

CEQA DRAINAGE STUDY for

**SVBF TEMPLE MAJOR USE PERMIT
OLD SAN PASQUAL ROAD,
ESCONDIDO, CA 92025**

**Project No. # PDS2015-MUP-15-011
Environmental Log No.: PDS2015-ER-15-08-012
APN: 241-080-47**

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Date: December, 2015
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Rev. Date: June 2017

DECLARATION OF RESPONSIBLE CHARGE

I, HEREBY DECLARE THAT I AM THE CIVIL ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT DESIGN.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWING AND SPECIFICATIONS BY THE COUNTY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.



8/31/17

CARL M. FIORICA
R.C.E. # 64715
EXP. 06/30/2017

DATE:

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1. Purpose

The purpose of this drainage study is to analyze the existing and proposed conditions drainage patterns, and peak flow rates for the proposed SVBF Temple site in the City of Escondido, County of San Diego. This study will also provide recommendations to mitigate stormwater runoff in order for the project to match or decrease the pre-development peak flow rates in the proposed condition.

To determine the impacts of the proposed development on the existing drainage patterns, the pre- and post-peak flow rates are analyzed and compared for the 100-year storm event using the Rational Method. This report has been prepared in accordance with the requirements of the County of San Diego Hydrology Manual (2003).

2. Background

The 10 acres project site (study area) is located in the City of Escondido, California. The site is bounded by the San Pasqual Valley Road on the north, Old San Pasqual on the south, existing undeveloped lands on the east & west.

(See Attachment A for Vicinity & Imagery Maps)

The Federal Emergency Management Agency (FEMA) categorizes the site as Zone X, where Zone X is area determined to be outside of 500-year floodplain (FIRM Panel 1082 of 2375). Attachment E illustrates the FEMA floodplain mapping within the vicinity of the project site. The proposed development is located outside of the existing 100 year flood plain limits.

3. Existing Conditions

The existing site is currently undeveloped. The site topography is relatively steep on the west and flatter on the east side. The site slopes from the west to the southeast direction. The runoff originating from the site discharges towards southeast into an existing unnamed creek. This creek originates from offsite upstream drainage area and runs across the subject property along the northeasterly direction. This creek is a tributary to the Cloverdale & Santa Ysabel Creek which ultimately discharge to Pacific Ocean via San Dieguito River. There are 5 existing storm drain culverts across Old San Pasqual Road which discharge into the subject property. The runoff from these culverts ultimately discharges to the existing creek situated at the southeast side of the proposed development. These culverts are identified as culverts 1, 2, 3, 4 & 5 and graphically shown on the hydrology exhibits. The runoff from the culvert no. 5 does not contribute to the site therefore, not considered in the hydrology analysis.

The hydrology of the drainage area within the project boundary can be generally analyzed at 3 discharge points which are shown graphically in the existing condition hydrology map. These analysis points are identified as analysis/exit points 1, 2, & 3.

The hydrology of the offsite drainage areas is analyzed separately and the peak flow rates are added to the onsite peak flow rates to determine the combined peak flow rates through these exit points. The runoff from culverts 1, & 2 is added to the onsite peak flow

rate at exit point 3 whereas, the runoff from culverts 3, & 4 is added to the onsite peak flow rate at exit point 1. The exit point 2 only include onsite drainage area.

(See Attachment B for Existing Condition Hydrology Map)

4. Proposed Improvements

The proposed development works include but are not limited to the construction of a new SVBF Hindu Temple with a multi-purpose hall and kitchen/dining facility, priest residences, driveways, parking lot, and other associated improvement. The associated improvement work will include landscaping, drainage and dry & wet utilities construction.

The on-site drainage pattern is changed slightly. The existing discharge locations 1, 2, & 3 are maintained in the proposed condition. The hydrology of the site in the proposed condition can be generally analyzed at 3 drainage exit points as in the existing condition. These analysis points are identified as analysis/exit points 1, 2, & 3.

The hydrology of the offsite drainage areas is analyzed separately and the peak flow rates are added to the onsite peak flow rates to determine the combined peak flow rates through these exit points. The runoff from culverts 1, & 2 is added to the onsite peak flow rate at exit point 3 whereas, the runoff from culverts 3, & 4 is added to the onsite peak flow rate at exit point 1. The exit point 2 only include onsite drainage area. The runoff originating from the existing culverts 1 & 2 is routed through a storm drain pipe & swale to exit point 3. Similarly, the runoff originating from culverts 3, & 4 is rerouted/conveyed through a storm drain system and discharged into the existing creek via exit point 1. The runoff originating from the site is routed through onsite detention/retention facilities prior to discharging offsite. The runoff originating from offsite drainage areas is bypassed the onsite detention/retention facilities therefore, no control is required.

The proposed development is limited to the outside of the 100-yr floodplain limits of the existing creek. No structures are proposed within the 100-yr flood limits.

(See Attachment C for Proposed Condition Hydrology Map)

5. Soil Characteristics

Site is comprised of hydrologic soil groups B per the County of San Diego GIS website (see appendix D for soil map obtained from the County). Therefore, hydrologic calculations are performed by assuming soil type “B” for this site.

6. Methodology

Rational Method:

A rational method is utilized to perform hydrologic calculations in this study;

Rational Equation: $Q = C * I * A$

Where;

Q = Peak discharge, cfs

C = Rational method runoff coefficient

I = Rainfall intensity, inch/hour

A = Drainage area, acre

A computer model CivilD is used to automate the hydrology analysis process. This computer version of the rational method analysis allows user to develop a node-link model of the watershed. CivilD computer program has the capability of performing calculations utilizing mathematical functions. These functions are assigned code numbers, which appear in the printed results. The code numbers and their corresponding functions are described below;

Sub area Hydrologic Processes;

Code 1 - INITIAL subarea input, top of stream

Code 2 - STREET flow through subarea, includes subarea runoff

Code 3 - ADDITION of runoff from subarea to stream

Code 4 - STREET INLET + parallel street & pipe flow + area

Code 5 - PIPEFLOW travel time (program estimated pipe size)**

Code 6 - PIPEFLOW travel time (user specified pipe size)

Code 7 - IMPROVED channel travel time (open or box)**

Code 8 - IRREGULAR channel travel time**

Code 9 - USER specified entry of data at a point

Code 10 - CONFLUENCE at downstream point in current stream

Code 11 - CONFLUENCE of mainstreams

**NOTE: These options do not include subarea runoff

**NOTE: (#) - Required pipe size determined by the hydrology program

7. Calculations

7.a. Impervious and Pervious Areas

The impervious and pervious areas are calculated for both the existing and proposed site conditions. The site is designed to increase the impervious area by 3.58 Ac (=35.5% increase) as shown in Table 7-1. See Attachment B & C for pervious and impervious area calculation in the existing & proposed conditions respectively.

Table 7-1 Summary of Areas (Onsite only)

	Area (Acres)			Percent Impervious Area	Percent Pervious Area
	Total	Impervious (Ai)	Pervious (Ap)		
Existing Condition	10.19	0.11	10.08	1.1%	98.9%
Proposed Condition	10.19	3.69	6.50	36.2%	63.8%
Percentage Change	0.0%		-35.5%		

The impervious area within the offsite drainage areas remains the same in the proposed condition. Therefore, not included in the above comparison.

7.b. Runoff Coefficient

The runoff coefficients for the site are manually calculated by using the equation from Section 3.1.2 of the County of San Diego Hydrology Manual:

$$C = 0.90 \times (\% \text{ Impervious}) + C_p \times (1 - \% \text{ Impervious})$$

Where,

$C_p = 0.25$, Pervious Coefficient Runoff Value for the soil type B (per Table 3-1 of the County of San Diego Hydrology Manual for Undisturbed Natural Terrain/Permanent Open Space, and 0% Impervious). (See Attachment D for details).

The equivalent land use type is determined for the site based on the runoff coefficients calculated by using above equation. See existing & proposed conditions runoff coefficient calculations in appendices B & C respectively.

7.c. Peak Flow Rates

The rational method is used to perform the hydrologic analysis.

The existing and proposed conditions peak flow rates due to the 100 year storm event are calculated and summarized in Table 7-2 for comparison purpose. The detailed calculations/results for existing and proposed conditions are located in Appendices B and C respectively. Onsite and offsite hydrology analysis is

performed separately. The offsite peak flow rate is added to the onsite flow rate to determine the combined flow rate at each analysis/exit point.

Table7-2 Existing and Proposed Conditions Peak Flow Rates Comparison

Case 1: Onsite peak flow rate comparison

Onsite Only	Drainage Area (acres)		100 Yr Flow (cfs)			% Change from Existing Condition
	Existing Condition	Proposed Condition	Existing Condition	Proposed Condition (Unmitigated)	Proposed Condition (Mitigated)	
Exit Point 1	7.30	8.61	10.30	24.00	7.30	-29.13
Exit Point 2	0.77	0.63	1.20	1.16	1.12	-6.67
Exit Point 3	2.12	0.95	3.32	1.67	1.67	-49.70
Total	10.19	10.19	14.82	26.83	10.09	-31.92

The onsite peak flow rate generated from the 100-year storm event is anticipated to increase by 12.01 cfs (=26.83-14.82) in the proposed condition. The increase in peak flow rate is mainly due to the addition of impervious area such as buildings, driveway, and parking in the proposed condition.

The peak flow rate in the proposed condition is attenuated by routing the flow through proposed bioretention and vault facilities. The peak flow rate reduction from the existing peak flow rate due to the routing is 4.73 cfs. As a result, the peak flow rate is reduced to 10.09 cfs (-31.92%) in the mitigated condition which is smaller than the existing condition peak flow rate of 14.82 cfs. Two bioretention basins are utilized for detention analysis. Bioretention basin 2 also includes an underground vault with volume equal to 28,600 cf and 5.2' of total depth.

Case 2: Combined onsite and offsite comparison peak flow rate comparison

Combined (Onsite & Offsite)	Drainage Area (acres)		100 Yr Flow (cfs)			% Change from Existing Condition
	Existing Condition	Proposed Condition	Existing Condition	Proposed Condition (Unmitigated)	Proposed Condition (Mitigated)	
Exit Point 1	13.56	14.87	23.08	36.78	20.08	-13.00
Exit Point 2	0.77	0.63	1.20	1.12	1.12	-6.67
Exit Point 3	4.73	3.56	8.84	7.19	7.19	-18.67
Total	19.06	19.06	33.12	45.09	28.39	-14.28

The combined (onsite & offsite) peak flow rate generated from the 100-year storm event is anticipated to increase by 8.78 cfs (=41.90-33.12) in the proposed condition. The increase in peak flow rate is mainly due to the addition of impervious area such as building and parking in the proposed condition. The net increase in peak flow rate from the site is same for both cases discussed above. The peak flow rate in the proposed condition is attenuated by routing the flow through proposed detention/retention facilities. The peak flow rate reduction due to the detention basin routing is 11.90 cfs. As a result, the peak flow rate is reduced to 30.0 cfs (-9.4%) in the mitigated condition which is smaller than the existing condition peak flow rate of 33.12 cfs. Two bioretention basins are utilized for detention analysis similar to case 1 above.

In the existing condition, culverts 1 & 2 contribute runoff to exit point 3 whereas, culverts 3 & 4 contribute runoff to exit point 1. The peak 100-yr flow rates for these culverts are approximated for the storm drain sizing purposes. The drainage area, culvert number, and peak flow rate for each culvert is summarized below. The existing drainage pattern is maintained in the proposed condition. Culverts 1 & 2 continue to contribute runoff to exit point 3 and culverts 3 & 4 contribute to exit point 1. Exit point 2 does not include any offsite drainage area.

	Culvert #	Area (ac)	Q-100
Exit Point 1	3	4.17	8.15
	4	2.09	4.63
		6.26	12.78
Exit Point 2			
Exit Point 3	1	0.1	0.22
	2	2.51	5.3
		2.61	5.52

7.d. 100-year Floodplain Analysis

The 100-year floodplain is defined as the area that will be inundated by 100-year flood flows, which are flows that statistically have a 1 percent chance of being equal or exceeded in any given year. The 100-year floodway is a regulatory corridor representing the portion of a watercourse reserved for conveying 100-year flows without increasing the 100-year water surface elevations more than a foot. Since the proposed development is located outside the 100-year floodplain limit only the floodplain limit analysis is performed. Since no flow obstruction is proposed floodway limits are not required to analyze. USGS StreamStats Web Application is utilized to determine the peak 100-yr flow rate for the analysis. Peak 100-yr flow rates of 90.4 and 105.0 cfs are determined at the upstream and downstream end of the project site respectively by utilizing this tool. The peak flow rate generated from the site and upstream westerly area is approximately 14.6 cfs in the existing condition. But, the analysis is performed by adding the proposed condition unmitigated peak flow rate of 45.10 cfs to the stream peak flow rate of 90.4 cfs. The resultant peak flow rate at the downstream end of the

site is determined to be 135.5 cfs. Since the calculation of peak flow rate from the offsite upstream drainage area is approximate, the analysis is also performed by considering a factor of safety of 1.5. The water surface elevations and the flood plain limits of the creek with or without using factor of safety are not drastically different. The 100 year peak flow is contained within the existing banks of the creek in both cases. Further, analysis will be required to fine tune the results in the final engineering.

No grading work has been proposed adjacent to the existing stream. As a result, the stream cross sections within the proximities of the creek remain unchanged in the existing and proposed conditions. Therefore, the analysis is performed by utilizing the same cross section information for both existing and proposed conditions. There are no FEMA established 100 year floodplain limits within the property limit.

Hydraulic analysis of the existing creek is performed by using the US Army Corps of Engineers' HEC-RAS model. This is the standard engineering model for hydraulic analyses of riverine systems and is accepted by FEMA and local agencies. Analysis is performed by entering three required components in the HEC-RAS analysis--the geometry data, flow data, and plan data. The Geometry data, for instance, consists of a description of the size, shape, and connectivity of stream cross-sections. Likewise, the Flow data contains discharge rates. Finally, Plan data contains information pertinent to the run specifications of the model, including a description of the flow regime.

The normal depth method flow regime is assigned for the analysis. The roughness coefficients are assigned based on the cover conditions. The Manning's n of 0.02 is assigned for main channel, left & right banks. Encroachments are added to restrict the effective flow limits and to model effective flow areas.

See Attachment C for results.

8. Downstream Drainage Impact Analysis

The onsite drainage pattern will change minimally due to the proposed development. But, the runoff will continue to flow in the same general direction towards existing unnamed natural creek located northeast side of the site. The peak flow rates at all three drainage exit points 1, 2, & 3 are reduced from the existing condition. Therefore, an adverse drainage impact is not anticipated due to this development.

9. Conclusions

Storm water runoff from the site is collected and conveyed by a system of downspouts, inlets, planters, and storm drain pipes. The proposed development mitigates the storm water quantity impacts to the maximum extent practicable through the use of best management practices. Bioretention as well as underground vault are proposed to attenuate the peak flow rates in the proposed condition. The runoff from all offsite drainage basins (D, E, & F) is proposed to be bypassed the onsite structural BMPs. The new storm drain system is proposed to bypass and convey the runoff from existing culverts situated across the Old San Pasqual Road to the outfall locations. The runoff originating from existing culverts will continue to flow in the original direction.

The critical coarse sediment yield areas are present within the offsite tributary drainage areas. The runoff originating from these areas is bypassed the proposed onsite BMPs to prevent reduction of sediment supply to downstream natural systems. Therefore, substantial changes in erosion and sedimentation/siltation will not occur due to the development. An energy dissipater is designed at each outfall locations to reduce the velocity of flow to a non-erosive velocity.

The existing drainage pattern change slightly without altering the existing outfall locations. The mitigated peak flow rate due to the 100-yr frequency storm is anticipated to be reduced from the existing condition at all three drainage exit points. The majority site runoff is directed to the bioretention basins for peak flow routing and mitigation. The reduced runoff rate from these basins is directed to the existing creek situated easterly side of the site via an exit point 1. As a result, the flooding on- or offsite is not anticipated due to this development. Since the runoff from the site is reduced in the proposed condition the capacity of the existing receiving creek will not be exceeded. The same is verified by analyzing the floodplain limits of the creek due to 100-yr peak flow rate. The inundation limits are determined to outside the proposed development footprint.

Two bioretention basins are proposed to mitigate the drainage impacts due to the development. Bioretention 2 is coupled with an underground vault for peak flow rate control. The new storm drain system is designed to convey the runoff due to 100-yr storm frequency. The sizing of the drainage system will be finalized in the final engineering.

FEMA or County floodplain maps do not have floodplain limits determined for the existing unnamed creek situated adjacent to the site. Therefore, a site specific floodplain analysis is performed to determine the inundation limits due to 100-yr frequency storm event. The inundation limits are determined by analyzing the entire upstream drainage basin tributary to this creek. It is determined that the proposed development is located outside the 100-year inundation limits of the existing creek. The proposed development will not place any habitable or inhabitable structures within the 100-yr inundation limits of the existing creek.

Failure of levee or dams are not anticipated because such structures do not present onsite or offsite. Therefore, significant risks of loss of structures and lives are not anticipated

due to this development. The peak flow rate, inundation limits, and the velocity of the existing creek are not altered/affected due to the development.

10. References

- County of San Diego, Hydrology Manual (2003).

ATTACHMENT A:

Site Vicinity Map
Site Imagery Map



Site-Imagery



PROJECT
BOUNDARY

PROJECT
LOCATION

ATTACHMENT B:

Existing Conditions Runoff Coefficient Calculations

Existing Condition Hydrology Calculations

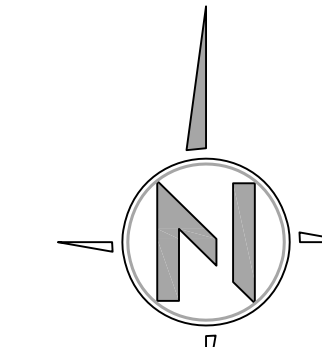
Existing Conditions Hydrology Map



LEGEND

- HYDROLOGY NODE
SUB-BASIN BOUNDARY
EXISTING STORM DRAIN
EXISTING CONTOUR
FLOW DIRECTION
FLOW PATH
SPOT ELEVATION
NODE/CONTOUR ELEVATION
FLOW LENGTH
ANALYSIS/EXIT POINT
SOIL TYPE BOUNDARY
SUB-BASIN MARKER
& AREA (AC)
EXIST. ASPHALT PAVEMENT

NOTES:
1. OFFSITE BASINS ARE ANALYZED AT THE EXISTING CULVERT LOCATIONS
2. Q GIVEN CORRESPOND TO 100-YR FREQUENCY STORM
3. ONSITE HYDROLOGY ANALYSIS IS SEPARATED FROM OFFSITE ANALYSIS. Q TOTAL (QT)
AT THE OUTFALL TO EXISTING CREEK IS OBTAINED BY DIRECTLY ADDING THE ONSITE
AND OFFSITE FLOWS.
4. SITE IS COMPOSED OF SOIL TYPE B
5. Vp = FLOW VELOCITY AT THE PIPE OUTLET



25 0 50 100
SCALE IN FEET
1 inch = 50 ft.

HYDROLOGY MAP FOR
SVBF TEMPLE
EXISTING CONDITION
REV. DATE: NOV., 2016

ONSITE DRAINAGE BASINS A, B, & C

Runoff Coefficient Calculation (Existing Condition)

Project: SVBF Temple

Soil Type: B per Soil Map in Attachment D

C = $0.90 \times (\% \text{ Impervious}) + C_p \times (1 - \% \text{ Impervious})$

Cp= 0.25 (per table 3-1, County of San Diego Hydrology Manual, Soil Class B)

Onsite Basins #	Area (Acres)		%imp	*Composite Runoff Coef. (C)	**Equivalent Land Use (from Table 3-1)
	Total Area (ac)	Imp. Area (Ai)			
A	7.30	0.03	0.4	0.25	Undisturbed Natural
B	0.77	0.00	0.0	0.25	Undisturbed Natural
C	2.12	0.08	3.8	0.27	Undisturbed Natural
Total	10.19				

Offsite Basins #	Area (Acres)		%imp	*Composite Runoff Coef. (C)	**Equivalent Land Use (from Table 3-1)
	Total Area (ac)	Imp. Area (Ai)			
D	2.61	0.20	7.7	0.30	Undisturbed Natural
E	4.17	0.12	2.9	0.27	Undisturbed Natural
F	2.09	0.24	11.5	0.32	LDR, 1.0 DU/AC or LESS
Total	8.87				

Notes:

*The composite runoff coefficient (C) is calculated for the site by using the following equation: $0.90 \times (\% \text{ Impervious}) + C_p \times (1 - \% \text{ Impervious})$; where $C_p = 0.25$ per Table 3-1 of the County of San Diego Hydrology Manual. The composite runoff coefficients are used in the CivilD software for all downstream basins.

**Closest land use type selected from Table 3-1 of the hydrology manual to assign for initial basin. The composite C value cannot be entered as input for initial basin analysis. Coefficient for basin F is 0.32 (LDR, 1.0 DU/AC or LESS) whereas, all other basins have value closer to 0.25 (Undisturbed Natural).

12478ex100yr1.out

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 11/04/16

EXISTING CONDITION HYDROLOGY ANALYSIS
EXIT POINT 1
SVBF TEMPLE

***** Hydrology Study Control Information *****

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 6.000
P6/P24 = 56.7%
San Diego hydrology manual 'C' values used

+++++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.250
Initial subarea total flow distance = 82.000(Ft.)
Highest elevation = 534.000(Ft.)
Lowest elevation = 506.000(Ft.)
Elevation difference = 28.000(Ft.) Slope = 34.146 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 34.15 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 4.72 minutes
 $TC = [1.8 * (1.1 - C) * distance(Ft.)^{.5} / (% slope^{(1/3)})]$
 $TC = [1.8 * (1.1 - 0.2500) * (100.000^{.5}) / (34.146^{(1/3)})] = 4.72$
Calculated TC of 4.716 minutes is less than 5 minutes,
resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) = 8.958(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.250
Subarea runoff = 0.314(CFS)
Total initial stream area = 0.140(Ac.)

```

+++++
Process from Point/Station      101.000 to Point/Station      102.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```

```

-----
Estimated mean flow rate at midpoint of channel =      2.669(CFS)
Depth of flow =      0.124(Ft.), Average velocity =      3.463(Ft/s)
***** Irregular Channel Data *****

```

```

-----
Information entered for subchannel number 1 :
Point number      'X' coordinate      'Y' coordinate
      1              0.00              0.20
      2             10.00              0.00
      3             20.00              0.20
Manning's 'N' friction factor =      0.020

```

```

-----
Sub-Channel flow =      2.669(CFS)
      '      '      flow top width =      12.415(Ft.)
      '      '      velocity=      3.463(Ft/s)
      '      '      area =      0.771(Sq.Ft)
      '      '      Froude number =      2.450

```

```

Upstream point elevation =      506.000(Ft.)
Downstream point elevation =      464.000(Ft.)
Flow length =      475.000(Ft.)
Travel time =      2.29 min.
Time of concentration =      7.00 min.
Depth of flow =      0.124(Ft.)
Average velocity =      3.463(Ft/s)
Total irregular channel flow =      2.669(CFS)
Irregular channel normal depth above invert elev. =      0.124(Ft.)
Average velocity of channel(s) =      3.463(Ft/s)
Adding area flow to channel
Rainfall intensity (I) =      7.209(In/Hr) for a      100.0 year storm
User specified 'C' value of 0.250 given for subarea
Rainfall intensity =      7.209(In/Hr) for a      100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.250  CA =      0.685
Subarea runoff =      4.625(CFS) for      2.600(Ac.)
Total runoff =      4.938(CFS)  Total area =      2.740(Ac.)
Depth of flow =      0.156(Ft.), Average velocity =      4.039(Ft/s)

```

```

+++++
Process from Point/Station      102.000 to Point/Station      103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```

```

-----
Estimated mean flow rate at midpoint of channel =      7.642(CFS)
Depth of flow =      0.080(Ft.), Average velocity =      2.996(Ft/s)
***** Irregular Channel Data *****

```

```

-----
Information entered for subchannel number 1 :
Point number      'X' coordinate      'Y' coordinate
      1              0.00              0.20
      2              5.00              0.00
      3             35.00              0.00
      4             40.00              0.20
Manning's 'N' friction factor =      0.020

```

```

-----
Sub-Channel flow =      7.642(CFS)
      '      '      flow top width =      33.986(Ft.)
      '      '      velocity=      2.996(Ft/s)

```

```

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'      '      area =      2.551(Sq.Ft)
'      '      Froude number =      1.927

Upstream point elevation = 464.000(Ft.)
Downstream point elevation = 434.000(Ft.)
Flow length = 584.000(Ft.)
Travel time = 3.25 min.
Time of concentration = 10.25 min.
Depth of flow = 0.080(Ft.)
Average velocity = 2.996(Ft/s)
Total irregular channel flow = 7.642(CFS)
Irregular channel normal depth above invert elev. = 0.080(Ft.)
Average velocity of channel(s) = 2.996(Ft/s)
Adding area flow to channel
Rainfall intensity (I) = 5.638(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.250 given for subarea
Rainfall intensity = 5.638(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.250 CA = 1.825
Subarea runoff = 5.351(CFS) for 4.560(Ac.)
Total runoff = 10.289(CFS) Total area = 7.300(Ac.)
Depth of flow = 0.095(Ft.), Average velocity = 3.345(Ft/s)
End of computations, total study area = 7.300 (Ac.)

```

12478ex100yr2.out

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 11/04/16

EXISTING CONDITION HYDROLOGY ANALYSIS
EXIT POINT 2
SVBF TEMPLE
ONSITE BASIN

***** Hydrology Study Control Information *****

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 6.000
P6/P24 = 56.7%
San Diego hydrology manual 'C' values used

+++++
Process from Point/Station 200.000 to Point/Station 201.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.250
Initial subarea total flow distance = 272.000(Ft.)
Highest elevation = 456.000(Ft.)
Lowest elevation = 432.000(Ft.)
Elevation difference = 24.000(Ft.) Slope = 8.824 %
Top of Initial Area Slope adjusted by User to 8.000 %
Bottom of Initial Area Slope adjusted by User to 8.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 8.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 7.65 minutes
 $TC = [1.8 * (1.1 - C) * \text{distance}(\text{Ft.})^{.5} / (\% \text{ slope}^{(1/3)})]$
 $TC = [1.8 * (1.1 - 0.2500) * (100.000^{.5}) / (8.000^{(1/3)})] = 7.65$
The initial area total distance of 272.00 (Ft.) entered leaves a
remaining distance of 172.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 1.09 minutes
for a distance of 172.00 (Ft.) and a slope of 8.00 %
with an elevation difference of 13.76(Ft.) from the end of the top area

12478ex100yr2.out

$Tt = [11.9 * \text{length}(\text{Mi})^3 / (\text{elevation change}(\text{Ft.}))]^{.385} * 60(\text{min/hr})$
 = 1.087 Minutes
 $Tt = [(11.9 * 0.0326^3) / (13.76)]^{.385} = 1.09$
 Total initial area $Ti = 7.65$ minutes from Figure 3-3 formula plus
 1.09 minutes from the Figure 3-4 formula = 8.74 minutes
 Rainfall intensity (I) = 6.250(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is $C = 0.250$
 Subarea runoff = 1.203(CFS)
 Total initial stream area = 0.770(Ac.)
 End of computations, total study area = 0.770 (Ac.)

12478ex100yr3.out

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 11/04/16

EXISTING CONDITION HYDROLOGY ANALYSIS

EXIT POINT 3

SVBF TEMPLE

ONSITE BASIN

***** Hydrology Study Control Information *****

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 6.000
P6/P24 = 56.7%
San Diego hydrology manual 'C' values used

+++++
Process from Point/Station 300.000 to Point/Station 301.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.250
Initial subarea total flow distance = 77.000(Ft.)
Highest elevation = 486.000(Ft.)
Lowest elevation = 474.000(Ft.)
Elevation difference = 12.000(Ft.) Slope = 15.584 %
Top of Initial Area Slope adjusted by User to 15.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 15.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 6.20 minutes
 $TC = [1.8 * (1.1 - C) * distance(Ft.)^{.5} / (% slope^{(1/3)})]$
 $TC = [1.8 * (1.1 - 0.2500) * (100.000^{.5}) / (15.000^{(1/3)})] = 6.20$
Rainfall intensity (I) = 7.794(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.250
Subarea runoff = 0.234(CFS)
Total initial stream area = 0.120(Ac.)

```

12478ex100yr3.out
+++++
Process from Point/Station      301.000 to Point/Station      302.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel =      1.805(CFS)
Depth of flow = 0.111(Ft.), Average velocity = 2.932(Ft/s)
***** Irregular Channel Data *****
-----
Information entered for subchannel number 1 :
Point number      'X' coordinate      'Y' coordinate
      1              0.00              0.20
      2             10.00              0.00
      3             20.00              0.20
Manning's 'N' friction factor = 0.020
-----
Sub-Channel flow = 1.805(CFS)
'      '      flow top width = 11.097(Ft.)
'      '      velocity= 2.932(Ft/s)
'      '      area = 0.616(Sq.Ft)
'      '      Froude number = 2.194

Upstream point elevation = 474.000(Ft.)
Downstream point elevation = 428.000(Ft.)
Flow length = 625.000(Ft.)
Travel time = 3.55 min.
Time of concentration = 9.76 min.
Depth of flow = 0.111(Ft.)
Average velocity = 2.932(Ft/s)
Total irregular channel flow = 1.805(CFS)
Irregular channel normal depth above invert elev. = 0.111(Ft.)
Average velocity of channel(s) = 2.932(Ft/s)
Adding area flow to channel
Rainfall intensity (I) = 5.820(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.270 given for subarea
Rainfall intensity = 5.820(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.269 CA = 0.570
Subarea runoff = 3.084(CFS) for 2.000(Ac.)
Total runoff = 3.318(CFS) Total area = 2.120(Ac.)
Depth of flow = 0.139(Ft.), Average velocity = 3.414(Ft/s)
End of computations, total study area = 2.120 (Ac.)

```

OFFSITE DRAINAGE BASINS D, E, & F

12478ex100yrD.out

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 11/04/16

EXISTING CONDITION HYDROLOGY ANALYSIS
OFFSITE BASIN D
SVBF TEMPLE

***** Hydrology Study Control Information *****

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 6.000
P6/P24 = 56.7%
San Diego hydrology manual 'C' values used

+++++
Process from Point/Station 500.000 to Point/Station 501.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.250
Initial subarea total flow distance = 234.000(Ft.)
Highest elevation = 658.200(Ft.)
Lowest elevation = 592.000(Ft.)
Elevation difference = 66.200(Ft.) Slope = 28.291 %
Top of Initial Area Slope adjusted by User to 28.000 %
Bottom of Initial Area Slope adjusted by User to 28.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 28.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 5.04 minutes
 $TC = [1.8 * (1.1 - C) * distance(Ft.)^{.5} / (% slope^{(1/3)})]$
 $TC = [1.8 * (1.1 - 0.2500) * (100.000^{.5}) / (28.000^{(1/3)})] = 5.04$
The initial area total distance of 234.00 (Ft.) entered leaves a
remaining distance of 134.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.55 minutes
for a distance of 134.00 (Ft.) and a slope of 28.00 %

12478ex100yrD.out

with an elevation difference of 37.52(Ft.) from the end of the top area
 $Tt = [11.9 * \text{length}(\text{Mi})^3 / (\text{elevation change}(\text{Ft.}))]^{.385} * 60(\text{min/hr})$
 = 0.554 Minutes
 $Tt = [(11.9 * 0.0254^3) / (37.52)]^{.385} = 0.55$
 Total initial area $Ti = 5.04$ minutes from Figure 3-3 formula plus
 0.55 minutes from the Figure 3-4 formula = 5.59 minutes
 Rainfall intensity (I) = 8.334(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is $C = 0.250$
 Subarea runoff = 1.750(CFS)
 Total initial stream area = 0.840(Ac.)

+++++
 Process from Point/Station 501.000 to Point/Station 502.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 2.594(CFS)
 Depth of flow = 0.265(Ft.), Average velocity = 7.362(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :
 Point number 'X' coordinate 'Y' coordinate
 1 0.00 1.00
 2 5.00 0.00
 3 10.00 1.00
 Manning's 'N' friction factor = 0.025

 Sub-Channel flow = 2.594(CFS)
 ' ' flow top width = 2.655(Ft.)
 ' ' velocity = 7.362(Ft/s)
 ' ' area = 0.352(Sq.Ft)
 ' ' Froude number = 3.561

Upstream point elevation = 592.000(Ft.)
 Downstream point elevation = 482.000(Ft.)
 Flow length = 473.000(Ft.)
 Travel time = 1.07 min.
 Time of concentration = 6.66 min.
 Depth of flow = 0.265(Ft.)
 Average velocity = 7.362(Ft/s)
 Total irregular channel flow = 2.594(CFS)
 Irregular channel normal depth above invert elev. = 0.265(Ft.)
 Average velocity of channel(s) = 7.362(Ft/s)
 Adding area flow to channel
 Rainfall intensity (I) = 7.444(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.300 given for subarea
 Rainfall intensity = 7.444(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is $C = 0.275$ $CA = 0.453$
 Subarea runoff = 1.622(CFS) for 0.810(Ac.)
 Total runoff = 3.372(CFS) Total area = 1.650(Ac.)
 Depth of flow = 0.293(Ft.), Average velocity = 7.861(Ft/s)

+++++
 Process from Point/Station 502.000 to Point/Station 502.000
 **** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 7.444(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.300 given for subarea
 Time of concentration = 6.66 min.
 Rainfall intensity = 7.444(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area

```

12478ex100yrD.out
(Q=KCIA) is C = 0.282  CA = 0.651
Subarea runoff = 1.474(CFS) for 0.660(Ac.)
Total runoff = 4.846(CFS) Total area = 2.310(Ac.)

+++++
Process from Point/Station 502.000 to Point/Station 502.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 7.444(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.300 given for subarea
Time of concentration = 6.66 min.
Rainfall intensity = 7.444(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.283 CA = 0.711
Subarea runoff = 0.447(CFS) for 0.200(Ac.)
Total runoff = 5.292(CFS) Total area = 2.510(Ac.)

+++++
Process from Point/Station 502.000 to Point/Station 502.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 7.444(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.300 given for subarea
Time of concentration = 6.66 min.
Rainfall intensity = 7.444(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.284 CA = 0.741
Subarea runoff = 0.223(CFS) for 0.100(Ac.)
Total runoff = 5.516(CFS) Total area = 2.610(Ac.)
End of computations, total study area = 2.610 (Ac.)

```

12478ex100yrE.out

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Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 11/04/16

EXISTING CONDITION HYDROLOGY ANALYSIS
OFFSITE BASIN E
SVBF TEMPLE

***** Hydrology Study Control Information *****

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 6.000
P6/P24 = 56.7%
San Diego hydrology manual 'C' values used

+++++
Process from Point/Station 600.000 to Point/Station 601.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.250
Initial subarea total flow distance = 381.000(Ft.)
Highest elevation = 658.000(Ft.)
Lowest elevation = 532.000(Ft.)
Elevation difference = 126.000(Ft.) Slope = 33.071 %
Top of Initial Area Slope adjusted by User to 33.000 %
Bottom of Initial Area Slope adjusted by User to 33.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 33.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 4.77 minutes
 $TC = [1.8 * (1.1 - C) * distance(Ft.)^{.5} / (% slope^{(1/3)})]$
 $TC = [1.8 * (1.1 - 0.2500) * (100.000^{.5}) / (33.000^{(1/3)})] = 4.77$
The initial area total distance of 381.00 (Ft.) entered leaves a
remaining distance of 281.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.92 minutes
for a distance of 281.00 (Ft.) and a slope of 33.00 %

12478ex100yrE.out

with an elevation difference of 92.73(Ft.) from the end of the top area
 $Tt = [11.9 * \text{length}(\text{Mi})^3 / (\text{elevation change}(\text{Ft.}))]^{\wedge}.385 * 60(\text{min/hr})$
 = 0.919 Minutes
 $Tt = [(11.9 * 0.0532^3) / (92.73)]^{\wedge}.385 = 0.92$
 Total initial area $Ti = 4.77$ minutes from Figure 3-3 formula plus
 0.92 minutes from the Figure 3-4 formula = 5.69 minutes
 Rainfall intensity (I) = 8.242(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is $C = 0.250$
 Subarea runoff = 1.834(CFS)
 Total initial stream area = 0.890(Ac.)

+++++
 Process from Point/Station 601.000 to Point/Station 602.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 2.693(CFS)
 Depth of flow = 0.247(Ft.), Average velocity = 4.403(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :

Point number	'X' coordinate	'Y' coordinate
1	0.00	0.50
2	5.00	0.00
3	10.00	0.50

 Manning's 'N' friction factor = 0.025

Sub-Channel flow = 2.693(CFS)

'	'	flow top width =	4.946(Ft.)
'	'	velocity=	4.403(Ft/s)
'	'	area =	0.612(Sq.Ft)
'	'	Froude number =	2.206

Upstream point elevation = 532.000(Ft.)
 Downstream point elevation = 506.000(Ft.)
 Flow length = 290.000(Ft.)
 Travel time = 1.10 min.
 Time of concentration = 6.79 min.
 Depth of flow = 0.247(Ft.)
 Average velocity = 4.403(Ft/s)
 Total irregular channel flow = 2.693(CFS)
 Irregular channel normal depth above invert elev. = 0.247(Ft.)
 Average velocity of channel(s) = 4.403(Ft/s)
 Adding area flow to channel
 Rainfall intensity (I) = 7.356(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.270 given for subarea
 Rainfall intensity = 7.356(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is $C = 0.260$ $CA = 0.474$
 Subarea runoff = 1.650(CFS) for 0.930(Ac.)
 Total runoff = 3.484(CFS) Total area = 1.820(Ac.)
 Depth of flow = 0.272(Ft.), Average velocity = 4.696(Ft/s)

+++++
 Process from Point/Station 602.000 to Point/Station 602.000
 **** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 7.356(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.270 given for subarea
 Time of concentration = 6.79 min.
 Rainfall intensity = 7.356(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area

12478ex100yrE.out
 (Q=KCIA) is C = 0.261 CA = 0.506
 Subarea runoff = 0.238(CFS) for 0.120(Ac.)
 Total runoff = 3.722(CFS) Total area = 1.940(Ac.)

++++
 Process from Point/Station 602.000 to Point/Station 602.000
 **** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 7.356(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.270 given for subarea
 Time of concentration = 6.79 min.
 Rainfall intensity = 7.356(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.266 CA = 1.108
 Subarea runoff = 4.429(CFS) for 2.230(Ac.)
 Total runoff = 8.151(CFS) Total area = 4.170(Ac.)
 End of computations, total study area = 4.170 (Ac.)

12478ex100yrF.out

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Rational method hydrology program based on
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Rational Hydrology Study Date: 11/04/16

EXISTING CONDITION HYDROLOGY ANALYSIS
OFFSITE BASIN F
SVBF TEMPLE

***** Hydrology Study Control Information *****

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 6.000
P6/P24 = 56.7%
San Diego hydrology manual 'C' values used

+++++
Process from Point/Station 700.000 to Point/Station 701.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
[LOW DENSITY RESIDENTIAL]
(1.0 DU/A or Less)
Impervious value, Ai = 0.100
Sub-Area C Value = 0.320
Initial subarea total flow distance = 271.000(Ft.)
Highest elevation = 584.000(Ft.)
Lowest elevation = 537.300(Ft.)
Elevation difference = 46.700(Ft.) Slope = 17.232 %
Top of Initial Area Slope adjusted by User to 17.000 %
Bottom of Initial Area Slope adjusted by User to 17.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 17.00 %, in a development type of
1.0 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 5.46 minutes
 $TC = [1.8 * (1.1 - C) * distance(Ft.)^{.5} / (% slope^{(1/3)})]$
 $TC = [1.8 * (1.1 - 0.3200) * (100.000^{.5}) / (17.000^{(1/3)})] = 5.46$
The initial area total distance of 271.00 (Ft.) entered leaves a
remaining distance of 171.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.81 minutes
for a distance of 171.00 (Ft.) and a slope of 17.00 %

12478ex100yrF.out

with an elevation difference of 29.07(Ft.) from the end of the top area
 $Tt = [11.9 * \text{length}(\text{Mi})^3 / (\text{elevation change}(\text{Ft.}))]^{\wedge}.385 * 60(\text{min/hr})$
 = 0.810 Minutes
 $Tt = [(11.9 * 0.0324^3) / (29.07)]^{\wedge}.385 = 0.81$
 Total initial area $Ti = 5.46$ minutes from Figure 3-3 formula plus
 0.81 minutes from the Figure 3-4 formula = 6.27 minutes
 Rainfall intensity (I) = 7.741(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is $C = 0.320$
 Subarea runoff = 1.982(CFS)
 Total initial stream area = 0.800(Ac.)

+++++
 Process from Point/Station 701.000 to Point/Station 702.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

 Estimated mean flow rate at midpoint of channel = 3.061(CFS)
 Depth of flow = 0.283(Ft.), Average velocity = 3.822(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :

Point number	'X' coordinate	'Y' coordinate
1	0.00	0.50
2	5.00	0.00
3	10.00	0.50

 Manning's 'N' friction factor = 0.025

Sub-Channel flow = 3.061(CFS)
 ' ' flow top width = 5.660(Ft.)
 ' ' velocity = 3.822(Ft/s)
 ' ' area = 0.801(Sq.Ft)
 ' ' Froude number = 1.791

Upstream point elevation = 537.300(Ft.)
 Downstream point elevation = 522.000(Ft.)
 Flow length = 271.000(Ft.)
 Travel time = 1.18 min.
 Time of concentration = 7.45 min.
 Depth of flow = 0.283(Ft.)
 Average velocity = 3.822(Ft/s)
 Total irregular channel flow = 3.061(CFS)
 Irregular channel normal depth above invert elev. = 0.283(Ft.)
 Average velocity of channel(s) = 3.822(Ft/s)
 Adding area flow to channel
 Rainfall intensity (I) = 6.925(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.320 given for subarea
 Rainfall intensity = 6.925(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is $C = 0.320$ CA = 0.589
 Subarea runoff = 2.096(CFS) for 1.040(Ac.)
 Total runoff = 4.078(CFS) Total area = 1.840(Ac.)
 Depth of flow = 0.315(Ft.), Average velocity = 4.106(Ft/s)

+++++
 Process from Point/Station 702.000 to Point/Station 702.000
 **** SUBAREA FLOW ADDITION ****

 Rainfall intensity (I) = 6.925(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.320 given for subarea
 Time of concentration = 7.45 min.
 Rainfall intensity = 6.925(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area

```

12478ex100yrF.out
(Q=KCIA) is C = 0.320  CA = 0.669
Subarea runoff = 0.554(CFS) for 0.250(Ac.)
Total runoff = 4.632(CFS) Total area = 2.090(Ac.)
End of computations, total study area = 2.090 (Ac.)

```

ATTACHMENT C:

Proposed Conditions Runoff Coefficient Calculations
Proposed Condition Hydrology/Hydraulic Calculations

Proposed Conditions Hydrology Map



LEGEND

HYDROLOGY NODE
104

SUB BASIN BOUNDARY
SD

EXISTING STORM DRAIN
SD

NEW STORM DRAIN
SD

EXISTING CONTOUR
XXX

NEW CONTOUR
XXX

UG DETENTION BASIN
[Symbol]

FLOW DIRECTION
[Symbol]

FLOW PATH
[Symbol]

SPOT ELEVATION
x 245.0

NODE/CONTOUR ELEVATION
ELXXX.X'

FLOW LENGTH
L=XXX.X'

ANALYSIS/EXIT POINT
[Symbol]

SOIL TYPE BOUNDARY
[Symbol]

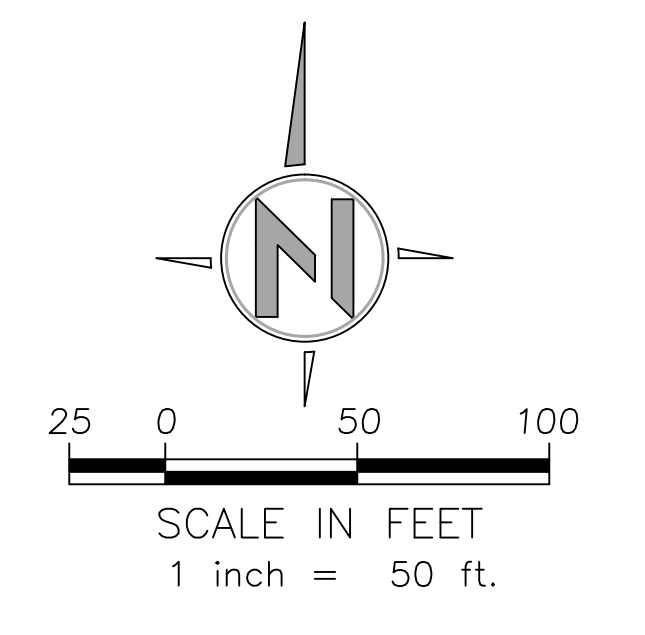
SUB-BASIN MARKER & AREA (AC)
X-X
X.XX

PEAK FLOW RATE SUMMARY

Onsite Only	Drainage Area (acres)		100 Yr Flow (cfs)		% Change from Existing Condition
	Existing Condition	Proposed Condition	Existing Condition	Proposed Condition (Unmitigated)	
Exit Point 1	7.30	8.61	10.30	24.00	-29.13
Exit Point 2	0.77	0.63	1.20	1.16	-6.67
Exit Point 3	2.12	0.95	3.32	1.67	-49.70
Total	10.19	10.19	14.82	26.83	-10.09

Combined (Onsite & Offsite)	Drainage Area (acres)		100 Yr Flow (cfs)		% Change from Existing Condition
	Existing Condition	Proposed Condition	Existing Condition	Proposed Condition (Mitigated)	
Exit Point 1	13.56	14.87	23.08	36.78	-13.00
Exit Point 2	0.77	0.63	1.20	1.12	-6.67
Exit Point 3	4.73	3.50	8.84	7.19	-18.67
Total	19.06	19.06	33.12	45.09	-14.28

NOTES:
1. OFFSITE BASINS ARE ANALYZED AT THE EXISTING CULVERT LOCATIONS
2. Q GIVEN CORRESPOND TO 100-YR FREQUENCY STORM
3. ONSITE HYDROLOGY ANALYSIS IS SEPARATED FROM OFFSITE ANALYSIS. Q TOTAL (Q-T) AT THE OUTFALL TO EXISTING CREEK IS OBTAINED BY DIRECTLY ADDING THE ONSITE AND OFFSITE FLOWS.
4. Vp = FLOW VELOCITY AT THE PIPE OUTLET. Vr = VELOCITY DUE TO RIPRAP



HYDROLOGY MAP FOR
SVBF TEMPLE
PROPOSED CONDITION
REV. DATE: JUNE, 2017

Runoff Coefficient Calculation (Proposed Condition)

Project: SVBF Temple

Soil Type: B per Soil Map in Attachment D

C = $0.90 \times (\% \text{ Impervious}) + C_p \times (1 - \% \text{ Impervious})$

Cp= 0.25 (per table 3-1, County of San Diego Hydrology Manual, Soil Class B)

Basin #	Area (Acres)		%imp	*Runoff Coef. (C)	**Equivalent Land Use (from Table 3-1)
	Total Area (ac)	Imp. Area (Ai)			
A	8.61	3.650	42	0.53	Medium Density 10.9 DU/A or Less (C=0.54)
B	0.63	0.000	0	0.25	Undisturbed Natural (C=0.25)
C	0.95	0.043	5	0.28	Undisturbed Natural (C=0.25)
Total	10.19				

Notes:

*The composite runoff coefficient (C) is calculated for the site by using the following equation: $0.90 \times (\% \text{ Impervious}) + C_p \times (1 - \% \text{ Impervious})$; where $C_p = 0.25$ per Table 3-1 of the County of San Diego Hydrology Manual. The composite runoff coefficients are used in the CivilD software for all downstream basins.

**Closest land use type selected from Table 3-1 of the hydrology manual to assign for initial basin. The composite C value cannot be entered as input for initial basin analysis. Coefficient for basin A is closer to 0.54 (MDR, 10.9 DU/AC or LESS) whereas, basin B & C have values closer to 0.25 (Undisturbed Natural).

Runoff coefficients for offsite drainage areas (D, E, & F) remain the same in the proposed condition. Please refer to appendix B for calculations

ONSITE DRAINAGE BASINS A, B, & C

12478PR100yr1.out

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 03/17/17

PROPOSED CONDITION HYDROLOGY ANALYSIS
EXIT POINT 1
SVBF TEMPLE

***** Hydrology Study Control Information *****

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 6.000
P6/P24 = 56.7%
San Diego hydrology manual 'C' values used

+++++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
[MEDIUM DENSITY RESIDENTIAL]
(10.9 DU/A or Less)
Impervious value, Ai = 0.450
Sub-Area C Value = 0.540
Initial subarea total flow distance = 66.000(Ft.)
Highest elevation = 467.420(Ft.)
Lowest elevation = 466.100(Ft.)
Elevation difference = 1.320(Ft.) Slope = 2.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 80.00 (Ft)
for the top area slope value of 2.00 %, in a development type of
10.9 DU/A or Less
In Accordance With Table 3-2
Initial Area Time of Concentration = 6.90 minutes
(for slope value of 2.00 %)
Rainfall intensity (I) = 7.278(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.540
Subarea runoff = 0.747(CFS)
Total initial stream area = 0.190(Ac.)

+++++
Page 1

12478PR100yr1.out

Process from Point/Station 101.000 to Point/Station 102.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 2.410(CFS)
 Depth of flow = 0.263(Ft.), Average velocity = 3.492(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :
 Point number 'X' coordinate 'Y' coordinate
 1 0.00 0.50
 2 5.00 0.00
 3 10.00 0.50
 Manning's 'N' friction factor = 0.016

 Sub-Channel flow = 2.410(CFS)
 flow top width = 5.254(Ft.)
 velocity = 3.492(Ft/s)
 area = 0.690(Sq.Ft)
 Froude number = 1.698

Upstream point elevation = 466.100(Ft.)
 Downstream point elevation = 464.800(Ft.)
 Flow length = 61.000(Ft.)
 Travel time = 0.29 min.
 Time of concentration = 7.19 min.
 Depth of flow = 0.263(Ft.)
 Average velocity = 3.492(Ft/s)
 Total irregular channel flow = 2.410(CFS)
 Irregular channel normal depth above invert elev. = 0.263(Ft.)
 Average velocity of channel(s) = 3.492(Ft/s)
 Adding area flow to channel
 Rainfall intensity (I) = 7.086(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Rainfall intensity = 7.086(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 0.567
 Subarea runoff = 3.271(CFS) for 0.860(Ac.)
 Total runoff = 4.018(CFS) Total area = 1.050(Ac.)
 Depth of flow = 0.318(Ft.), Average velocity = 3.968(Ft/s)

+++++
 Process from Point/Station 102.000 to Point/Station 103.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 464.800(Ft.)
 Downstream point/station elevation = 462.000(Ft.)
 Pipe length = 12.00(Ft.) Slope = 0.2333 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 4.018(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 4.018(CFS)
 Normal flow depth in pipe = 4.51(In.)
 Flow top width inside pipe = 9.00(In.)
 Critical depth could not be calculated.
 Pipe flow velocity = 18.11(Ft/s)
 Travel time through pipe = 0.01 min.
 Time of concentration (TC) = 7.20 min.

+++++
 Process from Point/Station 103.000 to Point/Station 103.000
 **** SUBAREA FLOW ADDITION ****

12478PR100yr1.out
 Rainfall intensity (I) = 7.079(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Time of concentration = 7.20 min.
 Rainfall intensity = 7.079(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 0.886
 Subarea runoff = 2.251(CFS) for 0.590(Ac.)
 Total runoff = 6.269(CFS) Total area = 1.640(Ac.)

+++++
 Process from Point/Station 103.000 to Point/Station 103.000
 **** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 7.079(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Time of concentration = 7.20 min.
 Rainfall intensity = 7.079(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 1.091
 Subarea runoff = 1.453(CFS) for 0.380(Ac.)
 Total runoff = 7.722(CFS) Total area = 2.020(Ac.)

+++++
 Process from Point/Station 103.000 to Point/Station 104.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 461.000(Ft.)
 Downstream point/station elevation = 460.860(Ft.)
 Pipe length = 35.50(Ft.) Slope = 0.0039 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 7.722(CFS)
 Nearest computed pipe diameter = 21.00(In.)
 Calculated individual pipe flow = 7.722(CFS)
 Normal flow depth in pipe = 13.90(In.)
 Flow top width inside pipe = 19.87(In.)
 Critical Depth = 12.35(In.)
 Pipe flow velocity = 4.57(Ft/s)
 Travel time through pipe = 0.13 min.
 Time of concentration (TC) = 7.33 min.

+++++
 Process from Point/Station 104.000 to Point/Station 105.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 460.860(Ft.)
 Downstream point/station elevation = 458.360(Ft.)
 Pipe length = 250.00(Ft.) Slope = 0.0100 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 7.722(CFS)
 Nearest computed pipe diameter = 18.00(In.)
 Calculated individual pipe flow = 7.722(CFS)
 Normal flow depth in pipe = 11.47(In.)
 Flow top width inside pipe = 17.31(In.)
 Critical Depth = 12.92(In.)
 Pipe flow velocity = 6.50(Ft/s)
 Travel time through pipe = 0.64 min.
 Time of concentration (TC) = 7.97 min.

+++++
 Process from Point/Station 105.000 to Point/Station 106.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 458.360(Ft.)
 Downstream point/station elevation = 455.000(Ft.)
 Pipe length = 214.00(Ft.) Slope = 0.0157 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 7.722(CFS)
 Nearest computed pipe diameter = 15.00(In.)
 Calculated individual pipe flow = 7.722(CFS)
 Normal flow depth in pipe = 11.72(In.)
 Flow top width inside pipe = 12.40(In.)
 Critical Depth = 13.21(In.)
 Pipe flow velocity = 7.51(Ft/s)
 Travel time through pipe = 0.48 min.
 Time of concentration (TC) = 8.45 min.

++++++
 Process from Point/Station 106.000 to Point/Station 107.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 455.000(Ft.)
 Downstream point/station elevation = 454.450(Ft.)
 Pipe length = 53.00(Ft.) Slope = 0.0104 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 7.722(CFS)
 Nearest computed pipe diameter = 18.00(In.)
 Calculated individual pipe flow = 7.722(CFS)
 Normal flow depth in pipe = 11.32(In.)
 Flow top width inside pipe = 17.39(In.)
 Critical Depth = 12.92(In.)
 Pipe flow velocity = 6.59(Ft/s)
 Travel time through pipe = 0.13 min.
 Time of concentration (TC) = 8.58 min.

++++++
 Process from Point/Station 107.000 to Point/Station 108.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 454.450(Ft.)
 Downstream point/station elevation = 440.000(Ft.)
 Pipe length = 91.50(Ft.) Slope = 0.1579 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 7.722(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 7.722(CFS)
 Normal flow depth in pipe = 6.32(In.)
 Flow top width inside pipe = 11.98(In.)
 Critical depth could not be calculated.
 Pipe flow velocity = 18.41(Ft/s)
 Travel time through pipe = 0.08 min.
 Time of concentration (TC) = 8.66 min.

