54	1917.92	2688.61	1924.03	2688.68	1929.61	2688.73	1931.94	2688.76
1937.25	2688.81	1942.13	2688.87	1944.92	2688.89	1964.17	2689.12	1969.01	2689.19
2021.64	2690.2	2023.53	2690.2	2023.59	2690.2	2023.85	2690.2	2027.38	2690.27
2028.1	2690.28	2047.28	2690.67	2059.58	2690.91	2068.8	2691.09	2076.12	2691.19
2089.28	2691.43	2094.09	2691.51	2098.09	2691.58	2107.32	2691.68	2140.12	2692.2
2140.86	2692.2	2144.26	2692.2	2144.88	2692.2	2145.61	2692.2	2149.07	2692.2
2149.62	2692.2	2153.51	2692.2	2153.9	2692.2	2154.36	2692.2	2158.52	2692.2
2158.7	2692.2	2160.63	2692.2	2163.12	2692.2	2163.22	2692.2	2168.25	2692.34
2180.05	2692.56	2182.74	2692.66	2191.78	2692.86	2197.06	2693.07	2203.67	2693.25
2213.66	2693.65	2225.95	2694.14						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1312.98	.035	1622.5	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1312.98	1622.5	289.12	471.41	498.97	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1312.51	2684.2	F
1621.73	2225.95	2686.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2685.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.06	Wt. n-Val.	0.050	0.035	
W.S. Elev (ft)	2684.39	Reach Len. (ft)	289.12	471.41	498.97
Crit W.S. (ft)	2683.84	Flow Area (sq ft)	606.16	1329.91	
E.G. Slope (ft/ft)	0.005966	Area (sq ft)	606.16	1329.91	
Q Total (cfs)	13000.00	Flow (cfs)	1407.96	11592.04	
Top Width (ft)	900.30	Top Width (ft)	595.28	305.02	
Vel Total (ft/s)	6.71	Avg. Vel. (ft/s)	2.32	8.72	
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)	1.02	4.36	
Conv. Total (cfs)	168301.4	Conv. (cfs)	18227.9	150073.5	
Length Wtd. (ft)	450.45	Wetted Per. (ft)	595.52	306.89	
Min Ch El (ft)	2676.20	Shear (lb/sq ft)	0.38	1.61	
Alpha	1.52	Stream Power (lb/ft s)	0.88	14.07	
Frctn Loss (ft)	2.54	Cum Volume (acre-ft)	242.23	294.50	129.10
C & E Loss (ft)	0.00	Cum SA (acres)	186.60	68.55	94.10

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 20689.67

INPUT
Description:
Station Elevation Data num= 378

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2688.25	4.18	2688.24	5.12	2688.24	6.03	2688.23	16.98	2688.2
19.29	2688.56	20.63	2688.66	25.47	2689.19	28.11	2689.36	31.32	2689.43
33.58	2689.46	37.08	2689.45	39.38	2689.46	42.92	2689.41	45.1	2689.47
48.85	2689.48	52.91	2689.52	54.75	2689.66	59.43	2689.7	60.76	2689.81
66.02	2689.83	67.04	2689.89	67.79	2689.91	68.51	2689.92	74.24	2689.89
74.97	2689.9	75.62	2689.91	81.33	2689.79	89.87	2689.53	96.14	2689.31
100.17	2689.11	101.25	2689.11	108.97	2688.91	110.76	2688.92	116.33	2689.07
118.86	2689.13	129.39	2688.93	130.37	2688.97	131.77	2688.92	133.1	2688.91
142.66	2689.13	143.79	2689.21	145.9	2689.28	163.42	2690.2	167.03	2690.2
169.3	2690.2	173.62	2690.2	177.48	2690.2	179.49	2690.2	181.95	2690.2
184.77	2690.2	185.72	2690.2	208.08	2691.32	211.02	2691.51	212.47	2691.47
216.41	2691.77	217.3	2691.78	222.8	2692.2	222.95	2692.21	222.98	2692.21
230.16	2692.51	235.45	2692.71	236.88	2692.73	241.79	2692.9	246.06	2693.03
248.01	2693.05	251.86	2693.12	255.13	2693.13	258.72	2693.09	263	2693.02
264.57	2692.97	269.53	2692.89	274.52	2692.83	275.87	2692.76	280.28	2692.73
304.1	2692.2	310.92	2692.2	311.35	2692.2	312.27	2692.2	312.41	2692.2
314.07	2692.2	325.51	2691.89	334.55	2691.69	337.6	2691.62	345.02	2691.46
350.93	2691.34	355.44	2691.23	360.24	2691.14	365.89	2691	369.62	2690.93
376.32	2690.77	378.99	2690.71	386.84	2690.53	388.39	2690.5	397.27	2690.3
397.74	2690.29	401.9	2690.2	405.31	2690.11	405.61	2690.11	411.64	2689.97
412.43	2689.96	414.25	2689.94	415.37	2689.92	422.38	2689.78	424.23	2689.75
426.45	2689.7	433.2	2689.57	436.43	2689.5	442.21	2689.4	447.1	2689.31
451.28	2689.24	455.27	2689.17	458.96	2689.11	462.25	2689.06	465.21	2689.02
467.96	2688.98	471.88	2688.94	474.31	2688.91	476.55	2688.88	517.64	2688.2
517.85	2688.2	518.66	2688.2	529.89	2688.2	537.65	2688.2	541.44	2688.27
541.61	2688.28	548.16	2688.43	606.1	2688.61	610.75	2688.52	615.94	2688.43
616.49	2688.42	622.21	2688.34	628.39	2688.27	628.59	2688.27	629.94	2688.2
630.12	2688.2	635.35	2688.2	639.32	2688.2	641.15	2688.18	641.21	2688.18
647.42	2688.13	653.33	2688.09	653.65	2688.07	659.59	2688.04	660.07	2688.03
665.73	2687.97	666.48	2687.97	672.06	2687.86	673.23	2687.84	674.63	2687.78

679.67	2687.58	682.08	2687.43	686.24	2687.12	689.46	2686.9	697.04	2686.2
697.5	2686.11	698.91	2685.79	704.43	2684.52	705.86	2684.2	716.03	2682.51
717.92	2682.2	718.51	2682.2	726.8	2682.2	729.45	2682.2	730.26	2682.2
732.74	2682.2	768.79	2682.2	778.73	2682.2	785.44	2682.12	785.62	2682.12
788.91	2682.2	789.1	2682.2	789.65	2682.2	795.93	2682.2	796.64	2682.2
802.87	2682.2	804.56	2682.2	810.49	2682.2	813.76	2682.2	817.86	2682.2
823.31	2682.2	823.77	2682.2	824.22	2682.2	829.84	2682.2	830.33	2682.2
834.65	2682.2	835.52	2682.2	903.94	2681.29	919.19	2681.23	922.25	2681.24
925.31	2681.22	928.44	2681.2	934.29	2681.15	936.57	2681.13	939.09	2681.12
940.96	2681.11	942.97	2681.1	945.02	2681.09	1021.88	2680.86	1022.1	2680.86
1022.36	2680.86	1022.67	2680.86	1023	2680.86	1024.26	2680.86	1024.51	2680.85
1024.84	2680.85	1025.23	2680.84	1025.68	2680.83	1026.27	2680.82	1027.14	2680.81
1028.36	2680.78	1029.58	2680.77	1030.06	2680.77	1052.16	2680.2	1155.91	2680.2
1160.42	2680.2	1164.17	2680.2	1165.09	2680.2	1190.74	2680.2	1190.8	2680.2
1191.12	2680.2	1191.38	2680.2	1192.91	2680.2	1215.4	2680.2	1226.01	2680.2
1231.1	2679.3	1236.84	2678.2	1238.65	2678.2	1241.26	2678.2	1245.26	2678.2
1248.2	2678.2	1252.31	2678.54	1253.17	2678.56	1258.5	2678.96	1261.63	2679.2
1262.95	2679.19	1285.99	2680.2	1287.13	2680.2	1292.7	2680.2	1298.62	2680.2
1302.49	2680.2	1307.15	2680.2	1314.1	2680.2	1316.79	2680.2	1336.98	2680.56
1353.45	2680.84	1364.96	2681.04	1373.55	2681.19	1428.85	2682.08	1436.26	2682.2
1436.99	2682.2	1437.89	2682.2	1439.7	2682.2	1439.93	2682.2	1442.84	2682.2
1443.4	2682.2	1445.77	2682.2	1445.91	2682.2	1451.19	2682.2	1455.65	2682.2
1459.05	2681.01	1461.11	2680.2	1464.91	2678.76	1466.2	2678.2	1469.15	2678.2
1482.93	2678.2	1485.69	2678.2	1486.53	2678.2	1490.61	2678.2	1491.45	2678.2
1492.1	2678.2	1495.65	2678.2	1496.67	2678.2	1498.97	2678.2	1500.1	2678.2
1564.85	2678.2	1604.36	2678.2	1605.96	2678.2	1607.6	2678.2	1609.04	2678.2
1610.43	2678.2	1611.92	2678.2	1613.77	2678.2	1614.74	2678.2	1616.96	2678.2
1620.31	2678.2	1620.65	2678.2	1622.62	2678.2	1626.76	2677.02	1629.95	2676.2
1635.52	2675.23	1639.87	2674.2	1641.53	2674.2	1647.22	2674.2	1649.29	2674.2
1650.01	2674.2	1695.78	2674.2	1698.82	2674.2	1700.84	2674.2	1701.13	2674.2
1711.56	2674.2	1712.19	2674.2	1712.41	2674.31	1716.83	2676.2	1720.27	2678.14
1720.39	2678.2	1723.25	2680.05	1723.47	2680.2	1726.1	2682.17	1726.14	2682.2
1726.21	2682.25	1729.07	2684.2	1729.33	2684.2	1729.57	2684.2	1730.77	2684.2
1748.75	2684.66	1767.57	2685.14	1778.29	2685.4	1787.32	2685.6	1793.07	2685.74
1796.6	2685.82	1806.49	2686.01	1811.19	2686.1	1816.75	2686.18	1816.81	2686.18
1818.34	2686.2	1820.88	2686.2	1824.96	2686.2	1825.71	2686.2	1830.65	2686.2
1831.43	2686.2	1832.01	2686.2	1836.75	2686.2	1850.34	2687.25	1856.18	2687.91
1857.39	2687.97	1858.98	2688.2	1862.23	2688.2	1867.97	2688.2	1869.27	2688.1
1869.31	2688.1	1888.92	2686.2	1917.11	2687.01	1921.53	2687.04	1924.11	2687.05
1928.34	2687.08	1932.14	2687.1	1934.82	2687.11	1937.63	2687.13	2013.03	2688.03
2021.97	2688.2	2023.8	2688.2	2025.01	2688.2	2026.37	2688.2	2029.4	2688.2
2031.86	2688.2	2034.38	2688.2	2036.07	2688.2	2039.43	2688.2	2040.82	2688.2
2044.27	2688.2	2045.48	2688.2	2059.67	2688.2	2068.64	2688.2	2083.59	2688.2
2084.63	2688.2	2089.37	2688.2	2090.24	2688.2	2091.21	2688.2	2096.79	2688.2
2097.58	2688.2	2103.56	2688.2	2104.23	2688.2	2109.52	2688.2	2110.28	2688.2
2113.37	2688.2	2114.29	2688.2	2132.62	2688.2				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1445.91	.035	1455.65	.035	1729.07	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1455.65	1729.07	287.85	465.47	493.27	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2682.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.06	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	2681.85	Reach Len. (ft)	287.85	465.47	493.27
Crit W.S. (ft)	2681.48	Flow Area (sq ft)	727.75	1298.70	
E.G. Slope (ft/ft)	0.005342	Area (sq ft)	727.75	1298.70	
Q Total (cfs)	13000.00	Flow (cfs)	1581.14	11418.86	
Top Width (ft)	822.14	Top Width (ft)	553.10	269.03	
Vel Total (ft/s)	6.42	Avg. Vel. (ft/s)	2.17	8.79	
Max Chl Dpth (ft)	7.65	Hydr. Depth (ft)	1.32	4.83	
Conv. Total (cfs)	177869.7	Conv. (cfs)	21633.7	156236.0	
Length Wtd. (ft)	445.00	Wetted Per. (ft)	553.38	272.26	
Min Ch El (ft)	2674.20	Shear (lb/sq ft)	0.44	1.59	
Alpha	1.66	Stream Power (lb/ft s)	0.95	13.99	
Frctn Loss (ft)	2.17	Cum Volume (acre-ft)	237.81	280.28	129.10
C & E Loss (ft)	0.01	Cum SA (acres)	182.79	65.44	94.10

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 20224.2

INPUT
Description:
Station Elevation Data num= 361

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2686.3	3.3	2686.26	3.32	2686.26	3.34	2686.25	8.24	2686.2
8.54	2686.2	9.48	2686.2	12.56	2686.2	22.03	2686.2	33.9	2684.83
39	2684.2	39.92	2684.2	41.39	2684.2	47.17	2684.2	52.08	2684.2
54.16	2684.2	56.28	2684.35	56.58	2684.34	56.84	2684.33	57.08	2684.32
125.11	2684.98	128.13	2684.95	147.36	2684.91	149.89	2684.87	152.2	2684.88
162.47	2685.05	164.65	2685.13	167.1	2685.21	168.88	2685.19	171.46	2685.28
173.98	2685.37	176.67	2685.47	178.51	2685.47	181.84	2685.6	183.55	2685.6
185.44	2685.59	189.57	2685.76	190.88	2685.74	196.19	2685.96	196.88	2685.96
197.65	2685.96	202.57	2686.14	202.79	2686.13	206.87	2686.17	206.99	2686.17
207.11	2686.16	210.97	2686.02	211.51	2686.01	214.81	2685.77	215.75	2685.79
218.61	2685.54	248.45	2685.31	253.58	2685.51	255.96	2685.56	262.39	2685.82
271.55	2686.2	271.99	2686.25	272.68	2686.34	282.28	2687.47	288.29	2688.2
305.04	2688.2	329.04	2688.2	349.14	2688.2	354.77	2687.85	378.31	2686.35
380.26	2686.23	380.71	2686.2	381.34	2686.17	398.91	2685.18	415.44	2684.42
417.45	2684.32	420.36	2684.2	432.83	2683.47	439.56	2683.09	449.45	2682.27
449.83	2682.25	450.35	2682.2	459.52	2682.2	468.28	2682.2	469.09	2682.26
469.39	2682.27	477.18	2682.79	480.28	2682.96	486.67	2683.38	491.16	2683.67
498.63	2684.2	508.94	2684.2	521.29	2684.2	527.45	2684.2	530.22	2684.2
531.6	2684.07	543.09	2683.29	546.79	2683.07	549.5	2682.99	554.59	2682.66
556.04	2682.61	561.15	2682.2	562.42	2682.04	563.04	2682.01	569.16	2681.36
571.96	2681.26	582.01	2680.51	583.62	2680.37	585.4	2680.2	586.14	2680.2
586.42	2680.2	586.72	2680.2	589.2	2680.2	590.11	2680.2	623.64	2679.96
681.04	2680.14	687.68	2680.19	689.45	2680.2	695.53	2680.2	696.73	2680.2
703.09	2680.2	705.89	2680.2	709.51	2680.2	712.02	2680.2	715.16	2680.2
716.08	2680.2	717.5	2680.2	802.27	2678.98	835.43	2678.5	856.79	2678.2
863.36	2678.2	865.19	2678.2	866.95	2678.2	872.92	2678.2	874.12	2678.2
917.17	2678.2	921.52	2678.2	923.52	2678.2	927.38	2678.2	933.51	2678.2
951.55	2678.2	967.72	2678.2	977.22	2678.2	986.76	2678.2	1016.64	2678.32
1020	2678.26	1023.73	2678.2	1023.92	2678.2	1030.92	2678.2	1067.3	2678.2
1069.74	2678.2	1070.25	2678.2	1088.6	2678.2	1092.28	2678.2	1094.12	2678.2
1099.31	2678.2	1106.51	2678.2	1107.46	2678.2	1113.45	2678.2	1115.96	2678.2
1120.68	2678.2	1121.42	2678.2	1121.7	2678.2	1128.51	2678.2	1130.47	2678.2
1137.08	2678.2	1142.55	2678.2	1144.33	2678.2	1147.99	2678.2	1150.38	2678.2
1153.39	2678.2	1180.7	2678.2	1181.09	2678.2	1181.52	2678.2	1182.17	2678.2
1191.32	2678.2	1206.15	2678.2	1210.55	2678.53	1226	2680.2	1227.42	2680.2
1229.08	2680.2	1230.6	2680.2	1231.87	2680.2	1247.62	2679.71	1291.45	2679.62
1294.91	2679.75	1298.79	2679.92	1303.71	2680.16	1304.44	2680.2	1304.7	2680.2
1313.21	2680.2	1316.93	2680.2	1322.72	2678.6	1324.02	2678.2	1326.45	2678.2
1327.62	2678.2	1331.81	2678.2	1338.18	2678.2	1341.22	2678.2	1346.61	2678.2
1353.17	2678.2	1355.31	2678.2	1364.43	2678.2	1364.78	2678.2	1365	2678.2
1367.35	2678.2	1372.36	2678.2	1372.76	2678.2	1373.44	2678.2	1374.85	2678.2
1379.36	2678.2	1381.87	2678.2	1382.33	2678.2	1383.64	2678.09	1386.02	2677.78
1394.73	2676.73	1398.5	2676.2	1404.24	2676.2	1413.06	2676.2	1417.83	2676.2
1421.27	2676.2	1422.96	2676.2	1423.97	2676.2	1424.65	2676.2	1427.16	2676.2
1427.69	2676.2	1432.24	2676.11	1432.56	2676.1	1436.56	2676.05	1436.99	2676.05
1443.92	2675.99	1460.6	2675.63	1464.68	2675.53	1476.53	2675.31	1486.16	2675.13
1493.15	2674.99	1499.27	2674.86	1503.7	2674.77	1506.41	2674.7	1513.37	2674.58
1514.87	2674.54	1522.13	2674.44	1535.5	2674.2	1536.06	2674.2	1537	2674.2
1539.47	2674.2	1540.54	2674.2	1543.01	2674.2	1544.98	2674.2	1546.99	2674 2
1549.56	2674.2	1557.77	2673.74	1566.69	2673.24	1586.11	2672.2	1587.02	2672.2
1589.97	2672.2	1595.48	2672.78	1597.29	2672.93	1600.8	2672.98	1603.51	2673.21
1606.79	2673.32	1610.87	2673.64	1612.74	2673.72	1614.32	2673.83	1618.52	2674.12
1618.79	2674.13	1619.98	2674.2	1624.4	2675.31	1628.04	2676.2	1629.68	2676.6
1632	2677.16	1634.51	2677.77	1636.33	2678.2	1640.18	2678.2	1643.76	2678.2
1644.4	2678.2	1644.89	2678.2	1645.64	2678.2	1649.41	2678.2	1657.18	2678.2
1657.65	2678.2	1657.77	2678.2	1657.96	2678.2	1663.87	2678.2	1666.6	2678.2
1668.3	2678.2	1670.12	2678.2	1672.76	2678.2	1676.45	2678.2	1678.32	2678.2
1679.34	2678.2	1680.06	2678.2	1680.16	2678.2	1680.68	2678.2	1691.77	2678
1698.56	2677.91	1719.37	2678.2	1724.59	2678.2	1729.08	2678.2	1734.38	2678.2
1740.59	2678.2	1744.56	2678.2	1752.34	2678.2	1760.78	2678.2	1767.65	2679.42
1772.57	2680.2	1778.44	2681	1786.5	2681.76	1789.03	2682.04	1789.62	2682.1
1792.04	2682.2	1793.72	2682.2	1794.1	2682.2	1797.52	2682.2	1804.03	2682.2
1806.45	2682.2	1810.94	2682.2	1816.04	2682.2	1816.73	2682.2	1817.29	2682.2
1818.22	2682.2	1826.73	2682.2	1854.53	2682.2	1859.4	2682.2	1869.08	2682.2
1886.04	2682.2	1897.83	2682.2	1944.29	2684.04	1948.42	2684.2	1948.47	2684.2
1950	2684.2	1951.07	2684.2	1952.36	2684.2	1955.21	2684.2	1957.72	2684.2
1960.37	2684.2	1963.45	2684.2	1966.14	2684.2	1968.67	2684.2	1970.52	2684.2
1971.95	2684.2	1973.16	2684.2	1975.8	2684.2	1977.08	2684.2	1978.16	2684.2
1979.02	2684.2	1985.2	2684.2	1985.65	2684.2	1989.16	2684.2	2028.22	2684.2
2070.79	2684.75	2073.5	2684.74	2076.65	2684.74	2080.05	2684.75	2083.53	2684.76
2086.89	2684.78	2089.97	2684.81	2092.7	2684.83	2095.21	2684.86	2097.52	2684.88
2099.7	2684.9	2101.56	2684.92	2102.87	2684.94	2109.05	2685.01	2115.11	2685.03
2124.1	2684.83								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1382.33	.03	1636.33	.05	1826.73	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1382.33	1636.33	231.18	261.59	253.73	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	686.63	2681.19	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2680.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.14	Wt. n-Val.	0.050	0.030	0.050
W.S. Elev (ft)	2679.60	Reach Len. (ft)	231.18	261.59	253.73
Crit W.S. (ft)	2679.50	Flow Area (sq ft)	649.74	1193.72	185.18
E.G. Slope (ft/ft)	0.004457	Area (sq ft)	649.74	1193.72	185.18
Q Total (cfs)	13000.00	Flow (cfs)	1487.59	11053.29	459.13
Top Width (ft)	910.69	Top Width (ft)	524.26	254.00	132.44
Vel Total (ft/s)	6.41	Avg. Vel. (ft/s)	2.29	9.26	2.48
Max Chl Dpth (ft)	7.40	Hydr. Depth (ft)	1.24	4.70	1.40
Conv. Total (cfs)	194720.2	Conv. (cfs)	22281.8	165561.4	6877.1
Length Wtd. (ft)	257.14	Wetted Per. (ft)	524.53	254.76	132.56
Min Ch El (ft)	2672.20	Shear (lb/sq ft)	0.34	1.30	0.39
Alpha	1.80	Stream Power (lb/ft s)	0.79	12.07	0.96
Frctn Loss (ft)	1.57	Cum Volume (acre-ft)	233.25	266.96	128.05
C & E Loss (ft)	0.08	Cum SA (acres)	179.23	62.65	93.35

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: Agua Caliente
REACH: upper RS: 19962.61

INPUT
Description:
Station Elevation Data num= 346

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2688.23	.59	2688.2	1.94	2688.2	4.39	2688.2	9.03	2688.2
11.72	2687.89	25.78	2686.2	35.69	2685.22	39.87	2684.82	44.23	2684.61
45.88	2684.48	49.91	2684.41	50.69	2684.36	55.19	2684.2	56.4	2684.2
58.2	2684.2	59.27	2684.2	60	2684.2	60.14	2684.2	60.16	2684.2
64.77	2684.2	69.09	2684.2	135.67	2683.22	136.6	2683.21	158.42	2683.23
160.08	2683.25	161.85	2683.26	173.84	2683.4	177.8	2683.46	180.61	2683.49
216.9	2683.48	219.06	2683.44	221.64	2683.4	224.46	2683.36	225.28	2683.35
228.05	2683.33	268.6	2682.2	272.16	2682.2	273.15	2682.2	278.11	2682.2
278.55	2682.2	282	2682.2	283.56	2682.2	283.89	2682.2	299.5	2681.53
314.4	2680.96	318.39	2680.76	322.95	2680.58	330.7	2680.2	331.89	2680.2
334.08	2680.2	337.27	2680.52	340.45	2680.81	346.87	2681.45	354.82	2682.2
358.34	2682.54	363.71	2683.05	370.9	2683.75	375.61	2684.2	383.51	2684.65
385.52	2684.76	393.49	2685.18	402.62	2685.51	404.3	2685.51	405.77	2685.53
408.6	2685.57	409.63	2685.62	412.82	2685.58	417.44	2685.66	419.16	2685.62
421.27	2685.55	423.96	2685.45	427.51	2685.27	430.55	2685.16	435.21	2684.92
441.23	2684.62	442.73	2684.53	450.21	2684.21	450.28	2684.21	450.6	2684.2
457.25	2683.88	462.8	2683.61	465.56	2683.38	469.77	2683.15	474.59	2682.75
476.56	2682.63	481.37	2682.2	483.94	2682	485.57	2681.85	493.29	2681.21
496.72	2680.95	501.02	2680.6	502.35	2680.5	503.19	2680.45	507.11	2680.35
507.52	2680.33	511.67	2680.36	514.51	2680.2	515.85	2680.2	519.25	2680.2
520.98	2680.2	521.94	2680.2	523.6	2680.08	524.06	2680.06	524.6	2680.04
527.49	2679.83	535.48	2679.21	546.52	2678.2	551.11	2678.2	551.88	2678.2
552.65	2678.2	562.26	2678.2	565.29	2678.2	575.69	2678.2	622.15	2677.89
627.43	2677.91	630.83	2677.93	631.4	2677.94	634.85	2677.94	637.09	2677.95
637.76	2677.95	638.46	2677.96	642.59	2677.94	643.36	2677.94	644.11	2677.95
644.78	2677.95	649.52	2677.92	654.19	2677.89	666.46	2677.96	672.28	2677.93
742.72	2678.16	747.27	2678.19	751.3	2678.2	752.04	2678.2	752.16	2678.2
754.6	2678.2	757.78	2678.19	758.19	2678.19	758.27	2678.19	765.16	2678.15
765.29	2678.15	772.69	2678.07	778.44	2678	779.64	2677.99	790.18	2677.86
792.39	2677.83	802.28	2677.7	805.63	2677.65	809.9	2677.59	818.96	2677.47
824.29	2677.39	832.01	2677.28	883.85	2677.11	884.96	2677.15	886.67	2677.08
888.53	2677.12	890.82	2677.13	892.23	2677.13	894.02	2677.11	895.07	2677.07
896.61	2677.12	897.99	2677.17	923.52	2676.85	925.08	2676.85	951.45	2677.09
956.78	2677.16	962.95	2677.24	1026.2	2676.7	1028.41	2676.51	1028.86	2676.54
1031.81	2676.26	1032.45	2676.2	1035.18	2676.2	1056.94	2676.2	1058.31	2676.2
1059.47	2676.4	1070.83	2678.2	1077.41	2678.2	1079.91	2678.2	1102.78	2678.2
1105.5	2678.2	1107.94	2678.2	1110.76	2678.2	1112.21	2678.2	1114.98	2678.2
1115.14	2678.2	1115.15	2678.2	1118.9	2678.2	1119.25	2678.2	1190.3	2677.1
1229.48	2676.63	1243.87	2676.2	1245.11	2676.2	1247.29	2676.2	1248.59	2676.2
1250.21	2676.2	1252.98	2676.2	1254.51	2676.2	1256.43	2676.2	1259.5	2676.2
1261.44	2676.2	1264.37	2676.2	1266.21	2676.2	1268.33	2676.2	1269.83	2676.2
1270.54	2676.2	1277.92	2676.2	1302.5	2676.2	1302.68	2676.21	1308.51	2676.49
1309.28	2676.49	1346.18	2676.37	1359.54	2676.33	1361.38	2676.3	1367.02	2676.21
1367.18	2676.2	1369.66	2675.78	1377.95	2674.38	1378.82	2674.2	1379.38	2674.2
1380.71	2674.2	1382.21	2674.2	1382.29	2674.2	1383.72	2674.14	1391.28	2673.84
1394.41	2673.72	1405.75	2673.25	1427.65	2672.2	1432.18	2672.2	1437.04	2672.2
1441.24	2672.2	1441.69	2672.2	1446.62	2672.2	1446.64	2672.2	1446.78	2672.2
1451.65	2672.2	1452.04	2672.2	1455.29	2672.2	1473.15	2672.2	1485.8	2672.2
1495.16	2672.2	1503.18	2672.2	1507	2672.2	1514.05	2672.2	1517.51	2672.2
1528.38	2672.2	1536.29	2672.71	1538.21	2672.89	1541.1	2672.87	1542.95	2673.06
1548.89	2673.69	1550.72	2673.77	1553.78	2674.2	1556.65	2675.11	1558.96	2675.72
1560.79	2676.2	1562.42	2676.2	1562.81	2676.2	1565.49	2676.2	1566.72	2676.2

1569.39	2676.2	1570.54	2676.2	1571.44	2676.2	1572.87	2676.2	1573.87	2676.2
1574.67	2676.2	1575.34	2676.2	1585.02	2676.2	1596.85	2676.2	1671.08	2676.2
1671.95	2676.2	1673.28	2676.2	1673.95	2676.2	1676.02	2676.2	1678.42	2676.2
1678.91	2676.2	1681.25	2676.2	1681.55	2676.2	1683.67	2676.2	1684.41	2676.2
1685	2676.2	1690.24	2676.2	1692.68	2676.2	1700.27	2676.2	1704.79	2676.2
1706.38	2676.2	1706.95	2676.2	1726.22	2676.2	1727.91	2676.2	1729.58	2676.2
1733.42	2676.2	1735.32	2676.2	1737.01	2676.2	1737.22	2676.2	1740.41	2676.2
1742.39	2676.2	1802.96	2676.2	1807.47	2676.2	1809.41	2676.2	1811.39	2676.2
1813.18	2676.2	1826.89	2676.2	1828.52	2676.2	1838	2676.2	1838.2	2676.2
1840.4	2676.64	1848.55	2678.2	1856.42	2680.03	1857.19	2680.2	1857.62	2680.2
1857.92	2680.2	1858.58	2680.2	1870.56	2680.2	1875.06	2680.2	1876.63	2680.2
1880.91	2680.2	1885.4	2680.2	1887.75	2680.2	1892.49	2680.2	1895.39	2680.2
1900.11	2680.2	1903.36	2680.2	1907.47	2680.2	1910.99	2680.2	1914.45	2680.2
1917.7	2680.2	1920.57	2680.2	1922.75	2680.2	1925.71	2680.2	1927.4	2680.2
1934.19	2680.2	1977.36	2680.6	1978.58	2680.61	1982.02	2680.61	1983.28	2680.62
2010.66	2680.79	2095.19	2680.88	2095.85	2680.9	2096.7	2680.91	2097.73	2680.91
2103.7	2680.94	2105.04	2680.95	2106.51	2680.96	2107.91	2680.97	2109.04	2680.97
2171.26	2681.21								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1361.38	.045	1565.49	.06	1737.01	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1361.38	1565.49	146.02	187.95	176.48	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	918.04	2680.19	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2679.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.	0.050	0.045	0.060
W.S. Elev (ft)	2678.11	Reach Len. (ft)	146.02	187.95	176.48
Crit W.S. (ft)	2678.01	Flow Area (sq ft)	511.14	1031.27	530.01
E.G. Slope (ft/ft)	0.008839	Area (sq ft)	636.40	1031.27	530.01
Q Total (cfs)	13000.00	Flow (cfs)	1715.14	9408.33	1876.53
Top Width (ft)	1162.01	Top Width (ft)	675.32	204.11	282.59
Vel Total (ft/s)	6.27	Avg. Vel. (ft/s)	3.36	9.12	3.54
Max Chl Dpth (ft)	5.91	Hydr. Depth (ft)	1.32	5.05	1.88
Conv. Total (cfs)	138274.5	Conv. (cfs)	18243.0	100071.7	19959.7
Length Wtd. (ft)	181.89	Wetted Per. (ft)	388.69	204.71	282.77
Min Ch El (ft)	2672.20	Shear (lb/sq ft)	0.73	2.78	1.03
Alpha	1.61	Stream Power (lb/ft s)	2.43	25.36	3.66
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	229.84	260.28	125.96
C & E Loss (ft)	0.04	Cum SA (acres)	176.05	61.27	92.14

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: Agua Caliente
REACH: upper RS: 19774.66

INPUT
Description:
Station Elevation Data num= 405

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2688.22	.72	2688.2	3.08	2688.2	5.16	2688.2	7.65	2688.2
10.48	2688.2	12.7	2688.2	15.29	2688.2	18.53	2688.2	20	2688.2
23.61	2688.2	24.36	2688.2	27.03	2688.2	29.1	2688.11	29.52	2688.08
34.92	2687.82	36.72	2687.71	40.11	2687.46	43.36	2687.25	52.2	2686.52
55.78	2686.2	60.65	2685.15	65.12	2684.2	68.04	2684.1	69.34	2684.07
87.57	2683.5	97.15	2683.2	107.13	2682.96	112.65	2682.79	133.9	2682.2
136.39	2682.2	136.68	2682.2	137.06	2682.2	137.96	2682.2	149.73	2682.2
156.77	2682.2	159.89	2682.2	164.92	2682.2	174.37	2682.2	181.72	2682.2
187.13	2682.2	187.96	2682.2	188	2682.2	192.91	2682.2	193.15	2682.2
198.4	2682.2	198.82	2682.2	203.82	2682.2	204.39	2682.2	219.33	2681.89
220.91	2681.86	229.49	2681.76	231.77	2681.72	234.5	2681.68	237.85	2681.63
241.11	2681.59	248.27	2681.48	309.49	2680.31	311	2680.31	312.46	2680.31
340.38	2680.2	344.43	2680.2	344.46	2680.2	344.47	2680.2	358.04	2680.2
360.08	2680.2	365.17	2680.2	370.53	2680.2	371.52	2680.2	376.56	2680.2
380.7	2680.2	381.09	2680.2	384.01	2680.2	384.42	2680.2	384.81	2680.2
385.18	2680.2	385.56	2680.2	385.97	2680.2	386.43	2680.2	390.31	2680.2
391.11	2680.2	391.71	2680.2	396.64	2680.2	452.73	2678.7	459.12	2678.55
475.01	2678.2	475.93	2678.2	476.76	2678.2	478.68	2678.2	479.99	2678.2
482.23	2678.2	483.65	2678.2	484.48	2678.2	486.62	2678.2	557.67	2676.22
558.35	2676.2	558.4	2676.2	558.43	2676.2	561.26	2676.2	561.93	2676.2
564.27	2676.2	575.34	2676.2	586.24	2676.2	590.01	2676.2	593.28	2676.2
595.68	2676.2	595.78	2676.2	598.94	2676.2	601.63	2676.2	607.68	2676.2

640.62	2676.2	644.54	2676.2	645.17	2676.2	645.88	2676.2	649.79	2676.2
650.5	2676.2	657.27	2676.2	658.19	2676.2	664.15	2676.2	665.7	2676.2
712.8	2676.49	715.27	2676.49	717.94	2676.48	720.7	2676.48	723.49	2676.48
726.4	2676.47	729.38	2676.47	732.47	2676.46	735.74	2676.45	739.16	2676.45
742.58	2676.44	746.14	2676.43	766.52	2676.36	772.72	2676.32	778.27	2676.3
800.37	2676.2	801.48	2676.2	803.03	2676.2	804.31	2676.2	806.34	2676.2
807.81	2676.2	810.62	2676.2	811.92	2676.2	819	2676.2	823.36	2676.2
824.41	2676.2	829.89	2676.2	835.17	2676.2	836.4	2676.2	841.18	2676.2
842.11	2676.2	846.14	2676.2	849.26	2676.2	849.73	2676.2	857.39	2676.2
858.04	2676.2	862.09	2676.2	865.12	2676.2	869.3	2676.2	870.95	2676.2
872.6	2676.2	874.72	2676.2	876.12	2676.2	877.98	2676.2	879.09	2676.2
880.09	2676.2	929.8	2676.2	969.68	2676.2	989.17	2676.2	994.21	2676.2
999.32	2676.2	1004.67	2676.2	1007.33	2676.2	1015.03	2676.2	1018.99	2676.2
1019.65	2676.2	1020.91	2676.2	1028.59	2676.2	1035.21	2676.2	1036.92	2676.2
1041.82	2676.2	1045.04	2676.2	1047.4	2676.2	1049.33	2676.2	1051.48	2676.2
1053.2	2676.2	1056.55	2676.2	1058.17	2676.2	1059.65	2676.2	1063.93	2676.2
1065.36	2676.2	1066.73	2676.2	1068.02	2676.2	1072.44	2676.2	1073.56	2676.2
1078.2	2676.2	1079.11	2676.2	1084.03	2676.2	1084.66	2676.2	1086.06	2676.2
1090.05	2676.2	1090.18	2676.2	1091.09	2676.2	1094.79	2675.81	1105.03	2674.54
1106.99	2674.2	1107.13	2674.2	1107.31	2674.2	1115.5	2674.2	1120.32	2674.2
1121.02	2674.2	1122.61	2674.2	1126.96	2674.92	1131.94	2675.83	1133.08	2676.04
1134.27	2676.2	1134.85	2676.2	1137.54	2676.2	1146.79	2676.2	1149.53	2676.04
1149.85	2676.06	1150.09	2676.07	1154.02	2675.85	1154.55	2675.88	1165.51	2676.2
1173.12	2676.2	1176.31	2676.2	1182.15	2676.2	1185.35	2676.2	1189.47	2676.2
1196.35	2676.2	1213.72	2676.2	1215.55	2676.2	1216.82	2676.2	1219.48	2676.2
1220.61	2676.2	1224.38	2676.2	1225.26	2676.2	1230.8	2676.2	1242.11	2676.2
1246.83	2676.2	1253.54	2676.2	1263.39	2676.2	1263.65	2676.11	1266.59	2674.99
1268.68	2674.2	1280.83	2674.2	1286.84	2674.2	1290.37	2674.2	1291.59	2674.94
1294.2	2676.2	1294.74	2676.2	1295.39	2676.2	1297.05	2675.36	1299.26	2674.2
1300.05	2673.71	1300.11	2673.67	1303.29	2672.2	1303.55	2672.15	1303.6	2672.16
1306.81	2671.68	1308.52	2671.37	1335.64	2671.13	1347.67	2670.72	1351.95	2670.58
1354.35	2670.49	1363.27	2670.2	1367.54	2670.2	1372.19	2670.2	1380.56	2670.2
1387.68	2670.2	1401.13	2670.51	1420.58	2670.96	1432.39	2671.24	1469.31	2672.2
1471.44	2672.2	1471.6	2672.2	1472.27	2672.2	1476.13	2672.58	1488.32	2673.45
1498.42	2674.2	1503.16	2674.2	1503.61	2674.2	1507.98	2674.2	1512.03	2674.2
1521.06	2674.2	1529.07	2674.2	1530.76	2674.2	1532.45	2674.2	1534.8	2674.2
1536.14	2674.2	1541.1	2674.2	1541.38	2674.2	1542.25	2674.2	1543.62	2674.2
1544.36	2674.2	1545.54	2674.2	1552.25	2674.2	1554.76	2674.2	1562.87	2674.2
1566.56	2674.2	1574.47	2674.2	1574.91	2674.2	1575.17	2674.2	1576.05	2674.2
1577.41	2674.2	1578.01	2674.2	1578.42	2674.21	1578.46	2674.21	1579.7	2674.24
1585.47	2674.38	1586.09	2674.38	1592.44	2674.52	1613.26	2674.55	1643.74	2674.76
1664.27	2674.91	1665.96	2674.93	1667.77	2674.95	1690.76	2674.2	1694	2674.2
1694.85	2674.2	1695.39	2674.2	1698.09	2674.2	1698.93	2674.2	1702.89	2674.2
1704.11	2674.2	1708.41	2674.2	1710.06	2674.2	1714.37	2674.2	1716.12	2674.2
1720.54	2674.2	1721.94	2674.2	1726.23	2674.2	1730.1	2674.2	1731.24	2674.2
1736.95	2674.76	1738.73	2674.88	1742.35	2674.97	1744.63	2675.16	1748.34	2675.48
1750.27	2675.59	1755.99	2676.15	1756.54	2676.2	1759.06	2676.3	1798.39	2677.72
1810.54	2678.16	1811.74	2678.2	1818.31	2678.33	1898.25	2678.65	1898.95	2678.65
1900.98	2678.63	1901.84	2678.62	1904.82	2678.62	1905.74	2678.61	1909.55	2678.62
1913.79	2678.63	1918.04	2678.64	1923.67	2678.63	1935	2678.6	1939.65	2678.62
1944.16	2678.63	1948.58	2678.65	1952.89	2678.66	1957.03	2678.68	1961.27	2678.7
1965.4	2678.72	1969.27	2678.73	1977.24	2678.74	1981.31	2678.75	1985.26	2678.77
1989.09	2678.79	2010.74	2678.96	2013.29	2679	2017.24	2679.02	2020.09	2679.07
2023.9	2679.09	2026.97	2679.14	2030.45	2679.17	2033.76	2679.22	2037.03	2679.24
2040.65	2679.3	2044.72	2679.37	2047.58	2679.4	2052.04	2679.47	2054.57	2679.5
2056.96	2679.53	2061.53	2679.6	2063.59	2679.62	2068.5	2679.68	2070.24	2679.71
2075.21	2679.75	2076.68	2679.78	2078	2679.8	2087.35	2679.96	2091.94	2679.98
2096.78	2680	2101.44	2680.01	2106.26	2680.01	2110.93	2680.01	2115.4	2680
2123.46	2679.97	2128.41	2679.96	2133.26	2679.94	2133.72	2679.94	2134.72	2679.93

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1300.05	.035	1503.16	.05	1503.61	.05	1579.7	.05
1643.74	.06								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1300.05	1503.61	169.49	190.22	182.25	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	1024.31	2680.19	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2678.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.	0.050	0.035	0.053
W.S. Elev (ft)	2677.22	Reach Len. (ft)	169.49	190.22	182.25
Crit W.S. (ft)	2676.20	Flow Area (sq ft)	400.35	1185.41	706.26
E.G. Slope (ft/ft)	0.003672	Area (sq ft)	872.67	1185.41	706.26
Q Total (cfs)	13000.00	Flow (cfs)	920.47	9855.44	2224.10
Top Width (ft)	1262.83	Top Width (ft)	778.31	203.56	280.96
Vel Total (ft/s)	5.67	Avg. Vel. (ft/s)	2.30	8.31	3.15
Max Chl Dpth (ft)	7.02	Hydr. Depth (ft)	1.45	5.82	2.51
Conv. Total (cfs)	214522.9	Conv. (cfs)	15189.4	162632.1	36701.5
Length Wtd. (ft)	187.80	Wetted Per. (ft)	277.54	204.08	281.09
Min Ch El (ft)	2670.20	Shear (lb/sq ft)	0.33	1.33	0.58
Alpha	1.69	Stream Power (lb/ft s)	0.76	11.07	1.81

Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	227.31	255.50	123.46
C & E Loss (ft)	0.15	Cum SA (acres)	173.61	60.39	91.00

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 19584.44

INPUT
Description:
Station Elevation Data num= 404

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2688.51	3.3	2688.22	3.63	2688.2	35.54	2686.87	42.03	2686.6
51.35	2686.2	51.46	2686.2	51.51	2686.2	55.67	2686.2	58.34	2686.2
76.25	2684.82	77.73	2684.81	78.5	2684.71	80.15	2684.64	83.64	2684.44
84.4	2684.4	88.86	2684.2	89.9	2684.2	90.65	2684.2	94.87	2684.2
98.21	2684.2	99.83	2684.2	104.96	2684.2	105.02	2684.2	105.19	2684.2
112.92	2684.2	114.34	2684.2	121.21	2684.2	125.57	2684.2	128.86	2684.2
132.16	2684.2	135.67	2683.81	138.08	2683.69	143.82	2683.2	149.45	2682.98
152.87	2682.75	154.67	2682.63	161.23	2682.47	169.32	2682.25	169.51	2682.24
171.16	2682.2	174.37	2682.2	174.63	2682.2	189.64	2682.2	194.47	2682.2
195.31	2682.2	196.84	2682.2	197.68	2682.2	203.91	2681.65	205.27	2681.56
207.86	2681.43	210.73	2681.29	214.03	2681.1	216.83	2680.94	221.31	2680.79
223.46	2680.68	224.97	2680.61	230.36	2680.49	231.26	2680.45	237.42	2680.36
237.9	2680.34	244.92	2680.26	247.11	2680.2	247.31	2680.2	250.41	2680.2
251.86	2680.2	252	2680.2	256.37	2680.2	257.03	2680.2	259.99	2680.2
260.96	2680.2	271.06	2679.67	277.18	2679.43	279.58	2679.35	284.14	2679.15
287.33	2678.99	308.11	2678.2	309.93	2678.2	311.16	2678.2	313.52	2678.2
317.18	2678.2	318.43	2678.2	323.89	2678.2	328.97	2678.2	332.15	2678.2
337.81	2678.2	340.77	2678.2	343.63	2678.2	351.77	2678.2	357.75	2678.2
361.11	2678.2	361.69	2678.2	369.71	2678.2	375.15	2678.2	379.14	2678.2
399.12	2678.2	407.4	2678.2	409.99	2678.2	435.39	2677.84	439	2677.89
443.55	2677.91	443.83	2677.91	448.52	2677.91	453.03	2677.89	457.14	2677.84
462.99	2677.87	467.81	2677.82	468.95	2677.81	473.42	2677.76	477.52	2677.71
481.4	2677.67	482.71	2677.67	486.38	2677.62	520.95	2677.28	525.31	2677.2
529.73	2677.14	535.05	2677.04	538.78	2676.99	542.36	2676.94	548.36	2676.83
551.27	2676.79	553.58	2676.75	559.75	2676.65	566.3	2676.57	582.16	2676.2
582.81	2676.2	586.21	2676.2	586.81	2676.2	587.46	2676.2	588.18	2676.2
591.54	2676.2	592.09	2676.2	595.57	2676.2	595.83	2676.2	596.13	2676.2
597.84	2676.2	600.19	2676.17	600.26	2676.17	606.66	2676.08	606.93	2676.07
612.3	2675.97	626.77	2676.06	636.17	2676	748.42	2676.03	751.14	2676.09
755.55	2676.15	760.99	2676.2	761.24	2676.2	761.3	2676.2	764.85	2676.2
768.57	2676.2	772.8	2676.2	773.76	2676.2	778.83	2676.2	785.03	2676.2
785.49	2676.2	791.73	2676.2	792.57	2676.2	792.64	2676.2	800.07	2676.2
806.16	2676.2	807.09	2676.2	812.11	2676.2	813.71	2676.2	816.05	2676.2
820.54	2676.2	824.27	2676.2	830.15	2676.2	841.28	2676.2	841.93	2676.2
843.52	2676.2	854.19	2676.2	860.18	2676.2	864.62	2676.2	866.49	2676.2
871.85	2676.2	873.43	2676.2	877.77	2676.2	879.76	2676.2	883.61	2676.2
887	2676.2	889.12	2676.2	892.2	2676.2	893.84	2676.2	896.7	2676.2
899.65	2676.2	902.5	2676.2	903.08	2676.2	1015.61	2676.2	1016.2	2676.2
1016.71	2676.2	1022.26	2676.2	1022.51	2676.2	1026.33	2676.2	1026.41	2676.2
1029.78	2676.2	1031.11	2676.2	1033.05	2676.2	1033.35	2676.2	1036.95	2676.2
1040.76	2676.2	1041.53	2676.2	1047.62	2676.2	1052.46	2676.2	1052.79	2676.2
1057.63	2676.2	1062.71	2676.2	1067.88	2676.2	1068.09	2676.2	1072.81	2676.2
1072.98	2676.2	1073.19	2676.2	1076.84	2676.2	1077.19	2676.2	1077.62	2676.2
1080.81	2676.2	1081.6	2676.2	1084.3	2676.2	1085.26	2676.2	1117.48	2674.69
1129.74	2674.2	1133.21	2673.62	1136.21	2673.1	1137.15	2673.09	1139.48	2673
1149.19	2672.36	1151.56	2672.2	1153.52	2672.2	1154.37	2672.2	1155.17	2672.2
1160.3	2670.86	1162.06	2670.2	1164.35	2670.03	1172.37	2670.2	1175.01	2670.2
1185.37	2670.2	1187.77	2670.2	1194.39	2670.2	1204.17	2670.2	1214.81	2670.2
1220.47	2670.2	1234.73	2670.2	1236.14	2670.2	1241.31	2670.2	1246.32	2671.11
1252.02	2672.2	1253.25	2672.2	1255.53	2672.2	1261.04	2672.2	1265	2672.2
1266.4	2672.2	1266.59	2672.2	1270.64	2672.06	1271.65	2672.03	1282.15	2671.75
1285.42	2671.65	1290.75	2671.49	1300.2	2671.2	1309.37	2670.92	1314.68	2670.75
1328.53	2670.33	1330.75	2670.26	1332.69	2670.2	1341.63	2670.2	1348.65	2670.2
1351.39	2671.12	1353.02	2672.19	1362.58	2672.2	1364.19	2672.2	1373.6	2672.2
1378.9	2672.2	1398.04	2672.2	1399.33	2672.2	1400.71	2672.2	1402.48	2672.2
1403.89	2672.2	1405.21	2672.2	1405.94	2672.2	1411.08	2672.2	1426.37	2672.2
1426.59	2672.2	1437.25	2672.2	1438.87	2672.2	1448.24	2672.2	1452.71	2673.25
1457.19	2674.2	1460.2	2674.2	1468.35	2674.2	1472.08	2674.2	1477.39	2674.2
1483.9	2674.2	1486.04	2674.2	1490.87	2674.2	1500.66	2673.66	1525.03	2672.2
1526.25	2672.2	1530.5	2672.2	1534.81	2672.2	1539.99	2672.54	1544.85	2672.83
1547.2	2672.88	1551.55	2673.08	1553.54	2673.16	1555	2673.22	1557.73	2673.32
1559.92	2673.34	1561.21	2673.35	1563.49	2673.43	1565.26	2673.5	1569.25	2673.51
1570.8	2673.57	1584.56	2674.2	1588.79	2674.2	1589.84	2674.2	1590.18	2674.2
1595.52	2674.2	1596.82	2674.2	1600.2	2674.2	1607.45	2674.2	1609.88	2674.2
1612.16	2674.2	1615.53	2674.2	1617.52	2674.2	1621.71	2674.2	1628.24	2674.2
1628.44	2674.2	1629.26	2674.2	1630.95	2674.88	1634.31	2676.2	1638.92	2676.2
1641.94	2676.2	1643.63	2676.2	1645.28	2676.2	1645.8	2676.2	1661.26	2676.2
1664.47	2676.2	1668.07	2676.2	1672.45	2676.2	1674.33	2676.2	1679.48	2676.2
1685.4	2676.2	1692.65	2676.2	1701.29	2676.2	1701.57	2676.2	1707.29	2676.2
1708.94	2676.2	1712.73	2676.2	1712.89	2676.2	1716.7	2676.2	1721.04	2676.2
1725.53	2676.2	1729.22	2676.2	1729.76	2676.2	1744.46	2676.42	1789.39	2677.03
1792.41	2677.06	1795.06	2677.1	1797.25	2677.13	1804.1	2677.24	1805.12	2677.25

1811.24	2677.31	1811.55	2677.31	1811.86	2677.31	1812.15	2677.31	1812.42	2677.31
1812.66	2677.31	1815.87	2677.3	1876.77	2677.43	1877.61	2677.43	1880.54	2677.42
1883.81	2677.39	2018.31	2678.15	2021.87	2678.2	2022.44	2678.2	2023.23	2678.2
2025.61	2678.2	2027.82	2678.2	2029.81	2678.2	2032.13	2678.2	2033.68	2678.2
2035.65	2678.2	2036.89	2678.2	2038.61	2678.2	2046.41	2678.29	2070.7	2678.2
2074.3	2678.2	2077.46	2678.2	2080.43	2678.2	2083.12	2678.2	2086.44	2678.2
2088.27	2678.2	2089.95	2678.2	2091.43	2678.2	2095.38	2678.2	2096.12	2678.2
2101.47	2678.2	2101.91	2678.2	2102.01	2678.2	2106.46	2678.2	2113.42	2678.2
2118.01	2678.2	2122.18	2678.2	2126.21	2678.2	2128.13	2678.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1154.37	.03	1353.02	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1154.37	1353.02	233.53	227.46	219.88	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2677.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.33	Wt. n-Val.	0.050	0.030	0.060
W.S. Elev (ft)	2675.79	Reach Len. (ft)	233.53	227.46	219.88
Crit W.S. (ft)	2675.49	Flow Area (sq ft)	100.48	991.43	739.30
E.G. Slope (ft/ft)	0.005100	Area (sq ft)	100.48	991.43	739.30
Q Total (cfs)	13000.00	Flow (cfs)	299.34	10207.99	2492.67
Top Width (ft)	539.16	Top Width (ft)	60.27	198.65	280.24
Vel Total (ft/s)	7.10	Avg. Vel. (ft/s)	2.98	10.30	3.37
Max Chl Dpth (ft)	5.76	Hydr. Depth (ft)	1.67	4.99	2.64
Conv. Total (cfs)	182035.8	Conv. (cfs)	4191.6	142940.0	34904.3
Length Wtd. (ft)	225.85	Wetted Per. (ft)	60.43	199.64	280.87
Min Ch El (ft)	2670.03	Shear (lb/sq ft)	0.53	1.58	0.84
Alpha	1.70	Stream Power (lb/ft s)	1.58	16.28	2.83
Frctn Loss (ft)	1.34	Cum Volume (acre-ft)	225.42	250.75	120.44
C & E Loss (ft)	0.00	Cum SA (acres)	171.98	59.51	89.83

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 19356.98

INPUT
Description:
Station Elevation Data num= 343

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2690.2	5.4	2690.2	7.5	2690.2	10.89	2690.2	12.38	2690.2
32.79	2689.27	36.24	2689.22	39.45	2689.03	42.5	2688.95	45.08	2688.89
47.32	2688.84	49.7	2688.74	51.4	2688.71	52.9	2688.7	54.11	2688.67
56.2	2688.69	57.14	2688.65	59.46	2688.71	61.83	2688.78	64.48	2688.84
65.69	2688.79	68.83	2688.84	71.66	2688.9	73	2688.84	95.09	2688.86
97.31	2688.8	99.29	2688.75	100.87	2688.71	105.4	2688.68	106.58	2688.65
124.22	2688.54	125.16	2688.52	140.77	2688.2	142.73	2688.2	143.33	2688.2
166.62	2688.2	170.55	2688.2	170.66	2688.2	175.6	2687.95	176.06	2687.96
180.34	2687.75	181.05	2687.77	184.46	2687.6	185.39	2687.63	188.18	2687.5
189.34	2687.54	192.13	2687.45	209.02	2687.17	212.08	2687.1	217.74	2686.86
219.63	2686.8	226.91	2686.48	227.75	2686.45	233.06	2686.2	240.46	2685.92
245.48	2685.71	280.24	2684.2	308.05	2682.65	315.94	2682.2	329.08	2680.53
331.8	2680.2	342.33	2678.74	346.53	2678.2	356.56	2677.54	363.56	2677.09
367.3	2676.87	370.3	2676.69	371.79	2676.58	377.69	2676.2	378.53	2676.2
381.23	2676.2	382.3	2676.2	386.73	2676.2	388.59	2676.2	392.85	2676.2
395.86	2676.2	400.27	2676.2	401.78	2676.16	403.46	2676.13	412.75	2675.92
415.45	2675.86	423.45	2675.67	431.09	2675.49	437.68	2675.34	442.06	2675.23
446.63	2675.16	448.33	2675.11	485.68	2674.5	487.71	2674.49	523.65	2674.26
529.09	2674.21	529.66	2674.2	529.7	2674.2	529.77	2674.2	530.48	2674.2
532.04	2674.2	532.63	2674.2	532.84	2674.2	535.73	2674.15	535.87	2674.14
542.32	2674.07	548.07	2673.98	548.4	2673.98	584.37	2673.65	587.43	2673.66
591.13	2673.66	595.39	2673.66	599.91	2673.67	609.92	2673.63	613.86	2673.64
647.97	2674.2	648.59	2674.2	652.3	2674.2	653.04	2674.2	653.89	2674.2
655.76	2674.2	657.41	2674.2	659.95	2674.2	661.84	2674.2	664.33	2674.2
665.65	2674.2	681.32	2674.2	686.83	2674.2	692.87	2674.2	693.9	2674.2
694.05	2674.2	695.64	2674.2	697.18	2674.2	698.95	2674.2	699.45	2674.2
717.64	2674.2	719.83	2674.2	724.3	2674.2	725.5	2674.2	725.52	2674.2
725.54	2674.2	727.66	2674.2	729.45	2674.2	730.16	2674.2	730.51	2674.2
731.27	2674.2	731.53	2674.2	761.12	2674.34	833.01	2675.17	834.51	2675.18
836.11	2675.18	909.53	2674.26	913.4	2674.24	922.62	2674.21	924.36	2674.2
925.16	2674.2	928.46	2674.2	931.32	2674.2	978.03	2674.2	980.66	2674.2
984.27	2674.2	985.11	2674.2	986.37	2674.2	1000.58	2674.2	1001.52	2674.2
1007.98	2674.2	1009.18	2674.2	1010.52	2674.2	1011.82	2674.2	1016.78	2674.2
1040.72	2674.2	1040.83	2674.2	1041.69	2674.2	1041.79	2674.2	1041.86	2674.2
1042.79	2674.2	1058.82	2674.2	1062.31	2674.2	1066.06	2674.2	1067.7	2674.2
1070.75	2674.2	1076.49	2674.2	1079.64	2674.2	1090.85	2674.2	1092.44	2673.19
1093.95	2672.2	1095.47	2671.25	1097.16	2670.2	1099.39	2668.72	1100.15	2668.2

1107.4	2668.2	1121.08	2668.2	1138.42	2668.2	1140.01	2668.2	1162.01	2668.2
1177.42	2668.2	1187.78	2668.2	1198.74	2668.2	1202.42	2668.2	1206.1	2668.2
1217.08	2669.73	1220.34	2670.2	1228.59	2670.57	1244.78	2671.29	1253.06	2671.56
1258.3	2671.78	1260.79	2671.89	1262.29	2671.95	1268.02	2672.12	1271.39	2672.11
1271.52	2672.12	1281.47	2671.99	1282.71	2671.95	1290.86	2671.83	1293.78	2671.74
1303.1	2671.55	1309.38	2671.37	1321.14	2671.05	1348.95	2670.56	1352.74	2670.27
1352.85	2670.28	1354.14	2670.2	1354.49	2670.2	1355.08	2670.2	1358.01	2670.2
1361	2670.2	1363.22	2670.2	1367.77	2670.2	1373.79	2670.2	1375.07	2670.2
1375.81	2670.2	1376.37	2670.2	1382.98	2670.2	1383.09	2670.2	1384.6	2670.2
1389.67	2670.3	1389.89	2670.31	1396	2670.44	1401.25	2670.59	1401.9	2670.6
1406.05	2670.77	1407.02	2670.76	1410.28	2670.93	1424.47	2670.93	1429.81	2671.08
1430.72	2671.08	1435.05	2671.2	1471.93	2671.91	1487.41	2672.2	1490.62	2672.2
1495.51	2672.2	1501.34	2672.2	1504.89	2672.76	1510.91	2673.7	1515.11	2674.2
1526.67	2674.43	1527.24	2674.44	1559.57	2675.14	1573.8	2675.45	1581.47	2675.61
1599.58	2676.02	1607.5	2676.2	1615.65	2676.2	1627.87	2676.2	1643.11	2676.2
1647.05	2676.2	1648.94	2676.2	1654.9	2676.2	1655.97	2676.2	1656.51	2676.2
1659.37	2676.2	1667.3	2676.2	1671.03	2676.2	1673.05	2676.2	1675.36	2676.2
1677.56	2676.2	1703.87	2675.98	1707.61	2675.98	1708.23	2675.98	1712.53	2675.97
1713.15	2675.97	1717.71	2675.96	1721.57	2675.92	1725.46	2675.91	1726.3	2675.9
1744.49	2675.87	1745.32	2675.86	1747.39	2675.85	1752.51	2675.85	1754.67	2675.85
1755.41	2675.84	1756.08	2675.84	1779.19	2675.71	1780.11	2675.72	1792.39	2675.8
1793.49	2675.79	1892.3	2675.64	1893.39	2675.64	1897.65	2675.69	1902.42	2675.74
1907.47	2675.79	1913.16	2675.84	1913.86	2675.84	1919.64	2675.89	1925.7	2675.94
1931.58	2675.98	1940.05	2676.04	1940.42	2676.04	1945.45	2676.06	1967.6	2676.2
1971.7	2676.2	1972.89	2676.2	1975.85	2676.2	1979.23	2676.2	1983.44	2676.2
1983.69	2676.2	1983.9	2676.2	1989.55	2676.2	1990.7	2676.2	1994.12	2676.2
1995.9	2676.2	1998.23	2676.2	1999.67	2676.2	2003.64	2676.2	2004.58	2676.2
2011.63	2676.2	2017.5	2676.2	2028.34	2676.2	2037.74	2676.2	2039.47	2676.2
2046.75	2676.2	2053.17	2676.2	2075.27	2676.2	2078.11	2676.2	2079.79	2676.2
2083.53	2676.2	2084.49	2676.2	2098.91	2676.2	2124.79	2676.2	2161.63	2676.2
2165.05	2676.2	2167.94	2676.2	2168.66	2676.2	2177.59	2676.53	2191.52	2676.97
2193.2	2677.02	2194.23	2677.06	2196.92	2677.15				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1090.85	.035	1268.02	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1090.85	1268.02	344.38	346.3	271.92	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	835.62	2676.18	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2675.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.	0.050	0.035	0.060
W.S. Elev (ft)	2674.43	Reach Len. (ft)	344.38	346.30	271.92
Crit W.S. (ft)	2673.97	Flow Area (sq ft)	41.80	917.17	772.89
E.G. Slope (ft/ft)	0.006960	Area (sq ft)	137.18	917.17	772.89
Q Total (cfs)	13000.00	Flow (cfs)	37.17	9650.44	3312.39
Top Width (ft)	901.33	Top Width (ft)	465.67	177.17	258.49
Vel Total (ft/s)	7.51	Avg. Vel. (ft/s)	0.89	10.52	4.29
Max Chl Dpth (ft)	6.23	Hydr. Depth (ft)	0.21	5.18	2.99
Conv. Total (cfs)	155829.0	Conv. (cfs)	445.5	115678.4	39705.1
Length Wtd. (ft)	330.90	Wetted Per. (ft)	194.63	179.12	258.70
Min Ch El (ft)	2668.20	Shear (lb/sq ft)	0.09	2.22	1.30
Alpha	1.54	Stream Power (lb/ft s)	0.08	23.41	5.56
Frctn Loss (ft)	2.50	Cum Volume (acre-ft)	224.78	245.76	116.62
C & E Loss (ft)	0.01	Cum SA (acres)	170.57	58.53	88.47

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: Agua Caliente
REACH: upper RS: 19010.68

INPUT
Description:
Station Elevation Data num= 385

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2688.8	.81	2688.79	2.27	2688.78	3.58	2688.78	17.85	2688.61
18.96	2688.61	20.12	2688.61	21.36	2688.61	25.44	2688.54	31.17	2688.2
32.71	2688.2	35.11	2688.2	36.85	2688.2	39.52	2688.2	40.02	2688.2
40.38	2688.2	43.15	2688.06	44.04	2688.01	45.69	2687.93	56.4	2687.34
62.86	2687.06	67.98	2686.77	77.56	2686.43	81.61	2686.28	81.86	2686.28
85.25	2686.2	89.17	2686.2	95.34	2686.2	96.69	2686.2	96.92	2686.2
97.29	2686.25	97.94	2686.48	102.05	2687.74	103.14	2688.2	107.74	2690.18
107.8	2690.2	107.84	2690.2	113.09	2690.2	114.36	2689.78	118.86	2688.2
120.73	2687.93	121.72	2687.9	126.72	2687.39	129.55	2687.12	132.99	2687.07
149.3	2686.2	149.89	2686.2	150.63	2686.2	153.88	2685.69	158.26	2685

162.19	2684.71	163.77	2684.52	164.59	2684.45	165.13	2684.4	168.48	2684.38
168.89	2684.35	172.57	2684.4	173.02	2684.37	176.88	2684.46	190.69	2684.2
199.84	2684.2	201.02	2684.2	202.03	2684.2	203.77	2684.13	216.01	2683.62
221.43	2683.36	228.74	2683.06	233.07	2682.9	240.8	2682.45	242	2682.4
245.47	2682.2	245.87	2682.2	246.31	2682.2	248.07	2682.2	249.28	2682.2
277.35	2681.09	282	2680.82	284.78	2680.72	291.33	2680.32	293.39	2680.2
304.22	2679.67	310.58	2679.39	328.69	2678.62	330.35	2678.56	331.66	2678.53
337.86	2678.24	338	2678.24	338.76	2678.2	350.49	2676.28	350.9	2676.2
351.41	2676.07	358.99	2674.2	365.9	2672.47	367	2672.2	368.32	2671.68
372.04	2670.2	377.5	2670.2	387.2	2670.2	395.56	2670.42	410.37	2670.81
468.29	2672.2	470.21	2672.2	471.31	2672.2	472.89	2672.2	474.88	2672.2
476.43	2672.2	478.38	2672.2	479.53	2672.2	480.75	2672.2	481.2	2672.2
484.22	2672.2	484.44	2672.2	546.04	2672.2	547.86	2672.2	549.49	2672.2
553.75	2672.2	555.66	2672.2	558.49	2672.2	560.75	2672.2	587.01	2672.2
588.86	2672.2	617.02	2672.83	617.49	2672.83	617.68	2672.83	687.89	2672.24
691.35	2672.2	696.52	2672.2	697.35	2672.2	757.92	2671.92	762.73	2671.92
767.58	2671.93	772.57	2671.94	777.73	2671.96	782.99	2671.97	788.29	2671.99
793.9	2672.01	799.62	2672.02	805.31	2672.04	813.78	2672.07	818.67	2672.08
823.77	2672.09	824.05	2672.09	829.18	2672.1	829.45	2672.1	834.69	2672.1
839.89	2672.11	845.96	2672.07	851.05	2672.07	856.11	2672.07	856.48	2672.07
861.59	2672.07	887.83	2672.2	889.82	2672.2	893.92	2672.2	894.7	2672.2
896.66	2672.2	902.63	2672.2	922.38	2672.2	927.38	2672.2	932.52	2672.2
937.43	2672.2	944.51	2672.2	945.29	2672.2	946.37	2672.2	951.76	2672.2
953.28	2672.2	955.85	2672.2	961.07	2672.2	961.19	2672.2	965.56	2672.2
969.36	2672.2	975.97	2672.2	976.3	2672.2	976.74	2672.2	976.98	2672.04
979.28	2670.2	979.71	2669.91	982.27	2668.2	982.92	2667.79	983.09	2667.68
985.31	2666.2	1005.6	2665.67	1017.44	2665.36	1022.57	2665.23	1025.44	2665.15
1027.28	2665.1	1028.55	2665.07	1039.37	2665.13	1040.27	2665.2	1041.59	2665.3
1044.07	2665.51	1050.72	2666.13	1051.54	2666.2	1053.28	2666.4	1067.17	2668.2
1067.54	2668.2	1083.62	2668.2	1089.95	2668.2	1094.68	2668.2	1098.61	2668.2
1102.7	2668.2	1105.49	2668.2	1107.73	2668.2	1109.66	2668.2	1113.68	2668.2
1114.93	2668.2	1119.59	2668.2	1120.2	2668.2	1123.35	2668.2	1127.65	2668.2
1131.61	2668.2	1137.55	2668.2	1141.8	2668.2	1142.78	2668.2	1200.45	2669.24
1204.04	2669.28	1208.02	2669.33	1211.27	2669.37	1214.21	2669.41	1216.94	2669.44
1247.4	2669.77	1249.45	2669.79	1251.83	2669.79	1254.79	2669.79	1274.69	2669.3
1276.84	2669.26	1280.23	2669.23	1282.98	2669.2	1285.78	2669.16	1295.34	2669.06
1298.74	2669.04	1300.05	2669.02	1303.75	2669	1307.02	2669	1356.78	2669.46
1358.51	2669.47	1362.82	2669.62	1368.6	2669.82	1376.3	2670.07	1380.37	2670.2
1383.27	2670.28	1383.49	2670.28	1388.35	2670.41	1388.92	2670.41	1393.32	2670.52
1394.17	2670.52	1395	2670.52	1395.81	2670.52	1397.92	2670.57	1400.03	2670.62
1401.2	2670.62	1403.68	2670.62	1404.87	2670.62	1419.77	2670.73	1497.53	2671.3
1499.84	2671.3	1501.98	2671.31	1504.17	2671.31	1506.55	2671.31	1508.87	2671.3
1511.6	2671.3	1541.83	2671.41	1543.96	2671.41	1547.11	2671.43	1550.33	2671.43
1552.45	2671.44	1567.76	2671.47	1584.51	2671.5	1586.28	2671.5	1588.84	2671.51
1603.25	2671.56	1605.77	2671.57	1607.36	2671.58	1610.27	2671.59	1613.67	2671.6
1617.49	2671.61	1621.77	2671.63	1623.42	2671.64	1646.04	2671.8	1650.73	2671.84
1652.01	2671.84	1653.28	2671.85	1676.59	2672.2	1678.92	2672.2	1682.01	2672.2
1731.46	2672.2	1733.91	2672.2	1739.64	2672.2	1742.79	2672.2	1746.1	2672.2
1748.47	2672.2	1771.71	2672.2	1773.12	2672.2	1775.18	2672.2	1790.23	2672.2
1790.79	2672.2	1791.43	2672.2	1792.16	2672.2	1795.17	2672.2	1795.74	2672.2
1799.94	2672.2	1800.29	2672.2	1805.03	2672.2	1805.04	2672.2	1805.19	2672.2
1810.07	2672.2	1813.26	2672.2	1814.98	2672.2	1817.64	2672.2	1821.47	2672.26
1829.16	2672.38	1836.76	2672.53	1842.41	2672.68	1842.87	2672.69	1846.63	2672.78
1850.1	2672.89	1851.6	2672.92	1852.53	2672.95	1854.61	2672.97	1856.76	2672.97
1865.23	2673.36	1884.17	2673.79	1888.59	2673.79	1929.15	2674.02	1929.73	2674.02
1933.9	2674.06	1939.05	2674.1	1939.35	2674.11	1944.72	2674.14	1947.97	2674.2
1948.09	2674.2	1951.42	2674.2	1951.53	2674.2	1951.69	2674.2	1951.88	2674.2
1952.1	2674.2	1952.35	2674.2	1955.93	2674.2	1956.38	2674.2	1957.01	2674.2
1957.99	2674.2	1963.14	2674.2	1965.62	2674.2	2000.93	2674.2	2002.6	2674.2
2013.43	2674.95	2018.86	2675.22	2024.86	2675.6	2027.63	2675.76	2029.31	2675.85
2030.54	2675.91	2036.62	2676.07	2037.11	2676.09	2037.48	2676.1	2043.79	2676.2
2044.04	2676.23	2048.31	2676.68	2051.47	2677.09	2053.64	2677.28	2054.27	2677.38
2054.42	2677.39	2055.83	2677.54	2060.03	2678.2	2064.65	2679.27	2065.7	2679.35
2067.03	2679.22	2069.76	2678.31	2069.89	2678.24	2069.92	2678.2	2073	2677.49
2074.58	2677.55	2075.99	2677.62	2079.27	2677.19	2081.46	2677.29	2081.82	2677.25
2082.85	2677.13	2083.66	2677.03	2086.14	2677.12	2087.85	2677.19	2089.52	2677.02
2090.57	2677.09	2098.09	2676.2	2099.03	2676.2	2118.24	2676.58	2184.26	2678.12

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	975.97	.035	1249.45	.05	1397.92	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
975.97	1249.45	300.22	283.63	206.6	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	618.13	2674.96	F
1551	2184.26	2675	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2673.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.30	Wt. n-Val.	0.050	0.035	0.051
W.S. Elev (ft)	2671.96	Reach Len. (ft)	300.22	283.63	206.60
Crit W.S. (ft)	2671.84	Flow Area (sq ft)	0.64	1113.63	498.90
E.G. Slope (ft/ft)	0.008256	Area (sq ft)	92.26	1113.63	537.25

Q Total (cfs)	13000.00	Flow (cfs)	0.14	10929.97	2069.89
Top Width (ft)	801.24	Top Width (ft)	117.89	272.37	410.99
Vel Total (ft/s)	8.06	Avg. Vel. (ft/s)	0.22	9.81	4.15
Max Chl Dpth (ft)	6.89	Hydr. Depth (ft)	0.02	4.09	1.65
Conv. Total (cfs)	143077.4	Conv. (cfs)	1.6	120294.7	22781.1
Length Wtd. (ft)	271.56	Wetted Per. (ft)	27.31	274.39	301.58
Min Ch El (ft)	2665.07	Shear (lb/sq ft)	0.01	2.09	0.85
Alpha	1.29	Stream Power (lb/ft s)	0.00	20.53	3.54
Frctn Loss (ft)	1.49	Cum Volume (acre-ft)	223.88	237.69	112.53
C & E Loss (ft)	0.25	Cum SA (acres)	168.27	56.75	86.38

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: Agua Caliente
REACH: upper RS: 18727.05

INPUT
Description:
Station Elevation Data num= 286

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2678.64	1.15	2678.73	2.97	2678.8	7.26	2679.11	10.46	2679.22
13.52	2679.43	17.7	2679.56	19.68	2679.68	24.71	2679.81	25.71	2679.88
31.54	2680	38.33	2680.15	38.47	2680.16	40.86	2680.2	44.42	2680.25
44.56	2680.25	50.05	2680.32	55.21	2680.4	55.76	2680.4	60.45	2680.48
69.42	2680.53	74.34	2680.5	75.15	2680.49	80.14	2680.47	80.85	2680.46
85.64	2680.46	86.3	2680.45	88.78	2680.44	93.6	2680.48	94.1	2680.48
98.66	2680.54	102.74	2680.62	149.81	2680.22	150.66	2680.2	168.05	2679.67
174.94	2679.43	186.44	2679.06	199.98	2678.56	203.13	2678.46	209.82	2678.2
229.98	2677.5	267.43	2676.2	286.01	2674.99	298.24	2674.2	303.38	2673.81
325.09	2672.2	331.35	2671.46	343.25	2670.2	343.8	2670.2	343.96	2670.2
349.52	2670.2	366.46	2670.2	375.01	2670.2	397.22	2670.2	400.76	2670.2
400.88	2670.2	402.15	2670.2	406.77	2670.2	407.4	2670.2	413.32	2670.2
414.63	2670.2	419.51	2670.2	421.33	2670.2	423.43	2670.2	425.96	2670.2
429.73	2670.2	432.93	2670.2	436.9	2670.2	442.3	2670.2	444.34	2670.2
451.44	2670.2	460.76	2670.2	469.27	2670.22	473.91	2670.21	478.58	2670.2
478.8	2670.2	484	2670.2	484.64	2670.2	489.44	2670.21	494	2670.21
531.59	2670.2	533.35	2670.2	533.73	2670.2	534.99	2670.2	545.65	2670.16
550.71	2670.15	556.02	2670.14	561.22	2670.13	576.29	2670.12	581.55	2670.12
587.01	2670.13	592.08	2670.13	596.79	2670.12	601.71	2670.12	607.24	2670.12
612.93	2670.12	617.76	2670.1	622.96	2670.1	623.12	2670.1	626.68	2670.08
648.01	2669.97	700.04	2669.66	705.98	2669.63	751.12	2669.56	753.48	2669.56
756.52	2669.54	759.78	2669.51	763.3	2669.47	766.92	2669.44	788.69	2669.24
792.47	2669.21	795.41	2669.18	843.5	2669.03	845.68	2669.03	875.33	2669.41
876.7	2669.41	879.52	2669.45	895.7	2669.3	897.58	2669.35	916.93	2668.2
919.91	2668.2	922.08	2668.2	925.51	2668.2	933.95	2668.2	937.41	2668.2
949.47	2668.2	956.17	2668.2	963.9	2668.2	965.09	2668.2	974.98	2668.2
980	2668.2	980.69	2668.2	982.67	2668.2	986.96	2666.28	987.12	2666.2
987.85	2665.87	991.56	2664.2	993.05	2664.2	1038.05	2664.2	1049.7	2664.2
1051.86	2664.2	1052.2	2664.2	1138.66	2666	1139.76	2666.02	1147.44	2666.2
1147.89	2666.2	1177.77	2666.77	1181.75	2666.84	1190.9	2667.01	1197.95	2667.13
1203.88	2667.23	1209.64	2667.32	1214.31	2667.4	1218.02	2667.47	1225.38	2667.57
1256.63	2667.68	1259.96	2667.76	1260.55	2667.74	1264.03	2667.79	1266.76	2667.79
1267.36	2667.79	1269.29	2667.76	1270.89	2667.73	1271.69	2667.75	1273.49	2667.72
1275.37	2667.68	1276.41	2667.7	1277.51	2667.72	1279.9	2667.67	1281.08	2667.69
1294.19	2667.99	1298.71	2667.96	1303.16	2667.93	1396.41	2668.14	1400.68	2668.2
1402.14	2668.38	1404.5	2668.6	1407.07	2668.88	1413.5	2669.56	1414.26	2669.62
1418.15	2669.88	1422.76	2670.2	1427.08	2670.2	1468.72	2670.2	1479.83	2670.2
1504.16	2670.2	1516.15	2670.2	1525.08	2670.2	1528.49	2670.2	1534.59	2670.2
1543.01	2670.2	1543.22	2670.2	1543.28	2670.2	1560.85	2670.2	1564.54	2670.2
1575.44	2670.2	1582.31	2670.2	1586.87	2670.2	1589.93	2670.2	1591.9	2670.2
1596.09	2670.2	1596.95	2670.2	1600.79	2670.2	1613.11	2670.06	1617.37	2670.06
1649.64	2670.2	1651.07	2670.2	1655.03	2670.2	1658.38	2670.2	1663.59	2670.2
1677.7	2670.2	1682.46	2670.2	1684.02	2670.2	1687.99	2670.2	1691.86	2670.2
1695.14	2670.2	1699.83	2670.2	1706.73	2670.2	1708.23	2670.2	1717.29	2670.2
1721.67	2670.2	1721.9	2670.2	1726.95	2670.2	1727.21	2670.2	1731.59	2670.2
1734.49	2670.2	1735.48	2670.2	1752.68	2670.2	1760.41	2670.2	1774.95	2670.74
1787.09	2671.16	1799.8	2671.64	1817.88	2672.2	1819.21	2672.2	1825.07	2672.2
1828.43	2672.2	1829.62	2672.2	1833.25	2672.2	1837.33	2672.2	1842.07	2672.2
1847.66	2672.2	1848.97	2672.2	1852.67	2672.2	1853.46	2672.2	1857.94	2672.2
1858.54	2672.2	1859.08	2672.2	1862.09	2672.2	1862.56	2672.2	1862.92	2672.2
1864.73	2672.2	1865.06	2672.2	1888.17	2672.56	1891.89	2672.61	1901.63	2672.75
1907.71	2672.83	1996.28	2674.2	1997.38	2674.2	1998.42	2674.2	1999.44	2674.2
2000.61	2674.2	2001.32	2674.2	2002.4	2674.2	2002.91	2674.2	2003.75	2674.2
2003.82	2674.2	2005.79	2674.25	2007.68	2674.29	2092.68	2676.2	2095.2	2676.2
2095.83	2676.2	2101.31	2676.2	2102.46	2676.2	2103.21	2676.2	2104.48	2676.2
2105.04	2676.2	2105.7	2676.2	2105.86	2676.2	2108.35	2676.2	2120.39	2676.2

2121.94	2676.2	2157.54	2677.15	2209.28	2678.2	2211.3	2678.2	2212.13	2678.2
2215.85	2678.2								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	982.67	.035	1225.38	.045	1418.15	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
982.67	1225.38	353.74	375.07	405.52	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	845.95	2672.21	F
1591.13	2215.85	2672.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2671.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.	0.050	0.035	0.046
W.S. Elev (ft)	2670.72	Reach Len. (ft)	353.74	375.07	405.52
Crit W.S. (ft)	2669.92	Flow Area (sq ft)	276.74	1258.19	611.24
E.G. Slope (ft/ft)	0.003922	Area (sq ft)	690.03	1258.19	706.08
Q Total (cfs)	13000.00	Flow (cfs)	823.98	9995.32	2180.70
Top Width (ft)	1435.97	Top Width (ft)	644.30	242.71	548.95
Vel Total (ft/s)	6.06	Avg. Vel. (ft/s)	2.98	7.94	3.57
Max Chl Dpth (ft)	6.52	Hydr. Depth (ft)	2.02	5.18	1.67
Conv. Total (cfs)	207585.2	Conv. (cfs)	13157.3	159606.2	34821.6
Length Wtd. (ft)	375.33	Wetted Per. (ft)	136.76	243.60	365.85
Min Ch El (ft)	2664.20	Shear (lb/sq ft)	0.50	1.26	0.41
Alpha	1.40	Stream Power (lb/ft s)	1.48	10.05	1.46
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	221.18	229.97	109.58
C & E Loss (ft)	0.03	Cum SA (acres)	165.64	55.07	84.10

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: Agua Caliente
REACH: upper RS: 18351.98

INPUT
Description:
Station Elevation Data num= 385

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2672.2	1.53	2672.2	3.86	2672.2	6.6	2672.2	18.82	2672.2
22.97	2672.2	24.7	2672.2	28.47	2672.2	30.27	2672.2	61.02	2670.35
61.52	2670.33	61.9	2670.32	64.71	2670.21	65.19	2670.2	67.07	2670.2
67.73	2670.2	71.24	2670.2	72.32	2670.2	74.83	2670.2	75.7	2670.2
79.95	2670.2	83.01	2670.2	84	2670.2	92.81	2670.2	93.84	2670.2
94.49	2670.2	95.13	2670.2	96.78	2670.2	99.76	2670.2	100.8	2670.2
105.8	2670.2	106.16	2670.2	111.9	2670.2	112.83	2670.2	117.09	2670.2
117.26	2670.2	122.29	2670.2	122.53	2670.2	127.87	2670.2	133.08	2670.2
133.44	2670.2	135.54	2670.2	140.63	2670.2	140.88	2670.2	144.32	2670.2
175.04	2670.2	187.28	2669.87	188.16	2669.86	189.1	2669.84	190.14	2669.82
194.31	2669.83	195.41	2669.8	196.57	2669.79	200.73	2669.75	202.04	2669.74
203.43	2669.72	227.39	2669.07	231.18	2668.99	239.4	2668.72	241.69	2668.65
252.68	2668.32	256.96	2668.2	264.18	2668.2	267.81	2668.2	275.31	2668.2
284.91	2668.2	285.37	2668.2	285.92	2668.2	312.66	2668.2	314.49	2668.2
314.62	2668.2	314.71	2668.2	317.45	2668.2	318.75	2668.2	326.55	2668.2
339.67	2668.2	344.98	2668.2	345.41	2668.2	346.33	2668.2	364.66	2668.2
367.09	2668.2	372.05	2668.2	378.8	2668.2	379.48	2668.2	381.01	2668.2
385.77	2668.2	390.74	2668.2	395.04	2668.2	399.09	2668.2	399.57	2668.2
403.3	2668.2	403.57	2668.2	407.13	2668.2	407.3	2668.2	411.08	2668.2
411.47	2668.2	416.01	2668.2	424.3	2668.2	425.33	2668.2	425.74	2668.2
464.94	2667.15	474.95	2666.88	486.64	2666.62	503.72	2666.21	507.43	2666.2
508.08	2666.2	508.46	2666.2	509.47	2666.2	513.82	2666.2	517.49	2666.2
517.66	2666.2	518.12	2666.2	518.88	2666.2	520.21	2666.2	521.11	2666.2
526.32	2666.22	530.95	2666.23	532.47	2666.24	532.57	2666.24	538.45	2666.28
564.94	2666.39	569.49	2666.4	569.87	2666.4	573.81	2666.43	574.28	2666.43
631.19	2666.2	642.11	2666.2	651.36	2666.2	703.01	2666.2	705.58	2666.2
706.07	2666.2	709.33	2666.2	712.04	2666.2	713.59	2666.2	715.9	2666.2
727.16	2666.25	739.49	2666.31	747.42	2666.35	752.73	2666.38	756.77	2666.4
759.86	2666.41	762.37	2666.42	764.37	2666.43	791.22	2666.41	792.41	2666.4
794.7	2666.38	798.42	2666.35	804.09	2666.31	812.49	2666.24	816.59	2666.2
823.97	2666.2	826.27	2666.2	830.15	2666.2	832.82	2666.2	833.39	2666.2
835.28	2666.2	838.8	2666.2	845.79	2666.2	854.9	2666.2	861.04	2666.2
861.36	2666.2	867.67	2666.2	868.37	2666.16	868.46	2666.16	872.13	2665.93
943.32	2665.96	944.18	2665.97	946.03	2666.02	946.66	2666.03	952.1	2666.2
952.46	2666.2	953.15	2666.2	954.22	2666.2	956	2666.2	958.45	2666.2
962.41	2666.2	965.67	2666.2	973.7	2666.2	975.06	2666.2	983.2	2666.2
985.45	2666.2	991.18	2666.2	994.82	2666.2	999.75	2666.2	1003.57	2666.2
1010.07	2666.2	1012.16	2666.2	1020.41	2666.2	1020.98	2666.2	1024.37	2666.2

1027.27	2666.2	1031.37	2666.2	1039.14	2666.2	1058.67	2666.2	1061.09	2666.2
1062.1	2666.2	1065.66	2666.2	1066.25	2666.2	1069.41	2666.2	1071.96	2666.2
1073.51	2666.2	1077.88	2666.2	1080.05	2666.2	1081.68	2665.17	1083.47	2664.2
1097.78	2663.12	1102.78	2662.73	1108.74	2662.38	1109.61	2662.32	1112.75	2662.2
1113.08	2662.2	1113.26	2662.2	1115	2662.2	1115.43	2662.2	1115.69	2662.2
1118.88	2662.2	1119.35	2662.2	1125.62	2662.2	1127.05	2662.2	1129.09	2662.2
1137.17	2662.2	1141.48	2662.2	1148.31	2662.2	1160.12	2662.2	1165.59	2662.2
1177.15	2662.2	1179.44	2662.73	1185.72	2664.2	1186.57	2664.2	1186.76	2664.2
1222.67	2664.2	1226.15	2664.2	1226.58	2664.2	1236.4	2664.2	1241.14	2664.2
1243.55	2664.2	1246.62	2664.2	1248.66	2664.2	1277.11	2664.2	1280.11	2664.2
1280.35	2664.2	1281.54	2664.2	1282.37	2664.2	1283.3	2664.2	1285.23	2664.2
1287.49	2664.2	1289.74	2664.2	1292.78	2664.2	1305.78	2665.45	1311.74	2666.2
1311.85	2666.29	1314.2	2668.2	1323.15	2668.2	1326.79	2668.2	1335.93	2668.2
1340.37	2668.2	1351.76	2668.2	1356.64	2668.2	1366.63	2668.2	1367.78	2668.2
1369.24	2668.2	1369.3	2668.2	1369.46	2668.2	1370.61	2668.2	1371.33	2668.2
1378.65	2668.2	1384.9	2668.2	1391.88	2668.2	1405.19	2668.2	1407.39	2668.16
1418.93	2667.92	1427.65	2667.73	1434.64	2667.58	1440.54	2667.46	1442.61	2667.43
1447.99	2667.33	1452.55	2667.24	1456.36	2667.16	1459.36	2667.1	1501.78	2667.18
1549.96	2666.96	1556.43	2667.18	1557.42	2667.22	1558.89	2667.25	1560.85	2667.27
1562.95	2667.3	1564.58	2667.31	1585.51	2667.53	1587.26	2667.56	1593.57	2667.62
1595.1	2667.62	1596.47	2667.63	1598.16	2667.61	1599.39	2667.63	1638.35	2667.4
1640.55	2667.37	1643.37	2667.32	1719.88	2667.02	1721.45	2667.01	1723.26	2667.05
1725.32	2667.09	1727.66	2667.13	1729.91	2667.13	1732.55	2667.18	1735.34	2667.19
1738.22	2667.23	1741.47	2667.28	1744.13	2667.3	1747.51	2667.36	1751.05	2667.43
1755.04	2667.51	1757.25	2667.52	1761.44	2667.61	1766.22	2667.73	1767.76	2667.74
1773.02	2667.88	1774.05	2667.89	1779.75	2668.04	1780.21	2668.05	1784.97	2668.2
1787.5	2668.32	1788.59	2668.37	1800.17	2668.92	1806.74	2669.22	1813.01	2669.52
1825.06	2670.08	1825.84	2670.11	1827.69	2670.2	1840.59	2670.83	1848.32	2671.2
1855.88	2671.57	1859.35	2671.74	1868.73	2672.2	1872.59	2672.36	1887.95	2672.97
1897.96	2673.41	1904.61	2673.68	1907.84	2673.81	1917.09	2674.2	1919.92	2674.35
1921.18	2674.41	1932.21	2674.95	1937.98	2675.23	1943.81	2675.5	1947.08	2675.65
1955.28	2676.01	1956.17	2676.05	1959.64	2676.2	1965.63	2676.44	1967.52	2676.53
1987.9	2677.12	1989.91	2677.12	1993.67	2677.39	1999.59	2677.81	2000.31	2677.84
2004.58	2678.2	2010.84	2678.2	2016.54	2678.2	2018.95	2678.2	2021.06	2678.2
2029.58	2678.75	2052.75	2680.2	2053.35	2680.2	2053.71	2680.2	2059.03	2680.2
2062.12	2680.2	2065.23	2680.2	2070.39	2680.2	2072.19	2680.2	2078.13	2680.2
2078.83	2680.2	2082.92	2680.2	2083.23	2680.2	2085.91	2680.27	2086.17	2680.28
2086.51	2680.3	2086.99	2680.32	2091.97	2680.45	2093.21	2680.51	2095.11	2680.6
2098.76	2680.8	2110.07	2681.42	2124.03	2682.2	2144.98	2683.43	2153.39	2683.88

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.08	1080.05	.042	1314.2	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1080.05	1314.2	424.81	410.81	401.01	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	663.4	2671.2	F
1619.5	2153.39	2671.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2669.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.	0.080	0.042	0.060
W.S. Elev (ft)	2668.25	Reach Len. (ft)	424.81	410.81	401.01
Crit W.S. (ft)	2668.09	Flow Area (sq ft)	860.64	1089.29	197.71
E.G. Slope (ft/ft)	0.009073	Area (sq ft)	1268.43	1089.29	348.85
Q Total (cfs)	13000.00	Flow (cfs)	2469.55	10181.36	349.09
Top Width (ft)	1530.96	Top Width (ft)	824.94	234.15	471.87
Vel Total (ft/s)	6.05	Avg. Vel. (ft/s)	2.87	9.35	1.77
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)	2.07	4.65	0.65
Conv. Total (cfs)	136483.2	Conv. (cfs)	25927.1	106891.1	3665.0
Length Wtd. (ft)	413.44	Wetted Per. (ft)	416.66	235.81	305.32
Min Ch El (ft)	2662.20	Shear (lb/sq ft)	1.17	2.62	0.37
Alpha	1.91	Stream Power (lb/ft s)	3.36	24.45	0.65
Frctn Loss (ft)	2.98	Cum Volume (acre-ft)	213.23	219.86	104.67
C & E Loss (ft)	0.13	Cum SA (acres)	159.67	53.02	79.35

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 17941.17

INPUT
Description:
Station Elevation Data num= 308

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2671.45	3.69	2671.28	8.38	2671.06	11.69	2670.91	17.46	2670.8
19.78	2670.7	21.59	2670.63	40.91	2670.2	44.27	2670.2	46.01	2670.2
49.84	2670.2	56.03	2670.2	57.59	2670.2	59.25	2670.2	62.4	2670.2

64.06	2670.2	68.06	2670.2	68.86	2670.2	68.96	2670.2	69.05	2670.2
71.02	2670.2	71.29	2670.2	142.83	2668.45	151.12	2668.26	151.38	2668.26
153.77	2668.2	156.84	2668.2	157.95	2668.2	166.31	2668.2	170.76	2668.2
173.21	2668.2	184.88	2667.96	187.51	2667.97	188.05	2667.97	192.02	2668
192.6	2667.99	196.88	2667.92	197.89	2667.9	201.93	2667.85	203.25	2667.82
207.61	2667.71	212.92	2667.62	214.31	2667.58	219.56	2667.48	224.49	2667.37
262.47	2666.2	263.26	2666.2	267.94	2666.2	268.73	2666.2	269.76	2666.2
270.72	2666.2	275.47	2665.65	287.42	2664.2	288.7	2664.2	293.26	2664.2
298.46	2664.2	300.62	2664.2	301.46	2664.2	301.6	2664.2	301.79	2664.2
302.34	2664.2	310.79	2664.2	315.66	2664.21	320.12	2664.22	370.47	2664.81
371.74	2664.81	435.99	2664.54	436.89	2664.54	437.87	2664.54	438.86	2664.53
443.35	2664.54	444.27	2664.54	445.27	2664.54	446.74	2664.54	447.75	2664.55
448.65	2664.54	450.83	2664.56	453.87	2664.59	457.71	2664.62	514.15	2664.51
533.9	2664.2	535.14	2664.2	536.04	2664.2	537	2664.2	538.04	2664.2
539.04	2664.2	539.16	2664.2	539.32	2664.2	544.8	2664.2	545.82	2664.2
547.5	2664.2	553.92	2664.2	570.18	2664.2	572.41	2664.2	575.94	2664.2
606.86	2664.2	623.23	2664.2	623.79	2664.01	629.33	2662.2	629.91	2662.2
629.95	2662.2	630.74	2662.5	634.13	2663.8	635.25	2664.2	674.42	2664.2
674.65	2664.2	674.84	2664.2	700.54	2664.2	716.65	2664.2	724.53	2664.2
735.97	2664.2	787.64	2663.29	788.04	2663.22	789.14	2663.35	790.35	2663.41
791.16	2663.39	792.26	2663.29	793.37	2663.34	794.55	2663.41	795.82	2663.48
797.64	2663.31	799.35	2663.36	801.06	2663.41	807.55	2663.4	810.42	2663.36
812.8	2663.26	834.77	2662.42	839.27	2662.25	840.64	2662.2	841.58	2662.2
844.07	2662.2	846.97	2662.2	848.73	2662.2	851.79	2662.2	853.78	2662.2
856.59	2662.2	859.56	2662.2	861.38	2662.2	871.21	2662.2	876.87	2662.2
894.33	2662.2	914.7	2662.2	920.17	2662.2	920.26	2662.2	921.05	2662.2
928.09	2662.2	929.67	2662.2	934.87	2662.2	941.25	2662.2	946.65	2662.2
952.22	2662.2	953.33	2662.2	953.57	2662.2	955.25	2662.2	955.77	2662.2
958.63	2662.2	961.3	2662.2	979.32	2662.2	1014.24	2661.58	1030.49	2661.8
1033.57	2661.81	1034	2661.81	1053.42	2661.99	1057.22	2661.98	1129.07	2662.14
1130.71	2662.15	1136.4	2662.05	1136.81	2662.03	1137.28	2662.02	1137.85	2661.99
1138.56	2661.97	1139.53	2661.93	1140.93	2661.88	1143	2661.8	1147.29	2661.7
1151.16	2661.55	1166.85	2661.17	1169.48	2661.12	1174.51	2660.86	1182.69	2660.4
1183.58	2660.38	1186.32	2660.2	1187.19	2660.2	1189.12	2660.2	1214.56	2660.2
1225.35	2660.2	1237.42	2660.2	1257.01	2660.2	1261.68	2660.2	1264.48	2660.2
1276.67	2660.2	1288.35	2660.64	1302.05	2661.22	1318.06	2661.89	1325.39	2662.2
1327.02	2663.62	1327.75	2664.2	1337.86	2664.2	1338.54	2664.2	1338.68	2664.2
1338.87	2664.2	1341.96	2664.2	1343.79	2664.2	1346.24	2664.2	1348.26	2664.2
1350.15	2664.2	1351.12	2664.2	1352.77	2664.2	1353.47	2664.2	1368.59	2664.2
1379.78	2664.2	1382.37	2664.2	1385.79	2664.2	1388.53	2664.2	1391.29	2664.2
1391.46	2664.2	1394.34	2664.2	1439.95	2664.05	1443.64	2664.06	1447.14	2664.06
1450.16	2664.05	1499.86	2664.02	1504.32	2664.02	1508.87	2664.03	1513.25	2664.03
1517.48	2664.03	1521.47	2664.03	1570.89	2664.09	1576.6	2664.11	1582.04	2664.12
1593.16	2664.06	1596.42	2664.05	1600.02	2664.06	1600.26	2664.06	1603.18	2664.04
1606.94	2664.03	1607.16	2664.02	1611.29	2664	1615.93	2663.97	1620.8	2663.94
1718.57	2663.96	1737.23	2664.2	1738.25	2664.2	1739.56	2664.2	1741.1	2664.2
1742.74	2664.2	1757.74	2664.2	1762.1	2664.2	1767.94	2664.2	1776.32	2664.2
1780.3	2664.2	1789.87	2664.47	1795.48	2664.64	1815.76	2665.23	1837.02	2665.88
1847.19	2666.2	1857.73	2666.89	1874.28	2667.68	1874.64	2667.69	1875.94	2667.68
1893.08	2668.2	1896.47	2668.2	1912.75	2669.02	1915.81	2669.2	1924.74	2669.66
1928.2	2669.84	1929.72	2669.92	1930.37	2669.97	1936.02	2670.2	1936.54	2670.2
1937.2	2670.2	1938.06	2670.2	1939.4	2670.2	1941.82	2670.2	1946.89	2670.2
1950.19	2670.2	1955.24	2670.2	1959.27	2670.2	1964.25	2670.2	1965.97	2670.2
1967.37	2670.2	1970.07	2670.2	1976.89	2670.43	1979.96	2670.53	1992.2	2670.94
2003.39	2671.3	2031.34	2672.2	2044.14	2672.92	2072.21	2674.2	2074.9	2674.2
2075.55	2674.2	2079.46	2674.2	2079.77	2674.2	2082.07	2674.2	2084.9	2674.26
2085.11	2674.26	2085.27	2674.27	2088.98	2674.37	2127.59	2676.2	2128.07	2676.2
2133.15	2676.2	2137.8	2676.2	2138.65	2676.2	2142.68	2676.2	2143.23	2676.2
2146.18	2676.2	2189.5	2677.66	2196.77	2677.94				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.08	1129.07	.035	1327.75	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1129.07	1327.75		439.1	409.9	370.95	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	565.85	2669.2	F
1736.57	2196.77	2669.2	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
622.89	634.84	2664.2

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2666.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.	0.080	0.035	0.060
W.S. Elev (ft)	2665.40	Reach Len. (ft)	439.10	409.90	370.95
Crit W.S. (ft)	2664.19	Flow Area (sq ft)	1376.63	912.55	549.32
E.G. Slope (ft/ft)	0.005868	Area (sq ft)	1638.70	912.55	626.84
Q Total (cfs)	13000.00	Flow (cfs)	3553.06	8177.99	1268.95
Top Width (ft)	1543.89	Top Width (ft)	851.56	198.68	493.65
Vel Total (ft/s)	4.58	Avg. Vel. (ft/s)	2.58	8.96	2.31
Max Chl Dpth (ft)	5.20	Hydr. Depth (ft)	2.44	4.59	1.34
Conv. Total (cfs)	169706.8	Conv. (cfs)	46382.9	106758.5	16565.4

Length Wtd. (ft)	414.92	Wetted Per. (ft)	563.47	199.50	408.82
Min Ch El (ft)	2660.20	Shear (lb/sq ft)	0.90	1.68	0.49
Alpha	2.52	Stream Power (lb/ft s)	2.31	15.02	1.14
Frctn Loss (ft)	2.61	Cum Volume (acre-ft)	199.05	210.42	100.18
C & E Loss (ft)	0.01	Cum SA (acres)	151.50	50.98	74.90

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 17531.27

INPUT
Description:
Station Elevation Data num= 269

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2669.25	6.2	2669.28	9.02	2669.26	12.33	2669.21	15.27	2669.2
73.52	2668.2	75.73	2668.2	78.06	2668.2	80.35	2668.2	82.43	2668.2
84.49	2668.2	86.56	2668.2	92.54	2668.2	94.52	2668.2	96.47	2668.2
98.51	2668.2	106.84	2668.2	109.47	2668.2	109.62	2668.2	110.17	2668.2
139.85	2667.6	207.1	2666.2	207.53	2666.2	208.74	2666.2	210.09	2666.2
215.61	2665.69	231.11	2664.2	238.88	2663.86	271.18	2662.2	276.05	2662.2
278.01	2662.2	282.18	2662.2	286.94	2662.2	288	2662.2	308.15	2662.2
310.52	2662.2	312.8	2662.2	314.01	2662.2	316.19	2662.2	318.3	2662.2
320.18	2662.2	321.85	2662.2	333.14	2662.2	392.22	2662.2	397.27	2662.2
400.94	2662.2	494.5	2662.04	496.51	2662.04	500.01	2662.03	503.86	2662.02
507.15	2662	537.04	2661.61	639.6	2661.2	642.05	2661.21	644.58	2661.23
647.03	2661.24	652.1	2661.27	654.74	2661.29	656.32	2661.28	659.03	2661.3
661.03	2661.3	663.91	2661.31	666.19	2661.3	668.49	2661.3	670.98	2661.29
673.61	2661.29	676.43	2661.29	679.02	2661.28	681.45	2661.28	713.81	2661.53
716.12	2661.52	769.5	2660.27	771.89	2660.2	773.42	2660.2	777.5	2660.2
786.21	2660.2	799.78	2660.2	802.98	2660.2	804.68	2660.2	812.38	2660.2
812.55	2660.2	813.81	2660.2	816.9	2659.85	823.39	2659.12	826.61	2658.76
831.67	2658.2	832.49	2658.2	840.08	2658.2	848.05	2658.2	849.15	2658.2
849.38	2658.2	849.61	2658.2	853.85	2658.2	856.82	2658.2	859.53	2658.2
864.13	2658.2	868.99	2658.2	882.02	2658.2	882.91	2658.2	885.48	2658.2
887.91	2658.2	890.28	2658.2	895.2	2658.2	897.41	2658.2	898.46	2658.2
903.97	2658.2	907.2	2658.2	909.8	2658.2	913.97	2658.2	915.34	2658.2
932.56	2658.2	934.92	2658.2	937.36	2658.2	938.21	2658.2	939.13	2658.2
940.85	2658.2	944.24	2658.2	945.33	2658.2	997.93	2659.72	998.9	2659.72
1002.21	2659.72	1003.47	2659.72	1004.87	2659.72	1009.04	2659.71	1010.29	2659.72
1014.06	2659.7	1014.95	2659.7	1076.85	2659.77	1081.72	2659.81	1105.79	2659.65
1107.32	2659.61	1110.35	2659.62	1112.12	2659.59	1114.1	2659.55	1118.31	2659.45
1120.8	2659.38	1124.13	2659.35	1127.04	2659.26	1130.69	2659.15	1135.41	2659
1138.23	2658.95	1144.02	2658.76	1151.75	2658.52	1152.94	2658.49	1161.36	2658.2
1162.3	2658.2	1163.04	2658.2	1177.82	2658.2	1180.34	2658.2	1192.89	2658.2
1202.11	2658.2	1207.01	2658.2	1214.3	2658.2	1221.02	2658.2	1229.98	2658.2
1242.45	2658.2	1246.78	2658.2	1262.44	2658.2	1269.98	2658.2	1275.23	2659.78
1276.66	2660.2	1278.41	2660.31	1294.11	2661.34	1294.67	2661.38	1296.75	2661.51
1306.64	2662.15	1307.4	2662.2	1307.85	2662.2	1317.42	2662.2	1322.15	2662.2
1333.56	2661.93	1342.6	2661.71	1349.01	2661.55	1354.06	2661.43	1358.11	2661.34
1361.41	2661.26	1364.03	2661.2	1396.5	2660.91	1397.66	2660.92	1399	2660.93
1400.48	2660.94	1401.96	2660.95	1403.27	2660.96	1404.09	2660.96	1462.39	2660.98
1465.74	2660.96	1468.52	2660.95	1469.54	2660.94	1500.41	2660.83	1503.47	2660.85
1504.59	2660.85	1507.84	2660.88	1621.18	2662.2	1627.27	2662.2	1627.47	2662.2
1634.16	2662.2	1634.2	2662.2	1634.23	2662.2	1634.28	2662.2	1638.02	2662.2
1640.42	2662.2	1647.48	2662.2	1648.77	2662.2	1649.76	2662.2	1654.35	2662.2
1655.21	2662.2	1659.75	2662.2	1660.01	2662.2	1664.85	2662.2	1669.39	2662.2
1673.09	2662.2	1684.93	2662.53	1736.03	2664.2	1737.05	2664.2	1742.04	2664.2
1744.03	2664.2	1759.61	2664.2	1767.53	2664.2	1767.99	2664.2	1768.65	2664.2
1771.31	2664.2	1792.42	2665.24	1812.06	2666.2	1817.54	2666.2	1824.19	2666.2
1831.04	2666.2	1839.5	2666.2	1847.48	2666.2	1861.41	2666.76	1884.15	2667.69
1892.32	2668.04	1894.22	2668.12	1896.25	2668.2	1898.18	2668.2	1903	2668.2
1903.25	2668.2	1903.99	2668.2	1908.89	2668.2	1912.73	2668.2	1912.88	2668.2
1913.39	2668.2	1918.79	2668.34	1920.37	2668.42	1924.04	2668.59	1935.11	2669.14
1956.96	2670.2	1957.36	2670.2	1957.74	2670.2	1959.39	2670.2	1960.27	2670.2
1962.07	2670.2	1962.93	2670.2	1964.57	2670.2	2013.57	2672.01	2019.39	2672.2
2043.6	2673.15	2054.5	2673.57	2069.98	2674.2	2092.06	2674.96	2115.3	2675.74
2120.65	2675.93	2128.27	2676.2	2153.88	2677.73	2157.76	2677.97	2162.38	2678.2
2162.95	2678.2	2163.45	2678.2	2165.48	2678.2	2166.8	2678.29		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.08	1081.72	.03	1307.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1081.72	1307.4	205.93	178.25	142.01	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	370.5	2665.4	F
1755.5	2166.8	2665.37	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2663.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.93	Wt. n-Val.	0.080	0.030	0.060
W.S. Elev (ft)	2662.67	Reach Len. (ft)	205.93	178.25	142.01
Crit W.S. (ft)	2661.48	Flow Area (sq ft)	1549.57	827.85	451.03
E.G. Slope (ft/ft)	0.006747	Area (sq ft)	1598.82	827.85	451.03
Q Total (cfs)	13000.00	Flow (cfs)	3972.76	8002.20	1025.04
Top Width (ft)	1427.37	Top Width (ft)	819.76	225.68	381.93
Vel Total (ft/s)	4.60	Avg. Vel. (ft/s)	2.56	9.67	2.27
Max Chl Dpth (ft)	4.47	Hydr. Depth (ft)	2.18	3.67	1.18
Conv. Total (cfs)	158261.0	Conv. (cfs)	48364.0	97418.2	12478.8
Length Wtd. (ft)	184.21	Wetted Per. (ft)	711.37	226.06	381.96
Min Ch El (ft)	2658.20	Shear (lb/sq ft)	0.92	1.54	0.50
Alpha	2.84	Stream Power (lb/ft s)	2.35	14.91	1.13
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	182.73	202.23	95.59
C & E Loss (ft)	0.04	Cum SA (acres)	143.08	48.98	71.18

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 17353.02

INPUT
Description:
Station Elevation Data num= 307

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2668.2	4.59	2668.2	8.06	2668.01	18.76	2667.41	30.65	2666.89
45.79	2666.2	47.1	2666.2	49.44	2666.2	54.15	2666.2	54.48	2666.2
54.8	2666.2	55.37	2666.2	60.91	2665.6	65.61	2664.96	68.18	2664.65
71.17	2664.2	77.26	2664.2	83.96	2664.2	88.36	2664.2	94.6	2664.2
100.55	2664.81	104.45	2665.16	109.41	2665.64	111.28	2665.8	115.43	2665.98
116.13	2666.02	116.59	2666.05	119.65	2666.04	120.06	2666.06	120.39	2666.08
123.06	2665.98	123.58	2666	126.25	2665.93	129.08	2665.89	132.63	2665.89
133.45	2665.91	137.5	2665.9	138.25	2665.92	142.54	2665.89	145.66	2665.89
146.7	2665.87	151.42	2665.81	155.73	2665.75	156.97	2665.74	161.02	2665.69
164.86	2665.65	168.77	2665.63	172.76	2665.61	174.06	2665.63	178.09	2665.62
181.39	2665.57	198.22	2665.49	200.65	2665.39	203.9	2665.27	207.54	2665.19
210.99	2665.06	213.94	2664.97	217.28	2664.89	219.48	2664.8	222.85	2664.74
226.64	2664.65	232.07	2664.51	239.42	2664.31	243.41	2664.2	246.58	2664.03
247.1	2664.02	252.43	2663.77	253.85	2663.74	258.49	2663.54	260.62	2663.5
264.54	2663.36	267.83	2663.25	270.46	2663.2	288.56	2662.22	288.8	2662.2
303.61	2662.04	315.54	2661.92	324.83	2661.82	332.31	2661.75	337.96	2661.68
342.4	2661.63	360.95	2661.42	387.95	2661.21	388.97	2661.2	389.82	2661.2
456.44	2661.1	510.18	2660.62	513.09	2660.62	599.32	2660.38	609.93	2660.2
630.59	2660.2	634.4	2660.2	634.78	2660.2	639.08	2660.2	639.41	2660.2
643.51	2660.2	643.7	2660.2	647.53	2660.2	647.73	2660.2	655.22	2660.2
658.85	2660.2	662.31	2660.2	664.85	2660.2	667.43	2660.2	671.74	2660.2
677.93	2660.2	691.75	2660.2	708.19	2660.2	709.28	2660.2	722.44	2659.84
773.82	2658.45	780.36	2658.2	783.25	2658.2	796.27	2658.2	801.78	2658.2
847.54	2658.2	849.75	2658.2	865.29	2658.2	889.63	2658.2	905.37	2658.2
913.05	2658.2	917.64	2658.2	933.46	2658.2	936.51	2658.2	939.49	2658.2
955.72	2658.2	956.83	2658.2	969.68	2658.2	977.66	2658.2	982.98	2658.2
1002.45	2658.2	1003.1	2658.2	1004.22	2658.2	1007.28	2658.2	1012.38	2658.2
1018.83	2658.2	1018.88	2658.2	1019.72	2658.2	1025.54	2658.2	1030.32	2658.2
1031.16	2658.2	1034.9	2658.2	1036.48	2658.2	1046.22	2658.2	1048.71	2658.2
1051.43	2658.2	1053.24	2658.2	1056.15	2658.2	1059.26	2658.2	1062.34	2658.2
1064.15	2658.2	1066.4	2658.2	1067.7	2658.2	1095.98	2658.2	1115.42	2658.2
1116.19	2658.2	1117.76	2658.2	1119.12	2658.2	1121.2	2658.2	1123.04	2658.2
1126.13	2658.2	1126.9	2658.2	1128.98	2658.2	1129.77	2658.2	1129.91	2658.2
1132	2658.2	1136.94	2658.2	1141.64	2658.2	1197.71	2657.12	1200.61	2657.08
1202.77	2657.07	1206.07	2657.02	1209.78	2656.97	1213.77	2656.91	1218.06	2656.85
1220.06	2656.83	1224.59	2656.76	1225.13	2656.76	1229.55	2656.69	1235.22	2656.61
1241.5	2656.52	1242.58	2656.5	1249.42	2656.4	1255.35	2656.24	1259.97	2656.22
1263.85	2656.2	1265.5	2656.2	1268.57	2656.2	1273.65	2656.2	1274.91	2656.2
1299.06	2658.1	1299.74	2658.15	1300.4	2658.2	1303.11	2658.2	1303.83	2658.2
1305.29	2658.2	1305.7	2658.2	1309.12	2658.39	1309.56	2658.38	1317.84	2658.59
1321.82	2658.72	1329.78	2658.99	1331.21	2659.04	1343.93	2659.47	1365.43	2660.2
1367.03	2660.2	1382.24	2660.2	1399	2660.2	1412.53	2660.2	1427.15	2660.2
1427.81	2660.2	1428.59	2660.2	1439.93	2660.2	1442.1	2660.2	1447.9	2660.2
1455.25	2660.2	1463.77	2660.2	1485.85	2660.2	1527.52	2660.2	1529.72	2660.23
1544.24	2660.44	1554.19	2660.58	1585.11	2660.85	1587.31	2660.85	1589.56	2660.85
1591.81	2660.86	1593.82	2660.88	1626.52	2660.22	1627.28	2660.2	1629.28	2660.2
1631.04	2660.2	1632.51	2660.2	1633.64	2660.2	1659.5	2660.73	1661.3	2660.79
1663.79	2660.8	1665.78	2660.87	1668.15	2660.94	1694.78	2662.2	1696.14	2662.2
1698.22	2662.2	1701.43	2662.2	1702.93	2662.2	1707.27	2662.2	1709.18	2662.2
1714.9	2662.2	1722.32	2662.2	1723.02	2662.22	1723.24	2662.23	1739.29	2662.7
1744.8	2662.88	1755.38	2663.2	1765.32	2663.53	1783.64	2664.15	1784.15	2664.17
1785.07	2664.2	1793.6	2664.5	1842.26	2666.2	1886.08	2667.68	1897.66	2668.07
1901.56	2668.2	1902.2	2668.2	1902.56	2668.2	1916.2	2668.2	1917.15	2668.2
1920.82	2668.2	1921.61	2668.2	1925.15	2668.2	1927.61	2668.2	1928.49	2668.2

1932.32	2668.2	1933.25	2668.2	1937.11	2668.2	1940.2	2668.2	1941.09	2668.2
1967.4	2669.27	1974.48	2669.64	1976.27	2669.7	1985.72	2670.2	1986.36	2670.2
1986.65	2670.2	1987.83	2670.2	2024.57	2671.12	2033.78	2671.33	2046.22	2671.64
2051	2671.75	2068.12	2672.2	2068.99	2672.2	2069.05	2672.2	2069.11	2672.2
2074.15	2672.39	2087.72	2672.89	2123.71	2674.2	2126.16	2674.2	2143.31	2674.97
2154.44	2675.43	2162.25	2675.74	2165.15	2675.86	2173.77	2676.2	2174.4	2676.2
2174.74	2676.2	2177.05	2676.2	2178.02	2676.2	2180.36	2676.2	2181.46	2676.2
2183.32	2676.2	2218.69	2677.26						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.08	1141.64	.03	1365.43	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1141.64	1365.43	183.76	166.11	170.31	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	319.85	2662.21	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2662.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.080	0.030	0.060
W.S. Elev (ft)	2661.71	Reach Len. (ft)	183.76	166.11	170.31
Crit W.S. (ft)	2661.40	Flow Area (sq ft)	1815.16	905.58	412.93
E.G. Slope (ft/ft)	0.004996	Area (sq ft)	1815.16	905.58	412.93
Q Total (cfs)	13000.00	Flow (cfs)	4093.87	8047.67	858.46
Top Width (ft)	1348.89	Top Width (ft)	806.10	223.79	318.99
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)	2.26	8.89	2.08
Max Chl Dpth (ft)	5.51	Hydr. Depth (ft)	2.25	4.05	1.29
Conv. Total (cfs)	183921.1	Conv. (cfs)	57919.2	113856.6	12145.3
Length Wtd. (ft)	171.38	Wetted Per. (ft)	806.14	223.92	319.03
Min Ch El (ft)	2656.20	Shear (lb/sq ft)	0.70	1.26	0.40
Alpha	2.95	Stream Power (lb/ft s)	1.58	11.21	0.84
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)	174.66	198.69	94.18
C & E Loss (ft)	0.02	Cum SA (acres)	139.23	48.06	70.03

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 17186.91

INPUT
Description:
Station Elevation Data num= 357

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2668.61	7.53	2668.2	11.52	2668.2	16.04	2668.2	18.18	2668.2
22.11	2668.2	22.4	2668.2	25.53	2668.2	29.09	2668.14	51.24	2667.77
58.5	2667.65	61.84	2667.6	67.6	2667.51	101.08	2667.07	105.39	2667
108.33	2666.98	112.92	2666.91	115.38	2666.88	120.46	2666.8	126.17	2666.72
127.85	2666.7	134.25	2666.6	141.44	2666.5	142.25	2666.48	150.1	2666.38
158.2	2666.29	162.32	2666.2	167.2	2666.2	167.69	2666.2	167.75	2666.2
169.88	2666.2	171.24	2666.2	171.41	2666.2	175.34	2666.2	178.4	2666.16
178.48	2666.16	184.38	2666.14	190	2666.11	190.18	2666.11	195.34	2666.05
195.56	2666.05	199.77	2665.97	205.3	2665.94	206.27	2665.93	211.99	2665.82
213.37	2665.8	281.91	2664.2	282.28	2664.2	285.55	2664.2	285.63	2664.2
285.71	2664.2	286.58	2664.2	291.95	2663.92	292.89	2663.86	298.51	2663.6
302.36	2663.44	304.46	2663.34	307.16	2663.2	310.25	2663.05	315.13	2662.76
323.01	2662.2	324.66	2662.15	330.62	2661.96	384.21	2660.2	387.82	2660.2
406.21	2660.2	419.32	2660.2	429.55	2660.2	437.86	2660.2	444.34	2660.2
454.04	2660.2	458.18	2660.2	498.41	2660.2	501.78	2660.2	502.67	2660.2
503.57	2660.2	504.44	2660.2	505.24	2660.2	509.13	2660.2	509.88	2660.2
510.55	2660.2	514.62	2660.2	519.33	2660.2	519.98	2660.2	524.54	2660.2
551.74	2659.92	557.47	2659.91	563.07	2659.89	568.32	2659.87	596.64	2659.78
601.09	2659.77	605.32	2659.76	656.07	2659.37	661.16	2659.34	665.09	2659.3
734.87	2658.99	785.16	2658.2	785.45	2658.2	788.17	2658.2	790.45	2658.2
793.18	2658.2	794.34	2658.2	801	2658.2	804.67	2658.2	809.42	2658.2
812.49	2658.2	817.75	2658.2	819.62	2658.2	826.11	2658.2	826.8	2658.2
831.13	2658.2	834.3	2658.2	834.71	2658.2	842.22	2658.2	843.67	2658.2
849.91	2658.2	852.39	2658.2	857.82	2658.2	861.47	2658.2	867.28	2658.2
869.79	2658.2	875.32	2658.2	893.84	2658.2	896.77	2658.2	904.02	2658.2
941.65	2658.2	942.83	2658.2	944.85	2658.2	945.86	2658.2	945.97	2658.2
947.16	2658.2	948.48	2658.2	950.08	2658.2	951.97	2658.2	952.64	2658.2
953.45	2658.2	955.74	2658.2	956.29	2658.2	956.69	2658.2	962.7	2656.65
963.79	2656.41	964.71	2656.2	986.22	2656.2	1005.6	2656.2	1006.05	2656.2
1006.54	2656.2	1007.21	2656.2	1007.93	2656.2	1008.75	2656.2	1009.49	2656.2
1013.97	2656.2	1034.48	2656.92	1037.24	2656.97	1045.3	2656.94	1046.26	2656.93
1097.31	2657.3	1101.53	2657.35	1152.23	2657.38	1153.53	2657.34	1154.89	2657.29
1156.44	2657.24	1158.07	2657.18	1159.82	2657.1	1161.84	2657.01	1164.29	2656.91
1167.13	2656.78	1170.22	2656.62	1170.73	2656.64	1174.18	2656.42	1178.1	2656.2
1179.53	2656.15	1186.52	2655.95	1187.6	2655.93	1193.6	2655.77	1197.83	2655.65

1199.36	2655.63	1222.64	2655.29	1225.09	2655.3	1225.91	2655.29	1228.44	2655.26
1230.42	2655.21	1267.41	2656.2	1272.88	2656.2	1279.33	2656.2	1287.31	2656.2
1297.61	2656.2	1301.63	2656.2	1304.18	2656.2	1307.54	2656.2	1340.84	2657.33
1343.06	2657.37	1344.46	2657.36	1412.06	2658.16	1415.04	2658.2	1422.32	2658.2
1423.18	2658.2	1424.27	2658.28	1424.8	2658.31	1434.89	2658.99	1439.59	2659.31
1444.55	2659.49	1445.68	2659.56	1447.16	2659.66	1448.39	2659.7	1453.66	2659.87
1457.39	2659.91	1459.97	2659.86	1460.13	2659.87	1473.12	2660.2	1479.2	2660.2
1481.24	2660.2	1483.62	2660.2	1490.77	2660.2	1526.96	2660.2	1531.35	2660.2
1536.2	2660.2	1563.76	2660.2	1572.74	2660.2	1574.07	2660.2	1583.3	2660.2
1592.76	2660.2	1596.93	2660.2	1605.39	2660.3	1619.32	2660.47	1681.86	2661.46
1696.74	2661.68	1704.68	2661.8	1709.77	2661.88	1713.32	2661.93	1715.84	2661.97
1717.68	2662	1719.08	2662.02	1720.23	2662.04	1721.17	2662.06	1724.5	2662.1
1724.89	2662.11	1725.24	2662.11	1730.69	2662.16	1730.84	2662.16	1733.06	2662.2
1735.79	2662.2	1737.39	2662.2	1741.36	2662.2	1759.36	2662.2	1759.68	2662.2
1764.44	2662.32	1764.87	2662.32	1765.33	2662.33	1765.81	2662.34	1766.32	2662.35
1766.92	2662.37	1767.64	2662.39	1768.54	2662.41	1769.69	2662.44	1819.55	2664.2
1819.68	2664.2	1820.43	2664.2	1821.42	2664.2	1893.72	2666.05	1898.13	2666.15
1898.37	2666.16	1898.55	2666.16	1898.97	2666.17	1901.64	2666.2	1902.89	2666.2
1906	2666.37	1906.62	2666.4	1913.36	2666.65	1916.2	2666.82	1918.55	2666.99
1923.76	2667.23	1928.24	2667.56	1930.9	2667.71	1938.58	2668.2	1938.6	2668.2
1938.65	2668.2	1946.84	2668.64	1952.1	2668.93	1955.65	2669.13	1958.96	2669.33
1964.22	2669.62	1971.27	2670	1972.07	2670.05	1975.15	2670.2	1978.47	2670.2
1980.59	2670.2	1996.14	2670.2	2001.66	2670.42	2002.08	2670.44	2004.59	2670.48
2005.44	2670.51	2006.87	2670.57	2009.21	2670.66	2013.97	2670.91	2019.05	2671.1
2028.05	2671.45	2047.22	2672.2	2047.42	2672.21	2047.46	2672.21	2054.83	2672.54
2056.38	2672.6	2062.4	2672.87	2065.41	2672.98	2069.84	2673.15	2074.61	2673.36
2081.64	2673.62	2084.34	2673.73	2094.32	2674.11	2094.75	2674.13	2096.69	2674.2
2105.54	2674.55	2106.84	2674.59	2114.6	2674.91	2117.52	2674.98	2122.73	2675.19
2127.03	2675.28	2130.2	2675.4	2140.86	2675.67	2142.24	2675.68	2146.89	2675.75
2151.51	2675.84	2156.7	2675.95	2157.38	2675.97	2162.93	2676.08	2163.28	2676.08
2169.05	2676.16	2169.18	2676.16	2169.29	2676.16	2174.54	2676.2	2175.03	2676.2
2175.04	2676.2	2180.43	2676.25	2180.58	2676.25	2185.95	2676.31	2186.26	2676.31
2191.39	2676.38	2191.89	2676.38	2196.62	2676.46	2200.92	2676.51	2201.74	2676.51
2206.02	2676.52	2210.47	2676.49	2211.18	2676.49	2215.87	2676.45	2216.41	2676.45
2216.91	2676.45	2221.68	2676.43	2222.15	2676.44	2222.74	2676.45	2227.51	2676.49
2228.28	2676.5	2229.19	2676.52	2234	2676.59	2235.14	2676.61	2239.7	2676.67
2241.05	2676.69	2241.37	2676.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.08	1152.23	.034	1415.04	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1152.23	1415.04	462.69	473.09	478.62	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2661.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.	0.080	0.034	0.060
W.S. Elev (ft)	2660.52	Reach Len. (ft)	462.69	473.09	478.62
Crit W.S. (ft)	2658.15	Flow Area (sq ft)	1454.53	1033.09	114.80
E.G. Slope (ft/ft)	0.007003	Area (sq ft)	1454.53	1033.09	114.80
Q Total (cfs)	13000.00	Flow (cfs)	3430.95	9408.67	160.38
Top Width (ft)	1247.90	Top Width (ft)	777.73	262.81	207.36
Vel Total (ft/s)	5.00	Avg. Vel. (ft/s)	2.36	9.11	1.40
Max Chl Dpth (ft)	5.31	Hydr. Depth (ft)	1.87	3.93	0.55
Conv. Total (cfs)	155351.7	Conv. (cfs)	41000.3	112434.9	1916.6
Length Wtd. (ft)	471.35	Wetted Per. (ft)	778.01	262.89	207.42
Min Ch El (ft)	2655.21	Shear (lb/sq ft)	0.82	1.72	0.24
Alpha	2.47	Stream Power (lb/ft s)	1.93	15.65	0.34
Frctn Loss (ft)	2.81	Cum Volume (acre-ft)	167.77	194.99	93.15
C & E Loss (ft)	0.00	Cum SA (acres)	135.89	47.13	69.00

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: Agua Caliente
REACH: upper RS: 16713.82

INPUT
Description:
Station Elevation Data num= 436

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2670.2	6.11	2670.2	8.95	2670.2	10.47	2670.2	14.06	2670.2
18.47	2670.2	21.17	2670.2	21.79	2670.2	24.02	2670.2	24.07	2670.2
24.36	2670.19	24.4	2670.18	25.74	2670.15	31.18	2670	96.19	2668.2
97.02	2668.2	101.85	2668.2	102.03	2668.2	108.28	2668.2	112.81	2668.2
115.42	2668.2	151.76	2668.2	153.46	2668.2	155.4	2668.2	184.34	2666.65
187.83	2666.34	189.49	2666.2	193.61	2666.2	195.21	2666.2	200.86	2666.2
209.21	2666.2	211.47	2666.2	213.63	2666.2	217.64	2666.2	219.37	2666.2
223.54	2666.2	224.78	2666.2	228.56	2666.2	239.4	2665.82	244.09	2665.77
245.34	2665.75	250.04	2665.68	251.69	2665.66	256.15	2665.58	260	2665.51

261.97	2665.5	265.38	2665.43	268.33	2665.35	324.28	2664.2	324.78	2664.2
328.9	2664.2	334.58	2664.2	356.28	2664.2	357.27	2664.2	358.63	2664.2
358.7	2664.2	367.38	2664.2	371.08	2664.2	377.47	2664.2	388.91	2664.2
407.01	2664.2	407.17	2664.2	412.22	2664.2	412.24	2664.2	412.46	2664.2
412.84	2664.2	413.41	2664.2	418.83	2664.08	419.24	2664.05	426.18	2663.83
428.4	2663.65	434.65	2663.31	440.83	2662.82	443.23	2662.64	450.82	2662.2
452.4	2662.2	455.72	2662.2	455.8	2662.2	462.25	2662.2	463.66	2662.2
468.5	2662.2	472.03	2662.2	474.63	2662.2	479.59	2662.2	481.22	2662.2
481.65	2662.2	482.09	2662.2	494.99	2662.2	502.91	2662.2	504	2662.2
507.43	2662.2	510.88	2662.2	512.87	2662.2	515.27	2662.2	516.62	2662.2
519.37	2662.2	519.54	2662.2	519.77	2662.2	524.92	2661.96	526.29	2661.88
529.17	2661.72	536.21	2661.28	545.71	2660.8	558.1	2660.2	561.77	2660.2
568.76	2660.2	573.06	2660.2	577.73	2660.2	578.83	2660.2	583.75	2660.2
586.28	2660.2	589.78	2660.2	593.77	2660.2	595.92	2660.2	601.36	2660.2
602.17	2660.2	606.32	2660.2	610.37	2660.11	611.13	2660.08	623.19	2659.77
632.32	2659.54	636.72	2659.34	642.94	2659.17	647.38	2659.05	652.98	2658.77
655.62	2658.7	657.65	2658.64	659.25	2658.6	663.53	2658.37	664.12	2658.36
668.4	2658.21	668.44	2658.21	668.48	2658.21	668.51	2658.21	672.67	2658.2
672.73	2658.2	672.78	2658.2	680.19	2658.2	681.17	2658.2	687.13	2658.2
689	2658.2	691.55	2658.2	693.45	2658.2	694.37	2658.2	696.29	2658.2
697.22	2658.2	699.43	2658.2	700.84	2658.2	702.19	2658.2	703.42	2658.2
705.17	2658.2	707.66	2658.2	711.16	2658.2	714	2658.2	719.38	2658.2
720.89	2658.2	727.59	2658.2	727.65	2658.2	727.97	2658.2	734.59	2658.2
735.91	2658.2	737.39	2658.2	740.55	2658.2	741.26	2658.2	746.01	2658.2
763.62	2658.2	767.89	2658.2	768.48	2658.2	769.04	2658.2	772.33	2658.2
774.14	2658.09	780.65	2657.67	782.46	2657.52	786.54	2657.17	790.11	2656.96
792.04	2656.77	796.84	2656.61	802.91	2656.45	803.55	2656.4	810.59	2656.26
813.65	2656.2	817.18	2656.2	817.38	2656.2	822.89	2656.2	823.51	2656.2
828.8	2656.2	829.84	2656.2	834.6	2656.2	836.22	2656.2	840.1	2656.2
842.35	2656.2	845.17	2656.2	848.04	2656.2	850.03	2656.2	851.58	2656.2
856.3	2656.2	858.44	2656.2	861.65	2656.2	864.23	2656.2	868.04	2656.2
869.99	2656.2	874.91	2656.2	875.14	2656.2	918.22	2656.38	920.51	2656.37
949.19	2656.27	956.91	2656.24	965.69	2656.2	970.52	2656.2	970.75	2656.2
989.28	2656.2	994.12	2656.2	1008.76	2656.2	1018.53	2656.2	1025.38	2656.2
1034.23	2656.2	1038.92	2656.2	1049.16	2656.2	1051.93	2656.2	1063.68	2656.2
1074.53	2656.25	1079.51	2656.21	1081.04	2656.2	1095.44	2656.2	1099.64	2656.2
1102.1	2656.2	1106.73	2656.2	1107.45	2656.2	1111.85	2656.2	1114.68	2656.2
1119.67	2655.02	1123.17	2654.2	1129.17	2653.29	1137.41	2652.2	1143.4	2652.2
1147.44	2652.2	1149.38	2652.2	1153.11	2652.2	1155.49	2652.32	1160.94	2652.64
1171.77	2653.23	1172.84	2653.24	1175.46	2653.36	1196.24	2654.2	1198.04	2654.2
1200.44	2654.2	1202.71	2654.2	1205.27	2654.2	1211.6	2654.2	1215.69	2654.2
1221.03	2654.2	1228.36	2654.2	1230.44	2654.2	1240.11	2654.2	1245.84	2654.2
1273.31	2654.2	1286.99	2654.2	1291.57	2654.2	1292.67	2654.2	1293.12	2654.2
1293.32	2654.2	1294.31	2654.2	1294.35	2654.2	1295.42	2654.2	1296.17	2654.21
1298.48	2654.2	1299	2654.2	1307.09	2654.2	1317.84	2654.2	1322.05	2654.2
1332.68	2654.2	1341.06	2654.2	1348.58	2654.2	1353.23	2654.2	1367.73	2654.2
1370.06	2654.2	1370.29	2654.2	1370.62	2654.2	1372.32	2654.2	1379.23	2654.2
1380.17	2654.2	1380.39	2654.2	1402.59	2654.2	1412.63	2654.2	1415.46	2654.2
1424.41	2654.2	1427.48	2654.2	1438.27	2654.2	1445.95	2654.2	1452.29	2654.2
1464.58	2654.2	1466.25	2654.2	1471.47	2654.2	1473.72	2655.39	1475.32	2656.2
1478.29	2656.2	1480.84	2656.2	1483.44	2656.2	1489.11	2656.2	1497.6	2656.2
1499.87	2656.2	1510.98	2656.2	1520.89	2656.2	1533.69	2656.2	1540.66	2656.2
1566.83	2656.2	1567.22	2656.2	1570	2656.2	1570.3	2656.2	1574.47	2656.2
1574.55	2656.2	1574.62	2656.2	1574.7	2656.2	1575.63	2656.2	1578.11	2656.2
1578.35	2656.2	1581.07	2656.2	1581.5	2656.2	1581.82	2656.2	1582.09	2656.2
1584.05	2656.2	1584.45	2656.2	1603.83	2656.46	1612.04	2656.56	1705.12	2657.78
1719.52	2657.98	1734.68	2658.2	1734.78	2658.2	1734.93	2658.2	1735.09	2658.2
1737.2	2658.2	1737.53	2658.2	1737.89	2658.2	1740.68	2658.2	1742.23	2658.2
1743.56	2658.2	1747.39	2658.2	1749.18	2658.2	1752.54	2658.2	1754.61	2658.2
1757.36	2658.2	1759.41	2658.2	1761.61	2658.2	1763.56	2658.2	1805.7	2659.81
1814.8	2660.2	1820.38	2660.41	1840.58	2661.15	1848.87	2661.45	1853.5	2661.62
1856.53	2661.72	1870.32	2662.2	1870.89	2662.2	1871.85	2662.2	1875.91	2662.2
1876.67	2662.2	1879.49	2662.2	1879.92	2662.2	1881.61	2662.2	1883.53	2662.28
1883.9	2662.31	1884.66	2662.36	1892.02	2662.79	1896.95	2663.13	1911.8	2664.2
1913.21	2664.27	1923.15	2664.79	1925.69	2664.88	1943.91	2665.6	1945.16	2665.63
1949.59	2665.72	1955.19	2665.82	1963.41	2666.2	1964.4	2666.2	1967.78	2666.2
1968.82	2666.2	1970.6	2666.2	1973.86	2666.2	1976.75	2666.2	1983.71	2666.2
2006.32	2668.17	2006.69	2668.2	2014.06	2668.86	2018.65	2669.3	2022.45	2669.64
2028.15	2670.2	2029.24	2670.2	2050.17	2670.2	2053.95	2670.2	2066.82	2670.72
2068.11	2670.76	2069.68	2670.82	2071.44	2670.91	2073.58	2671.02	2076.4	2671.2
2078.63	2671.22	2082.4	2671.52	2089.19	2672.05	2089.7	2672.08	2091.18	2672.2
2100.34	2672.59	2117.79	2673.18	2122.88	2673.38	2126.58	2673.46	2129.92	2673.53
2134.82	2673.75	2142.57	2674.2	2143.44	2674.2	2143.59	2674.2	2144.89	2674.2
2145.02	2674.2	2149.32	2674.2	2163.5	2674.2	2166.12	2674.2	2190.93	2675.61
2192.94	2675.65	2198.49	2675.8	2205.41	2675.96	2206.15	2675.98	2213.84	2676.12
2215.94	2676.2	2216.03	2676.2	2219.35	2676.2	2220.41	2676.2	2224.25	2676.2
2228.94	2676.2	2233.85	2676.34	2234.01	2676.35	2239.28	2676.35	2244.52	2676.35
2249.43	2676.34	2254.42	2676.2	2255.69	2676.2	2260.63	2676.2	2262.12	2676.2
2269.09	2676.2								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	703.42	.05	1114.68	.03	1475.32	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1114.68	1475.32	423.21	396.44	388.94	.1	.3

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2658.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.	0.050	0.030	0.060
W.S. Elev (ft)	2657.69	Reach Len. (ft)	423.21	396.44	388.94
Crit W.S. (ft)	2657.49	Flow Area (sq ft)	471.88	1332.18	247.35
E.G. Slope (ft/ft)	0.005124	Area (sq ft)	471.88	1332.18	247.35
Q Total (cfs)	13000.00	Flow (cfs)	1262.87	11267.21	469.92
Top Width (ft)	917.91	Top Width (ft)	334.34	360.64	222.93
Vel Total (ft/s)	6.34	Avg. Vel. (ft/s)	2.68	8.46	1.90
Max Chl Dpth (ft)	5.49	Hydr. Depth (ft)	1.41	3.69	1.11
Conv. Total (cfs)	181618.3	Conv. (cfs)	17643.1	157410.1	6565.0
Length Wtd. (ft)	398.26	Wetted Per. (ft)	334.39	361.55	222.94
Min Ch El (ft)	2652.20	Shear (lb/sq ft)	0.45	1.18	0.35
Alpha	1.56	Stream Power (lb/ft s)	1.21	9.97	0.67
Frctn Loss (ft)	1.76	Cum Volume (acre-ft)	157.54	182.15	91.16
C & E Loss (ft)	0.04	Cum SA (acres)	129.99	43.75	66.64

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 16317.38

INPUT
Description:
Station Elevation Data num= 453

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2664.2	1.27	2664.2	1.32	2664.2	3.39	2664.2	6.57	2664.2
6.86	2664.2	11.66	2664.2	12.46	2664.2	16.97	2664.2	18.38	2664.2
22.29	2664.2	24.11	2664.2	27.48	2664.2	29.23	2664.2	32.02	2664.2
33.67	2664.2	35.5	2664.2	37.06	2664.2	38.39	2664.2	39.99	2664.2
41.25	2664.2	43.54	2664.2	46.39	2664.2	70.25	2662.62	71.24	2662.64
72.19	2662.62	72.63	2662.59	73.2	2662.55	75.69	2662.56	76.16	2662.52
80.03	2662.53	81.12	2662.47	82.03	2662.48	82.5	2662.5	83.11	2662.54
87.57	2662.56	88.41	2662.6	92.89	2662.61	93.99	2662.66	98.33	2662.66
99.71	2662.73	103.83	2662.76	105.51	2662.86	109.27	2662.94	111.39	2663.05
114.44	2663.19	117.29	2663.23	119.8	2663.36	123.24	2663.3	125.58	2663.41
127.47	2663.49	131.35	2663.37	133.38	2663.45	136.42	2663.32	138.49	2663.4
140.83	2663.29	142.81	2663.37	145.03	2663.26	147.03	2663.34	184.53	2662.32
185.17	2662.3	187.27	2662.2	190.94	2662.2	195.19	2662.2	201.28	2662.2
208.46	2662.2	217.55	2662.2	223.84	2662.2	230.65	2662.2	230.71	2662.2
230.73	2662.2	231.93	2662.2	231.94	2662.2	231.96	2662.2	234.05	2662.2
234.4	2662.2	234.76	2662.2	235.11	2662.2	236.44	2662.2	237.08	2662.2
237.8	2662.2	243.54	2662.2	245.02	2662.2	249.16	2662.2	286.03	2661.67
290.09	2661.68	290.86	2661.69	294.91	2661.69	295.79	2661.69	299.82	2661.69
300.91	2661.7	302.13	2661.71	328.76	2661.74	333.53	2661.76	348.64	2661.86
349.74	2661.87	381.64	2662.2	382.02	2662.2	382.7	2662.2	385.15	2662.2
386.8	2662.2	389.59	2662.2	390.91	2662.2	392.86	2662.13	393.22	2662.12
403.14	2661.78	410.48	2661.54	415.93	2661.38	418.74	2661.31	423.23	2661.18
426.78	2661.09	429.73	2661.01	438.19	2660.9	440.9	2660.86	441.83	2660.86
451.84	2661.03	454.37	2661.02	455.62	2661.05	458.47	2661.08	461.3	2661.11
462.81	2661.1	465.67	2661.13	468.49	2661.14	471.34	2661.14	474.32	2661.13
477.34	2661.13	510.59	2660.2	513.32	2660.2	522.98	2659.88	527.54	2659.76
544.73	2659.22	561.43	2658.82	568.15	2658.62	584.73	2658.2	584.86	2658.2
587.67	2658.2	588.54	2658.2	589.2	2658.2	593.37	2658.2	595.32	2658.2
597.24	2658.2	598.31	2658.2	599.37	2658.2	600.29	2658.2	614.75	2658.2
618.12	2658.2	620.91	2658.2	623.32	2658.2	645.95	2658.2	648.04	2658.2
649.72	2658.2	653.79	2658.2	659.49	2658.2	659.99	2658.2	663.84	2658.2
664.83	2658.2	665.06	2658.2	683.01	2658.2	684.23	2658.2	690.23	2658.2
692.31	2658.2	695.45	2658.2	697.33	2658.16	702.71	2658.05	707.2	2657.95
707.54	2657.96	711.23	2657.88	743.71	2657.46	745.26	2657.48	746.96	2657.5
767.04	2657.59	841.16	2658.2	845.82	2658.2	847.47	2658.2	848.66	2658.2
850.96	2658.2	853.26	2658.2	855.92	2658.2	858.02	2658.2	862.83	2658.2
865.46	2658.2	866.15	2658.2	892.71	2658.2	892.74	2658.2	892.77	2658.2
894.89	2658.2	895.99	2658.2	898.11	2658.2	899.89	2658.2	901.45	2658.2
919.27	2658.2	921.95	2658.2	934.9	2658.2	935.65	2658.2	935.75	2658.2
935.77	2658.2	941.91	2658.2	942.89	2658.2	948.36	2658.2	952.8	2658.2
954.96	2658.2	957.44	2658.2	961.64	2658.2	964.77	2658.2	968.6	2658.2
973.41	2658.2	977.1	2658.2	983.39	2658.2	991.39	2658.2	993.07	2658.2
996.81	2658.2	1002.58	2658.2	1003.12	2658.16	1003.21	2658.15	1003.98	2658.2
1004.93	2658.2	1006.04	2658.2	1020.05	2658.2	1021.03	2658.2	1021.35	2658.2
1027.35	2657.33	1030.85	2656.95	1032.92	2656.66	1036.4	2656.2	1037.91	2655.99
1038.72	2655.88	1042.63	2655.24	1046.25	2654.87	1047.83	2654.64	1053.45	2654.25
1053.56	2654.23	1054.11	2654.2	1058.4	2653.64	1060.51	2653.22	1062.69	2652.81
1065.41	2652.2	1067.23	2652.2	1068.19	2652.2	1068.54	2652.2	1072.49	2652.2
1076.8	2652.2	1077.6	2652.2	1079.2	2652.2	1084.03	2652.2	1088.16	2652.2
1091.19	2652.2	1093.61	2652.2	1095.21	2652.2	1095.82	2652.2	1099.42	2653.38
1101.93	2654.2	1107.59	2654.2	1113.41	2654.2	1113.92	2654.2	1114.76	2654.2
1116.11	2654.2	1117.34	2654.2	1119.12	2654.2	1127.37	2654.2	1134.69	2654.2
1140.06	2654.2	1142.99	2654.2	1144.27	2654.2	1144.34	2654.2	1144.42	2654.2

1144.66	2654.13	1151.03	2652.3	1151.37	2652.2	1151.66	2652.16	1155.39	2651.6
1164.72	2650.2	1167.21	2650.2	1169.43	2650.2	1173.41	2650.2	1174.8	2650.2
1179.14	2650.2	1180.25	2650.2	1180.55	2650.2	1186.16	2650.2	1188.86	2650.2
1191.1	2650.2	1198.47	2650.2	1200.44	2650.2	1201.23	2650.26	1224.16	2651.58
1233.9	2652.2	1264.43	2652.47	1273.22	2652.46	1274.62	2652.46	1276.18	2652.46
1277.87	2652.45	1279.83	2652.45	1281.88	2652.45	1324.42	2652.25	1332.57	2652.2
1333.9	2652.2	1336.08	2652.2	1337.85	2652.2	1339.27	2652.2	1427.44	2652.2
1435.23	2652.2	1444.82	2652.2	1456.24	2652.2	1470.7	2652.2	1472.44	2652.2
1489.53	2652.2	1498.07	2652.2	1501.42	2652.9	1504.19	2653.49	1506.45	2653.5
1507.81	2653.72	1508.53	2653.84	1509.05	2653.91	1511.05	2653.82	1511.65	2653.89
1512.15	2653.93	1525.98	2653.92	1531.47	2653.92	1536.88	2653.95	1558.17	2654.04
1559	2654.07	1559.62	2654.08	1560.15	2654.1	1560.59	2654.11	1560.96	2654.12
1561.29	2654.12	1561.57	2654.13	1561.81	2654.13	1562.01	2654.14	1565	2654.15
1565.15	2654.15	1567.32	2654.17	1569.66	2654.2	1569.91	2654.2	1570.25	2654.2
1576.8	2654.2	1585.64	2654.2	1586.77	2654.2	1595.26	2654.2	1596.98	2654.2
1604.45	2654.2	1618.06	2654.2	1623.44	2654.2	1627.95	2654.2	1631.48	2654.2
1634.22	2654.2	1636.55	2654.2	1641.02	2654.2	1642.42	2654.2	1643.66	2654.2
1648.78	2654.2	1651.07	2654.2	1659.08	2655.33	1664.43	2656.2	1666.22	2656.2
1666.75	2656.2	1667.26	2656.2	1699.21	2657.05	1702.39	2657.08	1704.6	2657.14
1707.29	2657.16	1710.13	2657.23	1712.52	2657.26	1715.88	2657.35	1717.98	2657.38
1720.09	2657.41	1723.89	2657.5	1725.85	2657.54	1730.08	2657.64	1735.02	2657.78
1736.31	2657.8	1742.62	2657.97	1743.33	2657.99	1743.98	2658	1744.59	2658.02
1745.09	2658.03	1751.67	2658.2	1776.66	2658.2	1786.22	2658.2	1787.83	2658.2
1889.14	2660.12	1892.35	2660.2	1898.74	2661.76	1900.48	2662.2	1901.82	2662.49
1909.27	2664.2	1910.33	2664.2	1911.15	2664.2	1915.83	2664.2	1918.59	2664.2
1922.17	2664.2	1925.46	2664.2	1932.93	2664.82	1933.63	2664.84	1936.27	2664.86
1937.13	2664.85	1938.17	2664.85	1939.4	2664.86	1940.92	2664.9	1943.87	2665.04
1945.8	2665.09	1947.74	2665.13	1950.69	2665.31	1952.74	2665.33	1955.26	2665.37
1957.51	2665.5	1960.94	2665.54	1964.9	2665.59	1977.02	2666.2	1980.47	2666.2
1981.41	2666.2	1982.52	2666.2	1983.92	2666.2	1986.92	2666.2	1988.72	2666.2
1990.94	2666.2	1994.18	2666.2	1997.06	2666.2	2000.15	2666.2	2003.59	2666.2
2006.09	2666.2	2007.32	2666.2	2008.72	2666.2	2024.83	2666.2	2026.08	2666.2
2028.93	2666.2	2033.11	2666.2	2034.06	2666.2	2035.26	2666.2	2048.46	2667.96
2049.91	2668.2	2050.84	2668.34	2056.94	2669.21	2064.78	2670.19	2064.81	2670.2
2064.85	2670.2	2067.96	2670.2	2068.35	2670.2	2092.71	2671.14	2102.36	2671.47
2107.49	2671.64	2118.46	2672.2	2120.3	2672.2	2120.94	2672.2	2121.56	2672.2
2124.45	2672.2	2125.77	2672.2	2126.98	2672.2	2129.87	2672.2	2169.16	2673.56
2175.19	2673.82	2176.6	2673.84	2179.97	2674				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	1068.19	.05	1144.42	.03	1512.15	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1144.42	1512.15	517.33	483.79	446.81	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	1144.43	2654.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2656.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.	0.053	0.030	0.060
W.S. Elev (ft)	2656.02	Reach Len. (ft)	517.33	483.79	446.81
Crit W.S. (ft)	2655.32	Flow Area (sq ft)	258.74	1485.38	276.24
E.G. Slope (ft/ft)	0.003840	Area (sq ft)	258.74	1485.38	276.24
Q Total (cfs)	13000.00	Flow (cfs)	817.83	11548.96	633.21
Top Width (ft)	625.63	Top Width (ft)	106.73	367.73	151.17
Vel Total (ft/s)	6.43	Avg. Vel. (ft/s)	3.16	7.78	2.29
Max Chl Dpth (ft)	5.82	Hydr. Depth (ft)	2.42	4.04	1.83
Conv. Total (cfs)	209793.7	Conv. (cfs)	13198.1	186376.9	10218.7
Length Wtd. (ft)	483.38	Wetted Per. (ft)	107.34	368.40	151.31
Min Ch El (ft)	2650.20	Shear (lb/sq ft)	0.58	0.97	0.44
Alpha	1.32	Stream Power (lb/ft s)	1.83	7.51	1.00
Frctn Loss (ft)	1.93	Cum Volume (acre-ft)	153.99	169.33	88.82
C & E Loss (ft)	0.01	Cum SA (acres)	127.84	40.43	64.97

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 15833.59

INPUT
Description:
Station Elevation Data num= 368

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2662.65	11.65	2662.2	22.83	2662.2	23.87	2662.2	40.41	2662.2
40.62	2662.2	40.98	2662.2	42.31	2662.2	61.11	2661.72	62.54	2661.66
64.24	2661.58	66.46	2661.49	69.41	2661.38	72.43	2661.23	76.86	2661.07
82.59	2660.88	84.08	2660.78	91.53	2660.57	101.24	2660.31	102.64	2660.24
105.09	2660.2	108.4	2659.85	109.88	2659.65	113.45	2659.21	116.94	2658.71

118.16	2658.55	120.44	2658.2	122.81	2658.2	126.77	2658.2	127.75	2658.2
131.28	2658.2	132.42	2658.2	135.36	2658.2	143.73	2658.2	146.55	2658.2
150.33	2658.2	153.95	2658.2	156.86	2658.2	161.27	2658.2	166.57	2658.2
168.47	2658.2	174.66	2658.2	175.65	2658.2	182.58	2658.2	186.52	2658.2
189.73	2658.3	190.03	2658.31	196.05	2658.51	200.62	2658.67	201.55	2658.68
205.17	2658.8	207.8	2658.85	209.75	2658.88	211.47	2658.92	231.74	2658.2
238.91	2658.2	239.52	2658.2	240.14	2658.2	242.55	2658.2	243.83	2658.2
244.15	2658.2	246.09	2658.2	246.67	2658.2	248.17	2658.2	248.88	2658.2
250.13	2658.2	282.79	2657.56	287.11	2657.5	353.16	2656.84	364.01	2656.7
367.74	2656.66	396.21	2656.2	399.21	2656.2	402.69	2656.2	402.78	2656.2
404.89	2656.2	411.75	2655.87	415.77	2655.65	426.82	2655.1	440	2654.37
441.24	2654.3	443.05	2654.2	453.65	2654.2	462.54	2654.2	495.11	2654.2
497.6	2654.2	499.9	2654.2	502.16	2654.2	504.34	2654.2	506.65	2654.2
507.32	2654.2	509.73	2654.2	512.31	2654.2	515.1	2654.2	518.16	2654.2
521.54	2654.2	525.43	2654.2	529.94	2654.2	535.26	2654.2	541.62	2654.2
542.13	2654.2	549.16	2654.2	556.93	2654.2	556.98	2654.2	557.81	2654.2
563.25	2654.2	563.82	2654.2	569.38	2654.2	570.63	2654.2	575.44	2654.2
577.5	2654.2	581.51	2654.2	584.38	2654.2	587.48	2654.2	591.23	2654.2
593.44	2654.2	598.33	2654.2	599.51	2654.2	605.25	2654.2	605.31	2654.2
605.65	2654.2	610.89	2653.5	613.82	2653.14	616.44	2652.8	621.56	2652.2
622.3	2652.2	622.51	2652.2	628.41	2652.2	630.48	2652.2	634.69	2652.2
638.47	2652.2	640.81	2652.2	646.02	2652.2	646.95	2652.2	651.17	2652.2
652.23	2652.29	654.83	2652.54	655.12	2652.5	657.37	2652.67	668.23	2652.43
674.52	2652.52	675.67	2652.54	681.63	2652.63	686.99	2652.7	691.68	2652.77
696.05	2652.83	697.73	2652.84	701.86	2652.9	705.7	2652.94	709.18	2652.99
712.46	2653.03	714.5	2653.04	717.69	2653.08	719.97	2653.08	723.03	2653.12
725.86	2653.16	728.39	2653.15	730.93	2653.15	733.74	2653.18	736.48	2653.18
739.2	2653.21	742.04	2653.21	744.66	2653.24	747.58	2653.24	750.16	2653.27
759.18	2653.3	762.6	2653.32	765.27	2653.35	768.88	2653.37	771.4	2653.39
773.69	2653.42	777.24	2653.43	779.43	2653.45	781.5	2653.47	803.62	2653.66
806.65	2653.66	809.58	2653.65	849.46	2653.82	853.22	2653.86	857.15	2653.89
872.89	2653.98	874.77	2653.98	882.1	2654.03	886.27	2654.04	886.64	2654.04
908.81	2654.2	912.06	2654.2	948.42	2654.2	949.37	2654.2	951.93	2654.2
955.57	2654.2	957.01	2654.2	973.49	2652.79	975.96	2652.73	982.73	2652.4
983.65	2652.37	987.6	2652.2	988.8	2652.2	1012.2	2652.2	1013.13	2652.2
1036.74	2652.2	1060.59	2652.2	1061.63	2652.2	1065.86	2652.2	1072.6	2652.2
1074.36	2652.2	1087.56	2652.87	1095.03	2653.22	1102.6	2653.59	1105.96	2653.76
1112.97	2654.01	1113.94	2654.05	1114.57	2654.08	1115.06	2654.1	1115.44	2654.12
1115.74	2654.13	1119.55	2654.16	1119.68	2654.17	1124.09	2654.17	1128.23	2654.2
1129.88	2654.2	1132.8	2654.2	1138.74	2654.2	1139.32	2654.2	1140.86	2654.2
1144.86	2654.28	1147.65	2654.2	1147.76	2654.2	1154.61	2654.27	1289.5	2654.2
1289.68	2654.2	1290.05	2654.11	1297.77	2652.2	1315.52	2651.66	1325.28	2651.38
1338.97	2650.97	1353.16	2650.56	1359.96	2650.37	1361.15	2650.34	1362.74	2650.29
1365.43	2650.21	1365.92	2650.2	1370.39	2650.08	1374.87	2649.96	1443.01	2648.38
1445.47	2648.38	1473.17	2649.15	1492.7	2649.12	1495.56	2649.11	1496.85	2649.1
1499.34	2649.1	1561.41	2650.2	1562.48	2650.2	1592.03	2650.2	1593.16	2650.2
1594.65	2650.2	1595.8	2650.2	1598.1	2650.2	1599.34	2650.2	1602.06	2650.2
1648.9	2650.2	1651.64	2650.2	1660.02	2650.2	1670.04	2650.2	1670.18	2650.26
1670.19	2650.25	1671.74	2650.94	1672.22	2651.26	1693.73	2651.93	1706.75	2652.14
1710.14	2652.2	1722.62	2652.2	1726.34	2652.2	1738.63	2652.2	1775.4	2652.2
1791.47	2652.2	1791.72	2652.2	1795.47	2652.35	1796.83	2652.39	1810.39	2652.89
1816.75	2653.05	1856.49	2654.2	1857.56	2654.2	1858.58	2654.2	1859.57	2654.2
1859.75	2654.2	1880.88	2656.14	1881.47	2656.2	1881.56	2656.2	1881.57	2656.2
1886.79	2656.44	1887.71	2656.44	1892.88	2656.62	1897.24	2656.76	1901.19	2656.86
1904.69	2656.95	1934.9	2657.56	1937.93	2657.63	1940.4	2657.68	1954.16	2658.2
1955.17	2658.2	1956.38	2658.2	1956.78	2658.2	1990.86	2660.15	1991.68	2660.2
1992.12	2660.2	2008.11	2660.2	2019.29	2660.2	2025.44	2660.2	2030.74	2660.2
2032.08	2660.2	2036.83	2660.2	2037.4	2660.2	2037.58	2660.2	2040.99	2660.2
2044.92	2660.68	2049.72	2661.01	2053.45	2661.4	2055.93	2661.63	2061.56	2662.2
2062.27	2662.25	2063.12	2662.34	2064.69	2662.53	2074.53	2663.54	2078.54	2664.2
2079.14	2664.2	2079.79	2664.2	2081.51	2664.2	2083.22	2664.2	2084.71	2664.2
2087	2664.2	2089.17	2664.2	2098.28	2664.2	2099.47	2664.2	2103.66	2664.2
2107.67	2664.2	2109.04	2664.2	2113.32	2664.2	2117.74	2664.2	2139.48	2666.13
2139.67	2666.13	2139.84	2666.13	2140.43	2666.2	2141.28	2666.2	2143.42	2666.2
2144.43	2666.2	2148.12	2666.2	2152.85	2666.2	2153.63	2666.2	2158.84	2666.2
2159.76	2666.2	2159.79	2666.2	2166.15	2666.2	2166.51	2666.2	2170.87	2666.2
2176.41	2666.2	2180.62	2666.2	2180.9	2666.2	2181.01	2666.2	2181.3	2666.21
2181.32	2666.21	2187.19	2666.43	2232.61	2668.2	2261.01	2670.19	2261.28	2670.2
2263.92	2670.2	2266.54	2670.2	2266.6	2670.2				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	1297.77	.07	1353.16	.03	1710.14	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1297.77	1710.14	283.36	334.56	365.18	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
592.51	1191.63	2654.37

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2654.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.90	Wt. n-Val.	0.070	0.031	0.060
W.S. Elev (ft)	2654.03	Reach Len. (ft)	283.36	334.56	365.18
Crit W.S. (ft)	2653.27	Flow Area (sq ft)	6.73	1626.08	199.60

E.G. Slope (ft/ft)	0.004173	Area (sq ft)	6.73	1626.08	199.60
Q Total (cfs)	13000.00	Flow (cfs)	8.51	12587.63	403.86
Top Width (ft)	560.05	Top Width (ft)	7.38	412.37	140.30
Vel Total (ft/s)	7.09	Avg. Vel. (ft/s)	1.26	7.74	2.02
Max Chl Dpth (ft)	5.65	Hydr. Depth (ft)	0.91	3.94	1.42
Conv. Total (cfs)	201250.7	Conv. (cfs)	131.8	194866.8	6252.1
Length Wtd. (ft)	335.45	Wetted Per. (ft)	7.60	412.71	140.33
Min Ch El (ft)	2648.38	Shear (lb/sq ft)	0.23	1.03	0.37
Alpha	1.16	Stream Power (lb/ft s)	0.29	7.95	0.75
Frctn Loss (ft)	2.10	Cum Volume (acre-ft)	152.41	152.05	86.38
C & E Loss (ft)	0.01	Cum SA (acres)	127.16	36.10	63.48

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: Agua Caliente
REACH: upper RS: 15499.03

INPUT
Description:
Station Elevation Data num= 474

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2662.34	2.01	2662.2	2.07	2662.2	2.15	2662.2	4.27	2662.2
6.97	2662.2	12.72	2662.2	18.35	2662.2	23.53	2662.2	24.82	2662.2
29.75	2662.2	34.39	2662.2	36.81	2662.2	56.4	2662.2	58.4	2662.2
59.82	2661.99	61.53	2661.76	66.65	2661	73.46	2660.2	80.09	2659.34
85.9	2658.62	88.45	2658.2	88.66	2658.2	90.51	2658.2	94.65	2658.2
94.75	2658.2	95	2658.2	101.71	2658.2	102.76	2658.2	109.34	2658.2
117.08	2658.2	121.92	2658.2	124.92	2658.2	126.7	2658.2	126.91	2658.2
130.89	2658.2	131.54	2658.2	143.77	2658.2	154.92	2658.2	155.93	2658.2
156.34	2658.2	156.84	2658.2	157.48	2658.31	158.7	2658.48	168.94	2659.77
170.09	2659.69	172.16	2660.15	172.34	2660.12	174.09	2659.91	176.25	2659.45
178.8	2658.69	181.81	2658.2	185.4	2658.2	186.36	2658.2	191	2658.2
193.43	2658.2	196.62	2658.2	200.53	2658.2	202.47	2658.2	207.81	2658.2
208.3	2658.2	210.35	2658.2	215.06	2658.2	215.67	2658.2	222.42	2658.2
223.81	2658.2	229.28	2658.2	231.29	2658.2	235.38	2658.2	238.4	2658.2
241.39	2658.2	250.35	2658.2	250.84	2658.2	266.02	2657.7	270.42	2657.59
306.3	2656.54	312.67	2656.44	320.47	2656.32	320.84	2656.31	328.75	2656.2
329.12	2656.2	333.77	2656.2	334.38	2656.2	338.48	2656.2	339.35	2656.2
342.84	2656.2	343.72	2656.2	346.12	2656.2	347.05	2656.2	349.47	2656.2
359.61	2656.2	362.55	2656.2	364.18	2656.2	367.14	2656.2	368.55	2656.2
371.42	2656.2	372.95	2656.2	375.43	2656.2	377.04	2656.2	378.56	2656.2
443.16	2654.88	446.36	2654.84	449.45	2654.75	455	2654.62	457.15	2654.58
464.5	2654.4	472.55	2654.2	474.04	2654.2	478.49	2654.2	480.73	2654.2
484.51	2654.2	487.88	2654.2	490.93	2654.2	494.77	2654.2	497.1	2654.2
500.89	2654.2	502.58	2654.2	509.55	2653.8	510.17	2653.78	511.39	2653.74
514.71	2653.73	516.3	2653.68	517.88	2653.63	519.05	2653.59	519.89	2653.56
523.32	2653.46	524.19	2653.42	525.74	2653.35	528.61	2653.24	531.97	2653.09
536.65	2652.92	539.18	2652.8	544.22	2652.63	553.63	2652.2	554.29	2652.2
554.66	2652.2	554.97	2652.2	570.16	2652.2	571.55	2652.2	576.04	2652.2
577.63	2652.2	579.4	2652.2	583.54	2652.2	585.7	2652.2	589.41	2652.2
592.03	2652.2	594.96	2652.2	598.41	2652.2	601.19	2652.2	604.54	2652.2
606.85	2652.2	610.34	2652.2	612.39	2652.2	616	2652.2	617.66	2652.2
621.47	2652.2	624.87	2652.2	626.32	2652.2	644.39	2652.2	650.58	2652.2
668.15	2651.78	671.59	2651.82	672.26	2651.81	675.53	2651.81	678.97	2651.75
679.85	2651.76	683.49	2651.69	686.7	2651.63	687.99	2651.64	690.56	2651.58
691.99	2651.6	693.29	2651.62	694.47	2651.65	695.61	2651.66	697.83	2651.6
768.23	2650.63	770.32	2650.63	772.3	2650.64	774.18	2650.64	775.95	2650.65
808.93	2650.38	811.11	2650.3	813.97	2650.2	814.14	2650.2	814.31	2650.2
814.37	2650.2	814.44	2650.2	814.56	2650.2	814.8	2650.2	824.7	2650.2
830.43	2650.2	846.72	2650.2	879.09	2650.2	891.22	2650.2	933.06	2650.31
937.19	2650.36	939.83	2650.3	939.87	2650.3	940.03	2650.3	944.38	2650.29
944.6	2650.29	944.87	2650.3	945.15	2650.31	950.07	2650.35	950.44	2650.36
950.83	2650.37	951.32	2650.39	956.7	2650.5	957.65	2650.53	958.8	2650.55
963.32	2650.7	965.18	2650.74	967.48	2650.79	970.5	2650.86	974.52	2651.01
978.52	2651.09	982.05	2651.13	985.2	2651.26	987.37	2651.38	1008.01	2651.97
1011.16	2651.96	1074.35	2650.2	1081.24	2650.2	1084.52	2650.2	1084.62	2650.2
1087.98	2650.2	1088.19	2650.16	1088.34	2650.12	1091.96	2649.26	1095.19	2648.43
1095.62	2648.33	1096.1	2648.2	1101.46	2648.2	1102.97	2648.2	1107.46	2648.2
1110.94	2648.2	1115.08	2648.2	1121.63	2648.2	1122.59	2648.2	1124.31	2648.2
1125.5	2648.2	1126.71	2649.25	1129.32	2650.2	1133.54	2650.2	1147.25	2650.2
1148.57	2650.2	1171.56	2650.2	1175.69	2650.76	1186.4	2652.2	1188.94	2652.2
1189.74	2652.2	1190.05	2652.2	1191.5	2652.2	1198.65	2652.2	1199.93	2652.2
1204.33	2652.2	1224.73	2651.45	1226.75	2651.48	1228.6	2651.51	1230.87	2651.5
1232.67	2651.53	1263.68	2652.2	1272.79	2652.2	1277.6	2652.2	1285.82	2652.2
1286.89	2652.2	1287.62	2652.2	1288.81	2652.2	1289.02	2652.2	1289.35	2652.2
1289.8	2652.2	1290.06	2652.2	1291.6	2652.2	1293.6	2652.2	1294.42	2652.2
1295.44	2652.2	1296.82	2652.2	1329.69	2652.2	1333.13	2652.2	1334.14	2652.2
1337.77	2652.2	1342.23	2652.2	1342.92	2652.2	1343.73	2652.2	1348.39	2652.2
1348.84	2652.2	1354.04	2652.2	1354.13	2652.2	1356.39	2652.2	1361.13	2652.2

1363.65	2652.2	1366.83	2652.2	1367.81	2652.2	1370.98	2652.2	1371.57	2652.2
1372.74	2652.2	1382.24	2652.2	1388.78	2652.2	1395.16	2652.2	1405.86	2652.2
1425.08	2650.39	1427.32	2650.2	1429.37	2650.2	1431.17	2650.2	1431.62	2650.2
1433.3	2650.2	1470.74	2649.58	1475.87	2649.5	1485.61	2649.36	1502.09	2649.11
1514.41	2648.91	1525.55	2648.73	1527.9	2648.69	1531.46	2648.63	1536.42	2648.55
1552.1	2648.29	1555.36	2648.24	1555.63	2648.24	1556.66	2648.22	1556.75	2648.22
1557.92	2648.2	1561.39	2648.2	1565.03	2648.2	1568.16	2648.2	1570.73	2648.2
1573	2648.2	1636.36	2647.53	1640.64	2647.49	1643.84	2647.46	1646.41	2647.44
1648.4	2647.42	1649.99	2647.41	1651.25	2647.39	1652.28	2647.38	1653.22	2647.37
1660.83	2647.31	1661.26	2647.31	1661.69	2647.31	1662.09	2647.31	1662.48	2647.3
1662.85	2647.3	1672.16	2647.32	1685.58	2647.49	1687.34	2647.52	1690.79	2647.57
1696.76	2647.65	1704.69	2647.74	1746.61	2648.2	1747.31	2648.2	1748.42	2648.2
1751.32	2648.2	1752.29	2648.2	1756.7	2648.2	1756.88	2648.2	1757.02	2648.2
1760.07	2648.2	1769.26	2648.2	1777.6	2648.2	1793.8	2648.2	1805.64	2648.2
1813.19	2648.2	1821.27	2648.2	1826.51	2648.2	1836.58	2648.2	1839.08	2648.2
1850.94	2648.2	1851.03	2648.2	1851.55	2648.2	1856.58	2648.66	1859.96	2648.95
1861.39	2648.93	1864.09	2649.12	1875.72	2650	1877.6	2650.14	1878.42	2650.2
1881.25	2650.2	1884.77	2650.2	1887.02	2650.2	1891.25	2650.2	1892.72	2650.2
1893.95	2650.2	1898.49	2650.2	1899.3	2650.2	1904.36	2650.2	1904.9	2650.2
1909.87	2650.2	1910.28	2650.2	1910.61	2650.2	1914.72	2650.2	1915.02	2650.2
1918.59	2650.2	1923.05	2650.2	1924.15	2650.2	1924.54	2650.2	1926.15	2650.2
1930.31	2650.2	1936.22	2650.2	1948.47	2650.2	1951.34	2650.2	1951.62	2650.2
1952.24	2650.2	1955.05	2650.67	1964.05	2652.2	1974.03	2653.12	1982.75	2653.71
1985.48	2653.93	1990.51	2654.2	1996.29	2654.4	1997.32	2654.45	2006.38	2654.78
2012.61	2655.02	2034.1	2656.2	2034.81	2656.2	2036.36	2656.2	2038.93	2656.2
2040.23	2656.2	2042.56	2656.2	2046.84	2656.2	2053.6	2656.2	2054.12	2656.2
2055.25	2656.2	2061.13	2656.41	2062.05	2656.44	2063.36	2656.49	2065.3	2656.57
2073.26	2656.93	2078.1	2657.1	2085.91	2657.39	2090.9	2657.61	2103.3	2658.03
2108.38	2658.2	2114.4	2658.51	2115.54	2658.58	2122.04	2658.92	2125.12	2659.09
2129.4	2659.32	2134.69	2659.66	2142.55	2660.2	2160.06	2661.04	2180.82	2661.91
2186.8	2662.03	2187.45	2662.05	2193.61	2662.2	2195.08	2662.2	2195.32	2662.2
2195.63	2662.2	2197.52	2662.2	2197.74	2662.2	2197.93	2662.2	2201.27	2662.2
2201.86	2662.2	2205.04	2662.2	2205.96	2662.2	2217	2662.75	2220.35	2662.85
2227.67	2663.06	2232.59	2663.19	2244.75	2663.51	2247.23	2663.55	2249.31	2663.59
2254.4	2663.72	2255.87	2663.75	2261.72	2663.89	2268.78	2664.06	2271.15	2664.2
2271.4	2664.2	2273.85	2664.2	2283.87	2664.43	2288.03	2664.54	2293.57	2664.69
2317.53	2665.3	2328.05	2665.57	2333.52	2665.72	2347	2666.14		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	1431.62	.07	1573	.04	1878.42	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1431.62	1878.42	177.97	195.07	187.09	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	1405.62	2653.2	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
517.62	1011.01	2652.06

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2652.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.97	Wt. n-Val.	0.070	0.044	0.060
W.S. Elev (ft)	2651.85	Reach Len. (ft)	177.97	195.07	187.09
Crit W.S. (ft)	2651.37	Flow Area (sq ft)	21.99	1559.15	130.23
E.G. Slope (ft/ft)	0.010406	Area (sq ft)	319.34	1559.15	130.23
Q Total (cfs)	13000.00	Flow (cfs)	47.37	12510.98	441.65
Top Width (ft)	755.30	Top Width (ft)	224.91	446.80	83.60
Vel Total (ft/s)	7.60	Avg. Vel. (ft/s)	2.15	8.02	3.39
Max Chl Dpth (ft)	4.55	Hydr. Depth (ft)	1.00	3.49	1.56
Conv. Total (cfs)	127441.3	Conv. (cfs)	464.4	122647.4	4329.6
Length Wtd. (ft)	194.35	Wetted Per. (ft)	22.17	446.91	83.74
Min Ch El (ft)	2647.30	Shear (lb/sq ft)	0.64	2.27	1.01
Alpha	1.08	Stream Power (lb/ft s)	1.39	18.19	3.43
Frctn Loss (ft)	1.38	Cum Volume (acre-ft)	151.35	139.82	85.00
C & E Loss (ft)	0.01	Cum SA (acres)	126.41	32.80	62.54

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 15303.96

INPUT
Description:
Station Elevation Data num= 489

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2661.01	28.8	2660.2	31.58	2660.2	31.99	2660.2	43.35	2660.2
56.24	2660.2	56.53	2660.2	56.99	2660.2	57.31	2660.2	57.89	2660.2

58.58	2660.2	59.46	2660.2	61.01	2660.2	63.38	2660.2	66.62	2660.2
69.41	2660.2	70.94	2660.2	76.52	2660.2	81.42	2660.2	84.51	2660.2
84.7	2660.2	85.04	2660.19	85.07	2660.19	91.15	2660.07	91.56	2660.06
96.02	2659.93	96.62	2659.93	99.84	2659.79	108.26	2659.75	110.35	2659.72
149.86	2658.2	163.06	2658.77	182.34	2658.2	183.85	2658.2	185.42	2658.2
187.07	2658.2	188.79	2658.2	191.43	2658.2	194.16	2658.2	195.92	2658.2
199.08	2658.2	209.37	2658.2	240.02	2658.2	240.23	2658.2	240.47	2658.2
241.23	2658.2	241.51	2658.2	241.9	2658.2	242.9	2658.2	243.04	2658.2
244.57	2658.2	246.57	2658.2	247.24	2658.2	249.9	2658.2	251.88	2658.2
259.97	2657.85	261.4	2657.79	266.95	2657.62	268.88	2657.55	273.57	2657.38
275.66	2657.34	279.22	2657.18	292.18	2656.2	294.46	2656.2	296.6	2656.2
299.18	2656.2	302.37	2656.2	304.68	2656.2	308.54	2656.2	313.18	2656.2
315.25	2656.2	321.92	2656.2	323.41	2656.2	326.23	2656.2	327.52	2656.2
329.94	2656.2	330.72	2656.2	332.44	2656.2	332.48	2656.2	336.35	2655.15
342.36	2654.2	343.28	2654.2	343.51	2654.2	348.7	2654.2	350.24	2654.2
354.12	2654.2	356.75	2654.2	359.55	2654.2	363.21	2654.2	364.94	2654.2
369.83	2654.2	370.62	2654.2	375.15	2654.2	376.41	2654.2	376.42	2654.2
382.22	2654.2	387.7	2654.2	417.34	2654.2	427.54	2654.2	435.97	2654.2
441.5	2654.2	445.57	2654.2	457.51	2654.2	457.56	2654.2	457.69	2654.2
457.76	2654.2	457.78	2654.19	463.91	2653.78	468.29	2653.53	472.08	2653.4
474.55	2653.33	478.08	2653.24	481.1	2653.17	483.86	2653.11	487.39	2653.04
489.01	2652.99	492.85	2652.95	496.44	2652.92	497.38	2652.87	517.71	2652.26
519.11	2652.2	528.18	2651.94	529.12	2651.92	538.29	2651.66	545.16	2651.45
546.91	2651.44	551.61	2651.29	554.73	2651.18	572.65	2650.74	573.95	2650.72
576.95	2650.73	600.36	2650.2	610.56	2650.2	614.74	2650.2	617.36	2650.2
620.33	2650.2	624.7	2650.2	628.09	2650.2	631.55	2650.2	635.29	2650.2
639.39	2650.2	646.7	2650.2	698.14	2650.2	704.89	2650.2	705.16	2650.2
705.49	2650.2	709.5	2650.2	709.61	2650.2	709.72	2650.2	709.85	2650.2
710.19	2650.2	710.41	2650.2	712.82	2650.2	712.94	2650.2	713.09	2650.2
716.08	2650.2	716.34	2650.2	727.29	2650.2	732.05	2650.2	736.22	2650.2
736.55	2650.2	738.64	2650.2	741.94	2650.2	744.31	2650.2	746.53	2650.2
754.43	2650.2	757.27	2650.2	757.81	2650.2	759.65	2650.2	763.55	2650.2
816.7	2650.2	819.36	2650.2	826.7	2650.2	896.51	2650.2	902.66	2650.2
903	2650.2	909.64	2650.2	914.97	2650.05	919.97	2650.1	922.27	2650.2
922.73	2650.2	925.36	2650.2	929.1	2650.2	929.98	2650.2	933.91	2650.2
936.25	2650.2	939.18	2650.2	945.3	2650.2	954.44	2650.2	955.71	2650.2
956.1	2650.2	957.31	2650.2	958.27	2650.2	958.77	2650.2	969.27	2650.2
972.3	2650.2	976.96	2650.2	984.75	2650.2	1000.53	2650.2	1010.57	2650.2
1039.35	2650.2	1041.94	2650.2	1055.9	2650.2	1061.13	2650.2	1069.59	2650.2
1083.33	2650.2	1085.22	2650.2	1086.25	2650.2	1089.37	2650.2	1093.83	2650.2
1099.47	2650.2	1100.48	2650.2	1137.46	2650.2	1138.38	2650.2	1142.4	2650.2
1143.01	2650.2	1147.58	2650.2	1147.66	2650.2	1148.28	2650.2	1159.87	2650.2
1160.75	2650.2	1161.03	2650.2	1161.83	2650.2	1162.46	2650.2	1166.19	2650.2
1168.97	2650.2	1170.27	2650.2	1171.05	2650.2	1174.84	2650.2	1177.12	2650.2
1179.96	2650.2	1182.26	2650.2	1183.16	2650.2	1186.89	2650.2	1189.25	2650.2
1193.56	2650.2	1195.17	2650.2	1199.37	2650.57	1203.77	2650.55	1204.55	2650.57
1206.98	2650.2	1211.24	2650.2	1212.23	2650.2	1213.51	2650.2	1217.45	2650.2
1218.86	2650.2	1220.29	2650.2	1223.47	2650.2	1225.91	2650.2	1227.57	2650.2
1229.44	2650.2	1231.68	2650.2	1234.17	2650.2	1235.81	2650.2	1238.43	2650.2
1239.89	2650.2	1246.92	2650.2	1271.19	2650.2	1273.1	2650.2	1276.06	2650.2
1280.95	2650.2	1288.8	2650	1289.34	2649.97	1292.3	2650.2	1293.69	2650.2
1309.97	2650.2	1313.79	2650.2	1315.01	2650.01	1315.58	2649.9	1318.99	2649.29
1321.78	2648.74	1322.86	2648.55	1324.92	2648.2	1327.21	2647.83	1328.74	2647.52
1331.74	2646.96	1334.89	2646.2	1336.39	2646.2	1336.64	2646.2	1341.78	2646.2
1343	2646.2	1347.45	2646.2	1349.86	2646.2	1353.32	2646.2	1356.84	2646.2
1359.19	2646.2	1363.83	2646.2	1365.17	2646.2	1370.78	2646.2	1371.09	2646.2
1372.91	2646.2	1375.62	2646.85	1377.94	2647.37	1379.63	2647.74	1381.73	2648.2
1383.98	2648.55	1384.53	2648.5	1388.26	2648.87	1390.65	2649.11	1392.07	2648.92
1394.34	2649.08	1395.49	2648.9	1397.82	2649.02	1428.49	2648.2	1433.09	2648.2
1436.85	2648.2	1439.81	2648.2	1444.7	2648.2	1446.5	2648.2	1447.97	2648.2
1453.7	2648.2	1454.08	2648.2	1454.38	2648.2	1454.6	2648.2	1454.8	2648.2
1457.65	2648.2	1459.22	2648.2	1459.51	2648.2	1461.4	2648.2	1462.08	2648.2
1469.1	2648.2	1471.38	2648.2	1476.49	2648.2	1481.31	2648.2	1483.45	2648.2
1483.71	2648.2	1488.04	2648.2	1490.41	2648.2	1496.07	2648.2	1511.14	2648.2
1512.11	2648.2	1514.29	2648.2	1517.46	2648.2	1518.33	2648.2	1529.26	2648.2
1549.69	2648.2	1562.17	2648.2	1570.63	2648.2	1576.91	2648.2	1579.99	2648.01
1587.58	2647.56	1590.44	2647.48	1595.38	2647.23	1598.32	2647.08	1601.48	2647.04
1604.09	2646.94	1606.51	2646.84	1610.85	2646.66	1616.5	2646.42	1621.78	2646.2
1636	2646.2	1638.44	2646.2	1638.68	2646.2	1641.72	2646.2	1645.41	2646.2
1649.27	2646.2	1654.27	2646.2	1671.38	2646.2	1685.78	2646.2	1687.23	2646.2
1688.77	2646.2	1689.02	2646.2	1689.36	2646.2	1704.94	2646.2	1738.32	2646.2
1748.21	2646.2	1750.5	2646.2	1753.89	2646.2	1759.6	2646.2	1763.9	2646.2
1767.47	2646.2	1769.31	2646.2	1771.53	2646.2	1772.61	2646.2	1788.1	2646.2
1790.69	2646.2	1793.66	2646.2	1797.37	2646.2	1804.52	2646.2	1806.3	2646.2
1811.6	2646.2	1814.09	2646.2	1818.28	2646.2	1821.53	2646.2	1824.29	2646.2
1826.99	2646.2	1829.08	2646.2	1831.83	2646.2	1833.57	2646.2	1836.52	2646.2
1839.88	2646.2	1841.49	2646.2	1845.46	2646.2	1850.17	2646.2	1856.02	2646.2
1857.18	2646.2	1867.6	2646.2	1868.38	2646.2	1871.98	2646.2	1872.73	2646.2
1876.32	2646.2	1877	2646.2	1880.6	2646.2	1880.65	2646.2	1881.43	2646.2
1882.57	2646.2	1885.88	2646.2	1887.55	2646.2	1891.22	2646.2	1893.91	2646.2
1898.48	2646.2	1901.27	2646.2	1906.96	2646.2	1908.97	2646.53	1911.45	2646.94
1912.78	2647.33	1914.54	2647.64	1917.62	2647.95	1918.6	2648.2	1923.86	2648.98
1931.22	2650.07	1932.41	2650.2	1932.71	2650.2	1935.73	2650.2	1940.38	2650.2
1944.65	2650.2	1949.19	2650.43	1949.89	2650.46	1951.14	2650.53	1957.55	2650.91
1960.94	2651.07	1964.29	2651.01	1965.43	2651.37	1971.44	2651.63	1981.31	2652.2
1983.53	2652.2	1983.84	2652.2	1984.27	2652.2	1984.8	2652.2	1986.49	2652.31

1986.59	2652.3	1989.14	2652.54	2006.64	2653.07	2008.12	2653.1	2017.17	2653.45
2021.4	2653.62	2037.14	2654.2	2037.36	2654.22	2037.43	2654.22	2044.61	2654.74
2047.25	2654.89	2052.51	2655.2	2057.54	2655.54	2068.15	2656.2	2074.6	2656.2
2090.02	2656.56	2092.05	2656.58	2093	2656.6	2106.26	2657.47	2114.2	2658.2
2117.12	2658.2	2117.7	2658.2	2120.41	2658.2	2129.94	2658.59	2137.07	2658.88
2176.59	2660.2	2176.92	2660.2	2178.01	2660.2	2184.85	2660.59	2186.48	2660.68
2196.73	2661.29	2200.56	2661.54	2214	2662.2	2226.95	2663.06	2236.47	2663.62
2246.62	2664.2	2250.14	2664.36	2255.45	2664.58	2259.63	2664.75	2263.15	2664.89
2266.05	2665	2268.73	2665.1	2269.69	2665.09	2272.1	2665.17	2274.17	2665.24
2309.85	2664.2	2313.35	2664.2	2317.81	2664.2	2317.9	2664.2		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	1562.17	.07	1576.91	.03	1923.86	.03	1932.71	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1562.17	1923.86	144.42	164.07	193.85	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	1391.02	2650.62	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
555.07	1310.57	2650.73

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2651.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.	0.070	0.030	0.031
W.S. Elev (ft)	2650.31	Reach Len. (ft)	144.42	164.07	193.85
Crit W.S. (ft)	2649.88	Flow Area (sq ft)	343.83	1392.33	7.53
E.G. Slope (ft/ft)	0.005184	Area (sq ft)	585.52	1392.33	7.53
Q Total (cfs)	13000.00	Flow (cfs)	836.50	12146.28	17.22
Top Width (ft)	636.32	Top Width (ft)	251.60	361.69	23.03
Vel Total (ft/s)	7.46	Avg. Vel. (ft/s)	2.43	8.72	2.29
Max Chl Dpth (ft)	4.11	Hydr. Depth (ft)	2.01	3.85	0.33
Conv. Total (cfs)	180559.0	Conv. (cfs)	11618.3	168701.5	239.1
Length Wtd. (ft)	163.43	Wetted Per. (ft)	171.19	361.99	23.12
Min Ch El (ft)	2646.20	Shear (lb/sq ft)	0.65	1.24	0.11
Alpha	1.29	Stream Power (lb/ft s)	1.58	10.86	0.24
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	149.50	133.21	84.71
C & E Loss (ft)	0.13	Cum SA (acres)	125.44	30.99	62.31

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 15139.89

INPUT
Description:
Station Elevation Data num= 442

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2661.29	59.96	2660.27	62.42	2660.2	64.31	2660.2	66.06	2660.2
66.33	2660.2	70.11	2660.2	70.93	2660.2	74.14	2660.2	74.99	2660.2
76.14	2660.2	95.59	2660.2	96.95	2660.2	102.93	2660.2	103.85	2660.2
104.49	2660.2	110.32	2660.2	114.13	2660.2	114.37	2660.2	122.73	2659.81
128.07	2659.78	129.58	2659.67	135.04	2659.56	139.38	2659.41	141.5	2659.25
145.42	2659.06	148.02	2658.9	154.89	2658.61	164.05	2658.2	164.73	2658.2
164.88	2658.2	180.53	2658.2	185.36	2658.2	187.14	2658.2	188.46	2658.2
193.7	2658.2	194.82	2658.2	195.84	2658.2	196.77	2658.2	201.26	2658.2
211.89	2657.75	215.23	2657.72	216.24	2657.68	217.63	2657.64	220.05	2657.56
221.73	2657.54	223.38	2657.54	225.05	2657.45	245.02	2656.75	248.76	2656.76
253.73	2656.72	254.97	2656.72	259.02	2656.72	260.36	2656.72	264.44	2656.72
268.53	2656.73	269.89	2656.72	273.95	2656.73	301.46	2656.2	304.71	2656.2
307.48	2656.2	310.25	2656.2	313.94	2656.2	316.18	2656.2	320.83	2656.2
322.25	2656.2	324.48	2656.2	325.51	2656.2	328.75	2656.2	329.17	2656.2
330.85	2656.2	338.11	2656.2	350.75	2656.2	351.8	2656.2	359.83	2656.2
361.27	2656.1	365.11	2655.78	393.76	2654.2	401.23	2654.2	425.83	2654.2
443.57	2654.2	445.08	2654.2	462.42	2654.2	463.29	2654.2	465.16	2654.2
467.46	2654.2	468.92	2654.2	471.56	2654.2	474.38	2654.2	482.67	2653.3
484.65	2653.06	485.96	2653.14	488.79	2652.74	489.96	2652.74	492.95	2652.2
493.45	2652.2	493.84	2652.2	495.25	2652.2	504.57	2652.2	519.49	2652.2
525.93	2652.2	531.17	2652.2	532.59	2652.2	536.68	2652.2	553.26	2652.2
555.05	2652.2	574.24	2651.14	578.99	2651.08	584.31	2651.01	589.83	2650.93
595.05	2650.86	605.25	2650.68	609.76	2650.63	632.81	2650.2	633.73	2650.2
634.94	2650.2	636.02	2650.2	637.46	2650.2	638.82	2650.2	640.39	2650.2
641.95	2650.2	643.77	2650.2	645.15	2650.2	647.26	2650.2	648.37	2650.2
650.68	2650.2	651.36	2650.2	654.25	2650.2	676.62	2650.2	679.34	2650.2
683.55	2650.2	684.05	2650.2	688.97	2650.2	693.06	2650.2	694.49	2650.2
695.91	2650.2	699.75	2650.2	701.51	2650.2	704.7	2650.2	706.71	2650.2
708.65	2650.2	711.6	2650.2	713.74	2650.2	715.83	2650.2	718.13	2650.2
721.17	2650.2	723.85	2650.2	785.37	2650.2	788.02	2650.2	790.13	2650.2
792.3	2650.2	795.41	2650.2	798.95	2650.2	800.6	2650.2	804.33	2650.2
808.62	2650.2	823.24	2650.2	823.94	2650.2	824.83	2650.2	826.01	2650.2
826.41	2650.2	827.01	2650.2	827.72	2650.2	827.88	2650.2	832.5	2650.2

847.71	2650.2	850.4	2650.2	852.53	2650.2	863.3	2650.2	865.65	2650.2
868.41	2650.2	870.09	2650.2	872.38	2650.2	875.15	2650.2	876.81	2650.2
880.54	2650.2	881.71	2650.2	885.79	2650.2	889.32	2650.2	890.53	2650.2
894.54	2650.2	914.29	2650.2	919.4	2650.2	924.41	2650.2	936.68	2650.2
938.53	2650.2	940.55	2650.2	959.17	2650.2	959.68	2650.2	980.55	2650.2
982.5	2650.2	989.59	2650.2	993.42	2650.2	1006.25	2650.2	1006.53	2650.2
1006.69	2650.2	1006.8	2650.2	1006.91	2650.2	1007.34	2650.2	1008.65	2650.2
1009.14	2650.2	1014.03	2650.2	1016.91	2650.2	1020.31	2650.2	1021.98	2650.2
1030.19	2649.75	1036.19	2649.52	1062.06	2648.2	1068.34	2648.2	1068.49	2648.2
1074.75	2648.2	1074.82	2648.2	1075.29	2648.2	1080.04	2648.2	1081.6	2648.2
1085.7	2648.2	1085.85	2648.2	1086.2	2648.2	1092.65	2648.2	1097.66	2648.2
1099.56	2648.2	1103.05	2648.2	1105.49	2648.2	1107.93	2648.2	1109.91	2648.2
1111.53	2648.2	1111.65	2648.2	1113.05	2648.2	1114.23	2648.2	1115.12	2648.2
1122.02	2648.2	1143.2	2648.87	1145.39	2648.92	1146.94	2648.95	1149.42	2648.99
1152.11	2649.05	1154.93	2649.08	1158.04	2649.15	1167.25	2649.42	1169.85	2649.49
1172	2649.54	1174.5	2649.6	1176.23	2649.64	1177.79	2649.68	1180.48	2649.68
1181.78	2649.73	1184.31	2649.66	1185.44	2649.7	1188.15	2649.81	1191.25	2649.72
1193.04	2649.75	1194.21	2649.77	1228.06	2649.47	1230.43	2649.49	1233.05	2649.5
1235.01	2649.53	1237.16	2649.51	1238.74	2649.54	1239.99	2649.57	1243.44	2649.64
1244.61	2649.66	1246.7	2649.63	1252.15	2649.7	1297.62	2649.74	1303.05	2649.71
1308.59	2649.68	1313.99	2649.65	1319	2649.62	1323.36	2649.59	1327.27	2649.56
1372.87	2649.4	1374.92	2649.39	1400.25	2649.46	1402.61	2649.47	1405.1	2649.48
1407.71	2649.5	1410.46	2649.51	1447.7	2649.88	1452.11	2649.95	1459.52	2650.2
1462.39	2650.2	1465.54	2650.2	1469.06	2650.2	1469.18	2650.2	1469.3	2650.2
1487.8	2650.2	1488.59	2650.08	1500.93	2648.2	1503.79	2648.2	1504.86	2648.2
1509.7	2648.2	1510.15	2648.2	1511.79	2648.2	1514.53	2648.2	1516.98	2648.2
1517.5	2648.2	1541.47	2647.35	1563.43	2646.47	1565.5	2646.39	1570.21	2646.2
1571.71	2646.2	1574.78	2646.2	1576.04	2646.2	1578.47	2646.2	1583.1	2646.2
1586.45	2646.2	1589.85	2646.2	1599.91	2646.2	1605.02	2646.2	1606.97	2646.2
1608.48	2646.2	1610.38	2646.2	1612.42	2646.2	1613.53	2646.2	1614.83	2646.2
1639.12	2646.2	1654	2646.2	1667.6	2646.2	1676.08	2646.2	1679.97	2646.2
1682.88	2646.2	1688.07	2646.2	1689.97	2646.2	1693	2646.2	1693.84	2646.2
1699.92	2646.07	1700.32	2646.07	1703.08	2646.01	1703.65	2646.01	1704.21	2646
1704.78	2646	1705.35	2646	1708.95	2645.89	1709.76	2645.89	1713.35	2645.77
1716.54	2645.66	1719.82	2645.56	1819.39	2644.72	1820.82	2644.72	1822.26	2644.72
1823.71	2644.73	1838.08	2644.72	1838.71	2644.72	1839.51	2644.72	1843.14	2644.73
1844.07	2644.73	1883.25	2645.73	1900.08	2646.05	1907.86	2646.2	1912.96	2646.2
1913.76	2646.2	1915.4	2646.2	1924.93	2646.2	1930.61	2646.2	1934.39	2646.2
1938.2	2646.2	1940.26	2646.2	1945.73	2646.2	1950.93	2646.2	1951.72	2646.2
1953.76	2646.2	1963.91	2646.07	1967.04	2646.2	1967.65	2646.2	1968.39	2646.2
1969.3	2646.2	1970.46	2646.2	1972.02	2646.2	1974.27	2646.2	1977.69	2646.2
1982.33	2646.2	1989.73	2646.2	1998.08	2646.2	2003.81	2646.2	2010.48	2646.2
2012.46	2646.2	2012.72	2646.2	2021.28	2647.44	2025.3	2648.09	2026.01	2648.2
2036.76	2648.95	2039.87	2649.16	2055.31	2650.2	2058.99	2650.2	2060.11	2650.2
2062.85	2650.2	2064.39	2650.2	2066.08	2650.2	2067.52	2650.2	2068.75	2650.2
2088.28	2650.68	2090.12	2650.73	2092.54	2650.8	2097	2650.88	2100.28	2650.98
2104.74	2651.12	2110.98	2651.32	2120.68	2651.63	2136.64	2652.16	2136.89	2652.17
2137.85	2652.2	2137.92	2652.2	2137.96	2652.2	2139.48	2652.2	2166.94	2653.1
2170.95	2653.21	2176.86	2653.41	2185.93	2653.72	2188.32	2653.79	2199.95	2654.2
2202.03	2654.3	2206.19	2654.5	2229.83	2655.65	2240.21	2656.2	2259.04	2656.93
2286.26	2657.93	2290.49	2658.09	2293.67	2658.2	2309.65	2659.26	2323.31	2660.2
2324.98	2660.26	2325.22	2660.26	2377.88	2662.2	2380.39	2662.2	2383.11	2662.2
2385.91	2662.2	2388.67	2662.2	2413.73	2660.7	2414.45	2660.69	2415.32	2660.68
2416.06	2660.66	2416.55	2660.65	2416.84	2660.65	2417.11	2660.64	2420.92	2660.46
2421.4	2660.46	2421.9	2660.45	2422.47	2660.45	2423.25	2660.44	2424.46	2660.43
2426.38	2660.42	2428.42	2660.41						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	1578.47	.07	1693.84	.03	2010.48	.03	2025.3	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1578.47	2010.48	241.76	259.37	306.68	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1018.36	1483.66	2650.21

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2650.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.	0.070	0.034	0.033
W.S. Elev (ft)	2649.89	Reach Len. (ft)	241.76	259.37	306.68
Crit W.S. (ft)	2648.76	Flow Area (sq ft)	208.19	1788.56	65.06
E.G. Slope (ft/ft)	0.003733	Area (sq ft)	208.19	1788.56	65.06
Q Total (cfs)	13000.00	Flow (cfs)	476.49	12229.32	294.19
Top Width (ft)	560.89	Top Width (ft)	88.64	432.01	40.25
Vel Total (ft/s)	6.31	Avg. Vel. (ft/s)	2.29	6.84	4.52
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)	2.35	4.14	1.62
Conv. Total (cfs)	212771.8	Conv. (cfs)	7798.8	200158.1	4815.0
Length Wtd. (ft)	259.52	Wetted Per. (ft)	88.81	432.04	40.45
Min Ch El (ft)	2644.72	Shear (lb/sq ft)	0.55	0.96	0.37
Alpha	1.12	Stream Power (lb/ft s)	1.25	6.60	1.69
Frctn Loss (ft)	1.08	Cum Volume (acre-ft)	148.19	127.22	84.54
C & E Loss (ft)	0.04	Cum SA (acres)	124.87	29.50	62.17

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 14880.52

INPUT
Description:
Station Elevation Data num= 446

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2657.63	38.7	2656.2	40.22	2656.2	42.06	2656.41	42.37	2656.46
42.93	2656.55	44.1	2656.7	46.28	2656.79	48.95	2657.13	51.86	2657.4
57.35	2657.98	58.06	2658.05	58.42	2658.07	60.13	2658.2	63.52	2658.42
64.08	2658.44	68.82	2658.6	69.68	2658.63	74.04	2658.68	74.45	2658.69
78.81	2658.65	83.75	2658.5	90.09	2658.27	90.63	2658.2	90.71	2658.2
91.3	2658.2	94.26	2657.24	97.79	2656.2	98.55	2656.2	103.44	2656.2
104.22	2656.2	108.72	2656.2	109.63	2656.2	113.25	2656.2	115.45	2656.2
115.99	2656.2	126.66	2655.8	129.68	2655.69	131.92	2655.65	183.78	2654.2
184.22	2654.2	184.79	2654.2	186.32	2654.2	186.68	2654.2	189.27	2654.2
190.16	2654.2	190.51	2654.2	194.66	2654.2	196.1	2654.2	198.7	2654.2
200.47	2654.2	217.16	2653.21	219.7	2653.1	222.29	2653.05	224.37	2653
228.1	2652.88	229.7	2652.83	234.35	2652.7	235.43	2652.66	240.54	2652.53
246.01	2652.4	251.83	2652.23	251.91	2652.22	252.65	2652.2	256.37	2652.2
258.04	2652.2	261.32	2652.2	265.15	2652.2	267.2	2652.2	273.03	2652.2
273.51	2652.2	275.48	2652.2	278.96	2652.62	280.35	2652.8	283.69	2653.23
287.44	2653.71	288.61	2653.87	291.37	2654.2	294.67	2654.2	298.69	2654.2
304.39	2654.2	307.26	2654.2	307.41	2654.2	307.59	2654.19	307.62	2654.19
310.72	2653.88	315.8	2653.6	319.02	2653.58	320.63	2653.63	323.59	2653.63
325.04	2653.67	326.41	2653.63	327.79	2653.67	340.74	2653.61	342.45	2653.65
346.65	2653.76	347.93	2653.79	352.75	2653.92	353.54	2653.94	359.29	2654.09
359.6	2654.1	363.41	2654.2	365.41	2654.2	367.11	2654.2	369.38	2654.2
370.51	2654.2	386.97	2653.29	394.1	2652.89	403.78	2652.2	405.33	2652.2
409.73	2652.2	410.23	2652.2	410.34	2652.2	411.06	2652.2	412.16	2652.2
416.7	2652.2	419	2652.2	422.64	2652.2	422.88	2652.2	427.6	2652.2
431.85	2652.2	432.38	2652.2	436.01	2652.2	436.5	2652.2	439.74	2652.2
447.24	2652.2	451.3	2652.2	455.36	2652.2	456.97	2652.2	462.58	2652.2
462.61	2652.2	462.91	2652.2	465.64	2652.2	467.06	2652.2	473.38	2652.03
480.2	2651.86	497.52	2651.04	502.84	2650.85	513.3	2650.2	522.9	2650.2
532.79	2650.2	533.18	2650.2	533.52	2650.2	533.88	2650.2	534.38	2650.2
543.13	2650.2	549.41	2650.2	551.49	2650.2	552.39	2650.2	556.16	2650.2
556.56	2650.2	560.11	2650.2	560.26	2650.2	561.07	2650.2	563.95	2650.2
564.02	2650.2	566.71	2650.2	573.46	2650.03	580.69	2649.88	587.51	2649.71
588.97	2649.69	595.34	2649.54	600.65	2649.42	659.66	2648.68	660.93	2648.68
662.54	2648.68	664.11	2648.69	665.54	2648.69	667.97	2648.69	669.38	2648.69
687.79	2648.42	692.78	2648.33	699.91	2648.2	703.29	2648.2	707.21	2648.2
717.45	2648.2	723.61	2648.2	726.31	2648.2	727.99	2648.2	730.86	2648.2
737.41	2648.2	741.98	2648.2	749.02	2648.2	755.56	2548.2	768.09	2648.2
771.56	2648.2	801.57	2648.2	803.93	2648.2	805.71	2648.2	807.64	2648.2
813.23	2648.2	818.11	2648.2	819.53	2648.2	820.17	2648.2	820.19	2648.2
820.23	2648.2	825.96	2648.2	827.52	2648.2	841.71	2648.2	845.67	2648.2
852.17	2648.2	856.69	2648.2	861.55	2648.2	864.57	2648.2	866.9	2648.2
868.75	2648.2	870.31	2648.2	874.26	2648.2	875.45	2648.2	889.47	2648.2
891.53	2648.2	893.14	2648.2	895.58	2648.2	897.89	2648.2	900.16	2648.2
902.9	2648.2	904.37	2648.2	907.84	2648.2	913.53	2648.2	914.63	2648.2
919.01	2648.2	920.13	2648.2	924.97	2648.2	929.4	2648.2	939.9	2648.2
942.03	2648.2	946.72	2648.2	996.82	2648.2	1001.5	2648.2	1001.9	2648.2
1007.01	2648.2	1007.28	2648.2	1012.55	2648.2	1012.74	2648.2	1018.02	2648.2
1018.2	2648.2	1018.38	2648.2	1018.58	2648.2	1023.8	2648.2	1026.23	2648.28
1031.53	2648.28	1031.73	2648.29	1036.82	2648.3	1041.82	2648.33	1041.93	2648.32
1046.84	2648.36	1051.5	2648.39	1056.08	2648.41	1060.84	2648.42	1065.46	2648.44
1094.81	2648.4	1108.25	2648.2	1111.26	2648.2	1114.66	2648.2	1118	2648.2
1118.35	2648.2	1121.63	2648.2	1124.76	2648.2	1125.07	2648.2	1136.07	2648.2
1137.75	2648.2	1140.7	2648.2	1154.2	2648.2	1161.67	2648.2	1184.85	2648.2
1189.73	2648.2	1190.14	2648.2	1192.98	2648.2	1194.67	2648.2	1195.94	2648.2
1202.72	2648.2	1252.66	2648.2	1252.78	2648.2	1254.06	2648.2	1254.68	2648.2
1256.56	2648.2	1257.82	2648.2	1260.57	2648.2	1268.77	2648.2	1271.31	2648.2
1275	2648.2	1279.17	2648.2	1281.2	2648.2	1287.97	2648.2	1288.27	2648.2
1289.69	2648.2	1297.58	2648.2	1301.23	2648.2	1303.3	2648.2	1307.99	2648.2
1308.62	2648.2	1309.47	2648.2	1314.01	2648.2	1315.4	2648.2	1319.4	2648.2
1321.57	2648.2	1324.78	2648.2	1327.57	2648.2	1330.2	2648.2	1333.59	2648.2
1337.58	2648.2	1342.57	2648.2	1343.98	2648.2	1349.83	2648.2	1350.75	2648.25
1357.97	2648.61	1362.68	2648.84	1364.18	2648.88	1375.94	2650.2	1378.29	2650.2
1392.94	2650.2	1396.17	2650.2	1396.6	2650.2	1401.36	2650.03	1401.85	2650.01
1404.29	2649.99	1404.89	2649.98	1405.56	2649.97	1409.32	2649.86	1410.37	2649.85
1414.77	2649.69	1416.27	2649.68	1463	2648.2	1464.18	2648.2	1473.89	2647.86
1507.07	2646.74	1522.96	2646.2	1526.14	2646.2	1530.1	2646.2	1536.47	2646.2
1538.43	2646.2	1543.21	2646.2	1545.3	2646.1	1551.38	2645.79	1559.58	2645.4
1564.37	2645.17	1587.46	2644.2	1589.98	2644.2	1591.02	2644.2	1594.55	2644.2
1595.76	2644.2	1597.4	2644.2	1600.98	2644.2	1604.44	2644.2	1606.14	2644.2
1609.05	2644.2	1610.89	2644.2	1613.15	2644.2	1614.8	2644.2	1652.53	2644.2
1653.27	2644.2	1654.08	2644.18	1661	2643.97	1722.53	2644.2	1738.26	2644.2
1768.76	2644.2	1772.22	2644.2	1777.67	2644.2	1786.04	2644.2	1790.79	2644.2
1796.01	2644.2	1796.46	2644.2	1803.03	2644.2	1870.92	2644.2	1873.03	2644.2

1900.74	2645.25	1925.29	2646.19	1925.62	2646.2	1929.1	2647.47	1931.18	2648.2
1937.07	2649.37	1941.08	2650.2	1942.47	2650.2	1944.52	2650.2	1948.5	2648.59
1949.18	2648.2	1950.82	2648.2	1951.11	2648.2	1959.77	2648.2	1961.78	2648.2
1969.15	2648.2	1975.43	2648.2	2023.31	2647.64	2025.63	2647.71	2028.45	2647.79
2031.92	2647.9	2036.32	2648.03	2042.2	2648.19	2042.46	2648.2	2053.96	2648.51
2056.12	2648.58	2065.32	2648.83	2069.59	2648.97	2076.33	2649.19	2083.17	2649.39
2093.95	2649.76	2097.05	2649.86	2106.9	2650.2	2144.99	2651.83	2154.09	2652.2
2167.55	2653.4	2176.24	2654.2	2189.33	2654.8	2201.08	2655.34	2209.84	2655.71
2213.63	2655.88	2215.51	2655.96	2222.24	2656.2	2223.52	2656.2	2224.09	2656.2
2227.46	2656.2	2228.85	2656.2	2231.48	2656.2	2247.56	2657.32	2250.4	2657.42
2252.61	2657.52	2277	2658.2	2279.27	2658.2	2285.18	2658.46	2287.75	2658.58
2298.93	2659.08	2307.3	2659.5	2321.29	2660.2	2334.32	2660.2	2351.19	2660.2
2357.33	2660.2	2392.52	2659.69	2394.02	2659.64	2395.81	2659.58	2397.9	2659.51
2400.43	2659.41	2404.07	2659.27	2405.32	2659.24	2411.11	2659.02	2421.57	2658.64
2433.19	2658.2	2440.56	2657.95	2443.7	2657.83	2452.01	2657.51	2469.53	2656.87
2485.82	2656.2	2492.98	2655.86	2509.37	2655.12	2523.27	2654.48	2529.87	2654.2
2533.28	2654.09								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	126.66	.07	1543.21	.07	1545.3	.03	1925.29	.06
1925.62	.06								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1543.21	1925.62	297.23	330.58	377.48	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	1396.22	2650.19	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2649.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.	0.070	0.030	0.060
W.S. Elev (ft)	2648.38	Reach Len. (ft)	297.23	330.58	377.48
Crit W.S. (ft)	2647.76	Flow Area (sq ft)	114.34	1510.89	42.56
E.G. Slope (ft/ft)	0.004661	Area (sq ft)	219.49	1510.89	42.56
Q Total (cfs)	13000.00	Flow (cfs)	200.51	12757.91	41.58
Top Width (ft)	1191.70	Top Width (ft)	702.61	382.41	106.68
Vel Total (ft/s)	7.79	Avg. Vel. (ft/s)	1.75	8.44	0.98
Max Chl Dpth (ft)	4.41	Hydr. Depth (ft)	1.33	3.95	0.40
Conv. Total (cfs)	190425.4	Conv. (cfs)	2937.1	186879.2	609.1
Length Wtd. (ft)	331.81	Wetted Per. (ft)	85.89	382.50	107.11
Min Ch El (ft)	2643.97	Shear (lb/sq ft)	0.39	1.15	0.12
Alpha	1.15	Stream Power (lb/ft s)	0.68	9.70	0.11
Frctn Loss (ft)	2.39	Cum Volume (acre-ft)	147.00	117.39	84.16
C & E Loss (ft)	0.01	Cum SA (acres)	122.68	27.07	61.65

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: Agua Caliente
REACH: upper RS: 14549.94

INPUT
Description:
Station Elevation Data num= 460

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2657.07	26.03	2655.43	30.49	2655.23	31.56	2655.21	33.49	2655.2
35.96	2655.2	67.37	2655.05	71.31	2655.01	75.36	2654.97	82.45	2654.91
86.5	2654.87	91.06	2654.84	121.26	2654.53	122.32	2654.52	129.55	2654.44
137.66	2654.39	142.28	2654.31	147.11	2654.2	148.59	2654.2	148.82	2654.2
158.57	2654.2	174.86	2654.2	182	2654.2	186.43	2654.2	193.93	2654.2
196.68	2654.2	205.54	2654.2	218.31	2654.12	221.14	2654.14	221.22	2654.14
221.37	2654.14	223.23	2654.12	223.47	2654.12	223.74	2654.12	227.79	2654.04
277.5	2653.11	280.48	2653.07	311.98	2652.2	314.91	2652.2	316.61	2652.2
317.68	2652.2	321.41	2652.2	323.51	2652.2	324.72	2652.2	327.67	2652.2
330.37	2652.2	331.82	2652.2	392.86	2650.25	394.87	2650.2	405.92	2650.2
407.66	2650.2	415.72	2650.2	420.12	2650.2	425.94	2650.2	428.84	2650.2
436.2	2650.2	437.28	2650.2	440.62	2650.38	444.53	2650.2	444.64	2650.2
447.06	2650.2	447.8	2650.2	451.35	2650.2	452.22	2650.2	456.49	2650.2
457.25	2650.2	461.82	2650.2	462.4	2650.2	467.15	2650.2	485.57	2650.2
489.28	2650.2	493.64	2650.2	495.11	2650.2	496.21	2650.2	496.82	2650.2
499.12	2650.2	499.27	2650.2	531.63	2650.2	531.71	2650.2	532.89	2650.2
537.01	2650.15	542.13	2650.1	561.75	2649.98	566.57	2649.98	571.6	2649.98
576.92	2649.97	577.48	2649.97	582.78	2649.97	593.07	2649.87	596.94	2649.86
597.79	2649.85	599.94	2649.82	601.12	2649.81	602.46	2649.79	603.87	2649.78
627.71	2649.42	659.29	2648.88	662.7	2648.83	691.73	2648.2	692.97	2648.2
694.51	2648.2	696.68	2648.2	699.62	2648.2	701.1	2648.2	709.65	2648.2
711.19	2648.2	714.58	2648.2	715.27	2648.2	718.12	2648.2	719.01	2648.2

719.23	2648.2	721.99	2648.2	723.71	2648.2	733.25	2648.2	734.38	2648.2
737.26	2648.2	738.36	2648.2	792.96	2646.77	796.52	2646.65	801.49	2646.49
807.64	2646.28	807.82	2646.28	810.32	2646.2	810.56	2646.2	821.03	2646.2
825.68	2646.2	829.58	2646.2	831.05	2646.2	856.3	2646.2	862.26	2646.2
863.19	2646.2	863.67	2646.2	865.91	2646.2	867.05	2646.2	869.3	2646.2
870.75	2646.2	872.87	2646.2	874.63	2646.2	876.56	2646.2	878.49	2646.2
880.41	2646.2	882.55	2646.2	884.46	2646.2	886.78	2646.2	888.93	2646.2
890.86	2646.2	893.01	2646.2	895.01	2646.2	896.79	2646.2	898.88	2646.2
903.14	2646.2	905.45	2646.2	907.79	2646.2	910.16	2646.2	925.68	2646.2
927.23	2646.2	930.27	2646.2	933.13	2646.2	1038.77	2646.2	1043.65	2646.2
1044.71	2646.2	1066.14	2646.39	1066.54	2646.39	1066.88	2646.39	1068.95	2646.39
1071.79	2646.39	1072.22	2646.39	1079.08	2646.4	1083.17	2646.41	1083.8	2646.42
1084.5	2646.42	1089.52	2646.44	1138.27	2646.49	1143.11	2646.48	1143.81	2646.48
1144.45	2646.48	1148.93	2646.5	1149.52	2646.5	1207.05	2646.2	1211.83	2646.2
1259.13	2646.2	1259.91	2646.2	1261.27	2646.2	1262.36	2646.2	1264.21	2646.2
1266.53	2646.2	1268.97	2646.2	1270.94	2646.2	1291.43	2646.2	1297.1	2646.2
1298	2646.2	1298.27	2646.2	1301.41	2645.58	1302.5	2645.56	1318.16	2646.2
1325	2646.2	1325.51	2646.2	1327.02	2646.2	1334.81	2646.2	1337.35	2646.2
1340.91	2646.2	1352.18	2646.2	1353.02	2646.2	1355.24	2646.2	1359.1	2646.2
1360.53	2646.2	1362.04	2646.2	1363.17	2646.2	1373.74	2646.2	1375.58	2646.2
1378.36	2646.2	1379.97	2646.2	1381.2	2646.2	1383.54	2646.2	1413.14	2646.2
1415.53	2646.2	1418.23	2646.2	1421.21	2646.2	1441.35	2646.2	1460.04	2646.2
1461.83	2646.2	1463.6	2646.2	1465.62	2646.2	1501.85	2647.32	1510.47	2646.2
1526.04	2647.02	1549.91	2646.2	1553.29	2646.2	1567.93	2644.47	1570.17	2644.2
1574.27	2644.2	1588.38	2644.2	1597.44	2644.2	1619.09	2644.2	1628.6	2642.75
1630.16	2642.51	1632.05	2642.2	1632.69	2642.2	1635	2642.2	1637.1	2642.2
1641.7	2642.2	1642.59	2642.2	1642.96	2642.2	1646.1	2642.2	1665.58	2642.2
1670.94	2642.2	1680.99	2642.2	1688.7	2642.2	1717.67	2642.2	1739.18	2642.2
1739.21	2642.2	1739.34	2642.2	1740.16	2642.19	1740.28	2642.19	1753.5	2641.97
1765.16	2641.78	1807.57	2642.2	1832.86	2642.2	1862.06	2642.2	1864.25	2643.05
1867.06	2644.2	1877.79	2644.2	1896.58	2644.2	1897.25	2644.2	1897.59	2644.2
1897.6	2644.2	1897.68	2644.2	1910.89	2643.47	1921.66	2642.75	1925.6	2642.52
1927.19	2642.42	1930.03	2642.2	1930.05	2642.2	1933.34	2642.2	1935.91	2642.2
1982.97	2642.2	1986.22	2642.2	1986.52	2642.2	1986.96	2642.2	1989.79	2642.2
1990.25	2642.32	1990.5	2642.33	1990.88	2642.35	1991.39	2642.36	1992.07	2642.38
1992.95	2642.41	2030.09	2642.99	2031.71	2643.07	2032.72	2642.98	2034.23	2643.07
2035.8	2643.17	2039.03	2643.47	2041.18	2643.87	2042.5	2644.2	2046.53	2645.47
2048.98	2646.2	2050.53	2646.61	2060.89	2646.76	2061.37	2646.76	2063.4	2646.2
2064.52	2646.2	2068.5	2646.2	2069.18	2646.2	2070.03	2646.2	2074.26	2646.82
2078.06	2647.93	2078.63	2648.09	2079.12	2648.2	2083.35	2648.2	2083.68	2648.2
2084.26	2648.12	2095.1	2646.2	2100.11	2646.2	2102.98	2646.2	2104.16	2646.2
2106.12	2646.2	2113.43	2645.12	2120.97	2644.2	2123.44	2644.2	2124.48	2644.2
2130.35	2644.2	2134.33	2644.2	2138.02	2644.2	2145.16	2644.2	2146.06	2644.2
2148.47	2644.2	2153.69	2644.5	2158.78	2644.81	2160.44	2644.86	2164.16	2645.09
2165.83	2645.07	2168.06	2645.22	2174.46	2645.6	2176.92	2645.53	2177.64	2645.56
2179.54	2645.47	2180.51	2645.52	2280.82	2645.88	2282.96	2645.91	2284.75	2645.94
2286.32	2645.96	2287.67	2645.97	2288.79	2645.99	2289.73	2646	2294.69	2646.05
2295.31	2646.06	2309.79	2646.2	2310.5	2646.2	2311.62	2646.2	2314.32	2646.2
2315.74	2646.2	2317.83	2646.2	2321.74	2646.2	2332.01	2646.2	2332.02	2646.2
2343.67	2646.69	2347.46	2646.87	2355.19	2647.21	2362.99	2647.59	2366.43	2647.74
2375.84	2648.2	2376.88	2648.47	2380.16	2649.25	2383.16	2649.94	2384.45	2650.2
2391.08	2651.47	2392.88	2651.75	2395.45	2652.2	2398.52	2652.71	2402.23	2653.33
2405.1	2653.79	2407.47	2654.2	2412.19	2654.99	2418.12	2656.2	2420.29	2656.39
2420.88	2656.43	2421.74	2656.49	2428.43	2657.06	2430.69	2657.21	2432.94	2657.34
2436	2657.6	2442.36	2657.79	2444.24	2657.81	2445.37	2657.75	2446.89	2657.64
2449.71	2657.57	2451.98	2657.37	2454.89	2657.23	2458.47	2656.86	2460.36	2656.74
2464.67	2656.2	2466	2655.95	2468.86	2655.4	2473.08	2654.58	2475.03	2654.2
2480.56	2653.57	2485.45	2653.07	2488.93	2652.7	2493.91	2652.2	2499.21	2652.2
2501.29	2652.2	2518.33	2652.2	2519.98	2652.2	2520.17	2652.2	2521.31	2652.38
2521.54	2652.37	2544.38	2652.2	2563.44	2652.2	2570.73	2652.2	2572.43	2652.2
2578.16	2652.2	2581.79	2652.2	2584.11	2652.2	2586.88	2652.2	2588.84	2652.2
2591.08	2652.2	2614.84	2650.48	2617.49	2650.2	2641.57	2648.67	2649.69	2648.2
2653.29	2648.2	2654.09	2648.2	2657.55	2648.2	2684.68	2646.9	2686.97	2646.85
2691.21	2646.67	2692.7	2646.62	2697.47	2646.52	2698.42	2646.48	2706.68	2646.2
2710.63	2646.2	2711.83	2646.2	2714.03	2646.2	2717.49	2646.2	2720.36	2646.2
2721.6	2646.2	2722.67	2646.2	2725.39	2646.2	2726.27	2646.2	2733.91	2646.2
2745.8	2646.2	2749.68	2646.2	2756.29	2646.2	2759.43	2646.2	2764.84	2646.2
2767.46	2646.2	2767.83	2646.2	2771.96	2646.2	2772.89	2646.2	2776.13	2646.2
2777.55	2646.2	2779.02	2646.2	2780.66	2646.2	2782.53	2646.2	2785.03	2646.2
2788.53	2646.2	2792.73	2646.2	2798.37	2646.2	2807.93	2646.2	2811.62	2646.2

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	792.96	.07	1588.38	.06	1628.6	.042	1992.07	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1628.6	1992.07	77	80.84	76.62	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	1503.55	2647.74	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2446.81	2811.62	2657.94

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2647.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.	0.063	0.042	0.060
W.S. Elev (ft)	2645.91	Reach Len. (ft)	77.00	80.84	76.62
Crit W.S. (ft)	2645.59	Flow Area (sq ft)	118.93	1260.56	266.38
E.G. Slope (ft/ft)	0.012599	Area (sq ft)	121.05	1260.56	266.38
Q Total (cfs)	13000.00	Flow (cfs)	443.94	11458.45	1097.61
Top Width (ft)	678.17	Top Width (ft)	84.09	363.47	230.61
Vel Total (ft/s)	7.90	Avg. Vel. (ft/s)	3.73	9.09	4.12
Max Chl Dpth (ft)	4.13	Hydr. Depth (ft)	1.63	3.47	1.16
Conv. Total (cfs)	115818.7	Conv. (cfs)	3955.1	102084.9	9778.7
Length Wtd. (ft)	80.47	Wetted Per. (ft)	73.05	363.98	231.14
Min Ch El (ft)	2641.78	Shear (lb/sq ft)	1.28	2.72	0.91
Alpha	1.20	Stream Power (lb/ft s)	4.78	24.76	3.73
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	145.84	106.88	82.83
C & E Loss (ft)	0.05	Cum SA (acres)	119.99	24.24	60.19

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 14469.1

INPUT
Description:
Station Elevation Data num= 205

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2654.12	2.01	2654.2	50.72	2654.2	123.41	2653.08	137.68	2652.95
142.88	2652.91	146.66	2652.89	163.77	2652.77	165.88	2652.75	209.34	2652.2
268.03	2652.2	268.98	2652.15	269.77	2652.12	287.96	2651.23	302.09	2650.64
305.99	2650.46	312.56	2650.2	353.76	2650.2	357.96	2650.02	377.85	2649.38
381.76	2649.26	383.94	2649.23	389.95	2649.05	392.9	2649.03	395.27	2648.96
397.3	2648.91	399.15	2648.86	402.69	2648.86	404.44	2648.82	408.15	2648.82
409.8	2648.78	413.59	2648.79	415.12	2648.76	419.43	2648.76	420.88	2648.73
425.26	2648.73	426.69	2648.7	430.58	2648.71	431.94	2648.68	451.1	2648.59
459.42	2648.6	462.09	2648.59	465.16	2648.6	466.17	2648.6	520.15	2648.2
653.38	2648.2	679.49	2647.92	680.21	2647.9	683.13	2647.91	683.88	2647.89
684.7	2647.85	685.6	2647.81	686.78	2647.75	688.51	2647.68	692.11	2647.6
694.35	2647.51	700.25	2647.24	704.86	2647	719.44	2646.2	951.57	2646.2
955.24	2646.04	955.72	2646.03	960.77	2645.82	961.94	2645.79	966.36	2645.62
968.13	2645.58	972.01	2645.43	974.36	2645.37	977.8	2645.25	980.79	2645.16
984.37	2645.02	991.27	2644.78	992.73	2644.72	998.04	2644.55	998.63	2644.52
1008.92	2644.2	1028.19	2644.2	1029.48	2644.23	1033.88	2644.32	1034.11	2644.32
1038.17	2644.41	1038.57	2644.39	1043.14	2644.4	1044.5	2644.42	1049.15	2644.5
1050.23	2644.53	1051.59	2644.58	1057.5	2644.69	1059.39	2644.76	1061.75	2644.86
1067.04	2644.97	1070.08	2645.12	1074.27	2645.22	1078.27	2645.42	1083.5	2645.55
1088.4	2645.8	1089.72	2645.84	1090.84	2645.86	1096.96	2646.2	1248.52	2646.2
1253.4	2644.87	1255.42	2644.2	1274.88	2644.2	1275.06	2644.26	1276.39	2644.69
1280.54	2646.02	1281.07	2646.2	1357.94	2646.2	1387.17	2646	1389.88	2646
1415.85	2646.2	1521.39	2646.2	1533.23	2644.88	1539.21	2644.2	1540.55	2644.2
1559.25	2643.7	1605.63	2642.2	1605.7	2642.2	1637.85	2642.2	1695	2641.36
1697.17	2641.35	1699.51	2641.32	1702.31	2641.29	1704.35	2641.26	1707.23	2641.24
1709.67	2641.23	1711.42	2641.19	1784.39	2640.2	1820.26	2640.2	1824.19	2641.06
1829.56	2642.2	1832.68	2642.5	1873.5	2642.2	1878	2642.2	1878.27	2642.15
1881.15	2641.7	1918.96	2641.95	1930.82	2642.2	1987.1	2642.2	1988.87	2642.59
1996.68	2644.2	2008.97	2644.86	2014.51	2645.17	2032.23	2646.2	2039.97	2646.2
2042.26	2645.63	2043.41	2645.32	2045.33	2645.43	2048.66	2644.2	2169.99	2644.2
2186.02	2644.41	2187.79	2644.43	2333.32	2646.2	2381.76	2646.2	2383.11	2646.35
2384.15	2646.45	2394.92	2647.19	2395.9	2647.18	2398.84	2647.63	2401.89	2648.2
2408.66	2650.05	2409.18	2650.2	2409.8	2650.2	2424.91	2650.62	2428.18	2650.47
2428.77	2650.44	2432.02	2650.43	2432.63	2650.39	2436.43	2650.45	2437.14	2650.41
2441.13	2650.48	2441.89	2650.43	2449.9	2650.75	2454.46	2650.88	2464.85	2652.2
2486.16	2652.2	2489.5	2651.23	2493.08	2650.2	2560.06	2650.2	2571.75	2649.71
2575.89	2649.71	2579.98	2649.7	2621.11	2649.96	2630.47	2649.73	2632.93	2649.78
2635.14	2649.62	2638.16	2649.3	2648.24	2648.2	2651.83	2647.73	2663.7	2646.2
2676.93	2646.2	2687.47	2645.56	2689.12	2645.54	2689.91	2645.58	2691.49	2645.53
2706.53	2645.7	2713.65	2645.59	2714.74	2645.58	2718.45	2645.52	2744.63	2645.16
2748.72	2645.09	2753.68	2644.99	2757.12	2644.94	2760.06	2644.89	2760.09	2644.89

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	951.57	.07	1539.21	.055	1605.7	.03	1987.1	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1605.7	1987.1	98.94	90.52	93.35	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1517.73	2648.88	F
2166.06	2760.09	2646.46	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2485.82	2760.09	2652.29