++++++
 Process from Point/Station 108.000 to Point/Station 108.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:
 In Main Stream number: 1
 Stream flow area = 2.020(Ac.)
 Runoff from this stream = 7.722(CFS)
 Time of concentration = 8.66 min.
 Rainfall intensity = 6.283(In/Hr)
 Program is now starting with Main Stream No. 2

 Process from Point/Station 110.000 to Point/Station 111.000
 **** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 [MEDIUM DENSITY RESIDENTIAL]
 (10.9 DU/A or Less)
 Impervious value, Ai = 0.450
 Sub-Area C Value = 0.540
 Initial subarea total flow distance = 62.000(Ft.)
 Highest elevation = 467.420(Ft.)
 Lowest elevation = 466.180(Ft.)
 Elevation difference = 1.240(Ft.) Slope = 2.000 %
 INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
 The maximum overland flow distance is 80.00 (Ft)
 for the top area slope value of 2.00 %, in a development type of
 10.9 DU/A or Less
 In Accordance With Figure 3-3
 Initial Area Time of Concentration = 7.16 minutes
 $TC = [1.8 * (1.1 - C) * distance(Ft.)^{1.5} / (% slope^{1/3})]$
 $TC = [1.8 * (1.1 - 0.5400) * (80.000^{1.5}) / (2.000^{1/3})] = 7.16$
 Rainfall intensity (I) = 7.109(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.540
 Subarea runoff = 1.113(CFS)
 Total initial stream area = 0.290(Ac.)

 Process from Point/Station 111.000 to Point/Station 111.000
 **** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 7.109(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Time of concentration = 7.16 min.
 Rainfall intensity = 7.109(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 0.302
 Subarea runoff = 1.036(CFS) for 0.270(Ac.)
 Total runoff = 2.150(CFS) Total area = 0.560(Ac.)

 Process from Point/Station 111.000 to Point/Station 112.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 463.000(Ft.)
 Downstream point/station elevation = 461.480(Ft.)
 Pipe length = 152.00(Ft.) Slope = 0.0100 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 2.150(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 2.150(CFS)
 Normal flow depth in pipe = 6.73(In.)
 Flow top width inside pipe = 11.91(In.)
 Critical Depth = 7.52(In.)
 Pipe flow velocity = 4.75(Ft/s)
 Travel time through pipe = 0.53 min.
 Time of concentration (TC) = 7.69 min.

 Process from Point/Station 112.000 to Point/Station 113.000
 ***** PIPEFLOW TRAVEL TIME (Program estimated size) *****

Upstream point/station elevation = 461.480(Ft.)
 Downstream point/station elevation = 459.000(Ft.)
 Pipe length = 84.00(Ft.) Slope = 0.0295 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 2.150(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 2.150(CFS)
 Normal flow depth in pipe = 5.85(In.)
 Flow top width inside pipe = 8.59(In.)
 Critical Depth = 7.92(In.)
 Pipe flow velocity = 7.07(Ft/s)
 Travel time through pipe = 0.20 min.
 Time of concentration (TC) = 7.89 min.

 Process from Point/Station 113.000 to Point/Station 113.000
 ***** SUBAREA FLOW ADDITION *****

Rainfall intensity (I) = 6.676(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Time of concentration = 7.89 min.
 Rainfall intensity = 6.676(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 0.637
 Subarea runoff = 2.104(CFS) for 0.620(Ac.)
 Total runoff = 4.254(CFS) Total area = 1.180(Ac.)

 Process from Point/Station 113.000 to Point/Station 114.000
 ***** PIPEFLOW TRAVEL TIME (Program estimated size) *****

Upstream point/station elevation = 459.000(Ft.)
 Downstream point/station elevation = 453.200(Ft.)
 Pipe length = 127.00(Ft.) Slope = 0.0457 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 4.254(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 4.254(CFS)
 Normal flow depth in pipe = 6.41(In.)
 Flow top width inside pipe = 11.97(In.)
 Critical Depth = 10.42(In.)
 Pipe flow velocity = 9.96(Ft/s)
 Travel time through pipe = 0.21 min.
 Time of concentration (TC) = 8.10 min.

 Process from Point/Station 114.000 to Point/Station 114.000
 ***** SUBAREA FLOW ADDITION *****

Rainfall intensity (I) = 6.563(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Time of concentration = 8.10 min.
 Rainfall intensity = 6.563(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 0.864
 Subarea runoff = 1.416(CFS) for 0.420(Ac.)
 Total runoff = 5.670(CFS) Total area = 1.600(Ac.)

 Process from Point/Station 114.000 to Point/Station 114.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 1
 Stream flow area = 1.600(Ac.)
 Runoff from this stream = 5.670(CFS)
 Time of concentration = 8.10 min.
 Rainfall intensity = 6.563(In/Hr)

 Process from Point/Station 120.000 to Point/Station 121.000
 **** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 [MEDIUM DENSITY RESIDENTIAL]
 (10.9 DU/A or Less)
 Impervious value, Ai = 0.450
 Sub-Area C Value = 0.540
 Initial subarea total flow distance = 85.000(Ft.)
 Highest elevation = 465.000(Ft.)
 Lowest elevation = 462.500(Ft.)
 Elevation difference = 2.500(Ft.) Slope = 2.941 %
 Top of Initial Area Slope adjusted by User to 3.000 %
 INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
 The maximum overland flow distance is 90.00 (Ft)
 for the top area slope value of 3.00 %, in a development type of
 10.9 DU/A or Less
 In Accordance With Figure 3-3
 Initial Area Time of Concentration = 6.63 minutes
 $TC = [1.8 * (1.1 - C) * distance(Ft.)^{.5}] / (% slope^{(1/3)})]$
 $TC = [1.8 * (1.1 - 0.5400) * (90.000^{.5})] / (3.000^{(1/3)}) = 6.63$
 Rainfall intensity (I) = 7.467(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area (Q=KCIA) is C = 0.540
 Subarea runoff = 0.968(CFS)
 Total initial stream area = 0.240(Ac.)

 Process from Point/Station 121.000 to Point/Station 122.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 1.199(CFS)
 Depth of flow = 0.126(Ft.), Average velocity = 1.522(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :

Point number	'X' coordinate	'Y' coordinate
1	0.00	0.50
2	0.12	0.00
3	40.00	0.40

 Manning's 'N' friction factor = 0.016

Sub-Channel flow = 1.199(CFS)
 flow top width = 12.551(Ft.)
 velocity = 1.522(Ft/s)
 area = 0.788(Sq.Ft)
 Froude number = 1.070

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Upstream point elevation = 462.500(Ft.)
 Downstream point elevation = 458.500(Ft.)
 Flow length = 368.000(Ft.)
 Travel time = 4.03 min.
 Time of concentration = 10.66 min.
 Depth of flow = 0.126(Ft.)
 Average velocity = 1.522(Ft/s)
 Total irregular channel flow = 1.199(CFS)
 Irregular channel normal depth above invert elev. = 0.126(Ft.)
 Average velocity of channel(s) = 1.522(Ft/s)
 Adding area flow to channel
 Rainfall intensity (I) = 5.497(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Rainfall intensity = 5.497(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 0.248
 Subarea runoff = 0.398(CFS) for 0.220(Ac.)
 Total runoff = 1.365(CFS) Total area = 0.460(Ac.)
 Depth of flow = 0.132(Ft.), Average velocity = 1.572(Ft/s)

 Process from Point/Station 122.000 to Point/Station 123.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 455.000(Ft.)
 Downstream point/station elevation = 454.600(Ft.)
 Pipe length = 36.00(Ft.) Slope = 0.0111 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 1.365(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 1.365(CFS)
 Normal flow depth in pipe = 5.99(In.)
 Flow top width inside pipe = 8.49(In.)
 Critical Depth = 6.46(In.)
 Pipe flow velocity = 4.37(Ft/s)
 Travel time through pipe = 0.14 min.
 Time of concentration (TC) = 10.80 min.

 Process from Point/Station 123.000 to Point/Station 123.000
 **** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.452(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Time of concentration = 10.80 min.
 Rainfall intensity = 5.452(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 0.632
 Subarea runoff = 2.079(CFS) for 0.710(Ac.)
 Total runoff = 3.444(CFS) Total area = 1.170(Ac.)

 Process from Point/Station 123.000 to Point/Station 123.000
 **** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.452(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Time of concentration = 10.80 min.
 Rainfall intensity = 5.452(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area

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(Q=KCIA) is C = 0.540 CA = 0.724
Subarea runoff = 0.500(CFS) for 0.170(Ac.)
Total runoff = 3.945(CFS) Total area = 1.340(Ac.)

++++
Process from Point/Station 123.000 to Point/Station 124.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 454.600(Ft.)
Downstream point/station elevation = 453.780(Ft.)
Pipe length = 82.00(Ft.) Slope = 0.0100 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 3.945(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 3.945(CFS)
Normal flow depth in pipe = 8.47(In.)
Flow top width inside pipe = 14.87(In.)
Critical Depth = 9.64(In.)
Pipe flow velocity = 5.52(Ft/s)
Travel time through pipe = 0.25 min.
Time of concentration (TC) = 11.05 min.

++++
Process from Point/Station 124.000 to Point/Station 124.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.373(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.540 given for subarea
Time of concentration = 11.05 min.
Rainfall intensity = 5.373(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.540 CA = 1.091
Subarea runoff = 1.916(CFS) for 0.680(Ac.)
Total runoff = 5.861(CFS) Total area = 2.020(Ac.)

++++
Process from Point/Station 124.000 to Point/Station 124.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.373(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.540 given for subarea
Time of concentration = 11.05 min.
Rainfall intensity = 5.373(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.540 CA = 1.264
Subarea runoff = 0.928(CFS) for 0.320(Ac.)
Total runoff = 6.789(CFS) Total area = 2.340(Ac.)

++++
Process from Point/Station 124.000 to Point/Station 114.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 453.780(Ft.)
Downstream point/station elevation = 452.350(Ft.)
Pipe length = 143.00(Ft.) Slope = 0.0100 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 6.789(CFS)
Nearest computed pipe diameter = 18.00(In.)
Calculated individual pipe flow = 6.789(CFS)
Normal flow depth in pipe = 10.54(In.)
Flow top width inside pipe = 17.74(In.)

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 Critical Depth = 12.11(In.)
 Pipe flow velocity = 6.32(Ft/s)
 Travel time through pipe = 0.38 min.
 Time of concentration (TC) = 11.42 min.

++++
 Process from Point/Station 114.000 to Point/Station 114.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 2
 Stream flow area = 2.340(Ac.)
 Runoff from this stream = 6.789(CFS)
 Time of concentration = 11.42 min.
 Rainfall intensity = 5.258(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	5.670	8.10	6.563
2	6.789	11.42	5.258
Qmax(1) =			
	1.000 *	1.000 *	5.670) +
	1.000 *	0.709 *	6.789) + = 10.484
Qmax(2) =			
	0.801 *	1.000 *	5.670) +
	1.000 *	1.000 *	6.789) + = 11.331

Total of 2 streams to confluence:
 Flow rates before confluence point:
 5.670 6.789
 Maximum flow rates at confluence using above data:
 10.484 11.331
 Area of streams before confluence:
 1.600 2.340
 Results of confluence:
 Total flow rate = 11.331(CFS)
 Time of concentration = 11.423 min.
 Effective stream area after confluence = 3.940(Ac.)

++++
 Process from Point/Station 114.000 to Point/Station 115.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 452.350(Ft.)
 Downstream point/station elevation = 450.220(Ft.)
 Pipe length = 66.00(Ft.) Slope = 0.0323 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 11.331(CFS)
 Nearest computed pipe diameter = 15.00(In.)
 Calculated individual pipe flow = 11.331(CFS)
 Normal flow depth in pipe = 11.98(In.)
 Flow top width inside pipe = 12.04(In.)
 Critical depth could not be calculated.
 Pipe flow velocity = 10.78(Ft/s)
 Travel time through pipe = 0.10 min.
 Time of concentration (TC) = 11.52 min.

++++
 Process from Point/Station 115.000 to Point/Station 115.000
 Page 10

**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.228(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Time of concentration = 11.52 min.
 Rainfall intensity = 5.228(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 2.322
 Subarea runoff = 0.807(CFS) for 0.360(Ac.)
 Total runoff = 12.138(CFS) Total area = 4.300(Ac.)

++++++
 Process from Point/Station 115.000 to Point/Station 116.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 450.220(Ft.)
 Downstream point/station elevation = 448.000(Ft.)
 Pipe length = 74.00(Ft.) Slope = 0.0300 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 12.138(CFS)
 Nearest computed pipe diameter = 18.00(In.)
 Calculated individual pipe flow = 12.138(CFS)
 Normal flow depth in pipe = 10.76(In.)
 Flow top width inside pipe = 17.65(In.)
 Critical Depth = 15.83(In.)
 Pipe flow velocity = 11.03(Ft/s)
 Travel time through pipe = 0.11 min.
 Time of concentration (TC) = 11.64 min.

++++++
 Process from Point/Station 116.000 to Point/Station 116.000
 **** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.195(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea
 Time of concentration = 11.64 min.
 Rainfall intensity = 5.195(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.540 CA = 2.479
 Subarea runoff = 0.738(CFS) for 0.290(Ac.)
 Total runoff = 12.876(CFS) Total area = 4.590(Ac.)

++++++
 Process from Point/Station 116.000 to Point/Station 108.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 441.000(Ft.)
 Downstream point/station elevation = 440.000(Ft.)
 Pipe length = 67.00(Ft.) Slope = 0.0149 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 12.876(CFS)
 Nearest computed pipe diameter = 21.00(In.)
 Calculated individual pipe flow = 12.876(CFS)
 Normal flow depth in pipe = 12.52(In.)
 Flow top width inside pipe = 20.61(In.)
 Critical Depth = 16.03(In.)
 Pipe flow velocity = 8.61(Ft/s)
 Travel time through pipe = 0.13 min.
 Time of concentration (TC) = 11.77 min.

12478PR100yr1.out

Process from Point/Station 108.000 to Point/Station 108.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 2
 Stream flow area = 4.590(Ac.)
 Runoff from this stream = 12.876(CFS)
 Time of concentration = 11.77 min.
 Rainfall intensity = 5.158(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	7.722	8.66	6.283
2	12.876	11.77	5.158

Qmax(1) =
 1.000 * 1.000 * 7.722) +
 1.000 * 0.736 * 12.876) + = 17.204

Qmax(2) =
 0.821 * 1.000 * 7.722) +
 1.000 * 1.000 * 12.876) + = 19.215

Total of 2 main streams to confluence:

Flow rates before confluence point:

7.722 12.876

Maximum flow rates at confluence using above data:

17.204 19.215

Area of streams before confluence:

2.020 4.590

Results of confluence:

Total flow rate = 19.215(CFS)

Time of concentration = 11.766 min.

Effective stream area after confluence = 6.610(Ac.)

 Process from Point/Station 108.000 to Point/Station 109.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 440.000(Ft.)
 Downstream point/station elevation = 435.000(Ft.)
 Pipe length = 61.00(Ft.) Slope = 0.0820 Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 19.215(CFS)
 Nearest computed pipe diameter = 18.00(In.)
 Calculated individual pipe flow = 19.215(CFS)
 Normal flow depth in pipe = 10.45(In.)
 Flow top width inside pipe = 17.76(In.)
 Critical depth could not be calculated.
 Pipe flow velocity = 18.05(Ft/s)
 Travel time through pipe = 0.06 min.
 Time of concentration (TC) = 11.82 min.

 Process from Point/Station 109.000 to Point/Station 109.000
 **** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.142(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.540 given for subarea

```

                                12478PR100yr1.out
Time of concentration =      11.82 min.
Rainfall intensity =      5.142(In/Hr) for a  100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.540  CA =      4.649
Subarea runoff =      4.693(CFS) for      2.000(Ac.)
Total runoff =      23.908(CFS)  Total area =      8.610(Ac.)
End of computations, total study area =      8.610 (Ac.)

```

12478pr100yr2.out

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 03/16/17

PROPOSED CONDITION HYDROLOGY ANALYSIS
EXIT POINT 2
SVBF TEMPLE
ONSITE BASIN

***** Hydrology Study Control Information *****

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 6.000
P6/P24 = 56.7%
San Diego hydrology manual 'C' values used

+++++
Process from Point/Station 200.000 to Point/Station 201.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.250
Initial subarea total flow distance = 135.000(Ft.)
Highest elevation = 450.000(Ft.)
Lowest elevation = 432.000(Ft.)
Elevation difference = 18.000(Ft.) Slope = 13.333 %
Top of Initial Area Slope adjusted by User to 13.000 %
Bottom of Initial Area Slope adjusted by User to 13.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 13.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 6.51 minutes
 $TC = [1.8 * (1.1 - C) * \text{distance}(\text{Ft.})^{.5} / (\% \text{ slope}^{(1/3)})]$
 $TC = [1.8 * (1.1 - 0.2500) * (100.000^{.5}) / (13.000^{(1/3)})] = 6.51$
The initial area total distance of 135.00 (Ft.) entered leaves a
remaining distance of 35.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.26 minutes
for a distance of 35.00 (Ft.) and a slope of 13.00 %
with an elevation difference of 4.55(Ft.) from the end of the top area

12478pr100yr2.out

$Tt = [11.9 * \text{length}(\text{Mi})^3 / (\text{elevation change}(\text{Ft.}))]^{.385} * 60(\text{min/hr})$
 = 0.265 Minutes
 $Tt = [(11.9 * 0.0066^3) / (4.55)]^{.385} = 0.26$
 Total initial area $Ti = 6.51$ minutes from Figure 3-3 formula plus
 0.26 minutes from the Figure 3-4 formula = 6.77 minutes
 Rainfall intensity (I) = 7.366(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for area ($Q=KCIA$) is $C = 0.250$
 Subarea runoff = 1.160(CFS)
 Total initial stream area = 0.630(Ac.)
 End of computations, total study area = 0.630 (Ac.)

12478PR100yr3.out

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 03/17/17

PROPOSED CONDITION HYDROLOGY ANALYSIS
EXIT POINT 3
SVBF TEMPLE

***** Hydrology Study Control Information *****

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 6.000
P6/P24 = 56.7%
San Diego hydrology manual 'C' values used

+++++
Process from Point/Station 300.000 to Point/Station 301.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.250
Initial subarea total flow distance = 86.000(Ft.)
Highest elevation = 480.000(Ft.)
Lowest elevation = 472.000(Ft.)
Elevation difference = 8.000(Ft.) Slope = 9.302 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 9.30 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 7.27 minutes
 $TC = [1.8 * (1.1 - C) * distance(Ft.)^{.5} / (% slope^{(1/3)})]$
 $TC = [1.8 * (1.1 - 0.2500) * (100.000^{.5}) / (9.302^{(1/3)})] = 7.27$
Rainfall intensity (I) = 7.033(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.250
Subarea runoff = 0.176(CFS)
Total initial stream area = 0.100(Ac.)

 Process from Point/Station 301.000 to Point/Station 302.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.404(CFS)
 Depth of flow = 0.253(Ft.), Average velocity = 6.319(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :

Point number	'X' coordinate	'Y' coordinate
1	0.00	1.00
2	1.00	0.00
3	2.00	1.00

Manning's 'N' friction factor = 0.013

 Sub-Channel flow = 0.404(CFS)
 ' ' flow top width = 0.506(Ft.)
 ' ' velocity = 6.319(Ft/s)
 ' ' area = 0.064(Sq.Ft)
 ' ' Froude number = 3.131

Upstream point elevation = 472.000(Ft.)
 Downstream point elevation = 450.000(Ft.)
 Flow length = 288.000(Ft.)
 Travel time = 0.76 min.
 Time of concentration = 8.03 min.
 Depth of flow = 0.253(Ft.)
 Average velocity = 6.319(Ft/s)
 Total irregular channel flow = 0.404(CFS)
 Irregular channel normal depth above invert elev. = 0.253(Ft.)
 Average velocity of channel(s) = 6.319(Ft/s)
 Adding area flow to channel
 Rainfall intensity (I) = 6.597(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.280 given for subarea
 Rainfall intensity = 6.597(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.272 CA = 0.098
 Subarea runoff = 0.469(CFS) for 0.260(Ac.)
 Total runoff = 0.645(CFS) Total area = 0.360(Ac.)
 Depth of flow = 0.301(Ft.), Average velocity = 7.101(Ft/s)

 Process from Point/Station 302.000 to Point/Station 303.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 1.174(CFS)
 Depth of flow = 0.371(Ft.), Average velocity = 8.533(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :

Point number	'X' coordinate	'Y' coordinate
1	0.00	1.00
2	1.00	0.00
3	2.00	1.00

Manning's 'N' friction factor = 0.013

 Sub-Channel flow = 1.174(CFS)
 ' ' flow top width = 0.742(Ft.)
 ' ' velocity = 8.533(Ft/s)
 ' ' area = 0.138(Sq.Ft)
 ' ' Froude number = 3.492

12478PR100yr3.out
 Upstream point elevation = 450.000(Ft.)
 Downstream point elevation = 428.000(Ft.)
 Flow length = 263.000(Ft.)
 Travel time = 0.51 min.
 Time of concentration = 8.55 min.
 Depth of flow = 0.371(Ft.)
 Average velocity = 8.533(Ft/s)
 Total irregular channel flow = 1.174(CFS)
 Irregular channel normal depth above invert elev. = 0.371(Ft.)
 Average velocity of channel(s) = 8.533(Ft/s)
 Adding area flow to channel
 Rainfall intensity (I) = 6.339(In/Hr) for a 100.0 year storm
 User specified 'C' value of 0.280 given for subarea
 Rainfall intensity = 6.339(In/Hr) for a 100.0 year storm
 Effective runoff coefficient used for total area
 (Q=KCIA) is C = 0.277 CA = 0.263
 Subarea runoff = 1.022(CFS) for 0.590(Ac.)
 Total runoff = 1.667(CFS) Total area = 0.950(Ac.)
 Depth of flow = 0.423(Ft.), Average velocity = 9.315(Ft/s)
 End of computations, total study area = 0.950 (Ac.)

DRAINAGE AREAS AND COEFFICIENT OF RUNOFF
FOR OFFSITE BASINS DO NOT CHANGE IN THE
PROPOSED CONDITION
(REFER TO APPENDIX B FOR OFFSITE
HYDROLOGY ANALYSIS)

HYDRAULIC ANALYSIS

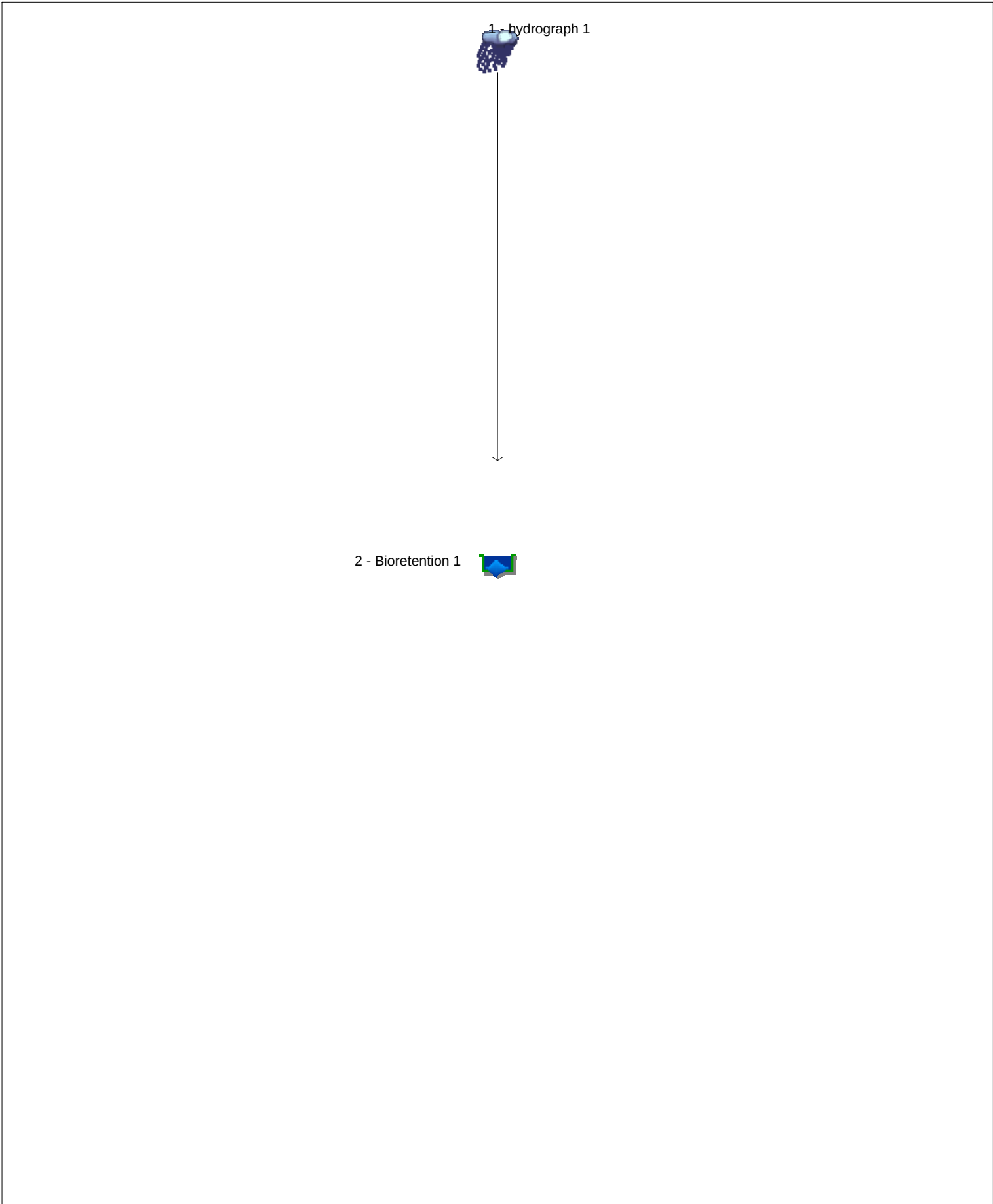
RUN DATE 3/17/2017
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 7 MIN.
6 HOUR RAINFALL 3.4 INCHES
BASIN AREA 2.02 ACRES
RUNOFF COEFFICIENT 0.54
PEAK DISCHARGE 7.7 CFS

Detention Basin -1 Analysis (BMP #1)

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 7	DISCHARGE (CFS) = 0.2
TIME (MIN) = 14	DISCHARGE (CFS) = 0.2
TIME (MIN) = 21	DISCHARGE (CFS) = 0.2
TIME (MIN) = 28	DISCHARGE (CFS) = 0.2
TIME (MIN) = 35	DISCHARGE (CFS) = 0.2
TIME (MIN) = 42	DISCHARGE (CFS) = 0.2
TIME (MIN) = 49	DISCHARGE (CFS) = 0.3
TIME (MIN) = 56	DISCHARGE (CFS) = 0.3
TIME (MIN) = 63	DISCHARGE (CFS) = 0.3
TIME (MIN) = 70	DISCHARGE (CFS) = 0.3
TIME (MIN) = 77	DISCHARGE (CFS) = 0.3
TIME (MIN) = 84	DISCHARGE (CFS) = 0.3
TIME (MIN) = 91	DISCHARGE (CFS) = 0.3
TIME (MIN) = 98	DISCHARGE (CFS) = 0.3
TIME (MIN) = 105	DISCHARGE (CFS) = 0.3
TIME (MIN) = 112	DISCHARGE (CFS) = 0.3
TIME (MIN) = 119	DISCHARGE (CFS) = 0.3
TIME (MIN) = 126	DISCHARGE (CFS) = 0.3
TIME (MIN) = 133	DISCHARGE (CFS) = 0.4
TIME (MIN) = 140	DISCHARGE (CFS) = 0.4
TIME (MIN) = 147	DISCHARGE (CFS) = 0.4
TIME (MIN) = 154	DISCHARGE (CFS) = 0.4
TIME (MIN) = 161	DISCHARGE (CFS) = 0.4
TIME (MIN) = 168	DISCHARGE (CFS) = 0.5
TIME (MIN) = 175	DISCHARGE (CFS) = 0.5
TIME (MIN) = 182	DISCHARGE (CFS) = 0.5
TIME (MIN) = 189	DISCHARGE (CFS) = 0.6
TIME (MIN) = 196	DISCHARGE (CFS) = 0.6
TIME (MIN) = 203	DISCHARGE (CFS) = 0.7
TIME (MIN) = 210	DISCHARGE (CFS) = 0.8
TIME (MIN) = 217	DISCHARGE (CFS) = 0.9
TIME (MIN) = 224	DISCHARGE (CFS) = 1.1
TIME (MIN) = 231	DISCHARGE (CFS) = 1.6
TIME (MIN) = 238	DISCHARGE (CFS) = 2.4
TIME (MIN) = 245	DISCHARGE (CFS) = 7.7
TIME (MIN) = 252	DISCHARGE (CFS) = 1.2
TIME (MIN) = 259	DISCHARGE (CFS) = 0.8
TIME (MIN) = 266	DISCHARGE (CFS) = 0.7
TIME (MIN) = 273	DISCHARGE (CFS) = 0.5
TIME (MIN) = 280	DISCHARGE (CFS) = 0.5
TIME (MIN) = 287	DISCHARGE (CFS) = 0.4
TIME (MIN) = 294	DISCHARGE (CFS) = 0.4
TIME (MIN) = 301	DISCHARGE (CFS) = 0.4
TIME (MIN) = 308	DISCHARGE (CFS) = 0.3
TIME (MIN) = 315	DISCHARGE (CFS) = 0.3
TIME (MIN) = 322	DISCHARGE (CFS) = 0.3
TIME (MIN) = 329	DISCHARGE (CFS) = 0.3
TIME (MIN) = 336	DISCHARGE (CFS) = 0.3
TIME (MIN) = 343	DISCHARGE (CFS) = 0.2
TIME (MIN) = 350	DISCHARGE (CFS) = 0.2
TIME (MIN) = 357	DISCHARGE (CFS) = 0.2
TIME (MIN) = 364	DISCHARGE (CFS) = 0

Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

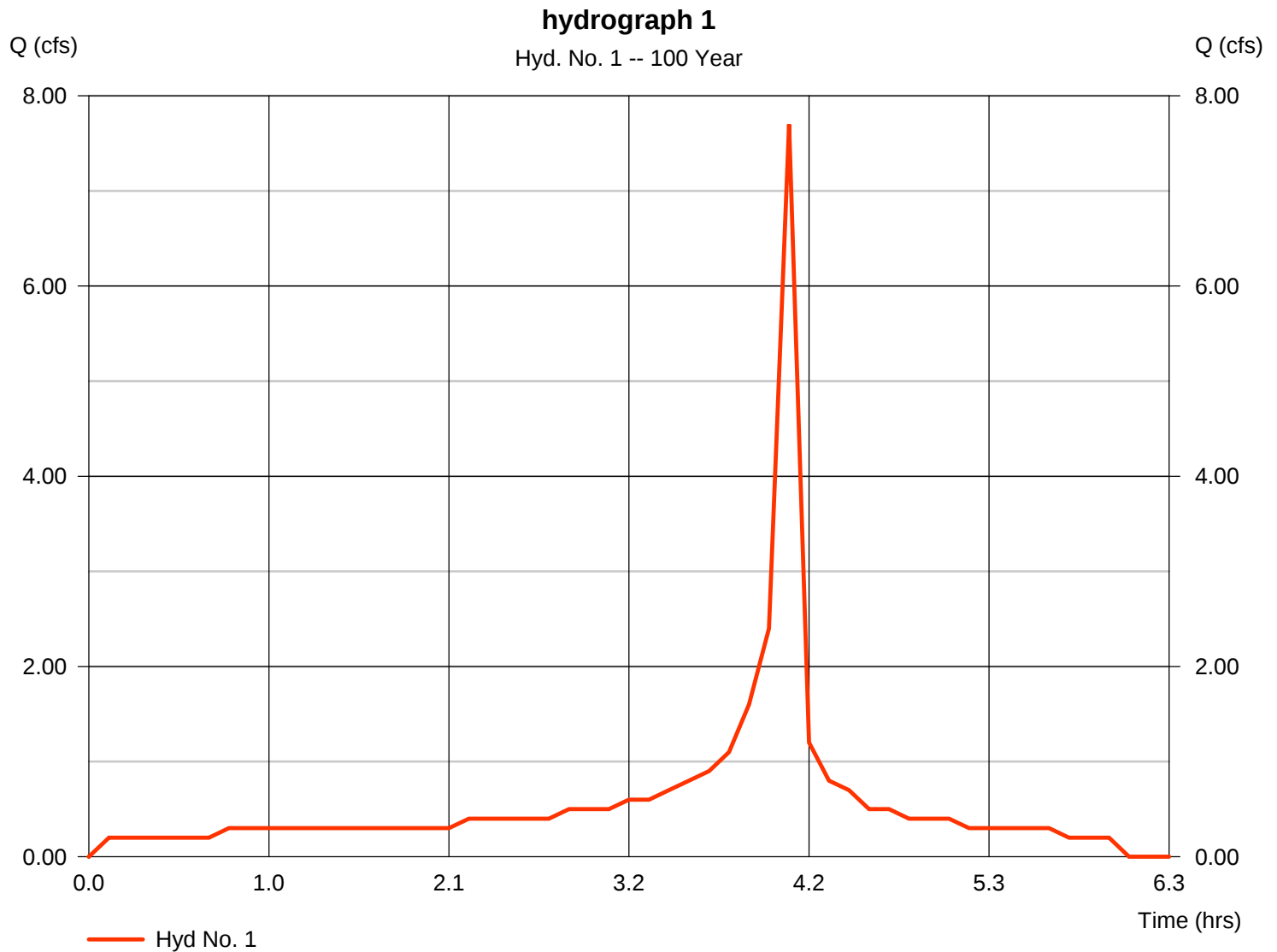
Friday, 03 / 17 / 2017

Hyd. No. 1

hydrograph 1

Hydrograph type = Manual
 Storm frequency = 100 yrs
 Time interval = 7 min

Peak discharge = 7.700 cfs
 Time to peak = 4.08 hrs
 Hyd. volume = 13,314 cuft



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

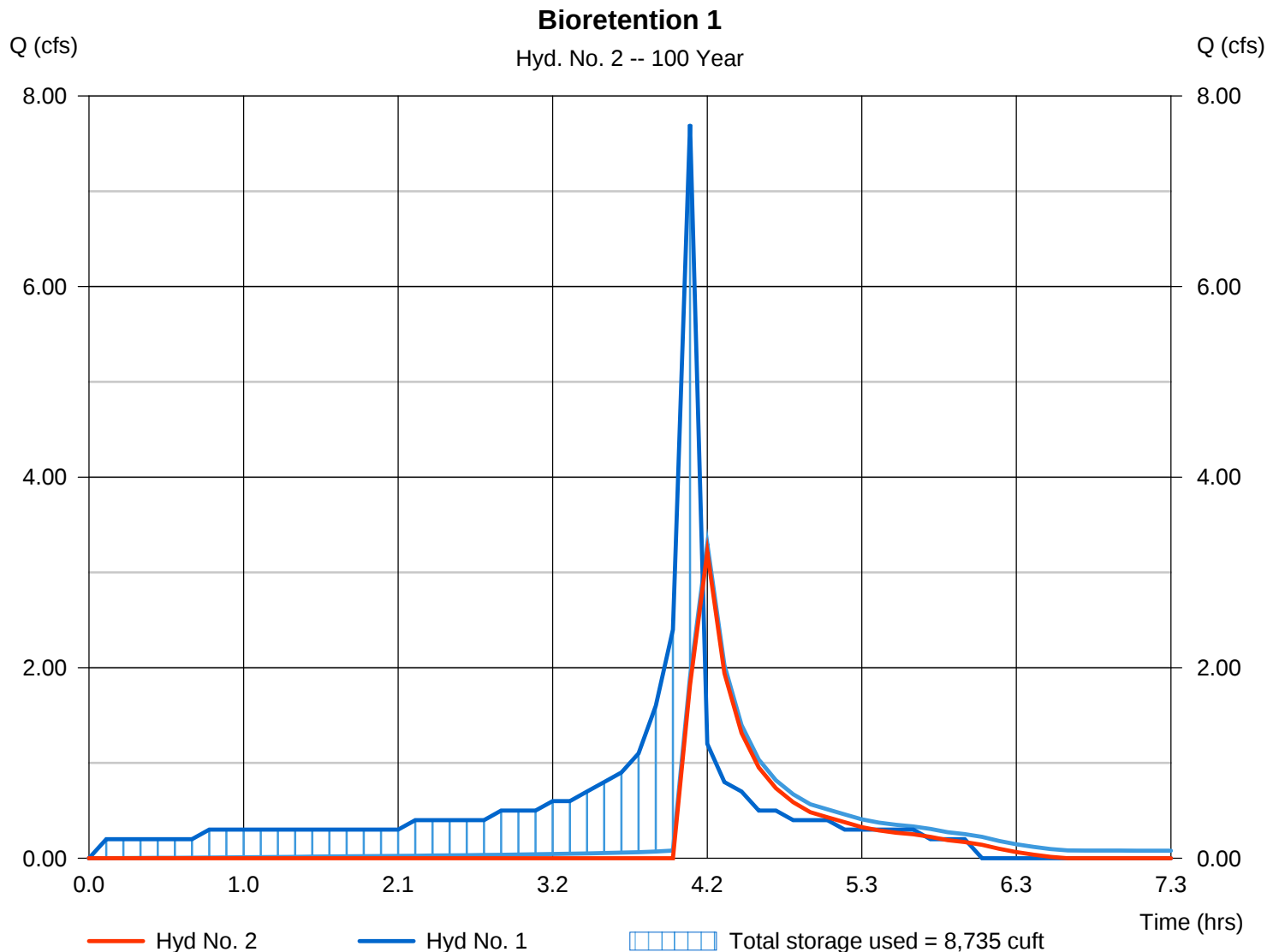
Friday, 03 / 17 / 2017

Hyd. No. 2

Bioretention 1

Hydrograph type	= Reservoir	Peak discharge	= 3.215 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.20 hrs
Time interval	= 7 min	Hyd. volume	= 5,853 cuft
Inflow hyd. No.	= 1 - hydrograph 1	Max. Elevation	= 463.41 ft
Reservoir name	= Detention Basin 1	Max. Storage	= 8,735 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

4

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Friday, 03 / 17 / 2017

Pond No. 1 - Detention Basin 1

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 462.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	462.00	5,790	0	0
1.00	463.00	6,787	6,289	6,289
1.50	463.50	7,290	3,519	9,808

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	Inactive	Inactive	Inactive
Span (in)	= 12.00	3.00	8.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 461.00	462.50	27.00	0.00
Length (ft)	= 63.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.30	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.71	Inactive	Inactive	Inactive
Crest El. (ft)	= 463.00	463.34	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.520 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	462.00	0.00	0.00	0.00	---	0.00	0.00	---	---	0.000	---	0.000
1.00	6,289	463.00	2.67 ic	0.00	0.00	---	0.00	0.00	---	---	0.082	---	0.082
1.50	9,808	463.50	4.94 ic	0.00	0.00	---	4.94 s	0.00	---	---	0.088	---	5.024

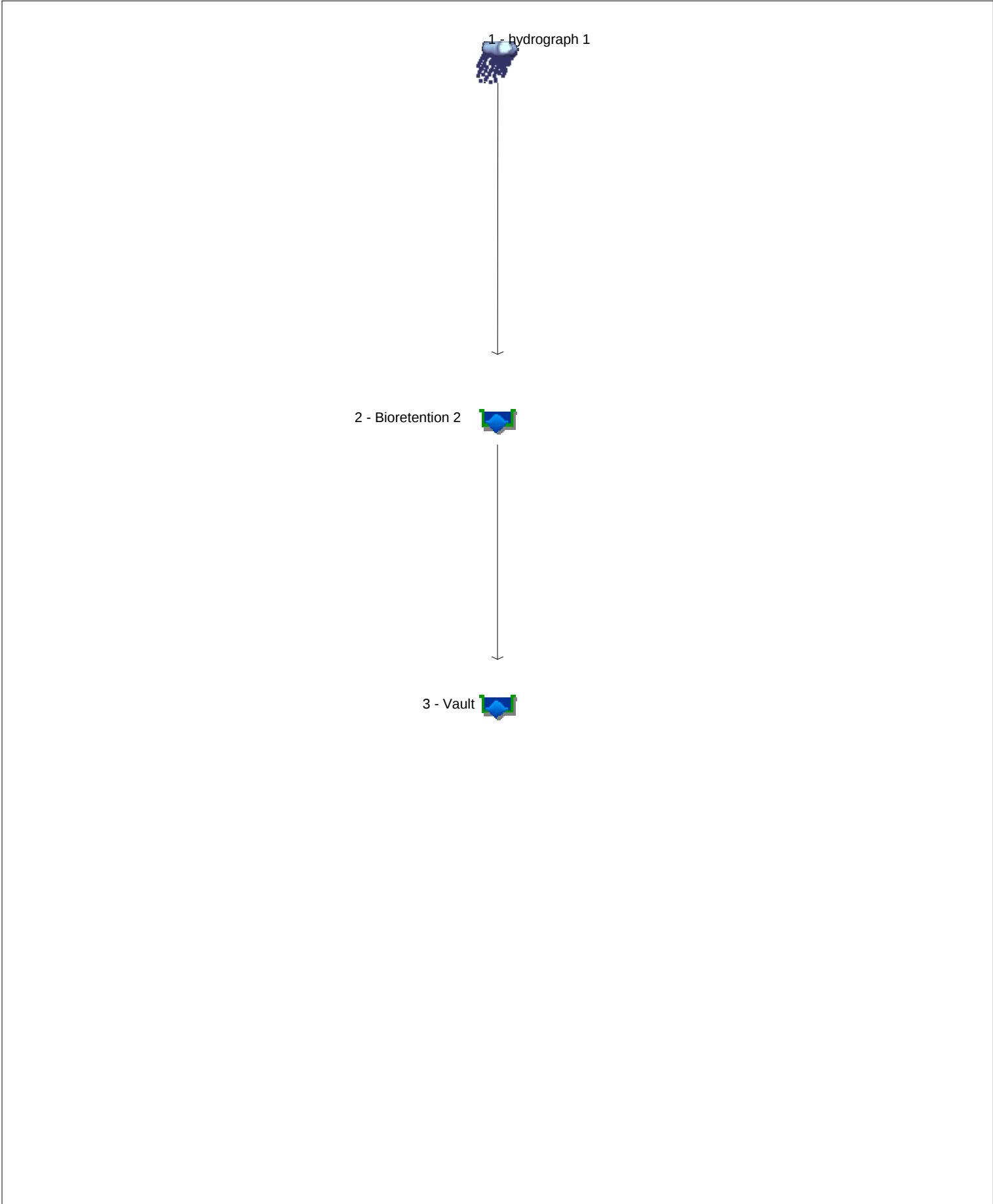
RUN DATE 3/17/2017
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 11 MIN.
6 HOUR RAINFALL 3.4 INCHES
BASIN AREA 4.59 ACRES
RUNOFF COEFFICIENT 0.54
PEAK DISCHARGE 12.87 CFS

Detention Basin -2 Analysis (BMPs 2 & 3)

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 11	DISCHARGE (CFS) = 0.5
TIME (MIN) = 22	DISCHARGE (CFS) = 0.5
TIME (MIN) = 33	DISCHARGE (CFS) = 0.5
TIME (MIN) = 44	DISCHARGE (CFS) = 0.5
TIME (MIN) = 55	DISCHARGE (CFS) = 0.6
TIME (MIN) = 66	DISCHARGE (CFS) = 0.6
TIME (MIN) = 77	DISCHARGE (CFS) = 0.6
TIME (MIN) = 88	DISCHARGE (CFS) = 0.6
TIME (MIN) = 99	DISCHARGE (CFS) = 0.7
TIME (MIN) = 110	DISCHARGE (CFS) = 0.7
TIME (MIN) = 121	DISCHARGE (CFS) = 0.7
TIME (MIN) = 132	DISCHARGE (CFS) = 0.8
TIME (MIN) = 143	DISCHARGE (CFS) = 0.8
TIME (MIN) = 154	DISCHARGE (CFS) = 0.9
TIME (MIN) = 165	DISCHARGE (CFS) = 1
TIME (MIN) = 176	DISCHARGE (CFS) = 1
TIME (MIN) = 187	DISCHARGE (CFS) = 1.2
TIME (MIN) = 198	DISCHARGE (CFS) = 1.3
TIME (MIN) = 209	DISCHARGE (CFS) = 1.6
TIME (MIN) = 220	DISCHARGE (CFS) = 1.8
TIME (MIN) = 231	DISCHARGE (CFS) = 2.6
TIME (MIN) = 242	DISCHARGE (CFS) = 4.2
TIME (MIN) = 253	DISCHARGE (CFS) = 12.87
TIME (MIN) = 264	DISCHARGE (CFS) = 2.1
TIME (MIN) = 275	DISCHARGE (CFS) = 1.4
TIME (MIN) = 286	DISCHARGE (CFS) = 1.1
TIME (MIN) = 297	DISCHARGE (CFS) = 0.9
TIME (MIN) = 308	DISCHARGE (CFS) = 0.8
TIME (MIN) = 319	DISCHARGE (CFS) = 0.7
TIME (MIN) = 330	DISCHARGE (CFS) = 0.7
TIME (MIN) = 341	DISCHARGE (CFS) = 0.6
TIME (MIN) = 352	DISCHARGE (CFS) = 0.6
TIME (MIN) = 363	DISCHARGE (CFS) = 0.5
TIME (MIN) = 374	DISCHARGE (CFS) = 0

Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

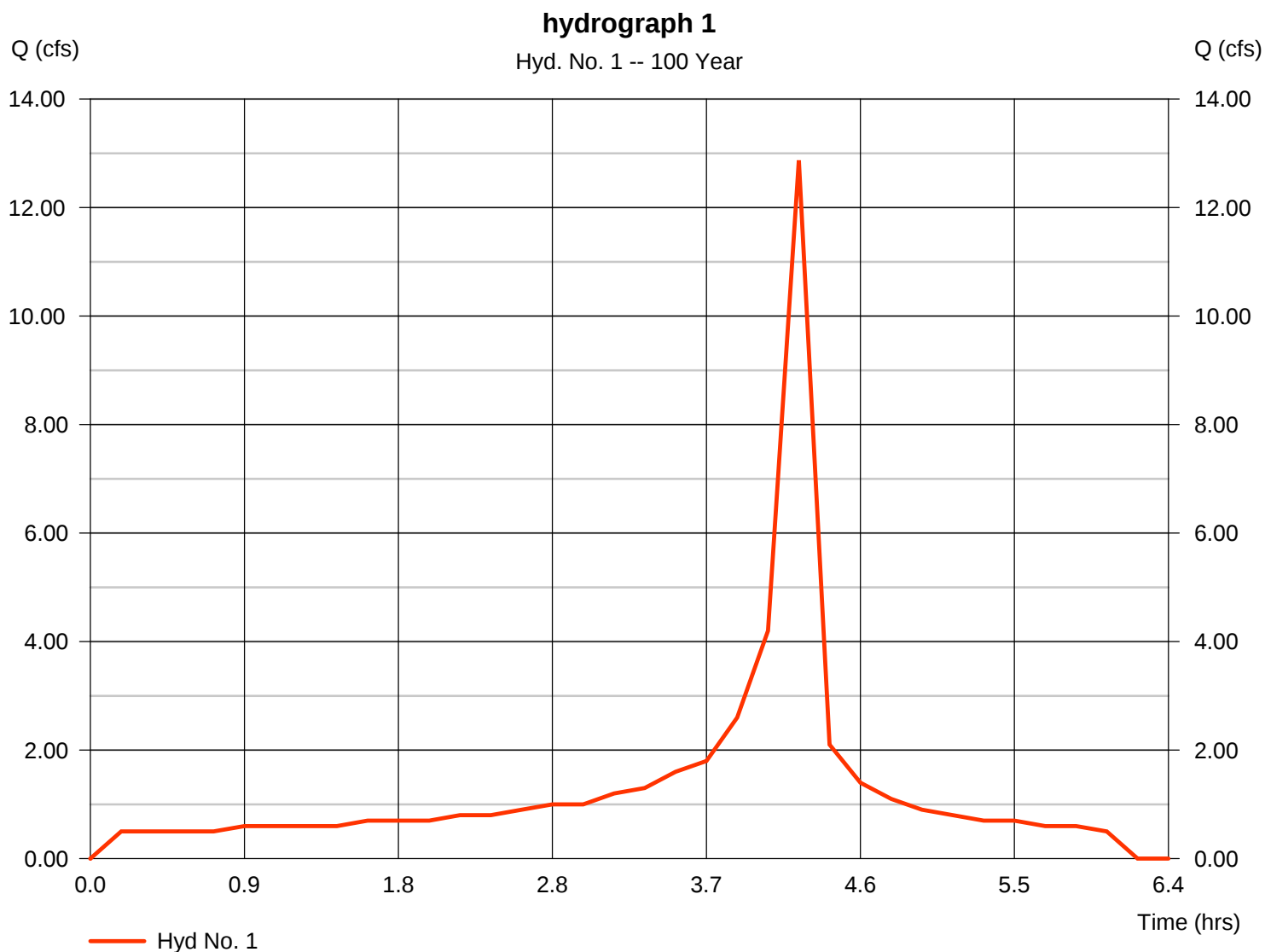
Friday, 03 / 17 / 2017

Hyd. No. 1

hydrograph 1

Hydrograph type = Manual
Storm frequency = 100 yrs
Time interval = 11 min

Peak discharge = 12.87 cfs
Time to peak = 4.22 hrs
Hyd. volume = 30,340 cuft



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

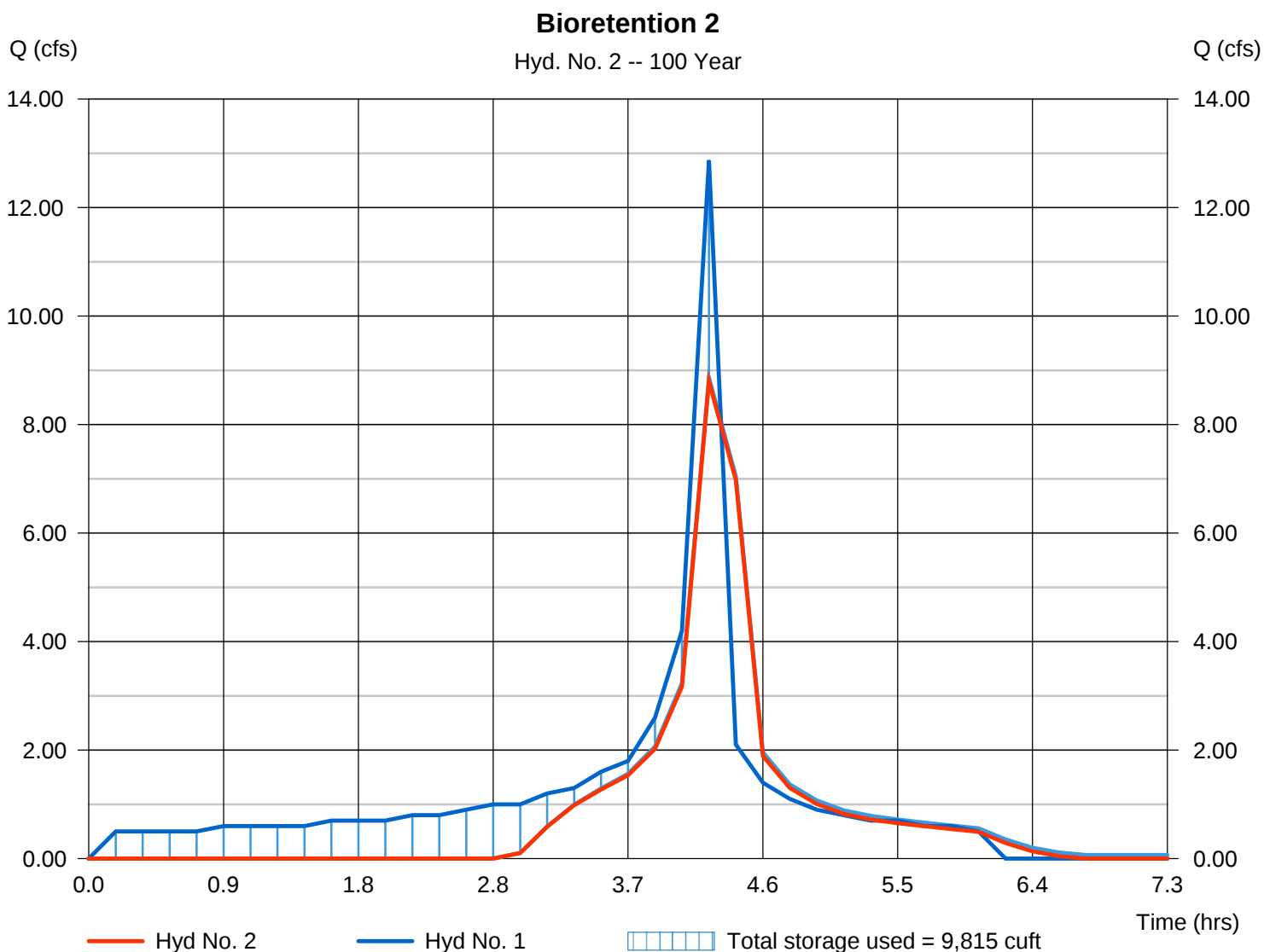
Friday, 03 / 17 / 2017

Hyd. No. 2

Bioretention 2

Hydrograph type	= Reservoir	Peak discharge	= 8.797 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.22 hrs
Time interval	= 11 min	Hyd. volume	= 22,398 cuft
Inflow hyd. No.	= 1 - hydrograph 1	Max. Elevation	= 450.70 ft
Reservoir name	= Bioretention 2	Max. Storage	= 9,815 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

4

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Friday, 03 / 17 / 2017

Pond No. 1 - Bioretention 2

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 449.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	449.00	5,900	0	0
1.00	450.00	6,860	6,380	6,380
1.50	450.70	7,940	3,700	10,080

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 30.00	Inactive	Inactive	Inactive
Span (in)	= 30.00	1.70	8.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 449.00	449.00	27.00	0.00
Length (ft)	= 63.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.30	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 7.85	Inactive	Inactive	Inactive
Crest El. (ft)	= 450.00	442.20	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.520 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	449.00	0.00	0.00	0.00	---	0.00	0.00	---	---	0.000	---	0.000
1.00	6,380	450.00	0.00	0.00	0.00	---	0.00	0.00	---	---	0.083	---	0.083
1.50	10,080	450.70	11.96 ic	0.00	0.00	---	11.95 s	0.00	---	---	0.096	---	12.04