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2646.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.	0.055	0.030	0.060
W.S. Elev (ft)	2645.46	Reach Len. (ft)	98.94	90.52	93.35
Crit W.S. (ft)	2644.92	Flow Area (sq ft)	153.88	1484.59	187.05
E.G. Slope (ft/ft)	0.004494	Area (sq ft)	270.98	1484.59	256.39
Q Total (cfs)	13000.00	Flow (cfs)	458.13	12191.31	350.56
Top Width (ft)	857.99	Top Width (ft)	214.19	381.40	262.39
Vel Total (ft/s)	7.12	Avg. Vel. (ft/s)	2.98	8.21	1.87
Max Chl Dpth (ft)	5.26	Hydr. Depth (ft)	1.98	3.89	1.20
Conv. Total (cfs)	193927.6	Conv. (cfs)	6834.2	181863.9	5229.5
Length Wtd. (ft)	90.90	Wetted Per. (ft)	77.81	381.69	156.13
Min Ch El (ft)	2640.20	Shear (lb/sq ft)	0.55	1.09	0.34
Alpha	1.26	Stream Power (lb/ft s)	1.65	8.96	0.63
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	145.49	104.33	82.37
C & E Loss (ft)	0.03	Cum SA (acres)	119.73	23.55	59.76

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 14378.58

INPUT
Description:
Station Elevation Data num= 447

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2652.58	19.41	2652.2	20.14	2652.2	22.13	2652.2	23.17	2652.2
28.18	2652.2	28.7	2652.2	29.23	2652.2	31.59	2652.2	37.69	2652.2
41.74	2652.2	44.47	2652.2	107.54	2652.2	113.2	2652.2	113.74	2652.2
115.27	2652.16	131.88	2651.78	142.58	2651.53	144.35	2651.49	152.44	2651.31
158.53	2651.17	163.6	2651.06	167.73	2650.98	170.86	2650.91	187.06	2650.73
189.52	2650.69	193.39	2650.65	198.16	2650.62	198.62	2650.61	203.69	2650.57
224.16	2650.2	225.27	2650.2	227.51	2650.2	227.84	2650.2	228.14	2650.2
228.41	2650.2	231.1	2650.2	232.23	2650.2	238.94	2650.2	243.94	2650.2
247.44	2650.2	255.14	2650.2	255.8	2650.2	256.26	2650.2	263.3	2650.2
269.04	2650.2	273.15	2650.2	298.15	2648.35	299.92	2648.2	300.86	2648.2
301.75	2648.2	305.17	2648.2	309.48	2648.2	311.51	2648.2	315.04	2648.2
317.98	2648.2	323.01	2648.2	323.52	2648.2	355.9	2648.2	369.89	2648.2
370.16	2648.2	371.08	2648.2	371.92	2648.2	373.23	2648.2	374.15	2648.2
375.58	2648.2	376.51	2648.2	377.25	2648.2	378.69	2648.2	379.46	2648.2
393.6	2648.2	394.78	2648.2	399.69	2648.2	404.1	2648.2	408.34	2648.2
486.85	2647.02	490.59	2646.97	492.61	2646.97	496.86	2646.92	498.95	2646.91
503.32	2646.86	505.36	2646.85	509.37	2646.82	526.44	2646.76	527.61	2646.76
530.67	2646.76	532.2	2646.76	533.65	2646.76	601.32	2646.28	605.02	2646.22
605.09	2646.22	605.74	2646.22	607.42	2646.2	608.85	2646.2	612.35	2646.2
613.03	2646.2	617.54	2646.2	618.23	2646.2	623.5	2646.2	626.86	2646.2
627.19	2646.2	628.05	2646.2	631.45	2646.2	632.5	2646.2	638.41	2646.2
645.02	2646.2	645.29	2646.2	645.64	2646.2	659.25	2646.2	667.13	2646.2
668.46	2646.2	746.43	2645.87	747.3	2645.86	748.22	2645.86	749.21	2645.86
754.29	2645.83	755.39	2645.82	757.69	2645.81	758.89	2645.8	761.44	2645.78
762.8	2645.77	765.93	2645.75	767.41	2645.74	768.95	2645.73	770.62	2645.71
772.43	2645.7	774.37	2645.68	865.28	2645.79	866.15	2645.78	867.15	2645.77
868.23	2645.76	870.71	2645.77	871.79	2645.77	875.41	2645.76	881.59	2645.77
882.27	2645.76	887.03	2645.73	890.84	2645.69	928.15	2645.41	993.94	2644.2
995.5	2644.2	995.9	2644.2	999.72	2644.2	1005.37	2644.2	1005.39	2644.2
1005.83	2644.2	1011.65	2644.2	1013.67	2644.2	1017.91	2644.2	1024.22	2644.2
1024.52	2644.2	1030.24	2644.2	1048.64	2644.2	1052.44	2644.2	1053.1	2644.2
1056.39	2644.2	1057.05	2644.2	1057.78	2644.2	1060.83	2644.2	1061.58	2644.2
1064.78	2644.2	1065.61	2644.2	1069.23	2644.2	1070.18	2644.2	1074.34	2644.2
1075.47	2644.2	1076.66	2644.2	1081.17	2644.2	1082.66	2644.2	1087.04	2644.2
1088.98	2644.2	1093.08	2644.2	1112.71	2644.2	1113.68	2644.2	1117.53	2644.2
1117.99	2644.2	1120.3	2644.2	1122.24	2644.2	1122.77	2644.2	1123.25	2644.2
1123.74	2644.2	1123.77	2644.2	1128.09	2644.2	1129.34	2644.2	1152.51	2644.2
1155.57	2644.2	1158.27	2644.2	1160.9	2644.2	1163.8	2644.2	1166.97	2644.2
1169.05	2644.2	1172.58	2644.2	1176.94	2644.2	1178.73	2644.2	1184.07	2644.2
1190.23	2644.2	1191.55	2644.2	1196.99	2644.2	1197.89	2644.2	1198.62	2644.2
1202.28	2644.2	1202.83	2644.2	1204.97	2644.2	1208.05	2643.97	1219.78	2644.2
1223.06	2644.2	1233.42	2644.2	1234.12	2644.2	1234.52	2644.2	1246.32	2644.96
1249.4	2645.02	1252.35	2645.06	1254.09	2645.01	1256.99	2645.06	1259.47	2645.11
1261.07	2645.05	1263.34	2645.1	1265.34	2645.15	1267.35	2645.2	1269.3	2645.23
1271.01	2645.16	1273.1	2645.19	1284.06	2644.92	1287.08	2644.95	1289.92	2644.97
1291.17	2644.95	1293.81	2644.97	1296.39	2645	1341.1	2644.97	1345.22	2644.95
1379.34	2644.71	1379.99	2644.71	1383.33	2644.7	1400.5	2644.82	1401.74	2644.84
1404.38	2644.84	1406.04	2644.85	1408.58	2644.86	1414.29	2644.95	1445.28	2645.47
1449.59	2645.58	1452.49	2645.65	1454.25	2645.68	1472.87	2646.2	1473.15	2646.2
1474	2646.2	1490.63	2645.04	1495.62	2644.7	1502.78	2644.2	1516.99	2643.15
1531.17	2642.2	1534.34	2642.2	1541.07	2642.2	1544.26	2642.2	1547.82	2642.2
1552.63	2642.2	1556.96	2642.2	1560.96	2642.03	1561.7	2642	1568.72	2641.7
1574.14	2641.46	1578.02	2641.28	1580.62	2641.14	1580.89	2641.15	1586.43	2640.86
1636.67	2640.2	1643.09	2640.2	1650.33	2640.2	1660.05	2640.2	1670.98	2640.2

1688.09	2640.2	1696.38	2640.2	1712.23	2640.2	1712.33	2640.2	1712.42	2640.2
1728.55	2640.2	1740.08	2640.2	1740.1	2640.2	1741.36	2640.2	1741.92	2640.2
1743.47	2640.2	1744.3	2640.2	1746.01	2640.2	1765.13	2640.2	1796.42	2640.2
1802.66	2640.2	1808.76	2641.61	1810.17	2641.93	1811.95	2642.2	1816.05	2642.2
1817	2642.2	1817.61	2642.2	1818.62	2642.2	1822.43	2642.2	1823.01	2642.2
1823.21	2642.15	1824.43	2641.64	1825.8	2640.2	1836.52	2640.2	1839.31	2640.2
1841.25	2640.2	1843.8	2640.2	1845.01	2640.2	1846.46	2640.2	1850.36	2640.2
1853.54	2640.2	1857.81	2640.2	1861.08	2640.2	1866.16	2640.2	1868.15	2640.2
1869.58	2640.2	1870.71	2640.2	1871.68	2640.2	1879.89	2641.03	1882.29	2641.47
1883.36	2641.43	1886.57	2642.2	1886.58	2642.23	1887.41	2643.75	1887.66	2644.2
1896.27	2644.2	1902.8	2644.2	1903.48	2644.2	1908.57	2644.2	1908.74	2644.2
1909.17	2644.25	1909.57	2644.2	1910.59	2644.2	1911.28	2644.2	1913.08	2644.2
1914.02	2644.2	1914.56	2644.2	1916.27	2644.2	1970.07	2644.2	1980.72	2644.2
1983.86	2644.2	1985.94	2644.2	2012.95	2644.2	2052.01	2644.2	2057.13	2644.2
2057.5	2644.2	2057.73	2644.2	2061.24	2644.2	2062.84	2644.2	2065.98	2644.2
2068.41	2644.2	2071.02	2644.2	2073.78	2644.2	2075.72	2644.2	2078.37	2644.2
2080.61	2644.2	2082.37	2644.2	2084.38	2644.2	2085.71	2644.2	2087.4	2644.2
2106.76	2644.2	2110.02	2644.2	2113.4	2644.2	2123.76	2644.2	2139.02	2644.2
2142.85	2644.2	2143.88	2644.2	2148	2644.2	2152.01	2644.2	2155.83	2644.2
2156.73	2644.2	2160.34	2644.2	2163.83	2644.2	2167.26	2644.2	2170.54	2644.2
2173.8	2644.2	2176.94	2644.2	2272.07	2645.41	2275.39	2645.43	2278.85	2645.45
2282.48	2645.51	2323.06	2646.2	2324.46	2646.2	2326.08	2646.2	2329.1	2646.2
2335.31	2646.2	2337.51	2646.2	2340.16	2646.2	2347.11	2646.74	2347.51	2646.75
2349.61	2646.8	2373.55	2648.2	2374.3	2648.2	2380.71	2648.2	2381.47	2648.2
2384.45	2648.2	2388.69	2648.2	2390.06	2648.2	2394.63	2649.74	2396.14	2650.2
2401.66	2652	2402.35	2652.2	2407.63	2653.79	2408.98	2654.2	2409.06	2654.2
2412.92	2654.2	2413.48	2654.2	2421.58	2654.2	2424.25	2654.2	2425.89	2654.2
2426.41	2654.2	2446.01	2653.04	2454.01	2652.6	2459.68	2652.2	2474.34	2650.96
2476.19	2650.81	2483.93	2650.2	2489.35	2650.2	2494.51	2650.2	2496.53	2650.2
2500.46	2650.2	2501.92	2650.2	2504.94	2650.2	2507.14	2650.2	2508.75	2650.2
2553.14	2648.63	2561.13	2648.21	2561.35	2648.2	2567.49	2648.2	2570.23	2648.2
2580.31	2648.2	2584.7	2648.2	2585.77	2648.2	2589.48	2648.2	2590.73	2648.2
2593.04	2648.2	2594.04	2648.2	2595.22	2648.2	2602.57	2648.2	2606.42	2648.2
2607.02	2648.14	2616.53	2647.22	2627.65	2646.2	2629.65	2645.97	2644.72	2644.2
2653.12	2644.2	2661.15	2644.2	2666.04	2644.2	2667.52	2644.2	2692.07	2644.2
2693.42	2644.2	2694.46	2644.2						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1024.22	.055	1547.82	.03	1887.66	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1556.96	1886.58	99.75	91	88.36	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1472.92	2647.29	F
2176.9	2694.46	2646.48	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2414.89	2694.46	2654.26

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2646.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.90	Wt. n-Val.	0.046	0.030	0.050
W.S. Elev (ft)	2645.18	Reach Len. (ft)	99.75	91.00	88.36
Crit W.S. (ft)	2644.16	Flow Area (sq ft)	140.71	1537.26	285.69
E.G. Slope (ft/ft)	0.003252	Area (sq ft)	454.67	1537.26	323.52
Q Total (cfs)	13000.00	Flow (cfs)	428.75	12091.25	480.01
Top Width (ft)	1247.81	Top Width (ft)	550.75	329.62	367.45
Vel Total (ft/s)	6.62	Avg. Vel. (ft/s)	3.05	7.87	1.68
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)	2.06	4.66	0.98
Conv. Total (cfs)	227974.3	Conv. (cfs)	7518.7	212038.0	8417.6
Length Wtd. (ft)	91.01	Wetted Per. (ft)	68.45	330.79	291.49
Min Ch El (ft)	2640.20	Shear (lb/sq ft)	0.42	0.94	0.20
Alpha	1.32	Stream Power (lb/ft s)	1.27	7.42	0.33
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	144.67	101.19	81.75
C & E Loss (ft)	0.02	Cum SA (acres)	118.86	22.81	59.08

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 14287.58

INPUT
Description:
Station Elevation Data num= 448

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2651.77	35.53	2651.9	37.62	2651.93	38.02	2651.93	38.52	2651.92
40.59	2651.91	41.11	2651.91	57.04	2651.73	61.81	2651.65	63.39	2651.61
68.71	2651.52	73.82	2651.41	77.89	2651.31	109.29	2650.91	111.04	2650.89
112.18	2650.88	151.48	2650.2	152.9	2650.2	155.88	2650.2	157.46	2650.2

159.17	2650.2	164.16	2650.2	165.25	2650.2	172.15	2650.2	173.94	2650.2
174.97	2650.2	185.35	2650.2	188.82	2650.2	189.86	2650.2	192	2650.2
195.37	2649.54	198.11	2649.02	198.32	2649.06	199.64	2648.83	213.48	2650.2
218.77	2650.2	222.52	2650.2	228.78	2650.2	232.01	2650.09	237.36	2649.88
237.53	2649.89	241.66	2649.73	244.97	2649.61	300.45	2648.55	303.23	2648.49
305.16	2648.45	306.57	2648.41	314.82	2648.2	315.64	2648.2	316.59	2648.2
318.37	2648.2	320.36	2648.2	322.11	2648.2	324.58	2648.2	326.95	2648.2
362.69	2648.2	364.85	2648.2	369.73	2648.2	370.15	2648.2	370.5	2648.2
371.19	2648.2	375.04	2648.2	377.34	2648.2	391.11	2648.2	395.06	2648.2
395.81	2648.2	400.35	2648.2	401.5	2648.2	406.01	2648.2	407.09	2648.2
411.14	2648.2	411.67	2648.2	413.29	2648.2	414.82	2648.2	414.99	2648.2
416.82	2648.2	417.24	2648.2	417.54	2648.2	446.36	2647.32	455.44	2647.06
480.13	2646.41	488.61	2646.2	489.24	2646.2	489.53	2646.2	492.61	2646.2
493.37	2646.2	505.86	2646.08	506.12	2646.08	546.63	2645.9	549.07	2645.88
549.63	2645.88	553.41	2645.87	554.38	2645.87	558.07	2645.83	566.92	2645.76
571.28	2645.73	575.5	2645.71	576.45	2645.7	580.63	2645.68	597.51	2645.61
601.5	2645.61	605.32	2645.59	608.82	2645.58	609.56	2645.58	612.32	2645.56
657.67	2645.51	659.74	2645.5	662.35	2645.48	665.52	2645.45	689.93	2645.28
693.09	2645.26	696.43	2645.23	699.96	2645.21	703.59	2645.19	707.18	2645.16
711.03	2645.13	714.93	2645.11	764.55	2644.9	767.98	2644.88	771.56	2644.87
775.43	2644.86	795.34	2644.76	799.63	2644.73	808.65	2644.68	813.35	2644.64
823.35	2644.56	828.69	2644.51	829.31	2644.51	834.95	2644.46	840.81	2644.41
847.14	2644.36	854	2644.3	861.37	2644.23	863.35	2644.23	865.53	2644.2
872.21	2644.2	883.12	2644.2	887.67	2644.2	893.18	2644.2	896.79	2644.2
905.52	2644.2	909.66	2644.2	913.35	2644.2	917.24	2644.2	918.47	2644.2
921.2	2644.2	921.6	2644.2	979.24	2644.2	986.42	2644.2	987.59	2644.2
989.13	2644.2	990.9	2644.2	992.3	2644.2	994.48	2644.2	995.94	2644.2
998.52	2644.2	998.89	2644.2	999.35	2644.2	1000.47	2644.2	1043.88	2644.2
1046.69	2644.2	1103.63	2644.2	1108.42	2644.2	1122.27	2644.2	1144.64	2644.2
1145.07	2644.2	1146.96	2644.2	1147.82	2644.2	1149.15	2644.2	1154.42	2644.2
1160.87	2644.2	1161.75	2644.2	1161.88	2644.2	1162.56	2644.2	1164.9	2644.2
1165.35	2644.2	1176.21	2644.2	1178.22	2644.2	1180.59	2644.2	1182.43	2644.2
1182.78	2644.2	1183.17	2644.2	1188.6	2644.2	1189.87	2644.2	1194.37	2644.2
1196.58	2644.2	1200.33	2644.2	1203.63	2644.2	1206.88	2644.2	1210.36	2644.2
1212.68	2644.2	1215.37	2644.2	1234.48	2644.2	1235.98	2644.2	1253.9	2644.2
1304.22	2642.99	1307.01	2642.96	1307.43	2642.97	1310.35	2642.93	1313.38	2642.89
1316.64	2642.86	1317.05	2642.86	1320.52	2642.82	1324.28	2642.77	1328.17	2642.73
1332.29	2642.67	1336.67	2642.61	1337.34	2642.6	1342.07	2642.53	1342.75	2642.52
1347.78	2642.44	1353.21	2642.34	1353.62	2642.34	1358.93	2642.24	1360.9	2642.2
1364.68	2642.2	1368.87	2642.2	1372.18	2642.2	1375.05	2642.2	1382.77	2642.2
1385.78	2642.2	1388.65	2642.2	1389.47	2642.2	1393.59	2642.2	1395.85	2642.2
1400.12	2642.2	1401.76	2642.2	1403.07	2642.2	1406.04	2642.2	1407.17	2642.2
1412.75	2642.2	1417	2642.2	1417.56	2642.2	1419.14	2642.2	1423.27	2642.2
1423.31	2642.2	1423.76	2642.2	1427.52	2643.02	1429.08	2643.05	1431.3	2643.44
1432.39	2643.16	1435.82	2642.87	1439.39	2643.1	1442.31	2643.31	1444.73	2643.48
1447.97	2643.63	1449.49	2643.73	1452.1	2643.67	1453.3	2643.74	1455.73	2643.7
1456.78	2643.63	1457.46	2643.6	1465.16	2644.2	1467.89	2644.2	1472.01	2644.2
1480.6	2644.2	1489.87	2644.2	1490.67	2644.2	1498.7	2643.61	1500.56	2643.55
1505.12	2643.31	1508.29	2643.18	1510.63	2643.09	1513.28	2643.05	1522.28	2643
1525.08	2642.98	1526.46	2643.01	1529.33	2643	1529.34	2643	1532.3	2642.96
1535.63	2642.87	1539.89	2642.71	1545.19	2642.47	1545.79	2642.45	1548.57	2642.2
1549.2	2642.2	1549.97	2642.2	1552.25	2642.05	1558.35	2641.56	1558.57	2641.55
1561.53	2641.24	1562.62	2641.19	1579.09	2640.2	1580.93	2640.2	1583.77	2640.2
1588.94	2640.2	1594.98	2640.2	1601.82	2640.2	1606.45	2640.2	1623.88	2640.2
1643.09	2640.2	1643.3	2640.2	1643.81	2640.2	1644.31	2640.2	1644.9	2640.2
1645.59	2640.2	1658.67	2640.2	1660.74	2640.2	1665.59	2640.2	1696.63	2640.2
1707.18	2640.2	1712.41	2640.2	1722.73	2640.2	1733.48	2640.1	1736.95	2640.13
1740.89	2640.12	1744.65	2640.1	1750.01	2640.15	1754.16	2640.2	1754.76	2640.2
1755.42	2640.2	1756.2	2640.2	1757.13	2640.2	1764.89	2640.2	1766.38	2640.2
1768.22	2640.2	1770.54	2640.2	1778.9	2640.2	1782.42	2640.2	1786.89	2640.2
1792.98	2640.2	1801.85	2640.2	1848.48	2640.2	1852.16	2640.2	1857.02	2640.2
1861.17	2640.2	1862.39	2640.97	1864.58	2642.2	1866.3	2643.12	1868.66	2644.2
1868.67	2644.2	1871.91	2644.2	1874.24	2644.2	1879.87	2644.2	1882.53	2644.2
1889.31	2644.2	1889.44	2644.2	1892.88	2644.08	1930.29	2643.68	1954.02	2643.37
1962.13	2643.27	1969.58	2643.17	1974.45	2643.1	2029.67	2642.58	2043.98	2642.64
2044.62	2642.65	2045.36	2642.65	2046.35	2642.66	2047.6	2642.67	2048.97	2642.67
2051.96	2642.7	2057.43	2642.77	2059.62	2642.8	2062.14	2642.84	2064.93	2642.89
2067.78	2642.92	2071.85	2643.01	2075.06	2643.04	2079.5	2643.13	2096.14	2643.37
2098.82	2643.4	2119.46	2643.42	2120.62	2643.41	2123.58	2643.43	2126.79	2643.44
2130.2	2643.44	2131	2643.44	2134.48	2643.44	2136.82	2643.44	2137.88	2643.44
2141.17	2643.43	2151.65	2643.45	2155.42	2643.47	2159.46	2643.5	2163.74	2643.53
2168.15	2643.56	2172.88	2643.59	2224.13	2644.2	2227.21	2644.2	2227.23	2644.2
2227.25	2644.2	2227.33	2644.2	2227.98	2644.21	2309.59	2644.81	2310.94	2644.68
2313.63	2644.78	2313.97	2644.78	2343.44	2646.2	2344.14	2646.2	2345.57	2646.2
2346.12	2646.2	2367.69	2646.2	2392.22	2646.2	2392.33	2646.2	2392.68	2646.2
2399.76	2647.67	2402.04	2648.2	2409.71	2649.78	2411.55	2650.2	2414.94	2650.4
2426.89	2650.2	2438.69	2650.2	2440.12	2650.2	2469.25	2650.2	2470.77	2650.2
2472.33	2650.2	2473.95	2650.2	2475.71	2650.2	2477.57	2650.2	2477.9	2650.2
2482.4	2650.2	2484.13	2650.2	2533.66	2648.8	2543.3	2648.59	2557.98	2648.27
2561.23	2648.2	2582.46	2648.2	2590.14	2648.2	2597.17	2648.2	2605.05	2648.2
2609.49	2648.2	2614.66	2648.2	2620.07	2647.6	2623.64	2647.32	2627.98	2646.88
2634.49	2646.5	2638.14	2646.2	2638.54	2646.2	2639.59	2646.2	2641.52	2646.07
2644.66	2645.83	2651.29	2645.27	2660.46	2644.2	2660.96	2643.91	2664.14	2642.2
2668.24	2642.2	2668.54	2642.2	2677.5	2642.2	2686.27	2642.72	2691.25	2642.34
2691.65	2642.35	2693.19	2642.2	2694.33	2642.2	2694.6	2642.2	2702.14	2642.42
2703.97	2642.5	2709.68	2642.69	2713.77	2642.87				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1188.6	.055	1529.34	.04	1868.67	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1529.34	1868.67	83.87	84.99	62.19	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1487.36	2646.03	F
2231.05	2713.77	2644.94	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2421.99	2713.77	2650.52

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2645.67	Element			
Vel Head (ft)	0.84	Wt. n-Val.	0.055	0.040	0.055
W.S. Elev (ft)	2644.82	Reach Len. (ft)	83.87	84.99	62.19
Crit W.S. (ft)	2644.34	Flow Area (sq ft)	60.76	1476.38	508.22
E.G. Slope (ft/ft)	0.006196	Area (sq ft)	749.25	1476.38	532.28
Q Total (cfs)	13000.00	Flow (cfs)	165.23	11480.68	1354.09
Top Width (ft)	1532.00	Top Width (ft)	746.48	339.33	446.19
Vel Total (ft/s)	6.36	Avg. Vel. (ft/s)	2.72	7.78	2.66
Max Chl Dpth (ft)	4.72	Hydr. Depth (ft)	1.45	4.35	1.40
Conv. Total (cfs)	165151.8	Conv. (cfs)	2099.1	145850.5	17202.3
Length Wtd. (ft)	82.52	Wetted Per. (ft)	42.01	340.44	362.40
Min Ch El (ft)	2640.10	Shear (lb/sq ft)	0.56	1.68	0.54
Alpha	1.34	Stream Power (lb/ft s)	1.52	13.05	1.45
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	143.29	98.04	80.88
C & E Loss (ft)	0.09	Cum SA (acres)	117.37	22.11	58.26

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: Agua Caliente
REACH: upper RS: 14202.59

INPUT
Description:
Station Elevation Data num= 453

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2651.33	.3	2651.26	.94	2651.28	1.37	2651.29	35.18	2650.56
36.43	2650.53	48.3	2650.2	48.85	2650.2	58.3	2650.2	60.1	2650.2
60.32	2650.2	61.5	2650.2	68.48	2650.2	72.52	2650.2	74.12	2650.2
78.43	2650.2	79.09	2650.2	138.05	2648.9	141.93	2648.77	143.77	2648.75
148.56	2648.59	149.84	2648.57	155.64	2648.37	160.4	2648.2	163.72	2648.2
168.58	2648.2	174.06	2648.2	177.67	2648.2	181.58	2648.2	182.17	2648.2
187.5	2648.2	188.81	2648.2	193.66	2648.2	195.63	2648.2	199.67	2648.2
202.14	2648.2	204.98	2648.2	208.46	2648.2	212.64	2648.2	216.84	2648.2
221.99	2648.2	228.32	2648.2	231.33	2648.2	239.28	2648.2	240.91	2648.2
250.16	2648.2	253.89	2648.2	256.38	2648.2	260.66	2648.2	262.14	2648.2
264.94	2648.2	283.3	2648	283.65	2648	287.47	2647.96	287.79	2647.96
290.56	2647.91	309.01	2647.65	327.93	2647.68	330.52	2647.65	334.4	2647.61
338.36	2647.57	430.51	2646.2	431.04	2646.2	435.48	2646.2	436.01	2646.2
441.6	2646.2	442.31	2646.2	442.6	2646.2	448.54	2646.2	450.82	2646.2
451.45	2646.2	454.77	2646.2	455.3	2646.2	460.75	2646.2	465.95	2646.2
466.14	2646.2	466.17	2646.2	466.38	2646.2	477.76	2646.2	487.86	2646.2
498.97	2645.94	501.07	2645.9	504.15	2645.84	509.45	2645.74	524.11	2645.41
536.4	2645.18	551.17	2644.92	553.77	2644.86	583.02	2644.3	584.24	2644.29
588.26	2644.26	589.52	2644.25	589.59	2644.25	593.01	2644.25	613.08	2644.2
614.47	2644.2	616.02	2644.2	616.27	2644.2	622.21	2644.2	623.6	2644.2
626.09	2644.2	627.21	2644.2	627.51	2644.2	740.55	2644.2	754.86	2644.2
755.05	2644.2	758.6	2644.2	759.78	2644.2	761.89	2644.2	764.58	2644.2
765.96	2644.2	768.84	2644.2	770.62	2644.2	785.54	2644.2	791.2	2644.2
792.67	2644.2	799.89	2644.2	800.13	2644.2	800.31	2644.2	801.71	2644.2
806.08	2644.2	807.97	2644.2	811.58	2644.2	815.8	2644.2	816.87	2644.2
818.82	2644.2	821.4	2644.18	825.35	2644.15	829.38	2644.16	835.82	2644.13
847.69	2644.09	1062.8	2644.14	1067.41	2644.16	1070.25	2644.14	1073.92	2644.17
1073.97	2644.17	1078.47	2644.19	1078.48	2644.19	1080.5	2644.2	1085.68	2644.2
1087.19	2644.2	1090.03	2644.2	1094.42	2644.18	1094.51	2644.18	1094.62	2644.17
1094.74	2644.17	1094.85	2644.17	1101.71	2644.11	1102.05	2644.11	1102.45	2644.1
1109.72	2644.02	1110.53	2644.02	1122.51	2643.85	1125.71	2643.8	1138.05	2643.64
1142.78	2643.56	1143.63	2643.55	1148.26	2643.48	1220.24	2642.81	1221.49	2642.79
1235.56	2643.3	1236.95	2643.36	1249.18	2644.2	1252	2644.2	1252.45	2644.2
1254.02	2644.2	1255	2644.2	1255.08	2644.2	1256.47	2644.2	1268.95	2644.2
1270.6	2644.2	1280.41	2644.2	1284.57	2644.2	1292.09	2644.2	1297.68	2644.2
1301.91	2644.2	1307.78	2644.2	1310.99	2644.2	1318.12	2644.2	1326.42	2644.2
1328.88	2644.2	1336.23	2644.2	1337.1	2644.2	1343.9	2644.2	1344.46	2644.2
1362.2	2644.2	1364.16	2644.2	1364.56	2644.2	1364.8	2644.2	1370.26	2643.99
1386.11	2643.4	1389.23	2643.28	1394.34	2643.09	1403.48	2642.78	1416.14	2642.4

1416.72	2642.38	1422.13	2642.2	1422.19	2642.2	1422.27	2642.2	1422.34	2642.2
1424.08	2642.2	1424.16	2642.2	1424.47	2642.2	1427.26	2642.2	1427.35	2642.2
1427.44	2642.2	1431.96	2642.2	1432.36	2642.2	1432.82	2642.2	1438.47	2642.2
1455.59	2642.2	1460.25	2642.2	1460.98	2642.2	1466.25	2642.2	1466.73	2642.2
1467.3	2642.2	1472.66	2642.2	1472.97	2642.2	1478.63	2642.2	1478.82	2642.2
1479.07	2642.2	1484.69	2642.2	1484.98	2642.2	1490.29	2642.2	1490.84	2642.2
1495.79	2642.2	1496.67	2642.2	1501.23	2642.2	1502.53	2642.2	1506.75	2642.2
1508.54	2642.2	1512.05	2642.2	1514.41	2642.2	1515.26	2642.2	1517.57	2642.2
1520.56	2642.2	1523.39	2642.2	1526.96	2642.2	1529.26	2642.2	1533.42	2642.2
1534.59	2642.2	1534.79	2642.2	1537.04	2642.2	1539.24	2642.05	1539.5	2642.03
1540.21	2642	1545.37	2641.57	1548.41	2641.44	1552.46	2641.25	1555.14	2641.02
1568.02	2640.2	1571.01	2640.2	1571.17	2640.2	1574.94	2640.2	1579.67	2640.2
1579.91	2640.2	1585.34	2640.2	1585.66	2640.2	1590.8	2640.2	1593.82	2640.2
1594.88	2640.2	1598.03	2640.2	1599.08	2640.2	1600.38	2640.2	1602.32	2640.2
1602.54	2640.2	1620.07	2639.28	1639.07	2638.2	1639.75	2638.2	1641.04	2638.2
1647.16	2638.2	1655.34	2638.2	1656.03	2638.2	1692.75	2638.84	1694.99	2638.8
1697.1	2638.75	1698.83	2638.71	1721.8	2638.54	1722.43	2638.54	1723.14	2638.54
1723.83	2638.54	1813.85	2639.59	1839.89	2639.91	1852.24	2640.08	1860.29	2640.2
1862.98	2641.02	1866.6	2642.2	1869.74	2643.53	1871.24	2644.19	1871.26	2644.2
1874.89	2644.2	1877.69	2644.2	1880.15	2643.91	1882.82	2643.59	1889.59	2642.79
1895.29	2642.2	1899.56	2642.2	1900.59	2642.2	1904.8	2642.2	1906.42	2642.24
1906.5	2642.24	1906.56	2642.23	1910.32	2642.37	1910.61	2642.35	1911.59	2642.31
1911.8	2642.3	1915.75	2642.4	1916.09	2642.39	1939.42	2642.2	1942.08	2642.2
2015.44	2643.14	2019.47	2643.05	2024.24	2642.94	2029.53	2642.82	2035.91	2642.7
2036.62	2642.69	2044.91	2642.52	2055.38	2642.31	2061.19	2642.2	2065.74	2642.2
2070.73	2642.2	2074.65	2642.2	2078.07	2642.2	2083.49	2642.2	2085.43	2642.2
2086.63	2642.2	2092.47	2642.2	2092.98	2642.2	2099.37	2642.2	2099.43	2642.2
2100.9	2642.2	2109.59	2642.2	2117.06	2642.2	2119.4	2642.2	2124.08	2642.2
2129.59	2642.2	2136.05	2642.2	2141.03	2642.2	2205.59	2643.16	2269.55	2644.09
2270.01	2644.09	2273.02	2644.12	2273.28	2644.12	2277.65	2644.16	2283.22	2644
2283.38	2643.99	2286.95	2643.93	2287.58	2643.9	2293.69	2643.74	2295.2	2643.69
2301.95	2643.49	2304.78	2643.4	2310.22	2643.22	2314.64	2643.09	2318.51	2642.96
2324.29	2642.8	2326.93	2642.71	2338.44	2642.71	2340.86	2642.56	2343.5	2642.45
2343.75	2642.46	2346.23	2642.45	2346.58	2642.44	2348.51	2642.46	2349.46	2642.51
2353.11	2642.67	2355.11	2642.77	2357.99	2642.91	2362.1	2643.13	2365.57	2643.26
2369.01	2643.49	2372.09	2643.54	2389.11	2644.2	2391.91	2644.2	2393.09	2644.2
2395.8	2644.2	2406.08	2644.91	2420.08	2645.88	2422.65	2646.05	2423.46	2646.11
2424.82	2646.2	2436.1	2647.43	2442.42	2648.2	2450.31	2649.43	2455.49	2650.2
2461.5	2650.2	2462.27	2650.2	2462.66	2650.16	2462.74	2650.16	2462.8	2650.16
2466.4	2649.81	2485.97	2648.93	2487.88	2648.92	2490.93	2648.96	2533.25	2648.6
2533.47	2648.59	2538.06	2648.48	2543.97	2648.37	2550.93	2648.25	2554.04	2648.2
2558.01	2648.2	2563.86	2648.2	2568.91	2648.2	2573.57	2648.2	2577.77	2648.2
2581.47	2648.2	2600.99	2647.31	2605.15	2647.17	2608.99	2647.09	2614.45	2646.91
2630.01	2646.2	2632.28	2646.2	2633.11	2646.2	2636.35	2646.2	2637.2	2646.2
2640.34	2646.2	2641.75	2646.11	2642.31	2646.06	2647.32	2645.62	2651.27	2645.33
2660.86	2644.63	2666.48	2644.2	2672.82	2642.4	2673.35	2642.2	2676.1	2642.2
2686.28	2642.2	2695.49	2642.4	2696.73	2642.42	2706.9	2642.63	2709.54	2642.66
2718.22	2642.84	2722.23	2642.88	2729.23	2643.02	2734.77	2643.14	2739.48	2643.18
2744.05	2643.27	2819.9	2644.2	2821.84	2644.2	2823.31	2644.2	2825.63	2644.2
2828.85	2644.2	2830.03	2644.2	2834.06	2644.2	2837.83	2644.2	2843.13	2644.2
2844.62	2644.2	2848.5	2644.2	2851.17	2644.2	2851.77	2644.2	2852.58	2644.2
2858.17	2644.2	2860.56	2644.2	2861.01	2644.2				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1364.16	.07	1515.26	.03	1534.79	.03	1852.24	.06
1871.24	.06								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1534.79	1871.24	340.98	338.82	322.15	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1498.19	2647.5	F
2277.98	2861.01	2645.51	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2468.09	2861.01	2650.24

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2645.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.041	0.032	0.060
W.S. Elev (ft)	2644.75	Reach Len. (ft)	340.98	338.82	322.15
Crit W.S. (ft)	2643.27	Flow Area (sq ft)	93.30	1771.89	809.65
E.G. Slope (ft/ft)	0.002068	Area (sq ft)	951.30	1771.89	980.46
Q Total (cfs)	13000.00	Flow (cfs)	287.61	11269.96	1442.44
Top Width (ft)	1844.18	Top Width (ft)	975.22	336.45	532.51
Vel Total (ft/s)	4.86	Avg. Vel. (ft/s)	3.08	6.36	1.78
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)	2.55	5.27	1.99
Conv. Total (cfs)	285890.4	Conv. (cfs)	6324.9	247844.1	31721.4
Length Wtd. (ft)	336.67	Wetted Per. (ft)	36.60	337.31	406.89
Min Ch El (ft)	2638.20	Shear (lb/sq ft)	0.33	0.68	0.26
Alpha	1.51	Stream Power (lb/ft s)	1.01	4.31	0.46
Frctn Loss (ft)	1.31	Cum Volume (acre-ft)	141.65	94.87	79.80
C & E Loss (ft)	0.04	Cum SA (acres)	115.72	21.45	57.56

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: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 13863.77

INPUT
Description:
Station Elevation Data num= 435

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2648.2	.03	2648.2	8.7	2648.2	19.93	2648.2	20.16	2648.2
20.18	2648.2	23.02	2648.2	67.81	2647.09	95.97	2646.2	98.93	2646.2
102.49	2646.2	103.96	2646.2	107.58	2646.2	111.2	2646.2	115.16	2646.2
119.59	2646.2	120.73	2646.2	127.42	2646.2	130.77	2646.2	134.18	2646.2
134.99	2646.2	138.34	2646.2	142.22	2646.2	142.41	2646.2	144.34	2646.2
147.74	2646.2	162.18	2646.2	162.49	2646.2	164.6	2646.2	165.09	2646.2
165.59	2646.2	168.14	2646.03	168.75	2646.02	169.41	2646.01	173.11	2645.93
174.11	2645.91	175.19	2645.9	180.25	2645.77	181.92	2645.75	186.67	2645.63
188.86	2645.6	191.25	2645.57	194.86	2645.48	197.87	2645.44	201.25	2645.4
204.9	2645.36	209.04	2645.31	213.73	2645.25	265.55	2644.2	266.62	2644.2
269.62	2644.2	273.14	2644.2	275.74	2644.2	278.52	2644.2	279.14	2644.2
282.05	2644.2	285.52	2644.2	285.93	2644.2	289.41	2644.2	293.43	2644.2
295.06	2644.2	297.41	2643.33	300.71	2642.2	301.88	2642.2	302.43	2642.2
307.36	2642.2	310.07	2642.2	312.61	2642.2	317.46	2642.2	318.07	2642.2
319.69	2642.2	322.79	2642.72	324.58	2643.02	327.07	2643.46	331.27	2644.2
331.46	2644.2	339.43	2644.2	375.83	2644.2	376.1	2644.2	378.84	2644.2
379.32	2644.07	379.8	2643.99	383.54	2643.12	387.88	2642.55	388.61	2642.4
390.02	2642.2	397.96	2642.2	399.58	2642.2	406.41	2642.2	411.54	2642.2
423.78	2642.2	423.86	2642.2	424.34	2642.21	424.38	2642.21	430.78	2642.39
435.31	2642.54	436.02	2642.54	461.07	2643.17	462.38	2643.17	464.78	2643.21
465.64	2643.21	466.34	2643.21	480.99	2644.2	481.92	2644.2	555.14	2642.93
612.98	2642.69	613.68	2642.7	616.06	2642.69	639.26	2642.62	640.13	2642.62
690.79	2642.2	692.59	2642.2	693.82	2642.2	714.9	2642.2	732.08	2642.2
732.4	2642.2	732.88	2642.2	733.53	2642.2	733.99	2642.2	735.67	2642.2
738.33	2642.2	758.16	2642.2	763.57	2642.2	768.27	2642.2	772.65	2642.2
784.38	2642.2	787.08	2642.2	796.23	2642.2	801.08	2642.2	804.12	2642.2
805.73	2642.2	805.89	2642.2	806.39	2642.2	806.59	2642.2	810.15	2642.2
811.13	2642.2	812.05	2642.2	816.34	2642.2	817.68	2642.2	819.81	2642.2
821.52	2642.2	827.9	2642.2	829.92	2642.2	941.34	2642.2	943.4	2642.2
966.26	2642.2	967.02	2642.2	967.98	2642.2	969.31	2642.2	969.71	2642.2
971.61	2642.2	974.35	2642.2	975.19	2642.2	976.79	2642.2	979.74	2642.2
982.03	2642.2	985.01	2642.2	988.21	2642.2	990.64	2642.2	994.75	2642.2
996.27	2642.2	997.4	2642.2	1001.99	2642.2	1002.27	2642.2	1003.84	2642.2
1007.64	2642.2	1008.23	2642.2	1012.79	2642.2	1014.27	2642.2	1017.75	2642.2
1019.96	2642.2	1022.77	2642.2	1025.48	2642.2	1028.4	2642.2	1030.66	2642.2
1033.74	2642.2	1035.15	2642.2	1038.5	2642.2	1039.32	2642.2	1043.26	2642.2
1043.75	2642.2	1047.9	2642.2	1051.02	2642.2	1051.26	2642.2	1052.6	2642.2
1068.96	2642.2	1088.32	2642.2	1096.5	2642.2	1114.15	2642.2	1148.38	2642.2
1172.11	2642.2	1181.24	2642.2	1191.73	2642.2	1195.66	2642.2	1222.47	2642.2
1246.78	2642.2	1247.12	2642.2	1248.15	2642.2	1249.01	2642.2	1250.16	2642.2
1251.09	2642.2	1259.24	2642.2	1262.36	2642.2	1307.36	2642.2	1310.61	2642.2
1315.31	2642.2	1321.23	2642.2	1335.18	2642.2	1338.34	2642.2	1341.97	2642.2
1344.63	2642.2	1347	2642.2	1351.62	2642.2	1352.27	2642.2	1355.92	2642.2
1358.71	2642.2	1359.91	2642.2	1362.57	2642.2	1365.05	2642.2	1371.32	2642.2
1374.03	2642.2	1376.99	2642.2	1379.34	2642.2	1382.74	2642.2	1384.26	2642.2
1387.88	2642.2	1391.66	2642.2	1395.54	2642.2	1396.26	2642.2	1400.16	2642.2
1403.82	2642.2	1407.17	2642.2	1410.17	2642.2	1412.88	2642.2	1487.72	2642.2
1492.01	2642.2	1502.14	2642.2	1504.64	2642.2	1507.14	2642.2	1509.56	2642.2
1512.01	2642.2	1514.58	2642.2	1518.7	2642.2	1520.83	2642.2	1532.16	2642.2
1533.02	2642.2	1534.43	2642.2	1535.78	2642.2	1537.2	2642.2	1538.56	2642.2
1539.16	2642.2	1542.88	2643.23	1544.23	2643.45	1548.17	2644.2	1549.29	2644.2
1551.54	2644.2	1554.45	2642.46	1554.85	2642.2	1554.87	2642.18	1555.38	2641.87
1558	2640.2	1559	2639.53	1560.79	2638.2	1611.81	2638.2	1643.54	2638.12
1643.66	2638.12	1643.94	2638.13	1644.24	2638.14	1644.51	2638.14	1644.73	2638.15
1644.91	2638.15	1645.05	2638.16	1646.28	2638.17	1653.29	2638.2	1657.72	2638.2
1660.54	2638.2	1663.29	2638.2	1665.46	2638.2	1666.19	2638.19	1667.71	2638.2
1668	2638.2	1668.38	2638.2	1668.94	2638.2	1669.84	2638.2	1689.31	2638.2
1697.79	2638.2	1715.63	2638.2	1786.16	2638.2	1793.4	2638.2	1794.22	2638.28
1805.58	2639.35	1812.79	2640.04	1814.52	2640.2	1814.88	2640.21	1829.1	2640.7
1872.33	2642.2	1914.59	2641.35	1915.69	2641.35	1917.46	2641.36	1917.8	2641.36
1994.15	2642.2	1994.84	2642.2	1995.62	2642.2	1997.78	2642.2	1999.62	2642.2
2001.85	2642.2	2004.39	2642.2	2007.53	2642.2	2010.25	2642.2	2013.97	2642.2
2016.88	2642.2	2021.17	2642.2	2023.82	2642.2	2028.25	2642.2	2030.5	2642.2
2069.31	2641.51	2072.2	2641.53	2075.18	2641.56	2078.37	2641.6	2081.93	2641.63
2082.77	2641.62	2086.34	2641.67	2089.41	2641.7	2091.1	2641.71	2105.07	2641.38
2130.89	2641.04	2131.14	2641.03	2159.68	2640.61	2168.15	2640.84	2169.31	2640.89
2170.71	2640.94	2172.45	2640.95	2174.18	2640.99	2177.34	2641.04	2180.95	2641.11
2183.04	2641.13	2186.45	2641.19	2189.1	2641.24	2191.17	2641.28	2193.54	2641.28
2195.39	2641.31	2197.25	2641.34	2199.04	2641.37	2200.9	2641.4	2203.55	2641.37

2205.55	2641.4	2207.52	2641.43	2210.47	2641.4	2266.16	2642.2	2266.64	2642.2
2269.67	2642.2	2272.22	2642.2	2275.09	2642.2	2278.38	2642.2	2284.63	2642.2
2285.16	2642.2	2287.67	2642.2	2290.81	2642.17	2295.91	2642.13	2296.09	2642.13
2315.65	2642.2	2324.44	2642.2	2339.09	2642.2	2350.44	2642.2	2350.74	2642.2
2351.1	2642.2	2353.22	2642.2	2376.26	2642.2	2377.65	2642.2	2379.27	2642.2
2405.14	2642.2	2445.62	2642.2	2454.57	2642.2	2462.05	2642.2	2468.03	2642.2
2473.75	2642.2	2479.32	2642.2	2482.25	2642.2	2484.03	2642.2	2487.49	2642.2
2490.97	2642.2	2493.82	2642.2	2498.23	2642.2	2500.44	2642.2	2511.63	2642.2
2512.97	2642.2	2516.27	2642.2	2517.59	2642.2	2520.54	2642.2	2521.81	2642.2
2524.16	2642.2	2525.29	2642.2	2526.78	2642.2	2527.36	2642.2	2528.28	2642.2
2528.42	2642.2	2531.88	2642.2	2542.08	2642.2	2548.55	2642.2	2563.99	2642.2
2581.6	2642.35	2586.62	2642.2	2597.31	2641.76	2606.24	2641.33	2629.29	2640.2
2643.42	2640.2	2647.06	2640.2	2650.33	2640.2	2650.56	2640.2	2650.95	2640.2
2663.63	2640.39	2664.38	2640.39	2671.41	2640.49	2777.29	2642.2	2778.72	2642.2
2781.2	2642.2	2797.55	2642.2	2799.18	2642.2	2800.54	2642.2	2802.27	2642.2
2804.28	2642.2	2806.93	2642.2	2808.69	2642.2	2852.5	2642.2	2853.63	2642.2
2856.06	2642.38	2856.85	2642.41	2865.04	2642.92	2882.23	2643.63	2884.5	2643.62
2889.58	2643.83	2892.08	2643.77	2895.43	2643.82	2898.51	2643.74	2930.08	2643.46

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1554.87	.048	1829.1	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1554.87	1829.1	457.54	426.82	413.12	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1340.43	2644.49	F
2425.99	2930.08	2644.59	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2643.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.93	Wt. n-Val.	0.060	0.048	0.065
W.S. Elev (ft)	2643.02	Reach Len. (ft)	457.54	426.82	413.12
Crit W.S. (ft)	2642.94	Flow Area (sq ft)	164.00	1256.18	750.85
E.G. Slope (ft/ft)	0.009933	Area (sq ft)	807.63	1256.18	1316.53
Q Total (cfs)	13000.00	Flow (cfs)	351.22	10655.48	1993.30
Top Width (ft)	2402.67	Top Width (ft)	1090.17	274.23	1038.28
Vel Total (ft/s)	5.99	Avg. Vel. (ft/s)	2.14	8.48	2.65
Max Chl Dpth (ft)	4.90	Hydr. Depth (ft)	0.81	4.58	1.26
Conv. Total (cfs)	130439.1	Conv. (cfs)	3524.0	106914.7	20000.4
Length Wtd. (ft)	425.21	Wetted Per. (ft)	203.38	275.55	596.96
Min Ch El (ft)	2638.12	Shear (lb/sq ft)	0.50	2.83	0.78
Alpha	1.68	Stream Power (lb/ft s)	1.07	23.98	2.07
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)	134.77	83.10	71.30
C & E Loss (ft)	0.08	Cum SA (acres)	107.63	19.08	51.75

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 13436.95

INPUT
Description:
Station Elevation Data num= 401

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2644.97	34.92	2644.34	41.05	2644.2	43.54	2644.2	47.76	2644.2
51.29	2644.2	52.06	2644.2	55.11	2644.2	56.06	2644.2	100.86	2644.2
104.03	2644.2	116.75	2644.2	117.65	2644.2	119.1	2644.2	122.36	2643.29
126.37	2642.2	128.67	2642.2	131.85	2642.2	132.2	2642.2	132.64	2642.2
133.19	2642.2	134.04	2642.2	136.11	2642.2	141.78	2642.2	150.43	2642.2
150.66	2642.2	161.01	2642.2	163.99	2642.2	165.37	2642.2	168.26	2642.2
211.52	2642.2	215.11	2642.2	218.49	2642.2	221.44	2642.2	223.85	2642.2
224.96	2642.2	226.68	2642.2	227.76	2642.2	233	2642.2	234.53	2642.2
235.2	2642.2	235.73	2642.2	243.7	2642.2	251.53	2642.2	390.87	2640.27
398.07	2640.21	399.44	2640.2	404.17	2640.2	414.07	2640.2	414.94	2640.2
419.53	2640.2	423.79	2640.2	451.72	2640.2	452.7	2640.2	456.66	2640.2
460.75	2640.2	464.47	2640.2	466.07	2640.2	466.26	2640.2	467.92	2640.2
469.02	2640.2	471.06	2640.2	472.83	2640.2	475.66	2640.2	477.78	2640.2
480.91	2640.2	506.88	2640.2	513.37	2640.2	518.1	2640.2	519.22	2640.2
525.88	2640.2	528.06	2640.2	532.52	2640.2	535.41	2640.2	544.45	2640.2
547.34	2640.2	549.03	2640.2	551.84	2640.2	553.45	2640.2	586.19	2640.2
590.12	2640.2	594.06	2640.2	599.76	2640.2	607.7	2640.2	611.45	2640.2
617.18	2640.2	618.27	2639.97	620.4	2639.47	624.13	2638.6	625.86	2638.2
629.34	2638.2	633.28	2638.2	634.56	2638.29	634.82	2638.29	639.74	2638.6
640.58	2638.6	644.63	2638.81	647.75	2638.97	648.92	2638.92	651.66	2639.06
653.74	2639.16	655.5	2639.25	656.91	2639.18	658.7	2639.25	660.38	2639.31

675.79	2638.97	677.88	2638.97	681.2	2639.02	683.5	2639.02	686.64	2639.07
688.92	2639.06	691.81	2639.11	694.37	2639.15	696.68	2639.14	780	2640.2
780.03	2640.2	782.54	2640.2	783.46	2640.2	786.24	2640.2	787.92	2640.2
792.96	2640.2	796.98	2640.2	799.57	2640.2	802.81	2640.2	806.05	2640.2
808.72	2640.2	812.26	2640.2	816.22	2640.2	818.37	2640.2	822.49	2640.2
827.05	2640.2	828.21	2640.2	832.46	2640.2	832.85	2640.2	836.81	2640.2
838.64	2640.2	842.1	2640.2	844.28	2640.2	844.69	2640.2	849.72	2640.2
855.59	2640.2	872.98	2640.2	873.4	2640.2	875.64	2640.2	875.66	2640.2
892.24	2640.2	894.32	2640.2	895.98	2640.2	898.26	2640.2	900.29	2640.2
902.2	2640.2	903.66	2640.2	905.77	2640.2	906.75	2640.2	908.52	2640.2
939.28	2640.2	941.34	2640.2	1018.12	2640.2	1018.96	2640.2	1019.15	2640.2
1020.13	2640.2	1020.83	2640.2	1022.11	2640.2	1050.14	2640.2	1050.48	2640.2
1051.64	2640.2	1056.07	2640.2	1061.13	2640.2	1061.15	2640.2	1062.43	2640.2
1063.02	2640.2	1064.49	2640.2	1065.25	2640.2	1066.47	2640.2	1067.01	2640.2
1067.82	2640.2	1088.14	2640.2	1162.23	2640.2	1163	2640.2	1179.72	2639.2
1181.87	2639.2	1256.69	2639.48	1259.16	2639.49	1261.92	2639.5	1263.93	2639.51
1266.46	2639.53	1268.4	2639.55	1269.73	2639.57	1286.62	2639.74	1302.99	2639.8
1333.09	2639.78	1355.32	2639.8	1356.47	2639.8	1357.6	2639.81	1375.19	2639.8
1375.87	2639.8	1388.59	2639.73	1392.05	2639.73	1393.06	2639.73	1397.17	2639.72
1444.95	2640.2	1456.46	2640.2	1461.31	2640.2	1466.85	2640.2	1470.02	2640.2
1476.32	2640.2	1506.52	2640.2	1507.36	2640.2	1508.04	2640.2	1508.77	2640.2
1509.18	2640.2	1509.64	2640.2	1509.9	2640.2	1510.18	2640.2	1510.48	2640.2
1519.51	2640.2	1526.37	2640.2	1526.39	2640.2	1526.6	2640	1528.34	2638.2
1530.55	2636.54	1530.98	2636.2	1538.64	2635.78	1544.51	2635.46	1546.26	2635.42
1550.53	2635.21	1553.61	2635.06	1555.85	2634.95	1557.61	2634.86	1558.88	2634.79
1559.77	2634.82	1560.68	2634.76	1561.38	2634.71	1610.89	2634.91	1668.36	2635.5
1670.91	2635.55	1674.78	2635.59	1679.71	2635.64	1685.38	2635.7	1685.77	2635.7
1721.67	2636.2	1722.63	2636.2	1723.49	2636.2	1724.43	2636.2	1725.65	2636.2
1727.71	2636.2	1728.38	2636.2	1729.79	2636.2	1731.97	2636.2	1733.16	2636.2
1793.4	2636.2	1798.47	2636.2	1799.11	2636.52	1802.31	2638.2	1802.89	2638.2
1805.27	2638.2	1929.52	2638.2	2019.15	2638.2	2092.16	2638.2	2097.19	2638.2
2105.99	2638.2	2107.98	2638.2	2109.21	2638.2	2113.94	2638.2	2118.15	2638.2
2121.85	2638.2	2188.38	2639.19	2191.05	2639.19	2193.89	2639.2	2196.8	2639.21
2238.36	2639.16	2241.05	2639.16	2243.69	2639.16	2246.77	2639.15	2250.11	2639.13
2256.74	2639.1	2290.51	2639.25	2292.97	2639.29	2295.07	2639.27	2297.52	2639.3
2300.15	2639.34	2303	2639.38	2304.78	2639.37	2307.99	2639.42	2311.5	2639.46
2314.95	2639.5	2316.32	2639.5	2319.26	2639.52	2330.29	2639.56	2331.57	2639.58
2333.75	2639.58	2409.74	2640.2	2412.95	2640.2	2421.63	2640.2	2432.93	2640.2
2439.6	2640.2	2446.05	2640.2	2457.75	2640.2	2461.56	2640.2	2486.17	2638.3
2487.47	2638.2	2487.88	2638.13	2499.74	2636.2	2503.68	2636.2	2505.49	2636.2
2510.59	2636.52	2512.25	2636.57	2518.83	2636.93	2522.46	2637.02	2549.87	2638.2
2553.27	2638.2	2557.06	2638.2	2557.93	2638.2	2561.66	2638.2	2566.11	2638.2
2566.42	2638.2	2569.77	2638.2	2571.97	2638.2	2577.92	2638.2	2582.6	2638.2
2592.88	2638.53	2593.02	2638.53	2598.95	2638.64	2600.41	2638.67	2602.34	2638.71
2605.67	2638.78	2609.67	2638.86	2659.03	2639.37	2660.46	2639.28	2661.43	2639.35
2662.87	2639.29	2664.14	2639.3	2664.51	2639.3	2681.26	2639.2	2684.03	2639.26
2686.01	2639.32	2689.39	2639.38	2701.38	2639.63	2705.08	2639.66	2716.12	2639.8
2720.08	2639.88	2724.64	2639.97	2732.86	2640.2	2733.21	2640.2	2736.68	2640.2
2737.6	2640.2	2738.97	2640.2	2745.56	2640.2	2748.69	2640.2	2753.01	2640.2
2755.62	2640.2	2759.52	2640.2	2761.52	2640.2	2763.08	2640.2	2764.39	2640.2
2768.71	2640.2	2769.86	2640.2	2770.91	2640.2	2775.59	2640.2	2776.65	2640.2
2781.35	2640.2	2785.89	2640.2	2786.99	2640.2	2791.64	2640.2	2796.5	2640.2
2801.52	2640.2	2802.3	2640.2	2807.97	2640.2	2808.45	2640.2	2814.41	2640.2
2814.61	2640.2	2818.95	2640.2	2821.44	2640.2	2821.85	2640.2	2828.1	2640.2
2830.06	2640.2	2833.76	2640.2	2837.53	2640.2	2838.94	2640.2	2841.64	2640.2
2842.58	2640.2	2842.79	2640.2	2844.63	2640.2	2887.04	2640.2	2890.24	2640.2
2890.42	2640.2	2893.12	2640.2	2895.24	2640.2	2895.92	2640.2	2902.54	2640.58
2905.13	2640.63	2935.55	2640.92	2941.74	2641.02	2946.92	2641.1	2953.02	2641.2
2959.52	2641.3	2964.87	2641.39	2991.23	2641.74	2997.16	2641.83	2998	2641.84
3005.78	2642.03								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.054	1526.37	.038	1805.27	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1526.37	1805.27	292.33	318.07	314.58	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1187	2643.1	F
2400	3005.78	2642.86	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2641.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.054	0.038	0.060
W.S. Elev (ft)	2640.52	Reach Len. (ft)	292.33	318.07	314.58
Crit W.S. (ft)	2639.94	Flow Area (sq ft)	244.21	1355.81	1085.21
E.G. Slope (ft/ft)	0.004358	Area (sq ft)	662.23	1355.81	1673.29
Q Total (cfs)	13000.00	Flow (cfs)	356.22	9994.53	2649.25
Top Width (ft)	2528.81	Top Width (ft)	1153.66	278.90	1096.25
Vel Total (ft/s)	4.84	Avg. Vel. (ft/s)	1.46	7.37	2.44
Max Chl Dpth (ft)	5.81	Hydr. Depth (ft)	0.72	4.86	1.82
Conv. Total (cfs)	196924.9	Conv. (cfs)	5396.1	151397.8	40131.0
Length Wtd. (ft)	316.31	Wetted Per. (ft)	339.37	280.95	594.74
Min Ch El (ft)	2634.71	Shear (lb/sq ft)	0.20	1.31	0.50

Alpha	1.84	Stream Power (lb/ft s)	0.29	9.68	1.21
Frctn Loss (ft)	1.99	Cum Volume (acre-ft)	127.05	70.30	57.13
C & E Loss (ft)	0.02	Cum SA (acres)	95.85	16.37	41.63

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: Agua Caliente
REACH: upper RS: 13118.88

INPUT
Description:
Station Elevation Data num= 212

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2645.68	2.42	2645.76	4.37	2645.82	6.44	2645.89	6.58	2645.88
8.51	2645.94	10.06	2645.98	19.05	2645.62	20.24	2645.53	21.82	2645.4
23.79	2645.23	24.29	2645.24	26.93	2644.97	33.73	2644.2	41.05	2644.03
42.76	2643.98	73.58	2643.23	105.56	2642.2	115.6	2642.2	185.74	2640.2
223.46	2640.2	298.23	2639.31	304.11	2639.26	307.59	2639.22	311.52	2639.19
314.13	2639.16	324.06	2639.08	326.95	2639.04	331.56	2639.01	334.31	2638.97
362.27	2638.67	363.12	2638.67	365.88	2638.66	439.88	2638.2	1068.42	2638.2
1085.87	2637.92	1094.96	2637.94	1095.56	2637.94	1096.21	2637.95	1113.61	2638
1114.19	2637.99	1181.28	2638.18	1181.8	2638.17	1181.93	2638.17	1182.02	2638.16
1182.11	2638.16	1192.56	2638.2	1441.5	2638.2	1509.58	2637.79	1513.47	2637.78
1514.31	2637.77	1521.44	2637.65	1552.58	2636.2	1572.75	2636.2	1573.03	2636.16
1573.4	2636.09	1579.76	2635.01	1584.26	2634.2	1587.17	2634.2	1590.44	2634.59
1592.85	2634.92	1603.45	2636.19	1603.53	2636.2	1612.28	2636.2	1614.61	2635.61
1618.29	2634.2	1768.39	2634.2	1780.87	2633.98	1781.64	2633.96	1804.88	2634.2
1855.56	2634.2	1867.72	2635.74	1871.15	2636.2	1886.21	2636.2	1905.73	2636.55
1906.83	2636.56	1907.92	2636.56	1911.36	2636.6	1967.49	2636.82	1968.98	2636.82
1971.72	2636.84	1972.91	2636.84	1974.68	2636.85	1988.68	2636.82	1990.49	2636.83
1992.28	2636.83	1995.1	2636.86	1996.94	2636.86	2000.36	2636.9	2002.46	2636.9
2015.07	2636.94	2025.68	2637.06	2027.35	2637.06	2124	2637.27	2129.61	2637.23
2131.42	2637.22	2146.92	2637.1	2182.75	2637.06	2183.92	2637.05	2185.94	2637.06
2188.77	2637.04	2190.8	2637.05	2193.64	2637.02	2199.81	2637.05	2208.33	2636.96
2211.92	2636.98	2214.81	2636.95	2216.61	2636.96	2218.45	2636.98	2221.32	2636.94
2223	2636.96	2224.58	2636.97	2227.75	2636.94	2229.05	2636.94	2239.15	2636.91
2242.43	2636.91	2272.05	2636.74	2278.19	2636.68	2311.49	2636.26	2311.66	2636.26
2316.32	2636.2	2318.95	2635.81	2320.82	2635.57	2324.83	2635.03	2330.63	2634.29
2330.89	2634.25	2331.29	2634.2	2337.81	2634.2	2342.73	2635.1	2347.01	2635.61
2348.75	2635.87	2352.21	2636.2	2355.24	2636.2	2398.08	2637.02	2414.42	2637.4
2445.99	2638.2	2546.38	2638.2	2575.48	2638.13	2575.61	2638.12	2579.17	2638.14
2579.32	2638.14	2579.47	2638.13	2579.62	2638.13	2579.81	2638.12	2580.04	2638.12
2584.43	2638.1	2584.74	2638.09	2585.11	2638.09	2585.96	2638.06	2586.42	2638.05
2593.51	2637.96	2607.56	2637.73	2609.09	2637.7	2625.43	2637.42	2627.86	2637.39
2635.68	2637.25	2638.93	2637.2	2641.71	2637.18	2647.5	2637.08	2650.15	2637.07
2652.74	2637.03	2657.09	2636.95	2659.24	2636.96	2662.99	2636.9	2710.72	2636.66
2714.1	2636.62	2720.69	2636.57	2721.97	2636.55	2723.13	2636.54	2724.19	2636.52
2725.19	2636.51	2747.67	2636.51	2755.76	2636.6	2757.14	2636.62	2779.61	2637.14
2817.5	2638.2	2985.13	2638.2	3000.65	2638.09	3003.91	2638.15	3004.02	2638.15
3007.51	2638.2	3012.84	2638.2	3025.96	2638.52	3027.7	2638.57	3035.65	2638.72
3038.42	2638.79	3045.39	2638.93	3049.46	2639.03	3060.03	2639.25	3065.23	2639.38
3068.91	2639.45	3094.24	2640.06	3121.89	2640.69	3140.36	2641.06	3144.22	2641.12
3147.77	2641.16	3151.06	2641.24	3154.26	2641.29	3158.12	2641.37	3160.88	2641.42
3171.8	2641.65	3180.91	2641.83	3182.28	2641.86	3198.65	2642.19	3198.89	2642.2
3199.03	2642.2	3208.15	2642.83	3212.66	2643.15	3215.1	2643.38	3217.19	2643.56
3222.64	2644.06	3222.89	2644.09						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1612.28	.042	1871.15	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1612.28	1871.15	117.98	116.6	122.75	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
156.55	1425	2640.51	F
2817.69	3137.79	2639.63	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2639.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.90	Wt. n-Val.	0.060	0.042	0.060
W.S. Elev (ft)	2638.28	Reach Len. (ft)	117.98	116.60	122.75
Crit W.S. (ft)	2638.13	Flow Area (sq ft)	227.59	1039.49	1138.30
E.G. Slope (ft/ft)	0.009836	Area (sq ft)	327.85	1039.49	1155.99
Q Total (cfs)	13000.00	Flow (cfs)	635.82	9203.30	3160.88
Top Width (ft)	2589.87	Top Width (ft)	1185.87	258.87	1145.12
Vel Total (ft/s)	5.40	Avg. Vel. (ft/s)	2.79	8.85	2.78
Max Chl Dpth (ft)	4.32	Hydr. Depth (ft)	1.22	4.02	1.20

Conv. Total (cfs)	131081.4	Conv. (cfs)	6411.1	92798.5	31871.8
Length Wtd. (ft)	118.13	Wetted Per. (ft)	187.61	259.34	946.89
Min Ch El (ft)	2633.96	Shear (lb/sq ft)	0.74	2.46	0.74
Alpha	1.98	Stream Power (lb/ft s)	2.08	21.79	2.05
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	123.73	61.55	46.91
C & E Loss (ft)	0.03	Cum SA (acres)	88.00	14.40	33.53

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: Agua Caliente
REACH: upper RS: 13002.28

INPUT
Description:
Station Elevation Data num= 419

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2643.54	.27	2643.52	4.93	2643.16	17.15	2642.2	39.59	2641.63
50.12	2641.35	64.18	2640.99	86.08	2640.43	88.86	2640.36	90.3	2640.32
91.2	2640.29	95.19	2640.2	95.52	2640.2	98.03	2640.2	99.89	2640.2
101.04	2640.2	159.62	2638.64	164.5	2638.53	178.74	2638.2	180.84	2638.2
181.04	2638.2	183.32	2638.2	187.04	2638.2	189.85	2638.2	191.43	2638.2
194.08	2638.2	208.69	2638.2	209.24	2638.2	221.45	2638.2	222.11	2638.2
224	2638.2	224.63	2638.2	225.24	2638.2	225.84	2638.2	229.46	2638.2
230.3	2638.2	238.18	2638.2	240.53	2638.2	247.48	2638.2	251.56	2638.2
256.46	2638.2	262.07	2638.2	280.42	2638.2	285.02	2638.2	289.49	2638.2
292.96	2638.2	293.14	2638.2	301.51	2638.2	302.56	2638.2	306.08	2638.2
307.48	2638.2	308.69	2638.2	313.08	2638.2	317.1	2638.2	320.51	2638.2
323.24	2638.2	325.44	2638.2	326.54	2638.2	328.29	2638.2	329.48	2638.2
351.05	2638.2	381.55	2638.2	391.2	2638.2	391.67	2638.2	392.56	2638.2
392.7	2638.2	392.83	2638.2	396.5	2638.2	401.62	2638.2	402.52	2638.2
411.53	2638.2	413.36	2638.2	420.62	2638.2	443.11	2638.2	452.69	2638.2
461.42	2638.2	469.67	2638.2	475.8	2638.2	479.94	2638.2	489.07	2638.2
529.98	2638.2	539.76	2638.1	544.54	2638.11	544.73	2638.11	544.98	2638.11
545.24	2638.11	545.51	2638.11	548.74	2638.11	551.51	2638.1	555.74	2638.09
633.13	2637.99	633.39	2637.99	633.83	2637.99	634.38	2637.99	635.01	2637.99
648.08	2637.95	650.85	2637.93	656.94	2637.89	657.94	2637.88	660.86	2637.87
661.78	2637.86	681.32	2637.74	760.6	2637.65	844.18	2637.14	846.18	2637.16
848.6	2637.17	848.61	2637.17	851	2637.18	853.09	2637.18	879.28	2636.72
883.39	2636.61	884.17	2636.62	884.92	2636.62	885.73	2636.62	886.61	2636.63
887.59	2636.63	890.98	2636.51	891.67	2636.52	895.43	2636.38	895.79	2636.39
900.68	2636.2	900.76	2636.2	908.57	2636.2	910.78	2636.2	915.75	2636.2
917.19	2636.2	918.14	2636.2	919.08	2636.2	921.8	2636.2	922.01	2636.2
922.23	2636.2	922.46	2636.2	922.7	2636.2	922.94	2636.2	927.72	2636.2
928.96	2636.2	945.79	2636.2	1059.76	2636.56	1064.38	2636.52	1076.46	2636.56
1097	2636.2	1097.74	2636.2	1099.25	2636.2	1100.29	2636.2	1101.22	2636.2
1102.82	2636.2	1103.94	2636.2	1106	2636.2	1106.62	2636.2	1108.26	2636.2
1108.63	2636.2	1108.96	2636.2	1110.15	2636.2	1110.99	2636.2	1111.44	2636.2
1116.35	2636.2	1119.47	2636.2	1122.19	2636.2	1127.01	2636.2	1132.19	2636.2
1142.51	2636.2	1146.79	2636.2	1156.87	2636.2	1157.49	2636.2	1157.74	2636.2
1159.28	2636.2	1165.16	2636.66	1167.45	2636.76	1182.89	2636.51	1187.87	2636.58
1188.62	2636.58	1193.04	2636.65	1248.05	2637.15	1249.83	2637.14	1270.71	2637.12
1272.36	2637.12	1351.4	2637.18	1365.43	2637.04	1423.86	2636.49	1429.09	2636.41
1434.11	2636.34	1434.39	2636.34	1439.39	2636.28	1439.59	2636.28	1446.34	2636.2
1446.51	2636.2	1447.67	2636.2	1449.17	2636.2	1449.86	2636.2	1450.03	2636.2
1453.45	2636.2	1463.92	2636.2	1467.35	2636.2	1476.1	2636.2	1482.24	2636.2
1490.82	2636.2	1494.1	2636.2	1500.48	2636.2	1500.84	2636.2	1502.17	2636.2
1502.19	2636.2	1502.21	2636.2	1502.7	2636.2	1503.18	2636.2	1515.03	2636.2
1536.79	2636.2	1537.13	2635.96	1539.69	2634.2	1543.93	2634.2	1548.41	2634.2
1549.51	2634.2	1553.36	2634.2	1556.3	2634.2	1557.69	2634.2	1616.65	2633.36
1618.91	2633.33	1647.63	2633.21	1695.61	2632.73	1696.52	2632.73	1742.09	2632.2
1745.29	2632.2	1749.45	2632.2	1749.75	2632.2	1755.15	2632.2	1763.34	2632.2
1768.58	2632.2	1770.64	2632.2	1771.9	2632.2	1785.08	2633.93	1787.07	2634.2
1788.12	2634.54	1793.22	2636.2	1805.92	2636.2	1817.75	2636.2	1829.85	2636.2
1830.75	2636.2	1834.25	2636.2	1842.15	2636.2	1843.49	2636.2	1847.28	2636.2
1848.59	2636.2	1852.53	2636.2	1878.5	2636.2	1881.39	2636.2	1885.54	2636.2
1886.97	2636.2	1888.49	2636.2	1890.36	2636.2	1891.95	2636.2	1892.98	2636.2
1893.76	2636.2	1899.57	2636.2	1901.87	2636.2	1910.58	2636.2	1911.53	2636.2
1974.72	2636.2	1977.84	2636.2	1979.69	2636.2	1982.19	2636.2	2069.35	2636.2
2073.17	2636.2	2078.7	2636.2	2079.56	2636.2	2086.75	2636.2	2088	2636.2
2089.7	2636.03	2091.96	2635.83	2101.78	2634.92	2110.5	2634.2	2114.6	2634.2
2121.4	2634.2	2127.5	2634.2	2128.95	2634.2	2131.32	2634.2	2137.11	2634.86
2142.67	2635.53	2145.5	2635.84	2148.32	2636.2	2162.51	2636.2	2174.72	2636.2
2180.8	2636.2	2184.79	2636.2	2186.18	2636.2	2190.33	2636.2	2193	2636.2
2196.02	2636.2	2199.4	2636.2	2203.58	2636.2	2208.94	2636.2	2216.19	2636.2
2227.21	2636.2	2231.88	2636.2	2233.86	2636.2	2236.36	2636.2	2244.05	2636.2
2244.43	2636.2	2244.81	2636.2	2245.19	2636.2	2245.56	2636.2	2248.75	2636.2
2312.46	2636.2	2328.49	2636.2	2364.16	2636.2	2364.48	2636.2	2365.59	2636.2
2381.42	2636.2	2382.07	2636.2	2384.3	2636.2	2414.81	2636.2	2430.98	2636.2
2436.46	2636.2	2447.11	2636.2	2561.43	2636.2	2562.91	2636.2	2563.96	2636.2
2565.84	2636.2	2566.91	2636.2	2568.17	2636.2	2569.76	2636.2	2585.21	2636.2
2585.28	2636.2	2585.72	2636.2	2593.58	2636.2	2595.3	2636.2	2602.61	2636.2

2606.3	2636.2	2610.87	2636.2	2616.33	2636.2	2618.77	2636.2	2627.47	2636.2
2631.36	2636.2	2635.87	2636.2	2635.92	2636.2	2636.64	2636.2	2642.94	2636.2
2644.49	2636.2	2650.22	2636.2	2654.01	2636.2	2656.95	2636.2	2661.06	2636.2
2673.73	2636.2	2690.15	2636.2	2691.58	2636.2	2704.15	2636.2	2705.31	2636.2
2706.39	2636.2	2708.37	2636.2	2710.22	2636.2	2712.79	2636.2	2715.28	2636.2
2718.11	2636.2	2720.82	2636.2	2724.37	2636.2	2726.34	2636.2	2730.37	2636.2
2731.48	2636.2	2735.84	2636.2	2739.8	2636.2	2740.33	2636.2	2743.9	2636.2
2748.54	2636.2	2752.95	2636.2	2753.36	2636.2	2757.35	2636.2	2757.43	2636.2
2760.72	2636.2	2761.35	2636.2	2764.3	2636.2	2773.13	2636.2	2777.58	2636.2
2778.04	2636.2	2782.19	2636.2	2786.17	2636.2	2819.54	2636.2	2825.9	2636.2
2831.93	2636.2	2834.69	2636.2	2890.86	2636.2	2893.64	2636.2	2907.09	2636.2
2907.9	2636.2	2913.27	2636.2	2925.34	2636.61	2937.24	2637.01	2944.71	2637.2
2952.24	2637.44	2956.92	2637.58	2966.21	2637.83	2973.53	2637.97	2974.5	2637.99
2982.59	2638.13	2982.87	2638.14	2985.29	2638.2	2985.45	2638.2	2986.59	2638.2
2988.6	2638.2	2988.71	2638.2	2991.87	2638.2	2992.18	2638.2	3058.72	2639.76
3076.28	2640.2	3080.15	2640.29	3089.99	2640.52	3091.78	2640.56	3094.23	2640.63
3103.43	2640.85	3107.88	2640.96	3115	2641.14	3121.46	2641.32	3130.43	2641.58
3145.04	2642.02	3146.51	2642.06	3150.92	2642.2	3160.12	2642.58	3178.52	2643.29
3193.6	2643.89	3201.99	2644.2	3203.15	2644.25	3206.32	2644.28		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1536.79	.03	1793.22	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1536.79	1793.22	123.55	108.13	115.62	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1360	2640.2	F
2767.15	3146.21	2640.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2638.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.81	Wt. n-Val.	0.060	0.030	0.060
W.S. Elev (ft)	2637.65	Reach Len. (ft)	123.55	108.13	115.62
Crit W.S. (ft)	2637.52	Flow Area (sq ft)	216.11	1144.11	1497.26
E.G. Slope (ft/ft)	0.003882	Area (sq ft)	765.10	1144.11	1742.06
Q Total (cfs)	13000.00	Flow (cfs)	381.22	9541.92	3076.86
Top Width (ft)	2201.83	Top Width (ft)	778.98	256.43	1166.41
Vel Total (ft/s)	4.55	Avg. Vel. (ft/s)	1.76	8.34	2.05
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)	1.22	4.46	1.54
Conv. Total (cfs)	208654.4	Conv. (cfs)	6118.7	153151.0	49384.7
Length Wtd. (ft)	110.15	Wetted Per. (ft)	176.79	257.51	974.14
Min Ch El (ft)	2632.20	Shear (lb/sq ft)	0.30	1.08	0.37
Alpha	2.52	Stream Power (lb/ft s)	0.52	8.98	0.77
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	122.25	58.63	42.83
C & E Loss (ft)	0.01	Cum SA (acres)	85.34	13.71	30.28

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 12894.15

INPUT
Description:
Station Elevation Data num= 470

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2643.23	17.76	2642.56	18.5	2642.54	31.81	2642.4	42.41	2642.2
43.31	2642.2	44.06	2642.2	45.05	2642.2	46.47	2642.2	53.75	2642.2
56.1	2642.2	62.04	2642.2	65.01	2642.2	68.89	2642.2	74.84	2642.2
76.46	2642.2	79.83	2642.2	82.68	2641.55	86.18	2641.02	88.36	2640.59
91.81	2640.2	93.2	2640.2	93.5	2640.2	130.7	2638.33	134.93	2638.2
137.28	2638.2	137.67	2638.2	141.13	2638.2	146.25	2638.2	151.25	2638.2
152.59	2638.2	156.89	2638.2	158.19	2638.2	161.87	2638.2	164.87	2638.2
167.43	2638.2	169.54	2638.2	170.86	2638.2	172.84	2638.2	174.44	2638.2
219.81	2638.2	224.15	2638.2	227.91	2638.2	277.83	2638.2	279.62	2638.2
281.05	2638.2	282.87	2638.2	284.67	2638.2	286.52	2638.2	288.66	2638.2
315.61	2638.2	318.66	2638.2	320.53	2638.2	323.82	2638.2	326.8	2638.2
329.55	2638.2	332.13	2638.2	334.34	2638.2	337.47	2638.2	359.9	2638.2
361.44	2638.2	365.2	2638.2	366.8	2638.2	370.54	2638.2	372.06	2638.2
375.26	2638.2	376.6	2638.2	377.62	2638.2	379.91	2638.2	420.18	2638.2
528.99	2637.07	531.17	2637.07	533.47	2637.07	536.46	2637.07	539.71	2637.07
542.92	2637.07	582.79	2637.03	617.68	2636.89	619.25	2636.89	647.45	2636.84
649.19	2636.84	652.12	2636.84	655.77	2636.84	660	2636.84	749	2636.51
768.31	2636.37	779.62	2636.29	791.36	2636.2	792.16	2636.2	792.68	2636.2
793.93	2636.2	795.79	2636.2	797.12	2636.2	808.15	2636.2	834.48	2636.2
837.74	2636.2	851.34	2636.2	857.01	2636.2	863.77	2636.2	865.01	2636.2
865.14	2636.2	865.27	2636.2	867.03	2636.2	877.69	2636.2	883.44	2636.2
892.82	2636.2	905.19	2636.2	905.24	2636.2	905.26	2636.2	905.31	2636.2
905.36	2636.2	911.39	2636.2	913.82	2636.2	917.24	2636.2	920.72	2636.2

922.5	2636.2	926.03	2636.2	943.28	2636.2	948.54	2636.2	954	2636.2
954.41	2636.2	960.04	2636.2	965.4	2636.2	984.2	2636.2	989.19	2636.2
994.02	2636.2	994.3	2636.2	998.15	2636.2	1031.18	2636.2	1031.77	2636.2
1032.4	2636.2	1032.99	2636.2	1033.54	2636.2	1034.04	2636.2	1036.97	2636.2
1037.4	2636.2	1053.03	2636.2	1066.62	2636.2	1070.02	2636.2	1074.62	2636.2
1088.64	2636.2	1091.55	2636.2	1102.75	2636.2	1107.78	2636.2	1110.78	2636.2
1117.36	2636.2	1121.6	2636.2	1123.41	2636.2	1142.48	2636.2	1161.68	2636.2
1164.57	2636.2	1168.79	2636.2	1177.57	2636.2	1182.68	2636.2	1186	2636.2
1188.77	2636.2	1195.4	2636.2	1203.7	2636.2	1216.31	2636.2	1222.28	2636.2
1225.32	2636.2	1225.7	2636.2	1227.42	2636.2	1228.66	2636.2	1230.65	2636.2
1231.99	2636.2	1233.8	2636.2	1234.64	2636.2	1236.05	2636.2	1236.85	2636.2
1242.66	2636.2	1243.92	2636.2	1257.01	2636.2	1262.56	2636.2	1267.96	2636.2
1274.94	2636.2	1338.43	2636.2	1339.73	2636.2	1341.12	2636.2	1343.32	2636.2
1346.86	2636.2	1347.24	2636.2	1358.18	2636.2	1358.4	2636.2	1361.15	2636.2
1363.74	2636.2	1365.97	2636.2	1367.72	2636.2	1430.93	2636.2	1433.93	2636.2
1438.91	2636.2	1443.77	2636.2	1448.64	2636.2	1452.84	2636.2	1459.27	2636.2
1462.71	2636.2	1469.06	2636.2	1471.8	2636.2	1474.09	2636.2	1480.33	2636.2
1482	2636.2	1496.06	2636.2	1502.38	2635.72	1504.33	2635.81	1505.06	2635.75
1506.07	2635.67	1508.38	2635.76	1509.48	2635.66	1511.99	2635.73	1513.26	2635.58
1515.61	2635.28	1517.68	2635.27	1522.94	2634.46	1523.59	2634.4	1524.64	2634.2
1526.62	2634.16	1538.01	2633.92	1539.59	2633.9	1549.44	2633.7	1637.35	2632.2
1639.38	2632.2	1641.38	2632.2	1643.52	2632.2	1645.94	2632.2	1648.79	2632.2
1650.21	2632.2	1653.28	2632.2	1657.03	2632.2	1661.45	2632.2	1663.05	2632.2
1669.19	2632.2	1676.19	2632.2	1679	2632.2	1683.06	2632.2	1689.05	2632.2
1691.25	2632.2	1698.73	2632.2	1705.29	2632.2	1708.29	2632.2	1713.63	2632.2
1716.65	2632.2	1721.19	2632.2	1724.09	2632.2	1727.61	2632.2	1731	2632.2
1732.49	2632.2	1733.22	2632.2	1740.6	2632.2	1742.82	2632.2	1747.06	2632.2
1752.55	2632.2	1761.37	2632.2	1762.4	2632.2	1764.01	2632.2	1770.23	2632.2
1771.47	2632.2	1772.3	2632.2	1775.33	2632.2	1777.05	2632.2	1783.72	2632.2
1794.57	2632.2	1797.67	2633.83	1798.39	2634.2	1798.64	2634.33	1802.23	2636.19
1802.25	2636.2	1809.14	2636.2	1822.78	2636.2	1825.79	2636.2	1826.24	2636.2
1831.74	2636.2	1832.97	2636.2	1834.37	2636.2	1835.95	2636.2	1840.44	2636.2
1846.14	2636.2	1850.41	2636.2	1855.5	2636.2	1884.94	2636.2	1887.05	2636.2
1888.83	2636.2	1904	2635.86	1908.37	2635.91	1908.88	2635.91	1913.42	2635.93
1918.04	2635.94	1922.88	2635.95	1928.27	2635.97	1928.73	2635.97	1934.51	2636
1943.23	2635.95	1943.94	2635.93	1948.64	2635.94	1949.37	2635.93	1950.22	2635.9
1951.22	2635.88	1955.12	2635.86	1956.23	2635.83	1957.62	2635.79	1959.31	2635.74
1971.44	2635.53	1973.91	2635.46	1977.03	2635.38	1979.55	2635.33	1983.34	2635.23
1986.94	2635.13	1991.54	2635.01	1997.62	2634.85	2000.55	2634.77	2007.78	2634.58
2009.54	2634.53	2017.84	2634.33	2018.41	2634.31	2018.81	2634.3	2022.9	2634.2
2025.03	2633.94	2027.77	2633.59	2043.26	2634.2	2053.51	2634.2	2063.61	2635.08
2068.1	2635.49	2070.23	2635.53	2071.8	2635.68	2073.01	2635.61	2075.82	2635.91
2095.35	2636.2	2102.01	2636.2	2185.66	2636.2	2188.02	2636.2	2253.32	2636.2
2253.54	2636.2	2255.67	2636.2	2257.42	2636.2	2257.72	2636.2	2260.23	2636.2
2263.26	2636.2	2263.3	2636.2	2270.37	2636.2	2274.35	2636.2	2276.98	2636.2
2279.33	2636.2	2281.32	2636.2	2283.64	2636.2	2285.94	2636.2	2288.55	2636.2
2290.67	2636.2	2296.5	2636.2	2300.08	2636.2	2302.17	2636.2	2306.38	2636.2
2307.36	2636.2	2309.18	2636.2	2309.97	2636.2	2310.92	2636.2	2315.24	2636.2
2317.5	2636.2	2328.14	2636.2	2390.11	2636.2	2398.43	2636.2	2400.2	2636.2
2400.61	2636.2	2401.03	2636.2	2404.96	2636.2	2406.06	2636.2	2407.28	2636.2
2408.64	2636.2	2413.25	2636.2	2416.87	2636.2	2419.24	2636.2	2422.55	2636.2
2472.68	2636.2	2473.67	2636.2	2478.04	2636.2	2478.28	2636.2	2479.4	2636.2
2481.65	2636.2	2481.92	2636.2	2484.36	2636.2	2484.9	2636.2	2595.29	2636.2
2599.47	2636.2	2605.16	2636.2	2608.85	2636.2	2616.86	2636.2	2626.17	2636.2
2628.53	2636.2	2646.37	2636.2	2650.05	2636.2	2650.51	2636.2	2653.95	2636.2
2654.26	2636.2	2658.32	2636.2	2658.82	2636.2	2660.56	2636.2	2661.04	2636.2
2661.82	2636.2	2664.41	2636.2	2667.12	2636.2	2667.93	2636.2	2670.46	2636.2
2671.79	2636.2	2673.87	2636.2	2676.55	2636.2	2680.68	2636.2	2682.97	2636.2
2689.88	2636.2	2691.29	2636.2	2698.53	2636.2	2699.07	2636.2	2703.02	2636.2
2703.34	2636.2	2707.81	2636.2	2713.55	2636.2	2713.83	2636.2	2765.73	2636.2
2780.78	2636.2	2784.02	2636.2	2785.46	2636.2	2787.61	2636.2	2791.43	2636.2
2793.77	2636.2	2795.96	2636.2	2799.56	2636.2	2801.6	2636.2	2804.1	2636.2
2806	2636.2	2865.15	2636.2	2865.85	2636.2	2876.18	2636.2	2882.62	2636.2
2883.61	2636.2	2889.87	2636.2	2890.14	2636.2	2890.44	2636.2	2890.68	2636.2
2892.79	2636.2	2893.41	2636.2	2894.32	2636.2	2895.34	2636.2	2896.3	2636.2
2910.74	2636.2	2920.05	2636.2	2976.94	2635.86	2980.18	2635.87	2980.86	2635.87
3018.21	2636.18	3019.59	2636.2	3025.67	2636.35	3026.38	2636.37	3034.35	2636.57
3036.13	2636.63	3038.84	2636.72	3046.14	2636.92	3051.22	2637.1	3056.93	2637.26
3061.09	2637.39	3067.05	2637.59	3069.72	2637.67	3074.18	2637.78	3075.89	2637.84
3077.2	2637.89	3086.1	2638.2	3087.15	2638.2	3088.65	2638.2	3090.75	2638.2
3092.86	2638.2	3097.03	2638.2	3099.15	2638.2	3104.57	2638.2	3111.59	2638.73

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1496.06	.045	1802.23	.052

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1496.06	1802.23	101.11	103.8	86.65	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
4.14	1240	2638.65	F
2719.34	3172.01	2638.02	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft) 2637.81 Element Left OB Channel Right OB

Vel Head (ft)	0.88	Wt. n-Val.	0.060	0.045	0.052
W.S. Elev (ft)	2636.93	Reach Len. (ft)	101.11	103.80	86.65
Crit W.S. (ft)	2636.13	Flow Area (sq ft)	187.48	1230.60	859.20
E.G. Slope (ft/ft)	0.010039	Area (sq ft)	566.56	1230.60	1106.75
Q Total (cfs)	13000.00	Flow (cfs)	377.92	10267.04	2355.05
Top Width (ft)	2439.32	Top Width (ft)	888.90	306.17	1244.25
Vel Total (ft/s)	5.71	Avg. Vel. (ft/s)	2.02	8.34	2.74
Max Chl Dpth (ft)	4.73	Hydr. Depth (ft)	0.73	4.02	0.94
Conv. Total (cfs)	129745.4	Conv. (cfs)	3771.8	102469.3	23504.3
Length Wtd. (ft)	100.29	Wetted Per. (ft)	256.06	307.31	917.27
Min Ch El (ft)	2632.20	Shear (lb/sq ft)	0.46	2.51	0.59
Alpha	1.73	Stream Power (lb/ft s)	0.93	20.94	1.61
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	120.36	55.69	39.05
C & E Loss (ft)	0.07	Cum SA (acres)	82.97	13.02	27.08

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 12790.35

INPUT
Description:
Station Elevation Data num= 406

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2646.77	2.57	2646.45	3.28	2646.39	6.3	2646.2	7.56	2646.2
7.82	2646.2	11.82	2646.2	15.06	2646.2	15.53	2646.2	18.66	2646.2
22.56	2646.2	23.55	2646.2	27.2	2646.2	40	2645.2	44.99	2644.2
47.71	2644.2	50.25	2644.2	52.18	2644.2	53.62	2644.2	54.76	2644.2
80.27	2643.47	81.82	2643.44	84.01	2643.41	147.13	2642.2	156.35	2642.2
181.14	2641.02	186.05	2640.89	192.3	2640.73	205.22	2640.2	207.32	2640.2
208.5	2640.2	213.89	2640.01	216.35	2639.91	230.89	2639.36	242.85	2638.9
261.5	2638.2	265.75	2638.2	270.35	2638.2	275.22	2638.2	283.78	2638.2
286.81	2638.2	290.96	2638.2	298.48	2638.2	299.02	2638.2	300.45	2638.2
318.25	2638.2	327	2638.2	339.88	2638.2	346.02	2638.2	349.73	2638.2
352.23	2638.2	353.93	2638.2	361.7	2638.2	362.06	2638.2	364.91	2638.2
365.37	2638.2	373.42	2638.2	375.04	2638.2	379.7	2638.2	383.61	2638.2
386.03	2638.2	389.02	2638.2	392.46	2638.2	396.27	2638.2	399.12	2638.2
403.7	2638.2	405.72	2638.2	411.05	2638.2	415.35	2638.2	416.24	2638.2
419.57	2638.2	419.96	2638.2	421.17	2638.2	424.66	2638.2	425.03	2638.2
429.7	2638.2	430.87	2638.2	440.29	2638.2	445.54	2638.2	450.69	2638.2
459.99	2638.2	462.32	2638.2	474.15	2638.2	474.78	2638.2	475.62	2638.2
478.82	2638.2	479.44	2638.2	479.71	2638.2	520.87	2637.54	522.74	2637.52
528.49	2637.43	617.36	2636.49	618.08	2636.49	621.56	2636.49	626.08	2636.49
631.01	2636.49	635.87	2636.49	696.66	2636.42	748.23	2636.2	748.36	2636.2
749.75	2636.2	750.6	2636.2	752.17	2636.2	755.07	2636.2	756.33	2636.2
760.56	2636.2	761.34	2636.2	766.4	2636.2	771.09	2636.2	778.8	2636.2
781.26	2636.2	783.16	2636.2	784.15	2636.2	785.71	2636.2	830.24	2636.2
831.73	2636.2	835.83	2636.2	839.32	2636.2	841.46	2636.2	844.97	2636.2
847.14	2636.2	847.23	2636.2	859.95	2636.07	871.88	2635.92	954.1	2635.58
1049.21	2636.2	1049.57	2636.2	1055.23	2636.2	1056.14	2636.2	1056.85	2636.2
1071.92	2636.2	1073.54	2636.2	1077.3	2636.2	1077.87	2636.2	1080.4	2636.2
1082.23	2636.2	1082.27	2636.2	1086.09	2636.2	1091.5	2636.2	1092.09	2636.2
1098.7	2636.2	1099.59	2636.2	1103.45	2636.2	1104.02	2636.2	1188.38	2635.59
1238.19	2635.82	1244.8	2635.87	1249.4	2635.91	1277.45	2636.2	1278.17	2636.2
1279.03	2636.2	1280.42	2636.2	1280.48	2636.2	1281.12	2636.2	1281.73	2636.2
1283.09	2636.2	1287.73	2636.2	1291.03	2636.2	1292.79	2636.2	1300.06	2636.2
1302.72	2636.2	1319.95	2636.2	1330.12	2636.2	1336.38	2636.2	1344.99	2636.2
1348.73	2636.2	1351.5	2636.2	1353.64	2636.2	1355.32	2636.2	1362.09	2636.2
1363.07	2636.2	1363.83	2636.2	1364.42	2636.2	1364.86	2636.2	1367.98	2636.2
1368.31	2636.2	1371.99	2636.13	1376.86	2636.13	1377.12	2636.13	1377.4	2636.13
1377.65	2636.13	1377.86	2636.13	1381.3	2636.09	1454.08	2635.53	1573.28	2634.69
1581.53	2634.61	1610.31	2634.63	1612.5	2634.52	1614.89	2634.4	1617.7	2634.26
1618.95	2634.2	1623.93	2632.37	1624.42	2632.2	1625.88	2632.2	1645.99	2632.2
1653.65	2632.2	1656.47	2632.2	1662.66	2632.2	1667.88	2632.2	1671.09	2632.2
1674.59	2632.2	1677.56	2632.2	1700.27	2632.2	1703.76	2632.2	1704.61	2632.2
1705.93	2632.2	1709.79	2632.2	1711.28	2632.2	1714.18	2632.2	1716.6	2632.2
1720.27	2632.2	1720.52	2632.2	1747.93	2632.2	1763.92	2632.2	1764.39	2632.2
1768.33	2632.2	1788.57	2632.2	1826.91	2632.2	1830.49	2632.2	1834.38	2632.2
1834.7	2632.2	1838.62	2632.2	1838.72	2632.2	1841.76	2632.2	1843.22	2632.2
1845.43	2632.2	1845.46	2632.2	1846.26	2632.2	1853.13	2632.2	1853.42	2632.2
1860.17	2632.2	1860.64	2632.2	1866.55	2632.2	1871.16	2632.2	1874.36	2632.2
1913.82	2632.2	1917.57	2632.2	1920.61	2632.2	1925.75	2633.67	1927.65	2634.2
1929.14	2634.81	1942.05	2635.27	1945.34	2635.05	1946.26	2634.98	1951.64	2634.75
1953.36	2634.62	1954.7	2634.51	1960.38	2634.41	1961.1	2634.37	1966.5	2634.34
1966.94	2634.32	1977.5	2634.2	1979.23	2634.2	1980.33	2634.2	1988.92	2634.2
1995.26	2634.2	2037.46	2634.2	2042.07	2634.2	2055.71	2634.2	2058.63	2634.2
2059.4	2634.01	2061.48	2633.54	2065.67	2632.58	2067.43	2632.2	2072.36	2632.2
2074.95	2632.2	2078.68	2632.93	2084.81	2634.06	2085.25	2634.15	2085.55	2634.2
2092.23	2634.2	2098.14	2634.2	2103.18	2634.2	2104.33	2634.2	2108.77	2634.2

2112.58	2634.2	2115.96	2634.2	2119.25	2634.2	2122.54	2634.2	2123.69	2634.2
2126.82	2634.2	2129.63	2634.2	2132.08	2634.2	2134	2634.2	2135.27	2634.2
2135.99	2634.2	2245.13	2635.28	2313.86	2635.64	2314.85	2635.64	2331.04	2635.55
2332.22	2635.54	2332.92	2635.55	2334.16	2635.55	2336.68	2635.55	2380.07	2635.08
2382.84	2635.07	2386.94	2634.97	2389.45	2634.95	2391.81	2634.94	2395.84	2634.84
2397.78	2634.82	2400.8	2634.75	2402.55	2634.72	2404.15	2634.69	2405.46	2634.66
2405.76	2634.66	2406.78	2634.66	2407.94	2634.63	2409.02	2634.6	2426.46	2634.46
2427.1	2634.47	2427.89	2634.47	2428.78	2634.48	2431.55	2634.51	2434.58	2634.54
2435.7	2634.55	2439.57	2634.59	2440.79	2634.6	2444.22	2634.64	2445.48	2634.64
2448.18	2634.69	2449.42	2634.68	2450.62	2634.68	2451.67	2634.68	2452.66	2634.67
2454.86	2634.72	2455.9	2634.71	2521.97	2635.5	2525.35	2635.49	2612.6	2635.45
2616.89	2635.44	2620.66	2635.43	2622.42	2635.42	2733.11	2635.38	2734.69	2635.38
2777	2635.15	2778.83	2635.13	2779.6	2635.13	2781.74	2635.12	2824.87	2635.35
2862.23	2635.54	2863.52	2635.53	2865.44	2635.55	2867.05	2635.55	2868.85	2635.55
2871.75	2635.57	2873.54	2635.57	2875.33	2635.57	2878.84	2635.59	2880.59	2635.6
2913.1	2635.22	2915.34	2635.24	2917.7	2635.27	2919.68	2635.21	2921.86	2635.25
2923.91	2635.28	2925.87	2635.21	2928.29	2635.13	2929.9	2635.15	2932.76	2635.06
2936.18	2634.97	2937.52	2634.95	2941.73	2634.86	2946.57	2634.77	2951.97	2634.7
2973.23	2634.2	2975.32	2634.2	2976.13	2634.2	2976.45	2634.2	2981.78	2634.2
3008.16	2634.2	3009.28	2634.2	3014.07	2634.2	3015.43	2634.2	3031.56	2634.2
3032.97	2634.2	3035.05	2634.2	3036.59	2634.2	3038.28	2634.2	3040.22	2634.2
3042.49	2634.2	3045.45	2634.2	3047.25	2634.2	3051.1	2634.2	3057.37	2634.2
3058.65	2634.2	3059.99	2634.2	3067.32	2634.2	3067.36	2634.2	3068.4	2634.22
3080.66	2634.48	3082.56	2634.53	3092.68	2634.74	3096.4	2634.84	3101.75	2634.98
3110.06	2635.17	3118.17	2635.39	3130.83	2635.73	3134.64	2635.83	3147.58	2636.2
3153.75	2636.46	3163.04	2636.86	3181.77	2637.68	3194.28	2638.2	3198.19	2638.3
3201.67	2638.39								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1610.31	.035	1929.14	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1610.31	1929.14	67.27	71.86	81.94	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1257	2639	F
2784	3201.67	2638.12	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2637.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	2636.43	Reach Len. (ft)	67.27	71.86	81.94
Crit W.S. (ft)	2636.12	Flow Area (sq ft)	302.03	1314.65	1285.27
E.G. Slope (ft/ft)	0.004595	Area (sq ft)	553.02	1314.65	1831.17
Q Total (cfs)	13000.00	Flow (cfs)	456.69	9712.76	2830.56
Top Width (ft)	2468.11	Top Width (ft)	925.30	318.83	1223.98
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)	1.51	7.39	2.20
Max Chl Dpth (ft)	4.23	Hydr. Depth (ft)	0.85	4.12	1.50
Conv. Total (cfs)	191785.3	Conv. (cfs)	6737.3	143289.5	41758.4
Length Wtd. (ft)	74.03	Wetted Per. (ft)	353.32	319.59	855.33
Min Ch El (ft)	2632.20	Shear (lb/sq ft)	0.25	1.18	0.43
Alpha	2.09	Stream Power (lb/ft s)	0.37	8.72	0.95
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	119.06	52.65	36.12
C & E Loss (ft)	0.03	Cum SA (acres)	80.87	12.27	24.62

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 12718.49

INPUT
Description:
Station Elevation Data num= 400

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2644.63	5.81	2644.2	9.17	2644.2	11.7	2644.2	16.6	2644.2
19.21	2644.2	21.06	2644.2	25.4	2644.2	26.55	2644.2	29.21	2644.2
29.9	2644.2	39.98	2643.71	41.38	2643.64	43.7	2643.52	47.29	2643.36
66.44	2642.2	66.53	2642.2	66.65	2642.2	77.74	2641.72	114.2	2640.2
114.32	2640.2	114.43	2640.2	115.58	2640.2	119.98	2640.2	124.36	2640.2
124.63	2640.2	128.55	2640.2	131.93	2640.2	134.65	2640.2	176.01	2639.4
177.34	2639.39	219.34	2638.2	222.2	2638.2	225.39	2638.2	226.71	2638.2
232.54	2638.2	235.51	2638.2	237.75	2638.2	257.83	2638.2	259.64	2638.2
263.73	2638.2	271.59	2638.2	272.33	2638.2	278.25	2638.2	300.4	2638.2
386.72	2638.2	389.55	2638.2	390.38	2638.2	393.93	2638.2	447.76	2637.23
491.14	2637.05	494.7	2637	495.46	2637	500.01	2636.95	505.5	2636.9
510.84	2636.85	557.84	2636.2	559.33	2636.2	561.22	2636.2	562.1	2636.2
564.02	2636.2	566.12	2636.2	568.63	2636.2	572.29	2636.2	572.31	2636.2
572.55	2636.2	572.83	2636.2	572.93	2636.2	578.04	2636.2	601.37	2636.2
603.53	2636.2	625.48	2636.2	627.38	2636.2	629.4	2636.67	633.12	2637.73
634.49	2638.08	635.09	2638.2	638.68	2638.2	642.06	2638.2	642.44	2638.2
642.62	2638.2	646.05	2636.99	648.35	2636.2	649.91	2636.2	722.91	2635.45
725.16	2635.41	727.54	2635.39	729.48	2635.37	732.33	2635.33	764.15	2635.1

766.5	2635.1	768.16	2635.1	768.19	2635.1	770.73	2635.09	773.33	2635.08
775.9	2635.07	778.48	2635.06	780.06	2635.06	781.78	2635.07	783.61	2635.07
785.84	2635.09	825.11	2635.14	826.89	2635.13	846.65	2634.89	880.01	2634.78
927.06	2635.13	929.82	2635.16	957.56	2635.18	966.13	2635.19	968.43	2635.17
970.81	2635.15	973.32	2635.14	975.87	2635.12	978.39	2635.1	980.79	2635.07
983.29	2635.04	998.27	2634.77	1000.09	2634.72	1001.14	2634.74	1002.59	2634.74
1006.62	2634.76	1008.34	2634.76	1009.03	2634.76	1010.76	2634.8	1011.36	2634.79
1028.9	2635.07	1052.55	2635.21	1054.52	2635.22	1106.08	2634.87	1133.72	2635.01
1135.71	2635.03	1158.1	2635.24	1161.27	2635.26	1165.31	2635.3	1169.86	2635.35
1205.11	2635.78	1207.05	2635.79	1215.6	2635.9	1219.3	2635.93	1220.21	2635.94
1228.36	2635.96	1228.95	2635.96	1234.19	2636.04	1234.58	2636.04	1234.95	2636.04
1240.46	2636.11	1245.74	2636.09	1248.65	2636.1	1251.49	2636.05	1251.53	2636.05
1253.91	2635.95	1296.33	2635.09	1369.72	2635.2	1373.67	2635.17	1377.95	2635.15
1381.87	2635.13	1385.12	2635.12	1386.78	2635.11	1421.69	2634.83	1510.81	2634.2
1513.99	2634.2	1517.61	2634.2	1519.56	2634.2	1523.47	2634.2	1527.9	2634.2
1533.12	2634.2	1534.78	2634.2	1540.56	2634.2	1542.04	2634.2	1548.39	2634.2
1563.46	2634.2	1566.24	2634.2	1573.47	2634.2	1573.48	2634.19	1574.11	2633.8
1576.63	2632.2	1577.09	2632.2	1577.35	2632.2	1594.57	2632.2	1599.1	2632.2
1606.62	2632.2	1607.73	2632.2	1611.05	2632.2	1615.9	2632.2	1621.49	2632.2
1623.82	2632.2	1626.07	2632.2	1628.14	2632.2	1628.37	2632.2	1630.02	2632.2
1630.28	2632.2	1680.86	2632.2	1682.03	2632.2	1686.18	2632.2	1690.13	2632.2
1702.9	2632.2	1705.78	2632.2	1707.75	2632.2	1727.23	2632.2	1730.31	2632.2
1731.95	2632.2	1735.14	2632.2	1737.16	2632.2	1740.42	2632.2	1834.68	2632.2
1837.75	2632.2	1853.61	2632.2	1855.69	2632.2	1857.53	2632.2	1861.38	2632.2
1865.79	2632.2	1866.88	2632.2	1871.58	2632.2	1876.85	2632.2	1882.73	2632.2
1883.29	2632.35	1890.92	2634.2	1890.94	2634.2	1904.92	2634.2	1911.61	2634.2
1911.82	2634.2	1912.93	2634.2	1913.14	2634.2	1949.47	2632.5	1951.8	2632.2
1954.31	2632.2	1958.06	2632.2	1963.31	2632.2	1966.81	2632.2	1971.24	2633.04
1978.06	2634.2	1978.09	2634.2	1982.33	2634.2	1983.01	2634.2	1986.07	2634.2
1987.13	2634.2	1988.06	2634.2	1990.66	2634.2	1991.93	2634.2	1993.17	2634.2
1994.42	2634.2	2040.66	2634.2	2043.39	2634.2	2046.75	2634.2	2049.34	2634.2
2051.83	2634.2	2055.78	2634.2	2066.27	2634.2	2067.9	2634.2	2071.48	2634.2
2075.4	2634.2	2079.16	2634.2	2080.15	2634.2	2083.72	2634.2	2092.26	2634.2
2093.79	2634.2	2094.85	2634.2	2096.64	2634.2	2098.2	2634.2	2100.4	2634.2
2102.96	2634.2	2105.83	2634.2	2107.08	2634.2	2107.9	2634.2	2109.31	2634.2
2109.86	2634.2	2189.34	2634.2	2193.03	2634.2	2193.11	2634.2	2195.17	2634.2
2199.78	2634.2	2201.36	2634.2	2208.46	2634.2	2209.23	2634.2	2209.87	2634.2
2210.55	2634.2	2244.23	2634.2	2246.11	2634.2	2251.07	2634.2	2253.67	2634.2
2288.51	2634.2	2288.71	2634.2	2299.59	2634.2	2300.28	2634.2	2309.06	2634.2
2347.39	2634.2	2350.25	2634.2	2353.25	2634.2	2356.29	2634.2	2358.91	2634.2
2359.43	2634.2	2361.45	2634.2	2362.3	2634.2	2363.77	2634.2	2364.85	2634.2
2365.73	2634.2	2367.15	2634.2	2382.56	2634.2	2384.03	2634.2	2386.14	2634.2
2387.67	2634.2	2390.71	2634.2	2392.42	2634.2	2393.82	2634.2	2399.64	2634.2
2442.81	2634.71	2444.13	2634.71	2630.97	2634.59	2632.33	2634.59	2633.53	2634.59
2637.28	2634.57	2670.92	2634.55	2674.11	2634.54	2735.62	2634.2	2736.36	2634.2
2737.2	2634.2	2739.68	2634.2	2740.45	2634.2	2741.28	2634.2	2741.84	2634.2
2744.94	2634.2	2745.46	2634.2	2746.01	2634.2	2750.14	2634.2	2750.17	2634.2
2750.38	2634.2	2755.87	2634.2	2757.16	2634.2	2761.51	2634.2	2763.82	2634.2
2766.27	2634.2	2770.08	2634.2	2772.91	2634.2	2775.73	2634.2	2778.76	2634.2
2781.48	2634.2	2783.56	2634.2	2786.05	2634.2	2836.45	2634.2	2837.29	2634.2
2838.21	2634.2	2839.15	2634.2	2844.79	2634.2	2850.41	2634.2	2851.45	2634.2
2857.24	2634.2	2862.66	2634.2	2867.65	2634.2	2868.88	2634.2	2873.59	2634.2
2877.56	2634.2	2879.09	2634.2	2971.78	2634.2	2971.85	2634.2	2972.21	2634.2
2972.29	2634.2	2972.39	2634.2	2973.77	2634.2	2974.15	2634.2	2974.43	2634.2
2975.77	2634.2	2976.4	2634.2	2976.95	2634.2	3026.89	2635.76	3029.61	2635.83
3040.35	2636.01	3041.52	2636.04	3042.37	2636.06	3045.39	2636.13	3045.65	2636.13
3049.48	2636.2	3052.87	2636.2	3052.88	2636.2	3053.49	2636.2	3056.53	2636.2
3058.77	2636.27	3064.5	2636.32	3064.87	2636.33	3065.3	2636.34	3071.06	2636.41
3071.75	2636.43	3077.45	2636.53	3078.52	2636.56	3079.84	2636.6	3085.33	2636.75
3087.38	2636.81	3089.97	2636.89	3094.7	2637.06	3098.32	2637.17	3114.48	2638.2
3117.23	2638.2	3120.38	2638.2	3121.72	2638.2	3124.81	2638.2	3128.37	2638.2
3130.86	2638.2	3135.01	2638.2	3135.58	2638.2	3136.32	2638.2	3145.96	2638.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1573.48	.032	1890.94	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1573.48	1890.94	168.43	172.08	144.45	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1190	2637.21	F
2674.49	3145.96	2637.07	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2636.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.060	0.032	0.065
W.S. Elev (ft)	2636.20	Reach Len. (ft)	168.43	172.08	144.45
Crit W.S. (ft)	2635.73	Flow Area (sq ft)	460.35	1257.71	1530.00
E.G. Slope (ft/ft)	0.003708	Area (sq ft)	1014.12	1257.71	2189.60
Q Total (cfs)	13000.00	Flow (cfs)	784.13	8889.13	3326.74
Top Width (ft)	2399.24	Top Width (ft)	923.36	317.46	1158.42
Vel Total (ft/s)	4.00	Avg. Vel. (ft/s)	1.70	7.07	2.17
Max Chl Dpth (ft)	4.00	Hydr. Depth (ft)	1.20	3.96	1.95
Conv. Total (cfs)	213481.6	Conv. (cfs)	12876.8	145974.3	54630.5

Length Wtd. (ft)	165.62	Wetted Per. (ft)	383.50	318.28	783.79
Min Ch El (ft)	2632.20	Shear (lb/sq ft)	0.28	0.91	0.45
Alpha	2.22	Stream Power (lb/ft s)	0.47	6.47	0.98
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	117.85	50.53	32.34
C & E Loss (ft)	0.02	Cum SA (acres)	79.44	11.75	22.38

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 12546.41

INPUT
Description:
Station Elevation Data num= 465

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2644.56	5.4	2644.2	10.66	2644.2	13.75	2644.2	43.59	2644.2
59.06	2644.2	64.72	2644.2	67.12	2644.2	74.32	2643.72	79.25	2643.45
99.43	2642.2	100.12	2642.2	101.81	2642.2	102.16	2642.2	102.56	2642.2
105.47	2642.04	106.54	2642	108.46	2641.9	139.48	2640.2	139.67	2640.2
146.82	2639.9	157.09	2639.51	177.02	2638.7	191.64	2638.2	193.09	2638.2
193.35	2638.2	196.36	2638.2	196.97	2638.2	199.7	2638.2	200.49	2638.2
202.87	2638.2	212.29	2638.2	216.52	2638.2	220.31	2638.2	223.58	2638.2
224.55	2638.2	227.55	2638.2	230.24	2638.2	232.51	2638.2	234.32	2638.2
235.33	2638.2	235.94	2638.2	413.49	2638.2	421.17	2638.2	459.97	2638.2
460.38	2638.2	463.4	2638.2	463.85	2638.2	484.96	2637.84	485.75	2637.81
487.73	2637.82	488.77	2637.8	490.06	2637.78	493.41	2637.75	494.94	2637.73
496.7	2637.71	500.31	2637.66	533.07	2637.04	541.5	2636.87	566.97	2636.53
567.66	2636.54	568.36	2636.54	569.03	2636.55	573	2636.46	573.43	2636.46
578.5	2636.4	584.22	2636.37	589.79	2636.35	590.02	2636.34	595.63	2636.32
601.48	2636.28	607.78	2636.23	607.85	2636.23	611.89	2636.2	616.28	2636.2
618.01	2636.2	625.88	2636.2	629.04	2636.2	630.61	2636.2	641.91	2636.2
647.37	2636.2	661.69	2636.2	677.69	2636.2	697.13	2636.2	701.94	2636.2
705.65	2636.2	712.13	2636.2	713.03	2636.2	713.39	2636.2	718.52	2636.2
721.93	2636.2	723.23	2636.2	729.53	2636.2	731.32	2636.2	731.81	2636.2
732.51	2636.2	738.08	2636.2	742.5	2636.18	743.71	2636.14	743.97	2636.13
752.31	2635.97	759.77	2635.81	762.23	2635.75	765.37	2635.7	766.65	2635.66
770.84	2635.56	772.63	2635.53	776.02	2635.43	778.17	2635.41	814.6	2634.2
815.52	2634.2	818.62	2634.2	820.76	2634.2	824.6	2634.2	824.7	2634.2
824.72	2634.2	828.67	2634.2	829.28	2634.2	831.85	2634.2	832.55	2634.2
832.98	2634.2	833.99	2634.2	873.58	2634.2	930.93	2634.2	932.16	2634.2
933.34	2634.2	934.49	2634.2	935.58	2634.2	936.63	2634.2	937.62	2634.2
939.45	2634.2	940.39	2634.2	942.83	2634.2	974.07	2634.2	977.27	2634.2
978.24	2634.2	982.21	2634.2	982.71	2634.2	985.06	2634.2	985.95	2634.2
1004.56	2634.2	1014.35	2634.2	1021.48	2634.2	1021.87	2634.2	1023.02	2634.2
1026.45	2634.2	1027.03	2634.2	1027.97	2634.2	1028.43	2634.2	1060.85	2634.2
1078.73	2634.2	1090.16	2634.2	1111.94	2634.2	1113.16	2634.2	1118.75	2634.2
1124.09	2634.2	1129.21	2634.2	1131.04	2634.2	1135.81	2634.2	1137.95	2634.2
1142.44	2634.2	1163.06	2634.2	1165.39	2634.2	1168.37	2634.2	1175.03	2634.2
1177.57	2634.2	1179.97	2634.2	1182.53	2634.2	1188.04	2634.2	1190.75	2634.2
1193.18	2634.2	1199.72	2634.2	1201.57	2634.2	1202.6	2634.2	1203.97	2634.2
1205.16	2634.2	1207.07	2634.2	1209.79	2634.2	1213.08	2634.2	1214.16	2634.2
1217.73	2634.2	1218.93	2634.2	1221.51	2634.2	1267.2	2634.2	1270.1	2634.2
1271.57	2634.2	1273.49	2634.2	1276.92	2634.2	1279.25	2634.2	1282.44	2634.2
1285.46	2634.2	1289.79	2634.2	1296.89	2634.2	1298.14	2634.2	1303.34	2634.2
1321.7	2634.2	1332.4	2634.2	1341.29	2634.2	1341.52	2634.2	1343.92	2634.2
1345.62	2634.2	1347.67	2634.2	1349.93	2634.2	1353.01	2634.2	1355.72	2634.2
1374.11	2634.2	1377.02	2634.2	1377.56	2634.2	1377.6	2634.2	1383.46	2634.2
1387.81	2634.2	1388.5	2634.2	1391.97	2634.2	1392.97	2634.2	1397.64	2634.2
1399.1	2634.2	1400.69	2634.2	1402.48	2634.2	1406.63	2634.2	1407.02	2634.2
1411.05	2634.2	1416.83	2634.2	1419.26	2634.2	1423.56	2634.2	1427.16	2634.2
1482.29	2634.2	1482.84	2634.2	1485.25	2634.2	1486.31	2634.2	1488.53	2634.2
1493.06	2634.2	1494.4	2634.2	1497.91	2634.2	1498.33	2634.2	1501.8	2634.2
1546.6	2634.2	1548.01	2634.2	1558.33	2634.2	1558.95	2634.2	1572.04	2634.2
1572.84	2634.2	1584.9	2634.2	1586.86	2634.2	1600.76	2634.2	1612.49	2634.2
1618.96	2634.2	1626.48	2634.2	1627.3	2634.2	1642.17	2634.2	1643.19	2634.2
1644.03	2634.2	1645.01	2634.2	1645.77	2634.2	1646.37	2634.2	1646.77	2634.2
1649.09	2634.2	1653.67	2634.2	1655.57	2632.89	1656.59	2632.2	1657.38	2632.15
1665.96	2631.77	1699.29	2630.2	1707.26	2630.2	1719.93	2630.2	1737.49	2630.2
1750.41	2630.2	1754.56	2630.2	1765.78	2630.2	1768.31	2630.2	1769.23	2630.2
1770.87	2630.2	1771.39	2630.2	1771.48	2630.2	1776.5	2630.2	1779.24	2630.2
1793.33	2630.2	1797.67	2630.2	1804.06	2630.2	1817.21	2630.2	1827.25	2630.27
1834.47	2630.29	1834.65	2630.3	1837.64	2630.31	1842.73	2630.34	1848.2	2630.46
1855.84	2630.53	1871.59	2631.03	1879.23	2631.31	1885.68	2631.43	1890.51	2631.53
1898.14	2631.87	1900	2631.93	1901.27	2631.97	1906.24	2632.15	1906.44	2632.16
1906.57	2632.17	1907.88	2632.2	1910.31	2632.2	1910.62	2632.2	1910.84	2632.2
1915.5	2632.2	1916.82	2632.2	1918.62	2632.2	1920.4	2632.2	1920.59	2632.2
1922.76	2632.37	1930.23	2632.74	1934.26	2633.08	1939.27	2633.38	1941.5	2633.49
1947.83	2634.2	1949.4	2634.2	1963.55	2634.2	1966.17	2634.2	1966.47	2634.2
1967.36	2634.2	1989.91	2634.2	1995.94	2634.2	2000.37	2634.2	2002.5	2634.2
2005.76	2634.2	2009.79	2634.2	2082.89	2634.2	2084.1	2634.2	2092.62	2634.2
2113.33	2634.2	2118.44	2634.2	2136.56	2634.2	2139.64	2634.2	2144.73	2634.2
2152.16	2634.2	2161.09	2634.2	2169.6	2634.2	2175.3	2634.2	2186.41	2634.2
2194.22	2634.2	2206.16	2634.2	2209.28	2634.2	2229.1	2634.2	2242.25	2634.2
2324.58	2634.2	2327.06	2634.2	2327.79	2634.2	2331.15	2634.2	2331.97	2634.2

2336.18	2634.2	2336.97	2634.2	2341.72	2634.2	2342.58	2634.2	2346.95	2634.2
2350.16	2634.2	2350.8	2634.2	2377.15	2634.2	2379.38	2634.2	2402.94	2634.2
2405.87	2634.2	2409.49	2634.2	2414.37	2634.2	2421.5	2634.2	2423.8	2634.2
2434.22	2634.2	2444.67	2634.2	2446.88	2634.2	2455.43	2634.2	2461.82	2634.2
2464.38	2634.2	2466.92	2634.2	2470.4	2634.2	2474.92	2634.2	2479.72	2634.2
2485.51	2634.2	2488.51	2634.2	2494.32	2634.2	2498.83	2634.2	2500.77	2634.2
2565.67	2634.2	2566.98	2634.2	2603.07	2634.2	2604.06	2634.2	2607.37	2634.2
2612	2634.2	2613.42	2634.2	2618.56	2634.2	2623.54	2634.2	2625.5	2634.2
2629.94	2634.2	2633.8	2634.2	2637.11	2634.2	2640.18	2634.2	2641.97	2634.2
2644.47	2634.2	2646.73	2634.2	2648.51	2634.2	2650.08	2634.2	2651.92	2634.2
2652.74	2634.2	2654.43	2634.2	2654.6	2634.2	2654.77	2634.2	2657.18	2634.2
2657.37	2634.2	2737.98	2633.85	2803.85	2634.2	2809.23	2634.2	2813.18	2634.2
2817.62	2634.2	2823.17	2634.2	2827.87	2634.2	2833.43	2634.2	2838.59	2634.2
2893.97	2634.2	2897.73	2634.2	2901.79	2634.2	2905.92	2634.2	2907.75	2634.2
2909.59	2634.2	2913.77	2634.2	2915.52	2634.2	2917.17	2634.2	2918.7	2634.2
2922.99	2634.2	2924.32	2634.2	2925.44	2634.2	2930.4	2634.2	2955.76	2634.2
2958.12	2634.2	2970.53	2634.2	2971.44	2634.2	2976.34	2634.54	2978.04	2634.63
2984.1	2635.01	2987.84	2635.16	2991.98	2635.39	2994.65	2635.53	2999.97	2635.72
3001.55	2635.8	3007.77	2636.01	3012.83	2636.2	3015.27	2636.29	3015.61	2636.3
3016.03	2636.32	3022.96	2636.61	3024.77	2636.69	3027.46	2636.81	3033.58	2637.09
3038.38	2637.32	3047.05	2637.76	3049.49	2637.88	3055.98	2638.2	3058.5	2638.31
3063.79	2638.51	3064.44	2638.52	3069.33	2638.67	3073.59	2638.78	3074.63	2638.78
3075.7	2638.79	3079.85	2638.88	3083.58	2638.96	3086.79	2639.03	3087.72	2639.03
3090.68	2639.09	3093.33	2639.14	3095.73	2639.19	3098.01	2639.23	3115.03	2638.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1653.67	.04	1947.83	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1653.67	1947.83	235.02	180.47	159.46	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1085	2639.31	F
2737.67	3115.03	2636.51	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2636.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.	0.060	0.040	0.055
W.S. Elev (ft)	2635.61	Reach Len. (ft)	235.02	180.47	159.46
Crit W.S. (ft)	2635.22	Flow Area (sq ft)	801.22	1370.75	1126.82
E.G. Slope (ft/ft)	0.004009	Area (sq ft)	1212.49	1370.75	1484.24
Q Total (cfs)	13000.00	Flow (cfs)	1578.88	8978.49	2442.63
Top Width (ft)	2228.07	Top Width (ft)	884.88	294.16	1049.03
Vel Total (ft/s)	3.94	Avg. Vel. (ft/s)	1.97	6.55	2.17
Max Chl Dpth (ft)	5.41	Hydr. Depth (ft)	1.41	4.66	1.43
Conv. Total (cfs)	205328.8	Conv. (cfs)	24937.7	141810.9	38580.2
Length Wtd. (ft)	186.17	Wetted Per. (ft)	568.67	294.94	789.84
Min Ch El (ft)	2630.20	Shear (lb/sq ft)	0.35	1.16	0.36
Alpha	2.00	Stream Power (lb/ft s)	0.69	7.62	0.77
Frctn Loss (ft)	1.04	Cum Volume (acre-ft)	113.54	45.34	26.25
C & E Loss (ft)	0.01	Cum SA (acres)	75.94	10.54	18.72

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 12365.94

INPUT
Description:
Station Elevation Data num= 380

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2644.57	9.01	2644.2	9.91	2644.2	17.16	2644.2	39.02	2643.33
42.95	2643.03	45.12	2642.98	53.19	2642.33	53.57	2642.31	54.85	2642.2
55.59	2642.15	60.88	2641.8	64.74	2641.57	76.36	2641.11	78.54	2641.13
98.27	2640.2	113.97	2640.2	116.68	2640.2	119.53	2640.2	122.63	2640.2
124.01	2640.2	124.39	2640.2	124.95	2640.2	125.36	2640.2	150.39	2639.24
164.05	2638.66	175.3	2638.2	175.61	2638.2	176.83	2638.2	177.77	2638.2
179.25	2638.2	180.33	2638.2	181.92	2638.2	183.08	2638.2	245.93	2636.72
266.45	2636.26	266.93	2636.25	269.37	2636.2	277.73	2636.2	283.72	2636.2
288.02	2636.2	290.9	2636.2	308.01	2636.2	308.25	2636.2	308.65	2636.2
309.25	2636.2	309.41	2636.2	311.38	2636.2	313.34	2636.2	315.02	2636.2
350.88	2636.2	354.56	2636.2	363.91	2636.2	372.75	2636.2	373.67	2636.2
380.68	2636.2	380.76	2636.2	383.55	2636.2	383.69	2636.2	383.9	2636.2
387.08	2636.2	387.35	2636.2	390.83	2636.2	391.13	2636.2	391.41	2636.2
395.02	2636.2	395.41	2636.2	398.95	2636.2	401.22	2636.2	406.49	2636.2
412.29	2636.2	417.16	2636.2	430.21	2636.2	436.3	2636.2	436.64	2636.2
438.44	2636.2	442.28	2636.2	447.34	2636.2	451.18	2636.2	452.28	2636.2

455.06	2636.2	456.2	2636.2	457.23	2636.2	458.55	2636.2	459.66	2636.2
460.92	2636.2	462.53	2636.2	464.64	2636.2	466.99	2636.2	469	2636.2
509.18	2635.92	512.75	2635.91	519.73	2635.89	520.79	2635.88	521.92	2635.87
531.85	2635.79	533.51	2635.77	549.16	2635.59	582.86	2635.46	629.55	2635.22
630.53	2635.23	632.42	2635.18	634.61	2635.14	636.03	2635.13	638.15	2635.12
640.16	2635.09	686.79	2634.53	688.23	2634.5	694.32	2634.4	695.24	2634.38
703.01	2634.26	707.21	2634.2	709.8	2634.2	710.23	2634.2	714.74	2634.2
728.11	2634.2	729.8	2634.2	731.44	2634.2	746.71	2633.59	754.36	2633.35
756.47	2633.28	759.2	2633.18	762.75	2633.05	767.5	2632.87	769.66	2632.8
775.26	2632.6	776.91	2632.53	783.68	2632.33	784.25	2632.31	788.44	2632.2
790.92	2632.2	791.88	2632.2	795.2	2632.2	799.36	2632.2	801.93	2632.2
805.36	2632.2	810.2	2632.2	819.2	2632.2	823.39	2632.2	824.86	2632.2
828.74	2632.2	832.05	2632.2	834.18	2632.2	837.12	2632.2	863.33	2632.2
866.42	2632.2	903.41	2632.82	904.34	2632.82	904.55	2632.82	964.93	2632.73
975.21	2632.76	976.33	2632.75	978.78	2632.74	1031.96	2632.2	1045.39	2632.2
1059.93	2632.2	1060.23	2632.2	1060.9	2632.2	1061.85	2632.2	1066.89	2632.2
1072.63	2632.2	1073.81	2632.2	1076.59	2632.2	1085.08	2632.2	1085.58	2632.2
1089.16	2632.2	1092.38	2632.2	1092.67	2632.2	1095.64	2632.2	1163.03	2633.09
1173.97	2633.21	1182.21	2633.31	1186.88	2633.37	1187.12	2633.38	1233.01	2634.2
1237.91	2634.2	1246.61	2634.2	1247.75	2634.2	1248.29	2634.2	1249.61	2634.2
1250.1	2634.2	1278.17	2634.2	1291.94	2634.2	1308.23	2634.2	1310.9	2634.2
1311.99	2634.2	1318.03	2634.2	1318.91	2634.2	1322.93	2634.2	1324.18	2634.2
1327.22	2634.2	1333.63	2634.2	1336.5	2634.2	1339.75	2634.2	1342.16	2634.2
1343.92	2634.2	1345.24	2634.2	1346.29	2634.2	1346.96	2634.2	1348.56	2634.2
1351.2	2634.2	1370.89	2634.05	1371.33	2634.05	1382.33	2634	1383.01	2633.99
1519.23	2633.48	1522.56	2633.48	1523.41	2633.48	1527.25	2633.48	1530.96	2633.47
1613.64	2632.85	1615.82	2632.84	1619.63	2632.8	1621.28	2632.78	1654.23	2632.36
1668.15	2632.2	1669.58	2632.2	1671.35	2632.2	1673.13	2632.2	1675.13	2632.2
1677.38	2632.2	1679.77	2632.2	1682.41	2632.2	1685.22	2632.2	1688.41	2632.2
1692.07	2632.2	1696.13	2632.2	1700.74	2632.2	1706.16	2632.2	1712.93	2632.2
1717.07	2632.2	1718.11	2630.91	1718.75	2630.2	1724.28	2630.2	1729.85	2630.2
1734.1	2630.2	1735.4	2630.2	1739.03	2630.2	1742.37	2630.2	1745.49	2630.2
1748.44	2630.2	1751.1	2630.2	1753.37	2630.2	1808.45	2630.2	1810.78	2630.2
1813.51	2630.2	1816.72	2630.2	1820.15	2630.2	1823.89	2630.2	1828.23	2630.2
1833.13	2630.2	1839.03	2630.2	1846.38	2630.2	1849.04	2630.2	1857.6	2630.2
1868.1	2630.2	1880.62	2630.2	1882.37	2630.2	1883.07	2630.2	1887.76	2630.2
1889.68	2630.2	1890	2630.2	1901.16	2630.2	1905.77	2630.2	1910.93	2630.2
1912.65	2630.2	1915.14	2630.2	1918.08	2630.2	1934.52	2630.97	1937.09	2631.31
1943.09	2632.16	1943.36	2632.2	1944.77	2632.2	1958.66	2632.2	1976.06	2632.2
1985.9	2632.2	1986.1	2632.2	2022.04	2632.99	2024.07	2633	2027.88	2633.07
2042.66	2633.14	2086.34	2633.16	2089.86	2633.12	2092.27	2633.11	2122.01	2633.54
2123.04	2633.5	2123.7	2633.49	2124.71	2633.5	2126	2633.46	2127.47	2633.39
2178.13	2633.52	2184.63	2633.46	2190.84	2633.39	2196.28	2633.33	2199.83	2633.29
2204.8	2633.24	2209.07	2633.19	2212.92	2633.14	2216.76	2633.12	2220.47	2633.08
2223.7	2633.04	2226.68	2633	2243.14	2632.83	2307.89	2633.16	2309.71	2633.16
2310.67	2633.18	2334.01	2633.11	2335.54	2633.1	2337.1	2633.12	2338.04	2633.11
2402.17	2633.84	2411.82	2634.04	2419.81	2634.2	2428.07	2634.2	2433.03	2634.2
2441.79	2634.2	2452.9	2634.2	2464.66	2634.2	2467.48	2634.16	2473.53	2634.05
2473.92	2634.04	2527.86	2633.47	2531	2633.47	2545.2	2633.5	2548.56	2633.51
2550.19	2633.51	2552.89	2633.51	2554.58	2633.52	2556.14	2633.54	2557.86	2633.52
2559.32	2633.54	2595.04	2633.29	2597.54	2633.31	2599.84	2633.33	2602.9	2633.32
2605.13	2633.35	2607.83	2633.34	2609.93	2633.36	2611.99	2633.38	2617.99	2633.43
2620.42	2633.42	2622.32	2633.41	2684.47	2633.56	2686.12	2633.55	2689.03	2633.54
2690.45	2633.54	2693.61	2633.52	2749.01	2633.32	2893.59	2634.2	2894.69	2634.2
2902.15	2634.2	2910.43	2634.2	2911.02	2634.2	2919.45	2634.2	2919.74	2634.2
2927.57	2634.2	2929.21	2634.29	2930.68	2634.39	2944.26	2635.23	2959.22	2636.2
2960.89	2636.27	2975.74	2636.81	2983.98	2637.1	2989.99	2637.36	2999.48	2637.79
3002.06	2637.89	3008.09	2638.2	3009.6	2638.2	3033.33	2639.26	3038.54	2639.46
3041.35	2639.52	3047.57	2639.78	3049.05	2639.82	3055.41	2640.08	3055.8	2640.1
3058.46	2640.2	3061.71	2640.2	3066.5	2640.2	3072.46	2640.2	3075.15	2640.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1717.07	.045	1943.36	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1717.07	1943.36	157.05	153.82	143.53	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	933	2639.53	F
2733.45	3075.15	2636.09	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2635.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.	0.050	0.045	0.050
W.S. Elev (ft)	2634.45	Reach Len. (ft)	157.05	153.82	143.53
Crit W.S. (ft)	2634.16	Flow Area (sq ft)	981.81	942.43	890.71
E.G. Slope (ft/ft)	0.008279	Area (sq ft)	1360.86	942.43	1017.36
Q Total (cfs)	13000.00	Flow (cfs)	3084.13	7307.10	2608.76
Top Width (ft)	2240.66	Top Width (ft)	1026.02	226.29	988.35
Vel Total (ft/s)	4.62	Avg. Vel. (ft/s)	3.14	7.75	2.93
Max Chl Dpth (ft)	4.25	Hydr. Depth (ft)	1.25	4.16	1.13
Conv. Total (cfs)	142878.4	Conv. (cfs)	33896.6	80309.8	28672.0
Length Wtd. (ft)	152.46	Wetted Per. (ft)	784.10	227.33	790.13
Min Ch El (ft)	2630.20	Shear (lb/sq ft)	0.65	2.14	0.58

Alpha	1.77	Stream Power (lb/ft s)	2.03	16.61	1.71
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	106.60	40.55	21.67
C & E Loss (ft)	0.01	Cum SA (acres)	70.79	9.46	14.99

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 12212.12

INPUT
Description:
Station Elevation Data num= 487

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2645.39	24.59	2644.63	38.85	2644.2	40.07	2644.2	40.66	2644.2
41.18	2644.2	43.91	2644.2	45.08	2644.2	47.21	2644.2	48.66	2644.2
49.8	2644.2	51.73	2644.2	73.17	2643.63	103.94	2642.52	104.89	2642.49
105.42	2642.48	110.81	2642.2	112.29	2641.93	112.9	2641.86	113.96	2641.72
116.37	2641.43	126.55	2640.2	126.6	2640.2	131.38	2640.2	132.04	2640.2
135.93	2640.2	138.82	2640.2	141.13	2640.2	142.39	2640.2	144.53	2640.2
178.91	2639.22	213.39	2638.2	214.64	2638.2	216.59	2638.2	219.2	2638.2
219.81	2638.2	222.41	2638.2	223.31	2638.17	223.44	2638.17	223.61	2638.17
234.1	2637.86	236.21	2637.82	295.74	2636.2	296.44	2636.2	297.19	2636.2
298.06	2636.2	299.04	2636.2	299.55	2636.2	300.12	2636.2	310.14	2635.75
331.06	2634.94	333.93	2634.85	339	2634.76	341.21	2634.7	342.88	2634.64
347.33	2634.59	348.68	2634.55	349.8	2634.52	350.82	2634.5	351.65	2634.48
352.38	2634.46	355.47	2634.47	356.17	2634.45	356.78	2634.44	357.34	2634.43
385.66	2634.2	389.52	2634.2	394.39	2634.2	397.99	2634.2	400.83	2634.2
408.17	2634.2	409.3	2634.2	414.58	2634.2	416.12	2634.2	422.04	2634.2
425.39	2634.2	426.83	2634.2	428.77	2634.2	432.06	2634.2	434.09	2634.2
436.64	2634.2	438.31	2634.2	439.46	2634.2	441.42	2634.2	441.58	2634.2
447.28	2634.2	448.91	2634.2	451.36	2634.2	455.4	2634.2	463.27	2634.2
487.26	2634.2	567.4	2634.2	573.97	2634.2	582.36	2634.2	590.26	2634.2
592.51	2634.2	593.83	2634.2	596.63	2634.2	603.74	2634.2	608.16	2634.2
622.85	2634.2	623.19	2634.2	626.66	2634.15	656.6	2633.77	676.25	2633.52
746.49	2632.68	748.53	2632.67	780.29	2632.2	781.28	2632.2	782.22	2632.2
783.65	2632.2	785.67	2632.2	786.89	2632.2	789.06	2632.2	791.85	2632.2
795.45	2632.2	795.72	2632.2	796.91	2632.2	800.25	2632.2	800.61	2632.2
800.92	2632.2	808.2	2632.2	818.98	2632.2	823	2632.2	857.29	2632.2
859.87	2632.2	865.67	2632.2	867.39	2632.2	873.88	2632.2	881.38	2632.2
882.15	2632.2	890.66	2632.2	897.52	2632.2	899.57	2632.2	906.35	2632.2
913.38	2632.2	917.26	2632.2	924.53	2632.2	934.81	2632.2	939.93	2632.2
943.58	2632.2	945.86	2632.2	948.43	2632.2	959.83	2632.2	962.36	2632.2
967.64	2632.2	969.64	2632.2	970.55	2632.2	972.3	2632.2	972.48	2632.2
973.77	2632.2	974	2632.2	997.94	2632.2	1000.11	2632.2	1001.91	2632.2
1003.55	2632.2	1005.11	2632.2	1006.74	2632.2	1008.68	2632.2	1010.42	2632.2
1010.53	2632.2	1021.05	2632.2	1024.74	2632.2	1028.53	2632.2	1030.3	2632.2
1059.75	2632.2	1061	2632.2	1063.73	2632.2	1065.44	2632.2	1067.18	2632.2
1072.4	2632.2	1079.88	2632.2	1085.53	2632.2	1092.32	2632.2	1093.05	2632.2
1093.57	2632.2	1095.73	2632.2	1096.75	2632.2	1132.65	2632.2	1139.65	2632.2
1146.14	2632.2	1155.89	2632.2	1168.71	2632.2	1174.05	2632.2	1174.1	2632.2
1174.4	2632.2	1174.63	2632.2	1175.86	2632.2	1176.64	2632.2	1178.83	2632.2
1180.83	2632.2	1183.57	2632.2	1184.83	2632.2	1185.86	2632.2	1186.8	2632.2
1189.22	2632.2	1190.33	2632.2	1191.41	2632.2	1192.49	2632.2	1193.56	2632.2
1194.55	2632.2	1195.6	2632.2	1196.86	2632.2	1198.87	2632.2	1200.39	2632.2
1201.65	2632.2	1202.25	2632.2	1210.12	2632.2	1304.2	2633.5	1316.87	2633.27
1318.03	2633.2	1319.72	2633.14	1320.67	2633.19	1322.67	2633.15	1324.25	2633.19
1326.22	2633.19	1327.88	2633.19	1329.8	2633.23	1330.93	2633.19	1332.52	2633.26
1343.85	2633.53	1344.61	2633.49	1359.38	2633	1361.17	2632.94	1362.41	2632.96
1414.46	2633.12	1434.54	2633.06	1436.25	2633.04	1454.52	2632.95	1459.44	2632.93
1498.01	2632.64	1502.62	2632.63	1594.11	2632.2	1597.43	2632.2	1597.86	2632.2
1602.68	2632.2	1602.77	2632.2	1602.9	2632.2	1604.39	2632.2	1612.32	2632.2
1612.98	2632.2	1634.56	2632.2	1651.77	2632.2	1666.04	2632.2	1673.37	2632.2
1698.2	2632.2	1706.48	2632.2	1706.53	2632.2	1706.61	2632.2	1706.74	2632.2
1711.69	2632.2	1713.26	2632.2	1720.09	2632.2	1722.17	2632.2	1724.88	2632.2
1724.96	2632.2	1727.06	2632.2	1727.13	2632.2	1733.12	2632.2	1744.57	2632.2
1744.66	2632.2	1744.74	2632.2	1759.17	2632.2	1759.43	2632.2	1762.5	2632.2
1763.33	2632.2	1764.1	2632.2	1765.97	2632.2	1783.73	2632.2	1790.41	2632.2
1790.93	2632.2	1792.44	2631.51	1794.97	2630.2	1800.16	2629.81	1802	2629.72
1809.76	2629.21	1813.58	2628.96	1815.75	2628.81	1818.84	2628.77	1820.27	2628.68
1840.14	2628.2	1844.06	2628.2	1846.97	2628.2	1854.34	2628.2	1861.27	2628.2
1866.32	2628.2	1868.31	2628.2	1872.35	2628.2	1882.68	2628.2	1894.69	2628.2
1899.95	2628.2	1900.23	2628.2	1901.7	2628.2	1907.65	2628.2	1914.36	2628.2
1916.01	2628.2	1917.62	2628.2	1924.89	2628.2	1926.7	2628.2	1928.32	2628.2
1931.61	2628.2	1935.46	2628.2	1936.08	2628.2	1939.34	2628.2	1941.81	2628.2
1943.28	2628.2	1944.32	2628.2	2039.1	2629.98	2048.71	2630.2	2049.81	2630.2
2060.2	2630.2	2068.93	2630.2	2072.22	2630.2	2073.66	2630.2	2079.12	2630.2
2082.53	2630.2	2084.16	2630.2	2089.69	2630.2	2096.62	2630.2	2096.84	2630.23
2097.26	2630.29	2106.31	2631.58	2110.27	2632.2	2112.06	2632.71	2113.21	2632.97
2118.42	2634.13	2118.62	2634.18	2118.74	2634.2	2126.78	2634.2	2128.85	2634.2
2130.63	2633.58	2134.62	2632.2	2139.3	2632.2	2140.56	2632.2	2147.55	2632.2
2151.12	2632.2	2163.12	2632.2	2164.45	2632.2	2165.54	2632.2	2166.51	2632.2

2188.81	2632.2	2193.96	2632.2	2194.3	2632.2	2199.96	2632.2	2200.07	2632.2
2202.15	2632.2	2204.78	2632.2	2210.61	2632.2	2221.23	2632.2	2228.92	2632.2
2231.45	2632.2	2237.35	2632.2	2241.99	2632.2	2245.63	2632.2	2248.36	2632.2
2250.88	2632.2	2252.75	2632.2	2254.87	2632.2	2257.97	2632.2	2258.93	2632.2
2260.53	2632.2	2261.75	2632.2	2262.1	2632.2	2264.11	2632.2	2267.6	2632.2
2269.17	2632.2	2271.2	2632.2	2273.52	2632.2	2276.04	2632.2	2309.67	2632.2
2313.3	2632.2	2314.19	2632.2	2318.28	2632.2	2319.73	2632.2	2324	2632.2
2325.82	2632.2	2330.03	2632.2	2332.06	2632.2	2336.04	2632.2	2337.73	2632.2
2341.33	2632.2	2344.15	2632.2	2346.17	2632.2	2347.2	2632.2	2348.37	2632.2
2356.18	2632.2	2413.51	2632.2	2419.89	2632.2	2422.07	2632.2	2428.86	2632.2
2431.12	2632.2	2438.01	2632.2	2461.66	2632.06	2461.76	2632.06	2467.02	2632.08
2472.17	2632.11	2476.98	2632.13	2481.46	2632.14	2487.27	2632.2	2487.44	2632.2
2492.1	2632.2	2497.67	2632.2	2498.13	2632.2	2504.11	2632.2	2510.08	2632.2
2511.08	2632.2	2517.04	2632.2	2522.73	2632.2	2524.28	2632.2	2529.51	2632.2
2534.25	2632.2	2538.73	2632.2	2543.07	2632.2	2545.03	2632.2	2549.17	2632.2
2576.38	2632.2	2579.01	2632.2	2579.8	2632.2	2580.7	2632.2	2581.69	2632.2
2583.57	2632.2	2584.63	2632.2	2585.8	2632.2	2587.08	2632.2	2588.43	2632.2
2590.71	2632.2	2592.2	2632.2	2593.77	2632.2	2596.99	2632.2	2598.1	2632.2
2630.07	2632.2	2633.38	2632.2	2637.51	2632.2	2642.75	2632.2	2649.46	2632.2
2655.8	2632.2	2656.53	2632.2	2656.6	2632.2	2657.29	2632.21	2657.3	2632.21
2812.62	2632.61	2816.63	2632.6	2817.47	2632.6	2820.86	2632.59	2821.77	2632.59
2837.8	2632.53	2897.13	2632.9	2899.63	2632.91	2901.96	2632.94	2951.58	2634.2
2954.07	2634.2	2967.06	2634.2	2969.38	2634.2	2971.35	2634.2	2981.9	2634.2
2983.79	2634.2	2984.75	2634.2	2986.85	2634.2	2987.98	2634.2	2989.65	2634.2
2991.78	2634.2	2993.64	2634.2	2995.52	2634.2	2997.23	2634.2	2999.5	2634.2
2999.82	2634.2	3000.1	2634.2	3002.23	2634.41	3003.54	2634.51	3007.41	2634.86
3015.28	2635.61	3022.43	2636.2	3026.19	2636.43	3027.57	2636.5	3035.95	2636.98
3040.82	2637.26	3046.09	2637.54	3056.04	2638.09	3056.62	2638.12	3057.97	2638.2
3068.95	2638.2	3070.61	2638.2	3081.45	2638.2	3089.61	2638.2	3093.73	2638.2
3100.58	2638.2	3102.1	2638.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	1790.41	.045	2048.71	.058

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1790.41	2048.71	341.37	293.65	245.54	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	916	2635.2	F
2779.78	3102.1	2635.04	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2633.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.	0.045	0.045	0.058
W.S. Elev (ft)	2633.42	Reach Len. (ft)	341.37	293.65	245.54
Crit W.S. (ft)	2633.24	Flow Area (sq ft)	818.12	1197.21	960.12
E.G. Slope (ft/ft)	0.005967	Area (sq ft)	1039.38	1197.21	1058.20
Q Total (cfs)	13000.00	Flow (cfs)	2066.01	8477.45	2456.54
Top Width (ft)	2202.68	Top Width (ft)	1088.09	258.30	856.29
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)	2.53	7.08	2.56
Max Chl Dpth (ft)	5.22	Hydr. Depth (ft)	0.95	4.63	1.34
Conv. Total (cfs)	168287.3	Conv. (cfs)	26744.9	109742.2	31800.3
Length Wtd. (ft)	298.37	Wetted Per. (ft)	856.74	258.84	715.71
Min Ch El (ft)	2628.20	Shear (lb/sq ft)	0.36	1.72	0.50
Alpha	1.83	Stream Power (lb/ft s)	0.90	12.20	1.28
Frctn Loss (ft)	1.52	Cum Volume (acre-ft)	102.27	36.77	18.25
C & E Loss (ft)	0.07	Cum SA (acres)	66.98	8.61	11.95

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: Agua Caliente
REACH: upper RS: 11918.47

INPUT
Description:
Station Elevation Data num= 458

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2640.2	.6	2640.2	2.16	2640.2	4.84	2640.2	15.11	2638.54
15.93	2638.51	18.07	2638.57	18.84	2638.53	22.03	2638.62	25.4	2638.72
26.4	2638.66	29.92	2638.75	42.6	2638.2	44.65	2638.2	49.35	2638.2
53.39	2638.2	55.94	2638.2	59.45	2638.2	62.97	2638.2	65.77	2638.2
70.28	2638.2	72.17	2638.2	77.45	2638.2	78.24	2638.2	78.91	2638.2
79.53	2638.2	82.55	2638.2	85.09	2638.09	86.26	2638.02	96.19	2637.5
104.08	2637.06	116.93	2636.2	117.17	2636.2	120.26	2636.2	120.78	2636.2
120.89	2636.2	124.21	2636.2	127.02	2636.2	127.6	2636.2	130.25	2636.2
132.14	2636.2	171.56	2634.81	176.18	2634.71	197.28	2634.2	198.7	2634.2
198.84	2634.2	199.11	2634.2	203.15	2634.13	217.59	2633.87	229.01	2633.66
238.07	2633.5	245.4	2633.37	251.78	2633.27	257.13	2633.18	259.34	2633.15

263.81	2633.08	269.46	2633.01	272.95	2632.95	279.51	2632.87	287.18	2632.77
289.39	2632.74	297.65	2632.64	326.94	2632.2	327.76	2632.2	330.15	2632.2
331.11	2632.2	334.54	2632.2	335.74	2632.2	339.47	2632.2	341.23	2632.2
343.4	2632.2	346.85	2632.2	367.76	2632.2	371.33	2632.2	371.47	2632.2
371.9	2632.2	373.07	2632.2	379.59	2632.2	383.97	2632.2	384.95	2632.2
388.26	2632.2	438.46	2631.82	445.89	2631.76	447.1	2631.75	448.41	2631.73
449.41	2631.73	452.61	2631.7	506.89	2631.34	508.72	2631.33	509.45	2631.33
618.78	2630.56	627.75	2630.45	638.29	2630.31	647.51	2630.2	648.55	2630.2
648.84	2630.2	653.33	2630.2	669.88	2630.2	678.33	2630.2	693.05	2630.2
696.97	2630.2	716.96	2630.2	776.43	2630.2	776.52	2630.2	776.63	2630.2
784.88	2630.2	801.79	2630.2	816.49	2630.2	821.15	2630.2	829.06	2630.2
829.34	2630.2	831.02	2630.2	831.38	2630.2	832.2	2630.2	847.93	2630.2
848.38	2630.2	853.23	2630.2	854.17	2630.2	857.82	2630.2	859.65	2630.2
864.03	2630.2	864.46	2630.2	868.48	2630.2	869.02	2630.2	869.95	2630.2
870.47	2630.2	884.04	2630.2	885.63	2630.2	887.45	2630.2	889.69	2630.2
892.63	2630.2	896.21	2630.2	899.62	2630.2	935.77	2630.2	986.94	2629.81
988	2629.79	989.09	2629.8	990.16	2629.8	991.07	2629.79	1018.53	2630.2
1020.87	2630.2	1021.75	2630.2	1027.88	2630.2	1038.72	2630.2	1042.78	2630.2
1044.63	2630.2	1045.58	2630.2	1054.81	2630.2	1056.02	2630.2	1093.5	2630.2
1098.48	2630.2	1140.96	2630.2	1142.63	2630.2	1143.3	2630.2	1143.64	2630.2
1148.42	2630.2	1150.02	2630.2	1152.65	2630.2	1153.79	2630.2	1155.7	2630.2
1160.84	2630.2	1161.69	2630.2	1164.3	2630.2	1165.13	2630.2	1165.81	2630.2
1167.92	2630.2	1209.85	2630.2	1213.44	2630.2	1238.25	2630.2	1241.9	2630.2
1245.57	2630.2	1249.63	2630.2	1253.92	2630.2	1258.58	2630.2	1263.49	2630.2
1268.81	2630.2	1274.37	2630.2	1296.4	2630.2	1299.86	2630.2	1303.47	2630.2
1303.96	2630.2	1308.93	2630.2	1311.98	2630.2	1313.13	2630.2	1316.45	2630.2
1319.99	2630.2	1321.02	2630.2	1324.58	2630.2	1328.37	2630.2	1329.06	2630.2
1332.71	2630.2	1335.85	2630.2	1337.44	2630.2	1337.86	2630.2	1345.42	2630.2
1347.15	2630.2	1352.07	2630.2	1354.74	2630.2	1358.53	2630.2	1360.98	2630.2
1365.68	2630.2	1366.68	2630.2	1367.42	2630.2	1372.45	2630.2	1372.76	2630.2
1378.11	2630.2	1378.24	2630.2	1383.73	2630.2	1383.78	2630.2	1389.37	2630.2
1389.41	2630.2	1395.05	2630.2	1395.13	2630.2	1400.45	2630.2	1400.71	2630.2
1400.99	2630.2	1406.25	2630.2	1406.97	2630.2	1411.81	2630.2	1413.17	2630.2
1417.32	2630.2	1419.32	2630.2	1422.86	2630.2	1425.52	2630.2	1428.34	2630.2
1431.58	2630.2	1433.64	2630.2	1437.55	2630.2	1438.8	2630.2	1443.41	2630.2
1443.66	2630.2	1445.13	2630.2	1450.29	2630.2	1456.67	2630.2	1462.31	2630.2
1462.55	2630.2	1467.59	2630.2	1472.2	2630.2	1476.54	2630.2	1476.98	2630.2
1481.37	2630.2	1481.92	2630.2	1486.19	2630.2	1528.04	2630.2	1546.81	2630.2
1558.57	2630.2	1568.45	2630.2	1571.38	2630.2	1578.03	2630.2	1583.92	2630.2
1591.87	2630.2	1597.46	2630.2	1597.56	2630.2	1598.28	2630.2	1600.46	2630.2
1600.84	2630.2	1616.04	2630.2	1665.79	2630.2	1666.98	2630.2	1668.09	2630.2
1669.12	2630.2	1670.07	2630.2	1670.97	2630.2	1671.84	2630.2	1681.49	2630.2
1683.93	2630.2	1714.77	2630.2	1718.03	2630.2	1722.49	2630.2	1727.15	2630.2
1732.08	2630.2	1737.42	2630.2	1738.09	2630.2	1738.74	2630.2	1744.07	2630.2
1746.78	2630.2	1747.55	2630.2	1751.86	2630.2	1752.44	2630.2	1755.12	2630.2
1800.19	2630.2	1835	2630.2	1843.61	2631.18	1846.08	2631.18	1847.08	2631.21
1849.43	2631.27	1852.76	2631.34	1857.17	2631.45	1859.45	2631.48	1864.88	2631.62
1871.73	2631.79	1879.43	2631.98	1881.91	2632.04	1887.83	2632.2	1889.49	2632.2
1890.36	2632.2	1891.53	2631.36	1893.17	2630.2	1894.21	2629.45	1895.91	2628.2
1899.68	2628.07	1904.53	2627.91	1908.59	2627.76	1915.2	2627.54	1952.38	2626.92
1954.1	2626.93	1956.21	2626.95	1958.63	2626.98	2094.17	2627.68	2103.63	2627.79
2106.15	2627.81	2116.27	2627.93	2117.9	2627.95	2119.39	2627.96	2134.5	2628.2
2136.81	2628.2	2136.95	2628.2	2139.12	2628.2	2140.38	2628.72	2144.62	2630.2
2145.74	2630.6	2150.73	2632.2	2151.39	2632.2	2154.65	2632.2	2155.21	2632.2
2155.7	2632.2	2157.09	2632.2	2157.93	2632.2	2159.45	2632.2	2160.52	2632.2
2161.59	2632.2	2162.61	2632.2	2182.54	2632.2	2192.49	2632.2	2196.95	2632.2
2197.82	2632.2	2201.97	2632.2	2247.95	2631.08	2251.09	2631.09	2296.87	2630.89
2301.07	2630.85	2329.8	2630.52	2334.67	2630.47	2334.94	2630.47	2340.48	2630.43
2345.98	2630.41	2356.14	2630.32	2360.63	2630.31	2373.86	2630.2	2378.49	2630.2
2379.09	2630.2	2380.42	2630.2	2385.8	2630.2	2387.69	2630.2	2393.45	2630.2
2434.77	2630.2	2436.61	2630.2	2437.77	2630.2	2439.76	2630.2	2441.19	2630.2
2450.29	2630.2	2452.96	2630.2	2454.27	2630.2	2455.89	2630.2	2457.7	2630.2
2460.38	2630.2	2462.15	2630.2	2464.16	2630.2	2467.12	2630.2	2469.08	2630.2
2472.4	2630.2	2473.83	2630.2	2476.7	2630.2	2478.69	2630.2	2479.06	2630.2
2479.92	2630.2	2487.09	2630.2	2492.41	2630.2	2493.88	2630.2	2494.88	2630.2
2545.86	2630.85	2547.42	2630.84	2594.77	2631.04	2644.09	2631.14	2646.87	2631.16
2648.98	2631.16	2651.94	2631.18	2654.97	2631.19	2687.1	2631.21	2689.85	2631.22
2692.68	2631.23	2694.77	2631.23	2697.66	2631.24	2700.09	2631.24	2703.08	2631.25
2706.1	2631.26	2708.31	2631.27	2771.31	2631.99	2776.98	2632.1	2777.24	2632.1
2782.87	2632.2	2786.08	2632.2	2796.49	2632.2	2797.15	2632.2	2797.9	2632.2
2799.53	2632.2	2800.98	2632.2	2803.12	2632.2	2804.74	2632.2	2807.21	2632.2
2827.76	2632.2	2835.7	2632.2	2837.28	2632.26	2837.71	2632.28	2838.33	2632.29
2839.3	2632.32	2854.83	2632.88	2860.97	2633.06	2870	2633.37	2879.2	2633.63
2883.56	2633.77	2886.33	2633.86	2897.92	2634.2	2898.4	2634.2	2899.83	2634.2
2900.09	2634.2	2901.7	2634.2	2902.38	2634.22	2902.48	2634.23	2906.97	2634.38
2907.84	2634.42	2912.12	2634.62	2914.35	2634.7	2917.56	2634.81	2922.71	2635.08
2928.77	2635.28	2953.27	2636.2	2953.43	2636.2	2955.62	2636.28	2956.19	2636.3
2965.62	2636.7	2968.91	2636.81	2976.22	2637.1	2981.28	2637.29	2987.18	2637.47
2990.49	2637.58	2998.08	2637.8	2999.93	2637.86	3008.87	2638.11	3009.29	2638.12
3011.95	2638.2	3014.35	2638.2	3014.63	2638.2	3017.48	2638.2	3019.66	2638.2
3020.42	2638.2	3071.34	2638.2	3107.52	2638.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1890.36	.04	2150.73	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1890.36	2150.73	224.57	244.56	248.07	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	717	2634.2	F
1722	1890	2634.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2632.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.060	0.040	0.050
W.S. Elev (ft)	2631.97	Reach Len. (ft)	224.57	244.56	248.07
Crit W.S. (ft)	2631.57	Flow Area (sq ft)	1791.72	1124.86	626.16
E.G. Slope (ft/ft)	0.004401	Area (sq ft)	2327.10	1124.86	626.16
Q Total (cfs)	13000.00	Flow (cfs)	4328.16	7338.09	1333.75
Top Width (ft)	2276.51	Top Width (ft)	1459.61	259.31	557.58
Vel Total (ft/s)	3.67	Avg. Vel. (ft/s)	2.42	6.52	2.13
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)	1.78	4.34	1.12
Conv. Total (cfs)	195954.4	Conv. (cfs)	65240.1	110610.1	20104.2
Length Wtd. (ft)	238.92	Wetted Per. (ft)	1005.01	261.19	557.60
Min Ch El (ft)	2626.92	Shear (lb/sq ft)	0.49	1.18	0.31
Alpha	1.96	Stream Power (lb/ft s)	1.18	7.72	0.66
Frctn Loss (ft)	1.09	Cum Volume (acre-ft)	89.08	28.94	13.50
C & E Loss (ft)	0.01	Cum SA (acres)	57.00	6.86	7.97

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: Agua Caliente
REACH: upper RS: 11673.91

INPUT
Description:
Station Elevation Data num= 417

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2633.11	15.53	2633.11	17.82	2633.09	21.69	2633.03	26.17	2632.96
31.08	2632.89	33.15	2632.86	38.44	2632.79	40.47	2632.76	42.36	2632.73
44.2	2632.71	49.83	2632.63	51.32	2632.61	52.69	2632.59	58.45	2632.52
59.51	2632.5	60.5	2632.49	66.2	2632.43	66.95	2632.42	67.65	2632.41
73.23	2632.37	73.75	2632.36	79.45	2632.33	79.84	2632.32	86.86	2632.2
90.09	2632.2	93.49	2632.2	93.5	2632.2	97.11	2632.2	100.9	2632.2
105.33	2632.2	110.08	2632.2	110.76	2632.2	116.43	2632.2	120.78	2632.2
120.83	2632.2	124.95	2632.14	129.54	2632.07	130.43	2632.05	131.64	2632.03
142.55	2631.89	145.54	2631.84	232.99	2630.2	234.42	2630.2	236	2630.2
238.34	2630.2	240.15	2630.2	243.07	2630.2	247.42	2630.2	248.54	2630.2
254.6	2630.2	258.82	2630.2	279.23	2630.2	279.44	2630.2	288.77	2630.2
291.05	2630.2	297.09	2630.2	302.67	2630.2	305.24	2630.2	312.56	2630.2
313.78	2630.2	314.09	2630.2	320.1	2630.2	321.66	2630.2	326.02	2630.2
329.11	2630.2	331.98	2630.2	334.69	2630.2	337.8	2630.2	340.18	2630.2
343.13	2630.2	378.04	2630.2	378.08	2630.2	378.29	2630.2	387.38	2630.2
395.02	2630.2	401.34	2630.2	406.82	2630.2	409.12	2630.2	442.65	2630.2
445.88	2630.2	449.01	2630.2	452.19	2630.2	454.22	2630.2	457.54	2630.2
459.69	2630.2	463	2630.2	481.13	2630.2	491.25	2630.2	492.73	2630.2
494.21	2630.2	496.23	2630.2	497.08	2630.2	498.56	2630.2	498.7	2630.2
504.56	2630.2	508.28	2630.2	512.56	2630.2	520.35	2630.2	528.4	2630.2
533.29	2630.2	533.5	2630.2	533.91	2630.2	542.16	2630.2	542.75	2630.2
550.42	2630.2	556.53	2630.2	558.32	2630.2	558.89	2630.2	564.03	2630.2
567.94	2630.2	617.71	2630.2	621.12	2630.2	622.09	2630.2	623.56	2630.2
623.87	2630.2	641.74	2630.05	759.89	2629.48	761.02	2629.47	787.92	2629.09
791.19	2629.03	823.53	2629.03	842.69	2628.38	845.43	2628.27	847.15	2628.2
850.56	2628.2	853.07	2628.2	860.91	2628.2	862.76	2628.2	865.32	2628.2
868.32	2628.2	869.89	2628.2	872.58	2628.2	874.25	2628.2	875.63	2628.2
876.54	2628.2	877.26	2628.2	877.47	2628.2	877.83	2628.2	878.57	2628.2
880.6	2628.2	889.78	2628.2	917.92	2628.2	918.03	2628.2	918.08	2628.2
924.33	2628.2	927.47	2628.2	930.3	2628.2	935.15	2628.2	936.11	2628.2
941.01	2628.2	945.03	2628.2	945.79	2628.2	959.84	2628.2	963.05	2628.2
969.37	2628.2	973.8	2628.2	978.63	2628.2	981.62	2628.2	983.77	2628.2
989.44	2628.2	990.61	2628.2	997.77	2628.2	998.05	2628.2	1000.6	2628.2
1017.72	2628.2	1023.77	2628.2	1024.04	2628.2	1024.78	2628.2	1025.1	2628.2
1028.59	2628.2	1031.62	2628.2	1033.05	2628.2	1035.97	2628.2	1036.91	2628.2
1039.47	2628.2	1041.39	2628.2	1042.91	2628.2	1044.15	2628.2	1045.29	2628.2
1046.39	2628.2	1047.14	2628.2	1056.03	2628.2	1058.23	2628.2	1072.67	2628.2
1075.1	2628.2	1114.22	2629.06	1118.28	2629.04	1181.93	2628.87	1185.78	2628.87
1189.4	2628.89	1189.73	2628.88	1192.63	2628.91	1223.56	2628.93	1311.34	2629.2
1313.23	2629.19	1314.56	2629.19	1380.36	2629.29	1382.2	2629.29	1384.96	2629.31
1404.86	2629.31	1429.62	2629.14	1430.79	2629.12	1443.59	2629.28	1445.42	2629.31
1447.55	2629.34	1448.41	2629.33	1450.79	2629.36	1453.53	2629.39	1456.69	2629.41
1459.95	2629.43	1483.42	2629.58	1484.73	2629.59	1486.14	2629.61	1488.86	2629.63
1490.07	2629.64	1504.29	2629.69	1528.42	2629.69	1531.78	2629.68	1533.27	2629.66
1537.28	2629.62	1538.83	2629.61	1540.93	2629.59	1635.07	2628.2	1636.37	2628.2
1637.52	2628.2	1639.27	2628.2	1640.2	2628.2	1671.14	2628.2	1692.08	2628.2

1694.71	2628.2	1719.97	2628.2	1721.98	2628.2	1726.09	2628.25	1787.91	2629.29
1789.66	2629.29	1822.35	2629.3	1857.32	2629.41	1859.62	2629.42	1861.61	2629.42
1881.96	2629.47	1883.99	2629.47	1884.85	2629.47	1886.91	2629.48	1999.51	2630.2
2004.08	2630.2	2006.72	2630.2	2012.54	2630.2	2016.53	2630.2	2025.87	2630.2
2030.1	2630.2	2034.67	2630.2	2036.11	2630.2	2043.95	2630.2	2045.03	2630.2
2048.38	2630.2	2048.98	2630.2	2053.41	2630.2	2053.77	2630.2	2057.94	2630.2
2058.01	2630.2	2058.03	2630.2	2058.04	2630.19	2063.99	2629.74	2066.62	2629.05
2069.9	2628.2	2073.55	2626.53	2074.29	2626.2	2077.79	2626.2	2097.78	2626.2
2174.47	2625.59	2178.99	2625.67	2184.69	2625.75	2191.87	2625.85	2200.1	2625.96
2206.99	2626.05	2217.8	2626.2	2218.22	2626.2	2219.7	2626.2	2220.16	2626.2
2220.81	2626.2	2221.76	2626.2	2223.16	2626.2	2225.71	2626.2	2231.4	2626.2
2247.32	2626.2	2260.78	2626.89	2286.68	2628.2	2288.97	2628.3	2289.14	2628.3
2295.86	2628.56	2301.2	2628.76	2305.44	2628.92	2308.89	2629.05	2311.61	2629.15
2313.79	2629.24	2317.94	2629.24	2328.49	2629.12	2331.08	2629.17	2333.44	2629.22
2431.62	2628.89	2433.73	2628.87	2440.34	2628.83	2441.96	2628.81	2478.46	2628.2
2479.97	2628.2	2480.6	2628.2	2482.31	2628.2	2484.09	2628.2	2485.52	2628.2
2486.86	2628.2	2489.07	2628.2	2491.33	2628.2	2493.26	2628.2	2494.02	2628.2
2494.93	2628.2	2524.41	2628.2	2530.78	2628.2	2588.95	2629.11	2590.68	2629.09
2594.25	2629.06	2596.06	2629.05	2599.56	2629.03	2601.29	2629.02	2604.09	2629.01
2624.14	2628.92	2670.84	2629.7	2672.15	2629.71	2674.88	2629.75	2676.14	2629.77
2680.69	2629.81	2693.33	2629.95	2694.09	2629.95	2697.28	2629.94	2698.03	2629.94
2698.64	2629.94	2729.11	2630.2	2732.55	2630.2	2736.94	2630.2	2743.04	2630.2
2749.16	2630.2	2769.42	2630.2	2771.72	2630.2	2778.02	2630.2	2779.33	2630.2
2787.86	2630.2	2793.18	2630.2	2804.37	2630.2	2808.27	2630.2	2814.2	2630.2
2815.86	2630.2	2819.83	2630.2	2820.57	2630.2	2823.44	2630.2	2823.62	2630.2
2832.73	2630.56	2837.2	2630.8	2859.07	2631.91	2862.36	2632.08	2864.77	2632.2
2879.84	2633.09	2894.83	2633.99	2896.62	2634.1	2897.18	2634.14	2898.31	2634.2
2907.05	2634.2	2908.09	2634.2	2917.07	2634.2	2924.41	2634.2	2930.38	2634.2
2933.86	2634.2	2947.9	2634.2	2951.4	2634.2	2954.43	2634.2	2958.69	2634.2
2961.08	2634.2	2964.7	2634.2	2966.54	2634.2	2968.38	2634.2	3004.8	2634.94
3005.1	2634.95	3005.9	2634.97	3045.17	2635.41	3047.34	2635.39	3083.71	2635.55
3085.23	2635.54	3088.85	2635.6	3090.33	2635.58	3091.88	2635.57	3093.4	2635.55
3094.98	2635.53	3098.56	2635.59	3100.01	2635.57	3103.91	2635.63	3105.35	2635.61
3106.93	2635.59	3110.44	2635.63	3111.94	2635.61	3113.54	2635.58	3115.21	2635.55
3117.01	2635.51	3118.99	2635.46	3121.23	2635.39	3124.04	2635.31	3126.37	2635.29
3129.72	2635.18	3142.37	2635.12	3144.94	2635.01	3146.57	2635.05	3149.16	2634.92
3152.3	2634.75	3153.43	2634.77	3156.98	2634.53	3161.6	2634.2	3162.12	2634.19
3162.21	2634.18	3171.35	2633.91						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	2058.04	.035	2313.79	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2058.04	2313.79	373.38	425	405.43	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
105.29	622.63	2632.25	F
1410.99	2002.36	2632.32	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2631.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	2630.73	Reach Len. (ft)	373.38	425.00	405.43
Crit W.S. (ft)	2630.46	Flow Area (sq ft)	1451.15	1043.26	772.68
E.G. Slope (ft/ft)	0.004717	Area (sq ft)	2586.71	1043.26	772.68
Q Total (cfs)	13000.00	Flow (cfs)	3542.13	7751.15	1706.72
Top Width (ft)	2631.03	Top Width (ft)	1853.21	255.75	522.07
Vel Total (ft/s)	3.98	Avg. Vel. (ft/s)	2.44	7.43	2.21
Max Chl Dpth (ft)	5.14	Hydr. Depth (ft)	1.72	4.08	1.48
Conv. Total (cfs)	189288.6	Conv. (cfs)	51575.7	112861.9	24850.9
Length Wtd. (ft)	406.05	Wetted Per. (ft)	844.07	256.48	522.10
Min Ch El (ft)	2625.59	Shear (lb/sq ft)	0.51	1.20	0.44
Alpha	2.22	Stream Power (lb/ft s)	1.24	8.90	0.96
Frctn Loss (ft)	1.85	Cum Volume (acre-ft)	76.42	22.86	9.52
C & E Loss (ft)	0.02	Cum SA (acres)	48.46	5.41	4.89

Warning: The energy loss was 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: Agua Caliente
REACH: upper RS: 11248.91

INPUT
Description:
Station Elevation Data num= 186

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2634.74	2.11	2634.61	12.05	2634.2	51.64	2633.41	53.92	2633.37
81.68	2632.41	85.69	2632.2	86.83	2632.2	91.92	2632.03	92.58	2632.02
167.95	2630.2	189.48	2630.2	191.15	2629.73	194.56	2628.79	196	2628.4
196.72	2628.2	215.76	2628.2	218.24	2628.79	221.27	2629.52	225.49	2630.2

332.53	2630.2	338.85	2630	358.55	2629.41	368.1	2629.15	397.34	2628.44
401.5	2628.31	406.74	2628.2	459.05	2628.2	464.54	2628.21	465.15	2628.2
606.46	2628.2	668.27	2627.57	670.07	2627.53	673.01	2627.51	676.67	2627.47
678.94	2627.43	683.16	2627.37	709.81	2627.25	711.78	2627.22	713.83	2627.22
717.76	2627.18	719.34	2627.19	720.85	2627.15	731.26	2626.97	811.1	2628.17
811.35	2628.17	811.49	2628.18	811.71	2628.18	812.74	2628.2	949.09	2628.2
955.53	2628.12	955.72	2628.12	967.27	2627.95	969.76	2627.92	970.37	2627.92
1084.53	2626.2	1371.36	2626.2	1389.02	2626.32	1392.47	2626.33	1392.61	2626.33
1434.32	2626.42	1439.89	2626.41	1473.73	2626.4	1479	2626.38	1479.21	2626.38
1480	2626.37	1483.22	2626.38	1488.43	2626.35	1506.89	2626.56	1507.48	2626.57
1511.87	2626.62	1557.79	2627.28	1584.5	2627.62	1618.35	2628.2	1755.13	2628.2
1768.98	2628.06	1865.49	2627.86	1866.16	2627.86	1874.42	2627.9	1878.09	2627.91
1878.75	2627.92	1881.36	2627.91	1895.95	2627.88	1896.85	2627.88	1901.16	2627.84
1902.38	2627.82	1903.69	2627.81	1906.88	2627.78	1908.48	2627.77	1919.89	2627.66
1928.58	2627.56	1932.38	2627.51	1967.38	2627.1	1972.91	2627.05	1974.72	2627.03
1978.86	2627.01	2044.25	2626.54	2046.38	2626.56	2047.28	2626.57	2051.28	2626.57
2051.79	2626.58	2071.03	2626.61	2126.5	2626.99	2223.87	2628.2	2271.3	2628.2
2288.1	2629.91	2290.88	2630.2	2292.88	2630.2	2300.39	2630.78	2303.01	2630.92
2353.59	2630.95	2365.01	2630.61	2375.69	2630.27	2375.8	2630.27	2378.07	2630.2
2378.8	2629.87	2382.48	2628.2	2385.34	2626.8	2386.61	2626.2	2388.46	2625.36
2391.07	2624.2	2569.83	2624.2	2576.54	2625.09	2584.22	2626.2	2584.61	2626.2
2768.98	2626.2	2785.44	2627.39	2794.09	2628.2	2799.8	2628.56	2825.07	2630.2
2927	2630.2	2930.41	2630.2	2932.98	2630	2933.64	2629.98	2938.76	2629.75
2947.68	2629.43	2953.25	2629.19	2957.19	2629.03	2960.81	2628.86	2966.14	2628.7
2968.35	2628.61	2979.35	2628.2	2983.16	2628.2	2983.79	2628.12	2993.16	2626.2
3025.36	2626.2	3030.88	2626.51	3032.08	2626.56	3041.96	2627.09	3051.79	2628.2
3065.46	2628.2	3110.96	2629.29	3114.63	2629.44	3116.51	2629.42	3120.5	2629.62
3121.91	2629.6	3130.91	2630.17	3131	2630.17	3131.45	2630.2	3137.1	2630.46
3137.81	2630.47	3153.05	2630.99	3168.93	2631.57	3172.33	2631.68	3174.65	2631.76
3176.45	2631.8	3180.74	2631.84	3181.62	2631.81	3185.53	2632.12	3185.74	2632.11
3186.91	2632.2	3211.11	2632.2	3224.15	2633.03	3225.51	2633.04	3228.51	2633.2
3233.01	2633.4	3235.14	2633.51	3241.35	2633.79	3248.47	2634.2	3249.37	2634.2
3250.65	2634.24	3250.95	2634.26	3283.3	2635.25	3285.8	2635.26	3288.74	2635.37
3290.32	2635.37								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	2378.07	.037	2584.61	.06	2927	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2378.07	2584.61	568.45	347.8	372.44	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
50.54	602.29	2632.2	F
1629.96	2329.12	2632.2	F
2754.51	2872.44	2632.2	F

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
0	227.44	2630.22	2927.2	3290.32	2630.25

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2629.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.	0.060	0.037	0.060
W.S. Elev (ft)	2628.93	Reach Len. (ft)	568.45	347.80	372.44
Crit W.S. (ft)	2628.08	Flow Area (sq ft)	1922.25	924.20	463.16
E.G. Slope (ft/ft)	0.004401	Area (sq ft)	2911.92	924.20	551.62
Q Total (cfs)	13000.00	Flow (cfs)	4793.98	6721.16	1484.86
Top Width (ft)	2325.67	Top Width (ft)	1901.11	203.73	220.83
Vel Total (ft/s)	3.93	Avg. Vel. (ft/s)	2.49	7.27	3.21
Max Chl Dpth (ft)	4.73	Hydr. Depth (ft)	1.87	4.54	2.73
Conv. Total (cfs)	195970.8	Conv. (cfs)	72267.7	101319.3	22383.8
Length Wtd. (ft)	445.81	Wetted Per. (ft)	1027.72	204.91	169.90
Min Ch El (ft)	2624.20	Shear (lb/sq ft)	0.51	1.24	0.75
Alpha	2.00	Stream Power (lb/ft s)	1.28	9.01	2.40
Frctn Loss (ft)	3.26	Cum Volume (acre-ft)	52.85	13.26	3.36
C & E Loss (ft)	0.03	Cum SA (acres)	32.37	3.17	1.44

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 10901.11

INPUT
Description:
Station Elevation Data num= 471

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2632.77	18.45	2632.2	24.47	2631.92	37.94	2631.23	52.7	2630.5
58.23	2630.2	58.61	2630.2	60.03	2630.2	60.82	2630.2	62.1	2630.2
76.92	2630.2	79.03	2630.2	84.59	2630.2	103.15	2630.2	130.04	2629.25
132.71	2629.25	135.96	2629.24	137.9	2629.21	141.3	2629.2	144.81	2629.19
148.27	2629.18	151.31	2629.19	154.03	2629.22	156.42	2629.26	158.62	2629.3
160.65	2629.3	162.42	2629.32	164.77	2629.35	167.2	2629.37	169.73	2629.37
172.49	2629.35	175.67	2629.32	177.57	2629.3	180.93	2629.27	183.48	2629.2
186.9	2629.19	189.98	2629.1	193.41	2629.11	211.97	2629	215.62	2629.01
219.11	2629	219.3	2629	222.84	2628.98	224.9	2629	228.48	2628.97
232.29	2628.93	234	2628.93	238.01	2628.89	242.28	2628.86	243.72	2628.85
248.25	2628.81	252.93	2628.75	270.5	2628.3	273.08	2628.2	281.22	2627.89
283.7	2627.8	289.09	2627.6	307.78	2626.86	323.54	2626.2	323.79	2626.2
332.03	2626.06	334.42	2626.02	338.66	2625.96	443.7	2624.2	446.87	2624.2
450.48	2624.2	450.64	2624.2	452.07	2624.2	458.74	2624.2	465.31	2624.2
479.45	2624.2	483.95	2624.2	492.43	2624.2	492.68	2624.2	492.78	2624.2
494.04	2624.2	497.64	2624.2	497.97	2624.2	503.19	2624.2	508.95	2624.2
510.93	2624.2	515.13	2624.2	515.6	2624.2	521.14	2624.2	525.3	2624.2
526.87	2624.2	530.34	2624.2	533.21	2624.2	534.8	2624.2	536.61	2624.2
538.17	2624.2	538.59	2624.2	546.13	2624.2	547.02	2624.2	548.27	2624.2
564.31	2624.2	630.04	2624.2	631.95	2624.2	645.3	2624.2	646.88	2624.2
648.79	2624.2	651.11	2624.2	653.01	2624.2	655.14	2624.2	658.18	2624.2
660.3	2624.2	662.69	2624.2	665.73	2624.2	668.38	2624.2	671.38	2624.2
674.85	2624.2	677.39	2624.2	681.23	2624.2	685.69	2624.2	687.47	2624.2
692.61	2624.2	699.69	2624.2	704.82	2624.2	710.55	2624.2	711.09	2624.2
717.02	2624.2	723.55	2624.2	723.75	2624.2	728.67	2624.2	730.61	2624.2
737.48	2624.2	743.89	2624.2	744.34	2624.2	750.47	2624.2	756.02	2624.2
761.13	2624.2	762.22	2624.2	767.18	2624.2	771.68	2624.2	775.92	2624.2
780.2	2624.2	781.79	2624.2	786.37	2624.2	805.18	2624.2	810.96	2624.2
814.1	2624.2	814.74	2624.2	823.19	2624.2	874.17	2624.2	883.7	2624.2
888.44	2624.2	893.16	2624.2	895.36	2624.2	901.54	2624.2	931.92	2624.2
932.45	2624.2	934.15	2624.2	936.05	2624.2	952.98	2624.2	956.66	2624.2
956.86	2624.2	960.87	2624.2	993.22	2624.2	995.51	2624.2	997.27	2624.2
999.36	2624.2	1004.78	2624.2	1006.81	2624.2	1008.48	2624.2	1012.3	2624.2
1021.74	2624.2	1023.88	2624.2	1032.72	2624.2	1033.49	2624.2	1034.26	2624.2
1034.95	2624.2	1035.2	2624.2	1074.91	2623.59	1127.51	2623.14	1129.32	2623.14
1141.98	2623.05	1165.72	2622.94	1169.57	2622.9	1182.09	2622.84	1186.23	2622.81
1190.73	2622.78	1204.98	2622.64	1210.53	2622.57	1215.75	2622.5	1218.85	2622.46
1219.55	2622.46	1228.84	2622.44	1229.06	2622.44	1249.94	2622.2	1253.15	2622.2
1265.1	2622.2	1267.48	2622.2	1268.4	2622.2	1271.31	2622.2	1272.1	2622.2
1277.27	2622.2	1279.82	2622.2	1282.34	2622.2	1288.04	2622.2	1288.22	2622.2
1309.61	2622.2	1372.57	2621.19	1374.15	2621.11	1375.95	2621.15	1377.85	2621.2
1379.98	2621.26	1382.35	2621.32	1383.56	2621.27	1386.16	2621.32	1387.42	2621.32
1405.61	2621.88	1406.11	2621.88	1410.11	2622.17	1410.19	2622.17	1410.81	2622.2
1411.74	2622.2	1412.4	2622.2	1415.27	2622.2	1419.47	2622.2	1420.74	2622.2
1422.48	2622.2	1425.61	2622.2	1428.03	2622.2	1432.32	2622.2	1433.89	2622.2
1458.8	2622.2	1465.41	2622.2	1482.02	2622.2	1485.82	2622.2	1486.83	2622.2
1507.32	2622.82	1509.23	2622.99	1512.76	2623.27	1514.27	2623.38	1521.19	2623.95
1524.05	2624.2	1532.23	2624.2	1539.97	2624.2	1599.76	2624.2	1712.53	2624.2
1712.58	2624.2	1714.11	2624.2	1716.42	2624.2	1718.01	2624.2	1722.4	2624.2
1723.51	2624.2	1724.11	2624.2	1729.52	2624.2	1729.92	2624.2	1735.41	2624.2
1735.69	2624.2	1741.11	2624.2	1741.36	2624.2	1741.56	2624.2	1741.73	2624.2
1741.89	2624.2	1747.33	2624.2	1747.48	2624.2	1747.6	2624.2	1753.04	2624.2
1758.86	2624.2	1758.96	2624.2	1764.86	2624.2	1768.13	2624.2	1771.01	2624.2
1777.25	2624.2	1783.39	2624.2	1789.49	2624.2	1789.68	2624.2	1795.79	2624.2
1796.19	2624.2	1796.68	2624.2	1803.06	2624.2	1803.76	2624.2	1804.52	2624.2
1806.49	2624.2	1807.83	2624.2	1815.09	2624.2	1817.14	2624.2	1835.18	2624.2
1847.96	2624.2	1852.15	2624.2	1861.77	2624.2	1864.06	2624.2	1865.1	2624.2
1871.75	2624.2	1880.89	2624.2	1886.63	2624.2	1888.83	2624.2	1889.6	2624.2
1889.95	2624.2	1892.87	2624.2	1894.02	2624.2	1894.1	2624.2	1894.51	2624.2
1894.62	2624.2	1899.01	2624.2	1899.64	2624.2	1900.64	2624.2	1907.34	2624.2
1910.09	2624.2	1915.86	2624.2	1920.64	2624.2	1924.18	2624.2	1926.6	2624.2
1932.36	2624.2	1933.45	2624.2	1939.03	2624.2	1945.11	2624.33	1967.87	2624.82
1980.98	2625.1	2006.95	2625.52	2008.83	2625.52	2012.51	2625.76	2013.82	2625.78
2019.55	2626.11	2019.86	2626.12	2021.42	2626.2	2022.5	2626.2	2023.05	2626.2
2025.15	2626.2	2026.14	2626.2	2028.35	2626.2	2029.62	2626.2	2031.99	2626.2
2034.02	2626.2	2035.73	2626.2	2037.21	2626.2	2039.6	2626.2	2041.21	2626.2
2043.49	2626.2	2045.19	2626.2	2047.46	2626.2	2049.24	2626.2	2050.88	2626.2
2053.18	2626.2	2054.84	2626.2	2057.04	2626.2	2058.73	2626.2	2060.82	2626.2
2062.58	2626.2	2084.99	2626.2	2099.43	2626.2	2102.92	2626.2	2105.33	2626.2
2108.7	2626.2	2111.14	2626.2	2114.29	2626.2	2116.49	2626.2	2119.38	2626.2
2155.55	2626.2	2190.3	2626.2	2192.72	2626.2	2194.74	2626.2	2196.72	2626.2
2198.69	2626.2	2269.95	2626.2	2271.55	2626.2	2272.83	2626.2	2371.91	2628.13
2374.27	2628.2	2374.86	2628.2	2375.16	2628.2	2377.51	2628.2	2378.32	2628.2
2380.62	2628.2	2382.37	2628.2	2383.68	2628.2	2385.24	2628.2	2386.46	2628.2
2430.55	2629.12	2436.82	2629.22	2441.8	2629.31	2477.61	2630.2	2478.89	2630.2
2480.35	2630.2	2481.7	2630.2	2483.04	2630.2	2484.42	2630.2	2492.2	2630.2
2493.32	2630.2	2494.6	2630.2	2528.35	2628.76	2533.2	2628.58	2534.23	2628.56
2542.06	2628.29	2544.58	2628.2	2546.17	2628.2	2546.53	2628.2	2550.45	2628.2
2553.33	2628.2	2555.54	2628.2	2558.03	2629.32	2559.72	2630.2	2569.39	2630.2
2579.6	2630.2	2581.91	2628.83	2583	2628.2	2595.88	2626.79	2601.44	2626.2
2606.85	2625.49	2617.67	2624.2	2619.7	2623.41	2622.37	2622.2	2625.9	2622.2
2634.45	2622.2	2635.02	2622.2	2642.46	2622.2	2648.7	2622.2	2653.95	2622.2
2658.71	2622.2	2699.63	2622.2	2705.57	2622.2	2712.44	2622.2	2717.37	2622.2
2734.72	2622.2	2746.5	2622.2	2778.95	2622.2	2779.65	2622.2	2780.09	2622.2
2780.65	2622.2	2791.23	2622.59	2807.89	2622.88	2824.01	2622.99	2825.87	2623.06

2828.3	2622.92	2831.36	2622.73	2832.75	2622.78	2836.14	2622.52	2840.06	2622.2
2841.05	2622.2	2841.68	2622.2	2846.4	2622.2	2851.16	2622.2	2851.36	2622.26
2857.59	2624.2	2881	2625.55	2891.23	2626.2	2891.46	2626.2	2891.71	2626.2
2893.54	2626.2	2894.36	2626.2	2895.87	2626.2	2896.69	2626.2	2897.28	2626.2
3001.34	2627.54	3023.92	2627.81	3055.26	2628.2	3057.13	2628.26	3071.15	2628.69
3080.05	2628.96	3086.29	2629.14	3090.63	2629.24	3095.3	2629.38	3101.51	2629.5
3105.03	2629.6	3113.05	2629.77	3115.21	2629.82	3124.84	2630.02	3133	2630.2
3134.09	2630.2	3139.34	2630.36	3141.87	2630.44	3195.27	2632.2	3195.29	2632.2
3203.42	2632.92	3206.95	2633.17	3212.64	2633.62	3219.38	2634.2	3221.29	2634.34
3236.82	2635.32								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.09	2559.72	.035	2617.67	.038	2807.89	.06	3001.34	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2601.44	2807.89	266.72	227.52	243.37	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
227.44	505.42	2626.99	F
1700	2354.39	2627.13	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2626.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.	0.090	0.038	0.060
W.S. Elev (ft)	2625.35	Reach Len. (ft)	266.72	227.52	243.37
Crit W.S. (ft)	2624.18	Flow Area (sq ft)	2188.69	589.16	141.55
E.G. Slope (ft/ft)	0.014494	Area (sq ft)	2605.87	589.16	141.55
Q Total (cfs)	13000.00	Flow (cfs)	6513.45	5811.90	674.66
Top Width (ft)	1891.07	Top Width (ft)	1621.53	199.88	69.66
Vel Total (ft/s)	4.45	Avg. Vel. (ft/s)	2.98	9.86	4.77
Max Chl Dpth (ft)	4.24	Hydr. Depth (ft)	1.83	2.95	2.03
Conv. Total (cfs)	107982.9	Conv. (cfs)	54103.1	48275.8	5604.0
Length Wtd. (ft)	243.05	Wetted Per. (ft)	1194.69	200.36	70.04
Min Ch El (ft)	2622.20	Shear (lb/sq ft)	1.66	2.66	1.83
Alpha	2.48	Stream Power (lb/ft s)	4.93	26.25	8.72
Frctn Loss (ft)	1.72	Cum Volume (acre-ft)	16.85	7.22	0.40
C & E Loss (ft)	0.07	Cum SA (acres)	9.38	1.56	0.19

Error: The elevation of the cross section needed to be extended. Doubling the height of the cross section four times was not sufficient. The cross section should be examined and coded to a new height

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: upper RS: 10673.59

INPUT
Description:
Station Elevation Data num= 184

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2628.2	93.45	2628.2	95.87	2628.11	96.55	2628.08	102.23	2627.78
106.02	2627.64	136.04	2626.2	220.22	2626.2	234.09	2625.73	249.27	2625.32
259.03	2624.87	265.45	2624.66	269.18	2624.53	275.77	2624.2	390.08	2624.2
429.06	2622.89	434.8	2622.76	457.89	2622.2	478.73	2622.2	520.92	2622.49
521.85	2622.5	525.8	2622.51	526.94	2622.52	535.32	2622.57	613.68	2622.87
670.42	2622.2	1199.54	2622.2	1224.63	2622.08	1352.31	2622.14	1383.5	2622.11
1383.76	2622.12	1408.76	2622.2	1662.1	2622.2	1684.53	2622.47	1792.23	2623.92
1793.4	2623.93	1815.75	2624.2	1908.4	2624.2	1915.64	2623.86	1917.77	2623.74
1922.3	2623.5	1928.7	2623.27	1940.38	2622.57	1942.36	2622.48	1946.46	2622.2
1958.96	2622.2	1966.96	2622.87	1973.46	2623.34	1980.21	2623.86	1985.39	2624.2
2090.3	2624.2	2103.75	2624.45	2104.46	2624.47	2105.24	2624.49	2111.07	2624.61
2117.6	2624.76	2119.47	2624.82	2124.33	2624.94	2127	2625.01	2131.56	2625.14
2139.44	2625.34	2143.14	2625.44	2148.09	2625.55	2150.31	2625.62	2155.51	2625.69
2156.37	2625.73	2161.36	2625.77	2165.73	2625.77	2173.3	2625.73	2177.36	2625.72
2209.07	2626.2	2287.49	2626.2	2300.2	2626.51	2365.17	2627.99	2373.7	2628.11
2374.07	2628.11	2374.42	2628.12	2374.74	2628.12	2375.04	2628.13	2380.87	2628.2
2415	2628.2	2438.2	2622.4	2451.84	2620.2	2454.33	2620.2	2465.48	2620.2
2490.65	2620.2	2496.43	2620.2	2498.82	2620.2	2514.28	2620.2	2515.48	2620.2
2524.4	2620.2	2524.68	2620.2	2527.21	2620.2	2551.21	2620.2	2602.87	2620.2
2603.04	2620.2	2610.53	2620.2	2611.42	2620.2	2617.55	2620.2	2653.84	2620.2
2659.18	2620.2	2669.19	2620.2	2669.41	2620.2	2669.58	2620.2	2670.49	2620.2
2678.88	2620.2	2682.57	2620.2	2685.35	2620.2	2689.23	2620.2	2695.21	2620.2
2697.96	2620.2	2702.76	2620.2	2822.98	2620.2	2823.35	2620.37	2827.18	2622.18

2827.23	2622.2	2828.77	2622.89	2831.72	2624.2	2835.09	2624.37	2839.23	2624.57
2840.06	2624.56	2843.85	2624.72	2907.37	2624.79	2910.97	2624.69	2912.53	2624.68
2917.66	2624.54	2918.85	2624.53	2925.17	2624.37	2925.78	2624.36	2932.1	2624.2
2940.11	2624.2	2942.69	2624.3	2985.76	2626.2	2997.24	2626.2	2999.66	2626.31
3000.21	2626.33	3024.67	2627.56	3028.82	2627.79	3037.2	2628.2	3040.86	2628.46
3042.33	2628.57	3052.31	2629.17	3055.18	2629.24	3057.69	2629.26	3060.19	2629.51
3061.74	2629.55	3065.29	2629.8	3065.91	2629.86	3071.25	2630.12	3073.14	2630.2
3077.65	2630.34	3078.11	2630.37	3083.62	2630.56	3084.95	2630.64	3089.05	2630.84
3091.6	2630.99	3094.42	2631.17	3098.6	2631.42	3100.19	2631.55	3106.56	2631.86
3107.31	2631.93	3115.21	2632.2	3115.85	2632.22	3115.94	2632.23	3123.17	2632.42
3128.64	2632.5	3129.5	2632.53	3133.09	2632.6	3134.25	2632.61	3149.75	2633.76
3154.12	2634.2	3158.99	2634.77	3170.24	2636.2	3177.18	2636.87	3183.19	2637.41
3194.01	2638.13	3194.37	2638.16	3194.54	2638.17	3194.65	2638.17	3195.15	2638.2
3201.64	2638.82	3204.33	2639.09	3207.97	2639.43	3212.01	2639.7		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	2415	.032	2843.85	.06	2907.37	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2415	2843.85	0	0	0	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
138.99	387.48	2625.64	F
1815.28	2236.46	2625.79	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2624.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.070	0.032	
W.S. Elev (ft)	2623.79	Reach Len. (ft)			
Crit W.S. (ft)	2623.44	Flow Area (sq ft)	2002.36	1383.12	
E.G. Slope (ft/ft)	0.004162	Area (sq ft)	2059.88	1383.12	
Q Total (cfs)	13000.00	Flow (cfs)	3514.26	9485.74	
Top Width (ft)	1840.54	Top Width (ft)	1442.40	398.14	
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)	1.76	6.86	
Max Chl Dpth (ft)	3.59	Hydr. Depth (ft)	1.45	3.47	
Conv. Total (cfs)	201513.4	Conv. (cfs)	54474.7	147038.8	
Length Wtd. (ft)		Wetted Per. (ft)	1380.09	399.27	
Min Ch El (ft)	2620.20	Shear (lb/sq ft)	0.38	0.90	
Alpha	2.38	Stream Power (lb/ft s)	0.66	6.17	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	2.56	2.07	0.00
C & E Loss (ft)	0.00	Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Warning: A flow split was encountered. The program first calculated the momentum of both channels below the junction. An energy balance was performed across the junction from the stream with the highest momentum downstream to the section upstream.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 10603.59

INPUT
Description: ief for flow expansion around "island"

Increased left levee
height to conform to FEMA levee freeboard requirement (CLOMR)
Station Elevation Data num= 291

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2621.71	4.4	2621.8	11.19	2621.96	18.99	2622.14	21.62	2622.2
37.34	2622.2	50.28	2622.2	54.04	2621.99	59.04	2621.71	62.51	2621.5
105.41	2620.83	107.84	2620.85	109.96	2620.87	112.39	2620.89	115.05	2620.91
117.84	2620.93	120.38	2620.97	122.97	2621.01	126.05	2621.03	128.94	2621.04
132.31	2621.11	135.09	2621.11	138.45	2621.18	140.75	2621.23	143.53	2621.22
145.84	2621.2	188.12	2621.74	202.42	2621.76	207.26	2621.75	212.28	2621.73
233.87	2621.76	318.28	2621.47	320.35	2621.46	400.15	2621.65	401.76	2621.65
403.52	2621.66	405.92	2621.66	409.63	2621.67	414.06	2621.67	415.73	2621.68
441.25	2621.7	442.83	2621.72	541.96	2622.2	543.2	2622.2	545.67	2622.2
585.48	2622.2	585.54	2622.2	589.53	2622.2	593.47	2622.2	597.08	2622.2
600.04	2622.2	602.18	2622.2	602.99	2622.2	680.83	2622.2	684.87	2622.2
706.67	2622.2	710.62	2622.2	712.86	2622.2	716.27	2622.2	727.8	2622.2
730.67	2622.2	731.71	2622.2	734.23	2622.2	753.39	2622.2	765.43	2622.2
768.37	2622.2	875.49	2623.64	876.45	2623.64	878.37	2623.68	879.29	2623.69
880.09	2623.7	899.57	2623.82	900.24	2623.81	903.8	2623.79	905.47	2623.82
906.11	2623.81	907.04	2623.8	908.09	2623.8	909.14	2623.79	910.22	2623.77
912.44	2623.79	913.2	2623.79	914.35	2623.77	915.68	2623.75	919.73	2623.74
921.21	2623.72	925.65	2623.71	930.14	2623.7	931.6	2623.67	935.99	2623.66
937.33	2623.64	947.51	2623.39	950.64	2623.28	954.29	2623.24	957.96	2623.09
962.86	2622.9	965.43	2622.85	971.8	2622.58	973.31	2622.54	981.46	2622.2
981.5	2622.2	987.71	2622.2	991.03	2622.2	993.44	2622.2	995.22	2622.2

996.61	2622.2	1002.96	2622.2	1024.36	2623.15	1032.77	2623.34	1043.34	2623.55
1057.8	2623.98	1067.42	2624.2	1072.36	2624.2	1073.48	2624.2	1077.45	2624.2
1077.51	2624.2	1081.5	2624.2	1081.54	2624.2	1082	2624.2	1082.11	2624.2
1082.29	2624.2	1087.64	2624.2	1088.26	2624.2	1089.4	2624.2	1092.41	2624.2
1100.49	2624.2	1110.35	2624.2	1116.81	2624.2	1117.88	2624.2	1119.05	2624.2
1125.99	2624.2	1128.22	2624.2	1133.75	2624.2	1137.1	2624.2	1141.52	2624.2
1147.25	2624.2	1150.46	2624.2	1151.59	2624.2	1154.29	2624.2	1159.27	2624.2
1161.59	2624.2	1163.64	2624.2	1165.31	2624.2	1170.55	2624.2	1171.72	2624.2
1176.89	2624.2	1177.64	2624.2	1182.49	2624.2	1187.53	2624.2	1190.88	2624.2
1191.17	2624.2	1192.32	2624.2	1340.94	2626.07	1350.91	2626.2	1351.29	2626.2
1351.35	2626.2	1353.66	2626.2	1354	2626.2	1356.2	2626.2	1356.66	2626.2
1368.31	2626.46	1369.48	2626.48	1375.94	2626.58	1382.01	2626.66	1387.67	2626.74
1392.96	2626.81	1395.34	2626.84	1400.57	2626.9	1405.75	2626.96	1408.57	2626.99
1413.52	2627.05	1416.69	2627.08	1417.9	2627.1	1422.02	2627.15	1433.88	2627.26
1437.35	2627.31	1484.46	2627.42	1486.29	2627.38	1488.34	2627.34	1489.83	2627.35
1492.08	2627.3	1495.11	2627.32	1497.47	2627.27	1500.19	2627.27	1502.78	2627.22
1505.62	2627.19	1507.86	2627.17	1510.87	2627.15	1514.04	2627.12	1517.45	2627.08
1521.31	2626.11	1525.76	2624.95	1530.75	2623.64	1536.54	2622.1	1538.13	2621.58
1544.75	2620.2	1552.65	2620.2	1560.4	2620.2	1560.67	2620.2	1560.97	2620.2
1566.32	2620.2	1590.32	2620.2	1645	2620.2	1686.26	2620.2	1686.92	2620.2
1688.12	2620.2	1688.8	2620.2	1690.18	2620.2	1703.09	2620.2	1704.25	2620.2
1710.29	2620.2	1715.4	2620.2	1718.44	2620.2	1732.5	2620.2	1734.3	2620.2
1750.57	2620.2	1753.97	2620.2	1757.29	2620.2	1757.55	2620.2	1759.13	2620.2
1764.69	2620.2	1768.09	2620.2	1771.65	2620.2	1779.91	2620.2	1780.22	2620.2
1780.38	2620.2	1780.78	2620.2	1787.14	2620.2	1788.86	2620.2	1791.94	2620.2
1895.03	2620.2	1902.84	2620.2	1903.05	2620.2	1905.96	2620.96	1907.64	2622.2
1910.56	2623.84	1914.15	2624.2	1914.94	2624.2	1923.66	2624.2	1950.69	2624.2
1953.76	2624.2	1958.46	2624.2	1966.45	2624.2	1969.02	2624.2	1974.14	2624.2
1978.21	2624.2	1980.39	2624.2	1984.39	2624.2	1987.36	2624.2	1989.84	2624.2
1991.25	2624.2	2005.23	2624.2	2008.1	2624.2	2010.92	2624.2	2015.21	2624.2
2022.94	2624.26	2023.91	2624.79	2032.66	2626.04	2052.96	2626.2	2055.66	2627.02
2071.18	2627.73	2084.34	2627.95	2088.35	2628.2	2092.76	2628.72	2100.62	2630.2
2124.76	2630.4	2128.34	2631.11	2146.61	2631.47	2150.83	2631.51	2153.12	2632.19
2160.61	2632.2	2160.62	2632.2	2160.68	2633.66	2172.45	2634.2	2176.66	2634.2
2177.2	2634.2	2178.43	2634.2	2179.67	2635.17	2192.74	2636.2	2204.57	2637.3
2215.15	2638.2	2226.2	2638.27	2227.08	2638.3	2227.51	2639.04	2237.45	2639.33
2241.77	2639.78	2246.2	2639.88	2247.59	2640.2	2251.14	2640.37	2255.28	2640.7
2267.13	2640.72								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	1517.45	.03	1914.15	.06	1958.46	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1517.45	1914.94	273.8	138.49	139.77	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
890	1332.73	2628.2	F

Left Levee Station= 47.28 Elevation= 2626.96

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2624.04	Element			
Vel Head (ft)	0.58	Wt. n-Val.	0.070	0.030	
W.S. Elev (ft)	2623.46	Reach Len. (ft)	273.80	138.49	139.77
Crit W.S. (ft)	2623.05	Flow Area (sq ft)	1266.25	1205.37	
E.G. Slope (ft/ft)	0.004081	Area (sq ft)	1333.71	1205.37	
Q Total (cfs)	10539.38	Flow (cfs)	2300.95	8238.43	
Top Width (ft)	1288.01	Top Width (ft)	909.54	378.48	
Vel Total (ft/s)	4.26	Avg. Vel. (ft/s)	1.82	6.83	
Max Chl Dpth (ft)	3.26	Hydr. Depth (ft)	1.55	3.18	
Conv. Total (cfs)	164971.3	Conv. (cfs)	36016.5	128954.9	
Length Wtd. (ft)	162.59	Wetted Per. (ft)	816.38	379.72	
Min Ch El (ft)	2620.20	Shear (lb/sq ft)	0.40	0.81	
Alpha	2.05	Stream Power (lb/ft s)	0.72	5.53	
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	39.88	177.64	14.96
C & E Loss (ft)	0.00	Cum SA (acres)	32.70	36.76	10.43

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 10465.1

INPUT
Description: ief for flow expansion around "island"

Increased left levee
height to conform to FEMA levee freeboard requirement (CLOMR)
Station Elevation Data num= 375

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17.05	2620.17	17.66	2620.2	17.84	2620.24	18.36	2620.37	23.96	2621.73
25.79	2622.2	38.75	2622.2	52.14	2622.2	59.22	2621.59	74.16	2620.2

76.69	2620.2	121.18	2620.2	122.66	2620.2	128.12	2620.2	128.76	2620.2
131.99	2620.2	134.31	2620.2	138.27	2620.2	150.77	2620.2	152.3	2620.2
156.21	2620.2	157.76	2620.2	159.25	2620.2	163.34	2620.2	173.52	2620.2
175.33	2620.2	177.35	2620.2	182.32	2620.2	184.64	2620.2	187.21	2620.2
191.96	2620.2	194.87	2620.2	199.16	2620.2	203.09	2620.2	206.31	2620.2
210.03	2620.2	213.55	2620.2	217.01	2620.2	220.77	2620.2	223.84	2620.2
227.9	2620.2	230.67	2620.2	234.96	2620.2	239.32	2620.2	243.82	2620.2
246.28	2620.2	250.98	2620.2	256	2620.2	267.65	2620.2	274.29	2620.2
281.97	2620.2	283.61	2620.2	291.6	2620.2	300.2	2620.2	300.98	2620.2
310.12	2620.2	319.21	2620.2	319.26	2620.2	321.22	2620.2	325.92	2620.2
326.86	2620.2	331.74	2620.2	333.75	2620.2	337.25	2620.2	340.03	2620.2
343.34	2620.2	345.36	2620.2	348.65	2620.2	350.03	2620.2	359.94	2620.38
363.39	2620.46	371.34	2620.65	382.27	2620.89	387.83	2621.02	406.38	2621.41
444.51	2622.2	445.58	2622.2	446.97	2622.2	449.6	2622.2	454.85	2622.2
456.98	2622.2	460.93	2622.2	466.22	2622.2	476.17	2622.2	484.44	2622.2
487.01	2622.2	487.23	2622.2	487.46	2622.2	493.39	2622.2	494.07	2622.2
494.72	2622.2	495.4	2622.2	496.07	2622.2	551.26	2622.2	552.97	2622.2
564.14	2622.2	567.63	2622.2	568.23	2622.2	572.06	2622.2	573.79	2622.2
580.59	2622.2	582.92	2622.2	584.26	2622.2	589.33	2622.2	589.91	2622.2
590.03	2622.2	592.07	2622.2	593.74	2622.2	594.33	2622.2	597.93	2622.2
601.03	2622.2	601.76	2622.2	604.91	2622.2	607.58	2622.2	617.76	2622.2
620.3	2622.2	621.96	2622.2	633.32	2622.2	636.05	2622.2	638.18	2622.2
640.26	2622.2	642.27	2622.2	645.05	2622.2	656.16	2622.2	659.05	2622.2
660.99	2622.2	778.41	2623.75	780.13	2623.76	781.77	2623.77	784.01	2623.81
785.52	2623.81	787.01	2623.82	788.46	2623.83	789.8	2623.84	790.94	2623.85
795.36	2623.91	800.52	2623.94	801.37	2623.95	806.96	2624	808.2	2624.01
808.79	2624.01	815.09	2624.06	815.52	2624.06	826.83	2624.2	828.67	2624.2
830.55	2624.2	831.78	2624.2	834.28	2624.2	834.94	2624.2	839.64	2624.2
846.84	2624.2	847.38	2624.2	847.61	2624.2	848.18	2624.2	849.09	2624.2
854.55	2624.2	861.05	2624.2	862.4	2624.2	862.57	2624.2	881.54	2624.2
882.09	2624.2	882.79	2624.2	889.04	2624.2	892.71	2624.2	893.88	2624.2
895.47	2624.2	906.47	2624.2	917.18	2624.2	920.36	2624.2	923.11	2624.2
927.39	2624.2	930.73	2624.2	936.89	2624.2	938.58	2624.2	942.96	2624.2
947.83	2624.2	954.38	2624.2	960.24	2624.2	961.33	2624.2	966.51	2624.2
970.89	2624.2	1099.43	2625.14	1102.24	2625.18	1104.88	2625.19	1108.02	2625.23
1145.98	2625.01	1148.2	2624.96	1149.68	2625	1152.4	2624.96	1154.22	2624.99
1156.93	2624.97	1158.99	2625	1161.42	2625	1163.69	2625.02	1166.06	2625.04
1168.55	2625.05	1168.74	2625.05	1171.04	2625.07	1173.66	2625.1	1176.29	2625.1
1179.04	2625.14	1206.05	2625.07	1209.17	2625.01	1211.45	2625.01	1214.72	2624.95
1218.3	2624.88	1220.23	2624.87	1224.17	2624.8	1228.64	2624.71	1230.2	2624.7
1234.88	2624.63	1236.18	2624.62	1241.15	2624.54	1242.19	2624.53	1247.49	2624.46
1248.27	2624.45	1253.93	2624.38	1254.49	2624.37	1260.24	2624.32	1260.6	2624.31
1260.92	2624.31	1266.65	2624.27	1266.85	2624.27	1272.49	2624.25	1272.64	2624.25
1272.77	2624.25	1278.18	2624.25	1278.31	2624.25	1283.24	2624.27	1283.42	2624.27
1283.57	2624.26	1287.95	2624.31	1288.19	2624.3	1289.67	2624.28	1294.36	2624.33
1294.67	2624.33	1294.95	2624.32	1299.03	2624.38	1299.4	2624.37	1333	2624.2
1353	2619.2	1383.74	2619.2	1403.74	2619.2	1420.7	2619.2	1428.82	2619.2
1434.42	2619.2	1459.95	2619.2	1460.12	2619.2	1460.21	2619.2	1460.98	2619.2
1461.3	2619.2	1507.96	2619.2	1510.68	2619.2	1511.84	2619.2	1514.69	2619.2
1515.16	2619.2	1516.25	2619.2	1524.69	2619.2	1526.28	2619.2	1530.01	2619.2
1530.47	2619.2	1547.47	2619.2	1559.15	2619.2	1565.37	2619.2	1573.35	2619.2
1577.17	2619.2	1583.98	2619.2	1584.36	2619.2	1591.57	2619.2	1604.97	2619.2
1605.51	2619.2	1606.34	2619.2	1607.2	2619.2	1608.02	2619.2	1650.09	2619.2
1656.01	2619.21	1661.68	2619.1	1706.71	2619.05	1707.62	2619.22	1708.51	2619.12
1709.7	2619.37	1712.09	2619.79	1712.62	2619.76	1713.18	2619.9	1714.49	2620.2
1716.87	2621.12	1719.6	2622.2	1728.23	2623.64	1731.02	2624.2	1732.09	2624.2
1732.55	2624.2	1737.8	2624.2	1740.57	2624.2	1742.49	2624.2	1744.54	2624.2
1745.88	2624.2	1747.53	2624.2	1748.65	2624.2	1763.02	2624.57	1772.46	2624.77
1774.43	2624.82	1778.59	2624.89	1814.35	2626.2	1816.41	2626.2	1816.96	2626.2
1817.71	2626.2	1820.56	2626.2	1821.18	2626.2	1824.92	2626.2	1825.1	2626.2
1825.94	2626.2	1833.48	2626.77	1836.81	2627.05	1841.65	2627.47	1848.46	2627.94
1849.37	2628.03	1851.29	2628.2	1852.88	2628.2	1857.54	2628.45	1858.59	2628.6
1864.32	2628.99	1867.46	2629.46	1869.59	2629.68	1873.31	2630.2	1873.55	2630.2
1873.78	2630.2	1891.6	2631.69	1893.6	2631.82	1901.87	2632.18	1901.97	2632.18
1902.03	2632.19	1902.07	2632.19	1902.1	2632.19	1902.48	2632.2	1908.47	2632.4
1914.01	2632.54	1915.1	2632.58	1920.63	2632.72	1922.51	2632.78	1927.53	2632.92
1930.36	2633.01	1934.58	2633.12	1938.25	2633.24	1941.25	2633.3	1943.38	2633.31
1945.27	2633.29	1948.93	2633.44	1950.59	2633.38	1952.8	2633.31	1956.07	2633.44
1958.35	2633.32	1961.47	2633.37	1964.13	2633.2	1966.85	2633.16	1970.19	2632.91
1974.97	2632.58	1976.09	2632.53	1981.27	2632.2	1982.07	2632.2	1982.2	2632.2
1989	2632.2	1990.54	2632.2	1995.49	2632.2	1999	2632.2	2000.1	2632.2
2000.86	2632.2	2004.75	2632.59	2008.77	2632.94	2022.6	2634.2	2028.27	2634.87
2038.17	2636.2	2049.39	2637.14	2062.98	2638.2	2086.31	2639.36	2098.15	2639.9

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17.05	.087	1333	.03	1731.02	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1333	1731.02	263.28	144.46	184.16	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
750	1333	2628.2	F

Left Levee Station= 50.24 Elevation= 2625.79

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2623.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.	0.087	0.030	
W.S. Elev (ft)	2622.79	Reach Len. (ft)	263.28	144.46	184.16
Crit W.S. (ft)	2621.97	Flow Area (sq ft)	1043.73	1337.55	
E.G. Slope (ft/ft)	0.003582	Area (sq ft)	1043.73	1337.55	
Q Total (cfs)	10539.38	Flow (cfs)	1453.28	9086.10	
Top Width (ft)	1040.30	Top Width (ft)	655.77	384.54	
Vel Total (ft/s)	4.43	Avg. Vel. (ft/s)	1.39	6.79	
Max Chl Dpth (ft)	3.74	Hydr. Depth (ft)	1.59	3.48	
Conv. Total (cfs)	176108.3	Conv. (cfs)	24283.6	151824.6	
Length Wtd. (ft)	155.89	Wetted Per. (ft)	656.48	385.54	
Min Ch El (ft)	2619.05	Shear (lb/sq ft)	0.36	0.78	
Alpha	2.04	Stream Power (lb/ft s)	0.49	5.27	
Frctn Loss (ft)	1.03	Cum Volume (acre-ft)	32.41	173.60	14.96
C & E Loss (ft)	0.05	Cum SA (acres)	27.78	35.55	10.43

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: Agua Caliente
REACH: middle RS: 10320.64

INPUT
Description: ief for flow expansion around "island"

Increased left levee
height to conform to FEMA levee freeboard requirement (CLOMR)
Station Elevation Data num= 287

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2620.16	.52	2620.16	3.9	2620.2	5.78	2620.68	11.79	2622.2
32.29	2622.2	33.35	2622.2	34.75	2621.71	39.06	2620.2	40.93	2620.2
41.37	2620.2	56.42	2620.2	65.25	2620.2	71.19	2620.2	75.23	2620.2
78.42	2620.2	81.46	2620.2	83.83	2620.2	85.66	2620.2	87.16	2620.2
114.09	2620.2	115.59	2620.2	118.78	2620.2	120.54	2620.2	122.66	2620.2
125.2	2620.2	128.53	2620.2	132.84	2620.2	137.07	2620.2	142.69	2620.2
150.02	2620.2	151.15	2620.2	160.79	2620.2	164.09	2620.2	164.33	2620.2
164.56	2620.2	169.9	2620.2	170.54	2620.2	171.16	2620.2	176.12	2620.2
177.09	2620.2	178.01	2620.2	182.6	2620.2	183.68	2620.2	187.68	2620.2
188.5	2620.2	222.97	2620.2	273.89	2620.2	276.21	2620.2	278.77	2620.2
281.41	2620.2	284	2620.2	285.33	2620.2	290.3	2620.25	421.48	2621.61
435.94	2621.56	437.44	2621.55	441.21	2621.52	444.09	2621.56	444.92	2621.56
446.3	2621.55	447.78	2621.53	450.6	2621.57	452.07	2621.56	453.65	2621.55
455.41	2621.54	457.15	2621.53	459.39	2621.54	460.84	2621.54	461.95	2621.55
463.99	2621.54	464.77	2621.54	516.94	2621.35	520.54	2621.37	524.04	2621.38
525.56	2621.39	529.05	2621.4	585.37	2622.2	587.75	2622.2	591.26	2622.2
610.51	2622.2	614.03	2622.2	618.12	2622.2	648.38	2622.2	649.87	2622.2
651.46	2622.2	653.11	2622.2	655.15	2622.2	656.83	2622.2	659.13	2622.2
662.31	2622.2	663.64	2622.2	667.23	2622.2	668.42	2622.2	672.73	2622.2
676.42	2622.2	677.14	2622.2	677.39	2622.2	678.48	2622.2	679.41	2622.2
688.7	2622.2	691.17	2622.2	691.45	2622.2	698.88	2622.2	699.27	2622.2
811.66	2623.51	813.87	2623.51	824.83	2623.55	826.55	2623.55	895.61	2623.69
897.2	2623.7	900.91	2623.71	907.88	2623.73	908.8	2623.73	913.14	2623.75
917.88	2623.76	918.62	2623.76	923.06	2623.77	957.07	2623.8	958.23	2623.8
962.72	2623.79	963.91	2623.79	965.17	2623.78	969.91	2623.77	971.23	2623.76
972.58	2623.76	1016.52	2623.96	1107.47	2623.94	1107.98	2623.94	1108.52	2623.93
1109.11	2623.92	1112.74	2623.01	1113.24	2622.94	1113.78	2622.79	1117.9	2621.75
1118.4	2621.67	1122.8	2620.56	1123.26	2620.48	1127.86	2619.32	1132.66	2618.2
1132.98	2618.2	1137.96	2618.2	1143.02	2618.2	1143.16	2618.2	1148.34	2618.2
1148.4	2618.2	1152.76	2618.2	1154.22	2618.2	1161.18	2618.2	1167.44	2618.2
1167.72	2618.2	1173.58	2618.2	1178.94	2618.2	1184.09	2618.2	1184.38	2618.2
1189.44	2618.2	1189.79	2618.2	1195.33	2618.2	1195.92	2618.2	1201.88	2618.2
1202.95	2618.2	1208.84	2618.2	1210.67	2618.2	1216.21	2618.2	1220.92	2618.2
1223.7	2618.2	1227.35	2618.2	1231.01	2618.2	1233.61	2618.2	1238.41	2618.2
1239.6	2618.2	1243.79	2618.2	1248.16	2618.2	1259.84	2618.2	1262.5	2618.2
1271.83	2618.2	1278.38	2618.2	1282.52	2618.2	1286.83	2618.2	1291.2	2618.2
1293.61	2618.2	1298.63	2618.2	1305.69	2618.2	1315.96	2618.2	1320.4	2618.2
1322.64	2618.2	1323.02	2618.2	1326.38	2618.2	1333.97	2618.2	1346.88	2618.2
1361.41	2618.2	1369.6	2618.2	1370.07	2618.2	1376.56	2618.2	1378.98	2618.2
1383.69	2618.2	1386.18	2618.2	1386.95	2618.2	1397.88	2618.2	1404.42	2618.2
1409.03	2618.2	1412.33	2618.2	1416.98	2618.2	1419.7	2618.2	1443.91	2617.71
1448.01	2617.73	1452.21	2617.71	1469.56	2618.2	1473.9	2618.2	1477.16	2618.2
1483.88	2618.2	1495.43	2618.2	1495.66	2618.28	1501.19	2620.2	1502.58	2620.68
1507.49	2622.2	1513.93	2622.72	1513.94	2622.72	1531.35	2624.2	1541.65	2624.97
1546.49	2625.34	1549.54	2625.48	1551.97	2625.67	1559.37	2626.02	1559.81	2626.02
1560.26	2626.01	1560.74	2626	1561.21	2625.99	1563.63	2625.94	1589.76	2626.06
1590.01	2626.06	1593.56	2626.2	1595.69	2626.36	1596.44	2626.41	1602.44	2626.86

1605.65	2627.06	1609.58	2627.35	1615.09	2627.72	1616.79	2627.84	1622.49	2628.2
1623.6	2628.27	1628.3	2628.52	1632.2	2628.66	1632.89	2628.66	1636.49	2628.75
1637.4	2628.73	1640.47	2628.82	1645.87	2628.85	1654.09	2628.9	1657.4	2628.78
1658.55	2628.84	1661.5	2628.72	1662.41	2628.74	1664.29	2628.76	1665.21	2628.73
1672.36	2629.05	1676.34	2629.39	1678.25	2629.56	1685.67	2629.97	1688.29	2630.12
1688.53	2630.12	1692.17	2630.2	1693.79	2630.2	1693.94	2630.2	1699.72	2630.2
1701.15	2630.28	1706.94	2630.26	1710.51	2630.2	1712.45	2630.2	1713.1	2630.2
1718.09	2630.2	1721.21	2630.2	1722.71	2630.45	1733.38	2631.98	1734.34	2632.13
1734.96	2632.2	1736.84	2632.36	1758.45	2634.07	1759	2634.1	1761.21	2634.2
1763.69	2634.2	1764.62	2634.2	1768.58	2634.2	1770.01	2634.2	1773.44	2634.2
1774.54	2634.2	1774.74	2634.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.088	1109.11	.044	1513.93	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1109.11	1513.93	200.64	188.73	187.74	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
640	1109	2626.2	F

Left Levee Station= 30.73 Elevation= 2624.21

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2622.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.13	Wt. n-Val.	0.088	0.044	
W.S. Elev (ft)	2621.21	Reach Len. (ft)	200.64	188.73	187.74
Crit W.S. (ft)	2621.21	Flow Area (sq ft)	297.83	1136.27	
E.G. Slope (ft/ft)	0.015926	Area (sq ft)	297.83	1136.27	
Q Total (cfs)	10539.38	Flow (cfs)	573.86	9965.52	
Top Width (ft)	730.26	Top Width (ft)	346.22	384.03	
Vel Total (ft/s)	7.35	Avg. Vel. (ft/s)	1.93	8.77	
Max Chl Dpth (ft)	3.50	Hydr. Depth (ft)	0.86	2.96	
Conv. Total (cfs)	83514.4	Conv. (cfs)	4547.3	78967.1	
Length Wtd. (ft)		Wetted Per. (ft)	346.40	384.90	
Min Ch El (ft)	2617.71	Shear (lb/sq ft)	0.85	2.94	
Alpha	1.35	Stream Power (lb/ft s)	1.65	25.74	
Frctn Loss (ft)		Cum Volume (acre-ft)	28.35	169.50	14.96
C & E Loss (ft)		Cum SA (acres)	24.76	34.28	10.43

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 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: Agua Caliente
REACH: middle RS: 10131.91

INPUT
Description: ief for flow expansion around "island"

Increased left levee
height to conform to FEMA levee freeboard requirement (CLOMR)
Station Elevation Data num= 215

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2621.44	2.94	2622.2	7.94	2622.2	13.86	2622.2	14.72	2622.2
16.06	2621.97	26.67	2620.2	30.78	2620.2	34.48	2620.2	34.64	2620.2
36.84	2620.2	38.33	2620.2	39.36	2620.2	58.72	2620.2	59.3	2620.2
62.99	2620.2	130.08	2620.2	155.79	2620.2	159.47	2620.2	163.27	2620.2
167.09	2620.2	170.8	2620.2	174.34	2620.2	174.74	2620.2	284.75	2620.2
287.65	2620.2	291.73	2620.2	294.45	2620.2	299.23	2620.2	304.41	2620.2
306.57	2620.2	308.7	2620.2	314.07	2620.2	315.67	2620.2	321.82	2620.2
322.88	2620.2	330.02	2620.2	330.59	2620.2	339	2620.2	339.12	2620.2
339.37	2620.2	339.5	2620.2	339.64	2620.2	339.99	2620.2	341.47	2620.2
346.34	2620.2	352.1	2620.2	352.81	2620.2	358.02	2620.2	362.49	2620.2
366.38	2620.2	369.89	2620.2	373.1	2620.2	376.15	2620.2	376.69	2620.2
380.95	2620.2	381.13	2620.2	383.27	2620.2	385.05	2620.2	403.41	2620.45
447.61	2621.02	449.64	2621.04	512.39	2622.2	542.28	2622.2	543.03	2622.2
546.41	2622.2	553.97	2622.2	556.22	2622.2	559.26	2622.2	559.74	2622.2
563.3	2622.2	563.83	2622.2	569.01	2622.2	570.08	2622.2	571.25	2622.2
571.42	2622.2	576.41	2622.2	577.34	2622.2	584.45	2622.2	587.25	2622.2
593.35	2622.2	597.14	2622.2	601.84	2622.2	604.13	2622.2	610.48	2622.2
628.65	2622.2	629.4	2622.2	632.76	2622.2	633.62	2622.2	637.87	2622.2
638.57	2622.2	643.11	2622.2	643.29	2622.2	644.18	2622.2	645.62	2622.2
653.83	2622.2	654.56	2622.2	659.32	2622.2	663.24	2622.2	672.69	2622.2
717.52	2622.2	739.28	2622.2	759.26	2622.2	770.14	2622.2	777.83	2622.2
873.2	2622.2	897.2	2616.2	943.86	2616.2	944.17	2616.2	946.45	2616.2
948.5	2616.2	950.43	2616.2	953.27	2616.2	955.02	2616.2	956.65	2616.2

980.58	2616.2	983.71	2616.2	984.87	2616.2	988.89	2616.2	993.04	2616.2
994.59	2616.2	998.33	2616.2	1001.74	2616.2	1003.68	2616.2	1007	2616.2
1009.24	2616.2	1012.31	2616.2	1014.72	2616.2	1017.16	2616.2	1019.64	2616.2
1022.09	2616.2	1038.77	2616.2	1041.59	2616.2	1044.45	2616.2	1046.72	2616.2
1049.52	2616.2	1051.63	2616.2	1054.32	2616.2	1056.44	2616.2	1058.95	2616.2
1061.25	2616.2	1063.61	2616.2	1066.13	2616.2	1068.54	2616.2	1103.8	2616.2
1127.05	2616.2	1133.08	2616.2	1134.31	2616.2	1143.35	2616.2	1146.03	2616.2
1147.82	2616.2	1151.23	2616.2	1152.52	2616.2	1153.45	2616.2	1155.34	2616.2
1159.95	2616.2	1167.76	2616.2	1174.58	2616.2	1178.73	2616.2	1202.56	2616.2
1206.21	2616.2	1224.23	2616.2	1226.55	2616.2	1246.78	2616.2	1251.23	2616.2
1253.19	2616.2	1264.99	2617.19	1277.2	2618.2	1280	2619.86	1280.65	2620.2
1281.64	2620.8	1284.05	2622.2	1287.99	2623.93	1288.39	2624.08	1288.56	2624.11
1288.96	2624.2	1290.2	2624.2	1293.65	2624.67	1296.19	2624.77	1297.45	2624.82
1299.03	2625.04	1301.81	2625.11	1303.3	2625.23	1305.48	2625.37	1309.45	2626.2
1312.56	2626.2	1314.75	2626.2	1316.15	2626.2	1316.86	2626.2	1323.53	2627.12
1331.18	2628.2	1338.57	2629.28	1344.75	2630.2	1355.81	2630.73	1364.55	2631.14
1375.26	2631.64	1387.82	2632.2	1392.22	2632.38	1403.91	2632.84	1409.23	2633.07
1416.86	2633.36	1426.24	2633.77	1429.25	2633.88	1431.07	2633.95	1436.55	2634.2
1438.33	2634.25	1470.02	2634.84	1473.71	2634.86	1477.12	2634.89	1477.36	2634.89
1480.52	2634.92	1493.95	2634.95	1497.47	2634.95	1499.03	2634.94	1502.59	2634.94

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.055	873.2	.03	1296.19	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
873.2	1296.19	258.05	222.66	239.06	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
512.29	873	2627.34	F

Left Levee Station= 13.24 Elevation= 2623.88

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2621.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.055	0.030	
W.S. Elev (ft)	2620.88	Reach Len. (ft)	258.05	222.66	239.06
Crit W.S. (ft)	2619.13	Flow Area (sq ft)	264.13	1805.87	
E.G. Slope (ft/ft)	0.001810	Area (sq ft)	264.13	1805.87	
Q Total (cfs)	10539.38	Flow (cfs)	224.81	10314.57	
Top Width (ft)	817.82	Top Width (ft)	414.50	403.32	
Vel Total (ft/s)	5.09	Avg. Vel. (ft/s)	0.85	5.71	
Max Chl Dpth (ft)	4.68	Hydr. Depth (ft)	0.64	4.48	
Conv. Total (cfs)	247715.4	Conv. (cfs)	5283.8	242431.6	
Length Wtd. (ft)	223.44	Wetted Per. (ft)	414.56	404.71	
Min Ch El (ft)	2616.20	Shear (lb/sq ft)	0.07	0.50	
Alpha	1.23	Stream Power (lb/ft s)	0.06	2.88	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	27.06	163.13	14.96
C & E Loss (ft)	0.02	Cum SA (acres)	23.00	32.57	10.43

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

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 9909.25

INPUT
Description: Increased left levee height to conform to FEMA levee freeboard requirement (CLOMR)
Station Elevation Data num= 293

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.68	2618.86	16.5	2620.2	24.82	2620.2	43.33	2620.2	48.5	2620.07
54.92	2619.92	60.42	2619.78	65.1	2619.67	69.18	2619.57	72.68	2619.48
119.24	2618.8	121.8	2618.81	209.29	2619.21	225.68	2619.25	238.11	2619.39
277	2619.9	285.04	2620.01	285.73	2620.02	286.61	2620.03	288.3	2620.04
294.4	2620.12	294.81	2620.12	296.48	2620.13	296.67	2620.13	301.66	2620.18
301.72	2620.18	306.87	2620.2	307.22	2620.2	307.29	2620.2	312.26	2620.2
312.52	2620.2	318.09	2620.2	318.36	2620.2	324.45	2620.2	324.65	2620.2
330.81	2620.2	336.89	2620.2	337.04	2620.2	343.59	2620.2	349.88	2620.2
349.97	2620.2	355.95	2620.2	356.54	2620.2	361.98	2620.2	363.31	2620.2
368.73	2620.2	373.84	2620.2	378.38	2620.2	378.66	2620.2	382.69	2620.2
383.67	2620.2	387.95	2620.2	393.45	2620.2	395.05	2620.2	400.07	2620.2
411.88	2620.2	412.95	2620.2	413.46	2620.2	413.87	2620.2	414.36	2620.2
428.06	2620.2	436.58	2620.2	439.58	2620.2	446.27	2620.2	450.57	2620.2
455.69	2620.2	462.34	2620.2	467.19	2620.2	475.75	2620.2	486.54	2620.2
514.39	2620.36	520.84	2620.31	521.03	2620.31	523.83	2620.29	528.92	2620.25
529.09	2620.24	529.27	2620.24	529.41	2620.24	535.3	2620.2	537.29	2620.2
537.55	2620.2	544.5	2620.2	545.58	2620.2	551.39	2620.2	553.5	2620.2
557.49	2620.2	560.7	2620.2	561.61	2620.2	562.14	2620.2	564.65	2620.2
569.5	2620.2	579.24	2620.2	586.75	2620.2	596.88	2620.2	601.61	2620.2
604.51	2620.2	616.47	2620.2	617	2620.2	617.08	2620.2	626.86	2620.2

634.19	2620.2	636.43	2620.2	642.59	2620.2	647.38	2620.2	650.65	2620.2
654.42	2619.26	658.47	2618.24	670.68	2616.2	674.11	2616.2	678.49	2616.2
685.14	2616.2	685.55	2616.2	688.6	2616.2	691.65	2616.2	694.06	2616.2
699.35	2616.2	699.63	2616.2	702	2616.2	709.84	2616.2	718.19	2616.2
726.85	2616.2	752	2616.2	768	2616.2	829.07	2616.2	880.54	2616.2
905.8	2616.2	910.33	2616.2	926.19	2616.2	926.41	2616.2	931.67	2616.2
931.97	2616.2	937.1	2616.2	943.34	2616.2	948.65	2616.2	950.23	2616.2
1026.33	2616.2	1033.9	2616.2	1041.4	2616.2	1044.22	2617.27	1046.65	2618.2
1047.37	2618.48	1051.86	2620.2	1057.07	2621.89	1058.47	2622.2	1059.2	2622.2
1062.06	2622.2	1065.12	2622.2	1074.47	2622.66	1075.81	2622.74	1079.82	2622.71
1081.74	2622.81	1084.02	2622.81	1086.74	2622.92	1094.42	2624.2	1097.69	2624.2
1100.33	2624.2	1103.72	2624.2	1107.79	2624.2	1108.38	2624.31	1108.81	2624.38
1112.19	2625.12	1116.69	2625.68	1117.43	2625.86	1120.33	2626.2	1122.91	2626.2
1123.2	2626.2	1126.05	2626.2	1156.15	2628.06	1158.36	2628.2	1160.04	2628.2
1161.45	2628.2	1163.12	2628.2	1164.61	2628.2	1166.47	2628.2	1181.99	2628.59
1183.28	2628.61	1188.41	2628.68	1190	2628.7	1191.76	2628.73	1196.68	2628.8
1198.77	2628.83	1203.26	2628.9	1205.73	2628.94	1209.89	2628.99	1212.61	2629.04
1216.6	2629.1	1219.7	2629.15	1223.15	2629.2	1226.56	2629.25	1229.55	2629.3
1233.36	2629.35	1235.98	2629.4	1240.16	2629.45	1244.46	2629.49	1246.89	2629.54
1251.61	2629.59	1253.69	2629.63	1259.01	2629.67	1260.68	2629.71	1266.06	2629.74
1281.95	2629.43	1296.41	2629.19	1298.11	2629.02	1299.96	2629.04	1301.53	2628.91
1302.88	2628.87	1312.48	2628.72	1313.77	2628.79	1314.73	2628.78	1316.52	2628.84
1318.93	2628.95	1321.46	2629.01	1324.41	2629.16	1327.46	2629.19	1330.29	2629.33
1332.59	2629.44	1335.93	2629.44	1337.97	2629.52	1339.59	2629.58	1343.07	2629.55
1344.64	2629.6	1347.99	2629.56	1349.55	2629.6	1352.97	2629.57	1354.55	2629.61
1358.14	2629.59	1359.72	2629.62	1363.47	2629.6	1365.06	2629.64	1368.87	2629.62
1370.47	2629.65	1371.97	2629.67	1373.34	2629.68	1377.15	2629.66	1378.54	2629.68
1402.38	2629.48	1406.78	2629.44	1409.58	2629.38	1412.98	2629.31	1417.14	2629.24
1421.02	2629.18	1424.72	2629.11	1429.1	2629.04	1432.21	2628.97	1436.95	2628.91
1439.58	2628.86	1444.79	2628.8	1446.96	2628.76	1452.46	2628.7	1454.31	2628.66
1455.92	2628.63	1461.59	2628.59	1462.93	2628.56	1468.67	2628.51	1481.59	2628.48
1485.57	2628.43	1490.15	2628.37	1490.35	2628.37	1495.45	2628.2	1496.32	2628.2
1498.5	2628.2	1499.2	2628.2	1500.95	2628.2	1501.31	2628.2	1501.82	2628.2
1503.93	2628.13	1508.6	2627.91	1508.97	2627.91	1512.67	2627.7	1538.04	2627.52
1541.53	2627.66	1546.63	2627.81	1553.97	2628.2	1556.75	2628.2	1557.36	2628.2
1558.4	2628.2	1561.06	2628.2	1562.4	2628.2	1565.49	2628.2	1569.71	2628.2
1570.4	2628.22	1577.59	2628.45	1583.31	2628.64	1584.31	2628.65	1588.85	2628.81
1618.35	2630.2	1620.35	2630.2	1621.52	2630.2	1623.17	2630.2	1624.6	2630.2
1625.94	2630.2	1627.01	2630.2	1669.2	2629.73				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.68	.06	650.65	.032	1059.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
650.65	1059.2	325.7	358.78	343.67	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
480	650	2625.2	F

Left Levee Station= 42.55 Elevation= 2623.07

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2620.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.	0.060	0.032	
W.S. Elev (ft)	2620.07	Reach Len. (ft)	325.70	358.78	343.67
Crit W.S. (ft)	2619.13	Flow Area (sq ft)	187.83	1497.09	
E.G. Slope (ft/ft)	0.003795	Area (sq ft)	187.83	1497.09	
Q Total (cfs)	10539.38	Flow (cfs)	241.70	10297.68	
Top Width (ft)	642.83	Top Width (ft)	242.46	400.37	
Vel Total (ft/s)	6.26	Avg. Vel. (ft/s)	1.29	6.88	
Max Chl Dpth (ft)	3.87	Hydr. Depth (ft)	0.77	3.74	
Conv. Total (cfs)	171089.0	Conv. (cfs)	3923.6	167165.5	
Length Wtd. (ft)	358.13	Wetted Per. (ft)	242.47	401.48	
Min Ch El (ft)	2616.20	Shear (lb/sq ft)	0.18	0.88	
Alpha	1.18	Stream Power (lb/ft s)	0.24	6.08	
Frctn Loss (ft)	1.37	Cum Volume (acre-ft)	25.72	154.68	14.96
C & E Loss (ft)	0.11	Cum SA (acres)	21.06	30.52	10.43

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: Agua Caliente
REACH: middle RS: 9550.47

INPUT
Description: Channel banks were widened to have a smooth transition in channel widths of the downstream reach.
The channel n value was increased to find a soln.
Expansion and contraction increased to account

for expansion into leveed reach.

Increased left levee height to
conform to FEMA levee freeboard requirement (CLOMR)

Station Elevation Data num= 216

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15.21	2618.16	16.12	2618.2	17.47	2618.32	45.88	2618.67	47.98	2618.2
49.5	2618.2	52.43	2618.2	77.36	2618.2	88.55	2618.2	96.26	2618.2
101.77	2618.2	110.17	2618.2	114.09	2618.2	116.98	2618.2	123.97	2618.2
126.12	2618.2	127.93	2618.2	129.49	2618.2	130.72	2618.2	136.35	2618.2
137.36	2618.2	138.2	2618.2	138.94	2618.2	161.45	2618.2	165.83	2618.2
166.41	2618.2	171.57	2618.2	186.6	2618.2	196.4	2618.2	200.55	2618.2
201.41	2618.2	203.15	2618.2	208.07	2618.2	211.7	2618.2	217.52	2618.2
224.17	2618.2	229.38	2618.2	233.45	2618.2	250.84	2618.2	253.89	2618.2
254.69	2618.2	255.7	2618.2	258.62	2618.2	259.21	2618.2	261.63	2618.2
262.21	2618.2	262.27	2618.2	262.47	2618.2	262.56	2618.2	262.67	2618.2
268.7	2618.2	269.88	2618.2	271.53	2618.2	273.88	2618.2	280.9	2618.2
286.25	2618.2	294.57	2618.2	302	2618.2	309.54	2616.31	315.28	2614.88
333.38	2614.2	335.05	2614.2	343.15	2614.2	343.37	2614.2	343.51	2614.2
352.77	2614.2	359.87	2614.2	360.92	2614.2	367.11	2614.2	374.59	2614.2
407	2614.2	423	2614.2	464.16	2614.2	465.06	2614.2	465.67	2614.2
466.3	2614.2	466.96	2614.2	467.34	2614.2	471.79	2614.2	477.04	2614.2
500.16	2614.2	503.97	2614.2	510.66	2614.2	520.46	2614.2	529.16	2614.2
529.85	2614.2	530.14	2614.2	530.9	2614.2	532.07	2614.2	534.06	2614.2
535.77	2614.2	538.43	2614.2	542.29	2614.2	548.98	2614.2	550.46	2614.2
556.31	2614.2	562.13	2614.2	567.22	2614.2	572.22	2614.2	572.3	2614.2
572.35	2614.2	577.26	2614.2	584.71	2614.2	585.87	2614.2	592.83	2614.2
597.94	2614.2	601.91	2614.2	669.72	2614.2	672.82	2614.2	674.32	2614.2
678.07	2614.2	682.84	2614.2	689.16	2614.2	691.59	2614.2	698.37	2615.86
699.74	2616.2	703.54	2616.95	709.9	2618.2	711.01	2618.23	711.22	2618.24
711.52	2618.25	724.02	2618.6	727.08	2618.66	737.23	2618.93	742.97	2619.04
750.73	2619.2	758.55	2619.39	763.76	2619.52	773.87	2619.71	777.07	2619.79
789.12	2620	798.87	2620.2	799.15	2620.2	800.15	2620.2	802.5	2620.25
802.74	2620.26	803.04	2620.26	811.81	2620.48	813.18	2620.51	814.89	2620.54
822.68	2620.75	825.77	2620.81	829.62	2620.89	836.8	2621.09	842.18	2621.19
847.59	2621.33	862.36	2621.67	868.23	2621.75	869.94	2621.78	876.37	2621.88
877.61	2621.9	884.7	2622.01	892.81	2622.15	893.03	2622.15	895.83	2622.2
900.15	2622.32	900.6	2622.33	906.87	2622.5	912.01	2622.65	913.48	2622.66
918.3	2622.77	954.07	2622.78	957.5	2622.7	958.88	2622.71	960.28	2622.7
963.65	2622.67	964.91	2622.66	966.2	2622.65	969.24	2622.67	970.67	2622.66
971.99	2622.65	974.63	2622.71	975.78	2622.69	1003.19	2622.87	1005.67	2622.84
1020.86	2622.8	1021.58	2622.81	1064.8	2622.28	1066.1	2622.29	1066.28	2622.29
1066.5	2622.3	1066.73	2622.32	1067	2622.34	1067.34	2622.38	1067.78	2622.43
1068.66	2622.46	1069.26	2622.5	1072.03	2622.77	1072.97	2622.78	1076.08	2623.08
1099.21	2624.2	1101.62	2624.2	1105.3	2624.2	1107.5	2624.2	1113.27	2624.2
1114.23	2624.2	1117.22	2624.2	1119.47	2624.2	1119.8	2624.2	1123.29	2624.2
1123.95	2624.2	1126.5	2624.2	1162.28	2625.12	1165.43	2625.15	1168.89	2625.19
1172.3	2625.23	1175.42	2625.27	1178.23	2625.31	1181.77	2625.34	1184.41	2625.38
1186.83	2625.41	1189.12	2625.44	1192.7	2625.45	1194.91	2625.48	1197.04	2625.5
1227.07	2625.86								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
15.21	.06	302	.042	742.97	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
302	742.97	257.18	242.5	243.6	.3	.5

Left Levee Station= 44.68 Elevation= 2621.78

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2619.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.060	0.042	
W.S. Elev (ft)	2618.81	Reach Len. (ft)	257.18	242.50	243.60
Crit W.S. (ft)	2617.10	Flow Area (sq ft)	154.81	1809.49	
E.G. Slope (ft/ft)	0.003879	Area (sq ft)	154.81	1809.49	
Q Total (cfs)	10539.38	Flow (cfs)	170.08	10369.29	
Top Width (ft)	687.88	Top Width (ft)	257.32	430.56	
Vel Total (ft/s)	5.37	Avg. Vel. (ft/s)	1.10	5.73	
Max Chl Dpth (ft)	4.61	Hydr. Depth (ft)	0.60	4.20	
Conv. Total (cfs)	169226.1	Conv. (cfs)	2731.0	166495.1	
Length Wtd. (ft)	242.63	Wetted Per. (ft)	257.52	431.43	
Min Ch El (ft)	2614.20	Shear (lb/sq ft)	0.15	1.02	
Alpha	1.12	Stream Power (lb/ft s)	0.16	5.82	
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	24.44	141.07	14.96
C & E Loss (ft)	0.12	Cum SA (acres)	19.19	27.09	10.43

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 9307.97

INPUT
Description: Channel banks were widened to have a smooth transition in channel widths of the downstream reach.
The channel n value was increased to find a soln.
Expansion and contraction increased to account for expansion into leveed reach.

Increased left levee height to conform to FEMA levee freeboard requirement (CLOMR)

Station Elevation Data num= 179

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
34.03	2618.2	41.93	2618.2	66.62	2618.2	71.19	2616.93	73.85	2616.2
77.14	2616.2	85.84	2616.2	95.89	2616.2	100.33	2616.2	105.16	2616.2
107.01	2616.2	115.02	2616.2	119.98	2616.2	122.7	2615.52	127.35	2614.36
128.3	2614.12	129.46	2613.83	133.34	2612.86	139.55	2612.2	141.04	2612.2
143.85	2612.2	145.58	2612.2	147.1	2612.2	154.06	2612.2	154.21	2612.2
154.23	2612.2	159.9	2612.2	161.29	2612.2	165.85	2612.2	168.76	2612.2
171.69	2612.2	176.43	2612.2	177.26	2612.2	179.2	2612.2	182.25	2612.2
184.96	2612.2	185.08	2612.2	193.54	2612.2	193.87	2612.2	201.92	2612.2
202.53	2612.2	209.2	2612.2	210.16	2612.2	211.28	2612.2	212.53	2612.2
213.95	2612.2	219.21	2612.2	241	2612.2	314.92	2612.2	315.67	2612.2
318.55	2612.2	320.38	2612.2	321.35	2612.2	324.75	2612.2	328.96	2612.2
334.27	2612.2	341.29	2612.2	343.71	2612.2	352.54	2612.2	362.22	2612.2
363.19	2612.2	366.1	2612.2	367.5	2612.2	369.92	2612.2	375.19	2612.2
382.65	2612.2	383.72	2612.2	390.07	2612.2	395.13	2612.2	466.83	2612.2
471.97	2612.2	497.2	2612.2	498.86	2612.88	499.5	2613.19	501.03	2613.99
501.44	2614.2	503.62	2614.48	518.39	2616.2	519.92	2616.2	521.04	2616.2
532.34	2616.2	541.92	2616.2	543.51	2616.2	544.09	2616.2	545.47	2616.2
559.66	2616.2	566.11	2616.2	576.73	2616.2	577.41	2616.2	578.8	2616.2
581.92	2616.64	596.48	2618.2	597.15	2618.2	599.21	2618.2	601.33	2618.08
601.54	2618.06	602.59	2618.01	602.98	2618.04	606.65	2617.91	607.29	2617.94
635.46	2617.91	642.53	2618.02	643.27	2618.04	643.87	2618.06	650.88	2618.15
651.06	2618.16	655.78	2618.2	664.23	2618.2	669.67	2618.2	674.74	2618.2
674.95	2618.2	675.21	2618.2	683.51	2618.2	692.98	2618.2	700.58	2618.2
704.17	2618.25	706.08	2618.27	714.72	2618.37	721.61	2618.45	722.56	2618.47
773.93	2618.73	775.41	2618.73	776.79	2618.75	778.44	2618.77	780.33	2618.8
782.43	2618.83	784.7	2618.87	787.29	2618.91	790.23	2618.96	793.64	2619.02
795.82	2619.06	800.25	2619.15	805.16	2619.22	808.03	2619.29	810.99	2619.37
815.18	2619.41	870.35	2620.2	872.82	2620.2	876.89	2620.2	882.24	2620.2
885.96	2620.2	892.41	2620.2	892.86	2620.2	898.01	2620.2	899.31	2620.2
900.89	2620.2	905.18	2620.3	905.93	2620.32	907.08	2620.35	909.11	2620.41
922.22	2620.77	930.9	2621	942.29	2621.32	949.56	2621.52	957.71	2621.74
968.5	2621.99	969.75	2622.02	977.6	2622.2	982.74	2622.2	1019.01	2622.2
1020.71	2622.2	1023.16	2622.2	1024.73	2622.2	1027.41	2622.2	1028.02	2622.2
1028.95	2622.2	1039.1	2622.2	1040.13	2622.2	1044.66	2622.38	1048.72	2622.54
1049.3	2622.53	1053.11	2622.66	1056.58	2622.76	1059.76	2622.86	1093.19	2623.17
1096.29	2623.16	1099.09	2623.14	1101.41	2623.12	1103.73	2623.1		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
34.03	.06	119.98	.037	596.48	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
119.98	596.48	183.33	216.67	211.75	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
57.76	115.52	2621.2	F
594.95	860.65	2621.2	F

Left Levee Station= 66.67 Elevation= 2621.43

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2618.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.060	0.037	
W.S. Elev (ft)	2618.47	Reach Len. (ft)	183.33	216.67	211.75
Crit W.S. (ft)	2615.17	Flow Area (sq ft)	10.13	2569.01	
E.G. Slope (ft/ft)	0.001100	Area (sq ft)	114.01	2569.55	43.14
Q Total (cfs)	10539.38	Flow (cfs)	14.38	10525.00	
Top Width (ft)	656.28	Top Width (ft)	53.31	476.50	126.47
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)	1.42	4.10	
Max Chl Dpth (ft)	6.27	Hydr. Depth (ft)	2.27	5.41	
Conv. Total (cfs)	317835.8	Conv. (cfs)	433.7	317402.2	
Length Wtd. (ft)	216.65	Wetted Per. (ft)	4.46	476.09	
Min Ch El (ft)	2612.20	Shear (lb/sq ft)	0.16	0.37	
Alpha	1.00	Stream Power (lb/ft s)	0.22	1.52	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	23.65	128.88	14.84
C & E Loss (ft)	0.39	Cum SA (acres)	18.27	24.57	10.08

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: Agua Caliente
REACH: middle RS: 9091.3

INPUT
Description: Increased left levee height to conform to FEMA levee freeboard requirement (CLOMR)

Station Elevation Data num= 221

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.06	2616.2	12.59	2616.2	16.61	2617.17	21.08	2618.2	31.37	2618.2
47.03	2618.2	50.88	2617.81	52.21	2617.78	57.38	2617.36	60.31	2617.33
75.08	2616.2	76.99	2616.2	79.06	2616.2	83.04	2616.2	85.16	2616.2
88.64	2616.2	90.86	2616.2	93.81	2616.2	96.25	2616.2	104.27	2616.2
108.32	2616.2	110.2	2616.2	114.76	2616.2	116.52	2616.2	121.25	2616.2
122.99	2616.2	127.69	2616.2	129.15	2616.2	133.55	2616.2	136.42	2616.2
137.65	2616.2	139.35	2616.2	139.87	2616.2	147.87	2615.71	151.09	2615.5
160.51	2614.86	170.37	2614.24	171.07	2614.2	173.42	2614.2	179.69	2614.2
181.07	2614.2	181.55	2614.2	189.3	2614.2	192.7	2614.2	194.35	2614.2
195.01	2614.2	195.57	2614.2	197.16	2613.13	198.62	2612.2	205.01	2612.06
359.34	2611.74	363.85	2611.85	364.78	2611.84	369.53	2611.96	374.88	2612.11
378.16	2612.2	380.51	2613.36	382.27	2614.2	389.31	2614.2	394.42	2614.2
421.43	2614.2	436.19	2614.2	443.33	2614.2	460.94	2614.2	468.62	2614.2
475.88	2615.46	480.51	2616.2	488.57	2616.2	491.34	2616.2	497.46	2616.2
501.79	2616.2	509.17	2616.2	509.34	2616.2	509.69	2616.2	516.95	2616.2
521.97	2616.2	536.19	2616.2	544.05	2616.2	561.51	2616.2	561.88	2616.2
569.35	2616.2	585.63	2616.2	586.76	2616.2	589.96	2616.2	602.51	2616.2
629.08	2616.2	633.93	2616.37	671.14	2617.18	705.86	2617.52	708.48	2617.55
714	2617.66	720.56	2617.8	722.34	2617.82	729.25	2617.98	737.74	2618.18
737.85	2618.18	738.75	2618.2	745.91	2618.31	746.33	2618.32	747.88	2618.33
748.52	2618.34	749.23	2618.35	759.44	2618.49	760.92	2618.51	762.6	2618.53
764.54	2618.55	774.57	2618.7	777.44	2618.73	780.56	2618.76	789.13	2618.89
793	2618.93	892.4	2620.2	893.96	2620.2	895.72	2620.2	897.56	2620.2
899.25	2620.2	901.02	2620.2	902.88	2620.2	904.9	2620.2	906.53	2620.2
908.51	2620.2	910.81	2620.2	913.7	2620.2	914.91	2620.2	917.98	2620.2
919.14	2620.2	922.32	2620.2	922.89	2620.2	924.65	2620.2	954.3	2620.2
957.77	2620.2	970.53	2620.2	1009.46	2620.2	1010.47	2620.2	1012.84	2620.2
1014.81	2620.2	1019.15	2620.2	1021.11	2620.2	1027.18	2620.2	1028.41	2620.2
1029.2	2620.2	1036.82	2620.2	1042.73	2620.2	1045.13	2620.2	1048.78	2620.2
1063.48	2620.2	1072.31	2620.2	1095.74	2620.2	1141.08	2620.07	1145.29	2620.15
1145.4	2620.15	1145.52	2620.15	1145.64	2620.15	1145.76	2620.15	1148.71	2620.2
1150.74	2620.2	1155.22	2620.2	1167.9	2620.2	1170.58	2620.2	1171.22	2620.2
1172.03	2620.2	1174.16	2620.2	1174.92	2620.2	1177.75	2620.17	1182.87	2620.14
1188.05	2620.12	1204.95	2620.17	1208.49	2620.2	1211.33	2620.22	1211.38	2620.23
1217.75	2620.29	1223.76	2620.36	1229.31	2620.42	1229.8	2620.42	1235.15	2620.48
1235.91	2620.49	1240.78	2620.55	1241.81	2620.55	1246.63	2620.62	1247.91	2620.63
1252.54	2620.69	1254.04	2620.7	1255.58	2620.71	1257.22	2620.72	1262.04	2620.79
1270.8	2620.91	1273.68	2620.96	1276.95	2621.02	1280.86	2621.09	1285.87	2621.18
1290.61	2621.27	1296.42	2621.39	1300.14	2621.46	1306.74	2621.6	1314.16	2621.73
1316.4	2621.78	1324.24	2621.89	1325.66	2621.92	1333.48	2622.01	1334.26	2622.03
1337.71	2622.11	1344.24	2622.15	1344.41	2622.15	1351.17	2622.2	1351.2	2622.2
1351.62	2622.2	1357.34	2622.2	1357.62	2622.2	1363.47	2622.2	1368.44	2622.2
1369.15	2622.2	1373.33	2622.2	1376.97	2622.2	1377.86	2622.2	1397.16	2622.2
1415.55	2622.2	1418.68	2622.2	1424.2	2622.2	1425.18	2622.2	1430.1	2622.2
1430.71	2622.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.06	.06	139.87	.04	480.51	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
139.87	480.51	185.79	225.9	231.39	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
11.06	138	2618.2	F
485	1430.71	2618.2	F

Left Levee Station= 46.81 Elevation= 2619.33

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2617.75	Element			
Vel Head (ft)	1.55	Wt. n-Val.	0.000	0.040	0.000
W.S. Elev (ft)	2616.20	Reach Len. (ft)	185.79	225.90	231.39
Crit W.S. (ft)	2616.20	Flow Area (sq ft)	0.01	1056.40	0.01
E.G. Slope (ft/ft)	0.016030	Area (sq ft)	0.17	1056.40	0.40
Q Total (cfs)	10539.38	Flow (cfs)	0.00	10539.38	0.00
Top Width (ft)	554.11	Top Width (ft)	64.83	340.64	148.65
Vel Total (ft/s)	9.98	Avg. Vel. (ft/s)	0.06	9.98	0.07
Max Chl Dpth (ft)	4.46	Hydr. Depth (ft)	0.00	3.10	0.00
Conv. Total (cfs)	83244.2	Conv. (cfs)	0.0	83244.1	0.0
Length Wtd. (ft)	225.87	Wetted Per. (ft)	1.87	341.94	4.49
Min Ch El (ft)	2611.74	Shear (lb/sq ft)		3.09	
Alpha	1.00	Stream Power (lb/ft s)		30.84	
Frctn Loss (ft)	2.16	Cum Volume (acre-ft)	23.41	119.86	14.73
C & E Loss (ft)	0.21	Cum SA (acres)	18.03	22.54	9.41

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 8865.4

INPUT
Description: Right levee height from as-built plans

Increased left levee
height to conform to FEMA levee freeboard requirement
(CLOMR)

Channel bank put at vegetation change (see aerial
photo). Right ief for expansion from upstream cross section.
Station Elevation Data num= 285

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2616.2	11.12	2616.2	12.64	2616.2	15.04	2616.2	17.78	2616.2
32.57	2616.2	46	2615.32	65.9	2614.2	69.08	2614.2	69.39	2614.2
71.72	2614.2	75.93	2614.06	76.73	2614	83.59	2613.73	86.59	2613.46
90.22	2613.23	98.8	2612.39	100.71	2612.2	104.7	2610.34	105	2610.2
120.79	2610.2	126.59	2610.2	137.95	2610.2	150.19	2610.2	155.8	2610.2
173.21	2610.2	173.83	2610.2	173.92	2610.2	183.85	2610.2	196.26	2610.2
219.04	2610.2	223.02	2610.2	228.41	2610.2	236.83	2610.2	252.33	2610.2
275.78	2610.2	305.28	2610.2	326.16	2610.2	326.67	2610.2	327.66	2610.2
328.42	2610.2	329.45	2610.2	339.22	2610.77	343.5	2610.8	344.03	2610.8
348.48	2610.78	353.08	2610.75	358.08	2610.68	363.84	2610.58	370.73	2610.44
379.13	2610.25	380.42	2610.23	381.58	2610.2	389.52	2610.2	390.11	2610.2
399.55	2610.2	406.61	2610.2	411.91	2610.2	414.28	2610.2	417.97	2610.2
421.09	2610.2	424.6	2610.2	426.53	2610.2	430.58	2610.2	431.25	2610.2
434.91	2610.2	435.02	2610.2	435.2	2610.2	438.14	2610.2	438.27	2610.2
441.35	2610.2	442.28	2610.2	443.11	2610.2	446.66	2610.2	448.22	2610.2
450.9	2610.2	452.97	2610.2	454.93	2610.2	486.64	2609.6	491.26	2609.58
492.8	2609.56	497.21	2609.53	501.59	2609.5	506.01	2609.47	510.36	2609.45
514.7	2609.45	516.47	2609.44	520.6	2609.44	522.69	2609.45	526.72	2609.45
529.23	2609.44	533.18	2609.44	535.78	2609.44	539.66	2609.44	541.92	2609.44
558.66	2610.2	562.45	2610.2	565.37	2610.2	569.43	2610.2	574.66	2610.2
576.57	2610.2	583	2610.2	583.92	2610.2	584.72	2610.2	589.43	2610.2
590.32	2610.55	593.27	2611.52	594.74	2612.02	595.37	2612.2	597.53	2613.34
599.15	2614.2	599.5	2614.39	603.01	2616.2	603.36	2616.37	607.19	2618.2
608.74	2618.2	609.73	2618.2	618.91	2618.2	626.09	2618.2	629.11	2618.2
634.3	2618.2	638.99	2617.11	642.78	2616.2	644.74	2616.2	645.5	2616.2
647.81	2616.2	649.89	2616.2	697.53	2617.36	731.31	2617.72	732.07	2617.72
760.51	2617.77	765.78	2617.78	766.35	2617.79	771.1	2617.79	821.33	2618.2
826.06	2618.2	827.99	2618.2	833	2618.2	838.11	2618.2	843.02	2618.2
846.01	2618.2	875.07	2618.2	877.43	2618.2	879.82	2618.2	891.19	2618.2
893.3	2618.2	895.55	2618.2	898.73	2618.2	900.66	2618.2	902.44	2618.2
905.69	2618.2	907.09	2618.2	909.94	2618.2	911.18	2618.2	912.52	2618.2
913.98	2618.2	915.46	2618.2	917.75	2618.2	918.98	2618.2	919.62	2618.2
935.06	2618.2	936.66	2618.2	943.3	2618.2	948.92	2618.2	1005.71	2617.3
1007.36	2617.3	1043.11	2617.17	1044.76	2617.16	1046.1	2617.15	1050.49	2617.15
1054.02	2617.14	1057.77	2617.13	1059.54	2617.11	1130.6	2617.43	1133.23	2617.43
1137.28	2617.52	1142.98	2617.62	1144.95	2617.63	1151.89	2617.73	1159.98	2617.84
1161.04	2617.86	1169.7	2617.96	1178.68	2618.06	1187.78	2618.16	1191.93	2618.2
1195.59	2618.26	1196.8	2618.3	1204.62	2618.47	1211.14	2618.63	1212.12	2618.66
1217.54	2618.8	1219.63	2618.86	1224.31	2618.98	1228.2	2619.08	1231.66	2619.16
1234.82	2619.22	1237.93	2619.28	1240.61	2619.33	1243.99	2619.38	1247.34	2619.43
1249.73	2619.48	1252.76	2619.52	1254.86	2619.56	1257.64	2619.6	1259.52	2619.63
1261.12	2619.67	1263.82	2619.67	1265.27	2619.7	1266.54	2619.73	1269.57	2619.71
1270.76	2619.74	1274.06	2619.7	1275.26	2619.73	1276.37	2619.75	1288.93	2619.71
1293.67	2619.66	1298.26	2619.61	1302.66	2619.55	1303.69	2619.54	1307.8	2619.48
1321.87	2619.41	1325.38	2619.42	1328.47	2619.42	1331.01	2619.41	1332.27	2619.43
1372.46	2619.04	1374.47	2619.01	1410.67	2618.2	1410.7	2618.2	1411.62	2618.2
1412.2	2618.2	1412.84	2618.2	1414.4	2618.2	1415.85	2618.2	1430.46	2618.2
1433.47	2618.2	1436.44	2618.2	1441.83	2618.2	1442.79	2618.2	1445.4	2618.2
1447.88	2618.2	1452.18	2618.2	1454.26	2618.2	1456.05	2618.2	1465.96	2617.6
1474.5	2616.85	1481.83	2616.2	1486.32	2616.2	1486.9	2616.2	1487.59	2616.2
1495.07	2616.2	1496.34	2616.2	1501.72	2616.2	1505.87	2616.61	1540.96	2617.55
1544.05	2617.53	1545.98	2617.5	1549.56	2617.46	1553.23	2617.41	1555.45	2617.39
1559.05	2617.33	1562.4	2617.29	1564.25	2617.28	1567.42	2617.24	1570.29	2617.2
1586.37	2617.13	1589.18	2617.14	1633.8	2618.2	1634.62	2618.2	1634.77	2618.2

1635.83	2618.2	1638.29	2618.33	1644.26	2618.61	1649.23	2618.82	1652.73	2618.86
1657.47	2619.03	1660.29	2619.06	1664.45	2619.19	1667.71	2619.3	1687.05	2619.72
1735.4	2620.2	1735.43	2620.2	1735.57	2620.2	1735.7	2620.2	1737.88	2620.2

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	32.57	.04	90.22	.04	343.5	.04	608.74	.05
760.51	.055								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
90.22	597.53	275.33	278.05	285.66	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
450	1737.88	2618.04	F

Left Levee Station= 32.84 Elevation= 2616.69
Right Levee Station= 609.58 Elevation= 2618.7

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2615.14	Element			
Vel Head (ft)	0.85	Wt. n-Val.	0.040	0.040	
W.S. Elev (ft)	2614.29	Reach Len. (ft)	275.33	278.05	285.66
Crit W.S. (ft)	2613.34	Flow Area (sq ft)	9.97	1422.33	
E.G. Slope (ft/ft)	0.006358	Area (sq ft)	9.97	2070.18	0.85
Q Total (cfs)	10539.38	Flow (cfs)	15.58	10523.79	
Top Width (ft)	535.06	Top Width (ft)	25.96	507.31	1.79
Vel Total (ft/s)	7.36	Avg. Vel. (ft/s)	1.56	7.40	
Max Chl Dpth (ft)	4.85	Hydr. Depth (ft)	0.38	3.95	
Conv. Total (cfs)	132171.9	Conv. (cfs)	195.4	131976.5	
Length Wtd. (ft)	278.05	Wetted Per. (ft)	25.99	360.30	
Min Ch El (ft)	2609.44	Shear (lb/sq ft)	0.15	1.57	
Alpha	1.01	Stream Power (lb/ft s)	0.24	11.59	
Frctn Loss (ft)	1.31	Cum Volume (acre-ft)	23.38	111.75	14.73
C & E Loss (ft)	0.02	Cum SA (acres)	17.83	20.34	9.01

Warning: The energy loss was 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: Agua Caliente
REACH: middle RS: 8587.35

INPUT
Description: Ending limits of new topography
Right levee height from as-built plans

Increased left levee height to conform to FEMA levee freeboard requirement (CLOMR)

Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2615.91	1.55	2615.19	3.37	2614.35	4.52	2614.37	6.18	2614.38
7.37	2614.41	8.31	2614.41	8.95	2614.43	10.81	2614.52	12.93	2614.61
13.98	2613.85	15.3	2612.81	15.33	2612.79	15.42	2612.8	20.71	2608.95
21.85	2608.14	26.46	2608.08	32.07	2607.96	39.25	2608.52	43.9	2608.86
44.38	2608.88	64.56	2608.61	75.95	2608.44	81.94	2608.47	113.68	2608.69
117.56	2608.75	133.41	2609.03	146.29	2609.27	156.65	2609.46	175.02	2609.81
182.71	2609.9	184.99	2609.93	191.93	2609.91	199.01	2609.88	200.63	2609.86
206.31	2609.82	209.95	2609.77	227.96	2609.81	234.42	2609.75	246.24	2609.76
249.31	2609.76	252.93	2609.54	257.22	2609.17	257.93	2609.19	258.33	2609.19
262.83	2609.22	265.67	2609.28	266.41	2609.27	268.38	2609.3	269.1	2609.35
278.05	2608.53	278.28	2608.52	279.88	2608.53	288.31	2608.52	299.85	2608.46
303.09	2608.53	309.2	2608.72	311.23	2608.77	311.88	2608.8	335.34	2609.85
346.54	2609.6	354.84	2609.42	364.56	2608.89	367.18	2608.72	386.56	2608.89
391	2608.92	393.64	2609.94	399.88	2612.34	410.93	2616.96	414.12	2617.1
418.52	2617.23	420.18	2617.72	421.56	2618.13	424.04	2618.16	432.56	2618.33
436.86	2616.7	441.33	2614.91	443.8	2613.94	455.8	2613.72	465.88	2613.55
471.31	2613.5	478.01	2613.4	486.9	2613.37	495.91	2613.26	507.36	2613.21
513.63	2613.24	514.14	2613.24	515.39	2613.24	548.31	2613.42	557.95	2613.61
565.58	2613.75	565.63	2613.75	566.12	2613.69	570.27	2613.75	574.33	2613.74
578.16	2613.77	594.66	2613.75	620.26	2615.58				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	12.93	.03	410.93	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
12.93	410.93	339.74	330.27	314.04	.1	.3

Left Levee Station= 22.58 Elevation= 2614.56
Right Levee Station= 414.02 Elevation= 2617

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2613.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.81	Wt. n-Val.		0.030	
W.S. Elev (ft)	2613.00	Reach Len. (ft)	339.74	330.27	314.04
Crit W.S. (ft)	2612.05	Flow Area (sq ft)		1455.18	
E.G. Slope (ft/ft)	0.003628	Area (sq ft)		1455.18	
Q Total (cfs)	10539.38	Flow (cfs)		10539.38	
Top Width (ft)	378.88	Top Width (ft)		378.88	
Vel Total (ft/s)	7.24	Avg. Vel. (ft/s)		7.24	
Max Chl Dpth (ft)	5.04	Hydr. Depth (ft)		3.84	
Conv. Total (cfs)	174984.0	Conv. (cfs)		174984.0	
Length Wtd. (ft)	330.27	Wetted Per. (ft)		384.69	
Min Ch El (ft)	2607.96	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		6.20	
Frctn Loss (ft)	1.70	Cum Volume (acre-ft)	23.35	100.50	14.72
C & E Loss (ft)	0.06	Cum SA (acres)	17.75	17.51	9.01

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: Agua Caliente
REACH: middle RS: 8257.08

INPUT
Description: Right levee height from as-built plans

Increased left levee
height to conform to FEMA levee freeboard requirement (CLOMR)
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2612.23	1.63	2612.24	3.1	2610.81	10.34	2606.36	10.8	2606.1
19.48	2606.33	25.55	2606.47	50.49	2606.42	64.26	2606.72	68.02	2606.76
78.5	2607.45	85.91	2607.53	109.37	2607.64	115.06	2607.74	122.95	2607.83
125.55	2607.83	149.63	2607.87	170.53	2607.94	175.24	2608.01	175.42	2608
179.97	2608.16	184.43	2608.26	211.25	2608.55	212.51	2608.54	224.62	2608.53
229.62	2608.62	234.37	2608.66	237.81	2608.78	247.4	2608.34	252.5	2608.08
255.44	2607.95	264.17	2607.86	268.37	2607.7	320.02	2606.76	323.19	2606.55
325.86	2606.4	331.96	2605.93	338.08	2605.51	352.55	2605.58	363.36	2606.09
363.71	2606.32	364.68	2607.02	372.91	2614.52	380.07	2614.73	381.24	2614.82
381.36	2614.8	384.53	2615.55	397.88	2615.82	410	2611.13	411.3	2611.09
427.31	2610.86	432.52	2610.95	433.72	2610.94	441.55	2611.09	474.59	2611.16
493.73	2610.98	536.04	2610.8	565.77	2610.95	575.8	2611.08	589.59	2611.2
621.15	2611.44	645.54	2611.18	652.96	2611.04	656.29	2611.02	679.36	2610.73
684.45	2610.74	748.99	2610.48	789.15	2610.27	814.42	2610.64	836.34	2611.02
839.46	2611.03	847.42	2611.12	858.93	2611.35	863.61	2611.39	867.61	2611.56
872.55	2611.9	876.08	2612.06	885.45	2612.17	890.1	2612.17	903.15	2612.4
908.02	2612.52	921.61	2612.67	925.06	2612.67	925.95	2612.7	930.05	2612.7
932.26	2612.75	935.78	2612.76	945.44	2613.01	948.84	2612.98	960.08	2612.78
973.27	2612.87	988.29	2612.87	993.54	2612.82	994.98	2612.66	999.3	2612.44
1002.78	2612.7	1008.9	2612.76	1029.88	2612.06	1057.96	2612.09	1067.62	2614.96

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1.63	.03	372.91	.05	748.99	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1.63	372.91	281.7	288.46	295.72	.1	.3

Left Levee Station= 24.63 Elevation= 2613.23
Right Levee Station= 399.19 Elevation= 2614.8

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2612.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.40	Wt. n-Val.		0.030	
W.S. Elev (ft)	2610.66	Reach Len. (ft)	281.70	288.46	295.72
Crit W.S. (ft)	2610.51	Flow Area (sq ft)		1111.31	
E.G. Slope (ft/ft)	0.007858	Area (sq ft)		1111.31	
Q Total (cfs)	10539.38	Flow (cfs)		10539.38	
Top Width (ft)	344.05	Top Width (ft)		344.05	
Vel Total (ft/s)	9.48	Avg. Vel. (ft/s)		9.48	
Max Chl Dpth (ft)	5.15	Hydr. Depth (ft)		3.23	
Conv. Total (cfs)	118890.3	Conv. (cfs)		118890.3	
Length Wtd. (ft)	288.46	Wetted Per. (ft)		350.09	
Min Ch El (ft)	2605.51	Shear (lb/sq ft)		1.56	
Alpha	1.00	Stream Power (lb/ft s)		14.77	
Frctn Loss (ft)	1.16	Cum Volume (acre-ft)	23.35	90.77	14.72
C & E Loss (ft)	0.22	Cum SA (acres)	17.75	14.77	9.01

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: Agua Caliente
REACH: middle RS: 7968.62

INPUT
Description: Right levee height from as-built plans

Increased left levee
height to conform to FEMA levee freeboard requirement (CLOMR)
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2611.4	.3	2611.44	.39	2611.4	.96	2611.37	1.82	2611.79
4.24	2612.34	6.45	2613.04	6.72	2613.08	6.92	2612.9	9.35	2613.56
16.67	2613.46	21.54	2611.67	21.86	2611.6	24.86	2610.66	26.26	2610.68
32.15	2610.63	39.14	2606.55	39.85	2606.06	73.59	2605.15	98.26	2604.97
126.28	2604.91	132.95	2605.23	160.51	2606.41	172.49	2606.56	178.48	2606.52
190.91	2606.54	193.68	2606.54	215.74	2606.11	230.41	2605.73	242.43	2605.91
250.65	2606.02	285.37	2605.24	303.84	2605.54	307.4	2605.48	335.33	2604.74
337.76	2604.72	350.05	2604.48	365.47	2604.09	383	2604.3	385.42	2605.72
387.65	2607.13	388.36	2607.68	390.18	2609.18	390.79	2609.63	391.67	2610.23
392.81	2610.87	396.46	2613.38	398.62	2613.49	403.31	2613.65	408.04	2614.49
418.61	2614.25	425.83	2612.08	431.81	2610.24	446.09	2609.97	477.86	2609.57
512.83	2609.73	526.36	2609.56	542.8	2609.32	610	2609.25	612.71	2609.2
625.71	2609.09	650.06	2608.98	677.88	2608.94	782.07	2608.76	786.01	2608.71
797.59	2608.74	811.1	2608.64	817.97	2608.52	821.05	2608.56	836.4	2608.43
842.04	2608.43	855.48	2608.32	862.38	2608.23	930.79	2608.15	958.41	2608.24
1020.68	2608.64	1048	2608.77	1064.98	2608.78	1112.2	2609.24	1117.39	2609.34
1121.17	2609.5	1126.16	2609.54	1179.06	2610.37	1191.07	2610.53	1196.19	2610.6
1206.95	2610.66	1219.46	2610.93	1222.98	2610.92	1242.03	2611.26	1255.9	2611.35
1306.14	2611.12	1318.5	2611.1	1353.73	2610.34	1361.8	2608.75	1371.98	2610.75
1390.55	2610.95	1399.9	2610.79	1410.48	2610.73	1467.55	2610.82	1474.21	2612.85

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	16.67	.03	408.04	.05	782.07	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
16.67	408.04	341.6	340.58	338.14	.1	.3

Left Levee Station= 34.21 Elevation= 2613.02
Right Levee Station= 403.65 Elevation= 2613.2

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2610.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.		0.030	
W.S. Elev (ft)	2610.01	Reach Len. (ft)	341.60	340.58	338.14
Crit W.S. (ft)	2608.52	Flow Area (sq ft)		1600.95	
E.G. Slope (ft/ft)	0.002420	Area (sq ft)		1600.95	
Q Total (cfs)	10539.38	Flow (cfs)		10539.38	
Top Width (ft)	357.14	Top Width (ft)		357.14	
Vel Total (ft/s)	6.58	Avg. Vel. (ft/s)		6.58	
Max Chl Dpth (ft)	5.92	Hydr. Depth (ft)		4.48	
Conv. Total (cfs)	214226.3	Conv. (cfs)		214226.3	
Length Wtd. (ft)	340.58	Wetted Per. (ft)		360.53	
Min Ch El (ft)	2604.09	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		4.42	
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	23.35	81.79	14.72
C & E Loss (ft)	0.08	Cum SA (acres)	17.75	12.45	9.01

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 7628.04

INPUT
Description: Left and right levee height from as-built plans
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2611.56	3.19	2610.22	5.69	2610.22	13.32	2609.83	20.75	2605.44
23.72	2603.53	42.94	2604.02	45.34	2603.85	53.68	2603.74	85.69	2604.74
112.63	2604.64	146.83	2603.77	162.65	2603.59	187.52	2603.73	210.34	2602.95
216.25	2601.81	238.09	2602.1	238.16	2602.1	258.89	2602.35	282.25	2602.39
295.65	2601.69	304.3	2602.91	314.71	2603.16	340.81	2602.92	345.89	2603.52
357.7	2604.32	360.89	2604.42	367.87	2609.57	370.33	2611.53	375.46	2611.95
377.98	2612.14	382.45	2612.99	393.62	2613.22	403.13	2608.48	405.75	2608.62

409.33	2607.3	416.34	2607	439.43	2606.98	450.9	2607.08	463.51	2606.93
487.53	2606.85	511.29	2607.11	538.21	2607.82	591.66	2606.93	620.51	2607.09
627.05	2607.23	697.23	2607.11	724.11	2606.71	759.28	2606.83	795.5	2606.28
806.1	2606.43	812.17	2606.75	815.3	2606.62	868.92	2606.59	883.67	2606.47
907.68	2606.61	947.86	2605.93	972.59	2606.11	1007.08	2606.1	1092.27	2606.39
1139.81	2606.76	1174.71	2606.66	1201.61	2606.79	1243.83	2607.63	1254.12	2607.74
1267.75	2608.11	1290.77	2607.92	1340.85	2607.87	1350.56	2607.63	1359.29	2608.24
1389.28	2608.1	1419.22	2608.25	1424.37	2608.12	1436.14	2608.14	1449.02	2609.47
1457.81	2609.81	1472.45	2609.97	1472.76	2609.08	1473.28	2608	1496.3	2608.06
1502.66	2607.96	1527.2	2608.65	1542	2608.77	1547.12	2608.65	1564.27	2608.7
1569.35	2608.84	1596.01	2608.84	1601.72	2608.7	1622.28	2608.68	1643.44	2608.5
1651.47	2608.74	1683.29	2609.1	1722.68	2609.89	1725.88	2610.12	1729.29	2610.12
1764.14	2611.53	1771.62	2611.51	1782.51	2611.14	1815.71	2611.86	1837.15	2611.83

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	13.32	.035	370.33	.05	868.92	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
13.32	370.33	394.51	383.71	383.31	.1	.3

Left Levee Station= 38.75 Elevation= 2612.82
Right Levee Station= 396.81 Elevation= 2612.82

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2610.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.		0.035	
W.S. Elev (ft)	2609.58	Reach Len. (ft)	394.51	383.71	383.31
Crit W.S. (ft)	2606.58	Flow Area (sq ft)		2021.23	
E.G. Slope (ft/ft)	0.001383	Area (sq ft)		2021.23	
Q Total (cfs)	10539.38	Flow (cfs)		10539.38	
Top Width (ft)	329.13	Top Width (ft)		329.13	
Vel Total (ft/s)	5.21	Avg. Vel. (ft/s)		5.21	
Max Chl Dpth (ft)	7.89	Hydr. Depth (ft)		6.14	
Conv. Total (cfs)	283368.1	Conv. (cfs)		283368.1	
Length Wtd. (ft)	383.71	Wetted Per. (ft)		336.83	
Min Ch El (ft)	2601.69	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		2.70	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	23.35	67.63	14.72
C & E Loss (ft)	0.03	Cum SA (acres)	17.75	9.76	9.01

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: Agua Caliente
REACH: middle RS: 7244.33

INPUT
Description: Left and right levee height from as-built plans
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-60.1	2606.44	-54.08	2606.26	-48.16	2607.22	-44.96	2607.37	-43.55	2607.27
-40.08	2607.39	-36.35	2607.22	-34.66	2607.49	-29.89	2609.41	-28.3	2610.16
-23.52	2613.06	-12.54	2613.2	-6.99	2611.49	-5.06	2610.96	-2.94	2610.48
6.23	2610.2	8.26	2609.34	9.77	2609.08	18.09	2608.67	38.43	2600.42
47.19	2599.98	56.15	2600.99	59.85	2600.78	64.77	2600.04	73.8	2600.4
82.67	2600.39	89.4	2600.58	117.47	2600.71	128.59	2600.38	153.79	2600.37
174.33	2600.81	191.38	2600.99	199.97	2601.01	232.32	2601.12	242.22	2599.94
286.32	2599.87	287.57	2601.18	299.93	2610.92	308.22	2611.86	311.9	2612.76
320.44	2612.6	337.01	2605.66	347.51	2605.53	369.14	2605.12	378.16	2605.04
390.29	2604.9	446.59	2604.87	567.22	2604.34	587.98	2604.05	615.01	2603.99
620.47	2604.08	624.98	2604.02	632	2604.07	692.46	2603.77	711.33	2603.76
724.4	2603.65	747.72	2603.7	754.45	2603.78	778.04	2603.72	810.51	2603.34
826.55	2603.84	847.58	2603.91	920.64	2603.56	942.03	2603.57	957.43	2603.43
960.54	2603.32	963.03	2603.31	968.94	2603.14	989.18	2603.11	1014.4	2602.85
1051.03	2601.86	1061.69	2600.53	1068.35	2601.17	1076.39	2602.14	1082.47	2602.69
1095.5	2602.56	1112.94	2602.08	1115.88	2601.65	1125.31	2600.51	1126.42	2600.71
1130.09	2601.66	1134.4	2601.2	1142.81	2599.97	1153.4	2601.71	1154.56	2601.82
1172.3	2601.98	1206.95	2602.1	1214.18	2602.06	1262.39	2602.45	1307.82	2601.27
1330.93	2601.89	1377.28	2601.79	1395.35	2601.62	1429.53	2601.65	1449.9	2601.86
1464.89	2602.14	1478.9	2601.68	1489.6	2601.78	1518.9	2601.81		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-60.1	.035	-12.54	.025	311.9	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
-12.54	311.9	227.04	273.27	247.87	.3	.5

Left Levee Station= 37.89 Elevation= 2612.68
Right Levee Station= 345.37 Elevation= 2612.68

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2609.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.025	0.055
W.S. Elev (ft)	2609.40	Reach Len. (ft)	227.04	273.27	247.87
Crit W.S. (ft)	2604.31	Flow Area (sq ft)		2262.87	48.35
E.G. Slope (ft/ft)	0.000362	Area (sq ft)		2262.87	48.35
Q Total (cfs)	10539.38	Flow (cfs)		10497.19	42.19
Top Width (ft)	277.39	Top Width (ft)		260.11	17.28
Vel Total (ft/s)	4.56	Avg. Vel. (ft/s)		4.64	0.87
Max Chl Dpth (ft)	9.53	Hydr. Depth (ft)		8.70	2.80
Conv. Total (cfs)	553705.6	Conv. (cfs)		551489.2	2216.5
Length Wtd. (ft)	273.22	Wetted Per. (ft)		272.54	21.88
Min Ch El (ft)	2599.87	Shear (lb/sq ft)		0.19	0.05
Alpha	1.03	Stream Power (lb/ft s)		0.87	0.04
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	23.35	48.76	14.51
C & E Loss (ft)	0.10	Cum SA (acres)	17.75	7.17	8.93

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 6971.06

INPUT
Description: Left and right levee height from as-built plans
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-196.4	2605.45	-191.24	2605.43	-186.25	2605.13	-169.18	2605.73	-159.45	2605.45
-137.07	2605.31	-125.83	2605.8	-109.41	2604.24	-106.61	2604.13	-99.82	2604.31
-92.15	2603.39	-86	2603.65	-74.75	2603.21	-64.5	2603.87	-48.68	2607.25
-35.42	2611.71	-19.06	2611.9	-8.09	2609.4	8.84	2609.26	13.66	2608.99
28.27	2602.48	35.62	2598.39	36.02	2598.39	105.77	2598.47	119.42	2598.26
119.46	2598.26	155.14	2598.09	180.6	2599.24	185.25	2603.13	195.18	2610.81
204.66	2611.41	207.96	2612.17	219.21	2612.31	227.31	2609.71	238.99	2603.97
246.17	2603.69	275.76	2603.73	309.61	2604.06	347	2603.68	388.29	2603.76
398.23	2602.96	459.9	2602.69	483.33	2602.27	517.31	2602.19	537.94	2602.4
564.63	2601.92	584.16	2602.32	632.9	2602.03	643.8	2601.2	661.57	2601.19
670.29	2600.77	685.4	2601.84	704.54	2602.07	717.08	2601.41	729.64	2601.95
847.23	2601.76	937.46	2600.64	986.64	2600.99	1030.44	2600.95	1057.18	2600.18
1078.65	2600.38	1098.9	2599.95	1151.21	2599.56	1176.88	2599.58	1191.81	2598.59
1203.16	2598.89	1221.62	2598.85	1232.54	2599.03	1283.97	2598.5	1318.24	2598.62
1336.85	2598.17	1346.38	2597.26	1354.26	2596.08	1361.19	2597.28	1374.87	2597.94
1385.79	2598.08	1393.01	2597.83	1449.85	2597.72	1468.32	2597.34	1496.41	2597.4
1506.74	2596.94	1524.05	2597.38	1556.01	2597.72	1608.12	2597.71	1618.3	2597.9
1669.69	2597.78	1674.62	2597.63	1717.92	2597.73	1741.45	2598.26	1759.82	2597.62
1829.5	2598.41	1838.71	2598.3	1878.49	2598.74	1897.62	2599.21	1987.56	2600.41
2009.56	2601.37	2020.97	2602.95	2027.58	2603.5	2046.88	2603.97	2058.1	2603.76

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-196.4	.035	-19.06	.025	219.21	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
-19.06	219.21	68.86	202	334.31	.3	.5

Left Levee Station= 33.07 Elevation= 2612.75
Right Levee Station= 219.5 Elevation= 2612.75

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2609.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.		0.025	
W.S. Elev (ft)	2608.82	Reach Len. (ft)	68.86	202.00	334.31
Crit W.S. (ft)	2603.80	Flow Area (sq ft)		1590.75	
E.G. Slope (ft/ft)	0.000641	Area (sq ft)		1590.75	
Q Total (cfs)	10539.38	Flow (cfs)		10539.38	
Top Width (ft)	159.53	Top Width (ft)		159.53	
Vel Total (ft/s)	6.63	Avg. Vel. (ft/s)		6.63	
Max Chl Dpth (ft)	12.73	Hydr. Depth (ft)		9.97	
Conv. Total (cfs)	416123.3	Conv. (cfs)		416123.3	
Length Wtd. (ft)	202.00	Wetted Per. (ft)		172.29	
Min Ch El (ft)	2598.09	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		2.45	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	23.35	36.67	14.37
C & E Loss (ft)	0.04	Cum SA (acres)	17.75	5.85	8.88

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 6769.06

INPUT

Description: Tanque Verde Road upstream
Skewed 56 degrees

Left and right
levee height from as-built plans
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-158.48	2604.87	-132.24	2604.85	-130.75	2604.96	-118.16	2604.96	-98.88	2604.6
-92.32	2604.76	-86.91	2605.08	-80.92	2604.97	-74.42	2604.57	-67.61	2603.82
-63.89	2603.59	-55.57	2603.71	-48.34	2604.17	-38.68	2604.3	-34.22	2606.1
-31.91	2607.2	-23.86	2611.97	-14.49	2612.49	-8.32	2609.57	2.38	2609.6
3.05	2609.11	7.53	2605.05	10.03	2602.57	14.68	2597.63	22.28	2597.32
59.15	2597.57	71.06	2597.31	76.12	2597.93	89.79	2597.64	89.82	2597.64
92.66	2597.58	96.33	2596.77	109.64	2597.15	110.6	2597.44	115.57	2598.2
131.74	2598.43	140.25	2598.91	142.63	2601	149.71	2606.64	155.21	2610.49
163.42	2610.38	167.18	2611.38	178.2	2611.16	183.91	2609.55	190.02	2608.05
197.84	2606.45	200.75	2605.66	208.63	2604.62	211.74	2604.39	214.33	2603.81
216.28	2603.75	217.78	2603.5	223	2603.18	227.04	2603.44	232.35	2603.17
236.73	2603.2	240.84	2602.88	254.97	2602.78	271.88	2602.96	279.7	2603.66
282.85	2604.36	288.62	2604.35	301.55	2604.88	318.25	2605.8	328.8	2606.2
333.88	2606.56	339.82	2607.14	345.92	2608.1	351.34	2608.73	358.69	2609.35
377.93	2610.42	382.62	2608.73	392.92	2605.96	395.91	2604.83	399.02	2604.4
408.51	2602.28	424.8	2600.96	430.51	2600.85	434.99	2600.59	441.97	2600.53
448.78	2599.98	453.95	2600.13	455.89	2600.38	458.36	2600.44	460.4	2600.17
463.28	2600.35	468.35	2600.32	470.93	2600.46	475.36	2600.04	481.66	2599.77
483.28	2599.94	486.75	2599.84	493.16	2599.18	501.48	2598.83	502.57	2598.64
510.6	2598.47	511.35	2598.58	515.83	2598.59	516.6	2598.41	528.1	2598.43

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-158.48	.035	-14.49	.03	167.18	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
-14.49	167.18	194.74	224.42	203.01	.3	.5

Left Levee Station= 10.4 Elevation= 2612.63
Right Levee Station= 175.37 Elevation= 2612.63
Skew Angle = 56

CROSS SECTION OUTPUT Profile #100 Year

			Left OB	Channel	Right OB
E.G. Elev (ft)	2609.29	Element			
Vel Head (ft)	0.82	Wt. n-Val.		0.030	
W.S. Elev (ft)	2608.47	Reach Len. (ft)	82.00	82.00	82.00
Crit W.S. (ft)	2603.59	Flow Area (sq ft)		1452.02	
E.G. Slope (ft/ft)	0.001076	Area (sq ft)		1452.02	
Q Total (cfs)	10539.38	Flow (cfs)		10539.38	
Top Width (ft)	141.93	Top Width (ft)		141.93	
Vel Total (ft/s)	7.26	Avg. Vel. (ft/s)		7.26	
Max Chl Dpth (ft)	11.70	Hydr. Depth (ft)		10.23	
Conv. Total (cfs)	321281.3	Conv. (cfs)		321281.3	
Length Wtd. (ft)	82.00	Wetted Per. (ft)		153.79	
Min Ch El (ft)	2596.77	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		4.60	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	23.35	29.62	14.37
C & E Loss (ft)	0.73	Cum SA (acres)	17.75	5.15	8.88

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE

RIVER: Agua Caliente
REACH: middle RS: 6687.06

INPUT
Description: Tanque Verde Road over Agua Caliente
Distance from Upstream XS = 82
Deck/Roadway Width = 91
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 10

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
-158.476	2614.04	2.2	0	2616.5	2.2	10.4	2616.5	2.2
10.4	2616.5	2609.2	49.5	2616.8	2609.4	92	2616.9	2609.6
134.5	2616.9	2609.6	173.6	2616.8	2609.4	173.6	2616.8	2.2
546.801	2616.8	2.2						

Upstream Bridge Cross Section Data
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-158.482605.564	-132.242605.544	-130.752605.654	-118.162605.654	-98.882605.294
-92.322605.454	-86.912605.774	-80.922605.664	-74.422605.264	-67.612604.514
-63.892604.284	-55.572604.404	-48.342604.864	-38.682604.994	-34.222606.794
-31.912607.894	-23.862612.664	-14.492613.184	-8.322610.264	2.382610.294
3.052609.804	7.532605.744	10.032603.264	14.682598.324	22.282598.014
59.152598.264	71.062598.004	76.122598.624	89.792598.334	89.822598.334
92.662598.274	96.332597.464	109.642597.844	110.62598.134	115.572598.894
131.742599.124	140.252599.604	142.632601.694	149.712607.334	155.212611.184
163.422611.074	167.182612.074	178.22611.854	183.912610.244	190.022608.744
197.842607.144	200.752606.354	208.632605.314	211.742605.084	214.332604.504
216.282604.444	217.782604.194	2232603.874	227.042604.134	232.352603.864
236.732603.894	240.842603.574	254.972603.474	271.882603.654	279.72604.354
282.852605.054	288.622605.044	301.552605.574	318.252606.494	328.82606.894
333.882607.254	339.822607.834	345.922608.794	351.342609.424	358.692610.044
377.932611.114	382.622609.424	392.922606.654	395.912605.524	399.022605.094
408.512602.974	424.82601.654	430.512601.544	434.992601.284	441.972601.224
448.782600.674	453.952600.824	455.892601.074	458.362601.134	460.42600.864
463.282601.044	468.352601.014	470.932601.154	475.362600.734	481.662600.464
483.282600.634	486.752600.534	493.162599.874	501.482599.524	502.572599.334
510.62599.164	511.352599.274	515.832599.284	516.62599.104	528.12599.124

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-158.48	.035	-14.49	.03	167.18	.055

Bank Sta: Left Right Coeff Contr. Expan.
-14.49 167.18 .3 .5
Left Levee Station= 10.4 Elevation= 2612.63
Right Levee Station= 175.37 Elevation= 2612.63
Skew Angle = 56

Downstream Deck/Roadway Coordinates
num= 9

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
-188.672	2614.12	2.2	-5.1	2616.5	2.2	-5.1	2616.5	2609.2
34	2616.8	2609.4	76.5	2616.9	2609.6	119	2616.9	2609.6
158.1	2616.8	2609.4	158.1	2616.8	2.2	190.305	2616.8	2.2

Downstream Bridge Cross Section Data
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-188.672	603.995	-182.352	603.965	-176.042	603.845	-169.622	603.825	-153.52	603.575
-140.922	603.065	-124.62	602.895	-110.572	602.615	-105.092	602.575	-102.882	602.475
-67.272	602.215	-56.632	603.145	-48.622	603.695	-44.922	604.205	-31.932	606.185
-24.552	606.085	-18.922	606.475	-15.842	606.515	-10.142	606.375	-8.142	604.745
-6.492	603.295	-5.492	602.235	-3.132	599.085	-2.312	598.105	-.112	595.825
1.692	595.755	11.852	595.695	18.32	595.825	24.822	595.735	35.432	595.805
48.962	595.745	56.122	595.825	58.262	595.775	62.022	595.545	69.892	595.815
69.92	595.815	80.112	595.815	82.552	595.575	85.512	595.725	95.722	596.125
105.512	595.665	109.322	595.645	111.682	595.335	114.642	595.175	117.252	595.165
118.762	595.285	123.932	595.385	125.322	598.885	127.952	605.095	131.652	607.345
134.142	607.245	137.482	606.995	139.182	606.725	141.32	606.195	141.742	606.155
143.512	605.135	143.992	605.155	144.762	604.925	145.712	605.015	146.992	604.905
148.292	604.965	149.122	605.085	151.622	605.135	151.962	605.235	153.582	605.285
154.152	605.375	155.932	605.375	156.662	605.485	158.422	605.485	159.052	605.595
160.862	604.885	162.052	604.915	163.32	604.755	164.892	604.305	165.822	604.255
167.252	603.875	170.112	603.565	170.662	603.585	172.42	602.995	172.872	603.025
173.652	602.825	175.372	602.655	177.262	602.135	178.132	601.525	178.582	601.455
179.732	601.015	181.682	600.835	184.152	600.715	185.372	600.825	188.912	600.755
191.822	601.135	194.682	601.125	200.152	601.365	206.12	601.365	209.212	601.285
215.242	601.305	220.212	601.215	222.722	600.965	222.92	600.815	228.042	600.705

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-188.67	.04	-15.84	.035	131.65	.04

Bank Sta: Left Right Coeff Contr. Expan.
-15.84 131.65 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-194.985	-19.498	2612.2	F
167.687	194.985	2612.2	F

Skew Angle = 56

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

Number of Piers = 3

Pier Data
Pier Station Upstream= 61 Downstream= 45.5

```
Upstream      num=        2
    Width    Elev     Width    Elev
        8     2.2         8   2612.2
Downstream      num=        2
    Width    Elev     Width    Elev
        8     2.2         8   2612.2

Pier Data
Pier Station      Upstream=       91     Downstream=     75.5
Upstream      num=        2
    Width    Elev     Width    Elev
        8     2.2         8   2612.2
Downstream      num=        2
    Width    Elev     Width    Elev
        8     2.2         8   2612.2

Pier Data
Pier Station      Upstream=      121     Downstream=    105.5
Upstream      num=        2
    Width    Elev     Width    Elev
        8     2.2         8   2612.2
Downstream      num=        2
    Width    Elev     Width    Elev
        8     2.2         8   2612.2

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum                 Cd    =      1.2
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd           =
           Submerged Inlet + Outlet Cd =       .8
           Max Low Cord                 =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #100 Year

  E.G. US. (ft)                2609.29    Element                  Inside BR US  Inside BR DS
  W.S. US. (ft)                2608.47    E.G. Elev (ft)               2608.36       2605.69
  Q Total (cfs)               10539.38    W.S. Elev (ft)               2605.12       2602.86
  Q Bridge (cfs)              10539.38    Crit W.S. (ft)               2605.12       2602.86
  Q Weir (cfs)                            Max Chl Dpth (ft)               7.66          7.69
  Weir Sta Lft (ft)                       Vel Total (ft/s)               14.44         13.14
  Weir Sta Rgt (ft)                       Flow Area (sq ft)             729.92        802.11
  Weir Submerg                            Froude # Chl                    1.00          0.92
  Weir Max Depth (ft)                     Specif Force (cu ft)         7178.96       7082.91
  Min El Weir Flow (ft)        2612.64    Hydr Depth (ft)                 6.49          5.68
  Min El Prs (ft)              2609.60    W.P. Total (ft)               156.95        193.72
  Delta EG (ft)                   4.25    Conv. Total (cfs)           100730.3       91954.0
  Delta WS (ft)                   6.12    Top Width (ft)                112.53        145.84
  BR Open Area (sq ft)         1231.14    Frctn Loss (ft)                 1.09          0.57
  BR Open Vel (ft/s)             14.44    C & E Loss (ft)                 0.20          0.08
  Coef of Q                               Shear Total (lb/sq ft)          3.18          3.40
  Br Sel Method            Energy only    Power Total (lb/ft s)          45.90         44.62

Note:    Momentum answer is not valid if the water surface is above the low chord or if there is weir
         flow.  The momentum answer has been disregarded.
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,
         energy was used.
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,
         energy was used.

CROSS SECTION
```

RIVER: Agua Caliente
REACH: middle RS: 6544.64

INPUT
Description: Tanque Verde Road downstream
skewed 56 degrees
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-188.67	2604.43	-182.35	2604.4	-176.04	2604.28	-169.62	2604.26	-153.5	2604.01
-140.92	2603.5	-124.6	2603.33	-110.57	2603.05	-105.09	2603.01	-102.88	2602.91
-67.27	2602.65	-56.63	2603.58	-48.62	2604.13	-44.92	2604.64	-31.93	2606.62
-24.55	2606.52	-18.92	2606.91	-15.84	2606.95	-10.14	2606.81	-8.14	2605.18
-6.49	2603.73	-5.49	2602.67	-3.13	2599.52	-2.31	2598.54	-.11	2596.26
1.69	2596.19	11.85	2596.13	18.3	2596.26	24.82	2596.17	35.43	2596.24
48.96	2596.18	56.12	2596.26	58.26	2596.21	62.02	2595.98	69.89	2596.25
69.9	2596.25	80.11	2596.25	82.55	2596.01	85.51	2596.16	95.72	2596.56
105.51	2596.1	109.32	2596.08	111.68	2595.77	114.64	2595.61	117.25	2595.6
118.76	2595.72	123.93	2595.82	125.32	2599.32	127.95	2605.53	131.65	2607.78
134.14	2607.68	137.48	2607.43	139.18	2607.16	141.3	2606.63	141.74	2606.59
143.51	2605.57	143.99	2605.59	144.76	2605.36	145.71	2605.45	146.99	2605.34
148.29	2605.4	149.12	2605.52	151.62	2605.57	151.96	2605.67	153.58	2605.72
154.15	2605.81	155.93	2605.81	156.66	2605.92	158.42	2605.92	159.05	2606.03
160.86	2605.32	162.05	2605.35	163.3	2605.19	164.89	2604.74	165.82	2604.69
167.25	2604.31	170.11	2604	170.66	2604.02	172.4	2603.43	172.87	2603.46
173.65	2603.26	175.37	2603.09	177.26	2602.57	178.13	2601.96	178.58	2601.89
179.73	2601.45	181.68	2601.27	184.15	2601.15	185.37	2601.26	188.91	2601.19
191.82	2601.57	194.68	2601.56	200.15	2601.8	206.1	2601.8	209.21	2601.72
215.24	2601.74	220.21	2601.65	222.72	2601.4	222.9	2601.25	228.04	2601.14

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-188.67	.04	-15.84	.035	131.65	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
-15.84	131.65	447.72	284.46	127.8	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-194.985	-19.498	2612.2	F
167.687	194.985	2612.2	F

Skew Angle = 56

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2605.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.68	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	2602.36	Reach Len. (ft)	447.72	284.46	127.80
Crit W.S. (ft)	2602.36	Flow Area (sq ft)		794.11	23.93
E.G. Slope (ft/ft)	0.009462	Area (sq ft)		794.11	40.56
Q Total (cfs)	10539.38	Flow (cfs)		10471.41	67.97
Top Width (ft)	182.34	Top Width (ft)		131.86	50.48
Vel Total (ft/s)	12.88	Avg. Vel. (ft/s)		13.19	2.84
Max Chl Dpth (ft)	6.76	Hydr. Depth (ft)		6.02	0.72
Conv. Total (cfs)	108351.4	Conv. (cfs)		107652.7	698.8
Length Wtd. (ft)	284.44	Wetted Per. (ft)		139.17	34.35
Min Ch El (ft)	2595.60	Shear (lb/sq ft)		3.37	0.41
Alpha	1.04	Stream Power (lb/ft s)		44.44	1.17
Frctn Loss (ft)	2.34	Cum Volume (acre-ft)	23.35	25.11	14.25
C & E Loss (ft)	0.89	Cum SA (acres)	17.75	4.54	8.79

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 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 energy loss was 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: Agua Caliente
REACH: middle RS: 6260.16

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2600.94	120.84	2601.11	243.74	2600.77	259.5	2600.41	264.51	2599.76
269.5	2599.55	305.38	2599.95	559.58	2599.94	581.88	2599.46	590.4	2599.87
699.81	2599.85	767.75	2599.2	830.45	2599.22	850.93	2599.59	899.64	2599.21
966.13	2599.51	1184.44	2599.09	1283.13	2597.99	1461.14	2598.01	1472.52	2597.11

1493.82	2597.22	1508.21	2598.15	1549.49	2597.63	1591.38	2598.06	1600.97	2597.35
1620.52	2598	1648.26	2597.81	1658.76	2597.31	1689.29	2597.79	1758.85	2597.47
1773.62	2597.74	1787.95	2597.1	1811.45	2597.59	1829.25	2596.1	1847.51	2597.25
2025.44	2597.92	2036.72	2596.97	2044.61	2597.86	2117.78	2597.26	2120.57	2596.81
2127.38	2594.83	2141.53	2595.41	2153.13	2595.38	2167.12	2593.5	2185.84	2592.73
2193.77	2592.33	2232.09	2592.36	2244.52	2592.73	2250.34	2592.42	2283.59	2594.34
2283.64	2594.34	2325.11	2595.56	2344.55	2597.45	2362.22	2596.9	2379.43	2597.03
2393.07	2596.55	2407.44	2597.17	2427.06	2596.94	2449.71	2599.57	2461.15	2599.5
2465.09	2599.81	2485.48	2597.22	2518.45	2597.18	2528.01	2596.71	2540.01	2597.22
2552.69	2597.04	2609.83	2597.74	2625.52	2600.86	2639.55	2604.73	2641.48	2604.56
2653.36	2605.21	2671.95	2605.37	2697.23	2604.57	2706.82	2603.62	2711.93	2603.62
2719.57	2601.45	2740.05	2597.74	2802.45	2597.21	2914.02	2598.07	2962.13	2597.61
2989.43	2598.17	3066.75	2597.07	3081.16	2596.15	3100.22	2596.89	3169.77	2597.51
3182.85	2595.22	3192.33	2596.57	3265.55	2597.28	3345.2	2597.4	3510.47	2598.9
3541.84	2600.08	3568.43	2600.53	3577.65	2600.99	3613.23	2601.62	3631.32	2603
3654.3	2603.35	3659.99	2602.96	3669.4	2604.36	3685.43	2604.47	3733.8	2607.35

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1493.82	.05	2044.61	.035	2344.55	.045	2671.95	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2044.61	2344.55	348.09	298.71	157.52	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1600	2602.2	F
2668.97	3759.86	2607.42	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2599.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.050	0.035	0.045
W.S. Elev (ft)	2598.40	Reach Len. (ft)	348.09	298.71	157.52
Crit W.S. (ft)	2598.40	Flow Area (sq ft)	391.46	1051.35	277.58
E.G. Slope (ft/ft)	0.007237	Area (sq ft)	567.09	1051.35	966.96
Q Total (cfs)	10539.38	Flow (cfs)	908.80	8748.72	881.86
Top Width (ft)	2049.71	Top Width (ft)	798.45	299.94	951.31
Vel Total (ft/s)	6.13	Avg. Vel. (ft/s)	2.32	8.32	3.18
Max Chl Dpth (ft)	6.07	Hydr. Depth (ft)	0.88	3.51	1.20
Conv. Total (cfs)	123893.4	Conv. (cfs)	10683.2	102843.7	10366.5
Length Wtd. (ft)	286.58	Wetted Per. (ft)	444.85	300.60	232.37
Min Ch El (ft)	2592.33	Shear (lb/sq ft)	0.40	1.58	0.54
Alpha	1.57	Stream Power (lb/ft s)	0.92	13.15	1.71
Frctn Loss (ft)	1.99	Cum Volume (acre-ft)	20.44	19.09	12.77
C & E Loss (ft)	0.05	Cum SA (acres)	13.65	3.13	7.32

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.

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 5961.45

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.54	2600.49	165.47	2600.32	197.05	2600.74	368.82	2599.59	575.43	2599.81
641.3	2599.34	656.11	2598.89	693.18	2599.3	818.31	2598.8	840.63	2598.32
847.08	2598.88	865.48	2598.68	875.9	2599.21	1123.47	2598.89	1152.93	2598.35
1341.85	2598.46	1610.87	2597.16	1705.51	2596.24	1825.67	2596.27	1953.26	2595.55
1962.29	2596.15	2025.1	2595.88	2039.3	2595.44	2066.76	2595.6	2076.64	2594.51
2092	2595.66	2191.08	2595.87	2201.84	2595.08	2216.41	2595.85	2251.67	2595.59
2292.59	2596.04	2304.38	2595.39	2317.4	2595.83	2375.45	2595.22	2405.06	2595.38
2442.98	2594.93	2453.24	2593.86	2464.82	2593.94	2472.7	2594.77	2533.16	2594.86
2587.15	2594.23	2598.8	2594.34	2614.72	2593.5	2636.31	2594.38	2654.48	2593.96
2673.53	2591.68	2719.03	2590.42	2768.08	2590.85	2781.83	2594.58	2791.95	2594.58
2861.11	2595.06	2889.72	2594.55	2901.85	2595.33	2918.15	2595.29	2927.04	2594.56
2944.66	2595.08	2957.49	2594.13	2970.27	2594.14	2977.31	2594.93	3018.34	2594.74
3026.37	2593.76	3085.13	2595.69	3093.5	2596.56	3105.23	2596.42	3119.84	2599.27
3139.17	2599.97	3148.01	2598.91	3163.7	2600.09	3182.65	2596.98	3194.35	2596.79
3206.17	2595.05	3221.53	2597.3	3235.98	2597.56	3274.77	2597	3282.83	2597.33
3310.73	2601.52	3325.25	2602	3354.81	2601.29	3367.01	2600.22	3369.89	2599.16
3380.95	2597.16	3391.57	2596.89	3414.07	2597.38	3423.94	2596.67	3618.98	2596.98
3695.3	2596.11	3708.12	2595.37	3718.97	2596.07	3761.26	2596.42	3853.3	2596.15
4080.29	2598.17	4141.72	2599.87	4196	2601.94	4206.06	2601.93	4218.82	2602.68
4223.4	2602.18	4243.18	2603.93	4255.37	2604.28				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.54	.06	1962.29	.05	2636.31	.04	2781.83	.045	3325.25	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2636.31	2781.83	176.47	166.71	160.59	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
3150	4285.98	2604.89	F
0	1950	2602.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2597.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.050	0.040	0.045
W.S. Elev (ft)	2596.53	Reach Len. (ft)	176.47	166.71	160.59
Crit W.S. (ft)	2596.53	Flow Area (sq ft)	848.97	703.98	536.95
E.G. Slope (ft/ft)	0.006665	Area (sq ft)	961.28	703.98	620.31
Q Total (cfs)	10539.38	Flow (cfs)	2373.48	6088.56	2077.34
Top Width (ft)	1683.52	Top Width (ft)	960.26	145.52	577.73
Vel Total (ft/s)	5.04	Avg. Vel. (ft/s)	2.80	8.65	3.87
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)	1.24	4.84	1.67
Conv. Total (cfs)	129096.6	Conv. (cfs)	29072.7	74578.7	25445.3
Length Wtd. (ft)	167.88	Wetted Per. (ft)	686.67	146.18	321.10
Min Ch El (ft)	2590.42	Shear (lb/sq ft)	0.51	2.00	0.70
Alpha	1.88	Stream Power (lb/ft s)	1.44	17.33	2.69
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)	14.33	13.07	9.90
C & E Loss (ft)	0.00	Cum SA (acres)	6.62	1.61	4.55

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: 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: Agua Caliente
REACH: middle RS: 5794.74

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
249.44	2599.74	448.65	2599.61	556.65	2598.82	608.18	2599.71	629.12	2600.67
676.31	2600.64	715.4	2598.65	883.41	2598.84	1046.07	2597.45	1057.22	2598.07
1145.18	2598.06	1163.17	2597.59	1275.95	2598.25	1618.8	2597.61	1728.09	2596.88
1770.25	2597.31	2003.62	2595.23	2059.68	2595.38	2112.26	2595.35	2138.53	2594.58
2147.71	2595.43	2180.81	2595.62	2269.19	2594.82	2287.7	2593.54	2306.37	2595.14
2452.49	2594.77	2469.05	2594.07	2488.3	2594.59	2545.97	2593.95	2579.46	2594.35
2683.51	2593.48	2697.14	2594.07	2729.25	2593.6	2737.28	2592.42	2747.39	2593.63
2876.6	2593.44	2898.32	2592.54	2936.98	2592.97	2956.5	2594.01	2967.93	2593.15
2995.23	2593.87	3016.94	2593.75	3038.98	2590.76	3048.56	2591	3058.75	2589.92
3127.97	2589.7	3140.76	2590.23	3148.94	2591.84	3148.97	2591.85	3161.86	2593.53
3177.04	2593.94	3186.75	2593.16	3297.41	2594.61	3305.62	2593.84	3315.69	2594.46
3339.24	2593.75	3347.69	2594.24	3361.81	2592.32	3413.09	2592.54	3419.7	2593.64
3425.67	2593.97	3429.79	2593.61	3437.78	2594.59	3480.19	2594.72	3524.21	2593.63
3550.54	2594.16	3567.4	2593.68	3599.65	2594.62	3607.95	2594.13	3640.24	2595.29
3710.55	2595.02	3734.46	2595.8	3742.2	2597.19	3750.08	2600.08	3752.47	2599.64
3778.41	2600.68	3808.1	2600.13	3815.42	2599.35	3824.49	2598.32	3834.4	2596.43
3849.94	2595.94	3873.85	2596.41	3886.39	2595.8	3897.78	2596.51	3909.6	2596.01
3922.28	2596.35	3969.76	2595.75	3982.34	2596.23	4018.59	2595.32	4041.31	2595.6
4102.66	2594.81	4110.78	2595.38	4161.93	2595.15	4380.84	2596.04	4453.68	2597.29
4503.67	2599.05	4513.3	2600.28	4544.08	2602.54	4605.06	2604.18		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
249.44	.06	2180.81	.05	2995.23	.032	3177.04	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
2995.23	3177.04	129.86	154.51	142.17	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
3515	4636.43	2604.2	F
0	2200	2602.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2596.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.	0.050	0.032	0.045
W.S. Elev (ft)	2595.31	Reach Len. (ft)	129.86	154.51	142.17
Crit W.S. (ft)	2595.31	Flow Area (sq ft)	973.46	733.33	513.64
E.G. Slope (ft/ft)	0.005506	Area (sq ft)	986.88	733.33	682.52
Q Total (cfs)	10539.38	Flow (cfs)	2487.44	6389.75	1662.19

Top Width (ft)	1695.25	Top Width (ft)	850.95	181.81	662.49
Vel Total (ft/s)	4.75	Avg. Vel. (ft/s)	2.56	8.71	3.24
Max Chl Dpth (ft)	5.61	Hydr. Depth (ft)	1.25	4.03	1.52
Conv. Total (cfs)	142035.1	Conv. (cfs)	33522.3	86112.2	22400.7
Length Wtd. (ft)		Wetted Per. (ft)	780.42	182.36	338.40
Min Ch El (ft)	2589.70	Shear (lb/sq ft)	0.43	1.38	0.52
Alpha	2.18	Stream Power (lb/ft s)	1.10	12.04	1.69
Frctn Loss (ft)		Cum Volume (acre-ft)	10.39	10.32	7.50
C & E Loss (ft)		Cum SA (acres)	2.95	0.98	2.27

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 5640.23

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
854.48	2599.04	921.66	2599.43	1004.5	2598.72	1123.58	2598.93	1339.42	2598.36
1361.72	2597.76	1532.97	2597.97	1646.86	2597.14	1656.25	2597.44	1666.8	2596.86
1722.52	2596.51	1763.49	2598.01	1783.29	2597.4	1863.24	2596.61	2174.47	2596.1
2306.38	2596.82	2585.65	2594.74	2605.87	2595.52	2623.36	2595.4	2634.9	2594.68
2699.34	2594.4	2732.13	2593.25	2746.65	2594.66	2780.62	2595.09	2872.59	2594.16
2886.19	2592.77	2894.71	2594	2948.89	2594.3	2978.11	2593.25	2987.1	2594.04
3097.09	2594.2	3199.01	2592.86	3294.44	2593.28	3309.44	2592.78	3399.05	2592.47
3457.73	2592.85	3465.91	2591.66	3473.12	2592.26	3508.14	2591.67	3530.02	2592.51
3607.53	2591.84	3644.05	2593.34	3686.63	2593.7	3703.47	2592.84	3746.72	2593
3793.52	2591.64	3814.15	2589.32	3832.64	2589.81	3840.82	2589.22	3850.43	2589.53
3856.51	2588.92	3878.84	2589.41	3896.84	2588.76	3917.45	2589.66	3918.22	2589.73
3942.89	2592.1	3952.51	2592.49	4006.31	2592.19	4016.08	2593.01	4056.75	2593.88
4099.76	2593.26	4108.54	2592.49	4147.57	2592.79	4165.75	2591.86	4179.55	2593.18
4205.32	2592.71	4235.14	2593.91	4249.83	2593.55	4294.77	2595.16	4307.73	2597.18
4330.88	2596.96	4353.32	2593.83	4421.41	2593.2	4453.48	2594.31	4464.13	2593.91
4480.34	2594.49	4500.16	2593.97	4566.69	2594.94	4578.98	2597.2	4596.9	2599.13
4614.89	2599.68	4644.56	2599.26	4656.58	2598.11	4671.76	2595.22	4754.92	2595.15
4766.14	2594.41	4797.63	2594.98	4808.45	2594.4	4849.25	2594.77	4859.86	2594.16
4874.59	2594.62	4996.83	2595.13	5019.03	2596.7	5101.73	2598.15	5162.71	2597.98
5189.55	2596.32	5265.93	2597.5	5272.46	2597.21	5356.42	2600.13		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
854.48	.06	2780.62	.055	3686.63	.032	4644.56	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
3686.63	4056.75	0	0	0	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
4350	5394.3	2600.41	F
0	2850	2602.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2595.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.055	0.032	0.032
W.S. Elev (ft)	2595.17	Reach Len. (ft)	275.00	275.00	275.00
Crit W.S. (ft)	2594.04	Flow Area (sq ft)	1681.41	1351.70	449.15
E.G. Slope (ft/ft)	0.001740	Area (sq ft)	1840.16	1351.70	807.55
Q Total (cfs)	10539.38	Flow (cfs)	3017.12	6204.96	1317.29
Top Width (ft)	2226.10	Top Width (ft)	1128.32	370.12	727.65
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)	1.79	4.59	2.93
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)	2.01	3.65	1.84
Conv. Total (cfs)	252627.7	Conv. (cfs)	72320.0	148732.3	31575.4
Length Wtd. (ft)	275.00	Wetted Per. (ft)	837.03	370.56	244.61
Min Ch El (ft)	2588.76	Shear (lb/sq ft)	0.22	0.40	0.20
Alpha	1.57	Stream Power (lb/ft s)	0.39	1.82	0.59
Frctn Loss (ft)		Cum Volume (acre-ft)	6.17	6.62	5.07
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 5365.23

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2591.28	16.85	2590.92	37.37	2590.98	46.27	2591.25	78.07	2590.9
95.12	2590.85	106.12	2591.02	117.4	2591.41	145.47	2591.56	154.19	2591.77
183.85	2591.55	210.25	2590.74	211.76	2590.32	215.83	2588.05	223.92	2588.19
229.38	2587.74	248.04	2587.94	252.04	2589.14	258.06	2589.02	263.69	2589.28
268.38	2589.15	276.98	2590.08	279.91	2590.1	284.62	2590.37	293.31	2588.54
302.27	2588.57	302.36	2588.57	317.74	2588.92	335.66	2588.59	344.13	2588.76
351.47	2588.73	361.5	2590.35	367.33	2588.75	374.98	2589.28	381.19	2589.1
388.08	2589.87	407.1	2590.43	418.15	2590.48	431.2	2590.83	456.2	2590.76
476.05	2591.16	480.54	2590.99	493.43	2590.83	506.11	2590.94	512.38	2590.81
569.14	2591	701.33	2590.9	726.4	2590.63	754.33	2590.72	794.52	2591.07
860.02	2591.26	916.46	2591.07	1006.37	2591.25	1030.09	2591.41	1049.18	2591.68
1053.13	2591.55	1061.68	2591.81	1077.08	2591.7	1077.14	2596.54	1084.19	2597.66
1087.58	2597.76	1098.88	2598.77	1115.65	2599.06	1144.82	2598.83	1157.53	2598.32
1166.27	2597.33	1166.29	2595.4	1166.36	2592.54	1167.79	2592.53	1177.5	2592.02
1186.3	2592.8	1188.73	2593.13	1194.5	2593.56	1200.85	2593.71	1211.37	2594.4
1243.97	2594.47	1261.3	2595.56	1271.01	2596.54	1283.1	2597.33	1309.44	2597.47
1356.43	2596.85	1371.24	2596.28	1393.43	2594.21	1416.52	2593.69	1467.68	2593.64
1488.25	2593.97	1499.14	2593.7	1578.14	2593.86	1609.13	2594.17	1623.4	2594.7
1634.95	2595.43	1640.4	2595.53	1645.47	2596.01	1657.67	2596.38	1708.72	2596.26
1717.77	2596.46	1732.66	2595.78	1746.59	2595.71	1762.45	2595.32	1785.94	2595.54

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.05	183.85	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
183.85	431.2	255.52	122.9	54.75	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
531.47	1782.3	2596.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2593.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.050	0.035	0.035
W.S. Elev (ft)	2593.47	Reach Len. (ft)	255.52	122.90	54.75
Crit W.S. (ft)	2592.18	Flow Area (sq ft)	411.25	1005.47	259.54
E.G. Slope (ft/ft)	0.002017	Area (sq ft)	411.25	1005.47	1586.35
Q Total (cfs)	6727.50	Flow (cfs)	931.42	4863.16	932.92
Top Width (ft)	1104.04	Top Width (ft)	183.85	247.35	672.84
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)	2.26	4.84	3.59
Max Chl Dpth (ft)	5.73	Hydr. Depth (ft)	2.24	4.06	2.59
Conv. Total (cfs)	149784.9	Conv. (cfs)	20737.7	108276.2	20771.1
Length Wtd. (ft)	127.36	Wetted Per. (ft)	186.06	248.90	100.28
Min Ch El (ft)	2587.74	Shear (lb/sq ft)	0.28	0.51	0.33
Alpha	1.21	Stream Power (lb/ft s)	0.63	2.46	1.17
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	108.30	84.33	105.56
C & E Loss (ft)	0.02	Cum SA (acres)	104.72	28.81	74.75

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 5242.33

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2594.12	11.82	2594.62	17.777	2594.67	30.772	2594.32	35.015	2594.49
37.724	2594.32	42.721	2594.61	49.587	2594.47	60.19	2593.14	71.196	2590.61
74.154	2589.76	89.514	2588.86	91.571	2587.36	97.331	2588.17	113.378	2589.4
126.518	2589.67	137.713	2589.61	152.336	2590.61	173.808	2590.66	179.817	2590.23
184.814	2590.13	190.755	2589.63	194.148	2589.77	211.206	2589.7	216.623	2589.28
228.145	2587.2	238.017	2587.39	264.625	2587.2	271.19	2586.65	275.571	2586.81
282.565	2588.59	286.705	2588.79	291.702	2588.02	297.634	2588.12	302.88	2587.87
308.023	2587.95	308.049	2587.95	323.161	2587.83	329.418	2587.44	341.701	2587.69
348.653	2589.59	353.076	2591	356.564	2591.41	359.445	2592.26	369.311	2594.51
383.54	2595.84	395.643	2596.22	402.432	2596.07	405.714	2596.22	410.985	2596.06
414.072	2595.43	416.746	2595.2	421.435	2595.42	426.955	2595.31	438.535	2595.57
440.73	2595.37	462.134	2595.74	487.282	2595.13	498.211	2594.66	512.405	2593.7

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 519.657 2593.92 528.504 2593.92 569.467 2592.41 573.865 2592.55 600.102 2592.26
 628.998 2592.51 732.423 2591.38 768.142 2591.61 820.729 2591.15 940.356 2591.42
 959.316 2591.641010.548 2591.781010.609 2596.811013.652 2597.521014.997 2597.54
1025.695 2599.031027.589 2599.151028.592 2598.691041.955 2598.931169.365 2597.61
1184.742 2596.49 1197.48 2594.421220.777 2593.841227.592 2593.831246.741 2593.32
 1278.43 2593.281289.042  2593.6 1316.31 2593.74 1326.69 2593.621335.742    2594
1403.834  2593.61421.689 2593.731436.132 2594.041467.675 2594.26 1474.19 2593.99
1484.939 2594.641503.943 2595.061529.598 2594.981582.408 2595.381589.367 2595.61

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  49.587    .035  383.54     .041025.695    .055

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        49.587  383.54               45      45      45             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  77.146  2596.2        F
 402.491 1597.09  2596.2        F
Skew Angle = 31

CROSS SECTION OUTPUT  Profile #100 Year

  E.G. Elev (ft)           2593.44    Element                    Left OB    Channel   Right OB
  Vel Head (ft)               0.52    Wt. n-Val.                            0.035
  W.S. Elev (ft)           2592.93    Reach Len. (ft)             45.00     45.00     45.00
  Crit W.S. (ft)           2591.41    Flow Area (sq ft)                    1164.04
  E.G. Slope (ft/ft)      0.002867    Area (sq ft)                         1193.54    553.64
  Q Total (cfs)            6727.50    Flow (cfs)                           6727.50
  Top Width (ft)            756.32    Top Width (ft)                        301.24    455.08
  Vel Total (ft/s)            5.78    Avg. Vel. (ft/s)                        5.78
  Max Chl Dpth (ft)           6.28    Hydr. Depth (ft)                        4.08
  Conv. Total (cfs)       125642.9    Conv. (cfs)                         125642.9
  Length Wtd. (ft)           45.00    Wetted Per. (ft)                      287.14
  Min Ch El (ft)           2586.65    Shear (lb/sq ft)                        0.73
  Alpha                       1.00    Stream Power (lb/ft s)                  4.19
  Frctn Loss (ft)             0.13    Cum Volume (acre-ft)       107.09     81.23    104.22
  C & E Loss (ft)             0.03    Cum SA (acres)             104.18     28.03     74.04


Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: Agua Caliente
REACH: lower              RS: 5189.01

INPUT
Description:
Station Elevation Data    num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2604.59  19.218 2604.43  25.628 2604.26  59.247 2604.35  66.473  2603.4
  70.168 2603.12  71.522 2602.68  76.674 2601.54  79.811 2599.62  80.883 2599.17
  81.774 2598.56  87.114 2596.66  97.169 2596.26 100.031 2592.04 101.875 2589.54
 104.832  2589.5 110.103 2588.71 113.009  2587.4 124.092 2587.97 127.461 2588.89
 129.664 2588.92 131.969 2588.54 139.204 2589.03 145.143 2589.26 154.136 2589.36
 159.365 2589.15 163.805 2589.39 174.425 2589.26 178.119 2589.02 201.716 2588.45
 205.822 2588.11 212.303 2587.07 250.721 2587.16 253.173 2586.91 269.828 2586.78
 277.019 2586.56  282.66 2587.82 296.503 2587.55 296.546 2587.55 318.875 2587.18
 320.991  2587.7 323.006  2588.4 326.718  2589.3 330.043 2590.34 332.435 2592.45
 332.949 2592.64 333.995 2593.89 339.747 2594.37  350.83 2598.36 355.476 2600.52
 357.713 2601.01 359.436 2602.02 361.227 2602.64 380.514 2602.93  399.68 2602.87
 422.841 2602.36 453.399 2602.02 454.839 2601.83 462.639 2601.43 478.008 2600.95
 518.183 2600.36 540.555 2600.16  557.57 2599.74 567.317  2599.7 596.631 2599.07
 633.678 2598.59 657.362 2597.93 660.507 2597.55 662.092 2597.08 665.573 2597.65
 672.003 2597.81 697.151 2597.68 708.689 2597.31 719.181 2596.78 727.812 2596.63
 733.804 2596.27  744.63 2595.94 751.616 2595.97 765.553 2595.57 788.928 2595.47
 796.497 2595.25  809.32 2595.12 818.149 2594.81  851.63 2594.49 853.533 2594.57
 869.759 2593.98  947.58 2593.99 973.219 2594.47 990.303  2594.71001.155 2596.08
1008.011 2596.75 1009.64 2597.061020.261 2598.371023.406 2598.911033.504  2599.1
1033.599  2598.61051.401 2598.851079.413 2598.721079.499 2599.211085.456 2599.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045  59.247    .035 361.227    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        59.247 361.227               82      82      82             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   75.61 2604.19        F
 344.7621085.456 2602.96        F
Skew Angle = 31
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CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2593.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.		0.035	
W.S. Elev (ft)	2592.67	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)	2591.03	Flow Area (sq ft)		1070.06	
E.G. Slope (ft/ft)	0.002940	Area (sq ft)		1070.06	
Q Total (cfs)	6727.50	Flow (cfs)		6727.50	
Top Width (ft)	233.37	Top Width (ft)		233.37	
Vel Total (ft/s)	6.29	Avg. Vel. (ft/s)		6.29	
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)		4.59	
Conv. Total (cfs)	124073.9	Conv. (cfs)		124073.9	
Length Wtd. (ft)	5.00	Wetted Per. (ft)		237.08	
Min Ch El (ft)	2586.56	Shear (lb/sq ft)		0.83	
Alpha	1.00	Stream Power (lb/ft s)		5.21	
Frctn Loss (ft)		Cum Volume (acre-ft)	107.09	80.06	103.93
C & E Loss (ft)		Cum SA (acres)	104.18	27.76	73.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE

RIVER: Agua Caliente
REACH: lower RS: 5164.33

INPUT
Description: Existing Houghton Road Bridge
Distance from Upstream XS = 5
Deck/Roadway Width = 70.71
Weir Coefficient = 2.6
Bridge Deck/Roadway Skew = 31
Upstream Deck/Roadway Coordinates
num= 85

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2604.74	0	5.932	2604.73	0	32.195	2604.55	0
44.376	2604.43	0	60.67	2604.35	0	61.125	2604.48	0
63.482	2604.24	0	64.133	2604.22	0	66.088	2604.23	0
69.208	2604.21	0	83.814	2604.19	0	83.814	2604.19	2599.47
253.019	2603.61	2598.67	336.558	2602.96	2598.27	336.558	2602.96	0
345	2602.94	0	355.887	2602.85	0	356.316	2602.88	0
357.164	2602.88	0	373.382	2602.95	0	393.294	2602.8	0
410	2602.62	0	423.637	2602.41	0	465.193	2601.77	0
492.374	2601.32	0	508.009	2601.15	0	509.304	2601.13	0
520.848	2601	0	522.676	2600.97	0	550.713	2600.56	0
575.28	2600.13	0	619.424	2599.39	0	628.621	2599.24	0
630.438	2599.2	0	643.956	2598.98	0	646.621	2598.93	0
653.47	2598.81	0	667.202	2598.7	0	670.613	2598.64	0
684.396	2598.52	0	689.66	2598.42	0	695.214	2598.38	0
703.16	2598.27	0	704.899	2598.24	0	718.872	2598.05	0
722.043	2598	0	733.623	2597.85	0	736.701	2597.8	0
753.45	2597.5	0	757.582	2597.43	0	772.564	2597.16	0
776.499	2597.14	0	803.355	2597.05	0	813.906	2597.05	0
855.334	2596.91	0	860.501	2596.93	0	874.869	2596.88	0
877.526	2596.9	0	892.157	2596.84	0	894.557	2596.86	0
896.417	2596.85	0	900.823	2596.86	0	909.446	2596.98	0
911.58	2597	0	926.744	2597.21	0	928.595	2597.22	0
944.041	2597.45	0	945.617	2597.46	0	956.119	2597.61	0
970.948	2597.71	0	988.1	2597.91	0	992.437	2597.92	0
995.822	2598.02	0	999.037	2598.08	0	1003.494	2598.12	0
1005.774	2598.11	0	1008.131	2598.13	0	1011.089	2598.22	0
1015.76	2598.32	0	1018.786	2598.36	0	1051.694	2598.44	0
1053.099	2598.43	0	1061.276	2598.47	0	1074.622	2598.43	0
1085.997	2598.36	0						

Upstream Bridge Cross Section Data
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2604.59	19.218	2604.43	25.628	2604.26	59.247	2604.35	66.473	2603.4
70.168	2603.12	71.522	2602.68	76.674	2601.54	79.811	2599.62	80.883	2599.17
81.774	2598.56	87.114	2596.66	97.169	2596.26	100.031	2592.04	101.875	2589.54
104.832	2589.5	110.103	2588.71	113.009	2587.4	124.092	2587.97	127.461	2588.89
129.664	2588.92	131.969	2588.54	139.204	2589.03	145.143	2589.26	154.136	2589.36
159.365	2589.15	163.805	2589.39	174.425	2589.26	178.119	2589.02	201.716	2588.45
205.822	2588.11	212.303	2587.07	250.721	2587.16	253.173	2586.91	269.828	2586.78
277.019	2586.56	282.66	2587.82	296.503	2587.55	296.546	2587.55	318.875	2587.18
320.991	2587.7	323.006	2588.4	326.718	2589.3	330.043	2590.34	332.435	2592.45
332.949	2592.64	333.995	2593.89	339.747	2594.37	350.83	2598.36	355.476	2600.52
357.713	2601.01	359.436	2602.02	361.227	2602.64	380.514	2602.93	399.68	2602.87
422.841	2602.36	453.399	2602.02	454.839	2601.83	462.639	2601.43	478.008	2600.95
518.183	2600.36	540.555	2600.16	557.57	2599.74	567.317	2599.7	596.631	2599.07
633.678	2598.59	657.362	2597.93	660.507	2597.55	662.092	2597.08	665.573	2597.65
672.003	2597.81	697.151	2597.68	708.689	2597.31	719.181	2596.78	727.812	2596.63

733.804	2596.27	744.63	2595.94	751.616	2595.97	765.553	2595.57	788.928	2595.47
796.497	2595.25	809.32	2595.12	818.149	2594.81	851.63	2594.49	853.533	2594.57
869.759	2593.98	947.58	2593.99	973.219	2594.47	990.303	2594.71	001.155	2596.08
1008.011	2596.75	1009.64	2597.06	1020.261	2598.37	1023.406	2598.91	1033.504	2599.1
1033.599	2598.61	051.401	2598.85	1079.413	2598.72	1079.499	2599.21	1085.456	2599.05

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	59.247	.035	361.227	.045

Bank Sta: Left	Right	Coeff Contr.	Expan.
59.247	361.227	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	75.61	2604.19	F
344.762	1085.456	2602.96	F

Skew Angle = 31

Downstream Deck/Roadway Coordinates
num= 92

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	2605.18	0	3.308	2605.15	0	17.495	2605.16	0
18.078	2605.17	0	38.444	2605.26	0	43.15	2605.26	0
58.579	2605.16	0	62.283	2605.16	0	62.283	2605.16	2598.51
145.856	2604.6	2598.11	231.572	2604.26	2597.71	315.147	2603.96	2597.31
315.147	2603.96	0	335.05	2603.91	0	338.161	2603.81	0
339.901	2603.72	0	361.39	2603.66	0	362.067	2603.66	0
362.855	2603.65	0	376.383	2603.85	0	396.303	2603.68	0
415.914	2603.45	0	437.626	2603.21	0	454.427	2602.89	0
455.087	2602.88	0	471.579	2602.62	0	472.222	2602.61	0
488.74	2602.35	0	489.228	2602.34	0	499.343	2602.18	0
519.101	2601.91	0	519.777	2601.9	0	523.669	2601.79	0
524.124	2601.78	0	540.478	2601.34	0	540.872	2601.34	0
548.896	2601.12	0	550.036	2601.1	0	573.564	2600.57	0
575.305	2600.55	0	578.897	2600.47	0	590.288	2600.25	0
592.56	2600.21	0	606.987	2599.94	0	609.815	2599.9	0
623.692	2599.64	0	626.143	2599.61	0	635.735	2599.43	0
653.864	2599.06	0	658.459	2598.98	0	676.201	2598.59	0
681.251	2598.5	0	688.03	2598.38	0	692.866	2598.29	0
702.809	2598.11	0	711.337	2597.99	0	725.138	2597.81	0
732.227	2597.71	0	742.65	2597.61	0	750.629	2597.49	0
756.175	2597.42	0	764.97	2597.29	0	773.216	2597.19	0
782.56	2597.05	0	789.939	2596.95	0	790.24	2596.95	0
794.826	2596.9	0	805.249	2596.91	0	807.272	2596.9	0
818.654	2596.91	0	824.311	2596.89	0	836.535	2596.9	0
841.345	2596.89	0	854.407	2596.91	0	858.29	2596.89	0
871.525	2596.92	0	933.558	2597.57	0	943.262	2597.58	0
943.647	2597.58	0	963.293	2597.59	0	993.053	2597.85	0
994.862	2597.88	0	995.771	2597.89	0	1010.746	2598.12	0
1012.529	2598.14	0	1014.757	2598.17	0	1026.328	2598.22	0
1047.407	2598.27	0	1051.273	2598.33	0	1062.665	2598.27	0
1077.254	2598.24	0	1085.988	2598.23	0			

Downstream Bridge Cross Section Data
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2604.77	20.015	2604.86	36.97	2605.11	40.484	2604.94	41.83	2604
49.596	2600.54	52.184	2599.23	54.396	2598.65	57.567	2597.48	60.55	2596.29
67.279	2595.9	74.994	2588.73	84.372	2588.43	88.777	2588.06	95.102	2587.98
99.774	2587.66	114.372	2587.92	134.232	2588.08	141.733	2587.88	153.466	2587.88
159.76	2587.76	169.539	2587.34	175.402	2586.83	193.977	2586.63	202.171	2587.06
205.034	2587.12	205.694	2587.22	213.503	2587.22	222.795	2586.9	227.774	2586.44
233.492	2586.37	243.641	2586.41	250.636	2586.31	250.644	2586.31	263.15	2586.46
265.868	2586.65	271.525	2586.68	273.958	2586.95	276.934	2587.12	277.619	2587.21
282.925	2589.25	289.756	2589.5	297.163	2590.23	301.5	2593.61	302.846	2594.76
309.609	2594.81	311.22	2595.18	312.455	2595.73	321.6	2598.73	324.472	2599.84
327.215	2601.02	329.769	2601.88	333.601	2603.39	334.732	2603.71	337.587	2603.78
340.887	2603.63	343.364	2603.67	360.722	2603.59	372.816	2603.79	377.034	2603.68
381.388	2603.73	394.606	2603.65	396.979	2603.54	413.284	2603.36	418.255	2603.21
435.201	2603.08	452.859	2602.62	459.098	2602.62	465.579	2602.51	469.779	2602.38
483.707	2602.2	488.782	2602.23	495.143	2602.12	508.223	2602.13	510.186	2602.04
523.181	2601.81	524.766	2601.5	529.935	2601.57	534.101	2601.46	542.08	2601.49
557.716	2601.13	560.519	2600.98	571.619	2600.71	573.239	2600.61	590.322	2600.19
592.139	2600.21	607.336	2599.94	610.569	2599.78	653.95	2598.98	677.934	2598.46
702.714	2598.03	796.548	2596.86	871.841	2596.85	932.975	2597.51	962.599	2597.56
992.472	2597.83	1014.226	2598.16	1046.524	2598.26	1050.75	2598.33	1085.456	2598.23

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	36.97	.035	333.601	.045

Bank Sta: Left	Right	Coeff Contr.	Expan.
36.97	333.601	.3	.5

Skew Angle = 31

Upstream Embankment side slope = 0 horiz. to 1.0 vertical

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

Number of Piers =  2

Pier Data
Pier Station     Upstream= 172.292    Downstream= 145.856
Upstream     num=       2
    Width   Elev    Width   Elev
        8     2.2       8 2599.07
Downstream     num=       2
    Width   Elev    Width   Elev
        8     2.2       8 2598.11

Pier Data
Pier Station     Upstream= 253.019    Downstream= 231.572
Upstream     num=       2
    Width   Elev    Width   Elev
        8       0       8 2598.67
Downstream     num=       2
    Width   Elev    Width   Elev
        8       0       8 2597.71

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd           =
           Submerged Inlet + Outlet Cd =       .8
           Max Low Cord                 =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #100 Year

  E.G. US. (ft)              2593.29   Element                 Inside BR US  Inside BR DS
  W.S. US. (ft)              2592.67   E.G. Elev (ft)              2593.22       2592.30
  Q Total (cfs)              6727.50   W.S. Elev (ft)              2592.44       2590.73
  Q Bridge (cfs)             6727.50   Crit W.S. (ft)              2591.17       2590.73
  Q Weir (cfs)                         Max Chl Dpth (ft)              5.88          4.42
  Weir Sta Lft (ft)                    Vel Total (ft/s)               7.10         10.06
  Weir Sta Rgt (ft)                    Flow Area (sq ft)            946.92        668.51
  Weir Submerg                         Froude # Chl                   0.60          0.99
  Weir Max Depth (ft)                  Specif Force (cu ft)        3666.24       3260.69
  Min El Weir Flow (ft)      2602.95   Hydr Depth (ft)                4.37          3.20
  Min El Prs (ft)            2599.47   W.P. Total (ft)              237.42        224.79
  Delta EG (ft)                 1.13   Conv. Total (cfs)          101104.6       58693.8
  Delta WS (ft)                 1.60   Top Width (ft)               216.66        208.95
  BR Open Area (sq ft)       2264.37   Frctn Loss (ft)
  BR Open Vel (ft/s)           10.06   C & E Loss (ft)
  Coef of Q                            Shear Total (lb/sq ft)         1.10          2.44
  Br Sel Method             Momentum   Power Total (lb/ft s)          7.83         24.55


Warning: The flow regime calculated by the momentum equation shows class B flow.  For the best
         solution, this profile should be run as a mixed flow problem.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: Agua Caliente
REACH: lower              RS: 5083.33

INPUT
Description: copied from xsec 5203.86
thalweg thru bridge increased 0.653 feet
Station Elevation Data     num=     100
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
       0 2604.77  20.015 2604.86   36.97 2605.11  40.484 2604.94   41.83     2604
  49.596 2600.54  52.184 2599.23  54.396 2598.65  57.567 2597.48   60.55 2596.29
  67.279  2595.9  74.994 2588.73  84.372 2588.43  88.777 2588.06  95.102 2587.98
```

99.774	2587.66	114.372	2587.92	134.232	2588.08	141.733	2587.88	153.466	2587.88
159.76	2587.76	169.539	2587.34	175.402	2586.83	193.977	2586.63	202.171	2587.06
205.034	2587.12	205.694	2587.22	213.503	2587.22	222.795	2586.9	227.774	2586.44
233.492	2586.37	243.641	2586.41	250.636	2586.31	250.644	2586.31	263.15	2586.46
265.868	2586.65	271.525	2586.68	273.958	2586.95	276.934	2587.12	277.619	2587.21
282.925	2589.25	289.756	2589.5	297.163	2590.23	301.5	2593.61	302.846	2594.76
309.609	2594.81	311.22	2595.18	312.455	2595.73	321.6	2598.73	324.472	2599.84
327.215	2601.02	329.769	2601.88	333.601	2603.39	334.732	2603.71	337.587	2603.78
340.887	2603.63	343.364	2603.67	360.722	2603.59	372.816	2603.79	377.034	2603.68
381.388	2603.73	394.606	2603.65	396.979	2603.54	413.284	2603.36	418.255	2603.21
435.201	2603.08	452.859	2602.62	459.098	2602.62	465.579	2602.51	469.779	2602.38
483.707	2602.2	488.782	2602.23	495.143	2602.12	508.223	2602.13	510.186	2602.04
523.181	2601.81	524.766	2601.5	529.935	2601.57	534.101	2601.46	542.08	2601.49
557.716	2601.13	560.519	2600.98	571.619	2600.71	573.239	2600.61	590.322	2600.19
592.139	2600.21	607.336	2599.94	610.569	2599.78	653.95	2598.98	677.934	2598.46
702.714	2598.03	796.548	2596.86	871.841	2596.85	932.975	2597.51	962.599	2597.56
992.472	2597.83	1014.226	2598.16	1046.524	2598.26	1050.75	2598.33	1085.456	2598.23

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	36.97	.035	333.601	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
36.97	333.601	63	76	38	.3	.5

Skew Angle = 31

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2592.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.		0.035	
W.S. Elev (ft)	2591.07	Reach Len. (ft)	63.00	76.00	38.00
Crit W.S. (ft)	2590.54	Flow Area (sq ft)		803.32	
E.G. Slope (ft/ft)	0.007238	Area (sq ft)		803.32	
Q Total (cfs)	6727.50	Flow (cfs)		6727.50	
Top Width (ft)	225.76	Top Width (ft)		225.76	
Vel Total (ft/s)	8.37	Avg. Vel. (ft/s)		8.37	
Max Chl Dpth (ft)	4.76	Hydr. Depth (ft)		3.56	
Conv. Total (cfs)	79073.3	Conv. (cfs)		79073.3	
Length Wtd. (ft)	74.97	Wetted Per. (ft)		227.54	
Min Ch El (ft)	2586.31	Shear (lb/sq ft)		1.60	
Alpha	1.00	Stream Power (lb/ft s)		13.36	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	107.09	78.53	103.93
C & E Loss (ft)	0.20	Cum SA (acres)	104.18	27.36	73.81

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 5007.33

INPUT
Description:
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-55.716	2588.36	0	2588.21	16.869	2588.3	25.775	2588.01	33.67	2586.83
40.965	2587.26	48.344	2587.18	51.276	2587.01	52.964	2587.18	83.48	2587.01
94.992	2587.26	115.856	2587.15	121.426	2586.89	126.004	2586.32	138.621	2586.25
162.93	2587.11	180.708	2585.69	182.345	2585.69	182.354	2585.69	202.154	2585.71
214.446	2585.86	221.87	2587.48	230.021	2587.48	234.221	2588.36	238.001	2589.33
248.657	2589.39	256.507	2589.09	261.976	2589.33	269.065	2589.42	279.839	2590.27
284.262	2590.5	308.16	2590.36	351.327	2590.68	450.75	2590.5	484.051	2590.78
512.235	2590.6	550.267	2590.85	570.616	2591.24	593.931	2591.29	625.175	2591.6
669.611	2591.65	682.099	2591.68	685.811	2591.86	699.346	2591.88	733.709	2591.62
749.276	2591.78	766.359	2591.7	791.225	2591.83	820.875	2591.41	827.184	2591.62
858.684	2591.61	874.585	2591.8	916.02	2592	920.581	2591.81	932.101	2592.01
941.041	2592.36	962.505	2592.6	965.787	2592.39	989.831	2592.67	993.38	2593.22
996.114	2593.8	999.886	2594.37	1017.406	2597.96	1026.312	2598.15	1034.275	2598.02
1034.361	2597.52	1050.013	2597.91	1064.73	2597.82	1086.304	2597.26	1098.339	2596.33
1115.338	2594.34	1120.438	2593.89	1133.424	2594.04	1158.47	2593.81	1171.353	2593.9
1180.739	2593.51	1192.569	2593.32	1196.434	2593.63	1201.2	2593.71	1214.186	2592.62
1228.638	2593.34	1250.701	2592.88	1258.467	2592.51	1263.352	2592.87	1293.518	2593.42
1300.357	2593.29	1302.62	2593.12	1334.935	2593.21	1365.245	2592.94	1368.33	2593.02
1377.879	2592.81	1389.281	2592.78	1420.18	2593.62	1432.292	2593.73	1445.441	2594.14
1466.887	2593.94	1467.307	2594.04	1482.951	2594.21	1491.36	2594.15	1505.896	2594.73
1522.149	2594.93								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-55.716	.04	25.775	.035	238.001	.04	1017.406	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
25.775	238.001	66.01	198.44	896.05	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-55.716	-21.89	2594.79	F

378.121576.502 2594.79 F
Skew Angle = 31

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2591.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	2590.87	Reach Len. (ft)	66.01	198.44	896.05
Crit W.S. (ft)	2589.91	Flow Area (sq ft)	125.91	866.75	93.24
E.G. Slope (ft/ft)	0.004073	Area (sq ft)	212.38	866.75	133.74
Q Total (cfs)	6727.50	Flow (cfs)	570.41	5988.67	168.43
Top Width (ft)	607.07	Top Width (ft)	81.49	212.23	313.35
Vel Total (ft/s)	6.20	Avg. Vel. (ft/s)	4.53	6.91	1.81
Max Chl Dpth (ft)	5.18	Hydr. Depth (ft)	2.64	4.08	0.67
Conv. Total (cfs)	105413.9	Conv. (cfs)	8937.7	93837.1	2639.1
Length Wtd. (ft)	254.67	Wetted Per. (ft)	47.67	212.85	140.17
Min Ch El (ft)	2585.69	Shear (lb/sq ft)	0.67	1.04	0.17
Alpha	1.15	Stream Power (lb/ft s)	3.04	7.15	0.31
Frctn Loss (ft)	1.55	Cum Volume (acre-ft)	106.94	77.07	103.87
C & E Loss (ft)	0.03	Cum SA (acres)	104.12	26.97	73.67

Warning: The cross-section end points had to be extended vertically for the computed water surface.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 4808.89

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2594.35	14.73	2591.67	25.05	2589.41	31.85	2588.65	37.67	2588.64
65.9	2587.88	75.9	2588.31	89.43	2587.7	99.82	2588.12	103.47	2587.57
114.59	2588.43	119.76	2588.33	124.32	2587.95	129.85	2587.85	139.03	2587.09
142.78	2587.53	146.97	2587.56	156.91	2586.1	162.23	2586.37	191.91	2586.33
202.7	2586.9	217.83	2586.74	227.65	2587.07	235.03	2586.66	242.03	2586.6
247.24	2585.75	250.57	2585.58	263.17	2585.97	268.52	2586.65	271.95	2586.56
271.98	2586.56	288.56	2586.15	298.71	2587.09	302.21	2586.77	315.69	2584.46
338.36	2584.4	346.18	2584.15	357.68	2584.35	361.75	2587.96	384.35	2587.52
396.72	2588.27	426.43	2587.64	486.74	2587	532.28	2586.21	578.94	2586.3
647.48	2586.12	679.76	2586.39	689.52	2586.75	817.58	2586.41	832.08	2586.79
848.35	2585.76	859.8	2586.12	861.58	2586.17	873.05	2584.76	885.06	2586.78
897.08	2587.13	959.71	2587.39	980.49	2587.1	984.82	2587.21	1007.82	2587.63
1046.17	2587.6	1053.57	2587.85	1075.74	2589.17	1101.12	2589.29	1108.41	2588.99
1124.92	2588.79	1128.31	2588.57	1140.97	2589.12	1145.88	2589.73	1155.03	2590.24
1176.43	2589.96	1185.4	2589.6	1187.08	2589.38	1203.83	2588.48	1229.2	2589.38
1246.29	2589.69	1266.45	2589.47	1281.41	2588.91	1290.57	2588.87	1298.17	2588.49
1300.78	2588.75	1324.85	2589.11	1333.7	2588.99	1364.28	2589.27	1384.36	2589.84
1404.3	2589.6	1413.27	2589.27	1499.33	2589.48	1532.54	2590.1	1594.21	2590.45
1604.08	2590.68	1646.46	2590.66	1670.77	2591.29	1674.79	2590.77	1690.31	2590.57
1718.9	2590.8	1729.43	2590.13	1732.23	2590.45	1743.36	2592.39	1763.64	2593.06

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.045	298.71	.035	361.75	.06	689.52	.055	1053.57	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
298.71	361.75	162.68	168.3	201.06	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	104.47	2600.07	F
572.9	1772.49	2592.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2589.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.	0.045	0.035	0.060
W.S. Elev (ft)	2588.99	Reach Len. (ft)	162.68	168.30	201.06
Crit W.S. (ft)	2588.99	Flow Area (sq ft)	431.66	259.16	393.73
E.G. Slope (ft/ft)	0.010149	Area (sq ft)	494.04	259.16	1523.65
Q Total (cfs)	6727.50	Flow (cfs)	2441.82	2797.70	1487.99
Top Width (ft)	1135.86	Top Width (ft)	269.92	63.04	802.90
Vel Total (ft/s)	6.20	Avg. Vel. (ft/s)	5.66	10.80	3.78
Max Chl Dpth (ft)	4.84	Hydr. Depth (ft)	2.22	4.11	1.86
Conv. Total (cfs)	66778.6	Conv. (cfs)	24238.0	27770.5	14770.1
Length Wtd. (ft)	174.15	Wetted Per. (ft)	194.66	64.63	211.19
Min Ch El (ft)	2584.15	Shear (lb/sq ft)	1.41	2.54	1.18

Alpha	1.64	Stream Power (lb/ft s)	7.95	27.43	4.46
Frctn Loss (ft)	1.33	Cum Volume (acre-ft)	106.40	74.50	86.82
C & E Loss (ft)	0.13	Cum SA (acres)	103.86	26.35	62.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: 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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 4640.59

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2586.68	17.94	2585.82	38.31	2586.07	56.6	2586.97	82.42	2586.79
90.52	2585.78	98.18	2585.79	108.15	2586.4	116.32	2586.25	136.96	2587.2
145.37	2586.74	162.63	2586.41	166.43	2586.73	177.09	2586.56	187.66	2585.35
198.19	2585.08	207.47	2585.49	219.02	2586.46	243.51	2585.7	252.61	2585.93
258.3	2586.03	266.31	2585.62	275.51	2586.18	313.75	2584.41	318.41	2584.03
328.07	2584.22	333.53	2585.08	340.64	2584.33	358.21	2583.27	381.81	2583.37
381.84	2583.37	405.97	2583.34	420	2586.39	425.24	2586.28	431.36	2583.72
441.36	2584.01	444.61	2584.57	454.96	2585.68	466.35	2586.46	480.71	2586.95
499.85	2586.98	567.35	2586.23	627.39	2585.94	659.69	2585.39	674.1	2584.34
688.53	2585.5	700.16	2585.17	717.6	2585.44	729.65	2584.46	743.59	2585.66
773.12	2585.8	785.29	2585.1	793.01	2585.72	807.32	2585.83	828.51	2585.18
870.54	2584.94	882.81	2583.23	893.75	2585.42	936.56	2585.42	958.97	2585.83
1101.17	2586.38	1117.51	2587.3	1120.99	2587.93	1144.82	2587.99	1153.44	2587.36
1163.04	2587.96	1175.33	2587.96	1201.49	2588.04	1210.76	2587.71	1215.44	2587.78
1238.6	2587.07	1245.73	2587.36	1279.59	2587.65	1308.09	2587.43	1388.32	2587.36
1388.78	2588.27	1416.54	2588.19	1427.02	2587.94	1437.88	2587.68	1438.36	2586.66
1456.61	2587.11	1502.9	2587.79	1521.28	2588.42	1542.98	2588.91	1549.81	2588.83
1557.45	2589.17	1582.63	2589.39	1631.51	2589.85	1656.32	2590.45	1699.57	2590.77
1711.23	2590.49	1746.84	2590.92	1760.11	2591.27	1817.05	2591.34	1843.52	2591.86
1923.71	2591.76	1937.12	2591.24	2001.3	2589.85	2015.79	2590.82	2018.02	2590.82

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	275.51	.035	480.71	.07	743.59	.065	1175.33	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
275.51	480.71	360.48	347.13	421.52	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	157.36	2594.92	F
799.27	2040.24	2590.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2588.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.	0.040	0.035	0.069
W.S. Elev (ft)	2587.72	Reach Len. (ft)	360.48	347.13	421.52
Crit W.S. (ft)	2587.31	Flow Area (sq ft)	208.99	633.02	591.15
E.G. Slope (ft/ft)	0.005930	Area (sq ft)	408.40	633.02	1313.40
Q Total (cfs)	6727.50	Flow (cfs)	873.56	4368.82	1485.11
Top Width (ft)	1363.16	Top Width (ft)	275.51	205.20	882.45
Vel Total (ft/s)	4.69	Avg. Vel. (ft/s)	4.18	6.90	2.51
Max Chl Dpth (ft)	4.49	Hydr. Depth (ft)	1.77	3.08	1.86
Conv. Total (cfs)	87361.5	Conv. (cfs)	11343.9	56732.4	19285.3
Length Wtd. (ft)	372.92	Wetted Per. (ft)	118.33	206.39	318.80
Min Ch El (ft)	2583.27	Shear (lb/sq ft)	0.65	1.14	0.69
Alpha	1.57	Stream Power (lb/ft s)	2.73	7.84	1.72
Frctn Loss (ft)	2.47	Cum Volume (acre-ft)	104.72	72.78	80.28
C & E Loss (ft)	0.03	Cum SA (acres)	102.84	25.83	58.30

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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 4293.46

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2586.05	7.15	2585.99	9.06	2585.9	27.75	2585.76	41.53	2585.78
59.57	2585.59	66.95	2585.25	96.59	2584.93	116.13	2584.92	124.4	2584.64
160.25	2585.08	172.81	2585.15	187.46	2585.37	218.47	2585.34	257.5	2584.95
264.31	2584.95	268.98	2584.02	270.99	2583.78	276.95	2583.27	285.88	2583.08
307.43	2583.09	330.94	2585.45	377.65	2585.38	407.01	2584.44	415.68	2584.27
418.9	2584.1	428.2	2583.14	432.69	2583.47	446.51	2583.93	461.45	2584.25
500.45	2584.15	516.9	2584.22	529.5	2583.87	556.46	2584.18	574.76	2583.71
593.6	2583.8	622.47	2583.27	632.07	2582.37	635.09	2581.91	641.38	2581.4
670.55	2581.39	670.56	2581.39	678.84	2581.36	688.52	2581.98	713.72	2581.55
722.64	2584.5	762.36	2584.25	768.95	2584.36	796.53	2584.4	826.5	2584.61
856.58	2584.48	936.55	2584.44	986.04	2583.69	1000.05	2584.07	1016.57	2583.66
1022.48	2583.03	1036.36	2581.78	1040.57	2581.75	1049.29	2581.76	1050.63	2581.7
1064.56	2583.54	1084.02	2583.55	1127.91	2583.42	1133.92	2583.47	1147.02	2583.41
1209.12	2582.86	1233.27	2583.11	1238.6	2583.01	1266.4	2582.99	1274.54	2582.92
1319.22	2583.35	1334	2583.15	1348.73	2582.83	1376.52	2582.89	1391.98	2582.7
1420.71	2583.87	1426.82	2583.97	1451.82	2584.02	1461.47	2583.9	1466.19	2584.02
1516.81	2583.42	1524.86	2583.42	1556.76	2583.09	1577.71	2583.5	1585.21	2583.56
1664.34	2584.97	1745.07	2587.24	1770.29	2587.6	1789.22	2587.73	1818.64	2588.2
1819.54	2588.86	1822.22	2588.98	1824.49	2588.92	1825.21	2588.82	1825.36	2588.4
1877.53	2589.77	1921.97	2590.29	1953.46	2590.34	1993.37	2590.25	1999.85	2590.18

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	124.4	.05	556.46	.035	722.64	.065	1319.22	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
556.46	722.64	321.61	349.63	363.19	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	355.35	2586.16	F
1366.18	2003.8	2589.65	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2585.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.050	0.035	0.067
W.S. Elev (ft)	2585.31	Reach Len. (ft)	321.61	349.63	363.19
Crit W.S. (ft)	2585.05	Flow Area (sq ft)	201.44	453.89	1072.18
E.G. Slope (ft/ft)	0.007452	Area (sq ft)	357.35	453.89	1556.95
Q Total (cfs)	6727.50	Flow (cfs)	563.85	3242.40	2921.26
Top Width (ft)	1522.69	Top Width (ft)	402.69	166.18	953.82
Vel Total (ft/s)	3.89	Avg. Vel. (ft/s)	2.80	7.14	2.72
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)	1.14	2.73	1.67
Conv. Total (cfs)	77934.4	Conv. (cfs)	6531.9	37561.4	33841.1
Length Wtd. (ft)	353.05	Wetted Per. (ft)	176.75	166.79	643.78
Min Ch El (ft)	2581.36	Shear (lb/sq ft)	0.53	1.27	0.77
Alpha	1.88	Stream Power (lb/ft s)	1.48	9.04	2.11
Frctn Loss (ft)	1.68	Cum Volume (acre-ft)	101.55	68.45	66.39
C & E Loss (ft)	0.03	Cum SA (acres)	100.03	24.35	49.42

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 3943.83

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2583.94	4.62	2584.09	32.87	2583.97	42.14	2583.84	73.19	2583.89
98.84	2583.67	106.31	2583.69	113.55	2583.9	125.69	2584.5	174.85	2584.97
194.36	2584.84	244.59	2584.78	264.31	2584.67	284.44	2584.73	296.47	2584.58
321.94	2584.63	333.14	2584.38	350.19	2583.86	367.28	2583.46	377.83	2583.51
396.88	2583.81	408.25	2583.78	420.21	2583.64	453.85	2583.98	467.54	2583.87
470.35	2583.91	490.39	2583.57	495	2583.59	513.12	2583.41	549.59	2583.47
604.73	2583.15	607.04	2583.47	612.76	2583.19	645.72	2583.14	650.91	2583.07
668.52	2583.01	683.98	2582.74	703.32	2582.23	710.49	2581.96	720.69	2579.78

743.78	2579.86	754.18	2579.81	778.06	2579.4	791.98	2579.75	806	2579.95
817.24	2579.36	817.32	2579.36	819.09	2579.28	823.69	2579.61	827.79	2579.99
831.67	2579.73	837.5	2579.09	852.24	2579.84	859.25	2579.18	861.08	2578.95
874.4	2578.93	882.57	2579.93	898.84	2580.22	912.76	2581.92	918.68	2581.59
928.9	2580.78	946.46	2582.47	976.94	2582.12	982.05	2582.26	989.85	2582.36
1009.98	2582.31	1041.65	2582.08	1064.07	2582.06	1141.57	2581.68	1147.84	2581.63
1178.64	2582.09	1182.66	2581.92	1184.11	2581.79	1190.57	2581.49	1205.48	2581.48
1235.67	2581.69	1245.24	2581.56	1263.64	2581.73	1264.7	2581.88	1270.3	2581.74
1281.48	2580.82	1282.25	2580.81	1294.99	2579.26	1307.75	2581.38	1315.8	2581.54
1329.94	2582.08	1336.86	2582.51	1346.9	2583.36	1365.56	2584.58	1389.32	2585.78
1406.2	2586.53	1437.73	2587.45	1451.43	2587.77	1457.74	2588.8	1463.16	2588.98
1467.28	2588.3	1479.68	2588.66	1491.01	2589.08	1531.44	2588.54	1542.84	2588.51

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	125.69	.05	668.52	.035	946.46	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
668.52	946.46	336.48	364.45	272.9	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	475.05	2584.2	F
1452.34	1542.84	2588.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2584.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.050	0.035	0.055
W.S. Elev (ft)	2583.69	Reach Len. (ft)	336.48	364.45	272.90
Crit W.S. (ft)	2582.91	Flow Area (sq ft)	69.80	910.60	753.77
E.G. Slope (ft/ft)	0.003307	Area (sq ft)	74.62	910.60	753.77
Q Total (cfs)	6727.50	Flow (cfs)	62.19	4896.11	1769.20
Top Width (ft)	921.21	Top Width (ft)	237.73	277.94	405.54
Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)	0.89	5.38	2.35
Max Chl Dpth (ft)	4.76	Hydr. Depth (ft)	0.38	3.28	1.86
Conv. Total (cfs)	116981.0	Conv. (cfs)	1081.4	85135.8	30763.8
Length Wtd. (ft)	341.66	Wetted Per. (ft)	185.43	278.64	405.96
Min Ch El (ft)	2578.93	Shear (lb/sq ft)	0.08	0.67	0.38
Alpha	1.49	Stream Power (lb/ft s)	0.07	3.63	0.90
Frctn Loss (ft)	1.67	Cum Volume (acre-ft)	99.95	62.97	56.76
C & E Loss (ft)	0.04	Cum SA (acres)	97.67	22.57	43.75

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 3579.38

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2582.41	5.05	2582.24	18.95	2582.1	26.71	2581.78	39.81	2581.68
91.41	2581.73	96.96	2581.31	105.43	2581.97	127.43	2581.88	154.5	2582.03
158.9	2581.91	199.01	2582.44	236.02	2582.25	240.63	2582.37	244.38	2582.31
250.44	2582.48	273.61	2582.6	282.55	2582.79	295.02	2582.59	302.27	2582.18
308.03	2582	320.06	2582.93	328.27	2583.45	336.81	2582.64	337.17	2582.72
357.44	2583.16	360.63	2583.11	366.81	2583.27	373.51	2583.28	384.15	2583.06
409.43	2582.84	436.37	2582.95	440.37	2583.07	452.7	2583.08	463.42	2583.01
468.64	2583.14	481.21	2583.13	485.53	2582.96	498.12	2583.06	521.87	2582.5
543.39	2582.21	546.69	2582.01	616.57	2581.37	639.51	2580.78	651.86	2581.34
661.45	2581.5	698.41	2581.47	723.62	2581.79	739.56	2581.7	745.2	2581.52
779.33	2581.66	840.32	2580.97	864.55	2580.48	882.55	2580.68	904.45	2580.78
964.74	2580.45	970.92	2580.29	986.36	2580.15	1016.99	2580.08	1023.41	2579.88
1037.31	2577.17	1065.21	2577.22	1086.05	2577.55	1096.34	2577.26	1098.94	2577.11
1128.78	2577.86	1144.88	2577.51	1144.96	2577.51	1171.19	2579.2	1176.17	2581.28
1177.93	2581.65	1179.66	2582.28	1185.11	2582.78	1186.35	2583.09	1191.94	2583.46
1196.78	2583.14	1206.32	2581.7	1214.29	2580.31	1270.53	2580.11	1316.73	2580.09
1419.21	2580.42	1451.32	2579.76	1462.27	2576.68	1478.2	2580.29	1499.08	2580.28
1533.85	2580.5	1554.03	2581.07	1563.87	2581.18	1602.24	2581.01	1647.72	2581.62
1674.89	2582.46	1679.87	2582.77	1699.78	2583.66	1731.67	2584.6	1736.66	2584.94
1746.17	2585.07	1821.55	2587.94	1821.59	2588.06	1821.72	2588.84	1883.95	2589.56

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	127.43	.05	1016.99	.038	1191.94	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1016.99	1191.94	263.18	234.81	233.15	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
0	655.4	2583.47	F
1822.4	1871.33	2588.2	F
1565.4	1583.1	2588.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2582.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.050	0.038	0.055
W.S. Elev (ft)	2581.54	Reach Len. (ft)	263.18	234.81	233.15
Crit W.S. (ft)	2581.54	Flow Area (sq ft)	197.63	586.40	512.77
E.G. Slope (ft/ft)	0.007964	Area (sq ft)	216.79	586.40	519.87
Q Total (cfs)	6727.50	Flow (cfs)	469.01	4840.39	1418.10
Top Width (ft)	936.18	Top Width (ft)	341.66	160.39	434.12
Vel Total (ft/s)	5.19	Avg. Vel. (ft/s)	2.37	8.25	2.77
Max Chl Dpth (ft)	4.86	Hydr. Depth (ft)	0.71	3.66	1.23
Conv. Total (cfs)	75387.3	Conv. (cfs)	5255.6	54240.7	15891.1
Length Wtd. (ft)		Wetted Per. (ft)	278.96	161.18	417.38
Min Ch El (ft)	2577.11	Shear (lb/sq ft)	0.35	1.81	0.61
Alpha	1.90	Stream Power (lb/ft s)	0.84	14.93	1.69
Frctn Loss (ft)		Cum Volume (acre-ft)	98.83	56.71	52.77
C & E Loss (ft)		Cum SA (acres)	95.43	20.73	41.12

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 3344.57

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2581.84	3.38	2581.21	8.47	2580.81	15.64	2579.83	16.67	2579.35
23.61	2579.22	27.65	2578.88	37.76	2578.89	41.52	2579.08	50.96	2579.15
55.72	2579.04	64.46	2579.6	69.24	2578.8	72.13	2578.72	107.7	2579.37
117.41	2579.45	131.86	2579.87	141.05	2580.01	171.65	2580	182.85	2579.86
250.21	2579.8	278.21	2579.87	317.6	2579.54	323.68	2579.15	333.67	2578.8
336.56	2578.55	370.36	2578.21	380.24	2578.66	385.53	2578.62	424.88	2579.03
516.26	2579.61	550.99	2579.73	554.85	2579.64	581.34	2579.81	587.85	2579.95
621.46	2579.91	637.49	2580.01	658.92	2580.46	681.89	2580.25	708.82	2580.8
722.4	2580.84	783.3	2580.07	804.54	2579.96	816.46	2579.45	824.56	2579.78
843.38	2579.38	853.08	2579.31	872.6	2578.95	879.72	2579.11	908.24	2579.18
950.98	2578.61	1001.79	2579.04	1038.45	2578.93	1045.41	2579.02	1071.4	2578.8
1151.07	2578.33	1181.66	2578.77	1204.74	2578.04	1212.51	2576.84	1227.22	2578.26
1240.38	2577.91	1249.39	2575.85	1295.57	2576.06	1301.41	2575.66	1315.04	2575.87
1325.98	2577.17	1340.94	2577.85	1353.98	2576.3	1354.87	2576.32	1354.9	2576.32
1375.49	2576.82	1388.56	2577.71	1401.1	2579.23	1426.5	2579.46	1458.41	2579.28
1491.63	2579.39	1544.12	2579.1	1581.41	2578.39	1624.94	2577.93	1637.85	2577.64
1702.01	2578.21	1723.04	2577.9	1743.59	2577.34	1751	2575.95	1766.81	2578.37
1816.22	2578.25	1849.04	2578.63	1872.26	2579.05	1931.73	2580.36	1958.48	2581
1967.75	2581.37	1975.91	2581.48	1988.37	2581.89	2005.41	2582	2068.74	2583.2
2088.21	2584.3	2116.31	2585.1	2138.66	2585.47	2157.7	2585.98	2217.87	2587

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1181.66	.035	1401.1	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1181.66	1401.1	262.26	305.5	375.7	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	749.06	2584.2	F
1873.5	2227.39	2586.59	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2580.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.	0.050	0.035	0.060
W.S. Elev (ft)	2579.91	Reach Len. (ft)	262.26	305.50	375.70
Crit W.S. (ft)	2579.72	Flow Area (sq ft)	373.31	637.29	666.68
E.G. Slope (ft/ft)	0.006013	Area (sq ft)	673.50	637.29	682.39
Q Total (cfs)	6727.50	Flow (cfs)	856.25	4261.17	1610.08
Top Width (ft)	1632.00	Top Width (ft)	902.38	219.44	510.17

Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)	2.29	6.69	2.42
Max Chl Dpth (ft)	4.25	Hydr. Depth (ft)	0.99	2.90	1.41
Conv. Total (cfs)	86754.7	Conv. (cfs)	11041.7	54950.1	20762.8
Length Wtd. (ft)	318.97	Wetted Per. (ft)	375.98	220.18	472.75
Min Ch El (ft)	2575.66	Shear (lb/sq ft)	0.37	1.09	0.53
Alpha	1.89	Stream Power (lb/ft s)	0.85	7.27	1.28
Frctn Loss (ft)	2.26	Cum Volume (acre-ft)	96.14	53.41	49.55
C & E Loss (ft)	0.02	Cum SA (acres)	91.67	19.71	38.59

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 3039.07

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2579.08	6.4	2578.17	64.24	2578.01	73.13	2579.01	80.8	2578.09
105.29	2577.78	126.71	2576.97	162.65	2576.56	289.45	2576.68	341.14	2576.32
370.8	2576.89	397.22	2576.72	471.83	2577.59	549.31	2577.27	674.73	2578.73
725.36	2578.41	735.95	2578.05	746.73	2579.05	756.96	2578.55	794.55	2578.64
850.7	2579.38	888.59	2578.56	1032.52	2578.16	1041.29	2577.76	1081.49	2577.22
1088.16	2577.51	1095.95	2576.77	1123.17	2577.49	1149.78	2577.22	1164.75	2577.51
1212.29	2577.08	1262.8	2576.56	1302.89	2577.01	1357.27	2576.86	1429.8	2577.53
1466.51	2578.12	1482.9	2574.29	1498.9	2574.37	1503.16	2575.06	1516.35	2575.25
1529.34	2574.25	1539.88	2575.39	1545.3	2575.1	1551.72	2573.74	1556.14	2573.76
1573.25	2573.96	1587.29	2575.74	1595.55	2574.72	1609.26	2575.59	1614.34	2575.56
1630.31	2574.5	1640.9	2575.65	1650.01	2574.58	1654.59	2574.75	1654.73	2574.75
1671.95	2575.28	1681.47	2573.85	1700.4	2573.5	1716.45	2577.02	1754.16	2577.01
1766.99	2577.35	1783.88	2576.77	1925.2	2575.93	1953.23	2575.37	1965.18	2575.67
2025.32	2575.03	2048.47	2575.59	2069.98	2577.27	2102.9	2577.87	2132.86	2576.24
2140.04	2575.49	2151.59	2576.03	2174.21	2577.17	2224.22	2577.38	2291.8	2575.6
2317.13	2575.55	2332.52	2576.73	2366.03	2576.64	2380.04	2577.11	2417.82	2577.39
2465.54	2577.02	2543.25	2577.28	2603.31	2578.29	2612.36	2579.43	2677.21	2579.47
2724.44	2578.64	2732.98	2579.32	2763.92	2580.17	2773.39	2578.56	2782.61	2578.11
2808.47	2577.87	2823.21	2579.63	2835.11	2580.29	2875.3	2579.62	2879.97	2580.57
2915.1	2580.88	2921.08	2580.18	2933.67	2580.48	2947.37	2580.26	3005.86	2577.83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1466.51	.035	1716.45	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1466.51	1716.45	342.45	304.36	282.22	.1	.3

Ineffective Flow num= 4

Sta L	Sta R	Elev	Permanent
0	936.49	2584.18	F
2067.42	2118.6	2584.18	F
2165.2	2241.6	2584.18	F
2410.5	2729	2578.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2578.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.050	0.035	0.065
W.S. Elev (ft)	2577.45	Reach Len. (ft)	342.45	304.36	282.22
Crit W.S. (ft)	2577.45	Flow Area (sq ft)	131.25	655.69	678.79
E.G. Slope (ft/ft)	0.008509	Area (sq ft)	384.31	655.69	737.61
Q Total (cfs)	6727.50	Flow (cfs)	202.68	4901.62	1623.20
Top Width (ft)	1799.69	Top Width (ft)	746.22	247.08	806.39
Vel Total (ft/s)	4.59	Avg. Vel. (ft/s)	1.54	7.48	2.39
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)	0.39	2.65	1.20
Conv. Total (cfs)	72931.8	Conv. (cfs)	2197.3	53137.6	17596.8
Length Wtd. (ft)	298.36	Wetted Per. (ft)	340.61	248.62	566.73
Min Ch El (ft)	2573.50	Shear (lb/sq ft)	0.20	1.40	0.64
Alpha	2.00	Stream Power (lb/ft s)	0.32	10.47	1.52
Frctn Loss (ft)	2.23	Cum Volume (acre-ft)	92.95	48.88	43.43
C & E Loss (ft)	0.08	Cum SA (acres)	86.71	18.07	32.91

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.
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: Agua Caliente
REACH: lower RS: 2734.71

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2579.88	13.21	2577.5	51.98	2577.73	233.97	2576.83	264.02	2576.41
271.67	2576.76	323.89	2575.59	368.6	2575.11	450.04	2575.68	462.4	2576.85
484.12	2576.86	521.89	2574.02	530.3	2574.31	550.14	2573.66	585.01	2574.86
641.26	2575.72	728.98	2576.25	739.7	2575.39	832.46	2575.7	866.46	2576.2
911.73	2575.54	944.45	2575.89	1030.15	2575.05	1096.88	2574.89	1104.6	2574.59
1197.93	2575.25	1288.46	2574.18	1308.87	2576.9	1344.23	2577.19	1359.1	2576.87
1379.16	2575.22	1409.26	2575.12	1454.19	2574.26	1523.62	2574.61	1545.5	2574.37
1556.85	2573.6	1580.78	2574.26	1631.23	2574.35	1638.73	2575.39	1651.57	2574.41
1678.97	2574.13	1699.58	2573.8	1718.27	2574.53	1740.48	2574.74	1762.45	2575.75
1770.83	2572.3	1790.44	2572.48	1809.38	2572.02	1824.48	2573.37	1842.29	2574.31
1856.25	2573.57	1884.04	2573.39	1893.53	2572.24	1893.66	2572.22	1900.3	2571.4
1928.51	2571.93	1947.71	2572.86	1955.68	2575.78	1986.73	2575.23	2109.4	2573.97
2169.08	2574.07	2186.47	2574.7	2200.95	2575.12	2212.49	2574.65	2218.48	2574.07
2232.28	2573.46	2278.54	2572.58	2294.29	2573.35	2335.2	2573.72	2400.38	2573.09
2417.9	2570.75	2426.89	2572.26	2433.97	2573.95	2437.2	2573.53	2449.4	2574.12
2520.31	2574.65	2525.17	2575.08	2532.72	2574.81	2548.63	2575.18	2595.3	2574.6
2628.25	2573.26	2683.11	2572.27	2742.52	2572.13	2872.48	2573.69	2924.51	2574.94
2946.17	2575.88	2993.33	2576.05	3008.1	2576.44	3020.74	2576.13	3056.83	2577.56
3083.73	2577.44	3126.57	2578.75	3205.91	2579.37	3206.64	2580.35	3246.36	2581.64
3246.63	2579.87	3310.02	2576.04	3316.8	2575.99	3327.21	2575.34	3364.71	2574.33

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	866.46	.05	1762.45	.03	1955.68	.065

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1762.45	1955.68	177.93	144.53	132.08	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
0	976.12	2584.2	F
3118.74	3368.65	2584.2	F
2522.2	2554.2	2584.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2575.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.050	0.030	0.065
W.S. Elev (ft)	2575.07	Reach Len. (ft)	177.93	144.53	132.08
Crit W.S. (ft)	2574.76	Flow Area (sq ft)	291.05	430.43	1292.65
E.G. Slope (ft/ft)	0.006614	Area (sq ft)	357.17	430.43	1305.55
Q Total (cfs)	6727.50	Flow (cfs)	505.56	2981.84	3240.10
Top Width (ft)	1771.45	Top Width (ft)	646.22	189.64	935.59
Vel Total (ft/s)	3.34	Avg. Vel. (ft/s)	1.74	6.93	2.51
Max Chl Dpth (ft)	4.32	Hydr. Depth (ft)	0.52	2.27	1.46
Conv. Total (cfs)	82724.9	Conv. (cfs)	6216.6	36666.3	39842.0
Length Wtd. (ft)	141.78	Wetted Per. (ft)	555.66	190.84	887.56
Min Ch El (ft)	2571.40	Shear (lb/sq ft)	0.22	0.93	0.60
Alpha	2.20	Stream Power (lb/ft s)	0.38	6.45	1.51
Frctn Loss (ft)	1.03	Cum Volume (acre-ft)	90.04	45.08	36.81
C & E Loss (ft)	0.00	Cum SA (acres)	81.24	16.55	27.27

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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 2590.18

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2576.74	102.21	2576.78	117.61	2576.51	192.44	2576.25	222.27	2575.41
255.48	2574.96	317.66	2574.84	353.29	2575.72	356.64	2575.59	385.21	2576.04
419.3	2575.35	541.32	2574.71	557.92	2574.22	575.33	2574.04	596.18	2574.41

639.62	2574.21	654.96	2573.71	696.19	2572.27	706.78	2572.3	720.8	2573.48
732.02	2574.74	746.49	2575.35	757.67	2574.95	783.8	2574.95	799.43	2574.24
831.03	2573.74	850.33	2573.99	867.62	2573.85	939.82	2574.25	1021.17	2573.49
1051.42	2573.44	1159.9	2573.17	1180.97	2572.74	1275.91	2573.57	1360.6	2573.34
1483.53	2573.61	1502.24	2573.25	1547.58	2573.38	1552.34	2573.59	1561.38	2573.33
1597.67	2573.27	1617	2573.5	1668.73	2573.31	1702.58	2574.17	1717.55	2573.65
1724	2573.79	1795.18	2574.37	1813.1	2571.2	1859.94	2571.23	1871.56	2570.8
1889.17	2572.26	1908.28	2573.13	1920.22	2570.79	1937.08	2570.78	1942.23	2571
1962.19	2571.57	1973.29	2571.47	1993.15	2573.4	2012.42	2573.27	2021.75	2574.19
2072.61	2574.21	2171.2	2573.81	2232.44	2573.99	2288.81	2574.86	2298.9	2574.58
2360.04	2573.81	2372.71	2573.91	2389.36	2572.43	2414.53	2572.69	2484.98	2570.9
2496.02	2570.87	2511.5	2572.81	2530.72	2573.21	2547.06	2574.83	2564.57	2574.67
2611.4	2573.89	2665.38	2573.69	2708.6	2571.56	2775.07	2570.58	2779.73	2570.52
2782.98	2571.21	2784.94	2570.87	2841.1	2571.05	2882.12	2572.43	2957.47	2574.22
2965.42	2574.98	3033.57	2575.36	3102.66	2574.58	3155.75	2574.66	3161.49	2574.93
3184.16	2575.08	3199.98	2574.71	3214.45	2575.05	3220.88	2575.67	3254.71	2577
3272.83	2577.21	3280.56	2578.07	3309.63	2578.52	3362.58	2578.15		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	1360.6	.05	1795.18	.035	2021.75	.045	2414.53	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1795.18	2021.75	177.39	165.1	157.46	.1	.3

Ineffective Flow num= 5

Sta L	Sta R	Elev	Permanent
0	1105.94	2577.05	F
3302.18	3362.58	2578.55	F
2530.7	2672.2	2577.05	F
2294.17	2341.94	2577.05	F
2874.28	3050.48	2577.05	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2574.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.062	0.035	0.069
W.S. Elev (ft)	2574.04	Reach Len. (ft)	177.39	165.10	157.46
Crit W.S. (ft)	2573.68	Flow Area (sq ft)	412.01	487.44	859.05
E.G. Slope (ft/ft)	0.008088	Area (sq ft)	574.49	487.44	948.40
Q Total (cfs)	6727.50	Flow (cfs)	681.30	3126.39	2919.81
Top Width (ft)	1842.98	Top Width (ft)	954.05	223.18	665.76
Vel Total (ft/s)	3.83	Avg. Vel. (ft/s)	1.65	6.41	3.40
Max Chl Dpth (ft)	3.52	Hydr. Depth (ft)	0.64	2.18	1.68
Conv. Total (cfs)	74804.3	Conv. (cfs)	7575.5	34762.9	32465.9
Length Wtd. (ft)	163.65	Wetted Per. (ft)	639.83	223.89	512.26
Min Ch El (ft)	2570.78	Shear (lb/sq ft)	0.33	1.10	0.85
Alpha	1.67	Stream Power (lb/ft s)	0.54	7.05	2.88
Frctn Loss (ft)	0.84	Cum Volume (acre-ft)	88.14	43.56	33.39
C & E Loss (ft)	0.07	Cum SA (acres)	77.97	15.86	24.84

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 2425.08

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2575.7	22.4	2575.93	52.7	2575.17	71.27	2575.4	101.29	2574.9
113.86	2574.93	127.29	2575.25	139.2	2575.09	143.34	2574.88	173.85	2574.74
178.5	2574.55	207.04	2574.37	220.01	2574.79	247.27	2575	269.32	2574.89
287.77	2574.57	305.79	2574.74	390.23	2574.21	448.62	2573.62	503.08	2574.17
528.01	2573.75	596.93	2573.17	599.51	2573.04	635.17	2572.98	645.06	2571.77
665.57	2572.83	671.33	2572.92	697.5	2572.67	707.01	2572.72	727.09	2572.18
733.26	2572.47	755.18	2572.53	778.88	2569.05	811.06	2572.44	938.76	2572.94
952.01	2572.7	1020.47	2572.38	1100.3	2572.33	1110.76	2572.13	1132.97	2572.05
1172.2	2572.28	1189.9	2574.55	1232.52	2574.33	1258.97	2572.78	1262.47	2572.46
1276.21	2572.02	1323.9	2572.01	1487.43	2572.09	1512.76	2572.01	1527.56	2572.13
1563.96	2572.95	1572.43	2571.16	1610.7	2571.16	1612.21	2572.34	1613.3	2573.4
1623.61	2573.62	1644.6	2573.57	1660.2	2572.82	1673.08	2572.81	1676.27	2572.64
1690.92	2573.08	1701.62	2573.06	1772.46	2572.1	1795.81	2571.93	1817.56	2572.22
1840.37	2573.61	1862.83	2569.69	1908.06	2569.69	1918.93	2570.86	1943.84	2571
1943.89	2571	1980.23	2571.94	1993.13	2571.91	1995.95	2572.05	2016.45	2570.91
2035.53	2572.91	2049.24	2572.77	2060.66	2573.06	2098.89	2572.39	2224.64	2572.98
2263.18	2572.46	2289.55	2572.56	2366.92	2572.31	2374.13	2572.05	2542.39	2570.29
2558.34	2571.89	2628.5	2571.67	2673.84	2571.27	2689.94	2571.31	2698.95	2571.08
2719.87	2570.18	2735.03	2570.39	2762.98	2570.31	2788.07	2569.83	2863.79	2570.26

2957.47	2572.31	2980.02	2573.21	2984.5	2573.11	3027.06	2575.04	3039.62	2574.5

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	1020.47	.05	1840.37	.035	2060.66	.055	2374.13	.07

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1840.37	2060.66	250.59	199.58	219.22	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
0	1050.2	2576.2	F
2903.8	3039.75	2574.2	F
2393.2	2420.9	2576.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2573.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.035	0.068
W.S. Elev (ft)	2573.38	Reach Len. (ft)	250.59	199.58	219.22
Crit W.S. (ft)	2572.58	Flow Area (sq ft)	779.66	471.50	1484.53
E.G. Slope (ft/ft)	0.003548	Area (sq ft)	1224.22	471.50	1635.02
Q Total (cfs)	6727.50	Flow (cfs)	1538.86	1985.04	3203.61
Top Width (ft)	2309.06	Top Width (ft)	1160.44	218.94	929.68
Vel Total (ft/s)	2.46	Avg. Vel. (ft/s)	1.97	4.21	2.16
Max Chl Dpth (ft)	4.32	Hydr. Depth (ft)	1.14	2.15	1.82
Conv. Total (cfs)	112949.9	Conv. (cfs)	25836.3	33327.4	53786.3
Length Wtd. (ft)	221.64	Wetted Per. (ft)	684.04	219.48	815.59
Min Ch El (ft)	2569.69	Shear (lb/sq ft)	0.25	0.48	0.40
Alpha	1.38	Stream Power (lb/ft s)	0.50	2.00	0.87
Frctn Loss (ft)	1.09	Cum Volume (acre-ft)	84.48	41.74	28.72
C & E Loss (ft)	0.00	Cum SA (acres)	73.66	15.02	21.96

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 2225.5

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2571.68	18.76	2571.94	114.56	2571.83	151.53	2573.1	192.52	2572.43
202.25	2571.58	224.65	2570.76	262.86	2570.88	280.24	2568.94	301.7	2568.88
306.63	2568.61	315.71	2568.69	337.96	2570.47	504.77	2570.99	511.27	2572.4
516.1	2572.92	520.29	2572.85	537.2	2571.2	552.56	2570.98	589.03	2571.21
596.41	2571.63	601.86	2572.63	604.83	2572.64	612.45	2572	622.19	2572.57
626.65	2573.08	635.04	2573.27	649.63	2574.87	657.61	2574.74	665.09	2574.98
676.03	2570.42	681.94	2570.49	682.54	2570.49	688.7	2572.89	691.79	2573.52
705.89	2573.31	728.55	2571.38	734.87	2571.3	761.42	2571.97	795.36	2570.97
841.18	2571.04	847.99	2570.59	937.89	2571.7	1006.01	2571.59	1024.27	2572.61
1036.28	2572.98	1044.76	2572.53	1066.77	2572.23	1077.77	2571.65	1101.12	2571.73
1117.16	2572.12	1127.6	2571.89	1159.16	2572.03	1172.69	2571.81	1181.94	2572.1
1206.3	2572.11	1260.7	2570.95	1348.13	2570.85	1371.46	2571.35	1379.82	2570.77
1432.07	2571.55	1443.27	2570.78	1480.62	2570.79	1495.25	2571.28	1512.27	2568.35
1564.03	2568.67	1573.93	2569.81	1599.77	2570.82	1599.86	2570.82	1612.17	2571.01
1628.2	2570.61	1656.56	2571.15	1662.38	2570.72	1690.24	2570.97	1698.6	2571.28
1715.77	2570.97	1720.15	2571.23	1749.86	2571.3	1764.42	2570.42	1782.71	2571.21
1861.5	2570.77	1917.06	2571.48	1976.69	2570.46	2043.55	2570.08	2078.48	2570.2
2091.55	2570.55	2184.32	2570.68	2186.15	2570.4	2205.83	2569.96	2229	2569.86
2255.92	2570.34	2261.91	2570.96	2264.22	2570.67	2294.88	2570.33	2345.47	2570.95
2406.76	2572.76	2421.58	2573.65	2455.13	2575.06	2471.6	2576.9	2497.83	2577.13

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	504.77	.045	795.36	.05	1260.7	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1495.25	1612.17	376.22	347.92	260.81	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
0	552.82	2574.2	F
2366.6	2479.41	2575.56	F
1088.3	1185	2574.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2572.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.051	0.055	0.055
W.S. Elev (ft)	2572.24	Reach Len. (ft)	376.22	347.92	260.81
Crit W.S. (ft)	2571.79	Flow Area (sq ft)	674.79	330.19	1155.73
E.G. Slope (ft/ft)	0.007225	Area (sq ft)	1330.44	330.19	1163.23
Q Total (cfs)	6727.50	Flow (cfs)	1689.07	1512.05	3526.38
Top Width (ft)	2160.10	Top Width (ft)	1266.21	116.92	776.97
Vel Total (ft/s)	3.11	Avg. Vel. (ft/s)	2.50	4.58	3.05
Max Chl Dpth (ft)	3.89	Hydr. Depth (ft)	0.96	2.82	1.53
Conv. Total (cfs)	79145.0	Conv. (cfs)	19870.9	17788.3	41485.8
Length Wtd. (ft)	326.77	Wetted Per. (ft)	701.89	117.26	754.63
Min Ch El (ft)	2568.35	Shear (lb/sq ft)	0.43	1.27	0.69
Alpha	1.15	Stream Power (lb/ft s)	1.09	5.82	2.11
Frctn Loss (ft)	2.56	Cum Volume (acre-ft)	77.13	39.91	21.68
C & E Loss (ft)	0.03	Cum SA (acres)	66.68	14.26	17.67

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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 1877.58

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2570.92	13.58	2571.11	26.48	2570.46	104.83	2569.96	129.19	2569.55
200.83	2569.46	222.44	2571.4	259.86	2570.65	262.77	2570.43	291.11	2569.83
327.04	2569.38	351.78	2569.25	359.14	2571.7	364.54	2569.49	380.09	2569.17
393.71	2568.63	400.59	2568.64	435.76	2567.86	453.28	2567.71	511.3	2568.83
542.02	2568.67	570.9	2568.21	596.59	2568.87	605.76	2569.95	667.59	2569.58
675.05	2569.14	681.02	2569.67	815.25	2568.68	820.73	2568.47	822.17	2568.62
855.7	2568.14	887.22	2568.31	908.68	2568.8	919.95	2568.62	977.37	2567.57
998.89	2568.27	1054.15	2568.94	1110.28	2569.11	1116.61	2569.3	1174.62	2569.43
1204.45	2568.41	1225.58	2568.54	1319.57	2568.05	1346.81	2568.19	1436.22	2567.65
1643.63	2568.24	1657.55	2568.6	1662.4	2568.77	1677.29	2567.96	1690.57	2568.02
1738.93	2568.96	1754.77	2569.75	1777.09	2569.28	1792.02	2566.48	1801.08	2566.1
1825.09	2566.16	1846.41	2566.23	1856.05	2567.05	1874.52	2566.57	1883.06	2568.83
1902.36	2569	1923.69	2568.45	1924.65	2568.68	1957.16	2568.58	1996.11	2568.01
2006.92	2567.58	2017.42	2568.09	2027.48	2567.09	2032.11	2567.53	2042.56	2566.61
2056.07	2568.26	2062.31	2568.1	2147.64	2568.42	2170.58	2567.69	2203.48	2568.52
2241.77	2568.44	2246.61	2568.19	2278.85	2568.59	2292.31	2567.85	2308.22	2571.22
2333.65	2576.01	2343.99	2576.23	2373.55	2574.82	2394.71	2575.28	2402.41	2576.56
2409.25	2576.47	2424.85	2576.77	2445.12	2576.74	2458.82	2575.94	2490.42	2576.66
2503.73	2576.63	2527.12	2576.16	2530.76	2575.89	2565.44	2576.13	2570.45	2576.34
2571.81	2576.08	2596.64	2576.06	2622.57	2576.94	2653.9	2577.09		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	570.9	.045	855.7	.04	1436.22	.055	1754.77	.03
1902.36	.055								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1754.77	1902.36	324.58	327.72	288.4	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
0	670.59	2574.2	F
2319.6	2650.09	2576.16	F
994.9	1170.5	2574.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2569.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.046	0.030	0.055
W.S. Elev (ft)	2569.40	Reach Len. (ft)	324.58	327.72	288.40
Crit W.S. (ft)	2569.40	Flow Area (sq ft)	941.09	295.79	466.99
E.G. Slope (ft/ft)	0.008538	Area (sq ft)	1233.19	295.79	466.99
Q Total (cfs)	6727.50	Flow (cfs)	3104.40	2325.64	1297.46
Top Width (ft)	1806.61	Top Width (ft)	1278.61	130.75	397.25
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)	3.30	7.86	2.78
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)	1.10	2.26	1.18
Conv. Total (cfs)	72807.6	Conv. (cfs)	33597.0	25169.0	14041.6
Length Wtd. (ft)		Wetted Per. (ft)	856.05	131.36	397.73
Min Ch El (ft)	2566.10	Shear (lb/sq ft)	0.59	1.20	0.63
Alpha	1.79	Stream Power (lb/ft s)	1.93	9.44	1.74
Frctn Loss (ft)		Cum Volume (acre-ft)	66.06	37.41	16.80
C & E Loss (ft)		Cum SA (acres)	55.69	13.27	14.15

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 1549.86

INPUT
Description: Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2568.18	10.92	2568.28	22.15	2567.72	39.83	2567.19	55.71	2566.97
82.8	2567.2	93.67	2566.83	116.66	2566.46	141.89	2566.59	159.68	2565.88
168.96	2566.45	171.39	2566.75	179.4	2566.98	196.14	2566.63	197.69	2566.49
199.93	2566.39	210.88	2566.69	234.76	2566.72	237.2	2566.84	260.7	2566.9
274.83	2566.74	306.98	2566.74	338.16	2567.1	385.42	2567.06	410.1	2566.61
448.11	2566.55	461.38	2566.69	490.25	2570.05	509.89	2569.2	527.35	2566.7
594.39	2566.68	600.19	2567.22	612	2567.7	642.44	2569.65	669.9	2569.44
684.94	2569.13	688.73	2568.86	704.91	2567	728.03	2566.66	772.47	2566.54
782.59	2566.74	831.69	2566.66	842.04	2567.82	858.73	2567.51	866.94	2566.16
946.74	2565.96	1099.11	2565.89	1182.5	2566.07	1414.13	2564.92	1552.02	2565.25
1557.55	2565.41	1600.54	2565.53	1621.39	2565.98	1642.12	2566.05	1648.45	2566.25
1661.7	2565.88	1712.11	2566.07	1725.66	2566.25	1756.87	2566.21	1782.49	2566.4
1800.2	2566.08	1816.48	2565.56	1834.09	2566.17	1841.46	2565.3	1851.61	2566.01
1872.84	2565.18	1883.28	2563.85	1899.82	2564.04	1899.94	2564.04	1918.95	2563.77
1942.15	2566.17	1950.81	2566.54	1960.05	2566.04	1965.27	2565.47	1974.86	2565.56
1986.95	2566.19	1997.97	2564.04	2019	2563.59	2037.07	2565.32	2068.88	2566.14
2079.93	2566.17	2113.25	2566.4	2143.98	2566.42	2152.21	2565.12	2162.01	2566.83
2226.99	2566.62	2240.01	2566.43	2269.99	2567.09	2321.66	2566.98	2340.3	2566.6
2356.31	2566.93	2385.56	2566.16	2437.65	2566.43	2441.76	2566.57	2457.02	2566.51
2471.53	2567.57	2503.15	2569.09	2510.27	2569.08	2537.78	2569.8	2579.69	2570.41

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	210.88	.035	1648.45	.06	1782.49	.035	2162.01	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1782.49	2162.01	297.83	288.73	215.59	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	638.75	2568.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2567.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.036	0.035	0.060
W.S. Elev (ft)	2566.92	Reach Len. (ft)	297.83	288.73	215.59
Crit W.S. (ft)	2566.61	Flow Area (sq ft)	1134.40	548.06	79.29
E.G. Slope (ft/ft)	0.006541	Area (sq ft)	1228.19	548.06	79.29
Q Total (cfs)	6727.50	Flow (cfs)	4243.11	2400.33	84.07
Top Width (ft)	2026.01	Top Width (ft)	1410.03	379.52	236.46
Vel Total (ft/s)	3.82	Avg. Vel. (ft/s)	3.74	4.38	1.06
Max Chl Dpth (ft)	3.32	Hydr. Depth (ft)	1.09	1.44	0.34
Conv. Total (cfs)	83179.4	Conv. (cfs)	52462.2	29677.9	1039.4
Length Wtd. (ft)	292.97	Wetted Per. (ft)	1043.52	380.47	236.50
Min Ch El (ft)	2563.59	Shear (lb/sq ft)	0.44	0.59	0.14
Alpha	1.08	Stream Power (lb/ft s)	1.66	2.58	0.15
Frctn Loss (ft)	1.61	Cum Volume (acre-ft)	56.89	34.23	14.99
C & E Loss (ft)	0.02	Cum SA (acres)	45.68	11.35	12.05

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 1261.13

INPUT
Description: Starting Limits of new topography
Ineffective flow areas changed
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	2565.99	58.86	2565.82	86.71	2568.82	90.39	2568.92	93.3	2568.67
98.03	2568.61	117.32	2567.67	122.36	2567.08	149.08	2565.49	213.9	2564.7
215.43	2564.76	221.2	2564.61	250.76	2564.57	262.87	2564.44	303.65	2564.34
319.11	2564.19	399.62	2564.03	411.07	2564.17	530.48	2564.59	613.36	2564.67
629.23	2564.81	640.97	2564.66	780.37	2564.35	955.76	2564.26	1005.77	2564.34
1041.79	2564.11	1060.71	2564.95	1097.93	2565.09	1120.77	2563.91	1137.66	2563.75
1150.9	2564.51	1186.58	2564.77	1198.75	2563.95	1206.44	2564.39	1209.74	2564.68
1215.6	2564.97	1225.42	2564.97	1226.52	2564.88	1228.23	2565.01	1247.45	2564.71
1315.65	2564.36	1337.63	2564.43	1361.84	2564.6	1402.17	2564.55	1415.63	2563.33
1422.25	2563.74	1442.27	2564.71	1448.53	2564.69	1460.03	2564.84	1488.56	2562.76
1517.66	2564.7	1522.63	2564.72	1540.92	2564.73	1554.24	2565.23	1590.05	2565.08
1601.31	2564.47	1612.12	2564.09	1620.54	2564.58	1626.88	2564.81	1635.97	2564.62
1654.19	2565.26	1706.14	2563.91	1706.25	2563.91	1706.92	2563.89	1717.78	2561.47
1731.56	2561.5	1744.79	2561.37	1753.67	2561.68	1764.01	2562.66	1771.23	2562.7
1779.08	2561.98	1783.61	2562.69	1790.04	2562.34	1793.58	2562.41	1796.19	2562.23
1813.36	2564.12	1830.29	2563.43	1844.53	2563.86	1846.77	2561.69	1881.03	2562.66
1962.5	2562.27	2026.24	2564.51	2032.36	2564.39	2142.97	2564.95	2151.65	2565.18
2169.85	2565.3	2234.3	2564.63	2237.11	2564.7	2239.8	2566.12	2244.04	2568.12
2276.38	2567.94	2298.98	2568.13	2310.47	2567.94	2326.61	2568	2335.52	2567.58
2364.9	2571.24	2368.57	2571.2	2403.17	2570.67	2409.13	2570.76	2424.18	2570.7

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.032	1097.93	.06	1654.19	.04	2169.85	.08

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1654.19	2169.85	359.97	292.44	259.93	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	350.88	2566.2	F
2302	2403.17	2572	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2565.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.040	0.080
W.S. Elev (ft)	2565.36	Reach Len. (ft)	359.97	292.44	259.93
Crit W.S. (ft)	2565.00	Flow Area (sq ft)	1182.87	987.10	27.68
E.G. Slope (ft/ft)	0.004658	Area (sq ft)	1332.98	987.10	27.68
Q Total (cfs)	6727.50	Flow (cfs)	2857.71	3850.64	19.15
Top Width (ft)	2078.44	Top Width (ft)	1494.27	515.66	68.51
Vel Total (ft/s)	3.06	Avg. Vel. (ft/s)	2.42	3.90	0.69
Max Chl Dpth (ft)	3.99	Hydr. Depth (ft)	0.91	1.91	0.40
Conv. Total (cfs)	98576.1	Conv. (cfs)	41873.2	56422.4	280.6
Length Wtd. (ft)	314.34	Wetted Per. (ft)	1303.76	517.16	68.67
Min Ch El (ft)	2561.37	Shear (lb/sq ft)	0.26	0.55	0.12
Alpha	1.19	Stream Power (lb/ft s)	0.64	2.17	0.08
Frctn Loss (ft)	1.82	Cum Volume (acre-ft)	48.13	29.15	14.73
C & E Loss (ft)	0.01	Cum SA (acres)	35.75	8.38	11.30

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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 968.69

INPUT
Description:
Station Elevation Data num= 411

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2564.2	5.13	2564.2	6.39	2564.2	12.2	2564.2	17.72	2564.2
18.33	2564.2	18.88	2564.2	23.44	2564.2	23.78	2564.2	24.07	2564.2
24.35	2564.2	28.27	2564.2	28.53	2564.2	28.78	2564.2	29.01	2564.2
33.17	2564.2	33.49	2564.2	68.44	2564.2	69.79	2564.2	73.31	2564.2
74.07	2564.2	74.11	2564.2	74.15	2564.2	77.25	2564.2	77.43	2564.2
80.25	2564.2	89.11	2564.2	95.74	2564.2	96.24	2564.2	102.3	2564.2
102.96	2564.2	216.21	2562.64	217.31	2562.64	218.38	2562.64	220.94	2562.64
239.49	2562.69	241.04	2562.7	297.81	2564.2	298.64	2564.2	299.51	2564.2
302.95	2564.2	303.75	2564.2	307.39	2564.2	368.24	2564.2	368.55	2564.2
373.01	2564.2	380.86	2564.2	383.12	2564.2	384.23	2564.2	387.61	2564.2
389.7	2564.2	395.66	2563.44	397.22	2563.59	399.83	2562.87	400.98	2562.68
402	2562.2	408.97	2562.2	410.8	2562.2	411.28	2562.2	416.08	2562.2
417.51	2562.2	446.01	2563.09	449.48	2562.99	453.56	2562.87	458.25	2562.81
462.44	2562.68	463.32	2562.68	468.05	2562.53	468.75	2562.53	474.12	2562.35
474.52	2562.34	478.44	2562.2	480.73	2562.2	480.94	2562.2	482.17	2562.2
488.17	2562.2	489.8	2562.2	492.51	2562.2	494.18	2562.2	496.28	2562.2
496.4	2562.2	497.51	2562.2	498.46	2562.2	499.95	2562.2	501.3	2562.2
503.23	2562.2	511.95	2562.2	512.11	2562.2	516.46	2562.2	521.75	2562.2
528.06	2562.2	528.81	2562.2	535.29	2562.2	540.89	2562.2	542.07	2562.2
543.23	2562.2	547.76	2562.2	549.13	2562.2	620.59	2562.2	623.53	2562.2

626.42	2562.2	629.3	2562.2	632.28	2562.2	638.3	2562.2	641.36	2562.2
644.53	2562.2	647.81	2562.2	651.19	2562.2	654.58	2562.2	656.24	2562.2
659.65	2562.2	663.34	2562.2	705.13	2562.2	710.97	2562.2	712.45	2562.2
712.7	2562.2	718.15	2562.2	719.83	2562.2	721.44	2562.2	722.89	2562.2
724.18	2562.2	725.39	2562.2	726.58	2562.2	731.6	2562.2	732.67	2562.2
733.73	2562.2	738.7	2562.2	756.2	2562.2	756.96	2562.2	757.69	2562.2
763.94	2562.2	764.54	2562.2	772.62	2562.37	777.25	2562.35	777.51	2562.35
777.89	2562.35	782.07	2562.35	782.5	2562.35	782.97	2562.35	783.43	2562.35
787.39	2562.37	787.85	2562.37	807.64	2562.2	809.29	2562.2	816.04	2562.2
823.42	2562.2	830.52	2562.2	833.11	2562.2	839.75	2562.2	845.61	2562.2
849.33	2562.2	875.4	2562.2	900.91	2562.2	923.51	2562.2	925.88	2562.2
928.56	2562.2	931.72	2562.2	934.62	2562.2	941.55	2562.2	952.77	2562.2
955.21	2562.2	956.51	2562.2	969.13	2562.2	984.29	2562.2	987.51	2562.2
988.09	2562.2	988.25	2562.2	988.41	2562.2	993.96	2562.2	995.33	2562.2
996.85	2562.2	1001.51	2562.2	1003.62	2562.2	1006.86	2562.2	1008.83	2562.2
1011.2	2562.2	1034.33	2561.76	1038.32	2561.73	1038.9	2561.73	1042.72	2561.69
1065.55	2562.2	1070.12	2562.2	1074.69	2562.2	1078.95	2562.2	1082.77	2562.2
1085.21	2562.2	1088.51	2562.2	1090.92	2562.2	1093.8	2562.2	1096.34	2562.2
1098.63	2562.2	1100.76	2562.2	1110.76	2562.2	1112.33	2562.2	1114.07	2562.2
1116.31	2562.2	1145.28	2562.2	1147.49	2562.2	1149.88	2562.2	1152.56	2562.2
1155.12	2562.2	1180.92	2561.03	1183.14	2561.06	1185.51	2561.1	1188.05	2561.14
1197.12	2561.34	1198.72	2561.34	1202.25	2561.43	1204.25	2561.44	1207.33	2561.5
1209.44	2561.52	1211.49	2561.54	1213.54	2561.56	1215.57	2561.58	1217.47	2561.6
1219.38	2561.6	1221.07	2561.62	1222.3	2561.64	1228.92	2561.7	1285.49	2562.14
1285.71	2562.14	1288.26	2562.2	1312.01	2562.2	1321.95	2562.2	1324.17	2562.2
1325.28	2562.2	1333.86	2562.2	1340.08	2562.2	1343.74	2562.2	1350.51	2562.2
1387.61	2562.2	1388.03	2562.2	1388.07	2562.2	1395.52	2562.2	1399.32	2562.2
1402.43	2562.2	1404.1	2562.2	1408.12	2562.2	1408.89	2562.2	1410.95	2561.99
1414.33	2561.99	1414.42	2561.99	1418.18	2561.89	1418.63	2561.91	1422.17	2561.79
1422.98	2561.83	1425.82	2561.72	1426.86	2561.77	1428.92	2561.65	1429.98	2561.7
1436.18	2561.69	1442.66	2561.84	1446.16	2561.78	1449.12	2561.69	1459.83	2561.46
1461.1	2561.54	1471.6	2562.2	1473.94	2562.2	1506.78	2561.07	1551.37	2561.59
1553.24	2561.81	1553.78	2561.75	1556.52	2562.1	1556.71	2562.09	1557.46	2562.2
1562.76	2562.2	1564.83	2562.2	1567.99	2562.2	1568.98	2562.2	1573.46	2562.2
1576.86	2562.2	1579.51	2562.2	1582.25	2562.2	1584.57	2562.2	1587.47	2562.2
1589.15	2562.2	1592.17	2562.2	1613.76	2562.2	1614.87	2562.2	1618.42	2562.2
1634.39	2562.2	1635.33	2562.2	1637.07	2562.2	1638.6	2562.2	1640.72	2562.2
1643.44	2562.2	1658.26	2562.2	1663.47	2562.2	1666.83	2562.2	1667.2	2562.2
1668.47	2562.2	1672.29	2562.2	1674.44	2562.2	1675.01	2561.96	1679.23	2560.2
1679.43	2560.2	1679.53	2560.2	1679.88	2560.2	1712.31	2560.2	1739.78	2560.2
1741.23	2560.87	1742.39	2561.4	1744.09	2562.2	1753.65	2562.2	1754.98	2562.2
1759.2	2562.2	1762.77	2562.19	1764.6	2562.2	1781.45	2562.2	1784.31	2562.2
1796.56	2562.2	1805.03	2562.2	1810.64	2562.2	1814.14	2562.2	1850.8	2562.2
1853.69	2562.2	1854.42	2562.2	1855.69	2562.2	1858.2	2562.2	1859.24	2562.2
1863.28	2562.2	1863.74	2562.2	1865.3	2562.2	1865.65	2562.2	1865.93	2562.2
1868.06	2562.2	1890.37	2562.2	1893.28	2562.2	1895.95	2562.2	1898.53	2562.2
1900.79	2562.2	1903.29	2562.2	1904.91	2562.2	1906.22	2562.2	1909.55	2562.2
1910.46	2562.2	1914.64	2562.2	1915.38	2562.2	1919.19	2562.2	1919.84	2562.2
1945.75	2562.2	1947.26	2562.2	1949.59	2562.2	1950.95	2562.2	1951.26	2562.2
1956.04	2562.2	1957.41	2562.2	1961.33	2562.2	1963.47	2562.2	1966.97	2562.2
1969.92	2562.2	1972.74	2562.2	1975.62	2562.2	1978.17	2562.2	1981.19	2562.2
1984.1	2562.2	1986.51	2562.2	1989.41	2562.2	1992.34	2562.2	1995.24	2562.2
1997.55	2562.2	2000.83	2562.2	2005.7	2562.2	2018.78	2562.2	2020.96	2562.2
2037.79	2562.2	2039.11	2562.2	2064.95	2562.2	2065.25	2562.2	2079.51	2562.2
2080.66	2562.2	2081.03	2562.2	2087.89	2562.2	2088.96	2562.2	2098.56	2562.2
2099.39	2562.2	2109	2562.2	2111.57	2562.2	2125.24	2562.2	2133.81	2562.2
2140.39	2562.2	2150.21	2562.2	2154.57	2562.2	2158.77	2562.2	2162.33	2562.2
2177.1	2562.2	2186.61	2562.2	2193.82	2562.43	2195.42	2562.47	2197.67	2562.53
2201.2	2562.62	2214.16	2563.02	2223.26	2563.24	2249.98	2563.91	2250.98	2563.92
2257	2564.07	2257.45	2564.08	2261.96	2564.2	2264.98	2564.35	2265.9	2564.41
2267.76	2564.51	2278.09	2565.09	2285.93	2565.58	2295.48	2566.2	2310.74	2566.58
2329.99	2567.07	2340.32	2567.34	2345.93	2567.45	2351.77	2567.61	2355.69	2567.71
2371.18	2567.98								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.032	411.28	.06	1473.94	.035	1754.98	.06	1850.8	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1471.6	1753.65	242.09	208.18	180.7	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	874.21	2564.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2563.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.060	0.035	0.052
W.S. Elev (ft)	2563.42	Reach Len. (ft)	242.09	208.18	180.70
Crit W.S. (ft)	2563.08	Flow Area (sq ft)	838.35	533.36	553.39
E.G. Slope (ft/ft)	0.007426	Area (sq ft)	1434.06	533.36	553.39
Q Total (cfs)	6727.50	Flow (cfs)	2242.35	2974.26	1510.90
Top Width (ft)	1941.15	Top Width (ft)	1182.36	282.05	476.75
Vel Total (ft/s)	3.49	Avg. Vel. (ft/s)	2.67	5.58	2.73
Max Chl Dpth (ft)	3.22	Hydr. Depth (ft)	1.40	1.89	1.16
Conv. Total (cfs)	78070.5	Conv. (cfs)	26021.7	34515.3	17533.5

Length Wtd. (ft)	213.27	Wetted Per. (ft)	597.49	282.96	476.76
Min Ch El (ft)	2560.20	Shear (lb/sq ft)	0.65	0.87	0.54
Alpha	1.46	Stream Power (lb/ft s)	1.74	4.87	1.47
Frctn Loss (ft)	1.84	Cum Volume (acre-ft)	36.70	24.04	12.99
C & E Loss (ft)	0.01	Cum SA (acres)	24.69	5.70	9.67

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 760.51

INPUT
Description:
Station Elevation Data num= 406

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2564.2	.06	2564.2	3.54	2564.2	15.02	2564.2	16.59	2564.2
21.07	2564.2	25.27	2564.2	27.01	2564.2	29	2564.2	32.86	2564.2
34.99	2564.2	37.6	2564.2	40.85	2564.2	43.97	2564.2	47.92	2564.2
50.44	2564.2	55.43	2564.2	57.14	2564.2	63.11	2564.2	63.85	2564.2
69.47	2564.2	70.7	2564.18	76.84	2564.09	77.13	2564.08	82.96	2564.01
88.28	2563.94	88.9	2563.94	93.45	2563.87	125.09	2563.84	125.69	2563.84
169.25	2562.2	173.84	2562.2	177.88	2562.09	186.08	2561.86	187.48	2561.8
194.28	2561.61	196.94	2561.5	202.41	2561.34	206.71	2561.18	210.83	2561.04
222.61	2560.91	225.87	2560.68	226.51	2560.71	230.78	2560.32	232.04	2560.2
234.93	2560.2	242.84	2560.2	247.02	2560.2	255.57	2560.2	264.07	2560.2
268.21	2560.2	270.29	2560.2	274.55	2561.05	280.09	2561.92	281.46	2562.2
282	2562.2	282.13	2562.2	283.32	2562.2	284.14	2562.2	285.19	2562.2
296.97	2562.2	298.6	2562.2	301.05	2562.2	303.42	2562.2	306.42	2562.2
310.34	2562.2	315.59	2562.2	321.62	2562.2	340.6	2562.2	341.37	2562.2
342.06	2562.2	342.68	2562.2	346.41	2562.2	346.87	2562.2	350.92	2562.2
352.3	2562.2	356.57	2562.2	361.01	2562.2	386.63	2562.2	392.59	2562.2
397.8	2562.2	408.37	2562.2	409.52	2562.2	411.77	2562.2	425.87	2562.2
447.65	2562.2	454.68	2562.2	460.96	2562.2	471.26	2562.2	477.86	2562.2
488.78	2562.2	598.57	2562.2	601.83	2562.2	606.12	2562.2	609.18	2562.2
612.19	2562.2	615.04	2562.2	620.2	2562.2	622.73	2562.2	625.08	2562.2
627.27	2562.2	632.5	2562.2	634.51	2562.2	638.05	2562.2	639.48	2562.2
644.11	2562.2	648.92	2562.2	649.91	2562.2	654.87	2562.2	655.71	2562.2
660.41	2562.2	661.16	2562.2	665.29	2562.2	666	2562.2	677.28	2562.2
677.68	2562.2	681.9	2562.2	682.37	2562.2	683.53	2562.2	684.22	2562.2
684.99	2562.2	690.13	2562.2	690.26	2562.2	691.05	2562.2	692.04	2562.2
697.78	2562.2	698.98	2562.2	704.25	2562.2	705.67	2562.2	710.02	2562.2
711.62	2562.2	715.5	2562.2	717.17	2562.2	775.58	2561.13	778.1	2561.13
780.71	2561.12	783.26	2561.12	786.26	2561.12	788.97	2561.11	791.89	2561.12
795.02	2561.11	797.89	2561.11	801.06	2561.11	803.53	2561.11	806.63	2561.11
809.74	2561.11	813.04	2561.11	816.51	2561.1	832.23	2561.11	835.45	2561.1
837.49	2561.11	840.23	2561.11	848.34	2561.11	850.57	2561.11	852.79	2561.11
855.16	2561.1	940.14	2560.2	940.77	2560.2	948.45	2560.2	948.81	2560.2
952.32	2560.2	961.35	2560.2	969.02	2560.2	972.57	2560.2	978.28	2560.2
982.64	2560.2	986.21	2560.2	989.09	2560.2	991.22	2560.2	994.17	2560.2
1010.56	2559.85	1027	2560.2	1029.92	2560.2	1034.38	2560.2	1036.73	2560.2
1043.25	2560.2	1050.9	2560.2	1078.52	2560.2	1088.33	2560.2	1117.51	2560.2
1134.9	2560.2	1146.66	2560.2	1173.93	2560.2	1176.78	2560.2	1200.85	2560.2
1204.24	2560.2	1208	2560.2	1209.69	2560.2	1210.84	2560.2	1216.25	2560.2
1218.2	2560.2	1225.55	2560.2	1230.95	2560.2	1234.88	2560.2	1243.74	2560.2
1244.08	2560.2	1244.98	2560.2	1256.87	2560.2	1294.89	2560.2	1298.32	2560.2
1300.72	2560.2	1303.14	2560.2	1307	2560.2	1308.83	2560.2	1313.7	2560.2
1314.55	2560.2	1317.24	2560.2	1322.58	2560.2	1324.33	2560.2	1332.1	2560.2
1336.88	2560.2	1341.47	2560.2	1349.22	2560.2	1351.14	2560.2	1361.43	2560.2
1362.26	2560.2	1362.31	2560.2	1370.72	2560.2	1427.84	2560.2	1431.89	2560.2
1433.63	2560.2	1435.45	2560.2	1437.38	2560.2	1439.53	2560.2	1443.44	2560.2
1445.66	2560.2	1448.17	2560.2	1451.93	2560.2	1454.68	2560.2	1457.7	2560.2
1461.36	2560.2	1464.59	2560.2	1465.44	2560.2	1475.71	2560.2	1484.04	2560.2
1502.59	2560.2	1505.12	2560.2	1513.55	2560.2	1522.38	2560.2	1524.84	2560.2
1533.41	2560.2	1540.31	2560.2	1542.64	2560.2	1543.11	2560.2	1544.85	2560.2
1546.84	2560.2	1548.76	2560.2	1550.17	2560.2	1551.41	2560.2	1555.05	2560.2
1556.43	2560.2	1559.45	2560.2	1562.16	2560.2	1564.53	2560.2	1568.4	2560.2
1568.74	2560.2	1568.94	2560.2	1569.21	2560.2	1578.14	2560.2	1589.73	2560.2
1590.28	2560.2	1593.92	2560.2	1601.96	2560.2	1604.44	2560.2	1610.97	2560.2
1626.43	2560.2	1639.06	2559.54	1645.42	2559.23	1663.01	2558.36	1664.58	2558.28
1666.25	2558.2	1674.11	2558.2	1706.73	2558.2	1733.9	2558.2	1734.94	2558.73
1736.85	2560.2	1741.1	2560.2	1741.68	2560.2	1742.55	2560.2	1742.82	2560.2
1742.99	2560.2	1762.7	2560.2	1765.96	2560.2	1767.87	2560.2	1770.94	2560.2
1773.34	2560.2	1776.23	2560.2	1779.09	2560.2	1781.68	2560.2	1784.8	2560.2
1787.23	2560.2	1790.44	2560.2	1792.49	2560.2	1795.78	2560.2	1799.2	2560.2
1800.58	2560.2	1804.42	2560.2	1808.56	2560.2	1813.15	2560.2	1817.93	2560.2
1818.53	2560.2	1823.2	2560.2	1842.44	2560.2	1843.39	2560.2	1847.69	2560.2
1852.24	2560.2	1854.03	2560.2	1857.26	2560.2	1860.9	2560.2	1865.08	2560.2
1867.21	2560.2	1872.08	2560.2	1873.61	2560.2	1874.62	2560.2	1900.8	2560.2

1903.63	2560.2	1906.36	2560.2	1907.56	2560.2	1910.24	2560.2	1912.84	2560.2
1915.38	2560.2	1923.4	2560.2	1926.36	2560.2	1929.21	2560.2	1931.62	2560.2
1932.82	2560.2	1933.03	2560.2	1934.07	2560.2	1935.71	2560.2	1937.66	2560.2
1963.59	2560.2	1966.28	2560.2	1968.99	2560.2	1971.85	2560.2	1978.19	2560.2
1985.22	2560.2	1989.04	2560.2	1993.05	2560.2	1997.31	2560.2	2001.85	2560.2
2006.65	2560.2	2011.91	2560.2	2014.88	2560.2	2070	2560.68	2074.43	2560.65
2075.7	2560.66	2080.21	2560.63	2081.49	2560.63	2085.9	2560.62	2087.11	2560.62
2088.32	2560.62	2089.58	2560.62	2090.8	2560.61	2095.04	2560.61	2096.15	2560.61
2097.11	2560.61	2101.18	2560.62	2105.03	2560.64	2105.87	2560.63	2125.35	2560.58
2130.15	2560.6	2159.72	2560.73	2165.4	2560.76	2170.9	2560.78	2172.25	2560.79
2241.24	2560.91	2244.57	2560.9	2248	2560.89	2251.51	2560.88	2255.05	2560.87
2258.73	2560.87	2262.37	2560.86	2263.79	2560.87	2291.5	2561.2	2294.18	2561.19
2296.67	2561.24	2299.36	2561.23	2302.13	2561.23	2304.97	2561.24	2307.89	2561.24
2310.78	2561.25	2312.88	2561.27	2315.78	2561.28	2345.26	2561.66	2347.06	2561.67
2353.26	2561.68	2357.35	2561.77	2358.52	2561.77	2362.94	2561.88	2363.85	2561.88
2368.64	2562	2374.24	2562.14	2374.43	2562.14	2376.89	2562.2	2383.15	2562.59
2386.22	2562.81	2397.5	2563.62	2402.09	2563.94	2405.54	2564.2	2418.85	2565.17
2433.57	2566.2	2437.6	2566.2	2449.83	2566.2	2474.03	2566.2	2481.54	2566.2
2481.84	2566.19								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.032	234.93	.06	1524.84	.035	1781.68	.06	1933.03	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1524.84	1781.68	265.94	205.7	223.67	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	953.08	2564.2	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2561.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.	0.060	0.035	0.054
W.S. Elev (ft)	2561.45	Reach Len. (ft)	265.94	205.70	223.67
Crit W.S. (ft)	2561.34	Flow Area (sq ft)	717.93	498.72	498.64
E.G. Slope (ft/ft)	0.010134	Area (sq ft)	898.63	498.72	498.64
Q Total (cfs)	6727.50	Flow (cfs)	2083.13	3311.51	1332.86
Top Width (ft)	1648.54	Top Width (ft)	844.76	256.84	546.95
Vel Total (ft/s)	3.92	Avg. Vel. (ft/s)	2.90	6.64	2.67
Max Chl Dpth (ft)	3.25	Hydr. Depth (ft)	1.26	1.94	0.91
Conv. Total (cfs)	66830.2	Conv. (cfs)	20693.5	32895.2	13240.5
Length Wtd. (ft)	224.89	Wetted Per. (ft)	571.77	257.52	546.95
Min Ch El (ft)	2558.20	Shear (lb/sq ft)	0.79	1.23	0.58
Alpha	1.67	Stream Power (lb/ft s)	2.30	8.14	1.54
Frctn Loss (ft)	1.58	Cum Volume (acre-ft)	30.22	21.58	10.81
C & E Loss (ft)	0.01	Cum SA (acres)	19.06	4.41	7.55

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 554.81

INPUT
Description:
Station Elevation Data num= 402

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2562.2	33.84	2562.2	41.4	2562.2	46.62	2562.2	47.13	2562.2
53.11	2562.2	55.33	2562.2	55.86	2562.2	56.8	2562.2	60.08	2562.2
61.85	2562.2	65.6	2562.2	69.87	2562.2	71.61	2562.2	73.67	2562.2
96.83	2560.82	107.25	2560.2	108.45	2560.2	110.69	2560.2	117.36	2560.2
126.86	2561.1	136.89	2562.2	137.85	2562.2	138.3	2562.2	138.83	2562.2
139.71	2562.2	141.37	2562.2	145.96	2562.2	152.32	2562.2	157.84	2562.2
160.66	2562.2	231.52	2562.2	234.69	2562.2	236.4	2562.2	239.06	2562.2
240.73	2562.2	325.53	2562.2	391.03	2561.01	391.95	2561.04	393.3	2561.07
394.8	2561.08	395.52	2561.09	397.04	2561.09	398.89	2561.12	401.27	2561.16
403.79	2561.2	405.59	2561.18	408.1	2561.22	410.44	2561.26	412.64	2561.24
414.95	2561.27	417.36	2561.25	419.87	2561.23	521.11	2560.2	522.23	2560.2
529.45	2560.2	529.96	2560.2	530.43	2560.2	531.23	2560.2	531.58	2560.2
531.89	2560.2	537.56	2560.2	537.59	2560.2	537.63	2560.2	538.72	2560.2
540.28	2560.2	540.74	2560.2	543.62	2560.2	544.34	2560.2	547.68	2560.2
548.55	2560.2	551.91	2560.2	552.87	2560.2	569.59	2560.2	571.76	2560.2
577.76	2560.2	580.37	2560.2	584.88	2560.2	588.46	2560.2	591.4	2560.2
593.85	2560.2	595.87	2560.2	599.15	2560.2	600.33	2560.2	604.68	2560.2
605.37	2560.2	607.65	2559.93	612.16	2559.96	612.27	2559.95	616.62	2559.85
617.21	2559.86	617.93	2559.88	621.51	2559.7	622.64	2559.73	651.28	2559.89
652.29	2559.91	653.14	2559.93	659.11	2560.2	660.75	2560.2	665.05	2560.2
665.87	2560.2	669.35	2560.2	672.78	2560.2	673.92	2560.2	689.06	2560.2

694.61	2560.2	696.04	2560.2	701.66	2560.2	703.61	2560.2	737.75	2560.2
740.75	2560.2	742.01	2560.2	743.45	2560.2	745.06	2560.2	746.86	2560.2
749.45	2560.2	751.12	2560.2	753.34	2560.2	755.51	2560.2	757.68	2560.2
759.32	2560.2	760.94	2560.2	761.95	2560.2	762.57	2560.2	773.24	2559.29
786.88	2558.2	788.31	2558.2	789.51	2558.2	812.48	2558.2	816.05	2558.2
818.4	2558.2	821.18	2558.2	824.23	2558.2	825.46	2558.2	827.19	2558.2
828.67	2558.42	830.57	2558.64	844.97	2560.13	845.36	2560.18	845.54	2560.2
845.64	2560.2	847.02	2560.2	858.8	2560.2	862.3	2560.11	862.49	2560.12
882.84	2559.82	887.12	2559.8	888.16	2559.81	892.35	2559.79	893.4	2559.8
897.54	2559.78	898.62	2559.79	902.8	2559.77	907.05	2559.75	911.23	2559.74
912.45	2559.75	913.56	2559.77	914.15	2559.76	917.69	2559.75	927.76	2559.85
928.74	2559.85	929.68	2559.86	931.6	2559.86	932.55	2559.86	933.51	2559.86
938.09	2559.84	939.08	2559.84	940.07	2559.84	944.25	2559.8	945.32	2559.81
1005.43	2559.67	1009.92	2559.69	1047.31	2559.4	1050.45	2559.41	1053.49	2559.43
1053.92	2559.42	1056.71	2559.43	1058.94	2559.42	1116.56	2558.96	1124.4	2558.86
1126.51	2558.83	1135.44	2558.71	1146.41	2558.56	1162.08	2558.2	1162.29	2558.2
1166.95	2558.2	1167.39	2558.2	1170.19	2558.2	1170.8	2558.2	1171.01	2558.2
1172.51	2558.2	1181.38	2558.2	1215.43	2558.2	1219.27	2558.31	1223.46	2558.44
1224.01	2558.43	1227.85	2558.54	1228.62	2558.54	1291.34	2558.63	1365.18	2558.99
1367.73	2558.98	1372.3	2558.92	1374.71	2558.92	1378.96	2558.87	1381.27	2558.86
1383.53	2558.84	1397.55	2558.63	1432.12	2558.2	1432.81	2558.2	1436.01	2558.2
1440.2	2558.2	1445.84	2558.2	1446.28	2558.2	1447.16	2558.06	1448.2	2557.92
1457.48	2556.7	1460.9	2556.24	1461.29	2556.2	1476.27	2556.2	1485.62	2556.2
1492.03	2556.2	1496.65	2556.2	1500.08	2556.2	1525.71	2556.2	1526.37	2556.2
1527.43	2556.2	1535.58	2556.2	1540.22	2556.2	1541.87	2556.2	1548.25	2556.2
1558.03	2556.2	1558.85	2556.2	1565.95	2557.04	1571.96	2557.77	1573.64	2557.96
1575.43	2558.2	1577.21	2558.2	1577.31	2558.2	1577.49	2558.2	1577.93	2558.2
1733.3	2558.2	1735.23	2558.2	1738.76	2558.2	1740.39	2558.2	1741.94	2558.2
1743.37	2558.2	1744.73	2558.2	1751.82	2558.2	1752.99	2558.2	1754.09	2558.2
1764.23	2558.42	1769.93	2558.39	1770.5	2558.39	1776.52	2558.35	1782.62	2558.31
1787.24	2558.31	1792.27	2558.28	1797.48	2558.24	1797.56	2558.24	1802.95	2558.21
1804.16	2558.2	1808.27	2558.2	1860.09	2558.2	1865.58	2558.2	1865.68	2558.2
1871.2	2558.2	1876.41	2558.2	1876.48	2558.2	1879.74	2558.2	1879.94	2558.2
1886.19	2558.2	1892.5	2558.2	1898.56	2558.2	1904.17	2558.2	1909.27	2558.2
1909.74	2558.2	1914.48	2558.2	1919.07	2558.2	1923.67	2558.2	1923.85	2558.2
1926.59	2558.2	1927.35	2558.2	1928.38	2558.21	1928.4	2558.21	1928.43	2558.21
1933.99	2558.26	1949.71	2558.3	2060.64	2558.53	2061.61	2558.53	2062.58	2558.53
2067.52	2558.5	2068.4	2558.5	2073.35	2558.48	2074.14	2558.48	2074.95	2558.48
2080.09	2558.46	2096.3	2558.58	2096.89	2558.59	2100.77	2558.56	2105.12	2558.55
2105.9	2558.56	2110.42	2558.56	2111.31	2558.57	2116.06	2558.57	2116.93	2558.58
2121.72	2558.59	2126.37	2558.61	2127.16	2558.62	2131.87	2558.64	2156.24	2558.66
2158.68	2558.67	2159.54	2558.66	2162.2	2558.69	2163.14	2558.68	2180.42	2558.81
2184.12	2558.82	2185.54	2558.8	2188.45	2558.83	2211.93	2558.66	2213.23	2558.66
2223.16	2558.68	2224.69	2558.69	2335.2	2558.64	2336.32	2558.65	2352.41	2558.81
2353.65	2558.83	2356.2	2558.8	2357.47	2558.83	2371.66	2559.27	2373.24	2559.35
2374.98	2559.32	2377.1	2559.3	2379.03	2559.37	2381.24	2559.35	2383.57	2559.34
2385.99	2559.33	2388.28	2559.39	2390.53	2559.38	2409.27	2558.58	2411.01	2558.37
2411.27	2558.38	2411.64	2558.39	2413.56	2558.2	2414.41	2558.2	2414.83	2558.2
2418.16	2558.2	2420.91	2558.2	2422.76	2558.2	2432.48	2558.2	2436.51	2558.2
2441.83	2558.2	2443.78	2558.2	2449.16	2558.2	2451.23	2558.2	2451.99	2558.2
2458.85	2558.2	2463.12	2558.2	2466.03	2558.2	2468.87	2558.2	2471	2558.2
2472.75	2558.2	2474.29	2558.2	2475.85	2558.2	2476.38	2558.2	2476.86	2558.2
2477.56	2558.2	2477.65	2558.2	2477.73	2558.2	2478	2558.2	2478.1	2558.2
2478.18	2558.2	2480.77	2558.2	2551.71	2558.2	2554.05	2558.2	2556.45	2558.2
2560.01	2558.2	2647.4	2558.2	2648.67	2558.2	2669.95	2558.97	2680.73	2559.35
2686.66	2559.54	2697.88	2559.9	2700.02	2559.97	2701.34	2560.01	2707.77	2560.2
2751.28	2562.04	2754.4	2562.17	2754.57	2562.18	2754.68	2562.18	2755.32	2562.2
2757.22	2562.2	2757.65	2562.2	2766.09	2562.5	2774.59	2562.72	2781.12	2562.89
2784.6	2563.03	2789.98	2563.28	2799.22	2563.71	2802.03	2563.81	2809.88	2564.2
2812.92	2564.35	2824.6	2564.85						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1436.01	.035	1577.93	.065	1949.71	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1440.2	1577.21	1047.84	554.81	132.38	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	919.69	2562.2	F
2390	2824.6	2564.85	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2560.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.050	0.035	0.063
W.S. Elev (ft)	2559.89	Reach Len. (ft)	1047.84	554.81	132.38
Crit W.S. (ft)	2559.66	Flow Area (sq ft)	497.17	458.49	1173.17
E.G. Slope (ft/ft)	0.005134	Area (sq ft)	602.56	458.49	1634.09
Q Total (cfs)	6727.50	Flow (cfs)	1038.47	3116.61	2572.42
Top Width (ft)	1931.88	Top Width (ft)	674.55	137.01	1120.32
Vel Total (ft/s)	3.16	Avg. Vel. (ft/s)	2.09	6.80	2.19
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)	0.96	3.35	1.44
Conv. Total (cfs)	93889.1	Conv. (cfs)	14493.0	43495.4	35900.7
Length Wtd. (ft)	543.81	Wetted Per. (ft)	520.53	137.26	812.81
Min Ch El (ft)	2556.20	Shear (lb/sq ft)	0.31	1.07	0.46

Alpha	2.39	Stream Power (lb/ft s)	0.64	7.28	1.01
Frctn Loss (ft)	1.47	Cum Volume (acre-ft)	25.63	19.32	5.33
C & E Loss (ft)	0.03	Cum SA (acres)	14.42	3.48	3.27

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Agua Caliente
REACH: lower RS: 0

INPUT
Description:
Station Elevation Data num= 406

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2556.2	1.97	2556.2	6.84	2557.24	10.81	2558.2	11.98	2558.2
14.67	2558.2	18.61	2558.2	20.28	2558.2	25.39	2556.91	28.21	2556.2
30.49	2556.2	31.22	2556.2	33.61	2556.2	34.82	2556.2	36.62	2556.2
37.97	2556.2	39.51	2556.2	40.56	2556.2	42.05	2556.2	43.1	2556.2
43.95	2556.2	44.8	2556.2	45.67	2556.2	54.48	2556.2	54.93	2556.2
68.74	2556.2	161.4	2555.4	243.26	2555.38	245.1	2555.37	247.33	2555.38
260.02	2555.47	262.11	2555.49	263.94	2555.48	265.59	2555.49	267.84	2555.48
270.13	2555.48	271.98	2555.48	273.54	2555.48	336.03	2555.09	341.06	2555.02
387.01	2554.2	388.83	2554.2	390.94	2554.2	392.28	2554.2	394.52	2554.2
397.39	2554.2	398.97	2554.2	402.53	2554.2	404.22	2554.2	421.51	2554.2
424.21	2554.2	430.17	2554.2	435.06	2554.2	455.49	2554.2	467.75	2554.2
481.73	2554.2	484.89	2554.2	487.93	2554.2	490.76	2554.2	492.31	2554.2
497.61	2554.2	498.77	2554.2	499.65	2554.2	504.71	2554.2	505.59	2554.2
506.38	2554.2	510.79	2554.2	511.65	2554.2	515.46	2554.2	516.32	2554.2
519.05	2554.2	530.7	2554.2	534.67	2554.2	535.07	2554.2	563.99	2553.36
572.24	2553.15	574.82	2553.08	577.85	2552.95	578.1	2552.94	581.75	2552.78
586.28	2552.57	592.47	2552.28	594.18	2552.2	607.48	2551.84	611.6	2551.72
624.62	2551.35	633.98	2551.07	641.19	2550.87	655.92	2550.42	663.33	2550.2
667.78	2550.2	672.3	2550.2	679.12	2550.2	680.85	2550.2	695.92	2550.2
696.89	2550.2	697.76	2550.2	698.48	2550.2	699.15	2550.2	699.72	2550.2
700.23	2550.2	729.56	2550.48	731.27	2550.49	736.68	2550.53	738.54	2550.55
740.62	2550.57	872.07	2552.15	875.93	2552.2	877.34	2552.2	878.83	2552.2
880.46	2552.2	882.17	2552.2	884	2552.2	885.9	2552.2	887.99	2552.2
892.42	2552.2	897.4	2552.2	898.27	2552.2	900.93	2552.2	904.03	2552.2
907.9	2552.2	913.39	2552.2	913.61	2552.2	916.77	2552.2	919.97	2553.89
920.6	2554.2	921.63	2554.65	921.88	2554.75	925.24	2556.2	928.86	2556.2
930.86	2556.2	937.52	2556.2	944.81	2556.2	960.62	2556.2	967.13	2556.2
998.89	2556.2	1007.41	2556.2	1008.67	2555.84	1014.52	2554.2	1015.44	2553.95
1022.03	2552.2	1023.75	2551.97	1024.24	2551.96	1028.84	2551.55	1031.98	2551.32
1034.12	2551.35	1037.02	2551.2	1039.64	2551.24	1042.35	2551.13	1044.56	2551.04
1047.7	2551.09	1049.92	2551.01	1052.99	2551.06	1055.19	2551	1063.19	2550.94
1065.48	2550.97	1069.22	2551.02	1071.83	2551.07	1074.71	2551.13	1078.18	2551.18
1081.45	2551.26	1085.35	2551.37	1088.05	2551.41	1090.49	2551.45	1094.54	2551.56
1096.51	2551.59	1100.82	2551.68	1102.53	2551.71	1107.25	2551.79	1108.6	2551.82
1113.72	2551.89	1119.36	2551.96	1120.07	2551.98	1126.2	2552.07	1133.04	2552.17
1133.13	2552.17	1135.14	2552.2	1140.17	2552.33	1140.67	2552.36	1146.81	2552.53
1148.12	2552.61	1153.19	2552.77	1155.59	2552.92	1159.32	2553.06	1163.4	2553.37
1165.69	2553.49	1172.84	2554.08	1174.29	2554.2	1183.75	2555.6	1188.15	2556.2
1196.14	2556.2	1197.07	2556.2	1209.28	2556.2	1211.78	2556.2	1220.79	2556.2
1224.85	2556.2	1230.31	2556.2	1237.41	2556.2	1245.22	2556.2	1288.55	2556.2
1292.51	2556.2	1293.23	2556.2	1294.02	2556.2	1298.36	2556.2	1298.89	2556.2
1303.6	2556.2	1303.79	2556.2	1306.33	2556.2	1309.03	2556.2	1309.36	2556.2
1314.69	2556.2	1315.54	2556.2	1329.59	2554.81	1331.83	2554.77	1333.06	2554.79
1334.41	2554.82	1336.65	2554.79	1338.03	2554.84	1339.66	2554.93	1341.79	2555.08
1344.93	2555.32	1347.2	2555.35	1351.65	2555.79	1352.99	2555.85	1355.61	2556.2
1359.11	2556.25	1359.31	2556.25	1359.53	2556.25	1400.77	2556.72	1442.21	2556.88
1444.1	2556.89	1446.53	2556.89	1448.45	2556.91	1450.5	2556.92	1452.69	2556.94
1455.94	2556.95	1458.25	2556.97	1461.89	2556.98	1464.31	2557	1468.04	2557.01
1470.5	2557.03	1474.15	2557.04	1476.65	2557.05	1480.12	2557.08	1482.74	2557.08
1485.97	2557.11	1488.71	2557.11	1491.73	2557.14	1494.37	2557.14	1497.36	2557.17
1500.12	2557.2	1502.79	2557.23	1505.43	2557.25	1510.5	2557.29	1512.97	2557.3
1516.01	2557.29	1518.45	2557.31	1520.9	2557.32	1523.28	2557.33	1526.24	2557.32
1605.19	2557.68	1607.1	2557.69	1608.98	2557.7	1610.77	2557.71	1615.02	2557.75
1616.66	2557.76	1618.18	2557.77	1619.66	2557.78	1621.05	2557.79	1622.36	2557.8
1623.62	2557.81	1624.83	2557.82	1628.88	2557.83	1630.03	2557.84	1635.23	2557.87
1636.2	2557.87	1637.14	2557.88	1638.09	2557.88	1639.03	2557.88	1639.95	2557.88
1640.85	2557.88	1641.75	2557.88	1645.9	2557.88	1646.84	2557.88	1647.75	2557.88
1648.64	2557.88	1649.56	2557.88	1650.47	2557.88	1651.4	2557.88	1652.31	2557.88
1656.69	2557.87	1657.61	2557.87	1658.54	2557.87	1678.37	2557.87	1695.93	2557.87
1722.29	2557.82	1723.38	2557.82	1724.49	2557.82	1725.59	2557.82	1760.47	2557.89
1761.34	2557.89	1766.21	2557.91	1767.04	2557.91	1772.15	2557.93	1772.96	2557.93
1777.9	2557.93	1778.66	2557.94	1779.4	2557.94	1784.25	2557.94	1785	2557.94
1785.73	2557.94	1786.46	2557.95	1787.17	2557.95	1792.02	2557.94	1792.74	2557.94

1793.46	2557.94	1798.4	2557.93	1799.15	2557.93	1799.9	2557.94	1804.85	2557.92
1805.64	2557.93	1806.42	2557.93	1807.17	2557.93	1811.88	2557.91	1812.68	2557.91
1813.47	2557.91	1814.25	2557.92	1818.81	2557.89	1819.65	2557.89	1820.48	2557.9
1821.32	2557.9	1830.37	2557.88	1831.41	2557.88	1836.35	2557.86	1837.53	2557.85
1850.06	2557.76	1856.41	2557.72	1858.33	2557.71	1944.08	2557.44	1945.09	2557.43
1948.34	2557.44	1951.9	2557.44	1979.23	2558.2	1982.43	2558.2	1985.19	2558.2
1988.87	2558.2	1993.24	2558.2	1995.7	2558.2	2000.57	2558.2	2005.83	2558.2
2007.87	2558.2	2013.42	2558.2	2019.5	2558.2	2026.33	2558.2	2034.02	2558.2
2035.06	2558.2	2043.03	2558.2	2051.8	2558.2	2052.02	2558.2	2056.54	2558.2
2060.02	2558.35	2060.59	2558.37	2066.75	2558.61	2071.63	2558.78	2073.64	2558.85
2077.84	2558.96	2081.43	2559.05	2084.14	2559.13	2087.27	2559.2	2090.32	2559.27
2093.01	2559.33	2096.47	2559.4	2098.76	2559.45	2102.74	2559.53	2104.72	2559.57
2109.01	2559.67	2110.58	2559.69	2115.27	2559.8	2116.44	2559.82	2121.57	2559.93
2122.35	2559.95	2127.78	2560.07	2128.17	2560.08	2136.82	2560.2	2136.95	2560.2
2138.07	2560.22	2138.14	2560.22	2143.61	2560.36	2144.07	2560.36	2149.1	2560.49
2149.95	2560.5	2154.66	2560.62	2155.89	2560.63	2160.12	2560.73	2161.71	2560.76
2165.69	2560.84	2167.53	2560.87	2169.62	2560.91	2173.5	2560.99	2176.03	2561.06
2179.44	2561.14	2182.43	2561.23	2186.16	2561.35	2188.88	2561.43	2191.19	2561.49
2194.01	2561.57								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	535.07	.032	872.07	.038	944.81	.06	1678.37	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
534.67	944.81	0	0	0	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	20	2562.2	F
1908.42	2194.01	2561.57	F

CROSS SECTION OUTPUT Profile #100 Year

E.G. Elev (ft)	2558.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.060	0.033	0.060
W.S. Elev (ft)	2558.08	Reach Len. (ft)			
Crit W.S. (ft)	2556.18	Flow Area (sq ft)	1516.81	2574.63	1843.10
E.G. Slope (ft/ft)	0.002376	Area (sq ft)	1528.60	2574.63	1876.32
Q Total (cfs)	27357.50	Flow (cfs)	3766.30	19667.94	3923.25
Top Width (ft)	1964.48	Top Width (ft)	524.23	410.14	1030.11
Vel Total (ft/s)	4.61	Avg. Vel. (ft/s)	2.48	7.64	2.13
Max Chl Dpth (ft)	7.88	Hydr. Depth (ft)	2.95	6.28	1.91
Conv. Total (cfs)	561250.1	Conv. (cfs)	77267.2	403495.8	80487.1
Length Wtd. (ft)		Wetted Per. (ft)	514.16	411.12	964.56
Min Ch El (ft)	2550.20	Shear (lb/sq ft)	0.44	0.93	0.28
Alpha	2.04	Stream Power (lb/ft s)	1.09	7.10	0.60
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

SUMMARY OF MANNING'S N VALUES

River:AC Split

Reach	River Sta.	n1	n2	n3	n4	n5
upper	3599.078	.05	.05			
upper	3235.949	.05				
lower	2853.265	.055	.06	.05	.05	
lower	2508.632	.055	.06	.05	.05	
lower	2214.257	.065	.055	.06	.05	.05
lower	1933.962	.065	.05	.06	.05	.05
lower	1426.381	.065	.05	.06	.05	.06

River:AC Spur

Reach	River Sta.	n1	n2	n3	n4
AC Spur	5472.12	.07	.07	.07	
AC Spur	5178.24	.07	.07	.07	
AC Spur	4813.20	.06	.06	.06	
AC Spur	4497.37	.06	.06	.06	
AC Spur	4230.27	.06	.06	.06	
AC Spur	3934.74	.06	.06	.06	
AC Spur	3654.17	.06	.06	.06	
AC Spur	3474.64	.06	.06	.06	
AC Spur	3215.30	.06	.06	.06	
AC Spur	2911.33	.06	.06	.06	
AC Spur	2602.91	.06	.06	.06	

AC Spur	2286.58	.06	.06	.06	
AC Spur	1946.69	.06	.05		
AC Spur	1600.02	.06	.055		
AC Spur	1199.20	.055	.06	.055	.06
AC Spur	837.50	.055	.06		
AC Spur	566.48	.055	.06	.05	.06
AC Spur	350.	.055	.06	.05	.06

River:Agua Caliente

Reach	River Sta.	n1	n2	n3	n4	n5	n6
upper	31333.21	.05	.045	.05	.045	.05	
upper	31224.76	.05	.045	.05	.045	.05	
upper	31089.71	.05	.045	.05			
upper	30990.87	.05	.045	.045	.05		
upper	30898.84	.05	.045	.045	.045	.05	
upper	30840.82	.05	.045	.045	.045	.05	
upper	30690.61	.05	.045	.05			
upper	30547.71	.05	.045	.05			
upper	30481.41	.05	.045	.05			
upper	30424.82	.05	.045	.05			
upper	30362.48	.05	.045	.05			
upper	30290.36	.05	.045	.05			
upper	30232.14	.05	.045	.05			
upper	30003.57	.05	.045	.05			
upper	29768.97	.05	.045	.05			
upper	29627.21	.05	.045	.05			
upper	29558.97	.05	.045	.05			
upper	29500.74	.05	.045	.05			
upper	29369.94	.05	.045	.05			
upper	29098.06	.05	.045	.05			
upper	28875.2	.05	.045	.05			
upper	28734.99	.05	.045	.05			
upper	28592.81	.05	.045	.045	.05		
upper	28479.43	.05	.045	.06	.045	.05	
upper	28394.36	.05	.045	.06	.045	.05	
upper	28247.34	.05	.045	.06	.045	.05	
upper	28136.75	.05	.045	.06	.045	.05	.05
upper	28029.09	.05	.045	.06	.045	.05	
upper	27892.68	.05	.045	.06	.045	.05	
upper	27758.38	.05	.045	.06	.045	.05	
upper	27636.17	.05	.045	.06	.045	.045	.05
upper	27415.17	.05	.045	.06	.045	.05	
upper	27236.39	.05	.045	.06	.045	.05	
upper	27073.54	.05	.045	.06	.045	.05	
upper	26937.64	.05	.045	.06	.045	.05	.05
upper	26827.35	.05	.045	.06	.045	.045	.05
upper	26541.23	.05	.045	.06	.045	.05	
upper	26354.97	.05	.06	.06	.053	.05	
upper	26188.3	.04	.05	.045	.045	.045	.05
upper	25977.06	.05	.06	.048	.05		
upper	25817.13	.05	.045	.05			
upper	25727.13	.04	.05	.04	.045	.05	
upper	25613.79	.04	.05	.05	.06	.05	
upper	25447.86	.05	.05	.06	.05		
upper	25222.61	.05	.055	.06	.06	.05	
upper	24991.27	.05	.04	.06	.05		
upper	24754.28	.05	.045	.05	.05		
upper	24588.07	.05	.045	.06	.05		
upper	24317.77	.05	.05	.05	.06	.05	
upper	24078.34	.05	.05	.06	.05		
upper	23858.15	.05	.04	.06	.05		
upper	23410.62	.05	.05	.035	.05		
upper	23021.58	.05	.035	.06			
upper	22709.53	.05	.035	.07			
upper	22439.86	.05	.045	.05			
upper	22135.43	.05	.048	.05	.05		
upper	21893.26	.05	.035	.05	.035	.05	
upper	21722.29	.05	.035	.05	.05	.035	.05
upper	21619.14	.05	.035	.06	.035	.05	
upper	21161.08	.05	.035	.05			
upper	20689.67	.06	.035	.035	.05		
upper	20224.2	.05	.03	.05	.06		
upper	19962.61	.05	.045	.06	.06		
upper	19774.66	.05	.035	.05	.05	.05	.06
upper	19584.44	.05	.03	.06			
upper	19356.98	.05	.035	.06			
upper	19010.68	.05	.035	.05	.06		
upper	18727.05	.05	.035	.045	.06		
upper	18351.98	.08	.042	.06			
upper	17941.17	.08	.035	.06			
upper	17531.27	.08	.03	.06			
upper	17353.02	.08	.03	.06			
upper	17186.91	.08	.034	.06			

upper	16713.82	.07	.05	.03	.06		
upper	16317.38	.07	.05	.03	.06		
upper	15833.59	.07	.07	.03	.06		
upper	15499.03	.07	.07	.04	.06		
upper	15303.96	.07	.07	.03	.03	.06	
upper	15139.89	.07	.07	.03	.03	.06	
upper	14880.52	.06	.07	.07	.03	.06	.06
upper	14549.94	.06	.07	.06	.042	.06	
upper	14469.1	.06	.07	.055	.03	.06	
upper	14378.58	.06	.055	.03	.05		
upper	14287.58	.06	.055	.04	.055		
upper	14202.59	.06	.07	.03	.03	.06	.06
upper	13863.77	.06	.048	.065			
upper	13436.95	.054	.038	.06			
upper	13118.88	.06	.042	.06			
upper	13002.28	.06	.03	.06			
upper	12894.15	.06	.045	.052			
upper	12790.35	.06	.035	.06			
upper	12718.49	.06	.032	.065			
upper	12546.41	.06	.04	.055			
upper	12365.94	.05	.045	.05			
upper	12212.12	.045	.045	.058			
upper	11918.47	.06	.04	.05			
upper	11673.91	.06	.035	.06			
upper	11248.91	.06	.037	.06	.05		
upper	10901.11	.09	.035	.038	.06	.05	
upper	10673.59	.07	.032	.06	.05		
middle	10603.59	.07	.03	.06	.05		
middle	10465.1	.087	.03	.05			
middle	10320.64	.088	.044	.05			
middle	10131.91	.055	.03	.05			
middle	9909.25	.06	.032	.05			
middle	9550.47	.06	.042	.05			
middle	9307.97	.06	.037	.05			
middle	9091.3	.06	.04	.05			
middle	8865.4	.05	.04	.04	.04	.05	.055
middle	8587.35	.05	.03	.05			
middle	8257.08	.06	.03	.05	.055		
middle	7968.62	.05	.03	.05	.055		
middle	7628.04	.06	.035	.05	.055		
middle	7244.33	.035	.025	.055			
middle	6971.06	.035	.025	.055			
middle	6769.06	.035	.03	.055			
middle	6687.06	Bridge					
middle	6544.64	.04	.035	.04			
middle	6260.16	.06	.05	.035	.045	.055	
middle	5961.45	.06	.05	.04	.045	.055	
middle	5794.74	.06	.05	.032	.045		
middle	5640.23	.06	.055	.032	.055		
lower	5365.23	.05	.035				
lower	5242.33	.04	.035	.04	.055		
lower	5189.01	.045	.035	.045			
lower	5164.33	Bridge					
lower	5083.33	.04	.035	.045			
lower	5007.33	.04	.035	.04	.055		
lower	4808.89	.045	.035	.06	.055	.07	
lower	4640.59	.04	.035	.07	.065	.07	
lower	4293.46	.04	.05	.035	.065	.08	
lower	3943.83	.04	.05	.035	.055		
lower	3579.38	.04	.05	.038	.055		
lower	3344.57	.05	.035	.06			
lower	3039.07	.05	.035	.065			
lower	2734.71	.08	.05	.03	.065		
lower	2590.18	.08	.05	.035	.045	.07	
lower	2425.08	.08	.05	.035	.055	.07	
lower	2225.5	.08	.045	.05	.055		
lower	1877.58	.08	.045	.04	.055	.03	.055
lower	1549.86	.06	.035	.06	.035	.06	
lower	1261.13	.032	.06	.04	.08		
lower	968.69	.032	.06	.035	.06	.05	
lower	760.51	.032	.06	.035	.06	.05	
lower	554.81	.05	.035	.065	.06		
lower	0	.06	.032	.038	.06	.05	

Profile Output Table - Standard Table 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Ele
Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl				
				(cfs)	(ft)	(ft)	(ft)	(
(ft/ft)	(ft/s)	(sq ft)	(ft)					
Agua Caliente	upper		31333.21	100 Year	12000.00	2798.20	2805.07	2805.07	2807.4
0.017612	12.31	974.80	203.78	0.99				

Agua Caliente	upper		31224.76	100	Year	12000.00	2794.20	2802.10	2802.10	2804.1	0.017238	12.15	988.06	212.51	0.99
Agua Caliente	upper		31089.71	100	Year	12000.00	2790.20	2798.37	2798.23	2800.8	0.016144	12.66	947.57	177.57	0.97
Agua Caliente	upper		30990.87	100	Year	12000.00	2788.20	2797.85	2796.36	2799.5	0.008069	10.37	1157.09	169.65	0.70
Agua Caliente	upper		30898.84	100	Year	12000.00	2786.20	2796.47	2794.77	2798.7	0.008390	12.00	999.69	118.03	0.73
Agua Caliente	upper		30840.82	100	Year	12000.00	2784.50	2794.23	2794.12	2797.5	0.014944	15.42	780.60	102.53	0.97
Agua Caliente	upper		30690.61	100	Year	12000.00	2784.20	2792.48	2792.48	2795.5	0.014361	14.08	876.20	155.04	0.95
Agua Caliente	upper		30547.71	100	Year	12000.00	2782.20	2789.60	2789.60	2792.2	0.013614	13.58	986.88	193.02	0.93
Agua Caliente	upper		30481.41	100	Year	12000.00	2780.07	2787.88	2787.88	2790.5	0.015164	13.26	941.62	180.24	0.96
Agua Caliente	upper		30424.82	100	Year	12000.00	2778.20	2786.14	2786.14	2788.8	0.016246	13.16	922.94	176.47	0.98
Agua Caliente	upper		30362.48	100	Year	12000.00	2776.20	2784.51	2784.51	2787.2	0.016881	13.29	903.22	165.13	0.99
Agua Caliente	upper		30290.36	100	Year	12000.00	2773.03	2782.72	2782.67	2785.2	0.016290	12.89	932.29	177.38	0.97
Agua Caliente	upper		30232.14	100	Year	12000.00	2771.61	2782.57	2781.37	2784.2	0.008823	10.81	1114.35	184.13	0.74
Agua Caliente	upper		30003.57	100	Year	12000.00	2770.20	2778.75	2778.75	2781.5	0.016821	13.48	889.94	156.14	1.00
Agua Caliente	upper		29768.97	100	Year	12000.00	2767.34	2774.82	2774.82	2777.4	0.015201	13.07	953.59	191.01	0.96
Agua Caliente	upper		29627.21	100	Year	12000.00	2766.03	2772.50	2772.50	2775.0	0.014066	13.18	984.28	201.11	0.93
Agua Caliente	upper		29558.97	100	Year	12000.00	2763.71	2771.19	2770.95	2773.5	0.012810	12.49	1006.28	199.70	0.89
Agua Caliente	upper		29500.74	100	Year	12000.00	2762.20	2770.61	2770.01	2772.8	0.010993	12.06	1045.48	203.70	0.83
Agua Caliente	upper		29369.94	100	Year	12000.00	2760.50	2769.55	2768.83	2771.3	0.009511	10.92	1154.15	233.22	0.76
Agua Caliente	upper		29098.06	100	Year	12000.00	2758.20	2765.78	2765.70	2768.2	0.014661	12.40	997.85	217.38	0.93
Agua Caliente	upper		28875.2	100	Year	12000.00	2756.20	2762.69	2762.69	2764.7	0.014950	11.60	1079.76	279.18	0.92
Agua Caliente	upper		28734.99	100	Year	12000.00	2754.20	2760.18	2760.18	2762.2	0.016889	11.29	1093.29	290.75	0.96
Agua Caliente	upper		28592.81	100	Year	12000.00	2752.20	2757.61	2757.19	2759.0	0.012751	9.90	1241.21	607.68	0.84
Agua Caliente	upper		28479.43	100	Year	12000.00	2750.18	2755.54	2755.54	2757.3	0.018281	10.74	1119.22	584.84	0.99
Agua Caliente	upper		28394.36	100	Year	12000.00	2747.25	2753.88	2753.78	2755.3	0.013908	9.88	1282.27	507.66	0.90
Agua Caliente	upper		28247.34	100	Year	12000.00	2744.20	2751.38	2751.38	2753.1	0.016436	10.56	1136.79	435.18	1.00
Agua Caliente	upper		28136.75	100	Year	12000.00	2742.20	2749.70	2749.28	2750.8	0.010756	8.94	1405.13	488.15	0.81
Agua Caliente	upper		28029.09	100	Year	12000.00	2740.20	2747.95	2747.95	2749.5	0.013668	10.18	1191.36	453.68	0.98
Agua Caliente	upper		27892.68	100	Year	12000.00	2738.20	2746.47	2745.81	2747.3	0.008076	7.79	1643.11	481.94	0.71
Agua Caliente	upper		27758.38	100	Year	12000.00	2736.20	2744.56	2744.56	2745.9	0.011831	9.69	1300.23	462.68	0.96
Agua Caliente	upper		27636.17	100	Year	12000.00	2733.15	2742.65	2742.57	2744.1	0.011413	9.92	1217.78	370.18	0.96
Agua Caliente	upper		27415.17	100	Year	12000.00	2732.20	2740.73	2740.03	2741.8	0.008557	8.66	1398.04	357.53	0.76
Agua Caliente	upper		27236.39	100	Year	12000.00	2730.20	2738.86	2738.31	2740.1	0.010867	9.16	1326.15	336.27	0.80
Agua Caliente	upper		27073.54	100	Year	12000.00	2728.20	2737.25	2736.57	2738.4	0.009475	8.93	1353.70	337.02	0.77
Agua Caliente	upper		26937.64	100	Year	12000.00	2726.20	2735.45	2734.99	2736.8	0.016365	9.37	1285.59	359.58	0.83
Agua Caliente	upper		26827.35	100	Year	12000.00	2724.20	2734.42	2733.51	2735.5	0.007564	8.59	1405.58	316.48	0.71
Agua Caliente	upper		26541.23	100	Year	12000.00	2722.20	2730.96	2730.96	2732.6	0.014037	10.37	1157.95	346.89	0.99
Agua Caliente	upper		26354.97	100	Year	12000.00	2720.20	2729.57	2728.00	2730.3	0.007948	7.08	1699.62	356.80	0.56
Agua Caliente	upper		26188.3	100	Year	12000.00	2720.20	2727.73	2726.74	2728.9	0.008587	8.84	1389.76	332.83	0.70
Agua Caliente	upper		25977.06	100	Year	12000.00	2718.20	2724.71	2724.55	2726.5	0.013841	11.55	1184.22	293.22	0.85
Agua Caliente	upper		25817.13	100	Year	12000.00	2716.20	2722.97	2722.57	2724.6	0.010283	10.71	1269.44	314.39	0.79
Agua Caliente	upper		25727.13	100	Year	12000.00	2714.20	2722.33	2721.75	2723.7	0.007262	10.34	1443.79	371.63	0.72
Agua Caliente	upper		25613.79	100	Year	12000.00	2712.20	2720.78	2720.13	2722.6	0.011719	11.55	1248.15	356.15	0.78
Agua Caliente	upper		25447.86	100	Year	12000.00	2710.20	2719.47	2718.18	2720.8	0.009160	9.98	1504.56	438.68	0.69

Agua Caliente	upper		25222.61	100	Year	12000.00	2708.20	2716.78	2716.78	2718.2	0.014241	10.37	1372.19	458.02	0.80
Agua Caliente	upper		24991.27	100	Year	12000.00	2706.20	2714.08	2713.91	2715.7	0.008381	11.01	1341.03	414.92	0.80
Agua Caliente	upper		24754.28	100	Year	12000.00	2703.34	2712.23	2711.86	2713.6	0.008586	10.16	1449.39	469.16	0.73
Agua Caliente	upper		24588.07	100	Year	12000.00	2702.20	2710.92	2710.77	2712.2	0.007732	10.20	1581.96	556.09	0.70
Agua Caliente	upper		24317.77	100	Year	12000.00	2700.27	2707.46	2707.37	2709	0.018741	10.85	1243.17	387.98	0.84
Agua Caliente	upper		24078.34	100	Year	12000.00	2698.20	2706.00	2704.01	2706.7	0.005021	7.50	1826.50	431.03	0.51
Agua Caliente	upper		23858.15	100	Year	12000.00	2695.58	2703.12	2703.09	2705.3	0.010624	11.48	1144.39	338.48	0.88
Agua Caliente	upper		23410.62	100	Year	12000.00	2692.20	2699.65	2699.32	2701.3	0.006506	10.70	1261.73	386.65	0.80
Agua Caliente	upper		23021.58	100	Year	12000.00	2691.50	2697.95	2697.27	2699.0	0.004641	9.23	1839.54	540.61	0.68
Agua Caliente	upper		22709.53	100	Year	12000.00	2689.29	2695.92	2695.61	2697.3	0.006204	10.45	1630.84	481.39	0.78
Agua Caliente	upper		22439.86	100	Year	12000.00	2686.84	2693.95	2693.87	2695.3	0.009841	9.67	1602.51	629.00	0.75
Agua Caliente	upper		22135.43	100	Year	12000.00	2683.58	2689.87	2689.78	2691.3	0.016451	10.38	1303.61	435.38	0.89
Agua Caliente	upper		21893.26	100	Year	12000.00	2680.20	2688.73	2687.10	2689.4	0.003087	7.48	1900.37	666.86	0.55
Agua Caliente	upper		21722.29	100	Year	13000.00	2680.08	2687.60	2687.38	2688.7	0.007142	9.43	1640.11	628.59	0.80
Agua Caliente	upper		21619.14	100	Year	13000.00	2680.20	2687.01	2686.76	2688.0	0.005665	9.09	1844.81	831.64	0.73
Agua Caliente	upper		21161.08	100	Year	13000.00	2676.20	2684.39	2683.84	2685.4	0.005966	8.72	1936.06	900.30	0.74
Agua Caliente	upper		20689.67	100	Year	13000.00	2674.20	2681.85	2681.48	2682.9	0.005342	8.79	2026.44	822.14	0.71
Agua Caliente	upper		20224.2	100	Year	13000.00	2672.20	2679.60	2679.50	2680.7	0.004457	9.26	2028.64	910.69	0.75
Agua Caliente	upper		19962.61	100	Year	13000.00	2672.20	2678.11	2678.01	2679.1	0.008839	9.12	2072.42	1162.01	0.72
Agua Caliente	upper		19774.66	100	Year	13000.00	2670.20	2677.22	2676.20	2678.0	0.003672	8.31	2292.03	1262.83	0.61
Agua Caliente	upper		19584.44	100	Year	13000.00	2670.03	2675.79	2675.49	2677.1	0.005100	10.30	1831.22	539.16	0.81
Agua Caliente	upper		19356.98	100	Year	13000.00	2668.20	2674.43	2673.97	2675.7	0.006960	10.52	1731.86	901.33	0.81
Agua Caliente	upper		19010.68	100	Year	13000.00	2665.07	2671.96	2671.84	2673	0.008256	9.81	1613.18	801.24	0.86
Agua Caliente	upper		18727.05	100	Year	13000.00	2664.20	2670.72	2669.92	2671.5	0.003922	7.94	2146.16	1435.97	0.61
Agua Caliente	upper		18351.98	100	Year	13000.00	2662.20	2668.25	2668.09	2669.3	0.009073	9.35	2147.65	1530.96	0.76
Agua Caliente	upper		17941.17	100	Year	13000.00	2660.20	2665.40	2664.19	2666.2	0.005868	8.96	2838.51	1543.89	0.74
Agua Caliente	upper		17531.27	100	Year	13000.00	2658.20	2662.67	2661.48	2663.6	0.006747	9.67	2828.44	1427.37	0.89
Agua Caliente	upper		17353.02	100	Year	13000.00	2656.20	2661.71	2661.40	2662.5	0.004996	8.89	3133.67	1348.89	0.78
Agua Caliente	upper		17186.91	100	Year	13000.00	2655.21	2660.52	2658.15	2661.4	0.007003	9.11	2602.42	1247.90	0.81
Agua Caliente	upper		16713.82	100	Year	13000.00	2652.20	2657.69	2657.49	2658.6	0.005124	8.46	2051.41	917.91	0.78
Agua Caliente	upper		16317.38	100	Year	13000.00	2650.20	2656.02	2655.32	2656.8	0.003840	7.78	2020.36	625.63	0.68
Agua Caliente	upper		15833.59	100	Year	13000.00	2648.38	2654.03	2653.27	2654.9	0.004173	7.74	1832.42	560.05	0.69
Agua Caliente	upper		15499.03	100	Year	13000.00	2647.30	2651.85	2651.37	2652.8	0.010406	8.02	1711.38	755.30	0.76
Agua Caliente	upper		15303.96	100	Year	13000.00	2646.20	2650.31	2649.88	2651.4	0.005184	8.72	1743.69	636.32	0.78
Agua Caliente	upper		15139.89	100	Year	13000.00	2644.72	2649.89	2648.76	2650.5	0.003733	6.84	2061.80	560.89	0.59
Agua Caliente	upper		14880.52	100	Year	13000.00	2643.97	2648.38	2647.76	2649.4	0.004661	8.44	1667.79	1191.70	0.75
Agua Caliente	upper		14549.94	100	Year	13000.00	2641.78	2645.91	2645.59	2647.0	0.012599	9.09	1645.86	678.17	0.86
Agua Caliente	upper		14469.1	100	Year	13000.00	2640.20	2645.46	2644.92	2646.4	0.004494	8.21	1825.52	857.99	0.73
Agua Caliente	upper		14378.58	100	Year	13000.00	2640.20	2645.18	2644.16	2646.0	0.003252	7.87	1963.66	1247.81	0.64
Agua Caliente	upper		14287.58	100	Year	13000.00	2640.10	2644.82	2644.34	2645.6	0.006196	7.78	2045.35	1532.00	0.66
Agua Caliente	upper		14202.59	100	Year	13000.00	2638.20	2644.75	2643.27	2645.	0.002068	6.36	2674.83	1844.18	0.49
Agua Caliente	upper		13863.77	100	Year	13000.00	2638.12	2643.02	2642.94	2643.9	0.009933	8.48	2171.03	2402.67	0.70
Agua Caliente	upper		13436.95	100	Year	13000.00	2634.71	2640.52	2639.94	2641.1	0.004358	7.37	2685.23	2528.81	0.59

Agua Caliente	upper		13118.88	100 Year	13000.00	2633.96	2638.28	2638.13	2639.	0.009836	8.85	2405.39	2589.87	0.78	
Agua Caliente	upper		13002.28	100 Year	13000.00	2632.20	2637.65	2637.52	2638.	0.003882	8.34	2857.48	2201.83	0.70	
Agua Caliente	upper		12894.15	100 Year	13000.00	2632.20	2636.93	2636.13	2637.	0.010039	8.34	2277.28	2439.32	0.73	
Agua Caliente	upper		12790.35	100 Year	13000.00	2632.20	2636.43	2636.12	2637.	0.004595	7.39	2901.95	2468.11	0.64	
Agua Caliente	upper		12718.49	100 Year	13000.00	2632.20	2636.20	2635.73	2636.	0.003708	7.07	3248.06	2399.24	0.63	
Agua Caliente	upper		12546.41	100 Year	13000.00	2630.20	2635.61	2635.22	2636.	0.004009	6.55	3298.79	2228.07	0.53	
Agua Caliente	upper		12365.94	100 Year	13000.00	2630.20	2634.45	2634.16	2635.	0.008279	7.75	2814.96	2240.66	0.67	
Agua Caliente	upper		12212.12	100 Year	13000.00	2628.20	2633.42	2633.24	2633.	0.005967	7.08	2975.45	2202.68	0.58	
Agua Caliente	upper		11918.47	100 Year	13000.00	2626.92	2631.97	2631.57	2632.	0.004401	6.52	3542.74	2276.51	0.55	
Agua Caliente	upper		11673.91	100 Year	13000.00	2625.59	2630.73	2630.46	2631.	0.004717	7.43	3267.09	2631.03	0.65	
Agua Caliente	upper		11248.91	100 Year	13000.00	2624.20	2628.93	2628.08	2629.	0.004401	7.27	3309.61	2325.67	0.60	
Agua Caliente	upper		10901.11	100 Year	13000.00	2622.20	2625.35	2624.18	2626.	0.014494	9.86	2919.40	1891.07	1.01	
Agua Caliente	upper		10673.59	100 Year	13000.00	2620.20	2623.79	2623.44	2624.	0.004162	6.86	3385.48	1840.54	0.65	
Agua Caliente	middle		10603.59	100 Year	10539.38	2620.20	2623.46	2623.05	2624.	0.004081	6.83	2471.63	1288.01	0.67	
Agua Caliente	middle		10465.1	100 Year	10539.38	2619.05	2622.79	2621.97	2623.	0.003582	6.79	2381.29	1040.30	0.64	
Agua Caliente	middle		10320.64	100 Year	10539.38	2617.71	2621.21	2621.21	2622.	0.015926	8.77	1434.11	730.26	0.90	
Agua Caliente	middle		10131.91	100 Year	10539.38	2616.20	2620.88	2619.13	2621.	0.001810	5.71	2070.00	817.82	0.48	
Agua Caliente	middle		9909.25	100 Year	10539.38	2616.20	2620.07	2619.13	2620.	0.003795	6.88	1684.92	642.83	0.63	
Agua Caliente	middle		9550.47	100 Year	10539.38	2614.20	2618.81	2617.10	2619.	0.003879	5.73	1964.30	687.88	0.49	
Agua Caliente	middle		9307.97	100 Year	10539.38	2612.20	2618.47	2615.17	2618.	0.001100	4.10	2579.15	656.28	0.31	
Agua Caliente	middle		9091.3	100 Year	10539.38	2611.74	2616.20	2616.20	2617.	0.016030	9.98	1056.42	554.11	1.00	
Agua Caliente	middle		8865.4	100 Year	10539.38	2609.44	2614.29	2613.34	2615.	0.006358	7.40	1432.30	535.06	0.66	
Agua Caliente	middle		8587.35	100 Year	10539.38	2607.96	2613.00	2612.05	2613.	0.003628	7.24	1455.18	378.88	0.65	
Agua Caliente	middle		8257.08	100 Year	10539.38	2605.51	2610.66	2610.51	2612.	0.007858	9.48	1111.31	344.05	0.93	
Agua Caliente	middle		7968.62	100 Year	10539.38	2604.09	2610.01	2608.52	2610.	0.002420	6.58	1600.95	357.14	0.55	
Agua Caliente	middle		7628.04	100 Year	10539.38	2601.69	2609.58	2606.58	2610.	0.001383	5.21	2021.23	329.13	0.37	
Agua Caliente	middle		7244.33	100 Year	10539.38	2599.87	2609.40	2604.31	2609.	0.000362	4.64	2311.22	277.39	0.28	
Agua Caliente	middle		6971.06	100 Year	10539.38	2598.09	2608.82	2603.80	2609.	0.000641	6.63	1590.75	159.53	0.37	
Agua Caliente	middle		6769.06	100 Year	10539.38	2596.77	2608.47	2603.59	2609.	0.001076	7.26	1452.02	141.93	0.40	
Agua Caliente	middle		6687.06			Bridge									
Agua Caliente	middle		6544.64	100 Year	10539.38	2595.60	2602.36	2602.36	2605.	0.009462	13.19	818.05	182.34	0.95	
Agua Caliente	middle		6260.16	100 Year	10539.38	2592.33	2598.40	2598.40	2599.	0.007237	8.32	1720.39	2049.71	0.78	
Agua Caliente	middle		5961.45	100 Year	10539.38	2590.42	2596.53	2596.53	2597.	0.006665	8.65	2089.89	1683.52	0.69	
Agua Caliente	middle		5794.74	100 Year	10539.38	2589.70	2595.31	2595.31	2596.	0.005506	8.71	2220.43	1695.25	0.76	
Agua Caliente	middle		5640.23	100 Year	10539.38	2588.76	2595.17	2594.04	2595.	0.001740	4.59	3482.26	2226.10	0.42	
Agua Caliente	lower		5365.23	100 Year	6727.50	2587.74	2593.47	2592.18	2593.	0.002017	4.84	1676.26	1104.04	0.42	
Agua Caliente	lower		5242.33	100 Year	6727.50	2586.65	2592.93	2591.41	2593.	0.002867	5.78	1164.04	756.32	0.50	
Agua Caliente	lower		5189.01	100 Year	6727.50	2586.56	2592.67	2591.03	2593.	0.002940	6.29	1070.06	233.37	0.52	
Agua Caliente	lower		5164.33			Bridge									
Agua Caliente	lower		5083.33	100 Year	6727.50	2586.31	2591.07	2590.54	2592.	0.007238	8.37	803.32	225.76	0.78	
Agua Caliente	lower		5007.33	100 Year	6727.50	2585.69	2590.87	2589.91	2591.	0.004073	6.91	1085.90	607.07	0.60	
Agua Caliente	lower		4808.89	100 Year	6727.50	2584.15	2588.99	2588.99	2589.	0.010149	10.80	1084.54	1135.86	0.94	
Agua Caliente	lower		4640.59	100 Year	6727.50	2583.27	2587.72	2587.31	2588.	0.005930	6.90	1433.16	1363.16	0.69	

Agua Caliente	lower	4293.46	100 Year	6727.50	2581.36	2585.31	2585.05	2585.7	0.007452	7.14	1727.51	1522.69	0.76
Agua Caliente	lower	3943.83	100 Year	6727.50	2578.93	2583.69	2582.91	2584.0	0.003307	5.38	1734.16	921.21	0.52
Agua Caliente	lower	3579.38	100 Year	6727.50	2577.11	2581.54	2581.54	2582.3	0.007964	8.25	1296.80	936.18	0.76
Agua Caliente	lower	3344.57	100 Year	6727.50	2575.66	2579.91	2579.72	2580.3	0.006013	6.69	1677.28	1632.00	0.69
Agua Caliente	lower	3039.07	100 Year	6727.50	2573.50	2577.45	2577.45	2578	0.008509	7.48	1465.73	1799.69	0.81
Agua Caliente	lower	2734.71	100 Year	6727.50	2571.40	2575.07	2574.76	2575.4	0.006614	6.93	2014.13	1771.45	0.81
Agua Caliente	lower	2590.18	100 Year	6727.50	2570.78	2574.04	2573.68	2574.4	0.008088	6.41	1758.50	1842.98	0.76
Agua Caliente	lower	2425.08	100 Year	6727.50	2569.69	2573.38	2572.58	2573.5	0.003548	4.21	2735.69	2309.06	0.51
Agua Caliente	lower	2225.5	100 Year	6727.50	2568.35	2572.24	2571.79	2572.4	0.007225	4.58	2160.70	2160.10	0.48
Agua Caliente	lower	1877.58	100 Year	6727.50	2566.10	2569.40	2569.40	2569.8	0.008538	7.86	1703.86	1806.61	0.92
Agua Caliente	lower	1549.86	100 Year	6727.50	2563.59	2566.92	2566.61	2567.1	0.006541	4.38	1761.75	2026.01	0.64
Agua Caliente	lower	1261.13	100 Year	6727.50	2561.37	2565.36	2565.00	2565.5	0.004658	3.90	2197.66	2078.44	0.50
Agua Caliente	lower	968.69	100 Year	6727.50	2560.20	2563.42	2563.08	2563.7	0.007426	5.58	1925.10	1941.15	0.71
Agua Caliente	lower	760.51	100 Year	6727.50	2558.20	2561.45	2561.34	2561.8	0.010134	6.64	1715.29	1648.54	0.84
Agua Caliente	lower	554.81	100 Year	6727.50	2556.20	2559.89	2559.66	2560.2	0.005134	6.80	2128.83	1931.88	0.65
Agua Caliente	lower	0	100 Year	27357.50	2550.20	2558.08	2556.18	2558.7	0.002376	7.64	5934.54	1964.48	0.54
AC Spur	AC Spur	5472.12	100 Year	2460.62	2622.20	2623.91	2623.18	2624.0	0.009996	2.98	865.84	565.32	0.41
AC Spur	AC Spur	5178.24	100 Year	2460.62	2619.44	2621.14	2620.60	2621.2	0.008752	2.63	1054.61	897.84	0.38
AC Spur	AC Spur	4813.20	100 Year	2460.62	2616.20	2618.28	2617.64	2618.3	0.006927	2.71	1001.16	1086.26	0.39
AC Spur	AC Spur	4497.37	100 Year	2460.62	2614.20	2616.66	2615.75	2616.7	0.004102	2.14	1236.65	1029.33	0.30
AC Spur	AC Spur	4230.27	100 Year	2460.62	2613.79	2615.43	2614.82	2615.4	0.005096	2.09	1282.44	1243.05	0.32
AC Spur	AC Spur	3934.74	100 Year	2460.62	2612.19	2613.27	2612.85	2613.3	0.010816	2.69	953.94	999.91	0.46
AC Spur	AC Spur	3654.17	100 Year	2460.62	2610.20	2611.91	2611.06	2611	0.002811	1.67	1553.53	1223.35	0.25
AC Spur	AC Spur	3474.64	100 Year	2460.62	2610.20	2611.08	2610.67	2611.1	0.008234	2.05	1243.02	1588.29	0.39
AC Spur	AC Spur	3215.30	100 Year	2460.62	2606.84	2609.49	2608.83	2609.5	0.004726	1.90	1371.94	1619.69	0.31
AC Spur	AC Spur	2911.33	100 Year	2460.62	2604.20	2608.42	2607.40	2608.4	0.002805	1.51	1622.86	1982.39	0.24
AC Spur	AC Spur	2602.91	100 Year	2460.62	2606.08	2607.14	2606.68	2607.1	0.006658	1.95	1360.22	2381.22	0.35
AC Spur	AC Spur	2286.58	100 Year	2460.62	2603.57	2605.11	2604.60	2605.1	0.005824	2.07	1330.41	2321.91	0.34
AC Spur	AC Spur	1946.69	100 Year	2460.62	2601.58	2602.83	2602.48	2602.9	0.008630	2.03	1225.33	2464.60	0.39
AC Spur	AC Spur	1600.02	100 Year	2460.62	2598.57	2600.55	2600.01	2600.6	0.005171	2.24	1248.59	3006.78	0.35
AC Spur	AC Spur	1199.20	100 Year	2460.62	2596.66	2598.64	2598.01	2598.7	0.004622	1.84	1265.52	3109.50	0.32
AC Spur	AC Spur	837.50	100 Year	2460.62	2594.52	2596.27	2595.83	2596.3	0.009301	2.83	980.89	2556.95	0.44
AC Spur	AC Spur	566.48	100 Year	2460.62	2592.62	2594.82	2594.12	2594.8	0.003713	2.48	1164.36	3018.62	0.35
AC Spur	AC Spur	350.	100 Year	2460.62	2591.56	2592.64	2592.64	2593.0	0.037698	5.10	514.91	1778.09	0.99
AC Split	upper	3599.078	100 Year	3811.88	2590.35	2593.60	2592.96	2593.7	0.006359	3.60	1125.67	943.24	0.46
AC Split	upper	3235.949	100 Year	3811.88	2589.07	2591.97	2591.09	2592.0	0.003682	2.81	1559.44	1114.88	0.36
AC Split	lower	2853.265	100 Year	6272.50	2586.16	2590.22	2589.65	2590.4	0.004816	3.94	2090.98	1494.36	0.43
AC Split	lower	2508.632	100 Year	6272.50	2584.20	2588.43	2587.75	2588.6	0.005481	4.28	1923.77	1397.00	0.46
AC Split	lower	2214.257	100 Year	6272.50	2581.17	2586.04	2585.43	2586.5	0.009981	5.62	1264.34	944.22	0.61
AC Split	lower	1933.962	100 Year	6272.50	2580.75	2584.94	2583.56	2585.0	0.002693	3.45	2209.24	1075.47	0.33
AC Split	lower	1426.381	100 Year	6272.50	2578.32	2582.95	2582.02	2583.	0.006001	4.12	1821.98	1047.01	0.41

Profile Output Table - Standard Table 2

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E
Left Q Channel Q Right		Top Width						
(cfs) (cfs) (cfs)		(ft)		(ft)	(ft)	(ft)	(ft)	
Agua Caliente	upper	31333.21	100 Year	2807.42	2805.07	2.35	1.89	
12000.00		203.78						
Agua Caliente	upper	31224.76	100 Year	2804.39	2802.10	2.29	2.25	
12000.00		212.51						
Agua Caliente	upper	31089.71	100 Year	2800.86	2798.37	2.49	1.09	
12000.00		177.57						
Agua Caliente	upper	30990.87	100 Year	2799.52	2797.85	1.67	0.76	
12000.00		169.65						
Agua Caliente	upper	30898.84	100 Year	2798.71	2796.47	2.24	0.64	
0.02 11999.96	0.02	118.03						
Agua Caliente	upper	30840.82	100 Year	2797.93	2794.23	3.69	2.20	
12.48 11987.52	0.00	102.53						
Agua Caliente	upper	30690.61	100 Year	2795.53	2792.48	3.05	2.00	
76.85 11883.53	39.62	155.04						
Agua Caliente	upper	30547.71	100 Year	2792.21	2789.60	2.61	0.95	
636.38 10531.08	832.55	193.02						
Agua Caliente	upper	30481.41	100 Year	2790.54	2787.88	2.66	0.89	
375.80 11624.20		180.24						
Agua Caliente	upper	30424.82	100 Year	2788.82	2786.14	2.68	1.03	
74.06 11925.94		176.47						
Agua Caliente	upper	30362.48	100 Year	2787.25	2784.51	2.74	1.20	
0.44 11999.56		165.13						
Agua Caliente	upper	30290.36	100 Year	2785.30	2782.72	2.58	0.68	
2.57 11997.43		177.38						
Agua Caliente	upper	30232.14	100 Year	2784.39	2782.57	1.81	2.71	
4.58 11994.56	0.86	184.13						
Agua Caliente	upper	30003.57	100 Year	2781.57	2778.75	2.82	3.75	
12000.00		156.14						
Agua Caliente	upper	29768.97	100 Year	2777.42	2774.82	2.60	2.07	
172.30 11712.86	114.84	191.01						
Agua Caliente	upper	29627.21	100 Year	2775.07	2772.50	2.56	0.92	
427.86 11267.39	304.75	201.11						
Agua Caliente	upper	29558.97	100 Year	2773.56	2771.19	2.37	0.69	
211.62 11695.70	92.69	199.70						
Agua Caliente	upper	29500.74	100 Year	2772.82	2770.61	2.21	1.34	
166.31 11701.95	131.74	203.70						
Agua Caliente	upper	29369.94	100 Year	2771.37	2769.55	1.81	3.18	
266.27 11729.88	3.85	233.22						
Agua Caliente	upper	29098.06	100 Year	2768.14	2765.78	2.36	3.30	
144.23 11855.77		217.38						
Agua Caliente	upper	28875.2	100 Year	2764.74	2762.69	2.06	2.23	
212.40 11787.60		279.18						
Agua Caliente	upper	28734.99	100 Year	2762.13	2760.18	1.95	2.08	
174.11 11825.89		290.75						
Agua Caliente	upper	28592.81	100 Year	2759.08	2757.61	1.47	1.71	
962.49 11037.51		607.68						
Agua Caliente	upper	28479.43	100 Year	2757.34	2755.54	1.79	1.35	
10.01 11989.99		584.84						
Agua Caliente	upper	28394.36	100 Year	2755.35	2753.88	1.47	2.21	
16.88 11546.64	436.49	507.66						
Agua Caliente	upper	28247.34	100 Year	2753.12	2751.38	1.74	1.45	
7.81 11771.34	220.85	435.18						
Agua Caliente	upper	28136.75	100 Year	2750.89	2749.70	1.20	1.30	
8.74 11393.10	598.15	488.15						
Agua Caliente	upper	28029.09	100 Year	2749.55	2747.95	1.60	1.41	
11951.39	48.61	453.68						
Agua Caliente	upper	27892.68	100 Year	2747.35	2746.47	0.88	1.32	
17.22 10854.57	1128.21	481.94						
Agua Caliente	upper	27758.38	100 Year	2745.98	2744.56	1.42	1.43	
0.32 11626.44	373.25	462.68						
Agua Caliente	upper	27636.17	100 Year	2744.17	2742.65	1.52	2.17	
0.49 11870.82	128.69	370.18						
Agua Caliente	upper	27415.17	100 Year	2741.88	2740.73	1.16	1.72	
0.53 11908.13	91.34	357.53						
Agua Caliente	upper	27236.39	100 Year	2740.15	2738.86	1.29	1.65	
20.76 11872.18	107.07	336.27						
Agua Caliente	upper	27073.54	100 Year	2738.49	2737.25	1.23	1.66	
3.35 11965.99	30.66	337.02						
Agua Caliente	upper	26937.64	100 Year	2736.81	2735.45	1.36	1.18	
9.80 11979.00	11.20	359.58						
Agua Caliente	upper	26827.35	100 Year	2735.56	2734.42	1.14	2.88	
18.75 11967.47	13.78	316.48						
Agua Caliente	upper	26541.23	100 Year	2732.63	2730.96	1.67	1.93	
1.62 11998.38		346.89						
Agua Caliente	upper	26354.97	100 Year	2730.35	2729.57	0.78	1.38	
13.66 11986.34		356.80						
Agua Caliente	upper	26188.3	100 Year	2728.93	2727.73	1.20	2.26	
135.67 11864.33		332.83						

Agua Caliente	upper	25977.06	100 Year	2726.59	2724.71	1.89	1.91	1289.60	10710.40	293.22	(
Agua Caliente	upper	25817.13	100 Year	2724.61	2722.97	1.63	0.79	770.10	10801.67	428.24	314.39 (
Agua Caliente	upper	25727.13	100 Year	2723.75	2722.33	1.42	1.02	557.55	9869.32	1573.13	371.63 (
Agua Caliente	upper	25613.79	100 Year	2722.69	2720.78	1.90	1.71	451.28	10905.73	642.98	356.15 (
Agua Caliente	upper	25447.86	100 Year	2720.81	2719.47	1.34	2.51	845.69	10133.20	1021.12	438.68
Agua Caliente	upper	25222.61	100 Year	2718.28	2716.78	1.50	2.47	10593.18	1406.82	458.02 (	
Agua Caliente	upper	24991.27	100 Year	2715.78	2714.08	1.70	2.04	10692.07	1307.93	414.92 (	
Agua Caliente	upper	24754.28	100 Year	2713.66	2712.23	1.44	1.35	1.28	10587.62	1411.10	469.16 (
Agua Caliente	upper	24588.07	100 Year	2712.29	2710.92	1.37	3.11	88.75	9926.03	1985.21	556.09 (
Agua Caliente	upper	24317.77	100 Year	2709.14	2707.46	1.68	2.08	25.46	10830.42	1144.11	387.98 (
Agua Caliente	upper	24078.34	100 Year	2706.79	2706.00	0.79	1.55	290.99	10629.36	1079.65	431.03 (
Agua Caliente	upper	23858.15	100 Year	2705.12	2703.12	2.00	3.67	11713.82	286.18	338.48 (	
Agua Caliente	upper	23410.62	100 Year	2701.37	2699.65	1.72	2.13	6.28	11593.14	400.58	386.65 (
Agua Caliente	upper	23021.58	100 Year	2699.05	2697.95	1.10	1.65	252.78	9700.18	2047.05	540.61 (
Agua Caliente	upper	22709.53	100 Year	2697.36	2695.92	1.45	2.12	70.40	10078.45	1851.15	481.39 (
Agua Caliente	upper	22439.86	100 Year	2695.18	2693.95	1.23	3.82	905.04	9892.59	1202.38	629.00 (
Agua Caliente	upper	22135.43	100 Year	2691.34	2689.87	1.47	1.51	324.33	8629.71	3045.96	435.38 (
Agua Caliente	upper	21893.26	100 Year	2689.47	2688.73	0.74	0.73	77.31	9226.04	2696.66	666.86 (
Agua Caliente	upper	21722.29	100 Year	2688.71	2687.60	1.10	0.67	2.87	8357.53	4639.60	628.59 (
Agua Caliente	upper	21619.14	100 Year	2688.01	2687.01	1.00	2.55	300.21	8629.97	4069.82	831.64 (
Agua Caliente	upper	21161.08	100 Year	2685.46	2684.39	1.06	2.54	1407.96	11592.04	900.30 (	
Agua Caliente	upper	20689.67	100 Year	2682.92	2681.85	1.06	2.17	1581.14	11418.86	822.14 (	
Agua Caliente	upper	20224.2	100 Year	2680.74	2679.60	1.14	1.57	1487.59	11053.29	459.13	910.69
Agua Caliente	upper	19962.61	100 Year	2679.10	2678.11	0.99	0.99	1715.14	9408.33	1876.53	1162.01 (
Agua Caliente	upper	19774.66	100 Year	2678.07	2677.22	0.85	0.81	920.47	9855.44	2224.10	1262.83 (
Agua Caliente	upper	19584.44	100 Year	2677.12	2675.79	1.33	1.34	299.34	10207.99	2492.67	539.16 (
Agua Caliente	upper	19356.98	100 Year	2675.78	2674.43	1.35	2.50	37.17	9650.44	3312.39	901.33 (
Agua Caliente	upper	19010.68	100 Year	2673.26	2671.96	1.30	1.49	0.14	10929.97	2069.89	801.24 (
Agua Caliente	upper	18727.05	100 Year	2671.51	2670.72	0.80	2.14	823.98	9995.32	2180.70	1435.97 (
Agua Caliente	upper	18351.98	100 Year	2669.34	2668.25	1.09	2.98	2469.55	10181.36	349.09	1530.96 (
Agua Caliente	upper	17941.17	100 Year	2666.22	2665.40	0.82	2.61	3553.06	8177.99	1268.95	1543.89 (
Agua Caliente	upper	17531.27	100 Year	2663.60	2662.67	0.93	1.06	3972.76	8002.20	1025.04	1427.37 (
Agua Caliente	upper	17353.02	100 Year	2662.50	2661.71	0.79	1.01	4093.87	8047.67	858.46	1348.89 (
Agua Caliente	upper	17186.91	100 Year	2661.47	2660.52	0.96	2.81	3430.95	9408.67	160.38	1247.90 (
Agua Caliente	upper	16713.82	100 Year	2658.67	2657.69	0.98	1.76	1262.87	11267.21	469.92	917.91 (
Agua Caliente	upper	16317.38	100 Year	2656.87	2656.02	0.85	1.93	817.83	11548.96	633.21	625.63 (
Agua Caliente	upper	15833.59	100 Year	2654.93	2654.03	0.90	2.10	8.51	12587.63	403.86	560.05 (
Agua Caliente	upper	15499.03	100 Year	2652.82	2651.85	0.97	1.38	47.37	12510.98	441.65	755.30 (
Agua Caliente	upper	15303.96	100 Year	2651.42	2650.31	1.11	0.71	836.50	12146.28	17.22	636.32 (
Agua Caliente	upper	15139.89	100 Year	2650.58	2649.89	0.69	1.08	476.49	12229.32	294.19	560.89 (
Agua Caliente	upper	14880.52	100 Year	2649.47	2648.38	1.09	2.39	200.51	12757.91	41.58	1191.70
Agua Caliente	upper	14549.94	100 Year	2647.07	2645.91	1.16	0.57	443.94	11458.45	1097.61	678.17 0
Agua Caliente	upper	14469.1	100 Year	2646.45	2645.46	0.99	0.35	458.13	12191.31	350.56	857.99 0

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  Agua Caliente   upper          14378.58      100 Year      2646.08      2645.18      0.90          0.40          (
428.75     12091.25     480.01     1247.81
  Agua Caliente   upper          14287.58      100 Year      2645.67      2644.82      0.84          0.27          (
165.23     11480.68    1354.09     1532.00
  Agua Caliente   upper          14202.59      100 Year      2645.30      2644.75      0.55          1.31          (
287.61     11269.96    1442.44     1844.18
  Agua Caliente   upper          13863.77      100 Year      2643.95      2643.02      0.93          2.68          (
351.22     10655.48    1993.30     2402.67
  Agua Caliente   upper          13436.95      100 Year      2641.19      2640.52      0.67          1.99          (
356.22      9994.53    2649.25     2528.81
  Agua Caliente   upper          13118.88      100 Year      2639.18      2638.28      0.90          0.69          (
635.82      9203.30    3160.88     2589.87
  Agua Caliente   upper          13002.28      100 Year      2638.46      2637.65      0.81          0.65          (
381.22      9541.92    3076.86     2201.83
  Agua Caliente   upper          12894.15      100 Year      2637.81      2636.93      0.88          0.66          (
377.92     10267.04    2355.05     2439.32
  Agua Caliente   upper          12790.35      100 Year      2637.08      2636.43      0.65          0.30          (
456.69      9712.76    2830.56     2468.11
  Agua Caliente   upper          12718.49      100 Year      2636.75      2636.20      0.55          0.64          (
784.13      8889.13    3326.74     2399.24
  Agua Caliente   upper          12546.41      100 Year      2636.09      2635.61      0.48          1.04          (
1578.88     8978.49    2442.63     2228.07
  Agua Caliente   upper          12365.94      100 Year      2635.04      2634.45      0.59          1.06          (
3084.13     7307.10    2608.76     2240.66
  Agua Caliente   upper          12212.12      100 Year      2633.96      2633.42      0.54          1.52          (
2066.01     8477.45    2456.54     2202.68
  Agua Caliente   upper          11918.47      100 Year      2632.38      2631.97      0.41          1.09          (
4328.16     7338.09    1333.75     2276.51
  Agua Caliente   upper          11673.91      100 Year      2631.27      2630.73      0.55          1.85          (
3542.13     7751.15    1706.72     2631.03
  Agua Caliente   upper          11248.91      100 Year      2629.41      2628.93      0.48          3.26          (
4793.98     6721.16    1484.86     2325.67
  Agua Caliente   upper          10901.11      100 Year      2626.11      2625.35      0.76          1.72          (
6513.45     5811.90     674.66     1891.07
  Agua Caliente   upper          10673.59      100 Year      2624.33      2623.79      0.55          0.29          (
3514.26     9485.74                1840.54
  Agua Caliente   middle         10603.59      100 Year      2624.04      2623.46      0.58          0.62          (
2300.95     8238.43                1288.01
  Agua Caliente   middle         10465.1       100 Year      2623.42      2622.79      0.62          1.03          (
1453.28     9086.10                1040.30
  Agua Caliente   middle         10320.64      100 Year      2622.34      2621.21      1.13
573.86      9965.52                730.26
  Agua Caliente   middle         10131.91      100 Year      2621.38      2620.88      0.50          0.57          (
224.81     10314.57                817.82
  Agua Caliente   middle         9909.25       100 Year      2620.79      2620.07      0.72          1.37          (
241.70     10297.68                642.83
  Agua Caliente   middle         9550.47       100 Year      2619.31      2618.81      0.50          0.45          (
170.08     10369.29                687.88
  Agua Caliente   middle         9307.97       100 Year      2618.73      2618.47      0.26          0.60          (
14.38      10525.00                656.28
  Agua Caliente   middle         9091.3        100 Year      2617.75      2616.20      1.55          2.16          (
0.00       10539.38       0.00     554.11
  Agua Caliente   middle         8865.4        100 Year      2615.14      2614.29      0.85          1.31          (
15.58      10523.79                535.06
  Agua Caliente   middle         8587.35       100 Year      2613.81      2613.00      0.81          1.70          (
        10539.38                   378.88
  Agua Caliente   middle         8257.08       100 Year      2612.06      2610.66      1.40          1.16          (
        10539.38                   344.05
  Agua Caliente   middle         7968.62       100 Year      2610.69      2610.01      0.67          0.61          (
        10539.38                   357.14
  Agua Caliente   middle         7628.04       100 Year      2610.00      2609.58      0.42          0.24          (
        10539.38                   329.13
  Agua Caliente   middle         7244.33       100 Year      2609.73      2609.40      0.33          0.13          (
        10497.19      42.19        277.39
  Agua Caliente   middle         6971.06       100 Year      2609.50      2608.82      0.68          0.17          (
        10539.38                   159.53
  Agua Caliente   middle         6769.06       100 Year      2609.29      2608.47      0.82          0.20          (
        10539.38                   141.93
  Agua Caliente   middle         6687.06                        Bridge

  Agua Caliente   middle         6544.64       100 Year      2605.04      2602.36      2.68          2.34          (
        10471.41      67.97        182.34
  Agua Caliente   middle         6260.16       100 Year      2599.32      2598.40      0.91          1.99          (
908.80      8748.72     881.86     2049.71
  Agua Caliente   middle         5961.45       100 Year      2597.27      2596.53      0.74          1.01          (
2373.48     6088.56    2077.34     1683.52
  Agua Caliente   middle         5794.74       100 Year      2596.07      2595.31      0.76
2487.44     6389.75    1662.19     1695.25
  Agua Caliente   middle         5640.23       100 Year      2595.39      2595.17      0.22
3017.12     6204.96    1317.29     2226.10
  Agua Caliente   lower          5365.23       100 Year      2593.77      2593.47      0.30          0.30          0
931.42      4863.16     932.92     1104.04
  Agua Caliente   lower          5242.33       100 Year      2593.44      2592.93      0.52          0.13          0
        6727.50                    756.32
  Agua Caliente   lower          5189.01       100 Year      2593.29      2592.67      0.61
        6727.50                    233.37
```

```
  Agua Caliente   lower          5164.33                    Bridge

  Agua Caliente   lower          5083.33      100 Year     2592.16     2591.07     1.09        0.40        (
        6727.50                  225.76
  Agua Caliente   lower          5007.33      100 Year     2591.56     2590.87     0.69        1.55        (
570.41     5988.67    168.43      607.07
  Agua Caliente   lower          4808.89      100 Year     2589.97     2588.99     0.98        1.33        (
2441.82     2797.70   1487.99     1135.86
  Agua Caliente   lower          4640.59      100 Year     2588.25     2587.72     0.54        2.47
873.56     4368.82   1485.11     1363.16
  Agua Caliente   lower          4293.46      100 Year     2585.75     2585.31     0.44        1.68        (
563.85     3242.40   2921.26     1522.69
  Agua Caliente   lower          3943.83      100 Year     2584.04     2583.69     0.35        1.67        (
62.19     4896.11   1769.20      921.21
  Agua Caliente   lower          3579.38      100 Year     2582.33     2581.54     0.79
469.01     4840.39   1418.10      936.18
  Agua Caliente   lower          3344.57      100 Year     2580.38     2579.91     0.47        2.26        (
856.25     4261.17   1610.08     1632.00
  Agua Caliente   lower          3039.07      100 Year     2578.11     2577.45     0.65        2.23        (
202.68     4901.62   1623.20     1799.69
  Agua Caliente   lower          2734.71      100 Year     2575.45     2575.07     0.38        1.03        (
505.56     2981.84   3240.10     1771.45
  Agua Caliente   lower          2590.18      100 Year     2574.42     2574.04     0.38        0.84        (
681.30     3126.39   2919.81     1842.98
  Agua Caliente   lower          2425.08      100 Year     2573.50     2573.38     0.13        1.09        (
1538.86     1985.04   3203.61     2309.06
  Agua Caliente   lower          2225.5       100 Year     2572.41     2572.24     0.17        2.56        (
1689.07     1512.05   3526.38     2160.10
  Agua Caliente   lower          1877.58      100 Year     2569.83     2569.40     0.43
3104.40     2325.64   1297.46     1806.61
  Agua Caliente   lower          1549.86      100 Year     2567.16     2566.92     0.24        1.61        (
4243.11     2400.33     84.07     2026.01
  Agua Caliente   lower          1261.13      100 Year     2565.53     2565.36     0.17        1.82        (
2857.71     3850.64     19.15     2078.44
  Agua Caliente   lower          968.69       100 Year     2563.70     2563.42     0.28        1.84        (
2242.35     2974.26   1510.90     1941.15
  Agua Caliente   lower          760.51       100 Year     2561.85     2561.45     0.40        1.58        (
2083.13     3311.51   1332.86     1648.54
  Agua Caliente   lower          554.81       100 Year     2560.26     2559.89     0.37        1.47        (
1038.47     3116.61   2572.42     1931.88
  Agua Caliente   lower          0            100 Year     2558.76     2558.08     0.67
3766.30    19667.94   3923.25     1964.48
  AC Spur         AC Spur        5472.12      100 Year     2624.04     2623.91     0.13        2.80        (
662.75     1797.84      0.03      565.32
  AC Spur         AC Spur        5178.24      100 Year     2621.23     2621.14     0.09        2.85
485.29     1664.42    310.91      897.84
  AC Spur         AC Spur        4813.20      100 Year     2618.39     2618.28     0.11        1.66        (
139.20     2244.83     76.60     1086.26
  AC Spur         AC Spur        4497.37      100 Year     2616.72     2616.66     0.07        1.23        (
39.07     2312.81    108.74     1029.33
  AC Spur         AC Spur        4230.27      100 Year     2615.49     2615.43     0.06        2.11        (
49.91     2147.59    263.12     1243.05
  AC Spur         AC Spur        3934.74      100 Year     2613.38     2613.27     0.11        1.42        (
82.52     2292.69     85.41      999.91
  AC Spur         AC Spur        3654.17      100 Year     2611.95     2611.91     0.04        0.81        (
8.86     2072.10    379.67     1223.35
  AC Spur         AC Spur        3474.64      100 Year     2611.14     2611.08     0.06        1.59        (
35.73     1646.53    778.37     1588.29
  AC Spur         AC Spur        3215.30      100 Year     2609.54     2609.49     0.05        1.08        (
372.04     1333.48    755.10     1619.69
  AC Spur         AC Spur        2911.33      100 Year     2608.46     2608.42     0.04        1.26        (
563.11     1490.14    407.37     1982.39
  AC Spur         AC Spur        2602.91      100 Year     2607.19     2607.14     0.05        2.02        (
222.63     1263.27    974.73     2381.22
  AC Spur         AC Spur        2286.58      100 Year     2605.17     2605.11     0.06        2.26        (
77.48     1749.46    633.68     2321.91
  AC Spur         AC Spur        1946.69      100 Year     2602.90     2602.83     0.06        2.28        (
        1326.25   1134.38     2464.60
  AC Spur         AC Spur        1600.02      100 Year     2600.62     2600.55     0.07        1.92        (
547.41     1406.37    506.84     3006.78
  AC Spur         AC Spur        1199.20      100 Year     2598.71     2598.64     0.07        2.32        (
1180.31     1001.70    278.61     3109.50
  AC Spur         AC Spur        837.50       100 Year     2596.38     2596.27     0.11        1.48        (
93.26     2038.18    329.19     2556.95
  AC Spur         AC Spur        566.48       100 Year     2594.89     2594.82     0.08        1.84        (
        1649.12    811.50     3018.62
  AC Spur         AC Spur        350.         100 Year     2593.02     2592.64     0.38        2.51        (
        2190.38    270.24     1778.09
  AC Split        upper          3599.078     100 Year     2593.79     2593.60     0.19        1.67        (
410.76     3401.11                943.24
  AC Split        upper          3235.949     100 Year     2592.07     2591.97     0.10        1.65
842.66     2294.72    674.50     1114.88
  AC Split        lower          2853.265     100 Year     2590.40     2590.22     0.18        1.76        (
2276.00     3996.51                1494.36
  AC Split        lower          2508.632     100 Year     2588.64     2588.43     0.21        2.11        (
2345.66     3926.84                1397.00
```

```
  AC Split        lower          2214.257      100 Year      2586.50      2586.04        0.45          1.31
568.35     5704.15                944.22
  AC Split        lower          1933.962      100 Year      2585.09      2584.94        0.15          1.93
1419.33     4853.17               1075.47
  AC Split        lower          1426.381      100 Year      2583.17      2582.95        0.22
1705.16     4567.34               1047.01
```