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

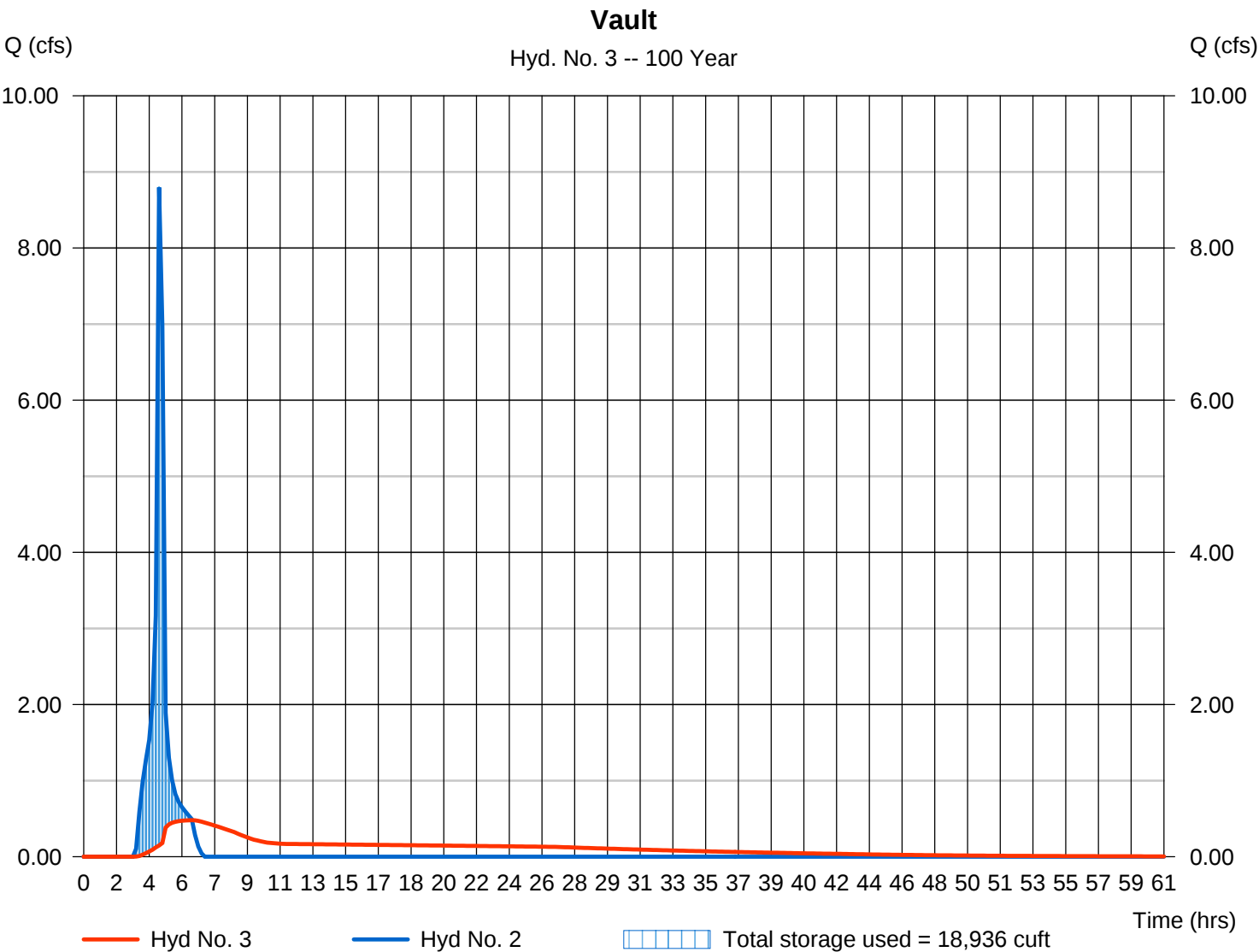
Friday, 03 / 17 / 2017

Hyd. No. 3

Vault

Hydrograph type	= Reservoir	Peak discharge	= 0.479 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.05 hrs
Time interval	= 11 min	Hyd. volume	= 22,369 cuft
Inflow hyd. No.	= 2 - Bioretention 2	Max. Elevation	= 443.46 ft
Reservoir name	= Vault 1	Max. Storage	= 18,936 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

6

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Friday, 03 / 17 / 2017

Pond No. 2 - Vault 1

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 440.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	440.00	5,475	0	0
1.00	441.00	5,475	5,475	5,475
2.00	442.00	5,475	5,475	10,950
3.00	443.00	5,475	5,475	16,425
4.00	444.00	5,475	5,475	21,900
5.00	445.00	5,475	5,475	27,375
5.20	445.20	5,475	1,095	28,470

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.59	5.10	Inactive
Span (in)	= 24.00	1.59	5.10	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 440.00	440.00	442.50	0.00
Length (ft)	= 60.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.30	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 7.85	Inactive	Inactive	Inactive
Crest El. (ft)	= 445.00	442.20	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.520 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	440.00	0.00	0.00	0.00	---	0.00	0.00	---	---	0.000	---	0.000
1.00	5,475	441.00	0.06 ic	0.06 ic	0.00	---	0.00	0.00	---	---	0.066	---	0.129
2.00	10,950	442.00	0.09 ic	0.09 ic	0.00	---	0.00	0.00	---	---	0.066	---	0.157
3.00	16,425	443.00	0.29 ic	0.11 ic	0.18 ic	---	0.00	0.00	---	---	0.066	---	0.360
4.00	21,900	444.00	0.52 ic	0.13 ic	0.39 ic	---	0.00	0.00	---	---	0.066	---	0.581
5.00	27,375	445.00	0.69 ic	0.14 ic	0.52 ic	---	0.00	0.00	---	---	0.066	---	0.726
5.20	28,470	445.20	3.03 ic	0.14 ic	0.54 ic	---	2.34	0.00	---	---	0.066	---	3.083

Channel Report

Offsite Culvert 1

Circular

Diameter (ft) = 1.00

Invert Elev (ft) = 10.00

Slope (%) = 3.00

N-Value = 0.013

Calculations

Compute by: Known Q

Known Q (cfs) = 0.22

Highlighted

Depth (ft) = 0.13

Q (cfs) = 0.220

Area (sqft) = 0.06

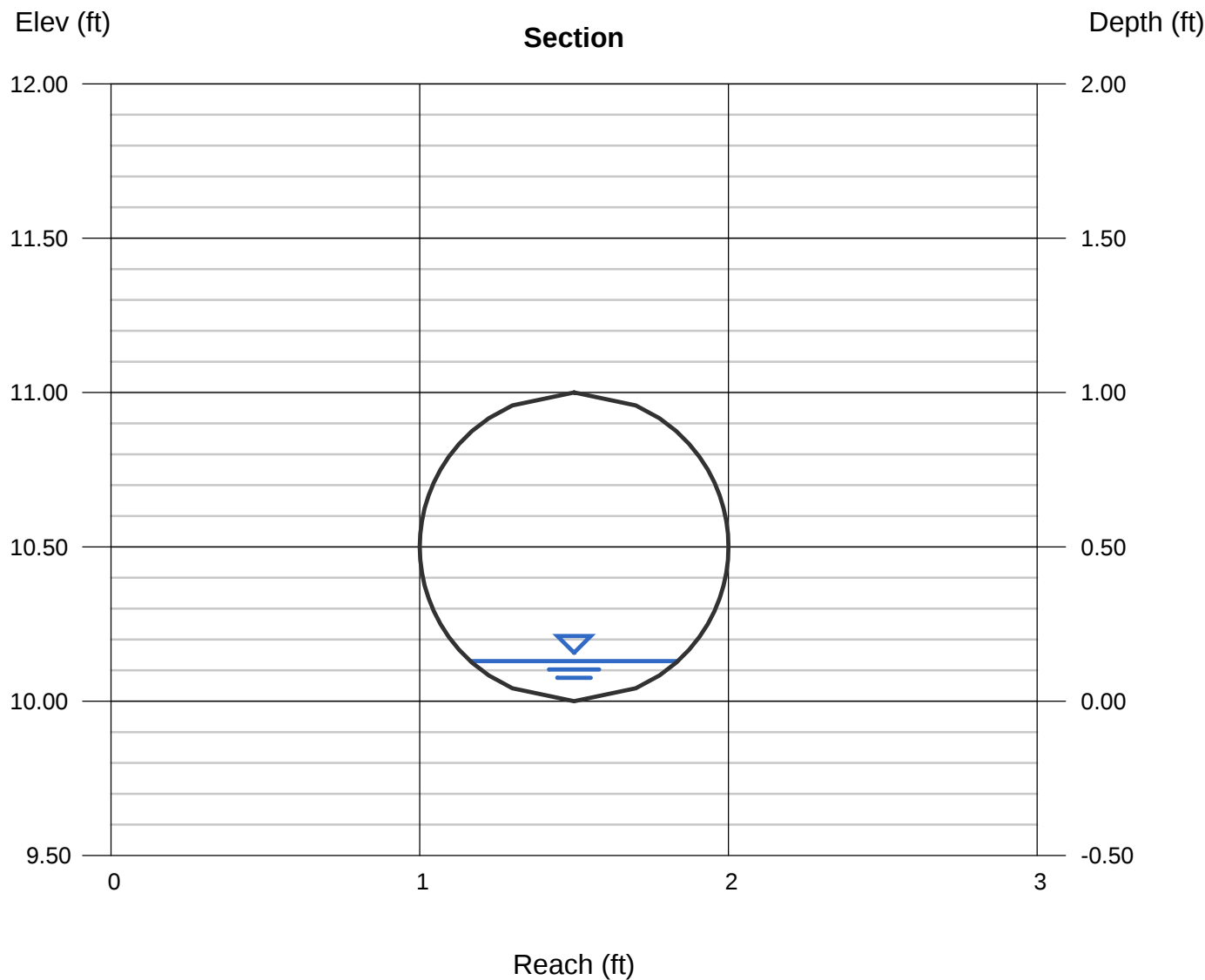
Velocity (ft/s) = 3.64

Wetted Perim (ft) = 0.74

Crit Depth, Yc (ft) = 0.20

Top Width (ft) = 0.67

EGL (ft) = 0.34



Channel Report

Offsite Culvert 2

Circular

Diameter (ft) = 1.50

Invert Elev (ft) = 10.00

Slope (%) = 2.00

N-Value = 0.013

Calculations

Compute by: Known Q

Known Q (cfs) = 5.30

Highlighted

Depth (ft) = 0.62

Q (cfs) = 5.300

Area (sqft) = 0.69

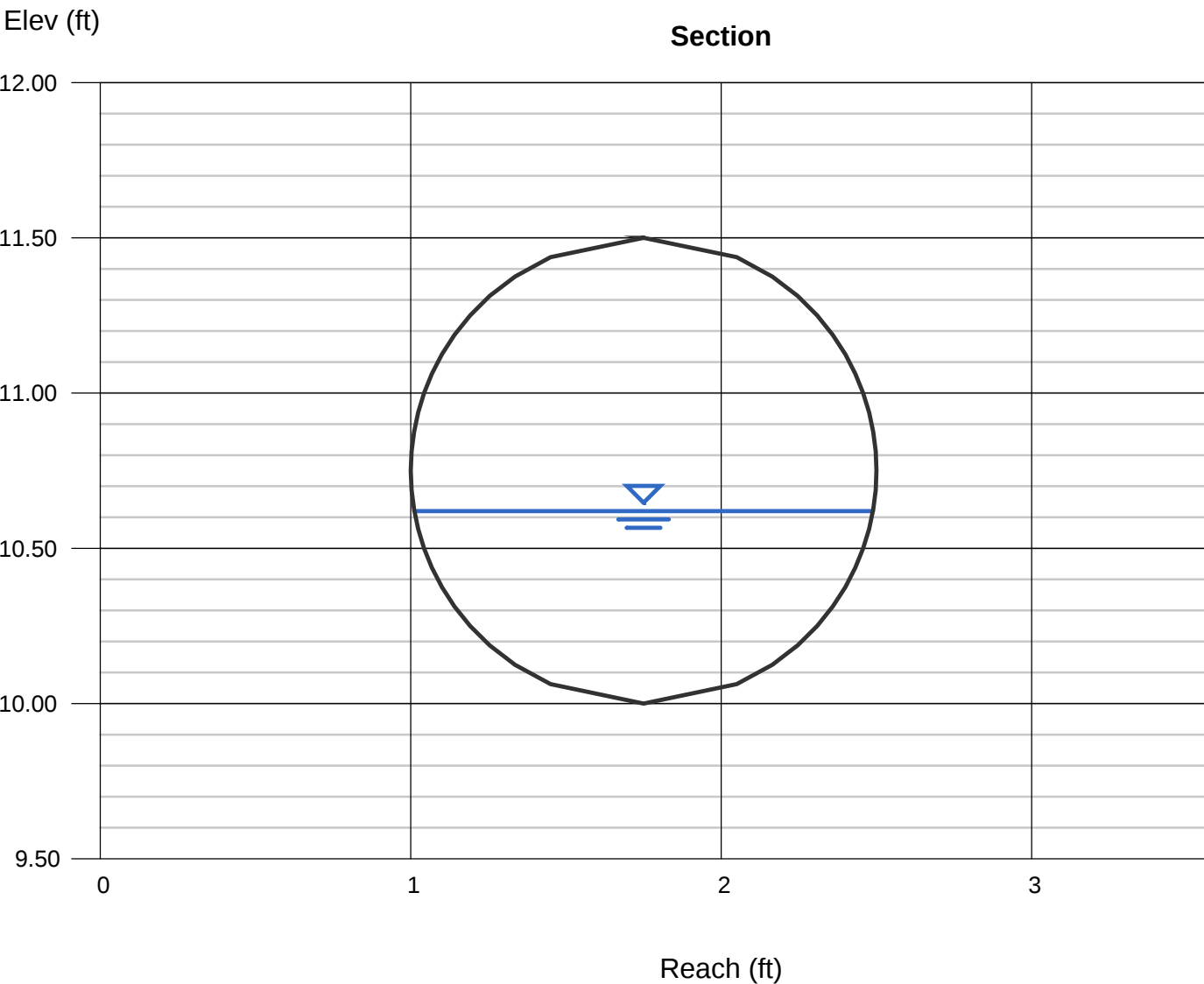
Velocity (ft/s) = 7.64

Wetted Perim (ft) = 2.10

Crit Depth, Yc (ft) = 0.89

Top Width (ft) = 1.48

EGL (ft) = 1.53



Channel Report

Offsite Culvert 3

Circular

Diameter (ft) = 1.50

Invert Elev (ft) = 10.00

Slope (%) = 2.00

N-Value = 0.013

Calculations

Compute by: Known Q

Known Q (cfs) = 8.15

Highlighted

Depth (ft) = 0.80

Q (cfs) = 8.150

Area (sqft) = 0.96

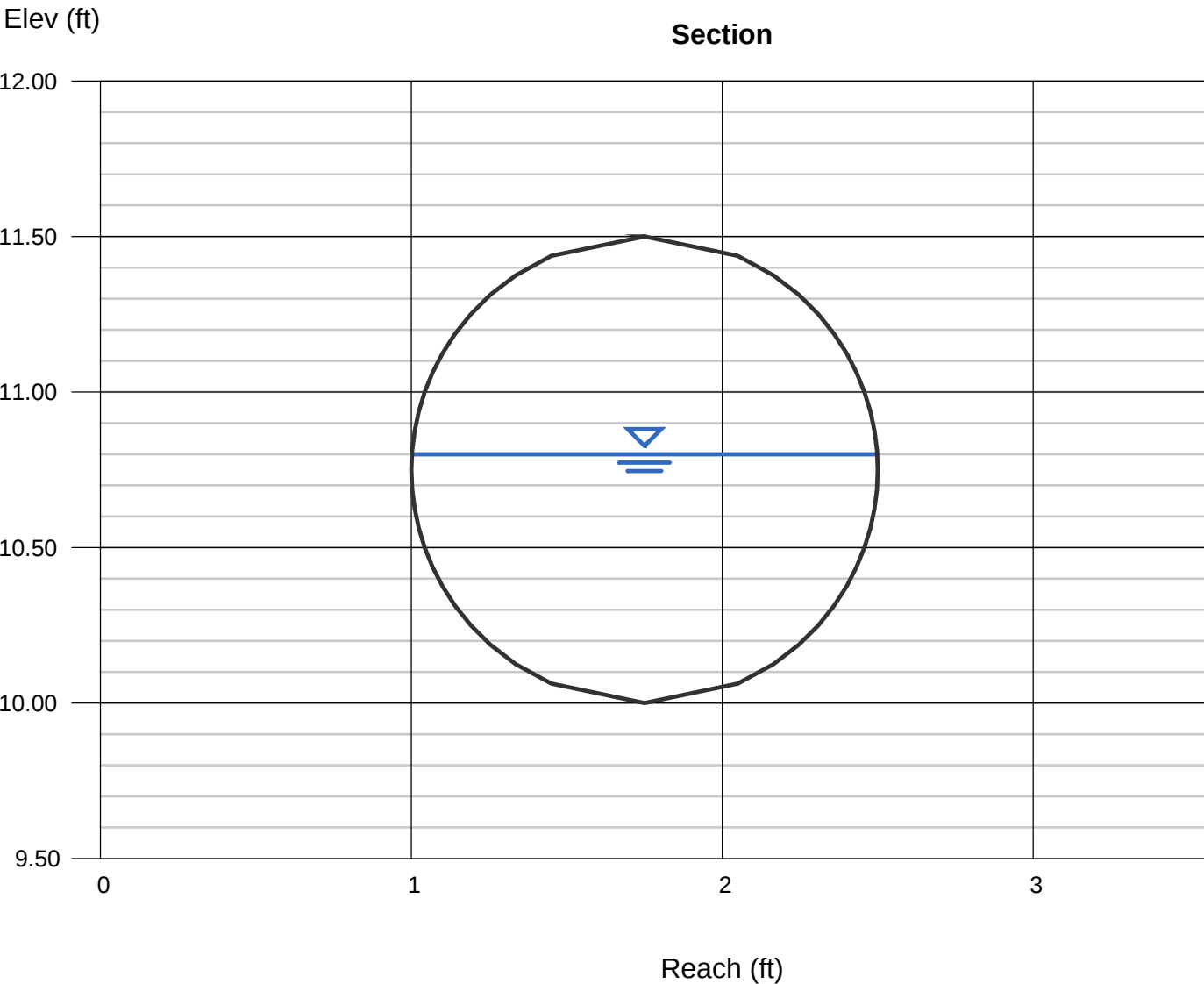
Velocity (ft/s) = 8.48

Wetted Perim (ft) = 2.46

Crit Depth, Yc (ft) = 1.11

Top Width (ft) = 1.50

EGL (ft) = 1.92



Channel Report

Offsite Culvert 4

Circular

Diameter (ft) = 1.50

Invert Elev (ft) = 10.00

Slope (%) = 2.00

N-Value = 0.013

Calculations

Compute by: Known Q

Known Q (cfs) = 4.63

Highlighted

Depth (ft) = 0.58

Q (cfs) = 4.630

Area (sqft) = 0.63

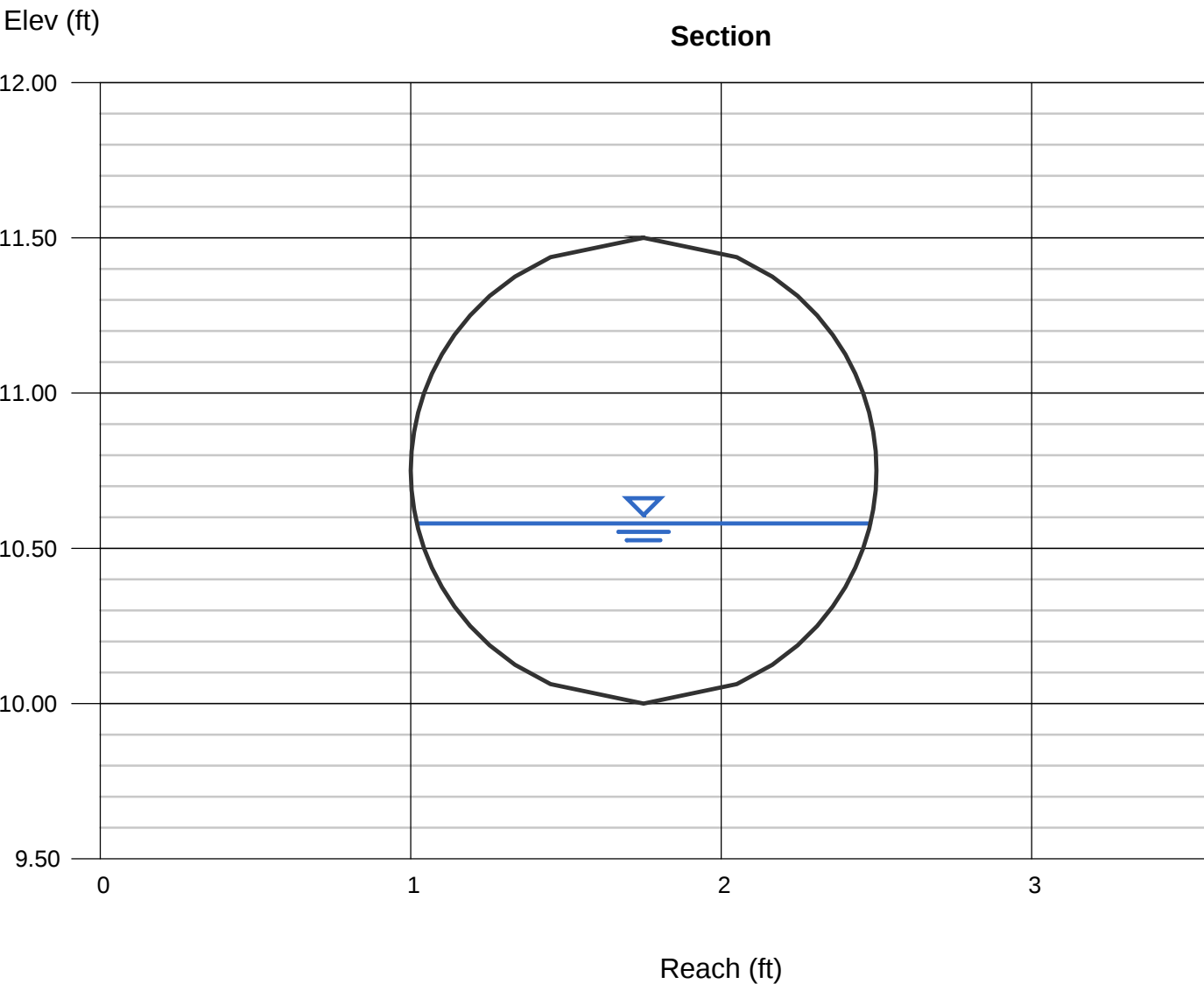
Velocity (ft/s) = 7.30

Wetted Perim (ft) = 2.02

Crit Depth, Yc (ft) = 0.83

Top Width (ft) = 1.46

EGL (ft) = 1.41



Channel Report

Outlet 1-pipe

Circular

Diameter (ft) = 2.50

Invert Elev (ft) = 10.00

Slope (%) = 1.80

N-Value = 0.013

Calculations

Compute by: Known Q

Known Q (cfs) = 33.64

Highlighted

Depth (ft) = 1.42

Q (cfs) = 33.64

Area (sqft) = 2.89

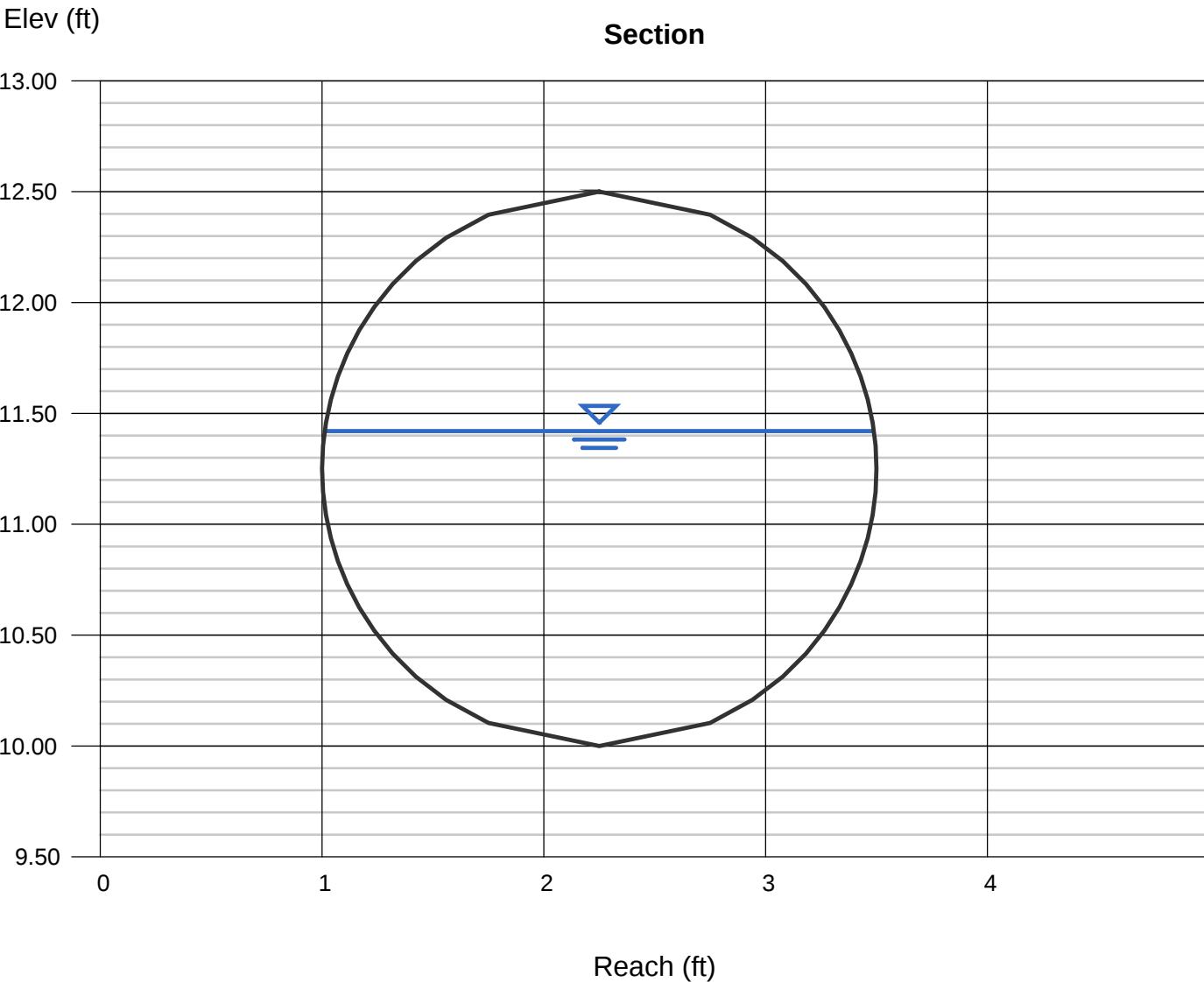
Velocity (ft/s) = 11.65

Wetted Perim (ft) = 4.27

Crit Depth, Yc (ft) = 1.98

Top Width (ft) = 2.48

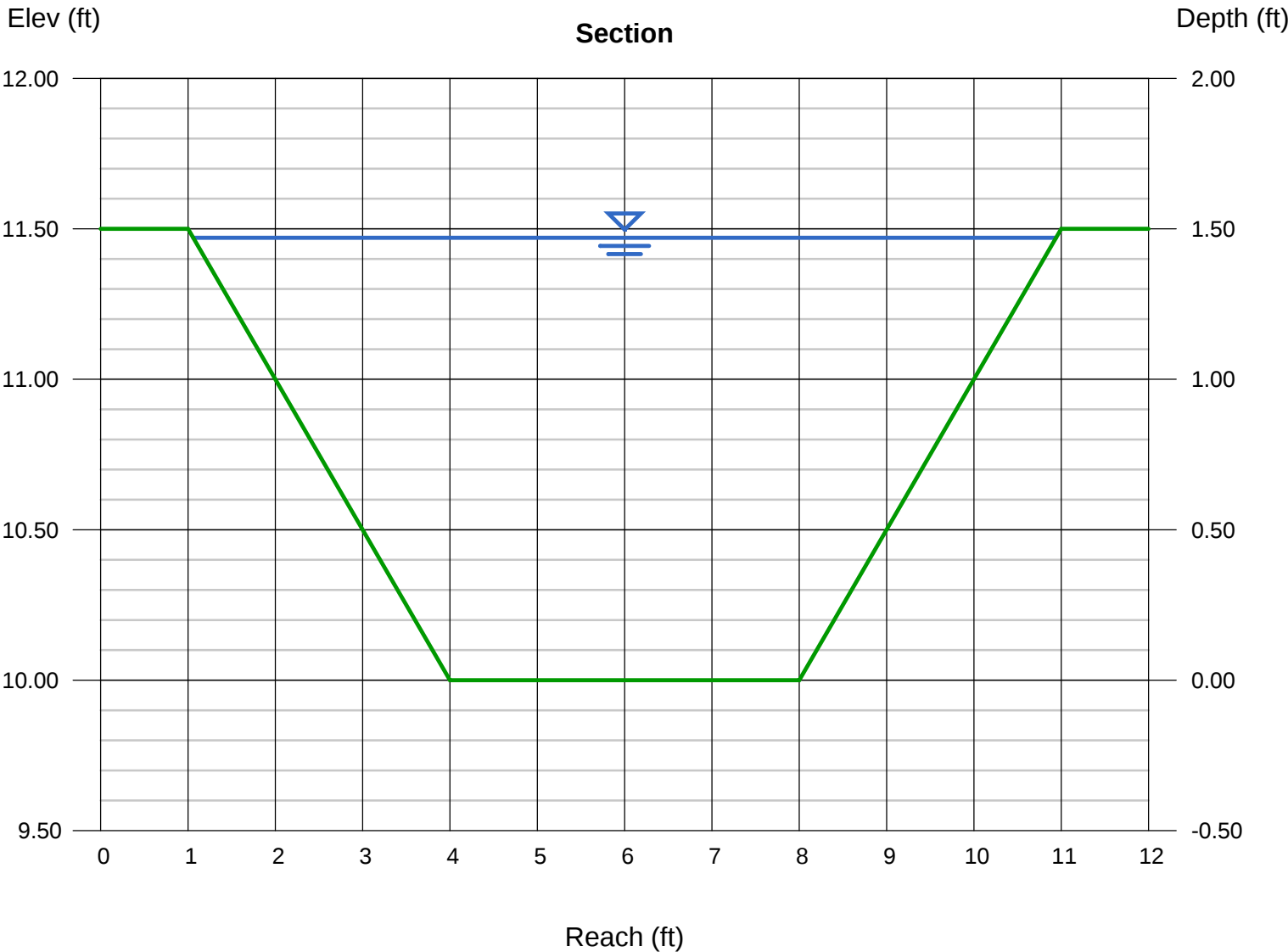
EGL (ft) = 3.53



Channel Report

Outlet 1-riprap

Trapezoidal		Highlighted	
Bottom Width (ft)	= 4.00	Depth (ft)	= 1.47
Side Slopes (z:1)	= 2.00, 2.00	Q (cfs)	= 33.64
Total Depth (ft)	= 1.50	Area (sqft)	= 10.20
Invert Elev (ft)	= 10.00	Velocity (ft/s)	= 3.30
Slope (%)	= 1.00	Wetted Perim (ft)	= 10.57
N-Value	= 0.044	Crit Depth, Yc (ft)	= 1.08
Calculations		Top Width (ft)	= 9.88
Compute by:		EGL (ft)	= 1.64
Known Q (cfs)	= 33.64		



Channel Report

Outlet 2-pipe

Circular

Diameter (ft) = 1.50

Invert Elev (ft) = 10.00

Slope (%) = 4.00

N-Value = 0.013

Calculations

Compute by: Known Q

Known Q (cfs) = 5.30

Highlighted

Depth (ft) = 0.52

Q (cfs) = 5.300

Area (sqft) = 0.54

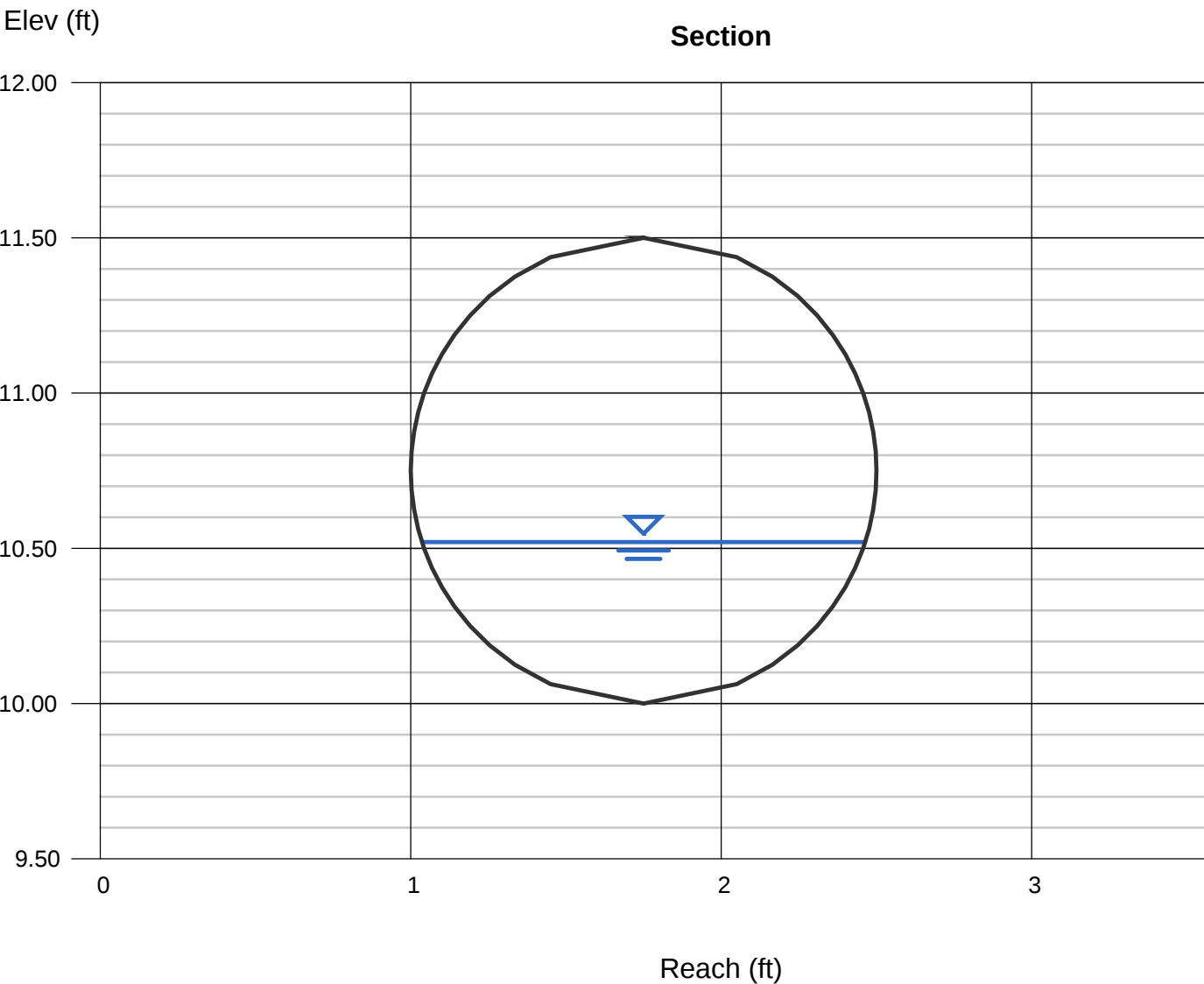
Velocity (ft/s) = 9.73

Wetted Perim (ft) = 1.89

Crit Depth, Yc (ft) = 0.89

Top Width (ft) = 1.43

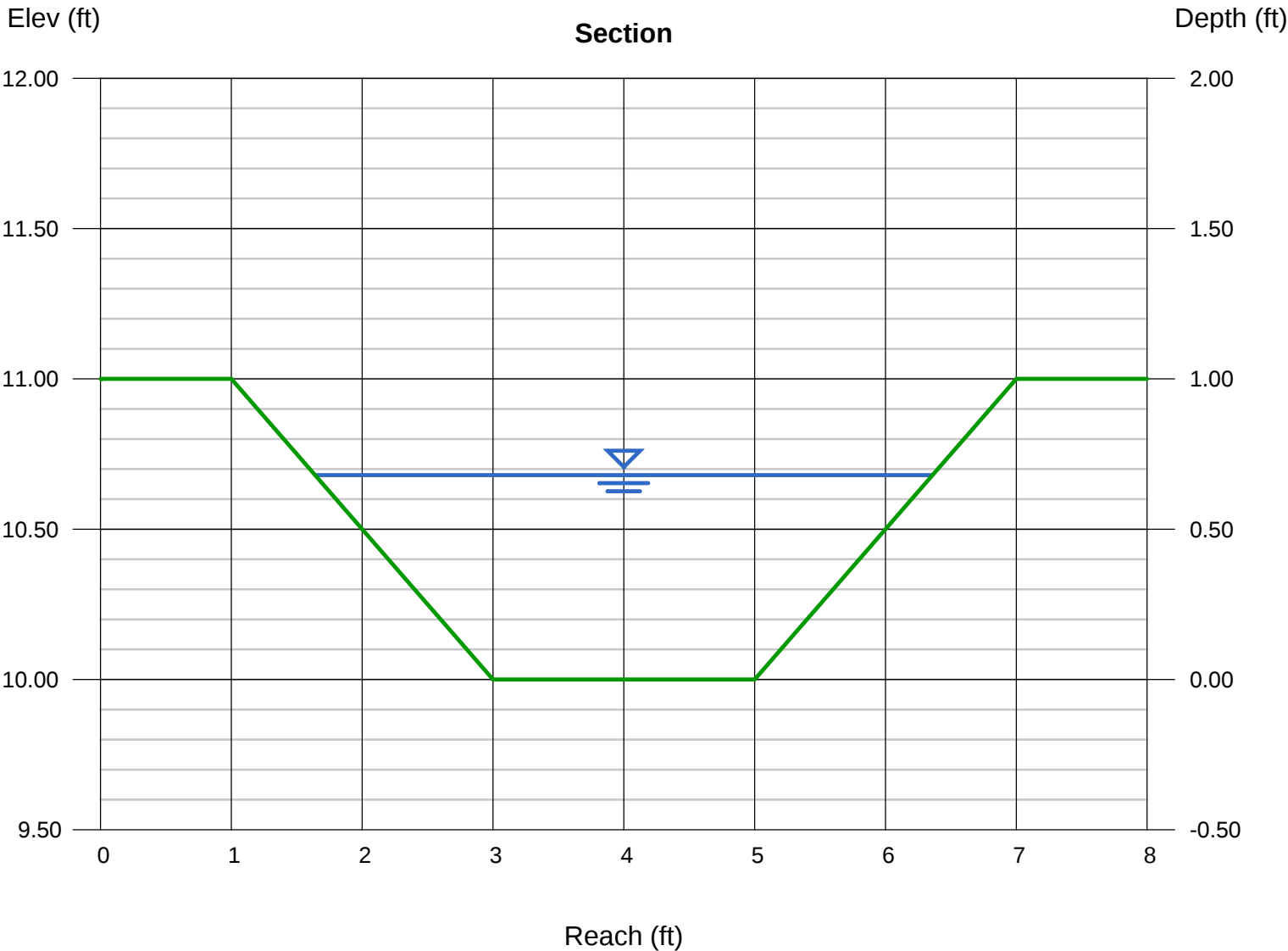
EGL (ft) = 1.99



Channel Report

Outlet 2-riprap

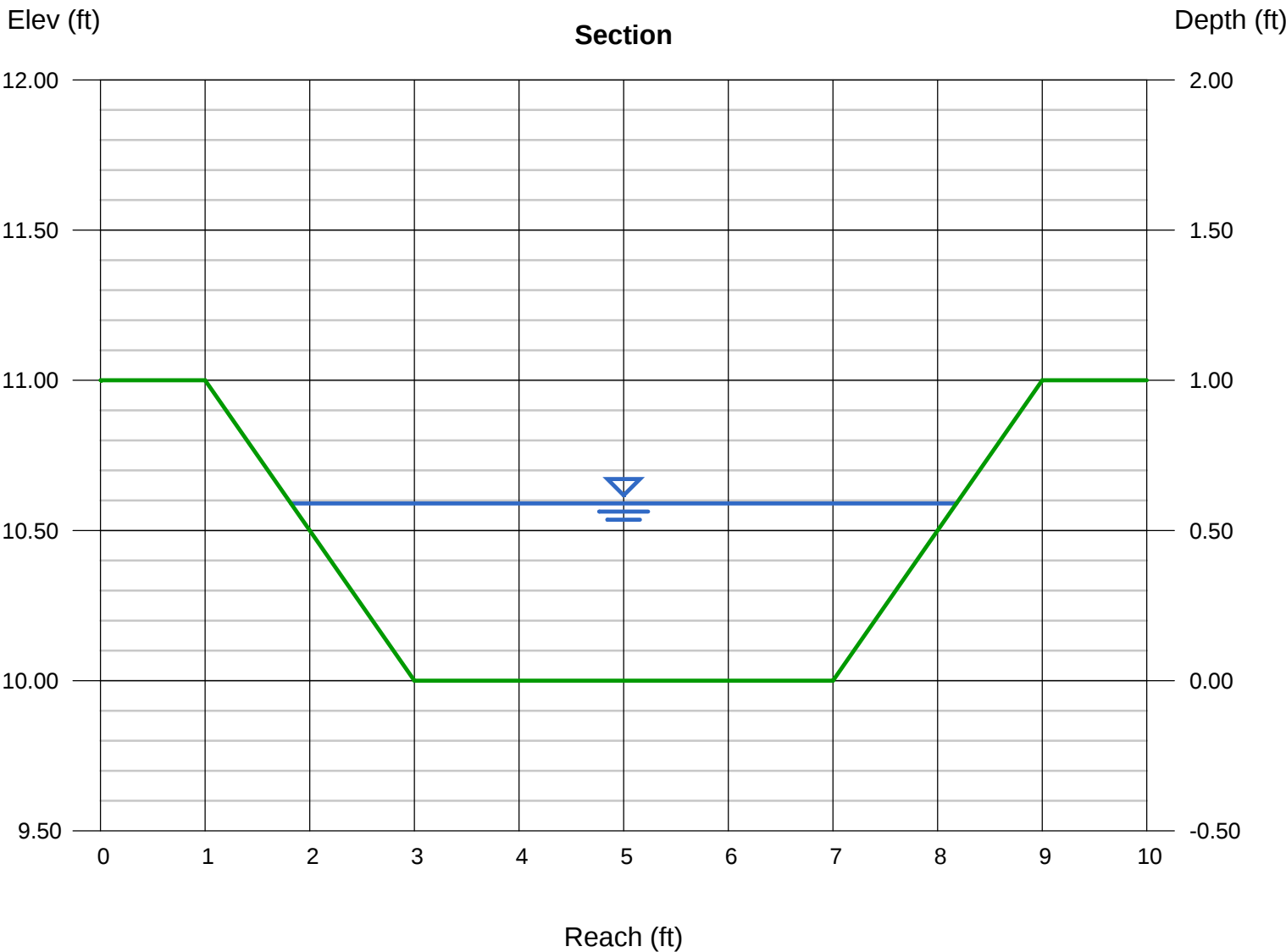
Trapezoidal		Highlighted	
Bottom Width (ft)	= 2.00	Depth (ft)	= 0.68
Side Slopes (z:1)	= 2.00, 2.00	Q (cfs)	= 5.300
Total Depth (ft)	= 1.00	Area (sqft)	= 2.28
Invert Elev (ft)	= 10.00	Velocity (ft/s)	= 2.32
Slope (%)	= 1.00	Wetted Perim (ft)	= 5.04
N-Value	= 0.037	Crit Depth, Yc (ft)	= 0.51
Calculations		Top Width (ft)	= 4.72
Compute by:		EGL (ft)	= 0.76
Known Q (cfs)			
Known Q			
= 5.30			



Channel Report

Outlet 3-riprap

Trapezoidal		Highlighted	
Bottom Width (ft)	= 4.00	Depth (ft)	= 0.59
Side Slopes (z:1)	= 2.00, 2.00	Q (cfs)	= 7.200
Total Depth (ft)	= 1.00	Area (sqft)	= 3.06
Invert Elev (ft)	= 10.00	Velocity (ft/s)	= 2.36
Slope (%)	= 1.00	Wetted Perim (ft)	= 6.64
N-Value	= 0.037	Crit Depth, Yc (ft)	= 0.44
Calculations		Top Width (ft)	= 6.36
Compute by:		EGL (ft)	= 0.68
Known Q (cfs)	= 7.20		



Channel Report

Inlet to BMP 1

Circular

Diameter (ft) = 0.83

Invert Elev (ft) = 10.00

Slope (%) = 2.00

N-Value = 0.013

Calculations

Compute by: Known Q

Known Q (cfs) = 1.50

Highlighted

Depth (ft) = 0.41

Q (cfs) = 1.500

Area (sqft) = 0.27

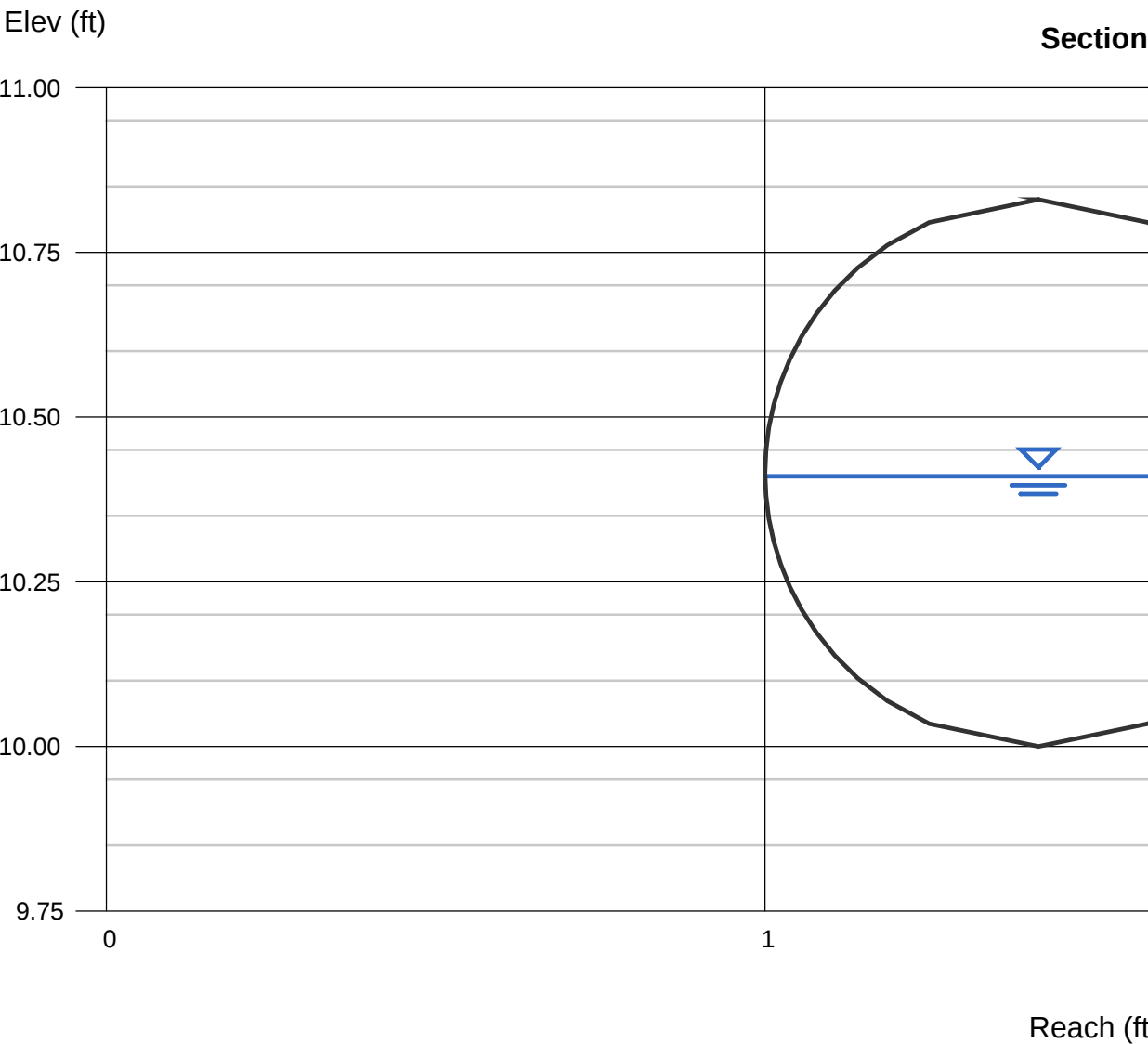
Velocity (ft/s) = 5.62

Wetted Perim (ft) = 1.29

Crit Depth, Yc (ft) = 0.55

Top Width (ft) = 0.83

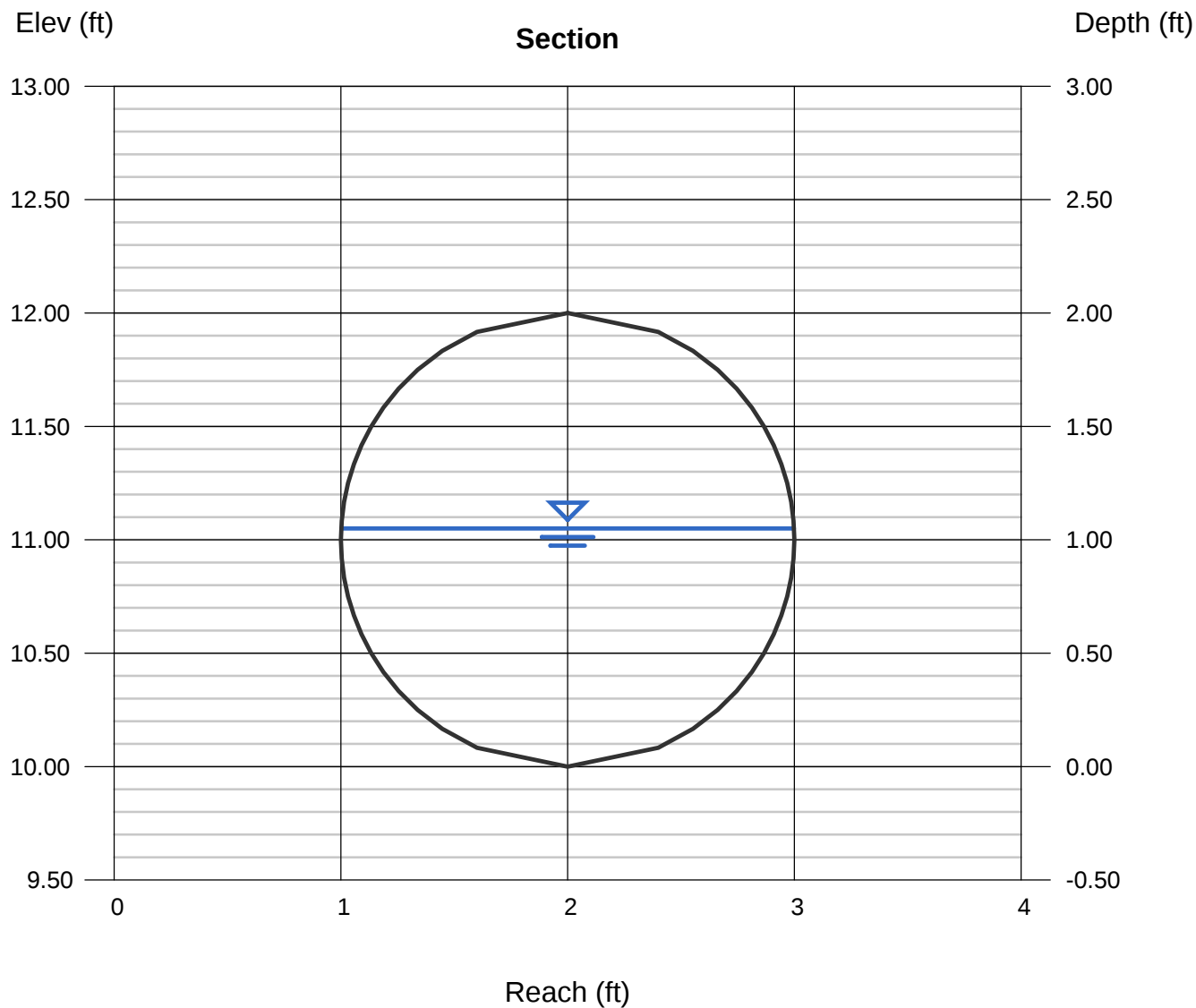
EGL (ft) = 0.90



Channel Report

Inlet at BMP 2

Circular		Highlighted	
Diameter (ft)	= 2.00	Depth (ft)	= 1.05
		Q (cfs)	= 12.20
		Area (sqft)	= 1.68
Invert Elev (ft)	= 10.00	Velocity (ft/s)	= 7.27
Slope (%)	= 1.00	Wetted Perim (ft)	= 3.25
N-Value	= 0.013	Crit Depth, Yc (ft)	= 1.26
		Top Width (ft)	= 2.00
		EGL (ft)	= 1.87
Calculations			
Compute by:	Known Q		
Known Q (cfs)	= 12.20		



100-YR FLOODPLAIN ANALYSIS



WATERSHED BASED ON STREAMSTATS

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Wed June 1, 2016 4:16:39 PM GMT-7

Study Area: California

NAD 1983 Latitude: 33.0964 (33 05 47)

NAD 1983 Longitude: -117.0254 (-117 01 32)

Drainage Area: 0.4 mi²

Peak-Flow Basin Characteristics			
100% 2012 5113 Region 5 South Coast (0.4 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.4	0.04	850
Mean Annual Precipitation (inches)	14.8	10	45

Peak-Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	14.8	ft ³ /s	130		2.55	85.8
PK5	39.6	ft ³ /s	83		11.3	139
PK10	57.2	ft ³ /s	64		20.6	159
PK25	77	ft ³ /s	52		32.8	181
PK50	91.4	ft ³ /s	48		41.4	202
PK100	105	ft ³ /s	47		47.5	233
PK200	120	ft ³ /s	48		53.5	269
PK500	135	ft ³ /s	52		57	319

#<http://pubs.usgs.gov/sir/2012/5113/#>

Gotvald, A.J., Barth, N.A., Veilleux, A.G., and Parrett, Charles, 2012, Methods for determining magnitude and frequency of floods in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012-5113, 38 p., 1 pl.