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : New VAEC

```
River: AC Split  Reach: upper     RS: 3599.078     Profile: 100 Year
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
             the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
surface was
             used.
River: AC Split  Reach: upper     RS: 3235.949     Profile: 100 Year
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
             the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
surface was
             used.
River: AC Split  Reach: lower     RS: 2853.265     Profile: 100 Year
     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.
indicate
             the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
surface was
             used.
River: AC Split  Reach: lower     RS: 2508.632     Profile: 100 Year
     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.
indicate
             the need for additional cross sections.
River: AC Split  Reach: lower     RS: 2214.257     Profile: 100 Year
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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.
indicate
             the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
surface was
             used.
River: AC Split  Reach: lower     RS: 1933.962     Profile: 100 Year
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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.
indicate
             the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
surface was
             used.
River: AC Split  Reach: lower     RS: 1426.381     Profile: 100 Year
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
surface was
             used.
River: AC Spur  Reach: AC Spur    RS: 5472.12      Profile: 100 Year
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
             the need for additional cross sections.
River: AC Spur  Reach: AC Spur    RS: 5178.24      Profile: 100 Year
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
             the need for additional cross sections.
River: AC Spur  Reach: AC Spur    RS: 4813.20      Profile: 100 Year
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
             the need for additional cross sections.
River: AC Spur  Reach: AC Spur    RS: 4497.37      Profile: 100 Year
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
             the need for additional cross sections.
River: AC Spur  Reach: AC Spur    RS: 4230.27      Profile: 100 Year
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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. T
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 3934.74 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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.
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 3654.17 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
than 1.4.
This may indicate the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 3474.64 Profile: 100 Year
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. T
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 3215.30 Profile: 100 Year
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. T
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 2911.33 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 2602.91 Profile: 100 Year
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. T
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 2286.58 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 1946.69 Profile: 100 Year
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.
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 1600.02 Profile: 100 Year
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. T
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 1199.20 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 837.50 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 566.48 Profile: 100 Year
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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, w
surface was
used.
River: AC Spur Reach: AC Spur RS: 350. Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program s
the water
surface that had the least amount of error between computed and assumed values.
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. T

indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, w
surface was
used.
River: Agua Caliente Reach: upper RS: 31333.21 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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. T
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 31224.76 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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. T
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 31089.71 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additio
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 30990.87 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additio
cross sections.
River: Agua Caliente Reach: upper RS: 30898.84 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additio
cross sections.
River: Agua Caliente Reach: upper RS: 30840.82 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additio
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 30690.61 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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. T
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 30547.71 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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. T
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 30481.41 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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. T
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth

calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 30424.82 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 30362.48 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 30290.36 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
River: Agua Caliente Reach: upper RS: 30232.14 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 30003.57 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 29768.97 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program s
the water
surface that had the least amount of error between computed and assumed values.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 29627.21 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 29500.74 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 29369.94 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additi
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 29098.06 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.

indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 28875.2 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program
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.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical dept
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritica
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 28734.99 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program
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.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical dept
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritica
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 28592.81 Profile: 100 Year
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.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 28479.43 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program
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.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical dept
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritica
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 28394.36 Profile: 100 Year
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.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 28247.34 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program
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 additi
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical dept
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritica
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 28136.75 Profile: 100 Year
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.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 28029.09 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program
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 additi
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical dept
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 27892.68 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additi
cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 27758.38 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program '
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.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical dept
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritica
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 27636.17 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 27415.17 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 27236.39 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 27073.54 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 26937.64 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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. '
indicate
the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 26827.35 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additi
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 26541.23 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program
the water
surface that had the least amount of error between computed and assumed values.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additi
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical dept
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritica
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 26354.97 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 26188.3 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additi
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 25977.06 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 25727.13 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 25613.79 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for addit
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
surface was

used.
River: Agua Caliente Reach: upper RS: 25447.86 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 25222.61 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program s
the water
surface that had the least amount of error between computed and assumed values.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 24991.27 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 24754.28 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 24588.07 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 24317.77 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 24078.34 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 23858.15 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 23410.62 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 23021.58 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 22709.53 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 22439.86 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 22135.43 Profile: 100 Year
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 additic
cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 21893.26 Profile: 100 Year
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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
surface was
used.
River: Agua Caliente Reach: upper RS: 21722.29 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 21619.14 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 21161.08 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 20689.67 Profile: 100 Year
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.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 20224.2 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 19962.61 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 19584.44 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 19356.98 Profile: 100 Year
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.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 19010.68 Profile: 100 Year
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 additi
cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 18727.05 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 18351.98 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 17941.17 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 17531.27 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 17353.02 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 17186.91 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 16713.82 Profile: 100 Year

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 16317.38 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 15833.59 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr 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. indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 15499.03 Profile: 100 Year
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. indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 15139.89 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 14880.52 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr 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. indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 14549.94 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 14469.1 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
River: Agua Caliente Reach: upper RS: 14378.58 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
River: Agua Caliente Reach: upper RS: 14287.58 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 14202.59 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr 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. indicate
the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 13863.77 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr 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. indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 13436.95 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr 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. indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 13118.88 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 13002.28 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 12894.15 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was
used.
River: Agua Caliente Reach: upper RS: 12546.41 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr than 1.4.
This may indicate the need for additional cross sections.

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     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: upper     RS: 12365.94     Profile: 100 Year
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: upper     RS: 12212.12     Profile: 100 Year
     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.
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: upper     RS: 11918.47     Profile: 100 Year
     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. '
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: upper     RS: 11673.91     Profile: 100 Year
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: upper     RS: 11248.91     Profile: 100 Year
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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. '
indicate
             the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
surface was
             used.
River: Agua Caliente  Reach: upper     RS: 10901.11     Profile: 100 Year
     Error:  The elevation of the cross section needed to be extended.  Doubling the height of the cross sectio
times was
             not sufficient.  The cross section should be examined and coded to a new height
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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.
indicate
             the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
surface was
             used.
River: Agua Caliente  Reach: upper     RS: 10673.59     Profile: 100 Year
     Warning:Divided flow computed for this cross-section.
     Warning:A flow split was encountered.  The program first calculated the momentum of both channels below th
junction.  An
             energy balance was performed across the junction from the stream with the highest momentum downstr
the section
             upstream.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
surface was
             used.
River: Agua Caliente  Reach: middle    RS: 10603.59     Profile: 100 Year
     Warning:Divided flow computed for this cross-section.
River: Agua Caliente  Reach: middle    RS: 10465.1      Profile: 100 Year
     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 additi
cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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.
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: middle    RS: 10320.64     Profile: 100 Year
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program
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 additi
cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
than 1.4.
             This may indicate the need for additional cross sections.
River: Agua Caliente  Reach: middle    RS: 10131.91     Profile: 100 Year
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
than 1.4.
             This may indicate the need for additional cross sections.
River: Agua Caliente  Reach: middle    RS: 9909.25      Profile: 100 Year
     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. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 9550.47 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 9307.97 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 9091.3 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program s
the water
surface that had the least amount of error between computed and assumed values.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
River: Agua Caliente Reach: middle RS: 8865.4 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 8587.35 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 8257.08 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
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. T
indicate
the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 7628.04 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 7244.33 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
River: Agua Caliente Reach: middle RS: 6769.06 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additic
cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gre
than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, e
was used.
River: Agua Caliente Reach: middle RS: 6687.06 Profile: 100 Year
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow.
momentum
answer has been disregarded.
River: Agua Caliente Reach: middle RS: 6687.06 Profile: 100 Year Upstream
Warning:The energy equation could not be balanced within the specified number of iterations. The program u
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. T
indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth
calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical
The
program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, e
was used.
River: Agua Caliente Reach: middle RS: 6687.06 Profile: 100 Year Downstream
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth

calculated
water surface came back below critical depth. This indicates that there is not a valid subcritica
The
program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, was used.
River: Agua Caliente Reach: middle RS: 6544.64 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program critical depth
for the water surface and continued on with the calculations.
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 additi cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical dept calculated
water surface came back below critical depth. This indicates that there is not a valid subcritica
The
program defaulted to critical depth.
River: Agua Caliente Reach: middle RS: 6260.16 Profile: 100 Year
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. indicate
the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 5961.45 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program the water
surface that had the least amount of error between computed and assumed values.
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. indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical dept calculated
water surface came back below critical depth. This indicates that there is not a valid subcritica
The
program defaulted to critical depth.
River: Agua Caliente Reach: middle RS: 5794.74 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program 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 addit cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was
used.
River: Agua Caliente Reach: middle RS: 5640.23 Profile: 100 Year
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was
used.
River: Agua Caliente Reach: lower RS: 5365.23 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was
used.
River: Agua Caliente Reach: lower RS: 5242.33 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was
used.
River: Agua Caliente Reach: lower RS: 5189.01 Profile: 100 Year
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, was used.
River: Agua Caliente Reach: lower RS: 5164.33 Profile: 100 Year
Warning:The flow regime calculated by the momentum equation shows class B flow. For the best solution, th profile should
be run as a mixed flow problem.
River: Agua Caliente Reach: lower RS: 5164.33 Profile: 100 Year Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, was used.
River: Agua Caliente Reach: lower RS: 5007.33 Profile: 100 Year
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or g 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. indicate
the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was used.

River: Agua Caliente Reach: lower RS: 4808.89 Profile: 100 Year

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

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. indicate the need for additional cross sections.

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was used.

River: Agua Caliente Reach: lower RS: 4640.59 Profile: 100 Year

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was used.

River: Agua Caliente Reach: lower RS: 4293.46 Profile: 100 Year

Warning: Divided flow computed for this cross-section.

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was used.

River: Agua Caliente Reach: lower RS: 3943.83 Profile: 100 Year

Warning: Divided flow computed for this cross-section.

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was used.

River: Agua Caliente Reach: lower RS: 3579.38 Profile: 100 Year

Warning: The energy equation could not be balanced within the specified number of iterations. The program 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. indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was used.

River: Agua Caliente Reach: lower RS: 3344.57 Profile: 100 Year

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. indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was used.

River: Agua Caliente Reach: lower RS: 3039.07 Profile: 100 Year

Warning: The energy equation could not be balanced within the specified number of iterations. The program 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. indicate the need for additional cross sections.

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, surface was used.

River: Agua Caliente Reach: lower RS: 2734.71 Profile: 100 Year

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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, '
surface was
used.
River: Agua Caliente Reach: lower RS: 2590.18 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, '
surface was
used.
River: Agua Caliente Reach: lower RS: 2425.08 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or gr
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. '
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, '
surface was
used.
River: Agua Caliente Reach: lower RS: 2225.5 Profile: 100 Year
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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, '
surface was
used.
River: Agua Caliente Reach: lower RS: 1877.58 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program '
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. '
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, '
surface was
used.
River: Agua Caliente Reach: lower RS: 1549.86 Profile: 100 Year
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. '
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, '
surface was
used.
River: Agua Caliente Reach: lower RS: 1261.13 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. '
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, '
surface was
used.
River: Agua Caliente Reach: lower RS: 968.69 Profile: 100 Year
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. '
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, '
surface was
used.
River: Agua Caliente Reach: lower RS: 760.51 Profile: 100 Year
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. '
indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, '
surface was
used.
River: Agua Caliente Reach: lower RS: 554.81 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or g
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. '
indicate
the need for additional cross sections.

```
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, 
surface was
             used.
River: Agua Caliente  Reach: lower     RS: 0     Profile: 100 Year
     Warning:Divided flow computed for this cross-section.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, 
surface was
             used.
```

D-2

Agua Caliente Wash Proposed Condition

PROPOSED CONDITION (25-YEA

HEC-RAS Plan: Prop Profile: 25 Year

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Agua Caliente	upper	31333.21	25 Year	2805.42	2803.27	2.15				7320.00		187.38
Agua Caliente	upper	31224.76	25 Year	2802.48	2800.19	2.28	2.93	0.01		7320.00		190.85
Agua Caliente	upper	31089.71	25 Year	2798.69	2796.33	2.36	3.77	0.01		7320.00		169.68
Agua Caliente	upper	30990.87	25 Year	2796.76	2794.86	1.90	1.24	0.03		7320.00		162.05
Agua Caliente	upper	30898.84	25 Year	2795.49	2793.69	1.80	0.61	0.02		7320.00		112.68
Agua Caliente	upper	30840.82	25 Year	2794.86	2792.81	2.05	2.00	0.03	0.43	7319.57		98.40
Agua Caliente	upper	30690.61	25 Year	2792.82	2790.43	2.39	2.34	0.11	0.18	7319.82		123.34
Agua Caliente	upper	30547.71	25 Year	2789.99	2787.39	2.60	2.81	0.02	113.57	6869.51	336.93	166.22
Agua Caliente	upper	30481.41	25 Year	2788.35	2785.61	2.74	1.63	0.01	44.19	7275.81		157.72
Agua Caliente	upper	30424.82	25 Year	2786.70	2783.78	2.92	1.63	0.02	0.10	7319.90		146.11
Agua Caliente	upper	30362.48	25 Year	2784.92	2781.73	3.19	1.75	0.03		7320.00		113.90
Agua Caliente	upper	30290.36	25 Year	2783.03	2781.03	2.00	1.58	0.37		7320.00		164.86
Agua Caliente	upper	30232.14	25 Year	2782.02	2780.73	1.29	2.82	0.07		7320.00		164.52
Agua Caliente	upper	30003.57	25 Year	2779.14	2777.14	2.00	3.95	0.02		7320.00		147.20
Agua Caliente	upper	29768.97	25 Year	2775.16	2773.24	1.92	2.36	0.01	37.54	7266.22	16.24	173.19
Agua Caliente	upper	29627.21	25 Year	2772.80	2770.80	2.00	1.01	0.09	118.00	7116.41	85.59	173.50
Agua Caliente	upper	29558.97	25 Year	2771.34	2768.77	2.57	1.40	0.06	3.76	7314.68	1.56	161.20
Agua Caliente	upper	29500.74	25 Year	2770.56	2769.08	1.47	1.33	0.04	10.77	7266.32	42.91	170.24
Agua Caliente	upper	29369.94	25 Year	2769.19	2767.83	1.36	3.15	0.02		7320.00		163.88
Agua Caliente	upper	29098.06	25 Year	2766.01	2764.44	1.57	3.15	0.02	2.32	7317.68		179.80
Agua Caliente	upper	28875.2	25 Year	2762.83	2761.33	1.50	2.41	0.00	1.50	7318.51		203.44
Agua Caliente	upper	28734.99	25 Year	2760.42	2758.90	1.51	2.30	0.14	11.96	7308.04		255.88
Agua Caliente	upper	28592.81	25 Year	2757.51	2756.45	1.05	1.70	0.03	444.23	6875.77		443.98
Agua Caliente	upper	28479.43	25 Year	2755.78	2754.45	1.33	1.36	0.03	0.10	7319.90		498.43
Agua Caliente	upper	28394.36	25 Year	2754.09	2752.37	1.73	1.65	0.04	0.04	7311.65	8.31	415.13
Agua Caliente	upper	28247.34	25 Year	2751.66	2750.42	1.24	1.35	0.07	0.08	7174.82	145.10	417.22
Agua Caliente	upper	28136.75	25 Year	2749.58	2747.51	2.07	2.00	0.08		7179.98	140.02	234.84
Agua Caliente	upper	28029.09	25 Year	2748.01	2746.41	1.60	1.67	0.21		7320.00		244.23
Agua Caliente	upper	27892.68	25 Year	2746.02	2745.14	0.88	1.48	0.05	1.20	6930.99	387.81	459.65
Agua Caliente	upper	27758.38	25 Year	2744.49	2743.07	1.42	1.50	0.01		7243.44	76.56	280.18
Agua Caliente	upper	27636.17	25 Year	2742.69	2741.21	1.48	2.28	0.14		7258.60	61.40	229.21
Agua Caliente	upper	27415.17	25 Year	2740.27	2739.25	1.02	1.74	0.00		7296.71	23.29	293.15
Agua Caliente	upper	27236.39	25 Year	2738.53	2737.49	1.03	1.63	0.00	1.18	7288.10	30.72	268.93
Agua Caliente	upper	27073.54	25 Year	2736.90	2735.86	1.04	1.70	0.03		7318.52	1.48	314.29
Agua Caliente	upper	26937.64	25 Year	2735.17	2733.88	1.30	1.15	0.12		7320.00		245.67
Agua Caliente	upper	26827.35	25 Year	2733.90	2733.00	0.90	2.74	0.06	1.25	7317.86	0.89	308.86
Agua Caliente	upper	26541.23	25 Year	2731.11	2729.61	1.50	1.90	0.27		7320.00		247.74
Agua Caliente	upper	26354.97	25 Year	2728.71	2728.13	0.58	1.45	0.03		7320.00		342.47
Agua Caliente	upper	26188.3	25 Year	2727.23	2726.35	0.88	2.38	0.06	0.33	7319.67		275.24

HEC-RAS Plan: Prop Profile: 25 Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Agua Caliente	upper	25977.06	25 Year	2724.80	2723.36	1.43	1.85	0.08	333.91	6986.09		259.29
Agua Caliente	upper	25817.13	25 Year	2722.87	2721.71	1.16	0.90	0.02	225.87	6950.42	143.71	270.62
Agua Caliente	upper	25727.13	25 Year	2721.94	2720.55	1.39	1.08	0.05	130.75	6735.28	453.96	293.71
Agua Caliente	upper	25613.79	25 Year	2720.81	2719.60	1.21	1.37	0.08	119.03	7024.56	176.41	244.96
Agua Caliente	upper	25447.86	25 Year	2719.36	2718.41	0.95	2.47	0.06	266.34	6869.84	183.83	403.70
Agua Caliente	upper	25222.61	25 Year	2716.82	2715.23	1.60	2.67	0.09		7317.46	2.54	294.02
Agua Caliente	upper	24991.27	25 Year	2714.06	2712.76	1.30	1.95	0.06		7037.37	282.63	303.71
Agua Caliente	upper	24754.28	25 Year	2712.05	2710.95	1.10	1.27	0.01		7051.34	268.66	339.09
Agua Caliente	upper	24588.07	25 Year	2710.77	2709.71	1.06	3.16	0.04	30.44	6792.57	496.99	360.47
Agua Caliente	upper	24317.77	25 Year	2707.57	2706.13	1.44	2.36	0.24	0.73	7185.45	133.82	300.79
Agua Caliente	upper	24078.34	25 Year	2704.97	2704.33	0.63	1.70	0.09	83.36	6963.71	272.92	303.71
Agua Caliente	upper	23858.15	25 Year	2703.17	2701.65	1.52	3.41	0.13		7320.00		187.29
Agua Caliente	upper	23410.62	25 Year	2699.64	2698.55	1.09	2.05	0.05	0.09	7297.88	22.03	273.96
Agua Caliente	upper	23021.58	25 Year	2697.54	2696.61	0.93	1.65	0.01	107.95	6537.04	675.01	462.84
Agua Caliente	upper	22709.53	25 Year	2695.88	2694.86	1.02	1.90	0.01	8.76	6630.52	680.73	447.06
Agua Caliente	upper	22439.86	25 Year	2693.97	2693.00	0.97	4.00	0.03	234.29	6811.88	273.83	522.37
Agua Caliente	upper	22135.43	25 Year	2689.94	2688.67	1.28	1.29	0.41	9.85	5776.87	1533.27	332.72
Agua Caliente	upper	21893.26	25 Year	2688.19	2687.73	0.45	0.62	0.05		5848.26	1471.74	369.18
Agua Caliente	upper	21722.29	25 Year	2687.52	2686.61	0.91	0.64	0.05		5778.87	2151.13	493.04
Agua Caliente	upper	21619.14	25 Year	2686.83	2686.07	0.76	2.52	0.02		5806.56	2123.44	396.11
Agua Caliente	upper	21161.08	25 Year	2684.29	2683.35	0.94	2.61	0.04		7930.00		563.76
Agua Caliente	upper	20689.67	25 Year	2681.64	2680.84	0.80	1.99	0.00	374.41	7555.59		592.51
Agua Caliente	upper	20224.2	25 Year	2679.64	2678.80	0.84	1.50	0.03	319.42	7500.83	109.75	840.15
Agua Caliente	upper	19962.61	25 Year	2678.10	2677.15	0.95	1.09	0.07	363.40	6954.95	611.64	827.04
Agua Caliente	upper	19774.66	25 Year	2676.71	2675.97	0.73	0.89	0.11	221.92	6836.19	871.89	533.50
Agua Caliente	upper	19584.44	25 Year	2675.70	2674.59	1.11	1.30	0.07	114.71	6837.24	978.06	510.24
Agua Caliente	upper	19356.98	25 Year	2674.33	2673.44	0.90	2.34	0.01		6240.18	1689.82	417.17
Agua Caliente	upper	19010.68	25 Year	2671.99	2670.99	1.00	1.53	0.18		7125.84	804.16	525.42
Agua Caliente	upper	18727.05	25 Year	2670.28	2669.65	0.63	2.02	0.02	234.00	6783.78	912.22	711.60
Agua Caliente	upper	18351.98	25 Year	2668.24	2667.43	0.81	2.93	0.01	993.09	6902.05	34.86	1111.58
Agua Caliente	upper	17941.17	25 Year	2665.30	2664.51	0.79	2.64	0.02	1742.90	5972.51	214.59	1336.77
Agua Caliente	upper	17531.27	25 Year	2662.63	2661.92	0.71	1.17	0.01	2291.32	5326.90	311.79	1052.43
Agua Caliente	upper	17353.02	25 Year	2661.45	2660.69	0.76	1.03	0.05	2236.50	5582.59	110.91	1117.38
Agua Caliente	upper	17186.91	25 Year	2660.37	2659.76	0.61	2.72	0.02	1912.23	5962.63	55.14	844.58
Agua Caliente	upper	16713.82	25 Year	2657.63	2656.80	0.83	1.93	0.06	274.01	7560.67	95.32	838.64
Agua Caliente	upper	16317.38	25 Year	2655.64	2655.00	0.64	1.94	0.01	370.31	7378.81	180.88	611.74
Agua Caliente	upper	15833.59	25 Year	2653.69	2653.08	0.61	2.05	0.01	1.18	7822.25	106.58	523.59
Agua Caliente	upper	15499.03	25 Year	2651.63	2650.90	0.73	1.48	0.01	7.95	7813.83	108.22	664.47
Agua Caliente	upper	15303.96	25 Year	2650.14	2649.31	0.83	0.78	0.09	274.11	7655.48	0.42	607.26

HEC-RAS Plan: Prop Profile: 25 Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Agua Caliente	upper	15139.89	25 Year	2649.27	2648.75	0.52	1.07	0.02	187.75	7619.07	123.18	536.64
Agua Caliente	upper	14880.52	25 Year	2648.18	2647.49	0.70	2.30	0.02	62.68	7864.74	2.59	444.19
Agua Caliente	upper	14549.94	25 Year	2645.87	2644.99	0.87	0.60	0.05	143.28	7210.67	576.05	529.64
Agua Caliente	upper	14469.1	25 Year	2645.22	2644.51	0.72	0.31	0.04	177.22	7704.94	47.85	684.02
Agua Caliente	upper	14378.58	25 Year	2644.87	2644.28	0.59	0.37	0.01	197.99	7723.03	8.98	928.30
Agua Caliente	upper	14287.58	25 Year	2644.50	2643.82	0.68	0.25	0.09	33.13	7639.99	256.88	836.74
Agua Caliente	upper	14202.59	25 Year	2644.15	2643.78	0.37	1.18	0.05	117.67	7332.94	479.39	1063.21
Agua Caliente	upper	13863.77	25 Year	2642.93	2642.08	0.85	2.65	0 09		7556.75	373.26	819.90
Agua Caliente	upper	13436.95	25 Year	2640.18	2639.65	0.54	1.89	0.02	15.83	6953.66	960.51	1271.23
Agua Caliente	upper	13118.88	25 Year	2638.28	2637.53	0.75	0.63	0.03	416.18	6425.17	1088.65	1069.90
Agua Caliente	upper	13002.28	25 Year	2637.61	2636.96	0.66	0.61	0.01	94.57	6776.79	1058.64	1921.95
Agua Caliente	upper	12894.15	25 Year	2636.99	2636.18	0.81	0.66	0.08		7428.30	501.70	606.39
Agua Caliente	upper	12790.35	25 Year	2636.25	2635.71	0.54	0.28	0.04	137.59	6865.66	926.76	1794.63
Agua Caliente	upper	12718.49	25 Year	2635.94	2635.52	0.42	0.56	0.01	274.94	6114.97	1540.09	2212.36
Agua Caliente	upper	12546.41	25 Year	2635.37	2634.98	0.39	0.97	0.02	542.66	6533.62	853.73	2192.34
Agua Caliente	upper	12365.94	25 Year	2634.39	2633.80	0.59	1.09	0.02	1464.54	5650.55	814.91	1761.78
Agua Caliente	upper	12212.12	25 Year	2633.28	2632.76	0.52	1.57	0.04	505.16	6491.91	932.93	1882.57
Agua Caliente	upper	11918.47	25 Year	2631.66	2631.23	0.43	1.18	0.01	1873.12	5705.49	351.39	2034.43
Agua Caliente	upper	11673.91	25 Year	2630.48	2629.96	0.51	1.77	0.04	1523.75	5679.47	726.78	1941.95
Agua Caliente	upper	11248.91	25 Year	2628.66	2628.28	0.38	3.16	0.05	2200.48	4851.47	878.05	2282.49
Agua Caliente	upper	10901.11	25 Year	2625.46	2624.58	0.88	1.71	0.14	3156.83	4308.39	464.78	1785.41
Agua Caliente	upper	10673.59	25 Year	2623.61	2623.20	0.41	0.31	0.02	1441.75	6488.25		1754.83
Agua Caliente	middle	10603.59	25 Year	2623.27	2622.64	0.63	0.69	0.05	890.27	6105.37		1170.24
Agua Caliente	middle	10465.1	25 Year	2622.54	2622.08	0.46	1.01	0.05	850.42	6145.22		762.78
Agua Caliente	middle	10320.64	25 Year	2621.48	2620.53	0.95	0.76	0.18	88.44	6907.20		658.10
Agua Caliente	middle	10131.91	25 Year	2620.35	2619.98	0.36	0.58	0.02		6995.64		398.15
Agua Caliente	middle	9909.25	25 Year	2619.74	2619.15	0.59	1.57	0.08	9.11	6986.53		495.27
Agua Caliente	middle	9550.47	25 Year	2618.09	2617.67	0.42	0.46	0.12		6995.64		403.06
Agua Caliente	middle	9307.97	25 Year	2617.51	2617.33	0.18	0.58	0.31	4.37	6991.28		518.57
Agua Caliente	middle	9091.3	25 Year	2616.62	2615.40	1.22	2.21	0.18		6995.64		322.99
Agua Caliente	middle	8865.4	25 Year	2614.06	2613.45	0.61	1.32	0.00	0.25	6995.39		510.94
Agua Caliente	middle	8587.35	25 Year	2612.73	2612.13	0.60	1.73	0.04		6995.64		376.75
Agua Caliente	middle	8257.08	25 Year	2610.96	2609.95	1.01	1.81	0.07		6995.64		343.26
Agua Caliente	middle	7968.62	25 Year	2609.08	2608.31	0.77	1.36	0.08		6995.64		352.99
Agua Caliente	middle	7628.04	25 Year	2607.64	2607.13	0.51	0.38	0.07		6995.64		325.81
Agua Caliente	middle	7244.33	25 Year	2607.20	2606.91	0.29	0.15	0.07		6988.25	7.39	268.28
Agua Caliente	middle	6971.06	25 Year	2606.98	2606.47	0.51	0.16	0.02		6995.64		156.49
Agua Caliente	middle	6769.06	25 Year	2606.79	2606.20	0.59	0.20	0.57		6995.64		138.75
Agua Caliente	middle	6687.06		Bridge								

HEC-RAS Plan: Prop Profile: 25 Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Agua Caliente	middle	6544.64	25 Year	2602.98	2600.75	2.23	2.50	0.73		6995.64		129.97
Agua Caliente	middle	6260.16	25 Year	2598.78	2596.65	2.13	4.15	0.04	7.35	6988.13	0.16	282.00
Agua Caliente	middle	5961.45	25 Year	2596.66	2595.97	0.69	1.10	0.02	1062.17	4855.89	1077.58	1187.70
Agua Caliente	middle	5794.74	25 Year	2595.45	2594.51	0.95	1.17	0.03	1043.53	5231.84	720.28	1108.59
Agua Caliente	middle	5640.23	25 Year	2594.81	2594.64	0.17			1714.39	4520.35	760.90	1830.99
Agua Caliente	lower	5365.23	25 Year	2593.16	2592.89	0.27	0.45	0.06	588.62	3915.84	635.84	1097.69
Agua Caliente	lower	5242.33	25 Year	2592.65	2591.81	0.84	0.22	0.13		5140.30		502.95
Agua Caliente	lower	5189.01	25 Year	2592.29	2591.73	0.57	0.02	0.02		5140.30		231.35
Agua Caliente	lower	5164.33		Bridge								
Agua Caliente	lower	5036.06	25 Year	2591.46	2590.89	0.57	0.13	0.03		5140.30		227.06
Agua Caliente	lower	5007.33	25 Year	2591.30	2590.46	0.84	1.66	0.01	211.24	4834.65	94.41	259.31
Agua Caliente	lower	4808.89	25 Year	2589.63	2588.70	0.93	1.19	0.15	1933.49	2418.33	788.48	1058.45
Agua Caliente	lower	4640.59	25 Year	2587.93	2587.49	0.44	2.48	0.01	594.46	3584.92	960.93	1291.28
Agua Caliente	lower	4293.46	25 Year	2585.45	2584.95	0.49	1.77	0.06	357.50	2847.82	1934.99	1396.69
Agua Caliente	lower	3943.83	25 Year	2583.62	2583.32	0.29	1.67	0.05	7.34	3923.36	1209.61	767.33
Agua Caliente	lower	3579.38	25 Year	2581.90	2581.13	0.77	1.61	0.11	207.20	4079.80	853.31	757.01
Agua Caliente	lower	3344.57	25 Year	2580.05	2579.64	0.42	2.32	0.02	516.04	3525.62	1098.65	1402.80
Agua Caliente	lower	3039.07	25 Year	2577.72	2577.07	0.65	2.40	0.09	36.47	4051.12	1052.71	1283.66
Agua Caliente	lower	2734.71	25 Year	2575.13	2574.78	0.35	1.02	0.01	217.77	2432.18	2490.35	1471.15
Agua Caliente	lower	2590.18	25 Year	2574.11	2573.78	0.33	0.81	0.07	281.15	2497.96	2361.20	1460.01
Agua Caliente	lower	2425.08	25 Year	2573.23	2573.12	0.11	1.06	0.00	998.47	1600.95	2540.88	2253.34
Agua Caliente	lower	2225.5	25 Year	2572.17	2572.02	0.15	2.54	0.03	1172.44	1296.16	2671.70	2077.49
Agua Caliente	lower	1877.58	25 Year	2569.59	2569.16	0.43			2197.30	2035.07	907.94	1662.72
Agua Caliente	lower	1549.86	25 Year	2566.92	2566.72	0.21	1.59	0.02	3198.96	1907.74	33.60	1785.54
Agua Caliente	lower	1261.13	25 Year	2565.32	2565.16	0.16	1.91	0.01	1885.94	3246.42	7.94	2004.21
Agua Caliente	lower	968.69	25 Year	2563.39	2563.12	0.27	1.78	0.00	1653.10	2450.41	1036.79	1895.58
Agua Caliente	lower	760.51	25 Year	2561.62	2561.33	0.29	1.68	0.02	1560.52	2630.81	948.97	1628.63
Agua Caliente	lower	554.81	25 Year	2559.92	2559.43	0.50	0.39	0.10	624.20	2890.60	1625.51	1705.75
Agua Caliente	lower	0	25 Year	2559.24	2559.08	0.16			2812.85	11514.37	3397.39	2082.45
AC Spur	AC Spur	5472.12	25 Year	2623.27	2623.21	0.06	2.64	0.00	230.59	703.77		523.23
AC Spur	AC Spur	5178.24	25 Year	2620.62	2620.57	0.05	2.94	0.00	102.31	759.21	72.84	865.72
AC Spur	AC Spur	4813.20	25 Year	2617.68	2617.62	0.06	1.66	0.01	18.52	899.68	16.15	676.94
AC Spur	AC Spur	4497.37	25 Year	2616.01	2615.98	0.03	1.02	0.00	3.39	930.97		659.90
AC Spur	AC Spur	4230.27	25 Year	2614.99	2614.97	0.03	2.20	0.01	12.23	881.69	40.44	1082.26
AC Spur	AC Spur	3934.74	25 Year	2612.78	2612.70	0.08	1.37	0.02	15.15	901.21	18.00	879.66
AC Spur	AC Spur	3654.17	25 Year	2611.39	2611.37	0.02	0.65	0.00	0.09	814.52	119.75	1112.52
AC Spur	AC Spur	3474.64	25 Year	2610.73	2610.70	0.03	1.83	0.00	7.82	636.11	290.43	1437.79
AC Spur	AC Spur	3215.30	25 Year	2608.91	2608.87	0.03	1.04	0.00	143.34	597.58	193.44	1201.73
AC Spur	AC Spur	2911.33	25 Year	2607.86	2607.84	0.02	1.13	0.00	295.08	523.81	115.47	1443.98

HEC-RAS Plan: Prop Profile: 25 Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
AC Spur	AC Spur	2602.91	25 Year	2606.74	2606.71	0.03	2.05	0.00	87.77	503.08	343.51	2156.08
AC Spur	AC Spur	2286.58	25 Year	2604.69	2604.66	0.03	2.18	0.00	23.95	731.01	179.40	2104.02
AC Spur	AC Spur	1946.69	25 Year	2602.51	2602.48	0.03	2.46	0.00		539.74	394.62	2378.06
AC Spur	AC Spur	1600.02	25 Year	2600.05	2600.00	0.05	1.89	0.00	280.45	586.87	67.04	2203.91
AC Spur	AC Spur	1199.20	25 Year	2598.16	2598.12	0.04	2.40	0.00	630.93	288.00	15.43	2323.28
AC Spur	AC Spur	837.50	25 Year	2595.77	2595.69	0.07	1.49	0.01	11.69	894.88	27.79	1666.38
AC Spur	AC Spur	566.48	25 Year	2594.26	2594.22	0.04	1.78	0.02		714.82	219.54	2448.16
AC Spur	AC Spur	350.	25 Year	2592.46	2592.24	0.22	2.39	0.03		851.14	83.22	1345.25
AC Split	upper	3599.078	25 Year	2593.15	2593.05	0.10	1.75	0.01	100.42	1754.91		795.87
AC Split	upper	3235.949	25 Year	2591.38	2591.31	0.08	1.74	0.02	244.67	1269.50	341.16	948.94
AC Split	lower	2853.265	25 Year	2589.63	2589.50	0.13	1.85	0.00	468.84	2320.86		1206.52
AC Split	lower	2508.632	25 Year	2587.77	2587.60	0.18	2.45	0.01	479.79	2309.91		946.02
AC Split	lower	2214.257	25 Year	2585.31	2585.02	0.29	1.13	0.06	84.10	2705.60		508.95
AC Split	lower	1933.962	25 Year	2584.12	2584.03	0.08	2.38	0.03	288.68	2501.02		828.07
AC Split	lower	1426.381	25 Year	2581.71	2581.34	0.37			84.22	2705.48		497.76

PROPOSED CONDITION (100-YEAR)

HEC-RAS Plan: Prop Profile: 100 Year

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	middle	10603.59	100 Year	10539.31	2620.20	2623.46	2623.05	2624.04	0.004081	6.83	2471.63	1288.01	0.67
Agua Caliente	middle	10465.1	100 Year	10539.31	2619.05	2622.79	2621.97	2623.42	0.003581	6.79	2381.29	1040.30	0.64
Agua Caliente	middle	10320.64	100 Year	10539.31	2617.71	2621.21	2621.21	2622.34	0.015926	8.77	1434.11	730.26	0.90
Agua Caliente	middle	10131.91	100 Year	10539.31	2616.20	2620.88	2619.13	2621.38	0.001811	5.71	2069.80	817.80	0.48
Agua Caliente	middle	9909.25	100 Year	10539.31	2616.20	2620.07	2619.13	2620.79	0.003795	6.88	1684.92	642.83	0.63
Agua Caliente	middle	9550.47	100 Year	10539.31	2614.20	2618.81	2617.10	2619.31	0.003879	5.73	1964.13	687.87	0.49
Agua Caliente	middle	9307.97	100 Year	10539.31	2612.20	2618.47	2615.17	2618.73	0.001100	4.10	2579.15	656.28	0.31
Agua Caliente	middle	9091.3	100 Year	10539.31	2611.74	2616.20	2616.20	2617.75	0.016029	9.98	1056.42	554.11	1.00
Agua Caliente	middle	8865.4	100 Year	10539.31	2609.44	2614.29	2613.34	2615.14	0.006358	7.40	1432.30	535.06	0.66
Agua Caliente	middle	8587.35	100 Year	10539.31	2607.96	2613.00	2612.05	2613.82	0.003627	7.24	1455.27	378.88	0.65
Agua Caliente	middle	8257.08	100 Year	10539.31	2605.51	2610.66	2610.51	2612.06	0.007862	9.49	1111.14	344.05	0.93
Agua Caliente	middle	7968.62	100 Year	10539.31	2604.09	2610.01	2608.52	2610.69	0.002423	6.59	1600.34	357.14	0.55
Agua Caliente	middle	7628.04	100 Year	10539.31	2601.69	2609.58	2606.58	2610.00	0.001385	5.22	2020.43	329.13	0.37
Agua Caliente	middle	7244.33	100 Year	10539.31	2599.87	2609.40	2604.31	2609.73	0.000363	4.64	2310.55	277.38	0.28
Agua Caliente	middle	6971.06	100 Year	10539.31	2598.09	2608.81	2603.80	2609.49	0.000642	6.63	1590.32	159.53	0.37
Agua Caliente	middle	6769.06	100 Year	10539.31	2596.77	2608.47	2603.61	2609.29	0.001077	7.26	1451.61	141.92	0.40
Agua Caliente	middle	6687.06		Bridge									
Agua Caliente	middle	6544.64	100 Year	10539.31	2595.60	2602.36	2602.36	2605.04	0.009461	13.19	818.05	182.34	0.95
Agua Caliente	middle	6260.16	100 Year	10539.31	2592.33	2598.40	2598.40	2599.32	0.007236	8.32	1720.39	2049.71	0.78
Agua Caliente	middle	5961.45	100 Year	10539.31	2590.42	2596.53	2596.53	2597.27	0.006665	8.65	2089.89	1683.52	0.69
Agua Caliente	middle	5794.74	100 Year	10539.31	2589.70	2595.32	2595.32	2596.07	0.005456	8.68	2228.68	1703.08	0.76
Agua Caliente	middle	5640.23	100 Year	10539.31	2588.76	2595.20	2594.04	2595.41	0.001687	4.54	3519.10	2261.55	0.42
Agua Caliente	lower	5365.23	100 Year	6618.80	2587.74	2593.56	2592.16	2593.84	0.001784	4.62	1725.96	1105.36	0.40
Agua Caliente	lower	5242.33	100 Year	6618.80	2586.65	2592.42	2591.71	2593.38	0.006268	7.86	842.38	581.29	0.73
Agua Caliente	lower	5189.01	100 Year	6618.80	2586.56	2592.35	2590.99	2593.04	0.003605	6.65	994.83	232.50	0.57
Agua Caliente	lower	5164.33		Bridge									
Agua Caliente	lower	5036.06	100 Year	6618.80	2585.81	2591.44	2590.10	2592.15	0.003728	6.78	976.29	228.35	0.58
Agua Caliente	lower	5007.33	100 Year	6618.80	2585.69	2590.94	2590.30	2591.98	0.005931	8.42	867.10	457.78	0.73
Agua Caliente	lower	4808.89	100 Year	6618.80	2584.15	2589.06	2589.06	2590.13	0.010171	10.93	1002.57	1162.96	0.94
Agua Caliente	lower	4640.59	100 Year	6618.80	2583.27	2587.77	2587.31	2588.33	0.005829	6.92	1366.30	1378.36	0.69
Agua Caliente	lower	4293.46	100 Year	6618.80	2581.36	2585.30	2585.11	2585.79	0.008035	7.39	1614.77	1518.87	0.79
Agua Caliente	lower	3943.83	100 Year	6618.80	2578.93	2583.66	2582.89	2584.01	0.003330	5.36	1706.07	899.58	0.52
Agua Caliente	lower	3579.38	100 Year	6618.80	2577.11	2581.52	2581.52	2582.30	0.007857	8.18	1284.15	927.12	0.76
Agua Caliente	lower	3344.57	100 Year	6618.80	2575.66	2579.94	2579.70	2580.38	0.005509	6.45	1711.96	1672.68	0.66
Agua Caliente	lower	3039.07	100 Year	6618.80	2573.50	2577.35	2577.35	2578.07	0.009675	7.77	1372.17	1667.72	0.86
Agua Caliente	lower	2734.71	100 Year	6618.80	2571.40	2575.05	2574.73	2575.43	0.006617	6.90	1971.13	1757.93	0.81
Agua Caliente	lower	2590.18	100 Year	6618.80	2570.78	2574.03	2573.57	2574.41	0.008045	6.38	1724.81	1831.43	0.76
Agua Caliente	lower	2425.08	100 Year	6618.80	2569.69	2573.36	2572.56	2573.49	0.003612	4.22	2676.10	2304.91	0.51
Agua Caliente	lower	2225.5	100 Year	6618.80	2568.35	2572.23	2571.79	2572.40	0.007043	4.51	2166.32	2157.58	0.47
Agua Caliente	lower	1877.58	100 Year	6618.80	2566.10	2569.37	2569.37	2569.81	0.008753	7.95	1667.47	1782.96	0.93
Agua Caliente	lower	1549.86	100 Year	6618.80	2563.59	2566.90	2566.60	2567.15	0.006517	4.35	1743.95	2020.02	0.64
Agua Caliente	lower	1261.13	100 Year	6618.80	2561.37	2565.34	2564.98	2565.52	0.004682	3.89	2169.82	2077.23	0.50

HEC-RAS Plan: Prop Profile: 100 Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	lower	968.69	100 Year	6618.80	2560.20	2563.41	2563.09	2563.68	0.007399	5.54	1907.22	1939.12	0.71
Agua Caliente	lower	760.51	100 Year	6618.80	2558.20	2561.43	2561.33	2561.83	0.010184	6.62	1693.47	1645.80	0.84
Agua Caliente	lower	554.81	100 Year	6618.80	2556.20	2559.87	2559.65	2560.24	0.005122	6.77	2105.14	1925.94	0.65
Agua Caliente	lower	0	100 Year	27248.80	2550.20	2558.08	2556.18	2558.75	0.002357	7.61	5934.54	1964.48	0.54
AC Spur	AC Spur	5472.12	100 Year	2460.69	2622.20	2623.91	2623.18	2624.04	0.010012	2.98	865.43	565.30	0.41
AC Spur	AC Spur	5178.24	100 Year	2460.69	2619.44	2621.14	2620.60	2621.23	0.008725	2.63	1055.67	897.91	0.38
AC Spur	AC Spur	4813.20	100 Year	2460.69	2616.20	2618.28	2617.64	2618.39	0.006914	2.71	1001.88	1086.33	0.39
AC Spur	AC Spur	4497.37	100 Year	2460.69	2614.20	2616.65	2615.75	2616.72	0.004110	2.14	1235.89	1029.27	0.30
AC Spur	AC Spur	4230.27	100 Year	2460.69	2613.79	2615.43	2614.82	2615.49	0.005067	2.09	1284.86	1243.39	0.32
AC Spur	AC Spur	3934.74	100 Year	2460.69	2612.19	2613.27	2612.85	2613.38	0.010825	2.69	953.69	999.86	0.46
AC Spur	AC Spur	3654.17	100 Year	2460.69	2610.20	2611.91	2611.06	2611.95	0.002811	1.67	1553.53	1223.35	0.25
AC Spur	AC Spur	3474.64	100 Year	2460.69	2610.20	2611.08	2610.67	2611.14	0.008250	2.06	1242.28	1588.04	0.39
AC Spur	AC Spur	3215.30	100 Year	2460.69	2606.84	2609.49	2608.83	2609.54	0.004726	1.90	1371.94	1619.69	0.31
AC Spur	AC Spur	2911.33	100 Year	2460.69	2604.20	2608.42	2607.40	2608.46	0.002807	1.51	1622.51	1982.29	0.24
AC Spur	AC Spur	2602.91	100 Year	2460.69	2606.08	2607.14	2606.68	2607.19	0.006652	1.95	1360.62	2381.30	0.35
AC Spur	AC Spur	2286.58	100 Year	2460.69	2603.57	2605.11	2604.60	2605.17	0.005839	2.07	1329.34	2321.88	0.34
AC Spur	AC Spur	1946.69	100 Year	2460.69	2601.58	2602.83	2602.48	2602.90	0.008622	2.03	1225.73	2464.69	0.39
AC Spur	AC Spur	1600.02	100 Year	2460.69	2598.57	2600.55	2600.01	2600.62	0.005175	2.24	1248.25	3006.69	0.35
AC Spur	AC Spur	1199.20	100 Year	2460.69	2596.66	2598.64	2598.01	2598.71	0.004629	1.84	1264.91	3109.43	0.32
AC Spur	AC Spur	837.50	100 Year	2460.69	2594.52	2596.27	2595.83	2596.38	0.009295	2.83	981.15	2557.24	0.44
AC Spur	AC Spur	566.48	100 Year	2460.69	2592.62	2594.82	2594.12	2594.89	0.003720	2.49	1163.62	3018.04	0.35
AC Spur	AC Spur	350.	100 Year	2460.69	2591.56	2592.64	2592.64	2593.02	0.037508	5.10	515.74	1779.21	0.98
AC Split	upper	3599.078	100 Year	3920.51	2590.35	2593.63	2592.97	2593.82	0.006364	3.63	1145.38	943.24	0.46
AC Split	upper	3235.949	100 Year	3920.51	2589.07	2591.99	2591.10	2592.10	0.003707	2.85	1584.85	1116.09	0.36
AC Split	lower	2853.265	100 Year	6381.20	2586.16	2590.24	2589.68	2590.42	0.004839	3.96	2112.48	1499.07	0.43
AC Split	lower	2508.632	100 Year	6381.20	2584.20	2588.45	2587.75	2588.66	0.005407	4.27	1955.77	1407.47	0.46
AC Split	lower	2214.257	100 Year	6381.20	2581.17	2586.07	2585.45	2586.53	0.010058	5.68	1283.87	954.66	0.62
AC Split	lower	1933.962	100 Year	6381.20	2580.75	2584.96	2583.58	2585.12	0.002698	3.47	2236.06	1078.74	0.33
AC Split	lower	1426.381	100 Year	6381.20	2578.32	2582.97	2582.04	2583.19	0.006002	4.14	1845.81	1051.62	0.41

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

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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: Agua Caliente
Project File : AC.prj
Run Date and Time: 6/16/2009 9:58:01 AM

Project in English units

Project Description:
Model for Agua Caliente Wash, modeling for the wider bridge.

WEST
Consultants, Inc., revised model for Agua Caliente Wash CLOMR, 1-26-2007.
Project number 270c02. (Used as our Existing Conditions)

PLAN DATA

Plan Title: Proposed Conditions
Plan File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\AguaCaliente\AC.p05

Geometry Title: Proposed Conditions
Geometry File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\AguaCaliente\AC.g05

Flow Title : VAEC Flow
Flow File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\AguaCaliente\AC.f01

Plan Description:
Existing Model Geometry with the Vertical Adjustment of 2.2'

Plan Summary Information:

Number of:	Cross Sections	= 169	Multiple Openings	=	0
	Culverts	= 0	Inline Structures	=	0
	Bridges	= 2	Lateral Structures	=	0

Computational Information

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

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

FLOW DATA

Flow Title: VAEC Flow
Flow File : 1:\11515\Tanque Verde Segment\Drainage\HEC-RAS\AguaCaliente\AC.f01

Flow Data (cfs)

River	Reach	RS	100 Year	25 Year	Design
AC Split	upper	3599.078	3170	1933.7	3804
AC Split	lower	2853.265	5630	3434.3	6756
AC Spur	AC Spur	5472.12	2460	1500.6	2952

Agua Caliente	upper	31333.21	12000	7320	14400
Agua Caliente	upper	21722.29	13000	7930	15600
Agua Caliente	middle	10603.59	10540	6429.4	12648
Agua Caliente	lower	5365.23	7370	4495.7	8844
Agua Caliente	lower	0	28000	17080	33600

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
AC Split	lower	100 Year		Normal S = 0.006
AC Split	lower	25 Year		Known WS = 2581.34
AC Split	lower	Design		Known WS = 2581.34
Agua Caliente	upper	100 Year	Normal S = 0.025	
Agua Caliente	upper	25 Year	Normal S = 0.025	
Agua Caliente	upper	Design	Normal S = 0.025	
Agua Caliente	lower	100 Year		Known WS = 2558.08
Agua Caliente	lower	25 Year		Known WS = 2559.08
Agua Caliente	lower	Design		Known WS = 2559.08

SUMMARY OF MANNING'S N VALUES

River:AC Split

Reach	River Sta.	n1	n2	n3	n4	n5
upper	3599.078	.05	.05			
upper	3235.949	.05				
lower	2853.265	.055	.06	.05	.05	
lower	2508.632	.055	.06	.05	.05	
lower	2214.257	.065	.055	.06	.05	.05
lower	1933.962	.065	.05	.06	.05	.05
lower	1426.381	.065	.05	.06	.05	.06

River:AC Spur

Reach	River Sta.	n1	n2	n3	n4
AC Spur	5472.12	.07	.07	.07	
AC Spur	5178.24	.07	.07	.07	
AC Spur	4813.20	.06	.06	.06	
AC Spur	4497.37	.06	.06	.06	
AC Spur	4230.27	.06	.06	.06	
AC Spur	3934.74	.06	.06	.06	
AC Spur	3654.17	.06	.06	.06	
AC Spur	3474.64	.06	.06	.06	
AC Spur	3215.30	.06	.06	.06	
AC Spur	2911.33	.06	.06	.06	
AC Spur	2602.91	.06	.06	.06	
AC Spur	2286.58	.06	.06	.06	
AC Spur	1946.69	.06	.05		
AC Spur	1600.02	.06	.055		
AC Spur	1199.20	.055	.06	.055	.06
AC Spur	837.50	.055	.06		
AC Spur	566.48	.055	.06	.05	.06
AC Spur	350.	.055	.06	.05	.06

River:Agua Caliente

Reach	River Sta.	n1	n2	n3	n4	n5	n6
upper	31333.21	.05	.045	.05	.045	.05	
upper	31224.76	.05	.045	.05	.045	.05	
upper	31089.71	.05	.045	.05			
upper	30990.87	.05	.045	.045	.05		
upper	30898.84	.05	.045	.045	.045	.05	
upper	30840.82	.05	.045	.045	.045	.05	
upper	30690.61	.05	.045	.05			
upper	30547.71	.05	.045	.05			
upper	30481.41	.05	.045	.05			
upper	30424.82	.05	.045	.05			
upper	30362.48	.05	.045	.05			
upper	30290.36	.05	.045	.05			
upper	30232.14	.05	.045	.05			
upper	30003.57	.05	.045	.05			
upper	29768.97	.05	.045	.05			
upper	29627.21	.05	.045	.05			
upper	29558.97	.05	.045	.05			
upper	29500.74	.05	.045	.05			
upper	29369.94	.05	.045	.05			

upper	29098.06	.05	.045	.05			
upper	28875.2	.05	.045	.05			
upper	28734.99	.05	.045	.05			
upper	28592.81	.05	.045	.045	.05		
upper	28479.43	.05	.045	.06	.045	.05	
upper	28394.36	.05	.045	.06	.045	.05	
upper	28247.34	.05	.045	.06	.045	.05	
upper	28136.75	.05	.045	.06	.045	.05	.05
upper	28029.09	.05	.045	.06	.045	.05	
upper	27892.68	.05	.045	.06	.045	.05	
upper	27758.38	.05	.045	.06	.045	.05	
upper	27636.17	.05	.045	.06	.045	.045	.05
upper	27415.17	.05	.045	.06	.045	.05	
upper	27236.39	.05	.045	.06	.045	.05	
upper	27073.54	.05	.045	.06	.045	.05	
upper	26937.64	.05	.045	.06	.045	.05	.05
upper	26827.35	.05	.045	.06	.045	.045	.05
upper	26541.23	.05	.045	.06	.045	.05	
upper	26354.97	.05	.06	.06	.053	.05	
upper	26188.3	.04	.05	.045	.045	.045	.05
upper	25977.06	.05	.06	.048	.05		
upper	25817.13	.05	.045	.05			
upper	25727.13	.04	.05	.04	.045	.05	
upper	25613.79	.04	.05	.05	.06	.05	
upper	25447.86	.05	.05	.06	.05		
upper	25222.61	.05	.055	.06	.06	.05	
upper	24991.27	.05	.04	.06	.05		
upper	24754.28	.05	.045	.05	.05		
upper	24588.07	.05	.045	.06	.05		
upper	24317.77	.05	.05	.05	.06	.05	
upper	24078.34	.05	.05	.06	.05		
upper	23858.15	.05	.04	.06	.05		
upper	23410.62	.05	.05	.035	.05		
upper	23021.58	.05	.035	.06			
upper	22709.53	.05	.035	.07			
upper	22439.86	.05	.045	.05			
upper	22135.43	.05	.048	.05	.05		
upper	21893.26	.05	.035	.05	.035	.05	
upper	21722.29	.05	.035	.05	.05	.035	.05
upper	21619.14	.05	.035	.06	.035	.05	
upper	21161.08	.05	.035	.05			
upper	20689.67	.06	.035	.035	.05		
upper	20224.2	.05	.03	.05	.06		
upper	19962.61	.05	.045	.06	.06		
upper	19774.66	.05	.035	.05	.05	.05	.06
upper	19584.44	.05	.03	.06			
upper	19356.98	.05	.035	.06			
upper	19010.68	.05	.035	.05	.06		
upper	18727.05	.05	.035	.045	.06		
upper	18351.98	.08	.042	.06			
upper	17941.17	.08	.035	.06			
upper	17531.27	.08	.03	.06			
upper	17353.02	.08	.03	.06			
upper	17186.91	.08	.034	.06			
upper	16713.82	.07	.05	.03	.06		
upper	16317.38	.07	.05	.03	.06		
upper	15833.59	.07	.07	.03	.06		
upper	15499.03	.07	.07	.04	.06		
upper	15303.96	.07	.07	.03	.03	.06	
upper	15139.89	.07	.07	.03	.03	.06	
upper	14880.52	.06	.07	.07	.03	.06	.06
upper	14549.94	.06	.07	.06	.042	.06	
upper	14469.1	.06	.07	.055	.03	.06	
upper	14378.58	.06	.055	.03	.05		
upper	14287.58	.06	.055	.04	.055		
upper	14202.59	.06	.07	.03	.03	.06	.06
upper	13863.77	.06	.048	.065			
upper	13436.95	.054	.038	.06			
upper	13118.88	.06	.042	.06			
upper	13002.28	.06	.03	.06			
upper	12894.15	.06	.045	.052			
upper	12790.35	.06	.035	.06			
upper	12718.49	.06	.032	.065			
upper	12546.41	.06	.04	.055			
upper	12365.94	.05	.045	.05			
upper	12212.12	.045	.045	.058			
upper	11918.47	.06	.04	.05			
upper	11673.91	.06	.035	.06			
upper	11248.91	.06	.037	.06	.05		
upper	10901.11	.09	.035	.038	.06	.05	
upper	10673.59	.07	.032	.06	.05		
middle	10603.59	.07	.03	.06	.05		
middle	10465.1	.087	.03	.05			
middle	10320.64	.088	.044	.05			
middle	10131.91	.055	.03	.05			
middle	9909.25	.06	.032	.05			

middle	9550.47	.06	.042	.05			
middle	9307.97	.06	.037	.05			
middle	9091.3	.06	.04	.05			
middle	8865.4	.05	.04	.04	.04	.05	.055
middle	8587.35	.05	.03	.05			
middle	8257.08	.06	.03	.05	.055		
middle	7968.62	.05	.03	.05	.055		
middle	7628.04	.06	.035	.05	.055		
middle	7244.33	.035	.025	.055			
middle	6971.06	.035	.025	.055			
middle	6769.06	.035	.03	.055			
middle	6687.06	Bridge					
middle	6544.64	.04	.035	.04			
middle	6260.16	.06	.05	.035	.045	.055	
middle	5961.45	.06	.05	.04	.045	.055	
middle	5794.74	.06	.05	.032	.045		
middle	5640.23	.06	.055	.032	.055		
lower	5365.23	.05	.035				
lower	5242.33	.04	.035	.04	.055		
lower	5189.01	.045	.035	.045			
lower	5164.33	Bridge					
lower	5036.06	.045	.035	.045			
lower	5007.33	.04	.035	.04	.055		
lower	4808.89	.045	.035	.06	.055	.07	
lower	4640.59	.04	.035	.07	.065	.07	
lower	4293.46	.04	.05	.035	.065	.08	
lower	3943.83	.04	.05	.035	.055		
lower	3579.38	.04	.05	.038	.055		
lower	3344.57	.05	.035	.06			
lower	3039.07	.05	.035	.065			
lower	2734.71	.08	.05	.03	.065		
lower	2590.18	.08	.05	.035	.045	.07	
lower	2425.08	.08	.05	.035	.055	.07	
lower	2225.5	.08	.045	.05	.055		
lower	1877.58	.08	.045	.04	.055	.03	.055
lower	1549.86	.06	.035	.06	.035	.06	
lower	1261.13	.032	.06	.04	.08		
lower	968.69	.032	.06	.035	.06	.05	
lower	760.51	.032	.06	.035	.06	.05	
lower	554.81	.05	.035	.065	.06		
lower	0	.06	.032	.038	.06	.05	

Profile Output Table - Standard Table 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Agua Caliente	upper	31333.21	100 Year	12000.00	2798.20	2804.53	2805.07	2807.51	0.025034	13.85	866.30	198.77	1.17
Agua Caliente	upper	31224.76	100 Year	12000.00	2794.20	2801.36	2802.10	2804.58	0.028937	14.40	833.35	203.98	1.26
Agua Caliente	upper	31089.71	100 Year	12000.00	2790.20	2797.69	2798.23	2800.96	0.024778	14.50	827.85	174.96	1.17
Agua Caliente	upper	30990.87	100 Year	12000.00	2788.20	2797.85	2796.36	2799.52	0.008069	10.37	1157.09	169.65	0.70
Agua Caliente	upper	30898.84	100 Year	12000.00	2786.20	2796.47	2794.77	2798.71	0.008390	12.00	999.69	118.03	0.73
Agua Caliente	upper	30840.82	100 Year	12000.00	2784.50	2794.23	2794.12	2797.93	0.014944	15.42	780.60	102.53	0.97
Agua Caliente	upper	30690.61	100 Year	12000.00	2784.20	2792.48	2792.48	2795.53	0.014361	14.08	876.20	155.04	0.95
Agua Caliente	upper	30547.71	100 Year	12000.00	2782.20	2788.43	2789.60	2792.64	0.027774	17.05	770.00	178.49	1.28
Agua Caliente	upper	30481.41	100 Year	12000.00	2780.07	2787.05	2787.88	2790.74	0.025160	15.57	794.88	172.49	1.21
Agua Caliente	upper	30424.82	100 Year	12000.00	2778.20	2785.14	2786.14	2789.15	0.030562	16.08	750.70	167.47	1.31
Agua Caliente	upper	30362.48	100 Year	12000.00	2776.20	2783.92	2784.51	2787.34	0.022759	14.82	809.52	155.06	1.14
Agua Caliente	upper	30290.36	100 Year	12000.00	2773.03	2781.87	2782.67	2785.49	0.027969	15.26	786.23	168.47	1.25
Agua Caliente	upper	30232.14	100 Year	12000.00	2771.61	2782.57	2781.37	2784.39	0.008823	10.81	1114.35	184.13	0.74
Agua Caliente	upper	30003.57	100 Year	12000.00	2770.20	2778.75	2778.75	2781.57	0.[illegible]821	13.48	889.94	156.14	1.00
[illegible]a Caliente	upper	29768.97	100 Year	12000.00	2767.34	2774.51	2774.82	2777.44	0.018391	13.86	895.21	187.34	1.04
Agua Caliente	upper	29627.21	100 Year	12000.00	2766.03	2772.50	2772.50	2775.07	0.014066	13.18	984.28	201.11	0.93
Agua Caliente	upper	29558.97	100 Year	12000.00	2763.71	2770.15	2770.95	2773.73	0.024488	15.26	807.09	182.75	1.19

Agua Caliente	upper			29500.74	100	Year	12000.00	2762.20	2770.61	2770.01	2772.82	0.010993	12.06	1045.48	203.70	0.83
Agua Caliente	upper			29369.94	100	Year	12000.00	2760.50	2769.55	2768.83	2771.37	0.009511	10.92	1154.15	233.22	0.76
Agua Caliente	upper			29098.06	100	Year	12000.00	2758.20	2765.78	2765.70	2768.14	0.014661	12.40	997.85	217.38	0.93
Agua Caliente	upper			28875.2	100	Year	12000.00	2756.20	2762.69	2762.69	2764.74	0.014950	11.60	1079.76	279.18	0.92
Agua Caliente	upper			28734.99	100	Year	12000.00	2754.20	2759.83	2760.18	2762.17	0.022454	12.35	993.06	280.66	1.09
Agua Caliente	upper			28592.81	100	Year	12000.00	2752.20	2757.61	2757.19	2759.08	0.012751	9.90	1241.21	607.68	0.84
Agua Caliente	upper			28479.43	100	Year	12000.00	2750.18	2755.54	2755.54	2757.34	0.018281	10.74	1119.22	584.84	0.99
Agua Caliente	upper			28394.36	100	Year	12000.00	2747.25	2753.25	2753.78	2755.49	0.024568	12.13	1029.02	478.21	1.22
Agua Caliente	upper			28247.34	100	Year	12000.00	2744.20	2751.38	2751.38	2753.12	0.016436	10.56	1136.79	435.18	1.00
Agua Caliente	upper			28136.75	100	Year	12000.00	2742.20	2748.76	2749.28	2750.96	0.022722	12.05	1033.20	425.03	1.26
Agua Caliente	upper			28029.09	100	Year	12000.00	2740.20	2747.95	2747.95	2749.55	0.013668	10.18	1191.36	453.68	0.98
Agua Caliente	upper			27892.68	100	Year	12000.00	2738.20	2746.47	2745.81	2747.35	0.008076	7.79	1643.11	481.94	0.71
Agua Caliente	upper			27758.38	100	Year	12000.00	2736.20	2744.56	2744.56	2745.98	0.011831	9.69	1300.23	462.68	0.96
Agua Caliente	upper			27636.17	100	Year	12000.00	2733.15	2742.17	2742.57	2744.24	0.015853	11.60	1041.53	326.93	1.14
Agua Caliente	upper			27415.17	100	Year	12000.00	2732.20	2740.73	2740.03	2741.88	0.008557	8.66	1398.04	357.53	0.76
Agua Caliente	upper			27236.39	100	Year	12000.00	2730.20	2738.86	2738.31	2740.15	0.010867	9.16	1326.15	336.27	0.80
Agua Caliente	upper			27073.54	100	Year	12000.00	2728.20	2737.25	2736.57	2738.49	0.009475	8.93	1353.70	337.02	0.77
Agua Caliente	upper			26937.64	100	Year	12000.00	2726.20	2735.45	2734.99	2736.81	0.016365	9.37	1285.59	359.58	0.83
Agua Caliente	upper			26827.35	100	Year	12000.00	2724.20	2734.42	2733.51	2735.56	0.007564	8.59	1405.58	316.48	0.71
Agua Caliente	upper			26541.23	100	Year	12000.00	2722.20	2730.96	2730.96	2732.63	0.014037	10.37	1157.95	346.89	0.99
Agua Caliente	upper			26354.97	100	Year	12000.00	2720.20	2729.57	2728.00	2730.35	0.007948	7.08	1699.62	356.80	0.56
Agua Caliente	upper			26188.3	100	Year	12000.00	2720.20	2727.73	2726.74	2728.93	0.008587	8.84	1389.76	332.83	0.70
Agua Caliente	upper			25977.06	100	Year	12000.00	2718.20	2724.71	2724.55	2726.59	0.013841	11.55	1184.22	293.22	0.85
Agua Caliente	upper			25817.13	100	Year	12000.00	2716.20	2722.97	2722.57	2724.61	0.010283	10.71	1269.44	314.39	0.79
Agua Caliente	upper			25727.13	100	Year	12000.00	2714.20	2722.33	2721.75	2723.75	0.007262	10.34	1443.79	371.63	0.72
Agua Caliente	upper			25613.79	100	Year	12000.00	2712.20	2720.78	2720.13	2722.69	0.011719	11.55	1248.15	356.15	0.78
Agua Caliente	upper			25447.86	100	Year	12000.00	2710.20	2719.47	2718.18	2720.81	0.009160	9.98	1504.56	438.68	0.69
Agua Caliente	upper			25222.61	100	Year	12000.00	2708.20	2716.78	2716.78	2718.28	0.014241	10.37	1372.19	458.02	0.80
Agua Caliente	upper			24991.27	100	Year	12000.00	2706.20	2714.08	2713.91	2715.78	0.008381	11.01	1341.03	414.92	0.80
Agua Caliente	upper			24754.28	100	Year	12000.00	2703.34	2712.23	2711.86	2713.66	0.008586	10.16	1449.39	469.16	0.73
Agua Caliente	upper			24588.07	100	Year	12000.00	2702.20	2710.92	2710.77	2712.29	0.007732	10.20	1581.96	556.09	0.70
Agua Caliente	upper			24317.77	100	Year	12000.00	2700.27	2707.46	2707.37	2709.14	0.018741	10.85	1243.17	387.98	0.84
Agua Caliente	upper			24078.34	100	Year	12000.00	2698.20	2706.00	2704.01	2706.79	0.005021	7.50	1826.50	431.03	0.51
Agua Caliente	upper			23858.15	100	Year	12000.00	2695.58	2703.12	2703.09	2705.12	0.010624	11.48	1144.39	338.48	0.88
Agua Caliente	upper			23410.62	100	Year	12000.00	2692.20	2699.65	2699.32	2701.37	0.006506	10.70	1261.73	386.65	0.80
Agua Caliente	upper			23021.58	100	Year	12000.00	2691.50	2697.95	2697.27	2699.05	0.004641	9.23	1839.54	540.61	0.68
Agua Caliente	upper			22709.53	100	Year	12000.00	2689.29	2695.92	2695.61	2697.36	0.006204	10.45	1630.84	481.39	0.78
Agua Caliente	upper			22439.86	100	Year	12000.00	2686.84	2693.95	2693.87	2695.18	0.009841	9.67	1602.51	629.00	0.75
Agua Caliente	upper			22135.43	100	Year	12000.00	2683.58	2689.87	2689.78	2691.34	0.016451	10.38	1303.61	435.38	0.89
Agua Caliente	upper			21893.26	100	Year	12000.00	2680.20	2688.73	2687.10	2689.47	0.003087	7.48	1900.37	666.86	0.55
Agua Caliente	upper			21722.29	100	Year	13000.00	2680.08	2687.60	2687.38	2688.71	0.007142	9.43	1640.11	628.59	0.80
Agua Caliente	upper			21619.14	100	Year	13000.00	2680.20	2687.01	2686.76	2688.01	0.005665	9.09	1844.81	831.64	0.73
Agua Caliente	upper			21161.08	100	Year	13000.00	2676.20	2684.39	2683.84	2685.46	0.005966	8.72	1936.06	900.30	0.74

Agua Caliente	upper	20689.67	100	Year	13000.00	2674.20	2681.85	2681.48	2682.92	0.005342	8.79	2026.44	822.14	0.71
Agua Caliente	upper	20224.2	100	Year	13000.00	2672.20	2679.60	2679.50	2680.74	0.004457	9.26	2028.64	910.69	0.75
Agua Caliente	upper	19962.61	100	Year	13000.00	2672.20	2678.11	2678.01	2679.10	0.008839	9.12	2072.42	1162.01	0.72
Agua Caliente	upper	19774.66	100	Year	13000.00	2670.20	2677.22	2676.20	2678.07	0[illegible]3672	8.31	2292.03	1262.83	0.61
[illegible]a Caliente	upper	19584.44	100	Year	13000.00	2670.03	2675.79	2675.49	2677.12	0.[illegible]5100	10.30	1831.22	539.16	0.81
Agua Caliente	upper	19356.98	100	Year	13000.00	2668.20	2674.43	2673.97	2675.78	0.006960	10.52	1731.86	901.33	0.81
Agua Caliente	upper	19010.68	100	Year	13000.00	2665.07	2671.96	2671.84	2673.26	0.008256	9.81	1613.18	801.24	0.86
Agua Caliente	upper	18727.05	100	Year	13000.00	2664.20	2670.72	2669.92	2671.51	0.003922	7.94	2146.16	1435.97	0.61
Agua Caliente	upper	18351.98	100	Year	13000.00	2662.20	2668.25	2668.09	2669.34	0.009073	9.35	2147.65	1530.96	0.76
Agua Caliente	upper	17941.17	100	Year	13000.00	2660.20	2665.40	2664.19	2666.22	0.005868	8.96	2838.51	1543.89	0.74
Agua Caliente	upper	17531.27	100	Year	13000.00	2658.20	2662.67	2661.48	2663.60	0.006747	9.67	2828.44	1427.37	0.89
Agua Caliente	upper	17353.02	100	Year	13000.00	2656.20	2661.71	2661.40	2662.50	0.004996	8.89	3133.67	1348.89	0.78
Agua Caliente	upper	17186.91	100	Year	13000.00	2655.21	2660.52	2658.15	2661.47	0.007003	9.11	2602.42	1247.90	0.81
Agua Caliente	upper	16713.82	100	Year	13000.00	2652.20	2657.69	2657.49	2658.67	0.005124	8.46	2051.41	917.91	0.78
Agua Caliente	upper	16317.38	100	Year	13000.00	2650.20	2656.02	2655.32	2656.87	0.003840	7.78	2020.36	625.63	0.68
Agua Caliente	upper	15833.59	100	Year	13000.00	2648.38	2654.03	2653.27	2654.93	0.004173	7.74	1832.42	560.05	0.69
Agua Caliente	upper	15499.03	100	Year	13000.00	2647.30	2651.85	2651.37	2652.82	0.010406	8.02	1711.38	755.30	0.76
Agua Caliente	upper	15303.96	100	Year	13000.00	2646.20	2650.31	2649.88	2651.42	0.005184	8.72	1743.69	636.32	0.78
Agua Caliente	upper	15139.89	100	Year	13000.00	2644.72	2649.89	2648.76	2650.58	0.003733	6.84	2061.80	560.89	0.59
Agua Caliente	upper	14880.52	100	Year	13000.00	2643.97	2648.38	2647.76	2649.47	0.004661	8.44	1667.79	1191.70	0.75
Agua Caliente	upper	14549.94	100	Year	13000.00	2641.78	2645.91	2645.59	2647.07	0.012599	9.09	1645.86	678.17	0.86
Agua Caliente	upper	14469.1	100	Year	13000.00	2640.20	2645.46	2644.92	2646.45	0[illegible]4494	8.21	1825.52	857.99	0.73
[illegible]a Caliente	upper	14378.58	100	Year	13000.00	2640.20	2645.18	2644.16	2646.08	0.[illegible]3252	7.87	1963.66	1247.81	0.64
Agua Caliente	upper	14287.58	100	Year	13000.00	2640.10	2644.82	2644.34	2645.67	0.006196	7.78	2045.35	1532.00	0.66
Agua Caliente	upper	14202.59	100	Year	13000.00	2638.20	2644.75	2643.27	2645.30	0.002068	6.36	2674.83	1844.18	0.49
Agua Caliente	upper	13863.77	100	Year	13000.00	2638.12	2643.02	2642.94	2643.95	0.009933	8.48	2171.03	2402.67	0.70
Agua Caliente	upper	13436.95	100	Year	13000.00	2634.71	2640.52	2639.94	2641.19	0.004358	7.37	2685.23	2528.81	0.59
Agua Caliente	upper	13118.88	100	Year	13000.00	2633.96	2638.28	2638.13	2639.18	0.009836	8.85	2405.39	2589.87	0.78
Agua Caliente	upper	13002.28	100	Year	13000.00	2632.20	2637.65	2637.52	2638.46	0.003882	8.34	2857.48	2201.83	0.70
Agua Caliente	upper	12894.15	100	Year	13000.00	2632.20	2636.93	2636.13	2637.81	0.010039	8.34	2277.28	2439.32	0.73
Agua Caliente	upper	12790.35	100	Year	13000.00	2632.20	2636.43	2636.12	2637.08	0.004595	7.39	2901.95	2468.11	0.64
Agua Caliente	upper	12718.49	100	Year	13000.00	2632.20	2636.20	2635.73	2636.75	0.003708	7.07	3248.06	2399.24	0.63
Agua Caliente	upper	12546.41	100	Year	13000.00	2630.20	2635.61	2635.22	2636.09	0.004009	6.55	3298.79	2228.07	0.53
Agua Caliente	upper	12365.94	100	Year	13000.00	2630.20	2634.45	2634.16	2635.04	0.008279	7.75	2814.96	2240.66	0.67
Agua Caliente	upper	12212.12	100	Year	13000.00	2628.20	2633.42	2633.24	2633.96	0.005967	7.08	2975.45	2202.68	0.58
Agua Caliente	upper	11918.47	100	Year	13000.00	2626.92	2631.97	2631.57	2632.38	0.004401	6.52	3542.74	2276.51	0.55
Agua Caliente	upper	11673.91	100	Year	13000.00	2625.59	2630.73	2630.46	2631.27	0.004717	7.43	3267.09	2631.03	0.65
Agua Caliente	upper	11248.91	100	Year	13000.00	2624.20	2628.93	2628.08	2629.41	0.004401	7.27	3309.61	2325.67	0.60
Agua Caliente	upper	10901.11	100	Year	13000.00	2622.20	2625.35	2624.18	2626.11	0.014494	9.86	2919.40	1891.07	1.01
Agua Caliente	upper	10673.59	100	Year	13000.00	2620.20	2623.79	2623.44	2624.33	0[illegible]162	6.86	3385.48	1840.54	0.65
[illegible]a Caliente	middle	10603.59	100	Year	10539.08	2620.20	2623.46	2623.05	2624.04	0.004081	6.83	2471.63	1288.01	0.67
Agua Caliente	middle	10465.1	100	Year	10539.08	2619.05	2622.79	2621.97	2623.42	0.003580	6.79	2381.54	1040.32	0.64
Agua Caliente	middle	10320.64	100	Year	10539.08	2617.71	2621.21	2621.19	2622.34	0.015935	8.77	1433.75	730.21	0.90

Agua Caliente	middle	10131.91	100 Year	10539.08	2616.20	2620.88	2619.13	2621.38	0.001810	5.71	2069.80	817.80	0.48		
Agua Caliente	middle	9909.25	100 Year	10539.08	2616.20	2620.07	2619.13	2620.79	0.003795	6.88	1684.92	642.83	0.63		
Agua Caliente	middle	9550.47	100 Year	10539.08	2614.20	2618.81	2617.10	2619.31	0.003879	5.73	1964.13	687.87	0.49		
Agua Caliente	middle	9307.97	100 Year	10539.08	2612.20	2618.47	2615.17	2618.73	0.001100	4.10	2579.03	656.23	0.31		
Agua Caliente	middle	9091.3	100 Year	10539.08	2611.74	2616.20	2616.20	2617.75	0.016029	9.98	1056.42	554.11	1.00		
Agua Caliente	middle	8865.4	100 Year	10539.08	2609.44	2614.29	2613.34	2615.14	0.006358	7.40	1432.30	535.06	0.66		
Agua Caliente	middle	8587.35	100 Year	10539.08	2607.96	2613.00	2612.05	2613.82	0.003626	7.24	1455.37	378.88	0.65		
Agua Caliente	middle	8257.08	100 Year	10539.08	2605.51	2610.66	2610.51	2612.06	0.007870	9.49	1110.81	344.05	0.93		
Agua Caliente	middle	7968.62	100 Year	10539.08	2604.09	2610.01	2608.52	2610.68	0.002428	6.59	1599.30	357.14	0.55		
Agua Caliente	middle	7628.04	100 Year	10539.08	2601.69	2609.57	2606.58	2610.00	0.001388	5.22	2019.14	329.12	0.37		
Agua Caliente	middle	7244.33	100 Year	10539.08	2599.87	2609.39	2604.31	2609.72	0.000363	4.64	2309.33	277.37	0.28		
Agua Caliente	middle	6971.06	100 Year	10539.08	2598.09	2608.81	2603.80	2609.49	0.000643	6.63	1589.50	159.52	0.37		
Agua Caliente	middle	6769.06	100 Year	10539.08	2596.77	2608.46	2603.62	2609.28	0.001079	7.26	1450.81	141.92	0.40		
Agua Caliente	middle	6687.06				Bridge									
Agua Caliente	middle	6544.64	100 Year	10539.08	2595.60	2602.36	2602.36	2605.04	0.009461	13.19	818.05	182.34	0.95		
Agua Caliente	middle	6260.16	100 Year	10539.08	2592.33	2597.12	2598.40	2600.57	0.027096	14.96	730.93	493.20	1.49		
Agua Caliente	middle	5961.45	100 Year	10539.08	2590.42	2596.53	2596.53	2597.27	0.006665	8.65	2089.89	1683.52	0.69		
Agua Caliente	middle	5794.74	100 Year	10539.08	2589.70	2595.13	2595.31	2596.10	0.007106	9.60	1989.93	1482.81	0.86		
Agua Caliente	middle	5640.23	100 Year	10539.08	2588.76	2595.19	2594.04	2595.41	0.001698	4.55	3511.66	2254.39	0.42		
Agua Caliente	lower	5365.23	100 Year	6590.44	2587.74	2593.55	2592.16	2593.82	0.001791	4.62	1719.08	1105.12	0.40		
Agua Caliente	lower	5242.33	100 Year	6590.44	2586.65	2592.41	2591.71	2593.37	0.006284	7.85	839.53	577.62	0.73		
Agua Caliente	lower	5189.01	100 Year	6590.44	2586.56	2592.34	2590.98	2593.02	0.003609	6.64	991.88	232.48	0.57		
Agua Caliente	lower	5164.33				Bridge									
Agua Caliente	lower	5036.06	100 Year	6590.44	2585.81	2591.42	2590.11	2592.13	0.003734	6.77	973.23	228.32	0.58		
Agua Caliente	lower	5007.33	100 Year	6590.44	2585.69	2590.91	2590.31	2591.96	0.006026	8.45	859.10	456.65	0.73		
Agua Caliente	lower	4808.89	100 Year	6590.44	2584.15	2589.08	2589.08	2590.12	0.009895	10.80	1009.08	1169.24	0.93		
Agua Caliente	lower	4640.59	100 Year	6590.44	2583.27	2587.77	2587.31	2588.32	0.005821	6.91	1363.02	1376.82	0.69		
Agua Caliente	lower	4293.46	100 Year	6590.44	2581.36	2585.29	2585.11	2585.78	0.008037	7.38	1609.94	1517.51	0.79		
Agua Caliente	lower	3943.83	100 Year	6590.44	2578.93	2583.65	2582.90	2584.00	0.003342	5.36	1697.97	896.11	0.53		
Agua Caliente	lower	3579.38	100 Year	6590.44	2577.11	2581.52	2581.52	2582.30	0.007789	8.15	1284.15	927.12	0.75		
Agua Caliente	lower	3344.57	100 Year	6590.44	2575.66	2579.93	2579.70	2580.37	0.005541	6.45	1702.83	1661.84	0.66		
Agua Caliente	lower	3039.07	100 Year	6590.44	2573.50	2577.35	2577.35	2578.06	0.009597	7.74	1371.87	1667.31	0.85		
Agua Caliente	lower	2734.71	100 Year	6590.44	2571.40	2575.05	2574.73	2575.43	0.006621	6.89	1963.73	1753.41	0.81		
Agua Caliente	lower	2590.18	100 Year	6590.44	2570.78	2574.03	2573.57	2574.40	0.008040	6.37	1718.92	1826.60	0.76		
Agua Caliente	lower	2425.08	100 Year	6590.44	2569.69	2573.35	2572.56	2573.48	0.003608	4.22	2669.50	2304.09	0.51		
Agua Caliente	lower	2225.5	100 Year	6590.44	2568.35	2572.22	2571.79	2572.39	0.007083	4.52	2156.18	2156.45	0.47		
Agua Caliente	lower	1877.58	100 Year	6590.44	2566.10	2569.37	2569.37	2569.81	0.008678	7.92	1667.47	1782.96	0.93		
Agua Caliente	lower	1549.86	100 Year	6590.44	2563.59	2566.90	2566.60	2567.14	0.006509	4.34	1739.50	2018.52	0.64		
Agua Caliente	lower	1261.13	100 Year	6590.44	2561.37	2565.34	2564.98	2565.51	0.004692	3.89	2161.98	2076.88	0.50		
Agua Caliente	lower	968.69	100 Year	6590.44	2560.20	2563.40	2563.09	2563.68	0.007383	5.53	1903.25	1938.67	0.71		
Agua Caliente	lower	760.51	100 Year	6590.44	2558.20	2561.43	2561.33	2561.82	0.010203	6.62	1687.43	1645.04	0.84		
Agua Caliente	lower	554.81	100 Year	6590.44	2556.20	2559.87	2559.65	2560.24	0.005119	6.76	2099.04	1924.29	0.65		
Agua Caliente	lower	0	100 Year	27220.44	2550.20	2558.08	2556.18	2558.75	0.002352	7.60	5934.54	1964.48	0.53		

AC Spur	AC Spur	5472.12	100 Year	2460.92	2622.20	2623.92	2623.18	2624.04	0.009983	2.98	866.25	565.34	0.41		
AC Spur	AC Spur	5178.24	100 Year	2460.92	2619.44	2621.14	2620.60	2621.23	0.008771	2.64	1053.97	897.79	0.38		
AC Spur	AC Spur	4813.20	100 Year	2460.92	2616.20	2618.28	2617.64	2618.39	0.006911	2.71	1002.11	1086.36	0.39		
AC Spur	AC Spur	4497.37	100 Year	2460.92	2614.20	2616.65	2615.75	2616.72	[illegible] 4113	2.14	1235.64	1029.25	0.30		
[illegible] Spur	AC Spur	4230.27	100 Year	2460.92	2613.79	2615.43	2614.82	2615.49	0.[illegible]5061	2.09	1285.47	1243.47	0.32		
AC Spur	AC Spur	3934.74	100 Year	2460.92	2612.19	2613.27	2612.85	2613.38	0.010819	2.69	953.94	999.91	0.46		
AC Spur	AC Spur	3654.17	100 Year	2460.92	2610.20	2611.91	2611.06	2611.95	0.002812	1.67	1553.53	1223.35	0.25		
AC Spur	AC Spur	3474.64	100 Year	2460.92	2610.20	2611.08	2610.67	2611.14	0.008244	2.06	1242.65	1588.17	0.39		
AC Spur	AC Spur	3215.30	100 Year	2460.92	2606.84	2609.49	2608.83	2609.54	0.004727	1.90	1371.94	1619.69	0.31		
AC Spur	AC Spur	2911.33	100 Year	2460.92	2604.20	2608.42	2607.40	2608.46	0.002806	1.51	1622.86	1982.39	0.24		
AC Spur	AC Spur	2602.91	100 Year	2460.92	2606.08	2607.14	2606.68	2607.19	0.006654	1.95	1360.62	2381.30	0.35		
AC Spur	AC Spur	2286.58	100 Year	2460.92	2603.57	2605.11	2604.60	2605.17	0.005831	2.07	1330.05	2321.90	0.34		
AC Spur	AC Spur	1946.69	100 Year	2460.92	2601.58	2602.83	2602.48	2602.90	0.008632	2.03	1225.33	2464.60	0.39		
AC Spur	AC Spur	1600.02	100 Year	2460.92	2598.57	2600.55	2600.01	2600.62	0.005164	2.24	1249.28	3006.95	0.35		
AC Spur	AC Spur	1199.20	100 Year	2460.92	2596.66	2598.64	2598.01	2598.71	0.004633	1.84	1264.60	3109.39	0.32		
AC Spur	AC Spur	837.50	100 Year	2460.92	2594.52	2596.27	2595.83	2596.38	0.009275	2.82	981.94	2558.12	0.44		
AC Spur	AC Spur	566.48	100 Year	2460.92	2592.62	2594.81	2594.11	2594.89	0.003733	2.49	1162.15	3016.89	0.35		
AC Spur	AC Spur	350.	100 Year	2460.92	2591.56	2592.65	2592.65	2593.02	0.037061	5.08	517.74	1781.88	0.98		
AC Split	upper	3599.078	100 Year	3948.64	2590.35	2593.63	2592.99	2593.83	0.006362	3.64	1150.64	943.24	0.46		
AC Split	upper	3235.949	100 Year	3948.64	2589.07	2592.00	2591.12	2592.10	0.003715	2.85	1591.20	1116.39	0.36		
AC Split	lower	2853.265	100 Year	6409.56	2586.16	2590.24	2589.67	2590.42	0.004841	3.97	2118.73	1500.43	0.43		
AC Split	lower	2508.632	100 Year	6409.56	2584.20	2588.46	2587.75	2588.67	0.[illegible]403	4.28	1962.23	1409.58	0.45		
[illegible] Split	lower	2214.257	100 Year	6409.56	2581.17	2586.07	2585.45	2586.54	0.010056	5.68	1288.38	954.90	0.62		
AC Split	lower	1933.962	100 Year	6409.56	2580.75	2584.97	2583.59	2585.13	0.002683	3.47	2247.92	1080.18	0.33		
AC Split	lower	1426.381	100 Year	6409.56	2578.32	2582.98	2582.04	2583.20	0.006002	4.15	1851.97	1052.03	0.41		

Profile Output Table - Standard Table 2

River	Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Agua Caliente	upper	31333.21	100 Year	2807.51	2804.53	2.98				12000.00		198.77
Agua Caliente	upper	31224.76	100 Year	2804.58	2801.36	3.22	2.92	0.02		12000.00		203.98
Agua Caliente	upper	31089.71	100 Year	2800.96	2797.69	3.26	3.61	0.00		12000.00		174.96
Agua Caliente	upper	30990.87	100 Year	2799.52	2797.85	1.67	0.76	0.06		12000.00		169.65
Agua Caliente	upper	30898.84	100 Year	2798.71	2796.47	2.24	0.64	0.15	0.02	11999.96	0.02	118.03
Agua Caliente	upper	30840.82	100 Year	2797.93	2794.23	3.69	2.20	0.19	12.48	11987.52	0.00	102.53
Agua Caliente	upper	30690.61	100 Year	2795.53	2792.48	3.05	2.00	0.13	76.85	11883.53	39.62	155.04
Agua Caliente	upper	30547.71	100 Year	2792.64	2788.43	4.21	2.78	0.12	399.77	10899.55	700.68	178.49
Agua Caliente	upper	30481.41	100 Year	2790.74	2787.05	3.70	1.74	0.15	2[illegible]3	11744.87		172.49
[illegible]a Caliente	upper	30424.82	100 Year	2789.15	2785.14	4.01	1.56	0.03	26.30	11973.70		167.47
Agua Caliente	upper	30362.48	100 Year	2787.34	2783.92	3.41	1.64	0.18		12000.00		155.06
Agua Caliente	upper	30290.36	100 Year	2785.49	2781.87	3.62	1.81	0.02		12000.00		168.47

Agua Caliente	upper	30232.14	100 Year	2784.39	2782.57	1.81	2.71	0.10	4.58	11994.56	0.86	184.13	
Agua Caliente	upper	30003.57	100 Year	2781.57	2778.75	2.82	3.75	0.07		12000.00		156.14	
Agua Caliente	upper	29768.97	100 Year	2777.44	2774.51	2.93	4.12	0.01	148.98	11756.95	94.06	187.34	
Agua Caliente	upper	29627.21	100 Year	2775.07	2772.50	2.56	0.92	0.06	427.86	11267.39	304.75	201.11	
Agua Caliente	upper	29558.97	100 Year	2773.73	2770.15	3.58	1.24	0.10	94.01	11865.67	40.32	182.75	
Agua Caliente	upper	29500.74	100 Year	2772.82	2770.61	2.21	1.34	0.12	166.31	11701.95	131.74	203.70	
Agua Caliente	upper	29369.94	100 Year	2771.37	2769.55	1.81	3.18	0.05	266.27	11729.88	3.85	233.22	
Agua Caliente	upper	29098.06	100 Year	2768.14	2765.78	2.36	3.30	0.09	144.23	11855.77		217.38	
Agua Caliente	upper	28875.2	100 Year	2764.74	2762.69	2.06	2.23	0.03	212.40	11787.60		279.18	
Agua Caliente	upper	28734.99	100 Year	2762.17	2759.83	2.35	2.54	0.03	120.00	11880.00		280.66	
Agua Caliente	upper	28592.81	100 Year	2759.08	2757.61	1.47	1.71	0.03	962.49	11037.51		607.68	
Agua Caliente	upper	28479.43	100 Year	2757.34	2755.54	1.79	1.35	0.10	10.01	11989.99		584.84	
Agua Caliente	upper	28394.36	100 Year	2755.49	2753.25	2.24	1.79	0.05	6.18	11755.80	238.02	478.21	
Agua Caliente	upper	28247.34	100 Year	2753.12	2751.38	1.74	1.45	0.16	7.81	11771.34	220.85	435.18	
Agua Caliente	upper	28136.75	100 Year	2750.96	2748.76	2.19	2.12	0.05	0.95	11549.83	449.23	425.03	
Agua Caliente	upper	28029.09	100 Year	2749.55	2747.95	1.60	1.41	0.22		11951.39	48.61	453.68	
Agua Caliente	upper	27892.68	100 Year	2747.35	2746.47	0.88	1.32	0.05	17.22	10854.57	1128.21	481.94	
Agua Caliente	upper	27758.38	100 Year	2745.98	2744.56	1.42	1.43	0.01	0.32	11626.44	373.25	462.68	
Agua Caliente	upper	27636.17	100 Year	2744.24	2742.17	2.08	1.67	0.07		11879.23	120.77	326.93	
Agua Caliente	upper	27415.17	100 Year	2741.88	2740.73	1.16	1.72	0.01	0.53	11908.13	91.34	357.53	
Agua Caliente	upper	27236.39	100 Year	2740.15	2738.86	1.29	1.65	0.02	20.76	11872.18	107.07	336.27	
Agua Caliente	upper	27073.54	100 Year	2738.49	2737.25	1.23	1.66	0.01	3.35	11965.99	30.66	337.02	
Agua Caliente	upper	26937.64	100 Year	2736.81	2735.45	1.36	1.18	0.07	9.80	11979.00	11.20	359.58	
Agua Caliente	upper	26827.35	100 Year	2735.56	2734.42	1.14	2.88	0.05	18.75	11967.47	13.78	316.48	
Agua Caliente	upper	26541.23	100 Year	2732.63	2730.96	1.67	1.93	0.27	1.62	11998.38		346.89	
Agua Caliente	upper	26354.97	100 Year	2730.35	2729.57	0.78	1.38	0.04	13.66	11986.34		356.80	
Agua Caliente	upper	26188.3	100 Year	2728.93	2727.73	1.20	2.26	0.07	135.67	11864.33		332.83	
Agua Caliente	upper	25977.06	100 Year	2726.59	2724.71	1.89	1.91	0.08	1289.60	10710.40		293.22	
Agua Caliente	upper	25817.13	100 Year	2724.61	2722.97	1.63	0.79	0.06	770.10	10801.67	428.24	314.39	
Agua Caliente	upper	25727.13	100 Year	2723.75	2722.33	1.42	1.02	0.05	557.55	9869.32	1573.13	371.63	
Agua Caliente	upper	25613.79	100 Year	2722.69	2720.78	1.90	1.71	0.17	451.28	10905.73	642.98	356.15	
Agua Caliente	upper	25447.86	100 Year	2720.81	2719.47	1.34	2.51	0.02	845.69	10133.20	1021.12	438.68	
Agua Caliente	upper	25222.61	100 Year	2718.28	2716.78	1.50	2.47	0.02		10593.18	1406.82	458.02	
Agua Caliente	upper	24991.27	100 Year	2715.78	2714.08	1.70	2.04	0.08		10692.07	1307.93	414.92	
Agua Caliente	upper	24754.28	100 Year	2713.66	2712.23	1.44	1.35	0.02	1.28	10587.62	1411.10	469.16	
Agua Caliente	upper	24588.07	100 Year	2712.29	2710.92	1.37	3.11	0.03	88.75	9926.03	1985.21	556.09	
Agua Caliente	upper	24317.77	100 Year	2709.14	2707.46	1.68	2.08	0.27	25.46	10830.42	1144.11	387.98	
Agua Caliente	upper	24078.34	100 Year	2706.79	2706.00	0.79	1.55	0.12	290.99	10629.36	1079.65	431.03	
Agua Caliente	upper	23858.15	100 Year	2705.12	2703.12	2.00	3.67	0.08		11713.82	286.18	338.48	
Agua Caliente	upper	23410.62	100 Year	2701.37	2699.65	1.72	2.13	0.19	6.28	11593.14	400.58	386.65	
Agua Caliente	upper	23021.58	100 Year	2699.05	2697.95	1.10	1.65	0.04	252.78	9700.18	2047.05	540.61	
Agua Caliente	upper	22709.53	100 Year	2697.36	2695.92	1.45	2.12	0.06	70.40	10078.45	1851.15	481.39	
Agua Caliente	upper	22439.86	100 Year	2695.18	2693.95	1.23	3.82	0.02	905.04	9892.59	1202.38	629.00	

Agua Caliente	upper	22135.43	100 Year	2691.34	2689.87	1.47	1.51	0.36	324.33	8629.71	3045.96	435.38
Agua Caliente	upper	21893.26	100 Year	2689.47	2688.73	0.74	0.73	0.04	77.31	9226.04	2696.66	666.86
Agua Caliente	upper	21722.29	100 Year	2688.71	2687.60	1.10	0.67	0.03	2.87	8357.53	4639.60	628.59
Agua Caliente	upper	21619.14	100 Year	2688.01	2687.01	1.00	2.55	0.01	[illegible] 21	8629.97	4069.82	831.64
[illegible]ia Caliente	upper	21161.08	100 Year	2685.46	2684.39	1.06	2.54	0.00	[illegible].96	11592.04		900.30
Agua Caliente	upper	20689.67	100 Year	2682.92	2681.85	1.06	2.17	0.01	1581.14	11418.86		822.14
Agua Caliente	upper	20224.2	100 Year	2680.74	2679.60	1.14	1.57	0.08	1487.59	11053.29	459.13	910.69
Agua Caliente	upper	19962.61	100 Year	2679.10	2678.11	0.99	0.99	0.04	1715.14	9408.33	1876.53	1162.01
Agua Caliente	upper	19774.66	100 Year	2678.07	2677.22	0.85	0.81	0.15	920.47	9855.44	2224.10	1262.83
Agua Caliente	upper	19584.44	100 Year	2677.12	2675.79	1.33	1.34	0.00	299.34	10207.99	2492.67	539.16
Agua Caliente	upper	19356.98	100 Year	2675.78	2674.43	1.35	2.50	0.01	37.17	9650.44	3312.39	901.33
Agua Caliente	upper	19010.68	100 Year	2673.26	2671.96	1.30	1.49	0.25	0.14	10929.97	2069.89	801.24
Agua Caliente	upper	18727.05	100 Year	2671.51	2670.72	0.80	2.14	0.03	823.98	9995.32	2180.70	1435.97
Agua Caliente	upper	18351.98	100 Year	2669.34	2668.25	1.09	2.98	0.13	2469.55	10181.36	349.09	1530.96
Agua Caliente	upper	17941.17	100 Year	2666.22	2665.40	0.82	2.61	0.01	3553.06	8177.99	1268.95	1543.89
Agua Caliente	upper	17531.27	100 Year	2663.60	2662.67	0.93	1.06	0.04	3972.76	8002.20	1025.04	1427.37
Agua Caliente	upper	17353.02	100 Year	2662.50	2661.71	0.79	1.01	0.02	4093.87	8047.67	858.46	1348.89
Agua Caliente	upper	17186.91	100 Year	2661.47	2660.52	0.96	2.81	0.00	3430.95	9408.67	160.38	1247.90
Agua Caliente	upper	16713.82	100 Year	2658.67	2657.69	0.98	1.76	0.04	1262.87	11267.21	469.92	917.91
Agua Caliente	upper	16317.38	100 Year	2656.87	2656.02	0.85	1.93	0.01	817.83	11548.96	633.21	625.63
Agua Caliente	upper	15833.59	100 Year	2654.93	2654.03	0.90	2.10	0.01	8.51	12587.63	403.86	560.05
Agua Caliente	upper	15499.03	100 Year	2652.82	2651.85	0.97	1.38	0.01	[illegible]7	12510.98	441.65	755.30
[illegible]a Caliente	upper	15303.96	100 Year	2651.42	2650.31	1.11	0.71	0.13	8[illegible].50	12146.28	17.22	636.32
Agua Caliente	upper	15139.89	100 Year	2650.58	2649.89	0.69	1.08	0.04	476.49	12229.32	294.19	560.89
Agua Caliente	upper	14880.52	100 Year	2649.47	2648.38	1.09	2.39	0.01	200.51	12757.91	41.58	1191.70
Agua Caliente	upper	14549.94	100 Year	2647.07	2645.91	1.16	0.57	0.05	443.94	11458.45	1097.61	678.17
Agua Caliente	upper	14469.1	100 Year	2646.45	2645.46	0.99	0.35	0.03	458.13	12191.31	350.56	857.99
Agua Caliente	upper	14378.58	100 Year	2646.08	2645.18	0.90	0.40	0.02	428.75	12091.25	480.01	1247.81
Agua Caliente	upper	14287.58	100 Year	2645.67	2644.82	0.84	0.27	0.09	165.23	11480.68	1354.09	1532.00
Agua Caliente	upper	14202.59	100 Year	2645.30	2644.75	0.55	1.31	0.04	287.61	11269.96	1442.44	1844.18
Agua Caliente	upper	13863.77	100 Year	2643.95	2643.02	0.93	2.68	0.08	351.22	10655.48	1993.30	2402.67
Agua Caliente	upper	13436.95	100 Year	2641.19	2640.52	0.67	1.99	0.02	356.22	9994.53	2649.25	2528.81
Agua Caliente	upper	13118.88	100 Year	2639.18	2638.28	0.90	0.69	0.03	635.82	9203.30	3160.88	2589.87
Agua Caliente	upper	13002.28	100 Year	2638.46	2637.65	0.81	0.65	0.01	381.22	9541.92	3076.86	2201.83
Agua Caliente	upper	12894.15	100 Year	2637.81	2636.93	0.88	0.66	0.07	377.92	10267.04	2355.05	2439.32
Agua Caliente	upper	12790.35	100 Year	2637.08	2636.43	0.65	0.30	0.03	456.69	9712.76	2830.56	2468.11
Agua Caliente	upper	12718.49	100 Year	2636.75	2636.20	0.55	0.64	0.02	784.13	8889.13	3326.74	2399.24
Agua Caliente	upper	12546.41	100 Year	2636.09	2635.61	0.48	1.04	0.01	1578.88	8978.49	2442.63	2228.07
Agua Caliente	upper	12365.94	100 Year	2635.04	2634.45	0.59	1.06	0.01	3084.13	7307.10	2608.76	2240.66
Agua Caliente	upper	12212.12	100 Year	2633.96	2633.42	0.54	1.52	0.07	2[illegible]01	8477.45	2456.54	2202.68
[illegible]a Caliente	upper	11918.47	100 Year	2632.38	2631.97	0.41	1.09	0.01	4320.16	7338.09	1333.75	2276.51
Agua Caliente	upper	11673.91	100 Year	2631.27	2630.73	0.55	1.85	0.02	3542.13	7751.15	1706.72	2631.03
Agua Caliente	upper	11248.91	100 Year	2629.41	2628.93	0.48	3.26	0.03	4793.98	6721.16	1484.86	2325.67

Agua Caliente	upper	10901.11	100 Year	2626.11	2625.35	0.76	1.72	0.07	
6513.45	5811.90	674.66	1891.07						
Agua Caliente	upper	10673.59	100 Year	2624.33	2623.79	0.55	0.29	0.00	
3514.26	9485.74		1840.54						
Agua Caliente	middle	10603.59	100 Year	2624.04	2623.46	0.58	0.62	0.00	
2300.89	8238.19		1288.01						
Agua Caliente	middle	10465.1	100 Year	2623.42	2622.79	0.62	1.03	0.05	
1453.39	9085.69		1040.32						
Agua Caliente	middle	10320.64	100 Year	2622.34	2621.21	1.13	0.77	0.19	
573.53	9965.56		730.21						
Agua Caliente	middle	10131.91	100 Year	2621.38	2620.88	0.50	0.57	0.02	
224.69	10314.39		817.80						
Agua Caliente	middle	9909.25	100 Year	2620.79	2620.07	0.72	1.37	0.11	
241.69	10297.39		642.83						
Agua Caliente	middle	9550.47	100 Year	2619.31	2618.81	0.50	0.45	0.12	
169.98	10369.10		687.87						
Agua Caliente	middle	9307.97	100 Year	2618.73	2618.47	0.26	0.60	0.39	
14.38	10524.70		656.23						
Agua Caliente	middle	9091.3	100 Year	2617.75	2616.20	1.55	2.16	0.21	
0.00	10539.08	0.00	554.11						
Agua Caliente	middle	8865.4	100 Year	2615.14	2614.29	0.85	1.31	0.02	
15.58	10523.50		535.06						
Agua Caliente	middle	8587.35	100 Year	2613.82	2613.00	0.81	1.70	0.06	
	10539.08		378.88						
Agua Caliente	middle	8257.08	100 Year	2612.06	2610.66	1.40	1.16	0.22	
	10539.08		344.05						
Agua Caliente	middle	7968.62	100 Year	2610.68	2610.01	0.67	0.61	0.08	
	10539.08		357.14						
Agua Caliente	middle	7628.04	100 Year	2610.00	2609.57	0.42	0.24	0.03	
	10539.08		329.12						
Agua Caliente	middle	7244.33	100 Year	2609.72	2609.39	0.33	0.13	0.10	
	10496.98	42.10	277.37						
Agua Caliente	middle	6971.06	100 Year	2609.49	2608.81	0.68	0.17	0.04	
	10539.08		159.52						
Agua Caliente	middle	6769.06	100 Year	2609.28	2608.46	0.82	0.20	0.72	
	10539.08		141.92						
Agua Caliente	middle	6687.06		Bridge					
Agua Caliente	middle	6544.64	100 Year	2605.04	2602.36	2.68	2.34	0.89	
	10471.11	67.97	182.34						
Agua Caliente	middle	6260.16	100 Year	2600.57	2597.12	3.45	4.25	0.23	
45.03	10461.83	32.21	493.20						
Agua Caliente	middle	5961.45	100 Year	2597.27	2596.53	0.74	1.01	0.00	
2373.41	6088.39	2077.28	1683.52						
Agua Caliente	middle	5794.74	100 Year	2596.10	2595.13	0.97	1.15	0.02	
2275.36	6730.81	1532.92	1482.81						
Agua Caliente	middle	5640.23	100 Year	2595.41	2595.19	0.22			
3030.01	6184.92	1324.16	2254.39						
Agua Caliente	lower	5365.23	100 Year	2593.82	2593.55	0.27	0.39	0.07	
930.67	4734.65	925.11	1105.12						
Agua Caliente	lower	5242.33	100 Year	2593.37	2592.41	0.96	0.21	0.14	
	6590.44		577.62						
Agua Caliente	lower	5189.01	100 Year	2593.02	2592.34	0.69	0.02	0.02	
	6590.44		232.48						
Agua Caliente	lower	5164.33		Bridge					
Agua Caliente	lower	5036.06	100 Year	2592.13	2591.42	0.71	0.14	0.03	
	6590.44		228.32						
Agua Caliente	lower	5007.33	100 Year	2591.96	2590.91	1.05	1.84	0.00	
295.00	6107.61	187.83	456.65						
Agua Caliente	lower	4808.89	100 Year	2590.12	2589.08	1.04	1.29	0.15	
2556.88	2857.36	1176.20	1169.24						
Agua Caliente	lower	4640.59	100 Year	2588.32	2587.77	0.56	2.52	0.02	
812.42	4446.17	1331.84	1376.82						
Agua Caliente	lower	4293.46	100 Year	2585.78	2585.29	0.49	1.74	0.04	
573.38	3327.25	2689.80	1517.51						
Agua Caliente	lower	3943.83	100 Year	2584.00	2583.65	0.35	1.67	0.04	
53.77	4820.59	1716.07	896.11						
Agua Caliente	lower	3579.38	100 Year	2582.30	2581.52	0.77	1.55	0.10	
452.64	4758.69	1379.11	927.12						
Agua Caliente	lower	3344.57	100 Year	2580.37	2579.93	0.44	2.28	0.03	
854.36	4146.64	1589.44	1661.84						
Agua Caliente	lower	3039.07	100 Year	2578.06	2577.35	0.71	2.36	0.10	
149.01	4878.52	1562.90	1667.31						
Agua Caliente	lower	2734.71	100 Year	2575.43	2575.05	0.38	1.03	0.00	
467.39	2940.91	3182.14	1753.41						
Agua Caliente	lower	2590.18	100 Year	2574.40	2574.03	0.38	0.85	0.07	
627.85	3083.88	2878.71	1826.60						
Agua Caliente	lower	2425.08	100 Year	2573.48	2573.35	0.13	1.09	0.00	
1456.48	1966.08	3167.88	2304.09						
Agua Caliente	lower	2225.5	100 Year	2572.39	2572.22	0.17	2.56	0.03	
1684.03	1481.54	3424.87	2156.45						
Agua Caliente	lower	1877.58	100 Year	2569.81	2569.37	0.44			
3016.41	2314.23	1259.80	1782.96						
Agua Caliente	lower	1549.86	100 Year	2567.14	2566.90	0.24	1.61	0.02	
4153.79	2357.29	79.35	2018.52						

Agua Caliente	lower	1261.13	100 Year	2565.51	2565.34	0.17	1.83	0.01	2769.93	3802.73	17.78	2076.88
Agua Caliente	lower	968.69	100 Year	2563.68	2563.40	0.27	1.84	0.01	2193.35	2923.87	1473.22	1938.67
Agua Caliente	lower	760.51	100 Year	2561.82	2561.43	0.40	1.58	0.01	2034.30	3265.19	1290.95	1645.04
Agua Caliente	lower	554.81	100 Year	2560.24	2559.87	0.37	1.46	0.03	[illegible].73	3080.52	2509.18	1924.29
[illegible]ua Caliente	lower	0	100 Year	2558.75	2558.08	0.67			[illegible].43	19569.41	3903.60	1964.48
AC Spur	AC Spur	5472.12	100 Year	2624.04	2623.92	0.13	2.80	0.01	662.91	1797.98	0.03	565.34
AC Spur	AC Spur	5178.24	100 Year	2621.23	2621.14	0.09	2.85	0.00	485.18	1664.88	310.86	897.79
AC Spur	AC Spur	4813.20	100 Year	2618.39	2618.28	0.11	1.66	0.01	139.34	2244.64	76.94	1086.36
AC Spur	AC Spur	4497.37	100 Year	2616.72	2616.65	0.07	1.23	0.00	39.02	2313.41	108.48	1029.25
AC Spur	AC Spur	4230.27	100 Year	2615.49	2615.43	0.06	2.10	0.00	50.00	2146.96	263.96	1243.47
AC Spur	AC Spur	3934.74	100 Year	2613.38	2613.27	0.11	1.42	0.02	82.53	2292.97	85.42	999.91
AC Spur	AC Spur	3654.17	100 Year	2611.95	2611.91	0.04	0.81	0.00	8.86	2072.35	379.72	1223.35
AC Spur	AC Spur	3474.64	100 Year	2611.14	2611.08	0.06	1.59	0.00	35.72	1646.75	778.45	1588.17
AC Spur	AC Spur	3215.30	100 Year	2609.54	2609.49	0.05	1.08	0.00	372.09	1333.64	755.20	1619.69
AC Spur	AC Spur	2911.33	100 Year	2608.46	2608.42	0.04	1.26	0.00	563.18	1490.32	407.42	1982.39
AC Spur	AC Spur	2602.91	100 Year	2607.19	2607.14	0.05	2.02	0.00	222.65	1263.38	974.89	2381.30
AC Spur	AC Spur	2286.58	100 Year	2605.17	2605.11	0.06	2.26	0.00	77.49	1749.79	633.64	2321.90
AC Spur	AC Spur	1946.69	100 Year	2602.90	2602.83	0.06	2.28	0.00		1326.41	1134.52	2464.60
AC Spur	AC Spur	1600.02	100 Year	2600.62	2600.55	0.07	1.92	0.00	547.34	1406.35	507.23	3006.95
AC Spur	AC Spur	1199.20	100 Year	2598.71	2598.64	0.07	2.32	0.00	1180.91	1001.67	278.35	3109.39
AC Spur	AC Spur	837.50	100 Year	2596.38	2596.27	0.11	1.48	0.01	93.32	2037.88	329.72	2558.12
AC Spur	AC Spur	566.48	100 Year	2594.89	2594.81	0.08	1.84	0.03		1649.67	811.25	3016.89
[illegible] Spur	AC Spur	350.	100 Year	2593.02	2592.65	0.37	2.50	0.06		2189.88	271.04	1781.88
AC Split	upper	3599.078	100 Year	2593.83	2593.63	0.19	1.68	0.04	437.24	3511.40		943.24
AC Split	upper	3235.949	100 Year	2592.10	2592.00	0.11	1.66	0.02	889.39	2362.95	696.30	1116.39
AC Split	lower	2853.265	100 Year	2590.42	2590.24	0.18	1.75	0.00	2353.86	4055.71		1500.43
AC Split	lower	2508.632	100 Year	2588.67	2588.46	0.21	2.10	0.03	2438.32	3971.24		1409.58
AC Split	lower	2214.257	100 Year	2586.54	2586.07	0.46	1.31	0.09	574.83	5834.74		954.90
AC Split	lower	1933.962	100 Year	2585.13	2584.97	0.16	1.92	0.01	1479.95	4929.61		1080.18
AC Split	lower	1426.381	100 Year	2583.20	2582.98	0.22			1773.92	4635.64		1052.03

ERRORS WARNINGS AND NOTES

Errors Warnings and Notes for Plan : Prop

River: AC Split Reach: upper RS: 3599.078 Profile: 100 Year

Warning:The cross-section end points had to be extended vertically for the computed water surface.

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: AC Split Reach: upper RS: 3235.949 Profile: 100 Year

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: AC Split Reach: lower RS: 2853.265 Profile: 100 Year

Warning:Divided flow computed for this cross-section.

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

indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: AC Split Reach: lower RS: 2508.632 Profile: 100 Year
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 indicate
the need for additional cross sections.
River: AC Split Reach: lower RS: 2214.257 Profile: 100 Year
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.
River: AC Split Reach: lower RS: 1933.962 Profile: 100 Year
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: AC Split Reach: lower RS: 1426.381 Profile: 100 Year
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: AC Spur Reach: AC Spur RS: 5472.12 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 5178.24 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 4813.20 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 4497.37 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 4230.27 Profile: 100 Year
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.
River: AC Spur Reach: AC Spur RS: 3934.74 Profile: 100 Year
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.
River: AC Spur Reach: AC Spur RS: 3654.17 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 3474.64 Profile: 100 Year
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.
River: AC Spur Reach: AC Spur RS: 3215.30 Profile: 100 Year
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.
River: AC Spur Reach: AC Spur RS: 2911.33 Profile: 100 Year
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 indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 2602.91 Profile: 100 Year
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.
River: AC Spur Reach: AC Spur RS: 2286.58 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: AC Spur Reach: AC Spur RS: 1946.69 Profile: 100 Year
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.
River: AC Spur Reach: AC Spur RS: 1600.02 Profile: 100 Year
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.
River: AC Spur Reach: AC Spur RS: 1199.20 Profile: 100 Year
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.
River: AC Spur Reach: AC Spur RS: 837.50 Profile: 100 Year
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.
River: AC Spur Reach: AC Spur RS: 566.48 Profile: 100 Year
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 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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: AC Spur Reach: AC Spur RS: 350. Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning: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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Agua Caliente Reach: upper RS: 31333.21 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
River: Agua Caliente Reach: upper RS: 31224.76 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 31089.71 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 30990.87 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Agua Caliente Reach: upper RS: 30898.84 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 30840.82 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 30690.61 Profile: 100 Year
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 ans
The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 30547.71 Profile: 100 Year
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.
Note: Program found supercritical flow starting at this cross section.
River: Agua Caliente Reach: upper RS: 30481.41 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 30424.82 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 30362.48 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 30290.36 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 30232.14 Profile: 100 Year
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.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Agua Caliente Reach: upper RS: 30003.57 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 29768.97 Profile: 100 Year
Warning:The energy loss was 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.
River: Agua Caliente Reach: upper RS: 29627.21 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 29558.97 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 29500.74 Profile: 100 Year
Warning:The energy loss was 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.
River: Agua Caliente Reach: upper RS: 29369.94 Profile: 100 Year

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.
River: Agua Caliente Reach: upper RS: 29098.06 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 28875.2 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 28734.99 Profile: 100 Year
Warning:The energy loss was 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.
River: Agua Caliente Reach: upper RS: 28592.81 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 28479.43 Profile: 100 Year
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.
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 28394.36 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 28247.34 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 28136.75 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 28029.09 Profile: 100 Year
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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 27892.68 Profile: 100 Year

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.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Agua Caliente Reach: upper RS: 27758.38 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 27636.17 Profile: 100 Year
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.
Note: Program found supercritical flow starting at this cross section.
River: Agua Caliente Reach: upper RS: 27415.17 Profile: 100 Year
Warning:The energy loss was 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.
River: Agua Caliente Reach: upper RS: 27236.39 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 27073.54 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 26937.64 Profile: 100 Year
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 indicate
the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 26827.35 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 26541.23 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The 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.
River: Agua Caliente Reach: upper RS: 26354.97 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 26188.3 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 25977.06 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 25727.13 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.

River: Agua Caliente Reach: upper RS: 25613.79 Profile: 100 Year
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Agua Caliente Reach: upper RS: 25447.86 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 25222.61 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Agua Caliente Reach: upper RS: 24991.27 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 24754.28 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 24588.07 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 24317.77 Profile: 100 Year
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 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: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 24078.34 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 23858.15 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 23410.62 Profile: 100 Year
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.
Note: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 23021.58 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 22709.53 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 22439.86 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 22135.43 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 21893.26 Profile: 100 Year
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 conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Agua Caliente Reach: upper RS: 21722.29 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 21619.14 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 21161.08 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 20689.67 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 20224.2 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 19962.61 Profile: 100 Year
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 indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 19584.44 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 19356.98 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 19010.68 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 18727.05 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 18351.98 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 17941.17 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 17531.27 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 17353.02 Profile: 100 Year

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 17186.91 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 16713.82 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 16317.38 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 15833.59 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 15499.03 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 15139.89 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 14880.52 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 14549.94 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 14469.1 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
River: Agua Caliente Reach: upper RS: 14378.58 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
River: Agua Caliente Reach: upper RS: 14287.58 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 14202.59 Profile: 100 Year
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: Manning's n values were composited to a single value in the main channel.
River: Agua Caliente Reach: upper RS: 13863.77 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 13436.95 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 13118.88 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 13002.28 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 12894.15 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Agua Caliente Reach: upper RS: 12546.41 Profile: 100 Year
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 indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 12365.94 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 12212.12 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 11918.47 Profile: 100 Year
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.
River: Agua Caliente Reach: upper RS: 11673.91 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: upper RS: 11248.91 Profile: 100 Year
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Agua Caliente Reach: upper RS: 10901.11 Profile: 100 Year
Error: The elevation of the cross section needed to be extended. Doubling the height of the cross section four times was
not sufficient. The cross section should be examined and coded to a new height
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.
River: Agua Caliente Reach: upper RS: 10673.59 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:A flow split was encountered. The program first calculated the momentum of both channels below the junction. An
energy balance was performed across the junction from the stream with the highest momentum downstream to the section
upstream.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Agua Caliente Reach: middle RS: 10603.59 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
River: Agua Caliente Reach: middle RS: 10465.1 Profile: 100 Year
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.
River: Agua Caliente Reach: middle RS: 10320.64 Profile: 100 Year
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.
River: Agua Caliente Reach: middle RS: 10131.91 Profile: 100 Year
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.
River: Agua Caliente Reach: middle RS: 9909.25 Profile: 100 Year
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.
: Agua Caliente Reach: middle RS: 9550.47 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 9307.97 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 9091.3 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Agua Caliente Reach: middle RS: 8865.4 Profile: 100 Year
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 8587.35 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional
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.
River: Agua Caliente Reach: middle RS: 8257.08 Profile: 100 Year
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.
River: Agua Caliente Reach: middle RS: 7628.04 Profile: 100 Year
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: Agua Caliente Reach: middle RS: 7244.33 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
River: Agua Caliente Reach: middle RS: 6769.06 Profile: 100 Year
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: Agua Caliente Reach: middle RS: 6687.06 Profile: 100 Year
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum
answer has been disregarded.
River: Agua Caliente Reach: middle RS: 6687.06 Profile: 100 Year Upstream
Warning:The energy equation could not be balanced within the specified number of iterations. The program used
cal 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, energy was used.
River: Agua Caliente Reach: middle RS: 6687.06 Profile: 100 Year Downstream
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: The energy method has computed a class B profile.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: Agua Caliente Reach: middle RS: 6544.64 Profile: 100 Year
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 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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: Agua Caliente Reach: middle RS: 6260.16 Profile: 100 Year
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.
River: Agua Caliente Reach: middle RS: 5961.45 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning: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.
River: Agua Caliente Reach: middle RS: 5794.74 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Agua Caliente Reach: middle RS: 5640.23 Profile: 100 Year
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Agua Caliente Reach: lower RS: 5365.23 Profile: 100 Year
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Agua Caliente Reach: lower RS: 5242.33 Profile: 100 Year
Warning:Divided flow computed for this cross-section.
River: Agua Caliente Reach: lower RS: 5189.01 Profile: 100 Year
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: Agua Caliente Reach: lower RS: 5164.33 Profile: 100 Year Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: Agua Caliente Reach: lower RS: 5164.33 Profile: 100 Year Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: Agua Caliente Reach: lower RS: 5007.33 Profile: 100 Year
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Agua Caliente Reach: lower RS: 4808.89 Profile: 100 Year
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Agua Caliente Reach: lower RS: 4640.59 Profile: 100 Year
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 energy loss was 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.
River: Agua Caliente Reach: lower RS: 4293.46 Profile: 100 Year
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.
River: Agua Caliente Reach: lower RS: 3943.83 Profile: 100 Year
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.
River: Agua Caliente Reach: lower RS: 3579.38 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: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.
River: Agua Caliente Reach: lower RS: 3344.57 Profile: 100 Year
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.
River: Agua Caliente Reach: lower RS: 3039.07 Profile: 100 Year
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: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.
River: Agua Caliente Reach: lower RS: 2734.71 Profile: 100 Year

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     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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: lower     RS: 2590.18     Profile: 100 Year
     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.
River: Agua Caliente  Reach: lower     RS: 2425.08     Profile: 100 Year
     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.
River: Agua Caliente  Reach: lower     RS: 2225.5     Profile: 100 Year
     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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: lower     RS: 1877.58     Profile: 100 Year
     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.
River: Agua Caliente  Reach: lower     RS: 1549.86     Profile: 100 Year
     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.
River: Agua Caliente  Reach: lower     RS: 1261.13     Profile: 100 Year
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: lower     RS: 968.69     Profile: 100 Year
     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
indicate
             the need for additional cross sections.
River: Agua Caliente  Reach: lower     RS: 760.51     Profile: 100 Year
     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.
River: Agua Caliente  Reach: lower     RS: 554.81     Profile: 100 Year
     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:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water
surface was
             used.
River: Agua Caliente  Reach: lower     RS: 0     Profile: 100 Year
     Warning:Divided flow computed for this cross-section.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water
surface was
             used.
```

APPENDIX E

TANQUE VERDE CREEK

E-1

Tanque Verde Creek Existing Condition

THIS RUN EXECUTED 15JUN09 17:08:41

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FEMA 1994 FIS - Updated

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	8.000	.00	.00	.00	2433.41	10500.00	2441.16	2438.34	2441.44	8.29	4.30	2831.57	3647.84
*	8.500	310.00	.00	.00	2435.40	10500.00	2441.45	2440.02	2441.89	22.79	5.35	1964.67	2199.25
	9.000	190.00	.00	.00	2435.89	10500.00	2441.86	2440.02	2442.25	15.87	5.02	2098.75	2635.58
*	9.500	260.00	.00	.00	2437.60	10500.00	2442.22	2441.77	2443.14	62.35	7.68	1366.87	1329.74
*	10.000	240.00	.00	.00	2437.76	10500.00	2443.31	2441.90	2444.08	25.98	7.08	1568.42	2059.85
	10.500	250.00	.00	.00	2437.80	10500.00	2444.16	2442.57	2444.72	23.82	6.00	1751.25	2151.39
	11.000	240.00	.00	.00	2438.94	10500.00	2444.75	2442.96	2445.21	17.37	5.47	1939.88	2519.43
	12.000	500.00	.00	.00	2441.60	10500.00	2445.93	2445.19	2446.43	35.37	5.77	1868.03	1765.50
	13.000	440.00	.00	.00	2443.10	10500.00	2447.46	2446.34	2447.87	29.95	5.11	2076.67	1918.61
*	13.500	310.00	.00	.00	2445.20	10500.00	2448.98	2448.98	2449.91	97.93	7.72	1360.94	1061.06
*	14.000	240.00	.00	.00	2445.90	10500.00	2450.56	2449.19	2450.97	23.20	5.17	2119.07	2179.92
*	15.000	530.00	.00	.00	2447.20	10500.00	2452.02	2451.45	2452.89	53.24	7.55	1397.33	1439.08
	16.000	550.00	.00	.00	2448.90	10500.00	2454.45	2453.38	2455.10	30.80	6.56	1683.86	1891.96
	17.000	685.00	.00	.00	2451.60	10500.00	2456.54	2455.41	2457.19	30.07	6.59	1644.37	1914.88
	18.000	705.00	.00	.00	2453.37	10500.00	2458.76	2457.89	2459.78	41.74	8.12	1292.43	1625.32
	19.000	510.00	.00	.00	2455.28	10500.00	2460.79	2459.78	2461.82	38.26	8.16	1287.34	1697.53
	20.000	650.00	.00	.00	2458.55	10500.00	2463.26	2462.12	2464.17	33.66	7.64	1374.92	1809.83

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	21.000	820.00	.00	.00	2460.68	10500.00	2466.10	2465.05	2467.04	36.18	7.76	1352.52	1745.68
	22.000	410.00	.00	.00	2460.32	10500.00	2467.52	2465.82	2468.21	22.41	6.69	1569.99	2218.15
	23.000	295.00	.00	.00	2462.90	10500.00	2468.22	2467.12	2469.12	34.07	7.61	1379.60	1798.76
	25.000	210.00	2489.20	2473.50	2464.00	10500.00	2468.60	.00	2470.02	59.23	9.57	1097.45	1364.35
	26.000	260.00	.00	.00	2465.06	10500.00	2470.56	2468.88	2471.25	34.99	6.71	1565.34	1775.02
	27.000	400.00	.00	.00	2465.24	10500.00	2471.75	2470.40	2472.56	29.12	7.26	1446.54	1945.88
	28.000	830.00	.00	.00	2469.22	10500.00	2474.44	2473.53	2475.43	40.10	7.98	1315.53	1658.16
	29.000	830.00	.00	.00	2471.26	10500.00	2477.33	2475.79	2478.04	24.81	6.78	1548.16	2107.97
	30.000	810.00	.00	.00	2474.40	10500.00	2479.75	2478.97	2480.77	44.48	8.08	1299.55	1574.45
	31.000	510.00	.00	.00	2476.66	10500.00	2481.94	2480.93	2482.83	36.59	7.58	1384.98	1735.76
	32.000	700.00	.00	.00	2479.54	10500.00	2484.66	2483.86	2485.65	43.68	8.01	1311.49	1588.80
	33.000	500.00	.00	.00	2480.29	10500.00	2486.70	2485.52	2487.54	32.26	7.33	1433.40	1848.79
	34.000	415.00	.00	.00	2482.58	10500.00	2488.15	2487.38	2489.15	44.61	8.03	1308.02	1572.07
	35.000	610.00	.00	.00	2485.70	8700.00	2490.65	2489.24	2491.23	24.60	6.11	1423.30	1754.01
*	36.000	500.00	.00	.00	2489.05	8700.00	2493.29	2493.29	2494.67	97.68	9.44	921.55	880.29
*	36.500	240.00	.00	.00	2491.90	8700.00	2495.41	2494.81	2496.34	49.62	7.75	1122.53	1235.13
	38.000	580.00	.00	.00	2492.95	8700.00	2498.21	2497.51	2499.09	45.01	7.51	1158.71	1296.83
	38.500	60.00	.00	.00	2493.10	8700.00	2498.55	2497.68	2499.36	39.01	7.21	1206.85	1392.93
*	39.500	120.00	2516.20	2510.20	2494.40	8700.00	2498.85	.00	2500.17	87.19	9.20	945.86	931.69
*	40.000	90.00	.00	.00	2494.63	8700.00	2499.94	2498.98	2500.70	35.59	7.00	1243.49	1458.25
	41.000	280.00	.00	.00	2497.07	8700.00	2501.01	2500.63	2502.08	62.17	8.29	1048.99	1103.43
	42.000	420.00	.00	.00	2498.88	8700.00	2503.25	2502.33	2504.12	38.24	7.49	1167.34	1406.83
*	43.000	350.00	.00	.00	2500.96	8700.00	2504.67	2504.66	2506.28	87.12	10.18	857.25	932.12
	44.000	420.00	.00	.00	2501.58	8700.00	2507.35	2506.55	2508.94	48.27	10.13	858.44	1252.18
	45.000	490.00	.00	.00	2503.70	8700.00	2509.87	2508.81	2511.11	39.52	8.94	972.71	1383.92
	46.000	500.00	.00	.00	2506.85	8700.00	2512.06	2510.93	2512.99	34.43	7.72	1126.90	1482.71

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	47.000	520.00	.00	.00	2510.00	8700.00	2514.11	2513.48	2515.17	49.99	8.27	1051.70	1230.50
*	48.000	510.00	.00	.00	2512.29	8700.00	2517.19	2517.19	2519.39	78.76	11.94	741.23	980.33
*	48.250	275.00	.00	.00	2513.30	8700.00	2519.98	2517.95	2520.66	24.87	6.67	1501.60	1744.65
*	48.500	230.00	.00	.00	2514.20	8700.00	2520.61	2517.95	2521.07	11.97	5.46	1784.39	2514.56
*	49.000	600.00	.00	.00	2516.68	8700.00	2521.74	2521.74	2523.63	86.57	11.05	791.21	935.07
*	50.000	600.00	.00	.00	2520.00	8700.00	2525.66	2524.33	2526.66	31.46	8.14	1261.94	1551.07
	51.000	510.00	.00	.00	2522.10	8700.00	2527.36	2526.28	2528.41	36.78	8.25	1110.74	1434.48
	52.000	500.00	.00	.00	2523.67	8700.00	2529.21	2528.45	2530.54	45.91	9.30	978.15	1283.98
	53.000	500.00	.00	.00	2526.77	8700.00	2531.66	2530.23	2532.30	25.81	6.42	1508.29	1712.53
*	54.000	560.00	.00	.00	2528.41	8700.00	2533.50	2533.30	2534.52	60.17	8.44	1254.01	1121.62
	55.000	500.00	.00	.00	2531.99	8700.00	2536.26	2535.52	2536.67	31.20	5.35	1726.60	1557.56
*	56.000	450.00	.00	.00	2534.29	8700.00	2538.05	2537.90	2538.73	64.33	7.05	1433.58	1084.72
	57.000	520.00	.00	.00	2536.68	8700.00	2540.64	2539.82	2541.14	34.26	5.98	1613.96	1486.33
	58.000	500.00	.00	.00	2539.07	8700.00	2542.77	2542.36	2543.30	55.02	5.99	1729.90	1172.94
	59.000	520.00	.00	.00	2541.60	8700.00	2545.40	2545.33	2546.73	68.50	9.54	1050.39	1051.19
*	60.000	650.00	.00	.00	2544.17	8700.00	2548.93	2547.88	2549.72	32.00	7.37	1440.63	1537.94
	61.000	630.00	.00	.00	2545.85	8700.00	2551.19	2550.36	2551.74	31.66	5.95	1462.27	1546.29
	62.000	510.00	.00	.00	2548.46	8700.00	2552.98	2552.48	2553.92	53.18	7.80	1153.30	1193.04
	63.000	500.00	.00	.00	2550.67	8700.00	2555.48	2554.79	2556.28	41.84	7.87	1525.17	1345.05
	64.000	510.00	.00	.00	2552.80	8700.00	2557.58	2556.76	2558.53	44.36	7.83	1162.74	1306.24
	64.500	310.00	.00	.00	2554.00	7300.00	2559.15	2557.93	2559.70	29.58	5.96	1224.79	1342.17
	65.000	190.00	.00	.00	2554.61	7300.00	2559.68	2558.69	2560.25	28.21	6.29	1372.97	1374.53
*	66.000	500.00	.00	.00	2556.52	7300.00	2561.10	2560.88	2562.69	72.42	10.13	720.87	857.84
	66.500	310.00	.00	.00	2558.28	7300.00	2563.70	2563.57	2564.52	45.97	7.99	1288.76	1076.70
*	67.000	190.00	.00	.00	2559.85	7300.00	2564.86	2564.00	2565.21	18.81	5.39	1919.01	1683.15
*	68.000	640.00	.00	.00	2562.38	7300.00	2566.89	2566.89	2567.70	53.53	7.89	1201.50	997.75

Tanque Verde Creek – 10-Year Existing Condition

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	69.000	478.00	.00	.00	2564.58	7300.00	2569.31	2569.19	2569.98	40.65	7.78	1599.50	1144.91
	70.000	510.00	.00	.00	2566.10	7300.00	2571.89	2570.62	2572.04	34.45	3.39	2474.66	1243.78
	71.000	480.00	.00	.00	2567.66	7300.00	2573.18	2572.39	2573.54	25.66	5.55	2105.95	1441.19
*	72.000	460.00	.00	.00	2569.57	7300.00	2575.11	2575.11	2576.06	49.10	8.59	1597.21	1041.82
*	72.400	70.00	.00	.00	2569.73	7300.00	2576.07	2575.24	2576.42	14.43	5.68	2336.84	1921.51
	72.500	40.00	.00	.00	2569.89	7300.00	2576.06	2575.32	2576.55	18.97	6.49	2287.32	1676.00
	73.500	70.00	2588.80	2582.80	2570.10	7300.00	2576.19	.00	2576.82	32.33	7.29	2236.49	1283.82
*	74.000	125.00	.00	.00	2570.47	7300.00	2576.68	2576.68	2577.44	27.59	8.10	1870.74	1389.66
	75.000	350.00	.00	.00	2572.53	7300.00	2578.05	2576.68	2578.34	16.70	5.22	2209.63	1786.58
*	76.000	481.00	.00	.00	2574.15	7300.00	2579.10	2578.99	2579.70	39.09	8.05	1769.61	1167.65
	77.000	443.00	.00	.00	2576.18	7300.00	2581.08	2580.73	2581.48	33.60	6.87	2229.20	1259.31
	78.000	644.00	.00	.00	2578.60	7300.00	2583.39	2583.07	2583.91	41.19	6.44	1811.21	1137.41
	79.000	500.00	.00	.00	2580.49	7300.00	2585.32	2585.14	2585.83	36.02	7.58	2415.38	1216.38
	80.000	531.00	.00	.00	2582.03	7300.00	2587.45	2587.36	2587.89	42.82	6.05	2083.65	1115.53
	81.000	520.00	.00	.00	2583.78	7300.00	2589.13	2589.12	2590.65	51.04	10.07	869.45	1021.84
	82.000	510.00	.00	.00	2587.20	7300.00	2592.24	2591.92	2592.73	30.71	7.57	2343.87	1317.31
*	83.000	500.00	.00	.00	2587.50	7300.00	2593.74	2593.51	2594.49	29.74	7.39	1637.26	1338.66
*	84.000	530.00	.00	.00	2590.78	7300.00	2596.83	2596.83	2597.70	29.26	7.97	1565.55	1349.54
	85.000	500.00	.00	.00	2592.50	7300.00	2598.25	2597.03	2599.41	35.95	8.67	919.48	1217.54
*	86.000	500.00	.00	.00	2595.10	7300.00	2600.56	2600.56	2601.50	45.83	8.51	1589.26	1078.26
	87.000	520.00	.00	.00	2597.70	7300.00	2602.69	2601.89	2603.36	27.92	7.00	1642.09	1381.45
	88.000	600.00	.00	.00	2599.37	7300.00	2604.28	2602.78	2604.85	21.84	6.16	1516.94	1561.91
*	89.000	810.00	.00	.00	2602.10	7300.00	2607.14	2607.14	2608.06	38.45	8.12	1370.34	1177.32
	90.000	510.00	.00	.00	2603.88	7300.00	2609.42	2608.81	2609.87	30.56	6.84	2131.28	1320.46
*	91.000	500.00	.00	.00	2606.80	7300.00	2611.36	2611.36	2612.35	50.42	8.59	1282.80	1028.03
*	92.000	550.00	.00	.00	2607.95	7300.00	2613.55	2612.33	2614.01	18.65	6.01	1662.16	1690.33

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	93.000	500.00	.00	.00	2610.92	7300.00	2615.57	2615.57	2616.63	66.06	9.18	1122.10	898.14
	94.000	500.00	.00	.00	2613.00	7300.00	2618.32	2617.68	2619.55	49.55	9.20	988.23	1037.03
	95.000	480.00	.00	.00	2615.10	7300.00	2620.61	2619.55	2621.37	28.62	7.19	1256.17	1364.57
	97.000	1020.00	.00	.00	2618.80	7300.00	2623.86	2623.18	2624.63	35.53	7.34	1298.21	1224.69
	98.000	500.00	.00	.00	2621.72	7300.00	2625.83	2625.45	2626.55	42.82	7.50	1245.20	1115.62
*	99.000	500.00	.00	.00	2623.27	7300.00	2629.07	2629.07	2630.27	45.73	9.48	1085.71	1079.54
	100.000	520.00	.00	.00	2625.62	7300.00	2631.55	2631.15	2632.48	39.25	8.42	1202.27	1165.24
*	101.000	520.00	.00	.00	2627.70	7300.00	2634.81	2634.81	2635.90	38.72	9.21	1449.40	1173.10
*	102.000	500.00	.00	.00	2631.10	7300.00	2636.83	2636.83	2638.22	49.81	10.36	1297.75	1034.30
*	102.500	300.00	.00	.00	2632.70	7300.00	2638.63	2637.56	2639.24	21.86	6.81	1956.93	1561.47
	103.000	210.00	.00	.00	2632.34	7300.00	2639.35	2637.51	2639.72	21.68	5.26	2141.85	1567.90
*	104.000	600.00	.00	.00	2635.04	7300.00	2640.78	2640.67	2642.09	64.58	9.41	924.08	908.38
	104.500	290.00	.00	.00	2637.70	7300.00	2643.11	2642.11	2643.57	37.22	5.92	1755.38	1196.58
	105.000	220.00	.00	.00	2638.32	7300.00	2643.67	2642.40	2644.29	25.63	6.52	1367.03	1441.95
*	106.000	530.00	.00	.00	2639.78	7300.00	2645.68	2645.68	2646.97	62.52	9.75	935.33	923.23
*	107.000	530.00	.00	.00	2642.57	7300.00	2648.41	2647.12	2648.80	20.47	5.08	1614.94	1613.65
*	108.000	600.00	.00	.00	2646.20	7300.00	2650.16	2649.60	2650.80	57.60	6.45	1139.58	961.86
	109.000	500.00	.00	.00	2649.12	7300.00	2652.99	2652.64	2653.80	60.56	7.26	1030.36	938.03
	110.000	500.00	.00	.00	2651.02	7300.00	2655.90	2654.69	2656.29	40.19	5.02	1483.63	1151.48
	110.500	245.00	.00	.00	2652.30	7300.00	2656.86	2656.04	2657.31	41.53	5.38	1373.60	1132.77
	111.000	240.00	.00	.00	2653.60	7300.00	2657.82	2657.19	2658.35	43.44	5.83	1299.09	1107.60
	112.000	530.00	.00	.00	2656.78	7300.00	2660.41	2660.05	2661.01	57.61	6.26	1291.29	961.76
	113.000	540.00	.00	.00	2659.17	7300.00	2663.12	2662.41	2663.69	42.85	6.13	1299.98	1115.20
	114.000	500.00	.00	.00	2660.50	7300.00	2665.08	2664.38	2665.92	43.23	7.40	1036.10	1110.21
	115.000	520.00	.00	.00	2663.55	7300.00	2667.50	2667.10	2668.21	44.25	6.97	1272.13	1097.43
	116.000	490.00	.00	.00	2665.60	7300.00	2669.58	2669.03	2669.92	27.74	5.15	1730.31	1386.09

Tanque Verde Creek – 10-Year Existing Condition

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	117.000	500.00	.00	.00	2667.49	7300.00	2671.43	2671.29	2672.04	65.86	7.01	1253.47	899.51
*	118.000	500.00	.00	.00	2669.79	7300.00	2674.37	2674.37	2675.45	63.76	8.69	975.61	914.25
*	118.500	280.00	.00	.00	2671.20	7300.00	2676.16	2675.68	2676.62	26.81	6.22	1617.32	1409.78
*	119.000	220.00	.00	.00	2672.05	7300.00	2676.80	2675.61	2677.02	11.99	4.39	2194.45	2108.00
*	120.000	570.00	.00	.00	2673.15	7300.00	2677.98	2677.98	2678.99	69.41	6.89	914.57	876.24
	120.500	285.00	.00	.00	2675.60	7300.00	2680.15	2679.82	2680.76	51.52	6.62	1232.62	1017.08
*	121.000	240.00	.00	.00	2676.08	7300.00	2681.12	2679.90	2681.50	19.80	5.27	1598.40	1640.55
*	122.000	490.00	.00	.00	2678.56	7300.00	2682.47	2682.26	2683.29	73.03	7.32	1039.57	854.22
	123.000	510.00	.00	.00	2680.42	7300.00	2685.64	2685.18	2686.65	57.85	8.08	920.09	959.81
	124.000	510.00	.00	.00	2682.54	7300.00	2688.24	2687.56	2689.06	38.74	7.29	1009.72	1172.82
	124.500	218.00	.00	.00	2684.30	7300.00	2689.21	2688.81	2690.07	55.78	7.93	1021.13	977.44
*	125.000	230.00	.00	.00	2684.45	7300.00	2690.37	2688.89	2690.79	18.57	5.26	1415.21	1693.96
*	126.000	510.00	.00	.00	2686.60	7300.00	2691.29	2691.10	2692.70	65.00	9.51	767.38	905.43
*	127.000	510.00	.00	.00	2687.19	7300.00	2693.98	2692.48	2694.80	27.20	7.27	1003.75	1399.81
	128.000	400.00	.00	.00	2689.80	7300.00	2695.12	2694.52	2696.42	53.20	9.17	796.58	1000.86
	129.000	390.00	.00	.00	2690.73	7300.00	2697.13	2696.83	2698.91	68.32	10.70	682.14	883.18
*	130.000	500.00	.00	.00	2690.82	7300.00	2699.96	2698.40	2700.47	15.62	6.24	1512.61	1847.19
*	131.000	380.00	.00	.00	2693.70	7300.00	2700.25	2699.98	2701.88	67.28	10.26	719.65	890.01
	132.000	420.00	.00	.00	2695.29	7300.00	2702.70	2701.48	2704.00	38.26	9.16	797.05	1180.15
*	133.000	400.00	.00	.00	2697.51	7300.00	2705.56	2705.56	2707.73	80.56	11.92	643.59	813.32
*	134.000	400.00	.00	.00	2703.08	7300.00	2710.15	2710.15	2712.26	75.61	11.73	666.36	839.51
	135.000	410.00	.00	.00	2705.00	7300.00	2713.16	2712.12	2714.61	42.64	9.65	757.54	1117.99
*	136.000	410.00	.00	.00	2707.29	7300.00	2714.99	2712.76	2715.87	21.48	7.54	979.88	1575.20
*	137.000	380.00	.00	.00	2708.00	7300.00	2715.55	2714.78	2717.40	55.03	10.89	671.50	984.06
*	138.000	400.00	.00	.00	2711.27	7300.00	2719.52	2719.52	2721.47	106.11	11.31	684.10	708.67
*	139.000	400.00	.00	.00	2719.64	7300.00	2726.53	2726.53	2728.19	104.15	9.66	716.88	715.30

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	140.000	400.00	.00	.00	2722.74	7300.00	2731.34	2731.34	2733.79	90.89	12.57	585.12	765.69

FEMA 1994 FIS - Updated

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8.000	10500.00	2441.16	.00	.00	-1.84	1055.04	.00
*	8.500	10500.00	2441.45	.00	.28	.00	566.54	310.00
	9.000	10500.00	2441.86	.00	.42	.00	615.94	190.00
*	9.500	10500.00	2442.22	.00	.36	.00	477.58	260.00
*	10.000	10500.00	2443.31	.00	1.09	.00	390.94	240.00
	10.500	10500.00	2444.16	.00	.85	.00	448.12	250.00
	11.000	10500.00	2444.75	.00	.59	.00	493.59	240.00
	12.000	10500.00	2445.93	.00	1.18	.00	729.65	500.00
	13.000	10500.00	2447.46	.00	1.54	.00	827.18	440.00
*	13.500	10500.00	2448.98	.00	1.52	.00	775.68	310.00
*	14.000	10500.00	2450.56	.00	1.58	.00	834.16	240.00
*	15.000	10500.00	2452.02	.00	1.45	.00	499.48	530.00
	16.000	10500.00	2454.45	.00	2.44	.00	677.68	550.00
	17.000	10500.00	2456.54	.00	2.08	.00	469.99	685.00
	18.000	10500.00	2458.76	.00	2.22	.00	316.84	705.00
	19.000	10500.00	2460.79	.00	2.03	.00	294.85	510.00
	20.000	10500.00	2463.26	.00	2.47	.00	314.76	650.00
	21.000	10500.00	2466.10	.00	2.84	.00	318.90	820.00
	22.000	10500.00	2467.52	.00	1.42	.00	321.84	410.00
	23.000	10500.00	2468.22	.00	.70	.00	319.64	295.00
	25.000	10500.00	2468.60	.00	.38	.00	274.82	210.00
	26.000	10500.00	2470.56	.00	1.96	.00	323.71	260.00
	27.000	10500.00	2471.75	.00	1.19	.00	320.24	400.00
	28.000	10500.00	2474.44	.00	2.70	.00	321.06	830.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	29.000	10500.00	2477.33	.00	2.88	.00	336.09	830.00
	30.000	10500.00	2479.75	.00	2.42	.00	336.90	810.00
	31.000	10500.00	2481.94	.00	2.19	.00	341.25	510.00
	32.000	10500.00	2484.66	.00	2.72	.00	340.48	700.00
	33.000	10500.00	2486.70	.00	2.04	.00	338.32	500.00
	34.000	10500.00	2488.15	.00	1.45	.00	343.29	415.00
	35.000	8700.00	2490.65	.00	2.50	.00	359.82	610.00
*	36.000	8700.00	2493.29	.00	2.64	.00	342.13	500.00
*	36.500	8700.00	2495.41	.00	2.12	.00	336.42	240.00
	38.000	8700.00	2498.21	.00	2.80	.00	338.84	580.00
	38.500	8700.00	2498.55	.00	.34	.00	336.47	60.00
*	39.500	8700.00	2498.85	.00	.30	.00	335.12	120.00
*	40.000	8700.00	2499.94	.00	1.09	.00	338.81	90.00
	41.000	8700.00	2501.01	.00	1.08	.00	337.42	280.00
	42.000	8700.00	2503.25	.00	2.24	.00	322.18	420.00
*	43.000	8700.00	2504.67	.00	1.42	.00	272.63	350.00
	44.000	8700.00	2507.35	.00	2.68	.00	167.12	420.00
	45.000	8700.00	2509.87	.00	2.52	.00	197.49	490.00
	46.000	8700.00	2512.06	.00	2.19	.00	258.11	500.00
	47.000	8700.00	2514.11	.00	2.04	.00	288.49	520.00
*	48.000	8700.00	2517.19	.00	3.09	.00	174.56	510.00
*	48.250	8700.00	2519.98	.00	2.79	.00	636.28	275.00
*	48.500	8700.00	2520.61	.00	.62	.00	562.74	230.00
*	49.000	8700.00	2521.74	.00	1.13	.00	229.19	600.00
*	50.000	8700.00	2525.66	.00	3.92	.00	590.40	600.00
	51.000	8700.00	2527.36	.00	1.70	.00	319.87	510.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	52.000	8700.00	2529.21	.00	1.85	.00	268.58	500.00
	53.000	8700.00	2531.66	.00	2.46	.00	581.87	500.00
*	54.000	8700.00	2533.50	.00	1.84	.00	643.85	560.00
	55.000	8700.00	2536.26	.00	2.75	.00	749.92	500.00
*	56.000	8700.00	2538.05	.00	1.79	.00	909.11	450.00
	57.000	8700.00	2540.64	.00	2.59	.00	753.01	520.00
	58.000	8700.00	2542.77	.00	2.14	.00	1051.10	500.00
	59.000	8700.00	2545.40	.00	2.63	.00	433.37	520.00
*	60.000	8700.00	2548.93	.00	3.53	.00	793.09	650.00
	61.000	8700.00	2551.19	.00	2.26	.00	517.90	630.00
	62.000	8700.00	2552.98	.00	1.79	.00	409.55	510.00
	63.000	8700.00	2555.48	.00	2.50	.00	637.29	500.00
	64.000	8700.00	2557.58	.00	2.10	.00	470.92	510.00
	64.500	7300.00	2559.15	.00	1.57	.00	377.23	310.00
	65.000	7300.00	2559.68	.00	.53	.00	625.61	190.00
*	66.000	7300.00	2561.10	.00	1.42	.00	197.88	500.00
	66.500	7300.00	2563.70	.00	2.61	.00	657.50	310.00
*	67.000	7300.00	2564.86	.00	1.16	.00	970.99	190.00
*	68.000	7300.00	2566.89	.00	2.03	.00	830.73	640.00
	69.000	7300.00	2569.31	.00	2.42	.00	1052.22	478.00
	70.000	7300.00	2571.89	.00	2.58	.00	1214.91	510.00
	71.000	7300.00	2573.18	.00	1.29	.00	1210.93	480.00
*	72.000	7300.00	2575.11	.00	1.92	.00	1132.50	460.00
*	72.400	7300.00	2576.07	.00	.96	.00	1108.83	70.00
	72.500	7300.00	2576.06	.00	-.01	.00	1075.90	40.00
	73.500	7300.00	2576.19	.00	.13	.00	1072.34	70.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	74.000	7300.00	2576.68	.00	.49	.00	1330.00	125.00
	75.000	7300.00	2578.05	.00	1.37	.00	1395.51	350.00
*	76.000	7300.00	2579.10	.00	1.05	.00	1176.34	481.00
	77.000	7300.00	2581.08	.00	1.98	.00	1753.96	443.00
	78.000	7300.00	2583.39	.00	2.31	.00	1346.83	644.00
	79.000	7300.00	2585.32	.00	1.92	.00	2134.23	500.00
	80.000	7300.00	2587.45	.00	2.14	.00	2246.75	531.00
	81.000	7300.00	2589.13	.00	1.68	.00	467.27	520.00
	82.000	7300.00	2592.24	.00	3.11	.00	1818.55	510.00
*	83.000	7300.00	2593.74	.00	1.50	.00	1313.07	500.00
*	84.000	7300.00	2596.83	.00	3.09	.00	1573.08	530.00
	85.000	7300.00	2598.25	.00	1.41	.00	462.51	500.00
*	86.000	7300.00	2600.56	.00	2.32	.00	1181.02	500.00
	87.000	7300.00	2602.69	.00	2.13	.00	1349.05	520.00
	88.000	7300.00	2604.28	.00	1.59	.00	871.33	600.00
*	89.000	7300.00	2607.14	.00	2.85	.00	1072.87	810.00
	90.000	7300.00	2609.42	.00	2.28	.00	1394.45	510.00
*	91.000	7300.00	2611.36	.00	1.94	.00	804.07	500.00
*	92.000	7300.00	2613.55	.00	2.19	.00	700.74	550.00
*	93.000	7300.00	2615.57	.00	2.02	.00	592.57	500.00
	94.000	7300.00	2618.32	.00	2.75	.00	468.04	500.00
	95.000	7300.00	2620.61	.00	2.29	.00	436.26	480.00
	97.000	7300.00	2623.86	.00	3.25	.00	635.48	1020.00
	98.000	7300.00	2625.83	.00	1.97	.00	647.76	500.00
*	99.000	7300.00	2629.07	.00	3.24	.00	618.38	500.00
	100.000	7300.00	2631.55	.00	2.48	.00	472.20	520.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	101.000	7300.00	2634.81	.00	3.25	.00	939.59	520.00
*	102.000	7300.00	2636.83	.00	2.02	.00	765.10	500.00
*	102.500	7300.00	2638.63	.00	1.80	.00	1437.81	300.00
	103.000	7300.00	2639.35	.00	.72	.00	1468.50	210.00
*	104.000	7300.00	2640.78	.00	1.43	.00	464.05	600.00
	104.500	7300.00	2643.11	.00	2.33	.00	836.45	290.00
	105.000	7300.00	2643.67	.00	.55	.00	750.45	220.00
*	106.000	7300.00	2645.68	.00	2.01	.00	401.40	530.00
*	107.000	7300.00	2648.41	.00	2.73	.00	636.33	530.00
*	108.000	7300.00	2650.16	.00	1.75	.00	492.31	600.00
	109.000	7300.00	2652.99	.00	2.84	.00	440.29	500.00
	110.000	7300.00	2655.90	.00	2.90	.00	592.45	500.00
	110.500	7300.00	2656.86	.00	.96	.00	559.30	245.00
	111.000	7300.00	2657.82	.00	.97	.00	643.91	240.00
	112.000	7300.00	2660.41	.00	2.59	.00	805.33	530.00
	113.000	7300.00	2663.12	.00	2.71	.00	714.76	540.00
	114.000	7300.00	2665.08	.00	1.96	.00	449.36	500.00
	115.000	7300.00	2667.50	.00	2.42	.00	1060.04	520.00
	116.000	7300.00	2669.58	.00	2.09	.00	1031.40	490.00
*	117.000	7300.00	2671.43	.00	1.85	.00	710.63	500.00
*	118.000	7300.00	2674.37	.00	2.93	.00	515.50	500.00
*	118.500	7300.00	2676.16	.00	1.79	.00	823.49	280.00
*	119.000	7300.00	2676.80	.00	.64	.00	898.09	220.00
*	120.000	7300.00	2677.98	.00	1.18	.00	429.32	570.00
	120.500	7300.00	2680.15	.00	2.17	.00	756.37	285.00
*	121.000	7300.00	2681.12	.00	.98	.00	681.69	240.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	122.000	7300.00	2682.47	.00	1.35	.00	579.68	490.00
	123.000	7300.00	2685.64	.00	3.17	.00	327.93	510.00
	124.000	7300.00	2688.24	.00	2.60	.00	333.98	510.00
	124.500	7300.00	2689.21	.00	.97	.00	389.36	218.00
*	125.000	7300.00	2690.37	.00	1.16	.00	426.06	230.00
*	126.000	7300.00	2691.29	.00	.92	.00	232.07	510.00
*	127.000	7300.00	2693.98	.00	2.69	.00	209.19	510.00
	128.000	7300.00	2695.12	.00	1.14	.00	197.07	400.00
	129.000	7300.00	2697.13	.00	2.01	.00	160.48	390.00
*	130.000	7300.00	2699.96	.00	2.83	.00	502.86	500.00
*	131.000	7300.00	2700.25	.00	.30	.00	197.82	380.00
	132.000	7300.00	2702.70	.00	2.45	.00	152.07	420.00
*	133.000	7300.00	2705.56	.00	2.86	.00	164.68	400.00
*	134.000	7300.00	2710.15	.00	4.59	.00	218.65	400.00
	135.000	7300.00	2713.16	.00	3.02	.00	159.01	410.00
*	136.000	7300.00	2714.99	.00	1.83	.00	188.09	410.00
*	137.000	7300.00	2715.55	.00	.56	.00	128.07	380.00
*	138.000	7300.00	2719.52	.00	3.97	.00	192.61	400.00
*	139.000	7300.00	2726.53	.00	7.01	.00	214.91	400.00
*	140.000	7300.00	2731.34	.00	4.81	.00	139.07	400.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=      8.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     13.500  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     13.500  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     14.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     15.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     36.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     36.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     36.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     39.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     40.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     43.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     48.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     48.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     48.250  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     48.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     49.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     49.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     50.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     54.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     56.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     60.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     66.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     67.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     68.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     68.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     72.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     72.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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WARNING SECNO=     72.400  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     74.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     74.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     76.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     83.000  PROFILE=  1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=     83.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     84.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     84.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     86.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     86.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     89.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     89.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     91.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     91.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     92.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     93.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     93.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     99.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     99.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    101.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    101.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    102.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    102.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    102.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    104.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    106.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    106.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    107.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    108.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    117.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    118.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    118.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    118.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=    119.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    120.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    120.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    121.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    122.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    125.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    126.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    127.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    130.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    131.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    133.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    133.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    134.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    134.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    136.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    137.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    138.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    138.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    139.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    139.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    140.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    140.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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Tanque Verde Creek – 100-Year Existing Condition

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    15JUN09    TIME   17:08:27 *
 ******************************************
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****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
****************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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Tanque Verde Creek – 100-Year Existing Condition

THIS RUN EXECUTED 15JUN09 17:08:27

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T1      92145-02-45
T2      Tanque Verde Creek Floodplain Model
T3      FEMA 1994 FIS - Updated 16FEB09 PB Project No. 11515
T4      PB Job No. 11515, Houghton Road Tanque Verde to Speedway
T4      Revised For Datum Change +2.2' 15JAN09 File:TV_EX100.DAT
T4      Udated XSECs with current topographic data Flown Late 2008
T4      100-YEAR EVENT-EXISTING CONDITION ANALYSIS

  Starting water surface was extrapolated from existing FIS


J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0         0         0       0.0   34000.0    2445.2

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1         0       -1.0       0.0       0.0       0.0        -1       0.0       0.0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150

  100-Year Discharge taken directly from the Effective FIS
  Only the 100-year storm was done performed as stated
  in the scope of work.

  Updated by PB 15JAN09 for use in Bridge Design @ Houghton Road
  Commented out the encroachment cards as no need for encroachment for this
  Study.  Compared Flood Elevations with workmap elevations to confirm model.
  Adjusted GR card elevations by 2.2-feet to convert 29' Datum to 88' Datum


NC      0.0       0.0       0.0       0.1       0.3
NH        6     0.045   2100.00      0.05   2438.68     0.035   2630.66      0.05    3120.1      0.03
NH   3600.0     0.065    4278.0
ET                         9.11                                                      2890.0    3640.0
X1        8        46    3100.0   3558.25     515.0     505.0     510.0       1.0       2.2
GR   2445.5   2000.00   2445.24   2100.00   2443.52   2200.00   2442.10   2276.98   2442.10    2300.0
GR   2443.4   2330.49   2445.46   2400.00   2443.65   2438.68   2444.05   2500.00   2444.22    2600.0
GR   2443.8   2630.66   2443.74   2700.00   2441.26   2791.03   2441.26   2800.00   2438.47    2900.0
GR   2438.4   2900.32   2437.67   2979.83   2437.36   3000.00   2438.03   3100.00   2437.81    3120.1
GR   2431.3   3135.47   2431.21   3200.00   2432.41   3237.72   2431.74   3300.00   2431.79    3301.8
GR   2436.1   3350.03   2432.32   3375.74   2434.66   3400.00   2435.73   3454.67   2435.64    3500.0
GR   2435.5   3517.22   2433.56   3538.73   2438.82   3558.25   2438.07   3600.00   2437.81    3700.0
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GR   2438.8    3746.17    2438.74    3800.00    2438.12    3857.32    2438.25    3900.00    2440.15    4000.0
GR   2439.7    4007.20    2440.20    4100.00    2440.20    4116.54    2446.48    4178.60    2447.54    4200.0
GR   2460.7     4278.0

NH        4      0.055     2750.0      0.035     3130.0       0.03     3550.0      0.065     4300.0
ET                          9.11                                                           2910.0     3550.0
X1      8.5         26     3000.0     3550.0      340.0      310.0      310.0        1.0     2402.2
GR     44.0     2070.0       46.0     2280.0       48.0     2350.0       46.0     2460.0       45.0     2500.0
GR     46.0     2550.0       44.0     2650.0       42.0     2750.0       40.0     3000.0       36.0     3010.0
GR     34.0     3130.0       34.5     3160.0       34.0     3200.0       33.2     3220.0       34.0     3250.0
GR     36.0     3320.0       37.0     3450.0       38.0     3540.0       40.0     3550.0       39.2     3830.0
GR     40.0     4050.0       44.0     4100.0       50.0     4150.0       48.0     4180.0       50.0     4210.0
GR     60.0     4300.0

NH        3       0.08    2951.95       0.03    3500.00       0.05     4056.0
ET                          9.11                                                           2952.0     3500.0
X1        9         48    2951.95     3500.0      190.0      190.0      190.0        1.0       2.2
GR   2445.2    2000.00    2445.60    2041.17    2450.38    2066.58    2450.16    2100.00    2449.85    2132.6
GR   2450.2    2200.00    2449.23    2241.92    2448.70    2300.00    2448.83    2357.81    2448.83    2400.0
GR   2448.2    2450.90    2443.29    2500.00    2443.25    2503.97    2447.06    2544.08    2446.22    2600.0
GR   2445.6    2623.54    2444.98    2700.00    2443.34    2747.17    2443.03    2800.00    2441.61    2867.5
GR   2441.3    2900.00    2441.39    2951.95    2434.09    2966.56    2434.09    3000.00    2433.69    3085.8
GR   2433.7    3100.00    2434.22    3190.24    2434.66    3200.00    2437.36    3287.36    2437.36    3300.0
GR   2436.5    3348.58    2438.51    3388.64    2437.32    3400.00    2437.32    3451.67    2440.77    3478.1
GR   2440.8    3500.00    2440.11    3584.56    2440.11    3600.00    2439.58    3693.90    2439.58    3700.0
GR   2439.6    3778.76    2440.15    3800.00    2440.46    3889.64    2440.51    3900.00    2441.61    3965.0
GR   2449.1    4000.00    2458.08    4025.06    2463.57     4056.0

NH        4      0.055     2400.0      0.045     3030.0       0.03     3460.0      0.045     4110.0
ET                          9.11                                                           2915.0     3425.0
X1      9.5         22     2915.0     3390.0      260.0      260.0      260.0        1.0     2402.2
X2      0.0        0.0          0        0.0        0.0        0.0          0        0.0        0.0         15
GR     52.0        0.0       50.0     2100.0       46.0     2400.0       46.8     2650.0       46.0     2720.0
GR     44.0     2780.0       40.0     2915.0       36.0     3030.0       35.4     3040.0       36.0     3160.0
GR     38.0     3280.0       37.8     3320.0       38.0     3340.0       38.0     3370.0       40.0     3390.0
GR     41.0     3460.0       42.0     3560.0       44.0     3690.0       46.0     3910.0       50.0     4050.0
GR     60.0     4070.0       70.0     4110.0

NH        3        0.1    3034.77       0.03    3345.17       0.05     4291.7
ET                          9.11                                                           2990.0     3500.0
X1       10         50    3034.77     3345.17      240.0      250.0      240.0        1.0       2.2
X2      0.0        0.0          0        0.0        0.0        0.0          0        0.0        0.0         15
GR   2452.3    2000.00    2451.71    2100.00    2452.19    2110.76    2451.84    2200.00    2451.84    2206.7
GR   2451.7    2300.00    2450.73    2364.22    2450.42    2400.00    2449.85    2424.96    2450.02    2500.0
GR   2451.2    2589.27    2451.22    2600.00    2448.74    2700.00    2447.01    2722.74    2446.04    2800.0
GR   2443.5    2823.71    2443.96    2900.00    2443.96    2920.17    2444.53    2974.39    2444.05    3000.0
GR   2442.7    3034.77    2436.39    3048.32    2436.39    3100.00    2436.74    3130.96    2436.48    3200.0
GR   2435.8    3217.81    2435.56    3300.00    2436.26    3326.44    2439.89    3345.17    2439.18    3400.0
GR   2439.0    3401.78    2441.17    3429.85    2441.44    3500.00    2441.88    3532.95    2442.06    3600.0
GR   2442.9    3649.59    2443.25    3700.00    2445.55    3800.00    2445.60    3805.76    2445.86    3900.0
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GR   2447.9   3955.65   2448.43   4000.00   2450.33   4070.52   2450.95   4100.00   2451.75   4144.7
GR   2449.6   4156.53   2450.82   4200.00   2451.53   4233.86   2462.82   4268.03   2462.15   4291.7

NH      3       0.1     3000.0      0.03    3500.0      0.05    4000.0
ET                       9.11                                              3000.0    3500.0
X1   10.5        21     3000.0    3500.0     250.0     260.0     250.0       1.0       2.2
X2    0.0       0.0          0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2453.4    2000.0   2452.9    2100.0    2452.7    2203.0    2452.3    2300.0    2451.3    2400.0
GR   2451.3    2500.0   2451.8    2600.0    2451.2    2705.0    2448.0    2800.0    2446.0    2901.0
GR   2445.4    3000.0   2437.9    3100.0    2437.5    3200.0    2435.6    3300.0    2438.3    3400.0
GR   2442.2    3500.0   2443.0    3595.0    2444.1    3700.0    2447.0    3800.0    2447.6    3900.0
GR   2459.6    4000.0

NH      4       0.1     3000.00     0.03    3457.74     0.05    3900.00       0.1    4127.7
ET                       9.11                                              3000.0    3500.0
X1     11        51     3000.0    3457.74     245.0     250.0     240.0       1.0       2.2
X2    0.0       0.0          0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2454.5    2000.00  2454.18   2100.00   2454.05   2145.68   2453.70   2200.00   2453.03   2300.0
GR   2452.2    2334.34  2452.19   2400.00   2452.15   2500.00   2452.15   2507.74   2452.28   2600.0
GR   2450.8    2668.95  2453.70   2700.00   2454.49   2712.51   2455.11   2751.02   2452.81   2784.8
GR   2451.2    2800.00  2447.68   2839.82   2447.46   2899.41   2447.46   2900.00   2447.37   2998.7
GR   2447.3    3000.00  2438.82   3016.14   2438.82   3100.00   2439.18   3120.47   2438.47   3199.6
GR   2438.5    3200.00  2436.74   3288.37   2436.96   3300.00   2437.23   3357.87   2438.47   3392.8
GR   2437.5    3400.00  2437.94   3434.72   2444.36   3457.74   2443.91   3500.00   2443.78   3511.0
GR   2441.6    3553.84  2442.94   3600.00   2443.83   3604.08   2443.83   3700.00   2444.89   3732.8
GR   2444.9    3800.00  2444.67   3820.28   2447.32   3887.43   2447.90   3900.00   2454.58   3967.9
GR   2456.8    4000.00  2456.75   4005.93   2455.20   4027.40   2468.84   4100.00   2471.63   4116.2
GR   2474.9    4127.7

NH      5       0.1     2500.00     0.035   2740.1      0.03    3542.2       0.05   3800.0       0.1
NH   3993.5
ET                       9.11                                              2875.0    3542.0
X1     12        45     2900.0    3542.2     510.0     490.0     500.0       1.0       2.2
X2    0.0       0.0          0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2455.7    2000.00  2455.20   2100.00   2454.58   2125.19   2454.58   2200.00   2454.14   2234.8
GR   2453.9    2300.00  2453.25   2371.09   2453.25   2400.00   2453.25   2500.00   2452.37   2552.8
GR   2452.4    2600.00  2452.19   2628.45   2449.76   2672.32   2449.31   2700.00   2448.47   2740.1
GR   2441.3    2800.00  2440.90   2824.82   2442.72   2844.34   2442.32   2900.00   2442.37   2902.6
GR   2444.4    2936.81  2442.01   2983.73   2442.01   3000.00   2441.92   3100.00   2442.67   3103.0
GR   2442.5    3185.01  2439.97   3200.00   2439.40   3222.77   2439.93   3300.00   2439.93   3338.9
GR   2439.8    3400.00  2439.80   3436.44   2439.93   3500.00   2440.11   3524.71   2446.97   3542.2
GR   2446.3    3600.00  2446.17   3640.96   2446.22   3700.00   2446.30   3751.09   2450.78   3800.0
GR   2451.4    3806.07  2464.06   3900.00   2468.75   3910.89   2475.48   3961.71   2475.39   3993.5

NH      7      0.08     2390.08     0.035   2507.5      0.08    2600.00      0.035   3000.00      0.03
NH   3621.2    0.05     3800.00     0.08    3974.1
ET                       9.11                                              2800.0    3621.0
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X1       13        52   2807.64   3621.21     440.0     440.0     440.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2456.4   2000.00   2456.44   2100.00   2456.26   2181.23   2456.26   2200.00   2454.36    2300.0
GR   2454.4   2302.65   2453.96   2390.08   2453.96   2400.00   2453.03   2500.00   2452.90    2507.5
GR   2451.9   2560.19   2450.47   2600.00   2450.11   2630.04   2449.27   2700.00   2449.23    2752.0
GR   2442.9   2800.00   2442.50   2807.64   2441.79   2847.26   2448.52   2866.07   2448.52    2876.7
GR   2443.6   2893.83   2443.56   2900.00   2443.52   2906.13   2441.75   2926.05   2444.40    2945.9
GR   2444.4   2977.36   2444.40   3000.00   2444.45   3051.11   2444.45   3100.00   2444.84    3117.1
GR   2444.0   3163.23   2441.66   3189.53   2441.66   3200.00   2441.88   3299.88   2441.88    3300.0
GR   2440.9   3388.64   2441.21   3400.00   2441.61   3499.13   2441.66   3500.00   2441.79    3590.9
GR   2443.0   3600.00   2446.70   3621.21   2444.53   3695.05   2445.86   3700.00   2447.77    3720.8
GR   2448.7   3768.71   2449.14   3800.00   2450.64   3825.81   2460.20   3900.00   2461.09    3900.4
GR   2471.6   3967.24   2471.63    3974.1

NH        4     0.055    2615.0     0.035    3210.0      0.03    3780.0     0.065    4240.0
ET                          9.11                                                     2950.0     3780.0
X1     13.5        25    2980.0    3780.0     310.0     310.0     310.0       1.0    2402.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR     59.2    2000.0      58.0    2120.0      56.0    2440.0      54.0    2615.0      52.0    2720.0
GR     50.0    2780.0      48.0    2875.0      48.0    2980.0      46.0    3010.0      46.0    3080.0
GR     46.4    3150.0      46.0    3210.0      44.0    3320.0      43.0    3360.0      44.0    3470.0
GR     46.0    3770.0      48.0    3780.0      48.4    3815.0      48.0    3880.0      48.0    3940.0
GR     50.0    3960.0      52.0    4015.0      60.0    4060.0      70.0    4140.0      80.0    4240.0

NH        5      0.05   3000.00     0.035   3170.32      0.03   3700.00      0.05   4000.00       0.1
NH   4089.3
ET                          9.11                                                     2900.0     3735.0
X1       14        55   3100.00   3734.93     240.0     240.0     240.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2460.0   2000.00   2460.03   2100.00   2458.66   2200.00   2457.99   2286.27   2457.99    2300.0
GR   2457.5   2400.00   2456.44   2432.66   2455.51   2497.69   2456.13   2500.00   2458.08    2523.6
GR   2453.7   2568.51   2452.24   2600.00   2450.60   2644.17   2450.55   2700.00   2450.55    2711.3
GR   2449.9   2773.20   2453.17   2796.75   2453.17   2800.00   2452.68   2842.97   2448.83    2857.4
GR   2448.4   2900.00   2448.21   2911.76   2447.99   3000.00   2447.99   3007.59   2451.48    3020.2
GR   2447.2   3036.28   2446.70   3100.00   2446.70   3108.34   2448.34   3170.32   2447.94    3200.0
GR   2447.5   3229.63   2444.62   3266.37   2444.62   3300.00   2444.62   3383.19   2444.62    3400.0
GR   2444.6   3495.72   2444.62   3500.00   2444.53   3587.35   2444.40   3600.00   2443.85    3657.0
GR   2443.7   3700.00   2443.83   3716.34   2450.42   3734.93   2449.85   3800.00   2449.40    3813.6
GR   2446.7   3841.84   2448.78   3858.08   2448.92   3873.44   2453.48   3900.00   2453.52    3903.3
GR   2454.0   3975.92   2454.32   4000.00   2454.63   4015.63   2457.68   4042.14   2464.68    4089.3

NH        4     0.045    3141.2     0.035    3300.0      0.03   3700.00      0.05   4471.6
ET                          9.11                                                       2905       3735
X1       15        64   3141.2   3679.11     540.0     535.0     530.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2460.9   2000.00   2460.60   2100.00   2460.60   2200.00   2461.53   2285.78   2460.91    2300.0
GR   2456.9   2332.62   2457.59   2384.23   2457.59   2400.00   2457.19   2461.26   2457.19    2500.0
GR   2456.4   2524.34   2454.05   2600.00   2453.87   2612.20   2451.17   2666.12   2454.10    2683.8
GR   2453.8   2696.66   2453.08   2700.00   2451.84   2718.22   2451.71   2800.00   2451.88    2840.0
GR   2451.3   2900.00   2450.55   2907.20   2450.20   2980.63   2451.53   3000.00   2451.97    3030.3
GR   2454.4   3045.31   2451.66   3054.60   2451.57   3100.00   2451.57   3122.46   2457.99    3141.2
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GR   2450.4   3172.62   2449.67   3200.00   2449.58   3255.66   2446.66   3274.52   2446.61   3300.0
GR   2446.6   3384.12   2447.06   3400.00   2447.37   3500.00   2447.72   3520.29   2446.44   3578.9
GR   2445.0   3600.00   2445.29   3679.11   2451.62   3700.00   2451.84   3701.47   2451.66   3793.4
GR   2451.7   3800.00   2451.84   3848.96   2456.53   3871.54   2451.84   3891.72   2452.01   3900.0
GR   2453.3   3976.01   2454.18   4000.00   2454.54   4037.58   2455.91   4100.00   2455.91   4119.7
GR   2456.8   4199.99   2456.75   4214.12   2458.48   4261.92   2458.26   4297.47   2458.26   4300.0
GR   2459.5   4387.91   2459.58   4399.99   2459.81   4466.83   2461.62    4471.6

NH        3     0.035    3204.3      0.03   3631.51       0.1    4481.2
ET               7.11      9.11                            0.1    3750.0    2990.0    3620.0
X1       16        71   3204.30   3631.51     515.0     600.0     550.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2463.6   2000.00   2462.99   2100.00   2462.68   2154.36   2461.49   2200.00   2460.87   2260.2
GR   2460.6   2300.00   2460.12   2328.19   2458.74   2394.28   2458.74   2400.00   2459.85   2445.4
GR   2459.6   2500.00   2459.54   2512.61   2459.54   2578.70   2456.66   2600.00   2449.36   2630.0
GR   2453.1   2653.68   2448.16   2662.31   2453.03   2686.40   2452.02   2700.00   2452.15   2736.5
GR   2452.1   2800.00   2451.79   2809.32   2451.79   2809.32   2452.19   2900.00   2453.30   2911.5
GR   2453.5   2977.40   2455.96   3000.00   2455.65   3030.79   2452.86   3041.32   2452.68   3089.9
GR   2453.6   3100.00   2459.50   3144.20   2456.88   3173.44   2453.30   3200.00   2453.30   3204.3
GR   2448.0   3219.30   2447.99   3300.00   2447.99   3310.89   2448.08   3384.99   2449.40   3400.0
GR   2450.1   3442.94   2449.63   3500.00   2448.21   3534.35   2446.70   3600.00   2446.79   3608.9
GR   2455.2   3631.51   2456.53   3671.88   2452.28   3694.19   2453.30   3700.00   2457.24   3713.1
GR   2457.5   3745.99   2451.35   3762.72   2451.79   3800.00   2453.12   3824.03   2456.88   3852.5
GR   2458.3   3900.00   2458.30   3902.20   2459.85   4000.00   2459.72   4026.41   2458.97   4100.0
GR   2459.0   4109.46   2458.92   4199.99   2459.23   4202.81   2459.85   4261.11   2463.26   4277.2
GR   2463.0   4299.99   2462.99   4328.71   2463.70   4381.43   2463.70   4399.99   2462.77   4435.8
GR   2463.3    4481.2

 Begin Bank Protection

NH        3     0.035   3072.96      0.03   3486.73       0.1    4507.0
ET               9.11                                                      3080.0    3486.0
X1       17        63   3072.96   3486.73     695.0     670.0     685.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2465.3   2000.00   2464.59   2100.00   2463.61   2147.27   2463.57   2200.00   2463.17   2298.3
GR   2463.2   2300.00   2462.24   2400.00   2461.80   2412.21   2459.94   2461.17   2459.41   2500.0
GR   2459.0   2544.79   2455.34   2600.00   2454.23   2620.57   2454.80   2667.63   2449.89   2699.5
GR   2450.6   2700.00   2455.42   2733.63   2455.20   2794.01   2455.25   2800.00   2454.98   2855.4
GR   2458.1   2898.70   2458.21   2900.00   2465.43   2947.30   2458.70   2967.40   2458.70   3000.0
GR   2459.9   3063.54    2456.0   3072.96   2449.40   3088.91   2449.40   3100.00   2450.64  3174.52
GR   2450.6    3200.0    2450.8   3281.73   2450.78   3300.00   2449.89   3351.72   2450.33  3400.00
GR   2450.8    3456.1    2455.2   3486.73   2455.78   3500.00   2455.91   3523.69   2458.43  3531.88
GR   2454.5    3542.6    2454.9   3600.00   2455.07   3608.33   2460.69   3622.63   2460.69  3651.27
GR   2460.6    3700.0    2462.2   3743.65   2461.80   3800.00   2461.09   3838.07   2461.18  3900.00
GR   2461.3    3960.6    2461.4   4000.00   2462.95   4033.29   2462.82   4100.00   2463.04  4111.64
GR   2463.2    4200.0    2463.4   4224.34   2465.30   4299.99   2466.89   4305.13   2470.03  4389.37
GR   2469.9    4400.0    2473.4   4499.99   2473.22    4507.0
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NH	3	0.035	3075.0	0.03	3420.33	0.1	4481.6			
ET			9.11						3075.0	3421.0
X1	18	76	3075.0	3420.33	730.0	680.0	705.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2467.4	2000.00	2467.55	2100.00	2467.07	2126.87	2467.07	2200.00	2467.07	2262.2
GR	2467.1	2300.00	2466.36	2328.55	2463.13	2382.11	2462.99	2400.00	2462.95	2409.3
GR	2463.7	2500.00	2463.75	2513.53	2463.75	2513.53	2463.21	2540.89	2460.56	2561.6
GR	2463.7	2583.34	2464.99	2600.00	2464.99	2607.47	2464.99	2641.15	2461.49	2684.9
GR	2461.6	2700.00	2460.96	2721.28	2460.96	2791.31	2460.96	2800.00	2460.96	2853.3
GR	2463.8	2883.29	2462.64	2900.00	2459.54	2922.16	2459.45	2938.54	2457.19	2960.4
GR	2461.2	2995.02	2461.44	3000.00	2462.68	3025.70	2465.61	3050.80	2466.00	3075.0
GR	2451.9	3098.12	2451.88	3100.00	2451.88	3184.61	2451.88	3200.00	2451.93	3275.2
GR	2451.9	3300.00	2451.17	3335.56	2455.29	3354.99	2455.29	3378.63	2453.65	3400.0
GR	2453.7	3403.02	2465.21	3420.33	2465.69	3494.61	2465.87	3500.00	2464.50	3555.6
GR	2462.2	3600.00	2463.26	3611.83	2465.87	3679.11	2465.87	3700.00	2468.08	3778.7
GR	2468.1	3800.00	2467.42	3800.80	2464.76	3833.91	2469.24	3852.11	2469.46	3900.0
GR	2469.5	3912.88	2465.65	3928.82	2467.46	3946.08	2467.46	3999.99	2467.46	4009.4
GR	2469.9	4051.13	2469.90	4099.99	2469.77	4110.00	2469.10	4199.99	2468.88	4247.5
GR	2467.3	4296.63	2467.33	4299.99	2469.59	4377.90	2469.50	4399.99	2469.01	4473.0
GR	2469.9	4481.6								

NH	3	0.035	3250.61	0.03	3582.44	0.1	4622.7			
ET		7.11	9.11				3200	3600	3250.0	3582.0
X1	19	63	3250.61	3582.44	530.0	500.0	510.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2471.7	2000.00	2471.67	2100.00	2471.18	2147.23	2471.18	2200.00	2469.06	2270.5
GR	2469.1	2300.00	2466.53	2355.24	2464.81	2400.00	2465.07	2449.08	2466.45	2500.0
GR	2466.4	2600.00	2466.98	2633.90	2467.06	2700.00	2467.06	2720.13	2467.06	2800.0
GR	2465.3	2884.00	2462.59	2900.00	2462.59	3000.00	2465.69	3046.46	2464.59	3100.0
GR	2463.3	3200.00	2463.30	3209.45	2468.13	3238.97	2468.13	3250.61	2455.56	3274.2
GR	2453.6	3300.00	2453.08	3397.18	2453.08	3400.00	2453.42	3460.66	2455.69	3500.0
GR	2456.0	3558.58	2468.92	3582.44	2464.81	3600.00	2464.72	3606.69	2460.29	3625.5
GR	2462.8	3675.75	2457.19	3698.50	2457.19	3700.00	2458.39	3756.05	2459.98	3765.1
GR	2460.0	3800.00	2460.96	3812.09	2465.52	3888.01	2465.96	3899.99	2468.30	3955.5
GR	2471.5	3999.99	2472.78	4016.47	2473.22	4097.25	2473.22	4099.99	2472.86	4195.0
GR	2471.8	4199.99	2466.00	4214.43	2474.94	4233.46	2477.33	4299.99	2477.38	4307.8
GR	2480.5	4399.99	2483.35	4425.62	2480.52	4499.99	2479.46	4505.39	2471.71	4558.5
GR	2472.9	4589.98	2472.86	4599.99	2473.04	4622.7				

NH	4	0.1	2900.00	0.05	3313.12	0.03	3658.13	0.1	4594.5	
ET			9.11						3313.0	3658.0
X1	20	57	3313.12	3658.13	660.0	650.0	650.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2474.0	2000.00	2473.22	2100.00	2472.78	2119.61	2471.40	2184.86	2468.17	2200.0
GR	2469.1	2211.73	2470.78	2260.24	2470.78	2300.00	2471.54	2400.00	2471.09	2500.0
GR	2470.7	2512.65	2470.34	2600.00	2469.23	2673.78	2469.23	2700.00	2469.90	2800.0
GR	2470.7	2832.83	2470.65	2900.00	2470.65	2934.64	2470.78	2998.16	2470.78	3000.0
GR	2467.3	3023.66	2468.84	3098.12	2468.84	3100.00	2469.37	3197.10	2469.37	3200.0
GR	2466.1	3277.44	2471.54	3295.28	2471.54	3300.00	2470.43	3313.12	2456.53	3335.6
GR	2456.7	3400.00	2456.53	3471.19	2456.57	3500.00	2456.35	3569.78	2456.84	3600.0
GR	2456.8	3637.02	2471.76	3658.13	2471.76	3672.56	2466.71	3700.00	2466.80	3703.3

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GR   2468.7   3790.97   2471.71   3800.00   2476.94   3848.21   2473.57   3899.99   2472.20   3917.4
GR   2472.7   3999.99   2473.44   4010.80   2474.28   4099.99   2475.34   4165.11   2475.34   4200.0
GR   2476.8   4299.20   2476.80   4299.99   2477.25   4399.99   2478.88   4473.34   2478.88   4500.0
GR   2479.2   4585.87   2479.24    4594.5

NH       4       0.1   2800.00     0.045   3218.70      0.03    3567.3       0.1    4409.9
ET                        9.11                                                     3218.0    3567.0
X1      21        65   3218.70    3567.3     820.0     815.0     820.0       1.0       2.2
X2     0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2473.6   2000.00   2473.57   2043.29   2473.57   2089.42   2473.57   2100.00   2473.57   2179.1
GR   2473.6   2200.00   2473.57   2300.00   2473.57   2347.31   2473.57   2400.00   2473.22   2484.1
GR   2473.2   2500.00   2473.22   2540.45   2473.22   2600.00   2473.22   2700.00   2474.19   2759.9
GR   2474.2   2800.00   2476.32   2870.41   2469.28   2894.98   2469.28   2900.00   2470.39   2956.6
GR   2471.0   2998.83   2471.36   3000.00   2473.88   3031.76   2472.16   3095.86   2472.16   3100.0
GR   2473.0   3139.99   2471.01   3167.00   2467.73   3186.25   2473.26   3200.00   2473.53   3202.1
GR   2473.5   3218.70   2458.52   3243.49   2459.01   3300.00   2458.48   3319.05   2458.48   3400.0
GR   2458.7   3414.98   2461.31   3477.57   2462.33   3500.00   2460.38   3548.17   2473.04   3567.3
GR   2473.7   3582.52    2473.0   3597.26    2473.0   3600.00    2473.0   3629.45   2475.83   3653.4
GR   2476.1   3700.00   2475.96   3751.58   2475.12   3800.00   2473.66   3816.12   2473.84   3844.4
GR   2479.7   3882.03   2479.68   3899.99   2478.75   3958.17   2484.15   3986.90   2484.15   4000.0
GR   2484.6   4099.69   2484.60   4099.99   2482.87   4113.01   2484.42   4133.82   2485.75   4200.0
GR   2491.4   4276.84   2491.41   4299.99   2489.73   4391.63   2489.95   4399.99   2489.95   4409.9

NH       4       0.1    3000.0     0.045   3366.19      0.03    3713.8       0.1    4541.0
ET                        9.11                                                     3366.0    3713.0
X1      22        63   3366.19    3713.8     410.0     405.0     410.0       1.0       2.2
X2     0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2477.4   2000.00   2476.89   2042.23   2477.51   2100.00   2475.21   2148.96   2475.21   2200.0
GR   2475.2   2210.80   2473.62   2297.78   2473.62   2300.00   2474.10   2400.00   2475.39   2428.5
GR   2474.1   2487.06   2474.10   2500.00   2474.10   2546.03   2474.15   2600.00   2475.30   2700.0
GR   2475.6   2742.30   2475.61   2800.00   2475.34   2900.00   2475.08   2921.23   2475.08   3000.0
GR   2474.9   3098.74   2474.90   3100.00   2475.87   3178.11   2475.56   3200.00   2472.69   3227.8
GR   2472.8   3300.00   2471.09   3338.04   2475.61   3351.28   2475.25   3366.19   2459.54   3388.9
GR   2460.1   3400.00   2460.43   3489.61   2461.71   3500.00   2461.84   3532.02   2458.12   3541.0
GR   2458.4   3600.00   2460.56   3607.93   2462.24   3698.81   2463.39   3700.00   2474.64   3713.8
GR   2474.9   3727.32   2472.42   3740.47   2472.42   3800.00   2472.69   3826.56   2477.34   3866.5
GR   2477.3   3899.99   2475.52   3930.19   2475.52   3952.86   2476.05   3999.99   2476.05   4076.1
GR   2476.9   4099.99   2477.07   4199.99   2478.49   4222.84   2478.09   4251.21   2481.10   4278.8
GR   2481.1   4299.99   2480.30   4354.22   2483.18   4399.99   2484.55   4414.51   2486.72   4438.9
GR   2486.7   4499.99   2489.46   4530.84   2490.00    4541.0

  Sabino Canyon Bridge

NC     0.0       0.0       0.0       0.3       0.5
NH       5       0.1   3000.00     0.045   3336.89      0.03    3700.0     0.045   3799.99       0.1
NH  4552.9
ET                7.11      9.11                                3330.0    3695.0    3336.0    3700.0
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X1        23        57   3336.89    3700.0     295.0     295.0     295.0       1.0       2.2
GR    2478.4   2000.00    2477.2   2100.00    2476.8   2136.21    2476.8   2200.00    2475.7    2282.6
GR    2476.9   2300.00    2476.9   2308.63    2476.9   2343.06    2475.8   2400.00    2475.8    2403.0
GR    2475.7   2500.00    2476.1   2561.08    2476.1   2600.00    2475.4   2658.02    2475.4    2700.0
GR    2475.6   2800.00    2475.8   2834.20    2475.8   2900.00    2476.3   2937.12    2477.6    2953.5
GR    2478.6   2974.13    2478.4   2999.00    2478.4   3000.00    2474.6   3016.00    2475.0    3100.0
GR    2476.1   3157.26    2478.2   3200.00    2477.1   3205.33    2475.8   3300.00    2475.7    3303.6
GR    2477.8   3336.89    2477.6   3355.04    2461.6   3375.98    2461.6   3400.00    2462.4    3500.0
GR    2460.7   3517.14    2461.4   3600.00    2461.9   3630.69    2461.9   3686.15    2477.4    3700.0
GR    2477.1   3704.30    2477.9   3721.17    2477.3   3799.99    2477.4   3827.80    2477.4    3900.0
GR    2476.7   3967.07    2476.8   3999.99    2478.6   4063.66    2478.6   4099.99    2478.4    4177.3
GR    2479.1   4199.99    2479.8   4299.99    2481.5   4359.18    2483.8   4399.99    2483.1    4408.1
GR    2485.0   4499.99    2488.0    4552.9


NH         4       0.1   3520.16      0.03   3890.05      0.05   4052.46       0.1   4738.40
ET                          9.11                                                     3540.0    3890.0
  Physically adjusted SB Card elevations by +2.2 ft
SB      1.05      1.56       2.6     385.0      320.0      30.0    2291.0       1.0    2463.1    2462.9
  SB  1.05    1.56     2.6   385.0    320.0    30.0  2291.0     1.0  2460.9  2460
X1        25        62   3520.16   3890.05      210.0     210.0     210.0       1.0       2.2
X2       0.0       0.0         1    2473.5     2489.2       0.0         0      1.33       0.0
   X2   0.0     0.0       1  2471.3  2487.0     0.0       0    1.33     0.0
   Adjusted BT Elevations By +2.2 ft
BT        -2   3500.00    2479.8    2473.3   3890.05    2479.9    2473.9
   BT    -2 3500.00  2477.6  2471.1 3890.05  2477.7  2471.7
GR    2485.9   2000.00    2483.9    2030.0    2481.9    2060.0    2478.1    2100.0    2478.1    2200.0
GR    2476.8    2300.0    2476.9   2351.08    2476.4    2400.0    2477.1    2466.5    2477.1    2500.0
GR    2477.0   2516.95    2476.7   2548.95    2476.7   2586.58    2476.8    2600.0    2476.5    2700.0
GR    2476.4   2714.55    2476.5    2800.0    2476.5   2869.22    2476.8    2900.0    2476.9   3000.00
GR    2476.9   3009.06    2478.1   3100.00    2477.7   3126.98    2477.5    3172.7    2477.3   3198.78
GR    2477.2   3200.00    2477.2   3205.33    2477.3   3246.55    2477.1    3258.2    2477.1   3278.91
GR    2476.7   3300.00    2476.4   3400.00    2476.6   3419.45    2477.6   3500.00    2477.6   3520.16
GR    2461.8   3561.63    2461.8   3582.84    2461.8   3600.00    2462.3   3700.00    2462.4   3744.59
GR    2462.2   3800.00    2477.7   3890.05    2478.1   3899.99    2478.6    3911.4    2478.2   3942.33
GR    2476.8   3999.99    2476.9   4052.46    2478.0   4099.99    2478.0   4166.80    2478.2   4199.99
GR    2478.2   4299.99    2478.7   4308.19    2478.1   4399.99    2479.0   4471.70    2481.4  4499.994
GR    2480.4   4592.91    2481.4   4599.99    2481.7   4611.20    2482.5   4638.99    2484.3   4699.99
GR    2484.3   4706.98    2485.3   4738.40


NC       0.0       0.0       0.0       0.1       0.3
NH         4       0.1   3300.00      0.03    3613.3      0.05   3930.55       0.1    4438.6
ET                 7.11      9.11                                    0.1      3650    3265.0    3613.0
X1        26        70   3265.18    3613.3     260.0     260.0     260.0       1.0       2.2
GR    2480.0   2000.00   2478.31   2085.97   2478.31   2100.00   2478.13   2200.00   2478.22    2225.2
GR    2476.0   2241.12   2476.01   2256.66   2476.76   2260.38   2476.76   2270.65   2475.87    2272.4
GR    2476.1   2286.54   2478.18   2299.11   2478.18   2300.00   2478.80   2394.15   2478.80    2400.0
GR    2479.1   2500.00   2479.77   2513.49   2479.24   2600.00   2478.44   2613.05    2478.5    2632.7
GR    2478.6   2638.94   2479.73   2651.47   2480.08   2700.00   2479.68   2754.48   2478.62    2762.8
GR    2478.6   2800.00   2479.15   2813.71   2480.35   2832.78   2480.35   2900.00   2478.62    2916.1
GR    2477.3   2923.84   2477.73   2943.05   2477.34   2964.21   2479.33   2969.35   2479.55    3000.0
GR    2480.3   3080.01   2477.82   3100.00   2477.69   3101.84   2478.44   3127.60   2478.93    3200.0
GR    2477.7   3251.23   2478.04   3265.18   2464.01   3282.22   2464.01   3300.00   2463.79    3400.0
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GR   2463.0   3422.63   2463.21   3500.00   2462.86   3590.85   2467.91   3600.00   2477.25   3613.3
GR   2477.2   3676.06   2477.16    3700.0   2474.64   3783.01   2474.64   3799.99   2473.57   3841.6
GR   2474.5   3899.99   2474.46   3900.22   2477.69   3930.55   2477.69   3999.99   2480.74   4054.3
GR   2479.9   4099.99   2479.86   4104.38   2478.27   4142.01   2481.01   4168.52   2481.14   4200.0
GR   2482.2   4261.39   2481.72   4299.99   2482.74   4355.50   2483.27   4399.99   2483.27   4438.6

NH       4       0.1   3300.00      0.03   3647.73     0.045   3899.99       0.1    4451.5
ET                      9.11                                                      3300.0   3647.0
X1      27        64   3300.00   3647.73     400.0     410.0     400.0       1.0       2.2
GR   2478.7   2000.00   2478.66   2094.51   2478.71   2100.00   2478.71   2200.00   2478.93   2242.0
GR   2477.6   2262.46   2478.26   2300.00   2479.28   2367.68   2479.42   2400.00   2478.80   2472.4
GR   2478.8   2500.00   2478.88   2600.00   2479.64   2616.94   2479.64   2640.84    2479.8   2653.7
GR   2479.8   2662.45   2479.95   2680.77   2479.33   2700.00   2480.12   2722.16   2481.27   2800.0
GR   2481.9   2834.47   2480.79   2884.66   2481.45   2900.00   2483.53   2931.45   2482.82   3000.0
GR   2481.2   3047.30   2481.23   3100.00   2480.83   3138.40   2479.77   3156.28   2481.32   3200.0
GR   2481.3   3210.95   2481.23   3259.78   2479.37   3297.23   2478.18   3300.00   2464.76   3320.6
GR   2465.6   3400.00   2464.50   3446.98   2465.83   3479.74   2465.65   3500.00   2463.04   3550.8
GR   2465.6   3600.00   2464.98   3626.75   2479.19   3647.73   2479.33   3658.26   2478.52   3677.1
GR   2476.2   3699.99   2478.40   3710.90   2479.37   3797.26   2478.57   3799.99   2478.26   3837.0
GR   2478.3   3865.17    2478.8   3899.99   2479.59   3981.98   2479.59   3999.99   2478.75   4030.5
GR   2479.3   4099.99   2479.06   4155.33   2479.06   4199.99   2479.33   4254.44   2481.19   4300.0
GR   2482.7   4322.61   2480.57   4399.99   2479.50   4446.74   2479.50    4451.5

NH       4       0.1   3274.12      0.03   3622.36      0.05   3799.99       0.1    4385.0
ET                7.11      9.11                                   0.1    3625.0    3274.0   3622.0
X1      28        67   3274.12   3622.36     820.0     830.0     830.0       1.0       2.2
GR   2482.9   2000.00   2482.56   2100.00   2480.66   2200.00   2480.48   2209.47   2480.61   2232.8
GR   2482.3   2300.00   2483.22   2400.00   2481.63   2456.74   2481.63   2474.62   2482.29   2500.0
GR   2483.3   2582.94   2478.66   2600.00   2477.91   2606.14   2477.91   2617.21   2482.38   2632.4
GR   2482.4   2658.29   2484.99   2677.67   2484.15   2700.00   2484.20   2763.06   2481.45   2770.5
GR   2481.5   2800.00   2481.36   2859.65   2479.55   2870.63   2479.68   2896.13   2481.67   2900.0
GR   2482.2   2911.53   2481.94   2999.31   2481.94   3000.00   2481.58   3094.09   2479.15   3100.0
GR   2479.1   3105.82   2479.15   3137.38   2481.72   3156.02   2481.72   3200.00   2481.54   3248.2
GR   2482.4   3274.12   2467.55   3295.41   2467.55   3300.00   2467.73   3376.02   2467.73   3400.0
GR   2467.7   3457.16   2467.69   3500.00   2467.02   3511.08   2469.72   3525.02   2468.61   3600.0
GR   2468.6   3605.19   2482.34   3622.36   2482.07   3638.39   2475.61   3653.48   2476.54   3700.0
GR   2476.3   3707.93   2484.02   3723.69   2483.67   3799.99   2483.67   3813.55   2483.67   3900.0
GR   2484.8   3961.09   2482.07   3999.78   2482.07   3999.99   2482.07   4028.91   2482.07   4100.0
GR   2484.3   4145.73   2484.42   4199.99   2485.13   4212.39   2484.59   4299.99   2483.44   4345.8
GR   2483.9   4373.87   2485.97    4385.0

NH       3       0.1   3100.00      0.03   3456.23      0.05    3878.0
ET                7.11      9.11                                 3100.0    3878.0    3100.0   3456.0
X1      29        56    3100.0   3456.23     670.0     900.0     830.0       1.0       2.2
GR   2483.1   2000.00   2483.49   2023.24   2484.28   2049.89   2484.28   2100.00   2484.33   2175.3
GR   2484.3   2200.00   2483.05   2300.00   2483.05   2301.23   2482.29   2304.73   2482.29   2330.4
GR   2483.0   2358.43   2482.20   2400.00   2483.62   2445.41    2483.4   2456.39    2484.4   2467.1
GR   2485.7   2479.45   2484.06   2500.00   2484.06   2512.12   2486.54   2531.51   2484.11   2600.0
GR   2483.9   2601.23   2483.75   2658.86   2485.48   2684.27   2485.48   2700.00   2484.82   2800.0
GR   2484.8   2815.03   2483.84   2863.15    2483.8   2889.00    2483.8   2900.00    2483.8   3000.0
GR   2483.8   3033.84   2483.71   3060.53   2484.86   3095.55   2480.43   3100.00   2469.32   3115.1
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GR   2469.1   3198.07   2469.06   3200.00   2469.99   3248.05   2472.78   3300.00   2472.78   3313.0
GR   2471.8   3340.17   2469.90   3351.10   2470.70   3391.65   2470.83   3400.00   2470.92   3437.9
GR   2485.2   3456.23   2485.21   3476.73   2486.90   3500.00   2487.47   3516.97   2486.85   3600.0
GR   2485.3   3612.80   2485.70   3699.99   2485.88   3737.50   2486.28   3799.99   2486.72   3870.7
GR   2486.7    3878.0

NH       4       0.1    2532.2      0.05   3078.29      0.03   3441.67      0.05    3809.2
ET                         9.11                                                     3078.0    3442.0
X1      30        57   3078.29   3441.67     810.0     810.0     810.0       1.0       2.2
GR   2487.2   2000.00   2487.65   2100.00   2487.30   2125.54   2486.94   2142.98   2487.21   2200.0
GR   2486.0   2283.08   2486.01   2300.00   2485.44   2328.10   2486.72   2344.66   2487.83   2400.0
GR   2488.1   2441.38   2484.24   2454.93   2488.93   2477.32   2489.16   2500.00   2490.13   2532.2
GR   2487.4   2584.49   2487.74   2600.00   2488.93   2624.29   2492.92   2648.19   2487.83   2671.8
GR   2488.0   2700.00   2488.31   2700.43   2491.01   2717.38   2487.78   2733.49   2487.87   2760.7
GR   2483.4   2793.34   2483.44   2800.00   2483.44   2900.00   2483.44   2910.74   2483.27   3000.0
GR   2483.0   3007.90   2483.62   3054.74   2487.34   3066.55   2487.38   3078.29   2472.91   3098.4
GR   2472.9   3100.00   2472.78   3166.29   2475.03   3200.00   2475.21   3205.15   2473.44   3231.8
GR   2472.2   3266.46   2473.04   3300.00   2474.55   3328.21   2474.37   3400.00   2474.33   3424.9
GR   2488.0   3441.67   2488.14   3458.05   2486.19   3476.86   2489.24   3493.33   2489.24   3500.0
GR   2488.4   3572.79   2488.45   3599.99   2488.62   3699.99   2488.23   3719.35   2488.27   3787.9
GR   2488.8   3799.99   2488.89    3809.2

NH       4       0.1   2400.00      0.05    3131.1      0.03   3499.99      0.05    3880.6
ET                         9.11                                                     3131.0    3499.0
X1      31        50    3131.1    3499.4     510.0     510.0     510.0       1.0       2.2
GR   2490.5   2000.00   2490.66   2100.00   2489.46   2100.18   2489.69   2200.00   2489.07   2209.3
GR   2488.5   2273.39   2487.92   2300.00   2488.05   2313.45   2488.31   2400.00   2489.02   2422.5
GR   2489.8   2500.00   2491.28   2520.62   2490.04   2595.60   2490.08   2600.00   2489.29   2694.8
GR   2489.7   2700.00   2489.77   2725.97   2490.31   2800.00   2489.46   2821.27   2489.77   2836.9
GR   2490.0   2853.72   2489.69   2900.00   2489.69   2911.09   2485.79   2923.40   2486.54   3000.0
GR   2486.5   3010.65   2485.66   3069.12   2488.23   3100.00   2488.71   3118.26   2489.02   3131.1
GR   2475.3   3151.37   2476.23   3200.00   2476.19   3255.62   2474.46   3293.91   2475.65   3300.0
GR   2475.8   3356.23   2474.90   3400.00   2475.34   3417.54   2475.43   3479.96   2489.16   3499.4
GR   2489.2   3499.99   2489.64   3508.91   2490.22   3552.25   2490.22   3599.99   2489.64   3633.4
GR   2490.0   3699.99   2490.04   3727.41   2490.08   3799.99   2490.48   3825.19   2492.25   3880.6

NH       5       0.1   2362.28     0.035   2800.00       0.1   3133.04      0.03   3499.97       0.1
NH  3857.0
ET                         9.11                                                     3133.0    3499.0
X1      32        49   3133.04   3499.99     690.0     700.0     700.0       1.0       2.2
GR   2491.2   2000.00   2490.97   2087.38   2491.37   2100.00   2490.26   2128.37   2490.08   2136.5
GR   2489.3   2175.12   2490.97   2200.00   2491.68   2222.75   2492.92   2294.81   2492.92   2300.0
GR   2492.7   2362.28   2492.47   2400.00   2493.89   2444.08   2493.89   2500.00   2494.38   2554.0
GR   2494.4   2600.00   2494.38   2641.29   2492.30   2659.35   2492.30   2676.66   2492.65   2700.0
GR   2492.3   2703.66    2492.5   2730.22   2492.39   2755.05   2492.70   2800.00   2492.39   2848.5
GR   2491.7   2897.01   2491.63   2900.00   2490.57   2950.18   2491.06   2988.60   2493.80   3000.0
GR   2493.8   3014.14   2491.94   3100.00   2491.46   3133.04   2479.59   3153.45   2479.59   3200.0
GR   2478.7   3300.00   2478.66   3302.45   2477.87   3400.00   2477.34   3424.41   2477.73   3483.0
GR   2491.1   3499.97   2491.10   3499.99   2491.85   3599.99   2491.85   3604.57   2492.74   3700.0
GR   2493.1   3702.97   2496.10   3795.67   2496.10   3799.99   2496.10    3857.0
```

NH	3	0.1	3200.00	0.03	3556.9	0.1	3969.4			
ET			9.11						3200.0	3556.0
X1	33	49	3200.0	3556.9	480.0	540.0	500.0	1.0	2.2	
GR	2490.9	2000.00	2493.09	2059.18	2493.49	2100.00	2493.80	2124.61	2494.11	2200.0
GR	2493.8	2208.01	2494.10	2237.00	2494.1	2263.92	2493.49	2296.41	2493.49	2300.0
GR	2494.6	2394.15	2494.64	2400.00	2495.53	2500.00	2494.33	2504.81	2492.65	2575.6
GR	2492.7	2600.00	2493.63	2649.88	2493.80	2700.00	2493.45	2736.02	2494.02	2800.0
GR	2493.8	2849.56	2493.63	2900.00	2493.23	2908.70	2493.49	3000.00	2494.02	3008.9
GR	2494.0	3049.53	2494.07	3100.00	2494.51	3151.70	2491.85	3171.71	2493.36	3192.8
GR	2490.4	3200.00	2480.57	3210.84	2480.92	3300.00	2481.23	3326.60	2480.26	3400.0
GR	2479.1	3429.38	2479.42	3499.99	2478.09	3513.49	2481.54	3541.02	2493.89	3556.9
GR	2493.8	3599.99	2493.14	3655.50	2493.54	3699.99	2493.45	3769.17	2493.98	3800.0
GR	2496.6	3880.59	2498.05	3899.99	2498.80	3931.94	2498.80	3969.4		

Confluence with Sabino Creek
Discharge taken directly from Effective FIS

NH	3	0.1	3282.97	0.03	3741.93	0.1	4093.8			
ET		7.11	9.11				0.1	3646.41	3282.0	3646.0
X1	34	68	3282.97	3646.31	370.0	460.0	415.0	1.0	2.2	
GR	2493.0	2000.00	2491.86	2068.83	2491.5	2084.81	2491.5	2093.80	2491.5	2100.0
GR	2490.0	2108.10	2492.25	2174.37	2493.09	2200.00	2493.5	2212.79	2494.0	2259.4
GR	2494.9	2286.14	2494.78	2300.00	2494.42	2361.21	2492.43	2371.66	2492.43	2400.0
GR	2493.8	2435.09	2495.79	2469.22	2495.79	2500.00	2496.37	2577.94	2496.37	2600.0
GR	2495.9	2700.00	2493.58	2726.41	2493.32	2784.89	2493.32	2800.00	2491.10	2823.4
GR	2491.8	2865.36	2494.20	2900.00	2494.11	2907.99	2492.92	2949.43	2493.80	2987.8
GR	2494.2	3000.00	2494.95	3038.53	2494.91	3100.00	2494.82	3131.05	2496.24	3200.0
GR	2496.4	3213.56	2492.78	3254.91	2495.35	3282.97	2482.69	3300.00	2482.69	3300.0
GR	2483.7	3400.00	2482.60	3405.28	2482.43	3477.26	2480.57	3497.13	2481.14	3500.0
GR	2481.6	3556.05	2480.38	3568.62	2481.10	3599.99	2480.48	3628.43	2484.60	3637.2
GR	2491.8	3646.31	2490.53	3666.50	2487.03	3688.45	2487.07	3699.99	2489.82	3720.7
GR	2492.2	3741.93	2491.32	3795.71	2490.84	3799.99	2488.14	3851.80	2491.41	3879.6
GR	2494.0	3899.99	2493.14	3904.61	2491.94	3933.91	2496.99	3973.31	2497.74	4000.0
GR	2497.9	4010.14	2497.61	4063.57	2497.61	4093.8				

Pima County and City of Tucson Limits

NH	3	0.1	3092.50	0.03	3470.71	0.1	3706.65			
QT	2	28000	28000							
ET		7.11	9.11				3080.0	3475.0	3092.0	3470.0
X1	35	41	3092.50	3470.71	580.0	640.0	610.0	1.0	2.2	
GR	2493.4	2200.00	2493.32	2300.00	2493.85	2400.0	2493.9	2458.20	2494.20	2500.00
GR	2494.2	2600.00	2494.25	2603.53	2491.54	2631.7	2498.3	2685.16	2496.72	2700.00
GR	2493.3	2727.96	2493.36	2742.39	2497.21	2773.2	2498.1	2800.00	2496.72	2841.73
GR	2495.5	2857.31	2495.57	2900.00	2495.57	2928.0	2496.7	2954.34	2497.52	3000.00
GR	2495.8	3055.36	2497.21	3092.50	2489.64	3100.0	2487.8	3105.42	2487.83	3113.57
GR	2484.5	3118.17	2484.51	3200.00	2485.17	3203.2	2484.6	3251.94	2484.64	3300.00
GR	2483.5	3322.77	2484.33	3400.00	2484.06	3400.2	2484.0	3457.38	2493.94	3470.71
GR	2493.8	3499.99	2493.89	3533.03	2494.25	3600.0	2495.8	3619.09	2496.02	3699.99
GR	2495.7	3706.65								

NH	3	0.1	3109.94	0.03	3473.23	0.1	4157.0			
ET			9.11						3110.0	3473.0
X1	36	52	3109.94	3473.23	525.0	470.0	500.0	1.0	2.2	
GR	2496.3	2000.00	2494.78	2039.13	2495.00	2100.00	2495.44	2200.00	2495.93	2300.0
GR	2495.9	2302.43	2495.93	2400.00	2496.46	2483.74	2496.41	2500.00	2496.24	2565.4
GR	2496.2	2600.00	2497.03	2700.00	2497.43	2733.27	2497.43	2800.00	2498.23	2859.3
GR	2497.8	2897.90	2498.14	2900.00	2499.38	2923.00	2499.38	2966.16	2498.76	2987.9
GR	2495.6	3000.00	2495.97	3007.02	2498.72	3021.49	2498.54	3088.11	2500.00	3098.4
GR	2500.0	3100.00	2499.56	3109.94	2488.76	3124.50	2488.31	3161.86	2489.24	3200.0
GR	2488.0	3213.08	2489.82	3223.44	2489.16	3299.99	2488.00	3322.59	2486.85	3384.3
GR	2487.2	3399.99	2488.09	3459.24	2497.96	3473.23	2498.05	3499.04	2498.14	3500.0
GR	2499.8	3528.43	2499.47	3599.99	2498.54	3631.66	2498.54	3699.99	2498.05	3720.8
GR	2498.1	3799.99	2497.74	3818.55	2497.74	3899.99	2498.19	3999.99	2498.45	4054.0
GR	2498.5	4099.99	2498.32	4157.0						

NH	5	0.1	2920.0	0.045	3120.0	0.03	3470.0	0.045	3520.0	0.06
NH	4120.0									
ET			9.11						3120.0	3470.0
X1	36.5	27	3120.0	3470.0	240.0	240.0	240.0	1.0	2.2	
GR	2500.0	2000.0	2496.8	2070.0	2496.6	2180.0	2497.8	2280.0	2497.3	2380.0
GR	2497.4	2480.0	2497.7	2570.0	2497.6	2625.0	2498.1	2730.0	2498.1	2820.0
GR	2498.7	2920.0	2497.7	3020.0	2501.8	3100.0	2500.0	3120.0	2490.0	3130.0
GR	2489.9	3220.0	2489.7	3320.0	2489.8	3420.0	2490.0	3460.0	2500.0	3470.0
GR	2500.3	3520.0	2501.4	3620.0	2499.3	3715.0	2498.6	3820.0	2498.5	3915.0
GR	2498.4	4020.0	2499.2	4120.0						

Tanque Verde Road

NH	4	0.1	2620.79	0.05	3120.02	0.03	3480.43	0.05	4248.6	
ET		7.11	9.11				2750.0	4248.6	3120.0	3480.0
X1	38	56	3120.02	3480.43	600.0	550.0	580.0	1.0	2.2	
GR	2507.3	2000.00	2507.88	2014.96	2504.29	2020.36	2503.67	2048.69	2502.35	2052.1
GR	2503.7	2100.00	2503.67	2100.40	2503.67	2110.62	2499.03	2154.89	2499.20	2200.0
GR	2499.7	2255.51	2499.69	2300.00	2499.56	2357.89	2499.60	2400.00	2499.69	2473.7
GR	2499.7	2500.00	2499.96	2600.00	2499.96	2620.79	2499.96	2700.00	2500.53	2775.0
GR	2500.7	2800.00	2500.97	2900.00	2500.89	2905.43	2501.99	3000.00	2501.95	3009.2
GR	2502.5	3073.89	2504.60	3100.00	2504.60	3100.27	2504.65	3120.02	2492.61	3136.7
GR	2492.8	3200.00	2492.25	3241.93	2492.43	3299.99	2492.78	3343.61	2492.78	3400.0
GR	2492.7	3437.81	2490.75	3454.63	2493.05	3466.40	2502.44	3480.43	2503.90	3492.4
GR	2503.9	3499.99	2503.41	3561.00	2503.32	3599.99	2502.83	3699.99	2500.93	3709.2
GR	2501.2	3799.99	2500.97	3845.59	2500.89	3899.99	2501.59	3915.93	2501.55	3946.9
GR	2500.4	3999.99	2500.62	4099.99	2500.22	4111.10	2500.84	4199.99	2500.84	4240.8
GR	2500.8	4248.6								

NC	0.0	0.0	0.0	0.3	0.5					
NH	3	0.1	3117.7	0.03	3499.9	0.1	4232.45			
ET			9.11						3118.0	3500.0

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X1      38.5        46     3117.7     3499.9       40.0       80.0       60.0   0.994521        2.2
X2       0.0       0.0          0        0.0        0.0        0.0          0        0.0        0.0
GR    2542.6    2000.0     2521.5     2100.0     2517.0     2200.0     2513.2     2300.0     2510.9     2352.9
GR    2509.7    2400.0     2507.5     2500.0     2507.2     2520.7     2507.2     2600.0     2507.5    2635.98
GR    2507.5    2700.0     2508.4    2761.07     2508.6     2800.0     2509.4     2888.2     2509.4     2900.0
GR    2510.6    3000.0     2511.0     3100.0     2512.5     3117.7     2492.8     3136.0     2493.0     3200.0
GR    2492.4    3241.9     2492.6    3299.99     2492.9     3343.6     2493.0     3400.0     2492.9     3437.8
GR    2490.9    3454.6    2493.25     3466.4    2502.64     3480.4     2514.4     3499.9     2513.2    3533.66
GR    2513.0   3599.99     2512.6     3618.9     2512.6    3699.99     2512.8     3700.7     2511.4     3719.0
GR    2511.3   3799.99     2509.5     3832.6     2509.5    3899.99     2507.5    3965.17     2506.6    3999.99
GR    2506.1   4093.59     2506.1     4100.0     2506.0    4163.93     2505.9     4165.6    2505.07    4199.99
GR    2504.3   4232.45

NH         3       0.1     3100.0       0.03    3457.65        0.1     4200.0
ET                          9.11                                                                 3100.0     3500.0
  Physically adjusted SB Card elevations by +2.2 ft
SB      1.05      1.56        2.6      420.0      330.0       30.0     5048.0        1.0     2494.4     2493.2
  SB  1.05    1.56     2.6   420.0   330.0    30.0  5048.0     1.0  2492.2  2491
X1      39.5        38     3100.0    3499.99      120.0      120.0      120.0        1.0        2.2
X2       0.0       0.0          1     2510.2     2516.2        0.0          0       1.33        0.0
   X2   0.0     0.0       1  2508.0  2514.0     0.0       0    1.33     0.0
   Adjusted BT Elevations By +2.2 ft
BT        -2    3100.0     2513.8     2508.3    3499.99     2517.0     2511.5
   BT    -2  3100.0  2511.6  2506.1 3499.99  2514.8  2509.3
GR    2525.0    2000.0     2522.0     2100.0     2517.4     2200.0     2513.7     2300.0     2511.3     2352.9
GR    2510.1    2400.0     2503.5    2457.65    2507.95     2500.0     2507.8     2520.0     2507.7     2600.0
GR    2507.9   2635.98    2507.95     2700.0     2508.8    2761.07     2509.0     2800.0     2509.8     2888.2
GR    2508.8    2900.0     2511.0     3000.0     2511.6     3100.0     2494.4     3117.3    2493.65     3200.0
GR    2492.2    3204.4     2493.2     3300.0     2494.2    3333.39     2494.3    3399.99     2493.5     3415.9
GR    2496.4    3423.0     2495.6     3449.0     2503.5    3457.65    2514.81    3499.99    2513.21    3533.66
GR    2513.0   3599.99     2512.6     3618.9     2512.6    3699.99    2511.31    3799.99     2509.5    3899.99
GR    2506.6   3999.99     2506.1     4100.0    2505.07     4200.0

NC       0.0       0.0        0.0        0.1        0.3
NH         4       0.1    2300.00       0.05    3100.00       0.03    3457.65       0.05     4260.4
ET                 7.11       9.11                                     3100.0     3458.0     3100.0     3458.0
X1        40        62     3100.0    3457.65      110.0       60.0       90.0        1.0        2.2
GR    2515.9   2000.00    2515.36    2100.00    2516.02    2153.47    2511.38    2200.00    2505.89     2292.6
GR    2505.9   2300.00    2505.49    2358.87    2501.11    2391.80    2501.28    2400.00    2501.64     2438.4
GR    2504.3   2465.15    2504.25    2500.00    2501.59    2575.38    2501.77    2600.00    2502.26     2670.5
GR    2502.3   2700.00    2502.39    2800.00    2502.39    2804.94    2502.39    2900.00    2503.28     2922.5
GR    2503.3   3000.00    2503.81    3024.41    2503.67    3074.35    2506.95    3082.49    2507.39     3096.7
GR    2505.4   3100.00    2494.56    3117.37    2493.85    3200.00    2492.43    3204.44    2493.49     3300.0
GR    2494.4   3333.39    2494.47    3399.99    2493.49    3415.91    2496.59    3423.03    2495.84     3449.0
GR    2503.7   3457.65    2503.32    3499.99    2503.41    3528.92    2503.36    3599.99    2503.45     3600.9
GR    2501.5   3680.86    2503.85    3699.99    2505.22    3710.35    2504.21    3729.73    2501.90     3769.3
GR    2501.9   3799.99    2502.26    3843.10    2502.97    3899.99    2503.10    3924.60    2503.54     4000.0
GR    2503.5   4001.00    2500.31    4042.43    2503.98    4090.95    2504.07    4099.99    2504.12     4114.3
GR    2503.5   4139.42    2504.47    4192.50    2505.27    4199.89    2505.27    4199.99    2504.34     4235.2
GR    2503.1   4243.89    2503.10     4260.4
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NC      0.0       0.0       0.0       0.1       0.3
NH        3      0.05   3043.01      0.03   3399.99      0.05    4237.1
ET               7.11      9.11                                     0.1    3600.0    3043.0    3485.0
X1       41        61   3043.01   3399.99     280.0     280.0     280.0       1.0       2.2
GR   2519.0   2000.00   2517.97   2038.65   2510.36   2088.62   2512.79   2100.00   2512.62    2107.1
GR   2510.6   2143.38   2519.83   2186.94   2519.83   2200.00   2519.88   2268.52   2519.88    2300.0
GR   2519.5   2351.17   2512.35   2384.10   2508.94   2400.00   2503.59   2421.73   2504.21    2482.6
GR   2504.2   2500.00   2504.65   2559.39   2504.65   2600.00   2504.65   2700.00   2504.29    2800.0
GR   2504.3   2810.16   2504.29   2900.00   2504.65   2935.22   2505.53   3000.00   2505.93    3020.5
GR   2507.7   3034.02   2507.57   3043.01   2496.15   3060.49   2495.00   3100.00   2495.75    3132.9
GR   2495.8   3200.00   2495.71   3236.94   2494.87   3293.11   2495.57   3299.99   2496.37    3314.0
GR   2495.2   3365.97   2497.52   3392.67   2505.67   3399.99   2505.62   3407.27   2505.00    3500.0
GR   2503.7   3512.36   2503.67   3599.99   2503.28   3699.99   2503.28   3702.88   2502.66    3751.7
GR   2505.1   3799.99   2504.52   3822.67   2504.25   3899.99   2504.12   3960.74   2503.41    4000.0
GR   2503.1   4071.80   2503.50   4099.99   2503.90   4132.93   2501.24   4147.98   2504.38    4170.8
GR   2503.1   4176.98   2502.74   4188.13   2503.50   4199.99   2504.16   4225.32   2505.00    4232.6
GR   2504.9    4237.1

NH        3       0.1   3079.92      0.03   3399.99      0.05    5385.0
ET               7.11      9.11                                     .01    3900.0    3080.0    3415.0
X1       42        87    3080.0   3399.99     420.0     420.0     420.0       1.0       2.2
GR   2514.3   2000.00   2512.35   2100.00   2512.17   2200.00   2510.58   2238.55   2510.58    2300.0
GR   2508.0   2368.47   2509.87   2400.00   2515.27   2474.58   2515.14   2500.00   2514.30    2512.8
GR   2508.4   2533.59   2509.03   2581.71   2507.39   2600.00   2504.43   2612.78   2504.91    2666.6
GR   2502.0   2700.00   2501.82   2706.05   2500.49   2749.30   2506.73   2776.39   2506.73    2800.0
GR   2506.4   2873.42   2506.37   2900.00   2506.51   2953.72   2506.24   3000.00   2506.86    3038.7
GR   2507.9   3080.00   2498.81   3100.00   2496.68   3101.97   2496.68   3180.59   2497.08    3200.0
GR   2497.3   3292.98   2497.34   3299.99   2497.48   3390.45   2502.97   3399.99   2504.07    3415.8
GR   2506.8   3445.70   2506.73   3499.99   2506.20   3573.05   2506.20   3599.99   2505.71    3682.3
GR   2505.7   3699.99   2506.15   3751.98   2506.15   3799.99   2506.82   3868.79   2504.38    3900.0
GR   2502.1   3923.24   2507.39   3973.00   2507.22   3999.99   2505.27   4058.79   2505.27    4094.6
GR   2505.6   4099.99   2504.60   4183.62   2504.60   4199.99   2504.74   4278.83   2503.32    4297.5
GR   2504.8   4299.99   2505.84   4321.02   2505.45   4399.99   2505.45   4418.01   2505.45    4496.2
GR   2505.4   4499.99   2505.49   4533.54   2507.08   4558.24   2506.20   4568.78   2506.37    4600.0
GR   2507.3   4635.32   2507.35   4694.06   2507.57   4699.99   2507.61   4708.54   2506.55    4742.5
GR   2507.0   4780.38   2506.99   4799.99   2505.75   4899.99   2505.75   4900.61   2502.44    4915.6
GR   2506.6   4955.85   2506.60   4999.99   2505.89   5017.69   2506.42   5043.81   2506.42    5100.0
GR   2506.9   5176.34   2506.86   5199.98   2507.30   5259.25   2506.91   5299.99   2506.91    5324.9
GR   2514.4   5382.45   2515.05    5385.0

  End Bank Protection

NH        7       0.1   2389.68     0.035   2433.28      0.05    2726.10      0.03   3020.30       0.1
NH   3200.0      0.06   3599.99       0.1    4972.3
ET               7.11      9.11                                     0.1    3900.0    2726.0    3025.0
X1       43        82    2726.1   3020.30     350.0     350.0     350.0       1.0       2.2
GR   2514.3   2000.00   2514.65   2100.00   2513.32   2166.84   2509.21   2195.39   2509.21    2200.0
GR   2509.0   2268.92   2509.03   2300.00   2507.30   2389.68   2504.07   2400.00   2502.83    2414.8
GR   2502.0   2433.28   2508.76   2457.67   2507.70   2500.00   2508.10   2552.62   2508.99    2600.0
GR   2510.0   2615.48   2509.43   2654.79   2511.73   2671.26   2508.68   2689.14   2510.18    2700.0
GR   2510.1   2708.71   2507.13   2726.10   2499.03   2749.25   2498.94   2800.00   2499.25    2820.5
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GR   2499.2   2844.82   2499.20   2861.03   2499.20   2900.00   2498.76   2989.04   2502.57   3000.0
GR   2508.0   3020.30   2508.14   3100.00   2507.61   3125.03   2507.57   3200.00   2507.70   3239.5
GR   2507.7   3299.99   2507.04   3361.19   2507.04   3399.99   2507.30   3476.84   2507.30   3500.0
GR   2507.3   3536.29   2503.94   3571.44   2505.98   3599.99   2507.57   3618.36   2506.77   3671.9
GR   2506.8   3699.99   2506.64   3707.16   2506.64   3799.99   2506.42   3825.35   2506.42   3900.0
GR   2506.7   3978.60   2509.78   3999.99   2510.36   4006.89   2506.42   4046.02   2506.86   4100.0
GR   2506.9   4140.71   2506.99   4199.99   2509.21   4233.93   2508.28   4299.99   2508.01   4307.5
GR   2508.1   4348.71   2507.70   4399.99   2507.70   4401.97   2505.67   4445.83   2509.96   4484.4
GR   2509.5   4499.99   2509.61   4505.42   2508.10   4525.47   2509.65   4568.45   2510.09   4593.5
GR   2509.3   4599.99   2509.30   4600.99   2509.43   4635.29   2509.74   4647.64   2507.39   4671.6
GR   2507.4   4699.99   2509.47   4759.64   2511.46   4799.99   2512.35   4832.15   2513.46   4900.0
GR   2515.1   4947.41   2516.07    4972.3

NH        5       0.1   2532.39      0.05    2782.1      0.03   2968.90     0.045   3599.99       0.1
NH   4957.5
ET              7.11      9.11                                      .01    4100.0    2782.0    3590.0
X1       44        87   2782.1   2968.90     430.0     415.0     420.0       1.0       2.2
GR   2518.3   2000.00   2516.69   2045.99   2516.42   2100.00   2515.98   2117.84   2515.23   2200.0
GR   2515.2   2201.86   2514.79   2261.66   2512.62   2300.00   2512.44   2303.62   2511.47   2355.5
GR   2512.9   2385.34   2513.68   2400.00   2514.52   2426.42   2514.39   2500.00   2514.34   2518.8
GR   2508.2   2532.39   2508.06   2600.00   2508.77   2656.74   2508.77   2700.00   2510.05   2782.1
GR   2502.2   2800.00   2500.09   2802.59   2499.38   2865.85   2499.38   2900.00   2500.27   2952.5
GR   2510.4   2968.90   2510.45   3000.00   2509.07   3056.11   2511.47   3084.22   2511.24   3100.0
GR   2510.8   3151.90   2510.80   3199.99   2510.00   3261.46   2510.00   3299.99   2508.72   3357.8
GR   2508.7   3399.99   2507.04   3444.77   2507.39   3499.99   2508.28   3546.85   2507.57   3588.1
GR   2507.4   3599.99   2507.13   3619.44   2507.13   3699.99   2507.53   3727.98   2507.53   3800.0
GR   2507.3   3846.21   2507.88   3899.99   2508.37   3935.98   2510.76   3971.40   2510.62   4000.0
GR   2510.6   4000.13   2507.13   4048.69   2507.53   4092.16   2509.47   4099.99   2509.78   4112.1
GR   2509.9   4148.24   2502.92   4171.39   2510.14   4194.46   2509.25   4199.99   2509.16   4205.9
GR   2506.6   4220.75   2510.31   4251.56   2510.00   4299.99   2509.78   4303.44   2510.40   4365.8
GR   2511.8   4399.99   2511.33   4417.16   2509.43   4443.72   2509.21   4499.99   2509.25   4514.4
GR   2506.5   4595.91   2506.91   4599.99   2509.21   4626.36   2508.94   4699.99   2508.99   4713.2
GR   2511.5   4743.71   2510.58   4754.47   2511.82   4795.11   2512.70   4799.99   2512.66   4802.4
GR   2511.5   4808.34   2511.64   4828.75   2511.38   4864.38   2512.93   4876.56   2517.62   4900.0
GR   2517.0   4904.40   2517.18    4957.5

NH        4     0.045    2741.2      0.03   2954.83     0.045   3699.99       0.1    4925.8
ET              7.11      9.11                                      0.1    4550.0    2750.0    3640.0
X1       45        66   2741.2   2954.83     495.0     498.0     490.0       1.0       2.2
GR   2522.1   2000.00   2521.91   2100.00   2522.75   2106.06   2522.58   2139.66   2516.82   2165.6
GR   2516.7   2200.00   2515.76   2264.63   2515.76   2300.00   2512.35   2368.83   2512.35   2400.0
GR   2510.1   2481.49   2511.64   2500.00   2512.26   2518.18   2510.85   2581.04   2511.33   2600.0
GR   2511.6   2658.20   2512.57   2700.00   2512.53   2708.66   2509.96   2724.20   2510.18   2741.2
GR   2501.5   2759.30   2502.35   2800.00   2502.52   2835.13   2502.66   2900.00   2502.92   2932.2
GR   2512.1   2954.83   2511.86   3000.00   2511.38   3056.77   2511.24   3100.00   2511.42   3176.2
GR   2511.4   3199.99   2511.42   3299.99   2510.09   3341.09   2510.09   3399.99   2510.09   3446.3
GR   2509.3   3497.58   2509.30   3499.99   2509.47   3519.13   2508.99   3583.68   2509.69   3600.0
GR   2509.4   3698.37   2509.38   3699.99   2509.96   3784.02   2509.96   3799.99   2509.96   3900.0
GR   2510.0   3921.25   2510.05   3999.99   2510.18   4061.71   2510.18   4099.99   2510.49   4200.0
GR   2510.7   4243.91   2510.85   4299.99   2512.75   4396.14   2512.75   4399.99   2511.91   4494.7
GR   2511.3   4499.99   2507.70   4537.31   2510.80   4599.19   2510.80   4599.99   2511.95   4700.0
GR   2511.7   4729.55   2511.91   4799.99   2511.91   4814.94   2512.93   4870.19   2514.56   4900.0
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GR   2515.7     4925.8

NH        4      0.045   2562.71      0.03   2848.63     0.045    3269.9       0.1    4829.6
ET                7.11      9.11                                     0.1    4200.0    2563.0    3500.0
X1       46        63   2562.71   2848.63     500.0     515.0     500.0       1.0       2.2
GR   2530.7   2000.00   2529.70   2021.56   2521.20   2089.91   2521.20   2100.00   2516.29    2193.8
GR   2516.3   2200.00   2513.37   2276.36   2513.37   2300.00   2513.10   2376.93   2513.68    2400.0
GR   2514.3   2477.10   2514.70   2500.00   2514.96   2562.71   2504.78   2579.93   2505.05    2600.0
GR   2504.8   2655.98   2505.93   2700.00   2505.76   2704.72   2505.40   2800.00   2504.65    2812.3
GR   2515.7   2848.63   2515.67   2900.00   2514.52   2951.55   2514.39   3000.00   2513.81    3080.1
GR   2513.8   3100.00   2513.01   3192.05   2513.01   3199.99   2513.72   3250.53   2511.78    3269.9
GR   2512.0   3295.81   2512.66   3299.99   2514.12   3322.64   2513.77   3399.99   2513.24    3437.1
GR   2513.2   3499.99   2512.48   3539.59   2512.53   3599.99   2512.84   3679.33   2512.84    3700.0
GR   2513.4   3799.99   2514.17   3823.51   2514.17   3899.99   2513.99   3956.80   2514.43    4000.0
GR   2514.7   4051.62   2514.39   4099.99   2513.99   4159.01   2515.41   4199.99   2514.30    4226.6
GR   2507.8   4244.48   2512.66   4299.99   2514.34   4304.02   2514.12   4399.99   2513.90    4418.7
GR   2513.9   4499.99   2513.90   4528.94   2514.12   4599.99   2515.18   4699.99   2515.18    4713.1
GR   2515.8   4799.99   2515.94   4812.64   2517.35    4829.6

NH        5      0.045   2400.00      0.06   2552.89      0.03   2867.93     0.045   3294.00       0.1
NH   4907.7
ET                7.11      9.11                                     0.1    3000.0    2553.0    3530.0
X1       47        58   2552.89   2867.93     520.0     530.0     520.0       1.0       2.2
GR   2522.2   2000.00   2519.88   2100.00   2518.95   2151.13   2518.95   2200.00   2517.88    2300.0
GR   2517.2   2387.55   2517.13   2400.00   2514.48   2500.00   2515.54   2552.89   2507.84    2570.9
GR   2507.9   2600.00   2508.15   2674.75   2508.15   2700.00   2508.15   2780.86   2508.10    2800.0
GR   2507.8   2820.48   2510.54   2846.29   2518.77   2867.93   2519.08   2900.00   2519.65    2906.5
GR   2516.9   2970.23   2516.91   3000.00   2517.09   3100.00   2517.09   3100.42   2516.02    3200.0
GR   2515.9   3207.68   2514.03   3267.35   2514.25   3294.00   2514.25   3299.99   2514.39    3400.0
GR   2515.1   3447.78   2515.63   3499.99   2515.98   3599.99   2515.67   3699.99   2517.04    3752.7
GR   2517.0   3799.99   2516.56   3899.99   2516.38   3909.43   2516.38   3999.99   2516.38    4100.0
GR   2515.0   4152.45   2513.19   4199.99   2511.69   4251.39   2514.17   4275.69   2514.65    4300.0
GR   2514.9   4307.70   2516.87   4331.56   2516.87   4399.99   2516.78   4452.71   2516.78    4500.0
GR   2517.0   4599.99   2517.13   4603.00   2516.91   4699.99   2515.41   4732.61   2516.78    4799.6
GR   2517.0   4799.99   2518.99   4899.99   2519.12    4907.7

NH        6      0.045   2300.00      0.06   2529.21      0.03    2700.0     0.035   2800.00     0.045
NH   3299.9        0.1    4975.0
ET                7.11      9.11                                     0.1    4000.0    2390.0    3440.0
X1       48        61   2529.21    2700.0     500.0     510.0     510.0       1.0       2.2
GR   2523.7   2000.00   2522.62   2100.00   2522.04   2140.02   2521.65   2200.00   2520.85    2247.7
GR   2520.8   2300.00   2518.99   2357.05   2518.99   2400.00   2518.95   2474.85   2518.95    2500.0
GR   2518.1   2529.21   2510.09   2557.76   2510.14   2600.00   2510.36   2697.37   2512.22    2700.0
GR   2517.8   2729.86   2517.26   2783.83   2522.00   2800.00   2522.44   2806.22   2518.15    2821.5
GR   2518.1   2900.00   2518.15   2915.34   2518.24   3000.00   2518.55   3100.00   2517.53    3119.3
GR   2517.6   3199.99   2517.13   3298.51   2516.60   3299.99   2516.78   3323.34   2516.73    3400.0
GR   2516.7   3478.68   2516.91   3499.99   2517.40   3599.99   2519.03   3645.16   2518.95    3700.0
GR   2518.4   3799.99   2518.19   3850.69   2518.33   3899.99   2517.97   3987.16   2517.84    4000.0
GR   2512.7   4049.84   2519.21   4099.99   2516.91   4110.31   2513.01   4143.78   2518.28    4186.0
GR   2518.3   4199.99   2518.02   4293.22   2518.02   4299.99   2518.19   4386.00   2518.19    4400.0
GR   2519.0   4484.41   2519.03   4499.99   2519.03   4599.99   2518.73   4631.90   2519.12    4700.0
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GR   2519.5    4752.88    2522.27    4799.99    2523.33    4822.16    2523.95    4886.52    2524.44    4900.0
GR   2523.7    4975.0

NH        6     0.035    2300.0       0.06    2550.0       0.03    2700.0     0.035    2795.0     0.045
NH   3300.0       0.1    4850.0
ET               7.11      9.11                                     0.1      4700    2400.0    3440.0
X1    48.25        34    2540.0    2795.0     280.0      270.0     275.0       1.0       2.2
GR   2524.5    2000.0    2523.8    2100.0    2522.3     2200.0    2526.5    2300.0    2519.8    2395.0
GR   2519.8    2500.0    2518.0    2540.0    2511.1     2550.0    2511.1    2600.0    2511.3    2650.0
GR   2512.3    2700.0    2515.0    2760.0    2519.4     2795.0    2518.7    2900.0    2518.5    2995.0
GR   2518.7    3100.0    2517.0    3190.0    2517.0     3300.0    2517.0    3400.0    2518.0    3500.0
GR   2518.8    3600.0    2519.3    3690.0    2519.2     3790.0    2519.0    3895.0    2517.3    3990.0
GR   2518.6    4090.0    2519.1    4195.0    2519.0     4300.0    2519.2    4400.0    2519.0    4500.0
GR   2520.0    4595.0    2521.4    4700.0    2522.3     4800.0    2522.4    4850.0

NH        5      0.06    2514.24      0.03    2785.85     0.035    2836.40     0.045    3346.54       0.1
NH   5090.7
ET               7.11      9.11                                     0.1      4700    2400.0    3450.0
X1    48.5        56    2514.24    2800.0     230.0      230.0     230.0       1.0       2.2
GR   2525.2    2000.0    2523.02    2100.0    2521.96    2167.73    2522.93    2200.0    2522.66    2232.8
GR   2520.1   2259.14    2520.7    2300.0    2520.63    2400.0     2520.5   2440.23    2520.5    2500.0
GR   2520.5   2514.24    2512.0    2539.74    2512.0    2600.0    2512.13   2639.07    2512.31   2700.0
GR   2512.1   2742.66    2515.27   2785.85    2517.22    2800.0    2518.72   2814.77    2518.72   2836.4
GR   2523.9   2858.59    2519.26   2885.02    2519.26    2900.0    2518.95    3000.0    2518.95   3020.0
GR   2519.5   3328.21    2517.84   3346.54    2518.11    3374.65    2518.59   3399.99    2518.99   3464.0
GR   2519.7    3799.0    2519.52   3882.43    2519.52    3899.99    2517.26   3964.19    2517.26   4000.0
GR   2518.3   4099.99    2519.61    4129.7    2519.61    4199.99    2519.43    4221.2     2519.7   4300.0
GR   2519.7   4384.01    2516.64   4399.77     2516.6    4399.99    2516.38   4416.81    2519.65   4455.6
GR   2519.7   4499.99    2520.27   4569.27    2520.72    4599.99    2521.03   4699.99    2521.03   4746.5
GR   2521.2   4799.99    2521.38   4893.74    2521.38    4899.99     2523.9   4964.61    2525.85   5000.0
GR   2526.8    5090.7

NH        5     0.035    2500.00     0.045    2555.72       0.03    2784.4     0.045    4300.0       0.1
NH   5089.6
ET               9.11                                                                    2400.0    3400.0
X1       49        81    2555.72    2784.40     600.0      600.0     600.0       1.0       2.2
GR   2526.8   2000.00    2523.95   2100.00    2523.59    2104.65    2525.19   2149.84    2521.91   2165.4
GR   2522.3   2200.00    2522.75   2245.68    2520.50    2267.64    2521.91   2300.00    2522.18   2400.0
GR   2521.9   2457.98    2521.91   2500.00    2521.91    2555.72    2515.18   2590.25    2516.07   2600.0
GR   2516.6   2630.84    2514.65   2652.09    2516.02    2700.00    2514.48   2768.16    2522.89   2784.4
GR   2525.6   2800.00    2524.04   2807.82    2525.72    2830.22    2525.72   2843.32    2522.93   2862.6
GR   2522.9   2900.00    2522.80   3000.00    2522.44    3020.61    2522.44   3099.99    2522.44   3200.0
GR   2522.1   3228.17    2522.09   3299.99    2522.71    3366.73    2521.03   3382.75    2521.07   3400.0
GR   2521.1   3412.72    2522.71   3426.13    2523.28    3499.99    2522.62   3512.85    2519.65   3558.8
GR   2522.2   3593.55    2522.22   3599.99    2522.22    3624.84    2522.22   3684.82    2522.22   3700.0
GR   2520.9   3767.82    2522.49   3799.99    2522.49    3804.61    2522.53   3899.99    2522.53   3900.7
GR   2521.2   3999.99    2520.10   4010.67    2521.03    4075.52    2521.03   4099.99    2519.48   4153.1
GR   2521.7   4199.99    2521.82   4201.68    2520.81    4230.81    2522.13   4279.63    2522.13   4300.0
GR   2521.8   4399.99    2521.82   4409.77    2519.03    4443.02    2519.48   4452.71    2521.12   4461.3
GR   2521.0   4499.99    2520.36   4533.76    2521.20    4599.99    2521.87   4619.29    2522.00   4700.0
GR   2522.8   4751.51    2525.59   4799.99    2527.84    4837.48    2526.16   4899.76    2526.16   4900.0
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GR   2525.5    4917.95    2525.63    4953.85    2525.98    4999.98    2528.42    5032.20    2529.84    5083.6
GR   2530.1     5089.6

NH        4      0.045     2171.0      0.035     2740.6       0.03    2964.65        0.1     5067.1
ET                            9.11                                                          2500.0     3450.0
X1       50         66     2740.6    2964.65      610.0      600.0      600.0        1.0        2.2
GR   2529.3    2000.00    2526.03    2064.19    2527.22    2097.12    2527.22    2100.00    2526.03     2171.0
GR   2526.0    2200.00    2525.32    2300.00    2525.32    2361.35    2525.32    2400.00    2525.32     2500.0
GR   2525.3    2556.25    2525.32    2600.00    2524.44    2688.65    2524.44    2700.00    2523.42     2740.6
GR   2517.8    2754.39    2517.93    2800.00    2517.93    2813.31    2517.93    2900.00    2518.33     2927.5
GR   2528.1    2964.65    2527.22    3000.00    2526.07    3099.99    2525.37    3199.99    2524.70     3300.0
GR   2524.5    3399.99    2524.39    3450.37    2524.39    3479.19    2524.39    3499.99    2524.52     3600.0
GR   2524.5    3670.46    2524.52    3699.99    2524.52    3799.99    2524.08    3849.12    2524.08     3900.0
GR   2524.7    3972.27    2523.73    3999.99    2522.53    4016.93    2525.01    4070.54    2525.54     4100.0
GR   2526.0    4122.20    2525.01    4159.25    2522.93    4181.29    2522.93    4199.99    2523.20     4300.0
GR   2523.3    4395.23    2523.28    4399.99    2523.28    4428.21    2523.28    4456.41     2524.5    4499.99
GR   2524.5     4500.1    2525.54    4599.99    2525.54    4602.93    2519.70    4637.11    2522.62     4671.2
GR   2525.5    4681.24    2525.01    4699.99    2523.33    4728.34    2530.50    4791.20    2530.59     4800.0
GR   2530.9    4845.25    2531.70    4899.99    2534.79    4950.86    2535.46    4999.98    2535.72     5004.1
GR   2535.2     5067.1

NH        6      0.045    2268.17      0.035    2553.68      0.045     2754.4       0.03    2996.36      0.045
NH   3479.2        0.1     5028.1
ET                            9.11                                                          2500.0     3500.0
X1       51         64     2754.4    2996.36      510.0      520.0      510.0        1.0        2.2
GR   2532.8    2000.00    2530.94    2100.00    2529.30    2131.34    2529.17    2200.00    2529.70     2209.1
GR   2526.9    2268.17    2526.87    2300.00    2527.14    2400.00    2527.18    2426.77    2527.18     2500.0
GR   2527.7    2553.68    2527.71    2600.00    2527.45    2700.00    2527.76    2715.17    2526.78     2754.4
GR   2519.9    2776.49    2520.01    2800.00    2520.05    2865.51    2520.05    2900.00    2521.20     2976.4
GR   2527.8    2996.36    2527.76    3000.00    2529.39    3044.04    2528.55    3099.99    2528.60     3200.0
GR   2528.0    3244.43    2527.98    3299.99    2527.36    3397.90    2527.31    3399.99    2526.87     3479.2
GR   2526.7    3499.99    2525.59    3514.94    2528.07    3577.22    2527.89    3599.99    2527.76     3700.0
GR   2526.2    3741.81    2526.21    3799.99    2525.94    3899.99    2525.76    3918.39    2525.76     4000.0
GR   2525.5    4001.47    2526.47    4099.99    2526.34    4188.59    2526.34    4199.99    2526.38     4300.0
GR   2527.3    4399.99    2527.00    4432.72    2525.14    4472.73    2525.01    4499.99    2525.01     4505.9
GR   2526.1    4571.84    2525.72    4599.99    2522.71    4628.91    2526.21    4665.91    2526.43     4700.0
GR   2528.1    4700.26    2529.66    4727.49    2530.81    4799.99    2532.01    4821.68    2534.93     4837.3
GR   2537.3    4899.99    2539.97    4973.03    2540.50    4999.98    2542.81     5028.1

NH        5       0.05    2715.61       0.03    2914.15      0.045     3000.0      0.035    3624.05        0.1
NH   4977.3
ET                            9.11                                                          2510.0     3700.0
X1       52         65    2715.61    2974.57      500.0      510.0      500.0        1.0        2.2
GR   2534.9    2000.00    2534.00    2039.31    2531.16    2100.00    2530.37    2105.49    2530.10     2200.0
GR   2529.9    2287.95    2528.46    2300.00    2526.87    2323.45    2529.97    2355.46    2529.97     2400.0
GR   2530.5    2474.67    2530.46    2500.00    2529.70    2600.00    2529.53    2627.61    2529.26     2700.0
GR   2529.3    2715.61    2521.47    2732.74    2521.56    2800.00    2521.56    2825.97    2522.22     2879.3
GR   2524.5    2900.00    2526.25    2914.15    2526.74    2940.93    2531.34    2974.57    2529.88     3000.0
GR   2529.9    3095.15    2529.88    3099.99    2529.88    3199.99    2528.95    3254.55    2528.95     3300.0
GR   2529.4    3399.99    2529.53    3418.12    2529.53    3499.99    2528.46    3585.18    2529.04     3600.0
GR   2529.9    3624.05    2529.88    3645.78    2527.45    3677.34    2528.07    3699.99    2529.22     3708.9
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GR   2528.2   3799.99   2527.36   3835.95   2527.36   3899.99   2527.67   3999.99   2527.67   4011.9
GR   2527.7   4099.99   2528.60   4165.25   2528.82   4199.99   2528.91   4299.99   2529.84   4328.2
GR   2529.8   4399.99   2529.61   4414.07   2527.14   4470.42   2524.79   4497.07   2525.14   4500.0
GR   2528.5   4526.50   2528.60   4599.99   2528.60   4617.52   2529.08   4699.99   2529.08   4702.2
GR   2529.9   4795.25   2529.92   4799.99   2529.97   4899.99   2531.78   4947.48   2533.33   4977.3

NH       5       0.1   2400.00     0.045    2623.1      0.03    3019.1     0.035    3800.0       0.1
NH  4993.4
ET               7.11      9.11                                  0.1    4600.0    2610.0    3860.0
X1      53        68    2623.1    3019.1     500.0     470.0     500.0       1.0       2.2
GR   2538.8   2000.00   2535.81   2100.00   2535.81   2200.00   2535.46   2241.39   2533.82   2255.2
GR   2533.8   2283.31   2534.66   2300.00   2534.84   2400.00   2534.84   2400.79   2533.16   2442.9
GR   2533.2   2500.00   2534.40   2549.35   2532.18   2581.62   2532.54   2600.00   2532.71   2623.1
GR   2528.7   2691.53   2527.31   2700.00   2525.63   2716.41   2525.23   2800.00   2524.83   2805.5
GR   2524.8   2900.00   2524.79   2932.07   2524.57   2997.28   2528.55   3000.00   2532.63   3019.1
GR   2532.3   3099.99   2531.08   3147.76   2531.08   3199.99   2531.25   3299.99   2531.34   3306.7
GR   2531.7   3383.30   2531.65   3399.99   2530.68   3490.42   2530.68   3499.99   2530.68   3600.0
GR   2530.7   3620.61   2530.68   3699.99   2530.19   3757.35   2533.16   3783.33   2530.90   3800.0
GR   2530.4   3801.48   2529.75   3825.74   2528.24   3899.99   2528.82   3908.74   2529.22   4000.0
GR   2530.5   4029.76   2530.46   4099.99   2531.56   4148.35   2531.78   4190.54   2531.25   4200.0
GR   2527.6   4231.66   2531.21   4289.87   2531.21   4299.99   2530.81   4399.74   2530.54   4400.0
GR   2527.6   4425.20   2530.15   4463.93   2530.68   4499.99   2530.19   4524.57   2535.68   4596.5
GR   2535.7   4599.99   2530.28   4699.99   2530.10   4702.88   2530.72   4782.03   2530.72   4800.0
GR   2535.1   4899.99   2535.06   4904.03   2538.34    4993.4

NH       4       0.1   2353.16     0.045   2975.05      0.03   3263.97       0.1    4936.0
ET               7.11      9.11                                 2450.0    4500.0    2700.0    3900.0
X1      54        77    2975.05   3263.97     550.0     450.0     560.0       1.0       2.2
GR   2538.5   2000.00   2537.14   2075.78   2536.43   2100.00   2536.34   2108.01   2537.27   2116.9
GR   2536.5   2200.00   2536.92   2233.95   2535.72   2272.24   2535.19   2300.00   2534.79   2324.2
GR   2532.3   2353.16   2535.41   2399.59   2535.41   2400.00   2534.44   2500.00   2534.31   2535.5
GR   2534.3   2600.00   2533.78   2604.24   2529.48   2622.39   2529.53   2700.00   2530.59   2711.3
GR   2532.4   2733.45   2532.85   2757.13   2533.07   2800.00   2533.07   2809.46   2533.47   2878.4
GR   2532.4   2899.99   2529.79   2907.46   2530.15   2941.40   2531.30   2975.05   2528.82   2992.4
GR   2528.8   2999.99   2528.02   3012.89   2528.51   3099.99   2528.02   3109.00   2527.84   3185.3
GR   2527.2   3199.99   2526.21   3246.62   2532.98   3263.97   2532.98   3299.99   2532.67   3352.2
GR   2532.7   3399.99   2532.09   3464.86   2532.27   3499.99   2532.01   3586.24   2532.36   3600.0
GR   2533.3   3699.99   2531.47   3740.42   2532.14   3799.99   2532.85   3845.28   2530.41   3872.0
GR   2534.0   3899.99   2533.82   3901.63   2530.41   3920.54   2531.03   3943.33   2531.08   4000.0
GR   2532.9   4099.99   2532.54   4123.45   2533.07   4186.75   2532.71   4199.99   2530.23   4240.1
GR   2530.5   4284.85   2532.36   4299.99   2531.87   4321.28   2534.57   4358.86   2534.93   4400.0
GR   2535.9   4438.23   2540.28   4482.54   2539.57   4499.99   2534.48   4554.52   2538.47   4582.5
GR   2538.5   4599.99   2538.47   4699.98   2538.69   4723.35   2538.65   4799.98   2539.49   4837.2
GR   2539.6   4899.98   2539.71    4936.0

NH       6     0.045   2960.58      0.03   3299.99     0.045   3364.62      0.03   3643.94     0.035
NH  4300.0     0.045    5030.7
ET               7.11      9.11                                 2600.0    4200.0    2810.0    3960.0
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X1        55        83   2960.58   3643.94     440.0     600.0     500.0       1.0       2.2
GR    2541.6   2000.00   2541.21   2100.00   2539.66   2138.20   2536.88   2168.74   2536.17    2199.1
GR    2536.5   2200.00   2539.44   2228.33   2539.71   2251.08   2532.85   2277.99   2532.85    2300.0
GR    2532.6   2378.92   2535.24   2400.00   2537.10   2418.36   2537.72   2474.27   2537.18    2500.0
GR    2536.3   2535.93   2539.04   2566.92   2538.42   2600.00   2536.92   2611.58   2538.96    2642.3
GR    2531.0   2672.81   2530.85   2700.00   2531.43   2705.70   2533.42   2736.11   2536.79    2762.7
GR    2536.8   2800.00   2536.12   2840.40   2536.12   2899.99   2536.88   2936.77   2534.93    2947.3
GR    2536.2   2960.58   2532.27   2976.65   2532.40   2999.99   2531.30   3075.72   2531.30    3100.0
GR    2533.0   3146.74   2533.07   3199.99   2532.49   3263.87   2534.71   3299.99   2537.05    3319.3
GR    2532.5   3364.62   2529.79   3377.76   2529.79   3399.99   2530.32   3499.99   2530.50    3500.4
GR    2531.5   3599.99   2531.30   3629.82   2535.77   3643.94   2535.72   3699.99   2535.19    3800.0
GR    2535.2   3828.26   2535.10   3899.99   2535.15   3941.58   2535.33   3999.99   2536.39    4019.8
GR    2532.0   4052.43   2532.27   4083.10   2534.35   4099.99   2534.31   4100.99   2534.26    4120.4
GR    2537.9   4146.76   2538.42   4168.09   2538.42   4199.99   2539.27   4278.10   2536.30    4300.0
GR    2536.3   4303.02   2536.30   4399.99   2537.54   4468.93   2536.70   4499.99   2536.61    4509.2
GR    2536.6   4551.26   2536.61   4599.99   2536.52   4697.79   2536.61   4699.98   2537.23    4790.0
GR    2537.1   4799.98   2537.01   4833.64   2537.14   4879.32   2537.72   4899.98   2539.80    4923.1
GR    2539.8   4999.98   2539.84   5025.31   2540.46    5030.7

NH         6     0.045   2999.99      0.03   3135.92     0.035    3246.5     0.045   3455.39      0.03
NH    3700.0     0.045    5025.6
ET                          9.11                                                     2980.0    4120.0
X1        56        82   2983.38    3700.0     450.0     550.0     450.0       1.0       2.2
GR    2542.7   2000.00   2541.04   2100.00   2541.30   2113.81   2540.90   2156.22   2538.25    2190.3
GR    2538.2   2200.00   2538.25   2300.00   2538.25   2314.42   2538.25   2400.00   2538.25    2469.0
GR    2538.2   2500.00   2538.20   2600.00   2537.54   2633.41   2537.49   2700.00   2537.67    2800.0
GR    2537.7   2806.36   2534.09   2810.96   2534.04   2842.92   2534.31   2872.00   2535.81    2900.0
GR    2535.7   2901.00   2536.61   2960.36   2534.35   2983.38   2534.31   2999.99   2534.00    3076.3
GR    2534.1   3099.99   2534.09   3104.67   2535.86   3135.92   2534.88   3199.99   2534.66    3246.5
GR    2534.9   3292.40   2539.97   3299.99   2538.91   3306.17   2538.96   3361.01   2535.41    3390.7
GR    2535.4   3399.99   2536.65   3455.39   2532.09   3487.53   2532.09   3499.99   2532.36    3600.0
GR    2532.6   3661.14   2535.95   3672.43   2535.95   3683.72   2536.74   3697.22   2536.79    3700.0
GR    2536.8   3799.99   2536.70   3836.19   2536.26   3899.99   2535.68   3989.62   2535.68    4000.0
GR    2536.0   4041.23   2533.60   4073.50   2536.03   4099.99   2535.68   4112.37   2533.91    4158.1
GR    2534.5   4182.84   2537.41   4199.99   2536.92   4213.51   2536.52   4264.47   2537.36    4278.1
GR    2537.8   4288.24   2534.17   4299.99   2532.98   4309.00   2533.69   4324.98   2536.79    4348.0
GR    2536.6   4399.99   2536.57   4404.97   2537.01   4481.86   2540.50   4499.99   2540.99    4509.8
GR    2540.9   4599.99   2541.08   4612.53   2542.81   4621.65   2542.81   4647.64   2542.19    4669.8
GR    2543.0   4699.98   2543.03   4751.31   2543.03   4799.98   2542.98   4856.40   2543.51    4900.0
GR    2544.7   4999.98   2545.86    5025.6

NH         6     0.045   2696.27     0.035    3100.0      0.03   3231.27     0.045   3399.99      0.03
NH    3666.3     0.045    4857.6
ET                          9.11                                                     2920.0    4070.0
X1        57        71   3100.00    3666.3     530.0     540.0     520.0       1.0       2.2
GR    2543.6   2000.00   2542.98   2100.00   2541.57   2135.77   2541.57   2200.00   2540.68    2300.0
GR    2540.0   2332.80   2539.97   2400.00   2539.97   2500.00   2539.71   2534.21   2539.71    2600.0
GR    2540.8   2696.27   2540.46   2700.00   2538.34   2712.51   2538.60   2785.24   2539.04    2800.0
GR    2541.2   2835.79   2535.41   2853.54   2536.92   2898.65   2539.40   2899.99   2539.66    2910.9
GR    2539.1   2999.99   2538.56   3014.90   2539.09   3066.16   2535.55   3078.64   2535.90    3100.0
GR    2536.0   3199.99   2536.30   3231.27   2541.30   3241.98   2538.56   3294.53   2538.56    3300.0
GR    2538.6   3376.42   2534.62   3393.37   2534.71   3399.99   2535.10   3499.99   2534.97    3518.2
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GR   2535.0    3599.99    2534.48    3605.68    2535.77    3621.39    2535.77    3650.21    2540.46    3666.3
GR   2540.5    3699.99    2539.88    3799.99    2538.78    3832.14    2538.56    3899.99    2538.03    3984.3
GR   2538.0    3999.99    2538.91    4099.99    2538.91    4107.61    2538.73    4169.50    2535.33    4192.2
GR   2535.5    4199.99    2536.48    4222.44    2538.38    4262.72    2543.29    4292.03    2544.00    4300.0
GR   2544.2    4312.34    2543.29    4328.37    2542.50    4352.36    2543.20    4399.99    2543.29    4410.1
GR   2544.9    4433.63    2544.98    4499.99    2545.11    4513.00    2545.11    4540.85    2543.87    4557.4
GR   2543.9    4599.99    2543.69    4627.61    2544.71    4699.98    2544.84    4734.60    2546.30    4800.0
GR   2545.9     4857.6

NH        5       0.05    2800.00       0.045    2899.99       0.035    3138.13       0.03    3663.44       0.1
NH   4771.1
ET                        9.11                                                                 2920.0    4100.0
X1       58         72    2958.15    3663.44      480.0      570.0      500.0        1.0       2.2
GR   2552.0    2000.00    2549.62    2100.00    2549.36    2159.45    2549.31    2200.00    2546.39    2293.2
GR   2546.4    2300.00    2546.04    2400.00    2542.94    2459.26    2542.94    2500.00    2541.57    2600.0
GR   2541.1    2669.00    2541.12    2700.00    2541.12    2785.11    2541.26    2800.00    2541.21    2882.6
GR   2541.7    2899.99    2542.45    2958.15    2537.14    2987.19    2537.58    2999.99    2539.13    3019.5
GR   2540.5    3081.60    2540.42    3099.99    2540.06    3138.13    2538.42    3162.91    2538.56    3200.0
GR   2540.0    3299.99    2540.37    3310.23    2538.25    3399.99    2537.23    3410.41    2537.18    3500.0
GR   2537.3    3552.77    2537.45    3599.99    2536.87    3649.62    2541.17    3663.44    2541.17    3700.0
GR   2541.1    3756.75    2541.08    3799.99    2539.71    3873.26    2539.71    3899.99    2538.96    3948.6
GR   2538.5    3981.81    2541.48    3991.99    2539.00    3999.99    2538.96    4005.35    2541.48    4085.0
GR   2541.2    4099.99    2541.12    4126.11    2537.18    4145.15    2538.91    4161.00    2540.77    4189.4
GR   2540.8    4199.99    2539.58    4265.60    2540.55    4290.78    2545.73    4299.99    2547.06    4321.3
GR   2547.4    4350.63    2546.70    4393.97    2548.25    4399.99    2547.72    4407.25    2546.66    4429.2
GR   2544.3    4441.29    2544.71    4456.34    2548.65    4484.05    2548.65    4499.99    2550.24    4547.8
GR   2549.7    4586.71    2549.62    4599.99    2549.62    4635.80    2551.93    4678.74    2551.79    4700.0
GR   2551.2    4746.77    2551.17     4771.1

NH        4      0.045    2700.00       0.05    3010.91       0.03    3268.25      0.045     4664.1
ET                 7.11       9.11                                       0.1     4000.0     2770.0    3885.0
X1       59         61    3010.91     3300.0      520.0      550.0      520.0        1.0       2.2
GR   2550.8    2000.00    2550.51    2100.00    2548.21    2122.31    2545.51    2154.67    2545.51    2200.0
GR   2545.1    2280.65    2545.11    2300.00    2545.11    2400.00    2545.11    2434.25    2545.11    2500.0
GR   2545.1    2600.00    2543.25    2613.00    2543.74    2700.00    2543.25    2733.05    2543.16    2800.0
GR   2541.5    2854.61    2541.66    2899.99    2541.79    2939.64    2543.51    2972.58    2547.45    3000.0
GR   2548.0    3010.91    2540.86    3032.04    2539.40    3042.98    2539.40    3099.99    2539.40    3136.6
GR   2539.4    3199.99    2539.40    3248.37    2544.13    3268.25    2546.04    3296.98    2547.32    3300.0
GR   2546.6    3314.86     2545.0    3345.80     2545.0    3385.11     2545.0    3399.99     2545.0    3455.6
GR   2545.2    3478.50     2545.0    3486.03     2545.0    3499.99     2545.0    3599.99     2545.0    3700.0
GR   2545.0    3799.99     2545.0    3817.10     2545.0    3820.73     2545.0    3852.20    2545.99    3879.0
GR   2546.0    3899.99    2546.88    3951.18    2546.66    3999.99    2545.33    4089.03    2545.33    4100.0
GR   2545.4    4152.55     2546.0    4199.99     2546.0    4204.30     2546.0    4283.27     2546.0    4300.0
GR   2547.2    4399.99    2547.37    4416.77    2547.54    4499.99    2547.76    4514.29    2549.53    4600.0
GR   2550.7     4664.1
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NH	4	0.045	2769.62	0.03	3031.0	0.06	3199.99	0.045	4806.5	
ET			9.11						2750.0	3820.0
X1	60	74	2769.62	3031.0	650.0	650.0	650.0	1.0	2.2	
GR	2554.9	2000.00	2552.10	2072.86	2552.77	2100.00	2556.79	2115.09	2549.53	2145.9
GR	2551.0	2188.75	2549.45	2194.82	2549.45	2200.00	2549.22	2240.59	2552.99	2267.0
GR	2550.5	2300.00	2547.90	2316.37	2547.50	2400.00	2547.50	2407.43	2546.61	2500.0
GR	2546.3	2516.32	2546.30	2600.00	2546.08	2620.79	2553.92	2670.59	2552.46	2700.0
GR	2552.1	2717.25	2546.52	2744.92	2547.37	2769.62	2542.63	2778.38	2542.63	2800.0
GR	2542.2	2880.63	2542.01	2899.99	2541.97	2999.99	2541.97	3006.70	2548.38	3031.0
GR	2546.7	3099.99	2546.70	3130.81	2545.64	3182.69	2545.77	3199.99	2546.9	3256.4
GR	2547.3	3299.99	2547.23	3307.97	2543.20	3367.24	2546.25	3399.99	2546.22	3490.6
GR	2546.2	3499.99	2547.0	3590.39	2547.6	3599.99	2548.0	3699.99	2548.3	3800.0
GR	2548.7	3824.02	2549.00	3841.91	2549.00	3852.93	2551.08	3863.02	2551.08	3900.0
GR	2550.9	3990.51	2550.91	3999.99	2551.31	4099.99	2552.01	4160.01	2552.23	4200.0
GR	2552.8	4299.99	2553.16	4332.82	2551.97	4341.19	2552.19	4377.26	2553.03	4383.6
GR	2553.3	4399.99	2553.96	4499.98	2553.96	4525.11	2549.09	4561.55	2549.58	4594.7
GR	2552.1	4599.98	2554.40	4619.36	2554.40	4654.51	2553.08	4689.87	2554.27	4700.0
GR	2554.5	4723.96	2555.86	4742.73	2556.53	4799.98	2556.53	4806.5		

Confluence with Bonanza Wash

NH	5	0.03	2200.00	0.06	2300.00	0.035	2408.6	0.03	2811.32	0.05
NH	4838.2									
ET		7.11	9.11				0.1	4000.0	2408.0	3750.0
X1	61	42	2408.6	3000.0	610.0	590.0	630.0	1.0	2.2	
GR	2559.9	2000.00	2557.68	2100.00	2555.73	2140.32	2554.71	2200.00	2553.17	2235.1
GR	2549.9	2295.92	2551.08	2300.00	2555.42	2332.04	2556.71	2400.00	2557.24	2408.6
GR	2546.5	2441.47	2545.55	2463.83	2545.55	2500.00	2545.20	2552.01	2547.50	2600.0
GR	2547.2	2605.92	2545.60	2622.88	2545.02	2700.00	2543.65	2783.96	2546.88	2800.0
GR	2548.3	2811.32	2547.76	2899.99	2547.37	2924.34	2549.89	2966.88	2549.89	3000.0
GR	2550.3	3969.99	2552.0	4000.0	2552.2	4100.0	2552.5	4200.0	2553.0	4300.0
GR	2554.0	4400.0	2555.0	4500.0	2555.91	4599.99	2555.91	4602.3	2554.9	4660.56
GR	2554.9	4700.0	2554.3	4755.11	2555.69	4781.72	2554.01	4799.98	2553.1	4801.4
GR	2553.1	4819.2	2556.2	4838.2						

NH	4	0.05	2595.07	0.03	2952.30	0.045	3574.95	0.045	4970.5	
ET		7.11	9.11				0.1	3900	2380.0	3650.0
X1	62	53	2595.07	2952.3	540.0	480.0	510.0	1.0	2.2	
GR	2555.7	2000.00	2554.49	2100.00	2552.15	2200.00	2551.88	2269.58	2551.88	2300.0
GR	2551.9	2400.00	2549.22	2439.48	2551.62	2500.00	2551.62	2501.45	2550.82	2567.8
GR	2551.9	2595.07	2549.14	2600.00	2548.43	2607.91	2550.46	2655.41	2548.87	2680.6
GR	2546.3	2695.16	2546.26	2700.00	2546.48	2786.66	2546.52	2800.00	2547.19	2875.5
GR	2548.2	2899.99	2547.50	2932.65	2553.08	2952.30	2555.11	2999.99	2555.11	3012.3
GR	2554.4	3099.99	2553.87	3105.73	2550.95	3196.08	2551.13	3199.99	2551.31	3300.0
GR	2551.2	3328.92	2550.95	3390.63	2551.0	3399.99	2551.5	3416.39	2552.0	3430.8
GR	2552.0	3459.68	2552.0	3499.99	2552.0	3574.95	2552.0	3599.99	2552.1	4299.99
GR	2552.3	4364.8	2552.5	4389.41	2552.90	4399.99	2552.19	4402.34	2552.19	4499.98
GR	2552.6	4600.0	2553.5	4631.0	2553.52	4699.98	2554.67	4799.98	2555.51	4850.25
GR	2555.7	4900.0	2555.8	4910.91	2557.95	4970.5				

NH	4	0.055	2665.86	0.03	2899.99	0.065	3299.99	0.055	4999.99	
ET		7.11	9.11				0.1	3320.0	2260.0	3300.0
X1	63	74	2665.86	2899.99	500.0	480.0	500.0	1.0	2.2	
GR	2556.0	1900.00	2555.6	2000.00	2554.09	2100.00	2554.23	2189.81	2555.29	2200.00
GR	2556.2	2211.6	2551.5	2232.31	2555.64	2278.88	2555.56	2300.00	2553.17	2400.00
GR	2553.0	2449.7	2550.5	2482.73	2551.13	2500.00	2551.35	2516.99	2553.47	2579.40
GR	2553.7	2600.0	2553.7	2628.18	2548.47	2648.28	2553.30	2665.86	2548.61	2679.40
GR	2548.6	2700.0	2548.8	2706.71	2549.23	2732.43	2549.23	2778.73	2549.23	2800.00
GR	2549.4	2882.2	2554.0	2899.99	2554.89	2905.34	2553.83	2921.14	2549.54	2940.35
GR	2550.3	3000.0	2551.0	3004.76	2554.85	3029.33	2552.68	3076.07	2554.63	3099.99
GR	2554.8	3120.5	2549.8	3136.67	2554.98	3162.88	2555.56	3199.99	2554.45	3244.11
GR	2554.3	3290.5	2553.2	3299.99	2552.55	3302.89	2552.46	3322.86	2555.82	3355.57
GR	2555.8	3400.0	2555.7	3499.99	2555.69	3507.36	2555.69	3599.99	2555.78	3635.95
GR	2555.7	3700.0	2555.8	3799.99	2555.78	3861.58	2555.78	3899.99	2555.78	3969.85
GR	2555.7	4000.0	2555.0	4055.51	2556.97	4099.99	2559.41	4197.47	2559.41	4199.99
GR	2563.4	4294.3	2563.2	4299.99	2567.33	4380.20	2568.79	4399.99	2568.97	4423.05
GR	2569.5	4500.0	2569.9	4507.82	2562.55	4586.66	2563.08	4599.98	2557.55	4699.98
GR	2556.4	4707.6	2555.8	4776.79	2555.78	4799.98	2555.99	4999.99		

Confluence with Agua Caliente Wash

NH	7	0.08	2200.00	0.06	2550.05	0.035	2600.00	0.03	2869.85	0.035
NH	2912.0	0.07	3198.46	0.055	4950.5					
ET			9.11						2300.0	3200.0
X1	64	68	2568.09	2869.85	500.0	560.0	510.0	1.0	2.2	
GR	2562.4	2000.00	2559.98	2100.00	2557.37	2199.07	2557.37	2200.00	2557.55	2300.0
GR	2556.9	2400.00	2554.58	2415.26	2555.33	2500.00	2555.33	2508.44	2559.14	2528.3
GR	2556.8	2550.05	2557.46	2568.09	2550.60	2588.63	2550.60	2600.00	2551.13	2697.5
GR	2551.1	2700.00	2551.93	2800.00	2552.41	2845.64	2555.55	2869.85	2554.98	2884.6
GR	2557.2	2899.99	2557.55	2912.08	2557.10	2964.98	2557.02	2999.99	2557.02	3031.8
GR	2557.9	3075.93	2557.95	3099.99	2558.39	3198.46	2558.39	3199.99	2554.71	3236.3
GR	2558.0	3251.85	2555.02	3265.97	2559.58	3293.99	2558.39	3299.99	2556.04	3323.8
GR	2554.9	3339.32	2555.24	3379.60	2555.78	3399.99	2555.86	3440.07	2559.41	3455.1
GR	2559.1	3499.99	2558.39	3599.99	2558.96	3615.81	2559.27	3699.99	2560.20	3800.0
GR	2560.6	3816.29	2560.60	3899.99	2560.60	3970.02	2562.15	3999.99	2565.60	4089.6
GR	2565.9	4099.99	2565.91	4169.75	2563.17	4199.99	2561.18	4250.45	2559.58	4300.0
GR	2559.8	4340.40	2560.87	4399.99	2561.71	4480.33	2561.75	4499.98	2563.04	4560.3
GR	2564.9	4599.98	2566.67	4666.11	2568.08	4699.98	2568.04	4761.95	2568.48	4800.0
GR	2570.3	4860.35	2570.34	4899.98	2570.38	4950.5				

NH	3	0.055	2400.0	0.03	2780.0	0.055	4070.0			
QT	2	23000	23000							
ET		7.11	9.11				0.1	3230.0	2270.0	3100.0
X1	64.5	23	2400.0	2780.0	320.0	310.0	310.0	1.0	2.2	
GR	2562.7	2000.0	2559.87	2100.0	2558.6	2200.0	2557.5	2300.0	2557.5	2400.0
GR	2553.5	2460.0	2551.8	2500.0	2552.0	2570.0	2553.57	2670.0	2556.83	2780.0
GR	2557.5	2810.0	2557.52	2960.0	2557.53	3060.0	2560.17	3140.0	2560.34	3250.0
GR	2559.2	3360.0	2561.42	3470.0	2560.56	3560.0	2561.53	3660.0	2562.05	3760.0
GR	2562.3	3870.0	2562.92	3960.0	2565.39	4070.0				

NH	4	0.06	2386.18	0.035	2400.00	0.03	2673.91	0.055	4732.4	
ET			9.11						2300.0	3100.0
X1	65	81	2386.18	2673.91	200.0	190.0	190.0	1.0	2.2	
GR	2563.2	2000.00	2564.01	2026.56	2559.19	2080.70	2559.67	2100.00	2559.23	2114.5
GR	2563.2	2126.60	2562.81	2200.00	2561.22	2206.77	2557.46	2234.88	2557.46	2300.0
GR	2557.5	2344.39	2557.55	2386.18	2552.41	2398.93	2552.41	2400.00	2552.55	2500.0
GR	2553.1	2523.18	2553.96	2599.50	2554.58	2600.00	2555.78	2617.25	2555.87	2644.7
GR	2555.3	2659.75	2556.48	2673.91	2555.11	2687.24	2556.66	2700.00	2556.66	2707.4
GR	2557.7	2761.74	2558.79	2799.51	2557.86	2800.00	2556.13	2823.37	2557.77	2845.0
GR	2555.2	2868.30	2555.87	2899.99	2556.53	2989.90	2559.10	2999.99	2560.03	3005.8
GR	2560.5	3030.19	2557.86	3052.72	2558.65	3099.99	2559.27	3115.49	2557.37	3141.3
GR	2557.8	3151.48	2559.76	3180.60	2562.20	3199.99	2560.69	3236.20	2560.91	3300.0
GR	2561.2	3347.66	2561.22	3399.99	2561.40	3448.86	2563.08	3499.99	2564.14	3519.6
GR	2559.0	3535.31	2558.61	3585.11	2561.31	3599.99	2563.12	3619.15	2563.39	3700.0
GR	2563.6	3708.17	2558.83	3721.72	2562.77	3750.58	2562.99	3796.22	2562.99	3800.0
GR	2563.3	3874.08	2563.35	3899.99	2563.70	3999.99	2564.94	4088.37	2565.12	4100.0
GR	2566.0	4155.75	2566.71	4199.99	2566.71	4207.72	2570.92	4227.46	2571.14	4300.0
GR	2573.4	4344.68	2573.53	4399.99	2573.53	4415.37	2572.24	4498.86	2572.11	4500.0
GR	2569.2	4533.96	2569.63	4599.98	2569.63	4604.74	2568.35	4696.77	2568.35	4700.0
GR	2568.3	4732.4								

NH	3	0.1	2466.30	0.03	2664.2	0.045	4750.2			
ET			9.11						2350.0	3180.0
X1	66	70	2466.30	2664.2	500.0	450.0	500.0	1.0	2.2	
GR	2571.1	2000.00	2567.82	2100.00	2566.93	2117.22	2566.93	2200.00	2562.99	2293.9
GR	2563.0	2300.00	2560.34	2400.00	2558.74	2432.00	2560.42	2466.30	2555.24	2474.3
GR	2555.4	2500.00	2554.32	2600.00	2554.80	2608.00	2555.20	2648.72	2560.16	2664.2
GR	2560.2	2700.00	2559.01	2738.67	2559.32	2799.99	2560.29	2825.30	2560.20	2900.0
GR	2560.4	2980.86	2560.38	2999.99	2561.00	3094.00	2561.57	3099.99	2561.75	3199.7
GR	2561.8	3199.99	2562.33	3268.54	2562.33	3299.99	2562.81	3335.43	2562.42	3385.6
GR	2562.4	3399.99	2562.59	3442.77	2563.43	3499.99	2563.43	3505.41	2563.88	3600.0
GR	2564.2	3625.82	2564.28	3699.99	2565.34	3738.39	2566.36	3798.01	2566.36	3800.0
GR	2564.6	3850.11	2567.46	3867.47	2566.40	3894.47	2564.05	3899.99	2563.83	3900.8
GR	2564.1	3999.99	2564.85	4021.82	2567.15	4031.34	2567.11	4099.99	2567.11	4168.0
GR	2566.4	4199.99	2566.05	4202.17	2565.87	4210.93	2567.15	4253.78	2567.55	4300.0
GR	2568.7	4323.81	2568.52	4399.98	2568.52	4459.49	2568.52	4499.98	2568.97	4545.8
GR	2569.6	4599.98	2569.32	4627.83	2569.14	4662.45	2567.99	4678.12	2570.30	4696.3
GR	2570.3	4699.98	2570.25	4714.33	2568.35	4728.36	2570.25	4748.99	2570.25	4750.2

NH	5	0.05	2210.0	0.06	2520.0	0.03	2720.0	0.05	3040.0	0.035
NH	3940.0									
ET			9.11						2420.0	3225.0
X1	66.5	22	2520.0	2720.0	350.0	290.0	310.0	1.0	2.2	
GR	2566.3	2000.0	2565.93	2110.0	2567.22	2210.0	2565.27	2320.0	2563.36	2420.0
GR	2561.5	2520.0	2556.99	2610.0	2556.58	2650.0	2556.08	2710.0	2560.04	2720.0
GR	2560.0	2770.0	2560.1	2850.0	2559.88	2940.0	2560.27	3040.0	2561.21	3140.0
GR	2562.0	3240.0	2562.5	3340.0	2562.86	3440.0	2563.99	3530.0	2564.37	3640.0
GR	2566.3	3740.0	2566.0	3940.0						

Begin updated XSECs for Houton Road Project

Tanque Verde Creek – 100-Year Existing Condition

NC				.3	.5					
NH	5	0.050	2331.80	0.100	2521.79	0.030	2754.42	0.035	3937.94	0.045
NH	4766.5	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
ET		7.11	9.11				0.1	3950.0	2470.0	3260.0
X1	67	95	2512.50	2754.42	190	210	190			
GR	2571.9	2000.00	2571.85	2007.47	2571.49	2018.56	2571.40	2039.56	2571.16	2043.93
GR	2570.9	2056.24	2570.99	2078.96	2570.52	2112.37	2569.79	2134.17	2569.37	2141.38
GR	2569.9	2147.65	2569.08	2157.08	2567.38	2213.42	2567.24	2270.39	2565.55	2319.23
GR	2565.3	2331.80	2564.35	2358.19	2563.98	2391.37	2563.67	2395.87	2563.39	2459.30
GR	2563.5	2468.87	2563.79	2479.55	2563.80	2484.66	2563.14	2512.50	2562.27	2521.79
GR	2561.1	2532.35	2561.00	2569.87	2561.28	2586.57	2559.85	2603.69	2560.56	2615.98
GR	2560.3	2669.23	2560.52	2694.09	2560.09	2708.85	2560.80	2735.03	2563.86	2754.42
GR	2563.6	2762.09	2562.88	2783.75	2562.90	2788.06	2562.63	2817.87	2562.78	2824.51
GR	2563.0	2867.63	2562.89	2886.74	2562.52	2901.98	2562.89	2925.98	2562.78	2929.14
GR	2562.9	2986.28	2563.99	3122.61	2564.42	3274.17	2565.13	3338.68	2565.40	3410.70
GR	2566.0	3478.28	2566.66	3626.77	2567.09	3652.88	2567.03	3661.03	2566.86	3666.07
GR	2567.1	3698.80	2568.04	3770.82	2568.00	3817.53	2568.63	3914.76	2569.35	3937.94
GR	2569.7	3999.39	2570.25	4021.40	2571.77	4061.07	2572.60	4097.49	2572.50	4111.31
GR	2572.3	4116.92	2572.33	4120.57	2570.80	4135.75	2570.92	4142.86	2570.82	4208.96
GR	2571.5	4228.19	2569.63	4241.56	2568.65	4247.36	2569.13	4276.49	2568.78	4276.94
GR	2569.1	4281.18	2569.29	4302.86	2569.92	4309.97	2570.42	4318.23	2570.70	4348.98
GR	2571.0	4354.91	2571.27	4368.94	2571.56	4405.48	2571.84	4408.09	2571.96	4414.50
GR	2572.0	4435.98	2572.14	4442.42	2571.25	4480.75	2572.37	4495.07	2573.71	4506.32
GR	2573.5	4512.86	2573.30	4538.82	2573.55	4560.99	2572.76	4573.13	2573.82	4582.86
NH	4	0.055	2586.74	0.030	2803.56	0.035	3943.62	0.050	4926.93	
ET		7.11	9.11				0.1	3890.0	2510.0	3340.0
X1	68	95	2566.23	2803.56	640	650	640			
GR	2586.0	2000.00	2585.87	2006.12	2585.34	2011.59	2584.10	2042.66	2584.07	2047.67
GR	2582.7	2081.03	2582.44	2099.21	2582.20	2102.38	2580.48	2169.73	2579.93	2182.20
GR	2580.1	2184.19	2579.58	2188.88	2577.91	2247.48	2577.81	2258.47	2575.63	2318.18
GR	2574.2	2339.74	2573.57	2351.87	2571.46	2381.56	2570.75	2399.12	2570.63	2407.78
GR	2567.5	2451.78	2566.74	2466.57	2566.28	2493.96	2566.76	2530.47	2566.28	2548.92
GR	2566.2	2566.23	2565.55	2586.74	2564.02	2607.80	2564.82	2628.23	2564.04	2649.63
GR	2564.0	2668.97	2562.68	2682.23	2562.38	2721.06	2562.95	2736.28	2563.15	2761.02
GR	2563.0	2792.49	2566.75	2803.56	2566.66	2833.17	2565.69	2860.04	2564.95	2917.33
GR	2566.0	2973.66	2565.69	2992.67	2565.94	3025.99	2568.82	3049.98	2568.94	3054.55
GR	2568.3	3074.09	2567.20	3105.58	2565.46	3122.98	2566.15	3236.54	2567.04	3265.82
GR	2566.7	3275.03	2566.70	3376.34	2567.74	3385.36	2567.77	3454.79	2568.70	3537.18
GR	2570.3	3729.61	2570.07	3742.25	2570.62	3796.47	2570.07	3805.58	2570.42	3811.20
GR	2570.9	3885.57	2570.79	3901.82	2571.05	3903.50	2570.81	3943.62	2571.96	3968.82
GR	2572.6	3988.09	2572.39	4002.85	2572.81	4009.31	2572.74	4014.25	2571.55	4030.93
GR	2571.9	4055.67	2571.57	4067.93	2572.04	4117.11	2572.00	4166.44	2572.20	4201.28
GR	2573.0	4266.03	2573.06	4288.44	2573.40	4310.43	2573.76	4368.73	2574.07	4385.95
GR	2573.9	4430.66	2576.35	4444.59	2576.53	4469.23	2574.56	4483.14	2574.96	4567.39
GR	2575.2	4571.55	2575.28	4593.64	2575.68	4609.10	2575.57	4617.79	2575.99	4665.29
GR	2576.7	4678.54	2576.96	4695.54	2576.49	4743.59	2576.64	4777.89	2577.01	4801.61

NH	5	0.060	2431.28	0.100	2511.08	0.030	2678.65	0.035	3048.38	0.060
NH	4763.7	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
ET		7.11	9.11				0.1	3700.0	2410.0	3300.0
X1	69	95	2511.08	2678.65	520	500	478			
GR	2579.2	2000.00	2578.86	2010.30	2577.64	2029.16	2577.25	2039.01	2577.43	2056.41
GR	2576.6	2077.19	2576.33	2080.18	2575.83	2119.88	2571.45	2134.05	2571.09	2149.83
GR	2571.5	2161.58	2571.80	2163.55	2572.16	2176.43	2571.83	2190.82	2571.83	2202.19
GR	2575.0	2250.32	2574.65	2269.45	2573.27	2313.22	2570.83	2428.10	2570.50	2431.28
GR	2569.2	2458.83	2569.00	2477.80	2568.41	2501.04	2567.95	2511.08	2564.58	2536.55
GR	2564.7	2610.90	2565.29	2625.28	2565.55	2652.94	2568.80	2678.65	2567.82	2695.36
GR	2568.6	2725.49	2569.10	2760.67	2568.88	2860.28	2568.38	2897.64	2568.34	2919.60
GR	2568.6	2920.09	2568.51	2926.38	2568.30	2926.57	2568.49	2935.20	2567.88	2975.45
GR	2567.7	3006.20	2568.28	3048.38	2567.24	3080.57	2567.17	3094.27	2565.80	3123.07
GR	2567.2	3146.49	2567.32	3199.64	2568.89	3224.50	2568.94	3231.32	2568.63	3236.48
GR	2568.4	3288.08	2568.72	3316.19	2568.35	3349.29	2568.75	3405.11	2568.57	3413.51
GR	2569.3	3431.83	2569.28	3437.44	2570.56	3442.82	2571.20	3447.55	2571.54	3453.66
GR	2569.4	3466.45	2567.98	3480.49	2566.51	3491.17	2567.64	3512.31	2567.93	3520.74
GR	2569.9	3546.11	2569.52	3564.03	2569.37	3582.26	2569.64	3592.36	2570.42	3662.07
GR	2570.6	3715.05	2571.40	3775.76	2571.66	3845.91	2571.97	3875.39	2572.68	3914.85
GR	2573.5	4098.24	2574.82	4262.88	2575.46	4290.17	2575.15	4307.01	2575.61	4385.79
GR	2575.5	4387.51	2575.92	4421.04	2576.61	4423.99	2578.21	4433.13	2578.72	4438.36
GR	2578.9	4465.93	2578.20	4474.21	2577.24	4481.78	2577.09	4515.16	2577.54	4540.79
GR	2577.5	4563.95	2577.91	4583.90	2578.10	4584.51	2579.09	4661.71	2579.25	4728.48
NH	5	0.035	2421.54	0.100	2518.84	0.035	2601.75	0.040	2962.41	0.060
NH	4633.2									
ET		7.11	9.11				0.1	3490.0	2270.0	3325.0
X1	70	95	2421.54	2611.21	510	500	510			
GR	2580.9	2000.00	2577.89	2079.11	2575.52	2160.81	2573.16	2217.25	2572.84	2232.09
GR	2571.1	2293.93	2570.54	2317.79	2570.42	2340.98	2569.39	2421.54	2567.32	2439.09
GR	2567.1	2486.38	2567.54	2494.15	2567.50	2499.91	2568.00	2518.84	2567.51	2530.05
GR	2566.3	2545.77	2566.48	2570.61	2566.10	2582.84	2566.24	2601.75	2569.46	2611.21
GR	2569.7	2644.93	2569.61	2657.23	2569.93	2683.68	2570.80	2702.20	2571.24	2774.48
GR	2571.0	2792.83	2570.87	2820.82	2571.21	2875.61	2571.10	2921.20	2570.78	2924.81
GR	2570.4	2932.91	2570.47	2940.42	2570.23	2952.60	2570.68	2961.45	2570.58	2962.41
GR	2571.0	2965.92	2570.47	2976.03	2569.87	2992.98	2569.68	3030.79	2569.09	3068.98
GR	2568.7	3082.16	2569.08	3102.99	2569.47	3148.14	2569.45	3170.02	2569.81	3194.11
GR	2569.6	3233.35	2569.20	3262.58	2569.05	3266.26	2569.84	3290.33	2570.36	3311.38
GR	2571.1	3325.27	2571.96	3411.90	2571.17	3442.15	2570.86	3450.13	2570.90	3462.95
GR	2571.2	3483.91	2571.38	3523.31	2572.15	3581.22	2572.01	3606.00	2572.54	3635.65
GR	2572.6	3655.82	2572.45	3673.69	2572.99	3703.07	2573.49	3770.11	2573.71	3831.86
GR	2573.9	3844.35	2574.59	3929.83	2574.49	3939.78	2573.56	3962.86	2572.11	3985.94
GR	2573.0	4002.00	2573.35	4016.48	2574.98	4051.30	2575.32	4056.29	2575.38	4079.84
GR	2576.5	4156.43	2576.62	4181.58	2576.19	4188.81	2575.98	4199.46	2577.26	4288.42
GR	2577.8	4350.34	2576.87	4357.94	2577.04	4366.29	2577.90	4375.34	2577.47	4408.95
GR	2577.5	4413.47	2577.44	4416.67	2577.73	4429.99	2577.85	4443.07	2578.19	4456.30
GR	2578.1	4479.43	2578.78	4501.13	2578.67	4537.90	2578.16	4548.82	2579.13	4563.35

NH	5	0.045	2493.51	0.100	2699.44	0.035	2890.60	0.050	3395.08	0.050
NH	4724.6									
ET		7.11	9.11				2270.0	3630.0	2270.0	3620.0
X1	71	95	2670.38	2890.60	500	450	480			
GR	2582.6	2000.00	2582.07	2012.31	2581.23	2025.75	2580.28	2065.61	2578.97	2100.67
GR	2578.4	2107.48	2578.14	2125.57	2577.04	2152.37	2575.42	2216.94	2574.77	2259.14
GR	2573.6	2297.57	2572.64	2324.86	2571.80	2400.19	2571.37	2420.15	2571.23	2436.05
GR	2570.6	2466.13	2570.53	2493.51	2570.20	2513.28	2572.10	2557.26	2572.34	2591.07
GR	2572.2	2603.03	2572.61	2646.40	2571.98	2670.38	2570.37	2685.90	2570.34	2699.44
GR	2569.3	2712.50	2567.94	2725.34	2568.89	2733.01	2567.66	2783.01	2568.14	2825.15
GR	2569.3	2831.91	2568.89	2843.29	2568.94	2853.55	2568.66	2863.68	2568.73	2876.35
GR	2572.0	2890.60	2572.24	2901.58	2571.99	2953.06	2573.30	2971.90	2573.37	3001.90
GR	2573.0	3027.84	2573.27	3045.77	2572.02	3128.25	2572.34	3174.45	2571.55	3183.46
GR	2571.4	3200.76	2570.60	3216.02	2572.57	3228.16	2571.94	3257.16	2571.15	3272.07
GR	2571.8	3312.70	2571.62	3344.44	2572.02	3369.79	2571.85	3381.29	2571.02	3395.08
GR	2572.1	3446.59	2572.34	3475.34	2573.05	3516.31	2572.67	3536.27	2572.97	3554.36
GR	2573.6	3625.14	2575.25	3640.40	2576.94	3674.02	2576.91	3687.66	2576.25	3705.10
GR	2573.5	3726.53	2572.93	3735.75	2572.90	3763.83	2573.48	3773.31	2573.42	3786.28
GR	2574.0	3814.06	2574.09	3856.34	2574.49	3865.69	2574.46	3896.66	2574.17	3906.58
GR	2574.9	3918.45	2574.57	3951.92	2574.83	3976.18	2574.50	4038.28	2576.29	4117.89
GR	2576.3	4143.42	2576.49	4148.38	2576.43	4183.20	2575.33	4233.94	2575.83	4306.16
GR	2575.4	4374.95	2575.51	4388.89	2575.35	4403.34	2576.02	4505.58	2576.87	4554.97
GR	2576.9	4578.18	2577.49	4613.56	2578.20	4623.46	2577.99	4643.92	2578.15	4647.41

NH	4	0.050	2604.14	0.100	2911.25	0.030	3082.64	0.080	4807.85	
ET		7.11	9.11				2510.0	3660.0	2510.0	3660.0
X1	72	95	2908.74	3071.62	450	460	460			
GR	2587.3	2000.00	2586.03	2024.31	2585.25	2032.52	2582.01	2052.08	2580.65	2073.68
GR	2579.4	2101.60	2578.77	2142.37	2578.15	2160.23	2577.84	2190.61	2576.48	2242.16
GR	2575.3	2275.54	2574.74	2312.23	2574.32	2324.89	2573.42	2387.62	2573.54	2410.20
GR	2573.7	2415.41	2573.72	2425.54	2573.36	2434.86	2573.48	2448.73	2572.31	2474.84
GR	2573.5	2490.57	2574.44	2523.02	2574.43	2537.92	2573.77	2548.89	2574.25	2570.39
GR	2573.8	2594.73	2573.98	2604.14	2572.97	2633.18	2574.93	2642.49	2574.33	2652.09
GR	2574.5	2680.86	2573.89	2726.99	2574.28	2745.68	2574.85	2759.08	2574.51	2767.16
GR	2574.6	2791.14	2575.02	2804.79	2574.79	2848.36	2575.37	2871.31	2573.96	2908.74
GR	2571.8	2911.25	2569.57	2914.29	2570.08	2958.32	2570.03	2991.61	2570.40	3022.64
GR	2571.4	3029.95	2572.19	3039.69	2572.21	3052.39	2574.34	3071.62	2574.90	3082.64
GR	2574.3	3102.09	2574.59	3110.78	2574.22	3120.86	2574.26	3250.30	2573.77	3307.44
GR	2573.2	3313.68	2572.99	3328.07	2573.64	3335.66	2573.64	3366.12	2573.38	3376.53
GR	2574.2	3489.59	2573.82	3501.21	2574.37	3513.91	2573.91	3528.14	2574.28	3537.61
GR	2574.5	3590.71	2574.24	3750.56	2574.53	3788.83	2574.31	3800.09	2574.43	3834.59
GR	2576.0	3977.32	2576.62	3988.95	2576.77	4000.14	2576.57	4011.89	2576.02	4021.16
GR	2577.0	4118.29	2576.49	4143.28	2577.79	4274.23	2577.59	4378.90	2576.99	4392.31
GR	2576.8	4417.38	2577.51	4476.52	2577.96	4542.84	2577.25	4623.50	2576.97	4633.38
GR	2577.4	4687.45	2578.02	4697.18	2578.16	4714.30	2578.61	4729.55	2579.02	4735.72
GR	2580.0	4741.16	2581.59	4753.00	2581.94	4759.12	2581.44	4759.22	2581.47	4783.26

Insert XSEC @ new DS Face of Bridge for Comparison

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NH        5     0.010   2566.00     0.050   2929.60     0.030   3093.30     0.050   3632.40     0.010
NH     3647
ET                7.11      9.11                                    2532      3667    2500.0    3600.0
X1     72.4        34    2929.6    3093.3        70        70        70
X2                                                                                                  15

GR   2579.5    2130.4   2577.55    2208.4   2576.40    2303.3   2574.93    2418.6   2574.91    2537.4
GR   2578.5    2552.0   2578.46    2562.0   2574.44    2566.0   2574.24    2581.9   2574.51    2619.8
GR   2574.3    2633.1   2574.60    2643.2   2574.02    2702.1   2574.22    2710.9   2574.33    2754.8
GR   2574.2    2841.7   2574.14    2885.3   2573.46    2929.6   2569.73    2949.6   2570.07    2985.1
GR   2570.1    3017.5   2569.96    3043.6   2571.47    3056.0   2571.97    3063.3   2572.71    3085.4
GR   2574.0    3093.3   2574.04    3133.4   2574.55    3320.2   2574.36    3408.4   2575.15    3536.4
GR   2575.6    3632.4   2577.06    3728.6   2581.05    3883.1   2585.47    4066.2

NH        3     0.050   2937.33     0.030   3074.20     0.100   4776.84
ET                7.11      9.11                                   2551.9    3646.9    2500.0    3600.0
X1     72.5        95   2932.99   3089.04        40        40        40

GR   2586.6   2000.00   2586.06   2018.44   2585.74   2044.94   2585.35   2056.74   2585.20   2067.72
GR   2585.4   2071.28   2585.34   2074.67   2585.11   2074.90   2584.22   2131.69   2583.82   2171.65
GR   2583.3   2255.05   2583.20   2310.67   2583.03   2320.91   2582.95   2351.57   2582.65   2380.21
GR   2582.8   2402.13   2582.99   2405.38   2583.20   2441.39   2582.97   2461.31   2583.07   2471.12
GR   2582.9   2471.96   2583.69   2504.04   2583.65   2523.62   2583.05   2532.47   2580.99   2540.55
GR   2579.3   2545.94   2578.62   2554.97   2577.04   2558.30   2576.81   2559.24   2575.29   2561.20
GR   2574.4   2575.90   2575.04   2590.09   2574.80   2660.09   2574.64   2669.42   2574.37   2783.98
GR   2574.6   2832.91   2574.04   2862.62   2573.68   2932.99   2573.47   2937.33   2570.84   2953.16
GR   2569.9   2956.53   2569.89   2971.30   2570.04   2983.25   2570.11   3064.29   2572.02   3074.20
GR   2573.5   3089.04   2574.19   3171.81   2574.37   3218.51   2574.29   3241.27   2574.43   3289.91
GR   2574.2   3311.55   2574.26   3346.97   2574.51   3382.68   2574.21   3433.70   2574.98   3511.12
GR   2574.8   3536.35   2574.67   3543.17   2574.69   3550.68   2575.01   3558.91   2574.98   3565.05
GR   2575.6   3571.88   2575.61   3589.44   2575.10   3596.60   2575.87   3635.81   2580.04   3642.39
GR   2581.1   3654.05   2584.33   3665.35   2585.22   3669.51   2584.81   3697.63   2584.86   3712.04
GR   2584.5   3753.31   2585.23   3808.98   2584.86   3830.97   2584.66   3860.97   2584.82   3868.75
GR   2584.5   3881.09   2584.59   3898.27   2584.11   3958.27   2584.36   3982.71   2584.22   3990.62
GR   2584.3   4025.57   2584.68   4037.71   2584.74   4068.33   2584.60   4080.63   2584.61   4092.42
GR   2584.4   4098.83   2584.43   4132.38   2584.21   4178.24   2584.50   4280.22   2584.85   4322.74
GR   2584.8   4345.93   2585.26   4403.45   2585.42   4410.01   2585.72   4502.93   2586.65   4627.33

NH        3     0.100   2839.71     0.030   3021.17     0.100   4711.60     0.000      0.00     0.000

ET                7.11      9.11                                   2502.5    3597.5    2500.0    3620.0
SB     1.25      1.56       2.6                1080        80      6922       1.0   2570.27   2569.91
X1     73.5        95   2839.71   3021.17        70        70        70
X2      0.0       0.0         1    2582.8    2588.8       0.0         0      1.33       0.0
BT       -4      2500   2584.75   2578.46      3000   2588.50   2582.22      3100   2588.39   2582.11
BT                3600   2586.27   2580.20
GR   2584.8   2000.00   2584.32   2008.48   2583.50   2080.53   2583.30   2086.10   2582.64   2155.75
GR   2582.5   2239.71   2581.66   2240.60   2582.01   2244.22   2582.33   2245.45   2582.66   2256.66
GR   2582.6   2297.83   2582.28   2305.74   2582.31   2348.04   2582.99   2408.76   2583.55   2430.60
GR   2583.7   2449.90   2583.50   2459.11   2582.91   2467.45   2582.26   2471.71   2580.99   2476.83
GR   2579.9   2483.36   2578.97   2491.38   2577.89   2497.37   2575.38   2499.59   2574.96   2499.83
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GR   2574.6   2500.26   2573.98   2519.52   2574.41   2552.41   2574.18   2569.37   2574.77   2673.94
GR   2574.7   2715.28   2574.91   2737.00   2575.11   2741.64   2574.44   2826.84   2575.02   2839.71
GR   2574.5   2860.98   2574.47   2874.89   2573.47   2901.92   2570.40   2910.09   2570.89   2941.11
GR   2570.1   3005.31   2573.14   3021.17   2574.88   3043.48   2575.16   3058.39   2573.90   3124.02
GR   2574.7   3261.73   2574.51   3368.61   2574.63   3398.05   2574.40   3425.17   2574.67   3487.49
GR   2574.4   3489.32   2574.37   3499.79   2574.55   3501.83   2574.75   3557.69   2575.50   3573.57
GR   2577.7   3577.59   2578.19   3578.85   2579.44   3585.57   2579.88   3590.46   2581.51   3596.49
GR   2582.0   3600.21   2584.36   3607.17   2584.84   3612.90   2585.12   3631.09   2585.28   3677.62
GR   2584.9   3705.72   2584.58   3715.53   2584.05   3786.35   2584.42   3817.72   2584.07   3868.85
GR   2584.1   3917.91   2583.96   3939.00   2583.30   3973.39   2582.81   3981.31   2583.09   3985.56
GR   2583.5   4000.80   2583.45   4020.81   2582.98   4034.86   2583.20   4059.31   2583.04   4063.85
GR   2583.1   4107.54   2583.37   4133.74   2583.42   4189.41   2583.68   4213.99   2583.70   4245.33
GR   2584.3   4317.07   2584.35   4370.75   2585.15   4411.12   2585.85   4468.11   2585.75   4485.50
GR   2585.9   4496.37   2584.96   4500.44   2584.86   4505.47   2585.45   4512.05   2586.46   4574.73

NH        6     0.050   2850.61     0.030   2969.98     0.045   3213.02     0.100   3355.81     0.045
NH   3623.7     0.060   4668.36
ET               7.11      9.11                                 2320.0    3650.0    2380.0    3580.0
X1       74        95   2850.61   2969.98       115       115       125

GR   2578.7   2000.00   2578.41   2010.37   2577.96   2017.50   2577.40   2039.40   2577.06   2047.09
GR   2576.4   2070.32   2574.93   2134.11   2574.12   2180.80   2574.40   2224.75   2574.08   2256.97
GR   2573.2   2297.64   2573.24   2302.90   2574.98   2335.92   2575.25   2345.80   2575.20   2355.37
GR   2575.4   2360.90   2575.61   2379.76   2575.95   2392.55   2575.67   2401.85   2575.51   2425.06
GR   2575.6   2451.70   2575.20   2464.50   2575.86   2477.46   2576.06   2502.87   2575.87   2520.40
GR   2575.5   2527.39   2575.21   2542.47   2575.38   2544.37   2575.93   2560.27   2575.76   2572.74
GR   2576.3   2588.76   2576.35   2600.12   2576.13   2611.68   2576.15   2643.87   2575.88   2671.61
GR   2576.2   2694.61   2576.41   2700.30   2576.25   2718.43   2576.42   2757.73   2576.16   2767.14
GR   2576.5   2798.90   2576.14   2810.28   2576.18   2814.22   2574.76   2836.32   2574.64   2843.85
GR   2573.9   2848.90   2573.89   2850.61   2571.11   2859.37   2571.31   2878.65   2570.91   2890.79
GR   2570.8   2928.96   2570.47   2958.25   2574.03   2969.98   2575.65   2982.94   2575.87   3034.15
GR   2576.0   3040.64   2575.66   3135.27   2575.70   3197.67   2575.51   3213.02   2575.41   3283.70
GR   2575.0   3348.26   2575.22   3355.81   2575.54   3461.77   2575.41   3486.64   2575.49   3511.46
GR   2575.4   3533.64   2576.10   3623.67   2575.82   3710.31   2575.84   3735.31   2576.14   3760.31
GR   2576.6   3848.55   2576.98   3869.40   2577.36   3985.31   2577.97   4035.32   2578.42   4110.32
GR   2578.9   4160.32   2578.86   4206.20   2579.38   4214.41   2579.59   4252.29   2579.85   4267.09
GR   2579.9   4282.33   2579.44   4299.09   2579.38   4328.68   2579.23   4340.36   2579.39   4359.37
GR   2578.9   4379.80   2579.56   4389.47   2579.84   4410.10   2579.63   4437.92   2579.72   4462.54
GR   2580.3   4506.34   2580.24   4541.44   2579.67   4551.14   2580.04   4558.11   2579.61   4580.67

NH        6     0.050   2771.86     0.030   2983.86     0.035   3242.60     0.100   3371.54     0.045
NH   3850.2     0.080   4672.37
ET               7.11      9.11                                 2120      4020    2300.0    3580.0
X1       75        95   2771.86   2983.86       380       410       350

GR   2577.9   2000.00   2577.07   2021.48   2576.76   2039.19   2576.14   2064.87   2576.00   2066.93
GR   2575.4   2081.72   2575.40   2086.32   2575.30   2088.76   2575.24   2102.97   2575.29   2110.99
GR   2575.2   2116.33   2574.76   2123.95   2574.48   2132.15   2574.40   2133.13   2574.29   2140.41
GR   2574.5   2163.87   2574.10   2185.01   2573.99   2197.66   2574.02   2208.20   2574.44   2238.28
GR   2575.2   2267.91   2575.40   2274.38   2575.82   2328.76   2575.78   2340.79   2575.90   2375.13
GR   2576.9   2398.96   2577.14   2419.33   2576.65   2432.10   2576.60   2443.70   2576.40   2462.00
GR   2576.6   2481.10   2576.54   2485.58   2576.26   2497.68   2576.31   2504.97   2575.93   2542.75
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GR   2576.7   2552.27   2577.22   2557.14   2577.08   2575.43   2577.50   2598.30   2577.63   2609.45
GR   2577.6   2634.09   2577.84   2668.28   2577.65   2735.98   2578.48   2771.86   2576.40   2781.75
GR   2575.8   2785.35   2574.20   2799.72   2574.21   2820.37   2574.76   2841.46   2574.93   2851.92
GR   2574.1   2857.64   2573.36   2863.27   2573.12   2886.24   2572.53   2900.75   2572.60   2929.38
GR   2572.6   2942.35   2572.85   2956.51   2573.39   2965.68   2577.50   2983.86   2577.50   3013.64
GR   2577.8   3108.16   2577.86   3125.62   2578.07   3215.37   2577.83   3232.05   2577.52   3242.60
GR   2577.5   3281.52   2577.60   3371.54   2577.70   3417.14   2578.01   3492.05   2577.98   3500.78
GR   2578.2   3612.38   2578.21   3749.73   2577.90   3760.05   2578.40   3769.61   2578.56   3781.72
GR   2578.8   3820.39   2578.61   3850.15   2578.78   4054.16   2579.29   4195.48   2579.97   4272.63
GR   2580.2   4285.35   2580.10   4312.49   2580.16   4329.39   2580.18   4375.87   2580.31   4390.11
GR   2580.3   4428.47   2580.42   4434.58   2580.64   4458.88   2580.68   4474.79   2579.60   4498.79
GR   2580.9   4524.76   2580.90   4546.93   2580.78   4555.42   2580.66   4576.50   2580.72   4585.19

NH        6     0.050   2872.12     0.030   2991.08     0.050   3550.52     0.100   3817.08     0.045
NH   4353.4     0.080   5133.56
ET               7.11      9.11                                 2070.0    4710.0    2400.0    3690.0
X1       76        95   2872.12   2991.08       500       550       481

GR   2581.9   2000.00   2581.37   2012.71   2581.35   2015.15   2580.25   2029.40   2579.55   2041.42
GR   2579.4   2059.76   2578.66   2075.48   2577.91   2118.96   2577.97   2127.25   2577.55   2137.37
GR   2577.5   2158.36   2577.92   2162.19   2577.04   2173.16   2577.19   2182.27   2576.85   2211.36
GR   2576.5   2220.27   2577.09   2238.48   2577.25   2254.65   2576.99   2293.23   2576.72   2311.80
GR   2577.5   2354.49   2578.03   2369.25   2577.93   2373.69   2577.86   2413.65   2577.73   2419.06
GR   2578.1   2467.04   2577.61   2482.88   2577.95   2498.64   2578.15   2525.96   2578.50   2551.58
GR   2578.4   2558.24   2578.47   2601.74   2579.06   2643.59   2579.12   2674.01   2579.48   2689.74
GR   2579.2   2713.34   2579.49   2747.46   2579.73   2763.96   2579.58   2787.96   2579.70   2834.39
GR   2579.3   2850.30   2579.66   2872.12   2574.15   2888.63   2574.56   2901.81   2574.44   2940.67
GR   2574.8   2976.04   2575.69   2991.08   2575.73   3015.57   2576.75   3031.29   2577.27   3043.41
GR   2577.1   3096.38   2577.26   3106.29   2576.69   3119.95   2577.69   3138.19   2577.74   3151.19
GR   2577.7   3188.01   2578.06   3210.83   2579.06   3219.40   2579.12   3225.45   2578.47   3229.62
GR   2578.3   3235.94   2579.89   3316.04   2579.92   3345.86   2579.71   3370.04   2579.48   3459.19
GR   2579.7   3468.91   2579.22   3521.98   2579.28   3528.48   2579.08   3550.52   2579.30   3561.65
GR   2578.6   3713.99   2579.38   3817.08   2579.77   4016.40   2580.10   4161.85   2579.95   4193.06
GR   2580.2   4212.31   2580.15   4225.01   2580.43   4286.91   2580.96   4353.42   2581.07   4447.07
GR   2580.7   4457.45   2581.75   4466.61   2581.49   4542.23   2581.49   4606.41   2582.40   4742.25
GR   2582.3   4748.22   2582.48   4762.67   2582.48   4772.26   2583.04   4830.37   2583.64   4876.82
GR   2582.9   4943.72   2582.09   4984.18   2582.61   5030.71   2581.83   5044.17   2582.54   5052.57

NH        7     0.035   2275.82     0.060   2890.51     0.030   3035.74     0.045   3586.76     0.080
NH   4172.0     0.045   4527.55     0.080   5338.39
ET               7.11      9.11                                    0.1      5050    2400.0    3745.0
X1       77        95   2890.51   3035.74       670       310       443

GR   2585.7   2000.00   2585.12   2009.89   2582.16   2021.71   2581.89   2056.37   2581.09   2111.17
GR   2581.0   2177.61   2580.80   2194.49   2580.93   2207.51   2580.58   2267.32   2580.01   2275.82
GR   2580.6   2287.16   2580.59   2299.25   2580.13   2311.72   2580.10   2326.96   2579.06   2362.25
GR   2578.7   2382.06   2578.33   2454.78   2577.45   2476.01   2577.44   2491.36   2577.05   2526.29
GR   2578.0   2531.81   2579.99   2556.96   2580.16   2608.92   2580.39   2618.78   2580.26   2666.91
GR   2581.0   2742.09   2580.90   2755.28   2581.03   2774.78   2580.83   2794.32   2580.82   2823.28
GR   2581.5   2848.81   2582.89   2877.91   2582.90   2890.51   2579.50   2897.34   2576.18   2904.50
GR   2576.6   2940.30   2576.33   2944.82   2576.47   2966.50   2576.73   2979.42   2577.90   2995.85
GR   2578.1   3011.76   2580.36   3035.74   2579.67   3063.50   2580.30   3064.87   2579.65   3074.28
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GR   2579.6   3102.47   2579.94   3131.80   2579.64   3189.78   2579.54   3271.85   2579.28   3286.82
GR   2579.8   3303.34   2579.72   3329.16   2579.90   3355.71   2579.40   3368.24   2579.96   3384.59
GR   2580.2   3446.79   2579.81   3459.43   2580.23   3473.22   2580.29   3521.84   2580.18   3525.62
GR   2580.5   3586.76   2580.40   3630.80   2581.07   3639.29   2580.95   3648.32   2581.26   3715.91
GR   2581.0   3809.97   2579.57   3911.96   2580.29   3978.48   2580.16   3985.43   2581.40   4041.68
GR   2581.4   4116.78   2581.02   4171.96   2581.33   4203.32   2581.58   4235.49   2581.42   4306.09
GR   2581.7   4376.04   2581.85   4378.55   2581.17   4392.35   2582.13   4496.85   2582.55   4527.55
GR   2583.1   4655.59   2583.12   4723.89   2583.36   4794.62   2583.03   4872.44   2583.40   4893.53
GR   2583.8   4904.54   2584.25   4947.04   2583.94   4978.22   2584.27   5062.15   2584.66   5103.58
GR   2584.4   5112.77   2585.08   5121.45   2584.57   5133.09   2584.72   5167.03   2584.64   5198.61

NC                                     .1        .3
NH        7     0.080   2661.97     0.035   3010.59     0.045   3125.52     0.030   3272.47     0.050
NH   4008.3     0.045   4316.66     0.100   5248.24
ET              7.11      9.11                                       0.1      5170    2400.0    3740.0
X1       78        96   3010.59   3272.47       620       670       644

GR   2591.2   2000.00   2591.01   2013.68   2590.13   2034.08   2590.32   2049.27   2589.63   2056.10
GR   2588.8   2067.73   2588.68   2072.83   2587.33   2092.14   2586.95   2099.55   2585.70   2143.70
GR   2584.4   2169.32   2584.16   2179.44   2584.10   2199.65   2583.24   2223.53   2582.31   2261.31
GR   2581.1   2337.81   2581.22   2391.09   2580.99   2409.65   2581.19   2416.79   2583.90   2468.59
GR   2583.7   2477.35   2583.55   2494.02   2583.31   2498.41   2583.50   2560.01   2583.66   2568.41
GR   2583.4   2613.46   2583.42   2661.97   2584.22   2762.85   2583.60   2824.15   2583.86   2876.09
GR   2585.0   2896.64   2583.57   2919.40   2582.85   2949.66   2583.10   2993.53   2582.49   3010.59
GR   2580.4   3048.28   2580.82   3066.04   2579.96   3082.60   2579.54   3105.43   2579.72   3109.08
GR   2579.8   3115.62   2579.44   3125.52   2578.76   3136.63   2578.99   3153.38   2579.00   3187.09
GR   2578.6   3203.89   2578.78   3215.72   2580.71   3234.12   2580.82   3258.80   2583.92   3272.47
GR   2584.3   3285.88   2584.28   3291.46   2583.85   3305.81   2583.31   3317.10   2582.84   3335.41
GR   2581.9   3355.82   2582.17   3375.26   2582.84   3397.45   2583.49   3418.10   2583.60   3462.20
GR   2582.5   3493.85   2583.74   3516.08   2583.60   3552.20   2583.49   3552.59   2583.41   3588.36
GR   2583.6   3659.59   2582.65   3718.97   2582.27   3773.87   2582.24   3876.85   2582.59   3914.88
GR   2582.6   3954.28   2582.75   4008.32   2582.38   4061.53   2582.89   4071.45   2582.62   4084.90
GR   2582.6   4112.01   2582.83   4156.30   2583.15   4184.04   2583.54   4244.46   2583.18   4316.66
GR   2584.5   4354.02   2585.04   4511.57   2584.71   4581.91   2584.36   4619.88   2584.89   4713.64
GR   2585.0   4823.71   2585.62   4874.66   2585.74   4898.34   2585.29   4908.98   2586.37   4917.24
GR   2585.9   4929.77   2586.34   4987.06   2586.35   5041.57   2586.91   5067.30   2586.12   5102.69
GR   2585.7   5248.24

NH        7     0.050   2294.32     0.080   3300.73     0.045   3496.59     0.030   3626.13     0.100
NH   4210.8     0.045   4505.50     0.100   5414.05
ET                        9.11                                                        2720.0    4065.0
X1       79        95   3496.59   3626.13       500       500       500

GR   2593.0   2000.00   2592.49   2003.39   2592.47   2009.79   2592.30   2015.81   2592.01   2042.36
GR   2589.8   2055.61   2590.50   2064.86   2590.57   2067.37   2589.95   2077.83   2589.44   2099.16
GR   2589.6   2102.10   2589.42   2105.86   2588.12   2121.29   2588.16   2123.06   2585.68   2174.14
GR   2584.1   2213.84   2583.54   2240.70   2583.14   2271.50   2583.12   2290.94   2583.22   2294.32
GR   2583.3   2311.95   2583.53   2319.45   2583.53   2341.46   2583.89   2355.74   2583.61   2369.89
GR   2583.5   2385.43   2583.65   2403.58   2583.46   2410.12   2583.65   2435.81   2584.24   2465.94
GR   2583.8   2474.77   2584.28   2488.79   2584.28   2530.26   2583.65   2587.14   2584.00   2624.92
GR   2584.1   2657.47   2583.77   2754.64   2585.02   2857.70   2584.54   2918.67   2583.10   2964.50
GR   2583.6   3002.66   2583.65   3018.49   2584.85   3061.32   2584.93   3077.21   2584.27   3113.33
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GR   2584.8   3175.10   2584.43   3199.12   2585.38   3255.97   2584.56   3294.48   2583.62   3300.73
GR   2582.0   3316.84   2581.74   3325.96   2581.82   3338.04   2581.89   3346.78   2583.95   3363.20
GR   2583.9   3399.95   2584.39   3448.30   2584.42   3467.23   2583.78   3487.14   2581.66   3496.59
GR   2581.9   3512.31   2581.73   3524.05   2580.52   3532.11   2580.61   3542.13   2580.49   3596.45
GR   2580.6   3605.05   2585.12   3626.13   2585.52   3695.97   2585.52   3717.14   2585.58   3795.76
GR   2585.2   3859.95   2584.87   3870.40   2584.67   3893.66   2584.93   3975.87   2584.70   4040.38
GR   2584.8   4093.64   2585.33   4183.66   2584.88   4210.84   2585.27   4284.35   2585.31   4321.41
GR   2585.1   4354.70   2585.16   4505.50   2586.25   4530.45   2586.52   4606.17   2586.55   4654.93
GR   2586.9   4742.04   2587.54   4864.04   2587.97   4894.28   2587.94   4905.00   2587.61   5041.24
GR   2587.8   5061.28   2588.39   5157.22   2588.42   5182.26   2588.25   5208.63   2588.26   5234.62

NH        8     0.060   2603.13     0.011   2935.27     0.060   3167.03     0.045   3413.67     0.030
NH   3515.7     0.100   4155.65     0.045    4324.7     0.100   5315.01
ET                         9.11                                                      2630.0     4135.0
X1       80        80   3167.03   3515.70       500       560       531      0.00      0.00      0.00
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Removed ET for profile 2 and adjusted GR Data
Existing hole/basin in left overbank - exclude geometry for hole and reduce
Manning's to reflect water surface n=0.011 Location Sta 2603.13-2935.37

```
GR   2589.8   2000.00   2588.57   2022.98   2586.76   2079.04   2586.27   2169.13   2586.62   2194.35
GR   2586.7   2230.60   2587.24   2249.06   2586.37   2256.30   2585.90   2327.28   2585.82   2389.49
GR   2586.8   2436.45   2586.66   2483.70   2586.96   2502.27   2586.38   2514.92   2586.62   2531.22
GR   2586.3   2571.90   2586.70   2581.39   2586.21   2592.58   2586.79   2603.13   2587.56   2935.27
GR   2587.0   2953.68    2586.7   2981.03   2586.31   2985.86   2586.27   2992.32   2586.93   2999.29
GR   2586.9   3131.04    2587.4   3167.03   2586.46   3245.42   2584.56   3254.02   2583.51   3258.75
GR   2584.0   3272.21    2584.8   3282.09   2585.28   3285.72   2587.24   3299.24   2585.52   3333.35
GR   2584.9   3351.28    2585.1   3367.47   2585.63   3379.24   2584.63   3393.91   2582.56   3413.67
GR   2582.8   3428.98    2582.5   3473.07   2582.74   3483.90   2582.03   3488.17   2582.57   3496.38
GR   2586.4   3515.70    2586.1   3571.46   2585.82   3582.47   2585.37   3632.10   2586.46   3674.60
GR   2587.5   3746.78    2587.7   3776.93   2587.29   3816.79   2587.34   4084.44   2586.62   4155.65
GR   2587.0   4183.47    2587.3   4267.85   2586.82   4286.48   2587.21   4324.71   2587.88   4461.83
GR   2588.2   4485.20    2588.6   4598.81   2589.10   4652.65   2588.82   4667.30   2588.94   4735.79
GR   2589.2   4752.33    2588.3   4764.69   2587.15   4774.44   2587.19   4793.16   2586.98   4803.86
GR   2589.2   4825.82    2589.0   4853.58   2589.32   4860.86   2589.02   4876.06   2589.05   4912.40
GR   2589.8   5009.75    2589.8   5092.55   2590.65   5175.47   2590.32   5198.03   2591.21   5315.01
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END UPDATED XSEC DATA
BEGIN VERTICALLY ADJUSTED EXISTING DATA

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NH        5      0.08   2100.00     0.035   2901.44      0.05    3017.8      0.03   3164.11      0.05
NH   5119.0
ET                         9.11                                                      2400.0     4015.0
X1       81        49    3017.8   3164.11     530.0     550.0     520.0       1.0       2.2
GR   2592.3   2000.00   2592.03   2100.00   2588.18   2200.00    2588.3   2300.00    2587.1   2500.00
GR   2587.3   2572.45   2587.34   2600.00   2587.69   2700.00   2587.69    2738.6   2587.38   2899.99
GR   2587.3   2901.44   2587.96    3017.8    2581.6   3033.93   2581.58   3099.99   2581.58   3149.01
GR   2586.2   3164.11   2588.22    3200.0   2588.6   3299.99   2585.21   3348.49   2586.28   3379.26
GR   2586.2   3399.99   2586.76   3599.99   2586.85    3618.7    2587.3   3699.99   2587.34   3707.14
GR   2588.7   3846.75   2588.31    3854.8    2588.4   3899.99   2588.40   3925.28   2588.40   3999.99
GR   2588.2   4082.83   2588.22    4100.0   2588.22   4299.98   2588.05   4399.98   2588.05    4404.5
GR   2588.4   4511.68   2589.11   4599.98   2589.82    4700.0   2589.82   4734.92   2589.86   4757.40
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GR   2589.9    4799.98    2589.77     4885.4      2589.8     4899.98     2589.07     4920.48     2589.95     4999.98
GR   2589.9    5007.33    2592.03     5093.9      2592.3     5099.98     2592.25      5119.0

NH         3       0.05     2810.0       0.03      2920.0        0.06      4460.0
ET                           9.11                                                                2270.0      3925.0
X1        82         24     2810.0     2920.0       520.0       500.0       510.0         1.0        2.2
GR   2600.0     2000.0     2598.0     2045.0      2596.0      2110.0      2594.0      2175.0     2592.0      2245.0
GR   2590.0     2300.0     2588.0     2810.0      2585.0      2820.0      2585.0      2900.0     2588.3      2920.0
GR   2588.3     3010.0     2586.0     3045.0      2588.0      3080.0      2590.0      3100.0     2590.0      3150.0
GR   2590.0     3210.0     2588.5     3250.0      2590.0      3500.0      2590.0      3660.0     2588.0      3690.0
GR   2587.0     3750.0     2588.0     3830.0      2590.0      4110.0      2592.0      4460.0

NH         3       0.05    2867.36       0.03     3026.94       0.065     5076.7
ET                           9.11                                                                2270.0      4000.0
X1        83         48     2800.0    3026.94       500.0       480.0       500.0         1.0        2.2
GR   2600.9    2000.00    2600.26    2100.00     2593.80     2200.00     2592.52      2226.9     2592.5     2242.58
GR   2592.0    2300.00    2591.28    2325.23      2591.0     2539.70     2591.19     2600.00    2592.16     2700.00
GR   2591.4    2777.58    2591.54     2800.0      2589.5     2867.36     2585.97     2890.77    2585.97     2899.99
GR   2585.3    2987.98    2586.67     3000.0      2591.0     3026.94     2591.10     3141.98    2590.97      3200.0
GR   2590.1    3311.92    2590.92    3725.02     2590.70      3749.5      2591.9     3758.79    2591.85     3799.99
GR   2592.8    3890.31    2592.87    3899.99     2593.76      3984.7     2592.12     4195.39    2592.12      4200.0
GR   2592.4    4289.33    2592.43    4299.98     2592.74     4418.27     2592.74      4439.6     2593.0     4499.98
GR   2593.8    4599.98    2594.07    4643.01     2594.07      4661.4      2594.2     4699.98    2594.24     4719.15
GR   2595.1     4767.2     2595.2    4799.98     2595.22      4934.9      2595.2     4942.61    2595.22     4999.98
GR   2595.2    5019.50    2594.69    5073.37     2594.69      5076.7

  Tanque Verde Loop Road

NH         5      0.035     2700.0        0.1     2775.82        0.03     2929.60         0.1     2984.2        0.08
NH    4952.9
ET                           9.11                                                                2360.0      3770.0
X1        84         67    2775.82    2929.60       520.0       550.0       530.0         1.0        2.2
GR   2604.6    2000.00    2601.99    2059.10     2601.99     2100.00     2601.99     2200.00    2598.89      2215.0
GR   2593.5    2241.52    2593.54    2278.35     2596.10     2291.23     2596.10     2300.00    2594.11      2310.0
GR   2594.1    2324.38    2594.29    2400.00     2593.63     2493.39     2593.63     2500.00    2593.80      2577.7
GR   2594.2    2582.01    2594.20    2593.44     2593.18     2597.95     2593.32     2600.00    2594.24      2700.0
GR   2594.1    2775.82    2588.58    2787.59     2588.58     2799.99     2588.71     2874.09     2589.1     2899.99
GR   2589.6    2900.74    2590.84    2912.74     2594.20     2929.60     2593.27      2984.2     2594.7     2999.99
GR   2594.2    3035.73    2593.98    3095.84     2594.02     3099.99     2594.73      3200.0     2594.8     3299.99
GR   2594.5    3325.14    2594.33     3430.5      2595.0     3499.99     2593.54     3598.27    2594.02     3599.99
GR   2594.5    3699.99    2593.49     3754.9      2593.8     3799.99     2594.42     3899.99    2594.42     3976.88
GR   2594.8    3999.99    2595.62     4100.0      2595.0     4164.97     2595.48     4199.98    2595.88     4299.98
GR   2595.9    4306.66    2596.46     4367.0      2595.1     4375.19     2595.97     4399.98    2595.97     4400.91
GR   2596.0    4499.98    2594.91     4578.5      2595.1     4599.98     2596.55     4682.44    2594.95     4690.85
GR   2595.0    4699.98    2595.40     4729.2      2593.8     4737.07     2595.35     4799.98    2597.17     4876.33
GR   2597.3    4899.98    2598.85     4952.9
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NH        4     0.035    2558.2      0.03    2726.2       0.1    3167.8      0.08    4989.8
ET                          9.11                                                    2260.0    3600.0
X1       85        49    2500.0    2726.2     500.0     520.0     500.0       1.0       2.2
GR   2604.7   2000.00   2604.74   2100.00   2599.11   2105.31   2599.38   2200.00   2598.18    2300.0
GR   2597.2   2400.00   2597.61   2500.00   2596.24    2558.2    2590.3   2568.29   2590.53   2600.00
GR   2590.7   2708.17   2596.86    2726.2    2596.4   2799.99   2596.24   2899.99   2595.84   3099.99
GR   2596.8   3140.02   2596.72    3167.8   2596.77   3206.50   2596.19   3346.34   2596.50   3499.99
GR   2595.4    3549.2   2595.22   3565.59   2595.66   3599.99   2596.37   3612.34   2595.26    3614.7
GR   2595.6   3630.62   2596.01   3699.99   2596.37   3799.99   2596.41   3805.74   2597.65    3900.0
GR   2597.7   3906.84   2598.10   3999.99   2598.14   4090.50   2598.14   4099.98    2598.0   4170.85
GR   2598.0   4199.98   2598.01   4203.91   2598.36   4299.98   2597.34   4499.98   2597.39   4599.98
GR   2597.5   4672.61   2597.03    4690.3    2597.3   4699.98   2597.39   4707.84   2597.70   4791.20
GR   2597.7   4799.98   2598.05    4900.0    2599.4   4952.06   2599.95    4989.8

NH        4     0.045   2300.00     0.035   2556.61      0.03   2734.07      0.08    5026.7
ET                          9.11                                                    2300.0    3500.0
X1       86        46   2556.61   2734.07     530.0     470.0     500.0       1.0       2.2
GR   2607.8   2000.00   2607.04   2100.00   2601.06   2200.00   2601.37    2209.0    2600.3   2211.64
GR   2600.4   2222.53   2601.41   2300.00   2599.56    2400.0    2597.8   2500.00   2598.23   2556.61
GR   2592.9   2600.00   2593.58    2700.0   2598.85   2734.07   2598.09    2800.0    2598.7   2861.03
GR   2598.4   2899.99   2598.40   2994.00   2597.65    3000.0    2597.3   3000.55   2597.34   3019.28
GR   2596.4   3126.09   2597.21   3399.99   2597.56   3414.67    2597.9   3585.40   2597.25   3599.99
GR   2597.2   3600.14   2597.96   3688.06   2598.01    3700.0   2598.1   3729.93   2598.18   3799.99
GR   2599.4    4000.0    2598.8   4049.53   2598.89   4074.68   2598.27    4237.3    2599.2   4299.98
GR   2599.2   4499.98   2600.35   4695.29   2600.35    4700.0    2600.6   4799.98   2600.57   4805.03
GR   2603.6   4819.50   2606.02   4896.22   2606.02    4900.0    2607.8   4999.98   2607.35   5024.06
GR   2607.5    5026.7

NH        3     0.045   2644.34      0.03   2851.33      0.08   5093.7
ET                          9.11                                                    2490.0    3550.0
X1       87        52   2644.34   2851.33     510.0     520.0     520.0       1.0       2.2
GR   2610.3   2000.00   2609.38   2100.00   2607.88   2141.12    2606.5   2200.00   2605.09   2300.00
GR   2602.3    2487.2    2602.3   2500.00   2598.45   2525.18   2598.63   2600.00   2598.80   2644.34
GR   2595.5   2700.00   2595.53   2799.99   2595.71   2839.16   2602.26   2851.33   2600.53    2893.1
GR   2600.6   2899.99   2600.93   2999.99   2599.16   3029.55   2599.33   3192.98   2600.00   3199.99
GR   2600.0   3299.99    2600.0   3369.87   2600.88   3374.83   2600.88   3399.99   2600.00   3447.69
GR   2600.0   3499.99   2600.09   3518.03   2600.09   3599.99   2600.09    3700.0   2600.31    3837.7
GR   2601.2   3899.99   2600.40   3999.99   2600.93   4099.98   2601.10   4139.26    2599.4   4173.52
GR   2600.3   4199.98   2600.84   4299.98    2600.3   4414.95   2601.81   4499.98   2601.46   4599.98
GR   2601.5    4660.9    2600.4   4669.22   2600.44   4699.98   2600.66   4781.21   2601.64   4798.17
GR   2601.7    4800.0    2601.8   4899.98   2601.86   4913.35   2604.03   4999.98   2603.45   5006.84
GR   2603.5    5017.8    2605.8    5093.7

NH        3      0.05   2428.99      0.03    2695.9      0.08   5164.4
ET                          9.11                                                    2400.0    3750.0
X1       88        52   2428.99    2695.9     600.0     640.0     600.0       1.0       2.2
GR   2613.0   2000.00   2610.27   2100.00   2608.50   2200.00   2606.02   2300.00   2603.72    2400.0
GR   2603.3   2428.99   2597.25   2435.45   2597.17   2500.00   2597.43   2594.35   2598.89   2683.63
GR   2605.4    2695.9    2605.1   2700.00   2604.38   2700.54   2602.70   2799.99   2602.79   2897.92
GR   2602.7    2900.0    2603.1   2999.99   2601.55   3090.61   2601.02   3099.99    2601.4   3153.47
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GR   2599.6   3199.99   2600.40   3211.37   2601.64   3241.3    2601.8    3299.99   2602.79   3356.30
GR   2602.8   3399.99   2602.83   3499.99   2601.68   3600.0    2601.4    3699.99   2601.95   3756.20
GR   2601.4   3799.99   2601.42   3809.77   2601.59   3900.0    2602.5    3938.80   2603.50   3948.63
GR   2603.4   3999.99   2602.39   4099.98   2602.88   4200.0    2602.9    4299.98   2602.21   4399.98
GR   2602.7   4499.98   2602.61   4599.98   2602.39   4700.0    2603.4    4799.98   2605.35   4899.98
GR   2606.8   4967.77   2607.57   4999.98   2608.90   5099.9    2608.9    5099.98   2610.62   5143.02
GR   2609.9   5155.68   2610.05   5164.4

NH       3     0.045   2434.74      0.03   2790.24      0.06   5102.5
ET                        9.11                                            2550.0    3910.0
X1      89        48   2567.72   2790.24     870.0     440.0     810.0       1.0       2.2
GR   2614.4   2000.00   2612.35   2095.48   2612.35   2100.00   2612.79   2149.31   2612.70   2176.4
GR   2613.6   2187.25   2613.68   2200.00   2610.71   2300.00    2609.0   2434.74   2605.18   2453.07
GR   2605.1   2500.00   2605.13   2567.72    2604.9   2597.42   2603.81   2600.00   2600.53   2606.85
GR   2599.9   2700.00   2600.31    2766.3   2608.41   2790.24   2608.54   2799.99   2608.81   2835.00
GR   2605.2   2903.79   2604.20   2999.99   2604.29    3081.4    2604.3   3099.99   2603.01   3147.83
GR   2604.2   3199.99   2604.47   3234.77   2604.20    3281.4   2605.58   3351.18   2606.02    3400.0
GR   2605.8   3548.30   2605.89    4100.0   2605.58   4199.98   2605.53   4289.72   2605.31    4300.0
GR   2604.2   4399.98   2604.20   4499.98   2604.29   4599.98   2604.29   4699.98   2604.82    4800.0
GR   2605.2   4899.98   2605.00   4933.75   2605.58    4973.2    2606.1   4995.63   2606.15   4999.98
GR   2606.3   5015.16   2607.08    5100.0    2607.1    5102.5

NH       5      0.05   2799.99     0.035   3099.99      0.03   3266.82       0.1   3799.99      0.06
NH  5321.7
ET                        9.11                                            2900.0    4320.0
X1      90        62   3099.99   3266.82     500.0     540.0     510.0       1.0       2.2
GR   2622.1   2000.00   2620.23   2086.94   2620.23   2100.00   2619.48   2200.00   2614.92    2300.0
GR   2611.9   2400.00   2610.18   2500.00   2609.47   2600.00   2608.19   2700.00   2608.05    2748.3
GR   2605.1   2799.99   2605.18   2807.46   2605.93   2899.99   2605.93   2942.08   2605.49    2974.0
GR   2606.1   2999.99   2606.68   3061.38   2607.52   3099.99   2604.47    3104.3    2604.7   3123.04
GR   2602.3   3131.27   2602.65   3199.99   2602.96   3238.40    2610.5   3266.82   2609.38   3286.38
GR   2609.2   3299.99   2608.94    3374.2    2607.3   3394.61   2607.61   3399.99   2607.79   3415.99
GR   2611.5   3440.43   2609.56    3500.0    2608.1   3585.42   2602.74   3599.99   2601.68   3606.84
GR   2603.3   3699.99   2604.87    3733.8    2606.8   3744.95   2607.04   3799.99   2605.18   3899.99
GR   2606.8   3999.99   2606.82    4100.0    2606.5   4199.98   2606.77   4284.74   2608.81   4299.98
GR   2608.1   4311.61   2607.30    4400.0    2606.9   4499.98   2607.88   4599.98   2607.57   4699.98
GR   2607.3   4799.98   2607.61    4900.0    2607.3   4921.77   2605.97   4943.46   2605.93   4967.19
GR   2606.8   4994.72   2607.08    5000.0    2607.6   5099.98   2609.34   5199.98   2610.80   5291.53
GR   2610.8   5299.97   2611.29    5321.7

NH       4      0.08   2744.74     0.035   3089.53      0.03   3282.75      0.08   5042.31
ET                        9.11                                            2780.0    4100.0.
X1      91        68   3089.53   3282.75     490.0     520.0     500.0       1.0       2.2
GR   2618.4   2000.00   2617.00   2100.00   2616.69   2101.77   2615.67   2200.00   2613.68    2300.0
GR   2613.8   2400.00   2613.28   2434.43   2611.24   2453.78   2611.24   2476.84   2611.29    2500.0
GR   2611.1   2600.00   2609.96   2617.47   2606.95   2662.89   2609.38   2685.73   2609.38    2700.0
GR   2608.6   2744.74   2607.97   2747.97   2608.41   2759.43   2607.13   2766.25   2608.94    2781.4
GR   2608.4   2799.99   2608.54   2899.99   2608.28   2979.93   2608.94   2999.99   2609.91    3020.8
GR   2608.9   3056.51   2610.40   3089.53   2604.78   3099.99   2605.13   3102.54   2605.18    3200.0
GR   2606.0   3229.41   2604.60   3242.43   2604.78   3273.77   2611.07   3282.75   2610.76    3300.0
GR   2610.2   3399.99   2610.18   3451.98   2611.02   3477.39   2611.02   3499.99   2610.45    3600.0
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GR   2607.8   3699.99   2608.23   3728.75   2607.21   3747.74   2609.69   3788.82   2609.69    3800.0
GR   2608.5   3843.80   2606.46   3894.00   2606.46   3899.99   2611.11   3972.88   2611.11    4000.0
GR   2610.8   4099.98   2610.00   4199.98   2610.05   4299.98   2610.14   4399.98   2611.69    4500.0
GR   2611.7   4500.31   2610.58   4514.48   2610.89   4599.98   2611.99   4699.98   2612.44    4800.0
GR   2614.5   4899.98   2613.99   4926.24   2615.98   4950.19   2617.04    5000.0    2617.7   5011.10
GR   2615.0   5020.93   2616.07   5035.23   2619.87   5042.31

NH        6      0.05   3172.26      0.03   3371.86     0.045    3500.0       0.1   3799.99     0.035
NH   4899.9     0.045    5156.7
ET                7.11      9.11                                   0.1    4300.0    2850.0    3960.0
X1       92        60   3172.26   3371.86     540.0     600.0     550.0       1.0       2.2
GR   2624.1   2000.00   2624.08   2100.00   2619.92   2155.86   2618.37   2200.00   2614.96    2268.4
GR   2614.7   2300.00   2613.81   2400.00   2614.21   2500.00   2614.21   2600.00   2613.28    2700.0
GR   2613.4   2799.99   2613.37   2802.33   2609.52   2822.82   2609.69   2899.99   2609.87    3000.0
GR   2611.8   3099.99   2612.79   3172.26   2605.75   3182.84   2605.75   3199.99   2606.64    3300.0
GR   2607.0   3364.20   2611.42   3371.86   2611.42   3399.99   2609.52   3483.81   2611.33    3500.0
GR   2613.7   3558.66   2614.12   3599.99   2614.61   3699.99   2613.19   3799.99   2611.86    3844.6
GR   2613.1   3884.38   2613.19   3899.99   2612.84   3974.95   2610.58   3999.99   2610.58    4004.0
GR   2610.1   4036.70   2607.66   4054.49   2607.88   4088.98   2609.21   4099.98   2612.17    4147.0
GR   2613.5   4199.98   2613.28   4283.93   2613.41   4299.98   2615.05   4351.56   2613.15    4390.1
GR   2613.1   4399.98   2613.85   4499.98   2613.10   4599.98   2613.50   4699.98   2613.81    4800.0
GR   2614.7   4873.91   2613.54   4884.62   2615.27   4896.97   2615.27   4899.98   2615.27    4909.1
GR   2613.3   4918.79   2615.36   4999.98   2620.67   5088.42   2620.67   5099.98   2619.70    5156.7

NH        5      0.05   2999.99      0.03   3383.22     0.035    3545.85     0.055   3799.99      0.08
NH   5256.1
ET                         9.11                                                      2940.0    3790.0
X1       93        70   3199.99   3383.22     480.0     520.0     500.0       1.0       2.2
GR   2626.6   2000.00   2625.10   2100.00   2623.24   2118.15   2623.33   2200.00   2621.96    2211.1
GR   2625.0   2235.50   2618.64   2279.41   2618.64   2300.00   2618.77   2400.00   2618.10    2500.0
GR   2617.9   2600.00   2617.09   2700.00   2616.64   2799.99   2617.13   2849.30   2614.30    2867.8
GR   2614.3   2899.99   2613.63   2955.45   2612.26   2970.45   2612.26   2999.99   2612.26    3018.3
GR   2613.6   3099.99   2613.15   3112.95   2614.65   3192.12   2614.21   3199.99   2609.78    3220.7
GR   2610.0   3299.99   2608.72   3372.15   2613.59   3383.22   2613.59   3399.99   2611.46    3491.1
GR   2611.6   3499.99   2610.62   3515.44   2614.83   3545.85   2615.85   3599.99   2616.47    3617.1
GR   2617.1   3676.92   2617.13   3699.99   2617.84   3799.99   2616.47   3895.33   2616.47    3900.0
GR   2616.6   3920.03   2616.16   3924.15   2617.04   3999.99   2616.69   4070.50   2614.43    4100.0
GR   2614.5   4103.65   2611.86   4149.69   2612.70   4182.36   2609.91   4199.98   2609.91    4200.0
GR   2610.0   4232.24   2612.22   4246.06   2615.54   4299.98   2615.58   4399.98   2615.14    4493.3
GR   2615.1   4499.98   2615.14   4573.63   2615.27   4599.98   2616.16   4691.51   2616.16    4700.0
GR   2616.4   4720.19   2615.45   4725.33   2616.33   4736.00   2616.33   4799.98   2616.86    4900.0
GR   2617.2   4999.98   2620.80   5099.98   2620.72   5110.14   2620.98   5199.98   2623.37    5256.1

NH        5     0.045   3020.65      0.03    3311.2       0.1   3384.35     0.035   3599.99      0.08
NH   5020.0
ET                         9.11                                                      2890.0    3670.0
X1       94        71    3136.8    3311.2     500.0     530.0     500.0       1.0       2.2
GR   2628.3   2000.00   2631.61   2051.97   2625.72   2075.30   2626.12   2100.00   2626.47    2169.9
GR   2624.4   2180.56   2624.43   2200.00   2624.48   2269.18   2622.84   2276.31   2622.84    2300.0
GR   2622.8   2400.00   2622.18   2416.06   2623.86   2427.35   2623.81   2453.33   2620.36    2470.4
GR   2620.4   2500.00   2620.36   2600.00   2618.46   2700.00   2618.72   2799.99   2619.25    2878.1
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GR   2615.6   2887.54   2615.58   2899.99   2615.63   2980.24   2616.1    3020.65   2616.60   3086.52
GR   2616.6   3099.99   2615.54    3136.8    2610.8   3153.50   2611.24   3199.99   2612.13   3291.39
GR   2612.7   3299.99   2618.24   3311.2    2618.2    3364.87   2621.16   3384.35   2621.16   3399.99
GR   2621.0   3400.90   2620.89   3438.18   2620.63   3477.53   2618.19   3488.33   2618.19    3500.0
GR   2618.4   3599.99   2618.37   3699.99   2618.06   3733.61   2617.44   3742.38   2618.55    3753.2
GR   2617.9   3778.19   2616.78   3784.38   2617.31   3799.99   2618.28   3899.99   2618.06    4000.0
GR   2615.5   4099.98   2615.54   4169.06   2611.95   4183.67   2611.95   4199.98   2612.48    4203.1
GR   2617.7   4221.65   2617.66   4299.98   2617.40   4399.98   2618.41   4499.98   2618.77    4600.0
GR   2618.8   4699.98   2618.94   4770.68   2619.70   4793.35   2620.18   4799.98   2619.56    4900.0
GR   2619.8   4913.40   2619.79   4939.16   2618.81   4952.39   2621.25   4999.98   2621.47    5003.5
GR   2621.5    5020.0

NH        7     0.045    2800.0       0.1    3004.4       0.03   3206.49       0.01   3234.43       0.03
NH   3265.6     0.035    3420.0      0.08    4950.6
ET                         9.11                                                      2780.0     3510.0
X1       95        75    3004.4   3265.68     460.0      480.0     480.0       1.0       2.2
GR   2631.4   2000.00   2630.59   2053.43   2629.21   2084.86   2629.21   2100.00   2629.21    2114.4
GR   2627.7   2132.09   2627.66   2178.44   2625.45   2187.20   2625.45   2200.00   2625.45    2300.0
GR   2625.2   2309.33   2622.22   2312.34   2622.04   2344.75   2625.14   2361.13   2623.50    2374.9
GR   2623.5   2400.00   2621.56   2500.00   2621.95   2600.00   2620.89   2700.00   2620.58    2800.0
GR   2620.5   2899.99   2620.41   2928.67   2617.40   2951.37   2617.40   2999.99   2617.40    3004.4
GR   2612.9   3020.25   2613.28   3099.99   2613.28   3123.98   2614.83   3153.95   2614.07    3195.7
GR   2616.8   3199.99   2617.97   3206.49   2616.78   3234.43   2620.89   3265.68   2620.89    3300.0
GR   2620.2   3352.13   2621.78   3371.78   2622.71   3399.99   2622.35   3407.51   2620.32    3420.0
GR   2621.9   3463.68   2621.87   3499.99   2620.18   3555.40   2621.82   3562.97   2619.83    3574.4
GR   2619.8   3589.40   2620.80   3592.05   2620.80   3599.99   2620.80   3616.09   2619.61    3631.9
GR   2619.9   3699.99   2620.45   3799.99   2619.79   3899.99   2619.83   3918.34   2618.86    3929.5
GR   2619.6   3999.99   2619.61   4010.15   2615.05   4075.44   2615.36   4099.98   2617.93    4146.9
GR   2619.8   4199.98   2621.78   4299.98   2620.27   4395.18   2621.56   4399.98   2623.06    4428.1
GR   2623.3   4499.98   2623.90   4599.98   2624.92   4699.98   2626.34   4799.46   2626.34    4800.0
GR   2625.7   4813.41   2627.44   4899.98   2627.40   4905.04   2629.30   4931.33   2629.30    4950.6

NH        5     0.045   2500.00       0.1   2522.17       0.03   2756.75       0.06   3299.99       0.08
NH   4694.8
ET                 7.11     9.11                                     0.1     4250.0     2510.0     3100.0
X1       97        66    2522.17   2756.75    1010.0     1080.0    1020.0       1.0       2.2
GR   2636.0   2000.00   2636.12   2024.30   2631.83   2043.03   2629.83   2100.00   2629.26    2200.0
GR   2627.8   2300.00   2625.36   2400.00   2623.77   2500.00   2623.59   2522.17   2617.04    2538.6
GR   2617.1   2572.41   2617.79   2585.16   2617.79   2600.00   2617.79   2619.87   2616.60    2637.2
GR   2617.9   2672.29   2617.93   2700.00   2617.62   2746.34   2621.60   2756.75   2620.14    2786.6
GR   2621.8   2799.99   2621.38   2890.52   2620.14   2899.99   2620.01   2902.83   2620.14    2978.9
GR   2621.4   2999.99   2621.51   3010.46   2620.01   3030.78   2621.82   3040.29   2621.60    3082.3
GR   2619.5   3098.73   2619.52   3099.99   2621.16   3198.33   2621.16   3199.99   2624.74    3226.9
GR   2624.3   3299.99   2623.86   3357.73   2623.99   3381.99   2623.72   3399.99   2623.33    3404.6
GR   2625.0   3432.32   2625.32   3499.99   2624.30   3599.99   2624.30   3619.43   2624.43    3700.0
GR   2624.3   3758.69   2625.32   3789.55   2625.32   3799.99   2624.43   3899.99   2623.24    4000.0
GR   2624.9   4056.70   2620.63   4077.90   2620.76   4094.63   2623.11   4098.44   2623.11    4100.0
GR   2624.1   4154.21   2624.61   4199.98   2624.96   4244.61   2623.90   4281.61   2623.95    4300.0
GR   2624.0   4374.62   2625.85   4399.98   2627.66   4419.19   2628.11   4499.98   2632.36    4600.0
GR   2632.2    4694.8
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NH	5	0.05	2400.00	0.03	2611.45	0.05	2763.37	0.035	2976.74	0.08
NH	4596.3									
ET			9.11						2320.0	2980.0
X1	98	60	2400.0	2611.45	520.0	450.0	500.0	1.0	2.2	
GR	2632.7	2000.00	2630.10	2100.00	2628.59	2133.77	2629.66	2200.00	2624.34	2300.0
GR	2622.9	2348.24	2624.17	2393.13	2622.66	2400.00	2619.52	2426.29	2619.70	2500.0
GR	2619.7	2503.04	2621.07	2511.76	2620.10	2526.15	2619.83	2600.00	2619.79	2603.7
GR	2623.3	2611.45	2623.73	2700.00	2622.22	2763.37	2622.22	2772.32	2622.40	2800.0
GR	2621.6	2899.99	2621.51	2976.74	2622.62	2999.99	2622.62	3011.84	2627.89	3040.2
GR	2627.8	3099.99	2626.43	3155.00	2627.13	3160.75	2627.13	3185.06	2626.16	3191.7
GR	2627.1	3199.99	2627.53	3206.66	2626.96	3240.21	2626.96	3299.99	2626.34	3400.0
GR	2626.4	3499.99	2626.20	3530.56	2627.27	3549.59	2626.25	3578.32	2626.34	3586.1
GR	2626.4	3592.62	2626.43	3599.99	2626.43	3600.50	2627.22	3699.99	2626.07	3800.0
GR	2626.6	3899.99	2626.34	3975.92	2625.6	4038.95	2626.03	4099.98	2627.53	4199.98
GR	2628.5	4223.63	2629.30	4228.9	2629.3	4255.82	2628.51	4269.41	2628.82	4299.98
GR	2629.3	4328.59	2630.81	4358.2	2631.1	4399.98	2632.71	4499.98	2632.84	4596.3

NH	5	0.06	2400.00	0.03	2535.93	0.1	2700.0	0.035	2861.87	0.08
NH	4574.0									
ET			9.11						2310.0	2990.0
X1	99	48	2400.0	2535.93	510.0	500.0	500.0	1.0	2.2	
GR	2632.4	2000.00	2631.87	2100.00	2631.21	2200.00	2628.24	2263.65	2625.72	2300.0
GR	2625.7	2311.68	2626.87	2376.44	2626.07	2398.80	2625.94	2400.00	2621.07	2413.4
GR	2621.6	2500.00	2622.31	2517.56	2626.69	2535.93	2627.53	2600.00	2626.25	2700.0
GR	2624.9	2799.99	2625.36	2861.87	2628.02	2890.68	2628.02	2899.99	2628.73	3000.0
GR	2629.2	3099.99	2628.99	3199.99	2628.99	3299.99	2628.42	3399.99	2628.06	3500.0
GR	2628.4	3599.99	2627.89	3699.99	2627.80	3729.62	2629.13	3739.32	2627.58	3764.3
GR	2628.5	3778.54	2628.46	3799.99	2627.31	3864.90	2625.58	3889.78	2626.16	3900.0
GR	2626.5	3910.63	2625.63	3987.12	2627.22	3999.99	2629.17	4037.49	2629.61	4095.8
GR	2627.8	4099.98	2628.28	4102.12	2629.39	4113.01	2629.75	4199.98	2632.05	4300.0
GR	2634.5	4399.98	2634.66	4499.98	2634.79	4574.0				

NH	6	0.06	2500.00	0.1	2512.9	0.03	2692.55	0.1	2888.65	0.035
NH	3099.9	0.08	4642.9							
ET			9.11						2510.0	3180.0
X1	100	64	2512.9	2692.55	500.0	500.0	520.0	1.0	2.2	
GR	2636.4	2000.00	2636.30	2037.27	2632.93	2063.70	2636.65	2088.84	2636.65	2100.0
GR	2633.8	2200.00	2633.86	2300.00	2633.11	2400.00	2632.27	2500.00	2632.05	2512.9
GR	2628.0	2531.29	2627.58	2547.22	2623.42	2555.19	2623.46	2600.00	2624.35	2662.5
GR	2631.0	2692.55	2630.99	2700.00	2629.48	2799.99	2629.44	2838.49	2627.05	2857.5
GR	2627.0	2888.65	2627.09	2899.99	2627.98	2930.17	2627.98	2999.99	2627.40	3017.6
GR	2629.7	3052.63	2631.30	3099.99	2631.38	3199.99	2631.12	3299.99	2631.03	3334.8
GR	2631.9	3345.32	2632.89	3399.99	2632.14	3421.06	2630.63	3454.08	2632.45	3469.1
GR	2631.9	3499.99	2631.69	3502.91	2630.99	3512.42	2630.99	3522.96	2631.21	3600.0
GR	2630.7	3699.99	2631.52	3799.99	2631.47	3899.99	2631.56	3904.89	2627.58	3929.1
GR	2627.7	3950.17	2630.37	3987.36	2630.37	3999.99	2630.32	4012.59	2627.13	4036.8
GR	2627.2	4051.77	2626.07	4057.65	2635.10	4088.91	2635.10	4099.98	2634.79	4119.0
GR	2632.9	4124.89	2633.29	4150.66	2631.65	4198.69	2631.65	4199.98	2632.62	4300.0
GR	2634.8	4399.98	2637.36	4499.98	2638.64	4599.98	2638.87	4642.9		

NH	6	0.06	2393.8	0.1	2400.00	0.03	2523.6	0.1	2700.00	0.035
NH	3027.9	0.08	4489.9							
ET			9.11						2330.0	3160.0
X1	101	52	2400.0	2523.6	520.0	500.0	520.0	1.0	2.2	
GR	2638.1	2000.00	2638.69	2100.00	2636.34	2200.00	2634.35	2300.00	2632.89	2393.8
GR	2632.7	2400.00	2625.50	2424.91	2626.38	2499.77	2628.90	2500.00	2630.63	2523.6
GR	2630.7	2600.00	2631.21	2624.20	2632.18	2700.00	2631.83	2799.99	2632.80	2900.0
GR	2632.8	2928.75	2631.43	2942.17	2631.65	2951.06	2632.53	2999.99	2632.14	3009.8
GR	2634.7	3027.91	2633.69	3032.65	2634.04	3062.08	2635.99	3062.08	2635.99	3100.0
GR	2635.0	3192.14	2634.66	3199.99	2632.40	3223.74	2632.27	3266.06	2634.00	3300.0
GR	2634.0	3303.29	2634.66	3399.99	2633.51	3499.99	2632.80	3599.99	2632.09	3700.0
GR	2631.6	3799.99	2631.96	3854.98	2628.11	3869.50	2628.46	3882.25	2630.28	3896.8
GR	2630.3	3899.99	2630.63	3942.01	2635.15	3968.84	2634.04	3999.99	2632.84	4018.9
GR	2635.0	4099.98	2636.21	4199.98	2636.96	4244.62	2640.72	4264.85	2640.72	4300.0
GR	2639.6	4399.98	2640.95	4489.9						

NH	5	0.07	2386.7	0.03	2500.00	0.1	2800.0	0.035	3100.0	0.08
NH	4434.4									
ET			9.11						2180.0	3200.0
X1	102	59	2386.7	2500.0	500.0	500.0	500.0	1.0	2.2	
GR	2640.0	1620.0	2635.9	2000.00	2635.94	2100.00	2635.15	2200.00	2635.06	2300.00
GR	2632.3	2386.7	2628.9	2394.33	2628.90	2400.00	2629.17	2482.73	2633.38	2500.00
GR	2633.6	2514.6	2633.9	2600.00	2633.64	2700.00	2633.38	2728.89	2634.97	2743.72
GR	2634.6	2800.0	2635.1	2899.99	2634.75	2999.99	2635.28	3037.56	2637.58	3068.41
GR	2637.5	3100.0	2637.5	3160.31	2633.77	3195.15	2635.46	3199.99	2635.37	3206.48
GR	2635.2	3235.2	2634.7	3299.99	2634.44	3368.41	2635.37	3399.99	2635.23	3421.22
GR	2632.8	3471.7	2633.3	3499.99	2632.84	3584.38	2634.31	3599.99	2635.19	3623.20
GR	2635.1	3700.0	2634.2	3775.61	2629.83	3788.76	2629.83	3799.99	2629.83	3805.63
GR	2631.6	3811.0	2631.6	3814.70	2635.23	3828.51	2638.02	3886.94	2637.94	3899.99
GR	2637.4	3958.3	2637.4	3974.10	2637.98	3999.99	2638.73	4009.87	2638.51	4029.61
GR	2637.8	4038.5	2639.8	4045.24	2638.47	4051.39	2638.60	4099.98	2640.55	4199.98
GR	2641.8	4300.0	2643.6	4399.98	2644.00	4428.94	2645.19	4434.4		

NH	5	0.07	2780.0	0.03	2960.0	0.07	3170.0	0.035	3470.0	0.08
NH	4680.0									
ET			9.11						2530.0	3600.0
X1	102.5	29	2780.0	2960.0	310.0	290.0	300.0	1.0	2.2	
GR	2640.0	2000.0	2638.0	2030.0	2636.0	2370.0	2636.4	2470.0	2636.1	2570.0
GR	2636.0	2670.0	2634.0	2760.0	2632.0	2780.0	2631.0	2835.0	2630.5	2920.0
GR	2634.7	2960.0	2635.2	3030.0	2636.1	3170.0	2636.5	3275.0	2637.7	3375.0
GR	2638.9	3470.0	2636.7	3570.0	2636.4	3675.0	2637.4	3770.0	2634.8	3870.0
GR	2635.2	3970.0	2636.2	4060.0	2634.3	4160.0	2634.5	4200.0	2639.3	4370.0
GR	2640.0	4470.0	2642.0	4570.0	2643.7	4670.0	2645.6	4680.0		

NH	6	0.045	2400.0	0.07	2700.00	0.03	2826.45	0.07	2992.2	0.035
NH	3254.4	0.08	4667.4							
ET			9.11						2390.0	3460.0

```
X1      103        65    2600.0    2839.65     210.0     210.0     210.0       1.0       2.2
GR   2640.0    1870.0    2638.0     1950.0    2636.2   2000.00   2636.30   2100.00   2636.08   2200.00
GR   2636.7   2300.00   2636.70     2400.0    2636.7   2500.00   2636.21   2543.64   2634.70   2558.78
GR   2635.2   2594.72   2635.19     2600.0    2632.4   2613.89   2634.66   2661.83   2630.14   2680.24
GR   2630.8   2700.00   2631.56     2799.0    2631.6   2799.99   2634.97   2819.37   2633.60   2826.45
GR   2632.4   2839.65   2635.72     2847.7    2635.7   2858.81   2633.51   2862.66   2636.39   2872.58
GR   2636.3   2899.99   2637.49     2992.2    2636.4   2993.56   2637.80   2999.99   2637.80   3000.42
GR   2637.4   3099.99   2637.54     3200.0    2637.0   3254.47   2638.91   3260.53   2639.88   3299.99
GR   2639.4   3368.85   2638.11     3400.0    2637.4   3403.38   2638.60   3417.19   2638.47   3448.44
GR   2636.7   3457.60   2638.51     3500.0    2638.5   3599.99   2635.90   3699.99   2636.52   3770.04
GR   2635.7   3775.22   2635.85     3800.0    2635.9   3807.44   2636.87   3826.21   2636.87   3899.99
GR   2636.1   3994.47   2637.40    4056.31   2635.32   4086.76   2636.30    4100.0    2640.0   4145.15
GR   2640.3   4199.98   2640.06    4292.07   2641.65   4299.98   2642.98    4308.5    2643.1   4399.98
GR   2643.9   4444.30   2645.28    4476.71   2645.28   4499.98   2647.19    4600.0    2648.2    4667.4

NH        6      0.06   2686.00      0.045    2783.9      0.03    2983.8       0.1   2999.99     0.035
NH   3199.9      0.08    4664.4
ET                        9.11                                                      2660.0    3490.0
X1      104        56    2783.9     2983.8     600.0     590.0     600.0       1.0       2.2
GR   2647.3   2000.00   2643.47    2064.85   2644.62   2100.00   2644.93   2102.96   2643.60    2200.0
GR   2643.8   2300.00   2643.95    2400.00   2643.95   2500.00   2643.73   2600.00   2643.56    2603.6
GR   2640.3   2618.76   2642.89    2633.45   2642.27   2654.61   2635.85   2686.00   2636.52    2699.7
GR   2636.6   2700.00   2638.07    2710.43   2639.40   2748.15   2638.07   2762.98   2637.76    2783.9
GR   2635.5   2792.90   2635.54    2799.99   2635.72   2874.70   2633.46   2888.25   2634.17    2900.0
GR   2634.6   2933.80   2633.95    2954.12   2633.51   2957.79   2632.84   2973.02   2638.07    2983.8
GR   2638.1   2999.99   2640.24    3099.99   2640.46   3199.99   2640.94   3299.99   2642.01    3353.8
GR   2640.4   3379.30   2641.43    3392.58   2641.43   3399.99   2641.43   3417.85   2641.43    3442.8
GR   2639.9   3452.87   2639.93    3499.99   2639.88   3599.99   2639.75   3699.99   2639.48    3791.9
GR   2639.4   3799.99   2637.54    3805.49   2637.98   3899.99   2638.86   3971.76   2639.79   4099.98
GR   2640.3    4200.0    2644.0    4299.98   2645.50   4399.98   2646.92   4499.98   2649.09   4599.98
GR   2650.3    4664.4

NH        6      0.06    2690.0      0.045    2830.0      0.03    2990.0      0.06    3090.0     0.035
NH   3285.0      0.08    4470.0
ET                        9.11                                                      2670.0    3440.0
X1    104.5        27    2690.0     2990.0     290.0     290.0     290.0       1.0       2.2
GR   2647.0    2000.0    2646.9     2080.0    2645.2    2195.0    2644.7    2292.0    2644.2    2392.0
GR   2644.3    2498.0    2641.9     2587.0    2640.6    2690.0    2636.6    2788.0    2636.0    2830.0
GR   2635.5    2885.0    2640.6     2990.0    2641.2    3090.0    2642.6    3180.0    2642.4    3285.0
GR   2641.1    3385.0    2641.3     3480.0    2641.5    3586.0    2640.8    3689.0    2639.8    3780.0
GR   2636.7    3885.0    2640.4     3990.0    2639.1    4085.0    2643.0    4184.0    2646.1    4280.0
GR   2646.4    4375.0    2648.4     4470.0

NH        5      0.06   2746.55      0.03    3000.0       0.1   3165.22     0.035   3399.99      0.08
NH   4598.1
ET                        9.11                                                      2640.0    3390.0
X1      105        61   2746.55     3000.0     220.0     220.0     220.0       1.0       2.2
GR   2646.9   2000.00   2648.12    2100.00   2645.99   2200.00   2645.15   2300.00   2644.40    2400.0
GR   2644.6   2500.00   2644.75    2566.48   2640.77   2600.00   2640.64   2601.18   2640.95    2688.7
GR   2639.4   2700.00   2638.38    2704.94   2639.48   2746.55   2636.78   2752.48   2637.36    2800.0
GR   2636.3   2833.58   2638.82    2882.45   2636.12   2891.48   2636.56   2899.99   2636.25    2930.6
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GR   2637.9   2944.20   2636.30   2962.31   2638.29   2974.17   2638.29   2989.62   2642.72    3000.0
GR   2643.6   3005.64   2641.92   3099.99   2640.90   3138.89   2644.09   3165.22   2644.09    3200.0
GR   2644.6   3211.97   2641.70   3243.31   2643.38   3299.93   2643.38   3299.99   2643.38    3320.7
GR   2642.1   3337.86   2642.85   3399.99   2642.76   3499.99   2643.20   3547.42   2641.43    3557.5
GR   2643.4   3581.82   2643.34   3599.99   2642.45   3699.99   2641.03   3799.99   2640.95    3900.0
GR   2641.2   3999.99   2641.17   4024.30    2641.8   4168.34   2641.79   4199.98   2646.43   4299.98
GR   2645.1   4361.43   2647.05    4372.0    2644.9   4379.63   2645.59   4399.98   2647.41   4499.98
GR   2648.2   4519.20   2650.20    4530.0    2650.2   4572.67   2649.36   4574.18   2650.15   4589.45
GR   2652.7    4598.1

NH        6      0.06   2400.00       0.1   2521.41      0.03    2700.0     0.045   3135.60      0.06
NH   3999.9      0.07    4719.7
ET                        9.11                                                      2500.0    3240.0
X1      106        53   2521.41    2700.0     500.0     650.0     530.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2649.4   2000.00   2649.62   2100.00   2647.67   2200.00   2647.23   2300.00   2649.09    2362.3
GR   2647.1   2400.00   2645.28   2433.81   2645.28   2500.00   2644.09   2521.41    2639.1   2557.24
GR   2639.0   2564.98   2637.58   2568.44   2638.78   2600.00   2638.29    2657.1   2639.79   2666.88
GR   2643.0   2678.84   2643.07   2686.23   2645.99    2700.0    2646.0   2706.59   2641.61   2768.25
GR   2641.8    2800.0    2641.9   2865.82   2640.86   2878.34   2640.90   2890.78   2642.67   2899.99
GR   2643.1    2902.2    2642.9   2955.28   2644.75   2965.55   2643.82   2973.92   2643.16    3000.0
GR   2646.3   3099.99   2643.60   3135.60   2643.60   3199.99   2643.96    3208.0    2644.6   3222.40
GR   2645.3   3399.99   2645.42    3600.0    2645.2   3627.93   2644.13   3699.99   2644.40   3799.99
GR   2644.5    3900.0    2644.5   3999.99   2644.13   4099.98   2644.53   4199.98   2644.35   4299.98
GR   2644.3    4400.0    2644.9   4499.98   2645.24   4599.98   2646.97   4622.15   2648.43   4636.71
GR   2648.7    4677.9    2650.3   4699.98   2650.64    4719.7

NH        7     0.045   2300.00       0.1   2400.00      0.03   2545.19     0.045    2678.4      0.03
NH   2847.2       0.1    3325.8      0.06    4602.6
ET                        9.11                                                      2400.0    3180.0
X1      107        62   2400.00   2847.26     540.0     460.0     530.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2653.7   2000.00   2651.79   2100.00   2649.67   2200.00   2649.09   2300.00   2648.47    2394.1
GR   2647.1   2400.00   2641.08   2409.24   2642.23   2500.00   2642.27   2510.08   2640.37    2517.3
GR   2640.5   2545.19   2644.75   2554.39   2645.06   2600.00   2645.11   2674.49   2642.98    2678.4
GR   2643.6   2700.00   2643.51   2748.28   2642.18   2770.10   2642.49   2799.99   2642.49    2840.6
GR   2644.8   2847.26   2644.80   2855.14   2645.99   2868.11   2645.99   2887.90   2644.04    2893.0
GR   2644.2   2899.99   2644.84   2996.04   2645.90   2999.99   2647.63   3011.31   2646.88    3076.7
GR   2647.8   3294.66   2647.85   3299.99   2647.36   3320.95   2648.96    3325.8    2648.7   3359.82
GR   2646.8   3369.29   2645.86   3391.03   2647.63   3499.99   2647.41   3599.99   2646.79    3662.5
GR   2646.0   3682.52   2647.72   3699.99   2649.36   3716.12   2648.47   3799.99   2647.63    3838.3
GR   2649.8   3878.93   2646.43   3950.20   2648.25    4000.0    2648.3   4015.49   2647.01   4085.79
GR   2647.0   4099.98   2647.19   4199.98   2647.94    4300.0    2648.7   4318.10   2646.97   4347.05
GR   2647.7   4399.98   2649.05   4499.98   2649.44    4561.1    2650.8   4573.07   2649.71   4581.48
GR   2649.7   4599.98   2649.71    4602.6
```

NH	6	0.045	2451.12	0.1	2518.14	0.03	2866.34	0.06	3052.8	0.035
NH	3781.0	0.06	4544.9							
ET			9.11						2510.0	3190.0
X1	108	67	2518.14	3016.49	610.0	590.0	600.0	1.0	2.2	
GR	2654.6	2000.00	2654.58	2100.00	2656.26	2200.00	2651.17	2300.00	2651.04	2400.0
GR	2650.1	2439.12	2652.19	2451.12	2651.26	2500.00	2651.21	2518.14	2644.00	2525.6
GR	2644.8	2600.00	2644.66	2700.00	2644.80	2752.88	2647.76	2770.06	2647.05	2800.0
GR	2646.7	2815.92	2645.64	2836.72	2645.64	2866.34	2648.12	2891.97	2647.89	2900.0
GR	2647.5	2911 62	2644.84	2917.51	2645.11	2943.01	2647.32	2951.11	2646.08	2960.5
GR	2646.5	2991.88	2649.36	2999.99	2652.41	3016.49	2651.21	3042.74	2648.96	3052.8
GR	2649.0	3099.99	2649.62	3199.99	2650.90	3299.99	2650.90	3399.99	2650.86	3403.2
GR	2649.6	3408.27	2649.36	3499.99	2649.67	3599.99	2648.82	3699.99	2648.03	3781.0
GR	2647.3	3798.39	2647.27	3799.99	2649.44	3826.46	2648.82	3899.99	2650.68	4000.0
GR	2650.6	4034.51	2649.67	4057.35	2649.89	4069.17	2652.37	4073.55	2651.83	4100.0
GR	2652.5	4199.98	2655.46	4275.32	2653.52	4289.44	2655.51	4299.98	2655.73	4306.6
GR	2655.8	4355.09	2654.93	4373.37	2656.39	4391.60	2656.66	4399.98	2656.66	4417.7
GR	2655.7	4426.22	2655.82	4445.12	2656.57	4465.00	2655.29	4473.01	2657.68	4483.6
GR	2657.7	4499.98	2658.52	4544.9						

NH	5	0.06	2400.00	0.1	2536.91	0.03	2935.0	0.045	3499.99	0.05
NH	4483.9									
ET			9.11						2535.0	3210.0
X1	109	72	2536.91	2935.0	510.0	500.0	500.0	1.0	2.2	
GR	2659.5	2000.00	2657.72	2075.56	2657.72	2100.00	2656.31	2200.00	2654.45	2300.0
GR	2655.0	2311.10	2654.14	2400.00	2653.21	2500.00	2652.90	2536.91	2647.36	2569.9
GR	2647.4	2600.00	2646.92	2625.00	2649.75	2633.76	2649.40	2700.00	2649.13	2714.2
GR	2647.7	2720.92	2647.76	2799.99	2647.94	2899.99	2647.89	2927.60	2651.26	2935.0
GR	2651.0	2976.69	2651.21	2999.99	2651.66	3042.16	2651.7	3073.06	2651.17	3099.99
GR	2651.7	3151.1	2651.3	3168.28	2650.64	3178.28	2649.84	3199.99	2649.84	3201.30
GR	2650.2	3223.1	2651.6	3242.71	2652.63	3290.61	2652.32	3299.99	2652.19	3330.80
GR	2651.8	3400.0	2651.6	3457.58	2652.59	3491.49	2652.41	3499.99	2652.76	3599.99
GR	2652.7	3649.7	2654.0	3683.21	2653.96	3699.99	2654.05	3737.43	2655.29	3762.04
GR	2654.8	3800.0	2654.8	3806.84	2656.39	3852.48	2655.86	3882.36	2656.26	3899.99
GR	2656.6	3921.1	2657.7	3936.59	2658.56	3999.99	2659.94	4018.83	2660.07	4041.41
GR	2660.4	4090.1	2660.6	4099.98	2661.17	4124.19	2660.29	4152.61	2662.28	4178.77
GR	2662.6	4200.0	2662.1	4217.86	2662.90	4256.41	2663.43	4299.98	2663.56	4300.41
GR	2662.6	4346.5	2664.1	4362.08	2662.64	4384.25	2663.87	4399.98	2664.18	4408.07
GR	2664.6	4483.3	2664.6	4483.9						

NH	6	0.05	2500.00	0.1	2803.44	0.03	3011.18	0.045	3126.4	0.03
NH	3186.2	0.06	4538.5							
ET			9.11						2750.0	3500.0
X1	110	67	2803.44	3373.23	500.0	530.0	500.0	1.0	2.2	
GR	2659.5	2000.00	2659.18	2100.00	2657.63	2200.00	2657.63	2202.87	2656.84	2300.0
GR	2656.6	2334.30	2656.57	2400.00	2655.73	2467.63	2655.73	2500.00	2652.19	2565.7
GR	2655.0	2600.00	2655.42	2655.45	2655.16	2700.00	2654.67	2733.10	2655.24	2800.0
GR	2655.6	2803.44	2650.42	2847.13	2650.60	2887.05	2648.82	2899.99	2649.49	2913.2
GR	2650.1	2953.99	2650.11	2999.99	2650.11	3005.38	2652.94	3011.18	2652.72	3065.3
GR	2651.7	3077.58	2653.07	3095.77	2653.07	3099.99	2653.07	3118.92	2651.22	3126.4
GR	2650.9	3160.67	2649.27	3167.17	2650.02	3186.25	2650.24	3199.99	2650.24	3272.2
GR	2649.4	3281.20	2649.80	3299.99	2651.04	3316.53	2653.78	3331.05	2652.41	3363.9

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GR   2655.0   3373.23   2655.42   3399.99   2655.42   3406.79   2654.62   3499.99   2654.40   3572.4
GR   2655.2   3599.99   2655.16   3601.51   2654.31   3633.16   2653.83   3694.56   2654.58   3700.0
GR   2655.9   3713.78   2656.00   3799.99   2656.93   3881.50   2657.10   3899.99   2658.12   4000.0
GR   2658.1   4022.05   2660.11   4084.33   2660.20   4099.98   2660.60   4133.82   2661.84   4181.0
GR   2662.2   4199.98   2664.32   4299.98   2665.03   4359.45   2665.56   4399.98   2667.46   4500.0
GR   2667.5   4511.28   2667.68   4538.5

NH       6      0.05    2400.0       0.1    2800.0      0.03    2960.0     0.045    3160.0      0.03
NH  3350.0      0.06    4340.0
ET                       9.11                                                      2800.0    3570.0
X1   110.5        27    2800.0    3350.0     240.0     250.0     245.0       1.0       2.2
GR   2659.9    2000.0    2659.2    2100.0    2658.5    2200.0    2657.7    2300.0    2656.9    2400.0
GR   2656.2    2500.0    2655.5    2600.0    2655.6    2700.0    2655.9    2800.0    2650.6    2900.0
GR   2650.1    2960.0    2651.4    3000.0    2654.0    3160.0    2653.6    3170.0    2652.1    3200.0
GR   2651.3    3300.0    2653.4    3350.0    2655.3    3400.0    2655.8    3500.0    2655.7    3610.0
GR   2655.6    3690.0    2656.9    3790.0    2659.8    3890.0    2661.0    4090.0    2662.4    4140.0
GR   2663.9    4240.0    2666.0    4340.0

NH       6      0.06    2826.4       0.1   2941.68      0.03    3055.8     0.045   3299.99      0.03
NH  3499.9      0.06    4515.9
ET                       9.11                                                      2840.0    3630.0
X1     111        72   2941.68   3499.99     235.0     250.0     240.0       1.0       2.2
GR   2661.9   2000.00   2661.09   2074.72   2660.33   2100.00   2660.33   2101.41   2663.12   2120.1
GR   2662.0   2172.46   2659.18   2185.57   2659.18   2200.00   2659.36   2300.00   2659.01   2320.2
GR   2658.6   2400.00   2657.90   2423.14   2657.15   2500.00   2656.70   2528.85   2656.70   2600.0
GR   2655.9   2689.58   2655.91   2700.00   2654.98   2754.26   2655.91   2799.99   2655.82   2826.4
GR   2657.0   2880.06   2656.62   2899.99   2654.62   2912.55   2654.67   2941.68   2651.57   2952.2
GR   2651.4   2973.86   2652.50   2999.23   2652.50   2999.99   2651.48   3032.20   2653.30   3055.8
GR   2651.9   3095.15   2652.59   3099.99   2655.02   3108.21   2655.73   3127.86   2653.87   3144.0
GR   2655.8   3155.97   2654.98   3171.20   2655.95   3179.12   2654.89   3199.99   2654.62   3229.9
GR   2654.1   3299.99   2652.85   3399.99   2651.70   3492.97   2656.92   3499.99   2656.53   3502.6
GR   2656.9   3576.28   2656.88   3599.99   2655.64   3622.85   2656.26   3699.99   2656.26   3800.0
GR   2656.4   3871.61   2656.75   3899.99   2657.06   3943.23   2658.39   3999.99   2657.94   4009.1
GR   2658.1   4050.22   2658.61   4067.40   2659.80   4080.76   2659.80   4099.98   2660.64   4160.2
GR   2662.1   4183.46   2662.46   4199.98   2663.61   4263.14   2663.61   4299.98   2666.40   4400.0
GR   2666.4   4422.28   2668.04   4451.76   2667.24   4459.51   2668.70   4469.16   2670.74   4500.0
GR   2671.0   4513.87   2671.05   4515.9

NH       7     0.035    2300.0      0.05   2799.99       0.1   3004.75      0.03   3546.79      0.06
NH  3700.0      0.05    4065.77      0.05    4534.4
ET                       9.11                                                      2920.0    3670.0
X1     112        64   3004.75   3546.79     480.0     600.0     530.0       1.0       2.2
GR   2667.1   2000.00   2664.85   2100.00   2663.52   2200.00   2663.39   2227.80   2662.90   2300.0
GR   2662.9   2304.24   2661.93   2327.44   2661.31   2400.00   2660.51   2500.00   2659.58   2585.4
GR   2659.4   2600.00   2659.01   2700.00   2658.12   2799.99   2658.08   2838.41   2658.03   2900.0
GR   2656.7   2924.27   2657.59   2976.55   2659.63   2999.99   2660.20   3004.75   2656.30   3033.8
GR   2656.1   3070.93   2655.02   3075.00   2655.02   3099.99   2654.58   3195.18   2656.35   3200.0
GR   2656.3   3201.11   2656.53   3212.80   2656.88   3299.99   2657.19   3321.92   2655.64   3344.4
GR   2656.0   3399.99   2656.79   3499.99   2656.04   3543.07   2658.08   3546.79   2656.84   3569.8
GR   2658.4   3579.46   2657.72   3599.99   2656.44   3612.44   2659.18   3651.04   2659.09   3700.0
GR   2659.8   3743.73   2661.97   3799.99   2661.22   3811.28   2663.21   3829.92   2663.56   3858.4
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GR   2663.6   3899.99   2663.96   3935.40   2662.72   3974.58   2663.30   3999.99   2663.61   4046.1
GR   2665.4   4065.77   2665.60   4099.98   2667.24   4188.03   2667.33   4199.98   2666.93   4237.7
GR   2668.1   4242.21   2667.24   4283.96   2667.77   4299.98   2669.19   4379.79   2669.45   4400.0
GR   2670.9   4472.31   2670.91   4499.98   2671.18   4516.58   2671.18    4534.4

NH       6      0.06   2600.00      0.1    3000.0      0.03    3364.8     0.045   3699.99      0.1
NH  4124.6      0.06    4463.6
ET                       9.11                                                     2890.0    3625.0
X1     113        60   2958.14   3364.8     500.0     610.0     540.0       1.0       2.2
GR   2669.5   2000.00   2667.95   2100.00   2667.95   2103.85   2666.62   2150.42   2666.62   2200.0
GR   2666.4   2275.38   2666.40   2300.00   2666.40   2325.58   2664.72   2360.55   2664.54   2400.0
GR   2663.1   2407.92   2663.52   2433.99   2663.08   2500.00   2663.08   2504.37   2664.27   2529.9
GR   2663.5   2585.07   2663.39   2600.00   2660.69   2644.17   2661.48   2700.00   2661.66   2745.2
GR   2662.1   2799.99   2661.26   2899.99   2662.95   2958.14   2656.97   2983.64   2657.01   3000.0
GR   2657.5   3099.99   2657.90   3199.99   2659.18   3299.99   2659.05   3359.94   2660.47   3364.8
GR   2660.6   3399.99   2660.95   3499.99   2660.38   3532.80   2659.54   3539.80   2660.47   3547.5
GR   2660.5   3587.34   2660.47   3599.99   2659.85   3628.29   2658.43   3647.41   2661.13   3671.8
GR   2662.0   3686.63   2661.97   3699.99   2662.02   3799.99   2662.95   3850.42   2663.83   3900.0
GR   2663.8   3915.80   2665.91   3999.99   2666.66   4016.28   2667.20   4099.98   2667.20   4100.1
GR   2667.5   4124.65   2668.39   4149.61   2670.52   4199.98   2670.52   4205.26   2672.20   4300.0
GR   2672.2   4307.60   2673.75   4363.46   2674.15   4399.98   2674.90   4428.54   2674.94   4463.6

NH       7      0.05   2300.00      0.06   2700.00      0.03   3188.95     0.045   3499.99     0.06
NH  3999.9       0.1   4311.73      0.06    4551.9
ET                       9.11                                                     2800.0    3670.0
X1     114        63   2903.92   3188.95     500.0     510.0     500.0       1.0       2.2
GR   2677.5   2000.00   2677.42   2040.02   2675.92   2044.80   2676.45   2057.15   2676.09   2077.9
GR   2676.3   2094.91   2676.27   2100.00   2674.41   2179.46   2674.23   2200.00   2672.91   2270.0
GR   2672.9   2300.00   2672.46   2332.62   2671.09   2400.00   2670.12   2466.04   2668.88   2500.0
GR   2668.0   2541.33   2664.89   2589.54   2664.23   2600.00   2663.30    2624.8    2664.1  2653.64
GR   2664.0   2687.15   2663.88   2700.00   2662.86   2704.01   2663.17    2800.0    2662.5  2825.53
GR   2662.4   2899.99   2662.46   2903.92   2658.30   2909.68   2658.56    3000.0    2660.2  3099.99
GR   2660.5   3178.46   2663.79   3188.95   2663.79   3199.99   2663.43    3253.1   2663.21  3284.30
GR   2663.2   3299.99   2663.57    3308.8    2663.2   3357.52   2663.39   3390.94   2662.95  3399.99
GR   2662.1    3433.0   2663.39   3497.98   2663.39   3499.99   2663.03    3600.0    2663.2  3699.99
GR   2665.5   3999.99   2665.51   4006.64   2665.25    4100.0    2666.7   4149.40   2666.75  4183.58
GR   2666.9   4199.98   2668.04   4260.20   2668.88    4300.0    2668.7   4311.73   2668.74  4339.44
GR   2670.9   4371.80   2670.91   4399.98   2670.82    4449.7    2670.8   4462.06   2672.02  4485.65
GR   2672.0   4499.98   2672.02   4506.28   2674.28    4551.9

NH       6      0.05   2422.35      0.06   2512.74      0.03   2831.41     0.045   3538.26    0.035
NH  3945.3      0.05    4331.6
ET                       9.11                                                     2400.0    3370.0
X1     115        68   2512.74   2831.41     520.0     500.0     520.0       1.0       2.2
GR   2670.6   2000.00   2672.42   2017.13   2671.00   2085.12   2670.60   2100.00   2666.22   2171.9
GR   2666.4   2200.00   2665.82   2229.70   2665.56   2286.80   2665.56   2300.00   2665.56   2360.2
GR   2665.7   2400.00   2665.69   2401.23   2665.78   2422.35   2666.00    2500.0    2666.0  2512.74
GR   2662.3   2517.78   2662.50   2585.51   2662.50   2600.00   2661.35    2633.9    2661.8  2700.00
GR   2662.7   2799.99   2662.77   2824.02   2664.63   2831.41   2664.98    2857.4    2663.9  2877.76
GR   2664.4   2893.78   2664.45   2899.99   2664.18   2948.32   2665.20    2973.5    2665.2  2999.99
GR   2665.9   3019.85   2666.58   3045.62   2665.87   3057.92    2665.3   3088.87   2665.34  3099.99
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GR   2665.1   3199.99   2665.07   3299.99   2664.14   3302.7    2665.2    3340.96   2665.38   3393.55
GR   2665.3   3399.99   2664.89   3444.01   2664.89   3491.4    2664.9    3499.99   2664.67   3538.26
GR   2664.8   3599.99   2665.16   3677.92   2665.16   3700.0    2665.5    3749.76   2665.34   3791.15
GR   2665.3   3799.99   2665.42   3835.59   2665.42   3868.4    2665.4    3899.99   2665.65   3916.56
GR   2667.7   3945.33   2667.81   3999.99   2667.90   4002.3    2669.2    4085.43   2669.32   4099.98
GR   2670.0   4146.08   2670.60   4191.23   2670.60   4200.0    2671.3    4243.82   2671.58   4268.87
GR   2672.2   4285.08   2672.20   4299.98   2672.37   4331.6

NH        5      0.06   2756.25      0.035   2952.83      0.03   3255.88     0.035    4300.0      0.05
NH   4683.7
ET               7.11      9.11                                     0.1    4000.0    2800.0    3720.0
X1      116        89   2806.22   3255.88     520.0     460.0     490.0       1.0       2.2
GR   2680.3   2000.00   2680.52   2037.63   2680.56   2081.98   2680.56   2100.00   2679.81    2130.5
GR   2679.7   2182.33   2679.63   2200.00   2679.15   2234.97   2678.62   2260.11   2678.48    2283.7
GR   2677.0   2300.00   2673.04   2327.62   2670.07   2354.13   2670.21   2397.16   2670.21    2400.0
GR   2670.0   2426.42   2670.96   2493.35   2670.96   2500.00   2669.63   2514.33   2670.43    2525.3
GR   2670.3   2546.78   2669.54   2556.56   2670.43   2570.82   2670.29   2598.66   2670.29    2600.0
GR   2669.9   2649.12   2669.98   2700.00   2669.98   2726.06   2669.50   2756.25   2666.18    2800.0
GR   2666.0   2806.22   2666.89   2838.41   2667.64   2890.42   2665.60   2899.71   2665.60    2900.0
GR   2665.6   2926.27   2666.18   2952.83   2664.72   2970.01   2664.72   2999.99   2664.58    3007.6
GR   2663.4   3015.74   2664.23   3022.47   2664.58   3072.53   2663.61   3077.40   2663.61    3100.0
GR   2663.9   3199.99   2664.01   3225.16   2667.77   3255.88   2667.46   3282.71   2667.46    3300.0
GR   2667.4   3339.55   2667.77   3377.35   2667.42   3399.99   2667.42   3405.86   2667.28    3464.0
GR   2666.8   3499.99   2666.22   3558.80   2666.66   3568.49   2666.80   3594.56   2666.80    3600.0
GR   2666.8   3629.67   2665.73   3672.61   2665.73   3699.99   2664.89   3711.74   2665.91    3753.3
GR   2665.4   3773.80   2665.42   3799.99   2666.22   3863.22   2666.31   3899.99   2666.40    4000.0
GR   2666.5   4099.98   2666.80   4199.98   2667.15   4261.48   2670.12   4296.41   2670.12    4300.0
GR   2670.1   4325.31   2670.51   4341.83   2671.09   4384.54   2671.31   4399.98   2672.55    4452.6
GR   2673.2   4495.74   2673.22   4499.98   2673.97   4513.93   2674.72   4532.17   2674.63    4588.9
GR   2674.4   4599.19   2674.37   4599.98   2675.21   4617.52   2675.47    4683.7

NH        6     0.045   2872.14      0.035   2899.99      0.03    3060.2     0.035   3669.82       0.1
NH   3931.1      0.06    4488.1
ET               7.11      9.11                                     0.1    3600.0    2590.0    3430.0
X1      117        75   2872.14    3160.5     530.0     500.0     500.0       1.0       2.2
GR   2675.0   2000.00   2674.76   2087.78   2674.59   2100.00   2673.66   2135.85   2672.99    2160.2
GR   2672.9   2200.00   2672.60   2280.91   2672.60   2300.00   2672.02    2361.4    2672.0   2400.00
GR   2672.3   2417.26   2672.42   2438.15   2671.93    2445.4   2671.31   2488.44   2671.31   2500.00
GR   2671.2    2531.5    2671.1   2551.87   2670.78   2600.00   2671.18    2782.4   2671.53   2812.20
GR   2671.8   2827.56   2672.68    2840.7   2672.06   2872.14   2667.73   2882.41   2667.73   2899.99
GR   2667.9    2936.6    2666.9   2963.19   2667.20   2994.53   2667.11   2999.99   2666.35   3001.31
GR   2666.0    3060.2    2666.0   3088.25   2666.04   3099.99   2666.27   3111.13   2665.29   3147.56
GR   2669.4    3160.5    2668.8   3196.26   2668.79   3199.99   2667.68   3299.99   2667.37   3314.45
GR   2667.9    3400.0    2667.6   3410.15   2667.37   3489.96   2668.13   3499.99   2668.26    3515.7
GR   2668.0   3588.46   2668.08   3599.99   2668.30   3630.29   2670.69   3669.82   2670.78    3700.0
GR   2670.2   3782.43   2670.34    3800.0    2670.9   3838.21   2670.87   3865.21   2671.36   3893.98
GR   2671.3    3900.0    2671.0   3931.12   2669.32   3948.34   2669.10   3967.51   2669.76   3979.28
GR   2669.7    4000.0    2670.3   4072.95   2671.53   4099.98   2671.58   4102.08   2671.75   4152.94
GR   2673.5    4200.0    2672.9   4209.20   2674.15   4260.29   2674.15   4299.98   2675.25   4361.75
GR   2676.1    4393.3    2676.2   4399.98   2676.23   4437.49   2677.60   4477.68   2677.51    4488.1
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NH        6      0.05    2400.00     0.035    2937.56      0.03    3176.9       0.1    3216.93      0.06
NH   3999.9      0.05     4475.8
ET               7.11       9.11                                     0.1    3400.0    2550.0    3340.0
X1     118        81    2937.56    3176.9     520.0     490.0     500.0       1.0       2.2
GR   2695 6   2000.00    2697.03   2026.74   2696.59   2064.67   2695.66   2091.94   2695.79    2100.0
GR   2695.7   2122.97    2695.13   2143.51   2692.16   2200.00   2690.57   2223.77   2687.51    2274.6
GR   2687.4   2296.90    2686.94   2300.00   2684.02   2319.65   2675.03   2346.12   2674.85    2360.5
GR   2673.4   2391.85    2674.72   2396.98   2674.72   2400.00   2673.83   2422.83   2674.41    2425.7
GR   2674.4   2445.28    2674.41   2455.32   2675.16   2467.54   2673.83   2500.00   2672.64    2525.1
GR   2672.6   2600.00    2672.15   2684.62   2672.15   2700.00   2670.87   2705.87   2671.67    2721.9
GR   2671.1   2799.99    2670.91   2880.50   2672.99   2893.74   2672.99   2899.99   2672.99    2909.5
GR   2671.8   2920.65    2672.37   2937.56   2669.67   2946.28   2669.10   2991.83   2669.10    3000.0
GR   2669.6   3031.67    2667.59   3039.11   2668.70   3099.99   2668.39   3162.17   2673.57    3176.9
GR   2673.4   3199.99    2672.20   3216.93   2671.27   3264.61   2672.42   3281.60   2672.46    3300.0
GR   2673.3   3370.36    2673.04   3399.99   2671.62   3442.56   2672.90   3469.34   2674.41    3500.0
GR   2674.6   3509.71    2674.76   3599.99   2675.69   3699.99   2675.47   3712.94   2676.00    3731.1
GR   2675.6   3799.99    2675.25   3834.23   2674.14   3893.94   2674.50   3899.99   2675.25    3942.6
GR   2673.7   3967.73    2673.57   3995.36   2673.57   3999.99   2674.50   4099.98   2674.59    4102.3
GR   2675.2   4162.64    2675.21   4175.79   2676.09   4181.23   2676.22   4199.98   2676.67    4274.2
GR   2676.7   4299.98    2678.04   4399.98   2678.31   4422.92   2677.64   4434.92   2678.62    4457.1
GR   2679.1    4475.8

NH        4     0.045     2430.0     0.035    2900.0      0.03    3120.0      0.05    4330.0
ET                          9.11                                             2450.0    3200.0
X1    118.5        24     2900.0    3120.0     283.0     278.0     280.0       1.0       2.2
GR   2699.6    2000.0     2689.2    2030.0    2682.8    2135.0    2679.3    2221.0    2674.2    2330.0
GR   2673.0    2430.0     2672.4    2530.0    2672.3    2630.0    2672.0    2735.0    2672.9    2831.0
GR   2672.9    2900.0     2669.0    2932.0    2669.7    3030.0    2671.9    3120.0    2675.9    3225.0
GR   2676.7    3332.0     2677.3    3540.0    2677.7    3638.0    2678.2    3732.0    2677.2    3938.0
GR   2677.9    4030.0     2679.2    4130.0    2679.7    4230.0    2680.5    4330.0

NH        5      0.05    2310.09     0.035    2852.26      0.03    3116.62      0.06    4019.03      0.05
NH   4324.5
ET                          9.11                                             2400.0    3150.0
X1     119        76    2852.26    3116.62     215.0     230.0     220.0       1.0       2.2
GR   2685.5   2000.00    2679.59   2054.54   2676.58   2076.32   2676.93   2100.00   2676.95    2102.6
GR   2675.5   2148.03    2674.50   2200.00   2674.45   2217.53   2673.61   2255.86   2674.85    2269.4
GR   2674.7   2288.84    2673.79   2298.84   2673.79   2300.00   2673.04   2310.09   2672.42    2392.2
GR   2672.4   2400.00    2672.33   2500.00   2672.33   2539.87   2673.74   2551.96   2672.59    2564.8
GR   2672.4   2587.50    2672.42   2600.00   2672.24   2651.03   2672.59   2700.00   2672.90    2800.0
GR   2673.4   2820.66    2673.34   2831.85   2674.36   2841.02   2673.88   2852.26   2670.11    2864.0
GR   2670.2   2899.99    2670.42   2999.99   2670.25   3011.89   2669.85   3049.42   2670.78    3054.7
GR   2670.8   3099.99    2670.78   3110.51   2674.89   3116.62   2675.34   3130.25   2677.68    3151.1
GR   2678.6   3189.62    2678.61   3199.99   2679.32   3260.44   2679.32   3299.99   2679.06    3400.0
GR   2679.0   3466.81    2679.01   3484.25   2679.14   3499.99   2679.19   3508.73   2680.12    3578.8
GR   2680.6   3599.99     2680.6   3600.10   2679.14   3616.52   2679.76   3647.42   2680.52    3660.5
GR   2680.6   3699.99    2679.76   3741.35   2679.54   3799.69   2679.54   3799.99   2678.75    3804.8
GR   2678.7   3819.39    2680.07   3825.72   2679.98   3899.99   2681.14   3999.99   2681.14    4007.4
GR   2680.5   4019.03    2680.47   4055.95   2681.31   4074.19   2681.45   4099.98   2681.53    4105.1
GR   2681.8   4181.93    2681.80   4199.98   2681.80   4203.01   2681.80   4226.78   2682.73    4300.0
GR   2683.8    4324.5
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NH	6	0.06	2717.25	0.035	2955.05	0.03	3130.4	0.045	3283.50	0.03
NH	3431.3	0.06	4445.5							
ET			9.11						2560.0	3350.0
X1	120	79	3130.40	3431.31	600.0	570.0	570.0	1.0	2.2	
GR	2682.2	2000.00	2680.29	2100.00	2679.98	2179.85	2679.98	2200.00	2679.59	2272.5
GR	2679.1	2280.65	2680.03	2297.16	2680.03	2300.00	2679.94	2318.19	2679.06	2324.3
GR	2678.5	2376.26	2678.48	2392.16	2678.35	2400.00	2677.06	2500.00	2676.62	2577.6
GR	2675.9	2600.00	2675.16	2653.37	2675.16	2700.00	2675.16	2717.25	2676.22	2739.0
GR	2676.2	2799.99	2676.62	2899.99	2676.62	2900.56	2676.31	2955.05	2670.95	2967.2
GR	2672.3	2999.99	2672.46	3011.13	2672.68	3119.45	2676.97	3130.4	2676.9	3199.99
GR	2676.8	3283.50	2673.17	3294.17	2673.17	3299.99	2672.99	3310.3	2673.65	3367.17
GR	2673.8	3399.99	2673.65	3411.8	2677.2	3431.31	2680.03	3485.18	2679.85	3499.99
GR	2680.1	3538.43	2679.72	3542.5	2679.7	3549.72	2680.56	3573.32	2680.07	3599.99
GR	2679.5	3609.88	2680.34	3648.5	2681.2	3699.43	2681.22	3699.99	2679.81	3731.92
GR	2678.9	3772.74	2680.78	3782.9	2679.1	3789.25	2679.19	3799.99	2679.06	3828.11
GR	2680.6	3869.90	2680.34	3900.0	2680.2	3906.16	2679.50	3930.68	2679.50	3941.21
GR	2680.0	3978.04	2681.53	4000.0	2681.5	4002.57	2681.45	4038.69	2682.38	4052.01
GR	2683.6	4099.98	2683.70	4104.8	2685.0	4162.41	2684.85	4199.98	2684.85	4200.97
GR	2685.3	4252.32	2686.76	4292.0	2686.4	4299.98	2686.31	4302.87	2686.05	4329.03
GR	2687.2	4342.22	2687.33	4400.0	2688.0	4404.68	2688.17	4445.5		

NH	5	0.05	2780.0	0.03	3050.0	0.045	3150.0	0.03	3445.0	0.05
NH	4345.0									
ET			9.11						2590.0	3310.0
X1	120.5	27	2745.0	3050.0	300.0	280.0	285.0	1.0	2.2	
GR	2688.1	2000.0	2687.1	2100.0	2686.9	2140.0	2689.2	2250.0	2680.7	2350.0
GR	2679.0	2450.0	2677.6	2550.0	2677.3	2645.0	2677.9	2745.0	2677.5	2780.0
GR	2676.1	2800.0	2673.4	2850.0	2673.4	2875.0	2678.3	3050.0	2678.1	3150.0
GR	2675.5	3180.0	2675.7	3340.0	2679.9	3445.0	2680.9	3550.0	2682.1	3640.0
GR	2682.7	3745.0	2683.6	3850.0	2684.0	3945.0	2684.3	4045.0	2686.2	4145.0
GR	2688.1	4250.0	2689.4	4345.0						

NH	5	0.06	2600.00	0.03	2893.61	0.045	3099.99	0.03	3219.67	0.05
NH	4228.2									
ET			9.11						2540.0	3190.0
X1	121	92	2600.0	2893.61	250.0	230.0	240.0	1.0	2.2	
GR	2693.3	2000.00	2691.45	2002.48	2691.63	2016.02	2689.77	2023.15	2698.23	2067.4
GR	2698.8	2077.78	2698.27	2094.42	2698.18	2100.00	2696.45	2111.37	2682.87	2188.8
GR	2682.9	2200.00	2682.51	2209.60	2680.78	2297.87	2680.74	2300.00	2679.81	2303.8
GR	2679.8	2320.80	2678.97	2400.00	2677.91	2441.73	2678.66	2469.00	2679.06	2500.0
GR	2679.1	2507.07	2680.56	2527.17	2681.32	2592.20	2679.41	2600.00	2673.88	2612.0
GR	2675.0	2631.90	2675.69	2700.00	2675.78	2746.77	2674.99	2749.74	2674.94	2793.3
GR	2674.4	2797.90	2674.41	2799.99	2675.30	2883.73	2677.15	2893.61	2677.15	2900.0
GR	2677.3	2913.92	2676.84	2924.02	2677.82	2933.67	2677.82	2946.50	2678.66	2964.7
GR	2678.6	2987.14	2678.97	2999.99	2679.06	3006.62	2679.32	3031.32	2678.17	3050.6
GR	2678.7	3076.21	2677.20	3099.99	2676.27	3121.22	2676.71	3132.82	2676.36	3161.9
GR	2676.0	3181.87	2675.43	3199.99	2675.43	3205.24	2678.39	3219.67	2676.23	3226.7
GR	2679.2	3236.45	2679.10	3299.99	2679.06	3305.59	2679.55	3329.05	2680.65	3394.2
GR	2681.4	3399.99	2681.85	3414.75	2681.98	3435.78	2682.73	3448.71	2682.73	3500.0
GR	2683.2	3526.04	2683.88	3573.94	2684.95	3599.99	2684.95	3607.14	2685.65	3653.0