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U.S. Department of the Interior | U.S. Geological Survey

URL: http://streamstatsags.cr.usgs.gov/v3_beta/FTreport.htm

Page Contact Information: [StreamStats Help](#)

Page Last Modified: 11/24/2015 11:32:58 (Web1)

[Streamstats Status](#)

[News](#)



**HEC-RAS RESULTS
EXISTING CONDITION**

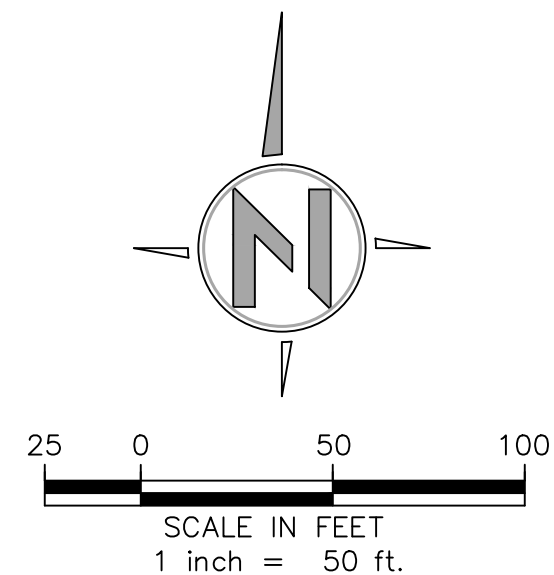


EXHIBIT 1
CREEK CROSS SECTIONS
EXISTING CONDITION

HEC-RAS Plan: Exit River: Cl_Creek_Prop Reach: Cl_Creek_Prop

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)	
Cl_Creek_Prop	1100.00	Q-100yr	90.40	466.31	467.66	467.66	468.05	0.006628	5.03	17.98	23.51	1.01
Cl_Creek_Prop	1100.00	1.5 X Q-100yr	135.60	466.31	467.92	467.92	468.40	0.006086	5.57	24.39	26.48	1.01
Cl_Creek_Prop	1050	Q-100yr	90.40	462.93	463.76	463.76	464.03	0.005879	4.28	22.55	79.69	0.93
Cl_Creek_Prop	1050	1.5 X Q-100yr	135.60	462.93	463.94	463.94	464.27	0.005209	4.76	31.28	86.85	0.92
Cl_Creek_Prop	1000	Q-100yr	90.40	459.71	460.58	460.58	460.84	0.006057	4.18	23.61	53.51	0.94
Cl_Creek_Prop	1000	1.5 X Q-100yr	135.60	459.71	460.76	460.76	461.04	0.005107	4.54	33.66	59.23	0.90
Cl_Creek_Prop	950	Q-100yr	90.40	457.62	458.33	458.33	458.59	0.007193	4.21	22.14	42.76	1.00
Cl_Creek_Prop	950	1.5 X Q-100yr	135.60	457.62	458.49	458.49	458.82	0.006692	4.76	29.46	45.90	1.01
Cl_Creek_Prop	900	Q-100yr	90.40	456.44	457.47	457.47	457.80	0.006838	4.61	19.62	29.99	1.00
Cl_Creek_Prop	900	1.5 X Q-100yr	135.60	456.44	457.69	457.69	458.09	0.006375	5.06	26.93	35.54	1.00
Cl_Creek_Prop	850	Q-100yr	90.40	454.96	455.84	455.84	456.11	0.006340	4.28	22.61	45.14	0.96
Cl_Creek_Prop	850	1.5 X Q-100yr	135.60	454.96	456.02	456.02	456.34	0.005495	4.73	31.33	50.09	0.93
Cl_Creek_Prop	800	Q-100yr	90.40	453.49	454.54	454.54	454.89	0.006665	4.75	19.02	27.28	1.00
Cl_Creek_Prop	800	1.5 X Q-100yr	135.60	453.49	454.78	454.78	455.20	0.006303	5.22	25.96	30.99	1.01
Cl_Creek_Prop	750	Q-100yr	90.40	449.77	451.42	451.42	451.87	0.006298	5.41	16.71	18.71	1.01
Cl_Creek_Prop	750	1.5 X Q-100yr	135.60	449.77	451.73	451.73	452.27	0.005966	5.93	22.87	21.38	1.01
Cl_Creek_Prop	700	Q-100yr	90.40	444.90	446.54	446.54	447.02	0.006355	5.59	16.16	17.11	1.01
Cl_Creek_Prop	700	1.5 X Q-100yr	135.60	444.90	446.85	446.85	447.46	0.005927	6.25	21.71	18.36	1.01
Cl_Creek_Prop	650	Q-100yr	90.40	444.00	445.71	445.71	446.30	0.006103	6.17	14.64	12.57	1.01
Cl_Creek_Prop	650	1.5 X Q-100yr	135.60	444.00	446.11	446.11	446.82	0.005772	6.77	20.03	14.27	1.01
Cl_Creek_Prop	600	Q-100yr	90.40	441.01	443.65	443.65	444.36	0.006606	6.78	13.34	9.49	1.01
Cl_Creek_Prop	600	1.5 X Q-100yr	135.60	441.01	444.14	444.14	444.98	0.006300	7.35	18.44	11.23	1.01
Cl_Creek_Prop	550	Q-100yr	90.40	438.00	439.97	439.97	440.62	0.006094	6.46	14.00	10.98	1.01
Cl_Creek_Prop	550	1.5 X Q-100yr	135.60	438.00	440.41	440.41	441.18	0.005810	7.04	19.25	12.73	1.01
Cl_Creek_Prop	500	Q-100yr	90.40	438.00	439.50	439.50	440.10	0.006174	6.17	14.65	12.56	1.01
Cl_Creek_Prop	500	1.5 X Q-100yr	135.60	438.00	439.90	439.90	440.62	0.005833	6.79	19.96	14.07	1.01
Cl_Creek_Prop	450	Q-100yr	90.40	436.00	438.14	438.14	438.77	0.006142	6.37	14.20	11.50	1.01

HEC-RAS Plan: Exit River: Cl_Creek_Prop Reach: Cl_Creek_Prop (Continued)

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)	
Cl_Creek_Prop	450	1.5 X Q-100yr	135.60	436.00	438.58	438.58	439.32	0.005825	6.90	19.66	13.56	1.01
Cl_Creek_Prop	400	Q-100yr	90.40	434.05	436.06	436.06	436.58	0.006223	5.80	15.59	15.30	1.01
Cl_Creek_Prop	400	1.5 X Q-100yr	135.60	434.05	436.41	436.41	437.04	0.005870	6.34	21.40	17.59	1.01
Cl_Creek_Prop	350	Q-100yr	105.00	434.00	435.17	435.17	435.64	0.006119	5.50	19.10	20.43	1.00
Cl_Creek_Prop	350	1.5 X Q-100yr	157.50	434.00	435.48	435.48	436.06	0.005782	6.10	25.82	22.59	1.01
Cl_Creek_Prop	300	Q-100yr	105.00	432.00	434.33	434.33	434.79	0.006598	5.42	19.37	22.04	1.02
Cl_Creek_Prop	300	1.5 X Q-100yr	157.50	432.00	434.66	434.66	435.17	0.005890	5.78	27.35	26.97	0.99
Cl_Creek_Prop	250	Q-100yr	105.00	430.16	431.98	431.98	432.45	0.006216	5.53	19.06	21.41	1.01
Cl_Creek_Prop	250	1.5 X Q-100yr	157.50	430.16	432.30	432.30	432.86	0.005483	6.02	26.67	25.58	0.98
Cl_Creek_Prop	200	Q-100yr	105.00	427.70	429.19	429.19	429.63	0.006330	5.33	19.70	22.78	1.01
Cl_Creek_Prop	200	1.5 X Q-100yr	157.50	427.70	429.49	429.49	430.01	0.005982	5.81	27.11	26.41	1.01
Cl_Creek_Prop	150	Q-100yr	105.00	426.42	427.96	427.96	428.42	0.006265	5.43	19.32	21.48	1.01
Cl_Creek_Prop	150	1.5 X Q-100yr	157.50	426.42	428.28	428.28	428.82	0.005859	5.94	26.50	24.46	1.01
Cl_Creek_Prop	100	Q-100yr	105.00	426.00	427.34	427.34	427.81	0.006194	5.55	18.92	20.10	1.01
Cl_Creek_Prop	100	1.5 X Q-100yr	157.50	426.00	427.66	427.66	428.24	0.005845	6.09	25.86	22.84	1.01
Cl_Creek_Prop	50	Q-100yr	105.00	424.54	426.12	426.12	426.56	0.006081	5.30	20.00	24.94	0.99
Cl_Creek_Prop	50	1.5 X Q-100yr	157.50	424.54	426.44	426.44	426.93	0.004965	5.72	28.78	33.33	0.94
Cl_Creek_Prop	0	Q-100yr	105.00	422.13	423.55	423.55	423.92	0.005340	5.02	22.29	32.07	0.93
Cl_Creek_Prop	0	1.5 X Q-100yr	157.50	422.13	423.81	423.81	424.24	0.004735	5.48	31.76	40.53	0.91

Exist_Condn_100yr.rep

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps 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
XXXXXXXX XXXX      X      XXX XXXX      XXXXXX      XXXX
X      X  X          X          X      X      X      X
X      X  X          X      X      X      X      X
X      X  XXXXXX      XXXX      X      X      X      XXXXX

```

PROJECT DATA

Project Title: Exist_Condn_100yr
Project File : Exist_Condn_100yr.prj
Run Date and Time: 6/23/2017 4:30:49 PM

Project in English units

Project Description:
Existing Condition Analysis

PLAN DATA

Plan Title: Plan 2
Plan File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Existing_Condition\Exist_Condn_100yr.p02

Geometry Title: 100_Peak
Geometry File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Existing_Condition\Exist_Condn_100yr.g01

Flow Title : Peak Data_exist
Flow File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Existing_Condition\Exist_Condn_100yr.f02

Plan Summary Information:

Number of:	Cross Sections =	23	Multiple Openings =	0
	Culverts =	0	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

Exist_Condn_100yr.rep

FLOW DATA

Flow Title: Peak Data_exist
Flow File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Existing_Condition\Exist_Condn_100yr.f02

Flow Data (cfs)

```
*****
* River      Reach      RS      *      Q-100yr      1.5 X Q-100yr *
* Cl_Creek_Prop Cl_Creek_Prop 1100.00 *      90.4      135.6 *
* Cl_Creek_Prop Cl_Creek_Prop 350      *      105      157.5 *
*****
```

Boundary Conditions

```
*****
* River      Reach      Profile      *      Upstream
* Downstream *
*****
* Cl_Creek_Prop Cl_Creek_Prop Q-100yr      *
Normal S = 0.036 *
* Cl_Creek_Prop Cl_Creek_Prop 1.5 X Q-100yr *
Normal S = 0.036 *
*****
*****
```

GEOMETRY DATA

Geometry Title: 100_Peak
Geometry File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Existing_Condition\Exist_Condn_100yr.g01

CROSS SECTION

RIVER: Cl_Creek_Prop
REACH: Cl_Creek_Prop RS: 1100.00

INPUT

Description:

Station Elevation Data		num=	113	Station Elevation Data		num=	113
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	478.92	759995	4788.52	0004	476.07	709991	476
14.45	474	18.48999	472.64	20.45999	472	24.39	470.82
29.55	469.26	29.59999	469.25	33.97	468	34.02	467.98
34.16	467.95	40.14999	466.44	41.19	466.45	41.92	466.33
42.31	466.31	42.55	466.33	42.94	466.39	43.62	466.48
48.44	466.69	49.39	466.78	52.3	467	55.34999	467.24
59.86	467.86	60.64999	467.9	60.97	467.94	61.31	468
66.7	469.35	69.14	470	82.34999	471.26	85.48	471.41
90.19	471.63	90.56	471.65	90.89	471.67	91.19	471.68
94.05	471.71	95.59999	471.67	95.97	471.69	96.50999	471.72
98.41	471.66	98.58	471.67	99.02	471.67	99.31	471.68
128.8	471.05	129.67	471.04	130.01	471.04	130.61	471.02
134.31	470.98	134.67	470.98	152.24	471.14	156.91	471.29

Exist_Condn_100yr.rep									
168.5	471.67	169.08	471.7	169.36	471.72	169.46	471.72	169.63	471.73
170.22	471.74	170.59	471.75	171.66	471.78	175.05	471.81	175.33	471.82
175.36	471.82	175.39	471.82	176.55	472.41	177.36	472.82	177.46	472.87
177.6	472.94	177.68	472.94	179.22	472.94	179.42	472.74	179.74	472.45
180.62	472.54	181.27	472.61	191.39	472.93	204.51	473.5	204.6	473.6
205.05	474.02	206.35	474.08	206.54	474.09	207.29	474.28	213.1	475.77
216.19	474.48	219.24	473.18	222.07	472.98	223.05	472.94	223.45	472.91
224.84	472.85	226.21	472.76	230.57	472.51	235.68	472.08	236.15	472.05
236.64	472	240.1	471.55	241.38	471.39	243.91	471	245.78	470.8
252.33	470	253.44	469.23	254.7	468.49				

Manning's n Values					
Sta	n Val	Sta	n Val	Sta	n Val
0	.02	29.55	.02	59.86	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	29.55	59.86		51.79	50	43.58	.1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 468.05	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.39	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 467.66	* Reach Len. (ft)	* 51.79	* 50.00	*
43.58 *					
* Crit W.S. (ft)	* 467.66	* Flow Area (sq ft)	*	* 17.98	*
* E.G. Slope (ft/ft)	* 0.006628	* Area (sq ft)	*	* 17.98	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*
* Top Width (ft)	* 23.51	* Top Width (ft)	*	* 23.51	*
* Vel Total (ft/s)	* 5.03	* Avg. Vel. (ft/s)	*	* 5.03	*
* Max Chl Dpth (ft)	* 1.35	* Hydr. Depth (ft)	*	* 0.76	*
* Conv. Total (cfs)	* 1110.4	* Conv. (cfs)	*	* 1110.4	*
* Length Wtd. (ft)	* 50.01	* Wetted Per. (ft)	*	* 23.74	*
* Min Ch El (ft)	* 466.31	* Shear (lb/sq ft)	*	* 0.31	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 254.70	* 0.00	*
0.00 *					
* Frctn Loss (ft)	* 0.31	* Cum Volume (acre-ft)	* 0.01	* 0.45	*
0.06 *					
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 0.05	* 0.53	*
0.07 *					

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

Exist_Condn_100yr.rep

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 OUTPUT Profile #1.5 X Q-100yr

```
*****
* E.G. Elev (ft)      * 468.40 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.48 * Wt. n-Val.      *      * 0.020 *
0.020 *
* W.S. Elev (ft)      * 467.92 * Reach Len. (ft) * 51.79 * 50.00 *
43.58 *
* Crit W.S. (ft)      * 467.92 * Flow Area (sq ft) *      * 24.34 *
0.05 *
* E.G. Slope (ft/ft)  * 0.006086 * Area (sq ft)     *      * 24.34 *
0.05 *
* Q Total (cfs)       * 135.60 * Flow (cfs)       *      * 135.55 *
0.05 *
* Top Width (ft)      * 26.48 * Top Width (ft)   *      * 25.56 *
0.92 *
* Vel Total (ft/s)    * 5.56 * Avg. Vel. (ft/s) *      * 5.57 *
0.86 *
* Max Chl Dpth (ft)   * 1.61 * Hydr. Depth (ft) *      * 0.95 *
0.06 *
* Conv. Total (cfs)   * 1738.1 * Conv. (cfs)      *      * 1737.5 *
0.6 *
* Length Wtd. (ft)    * 49.97 * Wetted Per. (ft) *      * 25.83 *
0.92 *
* Min Ch El (ft)      * 466.31 * Shear (lb/sq ft) *      * 0.36 *
0.02 *
* Alpha              * 1.00 * Stream Power (lb/ft s) * 254.70 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.28 * Cum Volume (acre-ft) * 0.02 * 0.60 *
0.08 *
* C & E Loss (ft)     * 0.05 * Cum SA (acres)    * 0.06 * 0.58 *
0.09 *
*****
*****
```

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: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 1050

INPUT

Description:

Station Elevation Data num= 122

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-----	------	-----	------	-----	------	-----	------	-----	------

Exist_Condn_100yr.rep									
0	4811.359985	480.312.119995	4805.320007	478.79	6.98999	478			
8.859985	477.0210.60999	47611.57999	475.49	14.94	47417.14999	473.03			
19.60999	47221.72998	471.0524.32999	47027.64999	468.6530.16998	468	468			
35.68999	466.9239.31999	466.21	40.34	46642.31999	465.58	49.34			
52.47	463.755.32999	463.5860.29999	463.25	60.67	463.2263.28999	463.09			
65.03999	463.04	70.72	463.01	72.23	462.97	73.62			
77.75	462.94	78.34	462.96	82.2	463.1483.39999	463.1684.64999			
90.73999	463.5	93.14	463.6293.82999	463.65	94.45	463.68			
102.12	464.05	102.59	464.08	105.56	464.28	106.97			
108.13	464.46	111.4	464.77	115.34	465.12	120.16			
130.4	467.07	135.79	468	137.08	468.16	137.65			
139.51	468.22	140.69	468.21	143.03	468.15	144.27			
147.75	467.9	148.49	467.86	148.71	467.87	154.83			
159.72	468.12	170.67	468.01	170.73	468.01	170.76			
170.78	468.01	170.91	468.01	174.51	468.01	181.49			
189.35	468.12	190.09	468.13	191.23	467.57	194.2			
195.74	466.12	196.21	465.67	196.26	465.63	196.38			
201.48	465.89	220.41	466.39	220.43	466.41	220.9			
222.4	466.94	225.01	467.77	225.25	467.86	225.94			
229.62	466.91	230.87	466.72	232.81	466.54	234.65			
238.92	465.31	240.08	465	242.07	463.49	242.95			
246.79	462	246.8	462	252.08	462	253.68			
264.15	462	264.84	462	267.39	462	267.45			
272.75	462.94	273.01	463	278.87	464.04	283.9			
289.01	465.11	289.9	465.22						

Manning's n Values					
Sta	n Val	Sta	n Val	Sta	n Val
0	.0260.29999	.0290.73999	.02		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
60.2999990.73999			50.18	50	49.43	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
111.4	289.9	464.77	T

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 464.03	* Element	* Left OB	* Channel	*	
Right OB						
* Vel Head (ft)	* 0.27	* Wt. n-Val.	* 0.020	* 0.020	*	
0.020						
* W.S. Elev (ft)	* 463.76	* Reach Len. (ft)	* 50.18	* 50.00	*	
49.43						
* Crit W.S. (ft)	* 463.76	* Flow Area (sq ft)	* 2.04	* 19.84	*	
0.67						
* E.G. Slope (ft/ft)	* 0.005879	* Area (sq ft)	* 2.04	* 19.84	*	
50.87						
* Q Total (cfs)	* 90.40	* Flow (cfs)	* 4.50	* 84.95	*	
0.95						
* Top Width (ft)	* 79.69	* Top Width (ft)	* 8.41	* 30.44	*	
40.85						
* Vel Total (ft/s)	* 4.01	* Avg. Vel. (ft/s)	* 2.21	* 4.28	*	
1.43						
* Max Chl Dpth (ft)	* 1.76	* Hydr. Depth (ft)	* 0.24	* 0.65	*	
0.13						
* Conv. Total (cfs)	* 1179.0	* Conv. (cfs)	* 58.7	* 1107.9	*	
12.4						
* Length Wtd. (ft)	* 50.01	* Wetted Per. (ft)	* 8.42	* 30.46	*	
5.31						
* Min Ch El (ft)	* 462.93	* Shear (lb/sq ft)	* 0.09	* 0.24	*	

Exist_Condn_100yr.rep

```

0.05 *
* Alpha * 1.09 * Stream Power (lb/ft s) * 289.90 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.30 * Cum Volume (acre-ft) * 0.01 * 0.42 *
0.03 *
* C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.04 * 0.50 *
0.05 *
*****
*****

```

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 OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft) * 464.27 * Element * Left OB * Channel *
Right OB *
* Vel Head (ft) * 0.33 * Wt. n-Val. * 0.020 * 0.020 *
0.020 *
* W.S. Elev (ft) * 463.94 * Reach Len. (ft) * 50.18 * 50.00 *
49.43 *
* Crit W.S. (ft) * 463.94 * Flow Area (sq ft) * 3.77 * 25.49 *
2.01 *
* E.G. Slope (ft/ft) * 0.005209 * Area (sq ft) * 3.77 * 25.49 *
58.93 *
* Q Total (cfs) * 135.60 * Flow (cfs) * 10.32 * 121.37 *
3.91 *
* Top Width (ft) * 86.85 * Top Width (ft) * 10.34 * 30.44 *
46.07 *
* Vel Total (ft/s) * 4.34 * Avg. Vel. (ft/s) * 2.73 * 4.76 *
1.94 *
* Max Chl Dpth (ft) * 1.94 * Hydr. Depth (ft) * 0.36 * 0.84 *
0.22 *
* Conv. Total (cfs) * 1878.8 * Conv. (cfs) * 143.0 * 1681.6 *
54.2 *
* Length Wtd. (ft) * 50.01 * Wetted Per. (ft) * 10.37 * 30.46 *
9.24 *
* Min Ch El (ft) * 462.93 * Shear (lb/sq ft) * 0.12 * 0.27 *
0.07 *
* Alpha * 1.12 * Stream Power (lb/ft s) * 289.90 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.26 * Cum Volume (acre-ft) * 0.02 * 0.57 *
0.05 *
* C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.06 * 0.55 *
0.07 *
*****
*****

```

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.

Exist_Condn_100yr.rep

Warning: The energy loss was 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: Cl_Creek_Prop

REACH: Cl_Creek_Prop

RS: 1000

INPUT

Description:

Station Elevation Data num= 114

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4783.620026	476.3	4.26001	4764.670013	475.88.400024	474			
10.18002	473.1312.56003	47214.27002	471.1316.70001	47019.15002	468.86				
20.90002	468	22.66	467.1425.09003	46629.90002	464.230.52002	464			
32.54001	463.3536.60001	46239.10001	461.2	39.66	461.1340.34003	461.1			
42.74002	460.5645.22002	460.5748.07001	460.6250.82001	460.3350.96002	460.32				
52.12001	460.3754.01001	460.355.63002	460.4156.46002	460.4557.72002	460.44				
59.24002	460.4261.95001	460.3663.49002	460.366.22002	460.1769.68001	460				
71.38002	459.9376.10002	459.7780.69002	459.7182.40001	459.7485.97002	459.83				
89.98001	46093.23001	460.1998.28001	460.5599.71002	460.66	108.83	461.3			
111.43	461.5	118.44	462	129.52	462.96	140.33	464	145.29	464.39
146.5	464.45	146.59	464.46	152.17	464.88	154.69	465.09	155.89	465.21
156.44	465.29	156.83	465.41	156.99	465.42	157.2	465.42	157.54	465.42
158.19	465.41	158.43	465.4	158.9	465.35	161.17	465.17	161.72	465.14
162.46	465.13	163.68	465.14	164	465.14	165.53	465.17	167.72	465.13
169.32	465.12	175.98	465.1	181.5	465.23	194.8	465.42	195.51	465.42
196.94	465.43	199.56	464.2	200.69	463.66	201.03	463.65	202.23	463.63
202.51	463.38	202.76	463.14	203.59	463.2	204.33	463.27	216.99	463.49
227.78	463.68	228.08	463.95	228.3	464.18	229.19	464.2	229.86	464.21
233.58	464.02	233.9	464	234.61	463.87	239.49	463	241.59	462.31
242.54	462	244.88	462	249.4	462	253.95	462	257.6	462
261.77	462.95	261.9	462.98	261.99	463	266	464.19	270.76	465.64
271.21	465.35	271.5	465.15	275.22	465.21	277.38	465.25	285.07	465.37
292.96	465.51	294.92	465.54	298.28	465.59	299.64	465.62		

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.0266.22002	.0298.28001	.02		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
66.2200298.28001			48.69	50	48.85	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

*****		*****		*****		*****	
* E.G. Elev (ft)	* 460.84	* Element	* Left OB	* Channel	* Right OB	* Vel Head (ft)	* 0.020
* 0.020	* 0.25	* Wt. n-Val.	* 0.020	* 0.020	* W.S. Elev (ft)	* 460.58	* Reach Len. (ft)
* 48.85	* 460.58	* Flow Area (sq ft)	* 3.88	* 19.72	* Crit W.S. (ft)	* 460.58	* 0.01

Exist_Condn_100yr.rep					
* E.G. Slope (ft/ft)	* 0.01	* 0.006057	* Area (sq ft)	* 3.88	* 19.72
* Q Total (cfs)	* 0.00	* 90.40	* Flow (cfs)	* 7.96	* 82.44
* Top Width (ft)	* 0.41	* 53.51	* Top Width (ft)	* 21.04	* 32.06
* Vel Total (ft/s)	* 0.37	* 3.83	* Avg. Vel. (ft/s)	* 2.05	* 4.18
* Max Chl Dpth (ft)	* 0.02	* 0.87	* Hydr. Depth (ft)	* 0.18	* 0.62
* Conv. Total (cfs)	* 0.0	* 1161.5	* Conv. (cfs)	* 102.3	* 1059.2
* Length Wtd. (ft)	* 0.42	* 49.83	* Wetted Per. (ft)	* 21.07	* 32.09
* Min Ch El (ft)	* 0.01	* 459.71	* Shear (lb/sq ft)	* 0.07	* 0.23
* Alpha	* 0.00	* 1.11	* Stream Power (lb/ft s)	* 299.64	* 0.00
* Frctn Loss (ft)	* 0.01	* 0.33	* Cum Volume (acre-ft)	* 0.01	* 0.40
* C & E Loss (ft)	* 0.02	* 0.00	* Cum SA (acres)	* 0.03	* 0.47

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	* 461.04	* Element	* Left OB	* Channel
Right OB				
* Vel Head (ft)	* 0.29	* Wt. n-Val.	* 0.020	* 0.020
* 0.020				
* W.S. Elev (ft)	* 460.76	* Reach Len. (ft)	* 48.69	* 50.00
* 48.85				
* Crit W.S. (ft)	* 460.76	* Flow Area (sq ft)	* 8.03	* 25.34
* 0.28				
* E.G. Slope (ft/ft)	* 0.005107	* Area (sq ft)	* 8.03	* 25.34
* 0.28				
* Q Total (cfs)	* 135.60	* Flow (cfs)	* 20.32	* 114.96
* 0.33				
* Top Width (ft)	* 59.23	* Top Width (ft)	* 24.36	* 32.06
* 2.81				
* Vel Total (ft/s)	* 4.03	* Avg. Vel. (ft/s)	* 2.53	* 4.54
* 1.15				
* Max Chl Dpth (ft)	* 1.05	* Hydr. Depth (ft)	* 0.33	* 0.79
* 0.10				
* Conv. Total (cfs)	* 1897.4	* Conv. (cfs)	* 284.3	* 1608.6
* 4.6				
* Length Wtd. (ft)	* 49.78	* Wetted Per. (ft)	* 24.41	* 32.09
* 2.82				

```

Exist_Condn_100yr.rep
* Min Ch El (ft)      * 459.71 * Shear (lb/sq ft)      * 0.10 * 0.25 *
  0.03 *
* Alpha              * 1.13 * Stream Power (lb/ft s) * 299.64 * 0.00 *
  0.00 *
* Frctn Loss (ft)    * 0.29 * Cum Volume (acre-ft)   * 0.01 * 0.55 *
  0.01 *
* C & E Loss (ft)    * 0.00 * Cum SA (acres)         * 0.04 * 0.51 *
  0.04 *
*****
*****

```

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: C1_Creek_Prop
 REACH: C1_Creek_Prop RS: 950

INPUT

Description:

Station Elevation Data			num= 137								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	475.831	019989	475.411	850006	474.934	790009	4745.869995	473.52			
9.119995	472	10.72	471.3	13.53	470	16.91	468.38	17.75	468		
19.97998	466.9822	07001	46624.82001	464.726	25998	46432.79001	462.01				
32.82999	462	32.84	46239.13998	46046.69998	458.56	50.22	458				
52.25998	457.8955	19998	457.7958	23999	457.7358	29999	457.7361	54999	457.69		
68.39999	457.6371	03999	457.62	72.75	457.63	73.72	457.65	74.87	457.7		
74.97	457.69	75.37	457.6675	64999	457.6477	39999	457.7	86.81	458		
91.98999	458.41	100.57	459.08	108.61	460	110.02	460.48	111.97	460.87		
118.11	462	121.38	462.38	121.79	462.41	123.25	462.52	124.3	462.57		
126.04	462.66	126.66	462.71	127.44	462.8	128.51	462.98	130.17	463.29		
131	463.42	133.5	464	137.05	464	138.48	464	138.64	464		
139.25	464	140.08	464	140.56	464	140.74	464	142.85	464		
144.54	464	147.11	463.81	150.93	463.69	156.12	463.52	158.04	463.49		
159.38	463.46	164.78	463.38	165.15	463.39	166.21	463.38	168.24	463.35		
169.09	463.34	172.32	463.22	179.09	463.01	179.96	462.99	180.84	462.98		
182.19	462.99	183.96	463.02	190.55	463.16	191.12	463.16	191.28	463.16		
196.84	463.26	197.85	463.28	201.28	463.34	201.39	463.34	201.84	463.15		
202.76	463.14	203.56	463.13	203.65	463.04	204.11	462.63	205.61	462.75		
205.85	462.77	223.93	463.1	231.24	463.23	232.31	463.44	233.73	463.63		
233.92	463.82	234.23	464.13	234.64	464.13	234.81	464.13	235.64	464.14		
235.91	464.14	236.77	464.15	237.54	464.15	238.27	464.16	238.98	464.17		
239.69	464.18	240.42	464.19	241.19	464.21	242.02	464.23	242.95	464.26		
244.01	464.3	245.03	464.34	245.27	464.35	246.85	464.41	248.23	464.46		
248.44	464.47	261.66	465.14	271.73	465.28	272.76	465.31	273.1	465.31		
273.69	464.84	273.7	464.83	273.98	464.83	274.5	464.85	274.58	464.85		
277.97	464.93	279.63	464.98	291.13	465.26	299.26	465.51	304.3	465.64		
306.81	465.72	309.28	465.8	310.75	465.84	314.56	465.81	315.41	465.75		
318.22	465.79	323.9	465.88								

Exist_Condn_100yr.rep

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

 0 .0258.29999 .0291.98999 .02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 58.2999991.98999 49.87 50 49.98 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

 * E.G. Elev (ft) * 458.59 * Element * Left OB * Channel *
 Right OB *
 * Vel Head (ft) * 0.26 * Wt. n-Val. * 0.020 * 0.020 *
 *
 * W.S. Elev (ft) * 458.33 * Reach Len. (ft) * 49.87 * 50.00 *
 49.98 *
 * Crit W.S. (ft) * 458.33 * Flow Area (sq ft) * 4.30 * 17.84 *
 *
 * E.G. Slope (ft/ft) * 0.007193 * Area (sq ft) * 4.30 * 17.84 *
 *
 * Q Total (cfs) * 90.40 * Flow (cfs) * 15.26 * 75.14 *
 *
 * Top Width (ft) * 42.76 * Top Width (ft) * 10.13 * 32.63 *
 *
 * Vel Total (ft/s) * 4.08 * Avg. Vel. (ft/s) * 3.55 * 4.21 *
 *
 * Max Chl Dpth (ft) * 0.71 * Hydr. Depth (ft) * 0.42 * 0.55 *
 *
 * Conv. Total (cfs) * 1065.9 * Conv. (cfs) * 179.9 * 886.0 *
 *
 * Length Wtd. (ft) * 49.99 * Wetted Per. (ft) * 10.16 * 32.65 *
 *
 * Min Ch El (ft) * 457.62 * Shear (lb/sq ft) * 0.19 * 0.25 *
 *
 * Alpha * 1.01 * Stream Power (lb/ft s) * 323.90 * 0.00 *
 0.00 *
 * Frctn Loss (ft) * 0.35 * Cum Volume (acre-ft) * 0.00 * 0.38 *
 0.01 *
 * C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.01 * 0.43 *
 0.02 *

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

Warning: 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 OUTPUT Profile #1.5 X Q-100yr

 * E.G. Elev (ft) * 458.82 * Element * Left OB * Channel *
 Right OB *
 * Vel Head (ft) * 0.33 * Wt. n-Val. * 0.020 * 0.020 *
 0.020 *
 * W.S. Elev (ft) * 458.49 * Reach Len. (ft) * 49.87 * 50.00 *
 49.98 *
 * Crit W.S. (ft) * 458.49 * Flow Area (sq ft) * 6.06 * 23.36 *

Exist_Condn_100yr.rep

```

0.04 *
* E.G. Slope (ft/ft) * 0.006692 * Area (sq ft) * 6.06 * 23.36 *
0.04 *
* Q Total (cfs) * 135.60 * Flow (cfs) * 24.41 * 111.16 *
0.03 *
* Top Width (ft) * 45.90 * Top Width (ft) * 11.17 * 33.69 *
1.04 *
* Vel Total (ft/s) * 4.60 * Avg. Vel. (ft/s) * 4.03 * 4.76 *
0.72 *
* Max Chl Dpth (ft) * 0.87 * Hydr. Depth (ft) * 0.54 * 0.69 *
0.04 *
* Conv. Total (cfs) * 1657.6 * Conv. (cfs) * 298.4 * 1358.8 *
0.4 *
* Length Wtd. (ft) * 49.99 * Wetted Per. (ft) * 11.21 * 33.72 *
1.04 *
* Min Ch El (ft) * 457.62 * Shear (lb/sq ft) * 0.23 * 0.29 *
0.02 *
* Alpha * 1.01 * Stream Power (lb/ft s) * 323.90 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.33 * Cum Volume (acre-ft) * 0.00 * 0.52 *
0.01 *
* C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.02 * 0.48 *
0.04 *
*****
*****

```

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: 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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 900

INPUT

Description:

```

Station Elevation Data num= 130
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
*****
0 473.051 0.19989 473.013 1.60004 472.923 8.80005 472.944 4.45999 472.93
7.429993 472.10 5.4999 470.62 12.01001 470.15 5.1001 468.44 16.54001 468
17.60001 467.59 21.66 466.23 7.6999 465.16 26.76001 464.29 8.8998 462.89
32.20001 462.35 6.0999 461.09 38.26001 460.36 39.5 460.40 7.0999 459.64
46.35999 458.51 3.5001 457.52 51.73001 457.48 56.87 457.57 8.5001 456.92
58.76999 456.86 59.51999 456.86 0.17999 456.73 61.50999 456.62 62.41 456.56
63.25 456.51 64.05 456.48 64.87 456.47 65.77 456.46 67.62 456.44
68.34 456.44 68.5 456.44 68.84 456.44 69.14999 456.45 69.50999 456.47
69.53999 456.47 69.75 456.45 70.23 456.47 73.84 456.58 75.60001 456.63
75.97 456.65 76.2 456.68 76.39999 456.76 76.42999 456.91 76.61 456.98
77.24001 457.06 80.36 457.36 83.45999 457.58 85.28 457.7 89.78 458
95.5 459.02 96.31999 459.12 97.06 459.23 98.34 459.4 98.88 459.46
99.33 459.49 100.2 459.51 100.46 459.52 104.33 459.93 104.37 459.93
104.8 460 106.45 460.38 109.63 461.23 112.37 462 117.44 463.82
117.94 464 119.35 464.13 140.75 466 146.1 466.17 146.71 466.19
147.68 466.21 150.58 466.25 150.79 466.25 150.99 466.25 151.22 466.25
151.52 466.24 151.92 466.24 159.03 466.09 163.39 466 168.42 465.71

```

Exist_Condn_100yr.rep									
170.82	465.5	173.62	465.29	187.28	464	189.37	463.66	190.5	463.48
191.49	463.32	197.05	462.46	197.41	462.61	197.41	462.62	197.7	462.61
199.21	462.6	199.35	462.48	199.81	462.1	200.2	462.13	201.61	462.23
204.76	462.29	207.74	462.35	217.86	462.53	228.96	462.73	230.09	462.82
230.76	462.86	231.66	462.9	232.73	462.95	233.83	462.99	241.61	463.41
244.15	463.5	246.62	463.57	248.88	463.64	252.59	463.84	255.29	463.93
255.89	463.94	258.49	464.03	260.85	464.11	261.65	464.13	263.82	464.21
264.7	464.23	289.47	464.83	295.84	464.98	296.08	465.21	296.34	465.48
296.8	465.48	297.93	465.48	299.01	465.48	300.37	465.48	317.03	466.14

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.0251	35001	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	51.35001	85.28		51.65	50	49.46	.1

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 457.80	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.33	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 457.47	* Reach Len. (ft)	* 51.65	* 50.00	*
49.46 *					
* Crit W.S. (ft)	* 457.47	* Flow Area (sq ft)	*	* 19.62	*
* E.G. Slope (ft/ft)	* 0.006838	* Area (sq ft)	*	* 19.62	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*
* Top Width (ft)	* 29.99	* Top Width (ft)	*	* 29.99	*
* Vel Total (ft/s)	* 4.61	* Avg. Vel. (ft/s)	*	* 4.61	*
* Max Chl Dpth (ft)	* 1.03	* Hydr. Depth (ft)	*	* 0.65	*
* Conv. Total (cfs)	* 1093.2	* Conv. (cfs)	*	* 1093.2	*
* Length Wtd. (ft)	* 49.97	* Wetted Per. (ft)	*	* 30.22	*
* Min Ch El (ft)	* 456.44	* Shear (lb/sq ft)	*	* 0.28	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 317.03	* 0.00	*
0.00 *					
* Frctn Loss (ft)	* 0.33	* Cum Volume (acre-ft)	* 0.00	* 0.36	*
0.01 *					
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 0.00	* 0.39	*
0.02 *					

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

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

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is

Exist_Condn_100yr.rep

CROSS SECTION OUTPUT Profile #1.5 X 0-100yr

* E.G. Elev (ft)	* 458.09	* Element	* Left OB	* Channel	*
Right OB	*				
* Vel Head (ft)	* 0.40	* Wt. n-Val.	* 0.020	* 0.020	*
*					
* W.S. Elev (ft)	* 457.69	* Reach Len. (ft)	* 51.65	* 50.00	*
49.46	*				
* Crit W.S. (ft)	* 457.69	* Flow Area (sq ft)	* 0.15	* 26.78	*
*					
* E.G. Slope (ft/ft)	*0.006375	* Area (sq ft)	* 0.15	* 26.78	*
*					
* Q Total (cfs)	* 135.60	* Flow (cfs)	* 0.17	* 135.43	*
*					
* Top Width (ft)	* 35.54	* Top Width (ft)	* 1.77	* 33.78	*
*					
* Vel Total (ft/s)	* 5.04	* Avg. Vel. (ft/s)	* 1.14	* 5.06	*
*					
* Max Chl Dpth (ft)	* 1.25	* Hydr. Depth (ft)	* 0.08	* 0.79	*
*					
* Conv. Total (cfs)	* 1698.3	* Conv. (cfs)	* 2.2	* 1696.1	*
*					
* Length Wtd. (ft)	* 49.97	* Wetted Per. (ft)	* 1.78	* 34.01	*
*					
* Min Ch El (ft)	* 456.44	* Shear (lb/sq ft)	* 0.03	* 0.31	*
*					
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 317.03	* 0.00	*
0.00	*				
* Frctn Loss (ft)	* 0.30	* Cum Volume (acre-ft)	* 0.00	* 0.49	*
0.01	*				
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 0.01	* 0.44	*
0.04	*				

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: Cl_Creek_Prop
REACH: Cl_Creek_Prop RS: 850

INPUT

Description:

```

Station Elevation Data      num=      141
Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev
*****
      0  470.2213.82001  470.33  15.31  470.34  19.06  470.3120.71002  470.28

```

Exist_Condn_100yr.rep									
22.21002	470.2324.51001	470.1126.43002	470	26.47	47030.02002	469.8			
32.71002	469.76 33.28	469.77 33.81	469.8	34.06	469.79 39.34	468			
43.49002	466.0143.51001	46643.54001	465.98	43.56	465.97 43.72	465.93			
46.04001	465.2249.04001	464.3549.68002	464.1850.20001		46455.74002	462.04			
55.84	46261.27002	460.22 61.97	46064.11002		459.368.20001	458			
70.03	457.3974.35001	45676.17001	455.8476.58002	455.8478.17001		455.74			
82.81	455.4486.64001	455.18 87.97	455.1189.29001	455.0590.52002		455.02			
91.60001	45593.02002	454.9995.95001	454.97 96.22	454.97 96.78		454.97			
97.13	454.9697.29001	454.96 100.72	455.14 103.62	455.28 106.75		455.41			
107.96	455.43 109	455.45 110.01	455.46 110.95	455.43 111.33		455.33			
112.15	455.37 117.35	455.63 124.2	456 132.55	457.24 137.59		458			
142.3	459.3 143.74	459.68 145.41	460 146.58	460.33 147.93		460.56			
156.72	462 171.79	463.26 172.72	463.33 173.45	463.37 176.31		463.63			
178.73	463.76 180.99	464 181.21	464 186.06	464.1 190.3		464.18			
195.4	464.26 196.78	464.28 198.18	464.28 199.97	464.28 201.9		464.27			
203.56	464.25 204.63	464.23 205.18	464.2 205.58	464.16 207.3		464.06			
209.09	464 210.24	463.92 216.3	463.56 216.35	463.54 216.36		463.53			
216.38	463.52 216.44	463.48 217.07	463.2 219.5	462.1 220.07		462.09			
221.15	462.07 221.37	461.87 221.69	461.58 222.43	461.64 223.34		461.71			
229.66	461.82 236.5	461.94 242.51	462.05 248.15	462.15 248.47		463.47			
248.71	464.52 253.87	464.08 254.44	464 258.02	464 271.57		464			
278.55	464 282.14	464 283.03	464.01 283.06	464.01 283.09		464.01			
283.12	464.01 283.14	464.01 283.17	464.01 283.2	464.01 283.24		464.01			
283.27	464.01 283.31	464.01 284.58	464.02 285.01	464.03 296.17		464.18			
299.32	464.25 304.28	464.36 309	464.45 314.5	464.58 318.88		464.67			
323.08	464.76 340.86	465.16 341.9	465.19 343.56	465.21 343.69		465.21			
344.5	465.25 344.59	465.17 345.16	464.75 357.57	465 363.86		465.13			
367.01	465.2								

Manning's n Values				
Sta	n Val	Sta	n Val	Sta
0	.0278.17001	.02	109	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	78.17001	109		48.06 50	50.3		.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 456.11	* Element	* Left OB	* Channel	* Right OB				
* Vel Head (ft)	* 0.27	* Wt. n-Val.	* 0.020	* 0.020					
* W.S. Elev (ft)	* 455.84	* Reach Len. (ft)	* 48.06	* 50.00					
* Crit W.S. (ft)	* 455.84	* Flow Area (sq ft)	* 0.08	* 18.98					
* E.G. Slope (ft/ft)	* 0.006340	* Area (sq ft)	* 0.08	* 18.98					
* Q Total (cfs)	* 90.40	* Flow (cfs)	* 0.06	* 81.20					
* Top Width (ft)	* 45.14	* Top Width (ft)	* 2.03	* 30.83					
* Vel Total (ft/s)	* 4.00	* Avg. Vel. (ft/s)	* 0.71	* 4.28					
* Max Chl Dpth (ft)	* 0.88	* Hydr. Depth (ft)	* 0.04	* 0.62					
* Conv. Total (cfs)	* 1135.3	* Conv. (cfs)	* 0.8	* 1019.8					
* Length Wtd. (ft)	* 50.01	* Wetted Per. (ft)	* 2.03	* 30.86					
* Min Ch El (ft)	* 454.96	* Shear (lb/sq ft)	* 0.02	* 0.24					

Exist_Condn_100yr.rep

```

0.11 *
* Alpha *      1.07 * Stream Power (lb/ft s) * 367.01 * 0.00 *
0.00 *
* Frctn Loss (ft) *      0.33 * Cum Volume (acre-ft) * 0.00 * 0.34 *
0.00 *
* C & E Loss (ft) *      0.01 * Cum SA (acres) * 0.00 * 0.36 *
0.02 *
*****
*****

```

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

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

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

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft) * 456.34 * Element * Left OB * Channel *
Right OB *
* Vel Head (ft) * 0.32 * Wt. n-Val. * 0.020 * 0.020 *
0.020 *
* W.S. Elev (ft) * 456.02 * Reach Len. (ft) * 48.06 * 50.00 *
50.30 *
* Crit W.S. (ft) * 456.02 * Flow Area (sq ft) * 0.64 * 24.60 *
6.09 *
* E.G. Slope (ft/ft) * 0.005495 * Area (sq ft) * 0.64 * 24.60 *
6.09 *
* Q Total (cfs) * 135.60 * Flow (cfs) * 1.06 * 116.48 *
18.06 *
* Top Width (ft) * 50.09 * Top Width (ft) * 3.90 * 30.83 *
15.37 *
* Vel Total (ft/s) * 4.33 * Avg. Vel. (ft/s) * 1.65 * 4.73 *
2.97 *
* Max Chl Dpth (ft) * 1.06 * Hydr. Depth (ft) * 0.16 * 0.80 *
0.40 *
* Conv. Total (cfs) * 1829.2 * Conv. (cfs) * 14.3 * 1571.4 *
243.6 *
* Length Wtd. (ft) * 50.01 * Wetted Per. (ft) * 3.91 * 30.86 *
15.40 *
* Min Ch El (ft) * 454.96 * Shear (lb/sq ft) * 0.06 * 0.27 *
0.14 *
* Alpha * 1.09 * Stream Power (lb/ft s) * 367.01 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.29 * Cum Volume (acre-ft) * 0.00 * 0.46 *
0.01 *
* C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.01 * 0.40 *
0.03 *
*****
*****

```

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

Exist_Condn_100yr.rep

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: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 800

INPUT

Description:

Station Elevation Data		num= 102		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	467.32	3.51001	467.3	4.5	467.35	940002	467.287	100006	467.26		
8.170013	467.239	290009	467.181	3.29001	467.151	4.79001	467.241	5.79001	467.12		
24.80002	466	26.53	465.31	29.69	464	30.97	463.24	33.55002	462		
37.15002	460.05	37.23001	460.37	43002	459.97	37.49002	459.97	37.54001	459.96		
37.63	459.95	41.80002	459.32	50.48001	458	64.16	456.12	65.21002	456		
77.95001	454.82	85.62003	454.11	87.24002	454.90	36002	453.73	90.87003	453.66		
91.12003	453.57	95.95001	453.49	101.11	453.54	102.56	453.67	105.64	454		
109.74	454.86	112.11	455.36	114.5	456	116.83	456.75	120.21	458		
133.01	458.84	140.51	459.21	152.62	459.92	154.46	459.95	156.93	459.97		
160.28	459.98	169.43	460	169.44	460	169.45	460	172.07	459.96		
174.28	460	177.61	460.43	179.22	460.6	183.02	461.03	183.77	461.12		
184.38	461.22	184.9	461.33	185.68	461.46	187.36	461.5	187.39	461.49		
190.81	461.84	190.87	461.85	193.15	462	194.1	462.03	196.53	462.02		
197.14	462	202.33	461.81	203.53	461.73	206.55	461.62	210.12	461.44		
210.32	461.43	210.48	461.42	210.64	461.41	210.98	461.56	211.26	461.68		
212.12	461.67	212.88	461.66	213.18	461.37	213.42	461.16	214.41	461.24		
215.03	461.29	229.21	461.54	239.47	461.73	239.77	462.56	240.02	463.33		
242.23	463.39	243.22	463.42	249.6	463.57	261.31	463.86	303.14	464		
303.83	464	305.84	464	318.87	464.16	349.5	464.67	353.15	464.61		
354.34	464.67	356.64	464.78	362.93	465.07	373.63	465.57	373.92	465.34		
374.25	465.08	378.42	465.16								

Manning's n Values		num= 3		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val
0	.0277	95001	.02	109.74	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
77.95001		109.74	50.11	50	49.99	.1		.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 454.89	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.35	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 454.54	* Reach Len. (ft)	* 50.11	* 50.00	*
49.99 *					
* Crit W.S. (ft)	* 454.54	* Flow Area (sq ft)	*	* 19.02	*
* E.G. Slope (ft/ft)	* 0.006665	* Area (sq ft)	*	* 19.02	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*

		Exist_Condn_100yr.rep			
* Top Width (ft)	*	27.28	* Top Width (ft)	*	27.28 *
* Vel Total (ft/s)	*	4.75	* Avg. Vel. (ft/s)	*	4.75 *
* Max Chl Dpth (ft)	*	1.05	* Hydr. Depth (ft)	*	0.70 *
* Conv. Total (cfs)	*	1107.3	* Conv. (cfs)	*	1107.3 *
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	27.42 *
* Min Ch El (ft)	*	453.49	* Shear (lb/sq ft)	*	0.29 *
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	378.42 *
0.00 *					0.00 *
* Frctn Loss (ft)	*	0.32	* Cum Volume (acre-ft)	*	0.31 *
0.00 *					
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	0.32 *
0.01 *					

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	*	455.20	* Element	*	Left OB	*	Channel	*
Right OB *								
* Vel Head (ft)	*	0.42	* Wt. n-Val.	*		*	0.020	*
* W.S. Elev (ft)	*	454.78	* Reach Len. (ft)	*	50.11	*	50.00	*
49.99 *								
* Crit W.S. (ft)	*	454.78	* Flow Area (sq ft)	*		*	25.96	*
* E.G. Slope (ft/ft)	*	0.006303	* Area (sq ft)	*		*	25.96	*
* Q Total (cfs)	*	135.60	* Flow (cfs)	*		*	135.60	*
* Top Width (ft)	*	30.99	* Top Width (ft)	*		*	30.99	*
* Vel Total (ft/s)	*	5.22	* Avg. Vel. (ft/s)	*		*	5.22	*
* Max Chl Dpth (ft)	*	1.29	* Hydr. Depth (ft)	*		*	0.84	*
* Conv. Total (cfs)	*	1708.0	* Conv. (cfs)	*		*	1708.0	*
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*		*	31.17	*
* Min Ch El (ft)	*	453.49	* Shear (lb/sq ft)	*		*	0.33	*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	378.42	*	0.00	*
0.00 *								
* Frctn Loss (ft)	*	0.31	* Cum Volume (acre-ft)	*	0.00	*	0.43	*

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```

0.01 *
* C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.00 * 0.37 *
0.02 *
*****
*****

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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.

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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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 750

INPUT

Description:

Station Elevation Data		num= 141									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	464.234	870026	464.19	5.27002	464.199	880005	464.12	10.11002	464.12		
13.95001	464.04	15.05002		46417.80002	463.81	21.79001	463.48	22.70001	464		
22.71002		46423.51001	464.09	24.40002		46424.98001	463.77	29.70001	462		
33.72	460.75	34.72	460.44	36.15002	460	37.47	459.61	42.94	458		
44.39001	457.82	48.44	457.48	49.25	457.45	2.35001	457.09	57.35001	456.62		
61.03	456.28	63.53	456.65	59003	455.61	68.24002	455.27	70.29001	454.87		
76.69	454	77.95001	453.68	83.94	452.19	84.57001	452	86.16	451.55		
87.52002	451.21	88.41	451.04	90.14001	450.81	92.35001	450.22	92.65002	450.16		
93.31003	450	94.44	449.86	95.71002	449.77	95.95001	449.78	96.72	449.83		
97.64001	450	97.66	450	105.99	451.53	108.21	452	109.36	452.19		
118.79	453.79	119.89	454	121.31	454.31	122.05	454.52	122.45	454.64		
127.02	456	131.95	457.36	135.08	458	136.63	458.08	138.62	458.17		
141.48	458.27	143.17	458.32	144.79	458.35	146.3	458.36	149.04	458.36		
150.1	458.37	151.14	458.39	156.74	458.55	158.24	458.58	162.44	458.66		
163.04	458.67	164.13	458.68	165.26	458.69	165.57	458.7	165.92	458.69		
166.63	458.68	170.46	458.59	171.41	458.56	177.56	458.34	179.13	458.29		
180.75	458.25	182.09	458.23	191.3	458.6	192.05	458.76	192.75	459.04		
192.79	459.12	193.65	459.39	193.85	459.38	195.88	460	196.32	460		
196.96	460.07	198.22	460.16	198.87	460.24	199.89	460.29	202.03	460.35		
203.45	460.42	207.38	460.65	210.11	460.86	210.63	460.89	211.35	460.92		
212.28	460.94	213.22	460.96	214.39	460.99	214.72	460.99	215.19	460.98		
218.34	460.9	218.92	460.88	219.66	460.86	220.36	460.85	220.61	460.84		
221.02	461.04	221.41	461.23	221.65	461.22	222.97	461.2	223.09	461.08		
223.48	460.7	223.87	460.73	225.04	460.83	230.05	460.91	248.35	461.23		
248.66	461.66	248.86	461.94	249.68	461.96	251.08	462	254.66	462.11		
265.38	462.42	279.91	463	292.55	463.66	301.93	463.9	305.96	464		
309.63	464.09	312.42	464.18	323.15	464.44	324.02	464.47	324.25	464.47		
324.61	464.48	325.71	464.5	337.3	464.5	340.59	464.5	348.72	464.5		
378.42	464.5										

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.0277	95001	.02	109.36	.02

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Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	77.95001	109.36		50.12 50	50.04	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)          * 451.87 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)          * 0.45 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)          * 451.42 * Reach Len. (ft)   * 50.12 * 50.00 *
50.04 *
* Crit W.S. (ft)          * 451.42 * Flow Area (sq ft) *          * 16.71 *
*
* E.G. Slope (ft/ft)      * 0.006298 * Area (sq ft)      *          * 16.71 *
*
* Q Total (cfs)           * 90.40 * Flow (cfs)        *          * 90.40 *
*
* Top Width (ft)          * 18.71 * Top Width (ft)     *          * 18.71 *
*
* Vel Total (ft/s)        * 5.41 * Avg. Vel. (ft/s)   *          * 5.41 *
*
* Max Chl Dpth (ft)       * 1.65 * Hydr. Depth (ft)   *          * 0.89 *
*
* Conv. Total (cfs)       * 1139.1 * Conv. (cfs)        *          * 1139.1 *
*
* Length Wtd. (ft)        * 50.00 * Wetted Per. (ft)   *          * 19.02 *
*
* Min Ch El (ft)          * 449.77 * Shear (lb/sq ft)   *          * 0.35 *
*
* Alpha                   * 1.00 * Stream Power (lb/ft s) * 378.42 * 0.00 *
0.00 *
* Frctn Loss (ft)         * 0.32 * Cum Volume (acre-ft) *          * 0.29 *
0.00 *
* C & E Loss (ft)         * 0.00 * Cum SA (acres)      *          * 0.30 *
0.01 *
*****
*****

```

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
* E.G. Elev (ft)          * 452.27 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)          * 0.55 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)          * 451.73 * Reach Len. (ft)   * 50.12 * 50.00 *
50.04 *
* Crit W.S. (ft)          * 451.73 * Flow Area (sq ft) *          * 22.87 *
*

```

	Exist_Condn_100yr.rep			
* E.G. Slope (ft/ft)	* 0.005966	* Area (sq ft)	*	* 22.87 *
* Q Total (cfs)	* 135.60	* Flow (cfs)	*	* 135.60 *
* Top Width (ft)	* 21.38	* Top Width (ft)	*	* 21.38 *
* Vel Total (ft/s)	* 5.93	* Avg. Vel. (ft/s)	*	* 5.93 *
* Max Chl Dpth (ft)	* 1.96	* Hydr. Depth (ft)	*	* 1.07 *
* Conv. Total (cfs)	* 1755.6	* Conv. (cfs)	*	* 1755.6 *
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 21.77 *
* Min Ch El (ft)	* 449.77	* Shear (lb/sq ft)	*	* 0.39 *
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 378.42	* 0.00 *
0.00				
* Frctn Loss (ft)	* 0.30	* Cum Volume (acre-ft)	* 0.00	* 0.40 *
0.01				
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 0.00	* 0.33 *
0.02				

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

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

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

CROSS SECTION

RIVER: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 700

INPUT

Description:

Station Elevation Data			num=	148					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	461.383.490021	461.373.600006	461.384.130005	461.44.570007	461.41				
5.110016	461.395.810028	461.35 6.77002	461.2710.11002	460.9313.73001	460.84				
14.29001	461.1114.59003	461.1619.02002	46024.48001	458.2225.12003	458.01				
25.16	45825.27002	457.9732.29001	45642.87003	454.92 44.69	454.77				
47.09003	454.650.06003	454.3352.29001	454.23 54.47	454.1656.24002	454.13				
59.09003	454.1460.08002	454.1162.90002	454 66.91	453.4769.83002	452				
72.42001	450.672.85001	450.3973.11002	450.3 73.53	450.2173.80002	450.15				
74.37003	45074.81003	449.8977.58002	448.99 78.75	448.6179.87003	448				
81.19	447.27 82.44	446.7883.46002	446.3384.77002	44685.74002	445.9				
90.30002	445.5790.65002	445.55 90.91	445.52 93.03	445.395.74002	444.91				
95.95001	444.996.46002	444.91 97.22	445.1299.20001	446 101.51	447.39				
103.07	448 106.43	449.6 107.52	450 108.99	450.47 109.23	450.55				
112.37	452 131.06	453.5 132.83	453.65 136.04	454 138.28	454.41				
138.98	454.5 139.13	454.51 139.55	454.56 141.26	454.8 150.7	456				
157.33	456.45 158.8	456.57 159.26	456.6 159.8	456.62 160.48	456.63				

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161.32	456.64	163.4	456.64	165.29	456.62	166.16	456.61	175.97	456.34
185.89	456.04	186.47	456.04	186.52	456.04	186.6	456.04	187.9	456
187.91	456	188.05	456.04	195.45	458	204.5	458.26	204.71	458.26
212.18	458.47	212.65	458.48	218.71	458.98	219.65	459.06	219.74	459.06
219.87	459.06	220.02	459.05	220.31	459.04	220.49	459.03	220.51	459.03
223.07	460.29	223.57	460.53	223.63	460.56	223.82	460.65	223.85	460.66
223.85	460.67	223.86	460.67	223.87	460.67	223.88	460.68	224	460.74
224.02	460.74	225.51	460.71	225.55	460.67	226.02	460.21	226.17	460.22
227.54	460.33	230.94	460.39	250.19	460.7	250.64	461.15	252.13	461.21
254.78	461.23	255.21	460.88	255.4	460.73	262.68	460.78	268.36	460.81
271.55	460.83	275.45	460.86	285.21	460.92	285.68	461.29	285.84	461.42
287.72	461.48	289.98	461.57	295.71	461.79	300.55	462	305.97	462.31
307.02	462.37	318.07	463	319.21	463.11	328.5	463.98	328.69	464
328.7	464	328.72	464	347.49	464.38	349.97	464.43	353.18	464.5
360.44	464.5	367.66	464.5	378.42	464.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.0277	58002	.02	108.99	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	77.58002	108.99		49.58	50		.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 447.02	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.49	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 446.54	* Reach Len. (ft)	* 49.58	* 50.00	*
52.14 *					
* Crit W.S. (ft)	* 446.54	* Flow Area (sq ft)	*	* 16.16	*
* E.G. Slope (ft/ft)	* 0.006355	* Area (sq ft)	*	* 16.16	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*
* Top Width (ft)	* 17.11	* Top Width (ft)	*	* 17.11	*
* Vel Total (ft/s)	* 5.59	* Avg. Vel. (ft/s)	*	* 5.59	*
* Max Chl Dpth (ft)	* 1.64	* Hydr. Depth (ft)	*	* 0.94	*
* Conv. Total (cfs)	* 1134.0	* Conv. (cfs)	*	* 1134.0	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 17.62	*
* Min Ch El (ft)	* 444.90	* Shear (lb/sq ft)	*	* 0.36	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 378.42	* 0.00	*
0.00 *					
* Frctn Loss (ft)	* 0.31	* Cum Volume (acre-ft)	*	* 0.28	*
0.00 *					
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 0.28	*
0.01 *					

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

Exist_Condn_100yr.rep

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 OUTPUT Profile #1.5 X Q-100yr