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GR   2685.8   3676.10   2685.74   3699.99   2685.03   3736.57   2685.65   3758.66   2685.61   3800.0
GR   2685.6   3831.57   2685.03   3856.27   2684.68   3899.99   2684.68   3914.26   2685.57   3939.3
GR   2687.0   3987.83   2686.98   3999.99   2686.94   4036.12   2687.91   4064.50   2688.44   4093.8
GR   2689.0   4099.98   2689.42   4129.21   2689.20   4140.72   2689.20   4169.05   2690.30   4185.7
GR   2690.4   4199.98   2690.70    4228.2

NH       4      0.06   2531.68      0.03   2965.80      0.045   3099.99      0.06    4176.9
ET                       9.11                                      0.1                2480.0   3170.0
X1     122        75   2531.68   2965.80     590.0      450.0     490.0       1.0       2.2
GR   2685.8   2000.00   2684.28   2041.04   2683.31   2092.16   2683.31   2100.00   2683.00   2146.6
GR   2682.9   2200.00   2681.67   2277.33   2681.67   2300.00   2679.77   2336.87   2681.63   2354.5
GR   2681.6   2400.00   2681.23   2442.04   2681.18   2473.39   2680.08   2500.00   2680.34   2509.8
GR   2681.1   2531.68   2676.45   2539.21   2676.85   2553.86   2676.36   2556.47   2676.45   2600.0
GR   2676.9   2634.69   2677.95   2642.57   2678.62   2694.94   2678.57   2700.00   2677.16   2713.2
GR   2678.5   2728.09   2678.84   2799.99   2678.75   2869.17   2677.86   2872.31   2677.91   2900.0
GR   2677.9   2938.18   2680.17   2965.80   2679.99   2995.46   2680.39   2999.99   2680.83   3013.2
GR   2680.7   3031.54   2681.49   3048.67   2680.03   3075.19   2679.99   3099.99   2679.59   3111.4
GR   2680.4   3143.69   2681.54   3153.74   2681.23   3172.33   2678.93   3181.85   2678.93   3191.2
GR   2681.8   3199.99   2681.85   3201.99   2681.63   3259.71   2683.35   3299.99   2683.97   3379.0
GR   2684.0   3399.99   2683.97   3406.63   2683.93   3445.54   2683.04   3493.92   2683.04   3500.0
GR   2683.0   3511.94   2684.46   3557.71   2684.99   3599.99   2684.99   3608.13   2686.72   3647.0
GR   2687.4   3699.99   2687.56   3731.77   2687.43   3799.99   2687.96   3899.99   2688.62   3935.2
GR   2688.9   3965.71   2689.33   3986.70   2690.13   3999.99   2690.39   4018.66   2691.67   4060.4
GR   2691.2   4078.20   2691.23   4099.98   2691.37   4113.96   2692.78   4122.68   2693.93   4176.9

NH       4     0.045   2242.71      0.05   2686.88      0.03   2978.42      0.06    4028.6
ET                       9.11                                                       2480.0   3080.0
X1     123        69   2686.88   2978.42     580.0      450.0     510.0       1.0       2.2
GR   2696.2   2000.00   2696.63   2046.66   2696.85   2072.77   2696.85   2097.52   2697.03   2100.0
GR   2698.1   2121.02   2698.89   2161.62   2697.39   2195.57   2697.39   2200.00   2698.05   2208.9
GR   2696.5   2242.71   2692.12   2273.48   2689.46   2300.00   2683.93   2329.56   2683.93   2339.5
GR   2684.7   2345.28   2683.26   2376.97   2684.86   2400.00   2684.15   2432.00   2683.93   2476.2
GR   2684.8   2500.00   2685.26   2515.48   2684.42   2537.17   2685.43   2574.62   2685.43   2600.0
GR   2685.2   2611.14   2685.65   2686.88   2678.97   2700.00   2678.22   2702.86   2680.17   2777.7
GR   2680.1   2799.99   2680.74   2899.99   2680.74   2941.41   2681.67   2955.05   2681.67   2968.4
GR   2683.9   2978.42   2683.62   2999.99   2682.11   3010.82   2683.80   3024.86   2682.73   3037.5
GR   2684.3   3053.32   2684.99   3099.99   2684.86   3107.81   2683.84   3158.26   2684.19   3200.0
GR   2684.5   3206.29   2686.27   3299.99   2687.12   3368.57   2687.12   3399.99   2687.38   3474.5
GR   2687.3   3499.99   2686.36   3504.51   2687.60   3549.40   2687.69   3599.99   2688.09   3642.3
GR   2688.6   3699.99   2689.59   3768.60   2690.04   3799.99   2690.04   3808.80   2691.32   3882.7
GR   2692.8   3890.03   2692.60   3899.99   2692.07   3901.05   2692.38   3927.03   2693.80   3940.8
GR   2693.0   3966.12   2694.02   3999.99   2694.02   4008.04   2695.44    4028.6

NH       5      0.05    2650.1     0.045    2756.0      0.03   2944.38      0.06   3654.34      0.05
NH  3800.1
ET                       9.11                                                       2460.0   2980.0
X1     124        61   2620.88   2944.38     520.0      500.0     510.0       1.0       2.2
GR   2691.6   2000.00   2690.13   2074.94   2690.13   2100.00   2688.49   2198.93   2688.49   2200.0
GR   2686.8   2235.81   2685.26   2266.09   2688.22   2300.00   2687.34   2319.21   2687.51   2353.2
GR   2687.7   2400.00   2687.60   2417.08   2687.43   2500.00   2687.43   2501.80   2686.98   2555.7
GR   2687.2   2600.00   2687.56   2620.88   2685.74   2633.32   2685.74   2644.65   2683.26   2650.1
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GR   2683.5    2661.61    2684.86    2680.46    2684.95    2700.00    2684.95    2735.18    2683.40    2756.0
GR   2683.4    2761.60    2682.25    2764.70    2682.33    2781.74    2683.71    2786.26    2681.98    2791.4
GR   2682.5    2799.99    2682.73    2811.27    2680.39    2857.71    2680.78    2899.99    2680.34    2930.3
GR   2687.6    2944.38    2688.00    2999.99    2689.42    3056.33    2689.11    3091.05    2689.77    3100.0
GR   2690.3    3150.55    2690.26    3199.99    2690.26    3200.92    2691.23    3294.59    2691.23    3300.0
GR   2691.3    3357.41    2692.52    3399.99    2692.52    3406.19    2693.93    3498.57    2693.93    3500.0
GR   2694.9    3557.76    2697.16    3599.99    2697.92    3629.64    2698.14    3654.34    2698.14    3665.0
GR   2698.8    3699.99    2698.80    3703.44    2700.26    3750.58    2699.51    3768.33    2701.32    3800.0
GR   2701.5     3800.1

NH        4       0.05     2578.0      0.035     2775.0       0.03     3070.0       0.05     3508.0
ET                         9.11                                                            2450.0    3070.0
X1    124.5         16     2775.0     3070.0      200.0      270.0      218.0        1.0        2.2
GR   2695.2     2000.0     2692.9     2092.0     2690.6     2200.0     2689.6     2285.0     2689.7    2390.0
GR   2688.6     2470.0     2688.2     2578.0     2685.3     2671.0     2683.9     2775.0     2682.1    2870.0
GR   2685.5     2968.0     2689.6     3070.0     2692.9     3178.0     2697.2     3270.0     2701.0    3480.0
GR   2703.0     3508.0

NH        5       0.05    2751.69      0.045    2799.99      0.035    2899.99       0.03    3142.07      0.05
NH   3672.8
ET                7.11       9.11                                        0.1     3150.0     2540.0    3143.0
X1     125         68    2764.84    3142.07      220.0      250.0      230.0        1.0        2.2
GR   2696.8    2000.00    2698.14    2036.56    2697.07    2100.00    2696.90    2104.65    2695.30    2176.5
GR   2695.1    2200.00    2693.09    2226.11    2691.23    2281.62    2691.23    2300.00    2689.59    2331.3
GR   2689.9    2378.12    2689.99    2400.00    2689.86    2437.09    2689.81    2492.33    2689.81    2500.0
GR   2689.7    2537.08    2688.89    2600.00    2688.35    2601.23    2689.15    2639.78    2689.37    2680.9
GR   2689.4    2700.00    2688.22    2722.83    2686.85    2751.69    2687.47    2764.84    2685.79    2797.9
GR   2685.8    2799.99    2686.67    2803.83    2686.01    2823.22    2686.67    2844.20    2685.26    2876.9
GR   2685.3    2899.99    2684.68    2945.26    2683.71    2972.22    2683.35    2999.99    2683.35    3003.0
GR   2682.5    3014.81    2682.94    3051.02    2683.09    3092.36    2683.09    3099.99    2682.25    3128.6
GR   2687.7    3142.07    2688.97    3180.98    2689.42    3199.99    2689.95    3242.34    2691.81    3251.0
GR   2689.1    3263.54    2689.68    3291.07    2695.44    3299.99    2694.86    3307.01    2694.77    3318.1
GR   2697.8    3332.64    2697.74    3344.77    2702.39    3399.99    2702.74    3404.66    2703.32    3438.3
GR   2702.8    3461.28    2701.72    3487.57    2702.25    3499.99    2702.61    3510.72    2701.46    3523.7
GR   2702.6    3538.57    2703.14    3550.65    2704.11    3575.97    2706.02    3585.89    2706.59    3600.0
GR   2706.7    3606.38    2709.51    3660.39    2711.20     3672.8

NH        5      0.045    2300.00       0.05    2865.66      0.035     2906.4       0.03    3117.63      0.05
NH   3938.3
ET                7.11       9.11                                        0.1      3130     2700.0    3120.0
X1     126         71    2865.66    3117.63      480.0      570.0      510.0        1.0        2.2
GR   2701.3    2000.00    2701.06    2037.76    2700.88    2077.29    2701.06    2097.08    2701.01    2100.0
GR   2699.4    2127.53    2699.86    2144.75    2698.71    2190.92    2698.54    2200.00    2697.83    2239.7
GR   2696.3    2286.67    2696.28    2300.00    2695.75    2343.55    2694.42    2373.74    2694.29    2399.8
GR   2694.3    2400.00    2692.43    2448.15    2691.54    2472.01    2691.59    2494.77    2691.59    2500.0
GR   2691.3    2509.42    2691.05    2552.93    2691.81    2576.66    2691.81    2600.00    2691.81    2614.6
GR   2691.2    2683.07    2691.32    2700.00    2691.59    2725.47    2691.85    2777.66    2691.85    2794.0
GR   2691.9    2799.99    2692.74    2865.66    2688.89    2876.69    2688.75    2899.99    2688.71    2906.4
GR   2685.3    2917.15    2684.64    2999.99    2684.42    3014.84    2686.23    3034.28    2686.19    3057.5
GR   2684.4    3078.81    2685.39    3099.99    2685.34    3100.63    2693.80    3117.63    2693.45    3140.0
GR   2696.3    3161.98    2691.85    3189.47    2691.85    3199.99    2692.16    3299.99    2692.47    3316.9
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GR   2693.7   3348.52   2692.52   3399.99   2692.52   3403.37   2693.45   3430.55   2694.38   3487.3
GR   2694.8   3499.99   2695.53   3553.39   2696.28   3599.99   2696.77   3618.77   2698.09   3685.7
GR   2698.2   3699.99   2698.23   3716.20   2699.69   3759.67   2700.22   3785.34   2700.22   3800.0
GR   2699.5   3811.46   2700.88   3830.05   2700.57   3865.20   2700.79   3899.99   2701.01   3915.8
GR   2701.4    3938.3

NH       5      0.05   2300.00      0.07   2544.69      0.05   2669.96      0.03   2890.41      0.06
NH   3854.0
ET              7.11      9.11                                   0.1    2955.0    2540.0    2950.0
X1     127        77   2669.96   2890.41     500.0     540.0     510.0       1.0       2.2
GR   2701.9   2000.00   2701.63   2011.64   2700.31   2039.97   2699.07   2049.27   2700.31   2058.6
GR   2699.6   2100.00   2698.62   2122.40   2696.59   2192.56   2696.54   2200.00   2696.10   2208.2
GR   2694.7   2260.11   2694.99   2299.91   2694.99   2300.00   2693.58   2350.19   2693.84   2400.0
GR   2693.8   2402.07   2693.84   2442.12   2694.06   2477.54   2694.06   2500.00   2694.06   2511.2
GR   2694.1   2544.69   2692.83   2562.39   2694.02   2577.18   2694.15   2594.71   2694.15   2600.0
GR   2694.3   2628.93   2694.06   2642.92   2694.99   2669.96   2685.96   2681.47   2684.99   2691.7
GR   2685.0   2700.00   2685.34   2720.91   2686.89   2736.27   2687.38   2754.02   2687.16   2790.3
GR   2687.7   2799.99   2687.78   2804.75   2687.60   2841.58   2686.23   2867.43   2687.56   2874.7
GR   2695.3   2890.41   2695.22   2899.99   2695.17   2920.11   2693.14   2954.68   2693.58   2973.8
GR   2693.2   2999.99   2692.91   3015.68   2696.90   3036.67   2696.81   3071.28   2699.20   3087.0
GR   2699.3   3099.99   2700.88   3121.04   2701.19   3172.39   2706.24   3192.48   2706.19   3200.0
GR   2706.1   3203.77   2703.36   3219.40   2703.14   3299.99   2703.14   3399.99   2703.14   3486.9
GR   2705.2   3499.99   2705.62   3509.12   2707.48   3537.23   2707.88   3569.06   2707.57   3600.0
GR   2706.9   3606.28   2705.71   3650.99   2705.57   3669.90   2706.11   3696.59   2706.42   3700.0
GR   2707.4   3737.89   2706.90   3756.39   2707.70   3781.31   2708.50   3799.99   2708.67   3805.5
GR   2712.0   3844.17   2713.67    3854.0

NH       3     0.045    2542.3      0.03   2751.19     0.045    3768.1
ET                        9.11                                            2370.0    2825.0
X1     128        87    2542.3   2751.19     400.0     390.0     400.0       1.0       2.2
GR   2702.9   2000.00   2702.70   2025.37   2703.36   2061.71   2702.17   2074.94   2700.40   2086.1
GR   2702.3   2100.00   2702.21   2102.57   2701.94   2137.71   2701.63   2174.19   2699.86   2199.0
GR   2699.9   2200.00   2697.61   2241.43   2694.24   2278.92   2695.84   2293.00   2695.92   2300.0
GR   2696.1   2333.41   2696.32   2365.23   2696.06   2400.00   2696.06   2405.78   2696.46   2432.3
GR   2696.2   2480.01   2696.19   2500.00   2695.92   2505.60   2692.69   2525.83   2696.01   2542.3
GR   2690.1   2552.39   2689.28   2565.32   2689.73   2581.25   2689.59   2592.54   2689.55   2600.0
GR   2687.6   2602.06   2688.53   2618.79   2688.40   2700.00   2687.78   2717.28   2687.78   2729.3
GR   2696.7   2751.19   2696.81   2770.40   2697.39   2787.71   2697.21   2799.99   2696.19   2800.9
GR   2693.7   2811.57   2694.11   2845.26   2695.08   2868.01   2694.60   2882.97   2693.58   2890.2
GR   2693.8   2899.99   2693.84   2900.37   2701.10   2918.69   2703.67   2957.12   2703.67   3000.0
GR   2703.7   3005.90   2705.09   3064.02   2705.09   3098.42   2705.09   3099.99   2703.67   3115.9
GR   2703.1   3120.37   2703.05   3146.22   2705.66   3163.44   2706.77   3187.79   2706.77   3200.0
GR   2705.8   3211.56   2705.49   3237.06   2708.50   3262.78   2712.04   3293.28   2712.92   3300.0
GR   2713.5   3319.17   2716.15   3356.40   2718.01   3399.99   2718.41   3408.50   2719.43   3417.5
GR   2718.9   3445.20   2719.39   3466.62   2716.95   3499.99   2716.77   3506.15   2712.52   3536.8
GR   2714.8   3561.57   2712.97   3599.99   2712.92   3601.50   2711.68   3618.90   2711.68   3641.7
GR   2711.7   3650.11   2711.51   3664.49   2712.52   3697.83   2712.48   3699.99   2712.48   3724.3
GR   2717.9   3762.32   2718.28    3768.1
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NH	4	0.05	2524.42	0.03	2763.55	0.05	2918.0	0.045	3834.4	
ET			9.11						2295.0	2795.0
X1	129	66	2524.42	2763.55	390.0	400.0	390.0	1.0	2.2	
GR	2708.3	2000.00	2707.43	2028.07	2707.43	2038.34	2703.49	2050.07	2703.49	2100.0
GR	2703.5	2144.88	2699.47	2173.35	2699.47	2200.00	2699.33	2218.37	2699.47	2245.5
GR	2698.8	2300.00	2698.76	2304.02	2698.67	2377.55	2698.67	2400.00	2698.98	2439.3
GR	2699.6	2486.49	2699.55	2500.00	2698.89	2524.42	2695.17	2593.92	2694.77	2600.0
GR	2690.9	2625.57	2689.99	2700.00	2688.53	2745.49	2698.54	2763.55	2698.54	2800.0
GR	2697.9	2820.83	2696.77	2856.47	2694.86	2879.00	2700.44	2899.99	2702.08	2918.0
GR	2702.4	2959.61	2701.59	2979.70	2702.83	2999.99	2703.18	3023.62	2704.78	3035.5
GR	2706.6	3082.84	2706.64	3099.99	2706.68	3117.77	2709.34	3162.97	2710.36	3175.1
GR	2715.0	3199.99	2714.74	3200.42	2716.20	3239.55	2717.17	3256.81	2718.50	3270.9
GR	2720.1	3299.99	2719.83	3316.97	2722.97	3399.99	2723.77	3422.32	2724.96	3482.3
GR	2725.2	3499.99	2726.51	3529.45	2727.71	3567.30	2727.71	3599.99	2727.40	3603.5
GR	2727.9	3615.24	2727.22	3637.90	2728.77	3653.22	2728.46	3696.16	2728.46	3700.0
GR	2727.8	3737.90	2726.82	3776.06	2726.87	3799.99	2726.42	3808.06	2725.41	3817.1
GR	2727.4	3834.4								

NH	6	0.05	2152.85	0.035	2328.1	0.03	2471.08	0.035	2685.2	0.05
NH	2985.7	0.045	3870.8							
ET		7.11	9.11				0.1	2770.0	2250.0	2720.0
X1	130	79	2310.97	2471.08	500.0	500.0	500.0	1.0	2.2	
GR	2704.2	2000.00	2706.73	2025.28	2704.07	2068.88	2703.72	2094.55	2703.72	2100.0
GR	2702.3	2121.20	2696.15	2152.85	2696.15	2174.76	2696.15	2200.00	2696.01	2209.6
GR	2695.4	2252.98	2695.17	2291.23	2695.17	2300.00	2694.69	2310.97	2688.62	2328.1
GR	2690.4	2350.15	2690.52	2370.82	2690.52	2396.36	2690.88	2400.00	2693.40	2430.5
GR	2695.9	2471.08	2696.77	2500.00	2696.72	2508.44	2696.46	2530.58	2696.46	2550.8
GR	2696.5	2600.00	2697.12	2608.53	2695.44	2618.53	2696.06	2635.44	2703.10	2685.2
GR	2702.7	2700.00	2701.68	2718.40	2702.17	2736.22	2702.81	2775.26	2702.0	2800.0
GR	2702.0	2813.37	2702.64	2861.71	2702.82	2890.75	2702.82	2899.99	2702.48	2939.6
GR	2703.0	2947.32	2703.85	2985.70	2703.85	2999.99	2703.54	3017.88	2703.19	3051.7
GR	2706.4	3063.17	2706.24	3099.99	2706.24	3102.26	2706.24	3141.08	2705.93	3166.6
GR	2706.6	3199.99	2706.59	3200.13	2707.79	3224.92	2711.64	3250.41	2710.40	3278.2
GR	2710.3	3299.99	2709.78	3314.91	2711.64	3326.46	2714.34	3362.76	2714.34	3391.9
GR	2714.6	3399.99	2715.05	3423.41	2717.70	3449.08	2716.24	3479.23	2716.46	3500.0
GR	2716.5	3502.47	2717.53	3532.13	2719.65	3567.01	2721.25	3599.99	2721.16	3620.6
GR	2722.5	3656.03	2724.48	3685.24	2724.79	3699.99	2725.05	3713.31	2725.81	3752.2
GR	2727.2	3794.63	2727.31	3799.99	2728.68	3845.89	2728.90	3870.8		

NH	6	0.07	2256.61	0.035	2300.00	0.03	2475.51	0.035	2567.19	0.05
NH	2910.2	0.045	3807.4							
ET		7.11	9.11				0.1	2750.0	2290.0	2690.0
X1	131	93	2300.0	2475.51	420.0	300.0	380.0	1.0	2.2	
GR	2711.3	2000.00	2711.28	2040.64	2711.99	2060.42	2711.64	2087.47	2711.55	2100.0
GR	2710.5	2124.34	2711.15	2157.32	2710.84	2188.97	2710.84	2200.00	2708.98	2228.9
GR	2699.2	2256.61	2698.89	2294.90	2697.92	2300.00	2692.25	2312.08	2692.25	2319.1
GR	2691.5	2323.81	2692.52	2342.18	2692.16	2371.26	2694.20	2396.41	2694.42	2400.0
GR	2694.5	2415.04	2697.12	2475.51	2699.16	2500.00	2699.47	2507.74	2698.93	2532.4
GR	2697.2	2540.23	2700.84	2567.19	2701.41	2585.78	2701.41	2600.00	2701.32	2618.7
GR	2703.4	2638.45	2702.43	2657.75	2702.21	2674.09	2702.74	2691.17	2702.25	2700.0
GR	2701.1	2725.57	2702.12	2748.06	2701.68	2772.80	2700.70	2796.53	2700.70	2800.0

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GR   2702.1   2830.21   2702.17   2843.98   2701.63   2870.76   2703.09   2899.99   2703.27   2910.2
GR   2703.3   2945.88   2703.36   2976.34   2706.19   2997.85   2706.19   2999.99   2706.19   3028.3
GR   2705.9   3070.40   2705.97   3099.88   2706.02   3099.99   2708.10   3114.05   2709.29   3161.9
GR   2711.2   3180.36   2711.15   3199.99   2711.11   3223.70   2710.93   3259.55   2713.81   3271.9
GR   2713.7   3289.65   2712.30   3293.11   2712.30   3299.99   2712.30   3315.20   2714.25   3324.4
GR   2716.0   3349.15   2718.59   3356.72   2715.76   3363.27   2717.84   3387.31   2720.31   3400.0
GR   2720.0   3412.23   2717.30   3433.83   2718.72   3440.20   2721.02   3457.03   2720.23   3473.9
GR   2724.6   3493.86   2724.61   3499.99   2724.48   3515.94   2724.39   3529.31   2724.21   3557.5
GR   2720.5   3585.09   2720.14   3599.99   2720.14   3605.67   2721.16   3618.64   2722.22   3628.2
GR   2722.8   3650.47   2723.37   3665.92   2723.37   3699.99   2724.92   3729.09   2726.07   3751.6
GR   2726.0   3770.12   2727.09   3799.99   2727.62    3807.4


NH        5      0.05    2329.1     0.035    2421.2      0.03   2593.35      0.06   3599.99     0.045
NH   3649.0
ET              7.11      9.11                                     0.1     2700.0    2400.0    2680.0
X1     132        75    2421.2   2593.35     530.0     170.0     420.0       1.0       2.2
GR   2726.3   2000.00   2725.32   2036.65   2722.84   2051.17   2723.90   2073.39   2724.39   2095.4
GR   2724.4   2100.00   2724.70   2129.26   2724.48   2184.55   2724.03   2200.00   2723.55   2205.8
GR   2721.5   2237.18   2715.98   2272.11   2708.85   2298.98   2708.85   2300.00   2704.33   2329.1
GR   2704.3   2356.43   2705.22   2374.49   2704.82   2400.00   2704.56   2400.08   2703.85   2421.2
GR   2698.8   2433.90   2699.02   2444.48   2696.46   2450.77   2696.85   2462.58   2694.11   2471.5
GR   2694.1   2500.00   2694.11   2502.07   2693.36   2510.44   2693.09   2549.88   2695.48   2563.4
GR   2703.7   2593.35   2703.72   2600.00   2703.63   2612.38   2702.92   2667.05   2702.87   2699.8
GR   2702.9   2700.00   2704.11   2734.51   2704.33   2799.76   2704.42   2799.99   2705.75   2826.1
GR   2708.5   2880.19   2708.50   2899.99   2708.67   2928.26   2710.05   2975.01   2710.62   3000.0
GR   2710.8   3014.89   2710.13   3038.31   2709.60   3056.50   2711.46   3081.47   2711.77   3100.0
GR   2712.7   3116.35   2713.90   3163.41   2714.43   3188.11   2715.18   3199.99   2716.15   3223.7
GR   2716.2   3258.14   2716.60   3292.31   2716.60   3299.99   2717.61   3320.86   2718.23   3343.2
GR   2716.9   3377.43   2718.32   3399.99   2718.77   3406.69   2721.42   3441.62   2721.42   3475.0
GR   2722.3   3499.99   2723.41   3511.69   2723.90   3512.53   2724.12   3527.45   2722.44   3541.7
GR   2724.2   3558.39   2724.87   3592.70   2725.14   3599.99   2725.85   3632.32   2726.11   3649.0


NH        5      0.07   2343.29      0.06    2605.8      0.03   2741.20      0.06   3419.66     0.045
NH   3505.7
ET                      9.11                                                        2400.0    2800.0
X1     133        70    2605.8   2741.20     410.0     400.0     400.0       1.0       2.2
GR   2718.1   2000.00   2716.95   2013.68   2716.95   2029.79   2712.75   2044.62   2712.75   2100.0
GR   2712.7   2160.91   2720.36   2170.20   2719.78   2200.00   2719.78   2200.31   2708.14   2250.4
GR   2707.8   2300.00   2707.79   2324.74   2707.79   2327.84   2707.52   2343.29   2706.99   2350.5
GR   2708.1   2374.14   2707.97   2398.57   2707.97   2400.00   2707.08   2470.64   2706.90   2500.0
GR   2706.5   2530.71   2706.15   2568.56   2705.58   2581.97   2705.04   2600.00   2705.04   2605.8
GR   2698.2   2623.23   2697.92   2637.22   2697.52   2649.30   2700.35   2667.09   2701.28   2681.5
GR   2700.6   2689.89   2700.04   2699.81   2700.04   2700.00   2699.91   2705.21   2696.28   2711.0
GR   2696.3   2716.50   2695.31   2721.76   2697.25   2724.24   2696.06   2731.81   2696.68   2740.3
GR   2700.3   2741.20   2702.65   2760.72   2703.36   2774.75   2710.27   2791.79   2710.22   2800.0
GR   2710.1   2816.14   2710.53   2837.21   2711.02   2865.09   2711.73    2900.0   2711.73  2900.15
GR   2713.1   2970.27   2713.28   2998.33   2713.37   2999.99   2714.47   3032.42   2716.20   3078.4
GR   2716.6   3099.99   2716.73   3141.67   2716.91   3171.81   2718.01   3199.99   2718.24   3203.6
GR   2718.9   3260.39   2720.01   3289.34   2720.49   3299.99   2721.95   3339.05   2722.35   3367.1
GR   2723.1   3399.99   2723.90   3419.66   2724.52   3450.16   2725.54   3499.99   2725.63   3505.7
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NH	6	0.07	2400.00	0.06	2676.13	0.035	2722.69	0.03	2883.12	0.06
NH	3151.2	0.045	3304.9							
ET			9.11						2340.0	2840.0
X1	134	62	2722.69	2883.12	400.0	450.0	400.0	1.0	2.2	
GR	2721.3	2000.00	2718.85	2019.17	2718.85	2030.68	2720.67	2046.48	2720.36	2058.4
GR	2717.6	2066.18	2715.49	2073.00	2712.75	2084.24	2712.75	2100.00	2712.75	2175.3
GR	2722.8	2189.59	2722.84	2200.00	2721.16	2215.45	2707.12	2288.00	2707.12	2300.0
GR	2707.1	2325.62	2708.72	2381.27	2710.62	2398.31	2710.62	2400.00	2710.18	2432.3
GR	2709.6	2468.34	2709.56	2495.78	2709.82	2500.00	2710.44	2523.05	2708.45	2548.6
GR	2708.3	2593.17	2708.28	2600.00	2708.28	2616.63	2707.12	2622.61	2709.96	2635.4
GR	2709.0	2647.35	2710.84	2663.82	2709.34	2676.13	2707.57	2688.52	2709.12	2700.0
GR	2709.6	2704.90	2708.36	2708.79	2710.09	2722.69	2706.81	2743.59	2705.04	2768.3
GR	2704.3	2778.60	2704.34	2787.99	2703.10	2799.99	2701.37	2810.21	2700.88	2862.6
GR	2719.2	2883.12	2719.21	2899.99	2719.21	2919.19	2720.09	2944.35	2720.09	2983.5
GR	2720.4	2999.99	2720.98	3021.06	2721.95	3072.90	2722.35	3099.99	2722.35	3106.2
GR	2722.9	3151.25	2723.33	3174.71	2724.57	3199.99	2724.57	3208.49	2725.58	3262.5
GR	2726.6	3299.99	2726.73	3304.9						

NH	4	0.07	2483.12	0.03	2785.15	0.06	3060.2	0.045	3238.8	
ET		7.11	9.11				0.1	3000.0	2370.0	2790.0
X1	135	48	2600.00	2785.15	380.0	450.0	410.0	1.0	2.2	
GR	2725.2	2000.00	2725.18	2004.87	2723.55	2019.88	2722.88	2036.6	2720.8	2046.21
GR	2720.0	2065.20	2720.09	2100.00	2719.92	2133.33	2719.87	2157.5	2716.51	2200.00
GR	2718.1	2212.83	2715.67	2248.03	2714.52	2295.2	2713.3	2300.00	2712.56	2400.00
GR	2711.7	2455.24	2711.46	2483.12	2711.46	2500.0	2710.8	2516.77	2711.64	2569.09
GR	2712.7	2600.00	2712.39	2624.55	2706.42	2647.1	2705.4	2700.00	2704.16	2724.24
GR	2702.8	2752.04	2714.78	2785.15	2716.33	2800.0	2716.8	2824.24	2717.39	2870.36
GR	2717.1	2880.28	2717.75	2896.70	2717.79	2900.0	2719.0	2999.62	2718.99	2999.99
GR	2719.1	3031.63	2716.99	3037.51	2716.33	3060.2	2715.8	3080.81	2713.98	3099.99
GR	2714.3	3109.93	2712.44	3115.47	2712.92	3143.1	2712.8	3153.67	2715.84	3167.17
GR	2717.4	3199.99	2717.84	3207.94	2718.85	3238.8				

NH	3	0.05	2561.9	0.03	2724.1	0.045	3203.4			
ET			9.11						2540.0	2750.0
X1	136	57	2561.9	2724.1	400.0	410.0	410.0	1.0	2.2	
GR	2735.6	2000.00	2734.83	2020.05	2733.02	2031.61	2735.37	2044.18	2734.83	2073.7
GR	2733.9	2088.18	2732.13	2095.84	2732.49	2100.00	2733.37	2119.43	2734.35	2153.1
GR	2734.3	2179.63	2735.14	2196.23	2735.14	2200.00	2734.83	2225.23	2733.86	2253.4
GR	2733.0	2275.82	2731.34	2300.00	2730.19	2332.62	2729.26	2358.91	2727.49	2383.8
GR	2726.2	2400.00	2726.25	2405.48	2725.89	2437.13	2720.80	2456.25	2720.49	2484.6
GR	2716.8	2500.00	2716.60	2505.08	2714.12	2536.77	2711.59	2546.60	2713.19	2561.9
GR	2706.9	2585.51	2706.46	2600.00	2705.93	2621.10	2705.35	2639.38	2705.09	2669.9
GR	2705.1	2680.66	2706.42	2689.12	2706.42	2700.00	2706.42	2705.67	2712.21	2724.1
GR	2713.5	2748.83	2718.50	2799.99	2719.43	2824.97	2719.43	2835.82	2720.80	2839.8
GR	2723.9	2878.58	2726.60	2899.99	2727.49	2925.77	2733.42	2999.99	2737.00	3057.7
GR	2738.7	3099.99	2738.91	3102.57	2741.56	3132.22	2743.69	3146.74	2745.41	3177.8
GR	2745.7	3199.99	2745.72	3203.4						

NH	4	0.045	2453.24	0.03	2566.39	0.06	2622.92	0.05	3096.2	
ET			9.11						2450.0	2620.0
X1	137	54	2424.65	2566.39	380.0	380.0	380.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2747.1	2000.00	2746.43	2048.21	2747.10	2087.12	2746.25	2100.00	2746.25	2101.8
GR	2746.9	2137.67	2746.92	2170.51	2745.81	2199.82	2745.81	2200.00	2745.15	2240.8
GR	2742.4	2264.49	2738.24	2300.00	2738.15	2302.83	2736.34	2322.48	2735.19	2352.6
GR	2732.2	2372.68	2724.79	2400.00	2724.61	2403.84	2722.44	2415.88	2720.54	2419.6
GR	2720.5	2424.65	2716.73	2434.43	2710.93	2453.24	2710.53	2455.15	2706.19	2459.1
GR	2705.8	2500.00	2708.14	2514.33	2708.01	2553.37	2712.97	2566.39	2714.43	2593.2
GR	2715.8	2600.00	2718.94	2622.92	2724.52	2662.31	2727.18	2684.62	2727.84	2700.0
GR	2730.5	2726.15	2734.44	2760.05	2734.88	2775.90	2737.89	2794.71	2737.93	2800.0
GR	2739.4	2821.01	2741.21	2853.54	2742.54	2882.45	2744.71	2898.03	2744.71	2900.0
GR	2744.7	2909.94	2746.65	2923.49	2748.11	2954.03	2750.68	2983.25	2751.83	3000.0
GR	2753.9	3022.78	2756.66	3050.93	2758.47	3088.82	2759.27	3096.2		

NH	4	0.045	2243.51	0.06	2400.0	0.035	2550.50	0.05	3083.0	
ET			9.11						2370.0	2570.0
X1	138	63	2400.0	2550.50	410.0	380.0	400.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2738.1	2000.00	2736.12	2012.88	2732.49	2042.10	2728.77	2066.62	2730.27	2079.1
GR	2730.8	2100.00	2730.01	2104.91	2728.99	2125.27	2728.64	2142.72	2728.77	2160.8
GR	2729.0	2180.43	2728.50	2188.31	2730.05	2200.00	2731.25	2210.18	2731.38	2218.1
GR	2730.3	2231.69	2728.86	2243.51	2727.04	2253.43	2727.09	2277.95	2720.93	2294.1
GR	2720.2	2300.00	2719.87	2314.29	2721.47	2336.03	2721.16	2344.44	2717.84	2357.7
GR	2715.3	2364.58	2716.38	2372.72	2715.62	2381.62	2716.60	2399.95	2716.60	2400.0
GR	2713.0	2443.42	2715.14	2453.69	2713.32	2468.12	2711.59	2487.24	2709.07	2495.7
GR	2709.1	2500.00	2709.07	2507.29	2716.46	2550.50	2719.78	2555.19	2722.79	2578.0
GR	2725.8	2600.00	2729.52	2621.10	2733.20	2645.49	2735.32	2677.72	2736.56	2700.0
GR	2737.4	2708.84	2737.89	2723.27	2737.89	2733.63	2741.25	2755.45	2744.79	2787.0
GR	2745.8	2799.99	2745.55	2806.18	2740.28	2843.01	2746.56	2881.65	2749.00	2900.0
GR	2750.4	2921.85	2754.58	2961.78	2755.29	2977.67	2756.30	2999.62	2756.30	3000.0
GR	2759.4	3026.01	2761.53	3063.99	2761.97	3083.0				

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NH	4	0.05	2099.6	0.07	2300.00	0.035	2472.06	0.05	2950.5	
ET			9.11						2240.0	2450.0
X1	139	54	2270.0	2432.9	420.0	400.0	400.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2749.8	2000.00	2750.06	2004.56	2744.40	2054.80	2737.40	2088.22	2732.84	2099.6
GR	2732.8	2100.00	2727.40	2131.34	2727.13	2145.90	2725.89	2200.00	2725.89	2203.5
GR	2725.0	2241.43	2723.28	2274.14	2722.04	2300.00	2721.33	2303.49	2720.27	2314.3
GR	2721.2	2328.55	2720.58	2345.19	2720.40	2370.02	2717.44	2377.73	2717.53	2388.7
GR	2719.6	2400.00	2721.87	2411.81	2721.82	2418.63	2723.99	2422.35	2723.72	2432.9
GR	2717.9	2447.00	2718.01	2459.75	2726.34	2472.06	2727.40	2484.19	2726.29	2498.1
GR	2726.1	2500.00	2726.16	2503.62	2732.31	2517.70	2735.32	2542.18	2735.32	2563.6
GR	2736.6	2587.15	2739.79	2600.00	2740.28	2606.49	2742.80	2635.40	2745.28	2658.9
GR	2745.8	2670.28	2747.36	2677.14	2749.31	2700.00	2751.13	2719:24	2752.72	2737.9
GR	2754.6	2773.25	2756.04	2799.99	2756.13	2807.99	2758.34	2846.64	2760.38	2879.6
GR	2763.3	2899.99	2762.77	2907.02	2766.26	2935.44	2768.26	2950.5		

NH	4	0.05	2216.77	0.07	2453.16	0.03	2539.8	0.05	2933.6	
ET			9.11						2390.0	2590.0
X1	140	52	2416.8	2539.80	380.0	420.0	400.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2755.1	2000.00	2752.50	2033.29	2750.24	2059.98	2747.85	2088.89	2746.48	2100.0
GR	2746.0	2116.47	2743.38	2130.50	2743.78	2154.05	2740.99	2178.79	2740.59	2200.0
GR	2740.6	2200.39	2740.02	2216.77	2737.54	2244.93	2737.18	2269.54	2736.34	2300.0
GR	2735.0	2322.13	2734.22	2346.07	2732.58	2373.70	2732.14	2400.00	2731.61	2416.8
GR	2726.5	2425.67	2724.92	2442.40	2725.10	2453.16	2720.54	2466.04	2722.13	2485.5
GR	2724.7	2495.43	2724.66	2500.00	2724.17	2513.05	2723.20	2519.47	2728.64	2539.8
GR	2730.0	2559.04	2728.46	2563.95	2730.06	2572.59	2729.75	2582.72	2728.95	2598.2
GR	2728.9	2600.00	2729.97	2609.02	2731.92	2632.57	2738.87	2662.89	2740.33	2694.4
GR	2741.0	2700.00	2741.30	2716.45	2741.88	2725.26	2745.86	2762.58	2748.56	2795.1
GR	2748.8	2799.99	2749.71	2820.21	2753.78	2861.47	2756.48	2889.80	2756.88	2900.0
GR	2758.5	2918.17	2760.20	2933.6						

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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 8.000

3265 DIVIDED FLOW

     8.000     11.79   2445.20   2441.84   2445.20   2445.68       .48       .00       .00   2440.23
   34000.0    3330.5   26167.0    4502.5    1474.2    4207.3    2378.3        .0        .0   2441.02
       .00      2.26      6.22      1.89      .050      .030      .059      .000   2433.41   2228.19
   .000829      515.      510.      505.         0        18         0       .00   1509.97   4144.21


1490 NH CARD USED
*SECNO 8.500
     8.500     10.02   2445.42   2443.05       .00   2446.06       .64       .33       .05   2442.20
   34000.0    1537.9   28710.2    3751.9     592.2    4153.5    1874.8      52.9      10.6   2442.20
       .01      2.60      6.91      2.00      .035      .031      .065      .000   2435.40   2689.00
   .001419      340.      310.      310.         2        14         0       .00   1401.25   4090.25


1490 NH CARD USED
*SECNO 9.000

3265 DIVIDED FLOW

     9.000      9.74   2445.63   2443.28       .00   2446.36       .73       .27       .03   2443.59
   34000.0     259.0   29939.7    3801.4     262.1    4126.6    1514.9      80.3      16.4   2443.00
       .02       .99      7.26      2.51      .080      .030      .050      .000   2435.89   2498.57
   .001461      190.      190.      190.         0        15         0       .00   1236.37   3973.52


1490 NH CARD USED
*SECNO 9.500

3301 HV CHANGED MORE THAN HVINS
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .58

    9.500      8.05   2445.65   2444.90       .00   2447.22      1.57       .61       .25   2442.20
  34000.0     627.4   31208.2    2164.4     201.4    2995.8     471.0     108.8      22.6   2442.20
      .03      3.12     10.42      4.60      .045      .032      .035      .000   2437.60   2798.42
 .004298      260.      260.      260.         2        19         0       .00    856.12   3654.53


FLOW DISTRIBUTION FOR SECNO=      9.50          CWSEL=   2445.65

STA=    2798.    2915.    3030.    3390.    3460.    3560.    3655.
  PER Q=      1.8     12.4     79.4      4.1      1.9       .4
   AREA=    201.4    627.2   2368.6    206.8    195.4     68.7
    VEL=      3.1      6.7     11.4      6.7      3.4      1.8
  DEPTH=      1.7      5.5      6.6      3.0      2.0       .7

1490 NH CARD USED
*SECNO 10.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

   10.000      8.42   2446.18   2445.98       .00   2448.53      2.36      1.08       .24   2444.90
  34000.0      24.0   30296.7    3679.3      41.5    2336.2     891.8     128.1      27.4   2442.09
      .03       .58     12.97      4.13      .100      .030      .050      .000   2437.76   2819.24
 .004682      240.      240.      250.         2         5         0       .00    832.61   3731.70


FLOW DISTRIBUTION FOR SECNO=     10.00          CWSEL=   2446.18

STA=    2819.    3035.    3345.    3400.    3500.    3732.
  PER Q=       .1     89.1      3.9      3.9      3.0
   AREA=     41.5   2336.2    243.7    305.6    342.6
    VEL=       .6     13.0      5.5      4.4      2.9
  DEPTH=       .2      7.5      4.4      3.1      1.5

1490 NH CARD USED
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 10.500

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.51

    10.500     10.52   2448.32   2446.05       .00   2449.41       1.09        .75        .13   2447.60
   34000.0      15.3   32173.9    1810.8      41.1    3746.2      672.5      150.5       32.3   2444.40
       .04       .37      8.59      2.69      .100      .030       .050       .000    2437.80   2895.33
   .002053      250.      250.      260.         3         5          0        .00     874.06   3769.39


FLOW DISTRIBUTION FOR SECNO=     10.50          CWSEL=   2448.32

STA=    2895.    3000.    3500.    3595.    3700.    3769.
  PER Q=        .0     94.6      3.1      2.0       .3
   AREA=      40.8   3746.2    333.7    269.0     69.8
    VEL=        .4      8.6      3.1      2.5      1.4
  DEPTH=        .4      7.5      3.5      2.6      1.0

1490 NH CARD USED
*SECNO 11.000
    11.000      9.93   2448.87   2446.27       .00   2449.86        .99        .45        .01   2449.50
   34000.0        .0   31274.6    2725.4        .0    3777.8     1084.6      176.3       37.2   2446.56
       .05       .00      8.28      2.51      .000      .030       .050       .000    2438.94   3001.19
   .001683      245.      240.      250.         2        18          0        .00     869.96   3871.14


FLOW DISTRIBUTION FOR SECNO=     11.00          CWSEL=   2448.87

STA=    3001.    3458.    3500.    3511.    3554.    3600.    3604.    3700.    3733.    3800.    3820.    3871.
  PER Q=      92.0       .7       .2      1.5      2.0       .1      2.0       .5       .6       .2       .2
   AREA=    3777.8    107.4     31.2    170.8    203.4     13.4    273.1     76.0    119.8     38.4     51.0
    VEL=       8.3      2.3      2.4      3.1      3.3      2.7      2.4      2.1      1.8      1.9      1.2
  DEPTH=       8.3      2.5      2.8      4.0      4.4      3.3      2.8      2.3      1.8      1.9      1.0

1490 NH CARD USED
*SECNO 12.000
    12.000      8.40   2450.00   2447.44       .00   2450.69        .69        .80        .03   2444.52
   34000.0    4362.6   29163.8     473.6     754.3    4270.8      318.2      234.8       48.0   2449.17
       .07      5.78      6.83      1.49      .030      .030       .050       .000    2441.60   2745.66
   .001525      510.      500.      490.         2        14          0        .00    1021.86   3767.52
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     12.00          CWSEL=   2450.00

STA=    2746.    2825.    2900.    3542.    3768.
  PER Q=      5.6      7.3     85.8      1.4
   AREA=    343.1    411.2   4270.8    318.2
    VEL=      5.5      6.0      6.8      1.5
  DEPTH=      4.3      5.5      6.7      1.4

1490 NH CARD USED
*SECNO 13.000
    13.000      7.64   2450.74   2448.72       .00   2451.48       .74       .78       .02   2444.70
   34000.0     742.6   32528.3     729.1     165.7    4629.7     284.9     287.5      58.2   2448.90
       .09      4.48      7.03      2.56      .035      .031      .050      .000   2443.10   2757.17
   .002061      440.      440.      440.         2        19         0       .00   1003.76   3760.92

FLOW DISTRIBUTION FOR SECNO=     13.00          CWSEL=   2450.74

STA=    2757.    2808.    3000.    3600.    3621.    3761.
  PER Q=      2.2     13.5     81.5       .7      2.1
   AREA=    165.7    872.8   3678.5     78.5    284.9
    VEL=      4.5      5.2      7.5      3.2      2.6
  DEPTH=      3.3      4.5      6.1      3.7      2.0

1490 NH CARD USED
*SECNO 13.500

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    13.500      6.01   2451.21   2451.21       .00   2452.93      1.72      1.10       .29   2450.20
   34000.0     451.8   33279.9     268.3     130.6    3128.6     147.0     317.7      65.8   2450.20
       .10      3.46     10.64      1.82      .035      .030      .065      .000   2445.20   2826.93
   .007542      310.      310.      310.         0        15         0       .00   1123.19   3950.12

FLOW DISTRIBUTION FOR SECNO=     13.50          CWSEL=   2451.21

STA=    2827.    2980.    3210.    3780.    3950.
  PER Q=      1.3     13.6     84.3       .8
   AREA=    130.6    636.8   2491.8    147.0
    VEL=      3.5      7.3     11.5      1.8
  DEPTH=       .9      2.8      4.4       .9
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 14.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.56

    14.000       7.17   2453.07   2451.86        .00   2454.11       1.04       1.10        .07   2448.90
   34000.0     2944.2   30419.0     636.8      754.7    3560.7      237.3      339.6       72.1   2452.62
       .11       3.90      8.54      2.68       .041      .030       .050       .000    2445.90   2636.90
   .003089       240.      240.      240.          2         5          0        .00    1173.83   3884.80


FLOW DISTRIBUTION FOR SECNO=     14.00          CWSEL=   2453.07

STA=    2637.    3000.    3100.    3170.    3700.    3735.    3885.
  PER Q=      3.7      5.0      3.8     82.9      2.7      1.9
   AREA=    442.8    311.9    242.4   3132.6    185.7    237.3
    VEL=      2.8      5.5      5.4      9.0      4.9      2.7
  DEPTH=      1.2      3.1      3.4      5.9      5.3      1.6

1490 NH CARD USED
*SECNO 15.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    15.000       7.58   2454.78   2454.78        .00   2456.66       1.88       2.15        .25   2460.19
   34000.0     1454.9   31491.7    1053.4      487.4    2765.2      225.9      388.6       86.5   2447.49
       .12       2.99     11.39      4.66       .045      .030       .035       .000    2447.20   2638.05
   .005568       540.      530.      535.          0         8          0        .00    1170.75   3933.33
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     15.00          CWSEL=   2454.78

STA=    2638.    2981.    3125.    3300.    3679.    3849.    3933.
  PER Q=      3.3      1.0     10.3     82.3      3.0       .1
   AREA=    359.0    128.4    479.0   2286.2    208.6     17.3
    VEL=      3.1      2.6      7.3     12.2      5.0      1.2
  DEPTH=      1.0       .9      3.5      6.0      1.2       .2

1490 NH CARD USED
*SECNO 16.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43


3470 ENCROACHMENT STATIONS=          .1    3750.0  TYPE=      1  TARGET=     3749.900
    16.000      8.77   2457.67   2456.57       .00   2458.80      1.13      2.07       .08   2455.50
   34000.0    7014.3   26929.0      57.7    1454.0    2904.6      51.2     437.8      99.7   2457.40
       .14      4.82      9.27      1.13      .035      .030      .100      .000   2448.90   2604.89
   .002741      515.      550.      600.         2         5         0       .00    958.76   3707.22

FLOW DISTRIBUTION FOR SECNO=     16.00          CWSEL=   2457.67

STA=    2605.    2662.    2737.    2800.    2900.    3090.    3204.    3632.    3707.
  PER Q=      3.5      4.5      3.1      5.2      3.7       .6     79.2       .2
   AREA=    218.9    281.1    212.4    348.5    329.7     63.4   2904.6     51.2
    VEL=      5.4      5.5      5.0      5.1      3.8      3.1      9.3      1.1
  DEPTH=      3.8      3.8      3.3      3.5      1.7       .6      6.8       .7

1490 NH CARD USED
*SECNO 17.000

3265 DIVIDED FLOW

    17.000      7.94   2459.54   2458.76       .00   2461.08      1.55      2.16       .13   2458.20
   34000.0    4397.3   29218.4     384.4     821.8    2763.5     251.4     502.9     114.1   2457.40
       .16      5.35     10.57      1.53      .035      .030      .100      .000   2451.60   2569.90
   .003641      695.      685.      670.         3        15         0       .00    856.00   3614.09
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     17.00          CWSEL=   2459.54

STA=    2570.    2700.    2794.    3073.    3487.    3614.
  PER Q=      6.4      4.4      2.1     85.9      1.1
   AREA=    374.2    271.3    176.3   2763.5    251.4
    VEL=      5.8      5.6      4.0     10.6      1.5
  DEPTH=      2.9      2.9       .6      6.7      2.0

1490 NH CARD USED
*SECNO 18.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    18.000      8.53   2461.90   2461.90       .00   2465.21      3.32      3.39       .53   2468.20
   34000.0     240.9   33759.1        .0      60.8    2302.8        .0     553.2     124.2   2467.41
       .17      3.97     14.66       .00      .035      .030      .000      .000   2453.37   2921.02
   .006600      730.      705.      680.         0         8         0       .00    387.75   3412.04


FLOW DISTRIBUTION FOR SECNO=     18.00          CWSEL=   2461.90

STA=    2921.    2982.    3420.
  PER Q=       .7     99.3
   AREA=     60.7   2302.8
    VEL=      4.0     14.7
  DEPTH=      1.0      7.0

1490 NH CARD USED
*SECNO 19.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     3200.0    3600.0  TYPE=      1  TARGET=      400.000
    19.000     10.01   2465.29   2463.89       .00   2467.84      2.55      2.55       .08   2470.33
   34000.0        .0   34000.0        .0        .0    2650.9        .0     582.6     128.3   2471.12
       .18       .00     12.83       .00      .000      .030      .000      .000   2455.28   3260.08
   .003923      530.      510.      500.         0         5         0       .00    311.59   3571.67
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     19.00          CWSEL=   2465.29

STA=    3260.    3582.
  PER Q=    100.0
   AREA=   2650.9
    VEL=     12.8
  DEPTH=      8.5

1490 NH CARD USED
*SECNO 20.000
    20.000      9.48   2468.03   2466.02       .00   2470.15      2.11      2.26       .04   2472.63
   34000.0        .0   34000.0        .0        .0    2913.6        .0     624.1     133.1   2473.96
       .20       .00     11.67       .00      .000      .030      .000      .000   2458.55   3320.55
   .003100      660.      650.      650.         2        15         0       .00    329.23   3649.77

FLOW DISTRIBUTION FOR SECNO=     20.00          CWSEL=   2468.03

STA=    3321.    3658.
  PER Q=    100.0
   AREA=   2913.6
    VEL=     11.7
  DEPTH=      8.8

1490 NH CARD USED
*SECNO 21.000

3265 DIVIDED FLOW

    21.000      9.95   2470.63   2468.93       .00   2472.87      2.24      2.69       .04   2475.70
   34000.0       1.9   33998.1        .0       2.0    2828.5        .0     678.2     139.4   2475.24
       .22       .94     12.02       .00      .045      .030      .000      .000   2460.68   3182.17
   .003473      820.      820.      815.         2        11         0       .00    339.04   3560.33

FLOW DISTRIBUTION FOR SECNO=     21.00          CWSEL=   2470.63

STA=    3182.    3188.    3567.
  PER Q=        .0    100.0
   AREA=       2.0   2828.5
    VEL=        .9     12.0
  DEPTH=        .3      8.5
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 22.000
    22.000     11.97   2472.29   2469.65       .00   2474.11       1.83       1.20        .04   2477.45
   34000.0        .0   34000.0        .0        .0    3133.1         .0      706.2      142.6   2476.84
       .23       .00     10.85       .00      .000      .030       .000       .000    2460.32   3373.65
   .002502      410.      410.      405.         2        11          0        .00     334.57   3708.22

FLOW DISTRIBUTION FOR SECNO=     22.00          CWSEL=   2472.29

STA=    3374.    3714.
  PER Q=    100.0
   AREA=   3133.1
    VEL=     10.9
  DEPTH=      9.4

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 23.000

3470 ENCROACHMENT STATIONS=     3330.0    3695.0  TYPE=      1  TARGET=      365.000
    23.000     10.07   2472.97   2470.95       .00   2475.07       2.10        .82        .14   2480.00
   34000.0        .0   34000.0        .0        .0    2922.1         .0      726.7      144.8 100000.00
       .23       .00     11.64       .00      .000      .030       .000       .000    2462.90   3363.98
   .003100      295.      295.      295.         2        14          0        .00     330.09   3694.07

1490 NH CARD USED

SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     1.05       1.56       2.60     385.00     320.00      30.00    2291.00       1.00    2463.10    2462.90

*SECNO 25.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.45
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALO3      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

PRESSURE FLOW

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID AREA  ELLC      ELTRD     WEIRLN
 2478.30   2476.45   1.03      0.        34000.    2291.     3124.     2473.50   2489.20   0.


3470 ENCROACHMENT STATIONS=     3330.0    3695.0  TYPE=      1  TARGET=        .000
 ELENCL=        .00  ELENCR=       .00
   25.000     12.99   2476.99      .00       .00   2478.30      1.31      3.23       .00   2479.80
  34000.0        .0   34000.0       .0        .0    3702.5        .0     742.7     146.4   2479.90
      .24       .00      9.18      .00      .000      .030      .000      .000   2464.00   3527.52
  .001475      210.      210.     210.         3         0         0       .00    345.64   3873.17

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 26.000

3470 ENCROACHMENT STATIONS=         .1    3650.0  TYPE=      1  TARGET=     3649.900
   26.000     12.54   2477.60   2472.75       .00   2478.78      1.18       .46       .01   2480.24
  34000.0        .0   34000.0       .0        .0    3907.0        .0     765.4     148.5   2479.45
      .25       .00      8.70      .00      .000      .040      .000      .000   2465.06   3268.39
  .002159      260.      260.     260.         1        11         0       .00    342.26   3610.66

1490 NH CARD USED
*SECNO 27.000
   27.000     12.95   2478.19   2474.26       .00   2479.60      1.41       .75       .07   2480.38
  34000.0        .0   34000.0       .0        .0    3572.7        .0     799.8     151.6   2481.39
      .26       .00      9.52      .00      .000      .030      .000      .000   2465.24   3303.36
  .001645      400.      400.     410.         2        19         0       .00    339.64   3643.01

1490 NH CARD USED
*SECNO 28.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=         .1    3625.0  TYPE=      1  TARGET=     3624.900
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

  28.000     10.33    2479.55    2477.37       .00    2481.56       2.01       1.78        .18    2484.60
 34000.0        .0   34000.0        .0        .0     2989.8         .0      862.3      158.0    2484.54
     .28       .00      11.37       .00      .000       .030       .000       .000    2469.22    3281.36
 .002917      820.       830.      830.         2         14          0        .00     334.76    3616.12

1490 NH CARD USED
*SECNO 29.000

3470 ENCROACHMENT STATIONS=     3100.0    3878.0  TYPE=      1  TARGET=      778.000
  29.000     10.79    2482.05    2479.53       .00    2483.84       1.79       2.26        .02    2482.63
 34000.0        .0   34000.0        .0        .0     3163.9         .0      920.9      164.6    2487.40
     .30       .00      10.75       .00      .000       .030       .000       .000    2471.26    3100.79
 .002550      670.       830.      900.         3         15          0        .00     348.57    3449.36

1490 NH CARD USED
*SECNO 30.000
  30.000      9.80    2484.20    2482.69       .00    2486.45       2.25       2.47        .14    2489.58
 34000.0        .0   34000.0        .0        .0     2823.2         .0      976.6      171.0    2490.20
     .32       .00      12.04       .00      .000       .030       .000       .000    2474.40    3085.77
 .003715      810.       810.      810.         2         15          0        .00     348.54    3434.31

1490 NH CARD USED
*SECNO 31.000
  31.000      9.45    2486.11    2484.62       .00    2488.35       2.24       1.90        .00    2491.22
 34000.0        .0   34000.0        .0        .0     2833.4         .0     1009.7      175.1    2491.36
     .33       .00      12.00       .00      .000       .030       .000       .000    2476.66    3138.65
 .003732      510.       510.      510.         2         15          0        .00     353.31    3491.96

1490 NH CARD USED
*SECNO 32.000
  32.000      9.22    2488.76    2487.56       .00    2491.16       2.40       2.76        .05    2493.66
 34000.0        .0   34000.0        .0        .0     2733.7         .0     1054.4      180.8    2493.30
     .35       .00      12.44       .00      .000       .030       .000       .000    2479.54    3141.46
 .004188      690.       700.      700.         2         15          0        .00     352.75    3494.21

1490 NH CARD USED
*SECNO 33.000
  33.000     10.64    2490.93    2489.27       .00    2493.08       2.15       1.90        .02    2492.60
 34000.0        .0   34000.0        .0        .0     2886.7         .0     1086.7      184.8    2496.09
     .36       .00      11.78       .00      .000       .030       .000       .000    2480.29    3201.84
 .003449      480.       500.      540.         2          8          0        .00     348.43    3550.27
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 34.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        .1    3646.4  TYPE=      1  TARGET=     3646.310
   34.000      9.77   2492.35   2491.04       .00   2494.68      2.34      1.54       .05   2497.55
  34000.0       .1   33999.9       .0        .4    2772.6        .0    1113.6     188.2   2494.00
      .37       .14     12.26       .00      .100      .030      .000      .000   2482.58   2107.29
  .004028      370.      415.      460.         2        15         0       .00    359.45   3644.22


1490 NH CARD USED
*SECNO 35.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     3080.0    3475.0  TYPE=      1  TARGET=      395.000
   35.000      9.57   2495.27   2492.40       .00   2496.51      1.25      1.72       .11   2499.41
  28000.0       .0   28000.0       .0        .0    3122.2        .0    1154.9     193.3   2496.14
      .39       .00      8.97       .00      .000      .030      .000      .000   2485.70   3096.60
  .001970      580.      610.      640.         2        19         0       .00    372.94   3469.54


1490 NH CARD USED
*SECNO 36.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   36.000      7.44   2496.49   2496.49       .00   2499.44      2.95      1.73       .51   2501.76
  28000.0       .0   28000.0       .0        .0    2031.3        .0    1184.5     197.5   2500.16
      .40       .00     13.78       .00      .000      .030      .000      .000   2489.05   3117.04
  .007568      525.      500.      470.         0        19         0       .00    350.99   3468.03


1490 NH CARD USED
*SECNO 36.500
   36.500      6.59   2498.49   2498.07       .00   2501.08      2.58      1.60       .04   2502.20
  28000.0       .0   28000.0       .0        .0    2171.2        .0    1196.1     199.4   2502.20
      .40       .00     12.90       .00      .000      .030      .000      .000   2491.90   3123.70
  .005896      240.      240.      240.         2        12         0       .00    342.59   3466.30
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


1490 NH CARD USED
*SECNO 38.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     2750.0    4248.6  TYPE=      1  TARGET=     1498.600
   38.000      8.96   2501.91   2500.73       .00   2503.97      2.06      2.84       .05   2506.85
  28000.0        .0   28000.0        .0        .0    2432.7        .0    1226.7     204.0   2504.64
      .42       .00     11.51       .00      .000      .030      .000      .000   2492.95   3126.86
  .004135      600.      580.      550.         2        11         0       .00    349.50   3476.36


CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 38.500
   38.500      9.10   2502.20   2500.93       .00   2504.22      2.02       .24       .01   2514.70
  28000.0        .0   28000.0        .0        .0    2453.0        .0    1230.1     204.5   2516.60
      .42       .00     11.41       .00      .000      .030      .000      .000   2493.10   3123.12
  .003972       40.       60.       80.         1        15         0       .00    345.27   3468.39


1490 NH CARD USED

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.60    420.00    330.00     30.00   5048.00      1.00   2494.40   2493.20

*SECNO 39.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=    2502.32 BRIDGE VELOCITY=      10.65     CALCULATED CHANNEL AREA=      2440.

 EGPRS      EGLWC      H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC     ELTRD     WEIRLN
                                                              AREA
       .00   2505.28     1.03        0.    28000.     5048.     4990.     2510.20   2516.20        0.


   39.500      8.82   2503.22       .00       .00   2505.28      2.06      1.06       .00   2513.80
  28000.0        .0   28000.0        .0        .0    2431.3        .0    1236.8     205.4   2517.01
      .42       .00     11.52       .00      .000      .030      .000      .000   2494.40   3110.64
  .004078      120.      120.      120.         0         0         0       .00    344.30   3454.94
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 40.000

3470 ENCROACHMENT STATIONS=     3100.0    3458.0  TYPE=      1  TARGET=      358.000
    40.000      9.18   2503.81   2502.21       .00   2505.64      1.83        .33        .02   2507.60
   28000.0        .0   28000.0        .0        .0   2578.3        .0     1242.0      206.2   2505.90
       .42       .00     10.86       .00      .000      .030      .000       .000    2494.63   3106.06
   .003410      110.       90.       60.         2        15         0        .00     349.29   3455.36

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 41.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=          .1    3600.0  TYPE=      1  TARGET=     3599.900
    41.000      7.53   2504.60   2503.88       .00   2506.95      2.35       1.15        .15   2509.77
   28000.0        .0   28000.0        .0        .0   2277.3        .0     1257.6      208.4   2507.87
       .43       .00     12.30       .00      .000      .030      .000       .000    2497.07   3050.91
   .005080      280.      280.      280.         2        15         0        .00     346.14   3397.06

1490 NH CARD USED
*SECNO 42.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .0    3900.0  TYPE=      1  TARGET=     3899.990
    42.000      7.77   2506.65   2505.88       .00   2509.02      2.37       2.06        .01   2510.10
   28000.0     445.8   27525.2      29.0     226.1    2207.3      15.5     1280.4      212.1   2505.17
       .44      1.97     12.47      1.88      .100      .030      .050       .000    2498.88   2612.71
   .004746      420.      420.      420.         2        11         0        .00     429.78   3900.00

1490 NH CARD USED
*SECNO 43.000

3265 DIVIDED FLOW
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=        .1    3900.0  TYPE=      1  TARGET=     3899.900
    43.000      7.59   2508.55   2508.55       .00   2511.48      2.94      1.92       .17   2509.33
   28000.0    1073.7   26760.4     165.9     158.0    1911.9      70.8    1298.8     215.5   2510.20
       .45      6.79     14.00      2.34      .037      .030      .060      .000   2500.96   2392.72
   .006405      350.      350.      350.         0         8         0       .00    400.07   3604.25


1490 NH CARD USED
*SECNO 44.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=        .0    4100.0  TYPE=      1  TARGET=     4099.990
    44.000     11.10   2512.68   2512.68       .00   2514.57      1.89      1.82       .10   2512.25
   28000.0    1110.8   22236.2    4653.0     442.4    1803.8    2056.8    1329.8     224.1   2512.60
       .46      2.51     12.33      2.26      .050      .030      .070      .000   2501.58   2527.35
   .003126      430.      420.      415.         0        11         0       .00   1385.54   4099.99


1490 NH CARD USED
*SECNO 45.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        .1    4550.0  TYPE=      1  TARGET=     4549.900
    45.000     10.87   2514.57   2514.50       .00   2516.02      1.45      1.41       .04   2512.38
   28000.0     615.5   21395.2    5989.3     328.4    1946.1    2926.0    1383.8     243.9   2514.30
       .47      1.87     10.99      2.05      .045      .030      .064      .000   2503.70   2368.34
   .002650      495.      490.      498.         2         8         0       .00   2098.39   4550.00
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 46.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69


3470 ENCROACHMENT STATIONS=        .1    4200.0  TYPE=      1  TARGET=     4199.900
   46.000      8.53   2515.38   2514.90       .00   2518.34      2.96      1.86       .45   2517.16
  28000.0        .3   27851.3     148.3       1.2    2011.5     165.3    1426.7     260.0   2517.90
      .48       .30     13.85       .90      .045      .030      .092      .000   2506.85   2352.93
  .005589      500.      500.      515.         2        12         0       .00    655.54   3761.49


1490 NH CARD USED
*SECNO 47.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=        .1    3000.0  TYPE=      1  TARGET=     2999.900
   47.000      8.68   2518.68   2517.16       .00   2520.70      2.02      2.26       .09   2517.74
  28000.0     255.2   27744.8        .0     152.4    2420.4        .0    1455.0     266.6   2520.97
      .50      1.67     11.46       .00      .060      .030      .000      .000   2510.00   2424.77
  .003484      520.      520.      530.         3        11         0       .00    437.12   2861.89


1490 NH CARD USED
*SECNO 48.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=        .1    4000.0  TYPE=      1  TARGET=     3999.900
   48.000     10.18   2522.47   2522.47       .00   2524.06      1.59      1.65       .04   2520.30
  28000.0     425.9   19338.3    8235.8     261.6    1604.0    3196.4    1499.7     278.9   2514.42
      .51      1.63     12.06      2.58      .060      .030      .062      .000   2512.29   2316.81
  .003029      500.      510.      510.         0         8         0       .00   1663.32   4000.00
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 48.250

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54


3470 ENCROACHMENT STATIONS=          .1    4700.0  TYPE=      1  TARGET=     4699.900
    48.250     10.94   2524.24   2522.59       .00   2524.68       .44       .51       .11   2520.20
   28000.0     624.2   16165.0   11210.7     395.4    2347.3    6499.5    1544.3     291.3   2521.60
       .53      1.58      6.89      1.72      .060      .034      .072      .000   2513.30   2363.31
   .001269      280.      275.      270.         3        10         0       .00   2336.68   4700.00


1490 NH CARD USED
*SECNO 48.500

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .1    4700.0  TYPE=      1  TARGET=     4699.900
    48.500     10.22   2524.42   2522.72       .00   2524.99       .57       .27       .04   2522.70
   28000.0     512.6   19262.7    8224.7     451.3    2655.7    5677.6    1591.9     304.0   2519.42
       .54      1.14      7.25      1.45      .060      .030      .074      .000   2514.20   2150.87
   .001105      230.      230.      230.         2        15         0       .00   2471.62   4699.99


1490 NH CARD USED
*SECNO 49.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    49.000      9.12   2525.80   2525.80       .00   2526.90      1.10      1.04       .16   2524.11
   28000.0    2063.2   17598.2    8338.7     641.6    1691.8    3376.4    1691.7     338.5   2525.09
       .56      3.22     10.40      2.47      .036      .030      .055      .000   2516.68   2104.46
   .003110      600.      600.      600.         0         9         0       .00   2539.29   4765.49
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 50.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   50.000      8.99   2528.99   2528.99       .00   2530.17      1.18      1.80       .02   2525.62
  28000.0    2891.7   18556.2    6552.1     919.2    1752.1    4173.5    1778.4     374.0   2530.30
      .58      3.15     10.59      1.57      .035      .030      .100      .000   2520.00   2049.31
  .002896     610.      600.      600.         0         6         0       .00   2590.85   4758.66

1490 NH CARD USED
*SECNO 51.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   51.000      8.91   2531.01   2531.01       .00   2532.29      1.28      1.49       .03   2528.98
  28000.0    2162.2   20328.8    5508.9     770.4    1917.8    3425.9    1855.1     403.8   2530.00
      .60      2.81     10.60      1.61      .038      .030      .093      .000   2522.10   2227.87
  .002932     510.      510.      520.         0         6         0       .00   2430.52   4712.66

1490 NH CARD USED
*SECNO 52.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   52.000      9.37   2533.04   2533.04       .00   2534.26      1.23      1.51       .01   2531.50
  28000.0    1268.7   19519.1    7212.2     632.9    1847.8    3803.8    1927.1     434.2   2533.54
      .62      2.00     10.56      1.90      .050      .029      .076      .000   2523.67   2102.25
  .003066     500.      500.      510.         0         8         0       .00   2807.98   4922.70

1490 NH CARD USED
*SECNO 53.000
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        .1    4600.0  TYPE=      1  TARGET=     4599.900
   53.000      8.00   2534.77   2534.25       .00   2535.73       .96      1.45       .03   2534.91
  28000.0       3.2   21786.1    6210.7       5.2    2458.4    2954.6    1991.9     460.3   2534.83
      .64       .61      8.86      2.10      .045      .030      .066      .000   2526.77   2575.85
 .002808      500.      500.      470.         2        15         0       .00   1936.99   4555.84


1490 NH CARD USED
*SECNO 54.000

3470 ENCROACHMENT STATIONS=     2450.0    4500.0  TYPE=      1  TARGET=     2050.000
   54.000      7.96   2536.37   2536.21       .00   2537.76      1.40      1.90       .13   2533.50
  28000.0    4929.9   19433.8    3636.4     982.2    1754.1    2163.9    2051.7     480.7   2535.18
      .66      5.02     11.08      1.68      .045      .030      .100      .000   2528.41   2601.09
 .004548      550.      560.      450.         2         8         0       .00   1752.15   4353.24


1490 NH CARD USED
*SECNO 55.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     2600.0    4200.0  TYPE=      1  TARGET=     1600.000
   55.000      6.84   2538.83   2537.67       .00   2539.56       .74      1.74       .07   2538.40
  28000.0    1967.3   23131.7    2901.0     483.1    3134.0     816.5    2107.7     500.2   2537.97
      .68      4.07      7.38      3.55      .045      .029      .035      .000   2531.99   2651.21
 .002694      440.      500.      600.         2        19         0       .00   1417.21   4137.59


1490 NH CARD USED
*SECNO 56.000

3265 DIVIDED FLOW

   56.000      6.11   2540.40   2539.76       .00   2541.08       .68      1.51       .01   2536.55
  28000.0    2600.4   19075.8    6323.8     657.5    2523.4    1674.6    2158.5     519.0   2538.99
      .70      3.96      7.56      3.78      .045      .031      .045      .000   2534.29   2199.43
 .003952      450.      450.      550.         2        16         0       .00   1926.30   4488.06
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 57.000

3265 DIVIDED FLOW

   57.000       5.80   2542.48    2542.27        .00    2543.49       1.01       2.31        .10    2538.10
  28000.0     4137.4   19962.8     3899.7      842.2     2191.1      973.9     2212.2      541.6    2542.66
     .72        4.91       9.11       4.00       .035       .029       .045       .000    2536.68    2319.16
 .004945        530.       520.       540.          2         11          0        .00    1795.41    4274.08

1490 NH CARD USED
*SECNO 58.000
   58.000       5.86   2544.93    2544.38        .00    2545.82        .89       2.32        .01    2544.65
  28000.0     1342.1   23683.6     2974.3      540.1     2897.4     1582.1     2265.7      562.8    2543.37
     .73        2.48       8.17       1.88       .048       .030       .100       .000    2539.07    2515.18
 .004241        480.       500.       570.          2         12          0        .00    1779.47    4294.66

1490 NH CARD USED
*SECNO 59.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    4000.0  TYPE=       1  TARGET=     3999.900
   59.000       7.01   2548.61    2548.61        .00    2549.88       1.27       2.18        .11    2550.20
  28000.0     7727.7   18280.4     1991.8     1928.2     1685.7      770.6     2322.7      584.3    2549.52
     .75        4.01      10.84       2.58       .048       .029       .045       .000    2541.60    2143.84
 .004110        520.       520.       550.          0          8          0        .00    1736.81    3924.07

1490 NH CARD USED
*SECNO 60.000

3265 DIVIDED FLOW

   60.000       7.08   2551.25    2551.14        .00    2552.59       1.33       2.68        .02    2549.57
  28000.0     2646.9   18668.2     6684.9      742.6     1692.5     1761.1     2386.7      608.0    2550.58
     .77        3.56      11.03       3.80       .045       .030       .048       .000    2544.17    2309.10
 .004151        650.       650.       650.          2          5          0        .00    1451.42    3853.19
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 61.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .1    4000.0  TYPE=       1  TARGET=     3999.900
   61.000      8.11   2553.96   2553.28       .00   2554.84       .88      2.21       .05   2559.44
  28000.0      52.2   24181.6    3766.3      39.1    3004.4    1634.4    2449.1     629.3   2552.09
      .80      1.33      8.05      2.30      .059      .031      .050      .000   2545.85   2261.31
  .003075      610.      630.      590.         2         8         0       .00   1614.11   3995.77


1490 NH CARD USED
*SECNO 62.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    3900.0  TYPE=       1  TARGET=     3899.900
   62.000      7.12   2555.58   2555.58       .00   2556.95      1.38      1.89       .15   2554.10
  28000.0    2642.0   21459.9    3898.1     811.3    2020.4    1239.5    2499.6     647.6   2555.28
      .81      3.26     10.62      3.14      .050      .030      .045      .000   2548.46   2147.64
  .004594      540.      510.      480.         0        15         0       .00   1590.55   3900.00


1490 NH CARD USED
*SECNO 63.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    3320.0  TYPE=       1  TARGET=     3319.900
   63.000      7.29   2557.96   2557.96       .00   2559.58      1.61      2.46       .07   2555.50
  28000.0    5716.0   18196.7    4087.3    1456.3    1477.3    1059.2    2545.4     664.2   2556.20
      .83      3.93     12.32      3.86      .055      .030      .064      .000   2550.67   1959.22
  .005345      500.      500.      480.         0         5         0       .00   1353.29   3320.00
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 64.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   64.000      7.76   2560.56   2560.56       .00   2562.40      1.84      2.59       .07   2559.66
  28000.0    1846.3   23567.6    2586.1     633.3    1998.2     837.8    2589.9     679.9   2557.75
      .84      2.92     11.79      3.09      .059      .031      .053      .000   2552.80   2161.61
 .004760      500.      510.      560.         0         8         0       .00   1254.59   3450.64


1490 NH CARD USED
*SECNO 64.500

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=        .1    3230.0  TYPE=      1  TARGET=     3229.900
   64.500      8.65   2562.65   2561.07       .00   2563.42       .77       .92       .11   2559.70
  23000.0    1374.4   19405.7    2219.9     662.9    2552.0     979.6    2617.3     688.6   2559.03
      .85      2.07      7.60      2.27      .055      .030      .055      .000   2554.00   2079.46
 .001861      320.      310.      310.         3        11         0       .00   1150.54   3230.00


1490 NH CARD USED
*SECNO 65.000

3265 DIVIDED FLOW

   65.000      8.44   2563.05   2561.49       .00   2563.78       .73       .36       .00   2559.75
  23000.0    1396.5   16361.7    5241.8     621.0    2056.0    1879.0    2636.6     693.7   2558.68
      .86      2.25      7.96      2.79      .060      .030      .055      .000   2554.61   2061.98
 .001921      200.      190.      190.         2        15         0       .00   1178.13   3736.56


1490 NH CARD USED
*SECNO 66.000

3265 DIVIDED FLOW
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    66.000      8.47   2564.99   2564.99       .00   2566.65      1.66      1.29       .28   2562.62
   23000.0     551.1   17413.3    5035.6     327.2    1487.2    1372.8    2679.1     706.2   2562.36
       .88      1.68     11.71      3.67      .100      .030      .045      .000   2556.52   2307.83
   .003856      500.      500.      450.         0         5         0       .00   1144.97   3456.51


1490 NH CARD USED
*SECNO 66.500

3301 HV CHANGED MORE THAN HVINS

    66.500      8.68   2566.96   2565.92       .00   2567.60       .64       .85       .10   2563.70
   23000.0     511.1   11448.0   11040.9     284.2    1388.0    2875.3    2706.0     714.7   2562.24
       .89      1.80      8.25      3.84      .060      .030      .043      .000   2558.28   2346.74
   .002106      350.      310.      290.         3        10         0       .00   1313.42   3660.16


CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 67.000

3470 ENCROACHMENT STATIONS=          .1    3950.0  TYPE=       1  TARGET=      3949.900
    67.000      7.71   2567.56   2565.95       .00   2568.01       .45       .35       .06   2563.14
   23000.0    1067.6   10916.5   11016.0     768.6    1619.8    2853.2    2728.6     721.3   2563.86
       .90      1.39      6.74      3.86      .094      .030      .035      .000   2559.85   2207.61
   .001512      190.      190.      210.         1        19         0       .00   1526.06   3733.67


1490 NH CARD USED
*SECNO 68.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53


3470 ENCROACHMENT STATIONS=        .1    3890.0  TYPE=      1  TARGET=     3889.900
   68.000      6.47   2568.85   2568.76       .00   2570.04      1.19      1.66       .37   2566.20
  23000.0     926.3   12770.2    9303.5     275.8    1207.1    1595.5    2790.3     740.9   2566.75
      .92      3.36     10.58      5.83      .055      .030      .035      .000   2562.38   2432.79
 .005309      640.      640.      650.         2        12         0       .00   1116.37   3555.30


1490 NH CARD USED
*SECNO 69.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        .1    3700.0  TYPE=      1  TARGET=     3699.900
   69.000      6.89   2571.47   2571.00       .00   2572.33       .86      2.19       .10   2567.95
  23000.0     325.9   10245.6   12428.5     204.1    1011.0    2978.8    2831.6     754.9   2568.80
      .94      1.60     10.13      4.17      .098      .030      .048      .000   2564.58   2133.99
 .003824      520.      478.      500.         3         6         0       .00   1326.91   3700.00


1490 NH CARD USED
*SECNO 70.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=        .1    3490.0  TYPE=      1  TARGET=     3489.900
   70.000      7.93   2574.03   2572.19       .00   2574.35       .32      1.86       .16   2569.39
  23000.0    3638.3    5758.6   13603.1     642.1    1303.8    3220.5    2885.6     770.1   2569.46
      .97      5.67      4.42      4.22      .035      .072      .051      .000   2566.10   2196.53
 .003555      510.      510.      500.         2        10         0       .00   1293.47   3490.00


1490 NH CARD USED
*SECNO 71.000

3470 ENCROACHMENT STATIONS=     2270.0    3630.0  TYPE=      1  TARGET=     1360.000
   71.000      7.76   2575.42   2574.33       .00   2575.93       .50      1.49       .09   2571.98
  23000.0    4358.8   10779.7    7861.6    1391.8    1430.9    2284.7    2940.8     784.3   2572.00
     1.00      3.13      7.53      3.44      .060      .037      .050      .000   2567.66   2270.00
 .002839      500.      480.      450.         2        10         0       .00   1360.00   3630.00
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 72.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     2510.0    3660.0  TYPE=      1  TARGET=     1150.000
    72.000      7.70   2577.27   2577.27       .00   2578.79      1.52      1.86       .51   2573.96
   23000.0    3497.4   13420.4    6082.1    1151.9    1058.3    1868.4    2989.0     797.4   2574.34
      1.01      3.04     12.68      3.26      .079      .032      .078      .000   2569.57   2510.00
   .006244      450.      460.      460.         0         6         0       .00   1150.00   3660.00


1490 NH CARD USED
*SECNO 72.400

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.15


3470 ENCROACHMENT STATIONS=     2532.0    3667.0  TYPE=      1  TARGET=     1135.000
    72.400      9.12   2578.85   2577.26       .00   2579.29       .44       .18       .32   2573.46
   23000.0    5667.8    9618.9    7713.3    1745.5    1316.7    2391.4    2996.7     799.3   2574.00
      1.02      3.25      7.31      3.23      .046      .030      .044      .000   2569.73   2532.00
   .001356       70.       70.       70.         4         6         0       .00   1135.00   3667.00


FLOW DISTRIBUTION FOR SECNO=     72.40          CWSEL=   2578.85

STA=    2532.    2582.    2643.    2702.    2755.    2842.    2930.    3093.    3320.    3408.    3536.    3632.    3667.
  PER Q=      3.4      3.5      3.5      3.2      5.2      5.8     41.8     13.7      4.9      6.4      3.6      4.8
   AREA=    137.4    273.0    267.2    242.3    398.1    427.5   1316.7   1043.8    387.3    523.7    333.3    103.2
    VEL=      5.7      3.0      3.0      3.0      3.0      3.1      7.3      3.0      2.9      2.8      2.5     10.8
  DEPTH=      2.8      4.5      4.5      4.6      4.6      4.9      8.0      4.6      4.4      4.1      3.5      3.0

1490 NH CARD USED
*SECNO 72.500
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Tanque Verde Creek – 100-Year Existing Condition


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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     2551.9    3646.9  TYPE=      1  TARGET=     1095.000
   72.500      8.83   2578.72   2577.56       .00   2579.56       .84       .07       .20   2573.68
  23000.0    6292.6   12113.5    4593.9    1590.9    1254.7    2319.7    3001.6     800.3   2573.50
     1.02      3.96      9.65      1.98      .050      .031      .100      .000   2569.89   2553.61
  .002568       40.       40.       40.         2        12         0       .00   1086.71   3640.31


1490 NH CARD USED

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.56      2.60       .00   1080.00     80.00   6922.00      1.00   2570.27   2569.91

*SECNO 73.500
BTCARD, BRIDGE STENCL=    2502.50   STENCR=    3597.50
CLASS A LOW FLOW

3420 BRIDGE W.S.=    2578.88 BRIDGE VELOCITY=       2.59     CALCULATED CHANNEL AREA=      8689.

 EGPRS      EGLWC      H3        QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                 AREA
      .00   2580.06       .25        0.    23000.     6922.    12687.     2582.80   2588.80        0.


3470 ENCROACHMENT STATIONS=     2502.5    3597.5  TYPE=      1  TARGET=     1095.000
   73.500      8.87   2578.97       .00       .00   2580.06      1.09       .50       .00   2575.02
  23000.0    3500.1   13559.7    5940.2    1482.5    1263.4    2477.4    3009.9     802.0   2573.14
     1.02      2.36     10.73      2.40      .100      .030      .100      .000   2570.10   2502.50
  .003554       70.       70.       70.         0         0         0       .00   1080.54   3583.04


1490 NH CARD USED
*SECNO 74.000
3280 CROSS SECTION     74.00 EXTENDED       .51 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     2320.0    3650.0  TYPE=      1  TARGET=     1330.000
   74.000       9.65   2580.12   2578.39       .00   2580.51       .39        .24        .21   2573.89
  23000.0     6336.6    8076.4    8586.9    2281.3    1071.3    3091.1     3025.6      805.2   2574.03
     1.03       2.78      7.54      2.78      .050      .030      .052       .000    2570.47   2320.00
 .001255       115.      125.      115.         3        10         0        .00    1330.00   3650.00


1490 NH CARD USED
*SECNO 75.000

3470 ENCROACHMENT STATIONS=     2120.0    4020.0  TYPE=      1  TARGET=     1900.000
   75.000       8.18   2580.71   2579.13       .00   2581.00       .29        .46        .03   2578.48
  23000.0     8392.6    8814.7    5792.8    2896.7    1436.8    2750.3     3085.7      819.8   2577.50
     1.06       2.90      6.14      2.11      .050      .030      .048       .000    2572.53   2120.00
 .001203       380.      350.      410.         2        18         0        .00    1900.00   4020.00


1490 NH CARD USED
*SECNO 76.000

3470 ENCROACHMENT STATIONS=     2070.0    4710.0  TYPE=      1  TARGET=     2640.000
   76.000       7.34   2581.49   2580.67       .00   2581.88       .39        .83        .05   2579.66
  23000.0     8498.0    6442.6    8059.4    2602.9     778.0    3215.4     3167.2      845.8   2575.69
     1.09       3.26      8.28      2.51      .050      .030      .055       .000    2574.15   2070.00
 .002309       500.      481.      550.         2        14         0        .00    2394.32   4464.32


1490 NH CARD USED
*SECNO 77.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .1    5050.0  TYPE=      1  TARGET=     5049.900
   77.000       6.58   2582.76   2582.28       .00   2583.21       .44       1.30        .03   2582.90
  23000.0     7212.6    6685.3    9102.1    2183.4     770.4    3164.2     3234.6      870.6   2580.36
     1.12       3.30      8.68      2.88      .055      .030      .053       .000    2576.18   2019.30
 .003360       670.      443.      310.         2        10         0        .00    2542.71   4577.50


CCHV=     .100 CEHV=     .300
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 78.000

3470 ENCROACHMENT STATIONS=        .1    5170.0  TYPE=      1  TARGET=     5169.900
   78.000      6.48   2585.08   2584.77       .00   2585.65       .58      2.41       .04   2582.49
  23000.0    4442.7   10910.1    7647.2    1649.9    1322.5    2408.7    3320.2     909.7   2583.92
     1.15      2.69      8.25      3.17      .062      .034      .049      .000   2578.60   2155.94
  .004143      620.      644.      670.         2        10         0       .00   2674.25   4830.19

1490 NH CARD USED
*SECNO 79.000
   79.000      6.58   2587.07   2586.64       .00   2587.64       .57      1.98       .00   2581.66
  23000.0   11893.3    7468.8    3637.9    4016.7     756.3    1853.0    3389.1     940.1   2585.12
     1.18      2.96      9.88      1.96      .066      .030      .071      .000   2580.49   2145.61
  .003802      500.      500.      500.         2        10         0       .00   2627.88   4773.49

1490 NH CARD USED
*SECNO 80.000

3265 DIVIDED FLOW

   80.000      6.98   2589.01   2588.39       .00   2589.38       .37      1.73       .02   2587.40
  23000.0   11297.5    8694.3    3008.2    2523.0    1431.2    2069.3    3465.2     973.0   2586.40
     1.21      4.48      6.07      1.45      .031      .034      .087      .000   2582.03   2014.77
  .002928      500.      531.      560.         2        10         0       .00   2781.38   4853.79

1490 NH CARD USED
*SECNO 81.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   81.000      7.84   2591.62   2591.62       .00   2592.59       .97      1.68       .18   2590.16
  23000.0    5169.8   11421.4    6408.8    1471.1    1059.5    2361.7    3532.3    1005.8   2588.40
     1.23      3.51     10.78      2.71      .037      .030      .050      .000   2583.78   2167.86
  .003439      530.      520.      550.         0        11         0       .00   2516.50   4951.85
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 82.000
    82.000       6.65    2593.85    2593.53        .00    2594.51        .66       1.89        .03    2590.20
   23000.0     4974.1     7258.1    10767.8     1392.5      684.2     3466.6     3593.0     1032.9    2590.50
      1.25       3.57      10.61       3.11       .050       .030       .060       .000    2587.20    2254.45
   .004043       520.       510.       500.          2         14          0        .00    2145.44    4399.89

1490 NH CARD USED
*SECNO 83.000

3265 DIVIDED FLOW

    83.000       8.11    2595.61    2595.47        .00    2596.59        .97       1.98        .09    2593.74
   23000.0     3280.6    13186.3     6533.1     1106.7     1293.9     2581.8     3652.1     1057.5    2593.20
      1.27       2.96      10.19       2.53       .050       .029       .065       .000    2587.50    2208.09
   .004010       500.       500.       480.          2         11          0        .00    2266.70    4551.89

1490 NH CARD USED
*SECNO 84.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    84.000       7.98    2598.76    2598.76        .00    2599.71        .95       1.95        .00    2596.30
   23000.0     5938.5    11542.2     5519.3     1389.7     1094.6     3297.6     3718.6     1087.9    2596.40
      1.29       4.27      10.54       1.67       .038       .030       .081       .000    2590.78    2226.47
   .003361       520.       530.       550.          0          6          0        .00    2624.22    4850.69

1490 NH CARD USED
*SECNO 85.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    85.000       8.57    2601.07    2601.07        .00    2602.25       1.17       1.70        .07    2599.81
   23000.0      820.8    15126.5     7052.7      283.4     1423.5     4119.1     3787.0     1119.4    2599.06
      1.31       2.88      10.63       1.71       .035       .028       .085       .000    2592.50    2242.14
   .003383       500.       500.       520.          0          8          0        .00    2689.65    4931.79

1490 NH CARD USED
*SECNO 86.000
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

   86.000      8.05   2603.15   2602.48       .00   2603.79       .64      1.50       .05   2600.43
 23000.0    1747.6   10634.8   10617.6     464.6    1166.4    5315.6    3857.3    1148.1   2601.05
    1.34      3.76      9.12      2.00      .035      .030      .080      .000   2595.10   2210.03
 .002767      530.      500.      470.         3         9         0       .00   2536.97   4806.85


1490 NH CARD USED
*SECNO 87.000
   87.000      6.87   2604.57   2604.44       .00   2605.62      1.05      1.70       .12   2601.00
 23000.0    2428.8   13418.3    7153.0     500.9    1282.9    3809.4    3932.0    1177.8   2604.46
    1.36      4.85     10.46      1.88      .045      .030      .080      .000   2597.70   2482.09
 .003961      510.      520.      520.         2         9         0       .00   2451.87   4933.96


1490 NH CARD USED
*SECNO 88.000

3265 DIVIDED FLOW

   88.000      7.36   2606.73   2606.20       .00   2607.55       .82      1.91       .02   2605.50
 23000.0      56.5   15598.3    7345.2      43.9    1781.3    4524.9    4018.1    1213.8   2607.60
    1.38      1.29      8.76      1.62      .050      .030      .080      .000   2599.37   2364.71
 .002514      600.      600.      640.         2         5         0       .00   2487.15   4858.02


1490 NH CARD USED
*SECNO 89.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   89.000      7.00   2609.10   2609.10       .00   2609.99       .89      2.13       .02   2607.33
 23000.0     965.1   12316.3    9718.6     210.5    1232.2    3829.3    4090.8    1242.2   2610.61
    1.41      4.58     10.00      2.54      .030      .030      .060      .000   2602.10   2444.82
 .004096      870.      810.      440.         0        10         0       .00   2549.90   5080.35
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 90.000

3265 DIVIDED FLOW

  90.000      7.47   2611.35   2610.79       .00   2611.88       .53      1.86       .04   2609.72
 23000.0    5421.8    8058.8    9519.4    1161.1     919.8    3989.1    4159.8    1272.5   2612.70
    1.44      4.67      8.76      2.39      .036      .030      .072      .000   2603.88   2625.23
 .003136      500.      510.      540.         2         6         0       .00   2411.02   5188.88

1490 NH CARD USED
*SECNO 91.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  91.000      6.80   2613.60   2613.60       .00   2614.79      1.20      1.93       .20   2612.60
 23000.0    6297.8   12921.9    3780.3    1315.7    1155.9    1850.5    4220.5    1299.4   2613.27
    1.46      4.79     11.18      2.04      .041      .030      .080      .000   2606.80   2452.30
 .004803      490.      500.      520.         0        15         0       .00   2170.52   4645.96

1490 NH CARD USED
*SECNO 92.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        .1    4300.0  TYPE=      1  TARGET=     4299.900
  92.000      7.96   2615.91   2615.01       .00   2616.79       .88      1.96       .03   2614.99
 23000.0    4011.4   13210.0    5778.6    1194.5    1412.2    1374.3    4274.5    1323.3   2613.62
    1.48      3.36      9.35      4.20      .050      .030      .038      .000   2607.95   2653.58
 .002684      540.      550.      600.         2         8         0       .00   1442.98   4300.00

1490 NH CARD USED
*SECNO 93.000
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

93.000	6.96	2617.88	2617.88	.00	2619.29	1.40	1.91	.16	2616.41
23000.0	4393.2	12506.1	6100.7	757.4	1042.4	1314.0	4315.3	1339.2	2615.79
1.50	5.80	12.00	4.64	.035	.030	.052	.000	2610.92	2858.75
.005839	480.	500.	520.	0	15	0	.00	1295.61	4728.18

1490 NH CARD USED
*SECNO 94.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

94.000	8.44	2621.44	2621.44	.00	2622.78	1.33	2.34	.01	2617.74
23000.0	4554.4	14437.6	4008.0	935.8	1275.6	2010.3	4358.6	1358.9	2620.44
1.51	4.87	11.32	1.99	.038	.030	.077	.000	2613.00	2658.77
.003733	500.	500.	530.	0	11	0	.00	2022.35	4960.84

1490 NH CARD USED
*SECNO 95.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

95.000	8.29	2623.39	2623.39	.00	2625.09	1.71	1.90	.11	2619.60
23000.0	680.6	19006.0	3313.3	387.2	1655.1	1450.0	4400.8	1378.3	2623.09
1.53	1.76	11.48	2.29	.095	.029	.079	.000	2615.10	2672.11
.004240	460.	480.	480.	0	8	0	.00	1523.61	4398.59

1490 NH CARD USED
*SECNO 97.000

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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=          .1    4250.0  TYPE=      1  TARGET=     4249.900
   97.000      8.63   2627.43   2625.96       .00   2628.29       .86      3.12       .08   2625.79
  23000.0     118.4   15490.4    7391.2     101.8    1741.0    2964.7    4500.9    1418.7   2623.80
     1.57      1.16      8.90      2.49      .060      .030      .063      .000   2618.80   2407.94
  .002255     1010.     1020.     1080.         2        11         0       .00   1792.66   4250.00


1490 NH CARD USED
*SECNO 98.000

3265 DIVIDED FLOW

   98.000      6.92   2628.64   2627.68       .00   2629.64      1.00      1.31       .04   2624.86
  23000.0    1067.2   13089.5    8843.3     329.1    1343.0    1748.0    4545.6    1434.8   2625.50
     1.59      3.24      9.75      5.06      .050      .030      .041      .000   2621.72   2260.46
  .003314      520.      500.      450.         3        23         0       .00   1242.57   4127.54


1490 NH CARD USED
*SECNO 99.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   99.000      8.53   2631.80   2631.80       .00   2633.18      1.38      1.87       .11   2628.14
  23000.0    1531.3   12677.3    8791.4     450.0    1025.8    2818.6    4589.9    1453.1   2628.89
     1.60      3.40     12.36      3.12      .060      .030      .057      .000   2623.27   2234.44
  .004263      510.      500.      500.         0        11         0       .00   1929.09   4164.48


1490 NH CARD USED
*SECNO 100.000

3265 DIVIDED FLOW
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   100.000      8.56   2634.18   2634.18        .00   2635.72       1.54       2.39        .05   2634.25
   23000.0        .0   14371.9    8628.1         .0    1170.6     2313.6     4635.1     1472.8   2633.20
      1.62       .00     12.28      3.73       .000      .030       .056       .000    2625.62   2513.23
   .005117      500.      520.      500.          0         5          0        .00    1504.10   4233.76

1490 NH CARD USED
*SECNO 101.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   101.000      9.45   2637.15   2637.15        .00   2638.44       1.29       2.40        .03   2634.90
   23000.0     274.4   11715.3   11010.4      147.3     944.4     3480.8     4681.8     1491.3   2632.83
      1.64      1.86     12.40      3.16       .063      .030       .064       .000    2627.70   2269.80
   .004320      520.      520.      500.          0         8          0        .00    1690.41   4098.15

1490 NH CARD USED
*SECNO 102.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   102.000      8.34   2639.44   2639.44        .00   2640.60       1.16       2.09        .01   2634.50
   23000.0    2080.7   10796.9   10122.4      908.9     880.2     3608.6     4739.1     1511.9   2635.58
      1.66      2.29     12.27      2.81       .070      .030       .072       .000    2631.10   1875.44
   .004043      500.      500.      500.          0        10          0        .00    1896.45   3870.69

1490 NH CARD USED
*SECNO 102.500

3265 DIVIDED FLOW

   102.500      8.10   2640.80   2640.48        .00   2641.61        .80        .97        .04   2634.20
   23000.0    3518.1   12438.4    7043.5     1720.2    1299.5     3235.9     4778.7     1526.1   2636.90
      1.67      2.05      9.57      2.18       .070      .030       .069       .000    2632.70   2020.85
   .002680      310.      300.      290.          2        10          0        .00    2288.56   4345.56
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 103.000

3265 DIVIDED FLOW

 103.000      9.43   2641.77   2640.59       .00   2642.14       .37       .49       .04   2637.39
 23000.0    6015.1   11450.4    5534.5    2123.3    1766.4    2904.5    4810.2    1536.9   2634.60
    1.68      2.83      6.48      1.91      .051      .039      .067      .000   2632.34   1887.14
 .002037      210.      210.      210.         2         5         0       .00   2196.00   4139.92

1490 NH CARD USED
*SECNO 104.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 104.000      8.69   2643.73   2643.73       .00   2645.25      1.51      1.75       .34   2639.96
 23000.0    2089.3   15575.5    5335.1     428.3    1323.4    2190.2    4883.5    1562.5   2640.27
    1.70      4.88     11.77      2.44      .047      .030      .070      .000   2635.04   2613.02
 .004594      600.      600.      590.         0        15         0       .00   1556.47   4233.36

1490 NH CARD USED
*SECNO 104.500

3301 HV CHANGED MORE THAN HVINS

 104.500      8.10   2645.80   2644.64       .00   2646.40       .59      1.06       .09   2642.80
 23000.0     642.0   13928.9    8429.1     295.8    1811.4    3454.4    4915.1    1573.3   2642.80
    1.72      2.17      7.69      2.44      .060      .035      .074      .000   2637.70   2523.92
 .002962      290.      290.      290.         3        15         0       .00   1678.69   4202.61

1490 NH CARD USED
*SECNO 105.000

3265 DIVIDED FLOW
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3301 HV CHANGED MORE THAN HVINS

 105.000      7.74   2646.06   2645.81       .00   2647.30      1.24       .71       .19   2641.68
 23000.0    2047.5   17061.3    3891.2     584.1    1664.7    2057.8    4940.1    1581.6   2644.92
    1.72      3.51     10.25      1.89      .060      .030      .074      .000   2638.32   2573.95
 .003522      220.      220.      220.         3        12         0       .00   1614.13   4244.66


1490 NH CARD USED
*SECNO 106.000

3265 DIVIDED FLOW

 106.000      8.69   2648.47   2648.36       .00   2649.45       .98      2.13       .03   2646.29
 23000.0     110.3   11952.3   10937.4     108.9    1125.4    3661.4    5003.7    1608.9   2648.19
    1.75      1.01     10.62      2.99      .100      .030      .054      .000   2639.78   2415.36
 .003993      500.      530.      650.         2         8         0       .00   2196.65   4613.22


FLOW DISTRIBUTION FOR SECNO=    106.00          CWSEL=   2648.47

STA=    2415.    2521.    2700.    2800.    2866.    2891.    2955.    3099.    3208.    3600.    3800.    4000.    4200.
  PER Q=       .5     52.0      6.1      7.1      3.5      4.6      3.8      3.0      3.4      3.4      3.4      3.6
   AREA=    108.9   1125.4    299.1    291.1    128.4    222.6    268.7    239.2    446.3    343.6    359.6    390.1
    VEL=      1.0     10.6      4.7      5.6      6.2      4.8      3.3      2.9      1.8      2.3      2.2      2.1
  DEPTH=      1.0      6.3      3.0      4.4      5.1      3.5      1.9      2.2      1.1      1.7      1.8      2.0

STA=    4200.    4400.    4613.
  PER Q=      3.4      2.2
   AREA=    378.2    294.5
    VEL=      2.1      1.7
  DEPTH=      1.9      1.4

1490 NH CARD USED
*SECNO 107.000

3265 DIVIDED FLOW

 107.000      7.83   2650.40   2649.85       .00   2651.50      1.10      2.01       .04   2649.30
 23000.0       1.6   20428.9    2569.6       2.6    2287.9    1569.0    5052.8    1630.6   2647.00
    1.76       .61      8.93      1.64      .100      .031      .081      .000   2642.57   2395.31
 .003906      540.      530.      460.         0        12         0       .00   1785.69   4436.22
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=    107.00          CWSEL=   2650.40

STA=    2395.    2400.    2545.    2678.    2841.    2847.    2996.    3600.    4400.    4436.
  PER Q=       .0     44.8      9.0     34.7       .3      4.6      3.3      3.3       .0
   AREA=      2.6    956.6    448.4    852.6     30.3    503.5    558.2    498.4      8.9
    VEL=       .6     10.8      4.6      9.4      2.5      2.1      1.3      1.5       .6
  DEPTH=       .5      6.6      3.4      5.3      4.5      3.4       .9       .6       .2

1490 NH CARD USED
*SECNO 108.000

3265 DIVIDED FLOW

   108.000      6.73   2652.93   2652.31       .00   2653.76       .83      2.23       .03   2653.41
   23000.0       8.6   19369.5    3621.9       9.4    2466.1    1220.4    5104.5    1652.4   2654.61
      1.79       .91      7.85      2.97      .045      .033      .040      .000   2646.20   2412.86
   .003559      610.      600.      590.         2        15         0       .00   1427.49   4070.66


1490 NH CARD USED
*SECNO 109.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   109.000      6.19   2655.31   2655.31       .00   2656.78      1.47      2.19       .19   2655.10
   23000.0        .7   19789.1    3210.2       2.6    1903.0     953.2    5142.1    1667.2   2653.46
      1.80       .25     10.40      3.37      .100      .030      .045      .000   2649.12   2511.80
   .005505      510.      500.      500.         0        11         0       .00   1148.49   3660.29


1490 NH CARD USED
*SECNO 110.000

3301 HV CHANGED MORE THAN HVINS

   110.000      7.45   2658.47   2657.15       .00   2659.23       .76      2.38       .07   2657.80
   23000.0     706.6   21103.8    1189.6     511.1    2901.0     560.4    5181.8    1682.3   2657.20
      1.82      1.38      7.27      2.12      .098      .039      .060      .000   2651.02   2424.12
   .004106      500.      500.      530.         2         5         0       .00   1399.58   3823.70
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 110.500
 110.500      7.06    2659.36    2658.41       .00    2660.21       .85       .96       .03    2658.10
 23000.0     545.3    21033.4     1421.3     498.5     2719.3     669.9    5203.9    1690.2    2655.60
    1.83      1.09       7.73       2.12      .100       .034      .060      .000   2652.30    2367.41
 .003718      240.       245.       250.         3         15         0       .00   1431.58    3798.99

1490 NH CARD USED
*SECNO 111.000

3265 DIVIDED FLOW

 111.000      6.75    2660.35    2659.49       .00    2661.06       .71       .83       .01    2656.87
 23000.0    1985.8    19385.0     1629.1     963.8     2654.7     803.6    5226.9    1698.7    2659.12
    1.84      2.06       7.30       2.03      .068       .033      .060      .000   2653.60    2414.73
 .003236      235.       240.       250.         2         15         0       .00   1622.49    4052.05

1490 NH CARD USED
*SECNO 112.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

 112 000      5.47    2662.25    2662.10       .00    2663.55      1.30      2.31       .18    2662.40
 23000.0    1575.0    20434.4      990.6     701.2     2116.3     319.7    5272.9    1715.9    2660.28
    1.86      2.25       9.66       3.10      .079       .030      .060      .000   2656.78    2542.13
 .006183      480.       530.       600.         2         15         0       .00   1205.77    3750.24

1490 NH CARD USED
*SECNO 113.000

3265 DIVIDED FLOW

 113.000      6.17    2665.34    2664.80       .00    2666.40      1.07      2.83       .02    2665.15
 23000.0     658.8    18447.0     3894.2     510.2     2031.4    1024.7    5314.9    1731.5    2662.67
    1.88      1.29       9.08       3.80      .100       .032      .047      .000   2659.17    2407.71
 .004421      500.       540.       610.         3          8         0       .00   1274.04    3861.06
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 114.000
   114.000       6.88   2667.38   2667.28        .00   2668.57       1.19       2.13        .04   2664.66
   23000.0     3056.3   16393.6    3550.1      628.8    1629.0     1283.4     5356.0     1746.8   2665.99
      1.89       4.86     10.06      2.77       .033      .030       .051       .000    2660.50   2584.99
   .004074      500.      500.      510.          3         8          0        .00    1373.70   3958.69

1490 NH CARD USED
*SECNO 115.000

3301 HV CHANGED MORE THAN HVINS

   115.000       6.16   2669.71   2669.17        .00   2670.29        .58       1.66        .06   2668.20
   23000.0     1236.4   12912.6    8851.0      594.3    1684.9     2639.0     5405.6     1765.3   2666.83
      1.92       2.08      7.66      3.35       .052      .030       .041       .000    2663.55   2150.78
   .002614      520.      520.      500.          2        14          0        .00    1791.83   3942.61

1490 NH CARD USED
*SECNO 116.000

3470 ENCROACHMENT STATIONS=          .1    4000.0  TYPE=       1  TARGET=     3999.900
   116.000       5.53   2671.13   2670.56        .00   2671.87        .74       1.53        .05   2668.20
   23000.0      260.0   13865.6    8874.4       67.5    1756.9     1771.4     5452.2     1781.8   2669.97
      1.94       3.85      7.89      5.01       .035      .029       .035       .000    2665.60   2763.76
   .003991      520.      490.      460.          2        15          0        .00    1236.24   4000.00

1490 NH CARD USED
*SECNO 117.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=          .1    3600.0  TYPE=       1  TARGET=     3599.900
   117.000       5.82   2673.31   2672.91        .00   2674.59       1.28       2.56        .16   2674.26
   23000.0       27.0   12599.6   10373.4       32.8    1238.4     1371.9     5488.0     1794.3   2671.60
      1.95        .82     10.17      7.56       .045      .032       .035       .000    2667.49   2550.03
   .006791      530.      500.      500.          2         5          0        .00     925.68   3600.00
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 118.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=        .1    3400.0  TYPE=      1  TARGET=     3399.900
   118.000      6.89   2676.68   2676.68       .00   2678.19      1.51      3.06       .07   2674.57
   23000.0    6707.0   15111.0    1182.1    1124.9    1318.9     416.2    5519.7    1805.4   2675.77
      1.97      5.96     11.46      2.84      .035      .030      .062      .000   2669.79   2368.48
   .005544      520.      500.      490.         0        11         0       .00    993.80   3400.00

1490 NH CARD USED
*SECNO 118.500

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.46

   118.500      7.35   2678.55   2677.59       .00   2679.29       .75      1.03       .08   2675.10
   23000.0   10733.5   11550.0     716.5    2142.8    1358.3     270.8    5541.1    1811.9   2674.10
      1.98      5.01      8.50      2.65      .036      .030      .050      .000   2671.20   2284.05
   .002606      283.      280.      278.         2        10         0       .00   1001.13   3285.18

1490 NH CARD USED
*SECNO 119.000
   119.000      7.23   2679.28   2677.37       .00   2679.74       .46       .41       .03   2676.08
   23000.0   11480.1   11469.0     50.9    2876.3    1742.3      40.2    5562.1    1817.0   2677.09
      1.99      3.99      6.58      1.27      .036      .030      .060      .000   2672.05   2072.71
   .001443      215.      220.      230.         2        19         0       .00   1073.03   3145.74

1490 NH CARD USED
*SECNO 120.000

3301 HV CHANGED MORE THAN HVINS
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .49

   120.000       7.25   2680.40   2680.22        .00   2681.43       1.04       1.52        .17   2679.17
   23000.0    15909.2    7079.4      11.3     1966.9     847.6        9.5     5612.7     1831.4   2679.40
      2.01       8.09       8.35      1.20       .034      .027       .060       .000    2673.15   2411.89
   .005944       600.       570.      570.          2         6          0        .00    1038.40   3450.28


1490 NH CARD USED
*SECNO 120.500
   120.500       6.41   2682.01   2681.85        .00   2683.13       1.12       1.67        .02   2680.10
   23000.0     2192.6   11764.1    9043.3      616.8    1241.5     1137.6     5632.1     1838.3   2680.50
      2.02       3.55       9.48      7.95       .050      .030       .031       .000    2675.60   2402.12
   .005611       300.       285.      280.          2        10          0        .00    1040.73   3442.85


1490 NH CARD USED
*SECNO 121.000

3265 DIVIDED FLOW

   121.000       7.13   2683.21   2682.35        .00   2684.11        .91        .96        .02   2681.61
   23000.0      979.9   14982.9    7037.2      452.8    1700.8     1406.7     5650.0     1844.2   2679.35
      2.03       2.16       8.81      5.00       .060      .030       .036       .000    2676.08   2286.24
   .003062       250.       240.      230.          2         8          0        .00    1082.76   3396.96


1490 NH CARD USED
*SECNO 122.000
   122.000       6.25   2684.81   2684.60        .00   2686.18       1.37       1.93        .14   2683.30
   23000.0      980.4   19975.0    2044.6      410.4    2000.5      583.8     5687.0     1856.5   2682.37
      2.05       2.39       9.99      3.50       .060      .030       .051       .000    2678.56   2218.05
   .005328       590.       490.      450.          3        15          0        .00    1064.67   3282.73


1490 NH CARD USED
*SECNO 123.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   123.000       8.05   2688.47   2688.47        .00   2690.20       1.73       2.63        .11   2687.85
   23000.0     1717.1   19575.6    1707.3      569.9    1719.8      591.7     5721.4     1868.6   2686.10
      2.06       3.01      11.38      2.89       .050      .030       .060       .000    2680.42   2317.05
   .004999       580.       510.      450.          0        11          0        .00     983.00   3300.05
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 124.000
   124.000       8.52    2691.06    2690.91        .00    2692.77       1.72       2.57        .00    2689.76
   23000.0     1967.1    20911.4      121.5      664.5     1903.5       73.1     5753.8     1879.5    2689.80
      2.07       2.96      10.99       1.66       .050       .031       .060       .000    2682.54    2176.97
   .005071       520.       510.       500.          2          8          0        .00     856.91    3033.88

1490 NH CARD USED
*SECNO 124.500

3301 HV CHANGED MORE THAN HVINS

   124.500       8.42    2692.72    2691.61        .00    2693.70        .98        .86        .07    2686.10
   23000.0     7960.5    15025.5       14.0     1433.1     1676.4       13.9     5767.8     1883.7    2691.80
      2.08       5.55       8.96       1.01       .037       .030       .050       .000    2684.30    2206.66
   .003231       200.       218.       270.          3         15          0        .00     893.50    3100.16

1490 NH CARD USED
*SECNO 125.000

3470 ENCROACHMENT STATIONS=          .1    3150.0  TYPE=       1  TARGET=     3149.900
   125.000       8.89    2693.34    2691.66        .00    2694.34       1.00        .63        .01    2689.67
   23000.0     1955.4    20976.6       68.0      824.4     2502.1       26.2     5784.6     1888.2    2689.90
      2.09       2.37       8.38       2.59       .049       .031       .050       .000    2684.45    2301.73
   .002418       220.       230.       250.          2         11          0        .00     848.27    3150.00

1490 NH CARD USED
*SECNO 126.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    3130.0  TYPE=       1  TARGET=     3129.900
   126.000       8.71    2695.31    2695.31        .00    2697.51       2.20       1.65        .36    2694.94
   23000.0     1576.4    21423.6         .0      600.6     1738.3         .0     5817.5     1896.9    2696.00
      2.10       2.62      12.32        .00       .050       .030       .000       .000    2686.60    2430.65
   .004613       480.       510.       570.          0          5          0        .00     685.59    3116.24
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 127.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        .1    2955.0  TYPE=      1  TARGET=     2954.900
   127.000     10.25   2697.44   2697.23       .00   2699.82      2.38      2.25       .05   2697.19
   23000.0     860.6   22075.2      64.3     476.5    1748.4      39.0    5844.3    1904.9   2697.50
      2.11      1.81     12.63      1.65      .062      .030      .060      .000   2687.19   2240.14
   .004235      500.      510.      540.         3        11         0       .00    707.37   2955.00


1490 NH CARD USED
*SECNO 128.000

3265 DIVIDED FLOW

   128.000      9.46   2699.26   2699.23       .00   2701.54      2.28      1.72       .01   2698.21
   23000.0    1015.7   20753.1    1231.2     358.7    1633.7     294.2    5865.2    1911.1   2698.90
      2.12      2.83     12.70      4.19      .045      .030      .045      .000   2689.80   2247.54
   .004350      400.      400.      390.         2        11         0       .00    638.72   2908.50


1490 NH CARD USED
*SECNO 129.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   129.000     11.34   2702.07   2702.07       .00   2704.32      2.25      1.76       .00   2701.09
   23000.0     520.7   21274.2    1205.1     277.7    1705.9     311.9    5885.8    1917.2   2700.74
      2.13      1.88     12.47      3.86      .050      .030      .050      .000   2690.73   2170.51
   .004693      390.      390.      400.         0        11         0       .00    727.34   2897.85


1490 NH CARD USED
*SECNO 130.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.21


3470 ENCROACHMENT STATIONS=          .1    2770.0  TYPE=       1  TARGET=     2769.900
   130.000     13.99   2704.81   2701.62       .00   2705.39       .58       .91       .17   2696.89
   23000.0    5470.9   12556.5    4972.6    1204.2    1722.0    1196.3    5922.6    1925.0   2698.10
      2.15      4.54      7.29      4.16      .036      .031      .035      .000   2690.82   2116.59
   .000959     500.      500.      500.         2        10         0       .00    626.51   2763.00


1490 NH CARD USED
*SECNO 131.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    2750.0  TYPE=       1  TARGET=     2749.900
   131.000     10.67   2704.37   2704.37       .00   2707.03      2.66       .69       .62   2700.12
   23000.0    914.2   19870.0    2215.9     151.3    1430.9     385.1    5948.3    1929.3   2699.32
      2.16      6.04     13.89      5.75      .036      .030      .036      .000   2693.70   2248.20
   .004843     420.      380.      300.         0        15         0       .00    426.77   2750.00


1490 NH CARD USED
*SECNO 132.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    2700.0  TYPE=       1  TARGET=     2699.900
   132.000     11.74   2707.03   2707.03       .00   2710.41      3.38      2.03       .22   2706.05
   23000.0     61.3   22518.3     420.4      31.0    1509.9     170.7    5964.7    1932.3   2705.90
      2.17      1.98     14.91      2.46      .035      .030      .060      .000   2695.29   2325.87
   .005137     530.      420.      170.         0         8         0       .00    341.75   2700.00
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 133.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   133.000     13.69   2711.20   2711.20       .00   2714.09      2.88      1.86       .05   2707.24
   23000.0    1679.4   19847.5    1473.1     646.3    1361.8     270.3    5983.1    1936.4   2702.50
      2.18      2.60     14.57      5.45      .061      .030      .060      .000   2697.51   2246.69
   .004239      410.      400.      400.         0         8         0       .00    541.97   2788.66

1490 NH CARD USED
*SECNO 134.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   134.000     11.48   2714.56   2714.56       .00   2716.65      2.09      1.76       .08   2712.29
   23000.0    6134.3   16865.7        .0    1547.6    1264.6        .0    6006.6    1941.7   2721.40
      2.19      3.96     13.34       .00      .059      .030      .000      .000   2703.08   2260.94
   .004516      400.      400.      450.         0        10         0       .00    614.52   2875.46

1490 NH CARD USED
*SECNO 135.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    3000.0  TYPE=       1  TARGET=     2999.900
   135.000     11.91   2716.91   2716.91       .00   2719.36      2.44      1.96       .11   2714.90
   23000.0    4088.6   18911.4        .0     789.7    1388.0        .0    6029.3    1946.7   2716.98
      2.20      5.18     13.62       .00      .041      .030      .000      .000   2705.00   2287.23
   .005259      380.      410.      450.         0         8         0       .00    497.74   2784.97

1490 NH CARD USED
*SECNO 136.000

3301 HV CHANGED MORE THAN HVINS

   136.000     11.10   2718.39   2717.79       .00   2721.53      3.14      1.97       .21   2715.39
   23000.0     476.2   22020.4     503.4     118.5    1518.2     119.7    6047.7    1950.2   2714.41
      2.21      4.02     14.50      4.20      .050      .030      .045      .000   2707.29   2510.27
   .004412      400.      410.      410.         3        11         0       .00    266.13   2776.40
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 137.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 137.000     12.54   2720.54   2720.54       .00   2724.80      4.26      2.09       .34   2722.70
 23000.0       .0    22128.0     872.0        .0    1312.4     169.7    6061.8    1952.2   2715.17
    2.21      .00      16.86      5.14      .000      .033      .060      .000   2708.00   2430.26
 .007037     380.       380.      380.         0         8         0       .00    188.25   2618.51

FLOW DISTRIBUTION FOR SECNO=    137.00          CWSEL=   2720.54

STA=    2430.    2566.    2593.    2600.    2619.
  PER Q=     96.2      3.1       .4       .2
   AREA=   1312.4    124.3     21.9     23.5
    VEL=     16.9      5.8      4.5      2.4
  DEPTH=      9.6      4.6      3.2      1.3

1490 NH CARD USED
*SECNO 138.000

3301 HV CHANGED MORE THAN HVINS

 138.000     13.15   2724.42   2724.09       .00   2727.66      3.24      2.76       .10   2718.80
 23000.0    2133.2   20698.7     168.1     379.5    1369.9      41.9    6076.9    1954.4   2718.66
    2.22      5.62     15.11      4.01      .060      .035      .050      .000   2711.27   2290.71
 .006754     410.       400.      380.         2         8         0       .00    283.01   2573.72

FLOW DISTRIBUTION FOR SECNO=    138.00          CWSEL=   2724.42

STA=    2291.    2373.    2400.    2400.    2551.    2574.
  PER Q=      4.3      5.0       .0     90.0       .7
   AREA=    211.7    167.5       .3   1369.9     41.9
    VEL=      4.7      6.8      6.4     15.1      4.0
  DEPTH=      2.6      6.2      5.6      9.1      1.8
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 139.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 139.000    10.75   2730.39   2730.39       .00   2733.14      2.75      3.10       .05   2727.20
 23000.0    723.4   17252.8    5023.8     218.3    1291.2     359.2    6093.8    1957.5   2725.92
    2.23     3.31     13.36     13.98      .070      .037      .036      .000   2719.64   2126.76
 .008953     420.      400.      400.         0        15         0       .00    381.51   2508.27

FLOW DISTRIBUTION FOR SECNO=    139.00          CWSEL=   2730.39

STA=    2127.    2241.    2300.    2433.    2447.    2460.    2472.    2508.
  PER Q=      3.1      6.7     68.3      6.5     10.7      3.8       .8
   AREA=    218.3    275.4   1015.8    104.1    130.5     74.0     50.7
    VEL=      3.3      5.6     15.5     14.5     18.9     11.7      3.6
  DEPTH=      1.9      4.7      7.6      7.4     10.2      6.0      1.4

1490 NH CARD USED
*SECNO 140.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 140.000    14.00   2736.74   2736.74       .00   2740.17      3.43      2.97       .20   2733.81
 23000.0    362.9   19668.4    2968.7     135.3    1239.7     455.4    6110.9    1960.6   2730.84
    2.24     2.68     15.87      6.52      .070      .034      .050      .000   2722.74   2336.19
 .006176     380.      400.      420.         0        11         0       .00    307.81   2644.01

FLOW DISTRIBUTION FOR SECNO=    140.00          CWSEL=   2736.74

STA=    2336.    2417.    2453.    2540.    2559.    2583.    2609.    2644.
  PER Q=      1.6      8.6     76.9      3.1      3.5      4.2      2.2
   AREA=    135.3    299.0    940.7    100.5    118.7    136.5     99.7
    VEL=      2.7      6.6     18.8      7.0      6.8      7.0      5.1
  DEPTH=      1.7      8.2     10.9      5.2      5.0      5.2      2.8
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THIS RUN EXECUTED 15JUN09 17:08:28

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FEMA 1994 FIS - Updated

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	8.000	.00	.00	.00	2433.41	34000.00	2445.20	2441.84	2445.68	8.29	6.22	8059.83	11811.64
	8.500	310.00	.00	.00	2435.40	34000.00	2445.42	2443.05	2446.06	14.19	6.91	6620.48	9025.02
	9.000	190.00	.00	.00	2435.89	34000.00	2445.63	2443.28	2446.36	14.61	7.26	5903.59	8895.06
*	9.500	260.00	.00	.00	2437.60	34000.00	2445.65	2444.90	2447.22	42.98	10.42	3668.16	5186.08
	10.000	240.00	.00	.00	2437.76	34000.00	2446.18	2445.98	2448.53	46.82	12.97	3269.60	4969.00
*	10.500	250.00	.00	.00	2437.80	34000.00	2448.32	2446.05	2449.41	20.53	8.59	4459.82	7504.57
	11.000	240.00	.00	.00	2438.94	34000.00	2448.87	2446.27	2449.86	16.83	8.28	4862.37	8287.60
	12.000	500.00	.00	.00	2441.60	34000.00	2450.00	2447.44	2450.69	15.25	6.83	5343.32	8706.56
	13.000	440.00	.00	.00	2443.10	34000.00	2450.74	2448.72	2451.48	20.61	7.03	5080.29	7490.03
*	13.500	310.00	.00	.00	2445.20	34000.00	2451.21	2451.21	2452.93	75.42	10.64	3406.19	3915.06
*	14.000	240.00	.00	.00	2445.90	34000.00	2453.07	2451.86	2454.11	30.89	8.54	4552.74	6117.83
*	15.000	530.00	.00	.00	2447.20	34000.00	2454.78	2454.78	2456.66	55.68	11.39	3478.47	4556.57
*	16.000	550.00	.00	.00	2448.90	34000.00	2457.67	2456.57	2458.80	27.41	9.27	4409.82	6494.32
	17.000	685.00	.00	.00	2451.60	34000.00	2459.54	2458.76	2461.08	36.41	10.57	3836.75	5634.60
*	18.000	705.00	.00	.00	2453.37	34000.00	2461.90	2461.90	2465.21	66.00	14.66	2363.60	4185.19
	19.000	510.00	.00	.00	2455.28	34000.00	2465.29	2463.89	2467.84	39.23	12.83	2650.87	5428.22
	20.000	650.00	.00	.00	2458.55	34000.00	2468.03	2466.02	2470.15	31.00	11.67	2913.58	6106.92

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	21.000	820.00	.00	.00	2460.68	34000.00	2470.63	2468.93	2472.87	34.73	12.02	2830.50	5769.48
	22.000	410.00	.00	.00	2460.32	34000.00	2472.29	2469.65	2474.11	25.02	10.85	3133.11	6797.29
	23.000	295.00	.00	.00	2462.90	34000.00	2472.97	2470.95	2475.07	31.00	11.64	2922.06	6106.20
*	25.000	210.00	2489.20	2473.50	2464.00	34000.00	2476.99	.00	2478.30	14.75	9.18	3702.53	8853.58
	26.000	260.00	.00	.00	2465.06	34000.00	2477.60	2472.75	2478.78	21.59	8.70	3907.05	7316.97
	27.000	400.00	.00	.00	2465.24	34000.00	2478.19	2474.26	2479.60	16.45	9.52	3572.70	8383.45
	28.000	830.00	.00	.00	2469.22	34000.00	2479.55	2477.37	2481.56	29.17	11.37	2989.84	6295.07
	29.000	830.00	.00	.00	2471.26	34000.00	2482.05	2479.53	2483.84	25.50	10.75	3163.86	6732.50
	30.000	810.00	.00	.00	2474.40	34000.00	2484.20	2482.69	2486.45	37.15	12.04	2823.21	5578.28
	31.000	510.00	.00	.00	2476.66	34000.00	2486.11	2484.62	2488.35	37.32	12.00	2833.45	5565.85
	32.000	700.00	.00	.00	2479.54	34000.00	2488.76	2487.56	2491.16	41.88	12.44	2733.66	5253.96
	33.000	500.00	.00	.00	2480.29	34000.00	2490.93	2489.27	2493.08	34.49	11.78	2886.69	5789.41
	34.000	415.00	.00	.00	2482.58	34000.00	2492.35	2491.04	2494.68	40.28	12.26	2772.98	5357.27
	35.000	610.00	.00	.00	2485.70	28000.00	2495.27	2492.40	2496.51	19.70	8.97	3122.18	6308.52
*	36.000	500.00	.00	.00	2489.05	28000.00	2496.49	2496.49	2499.44	75.68	13.78	2031.29	3218.61
	36.500	240.00	.00	.00	2491.90	28000.00	2498.49	2498.07	2501.08	58.96	12.90	2171.21	3646.41
	38.000	580.00	.00	.00	2492.95	28000.00	2501.91	2500.73	2503.97	41.35	11.51	2432.71	4354.54
	38.500	60.00	.00	.00	2493.10	28000.00	2502.20	2500.93	2504.22	39.72	11.41	2452.99	4443.04
	39.500	120.00	2516.20	2510.20	2494.40	28000.00	2503.22	.00	2505.28	40.78	11.52	2431.26	4384.66
	40.000	90.00	.00	.00	2494.63	28000.00	2503.81	2502.21	2505.64	34.10	10.86	2578.28	4794.60
	41.000	280.00	.00	.00	2497.07	28000.00	2504.60	2503.88	2506.95	50.80	12.30	2277.26	3928.68
	42.000	420.00	.00	.00	2498.88	28000.00	2506.65	2505.88	2509.02	47.46	12.47	2448.91	4064.32
*	43.000	350.00	.00	.00	2500.96	28000.00	2508.55	2508.55	2511.48	64.05	14.00	2140.72	3498.75
*	44.000	420.00	.00	.00	2501.58	28000.00	2512.68	2512.68	2514.57	31.26	12.33	4302.95	5008.10
	45.000	490.00	.00	.00	2503.70	28000.00	2514.57	2514.50	2516.02	26.50	10.99	5200.54	5439.27
*	46.000	500.00	.00	.00	2506.85	28000.00	2515.38	2514.90	2518.34	55.89	13.85	2178.00	3745.35

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	47.000	520.00	.00	.00	2510.00	28000.00	2518.68	2517.16	2520.70	34.84	11.46	2572.74	4743.57
*	48.000	510.00	.00	.00	2512.29	28000.00	2522.47	2522.47	2524.06	30.29	12.06	5061.95	5087.41
*	48.250	275.00	.00	.00	2513.30	28000.00	2524.24	2522.59	2524.68	12.69	6.89	9242.29	7859.70
	48.500	230.00	.00	.00	2514.20	28000.00	2524.42	2522.72	2524.99	11.05	7.25	8784.59	8425.05
*	49.000	600.00	.00	.00	2516.68	28000.00	2525.80	2525.80	2526.90	31.10	10.40	5709.86	5020.70
*	50.000	600.00	.00	.00	2520.00	28000.00	2528.99	2528.99	2530.17	28.96	10.59	6844.80	5203.10
*	51.000	510.00	.00	.00	2522.10	28000.00	2531.01	2531.01	2532.29	29.32	10.60	6114.07	5171.41
*	52.000	500.00	.00	.00	2523.67	28000.00	2533.04	2533.04	2534.26	30.66	10.56	6284.55	5057.12
	53.000	500.00	.00	.00	2526.77	28000.00	2534.77	2534.25	2535.73	28.08	8.86	5418.25	5283.99
	54.000	560.00	.00	.00	2528.41	28000.00	2536.37	2536.21	2537.76	45.48	11.08	4900.11	4151.85
	55.000	500.00	.00	.00	2531.99	28000.00	2538.83	2537.67	2539.56	26.94	7.38	4433.58	5395.10
	56.000	450.00	.00	.00	2534.29	28000.00	2540.40	2539.76	2541.08	39.52	7.56	4855.47	4454.17
	57.000	520.00	.00	.00	2536.68	28000.00	2542.48	2542.27	2543.49	49.45	9.11	4007.22	3981.61
	58.000	500.00	.00	.00	2539.07	28000.00	2544.93	2544.38	2545.82	42.41	8.17	5019.69	4299.59
*	59.000	520.00	.00	.00	2541.60	28000.00	2548.61	2548.61	2549.88	41.10	10.84	4384.55	4367.70
	60.000	650.00	.00	.00	2544.17	28000.00	2551.25	2551.14	2552.59	41.51	11.03	4196.16	4346.11
	61.000	630.00	.00	.00	2545.85	28000.00	2553.96	2553.28	2554.84	30.75	8.05	4677.84	5049.31
*	62.000	510.00	.00	.00	2548.46	28000.00	2555.58	2555.58	2556.95	45.94	10.62	4071.22	4130.92
*	63.000	500.00	.00	.00	2550.67	28000.00	2557.96	2557.96	2559.58	53.45	12.32	3992.72	3829.95
*	64.000	510.00	.00	.00	2552.80	28000.00	2560.56	2560.56	2562.40	47.60	11.79	3469.25	4058.45
	64.500	310.00	.00	.00	2554.00	23000.00	2562.65	2561.07	2563.42	18.61	7.60	4194.53	5331.30
	65.000	190.00	.00	.00	2554.61	23000.00	2563.05	2561.49	2563.78	19.21	7.96	4555.97	5247.61
*	66.000	500.00	.00	.00	2556.52	23000.00	2564.99	2564.99	2566.65	38.56	11.71	3187.18	3704.12
	66.500	310.00	.00	.00	2558.28	23000.00	2566.96	2565.92	2567.60	21.06	8.25	4547.47	5011.39
	67.000	190.00	.00	.00	2559.85	23000.00	2567.56	2565.95	2568.01	15.12	6.74	5241.55	5914.62
*	68.000	640.00	.00	.00	2562.38	23000.00	2568.85	2568.76	2570.04	53.09	10.58	3078.38	3156.73

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	69.000	478.00	.00	.00	2564.58	23000.00	2571.47	2571.00	2572.33	38.24	10.13	4193.82	3719.20
	70.000	510.00	.00	.00	2566.10	23000.00	2574.03	2572.19	2574.35	35.55	4.42	5166.41	3857.66
	71.000	480.00	.00	.00	2567.66	23000.00	2575.42	2574.33	2575.93	28.39	7.53	5107.32	4316.45
*	72.000	460.00	.00	.00	2569.57	23000.00	2577.27	2577.27	2578.79	62.44	12.68	4078.51	2910.71
*	72.400	70.00	.00	.00	2569.73	23000.00	2578.85	2577.26	2579.29	13.56	7.31	5453.58	6246.18
	72.500	40.00	.00	.00	2569.89	23000.00	2578.72	2577.56	2579.56	25.68	9.65	5165.35	4538.76
	73.500	70.00	2588.80	2582.80	2570.10	23000.00	2578.97	.00	2580.06	35.54	10.73	5223.24	3858.30
*	74.000	125.00	.00	.00	2570.47	23000.00	2580.12	2578.39	2580.51	12.55	7.54	6443.59	6491.29
	75.000	350.00	.00	.00	2572.53	23000.00	2580.71	2579.13	2581.00	12.03	6.14	7083.84	6630.74
	76.000	481.00	.00	.00	2574.15	23000.00	2581.49	2580.67	2581.88	23.09	8.28	6596.38	4786.95
	77.000	443.00	.00	.00	2576.18	23000.00	2582.76	2582.28	2583.21	33.60	8.68	6117.98	3968.08
	78.000	644.00	.00	.00	2578.60	23000.00	2585.08	2584.77	2585.65	41.43	8.25	5381.11	3573.34
	79.000	500.00	.00	.00	2580.49	23000.00	2587.07	2586.64	2587.64	38.02	9.88	6625.93	3729.88
	80.000	531.00	.00	.00	2582.03	23000.00	2589.01	2588.39	2589.38	29.28	6.07	6023.51	4250.59
*	81.000	520.00	.00	.00	2583.78	23000.00	2591.62	2591.62	2592.59	34.39	10.78	4892.26	3922.09
	82.000	510.00	.00	.00	2587.20	23000.00	2593.85	2593.53	2594.51	40.43	10.61	5543.33	3617.03
	83.000	500.00	.00	.00	2587.50	23000.00	2595.61	2595.47	2596.59	40.10	10.19	4982.42	3632.22
*	84.000	530.00	.00	.00	2590.78	23000.00	2598.76	2598.76	2599.71	33.61	10.54	5781.84	3967.43
*	85.000	500.00	.00	.00	2592.50	23000.00	2601.07	2601.07	2602.25	33.83	10.63	5828.00	3954.29
	86.000	500.00	.00	.00	2595.10	23000.00	2603.15	2602.48	2603.79	27.67	9.12	6946.64	4372.34
	87.000	520.00	.00	.00	2597.70	23000.00	2604.57	2604.44	2605.62	39.61	10.46	5593.23	3654.68
	88.000	600.00	.00	.00	2599.37	23000.00	2606.73	2606.20	2607.55	25.14	8.76	6350.12	4587.27
*	89.000	810.00	.00	.00	2602.10	23000.00	2609.10	2609.10	2609.99	40.96	10.00	5272.05	3593.86
	90.000	510.00	.00	.00	2603.88	23000.00	2611.35	2610.79	2611.88	31.36	8.76	6070.05	4107.31
*	91.000	500.00	.00	.00	2606.80	23000.00	2613.60	2613.60	2614.79	48.03	11.18	4322.06	3318.56
	92.000	550.00	.00	.00	2607.95	23000.00	2615.91	2615.01	2616.79	26.84	9.35	3980.98	4439.90

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	93.000	500.00	.00	.00	2610.92	23000.00	2617.88	2617.88	2619.29	58.39	12.00	3113.80	3010.06
*	94.000	500.00	.00	.00	2613.00	23000.00	2621.44	2621.44	2622.78	37.33	11.32	4221.77	3764.59
*	95.000	480.00	.00	.00	2615.10	23000.00	2623.39	2623.39	2625.09	42.40	11.48	3492.22	3532.31
	97.000	1020.00	.00	.00	2618.80	23000.00	2627.43	2625.96	2628.29	22.55	8.90	4807.47	4843.61
	98.000	500.00	.00	.00	2621.72	23000.00	2628.64	2627.68	2629.64	33.14	9.75	3420.10	3995.40
*	99.000	500.00	.00	.00	2623.27	23000.00	2631.80	2631.80	2633.18	42.63	12.36	4294.32	3522.78
*	100.000	520.00	.00	.00	2625.62	23000.00	2634.18	2634.18	2635.72	51.17	12.28	3484.28	3215.44
*	101.000	520.00	.00	.00	2627.70	23000.00	2637.15	2637.15	2638.44	43.20	12.40	4572.50	3499.41
*	102.000	500.00	.00	.00	2631.10	23000.00	2639.44	2639.44	2640.60	40.43	12.27	5397.67	3617.38
	102.500	300.00	.00	.00	2632.70	23000.00	2640.80	2640.48	2641.61	26.80	9.57	6255.58	4442.69
	103.000	210.00	.00	.00	2632.34	23000.00	2641.77	2640.59	2642.14	20.37	6.48	6794.21	5095.74
*	104.000	600.00	.00	.00	2635.04	23000.00	2643.73	2643.73	2645.25	45.94	11.77	3941.94	3393.43
	104.500	290.00	.00	.00	2637.70	23000.00	2645.80	2644.64	2646.40	29.62	7.69	5561.63	4226.39
	105.000	220.00	.00	.00	2638.32	23000.00	2646.06	2645.81	2647.30	35.22	10.25	4306.62	3875.42
	106.000	530.00	.00	.00	2639.78	23000.00	2648.47	2648.36	2649.45	39.93	10.62	4895.69	3639.80
	107.000	530.00	.00	.00	2642.57	23000.00	2650.40	2649.85	2651.50	39.06	8.93	3859.46	3680.07
	108.000	600.00	.00	.00	2646.20	23000.00	2652.93	2652.31	2653.76	35.59	7.85	3695.90	3855.40
*	109.000	500.00	.00	.00	2649.12	23000.00	2655.31	2655.31	2656.78	55.05	10.40	2858.89	3099.78
	110.000	500.00	.00	.00	2651.02	23000.00	2658.47	2657.15	2659.23	41.06	7.27	3972.48	3589.49
	110.500	245.00	.00	.00	2652.30	23000.00	2659.36	2658.41	2660.21	37.18	7.73	3887.71	3772.19
	111.000	240.00	.00	.00	2653.60	23000.00	2660.35	2659.49	2661.06	32.36	7.30	4422.12	4043.30
	112.000	530.00	.00	.00	2656.78	23000.00	2662.25	2662.10	2663.55	61.83	9.66	3137.19	2924.98
	113.000	540.00	.00	.00	2659.17	23000.00	2665.34	2664.80	2666.40	44.21	9.08	3566.38	3459.26
	114.000	500.00	.00	.00	2660.50	23000.00	2667.38	2667.28	2668.57	40.74	10.06	3541.30	3603.46
	115.000	520.00	.00	.00	2663.55	23000.00	2669.71	2669.17	2670.29	26.14	7.66	4918.25	4498.32
	116.000	490.00	.00	.00	2665.60	23000.00	2671.13	2670.56	2671.87	39.91	7.89	3595.74	3640.90

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	117.000	500.00	.00	.00	2667.49	23000.00	2673.31	2672.91	2674.59	67.91	10.17	2643.18	2791.04
*	118.000	500.00	.00	.00	2669.79	23000.00	2676.68	2676.68	2678.19	55.44	11.46	2860.05	3089.06
*	118.500	280.00	.00	.00	2671.20	23000.00	2678.55	2677.59	2679.29	26.06	8.50	3771.84	4505.60
	119.000	220.00	.00	.00	2672.05	23000.00	2679.28	2677.37	2679.74	14.43	6.58	4658.81	6054.77
*	120.000	570.00	.00	.00	2673.15	23000.00	2680.40	2680.22	2681.43	59.44	8.35	2823.92	2983.16
	120.500	285.00	.00	.00	2675.60	23000.00	2682.01	2681.85	2683.13	56.11	9.48	2995.98	3070.57
	121.000	240.00	.00	.00	2676.08	23000.00	2683.21	2682.35	2684.11	30.62	8.81	3560.19	4156.62
	122.000	490.00	.00	.00	2678.56	23000.00	2684.81	2684.60	2686.18	53.28	9.99	2994.70	3151.00
*	123.000	510.00	.00	.00	2680.42	23000.00	2688.47	2688.47	2690.20	49.99	11.38	2881.45	3253.13
	124.000	510.00	.00	.00	2682.54	23000.00	2691.06	2690.91	2692.77	50.71	10.99	2641.08	3230.00
	124.500	218.00	.00	.00	2684.30	23000.00	2692.72	2691.61	2693.70	32.31	8.96	3123.44	4046.53
	125.000	230.00	.00	.00	2684.45	23000.00	2693.34	2691.66	2694.34	24.18	8.38	3352.78	4677.09
*	126.000	510.00	.00	.00	2686.60	23000.00	2695.31	2695.31	2697.51	46.13	12.32	2338.90	3386.35
	127.000	510.00	.00	.00	2687.19	23000.00	2697.44	2697.23	2699.82	42.35	12.63	2263.90	3534.44
	128.000	400.00	.00	.00	2689.80	23000.00	2699.26	2699.23	2701.54	43.50	12.70	2286.48	3487.15
*	129.000	390.00	.00	.00	2690.73	23000.00	2702.07	2702.07	2704.32	46.93	12.47	2295.58	3357.52
*	130.000	500.00	.00	.00	2690.82	23000.00	2704.81	2701.62	2705.39	9.59	7.29	4122.48	7427.68
*	131.000	380.00	.00	.00	2693.70	23000.00	2704.37	2704.37	2707.03	48.43	13.89	1967.35	3304.89
*	132.000	420.00	.00	.00	2695.29	23000.00	2707.03	2707.03	2710.41	51.37	14.91	1711.60	3209.06
*	133.000	400.00	.00	.00	2697.51	23000.00	2711.20	2711.20	2714.09	42.39	14.57	2278.35	3532.66
*	134.000	400.00	.00	.00	2703.08	23000.00	2714.56	2714.56	2716.65	45.16	13.34	2812.18	3422.38
*	135.000	410.00	.00	.00	2705.00	23000.00	2716.91	2716.91	2719.36	52.59	13.62	2177.76	3171.71
	136.000	410.00	.00	.00	2707.29	23000.00	2718.39	2717.79	2721.53	44.12	14.50	1756.40	3462.59
*	137.000	380.00	.00	.00	2708.00	23000.00	2720.54	2720.54	2724.80	70.37	16.86	1482.06	2741.83
	138.000	400.00	.00	.00	2711.27	23000.00	2724.42	2724.09	2727.66	67.54	15.11	1791.32	2798.56
*	139.000	400.00	.00	.00	2719.64	23000.00	2730.39	2730.39	2733.14	89.53	13.36	1868.77	2430.73

Tanque Verde Creek – 100-Year Existing Condition

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	140.000	400.00	.00	.00	2722.74	23000.00	2736.74	2736.74	2740.17	61.76	15.87	1830.37	2926.69

FEMA 1994 FIS - Updated

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8.000	34000.00	2445.20	.00	.00	.00	1509.97	.00
	8.500	34000.00	2445.42	.00	.22	.00	1401.25	310.00
	9.000	34000.00	2445.63	.00	.21	.00	1236.37	190.00
*	9.500	34000.00	2445.65	.00	.02	.00	856.12	260.00
	10.000	34000.00	2446.18	.00	.53	.00	832.61	240.00
*	10.500	34000.00	2448.32	.00	2.14	.00	874.06	250.00
	11.000	34000.00	2448.87	.00	.56	.00	869.96	240.00
	12.000	34000.00	2450.00	.00	1.13	.00	1021.86	500.00
	13.000	34000.00	2450.74	.00	.74	.00	1003.76	440.00
*	13.500	34000.00	2451.21	.00	.47	.00	1123.19	310.00
*	14.000	34000.00	2453.07	.00	1.86	.00	1173.83	240.00
*	15.000	34000.00	2454.78	.00	1.71	.00	1170.75	530.00
*	16.000	34000.00	2457.67	.00	2.89	.00	958.76	550.00
	17.000	34000.00	2459.54	.00	1.87	.00	856.00	685.00
*	18.000	34000.00	2461.90	.00	2.36	.00	387.75	705.00
	19.000	34000.00	2465.29	.00	3.39	.00	311.59	510.00
	20.000	34000.00	2468.03	.00	2.74	.00	329.23	650.00
	21.000	34000.00	2470.63	.00	2.60	.00	339.04	820.00
	22.000	34000.00	2472.29	.00	1.66	.00	334.57	410.00
	23.000	34000.00	2472.97	.00	.68	.00	330.09	295.00
*	25.000	34000.00	2476.99	.00	4.03	.00	345.64	210.00
	26.000	34000.00	2477.60	.00	.61	.00	342.26	260.00
	27.000	34000.00	2478.19	.00	.59	.00	339.64	400.00
	28.000	34000.00	2479.55	.00	1.36	.00	334.76	830.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	29.000	34000.00	2482.05	.00	2.50	.00	348.57	830.00
	30.000	34000.00	2484.20	.00	2.15	.00	348.54	810.00
	31.000	34000.00	2486.11	.00	1.92	.00	353.31	510.00
	32.000	34000.00	2488.76	.00	2.65	.00	352.75	700.00
	33.000	34000.00	2490.93	.00	2.17	.00	348.43	500.00
	34.000	34000.00	2492.35	.00	1.42	.00	359.45	415.00
	35.000	28000.00	2495.27	.00	2.92	.00	372.94	610.00
*	36.000	28000.00	2496.49	.00	1.22	.00	350.99	500.00
	36.500	28000.00	2498.49	.00	2.00	.00	342.59	240.00
	38.000	28000.00	2501.91	.00	3.42	.00	349.50	580.00
	38.500	28000.00	2502.20	.00	.29	.00	345.27	60.00
	39.500	28000.00	2503.22	.00	1.03	.00	344.30	120.00
	40.000	28000.00	2503.81	.00	.59	.00	349.29	90.00
	41.000	28000.00	2504.60	.00	.79	.00	346.14	280.00
	42.000	28000.00	2506.65	.00	2.04	.00	429.78	420.00
*	43.000	28000.00	2508.55	.00	1.90	.00	400.07	350.00
*	44.000	28000.00	2512.68	.00	4.13	.00	1385.54	420.00
	45.000	28000.00	2514.57	.00	1.90	.00	2098.39	490.00
*	46.000	28000.00	2515.38	.00	.81	.00	655.54	500.00
	47.000	28000.00	2518.68	.00	3.30	.00	437.12	520.00
*	48.000	28000.00	2522.47	.00	3.79	.00	1663.32	510.00
*	48.250	28000.00	2524.24	.00	1.77	.00	2336.68	275.00
	48.500	28000.00	2524.42	.00	.18	.00	2471.62	230.00
*	49.000	28000.00	2525.80	.00	1.38	.00	2539.29	600.00
*	50.000	28000.00	2528.99	.00	3.18	.00	2590.85	600.00
*	51.000	28000.00	2531.01	.00	2.02	.00	2430.52	510.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	52.000	28000.00	2533.04	.00	2.03	.00	2807.98	500.00
	53.000	28000.00	2534.77	.00	1.73	.00	1936.99	500.00
	54.000	28000.00	2536.37	.00	1.60	.00	1752.15	560.00
	55.000	28000.00	2538.83	.00	2.46	.00	1417.21	500.00
	56.000	28000.00	2540.40	.00	1.57	.00	1926.30	450.00
	57.000	28000.00	2542.48	.00	2.08	.00	1795.41	520.00
	58.000	28000.00	2544.93	.00	2.45	.00	1779.47	500.00
*	59.000	28000.00	2548.61	.00	3.68	.00	1736.81	520.00
	60.000	28000.00	2551.25	.00	2.64	.00	1451.42	650.00
	61.000	28000.00	2553.96	.00	2.71	.00	1614.11	630.00
*	62.000	28000.00	2555.58	.00	1.62	.00	1590.55	510.00
*	63.000	28000.00	2557.96	.00	2.39	.00	1353.29	500.00
*	64.000	28000.00	2560.56	.00	2.59	.00	1254.59	510.00
	64.500	23000.00	2562.65	.00	2.09	.00	1150.54	310.00
	65.000	23000.00	2563.05	.00	.40	.00	1178.13	190.00
*	66.000	23000.00	2564.99	.00	1.94	.00	1144.97	500.00
	66.500	23000.00	2566.96	.00	1.97	.00	1313.42	310.00
	67.000	23000.00	2567.56	.00	.60	.00	1526.06	190.00
*	68.000	23000.00	2568.85	.00	1.29	.00	1116.37	640.00
	69.000	23000.00	2571.47	.00	2.62	.00	1326.91	478.00
	70.000	23000.00	2574.03	.00	2.56	.00	1293.47	510.00
	71.000	23000.00	2575.42	.00	1.39	.00	1360.00	480.00
*	72.000	23000.00	2577.27	.00	1.84	.00	1150.00	460.00
*	72.400	23000.00	2578.85	.00	1.58	.00	1135.00	70.00
	72.500	23000.00	2578.72	.00	-.13	.00	1086.71	40.00
	73.500	23000.00	2578.97	.00	.25	.00	1080.54	70.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	74.000	23000.00	2580.12	.00	1.15	.00	1330.00	125.00
	75.000	23000.00	2580.71	.00	.59	.00	1900.00	350.00
	76.000	23000.00	2581.49	.00	.77	.00	2394.32	481.00
	77.000	23000.00	2582.76	.00	1.27	.00	2542.71	443.00
	78.000	23000.00	2585.08	.00	2.32	.00	2674.25	644.00
	79.000	23000.00	2587.07	.00	1.99	.00	2627.88	500.00
	80.000	23000.00	2589.01	.00	1.94	.00	2781.38	531.00
*	81.000	23000.00	2591.62	.00	2.61	.00	2516.50	520.00
	82.000	23000.00	2593.85	.00	2.23	.00	2145.44	510.00
	83.000	23000.00	2595.61	.00	1.77	.00	2266.70	500.00
*	84.000	23000.00	2598.76	.00	3.14	.00	2624.22	530.00
*	85.000	23000.00	2601.07	.00	2.32	.00	2689.65	500.00
	86.000	23000.00	2603.15	.00	2.08	.00	2536.97	500.00
	87.000	23000.00	2604.57	.00	1.42	.00	2451.87	520.00
	88.000	23000.00	2606.73	.00	2.16	.00	2487.15	600.00
*	89.000	23000.00	2609.10	.00	2.37	.00	2549.90	810.00
	90.000	23000.00	2611.35	.00	2.25	.00	2411.02	510.00
*	91.000	23000.00	2613.60	.00	2.25	.00	2170.52	500.00
	92.000	23000.00	2615.91	.00	2.31	.00	1442.98	550.00
*	93.000	23000.00	2617.88	.00	1.98	.00	1295.61	500.00
*	94.000	23000.00	2621.44	.00	3.56	.00	2022.35	500.00
*	95.000	23000.00	2623.39	.00	1.94	.00	1523.61	480.00
	97.000	23000.00	2627.43	.00	4.05	.00	1792.66	1020.00
	98.000	23000.00	2628.64	.00	1.21	.00	1242.57	500.00
*	99.000	23000.00	2631.80	.00	3.16	.00	1929.09	500.00
*	100.000	23000.00	2634.18	.00	2.37	.00	1504.10	520.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	101.000	23000.00	2637.15	.00	2.97	.00	1690.41	520.00
*	102.000	23000.00	2639.44	.00	2.29	.00	1896.45	500.00
	102.500	23000.00	2640.80	.00	1.36	.00	2288.56	300.00
	103.000	23000.00	2641.77	.00	.96	.00	2196.00	210.00
*	104.000	23000.00	2643.73	.00	1.97	.00	1556.47	600.00
	104.500	23000.00	2645.80	.00	2.07	.00	1678.69	290.00
	105.000	23000.00	2646.06	.00	.26	.00	1614.13	220.00
	106.000	23000.00	2648.47	.00	2.41	.00	2196.65	530.00
	107.000	23000.00	2650.40	.00	1.92	.00	1785.69	530.00
	108.000	23000.00	2652.93	.00	2.53	.00	1427.49	600.00
*	109.000	23000.00	2655.31	.00	2.38	.00	1148.49	500.00
	110.000	23000.00	2658.47	.00	3.16	.00	1399.58	500.00
	110.500	23000.00	2659.36	.00	.89	.00	1431.58	245.00
	111.000	23000.00	2660.35	.00	.99	.00	1622.49	240.00
	112.000	23000.00	2662.25	.00	1.90	.00	1205.77	530.00
	113.000	23000.00	2665.34	.00	3.09	.00	1274.04	540.00
	114.000	23000.00	2667.38	.00	2.04	.00	1373.70	500.00
	115.000	23000.00	2669.71	.00	2.32	.00	1791.83	520.00
	116.000	23000.00	2671.13	.00	1.42	.00	1236.24	490.00
	117.000	23000.00	2673.31	.00	2.18	.00	925.68	500.00
*	118.000	23000.00	2676.68	.00	3.37	.00	993.80	500.00
*	118.500	23000.00	2678.55	.00	1.86	.00	1001.13	280.00
	119.000	23000.00	2679.28	.00	.73	.00	1073.03	220.00
*	120.000	23000.00	2680.40	.00	1.12	.00	1038.40	570.00
	120.500	23000.00	2682.01	.00	1.62	.00	1040.73	285.00
	121.000	23000.00	2683.21	.00	1.19	.00	1082.76	240.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	122.000	23000.00	2684.81	.00	1.61	.00	1064.67	490.00
*	123.000	23000.00	2688.47	.00	3.66	.00	983.00	510.00
	124.000	23000.00	2691.06	.00	2.59	.00	856.91	510.00
	124.500	23000.00	2692.72	.00	1.66	.00	893.50	218.00
	125.000	23000.00	2693.34	.00	.62	.00	848.27	230.00
*	126.000	23000.00	2695.31	.00	1.97	.00	685.59	510.00
	127.000	23000.00	2697.44	.00	2.13	.00	707.37	510.00
	128.000	23000.00	2699.26	00	1.82	.00	638.72	400.00
*	129.000	23000.00	2702.07	.00	2.81	.00	727.34	390.00
*	130.000	23000.00	2704.81	.00	2.74	.00	626.51	500.00
*	131.000	23000.00	2704.37	.00	-.44	.00	426.77	380.00
*	132.000	23000.00	2707.03	.00	2.66	.00	341.75	420.00
*	133.000	23000.00	2711.20	.00	4.17	.00	541.97	400.00
*	134.000	23000.00	2714.56	.00	3.36	.00	614.52	400.00
*	135.000	23000.00	2716.91	.00	2.36	.00	497.74	410.00
	136.000	23000.00	2718.39	.00	1.48	.00	266.13	410.00
*	137.000	23000.00	2720.54	.00	2.14	.00	188.25	380.00
	138.000	23000.00	2724.42	.00	3.88	.00	283.01	400.00
*	139.000	23000.00	2730.39	.00	5.97	.00	381.51	400.00
*	140.000	23000.00	2736.74	.00	6.35	.00	307.81	400.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=      9.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     13.500  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     13.500  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     14.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     15.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     16.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     18.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     25.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     36.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     36.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     43.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     43.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     44.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     44.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     46.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     48.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     48.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     48.250  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     49.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     49.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     50.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     50.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     51.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     51.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     52.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     52.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     59.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     59.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     62.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     62.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     63.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     63.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     64.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     64.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     66.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     66.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     68.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     72.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     72.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     72.400  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     74.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     81.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     81.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     84.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     84.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     85.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     85.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     89.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     89.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     91.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     91.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     93.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     93.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     94.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     94.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     95.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     95.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     99.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     99.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    100.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    100.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    101.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    101.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    102.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=    102.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    104.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    104.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    109.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    109.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    118.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    118.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    118.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    120.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    123.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    123.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    126.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    126.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    129.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    129.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    130.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    131.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    131.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    132.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    132.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    133.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    133.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    134.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    134.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    135.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    135.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    137.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    137.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    139.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    139.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    140.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    140.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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E-2

Tanque Verde Creek Proposed Condition

Tanque Verde Creek – 10 Year Proposed Condition

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FEMA 1994 FIS - Updated

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	8.000	.00	.00	.00	2433.41	10500.00	2441.16	.00	2441.44	8.29	4.30	2831.57	3647.84
*	8.500	310.00	.00	.00	2435.40	10500.00	2441.45	.00	2441.89	22.79	5.35	1964.67	2199.25
	9.000	190.00	.00	.00	2435.89	10500.00	2441.86	.00	2442.25	15.87	5.02	2098.75	2635.58
*	9.500	260.00	.00	.00	2437.60	10500.00	2442.22	.00	2443.14	62.35	7.68	1366.87	1329.74
*	10.000	240.00	.00	.00	2437.76	10500.00	2443.31	.00	2444.08	25.98	7.08	1568.42	2059.85
	10.500	250.00	.00	.00	2437.80	10500.00	2444.16	.00	2444.72	23.82	6.00	1751.25	2151.39
	11.000	240.00	.00	.00	2438.94	10500.00	2444.75	.00	2445.21	17.37	5.47	1939.88	2519.43
	12.000	500.00	.00	.00	2441.60	10500.00	2445.93	.00	2446.43	35.37	5.77	1868.03	1765.50
	13.000	440.00	.00	.00	2443.10	10500.00	2447.46	.00	2447.87	29.95	5.11	2076.67	1918.61
*	13.500	310.00	.00	.00	2445.20	10500.00	2448.98	2448.98	2449.91	97.93	7.72	1360.94	1061.06
*	14.000	240.00	.00	.00	2445.90	10500.00	2450.56	.00	2450.97	23.20	5.17	2119.07	2179.92
*	15.000	530.00	.00	.00	2447.20	10500.00	2452.02	.00	2452.89	53.24	7.55	1397.33	1439.08
	16.000	550.00	.00	.00	2448.90	10500.00	2454.45	.00	2455.10	30.80	6.56	1683.86	1891.96
	17.000	685.00	.00	.00	2451.60	10500.00	2456.54	.00	2457.19	30.07	6.59	1644.37	1914.88
	18.000	705.00	.00	.00	2453.37	10500.00	2458.76	.00	2459.78	41.74	8.12	1292.43	1625.32
	19.000	510.00	.00	.00	2455.28	10500.00	2460.79	.00	2461.82	38.26	8.16	1287.34	1697.53
	20.000	650.00	.00	.00	2458.55	10500.00	2463.26	.00	2464.17	33.66	7.64	1374.92	1809.83

Tanque Verde Creek – 10 Year Proposed Condition

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	21.000	820.00	.00	.00	2460.68	10500.00	2466.10	.00	2467.04	36.18	7.76	1352.52	1745.68
	22.000	410.00	.00	.00	2460.32	10500.00	2467.52	.00	2468.21	22.41	6.69	1569.99	2218.15
	23.000	295.00	.00	.00	2462.90	10500.00	2468.22	.00	2469.12	34.07	7.61	1379.60	1798.76
	25.000	210.00	2489.20	2473.50	2464.00	10500.00	2468.60	.00	2470.02	59.23	9.57	1097.45	1364.35
	26.000	260.00	.00	.00	2465.06	10500.00	2470.56	.00	2471.25	34.99	6.71	1565.34	1775.02
	27.000	400.00	.00	.00	2465.24	10500.00	2471.75	.00	2472.56	29.12	7.26	1446.54	1945.88
	28.000	830.00	.00	.00	2469.22	10500.00	2474.44	.00	2475.43	40.10	7.98	1315.53	1658.16
	29.000	830.00	.00	.00	2471.26	10500.00	2477.33	.00	2478.04	24.81	6.78	1548.16	2107.97
	30.000	810.00	.00	.00	2474.40	10500.00	2479.75	.00	2480.77	44.48	8.08	1299.55	1574.45
	31.000	510.00	.00	.00	2476.66	10500.00	2481.94	.00	2482.83	36.59	7.58	1384.98	1735.76
	32.000	700.00	.00	.00	2479.54	10500.00	2484.66	.00	2485.65	43.68	8.01	1311.49	1588.80
	33.000	500.00	.00	.00	2480.29	10500.00	2486.70	.00	2487.54	32.26	7.33	1433.40	1848.79
	34.000	415.00	.00	.00	2482.58	10500.00	2488.15	.00	2489.15	44.61	8.03	1308.02	1572.07
	35.000	610.00	.00	.00	2485.70	8700.00	2490.65	.00	2491.23	24.60	6.11	1423.30	1754.01
*	36.000	500.00	.00	.00	2489.05	8700.00	2493.29	2493.29	2494.67	97.68	9.44	921.55	880.29
*	36.500	240.00	.00	.00	2491.90	8700.00	2495.41	.00	2496.34	49.62	7.75	1122.53	1235.13
	38.000	580.00	.00	.00	2492.95	8700.00	2498.21	.00	2499.09	45.01	7.51	1158.71	1296.83
	38.500	60.00	.00	.00	2493.10	8700.00	2498.55	.00	2499.36	39.01	7.21	1206.85	1392.93
*	39.500	120.00	2516.20	2510.20	2494.40	8700.00	2498.85	.00	2500.17	87.19	9.20	945.86	931.69
*	40.000	90.00	.00	.00	2494.63	8700.00	2499.94	.00	2500.70	35.59	7.00	1243.49	1458.25
	41.000	280.00	.00	.00	2497.07	8700.00	2501.01	.00	2502.08	62.17	8.29	1048.99	1103.43
	42.000	420.00	.00	.00	2498.88	8700.00	2503.25	.00	2504.12	38.24	7.49	1167.34	1406.83
*	43.000	350.00	.00	.00	2500.96	8700.00	2504.67	2504.66	2506.28	87.12	10.18	857.25	932.12
	44.000	420.00	.00	.00	2501.58	8700.00	2507.35	.00	2508.94	48.27	10.13	858.44	1252.18
	45.000	490.00	.00	.00	2503.70	8700.00	2509.87	.00	2511.11	39.52	8.94	972.71	1383.92
	46.000	500.00	.00	.00	2506.85	8700.00	2512.06	.00	2512.99	34.43	7.72	1126.90	1482.71

Tanque Verde Creek – 10 Year Proposed Condition

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	47.000	520.00	.00	.00	2510.00	8700.00	2514.11	.00	2515.17	49.99	8.27	1051.70	1230.50
*	48.000	510.00	.00	.00	2512.29	8700.00	2517.19	2517.19	2519.39	78.76	11.94	741.23	980.33
*	48.250	275.00	.00	.00	2513.30	8700.00	2519.98	.00	2520.66	24.87	6.67	1501.60	1744.65
*	48.500	230.00	.00	.00	2514.20	8700.00	2520.61	.00	2521.07	11.97	5.46	1784.39	2514.56
*	49.000	600.00	.00	.00	2516.68	8700.00	2521.74	2521.74	2523.63	86.57	11.05	791.21	935.07
*	50.000	600.00	.00	.00	2520.00	8700.00	2525.66	2524.33	2526.66	31.46	8.14	1261.94	1551.07
	51.000	510.00	.00	.00	2522.10	8700.00	2527.36	.00	2528.41	36.78	8.25	1110.74	1434.48
	52.000	500.00	.00	.00	2523.67	8700.00	2529.21	.00	2530.54	45.91	9.30	978.15	1283.98
	53.000	500.00	.00	.00	2526.77	8700.00	2531.66	.00	2532.30	25.81	6.42	1508.29	1712.53
*	54.000	560.00	.00	.00	2528.41	8700.00	2533.50	2533.30	2534.52	60.17	8.44	1254.01	1121.62
	55.000	500.00	.00	.00	2531.99	8700.00	2536.26	.00	2536.67	31.20	5.35	1726.60	1557.56
*	56.000	450.00	.00	.00	2534.29	8700.00	2538.05	.00	2538.73	64.33	7.05	1433.58	1084.72
	57.000	520.00	.00	.00	2536.68	8700.00	2540.64	.00	2541.14	34.26	5.98	1613.96	1486.33
	58.000	500.00	.00	.00	2539.07	8700.00	2542.77	.00	2543.30	55.02	5.99	1729.90	1172.94
	59.000	520.00	.00	.00	2541.60	8700.00	2545.40	2545.33	2546.73	68.67	9.54	1049.34	1049.90
*	60.000	650.00	.00	.00	2544.17	8700.00	2548.94	.00	2549.72	31.89	7.37	1443.54	1540.56
	61.000	630.00	.00	.00	2545.85	8700.00	2551.19	.00	2551.74	31.69	5.95	1461.76	1545.54
	62.000	510.00	.00	.00	2548.46	8700.00	2552.98	.00	2553.92	53.18	7.80	1153.30	1193.04
	63.000	500.00	.00	.00	2550.67	8700.00	2555.48	.00	2556.27	41.82	7.86	1525.48	1345.36
	64.000	510.00	.00	.00	2552.80	8700.00	2557.58	.00	2558.53	44.37	7.83	1162.62	1306.10
	64.500	310.00	.00	.00	2554.00	7300.00	2559.14	.00	2559.70	29.59	5.96	1224.70	1342.01
	65.000	190.00	.00	.00	2554.61	7300.00	2559.68	.00	2560.25	28.22	6.29	1372.66	1374.20
*	66.000	500.00	.00	.00	2556.52	7300.00	2561.10	.00	2562.69	72.39	10.13	720.97	858.02
	66.500	310.00	.00	.00	2558.28	7300.00	2563.70	.00	2564.53	46.40	8.02	1283.63	1071.73
*	67.000	190.00	.00	.00	2559.85	7300.00	2564.87	.00	2565.22	18.69	5.38	1924.23	1688.57
*	68.000	640.00	.00	.00	2562.38	7300.00	2566.89	2566.89	2567.70	53.63	7.89	1200.49	996.87

Tanque Verde Creek – 10 Year Proposed Condition

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	69.000	478.00	.00	.00	2564.58	7300.00	2569.31	.00	2569.99	40.59	7.77	1600.78	1145.88
	70.000	510.00	.00	.00	2566.10	7300.00	2571.89	.00	2572.04	34.56	3.40	2464.07	1241.77
	71.000	480.00	.00	.00	2567.66	7300.00	2573.19	.00	2573.54	25.60	5.54	2108.31	1442.87
*	72.000	460.00	.00	.00	2569.57	7300.00	2575.10	2575.10	2576.08	50.28	8.68	1556.55	1029.55
*	72.500	70.00	.00	.00	2569.73	7300.00	2576.09	.00	2576.44	14.27	5.67	2349.53	1932.54
*	73.500	110.00	2588.80	2582.80	2570.10	7300.00	2576.17	.00	2576.81	33.13	7.35	2212.41	1268.24
*	74.000	125.00	.00	.00	2570.47	7300.00	2576.68	2576.68	2577.44	27.39	8.08	1878.53	1394.81
	75.000	350.00	.00	.00	2572.53	7300.00	2578.05	.00	2578.34	16.75	5.22	2205.20	1783.43
*	76.000	481.00	.00	.00	2574.15	7300.00	2579.10	.00	2579.70	39.11	8.05	1769.04	1167.27
	77.000	443.00	.00	.00	2576.18	7300.00	2581.08	.00	2581.49	33.73	6.88	2224.92	1256.90
	78.000	644.00	.00	.00	2578.60	7300.00	2583.40	.00	2583.91	40.99	6.43	1815.81	1140.19
	79.000	500.00	.00	.00	2580.49	7300.00	2585.31	.00	2585.83	36.07	7.58	2413.30	1215.47
	80.000	531.00	.00	.00	2582.03	7300.00	2587.45	.00	2587.89	42.78	6.05	2084.74	1116.06
	81.000	520.00	.00	.00	2583.78	7300.00	2589.13	2589.12	2590.65	51.06	10.07	869.22	1021.64
	82.000	510.00	.00	.00	2587.20	7300.00	2592.24	.00	2592.74	30.83	7.58	2338.99	1314.66
*	83.000	500.00	.00	.00	2587.50	7300.00	2593.75	2593.51	2594.49	29.54	7.37	1644.96	1343.09
*	84.000	530.00	.00	.00	2590.78	7300.00	2596.84	2596.84	2597.70	29.21	7.97	1567.86	1350.70
	85.000	500.00	.00	.00	2592.50	7300.00	2598.25	2597.03	2599.41	35.98	8.67	918.91	1217.05
*	86.000	500.00	.00	.00	2595.10	7300.00	2600.56	2600.56	2601.50	45.93	8.52	1587.24	1077.20
	87.000	520.00	.00	.00	2597.70	7300.00	2602.69	2601.89	2603.36	27.90	7.00	1643.41	1382.16
	88.000	600.00	.00	.00	2599.37	7300.00	2604.28	.00	2604.85	21.85	6.16	1516.51	1561.58
*	89.000	810.00	.00	.00	2602.10	7300.00	2607.14	2607.14	2608.06	38.45	8.12	1370.34	1177.32
	90.000	510.00	.00	.00	2603.88	7300.00	2609.42	.00	2609.87	30.56	6.84	2131.28	1320.46
*	91.000	500.00	.00	.00	2606.80	7300.00	2611.36	2611.36	2612.35	50.42	8.59	1282.80	1028.03
*	92.000	550.00	.00	.00	2607.95	7300.00	2613.55	.00	2614.01	18.65	6.01	1662.16	1690.33
*	93.000	500.00	.00	.00	2610.92	7300.00	2615.57	2615.57	2616.63	66.06	9.18	1122.10	898.14

Tanque Verde Creek – 10 Year Proposed Condition

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	94.000	500.00	.00	.00	2613.00	7300.00	2618.32	2617.68	2619.55	49.55	9.20	988.23	1037.03
	95.000	480.00	.00	.00	2615.10	7300.00	2620.61	.00	2621.37	28.62	7.19	1256.17	1364.57
	97.000	1020.00	.00	.00	2618.80	7300.00	2623.86	.00	2624.63	35.53	7.34	1298.21	1224.69
	98.000	500.00	.00	.00	2621.72	7300.00	2625.83	.00	2626.55	42.83	7.50	1245.04	1115.46
*	99.000	500.00	.00	.00	2623.27	7300.00	2629.07	2629.07	2630.27	45.73	9.48	1085.71	1079.54
	100.000	520.00	.00	.00	2625.62	7300.00	2631.55	.00	2632.48	39.25	8.42	1202.27	1165.24
*	101.000	520.00	.00	.00	2627.70	7300.00	2634.81	2634.81	2635.90	38.72	9.21	1449.40	1173.10
*	102.000	500.00	.00	.00	2631.10	7300.00	2636.83	2636.83	2638.22	49.81	10.36	1297.75	1034.30
*	102.500	300.00	.00	.00	2632.70	7300.00	2638.63	.00	2639.24	21.86	6.81	1956.93	1561.47
	103.000	210.00	.00	.00	2632.34	7300.00	2639.35	.00	2639.72	21.68	5.26	2141.85	1567.90
*	104.000	600.00	.00	.00	2635.04	7300.00	2640.78	2640.67	2642.09	64.53	9.41	924.42	908.72
	104.500	290.00	.00	.00	2637.70	7300.00	2643.11	.00	2643.57	37.30	5.93	1753.75	1195.28
	105.000	220.00	.00	.00	2638.32	7300.00	2643.67	.00	2644.29	25.64	6.52	1366.85	1441.79
*	106.000	530.00	.00	.00	2639.78	7300.00	2645.68	2645.68	2646.97	62.49	9.75	935.53	923.44
*	107.000	530.00	.00	.00	2642.57	7300.00	2648.41	.00	2648.80	20.47	5.08	1614.94	1613.65
*	108.000	600.00	.00	.00	2646.20	7300.00	2650.16	.00	2650.80	57.62	6.45	1139.45	961.71
	109.000	500.00	.00	.00	2649.12	7300.00	2653.00	.00	2653.81	60.95	7.27	1028.21	935.07
	110.000	500.00	.00	.00	2651.02	7300.00	2655.91	.00	2656.29	39.86	5.00	1488.26	1156.19
	110.500	245.00	.00	.00	2652.30	7300.00	2656.86	.00	2657.31	41.42	5.37	1374.83	1134.27
	111.000	240.00	.00	.00	2653.60	7300.00	2657.82	.00	2658.34	43.07	5.81	1303.65	1112.35
	112.000	530.00	.00	.00	2656.78	7300.00	2660.41	.00	2661.00	58.18	6.28	1286.38	957.08
	113.000	540.00	.00	.00	2659.17	7300.00	2663.13	.00	2663.69	42.62	6.12	1302.95	1118.16
	114.000	500.00	.00	.00	2660.50	7300.00	2665.08	.00	2665.92	43.33	7.41	1035.12	1108.94
	115.000	520.00	.00	.00	2663.55	7300.00	2667.50	2667.10	2668.21	44.14	6.96	1273.94	1098.74
	116.000	490.00	.00	.00	2665.60	7300.00	2669.58	.00	2669.92	27.76	5.15	1729.81	1385.59
*	117.000	500.00	.00	.00	2667.49	7300.00	2671.43	.00	2672.04	65.86	7.01	1253.47	899.51

Tanque Verde Creek – 10 Year Proposed Condition

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	118.000	500.00	.00	.00	2669.79	7300.00	2674.37	2674.37	2675.45	63.70	8.68	975.99	914.65
*	118.500	280.00	.00	.00	2671.20	7300.00	2676.16	.00	2676.62	26.85	6.22	1616.52	1408.88
*	119.000	220.00	.00	.00	2672.05	7300.00	2676.80	.00	2677.02	11.99	4.39	2194.67	2108.29
*	120.000	570.00	.00	.00	2673.15	7300.00	2677.98	2677.98	2678.99	69.45	6.89	914.36	875.99
	120.500	285.00	.00	.00	2675.60	7300.00	2680.15	.00	2680.76	51.52	6.62	1232.62	1017.08
*	121.000	240.00	.00	.00	2676.08	7300.00	2681.12	.00	2681.50	19.79	5.27	1598.73	1640.97
*	122.000	490.00	.00	.00	2678.56	7300.00	2682.47	.00	2683.29	73.06	7.32	1039.43	854.06
	123.000	510.00	.00	.00	2680.42	7300.00	2685.64	.00	2686.65	57.88	8.08	919.93	959.57
	124.000	510.00	.00	.00	2682.54	7300.00	2688.24	.00	2689.06	38.69	7.28	1010.21	1173.54
	124.500	218.00	.00	.00	2684.30	7300.00	2689.21	.00	2690.07	55.78	7.93	1021.13	977.44
*	125.000	230.00	.00	.00	2684.45	7300.00	2690.37	.00	2690.79	18.57	5.26	1415.31	1694.14
*	126.000	510.00	.00	.00	2686.60	7300.00	2691.29	.00	2692.70	65.00	9.51	767.38	905.43
*	127.000	510.00	.00	.00	2687.19	7300.00	2693.98	.00	2694.80	27.20	7.27	1003.75	1399.81
	128.000	400.00	.00	.00	2689.80	7300.00	2695.12	.00	2696.42	53.20	9.17	796.58	1000.86
	129.000	390.00	.00	.00	2690.73	7300.00	2697.13	.00	2698.91	68.42	10.71	681.79	882.56
*	130.000	500.00	.00	.00	2690.82	7300.00	2699.96	.00	2700.47	15.59	6.23	1513.59	1848.66
*	131.000	380.00	.00	.00	2693.70	7300.00	2700.25	.00	2701.88	67.22	10.25	719.85	890.38
	132.000	420.00	.00	.00	2695.29	7300.00	2702.70	.00	2704.00	38.28	9.16	796.94	1179.90
*	133.000	400.00	.00	.00	2697.51	7300.00	2705.56	2705.56	2707.73	80.63	11.92	643.39	812.96
*	134.000	400.00	.00	.00	2703.08	7300.00	2710.15	2710.15	2712.26	75.64	11.73	666.25	839.36
	135.000	410.00	.00	.00	2705.00	7300.00	2713.16	.00	2714.61	42.63	9.65	757.58	1118.07
*	136.000	410.00	.00	.00	2707.29	7300.00	2714.99	.00	2715.87	21.48	7.54	979.83	1575.10
*	137.000	380.00	.00	.00	2708.00	7300.00	2715.55	.00	2717.39	54.95	10.89	671.85	984.77
*	138.000	400.00	.00	.00	2711.27	7300.00	2719.52	2719.52	2721.47	106.00	11.30	684.34	709.03
*	139.000	400.00	.00	.00	2719.64	7300.00	2726.53	2726.53	2728.19	104.13	9.66	716.93	715.38
*	140.000	400.00	.00	.00	2722.74	7300.00	2731.34	2731.34	2733.79	90.89	12.57	585.12	765.69

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    26MAR09    TIME   08:26:09 *
 *****************************************
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*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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THIS RUN EXECUTED 26MAR09 08:26:09

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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T1      92145-02-45
T2      Tanque Verde Creek Floodplain Model
T3      FEMA 1994 FIS - Updated 16FEB09 PB Project No. 11515
T4      PB Job No. 11515, Houghton Road Tanque Verde to Speedway
T4      Revised For Datum Change +2.2' 15JAN09 File:TV_NW100.DAT
T4      Udated XSECs with current topographic data Flown Late 2008
T4      100-YEAR EVENT-PROPOSED CONDITION ANALYSIS

  Starting water surface was extrapolated from existing FIS

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0        0        0       0.0   34000.0   2445.2

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1        0      -1.0      0.0      0.0      0.0      0.0      0.0      0.0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150

  100-Year Discharge taken directly from the Effective FIS
  Only the 100-year storm was done performed as stated
  in the scope of work.

  Updated by PB 15JAN09 for use in Bridge Design @ Houghton Road
  Commented out the encroachment cards as no need for encroachment for this
  Study.  Compared Flood Elevations with workmap elevations to confirm model.
  Adjusted GR card elevations by 2.2-feet to convert 29' Datum to 88' Datum

NC      0.0       0.0       0.0       0.1       0.3
NH        6     0.045   2100.00      0.05   2438.68     0.035   2630.66      0.05    3120.1      0.03
NH   3600.0     0.065    4278.0
ET                          9.11                                                        2890.0    3640.0
X1        8        46    3100.0   3558.25     515.0     505.0     510.0       1.0       2.2
GR   2445.5   2000.00   2445.24   2100.00   2443.52   2200.00   2442.10   2276.98   2442.10    2300.0
GR   2443.4   2330.49   2445.46   2400.00   2443.65   2438.68   2444.05   2500.00   2444.22    2600.0
GR   2443.8   2630.66   2443.74   2700.00   2441.26   2791.03   2441.26   2800.00   2438.47    2900.0
GR   2438.4   2900.32   2437.67   2979.83   2437.36   3000.00   2438.03   3100.00   2437.81    3120.1
GR   2431.3   3135.47   2431.21   3200.00   2432.41   3237.72   2431.74   3300.00   2431.79    3301.8
GR   2436.1   3350.03   2432.32   3375.74   2434.66   3400.00   2435.73   3454.67   2435.64    3500.0
GR   2435.5   3517.22   2433.56   3538.73   2438.82   3558.25   2438.07   3600.00   2437.81    3700.0
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GR	2438.8	3746.17	2438.74	3800.00	2438.12	3857.32	2438.25	3900.00	2440.15	4000.0
GR	2439.7	4007.20	2440.20	4100.00	2440.20	4116.54	2446.48	4178.60	2447.54	4200.0
GR	2460.7	4278.0								

NH	4	0.055	2750.0	0.035	3130.0	0.03	3550.0	0.065	4300.0	
ET			9.11						2910.0	3550.0
X1	8.5	26	3000.0	3550.0	340.0	310.0	310.0	1.0	2402.2	
GR	44.0	2070.0	46.0	2280.0	48.0	2350.0	46.0	2460.0	45.0	2500.0
GR	46.0	2550.0	44.0	2650.0	42.0	2750.0	40.0	3000.0	36.0	3010.0
GR	34.0	3130.0	34.5	3160.0	34.0	3200.0	33.2	3220.0	34.0	3250.0
GR	36.0	3320.0	37.0	3450.0	38.0	3540.0	40.0	3550.0	39.2	3830.0
GR	40.0	4050.0	44.0	4100.0	50.0	4150.0	48.0	4180.0	50.0	4210.0
GR	60.0	4300.0								

NH	3	0.08	2951.95	0.03	3500.00	0.05	4056.0			
ET			9.11						2952.0	3500.0
X1	9	48	2951.95	3500.0	190.0	190.0	190.0	1.0	2.2	
GR	2445.2	2000.00	2445.60	2041.17	2450.38	2066.58	2450.16	2100.00	2449.85	2132.6
GR	2450.2	2200.00	2449.23	2241.92	2448.70	2300.00	2448.83	2357.81	2448.83	2400.0
GR	2448.2	2450.90	2443.29	2500.00	2443.25	2503.97	2447.06	2544.08	2446.22	2600.0
GR	2445.6	2623.54	2444.98	2700.00	2443.34	2747.17	2443.03	2800.00	2441.61	2867.5
GR	2441.3	2900.00	2441.39	2951.95	2434.09	2966.56	2434.09	3000.00	2433.69	3085.8
GR	2433.7	3100.00	2434.22	3190.24	2434.66	3200.00	2437.36	3287.36	2437.36	3300.0
GR	2436.5	3348.58	2438.51	3388.64	2437.32	3400.00	2437.32	3451.67	2440.77	3478.1
GR	2440.8	3500.00	2440.11	3584.56	2440.11	3600.00	2439.58	3693.90	2439.58	3700.0
GR	2439.6	3778.76	2440.15	3800.00	2440.46	3889.64	2440.51	3900.00	2441.61	3965.0
GR	2449.1	4000.00	2458.08	4025.06	2463.57	4056.0				

NH	4	0.055	2400.0	0.045	3030.0	0.03	3460.0	0.045	4110.0	
ET			9.11						2915.0	3425.0
X1	9.5	22	2915.0	3390.0	260.0	260.0	260.0	1.0	2402.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	52.0	0.0	50.0	2100.0	46.0	2400.0	46.8	2650.0	46.0	2720.0
GR	44.0	2780.0	40.0	2915.0	36.0	3030.0	35.4	3040.0	36.0	3160.0
GR	38.0	3280.0	37.8	3320.0	38.0	3340.0	38.0	3370.0	40.0	3390.0
GR	41.0	3460.0	42.0	3560.0	44.0	3690.0	46.0	3910.0	50.0	4050.0
GR	60.0	4070.0	70.0	4110.0						

NH	3	0.1	3034.77	0.03	3345.17	0.05	4291.7			
ET			9.11						2990.0	3500.0
X1	10	50	3034.77	3345.17	240.0	250.0	240.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2452.3	2000.00	2451.71	2100.00	2452.19	2110.76	2451.84	2200.00	2451.84	2206.7
GR	2451.7	2300.00	2450.73	2364.22	2450.42	2400.00	2449.85	2424.96	2450.02	2500.0
GR	2451.2	2589.27	2451.22	2600.00	2448.74	2700.00	2447.01	2722.74	2446.04	2800.0
GR	2443.5	2823.71	2443.96	2900.00	2443.96	2920.17	2444.53	2974.39	2444.05	3000.0
GR	2442.7	3034.77	2436.39	3048.32	2436.39	3100.00	2436.74	3130.96	2436.48	3200.0
GR	2435.8	3217.81	2435.56	3300.00	2436.26	3326.44	2439.89	3345.17	2439.18	3400.0
GR	2439.0	3401.78	2441.17	3429.85	2441.44	3500.00	2441.88	3532.95	2442.06	3600.0
GR	2442.9	3649.59	2443.25	3700.00	2445.55	3800.00	2445.60	3805.76	2445.86	3900.0

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GR   2447.9   3955.65   2448.43   4000.00   2450.33   4070.52   2450.95   4100.00   2451.75   4144.7
GR   2449.6   4156.53   2450.82   4200.00   2451.53   4233.86   2462.82   4268.03   2462.15   4291.7

NH        3       0.1    3000.0      0.03    3500.0      0.05    4000.0
ET                          9.11                                          3000.0    3500.0
X1     10.5        21    3000.0    3500.0     250.0     260.0     250.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2453.4    2000.0    2452.9    2100.0    2452.7    2203.0    2452.3    2300.0    2451.3    2400.0
GR   2451.3    2500.0    2451.8    2600.0    2451.2    2705.0    2448.0    2800.0    2446.0    2901.0
GR   2445.4    3000.0    2437.9    3100.0    2437.5    3200.0    2435.6    3300.0    2438.3    3400.0
GR   2442.2    3500.0    2443.0    3595.0    2444.1    3700.0    2447.0    3800.0    2447.6    3900.0
GR   2459.6    4000.0

NH        4       0.1   3000.00      0.03   3457.74      0.05   3900.00       0.1    4127.7
ET                          9.11                                          3000.0    3500.0
X1       11        51    3000.0   3457.74     245.0     250.0     240.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2454.5   2000.00   2454.18   2100.00   2454.05   2145.68   2453.70   2200.00   2453.03   2300.0
GR   2452.2   2334.34   2452.19   2400.00   2452.15   2500.00   2452.15   2507.74   2452.28   2600.0
GR   2450.8   2668.95   2453.70   2700.00   2454.49   2712.51   2455.11   2751.02   2452.81   2784.8
GR   2451.2   2800.00   2447.68   2839.82   2447.46   2899.41   2447.46   2900.00   2447.37   2998.7
GR   2447.3   3000.00   2438.82   3016.14   2438.82   3100.00   2439.18   3120.47   2438.47   3199.6
GR   2438.5   3200.00   2436.74   3288.37   2436.96   3300.00   2437.23   3357.87   2438.47   3392.8
GR   2437.5   3400.00   2437.94   3434.72   2444.36   3457.74   2443.91   3500.00   2443.78   3511.0
GR   2441.6   3553.84   2442.94   3600.00   2443.83   3604.08   2443.83   3700.00   2444.89   3732.8
GR   2444.9   3800.00   2444.67   3820.28   2447.32   3887.43   2447.90   3900.00   2454.58   3967.9
GR   2456.8   4000.00   2456.75   4005.93   2455.20   4027.40   2468.84   4100.00   2471.63   4116.2
GR   2474.9    4127.7

NH        5       0.1   2500.00     0.035   2740.1      0.03    3542.2      0.05    3800.0       0.1
NH   3993.5
ET                          9.11                                          2875.0    3542.0
X1       12        45    2900.0    3542.2     510.0     490.0     500.0       1.0       2.2
X2      0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2455.7   2000.00   2455.20   2100.00   2454.58   2125.19   2454.58   2200.00   2454.14   2234.8
GR   2453.9   2300.00   2453.25   2371.09   2453.25   2400.00   2453.25   2500.00   2452.37   2552.8
GR   2452.4   2600.00   2452.19   2628.45   2449.76   2672.32   2449.31   2700.00   2448.47   2740.1
GR   2441.3   2800.00   2440.90   2824.82   2442.72   2844.34   2442.32   2900.00   2442.37   2902.6
GR   2444.4   2936.81   2442.01   2983.73   2442.01   3000.00   2441.92   3100.00   2442.67   3103.0
GR   2442.5   3185.01   2439.97   3200.00   2439.40   3222.77   2439.93   3300.00   2439.93   3338.9
GR   2439.8   3400.00   2439.80   3436.44   2439.93   3500.00   2440.11   3524.71   2446.97   3542.2
GR   2446.3   3600.00   2446.17   3640.96   2446.22   3700.00   2446.30   3751.09   2450.78   3800.0
GR   2451.4   3806.07   2464.06   3900.00   2468.75   3910.89   2475.48   3961.71   2475.39   3993.5

NH        7      0.08   2390.08     0.035   2507.5      0.08    2600.00     0.035   3000.00      0.03
NH   3621.2      0.05   3800.00      0.08   3974.1
ET                          9.11                                          2800.0    3621.0
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X1	13	52	2807.64	3621.21	440.0	440.0	440.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2456.4	2000.00	2456.44	2100.00	2456.26	2181.23	2456.26	2200.00	2454.36	2300.0
GR	2454.4	2302.65	2453.96	2390.08	2453.96	2400.00	2453.03	2500.00	2452.90	2507.5
GR	2451.9	2560.19	2450.47	2600.00	2450.11	2630.04	2449.27	2700.00	2449.23	2752.0
GR	2442.9	2800.00	2442.50	2807.64	2441.79	2847.26	2448.52	2866.07	2448.52	2876.7
GR	2443.6	2893.83	2443.56	2900.00	2443.52	2906.13	2441.75	2926.05	2444.40	2945.9
GR	2444.4	2977.36	2444.40	3000.00	2444.45	3051.11	2444.45	3100.00	2444.84	3117.1
GR	2444.0	3163.23	2441.66	3189.53	2441.66	3200.00	2441.88	3299.88	2441.88	3300.0
GR	2440.9	3388.64	2441.21	3400.00	2441.61	3499.13	2441.66	3500.00	2441.79	3590.9
GR	2443.0	3600.00	2446.70	3621.21	2444.53	3695.05	2445.86	3700.00	2447.77	3720.8
GR	2448.7	3768.71	2449.14	3800.00	2450.64	3825.81	2460.20	3900.00	2461.09	3900.4
GR	2471.6	3967.24	2471.63	3974.1						

NH	4	0.055	2615.0	0.035	3210.0	0.03	3780.0	0.065	4240.0	
ET			9.11						2950.0	3780.0
X1	13.5	25	2980.0	3780.0	310.0	310.0	310.0	1.0	2402.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	59.2	2000.0	58.0	2120.0	56.0	2440.0	54.0	2615.0	52.0	2720.0
GR	50.0	2780.0	48.0	2875.0	48.0	2980.0	46.0	3010.0	46.0	3080.0
GR	46.4	3150.0	46.0	3210.0	44.0	3320.0	43.0	3360.0	44.0	3470.0
GR	46.0	3770.0	48.0	3780.0	48.4	3815.0	48.0	3880.0	48.0	3940.0
GR	50.0	3960.0	52.0	4015.0	60.0	4060.0	70.0	4140.0	80.0	4240.0

NH	5	0.05	3000.00	0.035	3170.32	0.03	3700.00	0.05	4000.00	0.1
NH	4089.3									
ET			9.11						2900.0	3735.0
X1	14	55	3100.00	3734.93	240.0	240.0	240.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2460.0	2000.00	2460.03	2100.00	2458.66	2200.00	2457.99	2286.27	2457.99	2300.0
GR	2457.5	2400.00	2456.44	2432.66	2455.51	2497.69	2456.13	2500.00	2458.08	2523.6
GR	2453.7	2568.51	2452.24	2600.00	2450.60	2644.17	2450.55	2700.00	2450.55	2711.3
GR	2449.9	2773.20	2453.17	2796.75	2453.17	2800.00	2452.68	2842.97	2448.83	2857.4
GR	2448.4	2900.00	2448.21	2911.76	2447.99	3000.00	2447.99	3007.59	2451.48	3020.2
GR	2447.2	3036.28	2446.70	3100.00	2446.70	3108.34	2448.34	3170.32	2447.94	3200.0
GR	2447.5	3229.63	2444.62	3266.37	2444.62	3300.00	2444.62	3383.19	2444.62	3400.0
GR	2444.6	3495.72	2444.62	3500.00	2444.53	3587.35	2444.40	3600.00	2443.85	3657.0
GR	2443.7	3700.00	2443.83	3716.34	2450.42	3734.93	2449.85	3800.00	2449.40	3813.6
GR	2446.7	3841.84	2448.78	3858.08	2448.92	3873.44	2453.48	3900.00	2453.52	3903.3
GR	2454.0	3975.92	2454.32	4000.00	2454.63	4015.63	2457.68	4042.14	2464.68	4089.3

NH	4	0.045	3141.2	0.035	3300.0	0.03	3700.00	0.05	4471.6	
ET			9.11						2905	3735
X1	15	64	3141.2	3679.11	540.0	535.0	530.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2460.9	2000.00	2460.60	2100.00	2460.60	2200.00	2461.53	2285.78	2460.91	2300.0
GR	2456.9	2332.62	2457.59	2384.23	2457.59	2400.00	2457.19	2461.26	2457.19	2500.0
GR	2456.4	2524.34	2454.05	2600.00	2453.87	2612.20	2451.17	2666.12	2454.10	2683.8
GR	2453.8	2696.66	2453.08	2700.00	2451.84	2718.22	2451.71	2800.00	2451.88	2840.0
GR	2451.3	2900.00	2450.55	2907.20	2450.20	2980.63	2451.53	3000.00	2451.97	3030.3
GR	2454.4	3045.31	2451.66	3054.60	2451.57	3100.00	2451.57	3122.46	2457.99	3141.2

GR	2450.4	3172.62	2449.67	3200.00	2449.58	3255.66	2446.66	3274.52	2446.61	3300.0
GR	2446.6	3384.12	2447.06	3400.00	2447.37	3500.00	2447.72	3520.29	2446.44	3578.9
GR	2445.0	3600.00	2445.29	3679.11	2451.62	3700.00	2451.84	3701.47	2451.66	3793.4
GR	2451.7	3800.00	2451.84	3848.96	2456.53	3871.54	2451.84	3891.72	2452.01	3900.0
GR	2453.3	3976.01	2454.18	4000.00	2454.54	4037.58	2455.91	4100.00	2455.91	4119.7
GR	2456.8	4199.99	2456.75	4214.12	2458.48	4261.92	2458.26	4297.47	2458.26	4300.0
GR	2459.5	4387.91	2459.58	4399.99	2459.81	4466.83	2461.62	4471.6		

NH	3	0.035	3204.3	0.03	3631.51	0.1	4481.2			
ET		7.11	9.11				0.1	3750.0	2990.0	3620.0
X1	16	71	3204.30	3631.51	515.0	600.0	550.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2463.6	2000.00	2462.99	2100.00	2462.68	2154.36	2461.49	2200.00	2460.87	2260.2
GR	2460.6	2300.00	2460.12	2328.19	2458.74	2394.28	2458.74	2400.00	2459.85	2445.4
GR	2459.6	2500.00	2459.54	2512.61	2459.54	2578.70	2456.66	2600.00	2449.36	2630.0
GR	2453.1	2653.68	2448.16	2662.31	2453.03	2686.40	2452.02	2700.00	2452.15	2736.5
GR	2452.1	2800.00	2451.79	2809.32	2451.79	2809.32	2452.19	2900.00	2453.30	2911.5
GR	2453.5	2977.40	2455.96	3000.00	2455.65	3030.79	2452.86	3041.32	2452.68	3089.9
GR	2453.6	3100.00	2459.50	3144.20	2456.88	3173.44	2453.30	3200.00	2453.30	3204.3
GR	2448.0	3219.30	2447.99	3300.00	2447.99	3310.89	2448.08	3384.99	2449.40	3400.0
GR	2450.1	3442.94	2449.63	3500.00	2448.21	3534.35	2446.70	3600.00	2446.79	3608.9
GR	2455.2	3631.51	2456.53	3671.88	2452.28	3694.19	2453.30	3700.00	2457.24	3713.1
GR	2457.5	3745.99	2451.35	3762.72	2451.79	3800.00	2453.12	3824.03	2456.88	3852.5
GR	2458.3	3900.00	2458.30	3902.20	2459.85	4000.00	2459.72	4026.41	2458.97	4100.0
GR	2459.0	4109.46	2458.92	4199.99	2459.23	4202.81	2459.85	4261.11	2463.26	4277.2
GR	2463.0	4299.99	2462.99	4328.71	2463.70	4381.43	2463.70	4399.99	2462.77	4435.8
GR	2463.3	4481.2								

Begin Bank Protection

NH	3	0.035	3072.96	0.03	3486.73	0.1	4507.0			
ET			9.11						3080.0	3486.0
X1	17	63	3072.96	3486.73	695.0	670.0	685.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2465.3	2000.00	2464.59	2100.00	2463.61	2147.27	2463.57	2200.00	2463.17	2298.3
GR	2463.2	2300.00	2462.24	2400.00	2461.80	2412.21	2459.94	2461.17	2459.41	2500.0
GR	2459.0	2544.79	2455.34	2600.00	2454.23	2620.57	2454.80	2667.63	2449.89	2699.5
GR	2450.6	2700.00	2455.42	2733.63	2455.20	2794.01	2455.25	2800.00	2454.98	2855.4
GR	2458.1	2898.70	2458.21	2900.00	2465.43	2947.30	2458.70	2967.40	2458.70	3000.0
GR	2459.9	3063.54	2456.0	3072.96	2449.40	3088.91	2449.40	3100.00	2450.64	3174.52
GR	2450.6	3200.0	2450.8	3281.73	2450.78	3300.00	2449.89	3351.72	2450.33	3400.00
GR	2450.8	3456.1	2455.2	3486.73	2455.78	3500.00	2455.91	3523.69	2458.43	3531.88
GR	2454.5	3542.6	2454.9	3600.00	2455.07	3608.33	2460.69	3622.63	2460.69	3651.27
GR	2460.6	3700.0	2462.2	3743.65	2461.80	3800.00	2461.09	3838.07	2461.18	3900.00
GR	2461.3	3960.6	2461.4	4000.00	2462.95	4033.29	2462.82	4100.00	2463.04	4111.64
GR	2463.2	4200.0	2463.4	4224.34	2465.30	4299.99	2466.89	4305.13	2470.03	4389.37
GR	2469.9	4400.0	2473.4	4499.99	2473.22	4507.0				

NH	3	0.035	3075.0	0.03	3420.33	0.1	4481.6			
ET			9.11						3075.0	3421.0
X1	18	76	3075.0	3420.33	730.0	680.0	705.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2467.4	2000.00	2467.55	2100.00	2467.07	2126.87	2467.07	2200.00	2467.07	2262.2
GR	2467.1	2300.00	2466.36	2328.55	2463.13	2382.11	2462.99	2400.00	2462.95	2409.3
GR	2463.7	2500.00	2463.75	2513.53	2463.75	2513.53	2463.21	2540.89	2460.56	2561.6
GR	2463.7	2583.34	2464.99	2600.00	2464.99	2607.47	2464.99	2641.15	2461.49	2684.9
GR	2461.6	2700.00	2460.96	2721.28	2460.96	2791.31	2460.96	2800.00	2460.96	2853.3
GR	2463.8	2883.29	2462.64	2900.00	2459.54	2922.16	2459.45	2938.54	2457.19	2960.4
GR	2461.2	2995.02	2461.44	3000.00	2462.68	3025.70	2465.61	3050.80	2466.00	3075.0
GR	2451.9	3098.12	2451.88	3100.00	2451.88	3184.61	2451.88	3200.00	2451.93	3275.2
GR	2451.9	3300.00	2451.17	3335.56	2455.29	3354.99	2455.29	3378.63	2453.65	3400.0
GR	2453.7	3403.02	2465.21	3420.33	2465.69	3494.61	2465.87	3500.00	2464.50	3555.6
GR	2462.2	3600.00	2463.26	3611.83	2465.87	3679.11	2465.87	3700.00	2468.08	3778.7
GR	2468.1	3800.00	2467.42	3800.80	2464.76	3833.91	2469.24	3852.11	2469.46	3900.0
GR	2469.5	3912.88	2465.65	3928.82	2467.46	3946.08	2467.46	3999.99	2467.46	4009.4
GR	2469.9	4051.13	2469.90	4099.99	2469.77	4110.00	2469.10	4199.99	2468.88	4247.5
GR	2467.3	4296.63	2467.33	4299.99	2469.59	4377.90	2469.50	4399.99	2469.01	4473.0
GR	2469.9	4481.6								

NH	3	0.035	3250.61	0.03	3582.44	0.1	4622.7			
ET		7.11	9.11				3200	3600	3250.0	3582.0
X1	19	63	3250.61	3582.44	530.0	500.0	510.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2471.7	2000.00	2471.67	2100.00	2471.18	2147.23	2471.18	2200.00	2469.06	2270.5
GR	2469.1	2300.00	2466.53	2355.24	2464.81	2400.00	2465.07	2449.08	2466.45	2500.0
GR	2466.4	2600.00	2466.98	2633.90	2467.06	2700.00	2467.06	2720.13	2467.06	2800.0
GR	2465.3	2884.00	2462.59	2900.00	2462.59	3000.00	2465.69	3046.46	2464.59	3100.0
GR	2463.3	3200.00	2463.30	3209.45	2468.13	3238.97	2468.13	3250.61	2455.56	3274.2
GR	2453.6	3300.00	2453.08	3397.18	2453.08	3400.00	2453.42	3460.66	2455.69	3500.0
GR	2456.0	3558.58	2468.92	3582.44	2464.81	3600.00	2464.72	3606.69	2460.29	3625.5
GR	2462.8	3675.75	2457.19	3698.50	2457.19	3700.00	2458.39	3756.05	2459.98	3765.1
GR	2460.0	3800.00	2460.96	3812.09	2465.52	3888.01	2465.96	3899.99	2468.30	3955.5
GR	2471.5	3999.99	2472.78	4016.47	2473.22	4097.25	2473.22	4099.99	2472.86	4195.0
GR	2471.8	4199.99	2466.00	4214.43	2474.94	4233.46	2477.33	4299.99	2477.38	4307.8
GR	2480.5	4399.99	2483.35	4425.62	2480.52	4499.99	2479.46	4505.39	2471.71	4558.5
GR	2472.9	4589.98	2472.86	4599.99	2473.04	4622.7				

NH	4	0.1	2900.00	0.05	3313.12	0.03	3658.13	0.1	4594.5	
ET			9.11						3313.0	3658.0
X1	20	57	3313.12	3658.13	660.0	650.0	650.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2474.0	2000.00	2473.22	2100.00	2472.78	2119.61	2471.40	2184.86	2468.17	2200.0
GR	2469.1	2211.73	2470.78	2260.24	2470.78	2300.00	2471.54	2400.00	2471.09	2500.0
GR	2470.7	2512.65	2470.34	2600.00	2469.23	2673.78	2469.23	2700.00	2469.90	2800.0
GR	2470.7	2832.83	2470.65	2900.00	2470.65	2934.64	2470.78	2998.16	2470.78	3000.0
GR	2467.3	3023.66	2468.84	3098.12	2468.84	3100.00	2469.37	3197.10	2469.37	3200.0
GR	2466.1	3277.44	2471.54	3295.28	2471.54	3300.00	2470.43	3313.12	2456.53	3335.6
GR	2456.7	3400.00	2456.53	3471.19	2456.57	3500.00	2456.35	3569.78	2456.84	3600.0
GR	2456.8	3637.02	2471.76	3658.13	2471.76	3672.56	2466.71	3700.00	2466.80	3703.3

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GR   2468.7    3790.97    2471.71    3800.00    2476.94    3848.21    2473.57    3899.99    2472.20    3917.4
GR   2472.7    3999.99    2473.44    4010.80    2474.28    4099.99    2475.34    4165.11    2475.34    4200.0
GR   2476.8    4299.20    2476.80    4299.99    2477.25    4399.99    2478.88    4473.34    2478.88    4500.0
GR   2479.2    4585.87    2479.24     4594.5

NH        4        0.1    2800.00      0.045    3218.70       0.03     3567.3        0.1     4409.9
ET                          9.11                                                          3218.0    3567.0
X1       21         65    3218.70     3567.3      820.0      815.0      820.0        1.0        2.2
X2      0.0        0.0          0        0.0        0.0        0.0          0        0.0        0.0         15
GR   2473.6    2000.00    2473.57    2043.29    2473.57    2089.42    2473.57    2100.00    2473.57    2179.1
GR   2473.6    2200.00    2473.57    2300.00    2473.57    2347.31    2473.57    2400.00    2473.22    2484.1
GR   2473.2    2500.00    2473.22    2540.45    2473.22    2600.00    2473.22    2700.00    2474.19    2759.9
GR   2474.2    2800.00    2476.32    2870.41    2469.28    2894.98    2469.28    2900.00    2470.39    2956.6
GR   2471.0    2998.83    2471.36    3000.00    2473.88    3031.76    2472.16    3095.86    2472.16    3100.0
GR   2473.0    3139.99    2471.01    3167.00    2467.73    3186.25    2473.26    3200.00    2473.53    3202.1
GR   2473.5    3218.70    2458.52    3243.49    2459.01    3300.00    2458.48    3319.05    2458.48    3400.0
GR   2458.7    3414.98    2461.31    3477.57    2462.33    3500.00    2460.38    3548.17    2473.04    3567.3
GR   2473.7    3582.52     2473.0    3597.26     2473.0    3600.00     2473.0    3629.45    2475.83    3653.4
GR   2476.1    3700.00    2475.96    3751.58    2475.12    3800.00    2473.66    3816.12    2473.84    3844.4
GR   2479.7    3882.03    2479.68    3899.99    2478.75    3958.17    2484.15    3986.90    2484.15    4000.0
GR   2484.6    4099.69    2484.60    4099.99    2482.87    4113.01    2484.42    4133.82    2485.75    4200.0
GR   2491.4    4276.84    2491.41    4299.99    2489.73    4391.63    2489.95    4399.99    2489.95    4409.9

NH        4        0.1     3000.0      0.045    3366.19       0.03     3713.8        0.1     4541.0
ET                          9.11                                                          3366.0    3713.0
X1       22         63    3366.19     3713.8      410.0      405.0      410.0        1.0        2.2
X2      0.0        0.0          0        0.0        0.0        0.0          0        0.0        0.0         15
GR   2477.4    2000.00    2476.89    2042.23    2477.51    2100.00    2475.21    2148.96    2475.21    2200.0
GR   2475.2    2210.80    2473.62    2297.78    2473.62    2300.00    2474.10    2400.00    2475.39    2428.5
GR   2474.1    2487.06    2474.10    2500.00    2474.10    2546.03    2474.15    2600.00    2475.30    2700.0
GR   2475.6    2742.30    2475.61    2800.00    2475.34    2900.00    2475.08    2921.23    2475.08    3000.0
GR   2474.9    3098.74    2474.90    3100.00    2475.87    3178.11    2475.56    3200.00    2472.69    3227.8
GR   2472.8    3300.00    2471.09    3338.04    2475.61    3351.28    2475.25    3366.19    2459.54    3388.9
GR   2460.1    3400.00    2460.43    3489.61    2461.71    3500.00    2461.84    3532.02    2458.12    3541.0
GR   2458.4    3600.00    2460.56    3607.93    2462.24    3698.81    2463.39    3700.00    2474.64    3713.8
GR   2474.9    3727.32    2472.42    3740.47    2472.42    3800.00    2472.69    3826.56    2477.34    3866.5
GR   2477.3    3899.99    2475.52    3930.19    2475.52    3952.86    2476.05    3999.99    2476.05    4076.1
GR   2476.9    4099.99    2477.07    4199.99    2478.49    4222.84    2478.09    4251.21    2481.10    4278.8
GR   2481.1    4299.99    2480.30    4354.22    2483.18    4399.99    2484.55    4414.51    2486.72    4438.9
GR   2486.7    4499.99    2489.46    4530.84    2490.00     4541.0

  Sabino Canyon Bridge

NC      0.0        0.0        0.0        0.3        0.5
NH        5        0.1    3000.00      0.045    3336.89       0.03     3700.0      0.045    3799.99        0.1
NH   4552.9
ET                 7.11       9.11                                    3330.0     3695.0     3336.0    3700.0
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X1        23         57    3336.89     3700.0       295.0       295.0       295.0         1.0         2.2
GR    2478.4    2000.00     2477.2    2100.00      2476.8     2136.21      2476.8     2200.00      2475.7      2282.6
GR    2476.9    2300.00     2476.9    2308.63      2476.9     2343.06      2475.8     2400.00      2475.8      2403.0
GR    2475.7    2500.00     2476.1    2561.08      2476.1     2600.00      2475.4     2658.02      2475.4      2700.0
GR    2475.6    2800.00     2475.8    2834.20      2475.8     2900.00      2476.3     2937.12      2477.6      2953.5
GR    2478.6    2974.13     2478.4    2999.00      2478.4     3000.00      2474.6     3016.00      2475.0      3100.0
GR    2476.1    3157.26     2478.2    3200.00      2477.1     3205.33      2475.8     3300.00      2475.7      3303.6
GR    2477.8    3336.89     2477.6    3355.04      2461.6     3375.98      2461.6     3400.00      2462.4      3500.0
GR    2460.7    3517.14     2461.4    3600.00      2461.9     3630.69      2461.9     3686.15      2477.4      3700.0
GR    2477.1    3704.30     2477.9    3721.17      2477.3     3799.99      2477.4     3827.80      2477.4      3900.0
GR    2476.7    3967.07     2476.8    3999.99      2478.6     4063.66      2478.6     4099.99      2478.4      4177.3
GR    2479.1    4199.99     2479.8    4299.99      2481.5     4359.18      2483.8     4399.99      2483.1      4408.1
GR    2485.0    4499.99     2488.0     4552.9

NH         4        0.1    3520.16        0.03    3890.05        0.05    4052.46         0.1     4738.40
ET                           9.11                                                                 3540.0      3890.0
  Physically adjusted SB Card elevations by +2.2 ft
SB      1.05        1.56       2.6       385.0       320.0        30.0      2291.0         1.0      2463.1      2462.9
  SB  1.05    1.56     2.6   385.0   320.0    30.0  2291.0     1.0  2460.9  2460
X1        25          62    3520.16    3890.05       210.0       210.0       210.0         1.0         2.2
X2       0.0         0.0          1     2473.5      2489.2         0.0           0        1.33         0.0
   X2   0.0     0.0       1  2471.3  2487.0     0.0       0    1.33     0.0
   Adjusted BT Elevations By +2.2 ft
BT        -2    3500.00     2479.8     2473.3     3890.05      2479.9      2473.9
   BT    -2 3500.00  2477.6  2471.1 3890.05  2477.7  2471.7
GR    2485.9    2000.00     2483.9     2030.0      2481.9      2060.0      2478.1      2100.0      2478.1      2200.0
GR    2476.8     2300.0     2476.9    2351.08      2476.4      2400.0      2477.1      2466.5      2477.1      2500.0
GR    2477.0    2516.95     2476.7    2548.95      2476.7     2586.58      2476.8      2600.0      2476.5      2700.0
GR    2476.4    2714.55     2476.5     2800.0      2476.5     2869.22      2476.8      2900.0      2476.9     3000.00
GR    2476.9    3009.06     2478.1    3100.00      2477.7     3126.98      2477.5     3172.7      2477.3     3198.78
GR    2477.2    3200.00     2477.2    3205.33      2477.3     3246.55      2477.1     3258.2      2477.1     3278.91
GR    2476.7    3300.00     2476.4    3400.00      2476.6     3419.45      2477.6     3500.00      2477.6     3520.16
GR    2461.8    3561.63     2461.8    3582.84      2461.8     3600.00      2462.3     3700.00      2462.4     3744.59
GR    2462.2    3800.00     2477.7    3890.05      2478.1     3899.99      2478.6      3911.4      2478.2     3942.33
GR    2476.8    3999.99     2476.9    4052.46      2478.0     4099.99      2478.0     4166.80      2478.2     4199.99
GR    2478.2    4299.99     2478.7    4308.19      2478.1     4399.99      2479.0     4471.70      2481.4    4499.994
GR    2480.4    4592.91     2481.4    4599.99      2481.7     4611.20      2482.5     4638.99      2484.3     4699.99
GR    2484.3    4706.98     2485.3    4738.40

NC       0.0         0.0        0.0         0.1         0.3
NH         4        0.1    3300.00        0.03      3613.3        0.05    3930.55         0.1      4438.6
ET                  7.11       9.11                                            0.1        3650      3265.0      3613.0
X1        26          70    3265.18     3613.3       260.0       260.0       260.0         1.0         2.2
GR    2480.0    2000.00    2478.31    2085.97     2478.31     2100.00     2478.13     2200.00     2478.22      2225.2
GR    2476.0    2241.12    2476.01    2256.66     2476.76     2260.38     2476.76     2270.65     2475.87      2272.4
GR    2476.1    2286.54    2478.18    2299.11     2478.18     2300.00     2478.80     2394.15     2478.80      2400.0
GR    2479.1    2500.00    2479.77    2513.49     2479.24     2600.00     2478.44     2613.05      2478.5      2632.7
GR    2478.6    2638.94    2479.73    2651.47     2480.08     2700.00     2479.68     2754.48     2478.62      2762.8
GR    2478.6    2800.00    2479.15    2813.71     2480.35     2832.78     2480.35     2900.00     2478.62      2916.1
GR    2477.3    2923.84    2477.73    2943.05     2477.34     2964.21     2479.33     2969.35     2479.55      3000.0
GR    2480.3    3080.01    2477.82    3100.00     2477.69     3101.84     2478.44     3127.60     2478.93      3200.0
GR    2477.7    3251.23    2478.04    3265.18     2464.01     3282.22     2464.01     3300.00     2463.79      3400.0
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GR	2463.0	3422.63	2463.21	3500.00	2462.86	3590.85	2467.91	3600.00	2477.25	3613.3
GR	2477.2	3676.06	2477.16	3700.0	2474.64	3783.01	2474.64	3799.99	2473.57	3841.6
GR	2474.5	3899.99	2474.46	3900.22	2477.69	3930.55	2477.69	3999.99	2480.74	4054.3
GR	2479.9	4099.99	2479.86	4104.38	2478.27	4142.01	2481.01	4168.52	2481.14	4200.0
GR	2482.2	4261.39	2481.72	4299.99	2482.74	4355.50	2483.27	4399.99	2483.27	4438.6
NH	4	0.1	3300.00	0.03	3647.73	0.045	3899.99	0.1	4451.5	
ET			9.11						3300.0	3647.0
X1	27	64	3300.00	3647.73	400.0	410.0	400.0	1.0	2.2	
GR	2478.7	2000.00	2478.66	2094.51	2478.71	2100.00	2478.71	2200.00	2478.93	2242.0
GR	2477.6	2262.46	2478.26	2300.00	2479.28	2367.68	2479.42	2400.00	2478.80	2472.4
GR	2478.8	2500.00	2478.88	2600.00	2479.64	2616.94	2479.64	2640.84	2479.8	2653.7
GR	2479.8	2662.45	2479.95	2680.77	2479.33	2700.00	2480.12	2722.16	2481.27	2800.0
GR	2481.9	2834.47	2480.79	2884.66	2481.45	2900.00	2483.53	2931.45	2482.82	3000.0
GR	2481.2	3047.30	2481.23	3100.00	2480.83	3138.40	2479.77	3156.28	2481.32	3200.0
GR	2481.3	3210.95	2481.23	3259.78	2479.37	3297.23	2478.18	3300.00	2464.76	3320.6
GR	2465.6	3400.00	2464.50	3446.98	2465.83	3479.74	2465.65	3500.00	2463.04	3550.8
GR	2465.6	3600.00	2464.98	3626.75	2479.19	3647.73	2479.33	3658.26	2478.52	3677.1
GR	2476.2	3699.99	2478.40	3710.90	2479.37	3797.26	2478.57	3799.99	2478.26	3837.0
GR	2478.3	3865.17	2478.8	3899.99	2479.59	3981.98	2479.59	3999.99	2478.75	4030.5
GR	2479.3	4099.99	2479.06	4155.33	2479.06	4199.99	2479.33	4254.44	2481.19	4300.0
GR	2482.7	4322.61	2480.57	4399.99	2479.50	4446.74	2479.50	4451.5		
NH	4	0.1	3274.12	0.03	3622.36	0.05	3799.99	0.1	4385.0	
ET		7.11	9.11				0.1	3625.0	3274.0	3622.0
X1	28	67	3274.12	3622.36	820.0	830.0	830.0	1.0	2.2	
GR	2482.9	2000.00	2482.56	2100.00	2480.66	2200.00	2480.48	2209.47	2480.61	2232.8
GR	2482.3	2300.00	2483.22	2400.00	2481.63	2456.74	2481.63	2474.62	2482.29	2500.0
GR	2483.3	2582.94	2478.66	2600.00	2477.91	2606.14	2477.91	2617.21	2482.38	2632.4
GR	2482.4	2658.29	2484.99	2677.67	2484.15	2700.00	2484.20	2763.06	2481.45	2770.5
GR	2481.5	2800.00	2481.36	2859.65	2479.55	2870.63	2479.68	2896.13	2481.67	2900.0
GR	2482.2	2911.53	2481.94	2999.31	2481.94	3000.00	2481.58	3094.09	2479.15	3100.0
GR	2479.1	3105.82	2479.15	3137.38	2481.72	3156.02	2481.72	3200.00	2481.54	3248.2
GR	2482.4	3274.12	2467.55	3295.41	2467.55	3300.00	2467.73	3376.02	2467.73	3400.0
GR	2467.7	3457.16	2467.69	3500.00	2467.02	3511.08	2469.72	3525.02	2468.61	3600.0
GR	2468.6	3605.19	2482.34	3622.36	2482.07	3638.39	2475.61	3653.48	2476.54	3700.0
GR	2476.3	3707.93	2484.02	3723.69	2483.67	3799.99	2483.67	3813.55	2483.67	3900.0
GR	2484.8	3961.09	2482.07	3999.78	2482.07	3999.99	2482.07	4028.91	2482.07	4100.0
GR	2484.3	4145.73	2484.42	4199.99	2485.13	4212.39	2484.59	4299.99	2483.44	4345.8
GR	2483.9	4373.87	2485.97	4385.0						
NH	3	0.1	3100.00	0.03	3456.23	0.05	3878.0			
ET		7.11	9.11				3100.0	3878.0	3100.0	3456.0
X1	29	56	3100.0	3456.23	670.0	900.0	830.0	1.0	2.2	
GR	2483.1	2000.00	2483.49	2023.24	2484.28	2049.89	2484.28	2100.00	2484.33	2175.3
GR	2484.3	2200.00	2483.05	2300.00	2483.05	2301.23	2482.29	2304.73	2482.29	2330.4
GR	2483.0	2358.43	2482.20	2400.00	2483.62	2445.41	2483.4	2456.39	2484.4	2467.1
GR	2485.7	2479.45	2484.06	2500.00	2484.06	2512.12	2486.54	2531.51	2484.11	2600.0
GR	2483.9	2601.23	2483.75	2658.86	2485.48	2684.27	2485.48	2700.00	2484.82	2800.0
GR	2484.8	2815.03	2483.84	2863.15	2483.8	2889.00	2483.8	2900.00	2483.8	3000.0
GR	2483.8	3033.84	2483.71	3060.53	2484.86	3095.55	2480.43	3100.00	2469.32	3115.1

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GR   2469.1    3198.07    2469.06    3200.00    2469.99    3248.05    2472.78    3300.00    2472.78    3313.0
GR   2471.8    3340.17    2469.90    3351.10    2470.70    3391.65    2470.83    3400.00    2470.92    3437.9
GR   2485.2    3456.23    2485.21    3476.73    2486.90    3500.00    2487.47    3516.97    2486.85    3600.0
GR   2485.3    3612.80    2485.70    3699.99    2485.88    3737.50    2486.28    3799.99    2486.72    3870.7
GR   2486.7     3878.0

NH        4        0.1     2532.2       0.05    3078.29       0.03    3441.67       0.05     3809.2
ET                          9.11                                                          3078.0    3442.0
X1       30         57    3078.29    3441.67      810.0      810.0      810.0        1.0        2.2
GR   2487.2    2000.00    2487.65    2100.00    2487.30    2125.54    2486.94    2142.98    2487.21    2200.0
GR   2486.0    2283.08    2486.01    2300.00    2485.44    2328.10    2486.72    2344.66    2487.83    2400.0
GR   2488.1    2441.38    2484.24    2454.93    2488.93    2477.32    2489.16    2500.00    2490.13    2532.2
GR   2487.4    2584.49    2487.74    2600.00    2488.93    2624.29    2492.92    2648.19    2487.83    2671.8
GR   2488.0    2700.00    2488.31    2700.43    2491.01    2717.38    2487.78    2733.49    2487.87    2760.7
GR   2483.4    2793.34    2483.44    2800.00    2483.44    2900.00    2483.44    2910.74    2483.27    3000.0
GR   2483.0    3007.90    2483.62    3054.74    2487.34    3066.55    2487.38    3078.29    2472.91    3098.4
GR   2472.9    3100.00    2472.78    3166.29    2475.03    3200.00    2475.21    3205.15    2473.44    3231.8
GR   2472.2    3266.46    2473.04    3300.00    2474.55    3328.21    2474.37    3400.00    2474.33    3424.9
GR   2488.0    3441.67    2488.14    3458.05    2486.19    3476.86    2489.24    3493.33    2489.24    3500.0
GR   2488.4    3572.79    2488.45    3599.99    2488.62    3699.99    2488.23    3719.35    2488.27    3787.9
GR   2488.8    3799.99    2488.89     3809.2

NH        4        0.1    2400.00       0.05     3131.1       0.03    3499.99       0.05     3880.6
ET                          9.11                                                          3131.0    3499.0
X1       31         50     3131.1     3499.4      510.0      510.0      510.0        1.0        2.2
GR   2490.5    2000.00    2490.66    2100.00    2489.46    2100.18    2489.69    2200.00    2489.07    2209.3
GR   2488.5    2273.39    2487.92    2300.00    2488.05    2313.45    2488.31    2400.00    2489.02    2422.5
GR   2489.8    2500.00    2491.28    2520.62    2490.04    2595.60    2490.08    2600.00    2489.29    2694.8
GR   2489.7    2700.00    2489.77    2725.97    2490.31    2800.00    2489.46    2821.27    2489.77    2836.9
GR   2490.0    2853.72    2489.69    2900.00    2489.69    2911.09    2485.79    2923.40    2486.54    3000.0
GR   2486.5    3010.65    2485.66    3069.12    2488.23    3100.00    2488.71    3118.26    2489.02    3131.1
GR   2475.3    3151.37    2476.23    3200.00    2476.19    3255.62    2474.46    3293.91    2475.65    3300.0
GR   2475.8    3356.23    2474.90    3400.00    2475.34    3417.54    2475.43    3479.96    2489.16    3499.4
GR   2489.2    3499.99    2489.64    3508.91    2490.22    3552.25    2490.22    3599.99    2489.64    3633.4
GR   2490.0    3699.99    2490.04    3727.41    2490.08    3799.99    2490.48    3825.19    2492.25    3880.6

NH        5        0.1    2362.28      0.035    2800.00        0.1    3133.04       0.03    3499.97        0.1
NH   3857.0
ET                          9.11                                                          3133.0    3499.0
X1       32         49    3133.04    3499.99      690.0      700.0      700.0        1.0        2.2
GR   2491.2    2000.00    2490.97    2087.38    2491.37    2100.00    2490.26    2128.37    2490.08    2136.5
GR   2489.3    2175.12    2490.97    2200.00    2491.68    2222.75    2492.92    2294.81    2492.92    2300.0
GR   2492.7    2362.28    2492.47    2400.00    2493.89    2444.08    2493.89    2500.00    2494.38    2554.0
GR   2494.4    2600.00    2494.38    2641.29    2492.30    2659.35    2492.30    2676.66    2492.65    2700.0
GR   2492.3    2703.66     2492.5    2730.22    2492.39    2755.05    2492.70    2800.00    2492.39    2848.5
GR   2491.7    2897.01    2491.63    2900.00    2490.57    2950.18    2491.06    2988.60    2493.80    3000.0
GR   2493.8    3014.14    2491.94    3100.00    2491.46    3133.04    2479.59    3153.45    2479.59    3200.0
GR   2478.7    3300.00    2478.66    3302.45    2477.87    3400.00    2477.34    3424.41    2477.73    3483.0
GR   2491.1    3499.97    2491.10    3499.99    2491.85    3599.99    2491.85    3604.57    2492.74    3700.0
GR   2493.1    3702.97    2496.10    3795.67    2496.10    3799.99    2496.10     3857.0
```

NH	3	0.1	3200.00	0.03	3556.9	0.1	3969.4			
ET			9.11						3200.0	3556.0
X1	33	49	3200.0	3556.9	480.0	540.0	500.0	1.0	2.2	
GR	2490.9	2000.00	2493.09	2059.18	2493.49	2100.00	2493.80	2124.61	2494.11	2200.0
GR	2493.8	2208.01	2494.10	2237.00	2494.1	2263.92	2493.49	2296.41	2493.49	2300.0
GR	2494.6	2394.15	2494.64	2400.00	2495.53	2500.00	2494.33	2504.81	2492.65	2575.6
GR	2492.7	2600.00	2493.63	2649.88	2493.80	2700.00	2493.45	2736.02	2494.02	2800.0
GR	2493.8	2849.56	2493.63	2900.00	2493.23	2908.70	2493.49	3000.00	2494.02	3008.9
GR	2494.0	3049.53	2494.07	3100.00	2494.51	3151.70	2491.85	3171.71	2493.36	3192.8
GR	2490.4	3200.00	2480.57	3210.84	2480.92	3300.00	2481.23	3326.60	2480.26	3400.0
GR	2479.1	3429.38	2479.42	3499.99	2478.09	3513.49	2481.54	3541.02	2493.89	3556.9
GR	2493.8	3599.99	2493.14	3655.50	2493.54	3699.99	2493.45	3769.17	2493.98	3800.0
GR	2496.6	3880.59	2498.05	3899.99	2498.80	3931.94	2498.80	3969.4		

Confluence with Sabino Creek
Discharge taken directly from Effective FIS

NH	3	0.1	3282.97	0.03	3741.93	0.1	4093.8			
ET		7.11	9.11				0.1	3646.41	3282.0	3646.0
X1	34	68	3282.97	3646.31	370.0	460.0	415.0	1.0	2.2	
GR	2493.0	2000.00	2491.86	2068.83	2491.5	2084.81	2491.5	2093.80	2491.5	2100.0
GR	2490.0	2108.10	2492.25	2174.37	2493.09	2200.00	2493.5	2212.79	2494.0	2259.4
GR	2494.9	2286.14	2494.78	2300.00	2494.42	2361.21	2492.43	2371.66	2492.43	2400.0
GR	2493.8	2435.09	2495.79	2469.22	2495.79	2500.00	2496.37	2577.94	2496.37	2600.0
GR	2495.9	2700.00	2493.58	2726.41	2493.32	2784.89	2493.32	2800.00	2491.10	2823.4
GR	2491.8	2865.36	2494.20	2900.00	2494.11	2907.99	2492.92	2949.43	2493.80	2987.8
GR	2494.2	3000.00	2494.95	3038.53	2494.91	3100.00	2494.82	3131.05	2496.24	3200.0
GR	2496.4	3213.56	2492.78	3254.91	2495.35	3282.97	2482.69	3300.00	2482.69	3300.0
GR	2483.7	3400.00	2482.60	3405.28	2482.43	3477.26	2480.57	3497.13	2481.14	3500.0
GR	2481.6	3556.05	2480.38	3568.62	2481.10	3599.99	2480.48	3628.43	2484.60	3637.2
GR	2491.8	3646.31	2490.53	3666.50	2487.03	3688.45	2487.07	3699.99	2489.82	3720.7
GR	2492.2	3741.93	2491.32	3795.71	2490.84	3799.99	2488.14	3851.80	2491.41	3879.6
GR	2494.0	3899.99	2493.14	3904.61	2491.94	3933.91	2496.99	3973.31	2497.74	4000.0
GR	2497.9	4010.14	2497.61	4063.57	2497.61	4093.8				

Pima County and City of Tucson Limits

NH	3	0.1	3092.50	0.03	3470.71	0.1	3706.65			
QT	2	28000	28000							
ET		7.11	9.11				3080.0	3475.0	3092.0	3470.0
X1	35	41	3092.50	3470.71	580.0	640.0	610.0	1.0	2.2	
GR	2493.4	2200.00	2493.32	2300.00	2493.85	2400.0	2493.9	2458.20	2494.20	2500.00
GR	2494.2	2600.00	2494.25	2603.53	2491.54	2631.7	2498.3	2685.16	2496.72	2700.00
GR	2493.3	2727.96	2493.36	2742.39	2497.21	2773.2	2498.1	2800.00	2496.72	2841.73
GR	2495.5	2857.31	2495.57	2900.00	2495.57	2928.0	2496.7	2954.34	2497.52	3000.00
GR	2495.8	3055.36	2497.21	3092.50	2489.64	3100.0	2487.8	3105.42	2487.83	3113.57
GR	2484.5	3118.17	2484.51	3200.00	2485.17	3203.2	2484.6	3251.94	2484.64	3300.00
GR	2483.5	3322.77	2484.33	3400.00	2484.06	3400.2	2484.0	3457.38	2493.94	3470.71
GR	2493.8	3499.99	2493.89	3533.03	2494.25	3600.0	2495.8	3619.09	2496.02	3699.99
GR	2495.7	3706.65								

NH	3	0.1	3109.94	0.03	3473.23	0.1	4157.0			
ET			9.11						3110.0	3473.0
X1	36	52	3109.94	3473.23	525.0	470.0	500.0	1.0	2.2	
GR	2496.3	2000.00	2494.78	2039.13	2495.00	2100.00	2495.44	2200.00	2495.93	2300.0
GR	2495.9	2302.43	2495.93	2400.00	2496.46	2483.74	2496.41	2500.00	2496.24	2565.4
GR	2496.2	2600.00	2497.03	2700.00	2497.43	2733.27	2497.43	2800.00	2498.23	2859.3
GR	2497.8	2897.90	2498.14	2900.00	2499.38	2923.00	2499.38	2966.16	2498.76	2987.9
GR	2495.6	3000.00	2495.97	3007.02	2498.72	3021.49	2498.54	3088.11	2500.00	3098.4
GR	2500.0	3100.00	2499.56	3109.94	2488.76	3124.50	2488.31	3161.86	2489.24	3200.0
GR	2488.0	3213.08	2489.82	3223.44	2489.16	3299.99	2488.00	3322.59	2486.85	3384.3
GR	2487.2	3399.99	2488.09	3459.24	2497.96	3473.23	2498.05	3499.04	2498.14	3500.0
GR	2499.8	3528.43	2499.47	3599.99	2498.54	3631.66	2498.54	3699.99	2498.05	3720.8
GR	2498.1	3799.99	2497.74	3818.55	2497.74	3899.99	2498.19	3999.99	2498.45	4054.0
GR	2498.5	4099.99	2498.32	4157.0						

NH	5	0.1	2920.0	0.045	3120.0	0.03	3470.0	0.045	3520.0	0.06
NH	4120.0									
ET			9.11						3120.0	3470.0
X1	36.5	27	3120.0	3470.0	240.0	240.0	240.0	1.0	2.2	
GR	2500.0	2000.0	2496.8	2070.0	2496.6	2180.0	2497.8	2280.0	2497.3	2380.0
GR	2497.4	2480.0	2497.7	2570.0	2497.6	2625.0	2498.1	2730.0	2498.1	2820.0
GR	2498.7	2920.0	2497.7	3020.0	2501.8	3100.0	2500.0	3120.0	2490.0	3130.0
GR	2489.9	3220.0	2489.7	3320.0	2489.8	3420.0	2490.0	3460.0	2500.0	3470.0
GR	2500.3	3520.0	2501.4	3620.0	2499.3	3715.0	2498.6	3820.0	2498.5	3915.0
GR	2498.4	4020.0	2499.2	4120.0						

Tanque Verde Road

NH	4	0.1	2620.79	0.05	3120.02	0.03	3480.43	0.05	4248.6	
ET		7.11	9.11				2750.0	4248.6	3120.0	3480.0
X1	38	56	3120.02	3480.43	600.0	550.0	580.0	1.0	2.2	
GR	2507.3	2000.00	2507.88	2014.96	2504.29	2020.36	2503.67	2048.69	2502.35	2052.1
GR	2503.7	2100.00	2503.67	2100.40	2503.67	2110.62	2499.03	2154.89	2499.20	2200.0
GR	2499.7	2255.51	2499.69	2300.00	2499.56	2357.89	2499.60	2400.00	2499.69	2473.7
GR	2499.7	2500.00	2499.96	2600.00	2499.96	2620.79	2499.96	2700.00	2500.53	2775.0
GR	2500.7	2800.00	2500.97	2900.00	2500.89	2905.43	2501.99	3000.00	2501.95	3009.2
GR	2502.5	3073.89	2504.60	3100.00	2504.60	3100.27	2504.65	3120.02	2492.61	3136.7
GR	2492.8	3200.00	2492.25	3241.93	2492.43	3299.99	2492.78	3343.61	2492.78	3400.0
GR	2492.7	3437.81	2490.75	3454.63	2493.05	3466.40	2502.44	3480.43	2503.90	3492.4
GR	2503.9	3499.99	2503.41	3561.00	2503.32	3599.99	2502.83	3699.99	2500.93	3709.2
GR	2501.2	3799.99	2500.97	3845.59	2500.89	3899.99	2501.59	3915.93	2501.55	3946.9
GR	2500.4	3999.99	2500.62	4099.99	2500.22	4111.10	2500.84	4199.99	2500.84	4240.8
GR	2500.8	4248.6								

NC	0.0	0.0	0.0	0.3	0.5					
NH	3	0.1	3117.7	0.03	3499.9	0.1	4232.45			
ET			9.11						3118.0	3500.0

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X1      38.5        46     3117.7     3499.9       40.0       80.0       60.0   0.994521        2.2
X2       0.0       0.0          0        0.0        0.0        0.0          0        0.0        0.0
GR    2542.6    2000.0     2521.5     2100.0     2517.0     2200.0     2513.2     2300.0     2510.9     2352.9
GR    2509.7    2400.0     2507.5     2500.0     2507.2     2520.7     2507.2     2600.0     2507.5    2635.98
GR    2507.5    2700.0     2508.4    2761.07     2508.6     2800.0     2509.4     2888.2     2509.4     2900.0
GR    2510.6    3000.0     2511.0     3100.0     2512.5     3117.7     2492.8     3136.0     2493.0     3200.0
GR    2492.4    3241.9     2492.6    3299.99     2492.9     3343.6     2493.0     3400.0     2492.9     3437.8
GR    2490.9    3454.6    2493.25     3466.4    2502.64     3480.4     2514.4     3499.9     2513.2    3533.66
GR    2513.0   3599.99     2512.6     3618.9     2512.6    3699.99     2512.8     3700.7     2511.4     3719.0
GR    2511.3   3799.99     2509.5     3832.6     2509.5    3899.99     2507.5    3965.17     2506.6    3999.99
GR    2506.1   4093.59     2506.1     4100.0     2506.0    4163.93     2505.9     4165.6    2505.07    4199.99
GR    2504.3   4232.45

NH         3       0.1     3100.0       0.03    3457.65        0.1     4200.0
ET                          9.11                                                                 3100.0     3500.0
  Physically adjusted SB Card elevations by +2.2 ft
SB      1.05      1.56        2.6      420.0      330.0       30.0     5048.0        1.0     2494.4     2493.2
  SB  1.05    1.56     2.6   420.0   330.0    30.0  5048.0     1.0  2492.2  2491
X1      39.5        38     3100.0    3499.99      120.0      120.0      120.0        1.0        2.2
X2       0.0       0.0          1     2510.2     2516.2        0.0          0       1.33        0.0
   X2   0.0     0.0       1  2508.0  2514.0     0.0       0    1.33     0.0
   Adjusted BT Elevations By +2.2 ft
BT        -2    3100.0     2513.8     2508.3    3499.99     2517.0     2511.5
   BT    -2  3100.0  2511.6  2506.1 3499.99  2514.8  2509.3
GR    2525.0    2000.0     2522.0     2100.0     2517.4     2200.0     2513.7     2300.0     2511.3     2352.9
GR    2510.1    2400.0     2503.5    2457.65    2507.95     2500.0     2507.8     2520.0     2507.7     2600.0
GR    2507.9   2635.98    2507.95     2700.0     2508.8    2761.07     2509.0     2800.0     2509.8     2888.2
GR    2508.8    2900.0     2511.0     3000.0     2511.6     3100.0     2494.4     3117.3    2493.65     3200.0
GR    2492.2    3204.4     2493.2     3300.0     2494.2    3333.39     2494.3    3399.99     2493.5     3415.9
GR    2496.4    3423.0     2495.6     3449.0     2503.5    3457.65    2514.81    3499.99    2513.21    3533.66
GR    2513.0   3599.99     2512.6     3618.9     2512.6    3699.99    2511.31    3799.99     2509.5    3899.99
GR    2506.6   3999.99     2506.1     4100.0    2505.07     4200.0

NC       0.0       0.0        0.0        0.1        0.3
NH         4       0.1    2300.00       0.05    3100.00       0.03    3457.65       0.05     4260.4
ET                 7.11       9.11                                     3100.0     3458.0     3100.0     3458.0
X1        40        62     3100.0    3457.65      110.0       60.0       90.0        1.0        2.2
GR    2515.9   2000.00    2515.36    2100.00    2516.02    2153.47    2511.38    2200.00    2505.89     2292.6
GR    2505.9   2300.00    2505.49    2358.87    2501.11    2391.80    2501.28    2400.00    2501.64     2438.4
GR    2504.3   2465.15    2504.25    2500.00    2501.59    2575.38    2501.77    2600.00    2502.26     2670.5
GR    2502.3   2700.00    2502.39    2800.00    2502.39    2804.94    2502.39    2900.00    2503.28     2922.5
GR    2503.3   3000.00    2503.81    3024.41    2503.67    3074.35    2506.95    3082.49    2507.39     3096.7
GR    2505.4   3100.00    2494.56    3117.37    2493.85    3200.00    2492.43    3204.44    2493.49     3300.0
GR    2494.4   3333.39    2494.47    3399.99    2493.49    3415.91    2496.59    3423.03    2495.84     3449.0
GR    2503.7   3457.65    2503.32    3499.99    2503.41    3528.92    2503.36    3599.99    2503.45     3600.9
GR    2501.5   3680.86    2503.85    3699.99    2505.22    3710.35    2504.21    3729.73    2501.90     3769.3
GR    2501.9   3799.99    2502.26    3843.10    2502.97    3899.99    2503.10    3924.60    2503.54     4000.0
GR    2503.5   4001.00    2500.31    4042.43    2503.98    4090.95    2504.07    4099.99    2504.12     4114.3
GR    2503.5   4139.42    2504.47    4192.50    2505.27    4199.89    2505.27    4199.99    2504.34     4235.2
GR    2503.1   4243.89    2503.10     4260.4
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NC      0.0       0.0       0.0       0.1       0.3
NH        3      0.05   3043.01      0.03   3399.99      0.05    4237.1
ET              7.11      9.11                                     0.1    3600.0    3043.0    3485.0
X1       41        61   3043.01   3399.99     280.0     280.0     280.0       1.0       2.2
GR   2519.0   2000.00   2517.97   2038.65   2510.36   2088.62   2512.79   2100.00   2512.62    2107.1
GR   2510.6   2143.38   2519.83   2186.94   2519.83   2200.00   2519.88   2268.52   2519.88    2300.0
GR   2519.5   2351.17   2512.35   2384.10   2508.94   2400.00   2503.59   2421.73   2504.21    2482.6
GR   2504.2   2500.00   2504.65   2559.39   2504.65   2600.00   2504.65   2700.00   2504.29    2800.0
GR   2504.3   2810.16   2504.29   2900.00   2504.65   2935.22   2505.53   3000.00   2505.93    3020.5
GR   2507.7   3034.02   2507.57   3043.01   2496.15   3060.49   2495.00   3100.00   2495.75    3132.9
GR   2495.8   3200.00   2495.71   3236.94   2494.87   3293.11   2495.57   3299.99   2496.37    3314.0
GR   2495.2   3365.97   2497.52   3392.67   2505.67   3399.99   2505.62   3407.27   2505.00    3500.0
GR   2503.7   3512.36   2503.67   3599.99   2503.28   3699.99   2503.28   3702.88   2502.66    3751.7
GR   2505.1   3799.99   2504.52   3822.67   2504.25   3899.99   2504.12   3960.74   2503.41    4000.0
GR   2503.1   4071.80   2503.50   4099.99   2503.90   4132.93   2501.24   4147.98   2504.38    4170.8
GR   2503.1   4176.98   2502.74   4188.13   2503.50   4199.99   2504.16   4225.32   2505.00    4232.6
GR   2504.9    4237.1

NH        3       0.1   3079.92      0.03   3399.99      0.05    5385.0
ET              7.11      9.11                                      .01    3900.0    3080.0    3415.0
X1       42        87    3080.0   3399.99     420.0     420.0     420.0       1.0       2.2
GR   2514.3   2000.00   2512.35   2100.00   2512.17   2200.00   2510.58   2238.55   2510.58    2300.0
GR   2508.0   2368.47   2509.87   2400.00   2515.27   2474.58   2515.14   2500.00   2514.30    2512.8
GR   2508.4   2533.59   2509.03   2581.71   2507.39   2600.00   2504.43   2612.78   2504.91    2666.6
GR   2502.0   2700.00   2501.82   2706.05   2500.49   2749.30   2506.73   2776.39   2506.73    2800.0
GR   2506.4   2873.42   2506.37   2900.00   2506.51   2953.72   2506.24   3000.00   2506.86    3038.7
GR   2507.9   3080.00   2498.81   3100.00   2496.68   3101.97   2496.68   3180.59   2497.08    3200.0
GR   2497.3   3292.98   2497.34   3299.99   2497.48   3390.45   2502.97   3399.99   2504.07    3415.8
GR   2506.8   3445.70   2506.73   3499.99   2506.20   3573.05   2506.20   3599.99   2505.71    3682.3
GR   2505.7   3699.99   2506.15   3751.98   2506.15   3799.99   2506.82   3868.79   2504.38    3900.0
GR   2502.1   3923.24   2507.39   3973.00   2507.22   3999.99   2505.27   4058.79   2505.27    4094.6
GR   2505.6   4099.99   2504.60   4183.62   2504.60   4199.99   2504.74   4278.83   2503.32    4297.5
GR   2504.8   4299.99   2505.84   4321.02   2505.45   4399.99   2505.45   4418.01   2505.45    4496.2
GR   2505.4   4499.99   2505.49   4533.54   2507.08   4558.24   2506.20   4568.78   2506.37    4600.0
GR   2507.3   4635.32   2507.35   4694.06   2507.57   4699.99   2507.61   4708.54   2506.55    4742.5
GR   2507.0   4780.38   2506.99   4799.99   2505.75   4899.99   2505.75   4900.61   2502.44    4915.6
GR   2506.6   4955.85   2506.60   4999.99   2505.89   5017.69   2506.42   5043.81   2506.42    5100.0
GR   2506.9   5176.34   2506.86   5199.98   2507.30   5259.25   2506.91   5299.99   2506.91    5324.9
GR   2514.4   5382.45   2515.05    5385.0
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End Bank Protection

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NH        7       0.1   2389.68     0.035   2433.28      0.05   2726.10      0.03   3020.30       0.1
NH   3200.0      0.06   3599.99       0.1    4972.3
ET              7.11      9.11                                     0.1    3900.0    2726.0    3025.0
X1       43        82    2726.1   3020.30     350.0     350.0     350.0       1.0       2.2
GR   2514.3   2000.00   2514.65   2100.00   2513.32   2166.84   2509.21   2195.39   2509.21    2200.0
GR   2509.0   2268.92   2509.03   2300.00   2507.30   2389.68   2504.07   2400.00   2502.83    2414.8
GR   2502.0   2433.28   2508.76   2457.67   2507.70   2500.00   2508.10   2552.62   2508.99    2600.0
GR   2510.0   2615.48   2509.43   2654.79   2511.73   2671.26   2508.68   2689.14   2510.18    2700.0
GR   2510.1   2708.71   2507.13   2726.10   2499.03   2749.25   2498.94   2800.00   2499.25    2820.5
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GR	2499.2	2844.82	2499.20	2861.03	2499.20	2900.00	2498.76	2989.04	2502.57	3000.0
GR	2508.0	3020.30	2508.14	3100.00	2507.61	3125.03	2507.57	3200.00	2507.70	3239.5
GR	2507.7	3299.99	2507.04	3361.19	2507.04	3399.99	2507.30	3476.84	2507.30	3500.0
GR	2507.3	3536.29	2503.94	3571.44	2505.98	3599.99	2507.57	3618.36	2506.77	3671.9
GR	2506.8	3699.99	2506.64	3707.16	2506.64	3799.99	2506.42	3825.35	2506.42	3900.0
GR	2506.7	3978.60	2509.78	3999.99	2510.36	4006.89	2506.42	4046.02	2506.86	4100.0
GR	2506.9	4140.71	2506.99	4199.99	2509.21	4233.93	2508.28	4299.99	2508.01	4307.5
GR	2508.1	4348.71	2507.70	4399.99	2507.70	4401.97	2505.67	4445.83	2509.96	4484.4
GR	2509.5	4499.99	2509.61	4505.42	2508.10	4525.47	2509.65	4568.45	2510.09	4593.5
GR	2509.3	4599.99	2509.30	4600.99	2509.43	4635.29	2509.74	4647.64	2507.39	4671.6
GR	2507.4	4699.99	2509.47	4759.64	2511.46	4799.99	2512.35	4832.15	2513.46	4900.0
GR	2515.1	4947.41	2516.07	4972.3						

NH	5	0.1	2532.39	0.05	2782.1	0.03	2968.90	0.045	3599.99	0.1
NH	4957.5									
ET		7.11	9.11				.01	4100.0	2782.0	3590.0
X1	44	87	2782.1	2968.90	430.0	415.0	420.0	1.0	2.2	
GR	2518.3	2000.00	2516.69	2045.99	2516.42	2100.00	2515.98	2117.84	2515.23	2200.0
GR	2515.2	2201.86	2514.79	2261.66	2512.62	2300.00	2512.44	2303.62	2511.47	2355.5
GR	2512.9	2385.34	2513.68	2400.00	2514.52	2426.42	2514.39	2500.00	2514.34	2518.8
GR	2508.2	2532.39	2508.06	2600.00	2508.77	2656.74	2508.77	2700.00	2510.05	2782.1
GR	2502.2	2800.00	2500.09	2802.59	2499.38	2865.85	2499.38	2900.00	2500.27	2952.5
GR	2510.4	2968.90	2510.45	3000.00	2509.07	3056.11	2511.47	3084.22	2511.24	3100.0
GR	2510.8	3151.90	2510.80	3199.99	2510.00	3261.46	2510.00	3299.99	2508.72	3357.8
GR	2508.7	3399.99	2507.04	3444.77	2507.39	3499.99	2508.28	3546.85	2507.57	3588.1
GR	2507.4	3599.99	2507.13	3619.44	2507.13	3699.99	2507.53	3727.98	2507.53	3800.0
GR	2507.3	3846.21	2507.88	3899.99	2508.37	3935.98	2510.76	3971.40	2510.62	4000.0
GR	2510.6	4000.13	2507.13	4048.69	2507.53	4092.16	2509.47	4099.99	2509.78	4112.1
GR	2509.9	4148.24	2502.92	4171.39	2510.14	4194.46	2509.25	4199.99	2509.16	4205.9
GR	2506.6	4220.75	2510.31	4251.56	2510.00	4299.99	2509.78	4303.44	2510.40	4365.8
GR	2511.8	4399.99	2511.33	4417.16	2509.43	4443.72	2509.21	4499.99	2509.25	4514.4
GR	2506.5	4595.91	2506.91	4599.99	2509.21	4626.36	2508.94	4699.99	2508.99	4713.2
GR	2511.5	4743.71	2510.58	4754.47	2511.82	4795.11	2512.70	4799.99	2512.66	4802.4
GR	2511.5	4808.34	2511.64	4828.75	2511.38	4864.38	2512.93	4876.56	2517.62	4900.0
GR	2517.0	4904.40	2517.18	4957.5						

NH	4	0.045	2741.2	0.03	2954.83	0.045	3699.99	0.1	4925.8	
ET		7.11	9.11				0.1	4550.0	2750.0	3640.0
X1	45	66	2741.2	2954.83	495.0	498.0	490.0	1.0	2.2	
GR	2522.1	2000.00	2521.91	2100.00	2522.75	2106.06	2522.58	2139.66	2516.82	2165.6
GR	2516.7	2200.00	2515.76	2264.63	2515.76	2300.00	2512.35	2368.83	2512.35	2400.0
GR	2510.1	2481.49	2511.64	2500.00	2512.26	2518.18	2510.85	2581.04	2511.33	2600.0
GR	2511.6	2658.20	2512.57	2700.00	2512.53	2708.66	2509.96	2724.20	2510.18	2741.2
GR	2501.5	2759.30	2502.35	2800.00	2502.52	2835.13	2502.66	2900.00	2502.92	2932.2
GR	2512.1	2954.83	2511.86	3000.00	2511.38	3056.77	2511.24	3100.00	2511.42	3176.2
GR	2511.4	3199.99	2511.42	3299.99	2510.09	3341.09	2510.09	3399.99	2510.09	3446.3
GR	2509.3	3497.58	2509.30	3499.99	2509.47	3519.13	2508.99	3583.68	2509.69	3600.0
GR	2509.4	3698.37	2509.38	3699.99	2509.96	3784.02	2509.96	3799.99	2509.96	3900.0
GR	2510.0	3921.25	2510.05	3999.99	2510.18	4061.71	2510.18	4099.99	2510.49	4200.0
GR	2510.7	4243.91	2510.85	4299.99	2512.75	4396.14	2512.75	4399.99	2511.91	4494.7
GR	2511.3	4499.99	2507.70	4537.31	2510.80	4599.19	2510.80	4599.99	2511.95	4700.0
GR	2511.7	4729.55	2511.91	4799.99	2511.91	4814.94	2512.93	4870.19	2514.56	4900.0

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GR   2515.7     4925.8

NH        4      0.045   2562.71      0.03   2848.63     0.045    3269.9       0.1    4829.6
ET                7.11      9.11                                     0.1      4200.0    2563.0     3500.0
X1       46        63   2562.71   2848.63     500.0     515.0     500.0       1.0       2.2
GR   2530.7   2000.00   2529.70   2021.56   2521.20   2089.91   2521.20   2100.00   2516.29     2193.8
GR   2516.3   2200.00   2513.37   2276.36   2513.37   2300.00   2513.10   2376.93   2513.68     2400.0
GR   2514.3   2477.10   2514.70   2500.00   2514.96   2562.71   2504.78   2579.93   2505.05     2600.0
GR   2504.8   2655.98   2505.93   2700.00   2505.76   2704.72   2505.40   2800.00   2504.65     2812.3
GR   2515.7   2848.63   2515.67   2900.00   2514.52   2951.55   2514.39   3000.00   2513.81     3080.1
GR   2513.8   3100.00   2513.01   3192.05   2513.01   3199.99   2513.72   3250.53   2511.78     3269.9
GR   2512.0   3295.81   2512.66   3299.99   2514.12   3322.64   2513.77   3399.99   2513.24     3437.1
GR   2513.2   3499.99   2512.48   3539.59   2512.53   3599.99   2512.84   3679.33   2512.84     3700.0
GR   2513.4   3799.99   2514.17   3823.51   2514.17   3899.99   2513.99   3956.80   2514.43     4000.0
GR   2514.7   4051.62   2514.39   4099.99   2513.99   4159.01   2515.41   4199.99   2514.30     4226.6
GR   2507.8   4244.48   2512.66   4299.99   2514.34   4304.02   2514.12   4399.99   2513.90     4418.7
GR   2513.9   4499.99   2513.90   4528.94   2514.12   4599.99   2515.18   4699.99   2515.18     4713.1
GR   2515.8   4799.99   2515.94   4812.64   2517.35    4829.6

NH        5      0.045   2400.00      0.06   2552.89      0.03   2867.93     0.045   3294.00       0.1
NH   4907.7
ET                7.11      9.11                                     0.1      3000.0    2553.0     3530.0
X1       47        58   2552.89   2867.93     520.0     530.0     520.0       1.0       2.2
GR   2522.2   2000.00   2519.88   2100.00   2518.95   2151.13   2518.95   2200.00   2517.88     2300.0
GR   2517.2   2387.55   2517.13   2400.00   2514.48   2500.00   2515.54   2552.89   2507.84     2570.9
GR   2507.9   2600.00   2508.15   2674.75   2508.15   2700.00   2508.15   2780.86   2508.10     2800.0
GR   2507.8   2820.48   2510.54   2846.29   2518.77   2867.93   2519.08   2900.00   2519.65     2906.5
GR   2516.9   2970.23   2516.91   3000.00   2517.09   3100.00   2517.09   3100.42   2516.02     3200.0
GR   2515.9   3207.68   2514.03   3267.35   2514.25   3294.00   2514.25   3299.99   2514.39     3400.0
GR   2515.1   3447.78   2515.63   3499.99   2515.98   3599.99   2515.67   3699.99   2517.04     3752.7
GR   2517.0   3799.99   2516.56   3899.99   2516.38   3909.43   2516.38   3999.99   2516.38     4100.0
GR   2515.0   4152.45   2513.19   4199.99   2511.69   4251.39   2514.17   4275.69   2514.65     4300.0
GR   2514.9   4307.70   2516.87   4331.56   2516.87   4399.99   2516.78   4452.71   2516.78     4500.0
GR   2517.0   4599.99   2517.13   4603.00   2516.91   4699.99   2515.41   4732.61   2516.78     4799.6
GR   2517.0   4799.99   2518.99   4899.99   2519.12    4907.7

NH        6      0.045   2300.00      0.06   2529.21      0.03    2700.0     0.035   2800.00     0.045
NH   3299.9        0.1    4975.0
ET                7.11      9.11                                     0.1      4000.0    2390.0     3440.0
X1       48        61   2529.21    2700.0     500.0     510.0     510.0       1.0       2.2
GR   2523.7   2000.00   2522.62   2100.00   2522.04   2140.02   2521.65   2200.00   2520.85     2247.7
GR   2520.8   2300.00   2518.99   2357.05   2518.99   2400.00   2518.95   2474.85   2518.95     2500.0
GR   2518.1   2529.21   2510.09   2557.76   2510.14   2600.00   2510.36   2697.37   2512.22     2700.0
GR   2517.8   2729.86   2517.26   2783.83   2522.00   2800.00   2522.44   2806.22   2518.15     2821.5
GR   2518.1   2900.00   2518.15   2915.34   2518.24   3000.00   2518.55   3100.00   2517.53     3119.3
GR   2517.6   3199.99   2517.13   3298.51   2516.60   3299.99   2516.78   3323.34   2516.73     3400.0
GR   2516.7   3478.68   2516.91   3499.99   2517.40   3599.99   2519.03   3645.16   2518.95     3700.0
GR   2518.4   3799.99   2518.19   3850.69   2518.33   3899.99   2517.97   3987.16   2517.84     4000.0
GR   2512.7   4049.84   2519.21   4099.99   2516.91   4110.31   2513.01   4143.78   2518.28     4186.0
GR   2518.3   4199.99   2518.02   4293.22   2518.02   4299.99   2518.19   4386.00   2518.19     4400.0
GR   2519.0   4484.41   2519.03   4499.99   2519.03   4599.99   2518.73   4631.90   2519.12     4700.0
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GR	2519.5	4752.88	2522.27	4799.99	2523.33	4822.16	2523.95	4886.52	2524.44	4900.0
GR	2523.7	4975.0								
NH	6	0.035	2300.0	0.06	2550.0	0.03	2700.0	0.035	2795.0	0.045
NH	3300.0	0.1	4850.0							
ET		7.11	9.11				0.1	4700	2400.0	3440.0
X1	48.25	34	2540.0	2795.0	280.0	270.0	275.0	1.0	2.2	
GR	2524.5	2000.0	2523.8	2100.0	2522.3	2200.0	2526.5	2300.0	2519.8	2395.0
GR	2519.8	2500.0	2518.0	2540.0	2511.1	2550.0	2511.1	2600.0	2511.3	2650.0
GR	2512.3	2700.0	2515.0	2760.0	2519.4	2795.0	2518.7	2900.0	2518.5	2995.0
GR	2518.7	3100.0	2517.0	3190.0	2517.0	3300.0	2517.0	3400.0	2518.0	3500.0
GR	2518.8	3600.0	2519.3	3690.0	2519.2	3790.0	2519.0	3895.0	2517.3	3990.0
GR	2518.6	4090.0	2519.1	4195.0	2519.0	4300.0	2519.2	4400.0	2519.0	4500.0
GR	2520.0	4595.0	2521.4	4700.0	2522.3	4800.0	2522.4	4850.0		
NH	5	0.06	2514.24	0.03	2785.85	0.035	2836.40	0.045	3346.54	0.1
NH	5090.7									
ET		7.11	9.11				0.1	4700	2400.0	3450.0
X1	48.5	56	2514.24	2800.0	230.0	230.0	230.0	1.0	2.2	
GR	2525.2	2000.0	2523.02	2100.0	2521.96	2167.73	2522.93	2200.0	2522.66	2232.8
GR	2520.1	2259.14	2520.7	2300.0	2520.63	2400.0	2520.5	2440.23	2520.5	2500.0
GR	2520.5	2514.24	2512.0	2539.74	2512.0	2600.0	2512.13	2639.07	2512.31	2700.0
GR	2512.1	2742.66	2515.27	2785.85	2517.22	2800.0	2518.72	2814.77	2518.72	2836.4
GR	2523.9	2858.59	2519.26	2885.02	2519.26	2900.0	2518.95	3000.0	2518.95	3020.0
GR	2519.5	3328.21	2517.84	3346.54	2518.11	3374.65	2518.59	3399.99	2518.99	3464.0
GR	2519.7	3799.0	2519.52	3882.43	2519.52	3899.99	2517.26	3964.19	2517.26	4000.0
GR	2518.3	4099.99	2519.61	4129.7	2519.61	4199.99	2519.43	4221.2	2519.7	4300.0
GR	2519.7	4384.01	2516.64	4399.77	2516.6	4399.99	2516.38	4416.81	2519.65	4455.6
GR	2519.7	4499.99	2520.27	4569.27	2520.72	4599.99	2521.03	4699.99	2521.03	4746.5
GR	2521.2	4799.99	2521.38	4893.74	2521.38	4899.99	2523.9	4964.61	2525.85	5000.0
GR	2526.8	5090.7								
NH	5	0.035	2500.00	0.045	2555.72	0.03	2784.4	0.045	4300.0	0.1
NH	5089.6									
ET			9.11						2400.0	3400.0
X1	49	81	2555.72	2784.40	600.0	600.0	600.0	1.0	2.2	
GR	2526.8	2000.00	2523.95	2100.00	2523.59	2104.65	2525.19	2149.84	2521.91	2165.4
GR	2522.3	2200.00	2522.75	2245.68	2520.50	2267.64	2521.91	2300.00	2522.18	2400.0
GR	2521.9	2457.98	2521.91	2500.00	2521.91	2555.72	2515.18	2590.25	2516.07	2600.0
GR	2516.6	2630.84	2514.65	2652.09	2516.02	2700.00	2514.48	2768.16	2522.89	2784.4
GR	2525.6	2800.00	2524.04	2807.82	2525.72	2830.22	2525.72	2843.32	2522.93	2862.6
GR	2522.9	2900.00	2522.80	3000.00	2522.44	3020.61	2522.44	3099.99	2522.44	3200.0
GR	2522.1	3228.17	2522.09	3299.99	2522.71	3366.73	2521.03	3382.75	2521.07	3400.0
GR	2521.1	3412.72	2522.71	3426.13	2523.28	3499.99	2522.62	3512.85	2519.65	3558.8
GR	2522.2	3593.55	2522.22	3599.99	2522.22	3624.84	2522.22	3684.82	2522.22	3700.0
GR	2520.9	3767.82	2522.49	3799.99	2522.49	3804.61	2522.53	3899.99	2522.53	3900.7
GR	2521.2	3999.99	2520.10	4010.67	2521.03	4075.52	2521.03	4099.99	2519.48	4153.1
GR	2521.7	4199.99	2521.82	4201.68	2520.81	4230.81	2522.13	4279.63	2522.13	4300.0
GR	2521.8	4399.99	2521.82	4409.77	2519.03	4443.02	2519.48	4452.71	2521.12	4461.3
GR	2521.0	4499.99	2520.36	4533.76	2521.20	4599.99	2521.87	4619.29	2522.00	4700.0
GR	2522.8	4751.51	2525.59	4799.99	2527.84	4837.48	2526.16	4899.76	2526.16	4900.0

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GR   2525.5    4917.95    2525.63    4953.85    2525.98    4999.98    2528.42    5032.20    2529.84    5083.6
GR   2530.1     5089.6

NH        4      0.045     2171.0      0.035     2740.6       0.03    2964.65        0.1     5067.1
ET                           9.11                                                          2500.0     3450.0
X1       50         66     2740.6    2964.65      610.0      600.0      600.0        1.0        2.2
GR   2529.3    2000.00    2526.03    2064.19    2527.22    2097.12    2527.22    2100.00    2526.03     2171.0
GR   2526.0    2200.00    2525.32    2300.00    2525.32    2361.35    2525.32    2400.00    2525.32     2500.0
GR   2525.3    2556.25    2525.32    2600.00    2524.44    2688.65    2524.44    2700.00    2523.42     2740.6
GR   2517.8    2754.39    2517.93    2800.00    2517.93    2813.31    2517.93    2900.00    2518.33     2927.5
GR   2528.1    2964.65    2527.22    3000.00    2526.07    3099.99    2525.37    3199.99    2524.70     3300.0
GR   2524.5    3399.99    2524.39    3450.37    2524.39    3479.19    2524.39    3499.99    2524.52     3600.0
GR   2524.5    3670.46    2524.52    3699.99    2524.52    3799.99    2524.08    3849.12    2524.08     3900.0
GR   2524.7    3972.27    2523.73    3999.99    2522.53    4016.93    2525.01    4070.54    2525.54     4100.0
GR   2526.0    4122.20    2525.01    4159.25    2522.93    4181.29    2522.93    4199.99    2523.20     4300.0
GR   2523.3    4395.23    2523.28    4399.99    2523.28    4428.21    2523.28    4456.41     2524.5    4499.99
GR   2524.5     4500.1    2525.54    4599.99    2525.54    4602.93    2519.70    4637.11    2522.62     4671.2
GR   2525.5    4681.24    2525.01    4699.99    2523.33    4728.34    2530.50    4791.20    2530.59     4800.0
GR   2530.9    4845.25    2531.70    4899.99    2534.79    4950.86    2535.46    4999.98    2535.72     5004.1
GR   2535.2     5067.1

NH        6      0.045    2268.17      0.035    2553.68      0.045     2754.4       0.03    2996.36      0.045
NH   3479.2        0.1     5028.1
ET                           9.11                                                          2500.0     3500.0
X1       51         64     2754.4    2996.36      510.0      520.0      510.0        1.0        2.2
GR   2532.8    2000.00    2530.94    2100.00    2529.30    2131.34    2529.17    2200.00    2529.70     2209.1
GR   2526.9    2268.17    2526.87    2300.00    2527.14    2400.00    2527.18    2426.77    2527.18     2500.0
GR   2527.7    2553.68    2527.71    2600.00    2527.45    2700.00    2527.76    2715.17    2526.78     2754.4
GR   2519.9    2776.49    2520.01    2800.00    2520.05    2865.51    2520.05    2900.00    2521.20     2976.4
GR   2527.8    2996.36    2527.76    3000.00    2529.39    3044.04    2528.55    3099.99    2528.60     3200.0
GR   2528.0    3244.43    2527.98    3299.99    2527.36    3397.90    2527.31    3399.99    2526.87     3479.2
GR   2526.7    3499.99    2525.59    3514.94    2528.07    3577.22    2527.89    3599.99    2527.76     3700.0
GR   2526.2    3741.81    2526.21    3799.99    2525.94    3899.99    2525.76    3918.39    2525.76     4000.0
GR   2525.5    4001.47    2526.47    4099.99    2526.34    4188.59    2526.34    4199.99    2526.38     4300.0
GR   2527.3    4399.99    2527.00    4432.72    2525.14    4472.73    2525.01    4499.99    2525.01     4505.9
GR   2526.1    4571.84    2525.72    4599.99    2522.71    4628.91    2526.21    4665.91    2526.43     4700.0
GR   2528.1    4700.26    2529.66    4727.49    2530.81    4799.99    2532.01    4821.68    2534.93     4837.3
GR   2537.3    4899.99    2539.97    4973.03    2540.50    4999.98    2542.81     5028.1

NH        5       0.05    2715.61       0.03    2914.15      0.045     3000.0      0.035    3624.05        0.1
NH   4977.3
ET                           9.11                                                          2510.0     3700.0
X1       52         65    2715.61    2974.57      500.0      510.0      500.0        1.0        2.2
GR   2534.9    2000.00    2534.00    2039.31    2531.16    2100.00    2530.37    2105.49    2530.10     2200.0
GR   2529.9    2287.95    2528.46    2300.00    2526.87    2323.45    2529.97    2355.46    2529.97     2400.0
GR   2530.5    2474.67    2530.46    2500.00    2529.70    2600.00    2529.53    2627.61    2529.26     2700.0
GR   2529.3    2715.61    2521.47    2732.74    2521.56    2800.00    2521.56    2825.97    2522.22     2879.3
GR   2524.5    2900.00    2526.25    2914.15    2526.74    2940.93    2531.34    2974.57    2529.88     3000.0
GR   2529.9    3095.15    2529.88    3099.99    2529.88    3199.99    2528.95    3254.55    2528.95     3300.0
GR   2529.4    3399.99    2529.53    3418.12    2529.53    3499.99    2528.46    3585.18    2529.04     3600.0
GR   2529.9    3624.05    2529.88    3645.78    2527.45    3677.34    2528.07    3699.99    2529.22     3708.9
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GR	2528.2	3799.99	2527.36	3835.95	2527.36	3899.99	2527.67	3999.99	2527.67	4011.9
GR	2527.7	4099.99	2528.60	4165.25	2528.82	4199.99	2528.91	4299.99	2529.84	4328.2
GR	2529.8	4399.99	2529.61	4414.07	2527.14	4470.42	2524.79	4497.07	2525.14	4500.0
GR	2528.5	4526.50	2528.60	4599.99	2528.60	4617.52	2529.08	4699.99	2529.08	4702.2
GR	2529.9	4795.25	2529.92	4799.99	2529.97	4899.99	2531.78	4947.48	2533.33	4977.3
NH	5	0.1	2400.00	0.045	2623.1	0.03	3019.1	0.035	3800.0	0.1
NH	4993.4									
ET		7.11	9.11				0.1	4600.0	2610.0	3860.0
X1	53	68	2623.1	3019.1	500.0	470.0	500.0	1.0	2.2	
GR	2538.8	2000.00	2535.81	2100.00	2535.81	2200.00	2535.46	2241.39	2533.82	2255.2
GR	2533.8	2283.31	2534.66	2300.00	2534.84	2400.00	2534.84	2400.79	2533.16	2442.9
GR	2533.2	2500.00	2534.40	2549.35	2532.18	2581.62	2532.54	2600.00	2532.71	2623.1
GR	2528.7	2691.53	2527.31	2700.00	2525.63	2716.41	2525.23	2800.00	2524.83	2805.5
GR	2524.8	2900.00	2524.79	2932.07	2524.57	2997.28	2528.55	3000.00	2532.63	3019.1
GR	2532.3	3099.99	2531.08	3147.76	2531.08	3199.99	2531.25	3299.99	2531.34	3306.7
GR	2531.7	3383.30	2531.65	3399.99	2530.68	3490.42	2530.68	3499.99	2530.68	3600.0
GR	2530.7	3620.61	2530.68	3699.99	2530.19	3757.35	2533.16	3783.33	2530.90	3800.0
GR	2530.4	3801.48	2529.75	3825.74	2528.24	3899.99	2528.82	3908.74	2529.22	4000.0
GR	2530.5	4029.76	2530.46	4099.99	2531.56	4148.35	2531.78	4190.54	2531.25	4200.0
GR	2527.6	4231.66	2531.21	4289.87	2531.21	4299.99	2530.81	4399.74	2530.54	4400.0
GR	2527.6	4425.20	2530.15	4463.93	2530.68	4499.99	2530.19	4524.57	2535.68	4596.5
GR	2535.7	4599.99	2530.28	4699.99	2530.10	4702.88	2530.72	4782.03	2530.72	4800.0
GR	2535.1	4899.99	2535.06	4904.03	2538.34	4993.4				
NH	4	0.1	2353.16	0.045	2975.05	0.03	3263.97	0.1	4936.0	
ET		7.11	9.11				2450.0	4500.0	2700.0	3900.0
X1	54	77	2975.05	3263.97	550.0	450.0	560.0	1.0	2.2	
GR	2538.5	2000.00	2537.14	2075.78	2536.43	2100.00	2536.34	2108.01	2537.27	2116.9
GR	2536.5	2200.00	2536.92	2233.95	2535.72	2272.24	2535.19	2300.00	2534.79	2324.2
GR	2532.3	2353.16	2535.41	2399.59	2535.41	2400.00	2534.44	2500.00	2534.31	2535.5
GR	2534.3	2600.00	2533.78	2604.24	2529.48	2622.39	2529.53	2700.00	2530.59	2711.3
GR	2532.4	2733.45	2532.85	2757.13	2533.07	2800.00	2533.07	2809.46	2533.47	2878.4
GR	2532.4	2899.99	2529.79	2907.46	2530.15	2941.40	2531.30	2975.05	2528.82	2992.4
GR	2528.8	2999.99	2528.02	3012.89	2528.51	3099.99	2528.02	3109.00	2527.84	3185.3
GR	2527.2	3199.99	2526.21	3246.62	2532.98	3263.97	2532.98	3299.99	2532.67	3352.2
GR	2532.7	3399.99	2532.09	3464.86	2532.27	3499.99	2532.01	3586.24	2532.36	3600.0
GR	2533.3	3699.99	2531.47	3740.42	2532.14	3799.99	2532.85	3845.28	2530.41	3872.0
GR	2534.0	3899.99	2533.82	3901.63	2530.41	3920.54	2531.03	3943.33	2531.08	4000.0
GR	2532.9	4099.99	2532.54	4123.45	2533.07	4186.75	2532.71	4199.99	2530.23	4240.1
GR	2530.5	4284.85	2532.36	4299.99	2531.87	4321.28	2534.57	4358.86	2534.93	4400.0
GR	2535.9	4438.23	2540.28	4482.54	2539.57	4499.99	2534.48	4554.52	2538.47	4582.5
GR	2538.5	4599.99	2538.47	4699.98	2538.69	4723.35	2538.65	4799.98	2539.49	4837.2
GR	2539.6	4899.98	2539.71	4936.0						
NH	6	0.045	2960.58	0.03	3299.99	0.045	3364.62	0.03	3643.94	0.035
NH	4300.0	0.045	5030.7							
ET		7.11	9.11				2600.0	4200.0	2810.0	3960.0

X1	55	83	2960.58	3643.94	440.0	600.0	500.0	1.0	2.2	
GR	2541.6	2000.00	2541.21	2100.00	2539.66	2138.20	2536.88	2168.74	2536.17	2199.1
GR	2536.5	2200.00	2539.44	2228.33	2539.71	2251.08	2532.85	2277.99	2532.85	2300.0
GR	2532.6	2378.92	2535.24	2400.00	2537.10	2418.36	2537.72	2474.27	2537.18	2500.0
GR	2536.3	2535.93	2539.04	2566.92	2538.42	2600.00	2536.92	2611.58	2538.96	2642.3
GR	2531.0	2672.81	2530.85	2700.00	2531.43	2705.70	2533.42	2736.11	2536.79	2762.7
GR	2536.8	2800.00	2536.12	2840.40	2536.12	2899.99	2536.88	2936.77	2534.93	2947.3
GR	2536.2	2960.58	2532.27	2976.65	2532.40	2999.99	2531.30	3075.72	2531.30	3100.0
GR	2533.0	3146.74	2533.07	3199.99	2532.49	3263.87	2534.71	3299.99	2537.05	3319.3
GR	2532.5	3364.62	2529.79	3377.76	2529.79	3399.99	2530.32	3499.99	2530.50	3500.4
GR	2531.5	3599.99	2531.30	3629.82	2535.77	3643.94	2535.72	3699.99	2535.19	3800.0
GR	2535.2	3828.26	2535.10	3899.99	2535.15	3941.58	2535.33	3999.99	2536.39	4019.8
GR	2532.0	4052.43	2532.27	4083.10	2534.35	4099.99	2534.31	4100.99	2534.26	4120.4
GR	2537.9	4146.76	2538.42	4168.09	2538.42	4199.99	2539.27	4278.10	2536.30	4300.0
GR	2536.3	4303.02	2536.30	4399.99	2537.54	4468.93	2536.70	4499.99	2536.61	4509.2
GR	2536.6	4551.26	2536.61	4599.99	2536.52	4697.79	2536.61	4699.98	2537.23	4790.0
GR	2537.1	4799.98	2537.01	4833.64	2537.14	4879.32	2537.72	4899.98	2539.80	4923.1
GR	2539.8	4999.98	2539.84	5025.31	2540.46	5030.7				
NH	6	0.045	2999.99	0.03	3135.92	0.035	3246.5	0.045	3455.39	0.03
NH	3700.0	0.045	5025.6							
ET			9.11						2980.0	4120.0
X1	56	82	2983.38	3700.0	450.0	550.0	450.0	1.0	2.2	
GR	2542.7	2000.00	2541.04	2100.00	2541.30	2113.81	2540.90	2156.22	2538.25	2190.3
GR	2538.2	2200.00	2538.25	2300.00	2538.25	2314.42	2538.25	2400.00	2538.25	2469.0
GR	2538.2	2500.00	2538.20	2600.00	2537.54	2633.41	2537.49	2700.00	2537.67	2800.0
GR	2537.7	2806.36	2534.09	2810.96	2534.04	2842.92	2534.31	2872.00	2535.81	2900.0
GR	2535.7	2901.00	2536.61	2960.36	2534.35	2983.38	2534.31	2999.99	2534.00	3076.3
GR	2534.1	3099.99	2534.09	3104.67	2535.86	3135.92	2534.88	3199.99	2534.66	3246.5
GR	2534.9	3292.40	2539.97	3299.99	2538.91	3306.17	2538.96	3361.01	2535.41	3390.7
GR	2535.4	3399.99	2536.65	3455.39	2532.09	3487.53	2532.09	3499.99	2532.36	3600.0
GR	2532.6	3661.14	2535.95	3672.43	2535.95	3683.72	2536.74	3697.22	2536.79	3700.0
GR	2536.8	3799.99	2536.70	3836.19	2536.26	3899.99	2535.68	3989.62	2535.68	4000.0
GR	2536.0	4041.23	2533.60	4073.50	2536.03	4099.99	2535.68	4112.37	2533.91	4158.1
GR	2534.5	4182.84	2537.41	4199.99	2536.92	4213.51	2536.52	4264.47	2537.36	4278.1
GR	2537.8	4288.24	2534.17	4299.99	2532.98	4309.00	2533.69	4324.98	2536.79	4348.0
GR	2536.6	4399.99	2536.57	4404.97	2537.01	4481.86	2540.50	4499.99	2540.99	4509.8
GR	2540.9	4599.99	2541.08	4612.53	2542.81	4621.65	2542.81	4647.64	2542.19	4669.8
GR	2543.0	4699.98	2543.03	4751.31	2543.03	4799.98	2542.98	4856.40	2543.51	4900.0
GR	2544.7	4999.98	2545.86	5025.6						
NH	6	0.045	2696.27	0.035	3100.0	0.03	3231.27	0.045	3399.99	0.03
NH	3666.3	0.045	4857.6							
ET			9.11						2920.0	4070.0
X1	57	71	3100.00	3666.3	530.0	540.0	520.0	1.0	2.2	
GR	2543.6	2000.00	2542.98	2100.00	2541.57	2135.77	2541.57	2200.00	2540.68	2300.0
GR	2540.0	2332.80	2539.97	2400.00	2539.97	2500.00	2539.71	2534.21	2539.71	2600.0
GR	2540.8	2696.27	2540.46	2700.00	2538.34	2712.51	2538.60	2785.24	2539.04	2800.0
GR	2541.2	2835.79	2535.41	2853.54	2536.92	2898.65	2539.40	2899.99	2539.66	2910.9
GR	2539.1	2999.99	2538.56	3014.90	2539.09	3066.16	2535.55	3078.64	2535.90	3100.0
GR	2536.0	3199.99	2536.30	3231.27	2541.30	3241.98	2538.56	3294.53	2538.56	3300.0
GR	2538.6	3376.42	2534.62	3393.37	2534.71	3399.99	2535.10	3499.99	2534.97	3518.2

GR	2535.0	3599.99	2534.48	3605.68	2535.77	3621.39	2535.77	3650.21	2540.46	3666.3
GR	2540.5	3699.99	2539.88	3799.99	2538.78	3832.14	2538.56	3899.99	2538.03	3984.3
GR	2538.0	3999.99	2538.91	4099.99	2538.91	4107.61	2538.73	4169.50	2535.33	4192.2
GR	2535.5	4199.99	2536.48	4222.44	2538.38	4262.72	2543.29	4292.03	2544.00	4300.0
GR	2544.2	4312.34	2543.29	4328.37	2542.50	4352.36	2543.20	4399.99	2543.29	4410.1
GR	2544.9	4433.63	2544.98	4499.99	2545.11	4513.00	2545.11	4540.85	2543.87	4557.4
GR	2543.9	4599.99	2543.69	4627.61	2544.71	4699.98	2544.84	4734.60	2546.30	4800.0
GR	2545.9	4857.6								

NH	5	0.05	2800.00	0.045	2899.99	0.035	3138.13	0.03	3663.44	0.1
NH	4771.1									
ET			9.11						2920.0	4100.0
X1	58	72	2958.15	3663.44	480.0	570.0	500.0	1.0	2.2	
GR	2552.0	2000.00	2549.62	2100.00	2549.36	2159.45	2549.31	2200.00	2546.39	2293.2
GR	2546.4	2300.00	2546.04	2400.00	2542.94	2459.26	2542.94	2500.00	2541.57	2600.0
GR	2541.1	2669.00	2541.12	2700.00	2541.12	2785.11	2541.26	2800.00	2541.21	2882.6
GR	2541.7	2899.99	2542.45	2958.15	2537.14	2987.19	2537.58	2999.99	2539.13	3019.5
GR	2540.5	3081.60	2540.42	3099.99	2540.06	3138.13	2538.42	3162.91	2538.56	3200.0
GR	2540.0	3299.99	2540.37	3310.23	2538.25	3399.99	2537.23	3410.41	2537.18	3500.0
GR	2537.3	3552.77	2537.45	3599.99	2536.87	3649.62	2541.17	3663.44	2541.17	3700.0
GR	2541.1	3756.75	2541.08	3799.99	2539.71	3873.26	2539.71	3899.99	2538.96	3948.6
GR	2538.5	3981.81	2541.48	3991.99	2539.00	3999.99	2538.96	4005.35	2541.48	4085.0
GR	2541.2	4099.99	2541.12	4126.11	2537.18	4145.15	2538.91	4161.00	2540.77	4189.4
GR	2540.8	4199.99	2539.58	4265.60	2540.55	4290.78	2545.73	4299.99	2547.06	4321.3
GR	2547.4	4350.63	2546.70	4393.97	2548.25	4399.99	2547.72	4407.25	2546.66	4429.2
GR	2544.3	4441.29	2544.71	4456.34	2548.65	4484.05	2548.65	4499.99	2550.24	4547.8
GR	2549.7	4586.71	2549.62	4599.99	2549.62	4635.80	2551.93	4678.74	2551.79	4700.0
GR	2551.2	4746.77	2551.17	4771.1						

NH	4	0.045	2700.00	0.05	3010.91	0.03	3268.25	0.045	4664.1	
ET		7.11	9.11				0.1	4000.0	2770.0	3885.0
X1	59	61	3010.91	3300.0	520.0	550.0	520.0	1.0	2.2	
GR	2550.8	2000.00	2550.51	2100.00	2548.21	2122.31	2545.51	2154.67	2545.51	2200.0
GR	2545.1	2280.65	2545.11	2300.00	2545.11	2400.00	2545.11	2434.25	2545.11	2500.0
GR	2545.1	2600.00	2543.25	2613.00	2543.74	2700.00	2543.25	2733.05	2543.16	2800.0
GR	2541.5	2854.61	2541.66	2899.99	2541.79	2939.64	2543.51	2972.58	2547.45	3000.0
GR	2548.0	3010.91	2540.86	3032.04	2539.40	3042.98	2539.40	3099.99	2539.40	3136.6
GR	2539.4	3199.99	2539.40	3248.37	2544.13	3268.25	2546.04	3296.98	2547.32	3300.0
GR	2546.6	3314.86	2545.0	3345.80	2545.0	3385.11	2545.0	3399.99	2545.0	3455.6
GR	2545.2	3478.50	2545.0	3486.03	2545.0	3499.99	2545.0	3599.99	2545.0	3700.0
GR	2545.0	3799.99	2545.0	3817.10	2545.0	3820.73	2545.0	3852.20	2545.99	3879.0
GR	2546.0	3899.99	2546.88	3951.18	2546.66	3999.99	2545.33	4089.03	2545.33	4100.0
GR	2545.4	4152.55	2546.0	4199.99	2546.0	4204.30	2546.0	4283.27	2546.0	4300.0
GR	2547.2	4399.99	2547.37	4416.77	2547.54	4499.99	2547.76	4514.29	2549.53	4600.0
GR	2550.7	4664.1								

NH	4	0.045	2769.62	0.03	3031.0	0.06	3199.99	0.045	4806.5	
ET			9.11						2750.0	3820.0
X1	60	74	2769.62	3031.0	650.0	650.0	650.0	1.0	2.2	
GR	2554.9	2000.00	2552.10	2072.86	2552.77	2100.00	2556.79	2115.09	2549.53	2145.9
GR	2551.0	2188.75	2549.45	2194.82	2549.45	2200.00	2549.22	2240.59	2552.99	2267.0
GR	2550.5	2300.00	2547.90	2316.37	2547.50	2400.00	2547.50	2407.43	2546.61	2500.0
GR	2546.3	2516.32	2546.30	2600.00	2546.08	2620.79	2553.92	2670.59	2552.46	2700.0
GR	2552.1	2717.25	2546.52	2744.92	2547.37	2769.62	2542.63	2778.38	2542.63	2800.0
GR	2542.2	2880.63	2542.01	2899.99	2541.97	2999.99	2541.97	3006.70	2548.38	3031.0
GR	2546.7	3099.99	2546.70	3130.81	2545.64	3182.69	2545.77	3199.99	2546.9	3256.4
GR	2547.3	3299.99	2547.23	3307.97	2543.20	3367.24	2546.25	3399.99	2546.22	3490.6
GR	2546.2	3499.99	2547.0	3590.39	2547.6	3599.99	2548.0	3699.99	2548.3	3800.0
GR	2548.7	3824.02	2549.00	3841.91	2549.00	3852.93	2551.08	3863.02	2551.08	3900.0
GR	2550.9	3990.51	2550.91	3999.99	2551.31	4099.99	2552.01	4160.01	2552.23	4200.0
GR	2552.8	4299.99	2553.16	4332.82	2551.97	4341.19	2552.19	4377.26	2553.03	4383.6
GR	2553.3	4399.99	2553.96	4499.98	2553.96	4525.11	2549.09	4561.55	2549.58	4594.7
GR	2552.1	4599.98	2554.40	4619.36	2554.40	4654.51	2553.08	4689.87	2554.27	4700.0
GR	2554.5	4723.96	2555.86	4742.73	2556.53	4799.98	2556.53	4806.5		

Confluence with Bonanza Wash

NH	5	0.03	2200.00	0.06	2300.00	0.035	2408.6	0.03	2811.32	0.05
NH	4838.2									
ET		7.11	9.11				0.1	4000.0	2408.0	3750.0
X1	61	42	2408.6	3000.0	610.0	590.0	630.0	1.0	2.2	
GR	2559.9	2000.00	2557.68	2100.00	2555.73	2140.32	2554.71	2200.00	2553.17	2235.1
GR	2549.9	2295.92	2551.08	2300.00	2555.42	2332.04	2556.71	2400.00	2557.24	2408.6
GR	2546.5	2441.47	2545.55	2463.83	2545.55	2500.00	2545.20	2552.01	2547.50	2600.0
GR	2547.2	2605.92	2545.60	2622.88	2545.02	2700.00	2543.65	2783.96	2546.88	2800.0
GR	2548.3	2811.32	2547.76	2899.99	2547.37	2924.34	2549.89	2966.88	2549.89	3000.0
GR	2550.3	3969.99	2552.0	4000.0	2552.2	4100.0	2552.5	4200.0	2553.0	4300.0
GR	2554.0	4400.0	2555.0	4500.0	2555.91	4599.99	2555.91	4602.3	2554.9	4660.56
GR	2554.9	4700.0	2554.3	4755.11	2555.69	4781.72	2554.01	4799.98	2553.1	4801.4
GR	2553.1	4819.2	2556.2	4838.2						

NH	4	0.05	2595.07	0.03	2952.30	0.045	3574.95	0.045	4970.5	
ET		7.11	9.11				0.1	3900	2380.0	3650.0
X1	62	53	2595.07	2952.3	540.0	480.0	510.0	1.0	2.2	
GR	2555.7	2000.00	2554.49	2100.00	2552.15	2200.00	2551.88	2269.58	2551.88	2300.0
GR	2551.9	2400.00	2549.22	2439.48	2551.62	2500.00	2551.62	2501.45	2550.82	2567.8
GR	2551.9	2595.07	2549.14	2600.00	2548.43	2607.91	2550.46	2655.41	2548.87	2680.6
GR	2546.3	2695.16	2546.26	2700.00	2546.48	2786.66	2546.52	2800.00	2547.19	2875.5
GR	2548.2	2899.99	2547.50	2932.65	2553.08	2952.30	2555.11	2999.99	2555.11	3012.3
GR	2554.4	3099.99	2553.87	3105.73	2550.95	3196.08	2551.13	3199.99	2551.31	3300.0
GR	2551.2	3328.92	2550.95	3390.63	2551.0	3399.99	2551.5	3416.39	2552.0	3430.8
GR	2552.0	3459.68	2552.0	3499.99	2552.0	3574.95	2552.0	3599.99	2552.1	4299.99
GR	2552.3	4364.8	2552.5	4389.41	2552.90	4399.99	2552.19	4402.34	2552.19	4499.98
GR	2552.6	4600.0	2553.5	4631.0	2553.52	4699.98	2554.67	4799.98	2555.51	4850.25
GR	2555.7	4900.0	2555.8	4910.91	2557.95	4970.5				

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NH        4     0.055   2665.86      0.03   2899.99     0.065   3299.99     0.055   4999.99
ET              7.11      9.11                                     0.1    3320.0    2260.0    3300.0
X1       63       74   2665.86   2899.99     500.0     480.0     500.0       1.0       2.2
GR   2556.0  1900.00    2555.6   2000.00   2554.09   2100.00   2554.23   2189.81   2555.29   2200.00
GR   2556.2   2211.6    2551.5   2232.31   2555.64   2278.88   2555.56   2300.00   2553.17   2400.00
GR   2553.0   2449.7    2550.5   2482.73   2551.13   2500.00   2551.35   2516.99   2553.47   2579.40
GR   2553.7   2600.0    2553.7   2628.18   2548.47   2648.28   2553.30   2665.86   2548.61   2679.40
GR   2548.6   2700.0    2548.8   2706.71   2549.23   2732.43   2549.23   2778.73   2549.23   2800.00
GR   2549.4   2882.2    2554.0   2899.99   2554.89   2905.34   2553.83   2921.14   2549.54   2940.35
GR   2550.3   3000.0    2551.0   3004.76   2554.85   3029.33   2552.68   3076.07   2554.63   3099.99
GR   2554.8   3120.5    2549.8   3136.67   2554.98   3162.88   2555.56   3199.99   2554.45   3244.11
GR   2554.3   3290.5    2553.2   3299.99   2552.55   3302.89   2552.46   3322.86   2555.82   3355.57
GR   2555.8   3400.0    2555.7   3499.99   2555.69   3507.36   2555.69   3599.99   2555.78   3635.95
GR   2555.7   3700.0    2555.8   3799.99   2555.78   3861.58   2555.78   3899.99   2555.78   3969.85
GR   2555.7   4000.0    2555.0   4055.51   2556.97   4099.99   2559.41   4197.47   2559.41   4199.99
GR   2563.4   4294.3    2563.2   4299.99   2567.33   4380.20   2568.79   4399.99   2568.97   4423.05
GR   2569.5   4500.0    2569.9   4507.82   2562.55   4586.66   2563.08   4599.98   2557.55   4699.98
GR   2556.4   4707.6    2555.8   4776.79   2555.78   4799.98   2555.99   4999.99
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Confluence with Agua Caliente Wash

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NH        7     0.08   2200.00      0.06   2550.05     0.035   2600.00      0.03   2869.85     0.035
NH   2912.0     0.07   3198.46     0.055    4950.5
ET                      9.11                                                        2300.0    3200.0
X1       64       68   2568.09   2869.85     500.0     560.0     510.0       1.0       2.2
GR   2562.4  2000.00   2559.98   2100.00   2557.37   2199.07   2557.37   2200.00   2557.55    2300.0
GR   2556.9  2400.00   2554.58   2415.26   2555.33   2500.00   2555.33   2508.44   2559.14    2528.3
GR   2556.8  2550.05   2557.46   2568.09   2550.60   2588.63   2550.60   2600.00   2551.13    2697.5
GR   2551.1  2700.00   2551.93   2800.00   2552.41   2845.64   2555.55   2869.85   2554.98    2884.6
GR   2557.2  2899.99   2557.55   2912.08   2557.10   2964.98   2557.02   2999.99   2557.02    3031.8
GR   2557.9  3075.93   2557.95   3099.99   2558.39   3198.46   2558.39   3199.99   2554.71    3236.3
GR   2558.0  3251.85   2555.02   3265.97   2559.58   3293.99   2558.39   3299.99   2556.04    3323.8
GR   2554.9  3339.32   2555.24   3379.60   2555.78   3399.99   2555.86   3440.07   2559.41    3455.1
GR   2559.1  3499.99   2558.39   3599.99   2558.96   3615.81   2559.27   3699.99   2560.20    3800.0
GR   2560.6  3816.29   2560.60   3899.99   2560.60   3970.02   2562.15   3999.99   2565.60    4089.6
GR   2565.9  4099.99   2565.91   4169.75   2563.17   4199.99   2561.18   4250.45   2559.58    4300.0
GR   2559.8  4340.40   2560.87   4399.99   2561.71   4480.33   2561.75   4499.98   2563.04    4560.3
GR   2564.9  4599.98   2566.67   4666.11   2568.08   4699.98   2568.04   4761.95   2568.48    4800.0
GR   2570.3  4860.35   2570.34   4899.98   2570.38    4950.5

NH        3    0.055    2400.0      0.03    2780.0     0.055    4070.0
QT        2    23000    23000
ET             7.11      9.11                                     0.1    3230.0    2270.0    3100.0
X1     64.5       23    2400.0    2780.0     320.0     310.0     310.0       1.0       2.2
GR   2562.7   2000.0   2559.87    2100.0    2558.6    2200.0    2557.5    2300.0    2557.5    2400.0
GR   2553.5   2460.0    2551.8    2500.0    2552.0    2570.0   2553.57    2670.0   2556.83    2780.0
GR   2557.5   2810.0   2557.52    2960.0   2557.53    3060.0   2560.17    3140.0   2560.34    3250.0
GR   2559.2   3360.0   2561.42    3470.0   2560.56    3560.0   2561.53    3660.0   2562.05    3760.0
GR   2562.3   3870.0   2562.92    3960.0   2565.39    4070.0
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NH        4       0.06    2386.18      0.035    2400.00       0.03    2673.91       0.055     4732.4
ET                          9.11                                                             2300.0      3100.0
X1       65         81    2386.18    2673.91      200.0      190.0      190.0         1.0        2.2
GR   2563.2    2000.00    2564.01    2026.56    2559.19    2080.70    2559.67     2100.00    2559.23      2114.5
GR   2563.2    2126.60    2562.81    2200.00    2561.22    2206.77    2557.46     2234.88    2557.46      2300.0
GR   2557.5    2344.39    2557.55    2386.18    2552.41    2398.93    2552.41     2400.00    2552.55      2500.0
GR   2553.1    2523.18    2553.96    2599.50    2554.58    2600.00    2555.78     2617.25    2555.87      2644.7
GR   2555.3    2659.75    2556.48    2673.91    2555.11    2687.24    2556.66     2700.00    2556.66      2707.4
GR   2557.7    2761.74    2558.79    2799.51    2557.86    2800.00    2556.13     2823.37    2557.77      2845.0
GR   2555.2    2868.30    2555.87    2899.99    2556.53    2989.90    2559.10     2999.99    2560.03      3005.8
GR   2560.5    3030.19    2557.86    3052.72    2558.65    3099.99    2559.27     3115.49    2557.37      3141.3
GR   2557.8    3151.48    2559.76    3180.60    2562.20    3199.99    2560.69     3236.20    2560.91      3300.0
GR   2561.2    3347.66    2561.22    3399.99    2561.40    3448.86    2563.08     3499.99    2564.14      3519.6
GR   2559.0    3535.31    2558.61    3585.11    2561.31    3599.99    2563.12     3619.15    2563.39      3700.0
GR   2563.6    3708.17    2558.83    3721.72    2562.77    3750.58    2562.99     3796.22    2562.99      3800.0
GR   2563.3    3874.08    2563.35    3899.99    2563.70    3999.99    2564.94     4088.37    2565.12      4100.0
GR   2566.0    4155.75    2566.71    4199.99    2566.71    4207.72    2570.92     4227.46    2571.14      4300.0
GR   2573.4    4344.68    2573.53    4399.99    2573.53    4415.37    2572.24     4498.86    2572.11      4500.0
GR   2569.2    4533.96    2569.63    4599.98    2569.63    4604.74    2568.35     4696.77    2568.35      4700.0
GR   2568.3     4732.4

NH        3        0.1    2466.30       0.03     2664.2      0.045     4750.2
ET                          9.11                                                             2350.0      3180.0
X1       66         70    2466.30     2664.2      500.0      450.0      500.0         1.0        2.2
GR   2571.1    2000.00    2567.82    2100.00    2566.93    2117.22    2566.93     2200.00    2562.99      2293.9
GR   2563.0    2300.00    2560.34    2400.00    2558.74    2432.00    2560.42     2466.30    2555.24      2474.3
GR   2555.4    2500.00    2554.32    2600.00    2554.80    2608.00    2555.20     2648.72    2560.16      2664.2
GR   2560.2    2700.00    2559.01    2738.67    2559.32    2799.99    2560.29     2825.30    2560.20      2900.0
GR   2560.4    2980.86    2560.38    2999.99    2561.00    3094.00    2561.57     3099.99    2561.75      3199.7
GR   2561.8    3199.99    2562.33    3268.54    2562.33    3299.99    2562.81     3335.43    2562.42      3385.6
GR   2562.4    3399.99    2562.59    3442.77    2563.43    3499.99    2563.43     3505.41    2563.88      3600.0
GR   2564.2    3625.82    2564.28    3699.99    2565.34    3738.39    2566.36     3798.01    2566.36      3800.0
GR   2564.6    3850.11    2567.46    3867.47    2566.40    3894.47    2564.05     3899.99    2563.83      3900.8
GR   2564.1    3999.99    2564.85    4021.82    2567.15    4031.34    2567.11     4099.99    2567.11      4168.0
GR   2566.4    4199.99    2566.05    4202.17    2565.87    4210.93    2567.15     4253.78    2567.55      4300.0
GR   2568.7    4323.81    2568.52    4399.98    2568.52    4459.49    2568.52     4499.98    2568.97      4545.8
GR   2569.6    4599.98    2569.32    4627.83    2569.14    4662.45    2567.99     4678.12    2570.30      4696.3
GR   2570.3    4699.98    2570.25    4714.33    2568.35    4728.36    2570.25     4748.99    2570.25      4750.2

NH        5       0.05     2210.0       0.06     2520.0       0.03     2720.0        0.05     3040.0       0.035
NH   3940.0
ET                          9.11                                                             2420.0      3225.0
X1     66.5         22     2520.0     2720.0      350.0      290.0      310.0         1.0        2.2
GR   2566.3    2000.0     2565.93     2110.0    2567.22     2210.0    2565.27     2320.0    2563.36      2420.0
GR   2561.5    2520.0     2556.99     2610.0    2556.58     2650.0    2556.08     2710.0    2560.04      2720.0
GR   2560.0    2770.0      2560.1     2850.0    2559.88     2940.0    2560.27     3040.0    2561.21      3140.0
GR   2562.0    3240.0      2562.5     3340.0    2562.86     3440.0    2563.99     3530.0    2564.37      3640.0
GR   2566.3    3740.0      2566.0     3940.0
```

Begin updated XSECs for Houton Road Project

NC				.3	.5					
NH	5	0.050	2331.80	0.100	2521.79	0.030	2754.42	0.035	3937.94	0.045
NH	4766.5	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
ET		7.11	9.11				0.1	3935.0	2470.0	3260.0
X1	67	95	2512.50	2754.42	190	210	190			
GR	2571.9	2000.00	2571.85	2007.47	2571.49	2018.56	2571.40	2039.56	2571.16	2043.93
GR	2570.9	2056.24	2570.99	2078.96	2570.52	2112.37	2569.79	2134.17	2569.37	2141.38
GR	2569.9	2147.65	2569.08	2157.08	2567.38	2213.42	2567.24	2270.39	2565.55	2319.23
GR	2565.3	2331.80	2564.35	2358.19	2563.98	2391.37	2563.67	2395.87	2563.39	2459.30
GR	2563.5	2468.87	2563.79	2479.55	2563.80	2484.66	2563.14	2512.50	2562.27	2521.79
GR	2561.1	2532.35	2561.00	2569.87	2561.28	2586.57	2559.85	2603.69	2560.56	2615.98
GR	2560.3	2669.23	2560.52	2694.09	2560.09	2708.85	2560.80	2735.03	2563.86	2754.42
GR	2563.6	2762.09	2562.88	2783.75	2562.90	2788.06	2562.63	2817.87	2562.78	2824.51
GR	2563.0	2867.63	2562.89	2886.74	2562.52	2901.98	2562.89	2925.98	2562.78	2929.14
GR	2562.9	2986.28	2563.99	3122.61	2564.42	3274.17	2565.13	3338.68	2565.40	3410.70
GR	2566.0	3478.28	2566.66	3626.77	2567.09	3652.88	2567.03	3661.03	2566.86	3666.07
GR	2567.1	3698.80	2568.04	3770.82	2568.00	3817.53	2568.63	3914.76	2569.35	3937.94
GR	2569.7	3999.39	2570.25	4021.40	2571.77	4061.07	2572.60	4097.49	2572.50	4111.31
GR	2572.3	4116.92	2572.33	4120.57	2570.80	4135.75	2570.92	4142.86	2570.82	4208.96
GR	2571.5	4228.19	2569.63	4241.56	2568.65	4247.36	2569.13	4276.49	2568.78	4276.94
GR	2569.1	4281.18	2569.29	4302.86	2569.92	4309.97	2570.42	4318.23	2570.70	4348.98
GR	2571.0	4354.91	2571.27	4368.94	2571.56	4405.48	2571.84	4408.09	2571.96	4414.50
GR	2572.0	4435.98	2572.14	4442.42	2571.25	4480.75	2572.37	4495.07	2573.71	4506.32
GR	2573.5	4512.86	2573.30	4538.82	2573.55	4560.99	2572.76	4573.13	2573.82	4582.86
NH	4	0.055	2586.74	0.030	2803.56	0.035	3943.62	0.050	4926.93	
ET		7.11	9.11				0.1	3875.0	2510.0	3340.0
X1	68	95	2566.23	2803.56	640	650	640			
GR	2586.0	2000.00	2585.87	2006.12	2585.34	2011.59	2584.10	2042.66	2584.07	2047.67
GR	2582.7	2081.03	2582.44	2099.21	2582.20	2102.38	2580.48	2169.73	2579.93	2182.20
GR	2580.1	2184.19	2579.58	2188.88	2577.91	2247.48	2577.81	2258.47	2575.63	2318.18
GR	2574.2	2339.74	2573.57	2351.87	2571.46	2381.56	2570.75	2399.12	2570.63	2407.78
GR	2567.5	2451.78	2566.74	2466.57	2566.28	2493.96	2566.76	2530.47	2566.28	2548.92
GR	2566.2	2566.23	2565.55	2586.74	2564.02	2607.80	2564.82	2628.23	2564.04	2649.63
GR	2564.0	2668.97	2562.68	2682.23	2562.38	2721.06	2562.95	2736.28	2563.15	2761.02
GR	2563.0	2792.49	2566.75	2803.56	2566.66	2833.17	2565.69	2860.04	2564.95	2917.33
GR	2566.0	2973.66	2565.69	2992.67	2565.94	3025.99	2568.82	3049.98	2568.94	3054.55
GR	2568.3	3074.09	2567.20	3105.58	2565.46	3122.98	2566.15	3236.54	2567.04	3265.82
GR	2566.7	3275.03	2566.70	3376.34	2567.74	3385.36	2567.77	3454.79	2568.70	3537.18
GR	2570.3	3729.61	2570.07	3742.25	2570.62	3796.47	2570.07	3805.58	2570.42	3811.20
GR	2570.9	3885.57	2570.79	3901.82	2571.05	3903.50	2570.81	3943.62	2571.96	3968.82
GR	2572.6	3988.09	2572.39	4002.85	2572.81	4009.31	2572.74	4014.25	2571.55	4030.93
GR	2571.9	4055.67	2571.57	4067.93	2572.04	4117.11	2572.00	4166.44	2572.20	4201.28
GR	2573.0	4266.03	2573.06	4288.44	2573.40	4310.43	2573.76	4368.73	2574.07	4385.95
GR	2573.9	4430.66	2576.35	4444.59	2576.53	4469.23	2574.56	4483.14	2574.96	4567.39
GR	2575.2	4571.55	2575.28	4593.64	2575.68	4609.10	2575.57	4617.79	2575.99	4665.29
GR	2576.7	4678.54	2576.96	4695.54	2576.49	4743.59	2576.64	4777.89	2577.01	4801.61

NH	5	0.060	2431.28	0.100	2511.08	0.030	2678.65	0.035	3048.38	0.060
NH	4763.7	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
ET		7.11	9.11				0.1	3685.0	2410.0	3300.0
X1	69	95	2511.08	2678.65	520	500	478			
GR	2579.2	2000.00	2578.86	2010.30	2577.64	2029.16	2577.25	2039.01	2577.43	2056.41
GR	2576.6	2077.19	2576.33	2080.18	2575.83	2119.88	2571.45	2134.05	2571.09	2149.83
GR	2571.5	2161.58	2571.80	2163.55	2572.16	2176.43	2571.83	2190.82	2571.83	2202.19
GR	2575.0	2250.32	2574.65	2269.45	2573.27	2313.22	2570.83	2428.10	2570.50	2431.28
GR	2569.2	2458.83	2569.00	2477.80	2568.41	2501.04	2567.95	2511.08	2564.58	2536.55
GR	2564.7	2610.90	2565.29	2625.28	2565.55	2652.94	2568.80	2678.65	2567.82	2695.36
GR	2568.6	2725.49	2569.10	2760.67	2568.88	2860.28	2568.38	2897.64	2568.34	2919.60
GR	2568.6	2920.09	2568.51	2926.38	2568.30	2926.57	2568.49	2935.20	2567.88	2975.45
GR	2567.7	3006.20	2568.28	3048.38	2567.24	3080.57	2567.17	3094.27	2565.80	3123.07
GR	2567.2	3146.49	2567.32	3199.64	2568.89	3224.50	2568.94	3231.32	2568.63	3236.48
GR	2568.4	3288.08	2568.72	3316.19	2568.35	3349.29	2568.75	3405.11	2568.57	3413.51
GR	2569.3	3431.83	2569.28	3437.44	2570.56	3442.82	2571.20	3447.55	2571.54	3453.66
GR	2569.4	3466.45	2567.98	3480.49	2566.51	3491.17	2567.64	3512.31	2567.93	3520.74
GR	2569.9	3546.11	2569.52	3564.03	2569.37	3582.26	2569.64	3592.36	2570.42	3662.07
GR	2570.6	3715.05	2571.40	3775.76	2571.66	3845.91	2571.97	3875.39	2572.68	3914.85
GR	2573.5	4098.24	2574.82	4262.88	2575.46	4290.17	2575.15	4307.01	2575.61	4385.79
GR	2575.5	4387.51	2575.92	4421.04	2576.61	4423.99	2578.21	4433.13	2578.72	4438.36
GR	2578.9	4465.93	2578.20	4474.21	2577.24	4481.78	2577.09	4515.16	2577.54	4540.79
GR	2577.5	4563.95	2577.91	4583.90	2578.10	4584.51	2579.09	4661.71	2579.25	4728.48
NH	5	0.035	2421.54	0.100	2518.84	0.035	2601.75	0.040	2962.41	0.060
NH	4633.2									
ET		7.11	9.11				0.1	3475.0	2270.0	3325.0
X1	70	95	2421.54	2611.21	510	500	510			
GR	2580.9	2000.00	2577.89	2079.11	2575.52	2160.81	2573.16	2217.25	2572.84	2232.09
GR	2571.1	2293.93	2570.54	2317.79	2570.42	2340.98	2569.39	2421.54	2567.32	2439.09
GR	2567.1	2486.38	2567.54	2494.15	2567.50	2499.91	2568.00	2518.84	2567.51	2530.05
GR	2566.3	2545.77	2566.48	2570.61	2566.10	2582.84	2566.24	2601.75	2569.46	2611.21
GR	2569.7	2644.93	2569.61	2657.23	2569.93	2683.68	2570.80	2702.20	2571.24	2774.48
GR	2571.0	2792.83	2570.87	2820.82	2571.21	2875.61	2571.10	2921.20	2570.78	2924.81
GR	2570.4	2932.91	2570.47	2940.42	2570.23	2952.60	2570.68	2961.45	2570.58	2962.41
GR	2571.0	2965.92	2570.47	2976.03	2569.87	2992.98	2569.68	3030.79	2569.09	3068.98
GR	2568.7	3082.16	2569.08	3102.99	2569.47	3148.14	2569.45	3170.02	2569.81	3194.11
GR	2569.6	3233.35	2569.20	3262.58	2569.05	3266.26	2569.84	3290.33	2570.36	3311.38
GR	2571.1	3325.27	2571.96	3411.90	2571.17	3442.15	2570.86	3450.13	2570.90	3462.95
GR	2571.2	3483.91	2571.38	3523.31	2572.15	3581.22	2572.01	3606.00	2572.54	3635.65
GR	2572.6	3655.82	2572.45	3673.69	2572.99	3703.07	2573.49	3770.11	2573.71	3831.86
GR	2573.9	3844.35	2574.59	3929.83	2574.49	3939.78	2573.56	3962.86	2572.11	3985.94
GR	2573.0	4002.00	2573.35	4016.48	2574.98	4051.30	2575.32	4056.29	2575.38	4079.84
GR	2576.5	4156.43	2576.62	4181.58	2576.19	4188.81	2575.98	4199.46	2577.26	4288.42
GR	2577.8	4350.34	2576.87	4357.94	2577.04	4366.29	2577.90	4375.34	2577.47	4408.95
GR	2577.5	4413.47	2577.44	4416.67	2577.73	4429.99	2577.85	4443.07	2578.19	4456.30
GR	2578.1	4479.43	2578.78	4501.13	2578.67	4537.90	2578.16	4548.82	2579.13	4563.35

NH	5	0.045	2493.51	0.100	2699.44	0.035	2890.60	0.050	3395.08	0.050
NH	4724.6									
ET		7.11	9.11				2285.0	3615.0	2270.0	3620.0
X1	71	95	2670.38	2890.60	500	450	480			
GR	2582.6	2000.00	2582.07	2012.31	2581.23	2025.75	2580.28	2065.61	2578.97	2100.67
GR	2578.4	2107.48	2578.14	2125.57	2577.04	2152.37	2575.42	2216.94	2574.77	2259.14
GR	2573.6	2297.57	2572.64	2324.86	2571.80	2400.19	2571.37	2420.15	2571.23	2436.05
GR	2570.6	2466.13	2570.53	2493.51	2570.20	2513.28	2572.10	2557.26	2572.34	2591.07
GR	2572.2	2603.03	2572.61	2646.40	2571.98	2670.38	2570.37	2685.90	2570.34	2699.44
GR	2569.3	2712.50	2567.94	2725.34	2568.89	2733.01	2567.66	2783.01	2568.14	2825.15
GR	2569.3	2831.91	2568.89	2843.29	2568.94	2853.55	2568.66	2863.68	2568.73	2876.35
GR	2572.0	2890.60	2572.24	2901.58	2571.99	2953.06	2573.30	2971.90	2573.37	3001.90
GR	2573.0	3027.84	2573.27	3045.77	2572.02	3128.25	2572.34	3174.45	2571.55	3183.46
GR	2571.4	3200.76	2570.60	3216.02	2572.57	3228.16	2571.94	3257.16	2571.15	3272.07
GR	2571.8	3312.70	2571.62	3344.44	2572.02	3369.79	2571.85	3381.29	2571.02	3395.08
GR	2572.1	3446.59	2572.34	3475.34	2573.05	3516.31	2572.67	3536.27	2572.97	3554.36
GR	2573.6	3625.14	2575.25	3640.40	2576.94	3674.02	2576.91	3687.66	2576.25	3705.10
GR	2573.5	3726.53	2572.93	3735.75	2572.90	3763.83	2573.48	3773.31	2573.42	3786.28
GR	2574.0	3814.06	2574.09	3856.34	2574.49	3865.69	2574.46	3896.66	2574.17	3906.58
GR	2574.9	3918.45	2574.57	3951.92	2574.83	3976.18	2574.50	4038.28	2576.29	4117.89
GR	2576.3	4143.42	2576.49	4148.38	2576.43	4183.20	2575.33	4233.94	2575.83	4306.16
GR	2575.4	4374.95	2575.51	4388.89	2575.35	4403.34	2576.02	4505.58	2576.87	4554.97
GR	2576.9	4578.18	2577.49	4613.56	2578.20	4623.46	2577.99	4643.92	2578.15	4647.41

NH	4	0.050	2604.14	0.100	2911.25	0.030	3082.64	0.080	4807.85	
ET		7.11	9.11				2535.0	3645.0	2510.0	3660.0
X1	72	95	2908.74	3071.62	450	460	460			
GR	2587.3	2000.00	2586.03	2024.31	2585.25	2032.52	2582.01	2052.08	2580.65	2073.68
GR	2579.4	2101.60	2578.77	2142.37	2578.15	2160.23	2577.84	2190.61	2576.48	2242.16
GR	2575.3	2275.54	2574.74	2312.23	2574.32	2324.89	2573.42	2387.62	2573.54	2410.20
GR	2573.7	2415.41	2573.72	2425.54	2573.36	2434.86	2573.48	2448.73	2572.31	2474.84
GR	2573.5	2490.57	2574.44	2523.02	2574.43	2537.92	2573.77	2548.89	2574.25	2570.39
GR	2573.8	2594.73	2573.98	2604.14	2572.97	2633.18	2574.93	2642.49	2574.33	2652.09
GR	2574.5	2680.86	2573.89	2726.99	2574.28	2745.68	2574.85	2759.08	2574.51	2767.16
GR	2574.6	2791.14	2575.02	2804.79	2574.79	2848.36	2575.37	2871.31	2573.96	2908.74
GR	2571.8	2911.25	2569.57	2914.29	2570.08	2958.32	2570.03	2991.61	2570.40	3022.64
GR	2571.4	3029.95	2572.19	3039.69	2572.21	3052.39	2574.34	3071.62	2574.90	3082.64
GR	2574.3	3102.09	2574.59	3110.78	2574.22	3120.86	2574.26	3250.30	2573.77	3307.44
GR	2573.2	3313.68	2572.99	3328.07	2573.64	3335.66	2573.64	3366.12	2573.38	3376.53
GR	2574.2	3489.59	2573.82	3501.21	2574.37	3513.91	2573.91	3528.14	2574.28	3537.61
GR	2574.5	3590.71	2574.24	3750.56	2574.53	3788.83	2574.31	3800.09	2574.43	3834.59
GR	2576.0	3977.32	2576.62	3988.95	2576.77	4000.14	2576.57	4011.89	2576.02	4021.16
GR	2577.0	4118.29	2576.49	4143.28	2577.79	4274.23	2577.59	4378.90	2576.99	4392.31
GR	2576.8	4417.38	2577.51	4476.52	2577.96	4542.84	2577.25	4623.50	2576.97	4633.38
GR	2577.4	4687.45	2578.02	4697.18	2578.16	4714.30	2578.61	4729.55	2579.02	4735.72
GR	2580.0	4741.16	2581.59	4753.00	2581.94	4759.12	2581.44	4759.22	2581.47	4783.26

New DS Face of Bridge XSEC

NH	5	0.022	2566.00	0.050	2929.60	0.030	3093.30	0.050	3632.40	0.022
NH	3647									
ET		7.11	9.11				2552	3647	2500.0	3600.0
X1	72.5	28	2929.6	3093.3	70	70	70			
X2										15
GR	2578.5	2552.0	2578.46	2562.0	2574.44	2566.0	2574.24	2581.9	2574.51	2619.8
GR	2574.3	2633.1	2574.60	2643.2	2574.02	2702.1	2574.22	2710.9	2574.33	2754.8
GR	2574.2	2841.7	2574.14	2885.3	2573.46	2929.6	2569.73	2949.6	2570.07	2985.1
GR	2570.1	3017.5	2569.96	3043.6	2571.47	3056.0	2571.97	3063.3	2572.71	3085.4
GR	2574.0	3093.3	2574.04	3133.4	2574.55	3320.2	2574.36	3408.4	2575.15	3536.4
GR	2575.6	3632.4	2580.20	3637.0	2580.20	3647.0				
NH	3	0.100	2839.71	0.030	3021.17	0.100	4711.60	0.000	0.00	0.000
ET		7.11	9.11				2502.5	3597.5	2500.0	3620.0
SB	1.25	1.56	2.6		1080	80	6922	1.0	2570.27	2569.73
X1	73.5	95	2839.71	3021.17	110	110	110			
X2	0.0	0.0	1	2582.8	2588.8	0.0	0	1.33	0.0	15
BT	-4	2500	2584.75	2578.46	3000	2588.50	2582.22	3100	2588.39	2582.11
BT		3600	2586.27	2580.20						
GR	2584.8	2000.00	2584.32	2008.48	2583.50	2080.53	2583.30	2086.10	2582.64	2155.75
GR	2582.5	2239.71	2581.66	2240.60	2582.01	2244.22	2582.33	2245.45	2582.66	2256.66
GR	2582.6	2297.83	2582.28	2305.74	2582.31	2348.04	2582.99	2408.76	2583.55	2430.60
GR	2583.7	2449.90	2583.50	2459.11	2582.91	2467.45	2582.26	2471.71	2580.99	2476.83
GR	2579.9	2483.36	2578.97	2491.38	2577.89	2497.37	2575.38	2499.59	2574.96	2499.83
GR	2574.6	2500.26	2573.98	2519.52	2574.41	2552.41	2574.18	2569.37	2574.77	2673.94
GR	2574.7	2715.28	2574.91	2737.00	2575.11	2741.64	2574.44	2826.84	2575.02	2839.71
GR	2574.5	2860.98	2574.47	2874.89	2573.47	2901.92	2570.40	2910.09	2570.89	2941.11
GR	2570.1	3005.31	2573.14	3021.17	2574.88	3043.48	2575.16	3058.39	2573.90	3124.02
GR	2574.7	3261.73	2574.51	3368.61	2574.63	3398.05	2574.40	3425.17	2574.67	3487.49
GR	2574.4	3489.32	2574.37	3499.79	2574.55	3501.83	2574.75	3557.69	2575.50	3573.57
GR	2577.7	3577.59	2578.19	3578.85	2579.44	3585.57	2579.88	3590.46	2581.51	3596.49
GR	2582.0	3600.21	2584.36	3607.17	2584.84	3612.90	2585.12	3631.09	2585.28	3677.62
GR	2584.9	3705.72	2584.58	3715.53	2584.05	3786.35	2584.42	3817.72	2584.07	3868.85
GR	2584.1	3917.91	2583.96	3939.00	2583.30	3973.39	2582.81	3981.31	2583.09	3985.56
GR	2583.5	4000.80	2583.45	4020.81	2582.98	4034.86	2583.20	4059.31	2583.04	4063.85
GR	2583.1	4107.54	2583.37	4133.74	2583.42	4189.41	2583.68	4213.99	2583.70	4245.33
GR	2584.3	4317.07	2584.35	4370.75	2585.15	4411.12	2585.85	4468.11	2585.75	4485.50
GR	2585.9	4496.37	2584.96	4500.44	2584.86	4505.47	2585.45	4512.05	2586.46	4574.73
NH	6	0.050	2850.61	0.030	2969.98	0.045	3213.02	0.100	3355.81	0.045
NH	3623.7	0.060	4668.36							
ET		7.11	9.11				2320.0	3650.0	2380.0	3580.0
X1	74	95	2850.61	2969.98	115	115	125			
GR	2578.7	2000.00	2578.41	2010.37	2577.96	2017.50	2577.40	2039.40	2577.06	2047.09
GR	2576.4	2070.32	2574.93	2134.11	2574.12	2180.80	2574.40	2224.75	2574.08	2256.97
GR	2573.2	2297.64	2573.24	2302.90	2574.98	2335.92	2575.25	2345.80	2575.20	2355.37
GR	2575.4	2360.90	2575.61	2379.76	2575.95	2392.55	2575.67	2401.85	2575.51	2425.06
GR	2575.6	2451.70	2575.20	2464.50	2575.86	2477.46	2576.06	2502.87	2575.87	2520.40

GR	2575.5	2527.39	2575.21	2542.47	2575.38	2544.37	2575.93	2560.27	2575.76	2572.74
GR	2576.3	2588.76	2576.35	2600.12	2576.13	2611.68	2576.15	2643.87	2575.88	2671.61
GR	2576.2	2694.61	2576.41	2700.30	2576.25	2718.43	2576.42	2757.73	2576.16	2767.14
GR	2576.5	2798.90	2576.14	2810.28	2576.18	2814.22	2574.76	2836.32	2574.64	2843.85
GR	2573.9	2848.90	2573.89	2850.61	2571.11	2859.37	2571.31	2878.65	2570.91	2890.79
GR	2570.8	2928.96	2570.47	2958.25	2574.03	2969.98	2575.65	2982.94	2575.87	3034.15
GR	2576.0	3040.64	2575.66	3135.27	2575.70	3197.67	2575.51	3213.02	2575.41	3283.70
GR	2575.0	3348.26	2575.22	3355.81	2575.54	3461.77	2575.41	3486.64	2575.49	3511.46
GR	2575.4	3533.64	2576.10	3623.67	2575.82	3710.31	2575.84	3735.31	2576.14	3760.31
GR	2576.6	3848.55	2576.98	3869.40	2577.36	3985.31	2577.97	4035.32	2578.42	4110.32
GR	2578.9	4160.32	2578.86	4206.20	2579.38	4214.41	2579.59	4252.29	2579.85	4267.09
GR	2579.9	4282.33	2579.44	4299.09	2579.38	4328.68	2579.23	4340.36	2579.39	4359.37
GR	2578.9	4379.80	2579.56	4389.47	2579.84	4410.10	2579.63	4437.92	2579.72	4462.54
GR	2580.3	4506.34	2580.24	4541.44	2579.67	4551.14	2580.04	4558.11	2579.61	4580.67

NH	6	0.050	2771.86	0.030	2983.86	0.035	3242.60	0.100	3371.54	0.045
NH	3850.2	0.080	4672.37							
ET		7.11	9.11				2120	4020	2300.0	3580.0
X1	75	95	2771.86	2983.86	380	410	350			

GR	2577.9	2000.00	2577.07	2021.48	2576.76	2039.19	2576.14	2064.87	2576.00	2066.93
GR	2575.4	2081.72	2575.40	2086.32	2575.30	2088.76	2575.24	2102.97	2575.29	2110.99
GR	2575.2	2116.33	2574.76	2123.95	2574.48	2132.15	2574.40	2133.13	2574.29	2140.41
GR	2574.5	2163.87	2574.10	2185.01	2573.99	2197.66	2574.02	2208.20	2574.44	2238.28
GR	2575.2	2267.91	2575.40	2274.38	2575.82	2328.76	2575.78	2340.79	2575.90	2375.13
GR	2576.9	2398.96	2577.14	2419.33	2576.65	2432.10	2576.60	2443.70	2576.40	2462.00
GR	2576.6	2481.10	2576.54	2485.58	2576.26	2497.68	2576.31	2504.97	2575.93	2542.75
GR	2576.7	2552.27	2577.22	2557.14	2577.08	2575.43	2577.50	2598.30	2577.63	2609.45
GR	2577.6	2634.09	2577.84	2668.28	2577.65	2735.98	2578.48	2771.86	2576.40	2781.75
GR	2575.8	2785.35	2574.20	2799.72	2574.21	2820.37	2574.76	2841.46	2574.93	2851.92
GR	2574.1	2857.64	2573.36	2863.27	2573.12	2886.24	2572.53	2900.75	2572.60	2929.38
GR	2572.6	2942.35	2572.85	2956.51	2573.39	2965.68	2577.50	2983.86	2577.50	3013.64
GR	2577.8	3108.16	2577.86	3125.62	2578.07	3215.37	2577.83	3232.05	2577.52	3242.60
GR	2577.5	3281.52	2577.60	3371.54	2577.70	3417.14	2578.01	3492.05	2577.98	3500.78
GR	2578.2	3612.38	2578.21	3749.73	2577.90	3760.05	2578.40	3769.61	2578.56	3781.72
GR	2578.8	3820.39	2578.61	3850.15	2578.78	4054.16	2579.29	4195.48	2579.97	4272.63
GR	2580.2	4285.35	2580.10	4312.49	2580.16	4329.39	2580.18	4375.87	2580.31	4390.11
GR	2580.3	4428.47	2580.42	4434.58	2580.64	4458.88	2580.68	4474.79	2579.60	4498.79
GR	2580.9	4524.76	2580.90	4546.93	2580.78	4555.42	2580.66	4576.50	2580.72	4585.19

NH	6	0.050	2872.12	0.030	2991.08	0.050	3550.52	0.100	3817.08	0.045
NH	4353.4	0.080	5133.56							
ET		7.11	9.11				2070.0	4710.0	2400.0	3690.0
X1	76	95	2872.12	2991.08	500	550	481			

GR	2581.9	2000.00	2581.37	2012.71	2581.35	2015.15	2580.25	2029.40	2579.55	2041.42
GR	2579.4	2059.76	2578.66	2075.48	2577.91	2118.96	2577.97	2127.25	2577.55	2137.37
GR	2577.5	2158.36	2577.92	2162.19	2577.04	2173.16	2577.19	2182.27	2576.85	2211.36
GR	2576.5	2220.27	2577.09	2238.48	2577.25	2254.65	2576.99	2293.23	2576.72	2311.80
GR	2577.5	2354.49	2578.03	2369.25	2577.93	2373.69	2577.86	2413.65	2577.73	2419.06
GR	2578.1	2467.04	2577.61	2482.88	2577.95	2498.64	2578.15	2525.96	2578.50	2551.58
GR	2578.4	2558.24	2578.47	2601.74	2579.06	2643.59	2579.12	2674.01	2579.48	2689.74

GR	2579.2	2713.34	2579.49	2747.46	2579.73	2763.96	2579.58	2787.96	2579.70	2834.39
GR	2579.3	2850.30	2579.66	2872.12	2574.15	2888.63	2574.56	2901.81	2574.44	2940.67
GR	2574.8	2976.04	2575.69	2991.08	2575.73	3015.57	2576.75	3031.29	2577.27	3043.41
GR	2577.1	3096.38	2577.26	3106.29	2576.69	3119.95	2577.69	3138.19	2577.74	3151.19
GR	2577.7	3188.01	2578.06	3210.83	2579.06	3219.40	2579.12	3225.45	2578.47	3229.62
GR	2578.3	3235.94	2579.89	3316.04	2579.92	3345.86	2579.71	3370.04	2579.48	3459.19
GR	2579.7	3468.91	2579.22	3521.98	2579.28	3528.48	2579.08	3550.52	2579.30	3561.65
GR	2578.6	3713.99	2579.38	3817.08	2579.77	4016.40	2580.10	4161.85	2579.95	4193.06
GR	2580.2	4212.31	2580.15	4225.01	2580.43	4286.91	2580.96	4353.42	2581.07	4447.07
GR	2580.7	4457.45	2581.75	4466.61	2581.49	4542.23	2581.49	4606.41	2582.40	4742.25
GR	2582.3	4748.22	2582.48	4762.67	2582.48	4772.26	2583.04	4830.37	2583.64	4876.82
GR	2582.9	4943.72	2582.09	4984.18	2582.61	5030.71	2581.83	5044.17	2582.54	5052.57
NH	7	0.035	2275.82	0.060	2890.51	0.030	3035.74	0.045	3586.76	0.080
NH	4172.0	0.045	4527.55	0.080	5338.39					
ET		7.11	9.11				0.1	5050	2400.0	3745.0
X1	77	95	2890.51	3035.74	670	310	443			
GR	2585.7	2000.00	2585.12	2009.89	2582.16	2021.71	2581.89	2056.37	2581.09	2111.17
GR	2581.0	2177.61	2580.80	2194.49	2580.93	2207.51	2580.58	2267.32	2580.01	2275.82
GR	2580.6	2287.16	2580.59	2299.25	2580.13	2311.72	2580.10	2326.96	2579.06	2362.25
GR	2578.7	2382.06	2578.33	2454.78	2577.45	2476.01	2577.44	2491.36	2577.05	2526.29
GR	2578.0	2531.81	2579.99	2556.96	2580.16	2608.92	2580.39	2618.78	2580.26	2666.91
GR	2581.0	2742.09	2580.90	2755.28	2581.03	2774.78	2580.83	2794.32	2580.82	2823.28
GR	2581.5	2848.81	2582.89	2877.91	2582.90	2890.51	2579.50	2897.34	2576.18	2904.50
GR	2576.6	2940.30	2576.33	2944.82	2576.47	2966.50	2576.73	2979.42	2577.90	2995.85
GR	2578.1	3011.76	2580.36	3035.74	2579.67	3063.50	2580.30	3064.87	2579.65	3074.28
GR	2579.6	3102.47	2579.94	3131.80	2579.64	3189.78	2579.54	3271.85	2579.28	3286.82
GR	2579.8	3303.34	2579.72	3329.16	2579.90	3355.71	2579.40	3368.24	2579.96	3384.59
GR	2580.2	3446.79	2579.81	3459.43	2580.23	3473.22	2580.29	3521.84	2580.18	3525.62
GR	2580.5	3586.76	2580.40	3630.80	2581.07	3639.29	2580.95	3648.32	2581.26	3715.91
GR	2581.0	3809.97	2579.57	3911.96	2580.29	3978.48	2580.16	3985.43	2581.40	4041.68
GR	2581.4	4116.78	2581.02	4171.96	2581.33	4203.32	2581.58	4235.49	2581.42	4306.09
GR	2581.7	4376.04	2581.85	4378.55	2581.17	4392.35	2582.13	4496.85	2582.55	4527.55
GR	2583.1	4655.59	2583.12	4723.89	2583.36	4794.62	2583.03	4872.44	2583.40	4893.53
GR	2583.8	4904.54	2584.25	4947.04	2583.94	4978.22	2584.27	5062.15	2584.66	5103.58
GR	2584.4	5112.77	2585.08	5121.45	2584.57	5133.09	2584.72	5167.03	2584.64	5198.61
NC				.1	.3					
NH	7	0.080	2661.97	0.035	3010.59	0.045	3125.52	0.030	3272.47	0.050
NH	4008.3	0.045	4316.66	0.100	5248.24					
ET		7.11	9.11				0.1	5170	2400.0	3740.0
X1	78	96	3010.59	3272.47	620	670	644			
GR	2591.2	2000.00	2591.01	2013.68	2590.13	2034.08	2590.32	2049.27	2589.63	2056.10
GR	2588.8	2067.73	2588.68	2072.83	2587.33	2092.14	2586.95	2099.55	2585.70	2143.70
GR	2584.4	2169.32	2584.16	2179.44	2584.10	2199.65	2583.24	2223.53	2582.31	2261.31
GR	2581.1	2337.81	2581.22	2391.09	2580.99	2409.65	2581.19	2416.79	2583.90	2468.59
GR	2583.7	2477.35	2583.55	2494.02	2583.31	2498.41	2583.50	2560.01	2583.66	2568.41
GR	2583.4	2613.46	2583.42	2661.97	2584.22	2762.85	2583.60	2824.15	2583.86	2876.09
GR	2585.0	2896.64	2583.57	2919.40	2582.85	2949.66	2583.10	2993.53	2582.49	3010.59
GR	2580.4	3048.28	2580.82	3066.04	2579.96	3082.60	2579.54	3105.43	2579.72	3109.08

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GR   2579.8    3115.62    2579.44    3125.52    2578.76    3136.63    2578.99    3153.38    2579.00    3187.09
GR   2578.6    3203.89    2578.78    3215.72    2580.71    3234.12    2580.82    3258.80    2583.92    3272.47
GR   2584.3    3285.88    2584.28    3291.46    2583.85    3305.81    2583.31    3317.10    2582.84    3335.41
GR   2581.9    3355.82    2582.17    3375.26    2582.84    3397.45    2583.49    3418.10    2583.60    3462.20
GR   2582.5    3493.85    2583.74    3516.08    2583.60    3552.20    2583.49    3552.59    2583.41    3588.36
GR   2583.6    3659.59    2582.65    3718.97    2582.27    3773.87    2582.24    3876.85    2582.59    3914.88
GR   2582.6    3954.28    2582.75    4008.32    2582.38    4061.53    2582.89    4071.45    2582.62    4084.90
GR   2582.6    4112.01    2582.83    4156.30    2583.15    4184.04    2583.54    4244.46    2583.18    4316.66
GR   2584.5    4354.02    2585.04    4511.57    2584.71    4581.91    2584.36    4619.88    2584.89    4713.64
GR   2585.0    4823.71    2585.62    4874.66    2585.74    4898.34    2585.29    4908.98    2586.37    4917.24
GR   2585.9    4929.77    2586.34    4987.06    2586.35    5041.57    2586.91    5067.30    2586.12    5102.69
GR   2585.7    5248.24

NH        7      0.050    2294.32       0.080    3300.73       0.045    3496.59       0.030    3626.13       0.100
NH   4210.8      0.045    4505.50       0.100    5414.05
ET                          9.11                                                             2720.0       4065.0
X1       79         95    3496.59    3626.13        500        500        500

GR   2593.0    2000.00    2592.49    2003.39    2592.47    2009.79    2592.30    2015.81    2592.01    2042.36
GR   2589.8    2055.61    2590.50    2064.86    2590.57    2067.37    2589.95    2077.83    2589.44    2099.16
GR   2589.6    2102.10    2589.42    2105.86    2588.12    2121.29    2588.16    2123.06    2585.68    2174.14
GR   2584.1    2213.84    2583.54    2240.70    2583.14    2271.50    2583.12    2290.94    2583.22    2294.32
GR   2583.3    2311.95    2583.53    2319.45    2583.53    2341.46    2583.89    2355.74    2583.61    2369.89
GR   2583.5    2385.43    2583.65    2403.58    2583.46    2410.12    2583.65    2435.81    2584.24    2465.94
GR   2583.8    2474.77    2584.28    2488.79    2584.28    2530.26    2583.65    2587.14    2584.00    2624.92
GR   2584.1    2657.47    2583.77    2754.64    2585.02    2857.70    2584.54    2918.67    2583.10    2964.50
GR   2583.6    3002.66    2583.65    3018.49    2584.85    3061.32    2584.93    3077.21    2584.27    3113.33
GR   2584.8    3175.10    2584.43    3199.12    2585.38    3255.97    2584.56    3294.48    2583.62    3300.73
GR   2582.0    3316.84    2581.74    3325.96    2581.82    3338.04    2581.89    3346.78    2583.95    3363.20
GR   2583.9    3399.95    2584.39    3448.30    2584.42    3467.23    2583.78    3487.14    2581.66    3496.59
GR   2581.9    3512.31    2581.73    3524.05    2580.52    3532.11    2580.61    3542.13    2580.49    3596.45
GR   2580.6    3605.05    2585.12    3626.13    2585.52    3695.97    2585.52    3717.14    2585.58    3795.76
GR   2585.2    3859.95    2584.87    3870.40    2584.67    3893.66    2584.93    3975.87    2584.70    4040.38
GR   2584.8    4093.64    2585.33    4183.66    2584.88    4210.84    2585.27    4284.35    2585.31    4321.41
GR   2585.1    4354.70    2585.16    4505.50    2586.25    4530.45    2586.52    4606.17    2586.55    4654.93
GR   2586.9    4742.04    2587.54    4864.04    2587.97    4894.28    2587.94    4905.00    2587.61    5041.24
GR   2587.8    5061.28    2588.39    5157.22    2588.42    5182.26    2588.25    5208.63    2588.26    5234.62

NH        8      0.060    2603.13       0.011    2935.27       0.060    3167.03       0.045    3413.67       0.030
NH   3515.7      0.100    4155.65       0.045     4324.7       0.100    5315.01
ET                          9.11                                                             2630.0       4135.0
X1       80         80    3167.03    3515.70        500        560        531       0.00       0.00       0.00
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Existing hole/basin in left overbank - exclude geometry for hole and reduce
Manning's to reflect water surface n=0.011 Location Sta 2603.13-2935.37

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GR   2589.8    2000.00    2588.57    2022.98    2586.76    2079.04    2586.27    2169.13    2586.62    2194.35
GR   2586.7    2230.60    2587.24    2249.06    2586.37    2256.30    2585.90    2327.28    2585.82    2389.49
GR   2586.8    2436.45    2586.66    2483.70    2586.96    2502.27    2586.38    2514.92    2586.62    2531.22
GR   2586.3    2571.90    2586.70    2581.39    2586.21    2592.58    2586.79    2603.13    2587.56    2935.27
GR   2587.0    2953.68     2586.7    2981.03    2586.31    2985.86    2586.27    2992.32    2586.93    2999.29
GR   2586.9    3131.04     2587.4    3167.03    2586.46    3245.42    2584.56    3254.02    2583.51    3258.75
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GR   2584.0   3272.21   2584.8   3282.09   2585.28   3285.72   2587.24   3299.24   2585.52   3333.35
GR   2584.9   3351.28   2585.1   3367.47   2585.63   3379.24   2584.63   3393.91   2582.56   3413.67
GR   2582.8   3428.98   2582.5   3473.07   2582.74   3483.90   2582.03   3488.17   2582.57   3496.38
GR   2586.4   3515.70   2586.1   3571.46   2585.82   3582.47   2585.37   3632.10   2586.46   3674.60
GR   2587.5   3746.78   2587.7   3776.93   2587.29   3816.79   2587.34   4084.44   2586.62   4155.65
GR   2587.0   4183.47   2587.3   4267.85   2586.82   4286.48   2587.21   4324.71   2587.88   4461.83
GR   2588.2   4485.20   2588.6   4598.81   2589.10   4652.65   2588.82   4667.30   2588.94   4735.79
GR   2589.2   4752.33   2588.3   4764.69   2587.15   4774.44   2587.19   4793.16   2586.98   4803.86
GR   2589.2   4825.82   2589.0   4853.58   2589.32   4860.86   2589.02   4876.06   2589.05   4912.40
GR   2589.8   5009.75   2589.8   5092.55   2590.65   5175.47   2590.32   5198.03   2591.21   5315.01

   END UPDATED XSEC DATA
   BEGIN VERTICALLY ADJUSTED EXISTING DATA

NH        5      0.08   2100.00     0.035   2901.44      0.05    3017.8      0.03   3164.11      0.05
NH   5119.0
ET                          9.11                                                     2400.0    4015.0
X1       81        49    3017.8   3164.11     530.0     550.0     520.0       1.0       2.2
GR   2592.3   2000.00   2592.03   2100.00   2588.18   2200.00    2588.3   2300.00    2587.1   2500.00
GR   2587.3   2572.45   2587.34   2600.00   2587.69   2700.00   2587.69    2738.6   2587.38   2899.99
GR   2587.3   2901.44   2587.96    3017.8    2581.6   3033.93   2581.58   3099.99   2581.58   3149.01
GR   2586.2   3164.11   2588.22    3200.0    2588.6   3299.99   2585.21   3348.49   2586.28   3379.26
GR   2586.2   3399.99   2586.76   3599.99   2586.85    3618.7    2587.3   3699.99   2587.34   3707.14
GR   2588.7   3846.75   2588.31    3854.8    2588.4   3899.99   2588.40   3925.28   2588.40   3999.99
GR   2588.2   4082.83   2588.22    4100.0   2588.22   4299.98   2588.05   4399.98   2588.05    4404.5
GR   2588.4   4511.68   2589.11   4599.98   2589.82    4700.0   2589.82   4734.92   2589.86   4757.40
GR   2589.9   4799.98   2589.77    4885.4    2589.8   4899.98   2589.07   4920.48   2589.95   4999.98
GR   2589.9   5007.33   2592.03    5093.9    2592.3   5099.98   2592.25    5119.0

NH        3      0.05    2810.0      0.03    2920.0      0.06    4460.0
ET                          9.11                                                     2270.0    3925.0
X1       82        24    2810.0    2920.0     520.0     500.0     510.0       1.0       2.2
GR   2600.0    2000.0    2598.0    2045.0    2596.0    2110.0    2594.0    2175.0    2592.0    2245.0
GR   2590.0    2300.0    2588.0    2810.0    2585.0    2820.0    2585.0    2900.0    2588.3    2920.0
GR   2588.3    3010.0    2586.0    3045.0    2588.0    3080.0    2590.0    3100.0    2590.0    3150.0
GR   2590.0    3210.0    2588.5    3250.0    2590.0    3500.0    2590.0    3660.0    2588.0    3690.0
GR   2587.0    3750.0    2588.0    3830.0    2590.0    4110.0    2592.0    4460.0

NH        3      0.05   2867.36      0.03   3026.94     0.065    5076.7
ET                          9.11                                                     2270.0    4000.0
X1       83        48    2800.0   3026.94     500.0     480.0     500.0       1.0       2.2
GR   2600.9   2000.00   2600.26   2100.00   2593.80   2200.00   2592.52    2226.9    2592.5   2242.58
GR   2592.0   2300.00   2591.28   2325.23    2591.0   2539.70   2591.19   2600.00   2592.16   2700.00
GR   2591.4   2777.58   2591.54    2800.0    2589.5   2867.36   2585.97   2890.77   2585.97   2899.99
GR   2585.3   2987.98   2586.67    3000.0    2591.0   3026.94   2591.10   3141.98   2590.97    3200.0
GR   2590.1   3311.92   2590.92   3725.02   2590.70    3749.5    2591.9   3758.79   2591.85   3799.99
GR   2592.8   3890.31   2592.87   3899.99   2593.76    3984.7   2592.12   4195.39   2592.12    4200.0
GR   2592.4   4289.33   2592.43   4299.98   2592.74   4418.27   2592.74    4439.6    2593.0   4499.98
GR   2593.8   4599.98   2594.07   4643.01   2594.07    4661.4    2594.2   4699.98   2594.24   4719.15
GR   2595.1    4767.2    2595.2   4799.98   2595.22    4934.9    2595.2   4942.61   2595.22   4999.98
GR   2595.2   5019.50   2594.69   5073.37   2594.69    5076.7
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Tanque Verde Loop Road

NH	5	0.035	2700.0	0.1	2775.82	0.03	2929.60	0.1	2984.2	0.08
NH	4952.9									
ET			9.11						2360.0	3770.0
X1	84	67	2775.82	2929.60	520.0	550.0	530.0	1.0	2.2	
GR	2604.6	2000.00	2601.99	2059.10	2601.99	2100.00	2601.99	2200.00	2598.89	2215.0
GR	2593.5	2241.52	2593.54	2278.35	2596.10	2291.23	2596.10	2300.00	2594.11	2310.0
GR	2594.1	2324.38	2594.29	2400.00	2593.63	2493.39	2593.63	2500.00	2593.80	2577.7
GR	2594.2	2582.01	2594.20	2593.44	2593.18	2597.95	2593.32	2600.00	2594.24	2700.0
GR	2594.1	2775.82	2588.58	2787.59	2588.58	2799.99	2588.71	2874.09	2589.1	2899.99
GR	2589.6	2900.74	2590.84	2912.74	2594.20	2929.60	2593.27	2984.2	2594.7	2999.99
GR	2594.2	3035.73	2593.98	3095.84	2594.02	3099.99	2594.73	3200.0	2594.8	3299.99
GR	2594.5	3325.14	2594.33	3430.5	2595.0	3499.99	2593.54	3598.27	2594.02	3599.99
GR	2594.5	3699.99	2593.49	3754.9	2593.8	3799.99	2594.42	3899.99	2594.42	3976.88
GR	2594.8	3999.99	2595.62	4100.0	2595.0	4164.97	2595.48	4199.98	2595.88	4299.98
GR	2595.9	4306.66	2596.46	4367.0	2595.1	4375.19	2595.97	4399.98	2595.97	4400.91
GR	2596.0	4499.98	2594.91	4578.5	2595.1	4599.98	2596.55	4682.44	2594.95	4690.85
GR	2595.0	4699.98	2595.40	4729.2	2593.8	4737.07	2595.35	4799.98	2597.17	4876.33
GR	2597.3	4899.98	2598.85	4952.9						

NH	4	0.035	2558.2	0.03	2726.2	0.1	3167.8	0.08	4989.8	
ET			9.11						2260.0	3600.0
X1	85	49	2500.0	2726.2	500.0	520.0	500.0	1.0	2.2	
GR	2604.7	2000.00	2604.74	2100.00	2599.11	2105.31	2599.38	2200.00	2598.18	2300.0
GR	2597.2	2400.00	2597.61	2500.00	2596.24	2558.2	2590.3	2568.29	2590.53	2600.00
GR	2590.7	2708.17	2596.86	2726.2	2596.4	2799.99	2596.24	2899.99	2595.84	3099.99
GR	2596.8	3140.02	2596.72	3167.8	2596.77	3206.50	2596.19	3346.34	2596.50	3499.99
GR	2595.4	3549.2	2595.22	3565.59	2595.66	3599.99	2596.37	3612.34	2595.26	3614.7
GR	2595.6	3630.62	2596.01	3699.99	2596.37	3799.99	2596.41	3805.74	2597.65	3900.0
GR	2597.7	3906.84	2598.10	3999.99	2598.14	4090.50	2598.14	4099.98	2598.0	4170.85
GR	2598.0	4199.98	2598.01	4203.91	2598.36	4299.98	2597.34	4499.98	2597.39	4599.98
GR	2597.5	4672.61	2597.03	4690.3	2597.3	4699.98	2597.39	4707.84	2597.70	4791.20
GR	2597.7	4799.98	2598.05	4900.0	2599.4	4952.06	2599.95	4989.8		

NH	4	0.045	2300.00	0.035	2556.61	0.03	2734.07	0.08	5026.7	
ET			9.11						2300.0	3500.0
X1	86	46	2556.61	2734.07	530.0	470.0	500.0	1.0	2.2	
GR	2607.8	2000.00	2607.04	2100.00	2601.06	2200.00	2601.37	2209.0	2600.3	2211.64
GR	2600.4	2222.53	2601.41	2300.00	2599.56	2400.0	2597.8	2500.00	2598.23	2556.61
GR	2592.9	2600.00	2593.58	2700.0	2598.85	2734.07	2598.09	2800.0	2598.7	2861.03
GR	2598.4	2899.99	2598.40	2994.00	2597.65	3000.0	2597.3	3000.55	2597.34	3019.28
GR	2596.4	3126.09	2597.21	3399.99	2597.56	3414.67	2597.9	3585.40	2597.25	3599.99
GR	2597.2	3600.14	2597.96	3688.06	2598.01	3700.0	2598.1	3729.93	2598.18	3799.99
GR	2599.4	4000.0	2598.8	4049.53	2598.89	4074.68	2598.27	4237.3	2599.2	4299.98
GR	2599.2	4499.98	2600.35	4695.29	2600.35	4700.0	2600.6	4799.98	2600.57	4805.03
GR	2603.6	4819.50	2606.02	4896.22	2606.02	4900.0	2607.8	4999.98	2607.35	5024.06
GR	2607.5	5026.7								

NH	3	0.045	2644.34	0.03	2851.33	0.08	5093.7			
ET			9.11						2490.0	3550.0
X1	87	52	2644.34	2851.33	510.0	520.0	520.0	1.0	2.2	
GR	2610.3	2000.00	2609.38	2100.00	2607.88	2141.12	2606.5	2200.00	2605.09	2300.00
GR	2602.3	2487.2	2602.3	2500.00	2598.45	2525.18	2598.63	2600.00	2598.80	2644.34
GR	2595.5	2700.00	2595.53	2799.99	2595.71	2839.16	2602.26	2851.33	2600.53	2893.1
GR	2600.6	2899.99	2600.93	2999.99	2599.16	3029.55	2599.33	3192.98	2600.00	3199.99
GR	2600.0	3299.99	2600.0	3369.87	2600.88	3374.83	2600.88	3399.99	2600.00	3447.69
GR	2600.0	3499.99	2600.09	3518.03	2600.09	3599.99	2600.09	3700.0	2600.31	3837.7
GR	2601.2	3899.99	2600.40	3999.99	2600.93	4099.98	2601.10	4139.26	2599.4	4173.52
GR	2600.3	4199.98	2600.84	4299.98	2600.3	4414.95	2601.81	4499.98	2601.46	4599.98
GR	2601.5	4660.9	2600.4	4669.22	2600.44	4699.98	2600.66	4781.21	2601.64	4798.17
GR	2601.7	4800.0	2601.8	4899.98	2601.86	4913.35	2604.03	4999.98	2603.45	5006.84
GR	2603.5	5017.8	2605.8	5093.7						

NH	3	0.05	2428.99	0.03	2695.9	0.08	5164.4			
ET			9.11						2400.0	3750.0
X1	88	52	2428.99	2695.9	600.0	640.0	600.0	1.0	2.2	
GR	2613.0	2000.00	2610.27	2100.00	2608.50	2200.00	2606.02	2300.00	2603.72	2400.0
GR	2603.3	2428.99	2597.25	2435.45	2597.17	2500.00	2597.43	2594.35	2598.89	2683.63
GR	2605.4	2695.9	2605.1	2700.00	2604.38	2700.54	2602.70	2799.99	2602.79	2897.92
GR	2602.7	2900.0	2603.1	2999.99	2601.55	3090.61	2601.02	3099.99	2601.4	3153.47
GR	2599.6	3199.99	2600.40	3211.37	2601.64	3241.3	2601.8	3299.99	2602.79	3356.30
GR	2602.8	3399.99	2602.83	3499.99	2601.68	3600.0	2601.4	3699.99	2601.95	3756.20
GR	2601.4	3799.99	2601.42	3809.77	2601.59	3900.0	2602.5	3938.80	2603.50	3948.63
GR	2603.4	3999.99	2602.39	4099.98	2602.88	4200.0	2602.9	4299.98	2602.21	4399.98
GR	2602.7	4499.98	2602.61	4599.98	2602.39	4700.0	2603.4	4799.98	2605.35	4899.98
GR	2606.8	4967.77	2607.57	4999.98	2608.90	5099.9	2608.9	5099.98	2610.62	5143.02
GR	2609.9	5155.68	2610.05	5164.4						

NH	3	0.045	2434.74	0.03	2790.24	0.06	5102.5			
ET			9.11						2550.0	3910.0
X1	89	48	2567.72	2790.24	870.0	440.0	810.0	1.0	2.2	
GR	2614.4	2000.00	2612.35	2095.48	2612.35	2100.00	2612.79	2149.31	2612.70	2176.4
GR	2613.6	2187.25	2613.68	2200.00	2610.71	2300.00	2609.0	2434.74	2605.18	2453.07
GR	2605.1	2500.00	2605.13	2567.72	2604.9	2597.42	2603.81	2600.00	2600.53	2606.85
GR	2599.9	2700.00	2600.31	2766.3	2608.41	2790.24	2608.54	2799.99	2608.81	2835.00
GR	2605.2	2903.79	2604.20	2999.99	2604.29	3081.4	2604.3	3099.99	2603.01	3147.83
GR	2604.2	3199.99	2604.47	3234.77	2604.20	3281.4	2605.58	3351.18	2606.02	3400.0
GR	2605.8	3548.30	2605.89	4100.0	2605.58	4199.98	2605.53	4289.72	2605.31	4300.0
GR	2604.2	4399.98	2604.20	4499.98	2604.29	4599.98	2604.29	4699.98	2604.82	4800.0
GR	2605.2	4899.98	2605.00	4933.75	2605.58	4973.2	2606.1	4995.63	2606.15	4999.98
GR	2606.3	5015.16	2607.08	5100.0	2607.1	5102.5				

NH	5	0.05	2799.99	0.035	3099.99	0.03	3266.82	0.1	3799.99	0.06
NH	5321.7									
ET			9.11						2900.0	4320.0

X1	90	62	3099.99	3266.82	500.0	540.0	510.0	1.0	2.2	
GR	2622.1	2000.00	2620.23	2086.94	2620.23	2100.00	2619.48	2200.00	2614.92	2300.0
GR	2611.9	2400.00	2610.18	2500.00	2609.47	2600.00	2608.19	2700.00	2608.05	2748.3
GR	2605.1	2799.99	2605.18	2807.46	2605.93	2899.99	2605.93	2942.08	2605.49	2974.0
GR	2606.1	2999.99	2606.68	3061.38	2607.52	3099.99	2604.47	3104.3	2604.7	3123.04
GR	2602.3	3131.27	2602.65	3199.99	2602.96	3238.40	2610.5	3266.82	2609.38	3286.38
GR	2609.2	3299.99	2608.94	3374.2	2607.3	3394.61	2607.61	3399.99	2607.79	3415.99
GR	2611.5	3440.43	2609.56	3500.0	2608.1	3585.42	2602.74	3599.99	2601.68	3606.84
GR	2603.3	3699.99	2604.87	3733.8	2606.8	3744.95	2607.04	3799.99	2605.18	3899.99
GR	2606.8	3999.99	2606.82	4100.0	2606.5	4199.98	2606.77	4284.74	2608.81	4299.98
GR	2608.1	4311.61	2607.30	4400.0	2606.9	4499.98	2607.88	4599.98	2607.57	4699.98
GR	2607.3	4799.98	2607.61	4900.0	2607.3	4921.77	2605.97	4943.46	2605.93	4967.19
GR	2606.8	4994.72	2607.08	5000.0	2607.6	5099.98	2609.34	5199.98	2610.80	5291.53
GR	2610.8	5299.97	2611.29	5321.7						

NH	4	0.08	2744.74	0.035	3089.53	0.03	3282.75	0.08	5042.31	
ET			9.11						2780.0	4100.0
X1	91	68	3089.53	3282.75	490.0	520.0	500.0	1.0	2.2	
GR	2618.4	2000.00	2617.00	2100.00	2616.69	2101.77	2615.67	2200.00	2613.68	2300.0
GR	2613.8	2400.00	2613.28	2434.43	2611.24	2453.78	2611.24	2476.84	2611.29	2500.0
GR	2611.1	2600.00	2609.96	2617.47	2606.95	2662.89	2609.38	2685.73	2609.38	2700.0
GR	2608.6	2744.74	2607.97	2747.97	2608.41	2759.43	2607.13	2766.25	2608.94	2781.4
GR	2608.4	2799.99	2608.54	2899.99	2608.28	2979.93	2608.94	2999.99	2609.91	3020.8
GR	2608.9	3056.51	2610.40	3089.53	2604.78	3099.99	2605.13	3102.54	2605.18	3200.0
GR	2606.0	3229.41	2604.60	3242.43	2604.78	3273.77	2611.07	3282.75	2610.76	3300.0
GR	2610.2	3399.99	2610.18	3451.98	2611.02	3477.39	2611.02	3499.99	2610.45	3600.0
GR	2607.8	3699.99	2608.23	3728.75	2607.21	3747.74	2609.69	3788.82	2609.69	3800.0
GR	2608.5	3843.80	2606.46	3894.00	2606.46	3899.99	2611.11	3972.88	2611.11	4000.0
GR	2610.8	4099.98	2610.00	4199.98	2610.05	4299.98	2610.14	4399.98	2611.69	4500.0
GR	2611.7	4500.31	2610.58	4514.48	2610.89	4599.98	2611.99	4699.98	2612.44	4800.0
GR	2614.5	4899.98	2613.99	4926.24	2615.98	4950.19	2617.04	5000.0	2617.7	5011.10
GR	2615.0	5020.93	2616.07	5035.23	2619.87	5042.31				

NH	6	0.05	3172.26	0.03	3371.86	0.045	3500.0	0.1	3799.99	0.035
NH	4899.9	0.045	5156.7							
ET		7.11	9.11				0.1	4300.0	2850.0	3960.0
X1	92	60	3172.26	3371.86	540.0	600.0	550.0	1.0	2.2	
GR	2624.1	2000.00	2624.08	2100.00	2619.92	2155.86	2618.37	2200.00	2614.96	2268.4
GR	2614.7	2300.00	2613.81	2400.00	2614.21	2500.00	2614.21	2600.00	2613.28	2700.0
GR	2613.4	2799.99	2613.37	2802.33	2609.52	2822.82	2609.69	2899.99	2609.87	3000.0
GR	2611.8	3099.99	2612.79	3172.26	2605.75	3182.84	2605.75	3199.99	2606.64	3300.0
GR	2607.0	3364.20	2611.42	3371.86	2611.42	3399.99	2609.52	3483.81	2611.33	3500.0
GR	2613.7	3558.66	2614.12	3599.99	2614.61	3699.99	2613.19	3799.99	2611.86	3844.6
GR	2613.1	3884.38	2613.19	3899.99	2612.84	3974.95	2610.58	3999.99	2610.58	4004.0
GR	2610.1	4036.70	2607.66	4054.49	2607.88	4088.98	2609.21	4099.98	2612.17	4147.0
GR	2613.5	4199.98	2613.28	4283.93	2613.41	4299.98	2615.05	4351.56	2613.15	4390.1
GR	2613.1	4399.98	2613.85	4499.98	2613.10	4599.98	2613.50	4699.98	2613.81	4800.0
GR	2614.7	4873.91	2613.54	4884.62	2615.27	4896.97	2615.27	4899.98	2615.27	4909.1
GR	2613.3	4918.79	2615.36	4999.98	2620.67	5088.42	2620.67	5099.98	2619.70	5156.7

NH	5	0.05	2999.99	0.03	3383.22	0.035	3545.85	0.055	3799.99	0.08
NH	5256.1									
ET			9.11						2940.0	3790.0
X1	93	70	3199.99	3383.22	480.0	520.0	500.0	1.0	2.2	
GR	2626.6	2000.00	2625.10	2100.00	2623.24	2118.15	2623.33	2200.00	2621.96	2211.1
GR	2625.0	2235.50	2618.64	2279.41	2618.64	2300.00	2618.77	2400.00	2618.10	2500.0
GR	2617.9	2600.00	2617.09	2700.00	2616.64	2799.99	2617.13	2849.30	2614.30	2867.8
GR	2614.3	2899.99	2613.63	2955.45	2612.26	2970.45	2612.26	2999.99	2612.26	3018.3
GR	2613.6	3099.99	2613.15	3112.95	2614.65	3192.12	2614.21	3199.99	2609.78	3220.7
GR	2610.0	3299.99	2608.72	3372.15	2613.59	3383.22	2613.59	3399.99	2611.46	3491.1
GR	2611.6	3499.99	2610.62	3515.44	2614.83	3545.85	2615.85	3599.99	2616.47	3617.1
GR	2617.1	3676.92	2617.13	3699.99	2617.84	3799.99	2616.47	3895.33	2616.47	3900.0
GR	2616.6	3920.03	2616.16	3924.15	2617.04	3999.99	2616.69	4070.50	2614.43	4100.0
GR	2614.5	4103.65	2611.86	4149.69	2612.70	4182.36	2609.91	4199.98	2609.91	4200.0
GR	2610.0	4232.24	2612.22	4246.06	2615.54	4299.98	2615.58	4399.98	2615.14	4493.3
GR	2615.1	4499.98	2615.14	4573.63	2615.27	4599.98	2616.16	4691.51	2616.16	4700.0
GR	2616.4	4720.19	2615.45	4725.33	2616.33	4736.00	2616.33	4799.98	2616.86	4900.0
GR	2617.2	4999.98	2620.80	5099.98	2620.72	5110.14	2620.98	5199.98	2623.37	5256.1

NH	5	0.045	3020.65	0.03	3311.2	0.1	3384.35	0.035	3599.99	0.08
NH	5020.0									
ET			9.11						2890.0	3670.0
X1	94	71	3136.8	3311.2	500.0	530.0	500.0	1.0	2.2	
GR	2628.3	2000.00	2631.61	2051.97	2625.72	2075.30	2626.12	2100.00	2626.47	2169.9
GR	2624.4	2180.56	2624.43	2200.00	2624.48	2269.18	2622.84	2276.31	2622.84	2300.0
GR	2622.8	2400.00	2622.18	2416.06	2623.86	2427.35	2623.81	2453.33	2620.36	2470.4
GR	2620.4	2500.00	2620.36	2600.00	2618.46	2700.00	2618.72	2799.99	2619.25	2878.1
GR	2615.6	2887.54	2615.58	2899.99	2615.63	2980.24	2616.1	3020.65	2616.60	3086.52
GR	2616.6	3099.99	2615.54	3136.8	2610.8	3153.50	2611.24	3199.99	2612.13	3291.39
GR	2612.7	3299.99	2618.24	3311.2	2618.2	3364.87	2621.16	3384.35	2621.16	3399.99
GR	2621.0	3400.90	2620.89	3438.18	2620.63	3477.53	2618.19	3488.33	2618.19	3500.0
GR	2618.4	3599.99	2618.37	3699.99	2618.06	3733.61	2617.44	3742.38	2618.55	3753.2
GR	2617.9	3778.19	2616.78	3784.38	2617.31	3799.99	2618.28	3899.99	2618.06	4000.0
GR	2615.5	4099.98	2615.54	4169.06	2611.95	4183.67	2611.95	4199.98	2612.48	4203.1
GR	2617.7	4221.65	2617.66	4299.98	2617.40	4399.98	2618.41	4499.98	2618.77	4600.0
GR	2618.8	4699.98	2618.94	4770.68	2619.70	4793.35	2620.18	4799.98	2619.56	4900.0
GR	2619.8	4913.40	2619.79	4939.16	2618.81	4952.39	2621.25	4999.98	2621.47	5003.5
GR	2621.5	5020.0								

NH	7	0.045	2800.0	0.1	3004.4	0.03	3206.49	0.01	3234.43	0.03
NH	3265.6	0.035	3420.0	0.08	4950.6					
ET			9.11						2780.0	3510.0
X1	95	75	3004.4	3265.68	460.0	480.0	480.0	1.0	2.2	
GR	2631.4	2000.00	2630.59	2053.43	2629.21	2084.86	2629.21	2100.00	2629.21	2114.4
GR	2627.7	2132.09	2627.66	2178.44	2625.45	2187.20	2625.45	2200.00	2625.45	2300.0
GR	2625.2	2309.33	2622.22	2312.34	2622.04	2344.75	2625.14	2361.13	2623.50	2374.9
GR	2623.5	2400.00	2621.56	2500.00	2621.95	2600.00	2620.89	2700.00	2620.58	2800.0
GR	2620.5	2899.99	2620.41	2928.67	2617.40	2951.37	2617.40	2999.99	2617.40	3004.4
GR	2612.9	3020.25	2613.28	3099.99	2613.28	3123.98	2614.83	3153.95	2614.07	3195.7
GR	2616.8	3199.99	2617.97	3206.49	2616.78	3234.43	2620.89	3265.68	2620.89	3300.0
GR	2620.2	3352.13	2621.78	3371.78	2622.71	3399.99	2622.35	3407.51	2620.32	3420.0

GR	2621.9	3463.68	2621.87	3499.99	2620.18	3555.40	2621.82	3562.97	2619.83	3574.4
GR	2619.8	3589.40	2620.80	3592.05	2620.80	3599.99	2620.80	3616.09	2619.61	3631.9
GR	2619.9	3699.99	2620.45	3799.99	2619.79	3899.99	2619.83	3918.34	2618.86	3929.5
GR	2619.6	3999.99	2619.61	4010.15	2615.05	4075.44	2615.36	4099.98	2617.93	4146.9
GR	2619.8	4199.98	2621.78	4299.98	2620.27	4395.18	2621.56	4399.98	2623.06	4428.1
GR	2623.3	4499.98	2623.90	4599.98	2624.92	4699.98	2626.34	4799.46	2626.34	4800.0
GR	2625.7	4813.41	2627.44	4899.98	2627.40	4905.04	2629.30	4931.33	2629.30	4950.6
NH	5	0.045	2500.00	0.1	2522.17	0.03	2756.75	0.06	3299.99	0.08
NH	4694.8									
ET		7.11	9.11				0.1	4250.0	2510.0	3100.0
X1	97	66	2522.17	2756.75	1010.0	1080.0	1020.0	1.0	2.2	
GR	2636.0	2000.00	2636.12	2024.30	2631.83	2043.03	2629.83	2100.00	2629.26	2200.0
GR	2627.8	2300.00	2625.36	2400.00	2623.77	2500.00	2623.59	2522.17	2617.04	2538.6
GR	2617.1	2572.41	2617.79	2585.16	2617.79	2600.00	2617.79	2619.87	2616.60	2637.2
GR	2617.9	2672.29	2617.93	2700.00	2617.62	2746.34	2621.60	2756.75	2620.14	2786.6
GR	2621.8	2799.99	2621.38	2890.52	2620.14	2899.99	2620.01	2902.83	2620.14	2978.9
GR	2621.4	2999.99	2621.51	3010.46	2620.01	3030.78	2621.82	3040.29	2621.60	3082.3
GR	2619.5	3098.73	2619.52	3099.99	2621.16	3198.33	2621.16	3199.99	2624.74	3226.9
GR	2624.3	3299.99	2623.86	3357.73	2623.99	3381.99	2623.72	3399.99	2623.33	3404.6
GR	2625.0	3432.32	2625.32	3499.99	2624.30	3599.99	2624.30	3619.43	2624.43	3700.0
GR	2624.3	3758.69	2625.32	3789.55	2625.32	3799.99	2624.43	3899.99	2623.24	4000.0
GR	2624.9	4056.70	2620.63	4077.90	2620.76	4094.63	2623.11	4098.44	2623.11	4100.0
GR	2624.1	4154.21	2624.61	4199.98	2624.96	4244.61	2623.90	4281.61	2623.95	4300.0
GR	2624.0	4374.62	2625.85	4399.98	2627.66	4419.19	2628.11	4499.98	2632.36	4600.0
GR	2632.2	4694.8								
NH	5	0.05	2400.00	0.03	2611.45	0.05	2763.37	0.035	2976.74	0.08
NH	4596.3									
ET			9.11						2320.0	2980.0
X1	98	60	2400.0	2611.45	520.0	450.0	500.0	1.0	2.2	
GR	2632.7	2000.00	2630.10	2100.00	2628.59	2133.77	2629.66	2200.00	2624.34	2300.0
GR	2622.9	2348.24	2624.17	2393.13	2622.66	2400.00	2619.52	2426.29	2619.70	2500.0
GR	2619.7	2503.04	2621.07	2511.76	2620.10	2526.15	2619.83	2600.00	2619.79	2603.7
GR	2623.3	2611.45	2623.73	2700.00	2622.22	2763.37	2622.22	2772.32	2622.40	2800.0
GR	2621.6	2899.99	2621.51	2976.74	2622.62	2999.99	2622.62	3011.84	2627.89	3040.2
GR	2627.8	3099.99	2626.43	3155.00	2627.13	3160.75	2627.13	3185.06	2626.16	3191.7
GR	2627.1	3199.99	2627.53	3206.66	2626.96	3240.21	2626.96	3299.99	2626.34	3400.0
GR	2626.4	3499.99	2626.20	3530.56	2627.27	3549.59	2626.25	3578.32	2626.34	3586.1
GR	2626.4	3592.62	2626.43	3599.99	2626.43	3600.50	2627.22	3699.99	2626.07	3800.0
GR	2626.6	3899.99	2626.34	3975.92	2625.6	4038.95	2626.03	4099.98	2627.53	4199.98
GR	2628.5	4223.63	2629.30	4228.9	2629.3	4255.82	2628.51	4269.41	2628.82	4299.98
GR	2629.3	4328.59	2630.81	4358.2	2631.1	4399.98	2632.71	4499.98	2632.84	4596.3
NH	5	0.06	2400.00	0.03	2535.93	0.1	2700.0	0.035	2861.87	0.08
NH	4574.0									
ET			9.11						2310.0	2990.0

X1	99	48	2400.0	2535.93	510.0	500.0	500.0	1.0	2.2	
GR	2632.4	2000.00	2631.87	2100.00	2631.21	2200.00	2628.24	2263.65	2625.72	2300.0
GR	2625.7	2311.68	2626.87	2376.44	2626.07	2398.80	2625.94	2400.00	2621.07	2413.4
GR	2621.6	2500.00	2622.31	2517.56	2626.69	2535.93	2627.53	2600.00	2626.25	2700.0
GR	2624.9	2799.99	2625.36	2861.87	2628.02	2890.68	2628.02	2899.99	2628.73	3000.0
GR	2629.2	3099.99	2628.99	3199.99	2628.99	3299.99	2628.42	3399.99	2628.06	3500.0
GR	2628.4	3599.99	2627.89	3699.99	2627.80	3729.62	2629.13	3739.32	2627.58	3764.3
GR	2628.5	3778.54	2628.46	3799.99	2627.31	3864.90	2625.58	3889.78	2626.16	3900.0
GR	2626.5	3910.63	2625.63	3987.12	2627.22	3999.99	2629.17	4037.49	2629.61	4095.8
GR	2627.8	4099.98	2628.28	4102.12	2629.39	4113.01	2629.75	4199.98	2632.05	4300.0
GR	2634.5	4399.98	2634.66	4499.98	2634.79	4574.0				

NH	6	0.06	2500.00	0.1	2512.9	0.03	2692.55	0.1	2888.65	0.035
NH	3099.9	0.08	4642.9							
ET			9.11						2510.0	3180.0
X1	100	64	2512.9	2692.55	500.0	500.0	520.0	1.0	2.2	
GR	2636.4	2000.00	2636.30	2037.27	2632.93	2063.70	2636.65	2088.84	2636.65	2100.0
GR	2633.8	2200.00	2633.86	2300.00	2633.11	2400.00	2632.27	2500.00	2632.05	2512.9
GR	2628.0	2531.29	2627.58	2547.22	2623.42	2555.19	2623.46	2600.00	2624.35	2662.5
GR	2631.0	2692.55	2630.99	2700.00	2629.48	2799.99	2629.44	2838.49	2627.05	2857.5
GR	2627.0	2888.65	2627.09	2899.99	2627.98	2930.17	2627.98	2999.99	2627.40	3017.6
GR	2629.7	3052.63	2631.30	3099.99	2631.38	3199.99	2631.12	3299.99	2631.03	3334.8
GR	2631.9	3345.32	2632.89	3399.99	2632.14	3421.06	2630.63	3454.08	2632.45	3469.1
GR	2631.9	3499.99	2631.69	3502.91	2630.99	3512.42	2630.99	3522.96	2631.21	3600.0
GR	2630.7	3699.99	2631.52	3799.99	2631.47	3899.99	2631.56	3904.89	2627.58	3929.1
GR	2627.7	3950.17	2630.37	3987.36	2630.37	3999.99	2630.32	4012.59	2627.13	4036.8
GR	2627.2	4051.77	2626.07	4057.65	2635.10	4088.91	2635.10	4099.98	2634.79	4119.0
GR	2632.9	4124.89	2633.29	4150.66	2631.65	4198.69	2631.65	4199.98	2632.62	4300.0
GR	2634.8	4399.98	2637.36	4499.98	2638.64	4599.98	2638.87	4642.9		

NH	6	0.06	2393.8	0.1	2400.00	0.03	2523.6	0.1	2700.00	0.035
NH	3027.9	0.08	4489.9							
ET			9.11						2330.0	3160.0
X1	101	52	2400.0	2523.6	520.0	500.0	520.0	1.0	2.2	
GR	2638.1	2000.00	2638.69	2100.00	2636.34	2200.00	2634.35	2300.00	2632.89	2393.8
GR	2632.7	2400.00	2625.50	2424.91	2626.38	2499.77	2628.90	2500.00	2630.63	2523.6
GR	2630.7	2600.00	2631.21	2624.20	2632.18	2700.00	2631.83	2799.99	2632.80	2900.0
GR	2632.8	2928.75	2631.43	2942.17	2631.65	2951.06	2632.53	2999.99	2632.14	3009.8
GR	2634.7	3027.91	2633.69	3032.65	2634.04	3062.08	2635.99	3062.08	2635.99	3100.0
GR	2635.0	3192.14	2634.66	3199.99	2632.40	3223.74	2632.27	3266.06	2634.00	3300.0
GR	2634.0	3303.29	2634.66	3399.99	2633.51	3499.99	2632.80	3599.99	2632.09	3700.0
GR	2631.6	3799.99	2631.96	3854.98	2628.11	3869.50	2628.46	3882.25	2630.28	3896.8
GR	2630.3	3899.99	2630.63	3942.01	2635.15	3968.84	2634.04	3999.99	2632.84	4018.9
GR	2635.0	4099.98	2636.21	4199.98	2636.96	4244.62	2640.72	4264.85	2640.72	4300.0
GR	2639.6	4399.98	2640.95	4489.9						

NH	5	0.07	2386.7	0.03	2500.00	0.1	2800.0	0.035	3100.0	0.08
NH	4434.4									
ET			9.11						2180.0	3200.0
X1	102	59	2386.7	2500.0	500.0	500.0	500.0	1.0	2.2	
GR	2640.0	1620.0	2635.9	2000.00	2635.94	2100.00	2635.15	2200.00	2635.06	2300.00
GR	2632.3	2386.7	2628.9	2394.33	2628.90	2400.00	2629.17	2482.73	2633.38	2500.00
GR	2633.6	2514.6	2633.9	2600.00	2633.64	2700.00	2633.38	2728.89	2634.97	2743.72
GR	2634.6	2800.0	2635.1	2899.99	2634.75	2999.99	2635.28	3037.56	2637.58	3068.41
GR	2637.5	3100.0	2637.5	3160.31	2633.77	3195.15	2635.46	3199.99	2635.37	3206.48
GR	2635.2	3235.2	2634.7	3299.99	2634.44	3368.41	2635.37	3399.99	2635.23	3421.22
GR	2632.8	3471.7	2633.3	3499.99	2632.84	3584.38	2634.31	3599.99	2635.19	3623.20
GR	2635.1	3700.0	2634.2	3775.61	2629.83	3788.76	2629.83	3799.99	2629.83	3805.63
GR	2631.6	3811.0	2631.6	3814.70	2635.23	3828.51	2638.02	3886.94	2637.94	3899.99
GR	2637.4	3958.3	2637.4	3974.10	2637.98	3999.99	2638.73	4009.87	2638.51	4029.61
GR	2637.8	4038.5	2639.8	4045.24	2638.47	4051.39	2638.60	4099.98	2640.55	4199.98
GR	2641.8	4300.0	2643.6	4399.98	2644.00	4428.94	2645.19	4434.4		

NH	5	0.07	2780.0	0.03	2960.0	0.07	3170.0	0.035	3470.0	0.08
NH	4680.0									
ET			9.11						2530.0	3600.0
X1	102.5	29	2780.0	2960.0	310.0	290.0	300.0	1.0	2.2	
GR	2640.0	2000.0	2638.0	2030.0	2636.0	2370.0	2636.4	2470.0	2636.1	2570.0
GR	2636.0	2670.0	2634.0	2760.0	2632.0	2780.0	2631.0	2835.0	2630.5	2920.0
GR	2634.7	2960.0	2635.2	3030.0	2636.1	3170.0	2636.5	3275.0	2637.7	3375.0
GR	2638.9	3470.0	2636.7	3570.0	2636.4	3675.0	2637.4	3770.0	2634.8	3870.0
GR	2635.2	3970.0	2636.2	4060.0	2634.3	4160.0	2634.5	4200.0	2639.3	4370.0
GR	2640.0	4470.0	2642.0	4570.0	2643.7	4670.0	2645.6	4680.0		

NH	6	0.045	2400.0	0.07	2700.00	0.03	2826.45	0.07	2992.2	0.035
NH	3254.4	0.08	4667.4							
ET			9.11						2390.0	3460.0
X1	103	65	2600.0	2839.65	210.0	210.0	210.0	1.0	2.2	
GR	2640.0	1870.0	2638.0	1950.0	2636.2	2000.00	2636.30	2100.00	2636.08	2200.00
GR	2636.7	2300.00	2636.70	2400.0	2636.7	2500.00	2636.21	2543.64	2634.70	2558.78
GR	2635.2	2594.72	2635.19	2600.0	2632.4	2613.89	2634.66	2661.83	2630.14	2680.24
GR	2630.8	2700.00	2631.56	2799.0	2631.6	2799.99	2634.97	2819.37	2633.60	2826.45
GR	2632.4	2839.65	2635.72	2847.7	2635.7	2858.81	2633.51	2862.66	2636.39	2872.58
GR	2636.3	2899.99	2637.49	2992.2	2636.4	2993.56	2637.80	2999.99	2637.80	3000.42
GR	2637.4	3099.99	2637.54	3200.0	2637.0	3254.47	2638.91	3260.53	2639.88	3299.99
GR	2639.4	3368.85	2638.11	3400.0	2637.4	3403.38	2638.60	3417.19	2638.47	3448.44
GR	2636.7	3457.60	2638.51	3500.0	2638.5	3599.99	2635.90	3699.99	2636.52	3770.04
GR	2635.7	3775.22	2635.85	3800.0	2635.9	3807.44	2636.87	3826.21	2636.87	3899.99
GR	2636.1	3994.47	2637.40	4056.31	2635.32	4086.76	2636.30	4100.0	2640.0	4145.15
GR	2640.3	4199.98	2640.06	4292.07	2641.65	4299.98	2642.98	4308.5	2643.1	4399.98
GR	2643.9	4444.30	2645.28	4476.71	2645.28	4499.98	2647.19	4600.0	2648.2	4667.4

NH	6	0.06	2686.00	0.045	2783.9	0.03	2983.8	0.1	2999.99	0.035
NH	3199.9	0.08	4664.4							
ET			9.11						2660.0	3490.0
X1	104	56	2783.9	2983.8	600.0	590.0	600.0	1.0	2.2	
GR	2647.3	2000.00	2643.47	2064.85	2644.62	2100.00	2644.93	2102.96	2643.60	2200.0
GR	2643.8	2300.00	2643.95	2400.00	2643.95	2500.00	2643.73	2600.00	2643.56	2603.6
GR	2640.3	2618.76	2642.89	2633.45	2642.27	2654.61	2635.85	2686.00	2636.52	2699.7
GR	2636.6	2700.00	2638.07	2710.43	2639.40	2748.15	2638.07	2762.98	2637.76	2783.9
GR	2635.5	2792.90	2635.54	2799.99	2635.72	2874.70	2633.46	2888.25	2634.17	2900.0
GR	2634.6	2933.80	2633.95	2954.12	2633.51	2957.79	2632.84	2973.02	2638.07	2983.8
GR	2638.1	2999.99	2640.24	3099.99	2640.46	3199.99	2640.94	3299.99	2642.01	3353.8
GR	2640.4	3379.30	2641.43	3392.58	2641.43	3399.99	2641.43	3417.85	2641.43	3442.8
GR	2639.9	3452.87	2639.93	3499.99	2639.88	3599.99	2639.75	3699.99	2639.48	3791.9
GR	2639.4	3799.99	2637.54	3805.49	2637.98	3899.99	2638.86	3971.76	2639.79	4099.98
GR	2640.3	4200.0	2644.0	4299.98	2645.50	4399.98	2646.92	4499.98	2649.09	4599.98
GR	2650.3	4664.4								

NH	6	0.06	2690.0	0.045	2830.0	0.03	2990.0	0.06	3090.0	0.035
NH	3285.0	0.08	4470.0							
ET			9.11						2670.0	3440.0
X1	104.5	27	2690.0	2990.0	290.0	290.0	290.0	1.0	2.2	
GR	2647.0	2000.0	2646.9	2080.0	2645.2	2195.0	2644.7	2292.0	2644.2	2392.0
GR	2644.3	2498.0	2641.9	2587.0	2640.6	2690.0	2636.6	2788.0	2636.0	2830.0
GR	2635.5	2885.0	2640.6	2990.0	2641.2	3090.0	2642.6	3180.0	2642.4	3285.0
GR	2641.1	3385.0	2641.3	3480.0	2641.5	3586.0	2640.8	3689.0	2639.8	3780.0
GR	2636.7	3885.0	2640.4	3990.0	2639.1	4085.0	2643.0	4184.0	2646.1	4280.0
GR	2646.4	4375.0	2648.4	4470.0						

NH	5	0.06	2746.55	0.03	3000.0	0.1	3165.22	0.035	3399.99	0.08
NH	4598.1									
ET			9.11						2640.0	3390.0
X1	105	61	2746.55	3000.0	220.0	220.0	220.0	1.0	2.2	
GR	2646.9	2000.00	2648.12	2100.00	2645.99	2200.00	2645.15	2300.00	2644.40	2400.0
GR	2644.6	2500.00	2644.75	2566.48	2640.77	2600.00	2640.64	2601.18	2640.95	2688.7
GR	2639.4	2700.00	2638.38	2704.94	2639.48	2746.55	2636.78	2752.48	2637.36	2800.0
GR	2636.3	2833.58	2638.82	2882.45	2636.12	2891.48	2636.56	2899.99	2636.25	2930.6
GR	2637.9	2944.20	2636.30	2962.31	2638.29	2974.17	2638.29	2989.62	2642.72	3000.0
GR	2643.6	3005.64	2641.92	3099.99	2640.90	3138.89	2644.09	3165.22	2644.09	3200.0
GR	2644.6	3211.97	2641.70	3243.31	2643.38	3299.93	2643.38	3299.99	2643.38	3320.7
GR	2642.1	3337.86	2642.85	3399.99	2642.76	3499.99	2643.20	3547.42	2641.43	3557.5
GR	2643.4	3581.82	2643.34	3599.99	2642.45	3699.99	2641.03	3799.99	2640.95	3900.0
GR	2641.2	3999.99	2641.17	4024.30	2641.8	4168.34	2641.79	4199.98	2646.43	4299.98
GR	2645.1	4361.43	2647.05	4372.0	2644.9	4379.63	2645.59	4399.98	2647.41	4499.98
GR	2648.2	4519.20	2650.20	4530.0	2650.2	4572.67	2649.36	4574.18	2650.15	4589.45
GR	2652.7	4598.1								

NH	6	0.06	2400.00	0.1	2521.41	0.03	2700.0	0.045	3135.60	0.06
NH	3999.9	0.07	4719.7							
ET			9.11						2500.0	3240.0
X1	106	53	2521.41	2700.0	500.0	650.0	530.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2649.4	2000.00	2649.62	2100.00	2647.67	2200.00	2647.23	2300.00	2649.09	2362.3
GR	2647.1	2400.00	2645.28	2433.81	2645.28	2500.00	2644.09	2521.41	2639.1	2557.24
GR	2639.0	2564.98	2637.58	2568.44	2638.78	2600.00	2638.29	2657.1	2639.79	2666.88
GR	2643.0	2678.84	2643.07	2686.23	2645.99	2700.0	2646.0	2706.59	2641.61	2768.25
GR	2641.8	2800.0	2641.9	2865.82	2640.86	2878.34	2640.90	2890.78	2642.67	2899.99
GR	2643.1	2902.2	2642.9	2955.28	2644.75	2965.55	2643.82	2973.92	2643.16	3000.0
GR	2646.3	3099.99	2643.60	3135.60	2643.60	3199.99	2643.96	3208.0	2644.6	3222.40
GR	2645.3	3399.99	2645.42	3600.0	2645.2	3627.93	2644.13	3699.99	2644.40	3799.99
GR	2644.5	3900.0	2644.5	3999.99	2644.13	4099.98	2644.53	4199.98	2644.35	4299.98
GR	2644.3	4400.0	2644.9	4499.98	2645.24	4599.98	2646.97	4622.15	2648.43	4636.71
GR	2648.7	4677.9	2650.3	4699.98	2650.64	4719.7				

NH	7	0.045	2300.00	0.1	2400.00	0.03	2545.19	0.045	2678.4	0.03
NH	2847.2	0.1	3325.8	0.06	4602.6					
ET			9.11						2400.0	3180.0
X1	107	62	2400.00	2847.26	540.0	460.0	530.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2653.7	2000.00	2651.79	2100.00	2649.67	2200.00	2649.09	2300.00	2648.47	2394.1
GR	2647.1	2400.00	2641.08	2409.24	2642.23	2500.00	2642.27	2510.08	2640.37	2517.3
GR	2640.5	2545.19	2644.75	2554.39	2645.06	2600.00	2645.11	2674.49	2642.98	2678.4
GR	2643.6	2700.00	2643.51	2748.28	2642.18	2770.10	2642.49	2799.99	2642.49	2840.6
GR	2644.8	2847.26	2644.80	2855.14	2645.99	2868.11	2645.99	2887.90	2644.04	2893.0
GR	2644.2	2899.99	2644.84	2996.04	2645.90	2999.99	2647.63	3011.31	2646.88	3076.7
GR	2647.8	3294.66	2647.85	3299.99	2647.36	3320.95	2648.96	3325.8	2648.7	3359.82
GR	2646.8	3369.29	2645.86	3391.03	2647.63	3499.99	2647.41	3599.99	2646.79	3662.5
GR	2646.0	3682.52	2647.72	3699.99	2649.36	3716.12	2648.47	3799.99	2647.63	3838.3
GR	2649.8	3878.93	2646.43	3950.20	2648.25	4000.0	2648.3	4015.49	2647.01	4085.79
GR	2647.0	4099.98	2647.19	4199.98	2647.94	4300.0	2648.7	4318.10	2646.97	4347.05
GR	2647.7	4399.98	2649.05	4499.98	2649.44	4561.1	2650.8	4573.07	2649.71	4581.48
GR	2649.7	4599.98	2649.71	4602.6						

NH	6	0.045	2451.12	0.1	2518.14	0.03	2866.34	0.06	3052.8	0.035
NH	3781.0	0.06	4544.9							
ET			9.11						2510.0	3190.0
X1	108	67	2518.14	3016.49	610.0	590.0	600.0	1.0	2.2	
GR	2654.6	2000.00	2654.58	2100.00	2656.26	2200.00	2651.17	2300.00	2651.04	2400.0
GR	2650.1	2439.12	2652.19	2451.12	2651.26	2500.00	2651.21	2518.14	2644.00	2525.6
GR	2644.8	2600.00	2644.66	2700.00	2644.80	2752.88	2647.76	2770.06	2647.05	2800.0
GR	2646.7	2815.92	2645.64	2836.72	2645.64	2866.34	2648.12	2891.97	2647.89	2900.0
GR	2647.5	2911.62	2644.84	2917.51	2645.11	2943.01	2647.32	2951.11	2646.08	2960.5
GR	2646.5	2991.88	2649.36	2999.99	2652.41	3016.49	2651.21	3042.74	2648.96	3052.8
GR	2649.0	3099.99	2649.62	3199.99	2650.90	3299.99	2650.90	3399.99	2650.86	3403.2
GR	2649.6	3408.27	2649.36	3499.99	2649.67	3599.99	2648.82	3699.99	2648.03	3781.0
GR	2647.3	3798.39	2647.27	3799.99	2649.44	3826.46	2648.82	3899.99	2650.68	4000.0
GR	2650.6	4034.51	2649.67	4057.35	2649.89	4069.17	2652.37	4073.55	2651.83	4100.0
GR	2652.5	4199.98	2655.46	4275.32	2653.52	4289.44	2655.51	4299.98	2655.73	4306.6

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GR   2655.8    4355.09    2654.93    4373.37    2656.39    4391.60    2656.66    4399.98    2656.66    4417.7
GR   2655.7    4426.22    2655.82    4445.12    2656.57    4465.00    2655.29    4473.01    2657.68    4483.6
GR   2657.7    4499.98    2658.52     4544.9

NH         5       0.06    2400.00       0.1    2536.91       0.03     2935.0      0.045    3499.99       0.05
NH    4483.9
ET                           9.11                                                            2535.0     3210.0
X1       109         72    2536.91    2935.0      510.0      500.0      500.0        1.0        2.2
GR   2659.5    2000.00    2657.72    2075.56    2657.72    2100.00    2656.31    2200.00    2654.45     2300.0
GR   2655.0    2311.10    2654.14    2400.00    2653.21    2500.00    2652.90    2536.91    2647.36     2569.9
GR   2647.4    2600.00    2646.92    2625.00    2649.75    2633.76    2649.40    2700.00    2649.13     2714.2
GR   2647.7    2720.92    2647.76    2799.99    2647.94    2899.99    2647.89    2927.60    2651.26     2935.0
GR   2651.0    2976.69    2651.21    2999.99    2651.66    3042.16     2651.7    3073.06    2651.17    3099.99
GR   2651.7     3151.1     2651.3    3168.28    2650.64    3178.28    2649.84    3199.99    2649.84    3201.30
GR   2650.2     3223.1     2651.6    3242.71    2652.63    3290.61    2652.32    3299.99    2652.19    3330.80
GR   2651.8     3400.0     2651.6    3457.58    2652.59    3491.49    2652.41    3499.99    2652.76    3599.99
GR   2652.7     3649.7     2654.0    3683.21    2653.96    3699.99    2654.05    3737.43    2655.29    3762.04
GR   2654.8     3800.0     2654.8    3806.84    2656.39    3852.48    2655.86    3882.36    2656.26    3899.99
GR   2656.6     3921.1     2657.7    3936.59    2658.56    3999.99    2659.94    4018.83    2660.07    4041.41
GR   2660.4     4090.1     2660.6    4099.98    2661.17    4124.19    2660.29    4152.61    2662.28    4178.77
GR   2662.6     4200.0     2662.1    4217.86    2662.90    4256.41    2663.43    4299.98    2663.56    4300.41
GR   2662.6     4346.5     2664.1    4362.08    2662.64    4384.25    2663.87    4399.98    2664.18    4408.07
GR   2664.6     4483.3     2664.6     4483.9

NH         6       0.05    2500.00       0.1    2803.44       0.03    3011.18      0.045     3126.4       0.03
NH    3186.2       0.06     4538.5
ET                           9.11                                                            2750.0     3500.0
X1       110         67    2803.44    3373.23      500.0      530.0      500.0        1.0        2.2
GR   2659.5    2000.00    2659.18    2100.00    2657.63    2200.00    2657.63    2202.87    2656.84     2300.0
GR   2656.6    2334.30    2656.57    2400.00    2655.73    2467.63    2655.73    2500.00    2652.19     2565.7
GR   2655.0    2600.00    2655.42    2655.45    2655.16    2700.00    2654.67    2733.10    2655.24     2800.0
GR   2655.6    2803.44    2650.42    2847.13    2650.60    2887.05    2648.82    2899.99    2649.49     2913.2
GR   2650.1    2953.99    2650.11    2999.99    2650.11    3005.38    2652.94    3011.18    2652.72     3065.3
GR   2651.7    3077.58    2653.07    3095.77    2653.07    3099.99    2653.07    3118.92    2651.22     3126.4
GR   2650.9    3160.67    2649.27    3167.17    2650.02    3186.25    2650.24    3199.99    2650.24     3272.2
GR   2649.4    3281.20    2649.80    3299.99    2651.04    3316.53    2653.78    3331.05    2652.41     3363.9
GR   2655.0    3373.23    2655.42    3399.99    2655.42    3406.79    2654.62    3499.99    2654.40     3572.4
GR   2655.2    3599.99    2655.16    3601.51    2654.31    3633.16    2653.83    3694.56    2654.58     3700.0
GR   2655.9    3713.78    2656.00    3799.99    2656.93    3881.50    2657.10    3899.99    2658.12     4000.0
GR   2658.1    4022.05    2660.11    4084.33    2660.20    4099.98    2660.60    4133.82    2661.84     4181.0
GR   2662.2    4199.98    2664.32    4299.98    2665.03    4359.45    2665.56    4399.98    2667.46     4500.0
GR   2667.5    4511.28    2667.68     4538.5

NH         6       0.05     2400.0       0.1     2800.0       0.03     2960.0      0.045     3160.0       0.03
NH    3350.0       0.06     4340.0
ET                           9.11                                                            2800.0     3570.0
X1     110.5         27     2800.0    3350.0      240.0      250.0      245.0        1.0        2.2
GR   2659.9     2000.0     2659.2    2100.0     2658.5     2200.0     2657.7     2300.0     2656.9     2400.0
GR   2656.2     2500.0     2655.5    2600.0     2655.6     2700.0     2655.9     2800.0     2650.6     2900.0
GR   2650.1     2960.0     2651.4    3000.0     2654.0     3160.0     2653.6     3170.0     2652.1     3200.0
GR   2651.3     3300.0     2653.4    3350.0     2655.3     3400.0     2655.8     3500.0     2655.7     3610.0
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GR	2655.6	3690.0	2656.9	3790.0	2659.8	3890.0	2661.0	4090.0	2662.4	4140.0
GR	2663.9	4240.0	2666.0	4340.0						
NH	6	0.06	2826.4	0.1	2941.68	0.03	3055.8	0.045	3299.99	0.03
NH	3499.9	0.06	4515.9							
ET			9.11						2840.0	3630.0
X1	111	72	2941.68	3499.99	235.0	250.0	240.0	1.0	2.2	
GR	2661.9	2000.00	2661.09	2074.72	2660.33	2100.00	2660.33	2101.41	2663.12	2120.1
GR	2662.0	2172.46	2659.18	2185.57	2659.18	2200.00	2659.36	2300.00	2659.01	2320.2
GR	2658.6	2400.00	2657.90	2423.14	2657.15	2500.00	2656.70	2528.85	2656.70	2600.0
GR	2655.9	2689.58	2655.91	2700.00	2654.98	2754.26	2655.91	2799.99	2655.82	2826.4
GR	2657.0	2880.06	2656.62	2899.99	2654.62	2912.55	2654.67	2941.68	2651.57	2952.2
GR	2651.4	2973.86	2652.50	2999.23	2652.50	2999.99	2651.48	3032.20	2653.30	3055.8
GR	2651.9	3095.15	2652.59	3099.99	2655.02	3108.21	2655.73	3127.86	2653.87	3144.0
GR	2655.8	3155.97	2654.98	3171.20	2655.95	3179.12	2654.89	3199.99	2654.62	3229.9
GR	2654.1	3299.99	2652.85	3399.99	2651.70	3492.97	2656.92	3499.99	2656.53	3502.6
GR	2656.9	3576.28	2656.88	3599.99	2655.64	3622.85	2656.26	3699.99	2656.26	3800.0
GR	2656.4	3871.61	2656.75	3899.99	2657.06	3943.23	2658.39	3999.99	2657.94	4009.1
GR	2658.1	4050.22	2658.61	4067.40	2659.80	4080.76	2659.80	4099.98	2660.64	4160.2
GR	2662.1	4183.46	2662.46	4199.98	2663.61	4263.14	2663.61	4299.98	2666.40	4400.0
GR	2666.4	4422.28	2668.04	4451.76	2667.24	4459.51	2668.70	4469.16	2670.74	4500.0
GR	2671.0	4513.87	2671.05	4515.9						
NH	7	0.035	2300.0	0.05	2799.99	0.1	3004.75	0.03	3546.79	0.06
NH	3700.0	0.05	4065.77	0.05	4534.4					
ET			9.11						2920.0	3670.0
X1	112	64	3004.75	3546.79	480.0	600.0	530.0	1.0	2.2	
GR	2667.1	2000.00	2664.85	2100.00	2663.52	2200.00	2663.39	2227.80	2662.90	2300.0
GR	2662.9	2304.24	2661.93	2327.44	2661.31	2400.00	2660.51	2500.00	2659.58	2585.4
GR	2659.4	2600.00	2659.01	2700.00	2658.12	2799.99	2658.08	2838.41	2658.03	2900.0
GR	2656.7	2924.27	2657.59	2976.55	2659.63	2999.99	2660.20	3004.75	2656.30	3033.8
GR	2656.1	3070.93	2655.02	3075.00	2655.02	3099.99	2654.58	3195.18	2656.35	3200.0
GR	2656.3	3201.11	2656.53	3212.80	2656.88	3299.99	2657.19	3321.92	2655.64	3344.4
GR	2656.0	3399.99	2656.79	3499.99	2656.04	3543.07	2658.08	3546.79	2656.84	3569.8
GR	2658.4	3579.46	2657.72	3599.99	2656.44	3612.44	2659.18	3651.04	2659.09	3700.0
GR	2659.8	3743.73	2661.97	3799.99	2661.22	3811.28	2663.21	3829.92	2663.56	3858.4
GR	2663.6	3899.99	2663.96	3935.40	2662.72	3974.58	2663.30	3999.99	2663.61	4046.1
GR	2665.4	4065.77	2665.60	4099.98	2667.24	4188.03	2667.33	4199.98	2666.93	4237.7
GR	2668.1	4242.21	2667.24	4283.96	2667.77	4299.98	2669.19	4379.79	2669.45	4400.0
GR	2670.9	4472.31	2670.91	4499.98	2671.18	4516.58	2671.18	4534.4		
NH	6	0.06	2600.00	0.1	3000.0	0.03	3364.8	0.045	3699.99	0.1
NH	4124.6	0.06	4463.6							
ET			9.11						2890.0	3625.0
X1	113	60	2958.14	3364.8	500.0	610.0	540.0	1.0	2.2	
GR	2669.5	2000.00	2667.95	2100.00	2667.95	2103.85	2666.62	2150.42	2666.62	2200.0
GR	2666.4	2275.38	2666.40	2300.00	2666.40	2325.58	2664.72	2360.55	2664.54	2400.0
GR	2663.1	2407.92	2663.52	2433.99	2663.08	2500.00	2663.08	2504.37	2664.27	2529.9
GR	2663.5	2585.07	2663.39	2600.00	2660.69	2644.17	2661.48	2700.00	2661.66	2745.2
GR	2662.1	2799.99	2661.26	2899.99	2662.95	2958.14	2656.97	2983.64	2657.01	3000.0
GR	2657.5	3099.99	2657.90	3199.99	2659.18	3299.99	2659.05	3359.94	2660.47	3364.8

GR	2660.6	3399.99	2660.95	3499.99	2660.38	3532.80	2659.54	3539.80	2660.47	3547.5
GR	2660.5	3587.34	2660.47	3599.99	2659.85	3628.29	2658.43	3647.41	2661.13	3671.8
GR	2662.0	3686.63	2661.97	3699.99	2662.02	3799.99	2662.95	3850.42	2663.83	3900.0
GR	2663.8	3915.80	2665.91	3999.99	2666.66	4016.28	2667.20	4099.98	2667.20	4100.1
GR	2667.5	4124.65	2668.39	4149.61	2670.52	4199.98	2670.52	4205.26	2672.20	4300.0
GR	2672.2	4307.60	2673.75	4363.46	2674.15	4399.98	2674.90	4428.54	2674.94	4463.6
NH	7	0.05	2300.00	0.06	2700.00	0.03	3188.95	0.045	3499.99	0.06
NH	3999.9	0.1	4311.73	0.06	4551.9					
ET			9.11						2800.0	3670.0
X1	114	63	2903.92	3188.95	500.0	510.0	500.0	1.0	2.2	
GR	2677.5	2000.00	2677.42	2040.02	2675.92	2044.80	2676.45	2057.15	2676.09	2077.9
GR	2676.3	2094.91	2676.27	2100.00	2674.41	2179.46	2674.23	2200.00	2672.91	2270.0
GR	2672.9	2300.00	2672.46	2332.62	2671.09	2400.00	2670.12	2466.04	2668.88	2500.0
GR	2668.0	2541.33	2664.89	2589.54	2664.23	2600.00	2663.30	2624.8	2664.1	2653.64
GR	2664.0	2687.15	2663.88	2700.00	2662.86	2704.01	2663.17	2800.0	2662.5	2825.53
GR	2662.4	2899.99	2662.46	2903.92	2658.30	2909.68	2658.56	3000.0	2660.2	3099.99
GR	2660.5	3178.46	2663.79	3188.95	2663.79	3199.99	2663.43	3253.1	2663.21	3284.30
GR	2663.2	3299.99	2663.57	3308.8	2663.2	3357.52	2663.39	3390.94	2662.95	3399.99
GR	2662.1	3433.0	2663.39	3497.98	2663.39	3499.99	2663.03	3600.0	2663.2	3699.99
GR	2665.5	3999.99	2665.51	4006.64	2665.25	4100.0	2666.7	4149.40	2666.75	4183.58
GR	2666.9	4199.98	2668.04	4260.20	2668.88	4300.0	2668.7	4311.73	2668.74	4339.44
GR	2670.9	4371.80	2670.91	4399.98	2670.82	4449.7	2670.8	4462.06	2672.02	4485.65
GR	2672.0	4499.98	2672.02	4506.28	2674.28	4551.9				
NH	6	0.05	2422.35	0.06	2512.74	0.03	2831.41	0.045	3538.26	0.035
NH	3945.3	0.05	4331.6							
ET			9.11						2400.0	3370.0
X1	115	68	2512.74	2831.41	520.0	500.0	520.0	1.0	2.2	
GR	2670.6	2000.00	2672.42	2017.13	2671.00	2085.12	2670.60	2100.00	2666.22	2171.9
GR	2666.4	2200.00	2665.82	2229.70	2665.56	2286.80	2665.56	2300.00	2665.56	2360.2
GR	2665.7	2400.00	2665.69	2401.23	2665.78	2422.35	2666.00	2500.0	2666.0	2512.74
GR	2662.3	2517.78	2662.50	2585.51	2662.50	2600.00	2661.35	2633.9	2661.8	2700.00
GR	2662.7	2799.99	2662.77	2824.02	2664.63	2831.41	2664.98	2857.4	2663.9	2877.76
GR	2664.4	2893.78	2664.45	2899.99	2664.18	2948.32	2665.20	2973.5	2665.2	2999.99
GR	2665.9	3019.85	2666.58	3045.62	2665.87	3057.92	2665.3	3088.87	2665.34	3099.99
GR	2665.1	3199.99	2665.07	3299.99	2664.14	3302.7	2665.2	3340.96	2665.38	3393.55
GR	2665.3	3399.99	2664.89	3444.01	2664.89	3491.4	2664.9	3499.99	2664.67	3538.26
GR	2664.8	3599.99	2665.16	3677.92	2665.16	3700.0	2665.5	3749.76	2665.34	3791.15
GR	2665.3	3799.99	2665.42	3835.59	2665.42	3868.4	2665.4	3899.99	2665.65	3916.56
GR	2667.7	3945.33	2667.81	3999.99	2667.90	4002.3	2669.2	4085.43	2669.32	4099.98
GR	2670.0	4146.08	2670.60	4191.23	2670.60	4200.0	2671.3	4243.82	2671.58	4268.87
GR	2672.2	4285.08	2672.20	4299.98	2672.37	4331.6				
NH	5	0.06	2756.25	0.035	2952.83	0.03	3255.88	0.035	4300.0	0.05
NH	4683.7									
ET		7.11	9.11				0.1	4000.0	2800.0	3720.0

X1	116	89	2806.22	3255.88	520.0	460.0	490.0	1.0	2.2	
GR	2680.3	2000.00	2680.52	2037.63	2680.56	2081.98	2680.56	2100.00	2679.81	2130.5
GR	2679.7	2182.33	2679.63	2200.00	2679.15	2234.97	2678.62	2260.11	2678.48	2283.7
GR	2677.0	2300.00	2673.04	2327.62	2670.07	2354.13	2670.21	2397.16	2670.21	2400.0
GR	2670.0	2426.42	2670.96	2493.35	2670.96	2500.00	2669.63	2514.33	2670.43	2525.3
GR	2670.3	2546.78	2669.54	2556.56	2670.43	2570.82	2670.29	2598.66	2670.29	2600.0
GR	2669.9	2649.12	2669.98	2700.00	2669.98	2726.06	2669.50	2756.25	2666.18	2800.0
GR	2666.0	2806.22	2666.89	2838.41	2667.64	2890.42	2665.60	2899.71	2665.60	2900.0
GR	2665.6	2926.27	2666.18	2952.83	2664.72	2970.01	2664.72	2999.99	2664.58	3007.6
GR	2663.4	3015.74	2664.23	3022.47	2664.58	3072.53	2663.61	3077.40	2663.61	3100.0
GR	2663.9	3199.99	2664.01	3225.16	2667.77	3255.88	2667.46	3282.71	2667.46	3300.0
GR	2667.4	3339.55	2667.77	3377.35	2667.42	3399.99	2667.42	3405.86	2667.28	3464.0
GR	2666.8	3499.99	2666.22	3558.80	2666.66	3568.49	2666.80	3594.56	2666.80	3600.0
GR	2666.8	3629.67	2665.73	3672.61	2665.73	3699.99	2664.89	3711.74	2665.91	3753.3
GR	2665.4	3773.80	2665.42	3799.99	2666.22	3863.22	2666.31	3899.99	2666.40	4000.0
GR	2666.5	4099.98	2666.80	4199.98	2667.15	4261.48	2670.12	4296.41	2670.12	4300.0
GR	2670.1	4325.31	2670.51	4341.83	2671.09	4384.54	2671.31	4399.98	2672.55	4452.6
GR	2673.2	4495.74	2673.22	4499.98	2673.97	4513.93	2674.72	4532.17	2674.63	4588.9
GR	2674.4	4599.19	2674.37	4599.98	2675.21	4617.52	2675.47	4683.7		

NH	6	0.045	2872.14	0.035	2899.99	0.03	3060.2	0.035	3669.82	0.1
NH	3931.1	0.06	4488.1							
ET		7.11	9.11				0.1	3600.0	2590.0	3430.0
X1	117	75	2872.14	3160.5	530.0	500.0	500.0	1.0	2.2	
GR	2675.0	2000.00	2674.76	2087.78	2674.59	2100.00	2673.66	2135.85	2672.99	2160.2
GR	2672.9	2200.00	2672.60	2280.91	2672.60	2300.00	2672.02	2361.4	2672.0	2400.00
GR	2672.3	2417.26	2672.42	2438.15	2671.93	2445.4	2671.31	2488.44	2671.31	2500.00
GR	2671.2	2531.5	2671.1	2551.87	2670.78	2600.00	2671.18	2782.4	2671.53	2812.20
GR	2671.8	2827.56	2672.68	2840.7	2672.06	2872.14	2667.73	2882.41	2667.73	2899.99
GR	2667.9	2936.6	2666.9	2963.19	2667.20	2994.53	2667.11	2999.99	2666.35	3001.31
GR	2666.0	3060.2	2666.0	3088.25	2666.04	3099.99	2666.27	3111.13	2665.29	3147.56
GR	2669.4	3160.5	2668.8	3196.26	2668.79	3199.99	2667.68	3299.99	2667.37	3314.45
GR	2667.9	3400.0	2667.6	3410.15	2667.37	3489.96	2668.13	3499.99	2668.26	3515.7
GR	2668.0	3588.46	2668.08	3599.99	2668.30	3630.29	2670.69	3669.82	2670.78	3700.0
GR	2670.2	3782.43	2670.34	3800.0	2670.9	3838.21	2670.87	3865.21	2671.36	3893.98
GR	2671.3	3900.0	2671.0	3931.12	2669.32	3948.34	2669.10	3967.51	2669.76	3979.28
GR	2669.7	4000.0	2670.3	4072.95	2671.53	4099.98	2671.58	4102.08	2671.75	4152.94
GR	2673.5	4200.0	2672.9	4209.20	2674.15	4260.29	2674.15	4299.98	2675.25	4361.75
GR	2676.1	4393.3	2676.2	4399.98	2676.23	4437.49	2677.60	4477.68	2677.51	4488.1

NH	6	0.05	2400.00	0.035	2937.56	0.03	3176.9	0.1	3216.93	0.06
NH	3999.9	0.05	4475.8							
ET		7.11	9.11				0.1	3400.0	2550.0	3340.0
X1	118	81	2937.56	3176.9	520.0	490.0	500.0	1.0	2.2	
GR	2695.6	2000.00	2697.03	2026.74	2696.59	2064.67	2695.66	2091.94	2695.79	2100.0
GR	2695.7	2122.97	2695.13	2143.51	2692.16	2200.00	2690.57	2223.77	2687.51	2274.6
GR	2687.4	2296.90	2686.94	2300.00	2684.02	2319.65	2675.03	2346.12	2674.85	2360.5
GR	2673.4	2391.85	2674.72	2396.98	2674.72	2400.00	2673.83	2422.83	2674.41	2425.7
GR	2674.4	2445.28	2674.41	2455.32	2675.16	2467.54	2673.83	2500.00	2672.64	2525.1
GR	2672.6	2600.00	2672.15	2684.62	2672.15	2700.00	2670.87	2705.87	2671.67	2721.9
GR	2671.1	2799.99	2670.91	2880.50	2672.99	2893.74	2672.99	2899.99	2672.99	2909.5
GR	2671.8	2920.65	2672.37	2937.56	2669.67	2946.28	2669.10	2991.83	2669.10	3000.0

GR	2669.6	3031.67	2667.59	3039.11	2668.70	3099.99	2668.39	3162.17	2673.57	3176.9
GR	2673.4	3199.99	2672.20	3216.93	2671.27	3264.61	2672.42	3281.60	2672.46	3300.0
GR	2673.3	3370.36	2673.04	3399.99	2671.62	3442.56	2672.90	3469.34	2674.41	3500.0
GR	2674.6	3509.71	2674.76	3599.99	2675.69	3699.99	2675.47	3712.94	2676.00	3731.1
GR	2675.6	3799.99	2675.25	3834.23	2674.14	3893.94	2674.50	3899.99	2675.25	3942.6
GR	2673.7	3967.73	2673.57	3995.36	2673.57	3999.99	2674.50	4099.98	2674.59	4102.3
GR	2675.2	4162.64	2675.21	4175.79	2676.09	4181.23	2676.22	4199.98	2676.67	4274.2
GR	2676.7	4299.98	2678.04	4399.98	2678.31	4422.92	2677.64	4434.92	2678.62	4457.1
GR	2679.1	4475.8								
NH	4	0.045	2430.0	0.035	2900.0	0.03	3120.0	0.05	4330.0	
ET			9.11						2450.0	3200.0
X1	118.5	24	2900.0	3120.0	283.0	278.0	280.0	1.0	2.2	
GR	2699.6	2000.0	2689.2	2030.0	2682.8	2135.0	2679.3	2221.0	2674.2	2330.0
GR	2673.0	2430.0	2672.4	2530.0	2672.3	2630.0	2672.0	2735.0	2672.9	2831.0
GR	2672.9	2900.0	2669.0	2932.0	2669.7	3030.0	2671.9	3120.0	2675.9	3225.0
GR	2676.7	3332.0	2677.3	3540.0	2677.7	3638.0	2678.2	3732.0	2677.2	3938.0
GR	2677.9	4030.0	2679.2	4130.0	2679.7	4230.0	2680.5	4330.0		
NH	5	0.05	2310.09	0.035	2852.26	0.03	3116.62	0.06	4019.03	0.05
NH	4324.5									
ET			9.11						2400.0	3150.0
X1	119	76	2852.26	3116.62	215.0	230.0	220.0	1.0	2.2	
GR	2685.5	2000.00	2679.59	2054.54	2676.58	2076.32	2676.93	2100.00	2676.93	2102.6
GR	2675.5	2148.03	2674.50	2200.00	2674.45	2217.53	2673.61	2255.86	2674.85	2269.4
GR	2674.7	2288.84	2673.79	2298.84	2673.79	2300.00	2673.04	2310.09	2672.42	2392.2
GR	2672.4	2400.00	2672.33	2500.00	2672.33	2539.87	2673.74	2551.96	2672.59	2564.8
GR	2672.4	2587.50	2672.42	2600.00	2672.24	2651.03	2672.59	2700.00	2672.90	2800.0
GR	2673.4	2820.66	2673.34	2831.85	2674.36	2841.02	2673.88	2852.26	2670.11	2864.0
GR	2670.2	2899.99	2670.42	2999.99	2670.25	3011.89	2669.85	3049.42	2670.78	3054.7
GR	2670.8	3099.99	2670.78	3110.51	2674.89	3116.62	2675.34	3130.25	2677.68	3151.1
GR	2678.6	3189.62	2678.61	3199.99	2679.32	3260.44	2679.32	3299.99	2679.06	3400.0
GR	2679.0	3466.81	2679.01	3484.25	2679.14	3499.99	2679.19	3508.73	2680.12	3578.8
GR	2680.6	3599.99	2680.6	3600.10	2679.14	3616.52	2679.76	3647.42	2680.52	3660.5
GR	2680.6	3699.99	2679.76	3741.35	2679.54	3799.69	2679.54	3799.99	2678.75	3804.8
GR	2678.7	3819.39	2680.07	3825.72	2679.98	3899.99	2681.14	3999.99	2681.14	4007.4
GR	2680.5	4019.03	2680.47	4055.95	2681.31	4074.19	2681.45	4099.98	2681.53	4105.1
GR	2681.8	4181.93	2681.80	4199.98	2681.80	4203.01	2681.80	4226.78	2682.73	4300.0
GR	2683.8	4324.5								
NH	6	0.06	2717.25	0.035	2955.05	0.03	3130.4	0.045	3283.50	0.03
NH	3431.3	0.06	4445.5							
ET			9.11						2560.0	3350.0
X1	120	79	3130.40	3431.31	600.0	570.0	570.0	1.0	2.2	
GR	2682.2	2000.00	2680.29	2100.00	2679.98	2179.85	2679.98	2200.00	2679.59	2272.5
GR	2679.1	2280.65	2680.03	2297.16	2680.03	2300.00	2679.94	2318.19	2679.06	2324.3
GR	2678.5	2376.26	2678.48	2392.16	2678.35	2400.00	2677.06	2500.00	2676.62	2577.6
GR	2675.9	2600.00	2675.16	2653.37	2675.16	2700.00	2675.16	2717.25	2676.22	2739.0
GR	2676.2	2799.99	2676.62	2899.99	2676.62	2900.56	2676.31	2955.05	2670.95	2967.2
GR	2672.3	2999.99	2672.46	3011.13	2672.68	3119.45	2676.97	3130.4	2676.9	3199.99
GR	2676.8	3283.50	2673.17	3294.17	2673.17	3299.99	2672.99	3310.3	2673.65	3367.17

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GR   2673.8   3399.99   2673.65   3411.8   2677.2   3431.31   2680.03   3485.18   2679.85   3499.99
GR   2680.1   3538.43   2679.72   3542.5   2679.7   3549.72   2680.56   3573.32   2680.07   3599.99
GR   2679.5   3609.88   2680.34   3648.5   2681.2   3699.43   2681.22   3699.99   2679.81   3731.92
GR   2678.9   3772.74   2680.78   3782.9   2679.1   3789.25   2679.19   3799.99   2679.06   3828.11
GR   2680.6   3869.90   2680.34   3900.0   2680.2   3906.16   2679.50   3930.68   2679.50   3941.21
GR   2680.0   3978.04   2681.53   4000.0   2681.5   4002.57   2681.45   4038.69   2682.38   4052.01
GR   2683.6   4099.98   2683.70   4104.8   2685.0   4162.41   2684.85   4199.98   2684.85   4200.97
GR   2685.3   4252.32   2686.76   4292.0   2686.4   4299.98   2686.31   4302.87   2686.05   4329.03
GR   2687.2   4342.22   2687.33   4400.0   2688.0   4404.68   2688.17   4445.5

NH        5      0.05    2780.0      0.03   3050.0     0.045    3150.0      0.03    3445.0      0.05
NH   4345.0
ET                         9.11                                                    2590.0    3310.0
X1    120.5       27    2745.0    3050.0    300.0     280.0     285.0       1.0       2.2
GR   2688.1   2000.0    2687.1    2100.0   2686.9    2140.0    2689.2    2250.0    2680.7    2350.0
GR   2679.0   2450.0    2677.6    2550.0   2677.3    2645.0    2677.9    2745.0    2677.5    2780.0
GR   2676.1   2800.0    2673.4    2850.0   2673.4    2875.0    2678.3    3050.0    2678.1    3150.0
GR   2675.5   3180.0    2675.7    3340.0   2679.9    3445.0    2680.9    3550.0    2682.1    3640.0
GR   2682.7   3745.0    2683.6    3850.0   2684.0    3945.0    2684.3    4045.0    2686.2    4145.0
GR   2688.1   4250.0    2689.4    4345.0

NH        5      0.06   2600.00      0.03  2893.61     0.045   3099.99      0.03   3219.67      0.05
NH   4228.2
ET                         9.11                                                    2540.0    3190.0
X1     121       92    2600.0    2893.61    250.0     230.0     240.0       1.0       2.2
GR   2693.3   2000.00   2691.45   2002.48   2691.63   2016.02   2689.77   2023.15   2698.23   2067.4
GR   2698.8   2077.78   2698.27   2094.42   2698.18   2100.00   2696.45   2111.37   2682.87   2188.8
GR   2682.9   2200.00   2682.51   2209.60   2680.78   2297.87   2680.74   2300.00   2679.81   2303.8
GR   2679.8   2320.80   2678.97   2400.00   2677.91   2441.73   2678.66   2469.00   2679.06   2500.0
GR   2679.1   2507.07   2680.56   2527.17   2681.32   2592.20   2679.41   2600.00   2673.88   2612.0
GR   2675.0   2631.90   2675.69   2700.00   2675.78   2746.77   2674.99   2749.74   2674.94   2793.3
GR   2674.4   2797.90   2674.41   2799.99   2675.30   2883.73   2677.15   2893.61   2677.15   2900.0
GR   2677.3   2913.92   2676.84   2924.02   2677.82   2933.67   2677.82   2946.50   2678.66   2964.7
GR   2678.6   2987.14   2678.97   2999.99   2679.06   3006.62   2679.32   3031.32   2678.17   3050.6
GR   2678.7   3076.21   2677.20   3099.99   2676.27   3121.22   2676.71   3132.82   2676.36   3161.9
GR   2676.0   3181.87   2675.43   3199.99   2675.43   3205.24   2678.39   3219.67   2676.23   3226.7
GR   2679.2   3236.45   2679.10   3299.99   2679.06   3305.59   2679.55   3329.05   2680.65   3394.2
GR   2681.4   3399.99   2681.85   3414.75   2681.98   3435.78   2682.73   3448.71   2682.73   3500.0
GR   2683.2   3526.04   2683.88   3573.94   2684.95   3599.99   2684.95   3607.14   2685.65   3653.0
GR   2685.8   3676.10   2685.74   3699.99   2685.03   3736.57   2685.65   3758.66   2685.61   3800.0
GR   2685.6   3831.57   2685.03   3856.27   2684.68   3899.99   2684.68   3914.26   2685.57   3939.3
GR   2687.0   3987.83   2686.98   3999.99   2686.94   4036.12   2687.91   4064.50   2688.44   4093.8
GR   2689.0   4099.98   2689.42   4129.21   2689.20   4140.72   2689.20   4169.05   2690.30   4185.7
GR   2690.4   4199.98   2690.70    4228.2

NH        4      0.06   2531.68      0.03  2965.80     0.045   3099.99      0.06    4176.9
ET                         9.11                                     0.1                2480.0    3170.0
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X1	122	75	2531.68	2965.80	590.0	450.0	490.0	1.0	2.2	
GR	2685.8	2000.00	2684.28	2041.04	2683.31	2092.16	2683.31	2100.00	2683.00	2146.6
GR	2682.9	2200.00	2681.67	2277.33	2681.67	2300.00	2679.77	2336.87	2681.63	2354.5
GR	2681.6	2400.00	2681.23	2442.04	2681.18	2473.39	2680.08	2500.00	2680.34	2509.8
GR	2681.1	2531.68	2676.45	2539.21	2676.85	2553.86	2676.36	2556.47	2676.45	2600.0
GR	2676.9	2634.69	2677.95	2642.57	2678.62	2694.94	2678.57	2700.00	2677.16	2713.2
GR	2678.5	2728.09	2678.84	2799.99	2678.75	2869.17	2677.86	2872.31	2677.91	2900.0
GR	2677.9	2938.18	2680.17	2965.80	2679.99	2995.46	2680.39	2999.99	2680.83	3013.2
GR	2680.7	3031.54	2681.49	3048.67	2680.03	3075.19	2679.99	3099.99	2679.59	3111.4
GR	2680.4	3143.69	2681.54	3153.74	2681.23	3172.33	2678.93	3181.85	2678.93	3191.2
GR	2681.8	3199.99	2681.85	3201.99	2681.63	3259.71	2683.35	3299.99	2683.97	3379.0
GR	2684.0	3399.99	2683.97	3406.63	2683.93	3445.54	2683.04	3493.92	2683.04	3500.0
GR	2683.0	3511.94	2684.46	3557.71	2684.99	3599.99	2684.99	3608.13	2686.72	3647.0
GR	2687.4	3699.99	2687.56	3731.77	2687.43	3799.99	2687.96	3899.99	2688.62	3935.2
GR	2688.9	3965.71	2689.33	3986.70	2690.13	3999.99	2690.39	4018.66	2691.67	4060.4
GR	2691.2	4078.20	2691.23	4099.98	2691.37	4113.96	2692.78	4122.68	2693.93	4176.9

NH	4	0.045	2242.71	0.05	2686.88	0.03	2978.42	0.06	4028.6	
ET			9.11						2480.0	3080.0
X1	123	69	2686.88	2978.42	580.0	450.0	510.0	1.0	2.2	
GR	2696.2	2000.00	2696.63	2046.66	2696.85	2072.77	2696.85	2097.52	2697.03	2100.0
GR	2698.1	2121.02	2698.89	2161.62	2697.39	2195.57	2697.39	2200.00	2698.05	2208.9
GR	2696.5	2242.71	2692.12	2273.48	2689.46	2300.00	2683.93	2329.56	2683.93	2339.5
GR	2684.7	2345.28	2683.26	2376.97	2684.86	2400.00	2684.15	2432.00	2683.93	2476.2
GR	2684.8	2500.00	2685.26	2515.48	2684.42	2537.17	2685.43	2574.62	2685.43	2600.0
GR	2685.2	2611.14	2685.65	2686.88	2678.97	2700.00	2678.22	2702.86	2680.17	2777.7
GR	2680.1	2799.99	2680.74	2899.99	2680.74	2941.41	2681.67	2955.05	2681.67	2968.4
GR	2683.9	2978.42	2683.62	2999.99	2682.11	3010.82	2683.80	3024.86	2682.73	3037.5
GR	2684.3	3053.32	2684.99	3099.99	2684.86	3107.81	2683.84	3158.26	2684.19	3200.0
GR	2684.5	3206.29	2686.27	3299.99	2687.12	3368.57	2687.12	3399.99	2687.38	3474.5
GR	2687.3	3499.99	2686.36	3504.51	2687.60	3549.40	2687.69	3599.99	2688.09	3642.3
GR	2688.6	3699.99	2689.59	3768.60	2690.04	3799.99	2690.04	3808.80	2691.32	3882.7
GR	2692.8	3890.03	2692.60	3899.99	2692.07	3901.05	2692.38	3927.03	2693.80	3940.8
GR	2693.0	3966.12	2694.02	3999.99	2694.02	4008.04	2695.44	4028.6		

NH	5	0.05	2650.1	0.045	2756.0	0.03	2944.38	0.06	3654.34	0.05
NH	3800.1									
ET			9.11						2460.0	2980.0
X1	124	61	2620.88	2944.38	520.0	500.0	510.0	1.0	2.2	
GR	2691.6	2000.00	2690.13	2074.94	2690.13	2100.00	2688.49	2198.93	2688.49	2200.0
GR	2686.8	2235.81	2685.26	2266.09	2688.22	2300.00	2687.34	2319.21	2687.51	2353.2
GR	2687.7	2400.00	2687.60	2417.08	2687.43	2500.00	2687.43	2501.80	2686.98	2555.7
GR	2687.2	2600.00	2687.56	2620.88	2685.74	2633.32	2685.74	2644.65	2683.26	2650.1
GR	2683.5	2661.61	2684.86	2680.46	2684.95	2700.00	2684.95	2735.18	2683.40	2756.0
GR	2683.4	2761.60	2682.25	2764.70	2682.33	2781.74	2683.71	2786.26	2681.98	2791.4
GR	2682.5	2799.99	2682.73	2811.27	2680.39	2857.71	2680.78	2899.99	2680.34	2930.3
GR	2687.6	2944.38	2688.00	2999.99	2689.42	3056.33	2689.11	3091.05	2689.77	3100.0
GR	2690.3	3150.55	2690.26	3199.99	2690.26	3200.92	2691.23	3294.59	2691.23	3300.0
GR	2691.3	3357.41	2692.52	3399.99	2692.52	3406.19	2693.93	3498.57	2693.93	3500.0
GR	2694.9	3557.76	2697.16	3599.99	2697.92	3629.64	2698.14	3654.34	2698.14	3665.0
GR	2698.8	3699.99	2698.80	3703.44	2700.26	3750.58	2699.51	3768.33	2701.32	3800.0
GR	2701.5	3800.1								

NH	4	0.05	2578.0	0.035	2775.0	0.03	3070.0	0.05	3508.0	
ET			9.11						2450.0	3070.0
X1	124.5	16	2775.0	3070.0	200.0	270.0	218.0	1.0	2.2	
GR	2695.2	2000.0	2692.9	2092.0	2690.6	2200.0	2689.6	2285.0	2689.7	2390.0
GR	2688.6	2470.0	2688.2	2578.0	2685.3	2671.0	2683.9	2775.0	2682.1	2870.0
GR	2685.5	2968.0	2689.6	3070.0	2692.9	3178.0	2697.2	3270.0	2701.0	3480.0
GR	2703.0	3508.0								

NH	5	0.05	2751.69	0.045	2799.99	0.035	2899.99	0.03	3142.07	0.05
NH	3672.8									
ET		7.11	9.11				0.1	3150.0	2540.0	3143.0
X1	125	68	2764.84	3142.07	220.0	250.0	230.0	1.0	2.2	
GR	2696.8	2000.00	2698.14	2036.56	2697.07	2100.00	2696.90	2104.65	2695.30	2176.5
GR	2695.1	2200.00	2693.09	2226.11	2691.23	2281.62	2691.23	2300.00	2689.59	2331.3
GR	2689.9	2378.12	2689.99	2400.00	2689.86	2437.09	2689.81	2492.33	2689.81	2500.0
GR	2689.7	2537.08	2688.89	2600.00	2688.35	2601.23	2689.15	2639.78	2689.37	2680.9
GR	2689.4	2700.00	2688.22	2722.83	2686.85	2751.69	2687.47	2764.84	2685.79	2797.9
GR	2685.8	2799.99	2686.67	2803.83	2686.01	2823.22	2686.67	2844.20	2685.26	2876.9
GR	2685.3	2899.99	2684.68	2945.26	2683.71	2972.22	2683.35	2999.99	2683.35	3003.0
GR	2682.5	3014.81	2682.94	3051.02	2683.09	3092.36	2683.09	3099.99	2682.25	3128.6
GR	2687.7	3142.07	2688.97	3180.98	2689.42	3199.99	2689.95	3242.34	2691.81	3251.0
GR	2689.1	3263.54	2689.68	3291.07	2695.44	3299.99	2694.86	3307.01	2694.77	3318.1
GR	2697.8	3332.64	2697.74	3344.77	2702.39	3399.99	2702.74	3404.66	2703.32	3438.3
GR	2702.8	3461.28	2701.72	3487.57	2702.25	3499.99	2702.61	3510.72	2701.46	3523.7
GR	2702.6	3538.57	2703.14	3550.65	2704.11	3575.97	2706.02	3585.89	2706.59	3600.0
GR	2706.7	3606.38	2709.51	3660.39	2711.20	3672.8				

NH	5	0.045	2300.00	0.05	2865.66	0.035	2906.4	0.03	3117.63	0.05
NH	3938.3									
ET		7.11	9.11				0.1	3130	2700.0	3120.0
X1	126	71	2865.66	3117.63	480.0	570.0	510.0	1.0	2.2	
GR	2701.3	2000.00	2701.06	2037.76	2700.88	2077.29	2701.06	2097.08	2701.01	2100.0
GR	2699.4	2127.53	2699.86	2144.75	2698.71	2190.92	2698.54	2200.00	2697.83	2239.7
GR	2696.3	2286.67	2696.28	2300.00	2695.75	2343.55	2694.42	2373.74	2694.29	2399.8
GR	2694.3	2400.00	2692.43	2448.15	2691.54	2472.01	2691.59	2494.77	2691.59	2500.0
GR	2691.3	2509.42	2691.05	2552.93	2691.81	2576.66	2691.81	2600.00	2691.81	2614.6
GR	2691.2	2683.07	2691.32	2700.00	2691.59	2725.47	2691.85	2777.66	2691.85	2794.0
GR	2691.9	2799.99	2692.74	2865.66	2688.89	2876.69	2688.75	2899.99	2688.71	2906.4
GR	2685.3	2917.15	2684.64	2999.99	2684.42	3014.84	2686.23	3034.28	2686.19	3057.5
GR	2684.4	3078.81	2685.39	3099.99	2685.34	3100.63	2693.80	3117.63	2693.45	3140.0
GR	2696.3	3161.98	2691.85	3189.47	2691.85	3199.99	2692.16	3299.99	2692.47	3316.9
GR	2693.7	3348.52	2692.52	3399.99	2692.52	3403.37	2693.45	3430.55	2694.38	3487.3
GR	2694.8	3499.99	2695.53	3553.39	2696.28	3599.99	2696.77	3618.77	2698.09	3685.7
GR	2698.2	3699.99	2698.23	3716.20	2699.69	3759.67	2700.22	3785.34	2700.22	3800.0
GR	2699.5	3811.46	2700.88	3830.05	2700.57	3865.20	2700.79	3899.99	2701.01	3915.8
GR	2701.4	3938.3								

NH	5	0.05	2300.00	0.07	2544.69	0.05	2669.96	0.03	2890.41	0.06
NH	3854.0									
ET		7.11	9.11				0.1	2955.0	2540.0	2950.0
X1	127	77	2669.96	2890.41	500.0	540.0	510.0	1.0	2.2	
GR	2701.9	2000.00	2701.63	2011.64	2700.31	2039.97	2699.07	2049.27	2700.31	2058.6
GR	2699.6	2100.00	2698.62	2122.40	2696.59	2192.56	2696.54	2200.00	2696.10	2208.2
GR	2694.7	2260.11	2694.99	2299.91	2694.99	2300.00	2693.58	2350.19	2693.84	2400.0
GR	2693.8	2402.07	2693.84	2442.12	2694.06	2477.54	2694.06	2500.00	2694.06	2511.2
GR	2694.1	2544.69	2692.83	2562.39	2694.02	2577.18	2694.15	2594.71	2694.15	2600.0
GR	2694.3	2628.93	2694.06	2642.92	2694.99	2669.96	2685.96	2681.47	2684.99	2691.7
GR	2685.0	2700.00	2685.34	2720.91	2686.89	2736.27	2687.38	2754.02	2687.16	2790.3
GR	2687.7	2799.99	2687.78	2804.75	2687.60	2841.58	2686.23	2867.43	2687.56	2874.7
GR	2695.3	2890.41	2695.22	2899.99	2695.17	2920.11	2693.14	2954.68	2693.58	2973.8
GR	2693.2	2999.99	2692.91	3015.68	2696.90	3036.67	2696.81	3071.28	2699.20	3087.0
GR	2699.3	3099.99	2700.88	3121.04	2701.19	3172.39	2706.24	3192.48	2706.19	3200.0
GR	2706.1	3203.77	2703.36	3219.40	2703.14	3299.99	2703.14	3399.99	2703.14	3486.9
GR	2705.2	3499.99	2705.62	3509.12	2707.48	3537.23	2707.88	3569.06	2707.57	3600.0
GR	2706.9	3606.28	2705.71	3650.99	2705.57	3669.90	2706.11	3696.59	2706.42	3700.0
GR	2707.4	3737.89	2706.90	3756.39	2707.70	3781.31	2708.50	3799.99	2708.67	3805.5
GR	2712.0	3844.17	2713.67	3854.0						

NH	3	0.045	2542.3	0.03	2751.19	0.045	3768.1			
ET			9.11						2370.0	2825.0
X1	128	87	2542.3	2751.19	400.0	390.0	400.0	1.0	2.2	
GR	2702.9	2000.00	2702.70	2025.37	2703.36	2061.71	2702.17	2074.94	2700.40	2086.1
GR	2702.3	2100.00	2702.21	2102.57	2701.94	2137.71	2701.63	2174.19	2699.86	2199.0
GR	2699.9	2200.00	2697.61	2241.43	2694.24	2278.92	2695.84	2293.00	2695.92	2300.0
GR	2696.1	2333.41	2696.32	2365.23	2696.06	2400.00	2696.06	2405.78	2696.46	2432.3
GR	2696.2	2480.01	2696.19	2500.00	2695.92	2505.60	2692.69	2525.83	2696.01	2542.3
GR	2690.1	2552.39	2689.28	2565.32	2689.73	2581.25	2689.59	2592.54	2689.55	2600.0
GR	2687.6	2602.06	2688.53	2618.79	2688.40	2700.00	2687.78	2717.28	2687.78	2729.3
GR	2696.7	2751.19	2696.81	2770.40	2697.39	2787.71	2697.21	2799.99	2696.19	2800.9
GR	2693.7	2811.57	2694.11	2845.26	2695.08	2868.01	2694.60	2882.97	2693.58	2890.2
GR	2693.8	2899.99	2693.84	2900.37	2701.10	2918.69	2703.67	2957.12	2703.67	3000.0
GR	2703.7	3005.90	2705.09	3064.02	2705.09	3098.42	2705.09	3099.99	2703.67	3115.9
GR	2703.1	3120.37	2703.05	3146.22	2705.66	3163.44	2706.77	3187.79	2706.77	3200.0
GR	2705.8	3211.56	2705.49	3237.06	2708.50	3262.78	2712.04	3293.28	2712.92	3300.0
GR	2713.5	3319.17	2716.15	3356.40	2718.01	3399.99	2718.41	3408.50	2719.43	3417.5
GR	2718.9	3445.20	2719.39	3466.62	2716.95	3499.99	2716.77	3506.15	2712.52	3536.8
GR	2714.8	3561.57	2712.97	3599.99	2712.92	3601.50	2711.68	3618.90	2711.68	3641.7
GR	2711.7	3650.11	2711.51	3664.49	2712.52	3697.83	2712.48	3699.99	2712.48	3724.3
GR	2717.9	3762.32	2718.28	3768.1						

NH	4	0.05	2524.42	0.03	2763.55	0.05	2918.0	0.045	3834.4	
ET			9.11						2295.0	2795.0
X1	129	66	2524.42	2763.55	390.0	400.0	390.0	1.0	2.2	
GR	2708.3	2000.00	2707.43	2028.07	2707.43	2038.34	2703.49	2050.07	2703.49	2100.0
GR	2703.5	2144.88	2699.47	2173.35	2699.47	2200.00	2699.33	2218.37	2699.47	2245.5
GR	2698.8	2300.00	2698.76	2304.02	2698.67	2377.55	2698.67	2400.00	2698.98	2439.3
GR	2699.6	2486.49	2699.55	2500.00	2698.89	2524.42	2695.17	2593.92	2694.77	2600.0
GR	2690.9	2625.57	2689.99	2700.00	2688.53	2745.49	2698.54	2763.55	2698.54	2800.0

GR	2697.9	2820.83	2696.77	2856.47	2694.86	2879.00	2700.44	2899.99	2702.08	2918.0
GR	2702.4	2959.61	2701.59	2979.70	2702.83	2999.99	2703.18	3023.62	2704.78	3035.5
GR	2706.6	3082.84	2706.64	3099.99	2706.68	3117.77	2709.34	3162.97	2710.36	3175.1
GR	2715.0	3199.99	2714.74	3200.42	2716.20	3239.55	2717.17	3256.81	2718.50	3270.9
GR	2720.1	3299.99	2719.83	3316.97	2722.97	3399.99	2723.77	3422.32	2724.96	3482.3
GR	2725.2	3499.99	2726.51	3529.45	2727.71	3567.30	2727.71	3599.99	2727.40	3603.5
GR	2727.9	3615.24	2727.22	3637.90	2728.77	3653.22	2728.46	3696.16	2728.46	3700.0
GR	2727.8	3737.90	2726.82	3776.06	2726.87	3799.99	2726.42	3808.06	2725.41	3817.1
GR	2727.4	3834.4								
NH	6	0.05	2152.85	0.035	2328.1	0.03	2471.08	0.035	2685.2	0.05
NH	2985.7	0.045	3870.8							
ET		7.11	9.11				0.1	2770.0	2250.0	2720.0
X1	130	79	2310.97	2471.08	500.0	500.0	500.0	1.0	2.2	
GR	2704.2	2000.00	2706.73	2025.28	2704.07	2068.88	2703.72	2094.55	2703.72	2100.0
GR	2702.3	2121.20	2696.15	2152.85	2696.15	2174.76	2696.15	2200.00	2696.01	2209.6
GR	2695.4	2252.98	2695.17	2291.23	2695.17	2300.00	2694.69	2310.97	2688.62	2328.1
GR	2690.4	2350.15	2690.52	2370.82	2690.52	2396.36	2690.88	2400.00	2693.40	2430.5
GR	2695.9	2471.08	2696.77	2500.00	2696.72	2508.44	2696.46	2530.58	2696.46	2550.8
GR	2696.5	2600.00	2697.12	2608.53	2695.44	2618.53	2696.06	2635.44	2703.10	2685.2
GR	2702.7	2700.00	2701.68	2718.40	2702.17	2736.22	2702.81	2775.26	2702.0	2800.0
GR	2702.0	2813.37	2702.64	2861.71	2702.82	2890.75	2702.82	2899.99	2702.48	2939.6
GR	2703.0	2947.32	2703.85	2985.70	2703.85	2999.99	2703.54	3017.88	2703.19	3051.7
GR	2706.4	3063.17	2706.24	3099.99	2706.24	3102.26	2706.24	3141.08	2705.93	3166.6
GR	2706.6	3199.99	2706.59	3200.13	2707.79	3224.92	2711.64	3250.41	2710.40	3278.2
GR	2710.3	3299.99	2709.78	3314.91	2711.64	3326.46	2714.34	3362.76	2714.34	3391.9
GR	2714.6	3399.99	2715.05	3423.41	2717.70	3449.08	2716.24	3479.23	2716.46	3500.0
GR	2716.5	3502.47	2717.53	3532.13	2719.65	3567.01	2721.25	3599.99	2721.16	3620.6
GR	2722.5	3656.03	2724.48	3685.24	2724.79	3699.99	2725.05	3713.31	2725.81	3752.2
GR	2727.2	3794.63	2727.31	3799.99	2728.68	3845.89	2728.90	3870.8		
NH	6	0.07	2256.61	0.035	2300.00	0.03	2475.51	0.035	2567.19	0.05
NH	2910.2	0.045	3807.4							
ET		7.11	9.11				0.1	2750.0	2290.0	2690.0
X1	131	93	2300.0	2475.51	420.0	300.0	380.0	1.0	2.2	
GR	2711.3	2000.00	2711.28	2040.64	2711.99	2060.42	2711.64	2087.47	2711.55	2100.0
GR	2710.5	2124.34	2711.15	2157.32	2710.84	2188.97	2710.84	2200.00	2708.98	2228.9
GR	2699.2	2256.61	2698.89	2294.90	2697.92	2300.00	2692.25	2312.08	2692.25	2319.1
GR	2691.5	2323.81	2692.52	2342.18	2692.16	2371.26	2694.20	2396.41	2694.42	2400.0
GR	2694.5	2415.04	2697.12	2475.51	2699.16	2500.00	2699.47	2507.74	2698.93	2532.4
GR	2697.2	2540.23	2700.84	2567.19	2701.41	2585.78	2701.41	2600.00	2701.32	2618.7
GR	2703.4	2638.45	2702.43	2657.75	2702.21	2674.09	2702.74	2691.17	2702.25	2700.0
GR	2701.1	2725.57	2702.12	2748.06	2701.68	2772.80	2700.70	2796.53	2700.70	2800.0
GR	2702.1	2830.21	2702.17	2843.98	2701.63	2870.76	2703.09	2899.99	2703.27	2910.2
GR	2703.3	2945.88	2703.36	2976.34	2706.19	2997.85	2706.19	2999.99	2706.19	3028.3
GR	2705.9	3070.40	2705.97	3099.88	2706.02	3099.99	2708.10	3114.05	2709.29	3161.9
GR	2711.2	3180.36	2711.15	3199.99	2711.11	3223.70	2710.93	3259.55	2713.81	3271.9
GR	2713.7	3289.65	2712.30	3293.11	2712.30	3299.99	2712.30	3315.20	2714.25	3324.4
GR	2716.0	3349.15	2718.59	3356.72	2715.76	3363.27	2717.84	3387.31	2720.31	3400.0
GR	2720.0	3412.23	2717.30	3433.83	2718.72	3440.20	2721.02	3457.03	2720.23	3473.9
GR	2724.6	3493.86	2724.61	3499.99	2724.48	3515.94	2724.39	3529.31	2724.21	3557.5
GR	2720.5	3585.09	2720.14	3599.99	2720.14	3605.67	2721.16	3618.64	2722.22	3628.2

GR	2722.8	3650.47	2723.37	3665.92	2723.37	3699.99	2724.92	3729.09	2726.07	3751.6
GR	2726.0	3770.12	2727.09	3799.99	2727.62	3807.4				
NH	5	0.05	2329.1	0.035	2421.2	0.03	2593.35	0.06	3599.99	0.045
NH	3649.0									
ET		7.11	9.11				0.1	2700.0	2400.0	2680.0
X1	132	75	2421.2	2593.35	530.0	170.0	420.0	1.0	2.2	
GR	2726.3	2000.00	2725.32	2036.65	2722.84	2051.17	2723.90	2073.39	2724.39	2095.4
GR	2724.4	2100.00	2724.70	2129.26	2724.48	2184.55	2724.03	2200.00	2723.55	2205.8
GR	2721.5	2237.18	2715.98	2272.11	2708.85	2298.98	2708.85	2300.00	2704.33	2329.1
GR	2704.3	2356.43	2705.22	2374.49	2704.82	2400.00	2704.56	2400.08	2703.85	2421.2
GR	2698.8	2433.90	2699.02	2444.48	2696.46	2450.77	2696.85	2462.58	2694.11	2471.5
GR	2694.1	2500.00	2694.11	2502.07	2693.36	2510.44	2693.09	2549.88	2695.48	2563.4
GR	2703.7	2593.35	2703.72	2600.00	2703.63	2612.38	2702.92	2667.05	2702.87	2699.8
GR	2702.9	2700.00	2704.11	2734.51	2704.33	2799.76	2704.42	2799.99	2705.75	2826.1
GR	2708.5	2880.19	2708.50	2899.99	2708.67	2928.26	2710.05	2975.01	2710.62	3000.0
GR	2710.8	3014.89	2710.13	3038.31	2709.60	3056.50	2711.46	3081.47	2711.77	3100.0
GR	2712.7	3116.35	2713.90	3163.41	2714.43	3188.11	2715.18	3199.99	2716.15	3223.7
GR	2716.2	3258.14	2716.60	3292.31	2716.60	3299.99	2717.61	3320.86	2718.23	3343.2
GR	2716.9	3377.43	2718.32	3399.99	2718.77	3406.69	2721.42	3441.62	2721.42	3475.0
GR	2722.3	3499.99	2723.41	3511.69	2723.90	3512.53	2724.12	3527.45	2722.44	3541.7
GR	2724.2	3558.39	2724.87	3592.70	2725.14	3599.99	2725.85	3632.32	2726.11	3649.0
NH	5	0.07	2343.29	0.06	2605.8	0.03	2741.20	0.06	3419.66	0.045
NH	3505.7									
ET			9.11						2400.0	2800.0
X1	133	70	2605.8	2741.20	410.0	400.0	400.0	1.0	2.2	
GR	2718.1	2000.00	2716.95	2013.68	2716.95	2029.79	2712.75	2044.62	2712.75	2100.0
GR	2712.7	2160.91	2720.36	2170.20	2719.78	2200.00	2719.78	2200.31	2708.14	2250.4
GR	2707.8	2300.00	2707.79	2324.74	2707.79	2327.84	2707.52	2343.29	2706.99	2350.5
GR	2708.1	2374.14	2707.97	2398.57	2707.97	2400.00	2707.08	2470.64	2706.90	2500.0
GR	2706.5	2530.71	2706.15	2568.56	2705.58	2581.97	2705.04	2600.00	2705.04	2605.8
GR	2698.2	2623.23	2697.92	2637.22	2697.52	2649.30	2700.35	2667.09	2701.28	2681.5
GR	2700.6	2689.89	2700.04	2699.81	2700.04	2700.00	2699.91	2705.21	2696.28	2711.0
GR	2696.3	2716.50	2695.31	2721.76	2697.25	2724.24	2696.06	2731.81	2696.68	2740.3
GR	2700.3	2741.20	2702.65	2760.72	2703.36	2774.75	2710.27	2791.79	2710.22	2800.0
GR	2710.1	2816.14	2710.53	2837.21	2711.02	2865.09	2711.73	2900.0	2711.73	2900.15
GR	2713.1	2970.27	2713.28	2998.33	2713.37	2999.99	2714.47	3032.42	2716.20	3078.4
GR	2716.6	3099.99	2716.73	3141.67	2716.91	3171.81	2718.01	3199.99	2718.24	3203.6
GR	2718.9	3260.39	2720.01	3289.34	2720.49	3299.99	2721.95	3339.05	2722.35	3367.1
GR	2723.1	3399.99	2723.90	3419.66	2724.52	3450.16	2725.54	3499.99	2725.63	3505.7
NH	6	0.07	2400.00	0.06	2676.13	0.035	2722.69	0.03	2883.12	0.06
NH	3151.2	0.045	3304.9							
ET			9.11						2340.0	2840.0
X1	134	62	2722.69	2883.12	400.0	450.0	400.0	1.0	2.2	
GR	2721.3	2000.00	2718.85	2019.17	2718.85	2030.68	2720.67	2046.48	2720.36	2058.4
GR	2717.6	2066.18	2715.49	2073.00	2712.75	2084.24	2712.75	2100.00	2712.75	2175.3
GR	2722.8	2189.59	2722.84	2200.00	2721.16	2215.45	2707.12	2288.00	2707.12	2300.0
GR	2707.1	2325.62	2708.72	2381.27	2710.62	2398.31	2710.62	2400.00	2710.18	2432.3
GR	2709.6	2468.34	2709.56	2495.78	2709.82	2500.00	2710.44	2523.05	2708.45	2548.6

GR	2708.3	2593.17	2708.28	2600.00	2708.28	2616.63	2707.12	2622.61	2709.96	2635.4
GR	2709.0	2647.35	2710.84	2663.82	2709.34	2676.13	2707.57	2688.52	2709.12	2700.0
GR	2709.6	2704.90	2708.36	2708.79	2710.09	2722.69	2706.81	2743.59	2705.04	2768.3
GR	2704.3	2778.60	2704.34	2787.99	2703.10	2799.99	2701.37	2810.21	2700.88	2862.6
GR	2719.2	2883.12	2719.21	2899.99	2719.21	2919.19	2720.09	2944.35	2720.09	2983.5
GR	2720.4	2999.99	2720.98	3021.06	2721.95	3072.90	2722.35	3099.99	2722.35	3106.2
GR	2722.9	3151.25	2723.33	3174.71	2724.57	3199.99	2724.57	3208.49	2725.58	3262.5
GR	2726.6	3299.99	2726.73	3304.9						
NH	4	0.07	2483.12	0.03	2785.15	0.06	3060.2	0.045	3238.8	
ET		7.11	9.11				0.1	3000.0	2370.0	2790.0
X1	135	48	2600.00	2785.15	380.0	450.0	410.0	1.0	2.2	
GR	2725.2	2000.00	2725.18	2004.87	2723.55	2019.88	2722.88	2036.6	2720.8	2046.21
GR	2720.0	2065.20	2720.09	2100.00	2719.92	2133.33	2719.87	2157.5	2716.51	2200.00
GR	2718.1	2212.83	2715.67	2248.03	2714.52	2295.2	2713.3	2300.00	2712.56	2400.00
GR	2711.7	2455.24	2711.46	2483.12	2711.46	2500.0	2710.8	2516.77	2711.64	2569.09
GR	2712.7	2600.00	2712.39	2624.55	2706.42	2647.1	2705.4	2700.00	2704.16	2724.24
GR	2702.8	2752.04	2714.78	2785.15	2716.33	2800.0	2716.8	2824.24	2717.39	2870.36
GR	2717.1	2880.28	2717.75	2896.70	2717.79	2900.0	2719.0	2999.62	2718.99	2999.99
GR	2719.1	3031.63	2716.99	3037.51	2716.33	3060.2	2715.8	3080.81	2713.98	3099.99
GR	2714.3	3109.93	2712.44	3115.47	2712.92	3143.1	2712.8	3153.67	2715.84	3167.17
GR	2717.4	3199.99	2717.84	3207.94	2718.85	3238.8				
NH	3	0.05	2561.9	0.03	2724.1	0.045	3203.4			
ET			9.11						2540.0	2750.0
X1	136	57	2561.9	2724.1	400.0	410.0	410.0	1.0	2.2	
GR	2735 6	2000.00	2734.83	2020.05	2733.02	2031.61	2735.37	2044.18	2734.83	2073.7
GR	2733.9	2088.18	2732.13	2095.84	2732.49	2100.00	2733.37	2119.43	2734.35	2153.1
GR	2734.3	2179.63	2735.14	2196.23	2735.14	2200.00	2734.83	2225.23	2733.86	2253.4
GR	2733.0	2275.82	2731.34	2300.00	2730.19	2332.62	2729.26	2358.91	2727.49	2383.8
GR	2726.2	2400.00	2726.25	2405.48	2725.89	2437.13	2720.80	2456.25	2720.49	2484.6
GR	2716.8	2500.00	2716.60	2505.08	2714.12	2536.77	2711.59	2546.60	2713.19	2561.9
GR	2706.9	2585.51	2706.46	2600.00	2705.93	2621.10	2705.35	2639.38	2705.09	2669.9
GR	2705.1	2680.66	2706.42	2689.12	2706.42	2700.00	2706.42	2705.67	2712.21	2724.1
GR	2713.5	2748.83	2718.50	2799.99	2719.43	2824.97	2719.43	2835.82	2720.80	2839.8
GR	2723.9	2878.58	2726.60	2899.99	2727.49	2925.77	2733.42	2999.99	2737.00	3057.7
GR	2738.7	3099.99	2738.91	3102.57	2741.56	3132.22	2743.69	3146.74	2745.41	3177.8
GR	2745.7	3199.99	2745.72	3203.4						
NH	4	0.045	2453.24	0.03	2566.39	0.06	2622.92	0.05	3096.2	
ET			9.11						2450.0	2620.0
X1	137	54	2424.65	2566.39	380.0	380.0	380.0	1.0	2.2	
X2	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0	15
GR	2747.1	2000.00	2746.43	2048.21	2747.10	2087.12	2746.25	2100.00	2746.25	2101.8
GR	2746.9	2137.67	2746.92	2170.51	2745.81	2199.82	2745.81	2200.00	2745.15	2240.8
GR	2742.4	2264.49	2738.24	2300.00	2738.15	2302.83	2736.34	2322.48	2735.19	2352.6
GR	2732.2	2372.68	2724.79	2400.00	2724.61	2403.84	2722.44	2415.88	2720.54	2419.6
GR	2720.5	2424.65	2716.73	2434.43	2710.93	2453.24	2710.53	2455.15	2706.19	2459.1
GR	2705.8	2500.00	2708.14	2514.33	2708.01	2553.37	2712.97	2566.39	2714.43	2593.2
GR	2715.8	2600.00	2718.94	2622.92	2724.52	2662.31	2727.18	2684.62	2727.84	2700.0
GR	2730.5	2726.15	2734.44	2760.05	2734.88	2775.90	2737.89	2794.71	2737.93	2800.0

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GR   2739.4   2821.01   2741.21   2853.54   2742.54   2882.45   2744.71   2898.03   2744.71   2900.0
GR   2744.7   2909.94   2746.65   2923.49   2748.11   2954.03   2750.68   2983.25   2751.83   3000.0
GR   2753.9   3022.78   2756.66   3050.93   2758.47   3088.82   2759.27    3096.2

NH       4     0.045   2243.51      0.06    2400.0     0.035   2550.50      0.05    3083.0
ET                       9.11                                                      2370.0    2570.0
X1     138        63    2400.0    2550.50     410.0     380.0     400.0       1.0       2.2
X2     0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2738.1   2000.00   2736.12   2012.88   2732.49   2042.10   2728.77   2066.62   2730.27   2079.1
GR   2730.8   2100.00   2730.01   2104.91   2728.99   2125.27   2728.64   2142.72   2728.77   2160.8
GR   2729.0   2180.43   2728.50   2188.31   2730.05   2200.00   2731.25   2210.18   2731.38   2218.1
GR   2730.3   2231.69   2728.86   2243.51   2727.04   2253.43   2727.09   2277.95   2720.93   2294.1
GR   2720.2   2300.00   2719.87   2314.29   2721.47   2336.03   2721.16   2344.44   2717.84   2357.7
GR   2715.3   2364.58   2716.38   2372.72   2715.62   2381.62   2716.60   2399.95   2716.60   2400.0
GR   2713.0   2443.42   2715.14   2453.69   2713.32   2468.12   2711.59   2487.24   2709.07   2495.7
GR   2709.1   2500.00   2709.07   2507.29   2716.46   2550.50   2719.78   2555.19   2722.79   2578.0
GR   2725.8   2600.00   2729.52   2621.10   2733.20   2645.49   2735.32   2677.72   2736.56   2700.0
GR   2737.4   2708.84   2737.89   2723.27   2737.89   2733.63   2741.25   2755.45   2744.79   2787.0
GR   2745.8   2799.99   2745.55   2806.18   2740.28   2843.01   2746.56   2881.65   2749.00   2900.0
GR   2750.4   2921.85   2754.58   2961.78   2755.29   2977.67   2756.30   2999.62   2756.30   3000.0
GR   2759.4   3026.01   2761.53   3063.99   2761.97    3083.0
 O

NH       4      0.05    2099.6      0.07    2300.00     0.035   2472.06      0.05    2950.5
ET                       9.11                                                      2240.0    2450.0
X1     139        54    2270.0    2432.9     420.0     400.0     400.0       1.0       2.2
X2     0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2749.8   2000.00   2750.06   2004.56   2744.40   2054.80   2737.40   2088.22   2732.84   2099.6
GR   2732.8   2100.00   2727.40   2131.34   2727.13   2145.90   2725.89   2200.00   2725.89   2203.5
GR   2725.0   2241.43   2723.28   2274.14   2722.04   2300.00   2721.33   2303.49   2720.27   2314.3
GR   2721.2   2328.55   2720.58   2345.19   2720.40   2370.02   2717.44   2377.73   2717.53   2388.7
GR   2719.6   2400.00   2721.87   2411.81   2721.82   2418.63   2723.99   2422.35   2723.72   2432.9
GR   2717.9   2447.00   2718.01   2459.75   2726.34   2472.06   2727.40   2484.19   2726.29   2498.1
GR   2726.1   2500.00   2726.16   2503.62   2732.31   2517.70   2735.32   2542.18   2735.32   2563.6
GR   2736.6   2587.15   2739.79   2600.00   2740.28   2606.49   2742.80   2635.40   2745.28   2658.9
GR   2745.8   2670.28   2747.36   2677.14   2749.31   2700.00   2751.13   2719.24   2752.72   2737.9
GR   2754.6   2773.25   2756.04   2799.99   2756.13   2807.99   2758.34   2846.64   2760.38   2879.6
GR   2763.3   2899.99   2762.77   2907.02   2766.26   2935.44   2768.26    2950.5

NH       4      0.05    2216.77      0.07    2453.16      0.03    2539.8      0.05    2933.6
ET                       9.11                                                      2390.0    2590.0
X1     140        52    2416.8    2539.80     380.0     420.0     400.0       1.0       2.2
X2     0.0       0.0         0       0.0       0.0       0.0         0       0.0       0.0        15
GR   2755.1   2000.00   2752.50   2033.29   2750.24   2059.98   2747.85   2088.89   2746.48   2100.0
GR   2746.0   2116.47   2743.38   2130.50   2743.78   2154.05   2740.99   2178.79   2740.59   2200.0
GR   2740.6   2200.39   2740.02   2216.77   2737.54   2244.93   2737.18   2269.54   2736.34   2300.0
GR   2735.0   2322.13   2734.22   2346.07   2732.58   2373.70   2732.14   2400.00   2731.61   2416.8
GR   2726.5   2425.67   2724.92   2442.40   2725.10   2453.16   2720.54   2466.04   2722.13   2485.5
GR   2724.7   2495.43   2724.66   2500.00   2724.17   2513.05   2723.20   2519.47   2728.64   2539.8
GR   2730.0   2559.04   2728.46   2563.95   2730.06   2572.59   2729.75   2582.72   2728.95   2598.2
GR   2728.9   2600.00   2729.97   2609.02   2731.92   2632.57   2738.87   2662.89   2740.33   2694.4
```

GR	2741.0	2700.00	2741.30	2716.45	2741.88	2725.26	2745.86	2762.58	2748.56	2795.1
GR	2748.8	2799.99	2749.71	2820.21	2753.78	2861.47	2756.48	2889.80	2756.88	2900.0
GR	2758.5	2918.17	2760.20	2933.6						

```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1
0

 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO 8.000

 3265 DIVIDED FLOW

      8.000      11.79   2445.20        .00   2445.20   2445.68        .48        .00        .00   2440.23
    34000.0     3330.5   26167.0     4502.5     1474.2    4207.3     2378.3         .0         .0   2441.02
        .00       2.26      6.22       1.89       .050      .030       .059       .000    2433.41   2228.19
    .000829       515.      510.       505.          0         0          0        .00    1509.97   4144.21


 1490 NH CARD USED
 *SECNO 8.500
      8.500      10.02   2445.42        .00        .00   2446.06        .64        .33        .05   2442.20
    34000.0     1537.9   28710.2     3751.9      592.2    4153.5     1874.8       52.9       10.6   2442.20
        .01       2.60      6.91       2.00       .035      .031       .065       .000    2435.40   2689.00
    .001419       340.      310.       310.          2         0          0        .00    1401.25   4090.25


 1490 NH CARD USED
 *SECNO 9.000

 3265 DIVIDED FLOW

      9.000       9.74   2445.63        .00        .00   2446.36        .73        .27        .03   2443.59
    34000.0      259.0   29939.7     3801.4      262.1    4126.6     1514.9       80.3       16.4   2443.00
        .02        .99      7.26       2.51       .080      .030       .050       .000    2435.89   2498.57
    .001461       190.      190.       190.          0         0          0        .00    1236.37   3973.52


 1490 NH CARD USED
 *SECNO 9.500

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .58

      9.500       8.05   2445.65        .00        .00   2447.22       1.57        .61        .25   2442.20
    34000.0      627.4   31208.2     2164.4      201.4    2995.8      471.0      108.8       22.6   2442.20
        .03       3.12     10.42       4.60       .045      .032       .035       .000    2437.60   2798.42
    .004298       260.      260.       260.          2         0          0        .00     856.12   3654.53
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 9.50 CWSEL= 2445.65

STA=	2798.	2915.	3030.	3390.	3460.	3560.	3655.
PER Q=	1.8	12.4	79.4	4.1	1.9	.4	
AREA=	201.4	627.2	2368.6	206.8	195.4	68.7	
VEL=	3.1	6.7	11.4	6.7	3.4	1.8	
DEPTH=	1.7	5.5	6.6	3.0	2.0	.7	

1490 NH CARD USED
*SECNO 10.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

10.000	8.42	2446.18	2445.98	.00	2448.53	2.36	1.08	.24	2444.90
34000.0	24.0	30296.7	3679.3	41.5	2336.2	891.8	128.1	27.4	2442.09
.03	.58	12.97	4.13	.100	.030	.050	.000	2437.76	2819.24
.004682	240.	240.	250.	4	5	0	.00	832.61	3731.70

FLOW DISTRIBUTION FOR SECNO= 10.00 CWSEL= 2446.18

STA=	2819.	3035.	3345.	3400.	3500.	3732.
PER Q=	.1	89.1	3.9	3.9	3.0	
AREA=	41.5	2336.2	243.7	305.6	342.6	
VEL=	.6	13.0	5.5	4.4	2.9	
DEPTH=	.2	7.5	4.4	3.1	1.5	

1490 NH CARD USED
*SECNO 10.500

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.51

10.500	10.52	2448.32	.00	.00	2449.41	1.09	.75	.13	2447.60
34000.0	15.3	32173.9	1810.8	41.1	3746.2	672.5	150.5	32.3	2444.40
.04	.37	8.59	2.69	.100	.030	.050	.000	2437.80	2895.33
.002053	250.	250.	260.	3	0	0	.00	874.06	3769.39

```
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     10.50          CWSEL=   2448.32

STA=    2895.    3000.    3500.    3595.    3700.    3769.
  PER Q=       .0      94.6       3.1       2.0        .3
   AREA=     40.8    3746.2     333.7     269.0      69.8
    VEL=       .4       8.6       3.1       2.5       1.4
  DEPTH=       .4       7.5       3.5       2.6       1.0

1490 NH CARD USED
*SECNO 11.000
    11.000      9.93   2448.87       .00       .00   2449.86       .99       .45       .01   2449.50
   34000.0        .0   31274.6    2725.4        .0    3777.8    1084.6     176.3      37.2   2446.56
       .05       .00      8.28      2.51      .000      .030      .050      .000   2438.94   3001.19
   .001683      245.      240.      250.         2         0         0       .00    869.96   3871.14

FLOW DISTRIBUTION FOR SECNO=     11.00          CWSEL=   2448.87

STA=    3001.    3458.    3500.    3511.    3554.    3600.    3604.    3700.    3733.    3800.    3820.    3871.
  PER Q=     92.0       .7       .2      1.5      2.0       .1      2.0       .5       .6       .2       .2
   AREA=   3777.8    107.4     31.2    170.8    203.4     13.4    273.1     76.0    119.8     38.4     51.0
    VEL=      8.3      2.3      2.4      3.1      3.3      2.7      2.4      2.1      1.8      1.9      1.2
  DEPTH=      8.3      2.5      2.8      4.0      4.4      3.3      2.8      2.3      1.8      1.9      1.0

1490 NH CARD USED
*SECNO 12.000
    12.000      8.40   2450.00       .00       .00   2450.69       .69       .80       .03   2444.52
   34000.0    4362.6   29163.8     473.6     754.3    4270.8     318.2     234.8      48.0   2449.17
       .07      5.78      6.83      1.49      .030      .030      .050      .000   2441.60   2745.66
   .001525      510.      500.      490.         2         0         0       .00   1021.86   3767.52

FLOW DISTRIBUTION FOR SECNO=     12.00          CWSEL=   2450.00

STA=    2746.    2825.    2900.    3542.    3768.
  PER Q=      5.6      7.3     85.8      1.4
   AREA=    343.1    411.2   4270.8    318.2
    VEL=      5.5      6.0      6.8      1.5
  DEPTH=      4.3      5.5      6.7      1.4
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 13.000
    13.000       7.64   2450.74        .00        .00   2451.48        .74        .78        .02   2444.70
   34000.0      742.6   32528.3      729.1      165.7    4629.7      284.9      287.5       58.2   2448.90
       .09       4.48      7.03       2.56       .035      .031       .050       .000    2443.10   2757.17
   .002061       440.      440.       440.          2         0          0        .00    1003.76   3760.92

FLOW DISTRIBUTION FOR SECNO=     13.00          CWSEL=   2450.74

STA=    2757.    2808.    3000.    3600.    3621.    3761.
  PER Q=      2.2     13.5     81.5       .7      2.1
   AREA=    165.7    872.8   3678.5     78.5    284.9
    VEL=      4.5      5.2      7.5      3.2      2.6
  DEPTH=      3.3      4.5      6.1      3.7      2.0

1490 NH CARD USED
*SECNO 13.500

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    13.500       6.01   2451.21   2451.21        .00   2452.93       1.72       1.10        .29   2450.20
   34000.0      451.8   33279.9      268.3      130.6    3128.6      147.0      317.7       65.8   2450.20
       .10       3.46     10.64       1.82       .035      .030       .065       .000    2445.20   2826.93
   .007542       310.      310.       310.          2        15          0        .00    1123.19   3950.12

FLOW DISTRIBUTION FOR SECNO=     13.50          CWSEL=   2451.21

STA=    2827.    2980.    3210.    3780.    3950.
  PER Q=      1.3     13.6     84.3       .8
   AREA=    130.6    636.8   2491.8    147.0
    VEL=      3.5      7.3     11.5      1.8
  DEPTH=       .9      2.8      4.4       .9

1490 NH CARD USED
*SECNO 14.000
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.56

14.000	7.17	2453.07	.00	.00	2454.11	1.04	1.10	.07	2448.90
34000.0	2944.2	30419.0	636.8	754.7	3560.7	237.3	339.6	72.1	2452.62
.11	3.90	8.54	2.68	.041	.030	.050	.000	2445.90	2636.90
.003089	240.	240.	240.	2	0	0	.00	1173.83	3884.80

FLOW DISTRIBUTION FOR SECNO= 14.00 CWSEL= 2453.07

STA=	2637.	3000.	3100.	3170.	3700.	3735.	3885.
PER Q=	3.7	5.0	3.8	82.9	2.7	1.9	
AREA=	442.8	311.9	242.4	3132.6	185.7	237.3	
VEL=	2.8	5.5	5.4	9.0	4.9	2.7	
DEPTH=	1.2	3.1	3.4	5.9	5.3	1.6	

1490 NH CARD USED
*SECNO 15.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

15.000	7.58	2454.78	2454.78	.00	2456.66	1.88	2.15	.25	2460.19
34000.0	1454.9	31491.7	1053.4	487.4	2765.2	225.9	388.6	86.5	2447.49
.12	2.99	11.39	4.66	.045	.030	.035	.000	2447.20	2638.05
.005568	540.	530.	535.	3	8	0	.00	1170.75	3933.33

FLOW DISTRIBUTION FOR SECNO= 15.00 CWSEL= 2454.78

```
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

STA=    2638.    2981.    3125.    3300.    3679.    3849.    3933.
  PER Q=      3.3      1.0     10.3     82.3      3.0       .1
   AREA=    359.0    128.4    479.0   2286.2    208.6     17.3
    VEL=      3.1      2.6      7.3     12.2      5.0      1.2
  DEPTH=      1.0       .9      3.5      6.0      1.2       .2

1490 NH CARD USED
*SECNO 16.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43


3470 ENCROACHMENT STATIONS=         .1    3750.0  TYPE=      1  TARGET=     3749.900
    16.000      8.77   2457.67       .00       .00   2458.80      1.13      2.07       .08   2455.50
   34000.0    7014.3   26928.0      57.7    1454.0    2904.6      51.2     437.8      99.7   2457.40
       .14      4.82      9.27      1.13      .035      .030      .100      .000   2448.90   2604.89
   .002741      515.      550.      600.         2         0         0       .00    958.76   3707.22


FLOW DISTRIBUTION FOR SECNO=     16.00          CWSEL=   2457.67

STA=    2605.    2662.    2737.    2800.    2900.    3090.    3204.    3632.    3707.
  PER Q=      3.5      4.5      3.1      5.2      3.7       .6     79.2       .2
   AREA=    218.9    281.1    212.4    348.5    329.7     63.4   2904.6     51.2
    VEL=      5.4      5.5      5.0      5.1      3.8      3.1      9.3      1.1
  DEPTH=      3.8      3.8      3.3      3.5      1.7       .6      6.8       .7

1490 NH CARD USED
*SECNO 17.000

3265 DIVIDED FLOW

    17.000      7.94   2459.54       .00       .00   2461.08      1.55      2.16       .13   2458.20
   34000.0    4397.3   29218.4     384.4     821.8    2763.5     251.4     502.9     114.1   2457.40
       .16      5.35     10.57      1.53      .035      .030      .100      .000   2451.60   2569.90
   .003641      695.      685.      670.         3         0         0       .00    856.00   3614.09
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     17.00          CWSEL=   2459.54

STA=    2570.    2700.    2794.    3073.    3487.    3614.
  PER Q=      6.4      4.4      2.1     85.9      1.1
   AREA=    374.2    271.3    176.3   2763.5    251.4
    VEL=      5.8      5.6      4.0     10.6      1.5
  DEPTH=      2.9      2.9       .6      6.7      2.0

1490 NH CARD USED
*SECNO 18.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    18.000      8.53   2461.90   2461.90       .00   2465.21      3.32      3.39       .53   2468.20
   34000.0     240.9   33759.1        .0      60.8    2302.8        .0     553.2     124.2   2467.41
       .17      3.97     14.66       .00      .035      .030      .000      .000   2453.37   2921.02
   .006600      730.      705.      680.         2         8         0       .00    387.75   3412.04


FLOW DISTRIBUTION FOR SECNO=     18.00          CWSEL=   2461.90

STA=    2921.    2982.    3420.
  PER Q=       .7     99.3
   AREA=     60.7   2302.8
    VEL=      4.0     14.7
  DEPTH=      1.0      7.0

1490 NH CARD USED
*SECNO 19.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     3200.0    3600.0  TYPE=      1  TARGET=      400.000
    19.000     10.01   2465.29       .00       .00   2467.84      2.55      2.55       .08   2470.33
   34000.0        .0   34000.0        .0        .0    2650.9        .0     582.6     128.3   2471.12
       .18       .00     12.83       .00      .000      .030      .000      .000   2455.28   3260.08
   .003923      530.      510.      500.         0         0         0       .00    311.59   3571.67
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     19.00          CWSEL=   2465.29

STA=    3260.    3582.
  PER Q=    100.0
   AREA=   2650.9
    VEL=     12.8
  DEPTH=      8.5

1490 NH CARD USED
*SECNO 20.000
    20.000      9.48   2468.03       .00        .00   2470.15       2.11       2.26        .04   2472.63
   34000.0        .0   34000.0        .0         .0    2913.6         .0      624.1      133.1   2473.96
       .20       .00     11.67       .00       .000      .030       .000       .000    2458.55   3320.55
   .003100      660.      650.      650.          2         0          0        .00     329.23   3649.77

FLOW DISTRIBUTION FOR SECNO=     20.00          CWSEL=   2468.03

STA=    3321.    3658.
  PER Q=    100.0
   AREA=   2913.6
    VEL=     11.7
  DEPTH=      8.8

1490 NH CARD USED
*SECNO 21.000

3265 DIVIDED FLOW

    21.000      9.95   2470.63       .00        .00   2472.87       2.24       2.69        .04   2475.70
   34000.0       1.9   33998.1        .0        2.0    2828.5         .0      678.2      139.4   2475.24
       .22       .94     12.02       .00       .045      .030       .000       .000    2460.68   3182.17
   .003473      820.      820.      815.          2         0          0        .00     339.04   3560.33

FLOW DISTRIBUTION FOR SECNO=     21.00          CWSEL=   2470.63

STA=    3182.    3188.    3567.
  PER Q=        .0    100.0
   AREA=       2.0   2828.5
    VEL=        .9     12.0
  DEPTH=        .3      8.5
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 22.000
    22.000      11.97   2472.29        .00        .00   2474.11       1.83       1.20        .04   2477.45
   34000.0         .0   34000.0         .0         .0    3133.1         .0      706.2      142.6   2476.84
       .23        .00     10.85        .00       .000      .030       .000       .000    2460.32   3373.65
   .002502       410.      410.       405.          2         0          0        .00     334.57   3708.22

FLOW DISTRIBUTION FOR SECNO=     22.00          CWSEL=   2472.29

STA=    3374.    3714.
  PER Q=    100.0
   AREA=   3133.1
    VEL=     10.9
  DEPTH=      9.4

CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 23.000

3470 ENCROACHMENT STATIONS=     3330.0    3695.0  TYPE=      1  TARGET=      365.000
    23.000      10.07   2472.97        .00        .00   2475.07       2.10        .82        .14   2480.00
   34000.0         .0   34000.0         .0         .0    2922.1         .0      726.7      144.8 100000.00
       .23        .00     11.64        .00       .000      .030       .000       .000    2462.90   3363.98
   .003100       295.      295.       295.          2         0          0        .00     330.09   3694.07

1490 NH CARD USED

SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     1.05       1.56       2.60     385.00     320.00      30.00    2291.00       1.00    2463.10    2462.90

*SECNO 25.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.45
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
2478.30	2476.45	1.03	0.	34000.	2291.	3124.	2473.50	2489.20	0.