```
*****
* E.G. Elev (ft)      * 447.46 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)       * 0.61 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)      * 446.85 * Reach Len. (ft)   * 49.58 * 50.00 *
52.14 *
* Crit W.S. (ft)      * 446.85 * Flow Area (sq ft) *          * 21.71 *
*
* E.G. Slope (ft/ft)  * 0.005927 * Area (sq ft)      *          * 21.71 *
*
* Q Total (cfs)       * 135.60 * Flow (cfs)        *          * 135.60 *
*
* Top Width (ft)      * 18.36 * Top Width (ft)     *          * 18.36 *
*
* Vel Total (ft/s)    * 6.25 * Avg. Vel. (ft/s)   *          * 6.25 *
*
* Max Chl Dpth (ft)   * 1.95 * Hydr. Depth (ft)   *          * 1.18 *
*
* Conv. Total (cfs)    * 1761.4 * Conv. (cfs)        *          * 1761.4 *
*
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft)   *          * 19.02 *
*
* Min Ch El (ft)      * 444.90 * Shear (lb/sq ft)   *          * 0.42 *
*
* Alpha               * 1.00 * Stream Power (lb/ft s) * 378.42 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.29 * Cum Volume (acre-ft) * 0.00 * 0.38 *
0.01 *
* C & E Loss (ft)     * 0.01 * Cum SA (acres)      * 0.00 * 0.31 *
0.02 *
*****
*****
```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: 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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop

RS: 650

INPUT

Description:

Station Elevation Data		num= 138							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	458	.02	458	.06	458.6400146	457.875	730011	456.63	

Exist_Condn_100yr.rep											
8.610016	4569.460022	455.7916.61002	45419.89001	453.16	25.25	452					
32.64001	451.8239.02002	451.6741.21002	451.6342.42001	451.6243.45001	451.61						
45.67001	451.5746.26001	451.5746.56003	451.5746.79001	451.58	47	451.6					
50.80002	451.5755.54001	451.5356.27002	451.5357.20001	451.54	64.41	451.59					
67.14001	451.6168.24002	451.6376.49002	451.882.86002	451.8686.55002	452						
87.15002	452.34 92.25	45293.64001	452 95.44	451.496.49002	451.05						
99.62003	450 101.27	449.44 101.91	449.15 104.02	448 104.68	447.63						
106.44	446.52 107.24	446 109.86	444.28 110.29	444 112.2	444						
114.24	444 114.91	444 115.91	444.34 121.17	446 123.57	447.54						
124.32	448 127.08	449.79 127.46	450 128.91	450.14 132.01	450.43						
135.22	450.7 138.05	450.87 139.08	450.95 141.04	451.12 141.82	451.19						
144.92	451.47 149.76	452 161.4	453.42 162.93	453.59 166.55	454						
169.82	454.22 170.96	454.28 171.72	454.3 172.18	454.29 172.64	454.25						
173.23	454.2 175.3	454.06 176.36	454 179.73	453.5 179.82	453.44						
180.09	453.41 180.62	453.46 185.62	454 192.97	455.82 194	456						
195.18	456.17 195.89	456.41 196.36	456.49 198.01	456.67 199.51	456.79						
200.12	456.83 201.41	456.87 202.47	456.88 203.84	456.89 206.8	456.87						
207.99	456.85 209.07	456.83 210.25	456.78 211.77	456.71 219.97	456.3						
223.43	456.13 226.84	457.8 231.83	460.27 232.9	460.25 233.32	460.24						
233.7	459.86 233.82	459.74 235.03	459.84 235.32	459.87 239.5	459.93						
257.83	460.2 259.28	460.31 263.66	460.48 270.83	460.78 271.73	460.79						
271.77	460.79 272.1	460.42 272.21	460.29 274.33	460.3 296	460.44						
296.63	460.44 297.37	460.45 298.17	460.46 312.14	460.55 312.82	460.55						
320.42	460.61 321.01	460.61 323.18	460.63 329.77	460.67 330.12	460.95						
330.39	461.17 333.74	461.35 337.69	461.57 341.7	461.8 345.06	462						
351.92	462.59 356.68	463 363.66	463.42 370.62	464 371.58	464.03						
375.28	464.12 378.16	464.17 390.64	464.31								

Manning's n Values					
Sta	n Val	Sta	n Val	Sta	n Val
0	.0296.49002	.02	128.91	.02	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
96.49002	128.91	49.04	50	50.64	.1	.3	

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 446.30	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.59	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 445.71	* Reach Len. (ft)	* 49.04	* 50.00	*
50.64 *					
* Crit W.S. (ft)	* 445.71	* Flow Area (sq ft)	*	* 14.64	*
* E.G. Slope (ft/ft)	*0.006103	* Area (sq ft)	*	* 14.64	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*
* Top Width (ft)	* 12.57	* Top Width (ft)	*	* 12.57	*
* Vel Total (ft/s)	* 6.17	* Avg. Vel. (ft/s)	*	* 6.17	*
* Max Chl Dpth (ft)	* 1.71	* Hydr. Depth (ft)	*	* 1.17	*
* Conv. Total (cfs)	* 1157.2	* Conv. (cfs)	*	* 1157.2	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 13.35	*
* Min Ch El (ft)	* 444.00	* Shear (lb/sq ft)	*	* 0.42	*

		Exist_Condn_100yr.rep			
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 390.64	* 0.00	*
0.00 *					
* Frctn Loss (ft)	* 0.32	* Cum Volume (acre-ft)	*	* 0.26	*
0.00 *					
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 0.26	*
0.01 *					

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	* 446.82	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.71	* Wt. n-Val.	*	* 0.020	*
*					
* W.S. Elev (ft)	* 446.11	* Reach Len. (ft)	* 49.04	* 50.00	*
50.64 *					
* Crit W.S. (ft)	* 446.11	* Flow Area (sq ft)	*	* 20.03	*
*					
* E.G. Slope (ft/ft)	* 0.005772	* Area (sq ft)	*	* 20.03	*
*					
* Q Total (cfs)	* 135.60	* Flow (cfs)	*	* 135.60	*
*					
* Top Width (ft)	* 14.27	* Top Width (ft)	*	* 14.27	*
*					
* Vel Total (ft/s)	* 6.77	* Avg. Vel. (ft/s)	*	* 6.77	*
*					
* Max Chl Dpth (ft)	* 2.11	* Hydr. Depth (ft)	*	* 1.40	*
*					
* Conv. Total (cfs)	* 1784.9	* Conv. (cfs)	*	* 1784.9	*
*					
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 15.24	*
*					
* Min Ch El (ft)	* 444.00	* Shear (lb/sq ft)	*	* 0.47	*
*					
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 390.64	* 0.00	*
0.00 *					
* Frctn Loss (ft)	* 0.30	* Cum Volume (acre-ft)	* 0.00	* 0.35	*
0.01 *					
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 0.00	* 0.29	*
0.02 *					

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

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

Exist_Condn_100yr.rep

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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 600

INPUT

Description:

Station Elevation Data		num= 185									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	449.562	799988	449.273	419983	449.25	4.22998	449.255	289978	449.29		
6.5	449.368	539978	449.498	819977	449.59	269989	449.529	369995	449.52		
9.609985	449.529	709991	449.5210	43997	449.5810	71997	449.5910	95999	449.6		
11.19998	449.6111	45999	449.6112	16998	449.615	12997	449.58	19.84	449.45		
21.59	449.4123	42999	449.3825	31998	449.3827	22998	449.432	46997	449.49		
40.85999	449.4741	81998	449.4842	93997	449.48	47	449.4648	56998	449.45		
50.29999	449.4652	20999	449.4754	43997	449.4957	19998	449.5360	81998	449.6		
76.65997	449.9178	43997	449.9478	82999	449.9481	65997	45095	72998	450.25		
97.62997	450.2897	67999	450.2897	97998	450.27	98.84	450.26	99.87	450.22		
102.4	450.12	105.04	450	106.07	448.97	107.1	448	108.03	447.12		
109.12	446	109.78	445.37	111.24	444	111.37	443.88	111.65	443.6		
112.82	442.39	113.05	442.12	113.15	442	114.11	441.05	114.14	441.01		
114.23	441.02	114.24	441.02	115.65	441.28	116.28	441.44	116.67	441.6		
116.94	442	117.41	442.19	121.98	444	122.48	444.21	127.11	446		
127.8	446.24	132.22	447.76	132.56	447.87	132.92	448	133.32	448.06		
133.51	448.09	137.29	448.63	141.75	449.18	149.42	450	157.1	450.48		
158.47	450.59	160.38	450.76	161.89	450.9	165.07	451.17	169.58	451.52		
170.95	451.65	174.19	452	174.39	452.05	175.29	452.19	178.52	452.57		
179.1	452.66	181.72	452.98	182.39	453.07	182.89	453.11	183.5	453.15		
183.82	453.16	184.11	453.16	185.02	453.12	185.43	453.1	186.98	453.11		
191.22	453.17	194.97	453.22	197.2	453.23	199.27	453.24	201.24	453.24		
203.18	453.24	205.4	453.22	207.17	453.2	207.8	453.18	208.95	453.13		
209.85	453.09	211.07	453.03	213.51	452.98	214.06	452.96	215.57	452.88		
228.88	459.52	229.53	459.85	230.46	459.83	231.04	459.81	231.05	459.8		
231.54	459.31	231.6	459.32	233.05	459.44	244.66	459.6	255.64	459.75		
257.29	459.77	257.63	459.77	257.98	460.01	258.39	460.28	258.47	460.28		
258.48	460.28	258.74	460.28	262.8	460.31	263.27	459.91	263.39	459.81		
270.07	459.86	272.53	459.88	273.94	459.89	276.34	459.9	286.84	459.98		
286.93	459.98	287.03	459.98	289.19	460	290.03	460.01	290.35	460.01		
291.2	460.49	291.26	460.52	299.79	460.58	302.23	460.6	302.56	460.43		
303.15	460.11	306.48	460.14	311.65	460.19	316.85	460.23	316.89	460.23		
317.14	460.23	317.54	460.57	317.74	460.73	318.83	460.74	321.32	460.77		
321.72	460.44	321.92	460.27	326.21	460.31	329.47	460.33	332.58	460.35		
337.49	460.39	348.71	460.49	348.92	460.7	349.22	460.99	356.71	461.69		
359.79	462	364.59	462.67	365.92	462.84	366.18	462.86	368.25	463		
368.88	463	370.61	463.79	371.03	464	371.48	464	371.89	464		
378.79	464.3	383.21	464.47	383.28	464.48	384	464.5	386.11	464.5		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.0297	127.8	.02

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
	97.67999	127.8	49.43	50	49.19	.1	.3

Exist_Condn_100yr.rep

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)      * 444.36 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.71 * Wt. n-Val.       *      * 0.020 *
*
* W.S. Elev (ft)      * 443.65 * Reach Len. (ft)  * 49.43 * 50.00 *
49.19 *
* Crit W.S. (ft)      * 443.65 * Flow Area (sq ft) *      * 13.34 *
*
* E.G. Slope (ft/ft)  * 0.006606 * Area (sq ft)     *      * 13.34 *
*
* Q Total (cfs)       * 90.40 * Flow (cfs)       *      * 90.40 *
*
* Top Width (ft)      * 9.49 * Top Width (ft)   *      * 9.49 *
*
* Vel Total (ft/s)    * 6.78 * Avg. Vel. (ft/s) *      * 6.78 *
*
* Max Chl Dpth (ft)   * 2.64 * Hydr. Depth (ft) *      * 1.41 *
*
* Conv. Total (cfs)   * 1112.2 * Conv. (cfs)      *      * 1112.2 *
*
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft) *      * 11.22 *
*
* Min Ch El (ft)      * 441.01 * Shear (lb/sq ft) *      * 0.49 *
*
* Alpha               * 1.00 * Stream Power (lb/ft s) * 386.11 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.32 * Cum Volume (acre-ft) *      * 0.24 *
0.00 *
* C & E Loss (ft)     * 0.02 * Cum SA (acres)    *      * 0.25 *
0.01 *
*****
*****

```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
* E.G. Elev (ft)      * 444.98 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.84 * Wt. n-Val.       *      * 0.020 *
*
* W.S. Elev (ft)      * 444.14 * Reach Len. (ft)  * 49.43 * 50.00 *
49.19 *
* Crit W.S. (ft)      * 444.14 * Flow Area (sq ft) *      * 18.44 *
*
* E.G. Slope (ft/ft)  * 0.006300 * Area (sq ft)     *      * 18.44 *
*
* Q Total (cfs)       * 135.60 * Flow (cfs)       *      * 135.60 *
*

```

		Exist_Condn_100yr.rep			
* Top Width (ft)	*	11.23	*	Top Width (ft)	*
* Vel Total (ft/s)	*	7.35	*	Avg. Vel. (ft/s)	*
* Max Chl Dpth (ft)	*	3.13	*	Hydr. Depth (ft)	*
* Conv. Total (cfs)	*	1708.4	*	Conv. (cfs)	*
* Length Wtd. (ft)	*	50.00	*	Wetted Per. (ft)	*
* Min Ch El (ft)	*	441.01	*	Shear (lb/sq ft)	*
* Alpha	*	1.00	*	Stream Power (lb/ft s)	*
* Frctn Loss (ft)	*	0.30	*	Cum Volume (acre-ft)	*
* C & E Loss (ft)	*	0.02	*	Cum SA (acres)	*

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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 550

INPUT

Description:

Station Elevation Data		num= 154							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	453.696	429993	453.936	890015	453.946	970001	453.947	019989	453.94
7.080017	453.947	130005	453.94	7.23999	453.957	290009	453.957	320007	453.95
7.350006	453.957	380005	453.957	420013	453.957	580017	453.928	220001	453.97
8.410004	453.93	10.5	453.5	13.84	452.8615	76001	452.4517	01001	452.17
17.73999	45218.32001		451.8625	67999	45031.79999		448.52	33.88	448
37.09	447.948	23999	447.5852	54999	447.4854	51999	447.4456	83002	447.43
58.54001	447.41	58.94	447.41	59.09	447.41	59.12	447.4259	39999	447.53
59.73001	447.5760	26001	447.6	61	447.6161	92999	447.61	64.37	447.6
73.23001	447.5278	32001	447.588	35001	447.4990	07001	447.48	98.22	447.45
100.02	447.43	102	447.4	106.61	447.37	107.8	447.36	109.47	447.38
114.54	447.43	115.29	447.43	124.42	447.56	131.4	447.61	145.92	447.89
148.99	447.96	150.25	448	151.48	448	151.96	448	154.46	448
155.93	447.39	158.34	446.43	158.9	446.21	159.46	446	160.02	445.78
164.19	444.17	164.59	444	166.13	443.35	168	442.41	168.89	442
170.55	441.2	173.01	440	174.11	439.46	177.28	438	177.92	438
178.87	438	180.43	438	183.24	439.5	184.11	440	187.3	441.67
187.85	442	189.24	442.77	191.21	443.73	191.84	444	191.85	444
192.36	444.18	195.53	444.89	199.3	445.78	200.46	446	201.08	446.06
222.18	448	224.48	448.16	224.54	448.17	228.59	448.46	228.83	448.47

Exist_Condn_100yr.rep									
229.48	448.54	231.2	448.61	235.04	448.71	237.2	448.75	241.42	448.81
247.89	448.83	248.54	448.82	250.99	448.85	251.76	448.82	252.42	448.83
264.7	448.98	268.21	449	269.58	449.02	269.86	449.02	271.8	449.08
272.69	449.1	277.02	449.25	283.93	452.68	297.37	459.39	298.15	459.38
298.88	459.36	299.15	459.09	299.38	458.86	300.26	458.93	300.89	458.99
313.23	459.16	322.52	459.28	323.52	459.3	323.55	459.3	323.83	459.6
324.04	459.8	324.46	459.8	326.22	459.65	329.26	459.85	330.52	459.86
330.81	459.71	331.5	459.37	335.61	459.41	337.7	459.43	343.63	459.5
345.13	459.51	379.1	459.86	384.53	459.91	388.45	459.95	390.36	459.96
390.51	460.09	390.94	460.46	391.12	460.46	391.56	460.47	391.91	460.47
397.3	460.54	397.61	460.25	397.83	460.04	412.08	460.19	415.32	460.22
423.61	460.32	423.93	460.62	424.15	460.81	424.44	460.84		

Manning's n Values					
Sta	n Val	Sta	n Val	Sta	n Val
0	.02	160.02	.02	191.85	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	160.02	191.85		49.94	50	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 440.62	* Element	* Left OB	* Channel	*	
Right OB						
* Vel Head (ft)	* 0.65	* Wt. n-Val.	* 0.020	*		

* W.S. Elev (ft)	* 439.97	* Reach Len. (ft)	* 49.94	* 50.00	*	
50.00						
* Crit W.S. (ft)	* 439.97	* Flow Area (sq ft)	* 14.00	*		

* E.G. Slope (ft/ft)	* 0.006094	* Area (sq ft)	* 14.00	*		

* Q Total (cfs)	* 90.40	* Flow (cfs)	* 90.40	*		

* Top Width (ft)	* 10.98	* Top Width (ft)	* 10.98	*		

* Vel Total (ft/s)	* 6.46	* Avg. Vel. (ft/s)	* 6.46	*		

* Max Chl Dpth (ft)	* 1.97	* Hydr. Depth (ft)	* 1.28	*		

* Conv. Total (cfs)	* 1158.0	* Conv. (cfs)	* 1158.0	*		

* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	* 11.92	*		

* Min Ch El (ft)	* 438.00	* Shear (lb/sq ft)	* 0.45	*		

* Alpha	* 1.00	* Stream Power (lb/ft s)	* 424.44	* 0.00	*	
0.00						
* Frctn Loss (ft)	* 0.31	* Cum Volume (acre-ft)	* 0.23	*		
0.00						
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 0.24	*		
0.01						

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

Warning: 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft)      * 441.18 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.77 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)      * 440.41 * Reach Len. (ft)   * 49.94 * 50.00 *
50.00 *
* Crit W.S. (ft)      * 440.41 * Flow Area (sq ft) *          * 19.25 *
*
* E.G. Slope (ft/ft)  * 0.005810 * Area (sq ft)      *          * 19.25 *
*
* Q Total (cfs)       * 135.60 * Flow (cfs)        *          * 135.60 *
*
* Top Width (ft)      * 12.73 * Top Width (ft)    *          * 12.73 *
*
* Vel Total (ft/s)    * 7.04 * Avg. Vel. (ft/s)  *          * 7.04 *
*
* Max Chl Dpth (ft)   * 2.41 * Hydr. Depth (ft)  *          * 1.51 *
*
* Conv. Total (cfs)   * 1778.9 * Conv. (cfs)       *          * 1778.9 *
*
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft)  *          * 13.88 *
*
* Min Ch El (ft)      * 438.00 * Shear (lb/sq ft)  *          * 0.50 *
*
* Alpha               * 1.00 * Stream Power (lb/ft s) * 424.44 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.29 * Cum Volume (acre-ft) * 0.00 * 0.31 *
0.01 *
* C & E Loss (ft)     * 0.02 * Cum SA (acres)     * 0.00 * 0.27 *
0.02 *
*****
*****

```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: 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: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 500

INPUT

Description:

Station Elevation Data num= 132

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	446	.01	4462.820007	445.833.860016	445.794.809998	445.76			
7.730011	445.7316.07001	445.6	17.12	445.5920.20001	445.621.58002	445.61			
24.76001	445.6627.58002	445.6936.70001	445.7539.57001	445.76	46.75	445.78			
51.84	445.78	56.41	445.7765.10001	445.74	75.09	445.6775.95001	445.66		

Exist_Condn_100yr.rep

81.53	445.62	93.95	001	445.55	98.13	445.51	101.98	445.46	103.28	445.46
104.54	445.46	106.72		445.48	112.94	445.57	116.12	445.61	117.63	445.62
118.45	445.62	125.3		445.57	126.15	445.55	129.34	445.46	142.79	445.24
145.63	445.17	147.02		445.12	147.78	445.11	149.49	445.1	150.16	445.08
150.55	445.05	150.75		445	150.88	444.89	151.12	444.84	157.16	444
160.02	443.12	161.34		442.72	163.66	442	168.92	440.43	169.79	440.18
170.47	440	172.59		439.24	176.12	438	176.83	438	178.87	438
183.05	438	184.15		439.24	184.91	440	188.52	441.54	189.49	442
190.06	442.17	191.42		442.49	197.85	444	202.47	444.4	203.22	444.45
203.99	444.47	211.19		444.98	212.42	444.99	213.39	445.02	214.43	445.08
226.26	445.93	226.4		445.94	227.31	446	248.89	446.35	253.05	446.42
255.8	446.46	256.03		446.46	257.37	446.49	257.66	446.5	257.77	446.5
257.8	446.5	257.82		446.5	257.83	446.5	257.85	446.5	257.93	446.51
258.05	446.51	258.16		446.51	258.29	446.51	258.42	446.51	258.54	446.51
258.69	446.51	258.88		446.51	258.99	446.5	260.09	446.49	260.51	446.49
260.96	446.48	269.83		446.62	276.97	451.01	292.93	458.89	295.67	458.9
296.39	458.88	297.25		458.87	297.52	458.6	297.77	458.36	298.64	458.43
299.32	458.48	312.38		458.63	318.91	458.74	323.04	458.83	330.24	459.24
331.58	459.31	335.33		459.19	337.82	459.19	337.83	459.11	341.91	459.16
341.94	459.26	388.05		460.34	396.6	460.45	398.66	460.47	399.34	460.48
400.03	460.48	400.15		460.49	402.11	460.51	412.84	460.65	412.89	460.65
413.16	460.66	414.42		460.68	416.52	460.71	416.69	460.58	417.15	460.21
418.46	460.23	424.44		460.31						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	160.02	.02	191.42	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	160.02	191.42		49.72	50	49.15	.1
							.3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
*****
* E.G. Elev (ft)          * 440.10 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)          * 0.59 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)          * 439.50 * Reach Len. (ft)   * 49.72 * 50.00 *
49.15 *
* Crit W.S. (ft)          * 439.50 * Flow Area (sq ft) *          * 14.65 *
*
* E.G. Slope (ft/ft)      * 0.006174 * Area (sq ft)      *          * 14.65 *
*
* Q Total (cfs)           * 90.40 * Flow (cfs)        *          * 90.40 *
*
* Top Width (ft)          * 12.56 * Top Width (ft)     *          * 12.56 *
*
* Vel Total (ft/s)        * 6.17 * Avg. Vel. (ft/s)   *          * 6.17 *
*
* Max Chl Dpth (ft)       * 1.50 * Hydr. Depth (ft)   *          * 1.17 *
*
* Conv. Total (cfs)       * 1150.5 * Conv. (cfs)        *          * 1150.5 *
*
* Length Wtd. (ft)        * 50.00 * Wetted Per. (ft)   *          * 13.49 *
*
* Min Ch El (ft)          * 438.00 * Shear (lb/sq ft)   *          * 0.42 *
*
* Alpha                   * 1.00 * Stream Power (lb/ft s) * 424.44 * 0.00 *
0.00 *
* Frctn Loss (ft)        * 0.31 * Cum Volume (acre-ft) *          * 0.21 *
0.00 *

```

		Exist_Condn_100yr.rep			
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	0.22
0.01	*				

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	*	440.62	* Element	*	Left OB
Right OB	*				
* Vel Head (ft)	*	0.72	* Wt. n-Val.	*	0.020
*	*				
* W.S. Elev (ft)	*	439.90	* Reach Len. (ft)	*	49.72
49.15	*				
* Crit W.S. (ft)	*	439.90	* Flow Area (sq ft)	*	19.96
*	*				
* E.G. Slope (ft/ft)	*	0.005833	* Area (sq ft)	*	19.96
*	*				
* Q Total (cfs)	*	135.60	* Flow (cfs)	*	135.60
*	*				
* Top Width (ft)	*	14.07	* Top Width (ft)	*	14.07
*	*				
* Vel Total (ft/s)	*	6.79	* Avg. Vel. (ft/s)	*	6.79
*	*				
* Max Chl Dpth (ft)	*	1.90	* Hydr. Depth (ft)	*	1.42
*	*				
* Conv. Total (cfs)	*	1775.5	* Conv. (cfs)	*	1775.5
*	*				
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	15.23
*	*				
* Min Ch El (ft)	*	438.00	* Shear (lb/sq ft)	*	0.48
*	*				
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	424.44
0.00	*				
* Frctn Loss (ft)	*	0.29	* Cum Volume (acre-ft)	*	0.00
0.01	*				
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	0.00
0.02	*				

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

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

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

Exist_Condn_100yr.rep
defaulted to critical depth.

CROSS SECTION

RIVER: Cl_Creek_Prop
REACH: Cl_Creek_Prop RS: 450

INPUT

Description:

Station Elevation Data		num= 120									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4446.609985	443.8510.60999	443.7813.35001	443.7515.44998	443.74						
19.38	443.719.97998	443.720.35001	443.7120.88998	443.7521.67999	443.77						
25.94998	443.82	45.16	44450.97998	444.0458.81998	444.09	66.87	444.12				
72.73999	444.1475.29999	444.13	79	444.0984.89999	444.02	86.84	444				
101.32	443.83	105.38	443.77	113.73	443.64	118.19	443.59	153.8	442.77		
156.71	442.71	157.28	442.69	157.55	442.69	158.2	442.68	169.18	442		
171.68	442	172.83	442	175.81	442	177.17	442	180.07	442		
181.7	442	183.46	442	184.63	442	188.21	442	188.39	442		
188.6	442	191.22	440.71	192.65	440	196.08	438.4	196.94	438		
198.14	437.46	201.29	436	201.77	436	202.85	436	203.1	436		
206.01	437.26	207.76	438	209.64	438.73	210.53	438.95	211.8	439.33		
212.92	439.46	213.76	439.63	214.08	439.78	214.34	440	215.88	440.28		
220.29	441.07	222.89	441.53	225.05	441.89	225.3	441.93	225.84	442		
226.22	442.02	227.11	442.04	228.21	442.02	228.76	442	232	441.86		
232.76	441.85	234.89	441.99	235.08	442	241.23	442.72	244.97	443.21		
250.31	444	253.82	444.2	254.55	444.23	254.65	444.23	255.24	444.25		
256.19	444.3	265.21	444.76	269.02	446.38	271.1	447.26	274.26	447.76		
283.98	449.3	286.04	449.63	294.13	450.91	297.83	451.49	302.94	452.31		
309.61	453.37	316.98	454.54	321.39	455.24	324.58	455.75	333.17	457.12		
334.14	457.27	344.44	458.92	345.12	459.02	349.39	459.41	349.95	459.41		
351.18	459.39	351.54	459.09	351.78	458.89	352.74	458.97	353.57	459.03		
362.6	459.19	380.43	459.51	380.96	459.96	380.97	459.97	381.08	460		
381.14	460.02	383.34	460.06	383.71	460.07	384.5	459.64	384.63	459.57		
389.73	459.65	391.67	459.68	402.42	459.83	403.58	459.85	411.21	459.96		

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.02	184.63	.02	215.88	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	184.63	215.88		50.28	50	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 438.77	* Element	* Left OB	* Channel	*
Right OB					
* Vel Head (ft)	* 0.63	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 438.14	* Reach Len. (ft)	* 50.28	* 50.00	*
48.87					
* Crit W.S. (ft)	* 438.14	* Flow Area (sq ft)	*	* 14.20	*
* E.G. Slope (ft/ft)	* 0.006142	* Area (sq ft)	*	* 14.20	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*
* Top Width (ft)	* 11.50	* Top Width (ft)	*	* 11.50	*

		Exist_Condn_100yr.rep			
* Vel Total (ft/s)	*	6.37	* Avg. Vel. (ft/s)	*	6.37
* Max Chl Dpth (ft)	*	2.14	* Hydr. Depth (ft)	*	1.23
* Conv. Total (cfs)	*	1153.5	* Conv. (cfs)	*	1153.5
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	12.41
* Min Ch El (ft)	*	436.00	* Shear (lb/sq ft)	*	0.44
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	411.21
0.00	*			*	0.00
* Frctn Loss (ft)	*	0.31	* Cum Volume (acre-ft)	*	0.19
0.00	*			*	
* C & E Loss (ft)	*	0.03	* Cum SA (acres)	*	0.21
0.01	*			*	

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	*	439.32	* Element	*	Left OB	* Channel	*
Right OB	*			*		*	
* Vel Head (ft)	*	0.74	* Wt. n-Val.	*		* 0.020	*
* W.S. Elev (ft)	*	438.58	* Reach Len. (ft)	*	50.28	* 50.00	*
48.87	*			*		*	
* Crit W.S. (ft)	*	438.58	* Flow Area (sq ft)	*		* 19.66	*
* E.G. Slope (ft/ft)	*	0.005825	* Area (sq ft)	*		* 19.66	*
* Q Total (cfs)	*	135.60	* Flow (cfs)	*		* 135.60	*
* Top Width (ft)	*	13.56	* Top Width (ft)	*		* 13.56	*
* Vel Total (ft/s)	*	6.90	* Avg. Vel. (ft/s)	*		* 6.90	*
* Max Chl Dpth (ft)	*	2.58	* Hydr. Depth (ft)	*		* 1.45	*
* Conv. Total (cfs)	*	1776.7	* Conv. (cfs)	*		* 1776.7	*
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*		* 14.65	*
* Min Ch El (ft)	*	436.00	* Shear (lb/sq ft)	*		* 0.49	*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	411.21	* 0.00	*
0.00	*			*		*	
* Frctn Loss (ft)	*	0.29	* Cum Volume (acre-ft)	*	0.00	* 0.26	*
0.01	*			*		*	
* C & E Loss (ft)	*	0.03	* Cum SA (acres)	*	0.00	* 0.23	*

Exist_Condn_100yr.rep

0.02 *

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

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

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

CROSS SECTION

RIVER: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 400

INPUT

Description:

Station Elevation Data				num=	147				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	442.07	6300049	442.79	00085	441.99	2309998	441.98	3980011	442
6.619995	442.12	8.76001	442.16	10.81	442.12	13.06	442.04	14.06	442
15.48001	441.97	19.87	441.93	23.19	441.92	23.26999	441.92	27.23001	441.92
31.76001	441.94	36.88	441.99	36.91	441.99	37.51001	442.41	54999	442.05
45.32999	442.12	47.66998	442.15	61.28	442.4	63.09	442.46	751001	442.47
71.88	442.51	73.62	442.52	78.13	442.54	82.41998	442.55	83.16998	442.55
89.88998	442.54	90.87	442.53	96.69998	442.49	106.23	442.41	113.01	442.37
116.9	442.35	123.81	442.35	127.25	442.33	131.2	442.3	135.48	442.25
142.15	442.15	144.58	442.1	148.57	442	163.07	441.28	164.84	441.19
167.07	441.08	175.32	440.69	177.73	440.59	180.43	440.49	183.69	440.35
186.22	440.29	186.75	440.27	187.61	440.25	188.08	440.24	195.77	440.09
195.95	440.09	198.61	440.02	199.11	440	202.39	439.84	202.9	439.79
202.92	439.79	204	439.67	205.83	439.46	210.49	439.06	211.67	438.95
213.12	438.82	217.93	438	220.62	437.14	224.02	436	230.25	434.09
230.33	434.06	230.38	434.05	230.39	434.05	230.55	434.06	230.56	434.06
230.62	434.08	230.78	434.14	230.91	434.17	231.36	434.26	232.41	434.49
234.25	434.9	238.94	436	244	437.45	245.55	437.89	245.68	437.93
245.75	437.95	245.76	437.96	245.77	437.96	245.8	437.93	245.82	437.91
245.84	437.91	246.39	438	246.86	438.05	252.16	438.44	252.46	438.5
257.08	440	260.19	440.46	263.67	441.09	268.9	442	269.87	442.06
276.74	442.42	279.39	442.55	280.43	442.59	281.37	442.63	282.64	442.66
283.38	442.67	283.89	442.67	285.49	442.63	285.56	442.57	285.62	442.54
286	442.52	286.86	442.49	293.2	442.35	293.52	442.33	295.06	442.28
297.9	442.14	298.25	442.15	298.83	442.22	300.02	442.38	312.59	444
323.17	444.75	331.55	445.48	338.16	446	356.89	447.97	357.2	448
360.6	448.32	378.71	450	378.74	450	379.9	450.05	380.62	450.35
381.56	450.75	391.47	454.88	396.75	457.08	403.89	460.05	405.32	460.04
405.71	460.03	405.82	459.94	406.32	459.54	408.04	459.67	408.14	459.67
408.7	459.68	409.05	459.69	417.36	459.84	421.57	459.92	424.62	459.97
426.9	460.01	431.09	460.09						

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	211.67	.02	244	.02

		Exist_Condn_100yr.rep				
Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.	
211.67	244	49.39	50	49.1	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)      * 436.58 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.52 * Wt. n-Val.      *          * 0.020 *
*
* W.S. Elev (ft)      * 436.06 * Reach Len. (ft) * 49.39 * 50.00 *
49.10 *
* Crit W.S. (ft)      * 436.06 * Flow Area (sq ft) *          * 15.59 *
*
* E.G. Slope (ft/ft)  * 0.006223 * Area (sq ft)     *          * 15.59 *
*
* Q Total (cfs)       * 90.40 * Flow (cfs)       *          * 90.40 *
*
* Top Width (ft)      * 15.30 * Top Width (ft)   *          * 15.30 *
*
* Vel Total (ft/s)    * 5.80 * Avg. Vel. (ft/s) *          * 5.80 *
*
* Max Chl Dpth (ft)   * 2.01 * Hydr. Depth (ft) *          * 1.02 *
*
* Conv. Total (cfs)   * 1145.9 * Conv. (cfs)      *          * 1145.9 *
*
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft) *          * 15.83 *
*
* Min Ch El (ft)      * 434.05 * Shear (lb/sq ft) *          * 0.38 *
*
* Alpha              * 1.00 * Stream Power (lb/ft s) * 431.09 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.31 * Cum Volume (acre-ft) *          * 0.18 *
0.00 *
* C & E Loss (ft)     * 0.02 * Cum SA (acres)     *          * 0.19 *
0.01 *
*****
*****

```

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

Warning: 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
* E.G. Elev (ft)      * 437.04 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.62 * Wt. n-Val.      *          * 0.020 *
*
* W.S. Elev (ft)      * 436.41 * Reach Len. (ft) * 49.39 * 50.00 *
49.10 *
* Crit W.S. (ft)      * 436.41 * Flow Area (sq ft) *          * 21.40 *
*
* E.G. Slope (ft/ft)  * 0.005870 * Area (sq ft)     *          * 21.40 *
*
* Q Total (cfs)       * 135.60 * Flow (cfs)       *          * 135.60 *
*

```

		Exist_Condn_100yr.rep			
* Top Width (ft)	*	17.59	*	Top Width (ft)	*
* Vel Total (ft/s)	*	6.34	*	Avg. Vel. (ft/s)	*
* Max Chl Dpth (ft)	*	2.36	*	Hydr. Depth (ft)	*
* Conv. Total (cfs)	*	1769.8	*	Conv. (cfs)	*
* Length Wtd. (ft)	*	50.00	*	Wetted Per. (ft)	*
* Min Ch El (ft)	*	434.05	*	Shear (lb/sq ft)	*
* Alpha	*	1.00	*	Stream Power (lb/ft s)	*
* Frctn Loss (ft)	*	0.29	*	Cum Volume (acre-ft)	*
* C & E Loss (ft)	*	0.01	*	Cum SA (acres)	*

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: 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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 350

INPUT

Description:

Station Elevation Data		num= 102									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4413.129974	440.726	109985	440.38	839996	440.18	10.72998	440.13			
11.95999	440.1114	54999	440.0515	91998	44017.82999	439.97	19.20999	439.95			
21.44998	439.93	22.97	439.9324	63998	439.9426	50998	439.97	27.62	440		
32.67999	440.1433	04999	440.1433	44998	440.15	47.37	440.48	51.75	440.55		
59.04999	440.761	23999	440.7364	93997	440.893	42999	441.1393	45999	441.13		
93.47	441.1393	47998	441.13	93.5	441.1393	50998	441.1393	53998	441.13		
134.43	440.87	136.98	440.86	141.19	440.85	154.19	440.57	160.98	440.48		
163.53	440.44	165.58	440.4	167.4	440.35	169.21	440.28	171.22	440.2		
175.33	440	185.77	439.56	187.23	439.5	190.76	439.38	209	438.34		
211.59	438.21	215.95	438	224.47	437.48	228.85	437.21	229.32	437.19		
230.21	437.18	231.49	437.14	233.43	437.06	235.22	436.97	245.74	436.44		
254.46	436	259.11	434.34	260.28	434	264.49	434	265.78	434		
271.97	434	272.28	434	272.54	434.07	275.63	434.79	278.6	435.51		
280.63	436	285.24	437.58	286.61	438	292.29	438.85	294.41	439.16		
294.82	439.2	297.04	439.34	297.96	439.41	302.75	440	308.18	440.55		
311.17	440.93	317.49	441.66	319.69	441.95	319.81	441.97	320.1	442		
328.92	442.55	330.42	442.66	333.91	442.92	341.82	443.55	345.61	443.83		
347.26	444	362.74	445.55	367.26	446	368	446.07	368.33	446.1		
370.99	446.33	389.52	448	392.15	448.13	412.32	449.47	414.1	449.55		
422.9	449.9	425.64	450	429.27	450.16	435.12	450.41	438.61	451.77		
444.94	454.13	450.08	456.02								

Exist_Condn_100yr.rep

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

0 .02 245.74 .02 278.6 .02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
245.74 278.6 49.76 50 51.18 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft) * 435.64 * Element * Left OB * Channel *
Right OB *
* Vel Head (ft) * 0.47 * Wt. n-Val. * 0.020 *
* W.S. Elev (ft) * 435.17 * Reach Len. (ft) * 49.76 * 50.00 *
51.18 *
* Crit W.S. (ft) * 435.17 * Flow Area (sq ft) * 19.10 *
* E.G. Slope (ft/ft) * 0.006119 * Area (sq ft) * 19.10 *
* Q Total (cfs) * 105.00 * Flow (cfs) * 105.00 *
* Top Width (ft) * 20.43 * Top Width (ft) * 20.43 *
* Vel Total (ft/s) * 5.50 * Avg. Vel. (ft/s) * 5.50 *
* Max Chl Dpth (ft) * 1.17 * Hydr. Depth (ft) * 0.93 *
* Conv. Total (cfs) * 1342.3 * Conv. (cfs) * 1342.3 *
* Length Wtd. (ft) * 50.00 * Wetted Per. (ft) * 20.76 *
* Min Ch El (ft) * 434.00 * Shear (lb/sq ft) * 0.35 *
* Alpha * 1.00 * Stream Power (lb/ft s) * 450.08 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.32 * Cum Volume (acre-ft) * 0.16 *
0.00 *
* C & E Loss (ft) * 0.00 * Cum SA (acres) * 0.17 *
0.01 *

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

Warning: 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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft) * 436.06 * Element * Left OB * Channel *
Right OB *
* Vel Head (ft) * 0.58 * Wt. n-Val. * 0.020 *
* W.S. Elev (ft) * 435.48 * Reach Len. (ft) * 49.76 * 50.00 *
51.18 *
* Crit W.S. (ft) * 435.48 * Flow Area (sq ft) * 25.82 *
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* E.G. Slope (ft/ft)	* 0.005782	* Area (sq ft)	*	*	25.82	*
* Q Total (cfs)	* 157.50	* Flow (cfs)	*	*	157.50	*
* Top Width (ft)	* 22.59	* Top Width (ft)	*	*	22.59	*
* Vel Total (ft/s)	* 6.10	* Avg. Vel. (ft/s)	*	*	6.10	*
* Max Chl Dpth (ft)	* 1.48	* Hydr. Depth (ft)	*	*	1.14	*
* Conv. Total (cfs)	* 2071.4	* Conv. (cfs)	*	*	2071.4	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	*	23.01	*
* Min Ch El (ft)	* 434.00	* Shear (lb/sq ft)	*	*	0.40	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	450.08	*	0.00
0.00						
* Frctn Loss (ft)	* 0.29	* Cum Volume (acre-ft)	*	0.00	*	0.21
0.01						
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	*	0.00	*	0.19
0.02						

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

Warning: 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: Cl_Creek_Prop
REACH: Cl_Creek_Prop RS: 300

INPUT

Description:

Station	Elevation	Data	num=	94							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4381.67	0013	437.91	2.04	0009	437.92	7.99	9988	437.91	7.95	9991
9.76	438.09	11.25	438.13	12.53	438.12	13.73	0001	438.11	7.42	9999	438
17.45	438	23.09	437.89	23.70	0001	437.9	26.87	438	31.97	438.16	
47.62	438.63	49.97	438.69	50.79	9999	438.71	53.39	9999	438.75	78.86	0002
81.34	439.16	90.20	439.29	93.76	9999	439.32	94.19	439.32	96.86	0002	439.33
107.93	439.3	130.48	439.21	131.76	439.21	132.54	439.21	132.61	439.21		
134.01	439.19	155.94	438.93	162.28	438.88	166.2	438.83	170.8	438.75		
177.24	438.65	181.73	438.56	191.54	438.34	192.53	438.32	201.72	438.03		
201.79	438.03	202.64	438	211.35	437.72	213.52	437.63	222.95	437.37		
225.61	437.28	228.58	437.18	241.6	436.71	252.81	436.31	257.5	436.13		
260.41	436	262.63	435.82	270.78	435.07	282.5	434	285.96	432.79		
288.09	432	288.76	432	288.83	432	289.24	432	292.77	433.4		
293.39	433.55	293.63	433.62	294.63	433.73	295.2	433.85	296.3	434		
300.68	434.27	301.29	434.42	302.3	434.66	303.11	434.77	309	436		
311.47	436.19	314.47	436.44	333.07	438	340.38	438.86	349.45	439.9		
350.06	439.97	350.32	440	355.45	440.63	364.47	442	366	442.17		
380.3	444	386.88	444.67	391.7	445.13	400.77	446	411.39	446.96		

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 423.34 448 430.04 448.27 439.97 448.55 452.04 448.94 455.86 449.06
 458.59 449.14 460.88 449.2 463.17 449.25 476.72 449.39

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

 0 .02 270.78 .02 301.29 .02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 270.78 301.29 49.5 50 49.57 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

 * E.G. Elev (ft) * 434.79 * Element * Left OB * Channel *
 Right OB *
 * Vel Head (ft) * 0.46 * Wt. n-Val. * 0.020 *
 *
 * W.S. Elev (ft) * 434.33 * Reach Len. (ft) * 49.50 * 50.00 *
 49.57 *
 * Crit W.S. (ft) * 434.33 * Flow Area (sq ft) * 19.37 *
 *
 * E.G. Slope (ft/ft) * 0.006598 * Area (sq ft) * 19.37 *
 *
 * Q Total (cfs) * 105.00 * Flow (cfs) * 105.00 *
 *
 * Top Width (ft) * 22.04 * Top Width (ft) * 22.04 *
 *
 * Vel Total (ft/s) * 5.42 * Avg. Vel. (ft/s) * 5.42 *
 *
 * Max Chl Dpth (ft) * 2.33 * Hydr. Depth (ft) * 0.88 *
 *
 * Conv. Total (cfs) * 1292.6 * Conv. (cfs) * 1292.6 *
 *
 * Length Wtd. (ft) * 50.00 * Wetted Per. (ft) * 22.74 *
 *
 * Min Ch El (ft) * 432.00 * Shear (lb/sq ft) * 0.35 *
 *
 * Alpha * 1.00 * Stream Power (lb/ft s) * 476.72 * 0.00 *
 0.00 *
 * Frctn Loss (ft) * 0.32 * Cum Volume (acre-ft) * 0.13 *
 0.00 *
 * C & E Loss (ft) * 0.00 * Cum SA (acres) * 0.15 *
 0.01 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

 * E.G. Elev (ft) * 435.17 * Element * Left OB * Channel *

Exist_Condn_100yr.rep

```

Right OB *
* Vel Head (ft) * 0.52 * Wt. n-Val. * 0.020 *
0.020 *
* W.S. Elev (ft) * 434.66 * Reach Len. (ft) * 49.50 * 50.00 *
49.57 *
* Crit W.S. (ft) * 434.66 * Flow Area (sq ft) * 27.23 *
0.12 *
* E.G. Slope (ft/ft) * 0.005890 * Area (sq ft) * 27.23 *
0.12 *
* Q Total (cfs) * 157.50 * Flow (cfs) * 157.34 *
0.16 *
* Top Width (ft) * 26.97 * Top Width (ft) * 25.98 *
0.99 *
* Vel Total (ft/s) * 5.76 * Avg. Vel. (ft/s) * 5.78 *
1.35 *
* Max Chl Dpth (ft) * 2.66 * Hydr. Depth (ft) * 1.05 *
0.12 *
* Conv. Total (cfs) * 2052.2 * Conv. (cfs) * 2050.2 *
2.1 *
* Length Wtd. (ft) * 50.00 * Wetted Per. (ft) * 26.70 *
1.02 *
* Min Ch El (ft) * 432.00 * Shear (lb/sq ft) * 0.38 *
0.04 *
* Alpha * 1.01 * Stream Power (lb/ft s) * 476.72 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.28 * Cum Volume (acre-ft) * 0.00 * 0.18 *
0.01 *
* C & E Loss (ft) * 0.00 * Cum SA (acres) * 0.00 * 0.17 *
0.02 *
*****
*****

```

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

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

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

CROSS SECTION

RIVER: Cl_Creek_Prop

REACH: Cl_Creek_Prop

RS: 250

INPUT

Description:

Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	437.323999	436.495089996	436.556429993	436.627570007	436.64		
8.700012	436.629839996	436.5810.91	436.5611.81	436.5612.92999	436.57		
16.78	436.620.59	436.3820.91	436.3620.98001	436.3621.12	436.36		
22.53	436.3822.87	436.3923.13	436.3923.34	436.3823.88	436.38		
24.94	436.3525.05002	436.3626.08002	436.3931.58002	436.5534.57001	436.59		
38.42999	436.6842.51001	436.846.95999	436.9349.14001	436.9856	437.19		
72.42001	437.4876.85001	437.5692.29001	437.8393.5	437.8596.67999	437.89		
97.72	437.9127.65	437.78128.75	437.78130.1	437.78133.37	437.76		

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140.11	437.75	145.79	437.68	153.75	437.6	159.86	437.54	164.2	437.51
168.78	437.48	188.77	437.17	192.64	437.13	195.86	437.08	197.66	437.05
199.79	437.01	202.24	436.95	205.81	436.9	215.66	436.65	228.82	436.28
232.85	436.2	233.81	436.18	237.76	436.05	239.28	436	244.32	435.82
246.8	435.71	256.47	435.35	272.35	434.86	277.07	434.57	279.82	434.43
280.38	434.41	281.72	434.38	283.94	434.29	292.07	434	304.52	433.27
307.87	433.07	309.03	432.92	311.51	432.57	314.12	432.15	314.93	432
319.62	431.01	320.82	430.78	321.35	430.67	321.99	430.45	322.44	430.28
322.55	430.22	322.68	430.17	322.85	430.16	322.87	430.16	323.33	430.16
323.35	430.17	323.4	430.17	323.51	430.18	323.65	430.2	323.69	430.21
324.08	430.31	324.25	430.35	324.49	430.39	325.03	430.45	327.09	430.74
328.55	430.9	335.38	431.83	336.6	432	338.94	432.33	341.29	432.61
345.12	433.12	349.8	433.67	352.45	434	354.68	434.51	359.87	436
371.69	437.89	372.43	438	376.79	438.46	391.24	440	393.29	440.27
396	440.63	404.18	441.7	406.65	442	410.03	442.46	421.48	444
432.2	444.91	434.75	445.14	445.23	446	456.38	446.75	463.98	447.08
466.38	447.19	468.6	447.3	480.94	448	485.76	448.08	490.09	448.16
509.8	448.84	514.38	449						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	304.52	.02	335.38	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	304.52	335.38		49.83	50	50.53	.1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)          * 432.45 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)          * 0.47 * Wt. n-Val.        *          * 0.020 *
0.020 *
* W.S. Elev (ft)          * 431.98 * Reach Len. (ft)   * 49.83 * 50.00 *
50.53 *
* Crit W.S. (ft)          * 431.98 * Flow Area (sq ft) *          * 18.98 *
0.08 *
* E.G. Slope (ft/ft)      * 0.006216 * Area (sq ft)      *          * 18.98 *
0.08 *
* Q Total (cfs)           * 105.00 * Flow (cfs)        *          * 104.92 *
0.08 *
* Top Width (ft)          * 21.41 * Top Width (ft)     *          * 20.35 *
1.06 *
* Vel Total (ft/s)        * 5.51 * Avg. Vel. (ft/s)   *          * 5.53 *
1.03 *
* Max Chl Dpth (ft)       * 1.82 * Hydr. Depth (ft)   *          * 0.93 *
0.07 *
* Conv. Total (cfs)       * 1331.8 * Conv. (cfs)        *          * 1330.8 *
1.0 *
* Length Wtd. (ft)        * 50.00 * Wetted Per. (ft)   *          * 20.70 *
1.08 *
* Min Ch El (ft)          * 430.16 * Shear (lb/sq ft)   *          * 0.36 *
0.03 *
* Alpha                   * 1.01 * Stream Power (lb/ft s) * 514.38 * 0.00 *
0.00 *
* Frctn Loss (ft)         * 0.31 * Cum Volume (acre-ft) *          * 0.11 *
0.00 *
* C & E Loss (ft)         * 0.01 * Cum SA (acres)     *          * 0.12 *
0.01 *
*****
*****

```

Exist_Condn_100yr.rep

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 OUTPUT Profile #1.5 X Q-100yr

```
*****
* E.G. Elev (ft)      * 432.86 * Element      * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.56 * Wt. n-Val.   *      * 0.020 *
0.020 *
* W.S. Elev (ft)      * 432.30 * Reach Len. (ft) * 49.83 * 50.00 *
50.53 *
* Crit W.S. (ft)      * 432.30 * Flow Area (sq ft) *      * 25.87 *
0.80 *
* E.G. Slope (ft/ft)  * 0.005483 * Area (sq ft)     *      * 25.87 *
0.80 *
* Q Total (cfs)       * 157.50 * Flow (cfs)       *      * 155.83 *
1.67 *
* Top Width (ft)      * 25.58 * Top Width (ft)   *      * 22.21 *
3.37 *
* Vel Total (ft/s)    * 5.91 * Avg. Vel. (ft/s) *      * 6.02 *
2.09 *
* Max Chl Dpth (ft)   * 2.14 * Hydr. Depth (ft) *      * 1.16 *
0.24 *
* Conv. Total (cfs)   * 2127.0 * Conv. (cfs)      *      * 2104.4 *
22.6 *
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft) *      * 22.59 *
3.40 *
* Min Ch El (ft)      * 430.16 * Shear (lb/sq ft) *      * 0.39 *
0.08 *
* Alpha               * 1.03 * Stream Power (lb/ft s) * 514.38 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.29 * Cum Volume (acre-ft) * 0.00 * 0.15 *
0.01 *
* C & E Loss (ft)     * 0.01 * Cum SA (acres)    * 0.00 * 0.14 *
0.02 *
*****
*****
```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

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

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

CROSS SECTION

Exist_Condn_100yr.rep

RIVER: Cl_Creek_Prop
 REACH: Cl_Creek_Prop

RS: 200

INPUT

Description:

Station Elevation Data

num= 121

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4342.340027	433.884.200012	433.85.110046	433.785.960022	433.79				
6.860046	433.827.960022	433.89 9.51001	43420.63004	434.3921.02002	434.4				
22.10004	434.4129.30002	434.5133.39001	434.6143.50003	434.6846.03003	434.7				
47.92001	434.7550.35004	434.7953.85004	434.8656.41003	434.9160.67001	435.02				
68.16003	435.1871.07001	435.2374.78003	435.2878.10004	435.3682.15002	435.39				
96.98001	435.53 102.96	435.57 106.13	435.59 118.41	435.63 127.91	435.6				
128.6	435.59 136.62	435.61 137.45	435.6 147.28	435.58 151.74	435.56				
159.19	435.58 160.04	435.58 170.25	435.61 172.33	435.63 176.28	435.62				
177.44	435.63 178.45	435.62 180.99	435.59 183.25	435.57 206.09	435.21				
206.16	435.21 206.25	435.21 206.5	435.21 206.64	435.21 206.77	435.21				
207.07	435.21 207.69	435.2 230.28	434.99 232.1	434.96 234.07	434.95				
235.94	434.91 237.58	434.91 240.19	434.91 241.54	434.91 243.31	434.89				
245.87	434.83 249.64	434.73 263.89	434.31 264.85	434.29 267.19	434.23				
274.24	434 294.09	433.1 300.28	432.74 310.01	432.15 310.55	432.12				
312.46	432 320.13	430.42 321.75	430.08 322.11	430 329.35	428.88				
335.75	428 336.23	427.9 337.27	427.77 338.12	427.71 338.69	427.7				
338.73	427.7 339.42	427.72 341	427.8 342.55	427.9 343.55	428				
353.41	429.77 354.48	429.97 354.66	430 354.7	430.01 354.73	430.02				
354.74	430.02 354.75	430.02 354.76	430.02 355.1	430.11 362.72	432				
364.25	432.52 366.03	433.15 368.39	434 370.02	434.16 396.32	436				
403.2	436.56 407.8	437.03 411.92	437.41 417.62	438 433.59	439.6				
434.13	439.65 438.16	440 451.33	441.24 458.45	442 467.38	443.02				
476.99	444 479.33	444.17 484.29	444.51 493.12	445.18 498.76	445.57				
502.37	445.85 503.85	445.97 504.7	445.75 504.76	445.74 505.12	445.75				
518.96	446.29								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	321.75	.02	353.41	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	321.75	353.41		51.69	50	50.23	.1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 429.63	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.44	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 429.19	* Reach Len. (ft)	* 51.69	* 50.00	*
50.23 *					
* Crit W.S. (ft)	* 429.19	* Flow Area (sq ft)	*	* 19.70	*
* E.G. Slope (ft/ft)	* 0.006330	* Area (sq ft)	*	* 19.70	*
* Q Total (cfs)	* 105.00	* Flow (cfs)	*	* 105.00	*
* Top Width (ft)	* 22.78	* Top Width (ft)	*	* 22.78	*
* Vel Total (ft/s)	* 5.33	* Avg. Vel. (ft/s)	*	* 5.33	*
* Max Chl Dpth (ft)	* 1.49	* Hydr. Depth (ft)	*	* 0.86	*

Exist_Condn_100yr.rep					
* Conv. Total (cfs)	* 1319.7	* Conv. (cfs)	*	* 1319.7	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 23.00	*
* Min Ch El (ft)	* 427.70	* Shear (lb/sq ft)	*	* 0.34	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 518.96	* 0.00	*
0.00					
* Frctn Loss (ft)	* 0.31	* Cum Volume (acre-ft)	*	* 0.09	*
0.00					
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 0.10	*
0.01					