3470 ENCROACHMENT STATIONS= 3330.0 3695.0 TYPE= 1 TARGET= .000
ELENCL= .00 ELENCR= .00

25.000	12.99	2476.99	.00	.00	2478.30	1.31	3.23	.00	2479.80
34000.0	.0	34000.0	.0	.0	3702.5	.0	742.7	146.4	2479.90
.24	.00	9.18	.00	.000	.030	.000	.000	2464.00	3527.52
.001475	210.	210.	210.	3	0	0	.00	345.64	3873.17

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 26.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS= .1 3650.0 TYPE= 1 TARGET= 3649.900

26.000	12.54	2477.60	.00	.00	2478.78	1.18	.46	.01	2480.24
34000.0	.0	34000.0	.0	.0	3907.0	.0	765.4	148.5	2479.45
.25	.00	8.70	.00	.000	.040	.000	.000	2465.06	3268.39
.002159	260.	260.	260.	1	0	0	.00	342.26	3610.66

1490 NH CARD USED
*SECNO 27.000

27.000	12.95	2478.19	.00	.00	2479.60	1.41	.75	.07	2480.38
34000.0	.0	34000.0	.0	.0	3572.7	.0	799.8	151.6	2481.39
.26	.00	9.52	.00	.000	.030	.000	.000	2465.24	3303.36
.001645	400.	400.	410.	2	0	0	.00	339.64	3643.01

1490 NH CARD USED
*SECNO 28.000

3301 HV CHANGED MORE THAN HVINS

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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=          .1    3625.0  TYPE=      1  TARGET=     3624.900
   28.000     10.33   2479.55       .00        .00   2481.56       2.01       1.78        .18   2484.60
  34000.0        .0   34000.0        .0         .0    2989.8         .0      862.3      158.0   2484.54
      .28       .00     11.37       .00       .000      .030       .000       .000    2469.22   3281.36
 .002917      820.      830.      830.          2         0          0        .00     334.76   3616.12


1490 NH CARD USED
*SECNO 29.000

3470 ENCROACHMENT STATIONS=     3100.0    3878.0  TYPE=      1  TARGET=      778.000
   29.000     10.79   2482.05       .00        .00   2483.84       1.79       2.26        .02   2482.63
  34000.0        .0   34000.0        .0         .0    3163.9         .0      920.9      164.6   2487.40
      .30       .00     10.75       .00       .000      .030       .000       .000    2471.26   3100.79
 .002550      670.      830.      900.          3         0          0        .00     348.57   3449.36


1490 NH CARD USED
*SECNO 30.000
   30.000      9.80   2484.20       .00        .00   2486.45       2.25       2.47        .14   2489.58
  34000.0        .0   34000.0        .0         .0    2823.2         .0      976.6      171.0   2490.20
      .32       .00     12.04       .00       .000      .030       .000       .000    2474.40   3085.77
 .003715      810.      810.      810.          2         0          0        .00     348.54   3434.31


1490 NH CARD USED
*SECNO 31.000
   31.000      9.45   2486.11       .00        .00   2488.35       2.24       1.90        .00   2491.22
  34000.0        .0   34000.0        .0         .0    2833.4         .0     1009.7      175.1   2491.36
      .33       .00     12.00       .00       .000      .030       .000       .000    2476.66   3138.65
 .003732      510.      510.      510.          2         0          0        .00     353.31   3491.96


1490 NH CARD USED
*SECNO 32.000
   32.000      9.22   2488.76       .00        .00   2491.16       2.40       2.76        .05   2493.66
  34000.0        .0   34000.0        .0         .0    2733.7         .0     1054.4      180.8   2493.30
      .35       .00     12.44       .00       .000      .030       .000       .000    2479.54   3141.46
 .004188      690.      700.      700.          2         0          0        .00     352.75   3494.21
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 33.000
    33.000      10.64   2490.93        .00        .00   2493.08       2.15       1.90        .02   2492.60
   34000.0         .0   34000.0         .0         .0    2886.7         .0     1086.7      184.8   2496.09
       .36        .00     11.78        .00       .000      .030       .000       .000    2480.29   3201.84
   .003449       480.      500.       540.          2         0          0        .00     348.43   3550.27

1490 NH CARD USED
*SECNO 34.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .1    3646.4  TYPE=       1  TARGET=      3646.310
    34.000       9.77   2492.35        .00        .00   2494.68       2.34       1.54        .05   2497.55
   34000.0         .1   33999.9         .0         .4    2772.6         .0     1113.6      188.2   2494.00
       .37        .14     12.26        .00       .100      .030       .000       .000    2482.58   2107.29
   .004028       370.      415.       460.          2         0          0        .00     359.45   3644.22

1490 NH CARD USED
*SECNO 35.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     3080.0    3475.0  TYPE=       1  TARGET=       395.000
    35.000       9.57   2495.27        .00        .00   2496.51       1.25       1.72        .11   2499.41
   28000.0         .0   28000.0         .0         .0    3122.2         .0     1154.9      193.3   2496.14
       .39        .00      8.97        .00       .000      .030       .000       .000    2485.70   3096.60
   .001970       580.      610.       640.          2         0          0        .00     372.94   3469.54

1490 NH CARD USED
*SECNO 36.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    36.000       7.44   2496.49   2496.49        .00   2499.44       2.95       1.73        .51   2501.76
   28000.0         .0   28000.0         .0         .0    2031.3         .0     1184.5      197.5   2500.16
       .40        .00     13.78        .00       .000      .030       .000       .000    2489.05   3117.04
   .007568       525.      500.       470.         20        19          0        .00     350.99   3468.03
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 36.500
    36.500      6.59   2498.49        .00        .00   2501.08       2.58       1.60        .04   2502.20
   28000.0        .0   28000.0         .0         .0    2171.2         .0     1196.1      199.4   2502.20
       .40       .00     12.90        .00       .000      .030       .000       .000    2491.90   3123.70
   .005896      240.      240.       240.          2         0          0        .00     342.59   3466.30

1490 NH CARD USED
*SECNO 38.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     2750.0    4248.6  TYPE=      1  TARGET=     1498.600
    38.000      8.96   2501.91        .00        .00   2503.97       2.06       2.84        .05   2506.85
   28000.0        .0   28000.0         .0         .0    2432.7         .0     1226.7      204.0   2504.64
       .42       .00     11.51        .00       .000      .030       .000       .000    2492.95   3126.86
   .004135      600.      580.       550.          2         0          0        .00     349.50   3476.36

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 38.500
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    38.500      9.10   2502.20        .00        .00   2504.22       2.02        .24        .01   2514.70
   28000.0        .0   28000.0         .0         .0    2453.0         .0     1230.1      204.5   2516.60
       .42       .00     11.41        .00       .000      .030       .000       .000    2493.10   3123.12
   .003972       40.       60.        80.          1         0          0        .00     345.27   3468.39

1490 NH CARD USED

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.60    420.00    330.00     30.00   5048.00      1.00   2494.40   2493.20

*SECNO 39.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=    2502.32 BRIDGE VELOCITY=      10.65     CALCULATED CHANNEL AREA=      2440.
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2505.28	1.03	0.	28000.	5048.	4990.	2510.20	2516.20	0.

39.500	8.82	2503.22	.00	.00	2505.28	2.06	1.06	.00	2513.80
28000.0	.0	28000.0	.0	.0	2431.3	.0	1236.8	205.4	2517.01
.42	.00	11.52	.00	.000	.030	.000	.000	2494.40	3110.64
.004078	120.	120.	120.	0	0	0	.00	344.30	3454.94

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 40.000

3470 ENCROACHMENT STATIONS= 3100.0 3458.0 TYPE= 1 TARGET= 358.000

40.000	9.18	2503.81	.00	.00	2505.64	1.83	.33	.02	2507.60
28000.0	.0	28000.0	.0	.0	2578.3	.0	1242.0	206.2	2505.90
.42	.00	10.86	.00	.000	.030	.000	.000	2494.63	3106.06
.003410	110.	90.	60.	2	0	0	.00	349.29	3455.36

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 41.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= .1 3600.0 TYPE= 1 TARGET= 3599.900

41.000	7.53	2504.60	.00	.00	2506.95	2.35	1.15	.15	2509.77
28000.0	.0	28000.0	.0	.0	2277.3	.0	1257.6	208.4	2507.87
.43	.00	12.30	.00	.000	.030	.000	.000	2497.07	3050.91
.005080	280.	280.	280.	2	0	0	.00	346.14	3397.06

1490 NH CARD USED
*SECNO 42.000

3265 DIVIDED FLOW

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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=          .0    3900.0  TYPE=      1  TARGET=     3899.990
   42.000      7.77   2506.65       .00       .00   2509.02      2.37       2.06        .01   2510.10
  28000.0     445.8   27525.2      29.0     226.1    2207.3      15.5     1280.4      212.1   2505.17
     .44      1.97     12.47      1.88      .100      .030      .050       .000    2498.88   2612.71
 .004746      420.      420.      420.         2         0         0        .00     429.78   3900.00


1490 NH CARD USED
*SECNO 43.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    3900.0  TYPE=      1  TARGET=     3899.900
   43.000      7.59   2508.55   2508.55       .00   2511.48      2.94       1.92        .17   2509.33
  28000.0    1073.7   26760.4     165.9     158.0    1911.9      70.8     1298.8      215.5   2510.20
     .45      6.79     14.00      2.34      .037      .030      .060       .000    2500.96   2392.72
 .006405      350.      350.      350.         3         8         0        .00     400.07   3604.25


1490 NH CARD USED
*SECNO 44.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .0    4100.0  TYPE=      1  TARGET=     4099.990
   44.000     11.10   2512.68   2512.68       .00   2514.57      1.89       1.82        .10   2512.25
  28000.0    1110.8   22236.2   4653.0     442.4    1803.8    2056.8     1329.8      224.1   2512.60
     .46      2.51     12.33      2.26      .050      .030      .070       .000    2501.58   2527.35
 .003126      430.      420.      415.        20        11         0        .00    1385.54   4099.99
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 45.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        .1    4550.0  TYPE=      1  TARGET=     4549.900
   45.000     10.88   2514.58   2514.50       .00   2516.02      1.45      1.41       .04   2512.38
  28000.0     617.0   21388.0    5994.9     329.2    1946.6    2929.4    1383.8     243.9   2514.30
      .47      1.87     10.99      2.05      .045      .030      .064      .000   2503.70   2368.30
 .002646      495.      490.      498.         6         8         0       .00   2098.90   4550.00


1490 NH CARD USED
*SECNO 46.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69


3470 ENCROACHMENT STATIONS=        .1    4200.0  TYPE=      1  TARGET=     4199.900
   46.000      8.53   2515.38   2514.87       .00   2518.34      2.96      1.86       .45   2517.16
  28000.0        .3   27851.9     147.7       1.1    2011.1     164.7    1426.7     260.0   2517.90
      .48       .29     13.85       .90      .045      .030      .092      .000   2506.85   2353.42
 .005593      500.      500.      515.         4        12         0       .00    654.21   3761.18


1490 NH CARD USED
*SECNO 47.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=        .1    3000.0  TYPE=      1  TARGET=     2999.900
   47.000      8.68   2518.68       .00       .00   2520.70      2.02      2.26       .09   2517.74
  28000.0     255.3   27744.7        .0     152.4    2420.5        .0    1455.1     266.6   2520.97
      .50      1.67     11.46       .00      .060      .030      .000      .000   2510.00   2424.76
 .003483      520.      520.      530.         3         0         0       .00    437.14   2861.89
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 48.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    4000.0  TYPE=      1  TARGET=     3999.900
    48.000     10.18   2522.47   2522.47       .00   2524.06      1.59       1.65       .04   2520.30
   28000.0     425.9   19338.3    8235.8     261.6    1604.0    3196.4     1499.7     278.9   2514.42
       .51      1.63     12.06      2.58      .060      .030      .062       .000   2512.29   2316.81
   .003029      500.      510.      510.        20         8         0        .00   1663.32   4000.00

1490 NH CARD USED
*SECNO 48.250
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54

3470 ENCROACHMENT STATIONS=          .1    4700.0  TYPE=      1  TARGET=     4699.900
    48.250     10.94   2524.24       .00       .00   2524.68       .44        .51       .11   2520.20
   28000.0     624.2   16165.0   11210.7     395.4    2347.3    6499.5     1544.4     291.3   2521.60
       .53      1.58      6.89      1.72      .060      .034      .072       .000   2513.30   2363.31
   .001269      280.      275.      270.         3         0         0        .00   2336.68   4700.00

1490 NH CARD USED
*SECNO 48.500

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .1    4700.0  TYPE=      1  TARGET=     4699.900
    48.500     10.22   2524.42       .00       .00   2524.99       .57        .27       .04   2522.70
   28000.0     512.6   19262.7    8224.7     451.3    2655.7    5677.6     1591.9     304.0   2519.42
       .54      1.14      7.25      1.45      .060      .030      .074       .000   2514.20   2150.87
   .001105      230.      230.      230.         2         0         0        .00   2471.62   4699.99
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 49.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

49.000	9.12	2525.80	2525.80	.00	2526.90	1.10	1.04	.16	2524.11
28000.0	2063.2	17598.2	8338.7	641.6	1691.8	3376.4	1691.8	338.5	2525.09
.56	3.22	10.40	2.47	.036	.030	.055	.000	2516.68	2104.46
.003110	600.	600.	600.	20	9	0	.00	2539.29	4765.49

1490 NH CARD USED
*SECNO 50.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

50.000	8.99	2528.99	2528.99	.00	2530.17	1.18	1.80	.02	2525.62
28000.0	2891.7	18556.2	6552.1	919.2	1752.1	4173.5	1778.4	374.0	2530.30
.58	3.15	10.59	1.57	.035	.030	.100	.000	2520.00	2049.31
.002896	610.	600.	600.	20	6	0	.00	2590.85	4758.66

1490 NH CARD USED
*SECNO 51.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

51.000	8.91	2531.01	2531.01	.00	2532.29	1.28	1.49	.03	2528.98
28000.0	2162.2	20328.8	5508.9	770.4	1917.8	3425.9	1855.1	403.8	2530.00
.60	2.81	10.60	1.61	.038	.030	.093	.000	2522.10	2227.87
.002932	510.	510.	520.	3	6	0	.00	2430.52	4712.66

```
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 52.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    52.000       9.37    2533.04    2533.04        .00    2534.26       1.23       1.51        .01    2531.50
   28000.0     1268.7    19519.1     7212.2      632.9     1847.8     3803.8     1927.1      434.2    2533.54
       .62       2.00      10.56       1.90       .050       .029       .076       .000    2523.67    2102.25
   .003066       500.       500.       510.          3          8          0        .00    2807.98    4922.70


1490 NH CARD USED
*SECNO 53.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .1    4600.0  TYPE=       1  TARGET=     4599.900
    53.000       8.00    2534.77        .00        .00    2535.73        .96       1.45        .03    2534.91
   28000.0        3.2    21786.1     6210.7        5.2     2458.4     2954.6     1992.0      460.3    2534.83
       .64        .61       8.86       2.10       .045       .030       .066       .000    2526.77    2575.85
   .002808       500.       500.       470.          2          0          0        .00    1936.99    4555.84


1490 NH CARD USED
*SECNO 54.000

3470 ENCROACHMENT STATIONS=     2450.0    4500.0  TYPE=       1  TARGET=     2050.000
    54.000       7.96    2536.37    2536.21        .00    2537.76       1.40       1.90        .13    2533.50
   28000.0     4929.9    19433.8     3636.4      982.2     1754.1     2163.9     2051.7      480.7    2535.18
       .66       5.02      11.08       1.68       .045       .030       .100       .000    2528.41    2601.09
   .004548       550.       560.       450.          4          8          0        .00    1752.15    4353.24


1490 NH CARD USED
*SECNO 55.000

3265 DIVIDED FLOW
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     2600.0    4200.0  TYPE=      1  TARGET=     1600.000
   55.000      6.84   2538.83       .00       .00   2539.56       .74      1.74       .07   2538.40
  28000.0    1967.3   23131.7    2901.0     483.1    3134.0     816.5    2107.7     500.2   2537.97
      .68      4.07      7.38      3.55      .045      .029      .035      .000   2531.99   2651.21
 .002694      440.      500.      600.         2         0         0       .00   1417.21   4137.59


1490 NH CARD USED
*SECNO 56.000

3265 DIVIDED FLOW

   56.000      6.11   2540.40       .00       .00   2541.08       .68      1.51       .01   2536.55
  28000.0    2600.4   19075.8    6323.8     657.5    2523.4    1674.6    2158.5     519.0   2538.99
      .70      3.96      7.56      3.78      .045      .031      .045      .000   2534.29   2199.43
 .003952      450.      450.      550.         2         0         0       .00   1926.30   4488.06


1490 NH CARD USED
*SECNO 57.000

3265 DIVIDED FLOW

   57.000      5.80   2542.48       .00       .00   2543.49      1.01      2.31       .10   2538.10
  28000.0    4141.7   19955.1    3903.1     844.5    2192.8     975.6    2212.3     541.6   2542.66
      .72      4.90      9.10      4.00      .035      .029      .045      .000   2536.68   2319.01
 .004930      530.      520.      540.         2         0         0       .00   1796.54   4274.10


1490 NH CARD USED
*SECNO 58.000
   58.000      5.86   2544.93       .00       .00   2545.82       .89      2.32       .01   2544.65
  28000.0    1336.5   23691.8    2971.7     537.8    2893.7    1578.7    2265.8     562.8   2543.37
      .73      2.49      8.19      1.88      .048      .030      .100      .000   2539.07   2515.58
 .004262      480.      500.      570.         2         0         0       .00   1779.07   4294.65


1490 NH CARD USED
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 59.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=        .1    4000.0  TYPE=      1  TARGET=     3999.900
    59.000       7.01   2548.61   2548.61        .00   2549.88       1.27       2.19        .11   2550.20
   28000.0     7724.5   18287.2    1988.3     1926.3    1685.1      769.3     2322.6      584.3   2549.52
       .75       4.01     10.85      2.58       .048      .029       .045       .000    2541.60   2143.86
   .004117      520.      520.      550.         20         8          0        .00    1736.59   3923.94


1490 NH CARD USED
*SECNO 60.000

3265 DIVIDED FLOW

    60.000       7.09   2551.26       .00        .00   2552.59       1.33       2.69        .02   2549.57
   28000.0     2648.1   18664.9    6687.1      743.1    1692.8     1762.1     2386.6      608.0   2550.58
       .77       3.56     11.03      3.80       .045      .030       .048       .000    2544.17   2309.09
   .004147      650.      650.      650.          2         0          0        .00    1451.45   3853.20


1490 NH CARD USED
*SECNO 61.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        .1    4000.0  TYPE=      1  TARGET=     3999.900
    61.000       8.11   2553.96       .00        .00   2554.84        .88       2.21        .04   2559.44
   28000.0       52.1   24183.9    3764.0       39.0    3003.8     1633.4     2449.1      629.3   2552.09
       .80       1.33      8.05      2.30       .059      .031       .050       .000    2545.85   2261.33
   .003077      610.      630.      590.          2         0          0        .00    1614.06   3995.75


1490 NH CARD USED
*SECNO 62.000
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=        .1    3900.0  TYPE=      1  TARGET=     3899.900
   62.000      7.11   2555.57   2555.57       .00   2556.95      1.38      1.89       .15   2554.10
  28000.0    2640.8   21463.7    3895.5     810.7    2020.0    1238.6    2499.6     647.6   2555.28
      .81      3.26     10.63      3.15      .050      .030      .045      .000   2548.46   2147.69
 .004599      540.      510.      480.         2        15         0       .00   1590.44   3900.00


1490 NH CARD USED
*SECNO 63.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=        .1    3320.0  TYPE=      1  TARGET=     3319.900
   63.000      7.29   2557.96   2557.96       .00   2559.58      1.61      2.46       .07   2555.50
  28000.0    5717.1   18195.3    4087.7    1456.8    1477.5    1059.5    2545.3     664.2   2556.20
      .83      3.92     12.32      3.86      .055      .030      .064      .000   2550.67   1959.04
 .005342      500.      500.      480.         2         5         0       .00   1353.48   3320.00


1490 NH CARD USED
*SECNO 64.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   64.000      7.76   2560.56   2560.56       .00   2562.40      1.84      2.59       .07   2559.66
  28000.0    1847.8   23564.2    2588.1     634.0    1998.7     838.7    2589.9     679.9   2557.75
      .84      2.91     11.79      3.09      .059      .031      .053      .000   2552.80   2161.55
 .004754      500.      510.      560.         2         8         0       .00   1255.11   3450.65
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 64.500

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=          .1    3230.0  TYPE=       1  TARGET=     3229.900
   64.500      8.65    2562.65       .00        .00    2563.42       .77        .92        .11    2559.70
  23000.0    1374.0    19406.6    2219.4      662.6     2551.7     979.3     2617.3      688.6    2559.03
      .85      2.07       7.61      2.27       .055       .030      .055       .000    2554.00    2079.48
 .001862      320.       310.      310.          3          0         0        .00    1150.51    3230.00


1490 NH CARD USED
*SECNO 65.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

   65.000      8.44    2563.05       .00        .00    2563.78       .73        .36        .00    2559.75
  23000.0    1396.4    16362.3    5241.4      620.9     2055.8    1878.7     2636.5      693.7    2558.68
      .86      2.25       7.96      2.79       .060       .030      .055       .000    2554.61    2061.98
 .001922      200.       190.      190.          2          0         0        .00    1177.95    3736.56


1490 NH CARD USED
*SECNO 66.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   66.000      8.47    2564.99    2564.99        .00    2566.65      1.66       1.29        .28    2562.62
  23000.0     551.1    17413.3    5035.6      327.2     1487.2    1372.8     2679.1      706.2    2562.36
      .88      1.68      11.71      3.67       .100       .030      .045       .000    2556.52    2307.83
 .003856      500.       500.      450.         20          5         0        .00    1144.97    3456.51
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 66.500

3301 HV CHANGED MORE THAN HVINS

    66.500      8.68   2566.96        .00        .00   2567.60        .64        .85        .10   2563.70
   23000.0     511.1   11448.0    11040.9      284.2     1388.0     2875.3     2705.9      714.7   2562.24
       .89      1.80      8.25       3.84       .060       .030       .043       .000    2558.28   2346.74
   .002106      350.      310.       290.          3          0          0        .00    1313.42   3660.16

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 67.000

3470 ENCROACHMENT STATIONS=          .1    3935.0  TYPE=      1  TARGET=     3934.900
    67.000      7.71   2567.56        .00        .00   2568.01        .45        .35        .06   2563.14
   23000.0    1067.6   10916.5    11016.0      768.6     1619.8     2853.2     2728.6      721.3   2563.86
       .90      1.39      6.74       3.86       .094       .030       .035       .000    2559.85   2207.61
   .001512      190.      190.       210.          1          0          0        .00    1526.06   3733.67

1490 NH CARD USED
*SECNO 68.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53

3470 ENCROACHMENT STATIONS=          .1    3875.0  TYPE=      1  TARGET=     3874.900
    68.000      6.47   2568.85        .00        .00   2570.03       1.18       1.66        .37   2566.20
   23000.0     926.6   12767.8     9305.6      276.0     1207.4     1596.4     2790.2      740.9   2566.75
       .92      3.36     10.57       5.83       .055       .030       .035       .000    2562.38   2432.78
   .005302      640.      640.       650.          2          0          0        .00    1116.61   3555.44

1490 NH CARD USED
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 69.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .1    3685.0  TYPE=      1  TARGET=     3684.900
    69.000      6.88   2571.46       .00        .00   2572.33       .86       2.19        .10   2567.95
   23000.0     326.0   10256.8   12417.2      203.9    1010.8    2963.4     2831.4      754.8   2568.80
       .94      1.60     10.15      4.19       .098      .030      .048       .000    2564.58   2133.99
   .003835      520.      478.      500.          3         0         0        .00    1311.78   3685.00

1490 NH CARD USED
*SECNO 70.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=          .1    3475.0  TYPE=      1  TARGET=     3474.900
    70.000      7.93   2574.03       .00        .00   2574.36       .32       1.87        .16   2569.39
   23000.0    3661.1    5787.2   13551.7      643.2    1304.7    3181.8     2885.2      769.8   2569.46
       .97      5.69      4.44      4.26       .035      .072      .051       .000    2566.10   2196.41
   .003582      510.      510.      500.          2         0         0        .00    1278.59   3475.00

1490 NH CARD USED
*SECNO 71.000

3470 ENCROACHMENT STATIONS=     2285.0    3615.0  TYPE=      1  TARGET=     1330.000
    71.000      7.77   2575.43       .00        .00   2575.94       .51       1.49        .09   2571.98
   23000.0    4344.8   10812.3    7842.8     1377.9    1433.3    2266.2     2940.0      783.8   2572.00
      1.00      3.15      7.54      3.46       .060      .037      .050       .000    2567.66   2285.00
   .002841      500.      480.      450.          2         0         0        .00    1330.00   3615.00

1490 NH CARD USED
*SECNO 72.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 2535.0 3645.0 TYPE= 1 TARGET= 1110.000

72.000	7.61	2577.18	2577.18	.00	2578.88	1.70	1.93	.60	2573.96
23000.0	3172.2	13827.2	6000.7	1047.9	1044.8	1778.1	2987.0	796.6	2574.34
1.01	3.03	13.23	3.37	.082	.032	.078	.000	2569.57	2535.00
.006917	450.	460.	460.	2	5	0	.00	1110.00	3645.00

1490 NH CARD USED
*SECNO 72.500

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.16

3470 ENCROACHMENT STATIONS= 2552.0 3647.0 TYPE= 1 TARGET= 1095.000

72.500	9.21	2578.94	.00	.00	2579.44	.49	.19	.36	2573.46
23000.0	5565.5	10258.1	7176.4	1728.9	1332.3	2345.1	2994.5	798.3	2574.00
1.02	3.22	7.70	3.06	.050	.030	.050	.000	2569.73	2552.00
.001483	70.	70.	70.	4	0	0	.00	1083.74	3635.74

FLOW DISTRIBUTION FOR SECNO= 72.50 CWSEL= 2578.94

STA=	2552.	2620.	2702.	2755.	2842.	2930.	3093.	3320.	3408.	3536.	3632.	3636.
PER Q=	3.6	5.2	3.4	5.7	6.3	44.6	14.9	5.4	6.9	4.0		.1
AREA=	260.8	378.5	247.3	406.4	435.8	1332.3	1065.4	395.7	535.9	342.4		5.6
VEL=	3.2	3.2	3.2	3.2	3.3	7.7	3.2	3.1	3.0	2.7		2.9
DEPTH=	3.8	4.6	4.7	4.7	5.0	8.1	4.7	4.5	4.2	3.6		1.7

1490 NH CARD USED

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.25	1.56	2.60	.00	1080.00	80.00	6922.00	1.00	2570.27	2569.73

*SECNO 73.500
BTCARD, BRIDGE STENCL= 2502.50 STENCR= 3597.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .66

CLASS A LOW FLOW

3420 BRIDGE W.S.= 2579.20 BRIDGE VELOCITY= 2.48 CALCULATED CHANNEL AREA= 9007.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2580.10	.11	0.	23000.	6922.	12687.	2582.80	2588.80	0.

3470 ENCROACHMENT STATIONS= 2502.5 3597.5 TYPE= 1 TARGET= 1095.000

73.500	8.95	2579.05	.00	.00	2580.10	1.05	.67	.00	2575.02
23000.0	3523.6	13497.9	5978.6	1510.4	1278.4	2523.9	3008.0	801.1	2573.14
1.02	2.33	10.56	2.37	.100	.030	.100	.000	2570.10	2502.50
.003385	110.	110.	110.	0	0	0	.00	1080.99	3583.49

FLOW DISTRIBUTION FOR SECNO= 73.50 CWSEL= 2579.05

STA=	2503.	2569.	2674.	2827.	2840.	3021.	3124.	3262.	3369.	3487.	3558.	3583.
PER Q=	3.3	5.0	6.5	.6	58.7	4.9	7.0	4.8	5.5	3.2	.7	
AREA=	322.1	478.7	653.9	55.6	1278.4	469.4	654.5	475.4	536.6	312.4	75.6	
VEL=	2.4	2.4	2.3	2.3	10.6	2.4	2.4	2.3	2.4	2.3	2.0	
DEPTH=	4.8	4.6	4.3	4.3	7.0	4.6	4.8	4.4	4.5	4.5	2.9	

1490 NH CARD USED
*SECNO 74.000
3280 CROSS SECTION 74.00 EXTENDED .54 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     2320.0    3650.0  TYPE=      1  TARGET=     1330.000
   74.000      9.68   2580.15       .00       .00   2580.53       .38       .23       .20   2573.89
  23000.0    6352.5    8043.8    8603.7    2298.9    1075.2    3113.6    3023.8     804.3   2574.03
     1.03      2.76      7.48      2.76      .050      .030      .052      .000   2570.47   2320.00
 .001230      115.      125.      115.         3         0         0       .00   1330.00   3650.00


1490 NH CARD USED
*SECNO 75.000
3280 CROSS SECTION     75.00 EXTENDED       .02 FEET


3470 ENCROACHMENT STATIONS=     2120.0    4020.0  TYPE=      1  TARGET=     1900.000
   75.000      8.20   2580.73       .00       .00   2581.02       .29       .46       .03   2578.48
  23000.0    8388.6    8790.3    5821.1    2910.4    1441.2    2772.1    3084.4     818.8   2577.50
     1.05      2.88      6.10      2.10      .050      .030      .048      .000   2572.53   2120.00
 .001184      380.      350.      410.         2         0         0       .00   1900.00   4020.00


1490 NH CARD USED
*SECNO 76.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     2070.0    4710.0  TYPE=      1  TARGET=     2640.000
   76.000      7.35   2581.50       .00       .00   2581.89       .39       .82       .05   2579.66
  23000.0    8498.8    6428.6    8072.6    2610.8     779.2    3230.3    3166.2     845.3   2575.69
     1.09      3.26      8.25      2.50      .050      .030      .055      .000   2574.15   2070.00
 .002287      500.      481.      550.         2         0         0       .00   2461.92   4607.54


1490 NH CARD USED
*SECNO 77.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .1    5050.0  TYPE=      1  TARGET=     5049.900
   77.000      6.58   2582.76       .00       .00   2583.21       .44      1.29       .03   2582.90
  23000.0    7212.9    6683.2    9103.8    2184.4     770.6    3166.1    3233.7     870.3   2580.36
     1.11      3.30      8.67      2.88      .055      .030      .053      .000   2576.18   2019.29
 .003355      670.      443.      310.         2         0         0       .00   2543.03   4577.79
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 78.000

3470 ENCROACHMENT STATIONS=          .1    5170.0  TYPE=      1  TARGET=     5169.900
   78.000      6.48   2585.08        .00        .00   2585.65        .57       2.41        .04   2582.49
  23000.0    4443.0   10909.5     7647.6     1650.1    1322.5     2409.1     3319.4      909.4   2583.92
     1.15      2.69       8.25       3.17       .062       .034       .049       .000    2578.60   2155.94
 .004142      620.       644.       670.          2          0          0        .00    2674.27   4830.21


1490 NH CARD USED
*SECNO 79.000
   79.000      6.58   2587.07        .00        .00   2587.64        .57       1.98        .00   2581.66
  23000.0   11893.1    7470.4     3636.5     4015.3     756.2     1851.8     3388.3      939.8   2585.12
     1.17      2.96       9.88       1.96       .066       .030       .071       .000    2580.49   2145.63
 .003806      500.       500.       500.          2          0          0        .00    2627.67   4773.31


1490 NH CARD USED
*SECNO 80.000

3265 DIVIDED FLOW

   80.000      6.98   2589.01        .00        .00   2589.38        .37       1.73        .02   2587.40
  23000.0   11297.9    8693.7     3008.4     2523.3    1431.3     2069.6     3464.3      972.7   2586.40
     1.21      4.48       6.07       1.45       .031       .034       .087       .000    2582.03   2014.77
 .002927      500.       531.       560.          2          0          0        .00    2781.48   4853.80


1490 NH CARD USED
*SECNO 81.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   81.000      7.84   2591.62   2591.62        .00   2592.59        .97       1.68        .18   2590.16
  23000.0    5169.8   11421.4    6408.8     1471.1    1059.5     2361.7     3531.5     1005.5   2588.40
     1.23      3.51      10.78       2.71       .037       .030       .050       .000    2583.78   2167.86
 .003439      530.       520.       550.         20         11          0        .00    2516.50   4951.85
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 82.000
    82.000       6.65   2593.85        .00        .00   2594.51        .67       1.90        .03   2590.20
   23000.0     4971.6    7264.5    10763.8     1390.5     683.8     3461.2     3592.2     1032.6   2590.50
      1.25       3.58     10.62       3.11       .050      .030       .060       .000    2587.20   2254.55
   .004058       520.      510.       500.          2         0          0        .00    2144.70   4399.25

1490 NH CARD USED
*SECNO 83.000

3265 DIVIDED FLOW

    83.000       8.12   2595.62        .00        .00   2596.59        .97       1.98        .09   2593.74
   23000.0     3286.0   13173.5     6540.5     1109.3    1294.9     2588.1     3651.2     1057.3   2593.20
      1.27       2.96     10.17       2.53       .050      .029       .065       .000    2587.50   2207.99
   .003993       500.      500.       480.          2         0          0        .00    2268.32   4552.44

1490 NH CARD USED
*SECNO 84.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    84.000       7.98   2598.76   2598.76        .00   2599.71        .95       1.95        .00   2596.30
   23000.0     5939.8   11537.9    5522.3     1390.5    1094.8     3300.4     3717.9     1087.7   2596.40
      1.29       4.27     10.54       1.67       .038      .030       .081       .000    2590.78   2226.46
   .003356       520.      530.       550.         20         6          0        .00    2624.29   4850.75

1490 NH CARD USED
*SECNO 85.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    85.000       8.57   2601.07   2601.07        .00   2602.25       1.17       1.70        .07   2599.81
   23000.0      820.6   15127.3    7052.1      285.4    1423.4     4118.5     3786.2     1119.1   2599.06
      1.31       2.88     10.63       1.71       .035      .028       .085       .000    2592.50   2242.16
   .003384       500.      500.       520.          4         8          0        .00    2689.62   4931.78

1490 NH CARD USED
*SECNO 86.000
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

86.000	8.05	2603.15	.00	.00	2603.79	.64	1.50	.05	2600.43
23000.0	1747.6	10634.8	10617.6	464.6	1166.4	5315.6	3856.5	1147.8	2601.05
1.34	3.76	9.12	2.00	.035	.030	.080	.000	2595.10	2210.03
.002767	530.	500.	470.	3	0	0	.00	2536.97	4806.85

1490 NH CARD USED
*SECNO 87.000

87.000	6.87	2604.57	.00	.00	2605.62	1.05	1.70	.12	2601.00
23000.0	2428.8	13417.0	7154.3	501.0	1283.0	3810.5	3931.3	1177.5	2604.46
1.36	4.85	10.46	1.88	.045	.030	.080	.000	2597.70	2482.06
.003959	510.	520.	520.	2	0	0	.00	2451.92	4933.97

1490 NH CARD USED
*SECNO 88.000

3265 DIVIDED FLOW

88.000	7.36	2606.73	.00	.00	2607.55	.82	1.91	.02	2605.50
23000.0	56.4	15598.9	7344.6	43.9	1781.2	4524.3	4017.4	1213.5	2607.60
1.38	1.28	8.76	1.62	.050	.030	.080	.000	2599.37	2364.72
.002514	600.	600.	640.	2	0	0	.00	2487.12	4858.00

1490 NH CARD USED
*SECNO 89.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

89.000	7.00	2609.10	2609.10	.00	2609.99	.89	2.13	.02	2607.33
23000.0	965.5	12313.1	9721.4	210.6	1232.4	3831.5	4090.1	1241.9	2610.61
1.41	4.58	9.99	2.54	.030	.030	.060	.000	2602.10	2444.81
.004091	870.	810.	440.	2	10	0	.00	2550.03	5080.46

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 90.000

3265 DIVIDED FLOW

    90.000       7.47    2611.35        .00        .00    2611.88        .53       1.86        .04    2609.72
   23000.0     5421.6     8059.7     9518.7     1160.9      919.7     3988.3     4159.1     1272.3    2612.70
      1.44       4.67       8.76       2.39       .036       .030       .072       .000    2603.88    2625.27
   .003137       500.       510.       540.          2          0          0        .00    2410.78    5188.85

1490 NH CARD USED
*SECNO 91.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    91.000       6.79    2613.59    2613.59        .00    2614.79       1.20       1.93        .20    2612.60
   23000.0     6296.9    12924.3     3778.8     1315.1     1155.7     1849.2     4219.7     1299.1    2613.27
      1.46       4.79      11.18       2.04       .041       .030       .080       .000    2606.80    2452.31
   .004808       490.       500.       520.         20         15          0        .00    2170.34    4645.87

1490 NH CARD USED
*SECNO 92.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .1    4300.0  TYPE=       1  TARGET=     4299.900
    92.000       7.96    2615.91        .00        .00    2616.79        .88       1.96        .03    2614.99
   23000.0     4011.7    13209.1     5779.2     1194.8     1412.3     1374.6     4273.7     1323.0    2613.62
      1.48       3.36       9.35       4.20       .050       .030       .038       .000    2607.95    2653.53
   .002683       540.       550.       600.          2          0          0        .00    1443.11    4300.00

1490 NH CARD USED
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 93.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

93.000	6.96	2617.88	2617.88	.00	2619.29	1.40	1.91	.16	2616.41
23000.0	4392.1	12507.9	6100.0	757.0	1042.3	1313.3	4314.6	1338.9	2615.79
1.49	5.80	12.00	4.64	.035	.030	.052	.000	2610.92	2858.75
.005844	480.	500.	520.	3	15	0	.00	1295.42	4728.17

1490 NH CARD USED
*SECNO 94.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

94.000	8.44	2621.44	2621.44	.00	2622.78	1.33	2.34	.01	2617.74
23000.0	4554.4	14437.6	4008.0	935.8	1275.6	2010.3	4357.8	1358.7	2620.44
1.51	4.87	11.32	1.99	.038	.030	.077	.000	2613.00	2658.77
.003733	500.	500.	530.	3	11	0	.00	2022.35	4960.84

1490 NH CARD USED
*SECNO 95.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

95.000	8.29	2623.39	2623.39	.00	2625.09	1.71	1.90	.11	2619.60
23000.0	680.6	19006.0	3313.3	387.2	1655.1	1450.0	4400.0	1378.0	2623.09
1.53	1.76	11.48	2.29	.095	.029	.079	.000	2615.10	2672.11
.004240	460.	480.	480.	7	8	0	.00	1523.61	4398.59

1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 97.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= .1 4250.0 TYPE= 1 TARGET= 4249.900

97.000	8.63	2627.43	.00	.00	2628.29	.86	3.12	.08	2625.79
23000.0	118.4	15490.4	7391.2	101.8	1741.0	2964.7	4500.2	1418.4	2623.80
1.57	1.16	8.90	2.49	.060	.030	.063	.000	2618.80	2407.94
.002255	1010.	1020.	1080.	2	0	0	.00	1792.66	4250.00

1490 NH CARD USED
*SECNO 98.000

3265 DIVIDED FLOW

98.000	6.92	2628.64	.00	.00	2629.64	1.00	1.31	.04	2624.86
23000.0	1067.2	13089.5	8843.3	329.1	1343.0	1748.0	4544.8	1434.6	2625.50
1.58	3.24	9.75	5.06	.050	.030	.041	.000	2621.72	2260.46
.003314	520.	500.	450.	3	0	0	.00	1242.57	4127.54

1490 NH CARD USED
*SECNO 99.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

99.000	8.53	2631.80	2631.80	.00	2633.18	1.38	1.87	.11	2628.14
23000.0	1531.3	12677.3	8791.4	450.0	1025.8	2818.6	4589.2	1452.8	2628.89
1.60	3.40	12.36	3.12	.060	.030	.057	.000	2623.27	2234.44
.004263	510.	500.	500.	20	11	0	.00	1929.09	4164.48

1490 NH CARD USED
*SECNO 100.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

100.000	8.56	2634.18	2634.18	.00	2635.72	1.54	2.39	.05	2634.25
23000.0	.0	14371.9	8628.1	.0	1170.6	2313.6	4634.3	1472.6	2633.20
1.62	.00	12.28	3.73	.000	.030	.056	.000	2625.62	2513.23
.005117	500.	520.	500.	2	5	0	.00	1504.10	4233.76

1490 NH CARD USED
*SECNO 101.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

101.000	9.45	2637.15	2637.15	.00	2638.44	1.29	2.40	.03	2634.90
23000.0	274.4	11715.3	11010.4	147.3	944.4	3480.8	4681.1	1491.0	2632.83
1.64	1.86	12.40	3.16	.063	.030	.064	.000	2627.70	2269.80
.004320	520.	520.	500.	2	8	0	.00	1690.41	4098.15

1490 NH CARD USED
*SECNO 102.000

3265 DIVIDED FLOW

102.000	8.27	2639.37	.00	.00	2640.60	1.23	2.15	.01	2634.50
23000.0	2028.2	10960.1	10011.7	872.0	872.0	3516.5	4737.5	1511.5	2635.58
1.65	2.33	12.57	2.85	.070	.030	.072	.000	2631.10	1882.16
.004298	500.	500.	500.	2	0	0	.00	1886.56	3869.17

1490 NH CARD USED
*SECNO 102.500

3265 DIVIDED FLOW

102.500	8.15	2640.85	.00	.00	2641.62	.77	.97	.05	2634.20
23000.0	3562.3	12316.8	7120.9	1759.1	1308.8	3305.3	4777.1	1525.8	2636.90
1.67	2.03	9.41	2.15	.070	.030	.069	.000	2632.70	2020.08
.002567	310.	300.	290.	2	0	0	.00	2297.53	4347.37

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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 103.000

3265 DIVIDED FLOW

   103.000       9.43    2641.77        .00        .00    2642.14        .37        .48        .04    2637.39
   23000.0     6015.8    11448.3     5535.9     2124.0     1766.7     2905.7     4808.8     1536.6    2634.60
      1.68       2.83       6.48       1.91       .051       .039       .067       .000    2632.34    1887.10
   .002036       210.       210.       210.          2          0          0        .00    2196.23    4139.93

1490 NH CARD USED
*SECNO 104.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   104.000       8.69    2643.73    2643.73        .00    2645.25       1.51       1.75        .34    2639.96
   23000.0     2089.4    15575.0     5335.6      428.3     1323.5     2190.5     4882.2     1562.2    2640.27
      1.70       4.88      11.77       2.44       .047       .030       .070       .000    2635.04    2613.02
   .004593       600.       600.       590.         20         15          0        .00    1556.50    4233.37

1490 NH CARD USED
*SECNO 104.500

3301 HV CHANGED MORE THAN HVINS

   104.500       8.10    2645.80        .00        .00    2646.40        .59       1.06        .09    2642.80
   23000.0      641.9    13929.3     8428.8      295.8     1811.3     3454.1     4913.8     1572.9    2642.80
      1.71       2.17       7.69       2.44       .060       .035       .074       .000    2637.70    2523.93
   .002962       290.       290.       290.          3          0          0        .00    1678.68    4202.61

1490 NH CARD USED
*SECNO 105.000
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

105.000	7.74	2646.06	.00	.00	2647.30	1.24	.71	.19	2641.68
23000.0	2047.4	17061.9	3890.7	584.0	1664.7	2057.5	4938.8	1581.3	2644.92
1.72	3.51	10.25	1.89	.060	.030	.074	.000	2638.32	2573.95
.003523	220.	220.	220.	3	0	0	.00	1614.12	4244.66

1490 NH CARD USED
*SECNO 106.000

3265 DIVIDED FLOW

106.000	8.69	2648.47	.00	.00	2649.45	.98	2.12	.03	2646.29
23000.0	110.4	11949.8	10939.8	109.0	1125.6	3663.2	5002.4	1608.6	2648.19
1.74	1.01	10.62	2.99	.100	.030	.054	.000	2639.78	2415.34
.003989	500.	530.	650.	3	0	0	.00	2196.73	4613.23

FLOW DISTRIBUTION FOR SECNO= 106.00 CWSEL= 2648.47

STA=	2415.	2521.	2700.	2800.	2866.	2891.	2955.	3099.	3208.	3600.	3800.	4000.	4200.
PER Q=	.5	52.0	6.1	7.1	3.5	4.6	3.8	3.0	3.4	3.4	3.4	3.6	
AREA=	109.0	1125.6	299.2	291.2	128.4	222.6	268.8	239.3	446.7	343.8	359.8	390.3	
VEL=	1.0	10.6	4.7	5.6	6.2	4.8	3.3	2.9	1.8	2.3	2.2	2.1	
DEPTH=	1.0	6.3	3.0	4.4	5.1	3.5	1.9	2.2	1.1	1.7	1.8	2.0	

STA=	4200.	4400.	4613.
PER Q=	3.4	2.2	
AREA=	378.4	294.7	
VEL=	2.1	1.7	
DEPTH=	1.9	1.4	

1490 NH CARD USED
*SECNO 107.000

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
107.000	7.82	2650.39	2649.85	.00	2651.50	1.10	2.01	.04	2649.30
23000.0	1.6	20430.7	2567.7	2.5	2287.5	1567.7	5051.5	1630.2	2647.00
1.76	.61	8.93	1.64	.100	.031	.081	.000	2642.57	2395.31
.003909	540.	530.	460.	0	12	0	.00	1785.39	4436.15

FLOW DISTRIBUTION FOR SECNO= 107.00 CWSEL= 2650.39

STA=	2395.	2400.	2545.	2678.	2841.	2847.	2996.	3600.	4400.	4436.
PER Q=	.0	44.8	9.0	34.7	.3	4.6	3.2	3.3	.0	
AREA=	2.5	956.5	448.3	852.4	30.3	503.4	557.6	497.8	8.8	
VEL=	.6	10.8	4.6	9.4	2.5	2.1	1.3	1.5	.6	
DEPTH=	.5	6.6	3.4	5.3	4.5	3.4	.9	.6	.2	

1490 NH CARD USED
*SECNO 108.000

3265 DIVIDED FLOW

108.000	6.73	2652.93	.00	.00	2653.76	.83	2.23	.03	2653.41
23000.0	8.6	19368.9	3622.5	9.4	2466.2	1220.6	5103.2	1652.1	2654.61
1.78	.91	7.85	2.97	.045	.033	.040	.000	2646.20	2412.85
.003558	610.	600.	590.	2	0	0	.00	1427.53	4070.66

1490 NH CARD USED
*SECNO 109.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

109.000	6.23	2655.35	2655.35	.00	2656.78	1.43	2.16	.18	2655.10
23000.0	1.0	19721.5	3277.6	3.6	1916.7	978.2	5141.0	1666.9	2653.46
1.80	.27	10.29	3.35	.100	.030	.045	.000	2649.12	2507.70
.005339	510.	500.	500.	2	12	0	.00	1153.48	3661.18

1490 NH CARD USED
*SECNO 110.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

110.000	7.43	2658.45	.00	.00	2659.21	.77	2.37	.07	2657.80
23000.0	694.2	21138.1	1167.7	501.5	2886.5	549.0	5180.8	1682.0	2657.20
1.82	1.38	7.32	2.13	.098	.039	.060	.000	2651.02	2426.16
.004186	500.	500.	530.	2	0	0	.00	1395.32	3821.47

1490 NH CARD USED
*SECNO 110.500

110.500	7.05	2659.35	.00	.00	2660.21	.86	.97	.03	2658.10
23000.0	541.3	21044.8	1414.0	494.9	2714.8	666.1	5202.8	1689.9	2655.60
1.83	1.09	7.75	2.12	.100	.034	.060	.000	2652.30	2368.45
.003743	240.	245.	250.	3	0	0	.00	1430.26	3798.70

1490 NH CARD USED
*SECNO 111.000

3265 DIVIDED FLOW

111.000	6.75	2660.35	.00	.00	2661.06	.71	.84	.02	2656.87
23000.0	1985.4	19385.8	1628.7	963.5	2654.5	803.4	5225.7	1698.4	2659.12
1.84	2.06	7.30	2.03	.068	.033	.060	.000	2653.60	2414.75
.003237	235.	240.	250.	2	0	0	.00	1622.42	4052.03

1490 NH CARD USED
*SECNO 112.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

112.000	5.47	2662.25	2662.10	.00	2663.55	1.30	2.31	.18	2662.40
23000.0	1575.0	20434.4	990.6	701.2	2116.3	319.7	5271.6	1715.6	2660.28
1.86	2.25	9.66	3.10	.079	.030	.060	.000	2656.78	2542.13
.006183	480.	530.	600.	4	15	0	.00	1205.77	3750.24

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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 113.000

3265 DIVIDED FLOW

 113.000      6.17   2665.34       .00       .00   2666.40      1.07      2.83       .02   2665.15
 23000.0     658.7   18447.4    3894.0     510.1    2031.3    1024.6    5313.7    1731.2   2662.67
    1.88      1.29      9.08      3.80      .100      .032      .047      .000   2659.17   2407.71
 .004422      500.      540.      610.         3         0         0       .00   1273.97   3861.05

1490 NH CARD USED
*SECNO 114.000
 114.000      6.88   2667.38       .00       .00   2668.57      1.19      2.13       .04   2664.66
 23000.0    3056.3   16393.6    3550.1     628.8    1629.0    1283.4    5354.8    1746.5   2665.99
    1.89      4.86     10.06      2.77      .033      .030      .051      .000   2660.50   2584.99
 .004074      500.      500.      510.         3         0         0       .00   1373.70   3958.69

1490 NH CARD USED
*SECNO 115.000

3301 HV CHANGED MORE THAN HVINS

 115.000      6.16   2669.71       .00       .00   2670.29       .58      1.66       .06   2668.20
 23000.0    1236.4   12912.6    8851.0     594.3    1684.9    2639.0    5404.4    1765.0   2666.83
    1.92      2.08      7.66      3.35      .052      .030      .041      .000   2663.55   2150.78
 .002614      520.      520.      500.         2         0         0       .00   1791.83   3942.61

1490 NH CARD USED
*SECNO 116.000

3470 ENCROACHMENT STATIONS=        .1    4000.0  TYPE=      1  TARGET=     3999.900
 116.000      5.53   2671.13       .00       .00   2671.87       .74      1.53       .05   2668.20
 23000.0     260.0   13865.6    8874.4      67.5    1756.9    1771.4    5450.9    1781.5   2669.97
    1.94      3.85      7.89      5.01      .035      .029      .035      .000   2665.60   2763.76
 .003991      520.      490.      460.         2         0         0       .00   1236.24   4000.00

1490 NH CARD USED
*SECNO 117.000
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= .1 3600.0 TYPE= 1 TARGET= 3599.900

117.000	5.82	2673.31	.00	.00	2674.58	1.28	2.56	.16	2674.26
23000.0	27.5	12597.1	10375.4	33.4	1239.2	1373.1	5486.8	1794.0	2671.60
1.95	.82	10.17	7.56	.045	.032	.035	.000	2667.49	2549.48
.006774	530.	500.	500.	2	0	0	.00	927.46	3600.00

1490 NH CARD USED
*SECNO 118.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= .1 3400.0 TYPE= 1 TARGET= 3399.900

118.000	6.89	2676.68	2676.68	.00	2678.19	1.51	3.06	.07	2674.57
23000.0	6707.3	15110.5	1182.2	1125.0	1319.0	416.3	5518.5	1805.1	2675.77
1.97	5.96	11.46	2.84	.035	.030	.062	.000	2669.79	2368.47
.005543	520.	500.	490.	2	11	0	.00	993.83	3400.00

1490 NH CARD USED
*SECNO 118.500

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.46

118.500	7.35	2678.55	.00	.00	2679.29	.75	1.03	.08	2675.10
23000.0	10733.0	11550.6	716.4	2142.5	1358.2	270.7	5539.9	1811.6	2674.10
1.98	5.01	8.50	2.65	.036	.030	.050	.000	2671.20	2284.06
.002607	283.	280.	278.	2	0	0	.00	1001.05	3285.11

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 119.000
  119.000       7.23    2679.28        .00        .00    2679.74        .46        .41        .03    2676.08
  23000.0    11480.1    11469.0       50.9     2876.3     1742.3       40.2     5560.9     1816.8    2677.09
     1.99       3.99       6.58       1.27       .036       .030       .060       .000    2672.05    2072.71
  .001443       215.       220.       230.          2          0          0        .00    1073.03    3145.74

1490 NH CARD USED
*SECNO 120.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .49

  120.000       7.25    2680.40        .00        .00    2681.43       1.04       1.52        .17    2679.17
  23000.0    15909.2     7079.5       11.3     1967.1      847.6        9.5     5611.5     1831.1    2679.40
     2.01       8.09       8.35       1.20       .034       .027       .060       .000    2673.15    2411.87
  .005943       600.       570.       570.          2          0          0        .00    1038.42    3450.29

1490 NH CARD USED
*SECNO 120.500
  120.500       6.41    2682.01        .00        .00    2683.13       1.12       1.67        .02    2680.10
  23000.0     2192.0    11764.8     9043.3      616.6     1241.3     1137.3     5631.0     1838.0    2680.50
     2.02       3.55       9.48       7.95       .050       .030       .031       .000    2675.60    2402.16
  .005615       300.       285.       280.          3          0          0        .00    1040.67    3442.83

1490 NH CARD USED
*SECNO 121.000

3265 DIVIDED FLOW

  121.000       7.13    2683.21        .00        .00    2684.11        .91        .96        .02    2681.61
  23000.0      980.2    14982.0     7037.7      453.0     1701.0     1407.0     5648.8     1843.9    2679.35
     2.03       2.16       8.81       5.00       .060       .030       .036       .000    2676.08    2286.20
  .003060       250.       240.       230.          2          0          0        .00    1082.87    3396.97

1490 NH CARD USED
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 122.000
 122.000      6.25    2684.81    2684.60       .00    2686.18       1.37       1.93        .14    2683.30
 23000.0     980.2    19975.3     2044.5     410.4     2000.4      583.7     5685.8     1856.3    2682.37
    2.04      2.39       9.99       3.50      .060       .030       .051       .000    2678.56    2218.07
 .005329      590.       490.       450.         6         15          0        .00    1064.65    3282.72

1490 NH CARD USED
*SECNO 123.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 123.000      8.05    2688.47    2688.47       .00    2690.20       1.73       2.63        .11    2687.85
 23000.0    1718.9    19572.5     1708.6     570.5     1720.3      592.3     5720.2     1868.3    2686.10
    2.06      3.01      11.38       2.88      .050       .030       .060       .000    2680.42    2317.04
 .004992      580.       510.       450.         3         11          0        .00     983.15    3300.19

1490 NH CARD USED
*SECNO 124.000
 124.000      8.52    2691.06    2690.91       .00    2692.77       1.72       2.57        .00    2689.76
 23000.0    1963.5    20915.5      121.0     663.3     1902.6       72.8     5752.6     1879.2    2689.80
    2.07      2.96      10.99       1.66      .050       .031       .060       .000    2682.54    2177.13
 .005080      520.       510.       500.         4          8          0        .00     856.64    3033.77

1490 NH CARD USED
*SECNO 124.500

3301 HV CHANGED MORE THAN HVINS

 124.500      8.42    2692.72        .00        .00    2693.70        .98        .86        .07    2686.10
 23000.0    7961.4    15024.6       14.0     1433.8     1676.8       13.9     5766.6     1883.4    2691.80
    2.08      5.55       8.96       1.01      .037       .030       .050       .000    2684.30    2206.56
 .003228      200.       218.       270.         3          0          0        .00     893.65    3100.20

1490 NH CARD USED
*SECNO 125.000

3470 ENCROACHMENT STATIONS=          .1    3150.0  TYPE=       1  TARGET=     3149.900
 125.000      8.89    2693.34        .00        .00    2694.34       1.00        .63        .01    2689.67
 23000.0    1956.5    20975.5       68.0     824.9     2502.5       26.3     5783.5     1887.9    2689.90
    2.09      2.37       8.38       2.59      .049       .031       .050       .000    2684.45    2301.71
 .002417      220.       230.       250.         2          0          0        .00     848.28    3150.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 126.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= .1 3130.0 TYPE= 1 TARGET= 3129.900

126.000	8.71	2695.31	2695.31	.00	2697.51	2.20	1.65	.36	2694.94
23000.0	1577.3	21422.7	.0	600.9	1738.5	.0	5816.3	1896.6	2696.00
2.10	2.63	12.32	.00	.050	.030	.000	.000	2686.60	2430.63
.004611	480.	510.	570.	20	5	0	.00	685.61	3116.24

1490 NH CARD USED
*SECNO 127.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .1 2955.0 TYPE= 1 TARGET= 2954.900

127.000	10.25	2697.44	2697.23	.00	2699.82	2.38	2.25	.05	2697.19
23000.0	859.9	22075.9	64.2	476.2	1748.2	39.0	5843.1	1904.6	2697.50
2.11	1.81	12.63	1.65	.062	.030	.060	.000	2687.19	2240.17
.004236	500.	510.	540.	6	11	0	.00	707.25	2955.00

1490 NH CARD USED
*SECNO 128.000

3265 DIVIDED FLOW

128.000	9.45	2699.25	2699.23	.00	2701.55	2.30	1.73	.01	2698.21
23000.0	998.1	20779.4	1222.5	352.8	1629.5	291.5	5863.9	1910.8	2698.90
2.12	2.83	12.75	4.19	.045	.030	.045	.000	2689.80	2247.76
.004399	400.	400.	390.	3	11	0	.00	637.83	2908.45

1490 NH CARD USED
*SECNO 129.000
7185 MINIMUM SPECIFIC ENERGY

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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3720 CRITICAL DEPTH ASSUMED
   129.000      11.34    2702.07    2702.07        .00    2704.32       2.25       1.77        .01    2701.09
   23000.0      519.4    21276.1     1204.5      277.2     1705.6      311.7     5884.5     1916.9    2700.74
      2.13       1.87      12.47       3.86       .050       .030       .050       .000    2690.73    2170.52
   .004697       390.       390.       400.          4         11          0        .00     727.32    2897.85

1490 NH CARD USED
*SECNO 130.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.21


3470 ENCROACHMENT STATIONS=          .1    2770.0  TYPE=       1  TARGET=     2769.900
   130.000      13.99    2704.81        .00        .00    2705.39        .58        .91        .17    2696.89
   23000.0     5470.9    12556.3     4972.8     1204.2     1722.0     1196.3     5921.3     1924.7    2698.10
      2.15       4.54       7.29       4.16       .036       .031       .035       .000    2690.82    2116.58
   .000959       500.       500.       500.          2          0          0        .00     626.53    2763.02

1490 NH CARD USED
*SECNO 131.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    2750.0  TYPE=       1  TARGET=     2749.900
   131.000      10.67    2704.37    2704.37        .00    2707.03       2.66        .68        .62    2700.12
   23000.0      914.8    19867.6     2217.6      151.4     1431.4      385.6     5947.0     1929.0    2699.32
      2.16       6.04      13.88       5.75       .036       .030       .036       .000    2693.70    2248.19
   .004837       420.       380.       300.         20         15          0        .00     426.85    2750.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 132.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= .1 2700.0 TYPE= 1 TARGET= 2699.900

132.000	11.74	2707.03	2707.03	.00	2710.41	3.38	2.03	.22	2706.05
23000.0	61.5	22517.6	420.8	31.0	1510.1	170.8	5963.4	1932.0	2705.90
2.17	1.98	14.91	2.46	.035	.030	.060	.000	2695.29	2325.86
.005134	530.	420.	170.	4	8	0	.00	341.86	2700.00

1490 NH CARD USED
*SECNO 133.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

133.000	13.69	2711.20	2711.20	.00	2714.09	2.89	1.86	.05	2707.24
23000.0	1677.0	19850.1	1473.0	645.4	1361.4	270.2	5981.8	1936.1	2702.50
2.18	2.60	14.58	5.45	.061	.030	.060	.000	2697.51	2246.70
.004243	410.	400.	400.	20	8	0	.00	541.95	2788.66

1490 NH CARD USED
*SECNO 134.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

134.000	11.48	2714.56	2714.56	.00	2716.65	2.09	1.76	.08	2712.29
23000.0	6132.8	16867.2	.0	1547.0	1264.4	.0	6005.3	1941.4	2721.40
2.19	3.96	13.34	.00	.059	.030	.000	.000	2703.08	2260.94
.004519	400.	400.	450.	20	10	0	.00	614.51	2875.45

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 135.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .1    3000.0  TYPE=       1  TARGET=     2999.900
   135.000     11.91   2716.91   2716.91       .00   2719.36      2.44       1.96        .11   2714.90
   23000.0    4088.9   18911.1        .0     789.8    1388.1        .0     6028.0    1946.4   2716.98
      2.20      5.18     13.62       .00      .041      .030      .000       .000   2705.00   2287.22
   .005258      380.      410.      450.        20         8         0        .00    497.75   2784.97


1490 NH CARD USED
*SECNO 136.000

3301 HV CHANGED MORE THAN HVINS

   136.000     11.10   2718.39   2717.79       .00   2721.53      3.14       1.97        .21   2715.39
   23000.0     476.2   22020.4     503.4     118.5    1518.2     119.7     6046.4    1949.9   2714.41
      2.21      4.02     14.50      4.20      .050      .030      .045       .000   2707.29   2510.27
   .004412      400.      410.      410.         6        11         0        .00    266.13   2776.40


1490 NH CARD USED
*SECNO 137.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   137.000     12.54   2720.54   2720.54       .00   2724.80      4.26       2.09        .34   2722.70
   23000.0        .0   22128.0     872.0        .0    1312.4     169.7     6060.5    1951.9   2715.17
      2.21       .00     16.86      5.14      .000      .033      .060       .000   2708.00   2430.26
   .007037      380.      380.      380.        20         8         0        .00    188.25   2618.51


FLOW DISTRIBUTION FOR SECNO=    137.00          CWSEL=   2720.54

STA=    2430.    2566.    2593.    2600.    2619.
 PER Q=      96.2       3.1        .4        .2
  AREA=    1312.4     124.3      21.9      23.5
   VEL=      16.9       5.8       4.5       2.4
 DEPTH=       9.6       4.6       3.2       1.3
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 138.000

3301 HV CHANGED MORE THAN HVINS

138.000	13.15	2724.42	2724.09	.00	2727.66	3.24	2.76	.10	2718.80
23000.0	2130.3	20702.1	167.5	378.6	1368.8	41.7	6075.5	1954.1	2718.66
2.22	5.63	15.12	4.02	.060	.035	.050	.000	2711.27	2290.73
.006776	410.	400.	380.	7	8	0	.00	282.93	2573.66

FLOW DISTRIBUTION FOR SECNO= 138.00 CWSEL= 2724.42

STA=	2291.	2373.	2400.	2400.	2551.	2574.
PER Q=	4.3	5.0	.0	90.0	.7	
AREA=	211.1	167.3	.3	1368.8	41.7	
VEL=	4.7	6.8	6.4	15.1	4.0	
DEPTH=	2.6	6.1	5.6	9.1	1.8	

1490 NH CARD USED
*SECNO 139.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

139.000	10.75	2730.39	2730.39	.00	2733.14	2.75	3.11	.05	2727.20
23000.0	724.1	17252.2	5023.6	218.5	1291.6	359.4	6092.5	1957.2	2725.92
2.23	3.31	13.36	13.98	.070	.037	.036	.000	2719.64	2126.75
.008946	420.	400.	400.	20	15	0	.00	381.52	2508.27

FLOW DISTRIBUTION FOR SECNO= 139.00 CWSEL= 2730.39

STA=	2127.	2241.	2300.	2433.	2447.	2460.	2472.	2508.
PER Q=	3.1	6.7	68.3	6.5	10.7	3.8	.8	
AREA=	218.5	275.5	1016.0	104.1	130.5	74.1	50.7	
VEL=	3.3	5.6	15.5	14.4	18.9	11.7	3.6	
DEPTH=	1.9	4.7	7.6	7.4	10.2	6.0	1.4	

1490 NH CARD USED
*SECNO 140.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

140.000	14.00	2736.74	2736.74	.00	2740.17	3.43	2.97	.20	2733.81
23000.0	363.0	19668.3	2968.8	135.3	1239.7	455.4	6109.6	1960.3	2730.84
2.24	2.68	15.87	6.52	.070	.034	.050	.000	2722.74	2336.19
.006175	380.	400.	420.	20	11	0	.00	307.82	2644.01

FLOW DISTRIBUTION FOR SECNO= 140.00 CWSEL= 2736.74

STA=	2336.	2417.	2453.	2540.	2559.	2583.	2609.	2644.
PER Q=	1.6	8.6	76.9	3.1	3.5	4.2	2.2	
AREA=	135.3	299.0	940.7	100.5	118.7	136.5	99.7	
VEL=	2.7	6.6	18.8	7.0	6.8	7.0	5.1	
DEPTH=	1.7	8.2	10.9	5.2	5.0	5.2	2.8	

THIS RUN EXECUTED 26MAR09 08:26:10

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FEMA 1994 FIS - Updated

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	8.000	.00	.00	.00	2433.41	34000.00	2445.20	.00	2445.68	8.29	6.22	8059.83	11811.64
	8.500	310.00	.00	.00	2435.40	34000.00	2445.42	.00	2446.06	14.19	6.91	6620.48	9025.02
	9.000	190.00	.00	.00	2435.89	34000.00	2445.63	.00	2446.36	14.61	7.26	5903.59	8895.06
*	9.500	260.00	.00	.00	2437.60	34000.00	2445.65	.00	2447.22	42.98	10.42	3668.16	5186.08
	10.000	240.00	.00	.00	2437.76	34000.00	2446.18	2445.98	2448.53	46.82	12.97	3269.60	4969.00
*	10.500	250.00	.00	.00	2437.80	34000.00	2448.32	.00	2449.41	20.53	8.59	4459.82	7504.57
	11.000	240.00	.00	.00	2438.94	34000.00	2448.87	.00	2449.86	16.83	8.28	4862.37	8287.60
	12.000	500.00	.00	.00	2441.60	34000.00	2450.00	.00	2450.69	15.25	6.83	5343.32	8706.56
	13.000	440.00	.00	.00	2443.10	34000.00	2450.74	.00	2451.48	20.61	7.03	5080.29	7490.03
*	13.500	310.00	.00	.00	2445.20	34000.00	2451.21	2451.21	2452.93	75.42	10.64	3406.19	3915.06
*	14.000	240.00	.00	.00	2445.90	34000.00	2453.07	.00	2454.11	30.89	8.54	4552.74	6117.83
*	15.000	530.00	.00	.00	2447.20	34000.00	2454.78	2454.78	2456.66	55.68	11.39	3478.47	4556.57
*	16.000	550.00	.00	.00	2448.90	34000.00	2457.67	.00	2458.80	27.41	9.27	4409.82	6494.32
	17.000	685.00	.00	.00	2451.60	34000.00	2459.54	.00	2461.08	36.41	10.57	3836.75	5634.60
*	18.000	705.00	.00	.00	2453.37	34000.00	2461.90	2461.90	2465.21	66.00	14.66	2363.60	4185.19
	19.000	510.00	.00	.00	2455.28	34000.00	2465.29	.00	2467.84	39.23	12.83	2650.87	5428.22
	20.000	650.00	.00	.00	2458.55	34000.00	2468.03	.00	2470.15	31.00	11.67	2913.58	6106.92

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	21.000	820.00	.00	.00	2460.68	34000.00	2470.63	.00	2472.87	34.73	12.02	2830.50	5769.48
	22.000	410.00	.00	.00	2460.32	34000.00	2472.29	.00	2474.11	25.02	10.85	3133.11	6797.29
	23.000	295.00	.00	.00	2462.90	34000.00	2472.97	.00	2475.07	31.00	11.64	2922.06	6106.20
*	25.000	210.00	2489.20	2473.50	2464.00	34000.00	2476.99	.00	2478.30	14.75	9.18	3702.53	8853.58
	26.000	260.00	.00	.00	2465.06	34000.00	2477.60	.00	2478.78	21.59	8.70	3907.05	7316.97
	27.000	400.00	.00	.00	2465.24	34000.00	2478.19	.00	2479.60	16.45	9.52	3572.70	8383.45
	28.000	830.00	.00	.00	2469.22	34000.00	2479.55	.00	2481.56	29.17	11.37	2989.84	6295.07
	29.000	830.00	.00	.00	2471.26	34000.00	2482.05	.00	2483.84	25.50	10.75	3163.86	6732.50
	30.000	810.00	.00	.00	2474.40	34000.00	2484.20	.00	2486.45	37.15	12.04	2823.21	5578.28
	31.000	510.00	.00	.00	2476.66	34000.00	2486.11	.00	2488.35	37.32	12.00	2833.45	5565.85
	32.000	700.00	.00	.00	2479.54	34000.00	2488.76	.00	2491.16	41.88	12.44	2733.66	5253.96
	33.000	500.00	.00	.00	2480.29	34000.00	2490.93	.00	2493.08	34.49	11.78	2886.69	5789.41
	34.000	415.00	.00	.00	2482.58	34000.00	2492.35	.00	2494.68	40.28	12.26	2772.98	5357.27
	35.000	610.00	.00	.00	2485.70	28000.00	2495.27	.00	2496.51	19.70	8.97	3122.18	6308.52
*	36.000	500.00	.00	.00	2489.05	28000.00	2496.49	2496.49	2499.44	75.68	13.78	2031.29	3218.61
	36.500	240.00	.00	.00	2491.90	28000.00	2498.49	.00	2501.08	58.96	12.90	2171.21	3646.41
	38.000	580.00	.00	.00	2492.95	28000.00	2501.91	.00	2503.97	41.35	11.51	2432.71	4354.54
	38.500	60.00	.00	.00	2493.10	28000.00	2502.20	.00	2504.22	39.72	11.41	2452.99	4443.04
	39.500	120.00	2516.20	2510.20	2494.40	28000.00	2503.22	.00	2505.28	40.78	11.52	2431.26	4384.66
	40.000	90.00	.00	.00	2494.63	28000.00	2503.81	.00	2505.64	34.10	10.86	2578.28	4794.60
	41.000	280.00	.00	.00	2497.07	28000.00	2504.60	.00	2506.95	50.80	12.30	2277.26	3928.68
	42.000	420.00	.00	.00	2498.88	28000.00	2506.65	.00	2509.02	47.46	12.47	2448.91	4064.32
*	43.000	350.00	.00	.00	2500.96	28000.00	2508.55	2508.55	2511.48	64.05	14.00	2140.72	3498.75
*	44.000	420.00	.00	.00	2501.58	28000.00	2512.68	2512.68	2514.57	31.26	12.33	4302.95	5008.10
	45.000	490.00	.00	.00	2503.70	28000.00	2514.58	2514.50	2516.02	26.46	10.99	5205.15	5443.27
*	46.000	500.00	.00	.00	2506.85	28000.00	2515.38	2514.87	2518.34	55.93	13.85	2176.89	3743.89

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	47.000	520.00	.00	.00	2510.00	28000.00	2518.68	.00	2520.70	34.83	11.46	2572.96	4744.07
*	48.000	510.00	.00	.00	2512.29	28000.00	2522.47	2522.47	2524.06	30.29	12.06	5061.95	5087.41
*	48.250	275.00	.00	.00	2513.30	28000.00	2524.24	.00	2524.68	12.69	6.89	9242.29	7859.70
	48.500	230.00	.00	.00	2514.20	28000.00	2524.42	.00	2524.99	11.05	7.25	8784.59	8425.05
*	49.000	600.00	.00	.00	2516.68	28000.00	2525.80	2525.80	2526.90	31.10	10.40	5709.86	5020.70
*	50.000	600.00	.00	.00	2520.00	28000.00	2528.99	2528.99	2530.17	28.96	10.59	6844.80	5203.10
*	51.000	510.00	.00	.00	2522.10	28000.00	2531.01	2531.01	2532.29	29.32	10.60	6114.07	5171.41
*	52.000	500.00	.00	.00	2523.67	28000.00	2533.04	2533.04	2534.26	30.66	10.56	6284.55	5057.12
	53.000	500.00	.00	.00	2526.77	28000.00	2534.77	.00	2535.73	28.08	8.86	5418.25	5283.99
	54.000	560.00	.00	.00	2528.41	28000.00	2536.37	2536.21	2537.76	45.48	11.08	4900.11	4151.85
	55.000	500.00	.00	.00	2531.99	28000.00	2538.83	.00	2539.56	26.94	7.38	4433.58	5395.10
	56.000	450.00	.00	.00	2534.29	28000.00	2540.40	.00	2541.08	39.52	7.56	4855.47	4454.17
	57.000	520.00	.00	.00	2536.68	28000.00	2542.48	.00	2543.49	49.30	9.10	4012.92	3987.71
	58.000	500.00	.00	.00	2539.07	28000.00	2544.93	.00	2545.82	42.62	8.19	5010.13	4288.94
*	59.000	520.00	.00	.00	2541.60	28000.00	2548.61	2548.61	2549.88	41.17	10.85	4380.74	4363.65
	60.000	650.00	.00	.00	2544.17	28000.00	2551.26	.00	2552.59	41.47	11.03	4197.93	4348.24
	61.000	630.00	.00	.00	2545.85	28000.00	2553.96	.00	2554.84	30.77	8.05	4676.26	5047.41
*	62.000	510.00	.00	.00	2548.46	28000.00	2555.57	2555.57	2556.95	45.99	10.63	4069.28	4128.69
*	63.000	500.00	.00	.00	2550.67	28000.00	2557.96	2557.96	2559.58	53.42	12.32	3993.71	3830.99
*	64.000	510.00	.00	.00	2552.80	28000.00	2560.56	2560.56	2562.40	47.54	11.79	3471.39	4060.79
	64.500	310.00	.00	.00	2554.00	23000.00	2562.65	.00	2563.42	18.62	7.61	4193.69	5330.08
	65.000	190.00	.00	.00	2554.61	23000.00	2563.05	.00	2563.78	19.22	7.96	4555.39	5246.82
*	66.000	500.00	.00	.00	2556.52	23000.00	2564.99	2564.99	2566.65	38.56	11.71	3187.18	3704.12
	66.500	310.00	.00	.00	2558.28	23000.00	2566.96	.00	2567.60	21.06	8.25	4547.47	5011.39
	67.000	190.00	.00	.00	2559.85	23000.00	2567.56	.00	2568.01	15.12	6.74	5241.55	5914.62
*	68.000	640.00	.00	.00	2562.38	23000.00	2568.85	.00	2570.03	53.02	10.57	3079.74	3158.56

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	69.000	478.00	.00	.00	2564.58	23000.00	2571.46	.00	2572.33	38.35	10.15	4178.04	3713.90
	70.000	510.00	.00	.00	2566.10	23000.00	2574.03	.00	2574.36	35.82	4.44	5129.77	3843.14
	71.000	480.00	.00	.00	2567.66	23000.00	2575.43	.00	2575.94	28.41	7.54	5077.35	4315.18
*	72.000	460.00	.00	.00	2569.57	23000.00	2577.18	2577.18	2578.88	69.17	13.23	3870.80	2765.53
*	72.500	70.00	.00	.00	2569.73	23000.00	2578.94	.00	2579.44	14.83	7.70	5406.26	5973.01
*	73.500	110.00	2588.80	2582.80	2570.10	23000.00	2579.05	.00	2580.10	33.85	10.56	5312.68	3953.06
*	74.000	125.00	.00	.00	2570.47	23000.00	2580.15	.00	2580.53	12.30	7.48	6487.75	6557.89
	75.000	350.00	.00	.00	2572.53	23000.00	2580.73	.00	2581.02	11.84	6.10	7123.73	6683.51
	76.000	481.00	.00	.00	2574.15	23000.00	2581.50	.00	2581.89	22.87	8.25	6620.26	4809.30
	77.000	443.00	.00	.00	2576.18	23000.00	2582.76	.00	2583.21	33.55	8.67	6121.08	3970.78
	78.000	644.00	.00	.00	2578.60	23000.00	2585.08	.00	2585.65	41.42	8.25	5381.77	3573.84
	79.000	500.00	.00	.00	2580.49	23000.00	2587.07	.00	2587.64	38.06	9.88	6623.36	3728.03
	80.000	531.00	.00	.00	2582.03	23000.00	2589.01	.00	2589.38	29.27	6.07	6024.19	4251.27
*	81.000	520.00	.00	.00	2583.78	23000.00	2591.62	2591.62	2592.59	34.39	10.78	4892.26	3922.09
	82.000	510.00	.00	.00	2587.20	23000.00	2593.85	.00	2594.51	40.58	10.62	5535.47	3610.32
	83.000	500.00	.00	.00	2587.50	23000.00	2595.62	.00	2596.59	39.93	10.17	4992.39	3639.89
*	84.000	530.00	.00	.00	2590.78	23000.00	2598.76	2598.76	2599.71	33.56	10.54	5785.69	3970.28
*	85.000	500.00	.00	.00	2592.50	23000.00	2601.07	2601.07	2602.25	33.84	10.63	5827.34	3953.86
	86.000	500.00	.00	.00	2595.10	23000.00	2603.15	.00	2603.79	27.67	9.12	6946.64	4372.34
	87.000	520.00	.00	.00	2597.70	23000.00	2604.57	.00	2605.62	39.59	10.46	5594.43	3655.51
	88.000	600.00	.00	.00	2599.37	23000.00	2606.73	.00	2607.55	25.14	8.76	6349.51	4586.82
*	89.000	810.00	.00	.00	2602.10	23000.00	2609.10	2609.10	2609.99	40.91	9.99	5274.54	3595.78
	90.000	510.00	.00	.00	2603.88	23000.00	2611.35	.00	2611.88	31.37	8.76	6068.87	4106.32
*	91.000	500.00	.00	.00	2606.80	23000.00	2613.59	2613.59	2614.79	48.08	11.18	4319.94	3317.03
	92.000	550.00	.00	.00	2607.95	23000.00	2615.91	.00	2616.79	26.83	9.35	3981.69	4440.71
*	93.000	500.00	.00	.00	2610.92	23000.00	2617.88	2617.88	2619.29	58.44	12.00	3112.53	3008.77

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	94.000	500.00	.00	.00	2613.00	23000.00	2621.44	2621.44	2622.78	37.33	11.32	4221.77	3764.59
*	95.000	480.00	.00	.00	2615.10	23000.00	2623.39	2623.39	2625.09	42.40	11.48	3492.22	3532.31
	97.000	1020.00	.00	.00	2618.80	23000.00	2627.43	.00	2628.29	22.55	8.90	4807.47	4843.61
	98.000	500.00	.00	.00	2621.72	23000.00	2628.64	.00	2629.64	33.14	9.75	3420.10	3995.40
*	99.000	500.00	.00	.00	2623.27	23000.00	2631.80	2631.80	2633.18	42.63	12.36	4294.32	3522.78
*	100.000	520.00	.00	.00	2625.62	23000.00	2634.18	2634.18	2635.72	51.17	12.28	3484.28	3215.44
*	101.000	520.00	.00	.00	2627.70	23000.00	2637.15	2637.15	2638.44	43.20	12.40	4572.50	3499.41
	102.000	500.00	.00	.00	2631.10	23000.00	2639.37	.00	2640.60	42.98	12.57	5260.52	3508.26
	102.500	300.00	.00	.00	2632.70	23000.00	2640.85	.00	2641.62	25.67	9.41	6373.14	4539.77
	103.000	210.00	.00	.00	2632.34	23000.00	2641.77	.00	2642.14	20.36	6.48	6796.36	5097.76
*	104.000	600.00	.00	.00	2635.04	23000.00	2643.73	2643.73	2645.25	45.93	11.77	3942.32	3393.76
	104.500	290.00	.00	.00	2637.70	23000.00	2645.80	.00	2646.40	29.62	7.69	5561.22	4225.99
	105.000	220.00	.00	.00	2638.32	23000.00	2646.06	.00	2647.30	35.23	10.25	4306.22	3875.06
	106.000	530.00	.00	.00	2639.78	23000.00	2648.47	.00	2649.45	39.89	10.62	4897.83	3641.51
	107.000	530.00	.00	.00	2642.57	23000.00	2650.39	2649.85	2651.50	39.09	8.93	3857.71	3678.65
	108.000	600.00	.00	.00	2646.20	23000.00	2652.93	.00	2653.76	35.58	7.85	3696.24	3855.81
*	109.000	500.00	.00	.00	2649.12	23000.00	2655.35	2655.35	2656.78	53.39	10.29	2898.51	3147.83
	110.000	500.00	.00	.00	2651.02	23000.00	2658.45	.00	2659.21	41.86	7.32	3937.00	3554.71
	110.500	245.00	.00	.00	2652.30	23000.00	2659.35	.00	2660.21	37.43	7.75	3875.83	3759.63
	111.000	240.00	.00	.00	2653.60	23000.00	2660.35	.00	2661.06	32.37	7.30	4421.33	4042.48
	112.000	530.00	.00	.00	2656.78	23000.00	2662.25	2662.10	2663.55	61.83	9.66	3137.19	2924.98
	113.000	540.00	.00	.00	2659.17	23000.00	2665.34	.00	2666.40	44.22	9.08	3566.07	3458.92
	114.000	500.00	.00	.00	2660.50	23000.00	2667.38	.00	2668.57	40.74	10.06	3541.30	3603.46
	115.000	520.00	.00	.00	2663.55	23000.00	2669.71	.00	2670.29	26.14	7.66	4918.25	4498.32
	116.000	490.00	.00	.00	2665.60	23000.00	2671.13	.00	2671.87	39.91	7.89	3595.74	3640.90
	117.000	500.00	.00	.00	2667.49	23000.00	2673.31	.00	2674.58	67.74	10.17	2645.67	2794.45

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	118.000	500.00	.00	.00	2669.79	23000.00	2676.68	2676.68	2678.19	55.43	11.46	2860.29	3089.38
*	118.500	280.00	.00	.00	2671.20	23000.00	2678.55	.00	2679.29	26.07	8.50	3771.35	4504.79
	119.000	220.00	.00	.00	2672.05	23000.00	2679.28	.00	2679.74	14.43	6.58	4658.81	6054.77
*	120.000	570.00	.00	.00	2673.15	23000.00	2680.40	.00	2681.43	59.43	8.35	2824.17	2983.48
	120.500	285.00	.00	.00	2675.60	23000.00	2682.01	.00	2683.13	56.15	9.48	2995.21	3069.51
	121.000	240.00	.00	.00	2676.08	23000.00	2683.21	.00	2684.11	30.60	8.81	3560.99	4157.75
	122.000	490.00	.00	.00	2678.56	23000.00	2684.81	2684.60	2686.18	53.29	9.99	2994.44	3150.67
*	123.000	510.00	.00	.00	2680.42	23000.00	2688.47	2688.47	2690.20	49.92	11.38	2883.13	3255.20
	124.000	510.00	.00	.00	2682.54	23000.00	2691.06	2690.91	2692.77	50.80	10.99	2638.77	3227.12
	124.500	218.00	.00	.00	2684.30	23000.00	2692.72	.00	2693.70	32.28	8.96	3124.53	4048.22
	125.000	230.00	.00	.00	2684.45	23000.00	2693.34	.00	2694.34	24.17	8.38	3353.60	4678.43
*	126.000	510.00	.00	.00	2686.60	23000.00	2695.31	2695.31	2697.51	46.11	12.32	2339.40	3387.06
	127.000	510.00	.00	.00	2687.19	23000.00	2697.44	2697.23	2699.82	42.36	12.63	2263.38	3533.79
	128.000	400.00	.00	.00	2689.80	23000.00	2699.25	2699.23	2701.55	43.99	12.75	2273.70	3467.90
*	129.000	390.00	.00	.00	2690.73	23000.00	2702.07	2702.07	2704.32	46.97	12.47	2294.52	3356.08
*	130.000	500.00	.00	.00	2690.82	23000.00	2704.81	.00	2705.39	9.59	7.29	4122.63	7428.05
*	131.000	380.00	.00	.00	2693.70	23000.00	2704.37	2704.37	2707.03	48.37	13.88	1968.40	3306.94
*	132.000	420.00	.00	.00	2695.29	23000.00	2707.03	2707.03	2710.41	51.34	14.91	1712.02	3209.90
*	133.000	400.00	.00	.00	2697.51	23000.00	2711.20	2711.20	2714.09	42.43	14.58	2277.03	3530.77
*	134.000	400.00	.00	.00	2703.08	23000.00	2714.56	2714.56	2716.65	45.19	13.34	2811.43	3421.26
*	135.000	410.00	.00	.00	2705.00	23000.00	2716.91	2716.91	2719.36	52.58	13.62	2177.88	3171.92
	136.000	410.00	.00	.00	2707.29	23000.00	2718.39	2717.79	2721.53	44.12	14.50	1756.40	3462.59
*	137.000	380.00	.00	.00	2708.00	23000.00	2720.54	2720.54	2724.80	70.37	16.86	1482.06	2741.83
	138.000	400.00	.00	.00	2711.27	23000.00	2724.42	2724.09	2727.66	67.76	15.12	1789.11	2794.09
*	139.000	400.00	.00	.00	2719.64	23000.00	2730.39	2730.39	2733.14	89.46	13.36	1869.42	2431.77
*	140.000	400.00	.00	.00	2722.74	23000.00	2736.74	2736.74	2740.17	61.75	15.87	1830.44	2926.82

FEMA 1994 FIS - Updated

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8.000	34000.00	2445.20	.00	.00	.00	1509.97	.00
	8.500	34000.00	2445.42	.00	.22	.00	1401.25	310.00
	9.000	34000.00	2445.63	.00	.21	.00	1236.37	190.00
*	9.500	34000.00	2445.65	.00	.02	.00	856.12	260.00
	10.000	34000.00	2446.18	.00	.53	.00	832.61	240.00
*	10.500	34000.00	2448.32	.00	2.14	.00	874.06	250.00
	11.000	34000.00	2448.87	.00	.56	.00	869.96	240.00
	12.000	34000.00	2450.00	.00	1.13	.00	1021.86	500.00
	13.000	34000.00	2450.74	.00	.74	.00	1003.76	440.00
*	13.500	34000.00	2451.21	.00	.47	.00	1123.19	310.00
*	14.000	34000.00	2453.07	.00	1.86	.00	1173.83	240.00
*	15.000	34000.00	2454.78	.00	1.71	.00	1170.75	530.00
*	16.000	34000.00	2457.67	.00	2.89	.00	958.76	550.00
	17.000	34000.00	2459.54	.00	1.87	.00	856.00	685.00
*	18.000	34000.00	2461.90	.00	2.36	.00	387.75	705.00
	19.000	34000.00	2465.29	.00	3.39	.00	311.59	510.00
	20.000	34000.00	2468.03	.00	2.74	.00	329.23	650.00
	21.000	34000.00	2470.63	.00	2.60	.00	339.04	820.00
	22.000	34000.00	2472.29	.00	1.66	.00	334.57	410.00
	23.000	34000.00	2472.97	.00	.68	.00	330.09	295.00
*	25.000	34000.00	2476.99	.00	4.03	.00	345.64	210.00
	26.000	34000.00	2477.60	.00	.61	.00	342.26	260.00
	27.000	34000.00	2478.19	.00	.59	.00	339.64	400.00
	28.000	34000.00	2479.55	.00	1.36	.00	334.76	830.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	29.000	34000.00	2482.05	.00	2.50	.00	348.57	830.00
	30.000	34000.00	2484.20	.00	2.15	.00	348.54	810.00
	31.000	34000.00	2486.11	.00	1.92	.00	353.31	510.00
	32.000	34000.00	2488.76	.00	2.65	.00	352.75	700.00
	33.000	34000.00	2490.93	.00	2.17	.00	348.43	500.00
	34.000	34000.00	2492.35	.00	1.42	.00	359.45	415.00
	35.000	28000.00	2495.27	.00	2.92	.00	372.94	610.00
*	36.000	28000.00	2496.49	.00	1.22	.00	350.99	500.00
	36.500	28000.00	2498.49	.00	2.00	.00	342.59	240.00
	38.000	28000.00	2501.91	.00	3.42	.00	349.50	580.00
	38.500	28000.00	2502.20	.00	.29	.00	345.27	60.00
	39.500	28000.00	2503.22	.00	1.03	.00	344.30	120.00
	40.000	28000.00	2503.81	.00	.59	.00	349.29	90.00
	41.000	28000.00	2504.60	.00	.79	.00	346.14	280.00
	42.000	28000.00	2506.65	.00	2.04	.00	429.78	420.00
*	43.000	28000.00	2508.55	.00	1.90	.00	400.07	350.00
*	44.000	28000.00	2512.68	.00	4.13	.00	1385.54	420.00
	45.000	28000.00	2514.58	.00	1.90	.00	2098.90	490.00
*	46.000	28000.00	2515.38	.00	.80	.00	654.21	500.00
	47.000	28000.00	2518.68	.00	3.30	.00	437.14	520.00
*	48.000	28000.00	2522.47	.00	3.79	.00	1663.32	510.00
*	48.250	28000.00	2524.24	.00	1.77	.00	2336.68	275.00
	48.500	28000.00	2524.42	.00	.18	.00	2471.62	230.00
*	49.000	28000.00	2525.80	.00	1.38	.00	2539.29	600.00
*	50.000	28000.00	2528.99	.00	3.18	.00	2590.85	600.00
*	51.000	28000.00	2531.01	.00	2.02	.00	2430.52	510.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	52.000	28000.00	2533.04	.00	2.03	.00	2807.98	500.00
	53.000	28000.00	2534.77	.00	1.73	.00	1936.99	500.00
	54.000	28000.00	2536.37	.00	1.60	.00	1752.15	560.00
	55.000	28000.00	2538.83	.00	2.46	.00	1417.21	500.00
	56.000	28000.00	2540.40	.00	1.57	.00	1926.30	450.00
	57.000	28000.00	2542.48	.00	2.08	.00	1796.54	520.00
	58.000	28000.00	2544.93	.00	2.45	.00	1779.07	500.00
*	59.000	28000.00	2548.61	.00	3.69	.00	1736.59	520.00
	60.000	28000.00	2551.26	.00	2.64	.00	1451.45	650.00
	61.000	28000.00	2553.96	.00	2.70	.00	1614.06	630.00
*	62.000	28000.00	2555.57	.00	1.62	.00	1590.44	510.00
*	63.000	28000.00	2557.96	.00	2.39	.00	1353.48	500.00
*	64.000	28000.00	2560.56	.00	2.59	.00	1255.11	510.00
	64.500	23000.00	2562.65	.00	2.09	.00	1150.51	310.00
	65.000	23000.00	2563.05	.00	.40	.00	1177.95	190.00
*	66.000	23000.00	2564.99	.00	1.94	.00	1144.97	500.00
	66.500	23000.00	2566.96	.00	1.97	.00	1313.42	310.00
	67.000	23000.00	2567.56	.00	.60	.00	1526.06	190.00
*	68.000	23000.00	2568.85	.00	1.29	.00	1116.61	640.00
	69.000	23000.00	2571.46	.00	2.61	.00	1311.78	478.00
	70.000	23000.00	2574.03	.00	2.57	.00	1278.59	510.00
	71.000	23000.00	2575.43	.00	1.40	.00	1330.00	480.00
*	72.000	23000.00	2577.18	.00	1.75	.00	1110.00	460.00
*	72.500	23000.00	2578.94	.00	1.76	.00	1083.74	70.00
*	73.500	23000.00	2579.05	.00	.11	.00	1080.99	110.00
*	74.000	23000.00	2580.15	.00	1.10	.00	1330.00	125.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	75.000	23000.00	2580.73	.00	.58	.00	1900.00	350.00
	76.000	23000.00	2581.50	.00	.76	.00	2461.92	481.00
	77.000	23000.00	2582.76	.00	1.27	.00	2543.03	443.00
	78.000	23000.00	2585.08	.00	2.31	.00	2674.27	644.00
	79.000	23000.00	2587.07	.00	1.99	.00	2627.67	500.00
	80.000	23000.00	2589.01	.00	1.94	.00	2781.48	531.00
*	81.000	23000.00	2591.62	.00	2.61	.00	2516.50	520.00
	82.000	23000.00	2593.85	.00	2.23	.00	2144.70	510.00
	83.000	23000.00	2595.62	.00	1.77	.00	2268.32	500.00
*	84.000	23000.00	2598.76	.00	3.14	.00	2624.29	530.00
*	85.000	23000.00	2601.07	.00	2.31	.00	2689.62	500.00
	86.000	23000.00	2603.15	.00	2.08	.00	2536.97	500.00
	87.000	23000.00	2604.57	.00	1.42	.00	2451.92	520.00
	88.000	23000.00	2606.73	.00	2.16	.00	2487.12	600.00
*	89.000	23000.00	2609.10	.00	2.37	.00	2550.03	810.00
	90.000	23000.00	2611.35	.00	2.25	.00	2410.78	510.00
*	91.000	23000.00	2613.59	.00	2.25	.00	2170.34	500.00
	92.000	23000.00	2615.91	.00	2.31	.00	1443.11	550.00
*	93.000	23000.00	2617.88	.00	1.98	.00	1295.42	500.00
*	94.000	23000.00	2621.44	.00	3.56	.00	2022.35	500.00
*	95.000	23000.00	2623.39	.00	1.94	.00	1523.61	480.00
	97.000	23000.00	2627.43	.00	4.05	.00	1792.66	1020.00
	98.000	23000.00	2628.64	.00	1.21	.00	1242.57	500.00
*	99.000	23000.00	2631.80	.00	3.16	.00	1929.09	500.00
*	100.000	23000.00	2634.18	.00	2.37	.00	1504.10	520.00
*	101.000	23000.00	2637.15	.00	2.97	.00	1690.41	520.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	102.000	23000.00	2639.37	.00	2.22	.00	1886.56	500.00
	102.500	23000.00	2640.85	.00	1.48	.00	2297.53	300.00
	103.000	23000.00	2641.77	.00	.92	.00	2196.23	210.00
*	104.000	23000.00	2643.73	.00	1.97	.00	1556.50	600.00
	104.500	23000.00	2645.80	.00	2.07	.00	1678.68	290.00
	105.000	23000.00	2646.06	.00	.26	.00	1614.12	220.00
	106.000	23000.00	2648.47	.00	2.41	.00	2196.73	530.00
	107.000	23000.00	2650.39	.00	1.92	.00	1785.39	530.00
	108.000	23000.00	2652.93	.00	2.54	.00	1427.53	600.00
*	109.000	23000.00	2655.35	.00	2.42	.00	1153.48	500.00
	110.000	23000.00	2658.45	.00	3.10	.00	1395.32	500.00
	110.500	23000.00	2659.35	.00	.91	.00	1430.26	245.00
	111.000	23000.00	2660.35	.00	1.00	.00	1622.42	240.00
	112.000	23000.00	2662.25	.00	1.90	.00	1205.77	530.00
	113.000	23000.00	2665.34	.00	3.09	.00	1273.97	540.00
	114.000	23000.00	2667.38	.00	2.04	.00	1373.70	500.00
	115.000	23000.00	2669.71	.00	2.32	.00	1791.83	520.00
	116.000	23000.00	2671.13	.00	1.42	.00	1236.24	490.00
	117.000	23000.00	2673.31	.00	2.18	.00	927.46	500.00
*	118.000	23000.00	2676.68	.00	3.38	.00	993.83	500.00
*	118.500	23000.00	2678.55	.00	1.86	.00	1001.05	280.00
	119.000	23000.00	2679.28	.00	.73	.00	1073.03	220.00
*	120.000	23000.00	2680.40	.00	1.12	.00	1038.42	570.00
	120.500	23000.00	2682.01	.00	1.62	.00	1040.67	285.00
	121.000	23000.00	2683.21	.00	1.19	.00	1082.87	240.00
	122.000	23000.00	2684.81	.00	1.61	.00	1064.65	490.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	123.000	23000.00	2688.47	.00	3.66	.00	983.15	510.00
	124.000	23000.00	2691.06	.00	2.58	.00	856.64	510.00
	124.500	23000.00	2692.72	.00	1.67	.00	893.65	218.00
	125.000	23000.00	2693.34	.00	.62	.00	848.28	230.00
*	126.000	23000.00	2695.31	.00	1.97	.00	685.61	510.00
	127.000	23000.00	2697.44	.00	2.13	.00	707.25	510.00
	128.000	23000.00	2699.25	.00	1.81	.00	637.83	400.00
*	129.000	23000.00	2702.07	.00	2.82	.00	727.32	390.00
*	130.000	23000.00	2704.81	.00	2.74	.00	626.53	500.00
*	131.000	23000.00	2704.37	.00	-.44	.00	426.85	380.00
*	132.000	23000.00	2707.03	.00	2.66	.00	341.86	420.00
*	133.000	23000.00	2711.20	.00	4.17	.00	541.95	400.00
*	134.000	23000.00	2714.56	.00	3.36	.00	614.51	400.00
*	135.000	23000.00	2716.91	.00	2.36	.00	497.75	410.00
	136.000	23000.00	2718.39	.00	1.48	.00	266.13	410.00
*	137.000	23000.00	2720.54	.00	2.14	.00	188.25	380.00
	138.000	23000.00	2724.42	.00	3.88	.00	282.93	400.00
*	139.000	23000.00	2730.39	.00	5.97	.00	381.52	400.00
*	140.000	23000.00	2736.74	.00	6.35	.00	307.82	400.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=      9.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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CAUTION SECNO=     13.500  PROFILE=  1  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=     63.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=    140.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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APPENDIX F

SCOUR ANALYSIS

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject Houghton Rd: Tanque Verde Rd. to Speedway. Bridge Scour Calcs

Page 1 of 46
Made by Jeff Blau
Date 6/4/09
Checked by [illegible]
Date 10 Jun 09

Bridge Scour Calculations. for Agua Caliente Wash and Tanque Verde Creek Bridges.

Existing Bridges are 50 feet wide and proposed Bridges will be 100 feet wide.

Analyze for Design Flow of 120% of Q_{100}

Analyze for Subcritical and Mixed Flow Runs.

Use Methodology in HEC-18: Evaluating Scour At Bridges, Fourth Edition, May 2001

Aqua Caliente Wash

- Long-Term Bed Elevation Change

Research: Bridge Scour Evaluation Report, - Houghton Road Bridge at Aqua Caliente Creek, Cannon & Assoc, Inc. November 26, 1996

→ LTS → Assume 4' (No Data/Report Available)

- State Standard For Watercourse System Sediment Balance September 1996

Level I Assessment

$$d_{Hs} = 0.02\,(Q_{100})^{0.6}$$

$$= 0.02\,(6600)^{0.6} = 3.9' \quad \text{DS Bridge}$$

$$= 0.02\,(10{,}500)^{0.6} = 5.2' \quad \text{US Bridge}$$

Estimate ± 5-feet of Degradation for Design.

- Contraction Scour.

Agua Caliente is Case 1.b. - No Contraction of the main channel and abutments at edge of channel.

Determine if have live bed scour or clear water scour. Use equation 5.1:

$$V_c = K_u y^{1/6} D_{50}^{1/3} \qquad (5.1)$$

Where: V_c = Critical velocity (fps)
y = Depth of Flow (ft)
D_{50} = Particle size 50% by weight (ft).
K_u = 11.17 English Units.

D_{50} from Preliminary Geotechnical Report by NCS. (page 14 of 46)

$$D_{50} = 1.167\,mm \times 0.039 \frac{in}{mm} \times \frac{1\,ft}{12\,in} = 0.0038\,ft$$

Approach Section No is. 5794.74

y = WSE - ELMIN

= 2595.37 - 2589.70 = 5.67 (mixed run)

= 95.53 - 89.70 = 5.83 (Subcritical run)

$V_c = 11.17(5.67)^{1/6}(0.0038)^{1/3} = 2.33$ fps (mixed)

$11.17(5.83)^{1/6}(0.0038)^{1/3} = 2.34$ fps (sub)

$V_{channel} = 9.83$ fps (mixed) → Live-Bed

$= 9.01$ fps (sub) → Live-Bed

Use Equations 5.2 and 5.3 for Live-Bed Contraction Scour

$$\frac{y_2}{y_1} = \left(\frac{Q_2}{Q_1}\right)^{6/7} \left(\frac{W_1}{W_2}\right)^{k_i} \qquad (5.2)$$

$$y_s = y_2 - y_0 \qquad (5.3)$$

Where: y_1 = Average Depth in Approach Section (ft)
y_2 = Average Depth in Contracted Section w/ Scour (ft)
y_0 = Average Depth in contracted Section before Scour (ft)
Q_1 = Flow Rate in Approach Section Transporting Sediment (fps)
Q_2 = Flow Rate in Contracted Section Transporting Sediment (fps)
W_1 = Width of Approach Section Segment Transporting Sediment (ft)
W_2 = Width of Contracted Section Segment Transporting Sediment (ft)
k_i = Exponent Determined Below

V^*/ω	k_1	Mode of Bed Material Transport
< 0.50	0.59	Mostly contact bed material discharge
0.50 – 2.0	0.64	Some suspended bed material discharge
> 2.0	0.69	Mostly suspended bed material discharge

$V^* = (\tau_0/\rho)^{1/2} = (g y_1 S_1)^{1/2}$, Shear Velocity in Approach Section (fps)
ω = Fall Velocity of bed material based on D_{50} (Fig 5.8) × 3.28 (fps)
g = Acceleration of gravity (32.2 ft/s²)
S_1 = Slope of Energy Grade (ft/ft)
τ_0 = Shear Stress on the bed (lb/ft²)
ρ = Density of Water

Approach Section is 5794.74

Contracted Section is 5189.01

	Mixed Run	Subcritical Run
$y_1 =$	5.67'	5.83'
$y_0 =$	6.03'	6.03'
$Q_1 =$	7,310 cfs	6,969 cfs
$Q_2 =$	7,267 cfs	7,267 cfs
$W_1 =$	182'	182'
$W_2 =$	233'	233'
$S_1 =$	0.0069 (ft/ft)	0.0055 (ft/ft)

From Fig. 5.8, for a D_{50} of 1.167mm, $\omega = 0.13$ m/s

$0.13 \text{ m/s} \times 3.28 \text{ fps/mps} = 0.43 \text{ fps}$

$V_* = (g y_1 S_1)^{1/2} = [32.2(5.67)0.0069]^{1/2} = 1.12 \text{ fps (mixed)}$

$(5.83)\,0.0055 = 1.02 \text{ fps (sub)}$

$V_*/\omega = 1.12/0.43 = 2.6 \rightarrow K_1 = 0.69$ (mixed)

$= 1.02/0.43 = 2.4 \rightarrow K_1 = 0.69$ (sub)

$$y_2 = \left(\frac{Q_2}{Q_1}\right)^{6/7} \left(\frac{W_1}{W_2}\right)^{K_1} y_1$$

$$= \left(\frac{7{,}267'}{7{,}310'}\right)^{6/7} \left(\frac{182'}{233'}\right)^{0.69} 5.67' = 4.76'$$

$$y_s = y_2 - y_0 = 4.76' - 6.03' = \underline{-1.3' \text{ (mixed)}}$$

$$y_2 = \left(\frac{7{,}267'}{6{,}969'}\right)^{6/7} \left(\frac{182'}{233'}\right)^{0.69} 5.83' = 5.10'$$

$$y_s = y_2 - y_0 = 5.10' - 6.03' = \underline{-0.9' \text{ (sub)}}$$

Will try calculation again using Section 5640.23 as the Approach Section. At this section the flow hydraulics are the same for both the mixed and subcritical runs.

$y_1 = 6.67'$

$Q_1 = 6{,}951$ cfs

$W_1 = 370$ ft

$S_1 = 0.0017$ ft/ft

$$V_* = \left[32.2(6.67)\,0.0017\right]^{1/2} = 0.60 \text{ fps}$$

$$V_*/\omega = 1.06/0.60 = 1.8 \rightarrow K_1 = 0.64$$

$$y_2 = \left(\frac{7267}{6951}\right)^{6/7} \left(\frac{370}{233}\right)^{0.64} 6.67 = 9.32'$$

$$y_s = 9.32' - 6.03' = \underline{3.3'} \text{ (Sub and mixed)}$$

Section 5640.23 is the section nearest to the bridge where the ineffective flow boundary for the 1:1 flow contraction upstream of the bridge is located outside of the floodplain. However, the next upstream section 5794.74 was used as the Approach Section for the initial contraction scour calculation, because the hydraulics at this section for the mixed flow run are different than for the subcritical run. However, after the Initial contraction scour calculation resulted in a negative value for scour, section 5640.23 was used as the Approach section.

- Pier Scour

$$\frac{y_s}{y_1} = 2.0 K_1 K_2 K_3 K_4 \left(\frac{a}{y_1}\right)^{0.65} Fr_1^{0.43} \quad (6.1)$$

Where: y_s = Scour Depth (ft)
y_1 = Flow Depth US pier (ft)
K_1 = Pier Nose Correction Factor, Fig 6.3, Table 6.1
K_2 = Attack Angle Correction Factor, Table 6.2, Eqn. 6.4
K_3 = Bed Form Correction Factor, Table 6.3
K_4 = Armoring Correction Factor, Eqn. 6.5
a = Pier Width (ft)
L = Pier Length (ft)
Fr_1 = Froude Number Directly US of pier
V_1 = Mean Velocity Directly US of pier (fps)
g = Acceleration of gravity (32.2 ft/s²)

$y_1 = 2592.59 - 2586.56 = 6.03'$ (mixed and sub)

$a = 2 \times 4' = 8'$ (2x diameter for debris)

$L = a \times$ # of piers (Fig 6.3) - Exist. bridge has 3 piers. Assume additional bridge will also have 3 piers.

$L = 4' \times 6 = 24'$

$Fr_1 = 0.57$ (mixed and sub)

$V_1 = 6.9$ fps (mixed and sub)

$K_1 = 1.0$ for Group of cylinders.

K_2: Assume minimum angle of attack of 15° ✓ based on ADOT recommendations - "ADOT Roadway Design Guidelines", Jan. 2007, Section 610.2F

$K_2 = 1.5$ From Table 6.2 for $L/a = 24/8 = 3$ ✓

K_3: Determine Bed Condition - Use Fig. 3.6 (p. 17 of 46) from "Sediment Transport - Theory and Practice", Chih Ted Yang, 1996.

$$\tau = \gamma D S = 62.4 \times 6.03 \times 0.0036$$

$$= 1.35 \checkmark$$

$$\tau V = 1.35(6.9) = 9.3 \checkmark \rightarrow \text{Antidunes and flat bed}$$

$K_3 = 1.1$ From Table 6.3 ✓

$K_4 = 1$ Since $D_{50} < 2mm$ and $D_{95} < 20mm$ ✓

$$y_s = 2 \cdot K_1 K_2 K_3 K_4 \cdot \left(\frac{a}{y_1}\right)^{0.65} \cdot Fr_1^{0.43} \cdot y_1$$

$$y_s = 2(1)(1.5)(1.1)(1)\left(\frac{8}{6.03}\right)^{0.65} \cdot 0.57^{0.43} \cdot 6.03$$

$$= \underline{18.8'} \checkmark$$

(Both Mixed + Sub)

- Abutment Scour

$$\frac{Y_s}{Y_a} = 2.27 K_1 K_2 \left(\frac{L'}{Y_a}\right)^{0.43} Fr^{0.61} + 1 \qquad (7.1)$$

Where: K_1 = Abutment Shape Coefficient, Table 7.1
K_2 = Angle of Flow Coeff. = $(\theta/90)^{0.13}$, Fig 7.5
L' = Length of Active Flow Obstructed by Embankment (ft)
Y_a = Average Flow Depth on Flood Plain (A_e/L) (ft)
A_e = Flow Area on Floodplain (ft^2)
L = Length of Embankment projected Normal to flow (ft)
Fr = Froude number of Approach Flow $V_e/(gY_e)^{1/2}$
V_e = Q_e/V_e (fps)
Q_e = Flow obstructed by Abutment + Embankment (cfs)
Y_s = Scour depth (ft)

$K_1 = 0.55$ for Spill-through abutment (Fig 7.6, Table 7.1)

K_2: North Abutment $\theta = 59°$
South Abutment $\theta = 121°$ } Fig 7.5

$$K_2 = \left(\frac{59}{90}\right)^{0.13} = 0.95 \text{ North Abutment}$$

$$= \left(\frac{121}{90}\right)^{0.13} = 1.04 \text{ South Abutment}$$

L': Because a large amount of flow splits out of the Agua Caliente Wash from the left overbank just upstream of the Houghton Road Bridge, the values of the coefficients for the left abutment are not valid.

Therefore the abutment scour will be calculated for the right abutment only and this value will be used for both abutments.

Based on Fig 7.4 and the flow distribution in the right overbank pp.18+19 of for cross-section 5640.23:

$L' = 4291 - 4020 = 271'$ ✓

4020 is the station on cross-section 5640 of the projection of the edge of abutment, projected at the bridge skew of 31°.

$A_e = 122 + 172 + 137 + 76 = 507 \text{ ft}^2$ ✓

$Q_e = 367 + 645 + 444 + 166 = 1{,}622 \text{ cfs}$ ✓

$V_e = Q_e / A_e = \frac{1622}{507} = 3.2 \text{ fps}$ ✓

$y_a = A_e / L = 507/271 = 1.9'$ ✓

$Fr = V_e / (g y_e)^{1/2} = \frac{3.2}{\sqrt{32.2(1.9)}} = 0.41$

$$y_s = \left(2.27\, K_1 K_2 \left(\frac{L'}{y_a}\right)^{0.43} F_r^{0.61} + 1\right) y_a$$

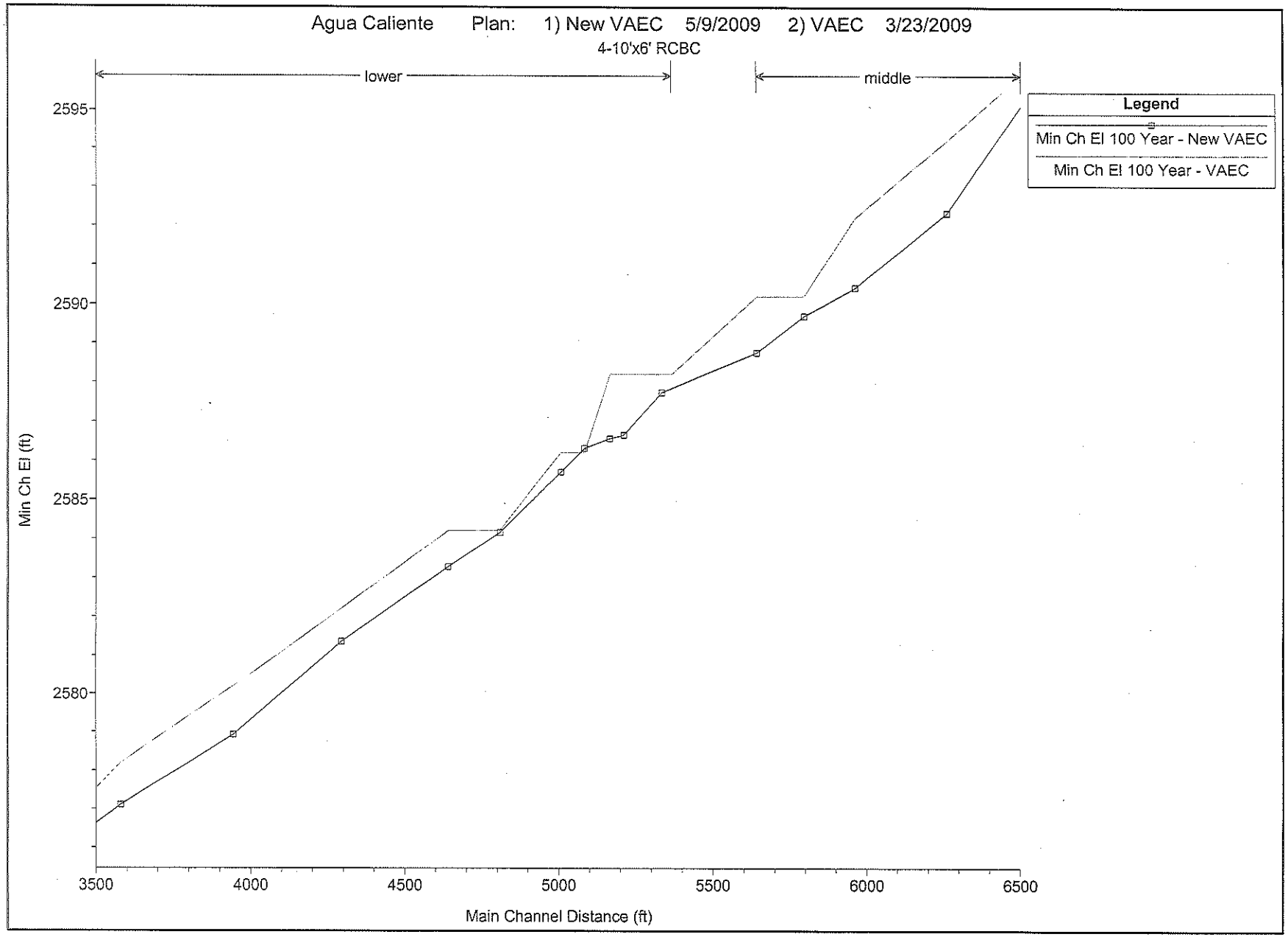
$$= \left(2.27(0.55)0.95\left(\frac{271}{1.9}\right)^{0.43}(0.41)^{0.61} + 1\right) 1.9$$

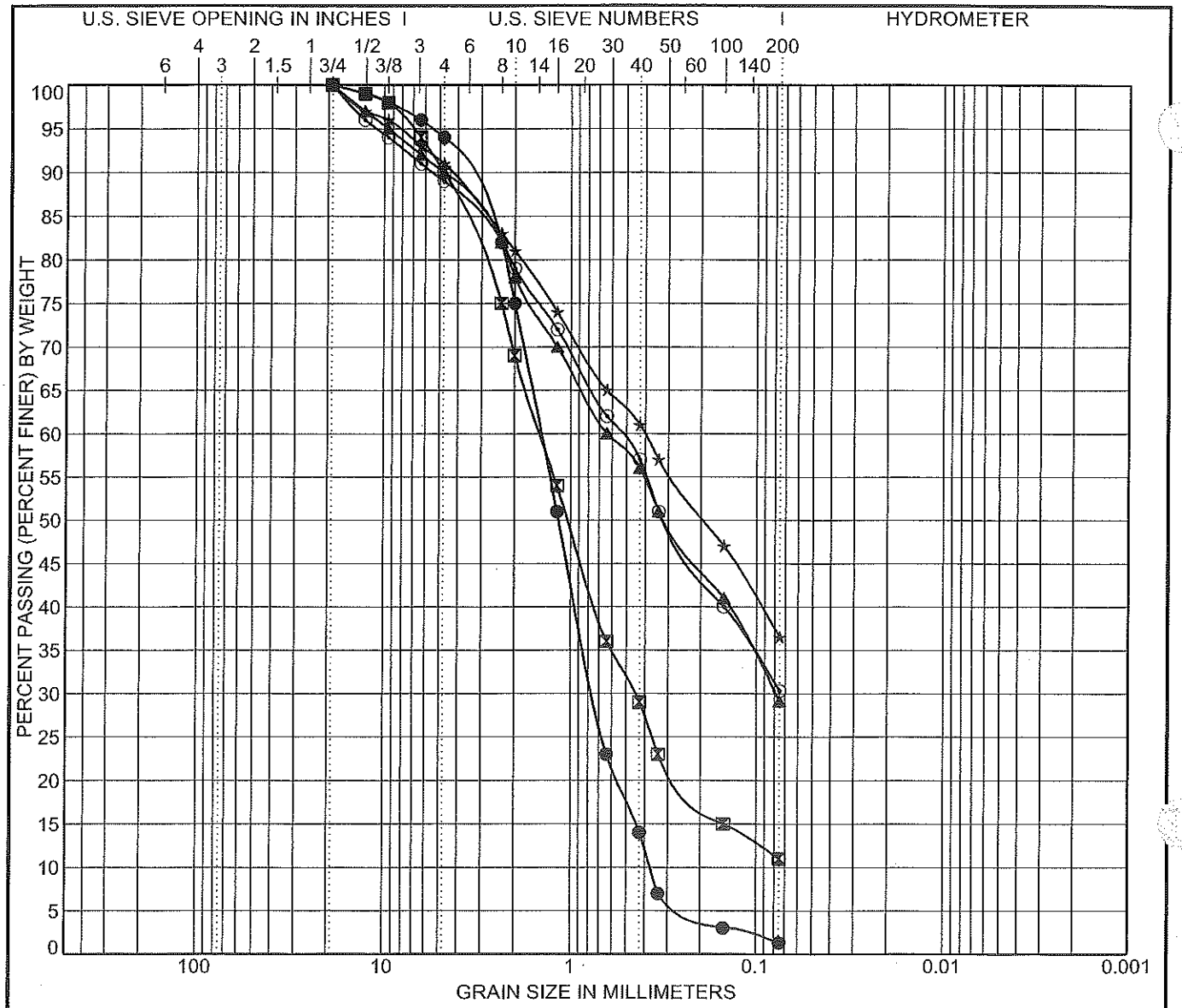
$$= \underline{12.9\ ft}$$ ✓

Total Scour = Long Term + Contraction + Local.

Total Scour at Piers = 5' + 3.3' + 18.8' = 27'

Total Scour at Abutments = 5' + 3.3' + 12.9' = 21'


Agua Caliente Plan: 1) New VAEC 5/9/2009 2) VAEC 3/23/2009
4-10'x6' RCBC
lower
middle
Legend
Min Ch El 100 Year - New VAEC
Min Ch El 100 Year - VAEC
Min Ch El (ft)
2595
2590
2585
2580
3500
4000
4500
5000
5500
6000
6500
Main Channel Distance (ft)



Sym.	Boring	Sample	Depth (ft.)	D100 (in)	D85 (mm)	D60 (mm)	D50 (mm)	D30 (mm)	D15 (mm)	D10 (mm)	Cc	Cu	LL	PL	PI
●	Agua Caliente	Bulk	0.0 - 1.0	0.75	2.989	1.526	1.167	0.819	0.455	0.373	1.03	3.86			
⊠	P-1	R2	2.5 - 3.5	0.75	4.001	1.532	1.077	0.458	0.150		2.21	23.11	NP	NP	NP
▲	P-1	S3	10.0 - 11.5	0.75	3.283	0.638	0.321	0.082					NP	NP	NP
★	P-2	R1	2.5 - 3.5	0.75	2.978	0.404	0.210						NP	NP	NP
⊙	P-2	S3	10.0 - 11.5	0.75	3.408	0.555	0.323						NP	NP	NP

Sym.	Boring	Sample	Depth (ft.)	% Cobbles & Boulders	% Gravel C	% Gravel F	% Sand C	% Sand M	% Sand F	% Fines Silt / Clay	Fines USCS	Sample USCS[1]	USCS Description [1]
●	Agua Caliente	Bulk	0.0 - 1.0	0.0	6.0 / 0.0	6.0	92.7 / 19.0	61.0	12.7	1.3	*NA*	SP	Poorly Graded Sand
⊠	P-1	R2	2.5 - 3.5	0.0	10.0 / 0.0	10.0	79.0 / 21.0	40.0	18.0	11.0	ML	SW-SM	Well-Graded Sand With Silt
▲	P-1	S3	10.0 - 11.5	0.0	10.0 / 0.0	10.0	60.9 / 12.0	22.0	26.9	29.1	ML	SM	Silty Sand
★	P-2	R1	2.5 - 3.5	0.0	9.0 / 0.0	9.0	54.5 / 10.0	20.0	24.5	36.5	ML	SM	Silty Sand
⊙	P-2	S3	10.0 - 11.5	0.0	11.0 / 0.0	11.0	58.7 / 10.0	22.0	26.7	30.3	ML	SM	Silty Sand

NCS Consultants, LLC
Tel: 520-544-2786
Fax: 520-544-3150

Project: Houghton Road - Tanque Verde to Speedway
Location: Tucson, AZ
NCS Project Number: J2008-12

Based on Laboratory Data From:
Speedie and Associates
Dugan Hoeflinger, Lab Manager

GRAIN SIZE DISTRIBUTION

1. *Italicized* text indicates no plasticity tests were performed, and field classification of fines was required for USCS classification.

REPORT\ncs_grain_size | PROJECT\p:\houghton road\tanque verde to speedway\gint\houghton road ii.gpj | LIBRARY\ncs gintlib v4.0.glb | LAST MOD05/04/09 11:40 am | PRINTED05/26/09 04:36 pm

Agua Caliente Wash Qdesign

Mixed Flow Run

HEC-RAS Plan: Prop Profile: Design

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Q Channel	Top W Chnl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(cfs)	(ft)
middle	10603.59	Design	12270.29	2620.20	2623.79	2623.24	2624.38	0.003761	6.98	2867.89	1370.78	0.66	9284.01	380.30
middle	10465.1	Design	12270.29	2619.05	2623.07	2622.20	2623.75	0.003673	7.20	2667.65	1063.65	0.66	10387.86	387.26
middle	10320.64	Design	12270.29	2617.71	2621.61	2621.48	2622.71	0.013473	8.74	1753.85	895.76	0.84	11300.72	386.95
middle	10131.91	Design	12270.29	2616.20	2621.28	2619.43	2621.81	0.001800	6.00	2396.16	847.69	0.48	11782.65	405.56
middle	9909.25	Design	12270.29	2616.20	2620.46	2619.48	2621.23	0.003635	7.17	1987.33	1010.12	0.62	11853.56	402.02
middle	9550.47	Design	12270.29	2614.20	2619.30	2617.40	2619.81	0.003570	5.84	2310.50	710.21	0.48	11826.06	440.97
middle	9307.97	Design	12270.29	2612.20	2618.96	2615.48	2619.26	0.001115	4.37	2814.41	723.71	0.32	12250.23	476.50
middle	9091.3	Design	12270.29	2611.74	2616.55	2616.55	2618.24	0.015201	10.43	1177.91	571.85	0.99	12266.39	340.64
middle	8865.4	Design	12270.29	2609.44	2614.68	2613.65	2615.63	0.006305	7.84	1581.17	542.59	0.66	12223.55	507.31
middle	8587.35	Design	12270.29	2607.96	2613.44	2612.35	2614.33	0.003448	7.57	1621.26	379.93	0.65	12270.29	379.93
middle	8257.08	Design	12270.29	2605.51	2612.67	2610.85	2613.39	0.002161	6.80	1803.63	346.25	0.53	12270.29	346.25
middle	7968.62	Design	12270.29	2604.09	2612.57	2608.85	2612.94	0.000742	4.87	2520.19	361.08	0.32	12270.29	361.08
middle	7628.04	Design	12270.29	2601.69	2612.43	2606.92	2612.70	0.000535	4.14	2970.32	342.37	0.24	12268.02	331.58
middle	7244.33	Design	12270.29	2599.87	2612.33	2604.71	2612.57	0.000197	4.01	3146.47	296.52	0.21	12177.16	272.24
middle	6971.06	Design	12270.29	2598.09	2611.88	2604.35	2612.42	0.000398	5.86	2093.02	173.63	0.30	12270.29	173.63
middle	6769.06	Design	12270.29	2596.77	2611.65	2604.24	2612.28	0.000668	6.38	1925.03	164.97	0.32	12269.32	156.78
middle	6687.06		Bridge											
middle	6544.64	Design	12270.29	2595.60	2603.00	2603.00	2605.89	0.009090	13.73	924.84	226.72	0.94	12079.81	132.68
middle	6260.16	Design	12270.29	2592.33	2597.36	2596.62	2601.27	0.030636	16.00	833.60	823.25	1.58	12059.91	237.73
middle	5961.45	Design	12270.29	2590.42	2596.71	2596.71	2597.52	0.007130	9.17	2300.43	1770.06	0.72	6697.26	145.52
middle	5794.74	Design	12270.29	2589.70	2595.37	2595.53	2596.33	0.006870	9.83	2296.46	1802.00	0.86	7310.38	181.81
middle	5640.23	Design	12270.29	2588.76	2595.43	2594.19	2595.67	0.001739	4.80	3858.24	2345.28	0.43	6951.22	370.12
lower	5365.23	Design	7266.62	2587.74	2593.84	2592.27	2594.12	0.001664	4.66	1874.78	1260.13	0.39	5113.30	247.35
lower	5242.33	Design	7266.62	2586.65	2592.66	2591.91	2593.68	0.006116	8.08	898.92	616.19	0.73	7266.62	246.62
lower	5189.01	Design	7266.62	2586.56	2592.59	2591.17	2593.33	0.003629	6.91	1051.67	233.16	0.57	7266.62	233.16
lower	5164.33		Bridge											
lower	5036.06	Design	7266.62	2585.81	2591.63	2590.30	2592.41	0.003901	7.13	1019.60	228.80	0.59	7266.62	228.80
lower	5007.33	Design	7266.62	2585.69	2591.13	2590.48	2592.24	0.006005	8.74	925.44	466.06	0.74	6644.95	175.07
lower	4808.89	Design	7266.62	2584.15	2589.22	2589.22	2590.34	0.010138	11.19	1069.51	1220.54	0.95	3063.48	63.04
lower	4640.59	Design	7266.62	2583.27	2587.89	2587.42	2588.50	0.006069	7.24	1434.53	1395.75	0.71	4838.69	205.20
lower	4293.46	Design	7266.62	2581.36	2585.43	2585.20	2585.93	0.007734	7.49	1741.66	1605.00	0.78	3549.45	166.18
lower	3943.83	Design	7266.62	2578.93	2583.80	2583.01	2584.17	0.003357	5.54	1826.72	985.27	0.53	5213.10	277.94
lower	3579.38	Design	7266.62	2577.11	2581.65	2581.65	2582.45	0.007922	8.39	1395.48	1011.88	0.76	5074.74	160.94
lower	3344.57	Design	7266.62	2575.66	2579.99	2579.76	2580.48	0.006192	6.90	1757.95	1700.45	0.70	4512.82	219.44
lower	3039.07	Design	7266.62	2573.50	2577.57	2577.57	2578.21	0.008155	7.52	1657.35	1903.33	0.80	5149.50	247.58
lower	2734.71	Design	7266.62	2571.40	2575.16	2574.83	2575.56	0.006688	7.14	2139.25	1872.06	0.82	3201.27	190.12
lower	2590.18	Design	7266.62	2570.78	2574.13	2573.77	2574.52	0.008070	6.56	1863.29	1956.41	0.77	3328.14	224.61
lower	2425.08	Design	7266.62	2569.69	2573.45	2572.63	2573.59	0.003683	4.38	2832.43	2326.43	0.52	2134.72	219.36
lower	2225.5	Design	7266.62	2568.35	2572.34	2571.83	2572.51	0.006614	4.49	2352.23	2184.31	0.46	1536.91	116.92
lower	1877.58	Design	7266.62	2566.10	2569.42	2569.42	2569.90	0.009545	8.32	1731.26	1823.46	0.97	2483.27	131.69
lower	1549.86	Design	7266.62	2563.59	2566.99	2566.66	2567.24	0.006319	4.45	1883.09	2067.58	0.64	2560.63	379.52
lower	1261.13	Design	7266.62	2561.37	2565.39	2565.03	2565.58	0.004980	4.08	2262.41	2081.35	0.52	4102.72	515.66
lower	968.69	Design	7266.62	2560.20	2563.58	2563.15	2563.84	0.006164	5.37	2147.14	1968.89	0.66	3110.46	282.05
lower	760.51	Design	7266.62	2558.20	2561.38	2561.38	2561.91	0.013860	7.59	1624.45	1637.11	0.98	3655.41	256.84
lower	554.81	Design	7266.62	2556.20	2560.38	2559.69	2560.59	0.002617	5.32	2853.94	2223.92	0.48	2798.25	137.01
lower	0	Design	32022.62	2550.20	2559.08	2556.18	2559.60	0.001637	6.97	7822.90	2082.45	0.46	20802.74	410.14

Agua Caliente Wash Q Design

Subcritical Flow Run

HEC-RAS Plan: Prop Profile: Design

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Q Channel	Top W Chnl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(cfs)	(ft)
middle	10603.59	Design	12270.29	2620.20	2623.79	2623.24	2624.38	0.003761	6.98	2867.89	1370.78	0.66	9284.01	380.30
middle	10465.1	Design	12270.29	2619.05	2623.07	2622.20	2623.75	0.003673	7.20	2667.65	1063.65	0.66	10387.86	387.26
middle	10320.64	Design	12270.29	2617.71	2621.61	2621.48	2622.71	0.013473	8.74	1753.85	895.76	0.84	11300.72	386.95
middle	10131.91	Design	12270.29	2616.20	2621.28	2619.43	2621.81	0.001800	6.00	2396.16	847.69	0.48	11782.65	405.56
middle	9909.25	Design	12270.29	2616.20	2620.46	2619.48	2621.23	0.003635	7.17	1987.33	1010.12	0.62	11853.56	402.02
middle	9550.47	Design	12270.29	2614.20	2619.30	2617.40	2619.81	0.003570	5.84	2310.50	710.21	0.48	11826.06	440.97
middle	9307.97	Design	12270.29	2612.20	2618.96	2615.48	2619.26	0.001115	4.37	2814.41	723.71	0.32	12250.23	476.50
middle	9091.3	Design	12270.29	2611.74	2616.55	2616.55	2618.24	0.015201	10.43	1177.91	571.85	0.99	12266.39	340.64
middle	8865.4	Design	12270.29	2609.44	2614.68	2613.65	2615.63	0.006305	7.84	1581.17	542.59	0.66	12223.55	507.31
middle	8587.35	Design	12270.29	2607.96	2613.44	2612.35	2614.33	0.003448	7.57	1621.26	379.93	0.65	12270.29	379.93
middle	8257.08	Design	12270.29	2605.51	2612.67	2610.85	2613.39	0.002161	6.80	1803.63	346.25	0.53	12270.29	346.25
middle	7968.62	Design	12270.29	2604.09	2612.57	2608.85	2612.94	0.000742	4.87	2520.19	361.08	0.32	12270.29	361.08
middle	7628.04	Design	12270.29	2601.69	2612.43	2606.92	2612.70	0.000535	4.14	2970.32	342.37	0.24	12268.02	331.58
middle	7244.33	Design	12270.29	2599.87	2612.33	2604.71	2612.57	0.000197	4.01	3146.47	296.52	0.21	12177.16	272.24
middle	6971.06	Design	12270.29	2598.09	2611.88	2604.35	2612.42	0.000398	5.86	2093.02	173.63	0.30	12270.29	173.63
middle	6769.06	Design	12270.29	2596.77	2611.65	2604.24	2612.28	0.000668	6.38	1925.03	164.97	0.32	12269.32	156.78
middle	6687.06		Bridge											
middle	6544.64	Design	12270.29	2595.60	2603.00	2603.00	2605.89	0.009090	13.73	924.84	226.72	0.94	12079.81	132.68
middle	6260.16	Design	12270.29	2592.33	2598.65	2598.62	2599.60	0.007142	8.65	1960.91	2105.44	0.79	9729.65	299.94
middle	5961.45	Design	12270.29	2590.42	2596.71	2596.71	2597.52	0.007130	9.17	2300.43	1770.06	0.72	6697.26	145.52
middle	5794.74	Design	12270.29	2589.70	2595.53	2595.53	2596.31	0.005488	9.01	2508.32	1963.17	0.77	6968.87	181.81
middle	5640.23	Design	12270.29	2588.76	2595.43	2594.19	2595.67	0.001739	4.80	3858.24	2345.28	0.43	6951.22	370.12
lower	5365.23	Design	7266.62	2587.74	2593.84	2592.27	2594.12	0.001664	4.66	1874.78	1260.13	0.39	5113.30	247.35
lower	5242.33	Design	7266.62	2586.65	2592.66	2591.91	2593.68	0.006116	8.08	898.92	616.19	0.73	7266.62	246.62
lower	5189.01	Design	7266.62	2586.56	2592.59	2591.17	2593.33	0.003629	6.91	1051.67	233.16	0.57	7266.62	233.16
lower	5164.33		Bridge											
lower	5036.06	Design	7266.62	2585.81	2591.63	2590.30	2592.41	0.003901	7.13	1019.60	228.80	0.59	7266.62	228.80
lower	5007.33	Design	7266.62	2585.69	2591.13	2590.48	2592.24	0.006005	8.74	925.44	466.06	0.74	6644.95	175.07
lower	4808.89	Design	7266.62	2584.15	2589.22	2589.22	2590.34	0.010138	11.19	1069.51	1220.54	0.95	3063.48	63.04
lower	4640.59	Design	7266.62	2583.27	2587.89	2587.42	2588.50	0.006069	7.24	1434.53	1395.75	0.71	4838.69	205.20
lower	4293.46	Design	7266.62	2581.36	2585.43	2585.20	2585.93	0.007734	7.49	1741.66	1605.00	0.78	3549.45	166.18
lower	3943.83	Design	7266.62	2578.93	2583.80	2583.01	2584.17	0.003357	5.54	1826.72	985.27	0.53	5213.10	277.94
lower	3579.38	Design	7266.62	2577.11	2581.65	2581.65	2582.45	0.007922	8.39	1395.48	1011.88	0.76	5074.74	160.94
lower	3344.57	Design	7266.62	2575.66	2579.99	2579.76	2580.48	0.006192	6.90	1757.95	1700.45	0.70	4512.82	219.44
lower	3039.07	Design	7266.62	2573.50	2577.57	2577.57	2578.21	0.008155	7.52	1657.35	1903.33	0.80	5149.50	247.58
lower	2734.71	Design	7266.62	2571.40	2575.16	2574.83	2575.56	0.006688	7.14	2139.25	1872.06	0.82	3201.27	190.12
lower	2590.18	Design	7266.62	2570.78	2574.13	2573.77	2574.52	0.008070	6.56	1863.29	1956.41	0.77	3328.14	224.61
lower	2425.08	Design	7266.62	2569.69	2573.45	2572.63	2573.59	0.003683	4.38	2832.43	2326.43	0.52	2134.72	219.36
lower	2225.5	Design	7266.62	2568.35	2572.34	2571.83	2572.51	0.006614	4.49	2352.23	2184.31	0.46	1536.91	116.92
lower	1877.58	Design	7266.62	2566.10	2569.42	2569.42	2569.90	0.009545	8.32	1731.26	1823.46	0.97	2483.27	131.69
lower	1549.86	Design	7266.62	2563.59	2566.99	2566.66	2567.24	0.006319	4.45	1883.09	2067.58	0.64	2560.63	379.52
lower	1261.13	Design	7266.62	2561.37	2565.39	2565.03	2565.58	0.004980	4.08	2262.41	2081.35	0.52	4102.72	515.66
lower	968.69	Design	7266.62	2560.20	2563.58	2563.15	2563.84	0.006164	5.37	2147.14	1968.89	0.66	3110.46	282.05
lower	760.51	Design	7266.62	2558.20	2561.38	2561.38	2561.91	0.013860	7.59	1624.45	1637.11	0.98	3655.41	256.84
lower	554.81	Design	7266.62	2556.20	2560.38	2559.69	2560.59	0.002617	5.32	2553.94	2223.92	0.48	2798.25	137.01
lower	0	Design	32022.62	2550.20	2559.08	2556.18	2559.60	0.001637	6.97	7822.90	2082.45	0.46	20802.74	410.14

shear velocity U_*, Fig. 3.5 can be used to determine the bed forms in laboratory flumes.

Simons and Richardson (1966) plotted the stream power τV against median fall diameter of sediment particles for laboratory flume and some canal data as shown in Fig. 3.6. This figure can be used for the determination of bed forms in laboratory flumes and small streams. An evaluation of different

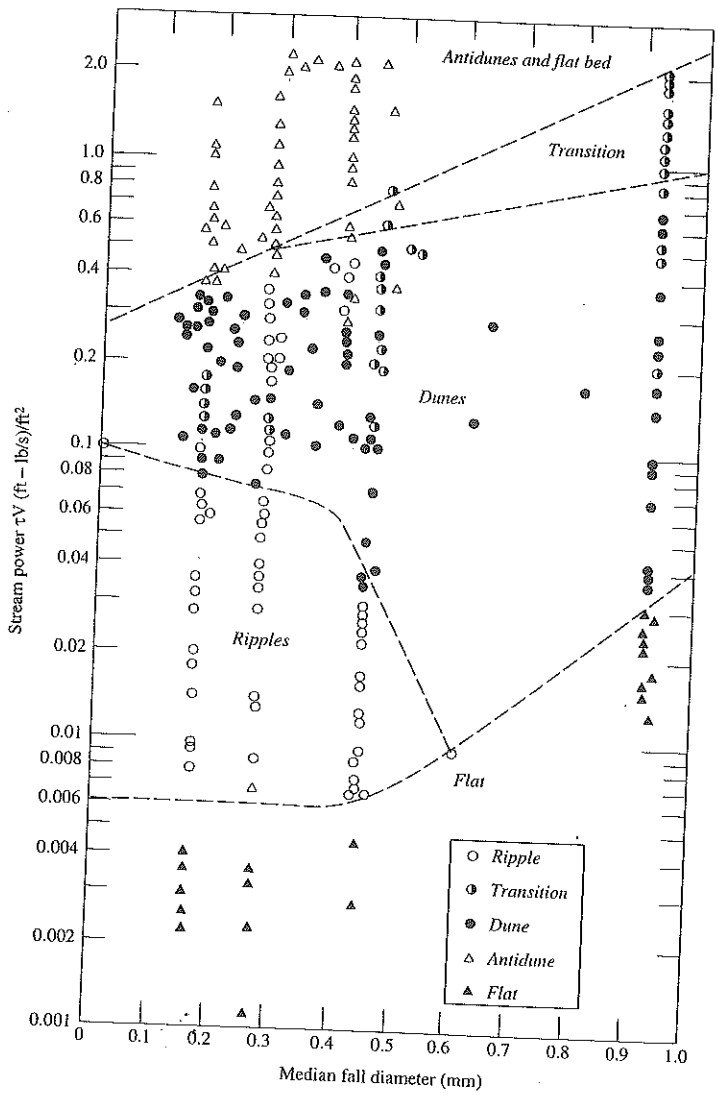


FIGURE 3.6
Relation of bed form to stream power and median fall diameter of bed sediment (Simons and Richardson, 1966).

17 of 46

TABLE 3.5
Evaluation of di

Variables
$\frac{U_* d_{50}}{\nu}, \frac{U_*}{\omega}$
$\frac{\tau}{(\rho_s-\rho)gd_{50}}, \frac{V}{(gR)^{1/2}}$
$\frac{R}{d_{50}}, \frac{S}{\rho_s-\rho}\Big/\rho$
$\frac{gd_{50}}{U_*^2}, d_{50}$
$\tau V, d_{50}$
$\frac{U_*}{\omega}, S$
$\frac{\tau}{\gamma_s' d_{50}}, \frac{d\omega}{\nu}$

graphical analys
see Table 3.5.

3.3.4 Factors

Theoretical anal
the prediction o
used in the anal
data cannot be
conditions are f
Factors affecting
to) water depth,
size, bed mater
cross-sectional s
effects of these f
as follows (Simo

1. *Depth:* wate
roughness $d/$
can cause a
depth may r
depth or hy

CROSS SECTION

RIVER: Agua Caliente
REACH: middle RS: 5640.23

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
854.48	2599.04	921.66	2599.43	1004.5	2598.72	1123.58	2598.93	1339.42	2598.36
1361.72	2597.76	1532.97	2597.97	1646.86	2597.14	1656.25	2597.44	1666.8	2596.86
1722.52	2596.51	1763.49	2598.01	1783.29	2597.4	1863.24	2596.61	2174.47	2596.1
2306.38	2596.82	2585.65	2594.74	2605.87	2595.52	2623.36	2595.4	2634.9	2594.68
2699.34	2594.4	2732.13	2593.25	2746.65	2594.66	2780.62	2595.09	2872.59	2594.16
2886.19	2592.77	2894.71	2594	2948.89	2594.3	2978.11	2593.25	2987.1	2594.04
3097.09	2594.2	3199.01	2592.86	3294.44	2593.28	3309.44	2592.78	3399.05	2592.47
3457.73	2592.85	3465.91	2591.66	3473.12	2592.26	3508.14	2591.67	3530.02	2592.51
3607.53	2591.84	3644.06	2593.34	3686.63	2593.7	3703.47	2592.84	3746.72	2593
3793.52	2591.64	3814.15	2589.32	3832.64	2589.81	3840.82	2589.22	3850.43	2589.53
3856.51	2588.92	3878.84	2589.41	3896.84	2588.76	3917.45	2589.66	3918.22	2589.73
3942.89	2592.1	3952.51	2592.49	4006.31	2592.19	4016.08	2593.01	4056.75	2593.88
4099.76	2593.26	4108.54	2592.49	4147.57	2592.79	4165.75	2591.86	4179.55	2593.18
4205.32	2592.71	4235.14	2593.91	4249.83	2593.55	4294.77	2595.16	4307.73	2597.18
4330.88	2596.96	4353.32	2593.83	4421.41	2593.2	4453.48	2594.31	4464.13	2593.91
4480.34	2594.49	4500.16	2593.97	4566.69	2594.94	4578.98	2597.2	4596.9	2599.13
4614.89	2599.68	4644.56	2599.26	4656.58	2598.11	4671.76	2595.22	4754.92	2595.15
4766.14	2594.41	4797.63	2594.98	4808.45	2594.4	4849.25	2594.77	4859.86	2594.16
4874.59	2594.62	4996.83	2595.13	5019.03	2596.7	5101.73	2598.15	5162.71	2597.98
5189.55	2596.32	5265.93	2597.5	5272.46	2597.21	5356.42	2600.13		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
854.48	.06	2780.62	.055	3686.63	.032	4644.56	.055

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
3686.63	4056.75	0	0	0	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
4350	5394.3	2600.41	F
0	2850	2602.2	F

CROSS SECTION OUTPUT Profile #Design

E.G. Elev (ft)	2595.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.055	0.032	0.032
W.S. Elev (ft)	2595.43	Reach Len. (ft)	275.00	275.00	275.00
Crit W.S. (ft)	2594.19	Flow Area (sq ft)	1897.92	1447.48	512.84
E.G. Slope (ft/ft)	0.001739	Area (sq ft)	2138.11	1447.48	1011.15
Q Total (cfs)	12270.29	Flow (cfs)	3690.06	6951.22	1629.00
Top Width (ft)	2345.28	Top Width (ft)	1177.56	370.12	797.60
Vel Total (ft/s)	3.18	Avg. Vel. (ft/s)	1.94	4.80	3.18
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)	2.27	3.91	2.07
Conv. Total (cfs)	294275.4	Conv. (cfs)	88497.9	166709.5	39068.0
Length Wtd. (ft)	275.00	Wetted Per. (ft)	837.03	370.56	248.16
Min Ch El (ft)	2588.76	Shear (lb/sq ft)	0.25	0.42	0.22
Alpha	1.54	Stream Power (lb/ft s)	0.48	2.04	0.71

* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	* 7.24	* 7.22	* 6.11 *
* C & E Loss (ft)	*	* Cum SA (acres)	*	*	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

Profile #Design

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)
1	LOB	2422.39	2564.93	0.00	19.12	71.65	0.00	0.27	0.00
2	LOB	2564.93	2707.46	0.00	90.06	126.79	0.00	0.71	0.00
3	LOB	2707.46	2850.00	0.00	131.01	142.63	0.00	0.92	0.00
4	LOB	2850.00	2989.44	289.40	206.98	139.65	2.36	1.48	1.40
5	LOB	2989.44	3128.88	243.09	186.30	139.44	1.98	1.34	1.30
6	LOB	3128.88	3268.32	583.84	315.17	139.45	4.76	2.26	1.85
7	LOB	3268.32	3407.75	763.67	370.26	139.45	6.22	2.66	2.06
8	LOB	3407.75	3547.19	992.90	433.57	139.57	8.09	3.11	2.29
9	LOB	3547.19	3686.63	817.18	385.64	139.47	6.66	2.77	2.12
10	Chan	3686.63	4056.75	6951.21	1447.48	370.56	56.65	3.91	4.80
11	ROB	4056.75	4115.40	-367.21	-122.30	58.69	2.99	2.09	3.00
12	ROB	4115.40	4174.05	-645.37	-171.57	58.71	5.26	2.93	3.76
13	ROB	4174.05	4232.70	-444.33	-137.14	58.70	3.62	2.34	3.24
14	ROB	4232.70	4291.35	-165.68	-75.86	58.68	1.35	1.29	2.18
15	ROB	4291.35	4350.00	6.42	5.97	13.38	0.05	0.45	1.08
16	ROB	4350.00	4417.10	0.00	125.26	67.13	0.00	1.87	0.00
17	ROB	4417.10	4484.19	0.00	100.93	67.13	0.00	1.50	0.00
18	ROB	4484.19	4551.28	0.00	75.43	67.11	0.00	1.12	0.00
19	ROB	4551.28	4618.38	0.00	9.90	18.11	0.00	0.55	0.00
20	ROB	4618.38	4685.47	0.00	3.04	14.83	0.00	0.21	0.00
21	ROB	4685.47	4752.57	0.00	16.63	67.09	0.00	0.25	0.00
22	ROB	4752.57	4819.66	0.00	49.95	67.14	0.00	0.74	0.00
23	ROB	4819.66	4886.76	0.00	58.46	67.12	0.00	0.87	0.00
24	ROB	4886.76	4953.85	0.00	41.41	67.10	0.00	0.62	0.00
25	ROB	4953.85	5020.95	0.00	17.29	47.20	0.00	0.37	0.00

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

Tanque Verde Creek

Long-Term Bed Elevation Change

Research: 1) Bridge Scour Evaluation Report - Houghton Road Bridge at Tanque Verde Wash, November 26, 1997

2) Tanque Verde Creek Management Study - Phase 1 Attachment 3 Geomorphic Assessment, July 30, 1993

Reference 2 above states that TVC is in equilibrium such that there is no bed elevation movement.

USE 0.0' as Long Term Bed change ∴

Tanque Verde Creek

- Long Term Bed Elevation Change

Using the channel invert (vertically adjusted to the NAVD 88 datum) from the FIS study (topo flown in August 1993), and plotting with the channel invert from this Houghton Road project (topo flown Dec 2008), it shows a lowering of the channel bed in the vicinity of the Houghton Road bridge of approximately 1.5 feet (see page 35 of 46).

Since this lowering occured over a period of 15.33 years, the expected Long-Term Degradation over 100 years is:

$$1.5' \left(\frac{100 \text{ yrs.}}{15.33 \text{ yrs.}}\right) = \underline{10'} \checkmark$$

- Contraction Scour

Tanque Verde is Case 1.c. - Abutments set back from Channel. Will do analysis for main channel, left and right overbanks.

Determine if have live bed or clear water scour. Use Equation 5.1 (page 3 of 46):

D_{50} from Preliminary Geotechnical Report by NCS (p. 36 of 46):

Main channel = 1.854 mm × 0.039 in/mm × 1 ft/12 in = 0.0060 ft ✓

Left OB (P-3) = 1.092 mm = 0.0035 ft ✓

Right OB (P-4) = 1.010 mm = 0.0033 ft ✓

Approach Section No. is 77

<u>Main Channel:</u> $y = A_{ch}/TW_{ch}$. TW = 3036 - 2891 = 145'

$y = 832/145 = 5.74$ ft (subcritical run)

$y = 728/145 = 5.02$ ft (supercritical run)

$$V_c = K_u\, y^{1/6}\, D_{50}^{1/3} \qquad (5.1)$$

$V_c = 11.17(5.7)^{1/6}(0.0060)^{1/3} = 2.72$ fps (sub)

$V_c = 11.17(5.0)^{1/6}(0.0060)^{1/3} = 2.66$ fps (super)

$V_{CH} = 8.8$ fps (sub) → Live-Bed

$V_{CH} = 11.9$ fps (super) → Live-Bed

Left OB: $y = A_{LOB}/TW_{Flow}$

$y = 2550/(2891-2018) = 2.92$ ft (sub)

$y = 1932/(2891-2020) = 2.22$ ft (super)

$V_c = 11.17(2.9)^{1/6}(0.0035)^{1/3} = 2.03$ fps (sub)

$V_c = 11.17(2.2)^{1/6}(0.0035)^{1/3} = 1.94$ fps (super)

$V_{LOB} = 3.44$ fps (sub) → Live-Bed ✓

$V_{LOB} = 4.42$ fps (super) → Live-Bed ✓

Right OB: $y = A_{ROB}/TW_{Flow}$

$y = 3844/(4881-3036) = 2.08$ ft (sub)

$y = 2718/(4522-3036) = 1.83$ ft (super)

$V_c = 11.17(2.1)^{1/6}(0.0033)^{1/3} = 1.88$ fps (sub)

$V_c = 11.17(1.8)^{1/6}(0.0033)^{1/3} = 1.84$ fps (super)

$V_{ROB} = 3.00$ fps (sub) → Live-Bed

$V_{ROB} = 3.82$ fps (super) → Live-Bed

Use Equations 5.2 and 5.3 (p. 4 of 46):

$$\frac{y_2}{y_1} = \left(\frac{Q_2}{Q_1}\right)^{6/7}\left(\frac{W_1}{W_2}\right)^{k_1}$$

$$y_s = y_2 - y_0$$

Approach Section is 77 Contracted Section is 73.5

Main Channel:

	Sub Run	Super Run
$y_1 =$	5.74'	5.02'
$y_0 =$	1380/181 = 7.62'	1160/181 = 6.41'
$Q_1 =$	7,277	8,679
$Q_2 =$	15,704	16,802
$W_1 =$	3036 − 2891 = 145'	145'

Subject Houghton: TV to Spdwy. Bridge Scour Calcs.

Sub Run	Super Run
$W_2 = 3021 - 2840 = 181'$ ✓	$181'$ ✓
$S_1 = 0.0031$ ✓	0.0068 ✓

From Fig. 5.8, for a D_{50} of 1.854 mm, $w = 0.19$ m/s

$0.19 \text{ m/s} \times 3.28 \text{ fps/mps} = 0.62 \text{ fps}$

$V_* = (g y_1 S_1)^{1/2} = [32.2(5.7)0.0031]^{1/2} = 0.75 \text{ fps (sub)}$ ✓

$= [32.2(5.0)0.0068]^{1/2} = 1.05 \text{ fps (super)}$ ✓

$V_*/w = 0.75/0.62 = 1.2 \rightarrow K_1 = 0.64$ (sub) ✓

$= 1.05/0.62 = 1.7 \rightarrow K_1 = 0.64$ (super) ✓

$$y_2 = \left(\frac{Q_2}{Q_1}\right)^{6/7} \left(\frac{W_1}{W_2}\right)^{K_1} y_1$$

$$= \left(\frac{15{,}704}{7{,}297}\right)^{6/7} \left(\frac{145}{181}\right)^{0.64} 5.74' = 9.61' \checkmark$$

$y_s = y_2 - y_0 = 9.61 - 7.62 = \underline{2.0' \text{ (sub)}}$ ✓

$$Y_2 = \left(\frac{16,802}{8,679}\right)^{6/7} \left(\frac{145}{181}\right)^{0.64} 5.02 = 7.67'$$

$$Y_s = 7.67 - 6.41 = \underline{1.3' \text{ (super)}}$$

Left OB:

	Sub Run	Super Run
$Y_1 =$	2.92'	2.22'
$Y_0 =$	1713/340 = 5.04'	1307/345 = 3.79'
$Q_1 =$	8,779	8,540
$Q_2 =$	4,458	4,041
$W_1 =$	2891 - 2018 = 873'	2891 - 2020 = 871'
$W_2 =$	2840 - 2500 = 340'	2840 - 2495 = 345'
$S_1 =$	0.0031	0.0068

From Fig. 5.8, for a D_{50} of 1.092mm, $w = 0.13$ m/s

$0.13 \text{ m/s} \times 3.28 \text{ fps/mps} = 0.43 \text{ fps}$

$V_* = [32.2(2.92)0.0031]^{1/2} = 0.54 \text{ fps (sub)}$

$[32.2(2.22)0.0068]^{1/2} = 0.70 \text{ fps (super)}$

$V_*/w = 0.54/0.43 = 1.2 \longrightarrow K_1 = 0.64$ (sub) ✓

$= 0.70/0.43 = 1.6 \rightarrow K_1 = 0.64$ (super) ✓

$$y_2 = \left(\frac{4,458}{8,779}\right)^{6/7} \left(\frac{873}{340}\right)^{0.64} 2.92 = 3.00' \checkmark$$

$y_s = 3.00 - 5.04 = -2.04'$ Use Ø (sub) ✓

$$y_2 = \left(\frac{4,041}{8,540}\right)^{6/7} \left(\frac{871}{345}\right)^{0.64} 2.22 = 2.11' \checkmark$$

$y_s = 2.11 - 3.79 = -1.68'$ Use Ø (super) ✓

Right OB:

	Sub Run	Super Run
$y_1 =$	2.08' ✓	1.83' ✓
$y_0 =$	2841/567 = 5.01' ✓	2159/559 = 3.86' ✓
$Q_1 =$	11,544 ✓	10,381 ✓
$Q_2 =$	7,438 ✓	6,758 ✓
$W_1 =$	4881 − 3036 = 1,845' ✓	4522 − 3036 = 1,486' ✓
$W_2 =$	3588 − 3021 = 567' ✓	3580 − 3021 = 559' ✓
$S_1 =$	0.0031 ✓	0.0068 ✓

From Fig. 5.8, for a D_{50} of 1.010 mm, $w = 0.13$ m/s. $= 0.43$ fps

$V_* = [32.2(2.08)0.0031]^{1/2} = 0.46$ fps (sub) ✓

$= [32.2(1.83)0.0068]^{1/2} = 0.63$ fps (super) ✓

$V_*/w = 0.46/0.43 = 1.1 \rightarrow K_1 = 0.64$ (sub) ✓

$= 0.63/0.43 = 1.5 \rightarrow K_1 = 0.64$ (super) ✓

$$y_2 = \left(\frac{7,438}{11,544}\right)^{6/7} \left(\frac{1,845}{567}\right)^{0.64} 2.08 = 3.04' \checkmark$$

$y_s = 3.04 - 5.01 = -1.97'$ <u>use Ø (sub)</u> ✓

$$y_2 = \left(\frac{6,758}{10,381}\right)^{6/7} \left(\frac{1,486}{559}\right)^{0.64} 1.83 = 2.37' \checkmark$$

$y_s = 2.37 - 3.86 = -1.49'$ <u>use Ø (super)</u> ✓

- Pier Scour

Use Equation 6.1 (p. 8 of 46)

$$\frac{y_s}{y_1} = 2.0\, K_1 K_2 K_3 K_a \left(\frac{a}{y_1}\right)^{0.65} Fr_1^{0.43} \qquad (6.1)$$

Main Channel:

$y_1 = 2579.61 - 2570.10 = 9.51'$ (sub)

$= 2578.40 - 2570.10 = 8.30'$ (super)

$a = 2 \times 4' = 8'$ (2x diameter for debris)

$L = a \times$ # piers (Fig 6.3) – Exist bridge has 3 piers
Assume additional bridge will also have 3 piers

$L = 4' \times 6 = 24'$

$Fr_1 = V_1/(g y_1)^{1/2} = 11.38/[32.2(9.51)]^{1/2} = 0.65$ (sub)

$= 14.48/[32.2(8.30)]^{1/2} = 0.89$ (super)

$V_1 = 11.38$ fps (sub) 14.48 (super)

$K_1 = 1.0$ Group of cylinders

$K_2 = 1.5$ From Table 6.2 for $L/a = 24/8 = 3$.
(Assume 15° angle of attack – see p. 9 of 46).

K_3: Determine Bed Condition – Use Fig. 3.6 (p. 17 of 46)

$\tau = \gamma D S = 62.4(9.51)0.0035 = 2.08$ (sub)

$\tau V = 2.08(11.38) = 23.67 \longrightarrow$ Antidunes and flat bed (sub)

$\tau = 62.4(8.30)0.0072 = 3.73$ (super)

$\tau V = 3.73(14.48) = 54.0 \longrightarrow$ Antidunes and flat bed (super)

$K_3 = 1.1$ From Table 6.3 (sub and super)

$K_4 = 1$ since $D_{50} < 2mm$ and $D_{95} < 20mm$

$$y_s = 2(1)(1.5)(1.1)(1)\left(\frac{8}{9.51}\right)^{0.65} \cdot 0.65^{0.43} \cdot 9.51$$

$= \underline{23.3'}$ (subcritical run)

$$y_s = 2(1)(1.5)(1.1)(1)\left(\frac{8}{8.30}\right)^{0.65} \cdot 0.89^{0.43} \cdot 8.30$$

$= \underline{25.4'}$ (supercritical run)

Pier Scour Calcs for LOB + ROB not necessary because the considerably lower y and V in the overbanks will result in lower scour depth than the main channel.

- Abutment Scour

Use Equation 7.1 (p. 10 of 46)

$$\frac{y_s}{y_a} = 2.27 K_1 K_2 \left(\frac{L'}{y_a}\right)^{0.43} Fr^{0.61} + 1 \qquad (7.1)$$

$K_1 = 0.55$ for spill-through abutment (Fig 7.6, Table 7.1)

$K_2 = \left(\frac{90}{90}\right)^{0.13} = 1.0$

$L' = 2850 - 2018 = 832'$ LOB (sub)

$= 2850 - 2020 = 830'$ LOB (super)

$= 4881 - 3940 = 941'$ ROB (sub)

$= 4497 - 3940 = 557'$ ROB (super)

2850 is the station on cross-section 77 of the projection of the edge of the left abutment
3940 is the station on cross-section 77 of the projection of the edge of the right abutment

$A_e = 278 + 214 + 298 + 425 + 201 + 208 + 298 + 359$
$+ \left[270\left(\frac{2850-2742}{2891-2742}\right)\right] = 2,477\ ft^2$ - LOB (sub)

$= 211 + 195 + 209 + 288 + 174 + 183 + 239 + 263$
$+ \left[170\left(\frac{2850-2742}{2869-2742}\right)\right] = 1,907\ ft^2$ - LOB (super)

$$A_e = \left[507\left(\frac{4117-3940}{4117-3912}\right)\right] + 461 + 269 = 1{,}168\ ft^2 - ROB\ (sub)$$

$$= \left[360\left(\frac{4117-3940}{4117-3912}\right)\right] + 375 = 686\ ft^2 - ROB\ (super)$$

$$Q_e = 3.5 + 3.3 + 3.4 + 5.9 + 3.1 + 3.4 + 3.6 + 3.5 + \left[2.2\left(\frac{2850-2742}{2891-2742}\right)\right]$$

$$= 31.3\% = 27{,}600(0.313) = 8{,}639 - LOB\ (sub)$$

$$= 3.1 + 3.1 + 3.2 + 5.3 + 3.7 + 4.1 + 3.7 + 3.1 + \left[1.6\left(\frac{2850-2742}{2891-2742}\right)\right]$$

$$= 30.5\% = 27{,}600(0.305) = 8{,}418\ cfs - LOB\ (super)$$

$$= \left[3.6\left(\frac{4117-3940}{4117-3912}\right)\right] + 4.0 + 1.9 = 9.00\%$$

$$= 27{,}600(0.09) = 2{,}484\ cfs - ROB\ (sub)$$

$$= \left[3.1\left(\frac{4117-3940}{4117-3912}\right)\right] + 3.4 = 6.1\%$$

$$= 27{,}600(0.061) = 1{,}684\ cfs - ROB\ (super)$$

$$V_e = Q_e / A_e = \frac{8{,}639}{2{,}472} = 3.5\ fps - LOB\ (sub)$$

$$= \frac{8{,}418}{1{,}907} = 4.4\ fps - LOB\ (super)$$

$$= \frac{2{,}484}{1{,}168} = 2.1\ fps - ROB\ (sub)$$

$$= \frac{1{,}684}{686} = 2.5\ fps - ROB\ (super)$$

$$y_a = A_e/L = \frac{2,477}{832} = 2.98' - \text{LOB (sub)}$$

$$= \frac{1,907}{830} = 2.30' - \text{LOB (super)}$$

$$= \frac{1,168}{941} = 1.24' - \text{ROB (sub)}$$

$$= \frac{686}{557} = 1.23' - \text{ROB (super)}$$

$$F_r = V_e/(g y_a)^{1/2} = \frac{3.5}{(32.2 \times 2.98)^{1/2}} = 0.36 - \text{LOB (sub)}$$

$$= \frac{4.4}{(32.2 \times 2.30)^{1/2}} = 0.51 - \text{LOB (super)}$$

$$= \frac{2.1}{(32.2 \times 1.24)^{1/2}} = 0.33 - \text{ROB (sub)}$$

$$= \frac{2.5}{(32.2 \times 1.23)^{1/2}} = 0.40 - \text{ROB (super)}$$

$$y_s = \left(2.27 K_1 K_2 \left(\frac{L'}{y_a}\right)^{0.43} F_r^{0.61} + 1\right) y_a$$

$$= \left(2.27(0.55)1\left(\frac{832}{2.98}\right)^{0.43} 0.36^{0.61} + 1\right) 2.98$$

$$= \underline{25.5 \text{ ft} - \text{LOB (sub critical run)}}$$

$$y_s = \left(2.27(0.55)1\left(\frac{830}{2.30}\right)^{0.43} 0.51^{0.61} + 1\right) 2.30$$

$= \underline{26.3' - \text{LOB (super critical run)}}$

$$y_s = \left(2.27(0.55)1\left(\frac{941}{1.24}\right)^{0.43} 0.33^{0.61} + 1\right) 1.24$$

$= \underline{14.9' - \text{ROB (subcritical run)}}$

$$y_s = \left(2.27(0.55)1\left(\frac{557}{1.23}\right)^{0.43} 0.40^{0.61} + 1\right) 1.23$$

$= \underline{13.4' - \text{ROB (super critical run)}}$

Total Scour = Long Term + Contraction + Local

Total Scour at Piers:

$= 0' + 2.0' + 23.3' = \underline{25.3'}$ (Subcritical)

$= 0' + 1.3' + 25.4' = \underline{26.7'}$ (supercritical)

Use 37'

Total Sour at Abutments:

= 0' + Ø + 25.5' = 26' LOB (subcritical)

= 0' + Ø + 26.3' = 26' LOB (supercritical)

= 0' + Ø + 14.9' = 15 ROB (subcritical)

= 0' + Ø + 13.4' = 13 ROB (supercritical)

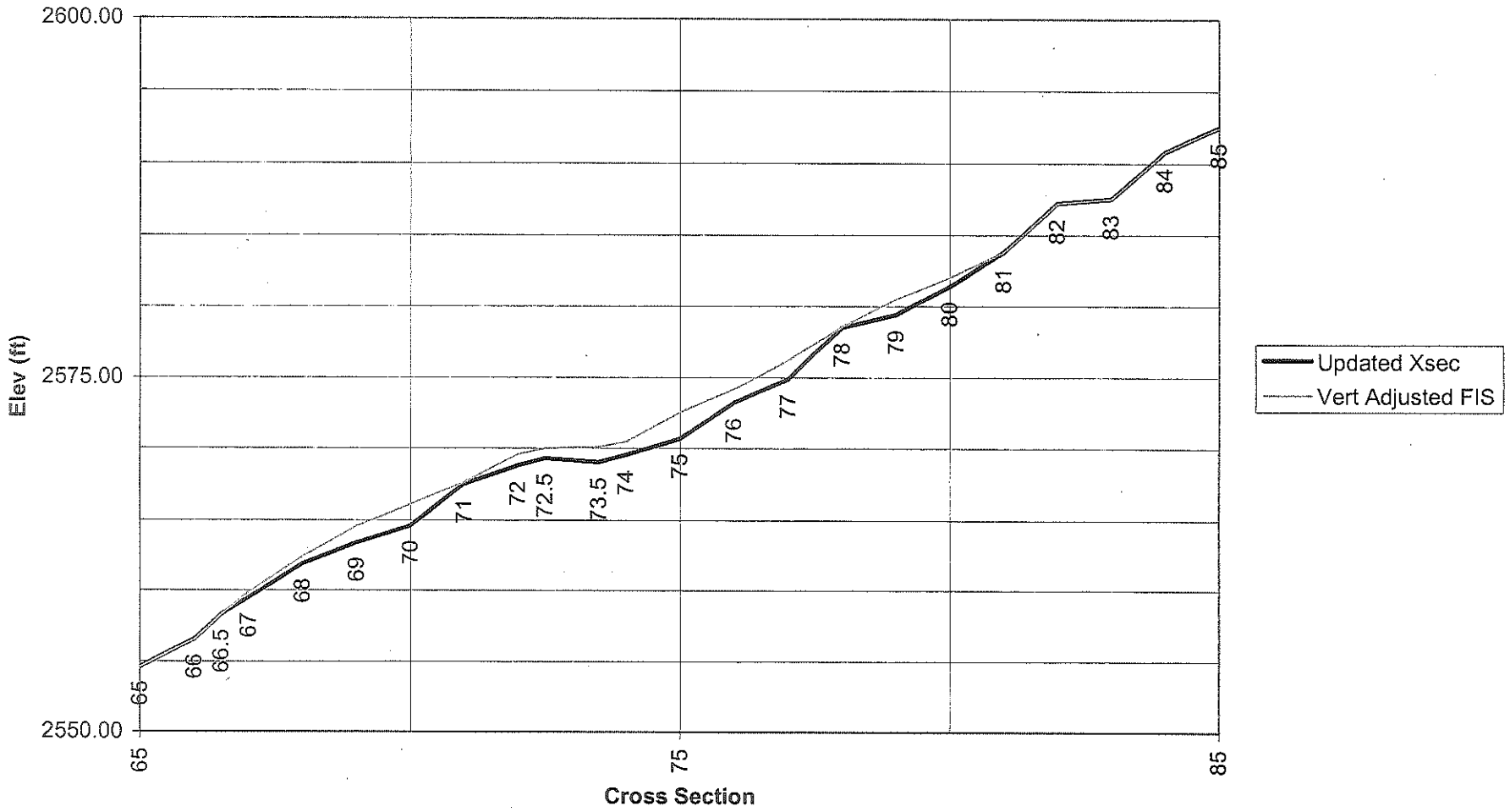
Use: 34' - Left Abutment (South)

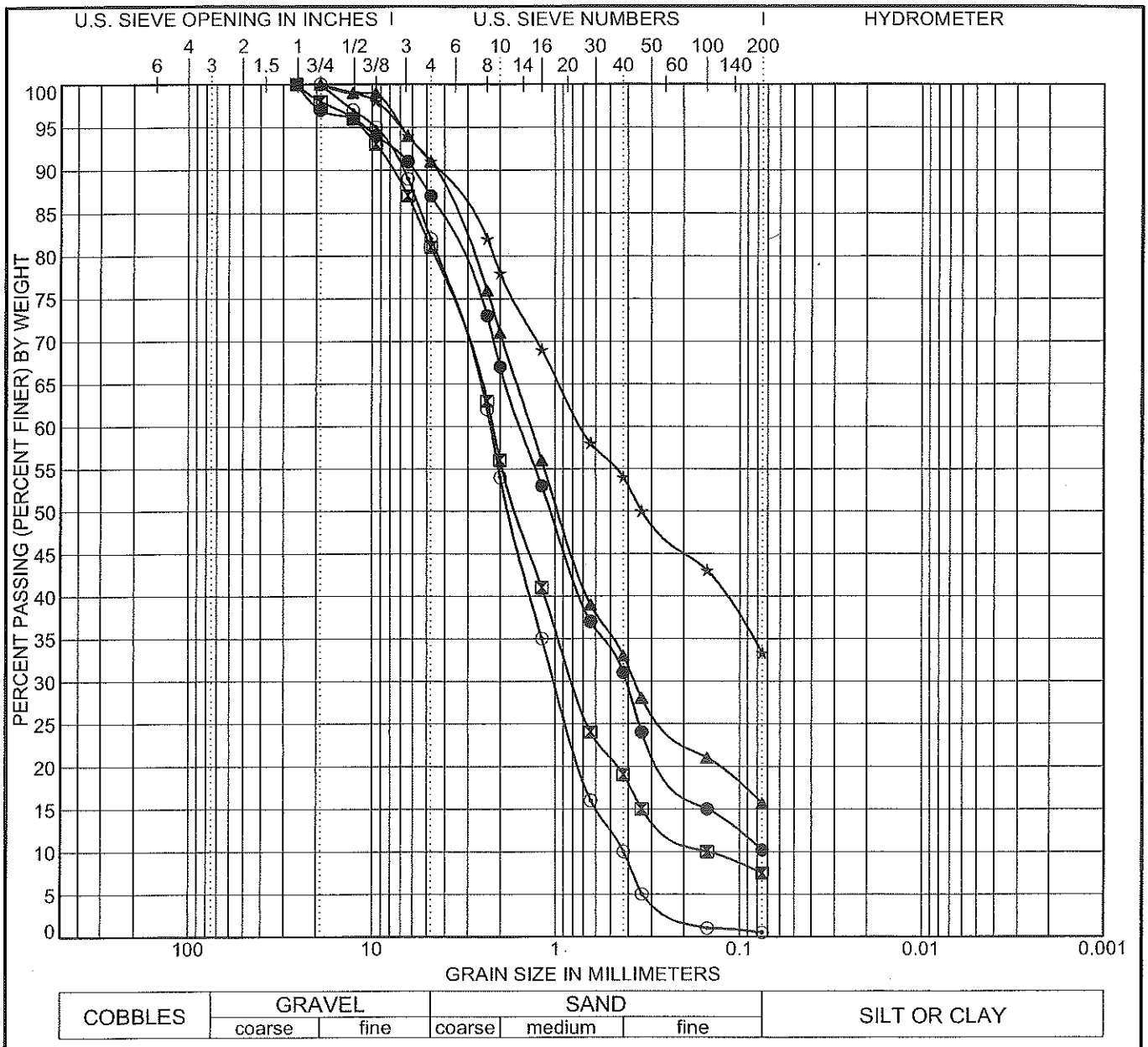
23' - Right Abutment (north)

35' - Pier

Note: Abutments set way outside of mainchannel & this location is considered to be in Equilibrium → No Long Term Scour impacts Abutment Foundations.

Tanque Verde Creek
Vertically Adjusted FIS
Vs.
Updated XSECs





COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Sym.	Boring	Sample	Depth (ft.)	D100 (in)	D85 (mm)	D60 (mm)	D50 (mm)	D30 (mm)	D15 (mm)	D10 (mm)	Cc	Cu	LL	PL	PI
●	P-3	R1	2.5 - 3.5	1.00	4.433	1.614	1.092	0.414	0.150		1.51	21.08	NP	NP	NP
⊠	P-3	S3	10.0 - 11.5	1.00	5.829	2.211	1.702	0.864	0.338	0.150	1.91	14.66			
▲	P-4	R1	2.5 - 3.5	0.75	3.845	1.418	1.010	0.375							
★	P-4	S2	5.0 - 6.5	0.75	3.185	0.744	0.338						NP	NP	NP
⊙ Tanque Verde		Bulk	0.0 - 1.0	0.75	5.452	2.275	1.854	1.073	0.609	0.425	1.05	5.33			

Sym.	Boring	Sample	Depth (ft.)	% Cobbles & Boulders	% Gravel C	% Gravel F	% Sand C	% Sand M	% Sand F	% Fines Silt	% Fines Clay	Fines USCS	Sample USCS[1]	USCS Description [1]
●	P-3	R1	2.5 - 3.5	0.0	13.0		76.8			10.2		ML	SW-SM	Well-Graded Sand With Silt
					3.0	10.0	20.0	36.0	20.8					
⊠	P-3	S3	10.0 - 11.5	0.0	19.0		73.5			7.5		*NA*		
					2.0	17.0	25.0	37.0	11.5					
▲	P-4	R1	2.5 - 3.5	0.0	9.0		75.3			15.7		*NA*		
					0.0	9.0	20.0	38.0	17.3					
★	P-4	S2	5.0 - 6.5	0.0	9.0		57.7			33.3		ML	SM	Silty Sand
					0.0	9.0	13.0	24.0	20.7					
⊙ Tanque Verde		Bulk	0.0 - 1.0	0.0	18.0		81.5			0.5		*NA*	SP	Poorly Graded Sand With Gravel
					0.0	18.0	28.0	44.0	9.5					

NCS Consultants, LLC
Tel: 520-544-2786
Fax: 520-544-3150

Project: Houghton Road - Tanque Verde to Speedway
Location: Tucson, AZ
NCS Project Number: J2008-12

Based on Laboratory Data From:
Speedie and Associates
Dugan Hoeflinger, Lab Manager

GRAIN SIZE DISTRIBUTION

1. *Italicized* text indicates no plasticity tests were performed, and field classification of fines was required for USCS classification.

REPORT\ncs_grain_size | PROJECT\p:\houghton road\tanque verde to speedway\gint\houghton road ll.gpj | LIBRARY\ncs gintlib v4.0.glb | LAST MOD05/04/09 09:35 am | PRINTED05/26/09 04:36 pm

Tanque Verde Creek Propoped Conditions

HEC-2 Input


```
NH        5     0.022   2566.00     0.050   2929.60     0.030   3093.30     0.050   3632.40     0.022
NH     3647
ET              7.11      9.11                                     2552      3647     2500.0    3600.0
X1     72.5       28    2929.6    3093.3        70        70        70

GR   2578.5    2552.0   2578.46    2562.0   2574.44    2566.0   2574.24    2581.9   2574.51    2619.8
GR   2574.3    2633.1   2574.60    2643.2   2574.02    2702.1   2574.22    2710.9   2574.33    2754.8
GR   2574.2    2841.7   2574.14    2885.3   2573.46    2929.6   2569.73    2949.6   2570.07    2985.1
GR   2570.1    3017.5   2569.96    3043.6   2571.47    3056.0   2571.97    3063.3   2572.71    3085.4
GR   2574.0    3093.3   2574.04    3133.4   2574.55    3320.2   2574.36    3408.4   2575.15    3536.4
GR   2575.6    3632.4   2580.20    3637.0   2580.20    3647.0

NH        3     0.100   2839.71     0.030   3021.17     0.100   4711.60     0.000      0.00     0.000

ET              7.11      9.11                                     2500      3600     2500.0    3620.0
SB     1.25      1.56       2.6                1080        80      6922       1.0   2570.27   2569.73
X1     73.5        95   2839.71   3021.17       110       110       110
X2      0.0       0.0         1    2582.8    2588.8       0.0         0      1.33       0.0        15
BT       -4      2500   2584.75   2578.46      3000   2588.50   2582.22      3100   2588.39   2582.11
BT              3600   2586.27   2580.20
GR   2584.8   2000.00   2584.32   2008.18   2583.50   2080.53   2583.30   2086.10   2582.64   2155.75
GR   2582.5   2239.71   2581.66   2240.60   2582.01   2244.22   2582.33   2245.45   2582.66   2256.66
GR   2582.6   2297.83   2582.28   2305.74   2582.31   2348.04   2582.99   2408.76   2583.55   2430.60
GR   2583.7   2449.90   2583.50   2459.11   2582.91   2467.45   2582.26   2471.71   2580.99   2476.83
GR   2579.9   2483.36   2578.97   2491.38   2577.89   2497.37   2575.38   2499.59   2574.96   2499.83
GR   2574.6   2500.26   2573.98   2519.52   2574.41   2552.41   2574.18   2569.37   2574.77   2673.94
GR   2574.7   2715.28   2574.91   2737.00   2575.11   2741.64   2574.44   2826.84   2575.02   2839.71
GR   2574.5   2860.98   2574.47   2874.89   2573.47   2901.92   2570.40   2910.09   2570.89   2941.11
GR   2570.1   3005.31   2573.14   3021.17   2574.88   3043.48   2575.16   3058.39   2573.90   3124.02
GR   2574.7   3261.73   2574.51   3368.61   2574.63   3398.05   2574.40   3425.17   2574.67   3487.49
GR   2574.4   3489.32   2574.37   3499.79   2574.55   3501.83   2574.75   3557.69   2575.50   3573.57
GR   2577.7   3577.59   2578.19   3578.85   2579.44   3585.57   2579.88   3590.46   2581.51   3596.49
GR   2582.0   3600.21   2584.36   3607.17   2584.84   3612.90   2585.12   3631.09   2585.28   3677.62
GR   2584.9   3705.72   2584.58   3715.53   2584.05   3786.35   2584.42   3817.72   2584.07   3868.85
GR   2584.1   3917.91   2583.96   3939.00   2583.30   3973.39   2582.81   3981.31   2583.09   3985.56
GR   2583.5   4000.80   2583.45   4020.81   2582.98   4034.86   2583.20   4059.31   2583.04   4063.85
GR   2583.1   4107.54   2583.37   4133.74   2583.42   4189.41   2583.68   4213.99   2583.70   4245.33
GR   2584.3   4317.07   2584.35   4370.75   2585.15   4411.12   2585.85   4468.11   2585.75   4485.50
GR   2585.9   4496.37   2584.96   4500.44   2584.86   4505.47   2585.45   4512.05   2586.46   4574.73

NH        6     0.050   2850.61     0.030   2969.98     0.045   3213.02     0.100   3355.81     0.045
NH   3623.7     0.060   4668.36
ET              7.11      9.11                                    2320.0    3650.0     2380.0    3580.0
X1       74        95   2850.61   2969.98       115       115       125
X2                                                                                                 15

GR   2578.7   2000.00   2578.41   2010.37   2577.96   2017.50   2577.40   2039.40   2577.06   2047.09
GR   2576.4   2070.32   2574.93   2134.11   2574.12   2180.80   2574.40   2224.75   2574.08   2256.97
GR   2573.2   2297.64   2573.24   2302.90   2574.98   2335.92   2575.25   2345.80   2575.20   2355.37
GR   2575.4   2360.90   2575.61   2379.76   2575.95   2392.55   2575.67   2401.85   2575.51   2425.06
GR   2575.6   2451.70   2575.20   2464.50   2575.86   2477.46   2576.06   2502.87   2575.87   2520.40
1
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GR   2575.5    2527.39    2575.21    2542.47    2575.38    2544.37    2575.93    2560.27    2575.76    2572.74
GR   2576.3    2588.76    2576.35    2600.12    2576.13    2611.68    2576.15    2643.87    2575.88    2671.61
GR   2576.2    2694.61    2576.41    2700.30    2576.25    2718.43    2576.42    2757.73    2576.16    2767.14
GR   2576.5    2798.90    2576.14    2810.28    2576.18    2814.22    2574.76    2836.32    2574.64    2843.85
GR   2573.9    2848.90    2573.89    2850.61    2571.11    2859.37    2571.31    2878.65    2570.91    2890.79
GR   2570.8    2928.96    2570.47    2958.25    2574.03    2969.98    2575.65    2982.94    2575.87    3034.15
GR   2576.0    3040.64    2575.66    3135.27    2575.70    3197.67    2575.51    3213.02    2575.41    3283.70
GR   2575.0    3348.26    2575.22    3355.81    2575.54    3461.77    2575.41    3486.64    2575.49    3511.46
GR   2575.4    3533.64    2576.10    3623.67    2575.82    3710.31    2575.84    3735.31    2576.14    3760.31
GR   2576.6    3848.55    2576.98    3869.40    2577.36    3985.31    2577.97    4035.32    2578.42    4110.32
GR   2578.9    4160.32    2578.86    4206.20    2579.38    4214.41    2579.59    4252.29    2579.85    4267.09
GR   2579.9    4282.33    2579.44    4299.09    2579.38    4328.68    2579.23    4340.36    2579.39    4359.37
GR   2578.9    4379.80    2579.56    4389.47    2579.84    4410.10    2579.63    4437.92    2579.72    4462.54
GR   2580.3    4506.34    2580.24    4541.44    2579.67    4551.14    2580.04    4558.11    2579.61    4580.67

NH        6      0.050    2771.86      0.030    2983.86      0.035    3242.60      0.100    3371.54      0.045
NH   3850.2      0.080    4672.37
ET               7.11       9.11                                      2120       4020      2300.0      3580.0
X1       75        95    2771.86    2983.86        380        410       350
X2                                                                                                        15

GR   2577.9    2000.00    2577.07    2021.48    2576.76    2039.19    2576.14    2064.87    2576.00    2066.93
GR   2575.4    2081.72    2575.40    2086.32    2575.30    2088.76    2575.24    2102.97    2575.29    2110.99
GR   2575.2    2116.33    2574.76    2123.95    2574.48    2132.15    2574.40    2133.13    2574.29    2140.41
GR   2574.5    2163.87    2574.10    2185.01    2573.99    2197.66    2574.02    2208.20    2574.44    2238.28
GR   2575.2    2267.91    2575.40    2274.38    2575.82    2328.76    2575.78    2340.79    2575.90    2375.13
GR   2576.9    2398.96    2577.14    2419.33    2576.65    2432.10    2576.60    2443.70    2576.40    2462.00
GR   2576.6    2481.10    2576.54    2485.58    2576.26    2497.68    2576.31    2504.97    2575.93    2542.75
GR   2576.7    2552.27    2577.22    2557.14    2577.08    2575.43    2577.50    2598.30    2577.63    2609.45
GR   2577.6    2634.09    2577.84    2668.28    2577.65    2735.98    2578.48    2771.86    2576.40    2781.75
GR   2575.8    2785.35    2574.20    2799.72    2574.21    2820.37    2574.76    2841.46    2574.93    2851.92
GR   2574.1    2857.64    2573.36    2863.27    2573.12    2886.24    2572.53    2900.75    2572.60    2929.38
GR   2572.6    2942.35    2572.85    2956.51    2573.39    2965.68    2577.50    2983.86    2577.50    3013.64
GR   2577.8    3108.16    2577.86    3125.62    2578.07    3215.37    2577.83    3232.05    2577.52    3242.60
GR   2577.5    3281.52    2577.60    3371.54    2577.70    3417.14    2578.01    3492.05    2577.98    3500.78
GR   2578.2    3612.38    2578.21    3749.73    2577.90    3760.05    2578.40    3769.61    2578.56    3781.72
GR   2578.8    3820.39    2578.61    3850.15    2578.78    4054.16    2579.29    4195.48    2579.97    4272.63
GR   2580.2    4285.35    2580.10    4312.49    2580.16    4329.39    2580.18    4375.87    2580.31    4390.11
GR   2580.3    4428.47    2580.42    4434.58    2580.64    4458.88    2580.68    4474.79    2579.60    4498.79
GR   2580.9    4524.76    2580.90    4546.93    2580.78    4555.42    2580.66    4576.50    2580.72    4585.19

NH        6      0.050    2872.12      0.030    2991.08      0.050    3550.52      0.100    3817.08      0.045
NH   4353.4      0.080    5133.56
ET               7.11       9.11                                      2070.0      4710.0      2400.0      3690.0
X1       76        95    2872.12    2991.08        500        550       481
X2                                                                                                        15

GR   2581.9    2000.00    2581.37    2012.71    2581.35    2015.15    2580.25    2029.40    2579.55    2041.42
GR   2579.4    2059.76    2578.66    2075.48    2577.91    2118.96    2577.97    2127.25    2577.55    2137.37
GR   2577.5    2158.36    2577.92    2162.19    2577.04    2173.16    2577.19    2182.27    2576.85    2211.36
GR   2576.5    2220.27    2577.09    2238.48    2577.25    2254.65    2576.99    2293.23    2576.72    2311.80
GR   2577.5    2354.49    2578.03    2369.25    2577.93    2373.69    2577.86    2413.65    2577.73    2419.06
1
    08JUN09      15:45:47                                                                                PAGE    30
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GR   2578.1   2467.04   2577.61   2482.88   2577.95   2498.64   2578.15   2525.96   2578.50   2551.58
GR   2578.4   2558.24   2578.47   2601.74   2579.06   2643.59   2579.12   2674.01   2579.48   2689.74
GR   2579.2   2713.34   2579.49   2747.46   2579.73   2763.96   2579.58   2787.96   2579.70   2834.39
GR   2579.3   2850.30   2579.66   2872.12   2574.15   2888.63   2574.56   2901.81   2574.44   2940.67
GR   2574.8   2976.04   2575.69   2991.08   2575.73   3015.57   2576.75   3031.29   2577.27   3043.41
GR   2577.1   3096.38   2577.26   3106.29   2576.69   3119.95   2577.69   3138.19   2577.74   3151.19
GR   2577.7   3188.01   2578.06   3210.83   2579.06   3219.40   2579.12   3225.45   2578.47   3229.62
GR   2578.3   3235.94   2579.89   3316.04   2579.92   3345.86   2579.71   3370.04   2579.48   3459.19
GR   2579.7   3468.91   2579.22   3521.98   2579.28   3528.48   2579.08   3550.52   2579.30   3561.65
GR   2578.6   3713.99   2579.38   3817.08   2579.77   4016.40   2580.10   4161.85   2579.95   4193.06
GR   2580.2   4212.31   2580.15   4225.01   2580.43   4286.91   2580.96   4353.42   2581.07   4447.07
GR   2580.7   4457.45   2581.75   4466.61   2581.49   4542.23   2581.49   4606.41   2582.40   4742.25
GR   2582.3   4748.22   2582.48   4762.67   2582.48   4772.26   2583.04   4830.37   2583.64   4876.82
GR   2582.9   4943.72   2582.09   4984.18   2582.61   5030.71   2581.83   5044.17   2582.54   5052.57

NH        7     0.035   2275.82     0.060   2890.51     0.030   3035.74     0.045   3586.76     0.080
NH   4172.0     0.045   4527.55     0.080   5338.39
ET               7.11      9.11                                   0.1      5050    2400.0    3745.0
X1       77        95   2890.51   3035.74       670       310       443
X2                                                                                                 15

GR   2585.7   2000.00   2585.12   2009.89   2582.16   2021.71   2581.89   2056.37   2581.09   2111.17
GR   2581.0   2177.61   2580.80   2194.49   2580.93   2207.51   2580.58   2267.32   2580.01   2275.82
GR   2580.6   2287.16   2580.59   2299.25   2580.13   2311.72   2580.10   2326.96   2579.06   2362.25
GR   2578.7   2382.06   2578.33   2454.78   2577.45   2476.01   2577.44   2491.36   2577.05   2526.29
GR   2578.0   2531.81   2579.99   2556.96   2580.16   2608.92   2580.39   2618.78   2580.26   2666.91
GR   2581.0   2742.09   2580.90   2755.28   2581.03   2774.78   2580.83   2794.32   2580.82   2823.28
GR   2581.5   2848.81   2582.89   2877.91   2582.90   2890.51   2579.50   2897.34   2576.18   2904.50
GR   2576.6   2940.30   2576.33   2944.82   2576.47   2966.50   2576.73   2979.42   2577.90   2995.85
GR   2578.1   3011.76   2580.36   3035.74   2579.67   3063.50   2580.30   3064.87   2579.65   3074.28
GR   2579.6   3102.47   2579.94   3131.80   2579.64   3189.78   2579.54   3271.85   2579.28   3286.82
GR   2579.8   3303.34   2579.72   3329.16   2579.90   3355.71   2579.40   3368.24   2579.96   3384.59
GR   2580.2   3446.79   2579.81   3459.43   2580.23   3473.22   2580.29   3521.84   2580.18   3525.62
GR   2580.5   3586.76   2580.40   3630.80   2581.07   3639.29   2580.95   3648.32   2581.26   3715.91
GR   2581.0   3809.97   2579.57   3911.96   2580.29   3978.48   2580.16   3985.43   2581.40   4041.68
GR   2581.4   4116.78   2581.02   4171.96   2581.33   4203.32   2581.58   4235.49   2581.42   4306.09
GR   2581.7   4376.04   2581.85   4378.55   2581.17   4392.35   2582.13   4496.85   2582.55   4527.55
GR   2583.1   4655.59   2583.12   4723.89   2583.36   4794.62   2583.03   4872.44   2583.40   4893.53
GR   2583.8   4904.54   2584.25   4947.04   2583.94   4978.22   2584.27   5062.15   2584.66   5103.58
GR   2584.4   5112.77   2585.08   5121.45   2584.57   5133.09   2584.72   5167.03   2584.64   5198.61

NC                                      .1        .3
NH        7     0.080   2661.97     0.035   3010.59     0.045   3125.52     0.030   3272.47     0.050
NH   4008.3     0.045   4316.66     0.100   5248.24
ET               7.11      9.11                                   0.1      5170    2400.0    3740.0
X1       78        96   3010.59   3272.47       620       670       644

GR   2591.2   2000.00   2591.01   2013.68   2590.13   2034.08   2590.32   2049.27   2589.63   2056.10
GR   2588.8   2067.73   2588.68   2072.83   2587.33   2092.14   2586.95   2099.55   2585.70   2143.70
GR   2584.4   2169.32   2584.16   2179.44   2584.10   2199.65   2583.24   2223.53   2582.31   2261.31
GR   2581.1   2337.81   2581.22   2391.09   2580.99   2409.65   2581.19   2416.79   2583.90   2468.59
GR   2583.7   2477.35   2583.55   2494.02   2583.31   2498.41   2583.50   2560.01   2583.66   2568.41
1
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Tanque Verde Creek Design Subcritical Flow Run

HEC-2 output


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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.05


3470 ENCROACHMENT STATIONS=     2552.0    3647.0  TYPE=      1  TARGET=     1095.000
    72.500      9.76   2579.49   2577.61       .00   2580.05       .56       .20       .35   2573.46
   27600.0    6884.6   11740.4    8975.0    1935.0    1421.6    2641.2    3542.6     891.1   2574.00
       .99      3.56      8.26      3.40      .050      .030      .050      .000   2569.73   2552.00
   .001564       70.       70.       70.         4        10         0       .00   1084.29   3636.29


1490 NH CARD USED

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.56      2.60       .00   1080.00     80.00   6922.00      1.00   2570.27   2569.73

*SECNO 73.500
BTCARD, BRIDGE STENCL=    2500.00   STENCR=    3600.00

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66

CLASS A LOW FLOW

3420 BRIDGE W.S.=    2579.74 BRIDGE VELOCITY=       2.81     CALCULATED CHANNEL AREA=      9558.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC     ELTRD     WEIRLN
                                                               AREA
       .00   2580.80      .13        0.    27600.     6922.    12687.     2582.80   2588.80        0.


3470 ENCROACHMENT STATIONS=     2500.0    3600.0  TYPE=      1  TARGET=     1100.000
    73.500      9.51   2579.61       .00       .00   2580.80      1.19       .76       .00   2575.02
   27600.0    4457.8   15704.0    7438.2    1712.5    1380.4    2840.8    3557.6     893.8   2573.14
       .99      2.60     11.38      2.62      .100      .030      .100      .000   2570.10   2500.00
   .003548      110.      110.      110.         0         0         0       .00   1087.51   3587.51


FLOW DISTRIBUTION FOR SECNO=     73.50          CWSEL=   2579.61

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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
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    TIME       VLOB       VCH       VROB       XNL       XNCH       XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL      XLCH      XLOBR      ITRIAL    IDC        ICONT     CORAR     TOPWID    ENDST

STA=    2500.    2569.    2674.    2742.    2827.    2840.    3021.    3124.    3262.    3369.    3487.    3558.    3588.
  PER Q=      3.6      5.1      3.0      3.8       .6     56.9      5.0      7.1      5.0      5.7      3.3       .7
   AREA=    372.3    537.4    327.5    412.3     62.9   1380.4    527.2    731.9    535.4    603.4    351.9     91.1
    VEL=      2.7      2.6      2.5      2.5      2.5     11.4      2.6      2.7      2.6      2.6      2.6      2.2
  DEPTH=      5.4      5.1      4.8      4.8      4.9      7.6      5.1      5.3      5.0      5.1      5.0      3.1

1490 NH CARD USED
*SECNO 74.000
3280 CROSS SECTION     74.00 EXTENDED      1.27 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.75


3470 ENCROACHMENT STATIONS=     2320.0    3650.0  TYPE=      1  TARGET=     1330.000
    74.000     10.41   2580.88   2578.65       .00   2581.27       .39       .22       .24   2573.89
   27600.0    7988.6    8904.0   10707.4    2686.1    1162.3    3609.9    3575.6     897.0   2574.03
      1.00      2.97      7.66      2.97      .050      .030      .052      .000   2570.47   2320.00
   .001163      115.      125.      115.         3         9         0       .00   1330.00   3650.00


FLOW DISTRIBUTION FOR SECNO=     74.00          CWSEL=   2580.88

STA=    2320.    2380.    2452.    2520.    2573.    2644.    2718.    2799.    2849.    2851.    2970.    3034.    3135.
  PER Q=      3.8      4.2      3.8      3.1      3.5      3.7      3.7      3.1       .2     32.3      4.2      6.1
   AREA=    343.9    377.0    350.6    276.1    335.6    354.8    366.3    269.9     11.9   1162.3    340.4    509.9
    VEL=      3.0      3.1      3.0      3.1      2.9      2.9      2.8      3.1      3.7      7.7      3.4      3.3
  DEPTH=      5.8      5.2      5.1      5.3      4.7      4.8      4.6      5.4      7.0      9.7      5.3      5.0

STA=    3135.    3198.    3284.    3462.    3511.    3624.    3650.
  PER Q=      4.0      3.2      9.8      3.4      7.1      1.0
   AREA=    324.4    464.0    992.6    269.2    582.3    127.0
    VEL=      3.4      1.9      2.7      3.5      3.4      2.2
  DEPTH=      5.2      5.4      5.6      5.4      5.2      4.8

1490 NH CARD USED
*SECNO 75.000
1
   08JUN09      15:45:47                                                                                          PAGE    84

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3280 CROSS SECTION     75.00 EXTENDED      .73 FEET


3470 ENCROACHMENT STATIONS=     2120.0    4020.0  TYPE=      1  TARGET=     1900.000
    75.000      8.92   2581.45   2579.45       .00   2581.72       .27       .42       .03   2578.48
   27600.0    9917.8    9693.9    7988.3    3373.4    1591.8    3508.0    3646.6     911.6   2577.50
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     1.03       2.94       6.09       2.28       .050       .030       .048       .000    2572.53    2120.00
  .001034       380.       350.       410.          2         18          0        .00    1900.00    4020.00

FLOW DISTRIBUTION FOR SECNO=      75.00          CWSEL=    2581.45

STA=     2120.     2164.     2198.     2238.     2329.     2399.     2481.     2543.     2634.     2736.     2772.     2984.     3108.
  PER Q=       3.7       3.2       3.8       6.4       4.1       3.8       3.4       3.4       3.1        .9      35.1       5.8
   AREA=     306.0     244.7     295.5     553.6     380.8     389.3     321.8     382.1     378.1     121.4    1591.8     476.5
    VEL=       3.4       3.6       3.6       3.2       3.0       2.7       2.9       2.5       2.3       2.2       6.1       3.3
  DEPTH=       7.0       7.2       7.3       6.1       5.4       4.7       5.2       4.2       3.7       3.4       7.5       3.8

STA=     3108.     3215.     3372.     3492.     3612.     3750.     4020.
  PER Q=       4.3       3.3       4.1       3.5       3.8       4.3
   AREA=     375.7     602.2     442.3     404.8     445.4     761.0
    VEL=       3.2       1.5       2.5       2.4       2.3       1.5
  DEPTH=       3.5       3.9       3.7       3.4       3.2       2.8

1490 NH CARD USED
*SECNO 76.000

3470 ENCROACHMENT STATIONS=      2070.0     4710.0  TYPE=       1  TARGET=      2640.000
    76.000       7.96    2582.11    2580.93        .00    2582.45        .34        .70        .03    2579.66
   27600.0    10199.2     6802.8    10598.1     3102.7      852.1     4240.2     3746.2      939.1    2575.69
      1.06       3.29       7.98       2.50       .050       .030       .055       .000    2574.15    2070.00
   .001900       500.       481.       550.          2         14          0        .00    2629.10    4699.10

FLOW DISTRIBUTION FOR SECNO=      76.00          CWSEL=    2582.11

1
   08JUN09       15:45:47                                                                                    PAGE    85

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

STA=     2070.     2137.     2211.     2255.     2312.     2369.     2467.     2526.     2602.     2713.     2850.     2872.     2991.
  PER Q=       3.0       4.8       3.2       4.0       3.7       5.0       3.0       3.2       3.4       3.1        .5      24.6
   AREA=     263.2     357.5     225.1     290.1     277.6     411.5     246.6     281.3     341.5     350.8      57.4     852.1
    VEL=       3.2       3.7       3.9       3.8       3.7       3.4       3.4       3.1       2.7       2.4       2.5       8.0
  DEPTH=       3.9       4.8       5.2       5.1       4.8       4.2       4.2       3.7       3.1       2.6       2.6       7.2

STA=     2991.     3031.     3096.     3151.     3211.     3316.     3469.     3714.     4016.     4193.     4699.
  PER Q=       3.9       4.4       3.6       3.2       3.3       3.1       4.7       6.5       3.3       2.3
   AREA=     249.0     322.7     265.9     258.2     327.7     370.1     737.9     827.2     381.6     499.9
    VEL=       4.4       3.8       3.7       3.4       2.8       2.3       1.7       2.2       2.4       1.3
  DEPTH=       6.2       5.0       4.9       4.3       3.1       2.4       3.0       2.7       2.2       1.0

1490 NH CARD USED
*SECNO 77.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .1     5050.0  TYPE=       1  TARGET=      5049.900
    77.000       7.00    2583.18    2582.47        .00    2583.61        .43       1.12        .04    2582.90
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42 of 46

27600.0	8778.5	7277.1	11544.4	2549.7	831.7	3844.4	3827.0	965.6	2580.36
1.09	3.44	8.75	3.00	.054	.030	.053	.000	2576.18	2017.61
.003093	670.	443.	310.	2	14	0	.00	2771.81	4881.38

FLOW DISTRIBUTION FOR SECNO= 77.00 CWSEL= 2583.18

STA=	2018.	2178.	2267.	2362.	2455.	2491.	2526.	2609.	2742.	2891.	3036.	3102.	3190.
PER Q=	3.5	3.3	3.4	5.9	3.1	3.4	3.6	3.5	2.2	26.4	3.3	4.5	
AREA=	277.7	214.3	297.9	425.0	200.6	207.5	298.4	358.7	269.6	831.7	223.1	297.2	
VEL=	3.5	4.2	3.1	3.8	4.3	4.5	3.3	2.7	2.2	8.7	4.1	4.2	
DEPTH=	1.7	2.4	3.1	4.6	5.5	5.9	3.6	2.7	1.8	5.7	3.3	3.4	

STA=	3190.	3272.	3329.	3447.	3522.	3631.	3912.	4117.	4376.	4881.
PER Q=	4.6	3.2	5.6	3.1	3.4	4.5	3.6	4.0	1.9	
AREA=	295.2	205.3	384.6	226.2	305.7	670.6	506.8	460.8	269.1	
VEL=	4.3	4.3	4.1	3.8	3.0	1.9	2.0	2.4	2.0	
DEPTH=	3.6	3.6	3.3	3.0	2.8	2.4	2.5	1.8	.5	

CCHV= .100 CEHV= .300

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Tanque Verde Creek Design Supercritical Flow Run

HEC-2 Output


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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


1490 NH CARD USED
*SECNO 77.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    77.000      6.29   2582.47   2582.47       .00   2583.34       .87      4.45       .70   2582.90
   27600.0    8540.3    8679.0   10380.7    1931.6     727.7    2718.4    2805.4    1093.3   2580.36
       .92      4.42     11.93      3.82      .056      .030      .053      .000   2576.18   2020.47
   .006807      620.      644.      670.        20         6         0       .00   2478.90   4521.65


FLOW DISTRIBUTION FOR SECNO=     77.00          CWSEL=   2582.47

STA=    2020.    2208.    2312.    2382.    2455.    2491.    2526.    2609.    2742.    2869.    3036.    3102.    3190.
  PER Q=      3.1      3.1      3.2      5.3      3.7      4.1      3.7      3.1      1.6     31.4      3.3      4.5
   AREA=    211.3    194.5    208.9    287.6    174.3    182.5    239.1    263.1    170.3    727.7    175.2    234.5
    VEL=      4.1      4.4      4.3      5.1      5.8      6.2      4.3      3.2      2.6     11.9      5.2      5.3
  DEPTH=      1.1      1.9      3.0      4.0      4.8      5.2      2.9      2.0      1.3      5.0      2.6      2.7

STA=    3190.    3272.    3329.    3447.    3526.    3639.    3912.    4117.    4497.    4522.
  PER Q=      4.7      3.3      5.5      3.1      3.0      3.7      3.1      3.4       .0
   AREA=    236.3    164.1    300.1    180.8    233.8    454.1    359.8    375.3      4.2
    VEL=      5.5      5.5      5.1      4.7      3.6      2.2      2.4      2.5       .8
  DEPTH=      2.9      2.9      2.6      2.3      2.1      1.7      1.8      1.0       .2

1490 NH CARD USED
*SECNO 76.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    76.000      6.68   2580.83   2580.83       .00   2581.87      1.04      3.14       .58   2579.66
   27600.0   10153.9    9023.7    8422.3    2133.2     700.1    2271.5    2861.6    1117.8   2575.69
       .93      4.76     12.89      3.71      .050      .030      .055      .000   2574.15   2021.85
   .006437      670.      443.      310.        20         8         0       .00   2320.53   4458.61


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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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FLOW DISTRIBUTION FOR SECNO=      76.00          CWSEL=   2580.83

STA=    2022.    2137.    2211.    2255.    2312.    2354.    2414.    2483.    2552.    2644.    2850.    2872.    2991.
  PER Q=      3.5      5.3      3.7      4.6      3.3      3.1      3.6      3.2      3.1      3.1       .3     32.7
   AREA=    232.5    263.0    169.8    217.1    158.9    175.4    203.6    188.4    206.7    288.2     29.5    700.1
    VEL=      4.2      5.6      5.9      5.8      5.7      4.9      4.9      4.7      4.1      3.0      2.9     12.9
  DEPTH=      2.0      3.6      3.9      3.8      3.7      3.0      2.9      2.7      2.2      1.4      1.4      5.9

STA=    2991.    3016.    3096.    3138.    3211.    3459.    3714.    4016.    4459.
  PER Q=      3.2      6.7      3.2      4.1      4.1      3.5      4.0      1.8
   AREA=    125.5    311.8    155.4    222.5    355.9    436.8    440.8    222.9
    VEL=      7.1      5.9      5.7      5.0      3.2      2.2      2.5      2.2
  DEPTH=      5.1      3.9      3.7      3.1      1.4      1.7      1.5       .5

1490 NH CARD USED
*SECNO 75.000
3280 CROSS SECTION     75.00 EXTENDED      1.31 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    75.000      6.68   2579.21   2579.21       .00   2580.31      1.11      3.07      3.17   2578.48
   27600.0   11509.2   12711.5    3379.2    2269.4    1116.6    1225.4    2919.0    1145.0   2577.50
       .95      5.07     11.38      2.76      .050      .030      .047      .000   2572.53   2000.00
   .005799      500.      481.      550.        20         5         0       .00   2172.14   4172.14


1490 NH CARD USED
*SECNO 74.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    74.000      7.59   2578.06   2578.06       .00   2579.22      1.15      2.05      2.73   2573.89
   27600.0    9156.9   10687.8    7755.3    2126.1     826.1    2231.8    2962.3    1164.0   2574.03
       .97      4.31     12.94      3.47      .050      .030      .054      .000   2570.47   2015.87
   .005227      380.      350.      410.        20        11         0       .00   2034.96   4050.82


1490 NH CARD USED
*SECNO 73.500
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   08JUN09      15:41:34                                                                                    PAGE    55

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    73.500      8.30   2578.40   2578.40       .00   2580.44      2.04       .73      1.71   2575.02
   27600.0    4040.5   16801.9    6757.6    1306.5    1160.3    2159.0    2975.4    1168.1   2573.14
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45 of 46

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      .97      3.09     14.48      3.13      .100      .030      .100      .000   2570.10   2494.53
  .007246      115.      125.      115.        20         8         0       .00   1085.46   3579.99

FLOW DISTRIBUTION FOR SECNO=     73.50          CWSEL=   2578.40

STA=    2495.    2569.    2674.    2827.    2840.    3021.    3124.    3262.    3369.    3487.    3574.    3580.
  PER Q=      3.4      4.7      6.0       .5     60.9      4.6      6.6      4.5      5.2      3.5       .0
   AREA=    294.2    410.6    554.4     47.3   1160.3    402.5    564.8    405.8    459.2    318.8      7.9
    VEL=      3.2      3.1      3.0      3.0     14.5      3.1      3.2      3.1      3.1      3.0      1.6
  DEPTH=      3.9      3.9      3.6      3.7      6.4      3.9      4.1      3.8      3.9      3.7      1.2

1490 NH CARD USED

SPECIAL BRIDGE


5470 ERROR DS DEPTH WRONG SIDE CRITICAL       2.72      8.11       1       3
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.56      2.60       .00   1080.00     80.00   6922.00      1.00   2570.27   2569.73

*SECNO 72.500

3301 HV CHANGED MORE THAN HVINS

CLASS C LOW FLOW

3420 BRIDGE W.S.=    2578.11 BRIDGE VELOCITY=       3.13     CALCULATED CHANNEL AREA=      7899.

 EGPRS       EGLWC       H3        QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                   AREA
       .00   2579.12       .00        0.    27600.     6922.    12687.     2582.80   2588.80        0.


    72.500      8.11   2577.84       .00       .00   2579.12      1.29      1.32       .00   2573.46
   27600.0    6131.0   13863.8    7605.2    1318.7    1151.5    1746.8    2986.6    1170.9   2574.00
       .97      4.65     12.04      4.35      .050      .030      .050      .000   2569.73   2562.62
  .004403      110.      110.      110.         0         0         0       .00   1072.02   3634.64

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