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	* 430.01	* Element	* Left OB	* Channel	*
Right OB					
* Vel Head (ft)	* 0.52	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 429.49	* Reach Len. (ft)	* 51.69	* 50.00	*
50.23					
* Crit W.S. (ft)	* 429.49	* Flow Area (sq ft)	*	* 27.11	*
* E.G. Slope (ft/ft)	* 0.005982	* Area (sq ft)	*	* 27.11	*
* Q Total (cfs)	* 157.50	* Flow (cfs)	*	* 157.50	*
* Top Width (ft)	* 26.41	* Top Width (ft)	*	* 26.41	*
* Vel Total (ft/s)	* 5.81	* Avg. Vel. (ft/s)	*	* 5.81	*
* Max Chl Dpth (ft)	* 1.79	* Hydr. Depth (ft)	*	* 1.03	*
* Conv. Total (cfs)	* 2036.3	* Conv. (cfs)	*	* 2036.3	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 26.68	*
* Min Ch El (ft)	* 427.70	* Shear (lb/sq ft)	*	* 0.38	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 518.96	* 0.00	*
0.00					
* Frctn Loss (ft)	* 0.30	* Cum Volume (acre-ft)	* 0.00	* 0.12	*
0.01					
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 0.00	* 0.11	*
0.02					

Exist_Condn_100yr.rep

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: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 150

INPUT

Description:

Station	Elevation	Data	num=	143	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4348.119995	432.07	9.51001	432.04	11	432.09	12.51001	432.18			
16.72	432.51	18.22	432.57	27.07001	432.57	31.57001	432.33	32.34	432.29		
32.63	432.28	32.76999	432.28	32.89999	432.28	33.04001	432.28	33.20999	432.29		
34.17001	432.36	34.23001	432.36	34.42001	432.37	35.92001	432.39	50.35001	432.49		
52.28	432.5	57.5	432.56	61.89001	432.62	66.98001	432.69	93.31	433.33		
97.5	433.41	102.45	433.49	104.14	433.52	104.63	433.52	106.77	433.5		
111.66	433.55	114.87	433.52	119.3	433.54	122.78	433.5	128.36	433.5		
129.97	433.49	143.03	433.29	144.14	433.27	147.72	433.2	150.45	433.14		
151.3	433.13	152.07	433.12	153.02	433.11	157.3	433.1	173.85	432.98		
177.64	432.99	179.71	433.01	185.57	433.05	191.75	433.09	195.2	433.1		
200.17	433.14	203.19	433.13	205.97	433.16	211.66	433.11	212.95	433.13		
214.28	433.12	215.96	433.13	221.09	433.15	226.83	433.24	229.73	433.24		
232.37	433.27	262.73	433.13	263.34	433.13	264.57	433.11	266.12	433.1		
266.47	433.1	266.74	433.1	267.21	433.1	267.43	433.1	267.65	433.1		
293.6	432.63	296.5	432.56	297.71	432.53	300.74	432.47	303.75	432.42		
306.47	432.4	308.81	432.4	310.79	432.41	313.89	432.46	315.27	432.45		
316.77	432.4	320.64	432.21	325.12	432	330.77	430.82	334.48	430.04		
334.69	430	335.54	429.68	337.91	428.87	340.25	428	340.77	427.88		
342.09	427.4	342.72	427.27	343.5	427.16	344.63	427.05	346.94	426.87		
348.53	426.71	349.11	426.61	349.9	426.5	350.09	426.46	350.28	426.44		
350.35	426.43	350.57	426.42	350.72	426.42	350.89	426.42	351.26	426.44		
351.61	426.46	352.26	426.53	353.86	426.72	354.74	426.83	359.73	427.6		
362.1	428	366.57	428.66	366.94	428.71	374.92	430	381.78	431.15		
391.35	432	403.05	432.71	410.25	433.2	422.35	434	422.5	434.01		
430.72	434.53	431.01	434.54	435.52	434.81	439.36	435.03	441.88	435.15		
443.14	435.2	443.74	435.22	445.09	435.26	448.2	435.32	452.77	435.33		
453.61	435.35	454.32	435.38	462.45	435.77	462.93	435.79	466.46	436		
474.96	436.65	480.55	437.06	487.19	437.57	490.15	437.8	492.27	438		
495.48	438.32	496.99	438.48	501.47	439						

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	334.48	.02	366.57	.02

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
	334.48	366.57	50.7	50	50.4		.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

Exist_Condn_100yr.rep

```

*****
* E.G. Elev (ft)      * 428.42 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.46 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)      * 427.96 * Reach Len. (ft)   * 50.70 * 50.00 *
50.40 *
* Crit W.S. (ft)      * 427.96 * Flow Area (sq ft) *          * 19.32 *
*
* E.G. Slope (ft/ft)   * 0.006265 * Area (sq ft)      *          * 19.32 *
*
* Q Total (cfs)        * 105.00 * Flow (cfs)        *          * 105.00 *
*
* Top Width (ft)       * 21.48 * Top Width (ft)     *          * 21.48 *
*
* Vel Total (ft/s)     * 5.43 * Avg. Vel. (ft/s)   *          * 5.43 *
*
* Max Chl Dpth (ft)    * 1.54 * Hydr. Depth (ft)   *          * 0.90 *
*
* Conv. Total (cfs)    * 1326.6 * Conv. (cfs)        *          * 1326.6 *
*
* Length Wtd. (ft)     * 50.00 * Wetted Per. (ft)   *          * 21.75 *
*
* Min Ch El (ft)       * 426.42 * Shear (lb/sq ft)   *          * 0.35 *
*
* Alpha                * 1.00 * Stream Power (lb/ft s) * 501.47 * 0.00 *
0.00 *
* Frctn Loss (ft)      * 0.31 * Cum Volume (acre-ft) *          * 0.07 *
0.00 *
* C & E Loss (ft)      * 0.00 * Cum SA (acres)      *          * 0.07 *
0.01 *
*****
*****

```

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

Warning: 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft)      * 428.82 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.55 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)      * 428.28 * Reach Len. (ft)   * 50.70 * 50.00 *
50.40 *
* Crit W.S. (ft)      * 428.28 * Flow Area (sq ft) *          * 26.50 *
*
* E.G. Slope (ft/ft)   * 0.005859 * Area (sq ft)      *          * 26.50 *
*
* Q Total (cfs)        * 157.50 * Flow (cfs)        *          * 157.50 *
*
* Top Width (ft)       * 24.46 * Top Width (ft)     *          * 24.46 *
*
* Vel Total (ft/s)     * 5.94 * Avg. Vel. (ft/s)   *          * 5.94 *
*
* Max Chl Dpth (ft)    * 1.86 * Hydr. Depth (ft)   *          * 1.08 *

```

Exist_Condn_100yr.rep

```

*
* Conv. Total (cfs)      * 2057.6 * Conv. (cfs)      *      * 2057.6 *
* Length Wtd. (ft)      * 50.00 * Wetted Per. (ft)  *      * 24.81 *
* Min Ch El (ft)        * 426.42 * Shear (lb/sq ft)  *      * 0.39 *
* Alpha                  * 1.00 * Stream Power (lb/ft s) * 501.47 * 0.00 *
0.00 *
* Frctn Loss (ft)       * 0.29 * Cum Volume (acre-ft) * 0.00 * 0.09 *
0.01 *
* C & E Loss (ft)       * 0.00 * Cum SA (acres)      * 0.00 * 0.08 *
0.02 *
*****
*****

```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: 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: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 100

INPUT

Description:

Station Elevation Data

num= 134

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4306.160004	43010.07999	430.06	11.59	430.09	14.11002	430.1		
22.67001	430.1427.54001	430.17	34.91	430.2442.01999	430.32	45.37	430.36		
46.64001	430.3748.20999	430.3849.98999	430.3851.76001	430.3757.14001	430.34				
59.64001	430.33	75.12	430.6380.92001	430.62	86.62	430.6488.73001	430.69		
96.26001	430.7296.98001	430.7399.61002	430.71	102.64	430.67	109.06	430.53		
115.4	430.52	117.02	430.48	118.35	430.48	119.58	430.49	122.32	430.56
123.79	430.59	125.37	430.6	129.68	430.6	136.71	430.54	140.48	430.58
141.6	430.57	142.69	430.56	146.62	430.52	159.71	430.54	163.21	430.51
165.67	430.51	167.61	430.52	169.11	430.54	171.62	430.58	177.17	430.61
181.33	430.64	187.09	430.7	213.16	431.01	215.32	431.04	216.7	431.06
217.98	431.08	218.21	431.08	219.07	431.09	244.76	431.41	250.98	431.41
256.62	431.44	257.59	431.43	258.48	431.43	259.63	431.41	267.17	431.42
270.67	431.36	272.49	431.35	290.13	431.04	292.84	431.01	296.85	430.93
299.05	430.89	303.9	430.8	306.68	430.76	308.93	430.74	309.48	430.78
338.08	430.08	340.56	430.01	340.91	430	341.29	429.81	344.68	428
348.01	426.44	349.54	426	352.87	426	353.94	426	356.17	426
357.36	426	366.88	427.44	370.37	428	370.61	428.01	371.35	428.06
373.42	428.14	376.28	428.28	377.76	428.34	378.79	428.39	379.13	428.38
379.49	428.31	380.25	428.34	381.71	428.41	385.66	428.62	408.47	429.89
408.9	429.92	409.06	429.93	409.19	429.94	409.27	429.94	409.36	429.95
409.39	429.95	409.5	429.96	409.58	429.96	409.75	429.97	410.44	430
412.55	430.17	412.67	430.18	412.84	430.19	416.15	430.47	417.35	430.49
418.63	430.61	420.22	430.76	424.01	431.06	424.95	431.12	425.71	431.15
426.5	431.18	427.51	431.19	428.05	431.19	428.6	431.18	430.53	431.13
431.77	431.12	434.25	431.13	434.82	431.15	435.41	431.18	435.75	431.18
437.73	431.17	439.88	431.19	442.67	431.22	444.07	431.25	444.63	431.28
454.47	432	459	432.38	459.66	432.44	476.97	434		

Exist_Condn_100yr.rep

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

 0 .02 340.56 .02 370.61 .02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 340.56 370.61 48.38 50 50.42 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

 * E.G. Elev (ft) * 427.81 * Element * Left OB * Channel *
 Right OB *
 * Vel Head (ft) * 0.48 * Wt. n-Val. * 0.020 *
 *
 * W.S. Elev (ft) * 427.34 * Reach Len. (ft) * 48.38 * 50.00 *
 50.42 *
 * Crit W.S. (ft) * 427.34 * Flow Area (sq ft) * 18.92 *
 *
 * E.G. Slope (ft/ft) * 0.006194 * Area (sq ft) * 18.92 *
 *
 * Q Total (cfs) * 105.00 * Flow (cfs) * 105.00 *
 *
 * Top Width (ft) * 20.10 * Top Width (ft) * 20.10 *
 *
 * Vel Total (ft/s) * 5.55 * Avg. Vel. (ft/s) * 5.55 *
 *
 * Max Chl Dpth (ft) * 1.34 * Hydr. Depth (ft) * 0.94 *
 *
 * Conv. Total (cfs) * 1334.1 * Conv. (cfs) * 1334.1 *
 *
 * Length Wtd. (ft) * 50.00 * Wetted Per. (ft) * 20.46 *
 *
 * Min Ch El (ft) * 426.00 * Shear (lb/sq ft) * 0.36 *
 *
 * Alpha * 1.00 * Stream Power (lb/ft s) * 476.97 * 0.00 *
 0.00 *
 * Frctn Loss (ft) * 0.31 * Cum Volume (acre-ft) * 0.04 *
 0.00 *
 * C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.05 *
 0.01 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

 * E.G. Elev (ft) * 428.24 * Element * Left OB * Channel *
 Right OB *
 * Vel Head (ft) * 0.58 * Wt. n-Val. * 0.020 *

Exist_Condn_100yr.rep

```

*
* W.S. Elev (ft)      * 427.66 * Reach Len. (ft)      * 48.38 * 50.00 *
  50.42 *
* Crit W.S. (ft)      * 427.66 * Flow Area (sq ft)      *      * 25.86 *
  *
* E.G. Slope (ft/ft)   * 0.005845 * Area (sq ft)      *      * 25.86 *
  *
* Q Total (cfs)        * 157.50 * Flow (cfs)      *      * 157.50 *
  *
* Top Width (ft)       * 22.84 * Top Width (ft)      *      * 22.84 *
  *
* Vel Total (ft/s)     * 6.09 * Avg. Vel. (ft/s)    *      * 6.09 *
  *
* Max Chl Dpth (ft)    * 1.66 * Hydr. Depth (ft)    *      * 1.13 *
  *
* Conv. Total (cfs)    * 2060.1 * Conv. (cfs)      *      * 2060.1 *
  *
* Length Wtd. (ft)     * 50.00 * Wetted Per. (ft)    *      * 23.30 *
  *
* Min Ch El (ft)       * 426.00 * Shear (lb/sq ft)    *      * 0.41 *
  *
* Alpha                * 1.00 * Stream Power (lb/ft s) * 476.97 * 0.00 *
  0.00 *
* Frctn Loss (ft)      * 0.27 * Cum Volume (acre-ft) * 0.00 * 0.06 *
  0.01 *
* C & E Loss (ft)      * 0.02 * Cum SA (acres)      * 0.00 * 0.05 *
  0.02 *
*****
*****

```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

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

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

CROSS SECTION

RIVER: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 50

INPUT

Description:

```

Station Elevation Data      num=      176
Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev
*****
0      430.282.300049      430.525.920044      430.888.780029      431.139.119995      431.16
9.300049      431.169.390015      431.1611.90002      430.8713.96002      430.5914.15002      430.59
17.77002      43022.91003      428.8426.86002      42829.90002      427.2530.90002      427.08
31.80002      427.0132.35004      427.0635.12003      426.636.57004      426.3736.76001      426.35
36.85004      426.3537.00003      426.3540.06003      426.4740.46002      426.4947.19003      426.8
48.52002      426.8350.36002      426.951.64001      426.9452.49002      426.9653.41003      426.97
57.35004      427.0564.08002      427.1765.91003      427.2179.30002      427.4688.83002      427.66
104.04      428      104.14      428      106.83      428.03      109.33      428.04      112.06      428.02
113.35      428      118.81      427.93      121.98      427.93      124.89      427.99      125      428
128.58      428.09      133.18      428.23      133.67      428.24      134.33      428.24      142.84      428.18

```

Exist_Condn_100yr.rep

153.07	428.11	157.29	428.09	163.22	428.09	164.65	428.08	164.83	428.08
183.94	428.15	184.57	428.14	184.76	428.13	184.9	428.13	185.02	428.14
185.34	428.14	185.53	428.14	190.07	428.17	190.31	428.17	193.77	428.2
194.55	428.2	200.04	428.28	201.39	428.28	202.87	428.27	208.2	428.19
208.71	428.2	219.91	428	222.98	427.93	224.61	427.91	226.01	427.91
227.54	427.94	230.27	428	240.25	428.37	242.87	428.44	245.12	428.47
250.31	428.52	252.39	428.55	254.31	428.59	263.7	428.61	269.77	428.75
272.82	428.81	277.54	428.92	279.28	428.95	287.37	429.16	294.62	429.19
296.4	429.23	296.96	429.24	298.05	429.24	306.28	429.2	318.96	429.22
339.1	429.03	339.3	429.03	339.51	429.02	339.74	429.02	340.31	429.01
340.77	429.01	367.05	428.78	372.54	428.69	380.17	428.6	381.98	428.57
384.69	428.53	385.87	428.51	386.93	428.51	387.77	428.52	388.44	428.54
389.96	428.6	390.23	428.62	391.62	428.71	395.24	428.95	400.11	428.87
401.82	429.03	403.48	429	407.06	429.35	407.72	429.35	408.26	429.36
408.64	429.36	409.36	429.34	410.24	429.44	411.32	429.38	412.12	429.45
413.51	429.32	414.24	429.33	416.47	428.91	417.04	428.86	417.34	428.75
419.54	428	425.01	426.25	425.65	426	430.43	425.01	431.75	424.7
432.29	424.57	432.84	424.55	433.22	424.54	433.51	424.56	433.55	424.57
433.73	424.59	435.69	424.78	447.65	425.92	448.54	426	459.11	426.74
460.36	426.81	463.03	426.95	464.22	427.02	466.04	427.14	467.13	427.23
468.23	427.34	471.17	427.68	473.62	427.94	474.27	428	486.44	428.69
487.3	428.72	489.59	428.76	490.56	428.76	491.73	428.75	493.27	428.75
495.25	428.8	498.35	428.9	500	428.96	501.76	429.05	506.4	429.29
508.35	429.37	511.54	429.54	511.83	429.55	513.2	429.51	513.86	429.5
514.42	429.5	516.38	429.63	521.54	429.93	522.48	430	528.92	430.91
531.65	431.26								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	417.34	.02	447.65	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	417.34	447.65		51.51	50	50.01	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 426.56	* Element	* Left OB	* Channel	*				
Right OB	*								
* Vel Head (ft)	* 0.44	* Wt. n-Val.	*	* 0.020	*				
0.020	*								
* W.S. Elev (ft)	* 426.12	* Reach Len. (ft)	* 51.51	* 50.00	*				
50.01	*								
* Crit W.S. (ft)	* 426.12	* Flow Area (sq ft)	*	* 19.75	*				
0.25	*								
* E.G. Slope (ft/ft)	* 0.006081	* Area (sq ft)	*	* 19.75	*				
0.25	*								
* Q Total (cfs)	* 105.00	* Flow (cfs)	*	* 104.70	*				
0.30	*								
* Top Width (ft)	* 24.94	* Top Width (ft)	*	* 22.31	*				
2.63	*								
* Vel Total (ft/s)	* 5.25	* Avg. Vel. (ft/s)	*	* 5.30	*				
1.20	*								
* Max Chl Dpth (ft)	* 1.58	* Hydr. Depth (ft)	*	* 0.89	*				
0.10	*								
* Conv. Total (cfs)	* 1346.5	* Conv. (cfs)	*	* 1342.7	*				
3.9	*								
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 22.55	*				
2.64	*								
* Min Ch El (ft)	* 424.54	* Shear (lb/sq ft)	*	* 0.33	*				
0.04	*								
* Alpha	* 1.02	* Stream Power (lb/ft s)	* 531.65	* 0.00	*				

Exist_Condn_100yr.rep

```

0.00 *
* Frctn Loss (ft) * 0.28 * Cum Volume (acre-ft) * 0.02 *
0.00 *
* C & E Loss (ft) * 0.02 * Cum SA (acres) * 0.03 *
0.01 *
*****
*****

```

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft) * 426.93 * Element * Left OB * Channel *
Right OB *
* Vel Head (ft) * 0.50 * Wt. n-Val. * 0.020 * 0.020 *
0.020 *
* W.S. Elev (ft) * 426.44 * Reach Len. (ft) * 51.51 * 50.00 *
50.01 *
* Crit W.S. (ft) * 426.44 * Flow Area (sq ft) * 0.14 * 26.87 *
1.77 *
* E.G. Slope (ft/ft) * 0.004965 * Area (sq ft) * 0.14 * 26.87 *
1.77 *
* Q Total (cfs) * 157.50 * Flow (cfs) * 0.09 * 153.73 *
3.68 *
* Top Width (ft) * 33.33 * Top Width (ft) * 3.01 * 23.22 *
7.10 *
* Vel Total (ft/s) * 5.47 * Avg. Vel. (ft/s) * 0.68 * 5.72 *
2.07 *
* Max Chl Dpth (ft) * 1.90 * Hydr. Depth (ft) * 0.05 * 1.16 *
0.25 *
* Conv. Total (cfs) * 2235.2 * Conv. (cfs) * 1.3 * 2181.7 *
52.2 *
* Length Wtd. (ft) * 50.00 * Wetted Per. (ft) * 3.02 * 23.51 *
7.12 *
* Min Ch El (ft) * 424.54 * Shear (lb/sq ft) * 0.01 * 0.35 *
0.08 *
* Alpha * 1.07 * Stream Power (lb/ft s) * 531.65 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.24 * Cum Volume (acre-ft) * 0.00 * 0.03 *
0.00 *
* C & E Loss (ft) * 0.02 * Cum SA (acres) * 0.00 * 0.03 *
0.01 *
*****
*****

```

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

Warning: Divided flow computed for this cross-section.

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

Exist_Condn_100yr.rep

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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 0

INPUT

Description:

Station Elevation Data		num= 175		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4251.840027	424.473.340027	424	5.77002	423.867.410034	423.78							
7.890015	423.778.299988	423.7811.14001	424	23.59003	424.34	28.56	424.47						
30.77002	424.52	31.69	424.54	32.25	424.54	32.81	424.5433.70001	424.53					
35.12003	424.536.52002	424.538.40002	424.5440.36002	424.5942.09003	424.65								
43.43002	424.71	45.28	424.845.58002	424.8	46	424.8148.87003	424.81						
50.81	424.8173.09003	425.2678.07001	425.2979.52002	425.380.89001	425.32								
82.08002	425.34	105.06	425.46	107.2	425.5	108.04	425.51	108.85	425.52				
110.63	425.51	111.53	425.51	115.23	425.53	117.03	425.55	117.77	425.56				
127.46	425.64	132.65	425.76	134.27	425.78	139.72	425.84	155.84	425.96				
163.34	426	163.37	426	163.38	426	165.75	426	165.76	426				
165.77	426	171.16	425.96	171.38	425.96	186.39	425.82	187.51	425.82				
194.7	425.77	197.27	425.76	199.34	425.77	201.36	425.81	203.71	425.89				
206.65	426	212.2	426.15	214.33	426.2	216.79	426.24	229.6	426.4				
230.29	426.41	235.13	426.45	237.06	426.47	243.05	426.5	256.78	426.6				
258.99	426.63	260.19	426.64	264.68	426.67	265.84	426.68	266.74	426.7				
267.5	426.71	268.22	426.71	269.8	426.7	275.25	426.7	278.6	426.7				
288.12	426.97	289.41	426.96	290.64	426.95	292	426.94	299.82	426.8				
308.16	426.75	312.26	426.68	314.18	426.66	317.12	426.65	322.93	426.6				
323.92	426.61	324.8	426.63	326.45	426.62	329.12	426.68	330.99	426.71				
333.09	426.74	335.4	426.74	340.13	426.73	357.2	426.44	358.58	426.44				
358.84	426.44	359.04	426.44	359.53	426.43	359.92	426.42	360.46	426.42				
361.15	426.42	363.63	426.43	365.7	426.43	365.79	426.42	366.07	426.42				
377.26	426.28	394.6	426.19	396.98	426.12	397.67	426.11	399.07	426.07				
400.08	426.06	401.72	426.06	402.65	426.08	404.94	426.13	405.98	426.13				
406.87	426.08	407.71	426	410.18	425.67	417.75	424.78	424.42	424				
429.73	422.56	430.15	422.45	430.47	422.39	430.98	422.31	431.42	422.25				
431.62	422.23	432.04	422.2	432.22	422.18	432.43	422.14	432.53	422.13				
432.66	422.13	432.85	422.14	432.86	422.14	433.45	422.18	435.16	422.27				
442.75	422.79	448.35	423.07	467.54	424	473.7	424.53	474.86	424.6				
476.42	424.65	480.86	424.76	487.38	425.15	490.47	425.2	491.85	425.29				
492.63	425.34	493.16	425.36	493.71	425.39	494.25	425.39	494.74	425.4				
495.33	425.39	496.09	425.4	497.15	425.35	498.08	425.34	500.18	425.32				
501.35	425.32	501.74	425.33	503.36	425.41	505.42	425.49	509.39	425.62				
510.43	425.66	511.11	425.71	512.33	425.83	514.8	425.99	514.97	426				
519.27	426.62	530.29	428	533.98	429.27	535.81	430	536.95	430.33				

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.02	417.75	.02
		448.35	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	417.75	448.35		0	0	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

Exist_Condn_100yr.rep

```

*****
* E.G. Elev (ft)      * 423.92 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.38 * Wt. n-Val.       *      * 0.020 *
0.020 *
* W.S. Elev (ft)     * 423.55 * Reach Len. (ft)  *      *      *
*      *
* Crit W.S. (ft)     * 423.55 * Flow Area (sq ft) *      * 19.95 *
2.34 *
* E.G. Slope (ft/ft) * 0.005340 * Area (sq ft)     *      * 19.95 *
2.34 *
* Q Total (cfs)      * 105.00 * Flow (cfs)       *      * 100.14 *
4.87 *
* Top Width (ft)     * 32.07 * Top Width (ft)   *      * 22.26 *
9.82 *
* Vel Total (ft/s)   * 4.71 * Avg. Vel. (ft/s) *      * 5.02 *
2.08 *
* Max Chl Dpth (ft)  * 1.42 * Hydr. Depth (ft) *      * 0.90 *
0.24 *
* Conv. Total (cfs)  * 1436.8 * Conv. (cfs)      *      * 1370.3 *
66.6 *
* Length Wtd. (ft)   *      * Wetted Per. (ft) *      * 22.45 *
9.83 *
* Min Ch El (ft)     * 422.13 * Shear (lb/sq ft) *      * 0.30 *
0.08 *
* Alpha              * 1.09 * Stream Power (lb/ft s) * 536.95 * 0.00 *
0.00 *
* Frctn Loss (ft)    *      * Cum Volume (acre-ft) *      *      *
*      *
* C & E Loss (ft)    *      * Cum SA (acres)     *      *      *
*      *

```


Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal depth is below critical depth).
Water surface set to critical depth.

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```

*****
* E.G. Elev (ft)      * 424.24 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.43 * Wt. n-Val.       * 0.020 * 0.020 *
0.020 *
* W.S. Elev (ft)     * 423.81 * Reach Len. (ft)  *      *      *
*      *
* Crit W.S. (ft)     * 423.81 * Flow Area (sq ft) * 0.05 * 26.02 *
5.69 *
* E.G. Slope (ft/ft) * 0.004735 * Area (sq ft)     * 0.05 * 26.02 *
5.69 *
* Q Total (cfs)      * 157.50 * Flow (cfs)       * 0.02 * 142.47 *
15.01 *
* Top Width (ft)     * 40.53 * Top Width (ft)   * 1.97 * 23.24 *
15.32 *
* Vel Total (ft/s)   * 4.96 * Avg. Vel. (ft/s) * 0.45 * 5.48 *
2.64 *
* Max Chl Dpth (ft)  * 1.68 * Hydr. Depth (ft) * 0.03 * 1.12 *
0.37 *
* Conv. Total (cfs)  * 2289.0 * Conv. (cfs)      * 0.3 * 2070.5 *
218.1 *
* Length Wtd. (ft)   *      * Wetted Per. (ft) * 1.98 * 23.47 *
15.34 *

```

	Exist_Condn_100yr.rep			
* Min Ch El (ft)	* 422.13	* Shear (lb/sq ft)	* 0.01	* 0.33
0.11 *				
* Alpha	* 1.13	* Stream Power (lb/ft s)	* 536.95	* 0.00
0.00 *				
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	*	*
*				
* C & E Loss (ft)	*	* Cum SA (acres)	*	*
*				

Warning: Divided flow computed for this cross-section.
Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal depth is below critical depth).
Water surface set to critical depth.

SUMMARY OF REACH LENGTHS

River: Cl_Creek_Prop

* Reach	* River Sta.	* Left	* Channel	* Right
*****	*****	*****	*****	*****
*Cl_Creek_Prop	* 1100.00	* 51.79*	50*	43.58*
*Cl_Creek_Prop	* 1050	* 50.18*	50*	49.43*
*Cl_Creek_Prop	* 1000	* 48.69*	50*	48.85*
*Cl_Creek_Prop	* 950	* 49.87*	50*	49.98*
*Cl_Creek_Prop	* 900	* 51.65*	50*	49.46*
*Cl_Creek_Prop	* 850	* 48.06*	50*	50.3*
*Cl_Creek_Prop	* 800	* 50.11*	50*	49.99*
*Cl_Creek_Prop	* 750	* 50.12*	50*	50.04*
*Cl_Creek_Prop	* 700	* 49.58*	50*	52.14*
*Cl_Creek_Prop	* 650	* 49.04*	50*	50.64*
*Cl_Creek_Prop	* 600	* 49.43*	50*	49.19*
*Cl_Creek_Prop	* 550	* 49.94*	50*	50*
*Cl_Creek_Prop	* 500	* 49.72*	50*	49.15*
*Cl_Creek_Prop	* 450	* 50.28*	50*	48.87*
*Cl_Creek_Prop	* 400	* 49.39*	50*	49.1*
*Cl_Creek_Prop	* 350	* 49.76*	50*	51.18*
*Cl_Creek_Prop	* 300	* 49.5*	50*	49.57*
*Cl_Creek_Prop	* 250	* 49.83*	50*	50.53*
*Cl_Creek_Prop	* 200	* 51.69*	50*	50.23*
*Cl_Creek_Prop	* 150	* 50.7*	50*	50.4*
*Cl_Creek_Prop	* 100	* 48.38*	50*	50.42*
*Cl_Creek_Prop	* 50	* 51.51*	50*	50.01*
*Cl_Creek_Prop	* 0	* 0*	0*	0*

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Cl_Creek_Prop

* Reach	* River Sta.	* Contr.	* Expan.
*****	*****	*****	*****
*Cl_Creek_Prop	* 1100.00	* .1*	.3*
*Cl_Creek_Prop	* 1050	* .1*	.3*
*Cl_Creek_Prop	* 1000	* .1*	.3*
*Cl_Creek_Prop	* 950	* .1*	.3*
*Cl_Creek_Prop	* 900	* .1*	.3*
*Cl_Creek_Prop	* 850	* .1*	.3*

			Exist_Condn_100yr.rep	
*Cl_Creek_Prop	*	800	* .1*	.3*
*Cl_Creek_Prop	*	750	* .1*	.3*
*Cl_Creek_Prop	*	700	* .1*	.3*
*Cl_Creek_Prop	*	650	* .1*	.3*
*Cl_Creek_Prop	*	600	* .1*	.3*
*Cl_Creek_Prop	*	550	* .1*	.3*
*Cl_Creek_Prop	*	500	* .1*	.3*
*Cl_Creek_Prop	*	450	* .1*	.3*
*Cl_Creek_Prop	*	400	* .1*	.3*
*Cl_Creek_Prop	*	350	* .1*	.3*
*Cl_Creek_Prop	*	300	* .1*	.3*
*Cl_Creek_Prop	*	250	* .1*	.3*
*Cl_Creek_Prop	*	200	* .1*	.3*
*Cl_Creek_Prop	*	150	* .1*	.3*
*Cl_Creek_Prop	*	100	* .1*	.3*
*Cl_Creek_Prop	*	50	* .1*	.3*
*Cl_Creek_Prop	*	0	* .1*	.3*

**HEC-RAS RESULTS
PROPOSED CONDITION**

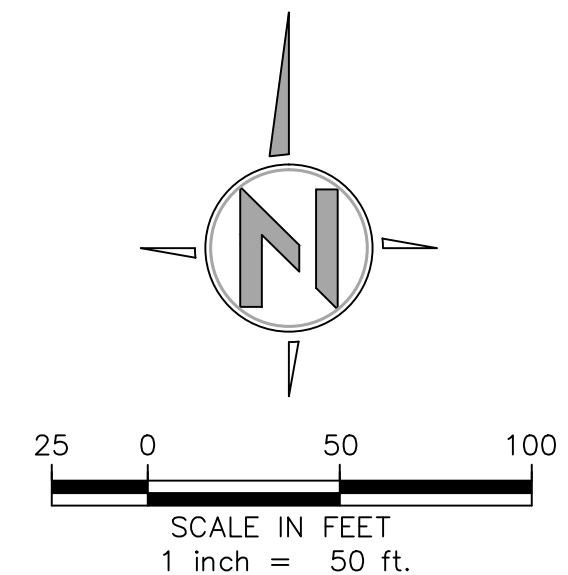
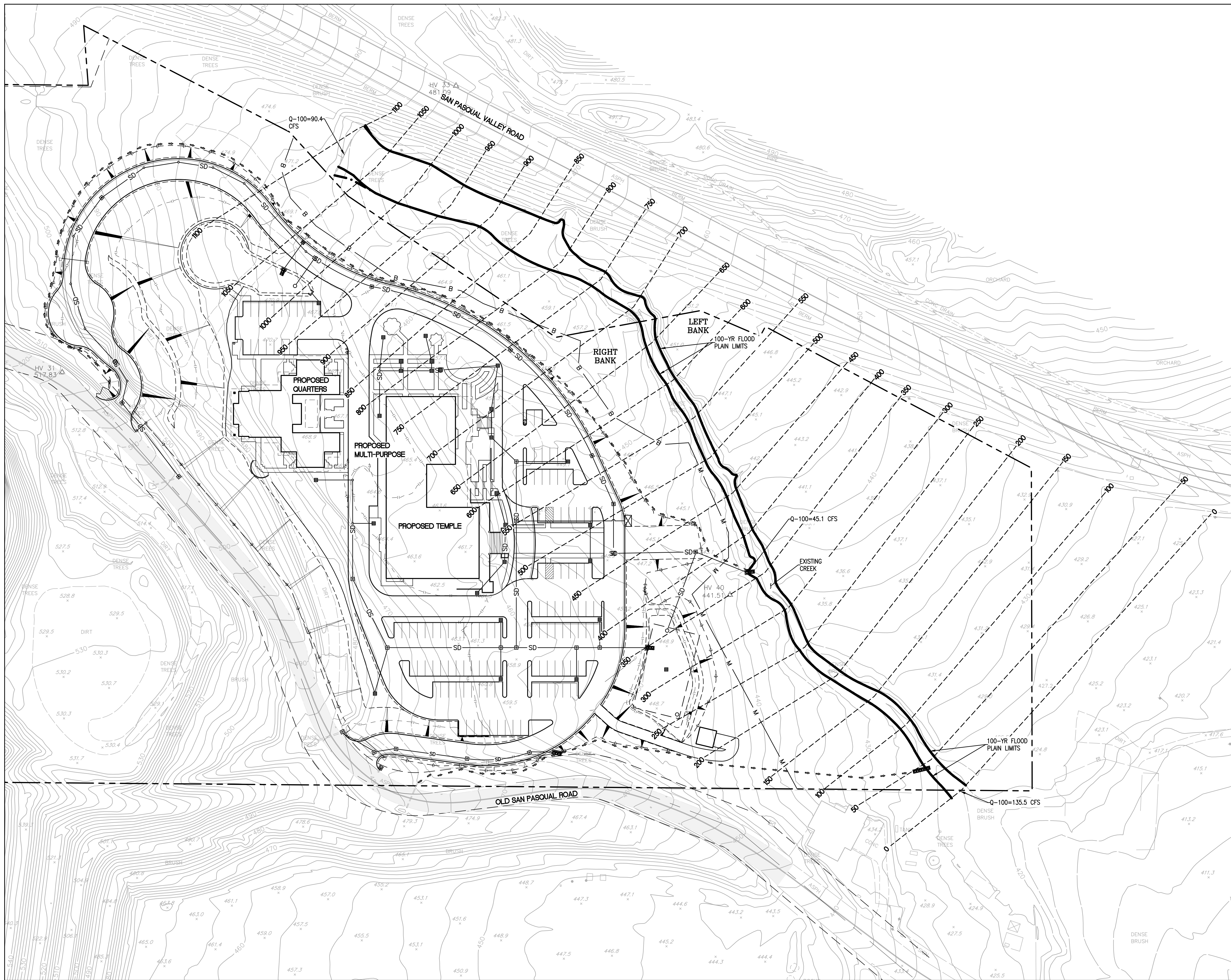


EXHIBIT 2
CREEK CROSS SECTIONS
PROPOSED CONDITION

HEC-RAS Plan: Plan 01 River: Cl_Creek_Prop Reach: Cl_Creek_Prop

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Cl_Creek_Prop	1100.00	Q-100yr	90.40	466.31	467.66	467.66	468.05	0.006628	5.03	17.98	23.51	1.01
Cl_Creek_Prop	1100.00	1.5 X Q-100yr	135.60	466.31	467.92	467.92	468.40	0.006086	5.57	24.39	26.48	1.01
Cl_Creek_Prop	1050	Q-100yr	90.40	462.93	463.76	463.76	464.03	0.005879	4.28	22.55	79.69	0.93
Cl_Creek_Prop	1050	1.5 X Q-100yr	135.60	462.93	463.94	463.94	464.27	0.005209	4.76	31.28	86.85	0.92
Cl_Creek_Prop	1000	Q-100yr	90.40	459.71	460.58	460.58	460.84	0.006057	4.18	23.61	53.51	0.94
Cl_Creek_Prop	1000	1.5 X Q-100yr	135.60	459.71	460.76	460.76	461.04	0.005107	4.54	33.66	59.23	0.90
Cl_Creek_Prop	950	Q-100yr	90.40	457.62	458.33	458.33	458.59	0.007193	4.21	22.14	42.76	1.00
Cl_Creek_Prop	950	1.5 X Q-100yr	135.60	457.62	458.49	458.49	458.82	0.006692	4.76	29.46	45.90	1.01
Cl_Creek_Prop	900	Q-100yr	90.40	456.44	457.47	457.47	457.80	0.006838	4.61	19.62	29.99	1.00
Cl_Creek_Prop	900	1.5 X Q-100yr	135.60	456.44	457.69	457.69	458.09	0.006375	5.06	26.93	35.54	1.00
Cl_Creek_Prop	850	Q-100yr	90.40	454.96	455.84	455.84	456.11	0.006340	4.28	22.61	45.14	0.96
Cl_Creek_Prop	850	1.5 X Q-100yr	135.60	454.96	456.02	456.02	456.34	0.005495	4.73	31.33	50.09	0.93
Cl_Creek_Prop	800	Q-100yr	90.40	453.49	454.54	454.54	454.89	0.006665	4.75	19.02	27.28	1.00
Cl_Creek_Prop	800	1.5 X Q-100yr	135.60	453.49	454.78	454.78	455.20	0.006303	5.22	25.96	30.99	1.01
Cl_Creek_Prop	750	Q-100yr	90.40	449.77	451.42	451.42	451.87	0.006298	5.41	16.71	18.71	1.01
Cl_Creek_Prop	750	1.5 X Q-100yr	135.60	449.77	451.73	451.73	452.27	0.005966	5.93	22.87	21.38	1.01
Cl_Creek_Prop	700	Q-100yr	90.40	444.90	446.54	446.54	447.02	0.006355	5.59	16.16	17.11	1.01
Cl_Creek_Prop	700	1.5 X Q-100yr	135.60	444.90	446.85	446.85	447.46	0.005927	6.25	21.71	18.36	1.01
Cl_Creek_Prop	650	Q-100yr	90.40	444.00	445.71	445.71	446.30	0.006103	6.17	14.64	12.57	1.01
Cl_Creek_Prop	650	1.5 X Q-100yr	135.60	444.00	446.11	446.11	446.82	0.005772	6.77	20.03	14.27	1.01
Cl_Creek_Prop	600	Q-100yr	90.40	441.01	443.65	443.65	444.36	0.006606	6.78	13.34	9.49	1.01
Cl_Creek_Prop	600	1.5 X Q-100yr	135.60	441.01	444.14	444.14	444.98	0.006300	7.35	18.44	11.23	1.01
Cl_Creek_Prop	550	Q-100yr	90.40	438.00	439.97	439.97	440.62	0.006094	6.46	14.00	10.98	1.01
Cl_Creek_Prop	550	1.5 X Q-100yr	135.60	438.00	440.41	440.41	441.18	0.005810	7.04	19.25	12.73	1.01
Cl_Creek_Prop	500	Q-100yr	90.40	438.00	439.50	439.50	440.10	0.006174	6.17	14.65	12.56	1.01
Cl_Creek_Prop	500	1.5 X Q-100yr	135.60	438.00	439.90	439.90	440.62	0.005833	6.79	19.96	14.07	1.01
Cl_Creek_Prop	450	Q-100yr	90.40	436.00	438.15	438.15	438.77	0.006142	6.37	14.20	11.50	1.01
Cl_Creek_Prop	450	1.5 X Q-100yr	135.60	436.00	438.58	438.58	439.32	0.005825	6.90	19.66	13.56	1.01
Cl_Creek_Prop	400	Q-100yr	90.40	434.05	436.06	436.06	436.58	0.006264	5.81	15.55	15.28	1.02
Cl_Creek_Prop	400	1.5 X Q-100yr	135.60	434.05	436.41	436.41	437.04	0.005876	6.34	21.40	17.59	1.01
Cl_Creek_Prop	350	Q-100yr	135.50	434.00	435.36	435.36	435.90	0.005951	5.89	23.01	21.71	1.01
Cl_Creek_Prop	350	1.5 X Q-100yr	203.25	434.00	435.71	435.71	436.38	0.005471	6.56	31.07	24.15	1.00
Cl_Creek_Prop	300	Q-100yr	135.50	432.00	434.52	434.52	435.02	0.006380	5.71	23.76	24.87	1.02
Cl_Creek_Prop	300	1.5 X Q-100yr	203.25	432.00	434.88	434.88	435.45	0.005621	6.08	33.75	30.73	0.99
Cl_Creek_Prop	250	Q-100yr	135.50	430.16	432.18	432.18	432.70	0.005598	5.80	23.69	23.98	0.98
Cl_Creek_Prop	250	1.5 X Q-100yr	203.25	430.16	432.55	432.55	433.15	0.005045	6.30	33.35	29.11	0.96
Cl_Creek_Prop	200	Q-100yr	135.50	427.70	429.37	429.37	429.86	0.006111	5.63	24.08	24.99	1.01
Cl_Creek_Prop	200	1.5 X Q-100yr	203.25	427.70	429.71	429.71	430.29	0.005757	6.12	33.21	29.06	1.01
Cl_Creek_Prop	150	Q-100yr	135.50	426.42	428.16	428.16	428.67	0.005968	5.74	23.62	23.32	1.00
Cl_Creek_Prop	150	1.5 X Q-100yr	203.25	426.42	428.50	428.50	429.12	0.005667	6.30	32.27	26.60	1.01
Cl_Creek_Prop	100	Q-100yr	135.50	426.00	427.54	427.54	428.07	0.005903	5.86	23.13	21.82	1.00
Cl_Creek_Prop	100	1.5 X Q-100yr	203.25	426.00	427.90	427.90	428.54	0.005637	6.45	31.52	24.83	1.01
Cl_Creek_Prop	50	Q-100yr	135.50	424.54	426.30	426.30	426.79	0.005460	5.61	24.81	28.04	0.97
Cl_Creek_Prop	50	1.5 X Q-100yr	203.25	424.54	426.68	426.68	427.18	0.004144	5.83	38.48	44.68	0.88
Cl_Creek_Prop	0	Q-100yr	135.50	422.13	423.70	423.70	424.12	0.005023	5.33	27.65	35.91	0.93
Cl_Creek_Prop	0	1.5 X Q-100yr	203.25	422.13	424.04	424.04	424.46	0.004012	5.54	42.21	53.07	0.86

Prop_Condn_100yr.rep

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps 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
XXXXXXXX XXXX      X      XXX XXXX      XXXXXX      XXXX
X      X  X          X      X      X      X      X
X      X  X          X      X      X      X      X
X      X  XXXXXX      XXXX      X      X      X      XXXXX

```

PROJECT DATA

Project Title: Prop_Condn_100yr
Project File : Prop_Condn_100yr.prj
Run Date and Time: 6/23/2017 4:33:01 PM

Project in English units

Project Description:
Proposed Condition Analysis

PLAN DATA

Plan Title: Plan 01
Plan File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Prop_condition\Prop_Condn_100yr.p01

Geometry Title: 100_Peak
Geometry File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Prop_condition\Prop_Condn_100yr.g01

Flow Title : Peak Data
Flow File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Prop_condition\Prop_Condn_100yr.f01

Plan Summary Information:

Number of:	Cross Sections =	23	Multiple Openings =	0
	Culverts =	0	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

Prop_Condn_100yr.rep

FLOW DATA

Flow Title: Peak Data
Flow File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Prop_condition\Prop_Condn_100yr.f01

Flow Data (cfs)

```
*****
* River      Reach      RS      *      Q-100yr      1.5 X Q-100yr *
* Cl_Creek_Prop Cl_Creek_Prop 1100.00 *      90.4      135.6 *
* Cl_Creek_Prop Cl_Creek_Prop 350      *      135.5      203.25 *
*****
```

Boundary Conditions

```
*****
* River      Reach      Profile      *      Upstream
* Downstream *
*****
* Cl_Creek_Prop Cl_Creek_Prop Q-100yr      *
Normal S = 0.036 *
* Cl_Creek_Prop Cl_Creek_Prop 1.5 X Q-100yr *
Normal S = 0.036 *
*****
*****
```

GEOMETRY DATA

Geometry Title: 100_Peak
Geometry File : C:\Users\mgc\Documents\HEC Data\HEC-RAS\SVBF
Temple\Prop_condition\Prop_Condn_100yr.g01

CROSS SECTION

RIVER: Cl_Creek_Prop
REACH: Cl_Creek_Prop RS: 1100.00

INPUT

Description:

Station Elevation Data		num=	113	Station Elevation Data		num=	113
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	478.92	759995	478.52	0004	476.07	709991	476.13
14.45	474.18	48999	472.64	20.45	472.24	39	470.82
29.55	469.26	29.59	469.25	33.97	468.34	02	467.98
34.16	467.95	40.14	466.44	41.19	466.45	92	466.33
42.31	466.31	42.55	466.33	42.94	466.39	62	466.48
48.44	466.69	49.39	466.78	52.3	467.55	34	467.24
59.86	467.86	60.64	467.9	60.97	467.94	31	468.65
66.7	469.35	69.14	470.82	82.34	471.26	48	471.41
90.19	471.63	90.56	471.65	90.89	471.67	19	471.68
94.05	471.71	95.59	471.67	95.97	471.69	96	471.72
98.41	471.66	98.58	471.67	99.02	471.67	31	471.68
128.8	471.05	129.67	471.04	130.01	471.04	61	471.02
134.31	470.98	134.67	470.98	152.24	471.14	91	471.29

Prop_Condn_100yr.rep

168.5	471.67	169.08	471.7	169.36	471.72	169.46	471.72	169.63	471.73
170.22	471.74	170.59	471.75	171.66	471.78	175.05	471.81	175.33	471.82
175.36	471.82	175.39	471.82	176.55	472.41	177.36	472.82	177.46	472.87
177.6	472.94	177.68	472.94	179.22	472.94	179.42	472.74	179.74	472.45
180.62	472.54	181.27	472.61	191.39	472.93	204.51	473.5	204.6	473.6
205.05	474.02	206.35	474.08	206.54	474.09	207.29	474.28	213.1	475.77
216.19	474.48	219.24	473.18	222.07	472.98	223.05	472.94	223.45	472.91
224.84	472.85	226.21	472.76	230.57	472.51	235.68	472.08	236.15	472.05
236.64	472	240.1	471.55	241.38	471.39	243.91	471	245.78	470.8
252.33	470	253.44	469.23	254.7	468.49				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	29.55	.02	59.86	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	29.55	59.86		51.79	50	43.58	.1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)      * 468.05 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)       * 0.39 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)      * 467.66 * Reach Len. (ft)   * 51.79 * 50.00 *
43.58 *
* Crit W.S. (ft)      * 467.66 * Flow Area (sq ft) *          * 17.98 *
*
* E.G. Slope (ft/ft)  * 0.006628 * Area (sq ft)      *          * 17.98 *
*
* Q Total (cfs)       * 90.40 * Flow (cfs)        *          * 90.40 *
*
* Top Width (ft)      * 23.51 * Top Width (ft)    *          * 23.51 *
*
* Vel Total (ft/s)    * 5.03 * Avg. Vel. (ft/s)  *          * 5.03 *
*
* Max Chl Dpth (ft)   * 1.35 * Hydr. Depth (ft)  *          * 0.76 *
*
* Conv. Total (cfs)   * 1110.4 * Conv. (cfs)       *          * 1110.4 *
*
* Length Wtd. (ft)    * 50.01 * Wetted Per. (ft)  *          * 23.74 *
*
* Min Ch El (ft)      * 466.31 * Shear (lb/sq ft)  *          * 0.31 *
*
* Alpha               * 1.00 * Stream Power (lb/ft s) * 254.70 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.31 * Cum Volume (acre-ft) * 0.01 * 0.48 *
0.06 *
* C & E Loss (ft)     * 0.04 * Cum SA (acres)     * 0.05 * 0.55 *
0.08 *
*****

```

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

Prop_Condn_100yr.rep
 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 OUTPUT Profile #1.5 X Q-100yr

```
*****
* E.G. Elev (ft)      * 468.40 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.48 * Wt. n-Val.        *          * 0.020 *
0.020 *
* W.S. Elev (ft)      * 467.92 * Reach Len. (ft)   * 51.79 * 50.00 *
43.58 *
* Crit W.S. (ft)      * 467.92 * Flow Area (sq ft) *          * 24.34 *
0.05 *
* E.G. Slope (ft/ft)  * 0.006086 * Area (sq ft)      *          * 24.34 *
0.05 *
* Q Total (cfs)       * 135.60 * Flow (cfs)        *          * 135.55 *
0.05 *
* Top Width (ft)      * 26.48 * Top Width (ft)     *          * 25.56 *
0.92 *
* Vel Total (ft/s)    * 5.56 * Avg. Vel. (ft/s)   *          * 5.57 *
0.86 *
* Max Chl Dpth (ft)   * 1.61 * Hydr. Depth (ft)   *          * 0.95 *
0.06 *
* Conv. Total (cfs)   * 1738.1 * Conv. (cfs)        *          * 1737.5 *
0.6 *
* Length Wtd. (ft)    * 49.97 * Wetted Per. (ft)   *          * 25.83 *
0.92 *
* Min Ch El (ft)      * 466.31 * Shear (lb/sq ft)   *          * 0.36 *
0.02 *
* Alpha              * 1.00 * Stream Power (lb/ft s) * 254.70 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.28 * Cum Volume (acre-ft) * 0.02 * 0.65 *
0.08 *
* C & E Loss (ft)     * 0.05 * Cum SA (acres)      * 0.08 * 0.60 *
0.10 *
*****
*****
```

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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 1050

INPUT

Description:

Station Elevation Data num= 122
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

Prop_Condn_100yr.rep

0	4811.359985	480.312.119995	4805.320007	478.79	6.98999	478
8.859985	477.0210.60999	47611.57999	475.49	14.94	47417.14999	473.03
19.60999	47221.72998	471.0524.32999	47027.64999	468.6530.16998		468
35.68999	466.9239.31999	466.21	40.34	46642.31999	465.58	49.34
52.47	463.755.32999	463.5860.29999	463.25	60.67	463.2263.28999	463.09
65.03999	463.04	70.72	463.01	72.23	462.97	73.62
77.75	462.94	78.34	462.96	82.2	463.1483.39999	463.1684.64999
90.73999	463.5	93.14	463.6293.82999	463.65	94.45	463.68
102.12	464.05	102.59	464.08	105.56	464.28	106.97
108.13	464.46	111.4	464.77	115.34	465.12	120.16
130.4	467.07	135.79	468	137.08	468.16	137.65
139.51	468.22	140.69	468.21	143.03	468.15	144.27
147.75	467.9	148.49	467.86	148.71	467.87	154.83
159.72	468.12	170.67	468.01	170.73	468.01	170.76
170.78	468.01	170.91	468.01	174.51	468.01	181.49
189.35	468.12	190.09	468.13	191.23	467.57	194.2
195.74	466.12	196.21	465.67	196.26	465.63	196.38
201.48	465.89	220.41	466.39	220.43	466.41	220.9
222.4	466.94	225.01	467.77	225.25	467.86	225.94
229.62	466.91	230.87	466.72	232.81	466.54	234.65
238.92	465.31	240.08	465	242.07	463.49	242.95
246.79	462	246.8	462	252.08	462	253.68
264.15	462	264.84	462	267.39	462	267.45
272.75	462.94	273.01	463	278.87	464.04	283.9
289.01	465.11	289.9	465.22			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.0260.29999	.0290.73999	.02		

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

60.2999990.73999	50.18	50	49.43	.1	.3
------------------	-------	----	-------	----	----

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
111.4	289.9	464.77	T

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 464.03	* Element	* Left OB	* Channel
Right OB				
* Vel Head (ft)	* 0.27	* Wt. n-Val.	* 0.020	* 0.020
0.020				
* W.S. Elev (ft)	* 463.76	* Reach Len. (ft)	* 50.18	* 50.00
49.43				
* Crit W.S. (ft)	* 463.76	* Flow Area (sq ft)	* 2.04	* 19.84
0.67				
* E.G. Slope (ft/ft)	* 0.005879	* Area (sq ft)	* 2.04	* 19.84
50.87				
* Q Total (cfs)	* 90.40	* Flow (cfs)	* 4.50	* 84.95
0.95				
* Top Width (ft)	* 79.69	* Top Width (ft)	* 8.41	* 30.44
40.85				
* Vel Total (ft/s)	* 4.01	* Avg. Vel. (ft/s)	* 2.21	* 4.28
1.43				
* Max Chl Dpth (ft)	* 1.76	* Hydr. Depth (ft)	* 0.24	* 0.65
0.13				
* Conv. Total (cfs)	* 1179.0	* Conv. (cfs)	* 58.7	* 1107.9
12.4				
* Length Wtd. (ft)	* 50.01	* Wetted Per. (ft)	* 8.42	* 30.46
5.31				
* Min Ch El (ft)	* 462.93	* Shear (lb/sq ft)	* 0.09	* 0.24

Prop_Condn_100yr.rep

```

0.05 *
* Alpha * 1.09 * Stream Power (lb/ft s) * 289.90 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.30 * Cum Volume (acre-ft) * 0.01 * 0.46 *
0.04 *
* C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.04 * 0.51 *
0.05 *
*****
*****

```

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 OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft) * 464.27 * Element * Left OB * Channel *
Right OB *
* Vel Head (ft) * 0.33 * Wt. n-Val. * 0.020 * 0.020 *
0.020 *
* W.S. Elev (ft) * 463.94 * Reach Len. (ft) * 50.18 * 50.00 *
49.43 *
* Crit W.S. (ft) * 463.94 * Flow Area (sq ft) * 3.77 * 25.49 *
2.01 *
* E.G. Slope (ft/ft) * 0.005209 * Area (sq ft) * 3.77 * 25.49 *
58.93 *
* Q Total (cfs) * 135.60 * Flow (cfs) * 10.32 * 121.37 *
3.91 *
* Top Width (ft) * 86.85 * Top Width (ft) * 10.34 * 30.44 *
46.07 *
* Vel Total (ft/s) * 4.34 * Avg. Vel. (ft/s) * 2.73 * 4.76 *
1.94 *
* Max Chl Dpth (ft) * 1.94 * Hydr. Depth (ft) * 0.36 * 0.84 *
0.22 *
* Conv. Total (cfs) * 1878.8 * Conv. (cfs) * 143.0 * 1681.6 *
54.2 *
* Length Wtd. (ft) * 50.01 * Wetted Per. (ft) * 10.37 * 30.46 *
9.24 *
* Min Ch El (ft) * 462.93 * Shear (lb/sq ft) * 0.12 * 0.27 *
0.07 *
* Alpha * 1.12 * Stream Power (lb/ft s) * 289.90 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.26 * Cum Volume (acre-ft) * 0.02 * 0.62 *
0.05 *
* C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.07 * 0.56 *
0.08 *
*****
*****

```

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.

Prop_Condn_100yr.rep

Warning: The energy loss was 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: Cl_Creek_Prop

REACH: Cl_Creek_Prop

RS: 1000

INPUT

Description:

Station Elevation Data num= 114

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4783.620026	476.3	4.26001	4764.670013	475.88.400024	474			
10.18002	473.1312.56003	47214.27002	471.1316.70001	47019.15002	468.86				
20.90002	468	22.66	467.1425.09003	46629.90002	464.230.52002	464			
32.54001	463.3536.60001	46239.10001	461.2	39.66	461.1340.34003	461.1			
42.74002	460.5645.22002	460.5748.07001	460.6250.82001	460.3350.96002	460.32				
52.12001	460.3754.01001	460.355.63002	460.4156.46002	460.4557.72002	460.44				
59.24002	460.4261.95001	460.3663.49002	460.366.22002	460.1769.68001	460				
71.38002	459.9376.10002	459.7780.69002	459.7182.40001	459.7485.97002	459.83				
89.98001	46093.23001	460.1998.28001	460.5599.71002	460.66	108.83	461.3			
111.43	461.5	118.44	462	129.52	462.96	140.33	464	145.29	464.39
146.5	464.45	146.59	464.46	152.17	464.88	154.69	465.09	155.89	465.21
156.44	465.29	156.83	465.41	156.99	465.42	157.2	465.42	157.54	465.42
158.19	465.41	158.43	465.4	158.9	465.35	161.17	465.17	161.72	465.14
162.46	465.13	163.68	465.14	164	465.14	165.53	465.17	167.72	465.13
169.32	465.12	175.98	465.1	181.5	465.23	194.8	465.42	195.51	465.42
196.94	465.43	199.56	464.2	200.69	463.66	201.03	463.65	202.23	463.63
202.51	463.38	202.76	463.14	203.59	463.2	204.33	463.27	216.99	463.49
227.78	463.68	228.08	463.95	228.3	464.18	229.19	464.2	229.86	464.21
233.58	464.02	233.9	464	234.61	463.87	239.49	463	241.59	462.31
242.54	462	244.88	462	249.4	462	253.95	462	257.6	462
261.77	462.95	261.9	462.98	261.99	463	266	464.19	270.76	465.64
271.21	465.35	271.5	465.15	275.22	465.21	277.38	465.25	285.07	465.37
292.96	465.51	294.92	465.54	298.28	465.59	299.64	465.62		

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.0266.22002	.0298.28001	.02		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
66.2200298.28001			48.69	50	48.85	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 460.84	* Element	* Left OB	* Channel	*
Right OB					
* Vel Head (ft)	* 0.25	* Wt. n-Val.	* 0.020	* 0.020	*
0.020					
* W.S. Elev (ft)	* 460.58	* Reach Len. (ft)	* 48.69	* 50.00	*
48.85					
* Crit W.S. (ft)	* 460.58	* Flow Area (sq ft)	* 3.88	* 19.72	*
0.01					

Prop_Condn_100yr.rep					
* E.G. Slope (ft/ft)	* 0.006057	* Area (sq ft)	*	3.88	* 19.72 *
0.01 *					
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	7.96	* 82.44 *
0.00 *					
* Top Width (ft)	* 53.51	* Top Width (ft)	*	21.04	* 32.06 *
0.41 *					
* Vel Total (ft/s)	* 3.83	* Avg. Vel. (ft/s)	*	2.05	* 4.18 *
0.37 *					
* Max Chl Dpth (ft)	* 0.87	* Hydr. Depth (ft)	*	0.18	* 0.62 *
0.02 *					
* Conv. Total (cfs)	* 1161.5	* Conv. (cfs)	*	102.3	* 1059.2 *
0.0 *					
* Length Wtd. (ft)	* 49.83	* Wetted Per. (ft)	*	21.07	* 32.09 *
0.42 *					
* Min Ch El (ft)	* 459.71	* Shear (lb/sq ft)	*	0.07	* 0.23 *
0.01 *					
* Alpha	* 1.11	* Stream Power (lb/ft s)	*	299.64	* 0.00 *
0.00 *					
* Frctn Loss (ft)	* 0.33	* Cum Volume (acre-ft)	*	0.01	* 0.44 *
0.01 *					
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	0.03	* 0.48 *
0.03 *					

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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	* 461.04	* Element	*	Left OB	* Channel *
Right OB *					
* Vel Head (ft)	* 0.29	* Wt. n-Val.	*	0.020	* 0.020 *
0.020 *					
* W.S. Elev (ft)	* 460.76	* Reach Len. (ft)	*	48.69	* 50.00 *
48.85 *					
* Crit W.S. (ft)	* 460.76	* Flow Area (sq ft)	*	8.03	* 25.34 *
0.28 *					
* E.G. Slope (ft/ft)	* 0.005107	* Area (sq ft)	*	8.03	* 25.34 *
0.28 *					
* Q Total (cfs)	* 135.60	* Flow (cfs)	*	20.32	* 114.96 *
0.33 *					
* Top Width (ft)	* 59.23	* Top Width (ft)	*	24.36	* 32.06 *
2.81 *					
* Vel Total (ft/s)	* 4.03	* Avg. Vel. (ft/s)	*	2.53	* 4.54 *
1.15 *					
* Max Chl Dpth (ft)	* 1.05	* Hydr. Depth (ft)	*	0.33	* 0.79 *
0.10 *					
* Conv. Total (cfs)	* 1897.4	* Conv. (cfs)	*	284.3	* 1608.6 *
4.6 *					
* Length Wtd. (ft)	* 49.78	* Wetted Per. (ft)	*	24.41	* 32.09 *
2.82 *					

```

Prop_Condn_100yr.rep
* Min Ch El (ft)      * 459.71 * Shear (lb/sq ft)      * 0.10 * 0.25 *
  0.03 *
* Alpha              * 1.13 * Stream Power (lb/ft s) * 299.64 * 0.00 *
  0.00 *
* Frctn Loss (ft)    * 0.29 * Cum Volume (acre-ft)   * 0.02 * 0.59 *
  0.02 *
* C & E Loss (ft)    * 0.00 * Cum SA (acres)         * 0.05 * 0.53 *
  0.05 *
*****
*****

```

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: C1_Creek_Prop
 REACH: C1_Creek_Prop RS: 950

INPUT

Description:

Station Elevation Data			num= 137								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	475.831	0.19989	475.411	8.50006	474.934	7.90009	474.586	9.995	473.52		
9.119995	472	10.72	471.3	13.53	470	16.91	468.38	17.75	468		
19.97998	466.9822	0.07001	466.24	8.2001	464.726	2.5998	464.32	7.9001	462.01		
32.82999	462	32.84	462.39	1.3998	460.46	6.9998	458.56	50.22	458		
52.25998	457.8955	1.9998	457.7958	2.3999	457.7358	2.9999	457.7361	5.4999	457.69		
68.39999	457.6371	0.3999	457.62	72.75	457.63	73.72	457.65	74.87	457.7		
74.97	457.69	75.37	457.6675	6.4999	457.6477	3.9999	457.7	86.81	458		
91.98999	458.41	100.57	459.08	108.61	460	110.02	460.48	111.97	460.87		
118.11	462	121.38	462.38	121.79	462.41	123.25	462.52	124.3	462.57		
126.04	462.66	126.66	462.71	127.44	462.8	128.51	462.98	130.17	463.29		
131	463.42	133.5	464	137.05	464	138.48	464	138.64	464		
139.25	464	140.08	464	140.56	464	140.74	464	142.85	464		
144.54	464	147.11	463.81	150.93	463.69	156.12	463.52	158.04	463.49		
159.38	463.46	164.78	463.38	165.15	463.39	166.21	463.38	168.24	463.35		
169.09	463.34	172.32	463.22	179.09	463.01	179.96	462.99	180.84	462.98		
182.19	462.99	183.96	463.02	190.55	463.16	191.12	463.16	191.28	463.16		
196.84	463.26	197.85	463.28	201.28	463.34	201.39	463.34	201.84	463.15		
202.76	463.14	203.56	463.13	203.65	463.04	204.11	462.63	205.61	462.75		
205.85	462.77	223.93	463.1	231.24	463.23	232.31	463.44	233.73	463.63		
233.92	463.82	234.23	464.13	234.64	464.13	234.81	464.13	235.64	464.14		
235.91	464.14	236.77	464.15	237.54	464.15	238.27	464.16	238.98	464.17		
239.69	464.18	240.42	464.19	241.19	464.21	242.02	464.23	242.95	464.26		
244.01	464.3	245.03	464.34	245.27	464.35	246.85	464.41	248.23	464.46		
248.44	464.47	261.66	465.14	271.73	465.28	272.76	465.31	273.1	465.31		
273.69	464.84	273.7	464.83	273.98	464.83	274.5	464.85	274.58	464.85		
277.97	464.93	279.63	464.98	291.13	465.26	299.26	465.51	304.3	465.64		
306.81	465.72	309.28	465.8	310.75	465.84	314.56	465.81	315.41	465.75		
318.22	465.79	323.9	465.88								

Prop_Condn_100yr.rep

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

 0 .0258.29999 .0291.98999 .02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 58.2999991.98999 49.87 50 49.98 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

 * E.G. Elev (ft) * 458.59 * Element * Left OB * Channel *
 Right OB *
 * Vel Head (ft) * 0.26 * Wt. n-Val. * 0.020 * 0.020 *
 *
 * W.S. Elev (ft) * 458.33 * Reach Len. (ft) * 49.87 * 50.00 *
 49.98 *
 * Crit W.S. (ft) * 458.33 * Flow Area (sq ft) * 4.30 * 17.84 *
 *
 * E.G. Slope (ft/ft) * 0.007193 * Area (sq ft) * 4.30 * 17.84 *
 *
 * Q Total (cfs) * 90.40 * Flow (cfs) * 15.26 * 75.14 *
 *
 * Top Width (ft) * 42.76 * Top Width (ft) * 10.13 * 32.63 *
 *
 * Vel Total (ft/s) * 4.08 * Avg. Vel. (ft/s) * 3.55 * 4.21 *
 *
 * Max Chl Dpth (ft) * 0.71 * Hydr. Depth (ft) * 0.42 * 0.55 *
 *
 * Conv. Total (cfs) * 1065.9 * Conv. (cfs) * 179.9 * 886.0 *
 *
 * Length Wtd. (ft) * 49.99 * Wetted Per. (ft) * 10.16 * 32.65 *
 *
 * Min Ch El (ft) * 457.62 * Shear (lb/sq ft) * 0.19 * 0.25 *
 *
 * Alpha * 1.01 * Stream Power (lb/ft s) * 323.90 * 0.00 *
 0.00 *
 * Frctn Loss (ft) * 0.35 * Cum Volume (acre-ft) * 0.00 * 0.42 *
 0.01 *
 * C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.01 * 0.44 *
 0.03 *

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: 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 OUTPUT Profile #1.5 X Q-100yr

 * E.G. Elev (ft) * 458.82 * Element * Left OB * Channel *
 Right OB *
 * Vel Head (ft) * 0.33 * Wt. n-Val. * 0.020 * 0.020 *
 0.020 *
 * W.S. Elev (ft) * 458.49 * Reach Len. (ft) * 49.87 * 50.00 *
 49.98 *
 * Crit W.S. (ft) * 458.49 * Flow Area (sq ft) * 6.06 * 23.36 *

Prop_Condn_100yr.rep

0.04 *					
* E.G. Slope (ft/ft)	*0.006692	* Area (sq ft)	*	6.06	* 23.36 *
0.04 *					
* Q Total (cfs)	* 135.60	* Flow (cfs)	*	24.41	* 111.16 *
0.03 *					
* Top Width (ft)	* 45.90	* Top Width (ft)	*	11.17	* 33.69 *
1.04 *					
* Vel Total (ft/s)	* 4.60	* Avg. Vel. (ft/s)	*	4.03	* 4.76 *
0.72 *					
* Max Chl Dpth (ft)	* 0.87	* Hydr. Depth (ft)	*	0.54	* 0.69 *
0.04 *					
* Conv. Total (cfs)	* 1657.6	* Conv. (cfs)	*	298.4	* 1358.8 *
0.4 *					
* Length Wtd. (ft)	* 49.99	* Wetted Per. (ft)	*	11.21	* 33.72 *
1.04 *					
* Min Ch El (ft)	* 457.62	* Shear (lb/sq ft)	*	0.23	* 0.29 *
0.02 *					
* Alpha	* 1.01	* Stream Power (lb/ft s)	*	323.90	* 0.00 *
0.00 *					
* Frctn Loss (ft)	* 0.33	* Cum Volume (acre-ft)	*	0.01	* 0.57 *
0.02 *					
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	0.03	* 0.49 *
0.05 *					

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: 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: C1_Creek_Prop
REACH: C1_Creek_Prop RS: 900

INPUT

Description:

Station Elevation Data		num=	130				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	473.051	0.19989	473.013	1.60004	472.923	1.880005	472.944
7.429993	472	10.54999	470.621	12.01001	470	15.51001	468.441
17.60001	467.59	21.66	466	23.76999	465.162	26.76001	464
32.20001	462	35.60999	461.093	38.26001	460.36	39.5	460
46.35999	458	51.35001	457.525	1.73001	457.48	56.87	457
58.76999	456.865	59.51999	456.860	1.7999	456.736	1.50999	456.62
63.25	456.51	64.05	456.48	64.87	456.47	65.77	456.46
68.34	456.44	68.5	456.44	68.84	456.446	9.14999	456.456
69.53999	456.47	69.75	456.45	70.23	456.47	73.84	456.587
75.97	456.65	76.2	456.687	6.39999	456.767	6.42999	456.91
77.24001	457.06	80.36	457.368	3.45999	457.58	85.28	457.7
95.5	459.029	6.31999	459.12	97.06	459.23	98.34	459.4
99.33	459.49	100.2	459.51	100.46	459.52	104.33	459.93
104.8	460	106.45	460.38	109.63	461.23	112.37	462
117.94	464	119.35	464.13	140.75	466	146.1	466.17
147.68	466.21	150.58	466.25	150.79	466.25	150.99	466.25
151.52	466.24	151.92	466.24	159.03	466.09	163.39	466
							168.42
							465.71

Prop_Condn_100yr.rep									
170.82	465.5	173.62	465.29	187.28	464	189.37	463.66	190.5	463.48
191.49	463.32	197.05	462.46	197.41	462.61	197.41	462.62	197.7	462.61
199.21	462.6	199.35	462.48	199.81	462.1	200.2	462.13	201.61	462.23
204.76	462.29	207.74	462.35	217.86	462.53	228.96	462.73	230.09	462.82
230.76	462.86	231.66	462.9	232.73	462.95	233.83	462.99	241.61	463.41
244.15	463.5	246.62	463.57	248.88	463.64	252.59	463.84	255.29	463.93
255.89	463.94	258.49	464.03	260.85	464.11	261.65	464.13	263.82	464.21
264.7	464.23	289.47	464.83	295.84	464.98	296.08	465.21	296.34	465.48
296.8	465.48	297.93	465.48	299.01	465.48	300.37	465.48	317.03	466.14

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.0251	35001	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	51.35001	85.28		51.65	50		.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 457.80	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.33	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 457.47	* Reach Len. (ft)	* 51.65	* 50.00	*
49.46 *					
* Crit W.S. (ft)	* 457.47	* Flow Area (sq ft)	*	* 19.62	*
* E.G. Slope (ft/ft)	* 0.006838	* Area (sq ft)	*	* 19.62	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*
* Top Width (ft)	* 29.99	* Top Width (ft)	*	* 29.99	*
* Vel Total (ft/s)	* 4.61	* Avg. Vel. (ft/s)	*	* 4.61	*
* Max Chl Dpth (ft)	* 1.03	* Hydr. Depth (ft)	*	* 0.65	*
* Conv. Total (cfs)	* 1093.2	* Conv. (cfs)	*	* 1093.2	*
* Length Wtd. (ft)	* 49.97	* Wetted Per. (ft)	*	* 30.22	*
* Min Ch El (ft)	* 456.44	* Shear (lb/sq ft)	*	* 0.28	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 317.03	* 0.00	*
0.00 *					
* Frctn Loss (ft)	* 0.33	* Cum Volume (acre-ft)	* 0.00	* 0.39	*
0.01 *					
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 0.00	* 0.41	*
0.03 *					

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

Prop_Condn_100yr.rep
 not a valid subcritical answer. The program
 defaulted to critical depth.

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft)      * 458.09 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.40 * Wt. n-Val.        * 0.020 * 0.020 *
*
* W.S. Elev (ft)      * 457.69 * Reach Len. (ft)   * 51.65 * 50.00 *
49.46 *
* Crit W.S. (ft)      * 457.69 * Flow Area (sq ft) * 0.15 * 26.78 *
*
* E.G. Slope (ft/ft)  * 0.006375 * Area (sq ft)      * 0.15 * 26.78 *
*
* Q Total (cfs)       * 135.60 * Flow (cfs)        * 0.17 * 135.43 *
*
* Top Width (ft)      * 35.54 * Top Width (ft)     * 1.77 * 33.78 *
*
* Vel Total (ft/s)    * 5.04 * Avg. Vel. (ft/s)   * 1.14 * 5.06 *
*
* Max Chl Dpth (ft)   * 1.25 * Hydr. Depth (ft)   * 0.08 * 0.79 *
*
* Conv. Total (cfs)   * 1698.3 * Conv. (cfs)        * 2.2 * 1696.1 *
*
* Length Wtd. (ft)    * 49.97 * Wetted Per. (ft)   * 1.78 * 34.01 *
*
* Min Ch El (ft)      * 456.44 * Shear (lb/sq ft)   * 0.03 * 0.31 *
*
* Alpha               * 1.01 * Stream Power (lb/ft s) * 317.03 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.30 * Cum Volume (acre-ft) * 0.00 * 0.54 *
0.02 *
* C & E Loss (ft)     * 0.02 * Cum SA (acres)      * 0.02 * 0.45 *
0.05 *
*****
*****

```

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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 850

INPUT

Description:

Station	Elevation	Data	num=	141	Station	Elevation	Station	Elevation	Station	Elevation
0	470.22	13.82	001	470.33	15.31	470.34	19.06	470.31	20.71	002 470.28

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22.21002	470.2324.51001	470.1126.43002	470	26.47	47030.02002	469.8
32.71002	469.76 33.28	469.77 33.81	469.8	34.06	469.79 39.34	468
43.49002	466.0143.51001	46643.54001	465.98	43.56	465.97 43.72	465.93
46.04001	465.2249.04001	464.3549.68002	464.1850.20001		46455.74002	462.04
55.84	46261.27002	460.22 61.97	46064.11002		459.368.20001	458
70.03	457.3974.35001	45676.17001	455.8476.58002	455.8478.17001		455.74
82.81	455.4486.64001	455.18 87.97	455.1189.29001	455.0590.52002		455.02
91.60001	45593.02002	454.9995.95001	454.97 96.22	454.97 96.78		454.97
97.13	454.9697.29001	454.96 100.72	455.14 103.62	455.28 106.75		455.41
107.96	455.43 109	455.45 110.01	455.46 110.95	455.43 111.33		455.33
112.15	455.37 117.35	455.63 124.2	456 132.55	457.24 137.59		458
142.3	459.3 143.74	459.68 145.41	460 146.58	460.33 147.93		460.56
156.72	462 171.79	463.26 172.72	463.33 173.45	463.37 176.31		463.63
178.73	463.76 180.99	464 181.21	464 186.06	464.1 190.3		464.18
195.4	464.26 196.78	464.28 198.18	464.28 199.97	464.28 201.9		464.27
203.56	464.25 204.63	464.23 205.18	464.2 205.58	464.16 207.3		464.06
209.09	464 210.24	463.92 216.3	463.56 216.35	463.54 216.36		463.53
216.38	463.52 216.44	463.48 217.07	463.2 219.5	462.1 220.07		462.09
221.15	462.07 221.37	461.87 221.69	461.58 222.43	461.64 223.34		461.71
229.66	461.82 236.5	461.94 242.51	462.05 248.15	462.15 248.47		463.47
248.71	464.52 253.87	464.08 254.44	464 258.02	464 271.57		464
278.55	464 282.14	464 283.03	464.01 283.06	464.01 283.09		464.01
283.12	464.01 283.14	464.01 283.17	464.01 283.2	464.01 283.24		464.01
283.27	464.01 283.31	464.01 284.58	464.02 285.01	464.03 296.17		464.18
299.32	464.25 304.28	464.36 309	464.45 314.5	464.58 318.88		464.67
323.08	464.76 340.86	465.16 341.9	465.19 343.56	465.21 343.69		465.21
344.5	465.25 344.59	465.17 345.16	464.75 357.57	465 363.86		465.13
367.01	465.2					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.0278.17001	.02	109	.02	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	78.17001	109		48.06 50	50.3		.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 456.11	* Element	* Left OB	* Channel	*
Right OB					
* Vel Head (ft)	* 0.27	* Wt. n-Val.	* 0.020	* 0.020	*
0.020					
* W.S. Elev (ft)	* 455.84	* Reach Len. (ft)	* 48.06	* 50.00	*
50.30					
* Crit W.S. (ft)	* 455.84	* Flow Area (sq ft)	* 0.08	* 18.98	*
3.54					
* E.G. Slope (ft/ft)	* 0.006340	* Area (sq ft)	* 0.08	* 18.98	*
3.54					
* Q Total (cfs)	* 90.40	* Flow (cfs)	* 0.06	* 81.20	*
9.14					
* Top Width (ft)	* 45.14	* Top Width (ft)	* 2.03	* 30.83	*
12.28					
* Vel Total (ft/s)	* 4.00	* Avg. Vel. (ft/s)	* 0.71	* 4.28	*
2.58					
* Max Chl Dpth (ft)	* 0.88	* Hydr. Depth (ft)	* 0.04	* 0.62	*
0.29					
* Conv. Total (cfs)	* 1135.3	* Conv. (cfs)	* 0.8	* 1019.8	*
114.8					
* Length Wtd. (ft)	* 50.01	* Wetted Per. (ft)	* 2.03	* 30.86	*
12.31					
* Min Ch El (ft)	* 454.96	* Shear (lb/sq ft)	* 0.02	* 0.24	*

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```

0.11 *
* Alpha *      1.07 * Stream Power (lb/ft s) * 367.01 * 0.00 *
0.00 *
* Frctn Loss (ft) *      0.33 * Cum Volume (acre-ft) * 0.00 * 0.37 *
0.01 *
* C & E Loss (ft) *      0.01 * Cum SA (acres) * 0.00 * 0.37 *
0.02 *
*****
*****

```

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

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

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

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft) * 456.34 * Element * Left OB * Channel *
Right OB *
* Vel Head (ft) * 0.32 * Wt. n-Val. * 0.020 * 0.020 *
0.020 *
* W.S. Elev (ft) * 456.02 * Reach Len. (ft) * 48.06 * 50.00 *
50.30 *
* Crit W.S. (ft) * 456.02 * Flow Area (sq ft) * 0.64 * 24.60 *
6.09 *
* E.G. Slope (ft/ft) * 0.005495 * Area (sq ft) * 0.64 * 24.60 *
6.09 *
* Q Total (cfs) * 135.60 * Flow (cfs) * 1.06 * 116.48 *
18.06 *
* Top Width (ft) * 50.09 * Top Width (ft) * 3.90 * 30.83 *
15.37 *
* Vel Total (ft/s) * 4.33 * Avg. Vel. (ft/s) * 1.65 * 4.73 *
2.97 *
* Max Chl Dpth (ft) * 1.06 * Hydr. Depth (ft) * 0.16 * 0.80 *
0.40 *
* Conv. Total (cfs) * 1829.2 * Conv. (cfs) * 14.3 * 1571.4 *
243.6 *
* Length Wtd. (ft) * 50.01 * Wetted Per. (ft) * 3.91 * 30.86 *
15.40 *
* Min Ch El (ft) * 454.96 * Shear (lb/sq ft) * 0.06 * 0.27 *
0.14 *
* Alpha * 1.09 * Stream Power (lb/ft s) * 367.01 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.29 * Cum Volume (acre-ft) * 0.00 * 0.51 *
0.02 *
* C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.02 * 0.42 *
0.04 *
*****
*****

```

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

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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: Cl_Creek_Prop
REACH: Cl_Creek_Prop RS: 800

INPUT

Description:

Station Elevation Data		num= 102		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	467.32	3.51001	467.3	4.5	467.35	940002	467.287	100006	467.26		
8.170013	467.239	290009	467.1813	29001	467.1514	79001	467.2415	79001	467.12		
24.80002	466	26.53	465.31	29.69	464	30.97	463.2433	55002	462		
37.15002	460.0537	23001	46037.43002		459.9737	49002	459.9737	54001	459.96		
37.63	459.9541	80002	459.3250	48001	458	64.16	456.1265	21002	456		
77.95001	454.8285	62003	454.1187	24002	45490.36002		453.7390	87003	453.66		
91.12003	453.5795	95001	453.49	101.11	453.54	102.56	453.67	105.64	454		
109.74	454.86	112.11	455.36	114.5	456	116.83	456.75	120.21	458		
133.01	458.84	140.51	459.21	152.62	459.92	154.46	459.95	156.93	459.97		
160.28	459.98	169.43	460	169.44	460	169.45	460	172.07	459.96		
174.28	460	177.61	460.43	179.22	460.6	183.02	461.03	183.77	461.12		
184.38	461.22	184.9	461.33	185.68	461.46	187.36	461.5	187.39	461.49		
190.81	461.84	190.87	461.85	193.15	462	194.1	462.03	196.53	462.02		
197.14	462	202.33	461.81	203.53	461.73	206.55	461.62	210.12	461.44		
210.32	461.43	210.48	461.42	210.64	461.41	210.98	461.56	211.26	461.68		
212.12	461.67	212.88	461.66	213.18	461.37	213.42	461.16	214.41	461.24		
215.03	461.29	229.21	461.54	239.47	461.73	239.77	462.56	240.02	463.33		
242.23	463.39	243.22	463.42	249.6	463.57	261.31	463.86	303.14	464		
303.83	464	305.84	464	318.87	464.16	349.5	464.67	353.15	464.61		
354.34	464.67	356.64	464.78	362.93	465.07	373.63	465.57	373.92	465.34		
374.25	465.08	378.42	465.16								

Manning's n Values		num= 3		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val
0	.0277	95001	.02	109.74	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
77.95001		109.74	50.11	50	49.99	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 454.89	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.35	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 454.54	* Reach Len. (ft)	* 50.11	* 50.00	*
49.99 *					
* Crit W.S. (ft)	* 454.54	* Flow Area (sq ft)	*	* 19.02	*
* E.G. Slope (ft/ft)	* 0.006665	* Area (sq ft)	*	* 19.02	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*

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* Top Width (ft)	*	27.28	* Top Width (ft)	*	27.28 *
* Vel Total (ft/s)	*	4.75	* Avg. Vel. (ft/s)	*	4.75 *
* Max Chl Dpth (ft)	*	1.05	* Hydr. Depth (ft)	*	0.70 *
* Conv. Total (cfs)	*	1107.3	* Conv. (cfs)	*	1107.3 *
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	27.42 *
* Min Ch El (ft)	*	453.49	* Shear (lb/sq ft)	*	0.29 *
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	378.42 *
0.00 *					0.00 *
* Frctn Loss (ft)	*	0.32	* Cum Volume (acre-ft)	*	0.35 *
0.00 *					
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	0.34 *
0.02 *					

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

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

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

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	*	455.20	* Element	*	Left OB * Channel *
Right OB *					
* Vel Head (ft)	*	0.42	* Wt. n-Val.	*	0.020 *
* W.S. Elev (ft)	*	454.78	* Reach Len. (ft)	*	50.11 * 50.00 *
49.99 *					
* Crit W.S. (ft)	*	454.78	* Flow Area (sq ft)	*	25.96 *
* E.G. Slope (ft/ft)	*	0.006303	* Area (sq ft)	*	25.96 *
* Q Total (cfs)	*	135.60	* Flow (cfs)	*	135.60 *
* Top Width (ft)	*	30.99	* Top Width (ft)	*	30.99 *
* Vel Total (ft/s)	*	5.22	* Avg. Vel. (ft/s)	*	5.22 *
* Max Chl Dpth (ft)	*	1.29	* Hydr. Depth (ft)	*	0.84 *
* Conv. Total (cfs)	*	1708.0	* Conv. (cfs)	*	1708.0 *
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	31.17 *
* Min Ch El (ft)	*	453.49	* Shear (lb/sq ft)	*	0.33 *
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	378.42 *
0.00 *					0.00 *
* Frctn Loss (ft)	*	0.31	* Cum Volume (acre-ft)	*	0.00 * 0.48 *

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```

0.01 *
* C & E Loss (ft)          * 0.01 * Cum SA (acres)          * 0.02 * 0.38 *
0.03 *
*****
*****

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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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 750

INPUT

Description:

Station Elevation Data		num= 141		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	464.234	870026	464.19	5.27002	464.199	880005	464.12	10.11002	464.12				
13.95001	464.04	15.05002		46417.80002	463.81	21.79001	463.48	22.70001	464				
22.71002		46423.51001	464.09	24.40002		46424.98001	463.77	29.70001	462				
33.72	460.75	34.72	460.44	36.15002	460	37.47	459.61	42.94	458				
44.39001	457.82	48.44	457.48	49.25	457.45	2.35001	457.09	57.35001	456.62				
61.03	456.28	63.53	456.65	59003	455.61	68.24002	455.27	70.29001	454.87				
76.69	454	77.95001	453.68	83.94	452.19	84.57001	452	86.16	451.55				
87.52002	451.21	88.41	451.04	90.14001	450.81	92.35001	450.22	92.65002	450.16				
93.31003	450	94.44	449.86	95.71002	449.77	95.95001	449.78	96.72	449.83				
97.64001	450	97.66	450	105.99	451.53	108.21	452	109.36	452.19				
118.79	453.79	119.89	454	121.31	454.31	122.05	454.52	122.45	454.64				
127.02	456	131.95	457.36	135.08	458	136.63	458.08	138.62	458.17				
141.48	458.27	143.17	458.32	144.79	458.35	146.3	458.36	149.04	458.36				
150.1	458.37	151.14	458.39	156.74	458.55	158.24	458.58	162.44	458.66				
163.04	458.67	164.13	458.68	165.26	458.69	165.57	458.7	165.92	458.69				
166.63	458.68	170.46	458.59	171.41	458.56	177.56	458.34	179.13	458.29				
180.75	458.25	182.09	458.23	191.3	458.6	192.05	458.76	192.75	459.04				
192.79	459.12	193.65	459.39	193.85	459.38	195.88	460	196.32	460				
196.96	460.07	198.22	460.16	198.87	460.24	199.89	460.29	202.03	460.35				
203.45	460.42	207.38	460.65	210.11	460.86	210.63	460.89	211.35	460.92				
212.28	460.94	213.22	460.96	214.39	460.99	214.72	460.99	215.19	460.98				
218.34	460.9	218.92	460.88	219.66	460.86	220.36	460.85	220.61	460.84				
221.02	461.04	221.41	461.23	221.65	461.22	222.97	461.2	223.09	461.08				
223.48	460.7	223.87	460.73	225.04	460.83	230.05	460.91	248.35	461.23				
248.66	461.66	248.86	461.94	249.68	461.96	251.08	462	254.66	462.11				
265.38	462.42	279.91	463	292.55	463.66	301.93	463.9	305.96	464				
309.63	464.09	312.42	464.18	323.15	464.44	324.02	464.47	324.25	464.47				
324.61	464.48	325.71	464.5	337.3	464.5	340.59	464.5	348.72	464.5				
378.42	464.5												

Manning's n Values

num= 3		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val
0	.0277	95001	.02	109.36	.02

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Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
77.95001 109.36 50.12 50 50.04 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

```
*****
* E.G. Elev (ft)      * 451.87 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)       * 0.45 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)      * 451.42 * Reach Len. (ft)   * 50.12 * 50.00 *
50.04 *
* Crit W.S. (ft)      * 451.42 * Flow Area (sq ft) *          * 16.71 *
*
* E.G. Slope (ft/ft)   * 0.006298 * Area (sq ft)      *          * 16.71 *
*
* Q Total (cfs)        * 90.40 * Flow (cfs)        *          * 90.40 *
*
* Top Width (ft)       * 18.71 * Top Width (ft)     *          * 18.71 *
*
* Vel Total (ft/s)     * 5.41 * Avg. Vel. (ft/s)   *          * 5.41 *
*
* Max Chl Dpth (ft)    * 1.65 * Hydr. Depth (ft)   *          * 0.89 *
*
* Conv. Total (cfs)    * 1139.1 * Conv. (cfs)        *          * 1139.1 *
*
* Length Wtd. (ft)     * 50.00 * Wetted Per. (ft)   *          * 19.02 *
*
* Min Ch El (ft)       * 449.77 * Shear (lb/sq ft)   *          * 0.35 *
*
* Alpha               * 1.00 * Stream Power (lb/ft s) * 378.42 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.32 * Cum Volume (acre-ft) *          * 0.33 *
0.00 *
* C & E Loss (ft)     * 0.00 * Cum SA (acres)      *          * 0.31 *
0.02 *
*****
*****
```

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

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

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

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```
*****
* E.G. Elev (ft)      * 452.27 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)       * 0.55 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)      * 451.73 * Reach Len. (ft)   * 50.12 * 50.00 *
50.04 *
* Crit W.S. (ft)      * 451.73 * Flow Area (sq ft) *          * 22.87 *
*
*****
```

```

                                Prop_Condn_100yr.rep
* E.G. Slope (ft/ft)          *0.005966 * Area (sq ft)          *          * 22.87 *
* Q Total (cfs)              * 135.60 * Flow (cfs)          *          * 135.60 *
* Top Width (ft)             * 21.38 * Top Width (ft)      *          * 21.38 *
* Vel Total (ft/s)           * 5.93 * Avg. Vel. (ft/s)    *          * 5.93 *
* Max Chl Dpth (ft)          * 1.96 * Hydr. Depth (ft)    *          * 1.07 *
* Conv. Total (cfs)          * 1755.6 * Conv. (cfs)        *          * 1755.6 *
* Length Wtd. (ft)           * 50.00 * Wetted Per. (ft)    *          * 21.77 *
* Min Ch El (ft)             * 449.77 * Shear (lb/sq ft)    *          * 0.39 *
* Alpha 0.00 *               * 1.00 * Stream Power (lb/ft s) * 378.42 * 0.00 *
* Frctn Loss (ft)            * 0.30 * Cum Volume (acre-ft) * 0.00 * 0.45 *
* C & E Loss (ft)            * 0.01 * Cum SA (acres)       * 0.02 * 0.35 *
* 0.03 *
*****

```

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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 700

INPUT

Description:

Station Elevation Data		num= 148									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	461.383.490021	461.373.600006	461.384.130005	461.44.570007	461.41						
5.110016	461.395.810028	461.35 6.77002	461.2710.11002	460.9313.73001	460.84						
14.29001	461.1114.59003	461.1619.02002	46024.48001	458.2225.12003	458.01						
25.16	45825.27002	457.9732.29001	45642.87003	454.92 44.69	454.77						
47.09003	454.650.06003	454.3352.29001	454.23 54.47	454.1656.24002	454.13						
59.09003	454.1460.08002	454.1162.90002	454 66.91	453.4769.83002	452						
72.42001	450.672.85001	450.3973.11002	450.3 73.53	450.2173.80002	450.15						
74.37003	45074.81003	449.8977.58002	448.99 78.75	448.6179.87003	448						
81.19	447.27 82.44	446.7883.46002	446.3384.77002	44685.74002	445.9						
90.30002	445.5790.65002	445.55 90.91	445.52 93.03	445.395.74002	444.91						
95.95001	444.996.46002	444.91 97.22	445.1299.20001	446 101.51	447.39						
103.07	448 106.43	449.6 107.52	450 108.99	450.47 109.23	450.55						
112.37	452 131.06	453.5 132.83	453.65 136.04	454 138.28	454.41						
138.98	454.5 139.13	454.51 139.55	454.56 141.26	454.8 150.7	456						
157.33	456.45 158.8	456.57 159.26	456.6 159.8	456.62 160.48	456.63						

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161.32	456.64	163.4	456.64	165.29	456.62	166.16	456.61	175.97	456.34
185.89	456.04	186.47	456.04	186.52	456.04	186.6	456.04	187.9	456
187.91	456	188.05	456.04	195.45	458	204.5	458.26	204.71	458.26
212.18	458.47	212.65	458.48	218.71	458.98	219.65	459.06	219.74	459.06
219.87	459.06	220.02	459.05	220.31	459.04	220.49	459.03	220.51	459.03
223.07	460.29	223.57	460.53	223.63	460.56	223.82	460.65	223.85	460.66
223.85	460.67	223.86	460.67	223.87	460.67	223.88	460.68	224	460.74
224.02	460.74	225.51	460.71	225.55	460.67	226.02	460.21	226.17	460.22
227.54	460.33	230.94	460.39	250.19	460.7	250.64	461.15	252.13	461.21
254.78	461.23	255.21	460.88	255.4	460.73	262.68	460.78	268.36	460.81
271.55	460.83	275.45	460.86	285.21	460.92	285.68	461.29	285.84	461.42
287.72	461.48	289.98	461.57	295.71	461.79	300.55	462	305.97	462.31
307.02	462.37	318.07	463	319.21	463.11	328.5	463.98	328.69	464
328.7	464	328.72	464	347.49	464.38	349.97	464.43	353.18	464.5
360.44	464.5	367.66	464.5	378.42	464.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.0277	58002	.02	108.99	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	77.58002	108.99		49.58	50		.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 447.02	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.49	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 446.54	* Reach Len. (ft)	* 49.58	* 50.00	*
52.14 *					
* Crit W.S. (ft)	* 446.54	* Flow Area (sq ft)	*	* 16.16	*
* E.G. Slope (ft/ft)	* 0.006355	* Area (sq ft)	*	* 16.16	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*
* Top Width (ft)	* 17.11	* Top Width (ft)	*	* 17.11	*
* Vel Total (ft/s)	* 5.59	* Avg. Vel. (ft/s)	*	* 5.59	*
* Max Chl Dpth (ft)	* 1.64	* Hydr. Depth (ft)	*	* 0.94	*
* Conv. Total (cfs)	* 1134.0	* Conv. (cfs)	*	* 1134.0	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 17.62	*
* Min Ch El (ft)	* 444.90	* Shear (lb/sq ft)	*	* 0.36	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 378.42	* 0.00	*
0.00 *					
* Frctn Loss (ft)	* 0.31	* Cum Volume (acre-ft)	*	* 0.31	*
0.00 *					
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 0.29	*
0.02 *					

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

Warning: 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
* E.G. Elev (ft)      * 447.46 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.61 * Wt. n-Val.      *      * 0.020 *
*
* W.S. Elev (ft)      * 446.85 * Reach Len. (ft) * 49.58 * 50.00 *
52.14 *
* Crit W.S. (ft)      * 446.85 * Flow Area (sq ft) *      * 21.71 *
*
* E.G. Slope (ft/ft)  * 0.005927 * Area (sq ft)    *      * 21.71 *
*
* Q Total (cfs)       * 135.60 * Flow (cfs)      *      * 135.60 *
*
* Top Width (ft)      * 18.36 * Top Width (ft)   *      * 18.36 *
*
* Vel Total (ft/s)    * 6.25 * Avg. Vel. (ft/s) *      * 6.25 *
*
* Max Chl Dpth (ft)   * 1.95 * Hydr. Depth (ft) *      * 1.18 *
*
* Conv. Total (cfs)   * 1761.4 * Conv. (cfs)     *      * 1761.4 *
*
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft) *      * 19.02 *
*
* Min Ch El (ft)      * 444.90 * Shear (lb/sq ft) *      * 0.42 *
*
* Alpha               * 1.00 * Stream Power (lb/ft s) * 378.42 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.29 * Cum Volume (acre-ft) * 0.00 * 0.43 *
0.01 *
* C & E Loss (ft)     * 0.01 * Cum SA (acres)     * 0.02 * 0.33 *
0.03 *
*****
*****

```

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: 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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 650

INPUT

Description:

Station Elevation Data		num= 138	
Sta	Elev	Sta	Elev
0	458	.02	458
.06	458.64	0.146	457.875
.73	457.73	0.11	456.63

Prop_Condn_100yr.rep

8.610016	4569.460022	455.7916.61002	45419.89001	453.16	25.25	452
32.64001	451.8239.02002	451.6741.21002	451.6342.42001	451.6243.45001		451.61
45.67001	451.5746.26001	451.5746.56003	451.5746.79001	451.58	47	451.6
50.80002	451.5755.54001	451.5356.27002	451.5357.20001	451.54	64.41	451.59
67.14001	451.6168.24002	451.6376.49002	451.882.86002	451.8686.55002		452
87.15002	452.34 92.25	45293.64001	452 95.44	451.496.49002		451.05
99.62003	450 101.27	449.44 101.91	449.15 104.02	448 104.68		447.63
106.44	446.52 107.24	446 109.86	444.28 110.29	444 112.2		444
114.24	444 114.91	444 115.91	444.34 121.17	446 123.57		447.54
124.32	448 127.08	449.79 127.46	450 128.91	450.14 132.01		450.43
135.22	450.7 138.05	450.87 139.08	450.95 141.04	451.12 141.82		451.19
144.92	451.47 149.76	452 161.4	453.42 162.93	453.59 166.55		454
169.82	454.22 170.96	454.28 171.72	454.3 172.18	454.29 172.64		454.25
173.23	454.2 175.3	454.06 176.36	454 179.73	453.5 179.82		453.44
180.09	453.41 180.62	453.46 185.62	454 192.97	455.82 194		456
195.18	456.17 195.89	456.41 196.36	456.49 198.01	456.67 199.51		456.79
200.12	456.83 201.41	456.87 202.47	456.88 203.84	456.89 206.8		456.87
207.99	456.85 209.07	456.83 210.25	456.78 211.77	456.71 219.97		456.3
223.43	456.13 226.84	457.8 231.83	460.27 232.9	460.25 233.32		460.24
233.7	459.86 233.82	459.74 235.03	459.84 235.32	459.87 239.5		459.93
257.83	460.2 259.28	460.31 263.66	460.48 270.83	460.78 271.73		460.79
271.77	460.79 272.1	460.42 272.21	460.29 274.33	460.3 296		460.44
296.63	460.44 297.37	460.45 298.17	460.46 312.14	460.55 312.82		460.55
320.42	460.61 321.01	460.61 323.18	460.63 329.77	460.67 330.12		460.95
330.39	461.17 333.74	461.35 337.69	461.57 341.7	461.8 345.06		462
351.92	462.59 356.68	463 363.66	463.42 370.62	464 371.58		464.03
375.28	464.12 378.16	464.17 390.64	464.31			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.0296.49002	.02	128.91	.02	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	96.49002	128.91		49.04 50	50.64	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 446.30	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.59	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 445.71	* Reach Len. (ft)	* 49.04	* 50.00	*
50.64 *					
* Crit W.S. (ft)	* 445.71	* Flow Area (sq ft)	*	* 14.64	*
* E.G. Slope (ft/ft)	*0.006103	* Area (sq ft)	*	* 14.64	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*
* Top Width (ft)	* 12.57	* Top Width (ft)	*	* 12.57	*
* Vel Total (ft/s)	* 6.17	* Avg. Vel. (ft/s)	*	* 6.17	*
* Max Chl Dpth (ft)	* 1.71	* Hydr. Depth (ft)	*	* 1.17	*
* Conv. Total (cfs)	* 1157.2	* Conv. (cfs)	*	* 1157.2	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 13.35	*
* Min Ch El (ft)	* 444.00	* Shear (lb/sq ft)	*	* 0.42	*

```

Prop_Condn_100yr.rep
* Alpha      *      1.00 * Stream Power (lb/ft s) * 390.64 *      0.00 *
  0.00 *
* Frctn Loss (ft) *      0.32 * Cum Volume (acre-ft) *      *      0.29 *
  0.00 *
* C & E Loss (ft) *      0.01 * Cum SA (acres) *      *      0.27 *
  0.02 *
*****
*****

```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

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

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

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft) * 446.82 * Element * Left OB * Channel *
Right OB *
* Vel Head (ft) * 0.71 * Wt. n-Val. *      * 0.020 *
*
* W.S. Elev (ft) * 446.11 * Reach Len. (ft) * 49.04 * 50.00 *
50.64 *
* Crit W.S. (ft) * 446.11 * Flow Area (sq ft) *      * 20.03 *
*
* E.G. Slope (ft/ft) * 0.005772 * Area (sq ft) *      * 20.03 *
*
* Q Total (cfs) * 135.60 * Flow (cfs) *      * 135.60 *
*
* Top Width (ft) * 14.27 * Top Width (ft) *      * 14.27 *
*
* Vel Total (ft/s) * 6.77 * Avg. Vel. (ft/s) *      * 6.77 *
*
* Max Chl Dpth (ft) * 2.11 * Hydr. Depth (ft) *      * 1.40 *
*
* Conv. Total (cfs) * 1784.9 * Conv. (cfs) *      * 1784.9 *
*
* Length Wtd. (ft) * 50.00 * Wetted Per. (ft) *      * 15.24 *
*
* Min Ch El (ft) * 444.00 * Shear (lb/sq ft) *      * 0.47 *
*
* Alpha      * 1.00 * Stream Power (lb/ft s) * 390.64 * 0.00 *
  0.00 *
* Frctn Loss (ft) * 0.30 * Cum Volume (acre-ft) * 0.00 * 0.40 *
  0.01 *
* C & E Loss (ft) * 0.01 * Cum SA (acres) * 0.02 * 0.31 *
  0.03 *
*****
*****

```

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.

Prop_Condn_100yr.rep

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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 600

INPUT

Description:

Station Elevation Data			num=	185							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	449.562.799988		449.273.419983		449.25	4.22998		449.255.289978		449.29	
6.5	449.368.539978		449.498.819977		449.59	2.69989		449.529.369995		449.52	
9.609985	449.529.709991		449.5210.43997		449.5810.71997		449.5910.95999		449.6		
11.19998	449.6111.45999		449.6112.16998		449.615.12997		449.58	19.84	449.45		
21.59	449.4123.42999		449.3825.31998		449.3827.22998		449.432.46997		449.49		
40.85999	449.4741.81998		449.4842.93997		449.48	47	449.4648.56998		449.45		
50.29999	449.4652.20999		449.4754.43997		449.4957.19998		449.5360.81998		449.6		
76.65997	449.9178.43997		449.9478.82999		449.9481.65997		45095.72998		450.25		
97.62997	450.2897.67999		450.2897.97998		450.27	98.84	450.26	99.87	450.22		
102.4	450.12	105.04	450	106.07	448.97	107.1	448	108.03	447.12		
109.12	446	109.78	445.37	111.24	444	111.37	443.88	111.65	443.6		
112.82	442.39	113.05	442.12	113.15	442	114.11	441.05	114.14	441.01		
114.23	441.02	114.24	441.02	115.65	441.28	116.28	441.44	116.67	441.6		
116.94	442	117.41	442.19	121.98	444	122.48	444.21	127.11	446		
127.8	446.24	132.22	447.76	132.56	447.87	132.92	448	133.32	448.06		
133.51	448.09	137.29	448.63	141.75	449.18	149.42	450	157.1	450.48		
158.47	450.59	160.38	450.76	161.89	450.9	165.07	451.17	169.58	451.52		
170.95	451.65	174.19	452	174.39	452.05	175.29	452.19	178.52	452.57		
179.1	452.66	181.72	452.98	182.39	453.07	182.89	453.11	183.5	453.15		
183.82	453.16	184.11	453.16	185.02	453.12	185.43	453.1	186.98	453.11		
191.22	453.17	194.97	453.22	197.2	453.23	199.27	453.24	201.24	453.24		
203.18	453.24	205.4	453.22	207.17	453.2	207.8	453.18	208.95	453.13		
209.85	453.09	211.07	453.03	213.51	452.98	214.06	452.96	215.57	452.88		
228.88	459.52	229.53	459.85	230.46	459.83	231.04	459.81	231.05	459.8		
231.54	459.31	231.6	459.32	233.05	459.44	244.66	459.6	255.64	459.75		
257.29	459.77	257.63	459.77	257.98	460.01	258.39	460.28	258.47	460.28		
258.48	460.28	258.74	460.28	262.8	460.31	263.27	459.91	263.39	459.81		
270.07	459.86	272.53	459.88	273.94	459.89	276.34	459.9	286.84	459.98		
286.93	459.98	287.03	459.98	289.19	460	290.03	460.01	290.35	460.01		
291.2	460.49	291.26	460.52	299.79	460.58	302.23	460.6	302.56	460.43		
303.15	460.11	306.48	460.14	311.65	460.19	316.85	460.23	316.89	460.23		
317.14	460.23	317.54	460.57	317.74	460.73	318.83	460.74	321.32	460.77		
321.72	460.44	321.92	460.27	326.21	460.31	329.47	460.33	332.58	460.35		
337.49	460.39	348.71	460.49	348.92	460.7	349.22	460.99	356.71	461.69		
359.79	462	364.59	462.67	365.92	462.84	366.18	462.86	368.25	463		
368.88	463	370.61	463.79	371.03	464	371.48	464	371.89	464		
378.79	464.3	383.21	464.47	383.28	464.48	384	464.5	386.11	464.5		

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

0	.0297.67999	.02	127.8	.02	

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
	97.67999	127.8	49.43	50	49.19	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)      * 444.36 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.71 * Wt. n-Val.       *      * 0.020 *
*
* W.S. Elev (ft)      * 443.65 * Reach Len. (ft)  * 49.43 * 50.00 *
49.19 *
* Crit W.S. (ft)      * 443.65 * Flow Area (sq ft) *      * 13.34 *
*
* E.G. Slope (ft/ft)  * 0.006606 * Area (sq ft)     *      * 13.34 *
*
* Q Total (cfs)       * 90.40 * Flow (cfs)       *      * 90.40 *
*
* Top Width (ft)      * 9.49 * Top Width (ft)   *      * 9.49 *
*
* Vel Total (ft/s)    * 6.78 * Avg. Vel. (ft/s) *      * 6.78 *
*
* Max Chl Dpth (ft)   * 2.64 * Hydr. Depth (ft) *      * 1.41 *
*
* Conv. Total (cfs)   * 1112.2 * Conv. (cfs)      *      * 1112.2 *
*
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft) *      * 11.22 *
*
* Min Ch El (ft)      * 441.01 * Shear (lb/sq ft) *      * 0.49 *
*
* Alpha               * 1.00 * Stream Power (lb/ft s) * 386.11 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.32 * Cum Volume (acre-ft) *      * 0.28 *
0.00 *
* C & E Loss (ft)     * 0.02 * Cum SA (acres)    *      * 0.26 *
0.02 *
*****
*****

```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

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

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

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```

*****
* E.G. Elev (ft)      * 444.98 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.84 * Wt. n-Val.       *      * 0.020 *
*
* W.S. Elev (ft)      * 444.14 * Reach Len. (ft)  * 49.43 * 50.00 *
49.19 *
* Crit W.S. (ft)      * 444.14 * Flow Area (sq ft) *      * 18.44 *
*
* E.G. Slope (ft/ft)  * 0.006300 * Area (sq ft)     *      * 18.44 *
*
* Q Total (cfs)       * 135.60 * Flow (cfs)       *      * 135.60 *
*

```

Prop_Condn_100yr.rep					
* Top Width (ft)	*	11.23	* Top Width (ft)	*	11.23 *
* Vel Total (ft/s)	*	7.35	* Avg. Vel. (ft/s)	*	7.35 *
* Max Chl Dpth (ft)	*	3.13	* Hydr. Depth (ft)	*	1.64 *
* Conv. Total (cfs)	*	1708.4	* Conv. (cfs)	*	1708.4 *
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	13.25 *
* Min Ch El (ft)	*	441.01	* Shear (lb/sq ft)	*	0.55 *
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	386.11 * 0.00 *
* Frctn Loss (ft)	*	0.30	* Cum Volume (acre-ft)	*	0.00 * 0.38 *
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*	0.02 * 0.29 *

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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 550

INPUT

Description:

Station Elevation Data		num=	154				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	453.696	429993	453.936	890015	453.946	970001	453.947
7.080017	453.947	130005	453.94	7.23999	453.957	290009	453.957
7.350006	453.957	380005	453.957	420013	453.957	580017	453.928
8.410004	453.93	10.5	453.5	13.84	452.8615	76001	452.4517
17.73999	45218.32001		451.8625	67999	45031.79999		448.52
37.09	447.948	23999	447.5852	54999	447.4854	51999	447.4456
58.54001	447.41	58.94	447.41	59.09	447.41	59.12	447.4259
59.73001	447.5760	26001	447.6	61	447.6161	92999	447.61
73.23001	447.5278	32001	447.588	35001	447.4990	07001	447.48
100.02	447.43	102	447.4	106.61	447.37	107.8	447.36
114.54	447.43	115.29	447.43	124.42	447.56	131.4	447.61
148.99	447.96	150.25	448	151.48	448	151.96	448
155.93	447.39	158.34	446.43	158.9	446.21	159.46	446
164.19	444.17	164.59	444	166.13	443.35	168	442.41
170.55	441.2	173.01	440	174.11	439.46	177.28	438
178.87	438	180.43	438	183.24	439.5	184.11	440
187.85	442	189.24	442.77	191.21	443.73	191.84	444
192.36	444.18	195.53	444.89	199.3	445.78	200.46	446
222.18	448	224.48	448.16	224.54	448.17	228.59	448.46

Prop_Condn_100yr.rep

229.48	448.54	231.2	448.61	235.04	448.71	237.2	448.75	241.42	448.81
247.89	448.83	248.54	448.82	250.99	448.85	251.76	448.82	252.42	448.83
264.7	448.98	268.21	449	269.58	449.02	269.86	449.02	271.8	449.08
272.69	449.1	277.02	449.25	283.93	452.68	297.37	459.39	298.15	459.38
298.88	459.36	299.15	459.09	299.38	458.86	300.26	458.93	300.89	458.99
313.23	459.16	322.52	459.28	323.52	459.3	323.55	459.3	323.83	459.6
324.04	459.8	324.46	459.8	326.22	459.65	329.26	459.85	330.52	459.86
330.81	459.71	331.5	459.37	335.61	459.41	337.7	459.43	343.63	459.5
345.13	459.51	379.1	459.86	384.53	459.91	388.45	459.95	390.36	459.96
390.51	460.09	390.94	460.46	391.12	460.46	391.56	460.47	391.91	460.47
397.3	460.54	397.61	460.25	397.83	460.04	412.08	460.19	415.32	460.22
423.61	460.32	423.93	460.62	424.15	460.81	424.44	460.84		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	160.02	.02	191.85	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	160.02	191.85		49.94	50	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)          * 440.62 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)          * 0.65 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)          * 439.97 * Reach Len. (ft)   * 49.94 * 50.00 *
50.00 *
* Crit W.S. (ft)          * 439.97 * Flow Area (sq ft) *          * 14.00 *
*
* E.G. Slope (ft/ft)      * 0.006094 * Area (sq ft)      *          * 14.00 *
*
* Q Total (cfs)           * 90.40 * Flow (cfs)        *          * 90.40 *
*
* Top Width (ft)          * 10.98 * Top Width (ft)    *          * 10.98 *
*
* Vel Total (ft/s)        * 6.46 * Avg. Vel. (ft/s)  *          * 6.46 *
*
* Max Chl Dpth (ft)       * 1.97 * Hydr. Depth (ft)  *          * 1.28 *
*
* Conv. Total (cfs)       * 1158.0 * Conv. (cfs)       *          * 1158.0 *
*
* Length Wtd. (ft)        * 50.00 * Wetted Per. (ft)  *          * 11.92 *
*
* Min Ch El (ft)          * 438.00 * Shear (lb/sq ft)  *          * 0.45 *
*
* Alpha                    * 1.00 * Stream Power (lb/ft s) * 424.44 * 0.00 *
0.00 *
* Frctn Loss (ft)         * 0.31 * Cum Volume (acre-ft) *          * 0.26 *
0.00 *
* C & E Loss (ft)         * 0.02 * Cum SA (acres)     *          * 0.25 *
0.02 *
*****

```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: 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

Prop_Condn_100yr.rep
 not a valid subcritical answer. The program
 defaulted to critical depth.

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft)      * 441.18 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.77 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)      * 440.41 * Reach Len. (ft)   * 49.94 * 50.00 *
50.00 *
* Crit W.S. (ft)      * 440.41 * Flow Area (sq ft) *          * 19.25 *
*
* E.G. Slope (ft/ft)  * 0.005810 * Area (sq ft)      *          * 19.25 *
*
* Q Total (cfs)       * 135.60 * Flow (cfs)        *          * 135.60 *
*
* Top Width (ft)      * 12.73 * Top Width (ft)    *          * 12.73 *
*
* Vel Total (ft/s)    * 7.04 * Avg. Vel. (ft/s)  *          * 7.04 *
*
* Max Chl Dpth (ft)   * 2.41 * Hydr. Depth (ft)  *          * 1.51 *
*
* Conv. Total (cfs)   * 1778.9 * Conv. (cfs)       *          * 1778.9 *
*
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft)  *          * 13.88 *
*
* Min Ch El (ft)      * 438.00 * Shear (lb/sq ft)  *          * 0.50 *
*
* Alpha               * 1.00 * Stream Power (lb/ft s) * 424.44 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.29 * Cum Volume (acre-ft) * 0.00 * 0.36 *
0.01 *
* C & E Loss (ft)     * 0.02 * Cum SA (acres)     * 0.02 * 0.28 *
0.03 *
*****
*****

```

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: 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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 500

INPUT

Description:

Station Elevation Data		num= 132	
Sta	Elev	Sta	Elev
0	446	.01	4462.820007
7.730011	445.7316	.07001	445.6 17.12
24.76001	445.6627	.58002	445.6936
51.84	445.78	56.41	445.7765

Prop_Condn_100yr.rep

81.53	445.62	93.95	001	445.55	98.13	445.51	101.98	445.46	103.28	445.46
104.54	445.46	106.72		445.48	112.94	445.57	116.12	445.61	117.63	445.62
118.45	445.62	125.3		445.57	126.15	445.55	129.34	445.46	142.79	445.24
145.63	445.17	147.02		445.12	147.78	445.11	149.49	445.1	150.16	445.08
150.55	445.05	150.75		445	150.88	444.89	151.12	444.84	157.16	444
160.02	443.12	161.34		442.72	163.66	442	168.92	440.43	169.79	440.18
170.47	440	172.59		439.24	176.12	438	176.83	438	178.87	438
183.05	438	184.15		439.24	184.91	440	188.52	441.54	189.49	442
190.06	442.17	191.42		442.49	197.85	444	202.47	444.4	203.22	444.45
203.99	444.47	211.19		444.98	212.42	444.99	213.39	445.02	214.43	445.08
226.26	445.93	226.4		445.94	227.31	446	248.89	446.35	253.05	446.42
255.8	446.46	256.03		446.46	257.37	446.49	257.66	446.5	257.77	446.5
257.8	446.5	257.82		446.5	257.83	446.5	257.85	446.5	257.93	446.51
258.05	446.51	258.16		446.51	258.29	446.51	258.42	446.51	258.54	446.51
258.69	446.51	258.88		446.51	258.99	446.5	260.09	446.49	260.51	446.49
260.96	446.48	269.83		446.62	276.97	451.01	292.93	458.89	295.67	458.9
296.39	458.88	297.25		458.87	297.52	458.6	297.77	458.36	298.64	458.43
299.32	458.48	312.38		458.63	318.91	458.74	323.04	458.83	330.24	459.24
331.58	459.31	335.33		459.19	337.82	459.19	337.83	459.11	341.91	459.16
341.94	459.26	388.05		460.34	396.6	460.45	398.66	460.47	399.34	460.48
400.03	460.48	400.15		460.49	402.11	460.51	412.84	460.65	412.89	460.65
413.16	460.66	414.42		460.68	416.52	460.71	416.69	460.58	417.15	460.21
418.46	460.23	424.44		460.31						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	160.02	.02	191.42	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	160.02	191.42		49.72	50	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
*****
* E.G. Elev (ft)          * 440.10 * Element                * Left OB * Channel *
Right OB *
* Vel Head (ft)          * 0.59 * Wt. n-Val.              *          * 0.020 *
*
* W.S. Elev (ft)          * 439.50 * Reach Len. (ft)        * 49.72 * 50.00 *
49.15 *
* Crit W.S. (ft)          * 439.50 * Flow Area (sq ft)      *          * 14.65 *
*
* E.G. Slope (ft/ft)      * 0.006174 * Area (sq ft)           *          * 14.65 *
*
* Q Total (cfs)           * 90.40 * Flow (cfs)             *          * 90.40 *
*
* Top Width (ft)          * 12.56 * Top Width (ft)         *          * 12.56 *
*
* Vel Total (ft/s)        * 6.17 * Avg. Vel. (ft/s)       *          * 6.17 *
*
* Max Chl Dpth (ft)       * 1.50 * Hydr. Depth (ft)       *          * 1.17 *
*
* Conv. Total (cfs)       * 1150.5 * Conv. (cfs)            *          * 1150.5 *
*
* Length Wtd. (ft)        * 50.00 * Wetted Per. (ft)       *          * 13.49 *
*
* Min Ch El (ft)          * 438.00 * Shear (lb/sq ft)       *          * 0.42 *
*
* Alpha                    * 1.00 * Stream Power (lb/ft s) * 424.44 * 0.00 *
0.00 *
* Frctn Loss (ft)        * 0.31 * Cum Volume (acre-ft)   *          * 0.25 *
0.00 *

```

Prop_Condn_100yr.rep

* C & E Loss (ft)	* 0.00	* Cum SA (acres)
0.02		0.24

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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	* 440.62	* Element
Right OB		* Left OB
* Vel Head (ft)	* 0.72	* Channel
		* 0.020
* W.S. Elev (ft)	* 439.90	* Reach Len. (ft)
49.15		* 49.72
* Crit W.S. (ft)	* 439.90	* Flow Area (sq ft)
		* 19.96
* E.G. Slope (ft/ft)	* 0.005833	* Area (sq ft)
		* 19.96
* Q Total (cfs)	* 135.60	* Flow (cfs)
		* 135.60
* Top Width (ft)	* 14.07	* Top Width (ft)
		* 14.07
* Vel Total (ft/s)	* 6.79	* Avg. Vel. (ft/s)
		* 6.79
* Max Chl Dpth (ft)	* 1.90	* Hydr. Depth (ft)
		* 1.42
* Conv. Total (cfs)	* 1775.5	* Conv. (cfs)
		* 1775.5
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)
		* 15.23
* Min Ch El (ft)	* 438.00	* Shear (lb/sq ft)
		* 0.48
* Alpha	* 1.00	* Stream Power (lb/ft s)
0.00		* 424.44
* Frctn Loss (ft)	* 0.29	* Cum Volume (acre-ft)
0.01		* 0.00
* C & E Loss (ft)	* 0.00	* Cum SA (acres)
0.03		* 0.02
		* 0.26

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

Prop_Condn_100yr.rep
defaulted to critical depth.

CROSS SECTION

RIVER: Cl_Creek_Prop
REACH: Cl_Creek_Prop RS: 450

INPUT

Description:

Station Elevation Data		num= 120									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4446.609985	443.8510.60999	443.7813.35001	443.7515.44998	443.74						
19.38	443.719.97998	443.720.35001	443.7120.88998	443.7521.67999	443.77						
25.94998	443.82	45.16	44450.97998	444.0458.81998	444.09	66.87	444.12				
72.73999	444.1475.29999	444.13	79	444.0984.89999	444.02	86.84	444				
101.32	443.83	105.38	443.77	113.73	443.64	118.19	443.59	153.8	442.77		
156.71	442.71	157.28	442.69	157.55	442.69	158.2	442.68	169.18	442		
171.68	442	172.83	442	175.81	442	177.17	442	180.07	442		
181.7	442	183.46	442	184.63	442	188.21	442	188.39	442		
188.6	442	191.22	440.71	192.65	440	196.08	438.4	196.94	438		
198.14	437.46	201.29	436	201.77	436	202.85	436	203.1	436		
206.01	437.26	207.76	438	209.64	438.73	210.53	438.95	211.8	439.33		
212.92	439.46	213.76	439.63	214.08	439.78	214.34	440	215.88	440.28		
220.29	441.07	222.89	441.53	225.05	441.89	225.3	441.93	225.84	442		
226.22	442.02	227.11	442.04	228.21	442.02	228.76	442	232	441.86		
232.76	441.85	234.89	441.99	235.08	442	241.23	442.72	244.97	443.21		
250.31	444	253.82	444.2	254.55	444.23	254.65	444.23	255.24	444.25		
256.19	444.3	265.21	444.76	269.02	446.38	271.1	447.26	274.26	447.76		
283.98	449.3	286.04	449.63	294.13	450.91	297.83	451.49	302.94	452.31		
309.61	453.37	316.98	454.54	321.39	455.24	324.58	455.75	333.17	457.12		
334.14	457.27	344.44	458.92	345.12	459.02	349.39	459.41	349.95	459.41		
351.18	459.39	351.54	459.09	351.78	458.89	352.74	458.97	353.57	459.03		
362.6	459.19	380.43	459.51	380.96	459.96	380.97	459.97	381.08	460		
381.14	460.02	383.34	460.06	383.71	460.07	384.5	459.64	384.63	459.57		
389.73	459.65	391.67	459.68	402.42	459.83	403.58	459.85	411.21	459.96		

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.02	184.63	.02	215.88	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	184.63	215.88		50.28	50	48.87	.1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 438.77	* Element	* Left OB	* Channel	*
Right OB					
* Vel Head (ft)	* 0.63	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 438.15	* Reach Len. (ft)	* 50.28	* 50.00	*
48.87					
* Crit W.S. (ft)	* 438.15	* Flow Area (sq ft)	*	* 14.20	*
* E.G. Slope (ft/ft)	* 0.006142	* Area (sq ft)	*	* 14.20	*
* Q Total (cfs)	* 90.40	* Flow (cfs)	*	* 90.40	*
* Top Width (ft)	* 11.50	* Top Width (ft)	*	* 11.50	*

Prop_Condn_100yr.rep					
* Vel Total (ft/s)	*	6.37	* Avg. Vel. (ft/s)	*	6.37
* Max Chl Dpth (ft)	*	2.14	* Hydr. Depth (ft)	*	1.23
* Conv. Total (cfs)	*	1153.5	* Conv. (cfs)	*	1153.5
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	12.41
* Min Ch El (ft)	*	436.00	* Shear (lb/sq ft)	*	0.44
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	411.21
0.00	*			*	0.00
* Frctn Loss (ft)	*	0.31	* Cum Volume (acre-ft)	*	0.23
0.00	*			*	
* C & E Loss (ft)	*	0.03	* Cum SA (acres)	*	0.22
0.02	*			*	

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

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

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

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	*	439.32	* Element	*	Left OB
Right OB	*			*	Channel
* Vel Head (ft)	*	0.74	* Wt. n-Val.	*	0.020
* W.S. Elev (ft)	*	438.58	* Reach Len. (ft)	*	50.28
48.87	*			*	50.00
* Crit W.S. (ft)	*	438.58	* Flow Area (sq ft)	*	19.66
* E.G. Slope (ft/ft)	*	0.005825	* Area (sq ft)	*	19.66
* Q Total (cfs)	*	135.60	* Flow (cfs)	*	135.60
* Top Width (ft)	*	13.56	* Top Width (ft)	*	13.56
* Vel Total (ft/s)	*	6.90	* Avg. Vel. (ft/s)	*	6.90
* Max Chl Dpth (ft)	*	2.58	* Hydr. Depth (ft)	*	1.45
* Conv. Total (cfs)	*	1776.7	* Conv. (cfs)	*	1776.7
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	14.65
* Min Ch El (ft)	*	436.00	* Shear (lb/sq ft)	*	0.49
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	411.21
0.00	*			*	0.00
* Frctn Loss (ft)	*	0.29	* Cum Volume (acre-ft)	*	0.00
0.01	*			*	0.31
* C & E Loss (ft)	*	0.03	* Cum SA (acres)	*	0.02
	*			*	0.25

Prop_Condn_100yr.rep

0.03 *

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: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 400

INPUT

Description:

Station Elevation Data		num= 147		Station Elevation Data		num= 147	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	442.07	6300049	442.79	00085	441.99	2309998	441.98
6.619995	442.12	8.76001	442.16	10.81	442.12	13.06	442.04
15.48001	441.97	19.87	441.93	23.19	441.92	23.26999	441.92
31.76001	441.94	36.88	441.99	36.91	441.99	37.51001	442.41
45.32999	442.12	47.66998	442.15	61.28	442.4	63.09	442.46
71.88	442.51	73.62	442.52	78.13	442.54	82.41998	442.55
89.88998	442.54	90.87	442.53	96.69998	442.49	106.23	442.41
116.9	442.35	123.81	442.35	127.25	442.33	131.2	442.3
142.15	442.15	144.58	442.1	148.57	442	163.07	441.28
167.07	441.08	175.32	440.69	177.73	440.59	180.43	440.49
186.22	440.29	186.75	440.27	187.61	440.25	188.08	440.24
195.95	440.09	198.61	440.02	199.11	440	202.39	439.84
202.92	439.79	204	439.67	205.83	439.46	210.49	439.06
213.12	438.82	217.93	438	220.62	437.14	224.02	436
230.33	434.06	230.38	434.05	230.39	434.05	230.55	434.06
230.62	434.08	230.78	434.14	230.91	434.17	231.36	434.26
234.25	434.9	238.94	436	244	437.45	245.55	437.89
245.75	437.95	245.76	437.96	245.77	437.96	245.8	437.93
245.84	437.91	246.39	438	246.86	438.05	252.16	438.44
257.08	440	260.19	440.46	263.67	441.09	268.9	442
276.74	442.42	279.39	442.55	280.43	442.59	281.37	442.63
283.38	442.67	283.89	442.67	285.49	442.63	285.56	442.57
286	442.52	286.86	442.49	293.2	442.35	293.52	442.33
297.9	442.14	298.25	442.15	298.83	442.22	300.02	442.38
323.17	444.75	331.55	445.48	338.16	446	356.89	447.97
360.6	448.32	378.71	450	378.74	450	379.9	450.05
381.56	450.75	391.47	454.88	396.75	457.08	403.89	460.05
405.71	460.03	405.82	459.94	406.32	459.54	408.04	459.67
408.7	459.68	409.05	459.69	417.36	459.84	421.57	459.92
426.9	460.01	431.09	460.09				

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	211.67	.02	244	.02

Prop_Condn_100yr.rep
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 211.67 244 49.39 50 49.1 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

```
*****
*****
* E.G. Elev (ft)      * 436.58 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.52 * Wt. n-Val.       *      * 0.020 *
*
* W.S. Elev (ft)      * 436.06 * Reach Len. (ft)  * 49.39 * 50.00 *
49.10 *
* Crit W.S. (ft)      * 436.06 * Flow Area (sq ft) *      * 15.55 *
*
* E.G. Slope (ft/ft)  * 0.006264 * Area (sq ft)     *      * 15.55 *
*
* Q Total (cfs)       * 90.40 * Flow (cfs)       *      * 90.40 *
*
* Top Width (ft)      * 15.28 * Top Width (ft)   *      * 15.28 *
*
* Vel Total (ft/s)    * 5.81 * Avg. Vel. (ft/s) *      * 5.81 *
*
* Max Chl Dpth (ft)   * 2.01 * Hydr. Depth (ft) *      * 1.02 *
*
* Conv. Total (cfs)   * 1142.2 * Conv. (cfs)      *      * 1142.2 *
*
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft) *      * 15.82 *
*
* Min Ch El (ft)      * 434.05 * Shear (lb/sq ft) *      * 0.38 *
*
* Alpha              * 1.00 * Stream Power (lb/ft s) * 431.09 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.30 * Cum Volume (acre-ft) *      * 0.21 *
0.00 *
* C & E Loss (ft)     * 0.00 * Cum SA (acres)    *      * 0.21 *
0.02 *
*****
*****
```

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

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```
*****
*****
* E.G. Elev (ft)      * 437.04 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.62 * Wt. n-Val.       *      * 0.020 *
*
* W.S. Elev (ft)      * 436.41 * Reach Len. (ft)  * 49.39 * 50.00 *
49.10 *
* Crit W.S. (ft)      * 436.41 * Flow Area (sq ft) *      * 21.40 *
*
* E.G. Slope (ft/ft)  * 0.005876 * Area (sq ft)     *      * 21.40 *

```

Prop_Condn_100yr.rep

* Q Total (cfs)	* 135.60	* Flow (cfs)	* 135.60
* Top Width (ft)	* 17.59	* Top Width (ft)	* 17.59
* Vel Total (ft/s)	* 6.34	* Avg. Vel. (ft/s)	* 6.34
* Max Chl Dpth (ft)	* 2.36	* Hydr. Depth (ft)	* 1.22
* Conv. Total (cfs)	* 1768.9	* Conv. (cfs)	* 1768.9
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	* 18.23
* Min Ch El (ft)	* 434.05	* Shear (lb/sq ft)	* 0.43
* Alpha 0.00	* 1.00	* Stream Power (lb/ft s)	* 431.09
* Frctn Loss (ft)	* 0.28	* Cum Volume (acre-ft)	* 0.00
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 0.02

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

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

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

CROSS SECTION

RIVER: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 350

INPUT

Description:

Station	Elevation	Data	num=	102	Station	Elevation	Station	Elevation	Station	Elevation
0	4413.129974	440.726.109985	440.38.839996	440.1810.72998	440.13					
11.95999	440.1114.54999	440.0515.91998	44017.82999	439.9719.20999	439.95					
21.44998	439.93 22.97	439.9324.63998	439.9426.50998	439.97 27.62	440					
32.67999	440.1433.04999	440.1433.44998	440.15 47.37	440.48 51.75	440.55					
59.04999	440.761.23999	440.7364.93997	440.893.42999	441.1393.45999	441.13					
93.47	441.1393.47998	441.13 93.5	441.1393.50998	441.1393.53998	441.13					
134.43	440.87 136.98	440.86 141.19	440.85 154.19	440.57 160.98	440.48					
163.53	440.44 165.58	440.4 167.4	440.35 169.21	440.28 171.22	440.2					
175.33	440 185.77	439.56 187.23	439.5 190.76	439.38 209	438.34					
211.59	438.21 215.95	438 224.47	437.48 228.85	437.21 229.32	437.19					
230.21	437.18 231.49	437.14 233.43	437.06 235.22	436.97 245.74	436.44					
254.46	436 259.11	434.34 260.28	434 264.49	434 265.78	434					
271.97	434 272.28	434 272.54	434.07 275.63	434.79 278.6	435.51					
280.63	436 285.24	437.58 286.61	438 292.29	438.85 294.41	439.16					
294.82	439.2 297.04	439.34 297.96	439.41 302.75	440 308.18	440.55					
311.17	440.93 317.49	441.66 319.69	441.95 319.81	441.97 320.1	442					

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328.92	442.55	330.42	442.66	333.91	442.92	341.82	443.55	345.61	443.83
347.26	444	362.74	445.55	367.26	446	368	446.07	368.33	446.1
370.99	446.33	389.52	448	392.15	448.13	412.32	449.47	414.1	449.55
422.9	449.9	425.64	450	429.27	450.16	435.12	450.41	438.61	451.77
444.94	454.13	450.08	456.02						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	245.74	.02	278.6	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	245.74	278.6		49.76 50	51.18	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)          * 435.90 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)          * 0.54 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)          * 435.36 * Reach Len. (ft)   * 49.76 * 50.00 *
51.18 *
* Crit W.S. (ft)          * 435.36 * Flow Area (sq ft) *          * 23.01 *
*
* E.G. Slope (ft/ft)      * 0.005951 * Area (sq ft)      *          * 23.01 *
*
* Q Total (cfs)           * 135.50 * Flow (cfs)        *          * 135.50 *
*
* Top Width (ft)          * 21.71 * Top Width (ft)     *          * 21.71 *
*
* Vel Total (ft/s)        * 5.89 * Avg. Vel. (ft/s)   *          * 5.89 *
*
* Max Chl Dpth (ft)       * 1.36 * Hydr. Depth (ft)   *          * 1.06 *
*
* Conv. Total (cfs)       * 1756.5 * Conv. (cfs)        *          * 1756.5 *
*
* Length Wtd. (ft)        * 50.00 * Wetted Per. (ft)   *          * 22.10 *
*
* Min Ch El (ft)          * 434.00 * Shear (lb/sq ft)   *          * 0.39 *
*
* Alpha                   * 1.00 * Stream Power (lb/ft s) * 450.08 * 0.00 *
0.00 *
* Frctn Loss (ft)         * 0.31 * Cum Volume (acre-ft) *          * 0.19 *
0.00 *
* C & E Loss (ft)         * 0.01 * Cum SA (acres)      *          * 0.18 *
0.02 *
*****
*****

```

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

Warning: 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
* E.G. Elev (ft)          * 436.38 * Element          * Left OB * Channel *

```

Prop_Condn_100yr.rep

```

Right OB *
* Vel Head (ft) * 0.67 * Wt. n-Val. * * 0.020 *
0.020 *
* W.S. Elev (ft) * 435.71 * Reach Len. (ft) * 49.76 * 50.00 *
51.18 *
* Crit W.S. (ft) * 435.71 * Flow Area (sq ft) * * 30.99 *
0.08 *
* E.G. Slope (ft/ft) *0.005471 * Area (sq ft) * * 30.99 *
0.08 *
* Q Total (cfs) * 203.25 * Flow (cfs) * * 203.15 *
0.10 *
* Top Width (ft) * 24.15 * Top Width (ft) * * 23.33 *
0.83 *
* Vel Total (ft/s) * 6.54 * Avg. Vel. (ft/s) * * 6.56 *
1.16 *
* Max Chl Dpth (ft) * 1.71 * Hydr. Depth (ft) * * 1.33 *
0.10 *
* Conv. Total (cfs) * 2747.8 * Conv. (cfs) * * 2746.5 *
1.3 *
* Length Wtd. (ft) * 50.00 * Wetted Per. (ft) * * 23.79 *
0.85 *
* Min Ch El (ft) * 434.00 * Shear (lb/sq ft) * * 0.44 *
0.03 *
* Alpha * 1.00 * Stream Power (lb/ft s) * 450.08 * 0.00 *
0.00 *
* Frctn Loss (ft) * 0.28 * Cum Volume (acre-ft) * 0.00 * 0.26 *
0.01 *
* C & E Loss (ft) * 0.03 * Cum SA (acres) * 0.02 * 0.21 *
0.03 *
*****
*****

```

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: 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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 300

INPUT

Description:

Station Elevation Data		num= 94									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4381.670013	437.912.040009	437.92.799988	437.917.959991	438						
9.76001	438.09	11.25	438.13	12.53	438.1213.73001	438.117.42999	438				
17.45999	438	23.09	437.8923.70001	437.9	26.87	438	31.97	438.16			
47.62	438.63	49.97	438.6950.79999	438.7153.39999	438.7578.86002	439.14					
81.34	439.1690.20999	439.2993.76999	439.32	94.19	439.3296.86002	439.33					
107.93	439.3	130.48	439.21	131.76	439.21	132.54	439.21	132.61	439.21		
134.01	439.19	155.94	438.93	162.28	438.88	166.2	438.83	170.8	438.75		
177.24	438.65	181.73	438.56	191.54	438.34	192.53	438.32	201.72	438.03		
201.79	438.03	202.64	438	211.35	437.72	213.52	437.63	222.95	437.37		
225.61	437.28	228.58	437.18	241.6	436.71	252.81	436.31	257.5	436.13		
260.41	436	262.63	435.82	270.78	435.07	282.5	434	285.96	432.79		

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288.09	432	288.76	432	288.83	432	289.24	432	292.77	433.4
293.39	433.55	293.63	433.62	294.63	433.73	295.2	433.85	296.3	434
300.68	434.27	301.29	434.42	302.3	434.66	303.11	434.77	309	436
311.47	436.19	314.47	436.44	333.07	438	340.38	438.86	349.45	439.9
350.06	439.97	350.32	440	355.45	440.63	364.47	442	366	442.17
380.3	444	386.88	444.67	391.7	445.13	400.77	446	411.39	446.96
423.34	448	430.04	448.27	439.97	448.55	452.04	448.94	455.86	449.06
458.59	449.14	460.88	449.2	463.17	449.25	476.72	449.39		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	270.78	.02	301.29	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	270.78	301.29		49.5	50	.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)          * 435.02 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)          * 0.51 * Wt. n-Val.        *          * 0.020 *
0.020 *
* W.S. Elev (ft)         * 434.52 * Reach Len. (ft)   * 49.50 * 50.00 *
49.57 *
* Crit W.S. (ft)         * 434.52 * Flow Area (sq ft)  *          * 23.74 *
0.02 *
* E.G. Slope (ft/ft)      * 0.006380 * Area (sq ft)       *          * 23.74 *
0.02 *
* Q Total (cfs)           * 135.50 * Flow (cfs)         *          * 135.48 *
0.02 *
* Top Width (ft)          * 24.87 * Top Width (ft)     *          * 24.46 *
0.41 *
* Vel Total (ft/s)        * 5.70 * Avg. Vel. (ft/s)   *          * 5.71 *
0.78 *
* Max Chl Dpth (ft)       * 2.52 * Hydr. Depth (ft)   *          * 0.97 *
0.05 *
* Conv. Total (cfs)       * 1696.4 * Conv. (cfs)        *          * 1696.2 *
0.2 *
* Length Wtd. (ft)        * 50.00 * Wetted Per. (ft)   *          * 25.18 *
0.42 *
* Min Ch El (ft)          * 432.00 * Shear (lb/sq ft)   *          * 0.38 *
0.02 *
* Alpha                   * 1.00 * Stream Power (lb/ft s) * 476.72 * 0.00 *
0.00 *
* Frctn Loss (ft)         * 0.30 * Cum Volume (acre-ft) *          * 0.16 *
0.00 *
* C & E Loss (ft)         * 0.00 * Cum SA (acres)     *          * 0.16 *
0.02 *
*****
*****

```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

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

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated

water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program

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defaulted to critical depth.

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```
*****
*****
* E.G. Elev (ft)      * 435.45 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.57 * Wt. n-Val.        *          * 0.020 *
0.020 *
* W.S. Elev (ft)      * 434.88 * Reach Len. (ft)   * 49.50 * 50.00 *
49.57 *
* Crit W.S. (ft)      * 434.88 * Flow Area (sq ft) *          * 33.25 *
0.50 *
* E.G. Slope (ft/ft)  * 0.005621 * Area (sq ft)      *          * 33.25 *
0.50 *
* Q Total (cfs)       * 203.25 * Flow (cfs)        *          * 202.27 *
0.98 *
* Top Width (ft)      * 30.73 * Top Width (ft)    *          * 28.40 *
2.33 *
* Vel Total (ft/s)    * 6.02 * Avg. Vel. (ft/s)  *          * 6.08 *
1.97 *
* Max Chl Dpth (ft)   * 2.88 * Hydr. Depth (ft)  *          * 1.17 *
0.21 *
* Conv. Total (cfs)   * 2711.0 * Conv. (cfs)       *          * 2697.9 *
13.1 *
* Length Wtd. (ft)    * 49.99 * Wetted Per. (ft)  *          * 29.14 *
2.38 *
* Min Ch El (ft)      * 432.00 * Shear (lb/sq ft)  *          * 0.40 *
0.07 *
* Alpha              * 1.02 * Stream Power (lb/ft s) * 476.72 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.27 * Cum Volume (acre-ft) * 0.00 * 0.22 *
0.01 *
* C & E Loss (ft)     * 0.00 * Cum SA (acres)     * 0.02 * 0.18 *
0.03 *
*****
*****
```

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: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 250

INPUT

Description:

Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	437	3.23999	436.495	0.089996	436.556	4.29993	436.627	5.70007	436.64
8.700012	436.629	8.39996	436.58	10.91	436.56	11.81	436.561	12.92999	436.57

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16.78	436.6	20.59	436.38	20.91	436.36	20.98	436.36	21.12	436.36
22.53	436.38	22.87	436.39	23.13	436.39	23.34	436.38	23.88	436.38
24.94	436.35	25.05	436.36	26.08	436.39	31.58	436.55	34.57	436.59
38.42	436.68	42.51	436.84	46.95	436.93	49.14	436.98	56	437.19
72.42	437.48	76.85	437.56	92.29	437.83	93.5	437.85	96.67	437.89
97.72	437.9	127.65	437.78	128.75	437.78	130.1	437.78	133.37	437.76
140.11	437.75	145.79	437.68	153.75	437.6	159.86	437.54	164.2	437.51
168.78	437.48	188.77	437.17	192.64	437.13	195.86	437.08	197.66	437.05
199.79	437.01	202.24	436.95	205.81	436.9	215.66	436.65	228.82	436.28
232.85	436.2	233.81	436.18	237.76	436.05	239.28	436	244.32	435.82
246.8	435.71	256.47	435.35	272.35	434.86	277.07	434.57	279.82	434.43
280.38	434.41	281.72	434.38	283.94	434.29	292.07	434	304.52	433.27
307.87	433.07	309.03	432.92	311.51	432.57	314.12	432.15	314.93	432
319.62	431.01	320.82	430.78	321.35	430.67	321.99	430.45	322.44	430.28
322.55	430.22	322.68	430.17	322.85	430.16	322.87	430.16	323.33	430.16
323.35	430.17	323.4	430.17	323.51	430.18	323.65	430.2	323.69	430.21
324.08	430.31	324.25	430.35	324.49	430.39	325.03	430.45	327.09	430.74
328.55	430.9	335.38	431.83	336.6	432	338.94	432.33	341.29	432.61
345.12	433.12	349.8	433.67	352.45	434	354.68	434.51	359.87	436
371.69	437.89	372.43	438	376.79	438.46	391.24	440	393.29	440.27
396	440.63	404.18	441.7	406.65	442	410.03	442.46	421.48	444
432.2	444.91	434.75	445.14	445.23	446	456.38	446.75	463.98	447.08
466.38	447.19	468.6	447.3	480.94	448	485.76	448.08	490.09	448.16
509.8	448.84	514.38	449						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	304.52	.02	335.38	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	304.52	335.38		49.83	50	50.53	.1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

```

*****
* E.G. Elev (ft)          * 432.70 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)          * 0.52 * Wt. n-Val.        *          * 0.020 *
0.020 *
* W.S. Elev (ft)          * 432.18 * Reach Len. (ft)   * 49.83 * 50.00 *
50.53 *
* Crit W.S. (ft)          * 432.18 * Flow Area (sq ft) *          * 23.24 *
0.44 *
* E.G. Slope (ft/ft)      * 0.005598 * Area (sq ft)      *          * 23.24 *
0.44 *
* Q Total (cfs)           * 135.50 * Flow (cfs)        *          * 134.73 *
0.77 *
* Top Width (ft)          * 23.98 * Top Width (ft)     *          * 21.46 *
2.52 *
* Vel Total (ft/s)        * 5.72 * Avg. Vel. (ft/s)   *          * 5.80 *
1.74 *
* Max Chl Dpth (ft)       * 2.02 * Hydr. Depth (ft)   *          * 1.08 *
0.18 *
* Conv. Total (cfs)       * 1811.1 * Conv. (cfs)        *          * 1800.7 *
10.3 *
* Length Wtd. (ft)        * 50.00 * Wetted Per. (ft)   *          * 21.83 *
2.54 *
* Min Ch El (ft)          * 430.16 * Shear (lb/sq ft)   *          * 0.37 *
0.06 *
* Alpha                   * 1.02 * Stream Power (lb/ft s) * 514.38 * 0.00 *
0.00 *
* Frctn Loss (ft)        * 0.29 * Cum Volume (acre-ft) *          * 0.14 *

```

Prop_Condn_100yr.rep

```

0.00 *
* C & E Loss (ft)      *      0.01 * Cum SA (acres)      *      *      0.13 *
0.01 *
*****
*****

```

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
*****
* E.G. Elev (ft)      * 433.15 * Element      * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.60 * Wt. n-Val.      *      * 0.020 *
0.020 *
* W.S. Elev (ft)      * 432.55 * Reach Len. (ft) * 49.83 * 50.00 *
50.53 *
* Crit W.S. (ft)      * 432.55 * Flow Area (sq ft) *      * 31.49 *
1.86 *
* E.G. Slope (ft/ft) * 0.005045 * Area (sq ft)      *      * 31.49 *
1.86 *
* Q Total (cfs)      * 203.25 * Flow (cfs)      *      * 198.43 *
4.82 *
* Top Width (ft)      * 29.11 * Top Width (ft)      *      * 23.73 *
5.38 *
* Vel Total (ft/s)      * 6.09 * Avg. Vel. (ft/s)      *      * 6.30 *
2.59 *
* Max Chl Dpth (ft)      * 2.39 * Hydr. Depth (ft)      *      * 1.33 *
0.35 *
* Conv. Total (cfs)      * 2861.6 * Conv. (cfs)      *      * 2793.7 *
67.9 *
* Length Wtd. (ft)      * 50.01 * Wetted Per. (ft)      *      * 24.13 *
5.43 *
* Min Ch El (ft)      * 430.16 * Shear (lb/sq ft)      *      * 0.41 *
0.11 *
* Alpha      * 1.05 * Stream Power (lb/ft s) * 514.38 * 0.00 *
0.00 *
* Frctn Loss (ft)      * 0.27 * Cum Volume (acre-ft) * 0.00 * 0.18 *
0.01 *
* C & E Loss (ft)      * 0.01 * Cum SA (acres)      * 0.02 * 0.15 *
0.03 *
*****
*****

```

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

Prop_Condn_100yr.rep
 not a valid subcritical answer. The program
 defaulted to critical depth.

CROSS SECTION

RIVER: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 200

INPUT
 Description:

Station Elevation Data		num= 121			
Sta	Elev	Sta	Elev	Sta	Elev

0	4342.340027	433.884.200012	433.85.110046	433.785.960022	433.79
6.860046	433.827.960022	433.89 9.51001	43420.63004	434.3921.02002	434.4
22.10004	434.4129.30002	434.5133.39001	434.6143.50003	434.6846.03003	434.7
47.92001	434.7550.35004	434.7953.85004	434.8656.41003	434.9160.67001	435.02
68.16003	435.1871.07001	435.2374.78003	435.2878.10004	435.3682.15002	435.39
96.98001	435.53 102.96	435.57 106.13	435.59 118.41	435.63 127.91	435.6
128.6	435.59 136.62	435.61 137.45	435.6 147.28	435.58 151.74	435.56
159.19	435.58 160.04	435.58 170.25	435.61 172.33	435.63 176.28	435.62
177.44	435.63 178.45	435.62 180.99	435.59 183.25	435.57 206.09	435.21
206.16	435.21 206.25	435.21 206.5	435.21 206.64	435.21 206.77	435.21
207.07	435.21 207.69	435.2 230.28	434.99 232.1	434.96 234.07	434.95
235.94	434.91 237.58	434.91 240.19	434.91 241.54	434.91 243.31	434.89
245.87	434.83 249.64	434.73 263.89	434.31 264.85	434.29 267.19	434.23
274.24	434 294.09	433.1 300.28	432.74 310.01	432.15 310.55	432.12
312.46	432 320.13	430.42 321.75	430.08 322.11	430 329.35	428.88
335.75	428 336.23	427.9 337.27	427.77 338.12	427.71 338.69	427.7
338.73	427.7 339.42	427.72 341	427.8 342.55	427.9 343.55	428
353.41	429.77 354.48	429.97 354.66	430 354.7	430.01 354.73	430.02
354.74	430.02 354.75	430.02 354.76	430.02 355.1	430.11 362.72	432
364.25	432.52 366.03	433.15 368.39	434 370.02	434.16 396.32	436
403.2	436.56 407.8	437.03 411.92	437.41 417.62	438 433.59	439.6
434.13	439.65 438.16	440 451.33	441.24 458.45	442 467.38	443.02
476.99	444 479.33	444.17 484.29	444.51 493.12	445.18 498.76	445.57
502.37	445.85 503.85	445.97 504.7	445.75 504.76	445.74 505.12	445.75
518.96	446.29				

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

0	.02	321.75	.02	353.41	.02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 321.75 353.41 51.69 50 50.23 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr					

* E.G. Elev (ft)	* 429.86	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.49	* Wt. n-Val.	*	* 0.020	*
* W.S. Elev (ft)	* 429.37	* Reach Len. (ft)	* 51.69	* 50.00	*
50.23 *					
* Crit W.S. (ft)	* 429.37	* Flow Area (sq ft)	*	* 24.08	*
* E.G. Slope (ft/ft)	*0.006111	* Area (sq ft)	*	* 24.08	*
* Q Total (cfs)	* 135.50	* Flow (cfs)	*	* 135.50	*

Prop_Condn_100yr.rep					
* Top Width (ft)	*	24.99	* Top Width (ft)	*	* 24.99 *
* Vel Total (ft/s)	*	5.63	* Avg. Vel. (ft/s)	*	* 5.63 *
* Max Chl Dpth (ft)	*	1.67	* Hydr. Depth (ft)	*	* 0.96 *
* Conv. Total (cfs)	*	1733.3	* Conv. (cfs)	*	* 1733.3 *
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	* 25.24 *
* Min Ch El (ft)	*	427.70	* Shear (lb/sq ft)	*	* 0.36 *
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	* 518.96 *
0.00	*			*	* 0.00 *
* Frctn Loss (ft)	*	0.30	* Cum Volume (acre-ft)	*	* 0.11 *
0.00	*			*	
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	* 0.11 *
0.01	*			*	

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	*	430.29	* Element	*	Left OB	*	Channel	*
Right OB	*			*		*		*
* Vel Head (ft)	*	0.58	* Wt. n-Val.	*		*	0.020	*
* W.S. Elev (ft)	*	429.71	* Reach Len. (ft)	*	51.69	*	50.00	*
50.23	*			*		*		*
* Crit W.S. (ft)	*	429.71	* Flow Area (sq ft)	*		*	33.21	*
* E.G. Slope (ft/ft)	*	0.005757	* Area (sq ft)	*		*	33.21	*
* Q Total (cfs)	*	203.25	* Flow (cfs)	*		*	203.25	*
* Top Width (ft)	*	29.06	* Top Width (ft)	*		*	29.06	*
* Vel Total (ft/s)	*	6.12	* Avg. Vel. (ft/s)	*		*	6.12	*
* Max Chl Dpth (ft)	*	2.01	* Hydr. Depth (ft)	*		*	1.14	*
* Conv. Total (cfs)	*	2678.8	* Conv. (cfs)	*		*	2678.8	*
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*		*	29.36	*
* Min Ch El (ft)	*	427.70	* Shear (lb/sq ft)	*		*	0.41	*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	518.96	*	0.00	*
0.00	*			*		*		*
* Frctn Loss (ft)	*	0.29	* Cum Volume (acre-ft)	*	0.00	*	0.15	*

Prop_Condn_100yr.rep

```

0.01 *
* C & E Loss (ft)          *      0.00 * Cum SA (acres)          *      0.02 *      0.12 *
0.02 *
*****
*****

```

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

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

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

CROSS SECTION

RIVER: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 150

INPUT

Description:

Station Elevation Data				num=	143				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	4348.119995	432.07	9.51001	432.04	11	432.09	12.51001	432.18	
16.72	432.51	18.22	432.57	27.07001	432.57	31.57001	432.33	32.34	432.29
32.63	432.28	32.76999	432.28	32.89999	432.28	33.04001	432.28	33.20999	432.29
34.17001	432.36	34.23001	432.36	34.42001	432.37	35.92001	432.39	50.35001	432.49
52.28	432.5	57.5	432.56	61.89001	432.62	66.98001	432.69	93.31	433.33
97.5	433.41	102.45	433.49	104.14	433.52	104.63	433.52	106.77	433.5
111.66	433.55	114.87	433.52	119.3	433.54	122.78	433.5	128.36	433.5
129.97	433.49	143.03	433.29	144.14	433.27	147.72	433.2	150.45	433.14
151.3	433.13	152.07	433.12	153.02	433.11	157.3	433.1	173.85	432.98
177.64	432.99	179.71	433.01	185.57	433.05	191.75	433.09	195.2	433.1
200.17	433.14	203.19	433.13	205.97	433.16	211.66	433.11	212.95	433.13
214.28	433.12	215.96	433.13	221.09	433.15	226.83	433.24	229.73	433.24
232.37	433.27	262.73	433.13	263.34	433.13	264.57	433.11	266.12	433.1
266.47	433.1	266.74	433.1	267.21	433.1	267.43	433.1	267.65	433.1
293.6	432.63	296.5	432.56	297.71	432.53	300.74	432.47	303.75	432.42
306.47	432.4	308.81	432.4	310.79	432.41	313.89	432.46	315.27	432.45
316.77	432.4	320.64	432.21	325.12	432	330.77	430.82	334.48	430.04
334.69	430	335.54	429.68	337.91	428.87	340.25	428	340.77	427.88
342.09	427.4	342.72	427.27	343.5	427.16	344.63	427.05	346.94	426.87
348.53	426.71	349.11	426.61	349.9	426.5	350.09	426.46	350.28	426.44
350.35	426.43	350.57	426.42	350.72	426.42	350.89	426.42	351.26	426.44
351.61	426.46	352.26	426.53	353.86	426.72	354.74	426.83	359.73	427.6
362.1	428	366.57	428.66	366.94	428.71	374.92	430	381.78	431.15
391.35	432	403.05	432.71	410.25	433.2	422.35	434	422.5	434.01
430.72	434.53	431.01	434.54	435.52	434.81	439.36	435.03	441.88	435.15
443.14	435.2	443.74	435.22	445.09	435.26	448.2	435.32	452.77	435.33
453.61	435.35	454.32	435.38	462.45	435.77	462.93	435.79	466.46	436
474.96	436.65	480.55	437.06	487.19	437.57	490.15	437.8	492.27	438
495.48	438.32	496.99	438.48	501.47	439				

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	334.48	.02	366.57	.02		

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Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 334.48 366.57 50.7 50 50.4 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

```
*****
*****
* E.G. Elev (ft)      * 428.67 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.51 * Wt. n-Val.       *      * 0.020 *
*
* W.S. Elev (ft)      * 428.16 * Reach Len. (ft)  * 50.70 * 50.00 *
50.40 *
* Crit W.S. (ft)      * 428.16 * Flow Area (sq ft) *      * 23.62 *
*
* E.G. Slope (ft/ft)  * 0.005968 * Area (sq ft)     *      * 23.62 *
*
* Q Total (cfs)       * 135.50 * Flow (cfs)       *      * 135.50 *
*
* Top Width (ft)      * 23.32 * Top Width (ft)   *      * 23.32 *
*
* Vel Total (ft/s)    * 5.74 * Avg. Vel. (ft/s) *      * 5.74 *
*
* Max Chl Dpth (ft)   * 1.74 * Hydr. Depth (ft) *      * 1.01 *
*
* Conv. Total (cfs)   * 1754.0 * Conv. (cfs)      *      * 1754.0 *
*
* Length Wtd. (ft)    * 50.00 * Wetted Per. (ft) *      * 23.64 *
*
* Min Ch El (ft)      * 426.42 * Shear (lb/sq ft) *      * 0.37 *
*
* Alpha              * 1.00 * Stream Power (lb/ft s) * 501.47 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.30 * Cum Volume (acre-ft) *      * 0.08 *
0.00 *
* C & E Loss (ft)     * 0.00 * Cum SA (acres)     *      * 0.08 *
0.01 *
*****
*****
```

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

Warning: 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 OUTPUT Profile #1.5 X Q-100yr

```
*****
*****
* E.G. Elev (ft)      * 429.12 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.62 * Wt. n-Val.       *      * 0.020 *
*
* W.S. Elev (ft)      * 428.50 * Reach Len. (ft)  * 50.70 * 50.00 *
50.40 *
* Crit W.S. (ft)      * 428.50 * Flow Area (sq ft) *      * 32.27 *
*
* E.G. Slope (ft/ft)  * 0.005667 * Area (sq ft)     *      * 32.27 *
*
* Q Total (cfs)       * 203.25 * Flow (cfs)       *      * 203.25 *
*
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* Top Width (ft)	* 26.60	* Top Width (ft)	* 26.60
* Vel Total (ft/s)	* 6.30	* Avg. Vel. (ft/s)	* 6.30
* Max Chl Dpth (ft)	* 2.08	* Hydr. Depth (ft)	* 1.21
* Conv. Total (cfs)	* 2699.9	* Conv. (cfs)	* 2699.9
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	* 27.00
* Min Ch El (ft)	* 426.42	* Shear (lb/sq ft)	* 0.42
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 501.47
0.00			
* Frctn Loss (ft)	* 0.28	* Cum Volume (acre-ft)	* 0.00
0.01			
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 0.02
0.02			

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

Warning: 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: Cl_Creek_Prop
 REACH: Cl_Creek_Prop RS: 100

INPUT

Description:

Station	Elevation	Data	num=	134	Sta	Elev	Sta	Elev	Sta	Elev
0	4306.160004		43010.07999	430.06	11.59	430.0914.11002	430.1			
22.67001	430.1427.54001	430.17	34.91	430.2442.01999	430.32	45.37	430.36			
46.64001	430.3748.20999	430.3849.98999	430.3851.76001	430.3757.14001	430.34					
59.64001	430.33 75.12	430.6380.92001	430.62	86.62	430.6488.73001	430.69				
96.26001	430.7296.98001	430.7399.61002	430.71	102.64	430.67 109.06	430.53				
115.4	430.52 117.02	430.48 118.35	430.48	119.58	430.49 122.32	430.56				
123.79	430.59 125.37	430.6 129.68	430.6	136.71	430.54 140.48	430.58				
141.6	430.57 142.69	430.56 146.62	430.52	159.71	430.54 163.21	430.51				
165.67	430.51 167.61	430.52 169.11	430.54	171.62	430.58 177.17	430.61				
181.33	430.64 187.09	430.7 213.16	431.01	215.32	431.04 216.7	431.06				
217.98	431.08 218.21	431.08 219.07	431.09	244.76	431.41 250.98	431.41				
256.62	431.44 257.59	431.43 258.48	431.43	259.63	431.41 267.17	431.42				
270.67	431.36 272.49	431.35 290.13	431.04	292.84	431.01 296.85	430.93				
299.05	430.89 303.9	430.8 306.68	430.76	308.93	430.74 309.48	430.78				
338.08	430.08 340.56	430.01 340.91	430	341.29	429.81 344.68	428				
348.01	426.44 349.54	426 352.87	426	353.94	426 356.17	426				
357.36	426 366.88	427.44 370.37	428	370.61	428.01 371.35	428.06				
373.42	428.14 376.28	428.28 377.76	428.34	378.79	428.39 379.13	428.38				
379.49	428.31 380.25	428.34 381.71	428.41	385.66	428.62 408.47	429.89				
408.9	429.92 409.06	429.93 409.19	429.94	409.27	429.94 409.36	429.95				
409.39	429.95 409.5	429.96 409.58	429.96	409.75	429.97 410.44	430				

Prop_Condn_100yr.rep									
412.55	430.17	412.67	430.18	412.84	430.19	416.15	430.47	417.35	430.49
418.63	430.61	420.22	430.76	424.01	431.06	424.95	431.12	425.71	431.15
426.5	431.18	427.51	431.19	428.05	431.19	428.6	431.18	430.53	431.13
431.77	431.12	434.25	431.13	434.82	431.15	435.41	431.18	435.75	431.18
437.73	431.17	439.88	431.19	442.67	431.22	444.07	431.25	444.63	431.28
454.47	432	459	432.38	459.66	432.44	476.97	434		

Manning's n Values					
Sta	n	Val	Sta	n	Val
0	.02	340.56	.02	370.61	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	340.56	370.61		48.38	50	50.42	.1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	*	428.07	* Element	*	Left OB	*	Channel	*	
Right OB	*			*		*		*	
* Vel Head (ft)	*	0.53	* Wt. n-Val.	*		*	0.020	*	
* W.S. Elev (ft)	*	427.54	* Reach Len. (ft)	*	48.38	*	50.00	*	
50.42	*			*		*		*	
* Crit W.S. (ft)	*	427.54	* Flow Area (sq ft)	*		*	23.13	*	
* E.G. Slope (ft/ft)	*	0.005903	* Area (sq ft)	*		*	23.13	*	
* Q Total (cfs)	*	135.50	* Flow (cfs)	*		*	135.50	*	
* Top Width (ft)	*	21.82	* Top Width (ft)	*		*	21.82	*	
* Vel Total (ft/s)	*	5.86	* Avg. Vel. (ft/s)	*		*	5.86	*	
* Max Chl Dpth (ft)	*	1.54	* Hydr. Depth (ft)	*		*	1.06	*	
* Conv. Total (cfs)	*	1763.7	* Conv. (cfs)	*		*	1763.7	*	
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*		*	22.24	*	
* Min Ch El (ft)	*	426.00	* Shear (lb/sq ft)	*		*	0.38	*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	476.97	*	0.00	*	
0.00	*			*		*		*	
* Frctn Loss (ft)	*	0.28	* Cum Volume (acre-ft)	*		*	0.05	*	
0.00	*			*		*		*	
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*		*	0.05	*	
0.01	*			*		*		*	

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

```

*****
* E.G. Elev (ft)      * 428.54 * Element          * Left OB * Channel *
Right OB *
* Vel Head (ft)       * 0.65 * Wt. n-Val.        *          * 0.020 *
*
* W.S. Elev (ft)      * 427.90 * Reach Len. (ft)   * 48.38 * 50.00 *
50.42 *
* Crit W.S. (ft)      * 427.90 * Flow Area (sq ft) *          * 31.52 *
*
* E.G. Slope (ft/ft)   * 0.005637 * Area (sq ft)      *          * 31.52 *
*
* Q Total (cfs)        * 203.25 * Flow (cfs)        *          * 203.25 *
*
* Top Width (ft)       * 24.83 * Top Width (ft)    *          * 24.83 *
*
* Vel Total (ft/s)     * 6.45 * Avg. Vel. (ft/s)  *          * 6.45 *
*
* Max Chl Dpth (ft)    * 1.90 * Hydr. Depth (ft)  *          * 1.27 *
*
* Conv. Total (cfs)    * 2707.0 * Conv. (cfs)       *          * 2707.0 *
*
* Length Wtd. (ft)     * 50.00 * Wetted Per. (ft)  *          * 25.36 *
*
* Min Ch El (ft)       * 426.00 * Shear (lb/sq ft)  *          * 0.44 *
*
* Alpha               * 1.00 * Stream Power (lb/ft s) * 476.97 * 0.00 *
0.00 *
* Frctn Loss (ft)     * 0.24 * Cum Volume (acre-ft) * 0.00 * 0.07 *
0.01 *
* C & E Loss (ft)     * 0.04 * Cum SA (acres)     * 0.02 * 0.06 *
0.02 *
*****
*****

```

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

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

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

CROSS SECTION

RIVER: Cl_Creek_Prop

REACH: Cl_Creek_Prop RS: 50

INPUT

Description:

```

Station Elevation Data      num=      176
Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev
*****
0      430.282.300049      430.525.920044      430.888.780029      431.139.119995      431.16
9.300049      431.169.390015      431.1611.90002      430.8713.96002      430.5914.15002      430.59
17.77002      43022.91003      428.8426.86002      42829.90002      427.2530.90002      427.08
31.80002      427.0132.35004      427.0635.12003      426.636.57004      426.3736.76001      426.35

```

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36.85004	426.3537.00003	426.3540.06003	426.4740.46002	426.4947.19003	426.8
48.52002	426.8350.36002	426.951.64001	426.9452.49002	426.9653.41003	426.97
57.35004	427.0564.08002	427.1765.91003	427.2179.30002	427.4688.83002	427.66
104.04	428 104.14	428 106.83	428.03 109.33	428.04 112.06	428.02
113.35	428 118.81	427.93 121.98	427.93 124.89	427.99 125	428
128.58	428.09 133.18	428.23 133.67	428.24 134.33	428.24 142.84	428.18
153.07	428.11 157.29	428.09 163.22	428.09 164.65	428.08 164.83	428.08
183.94	428.15 184.57	428.14 184.76	428.13 184.9	428.13 185.02	428.14
185.34	428.14 185.53	428.14 190.07	428.17 190.31	428.17 193.77	428.2
194.55	428.2 200.04	428.28 201.39	428.28 202.87	428.27 208.2	428.19
208.71	428.2 219.91	428 222.98	427.93 224.61	427.91 226.01	427.91
227.54	427.94 230.27	428 240.25	428.37 242.87	428.44 245.12	428.47
250.31	428.52 252.39	428.55 254.31	428.59 263.7	428.61 269.77	428.75
272.82	428.81 277.54	428.92 279.28	428.95 287.37	429.16 294.62	429.19
296.4	429.23 296.96	429.24 298.05	429.24 306.28	429.2 318.96	429.22
339.1	429.03 339.3	429.03 339.51	429.02 339.74	429.02 340.31	429.01
340.77	429.01 367.05	428.78 372.54	428.69 380.17	428.6 381.98	428.57
384.69	428.53 385.87	428.51 386.93	428.51 387.77	428.52 388.44	428.54
389.96	428.6 390.23	428.62 391.62	428.71 395.24	428.95 400.11	428.87
401.82	429.03 403.48	429 407.06	429.35 407.72	429.35 408.26	429.36
408.64	429.36 409.36	429.34 410.24	429.44 411.32	429.38 412.12	429.45
413.51	429.32 414.24	429.33 416.47	428.91 417.04	428.86 417.34	428.75
419.54	428 425.01	426.25 425.65	426 430.43	425.01 431.75	424.7
432.29	424.57 432.84	424.55 433.22	424.54 433.51	424.56 433.55	424.57
433.73	424.59 435.69	424.78 447.65	425.92 448.54	426 459.11	426.74
460.36	426.81 463.03	426.95 464.22	427.02 466.04	427.14 467.13	427.23
468.23	427.34 471.17	427.68 473.62	427.94 474.27	428 486.44	428.69
487.3	428.72 489.59	428.76 490.56	428.76 491.73	428.75 493.27	428.75
495.25	428.8 498.35	428.9 500	428.96 501.76	429.05 506.4	429.29
508.35	429.37 511.54	429.54 511.83	429.55 513.2	429.51 513.86	429.5
514.42	429.5 516.38	429.63 521.54	429.93 522.48	430 528.92	430.91
531.65	431.26				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	417.34	.02	447.65	.02

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	417.34	447.65		51.51	50.01		.1	.3

CROSS SECTION OUTPUT Profile #Q-100yr

* E.G. Elev (ft)	* 426.79	* Element	* Left OB	* Channel	*
Right OB *					
* Vel Head (ft)	* 0.48	* Wt. n-Val.	*	* 0.020	*
0.020 *					
* W.S. Elev (ft)	* 426.30	* Reach Len. (ft)	* 51.51	* 50.00	*
50.01 *					
* Crit W.S. (ft)	* 426.30	* Flow Area (sq ft)	*	* 23.85	*
0.96 *					
* E.G. Slope (ft/ft)	* 0.005460	* Area (sq ft)	*	* 23.85	*
0.96 *					
* Q Total (cfs)	* 135.50	* Flow (cfs)	*	* 133.79	*
1.71 *					
* Top Width (ft)	* 28.04	* Top Width (ft)	*	* 22.81	*
5.23 *					
* Vel Total (ft/s)	* 5.46	* Avg. Vel. (ft/s)	*	* 5.61	*
1.78 *					
* Max Chl Dpth (ft)	* 1.76	* Hydr. Depth (ft)	*	* 1.05	*
0.18 *					
* Conv. Total (cfs)	* 1833.7	* Conv. (cfs)	*	* 1810.5	*

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23.2 *						
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*		23.08 *
5.24 *						
* Min Ch El (ft)	*	424.54	* Shear (lb/sq ft)	*		0.35 *
0.06 *						
* Alpha	*	1.04	* Stream Power (lb/ft s)	*	531.65	0.00 *
0.00 *						
* Frctn Loss (ft)	*	0.26	* Cum Volume (acre-ft)	*		0.03 *
0.00 *						
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*		0.03 *
0.01 *						

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

Warning: The energy loss was 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 OUTPUT Profile #1.5 X Q-100yr

* E.G. Elev (ft)	*	427.18	* Element	*	Left OB	* Channel	*
Right OB *							
* Vel Head (ft)	*	0.50	* Wt. n-Val.	*	0.020	* 0.020	*
0.020 *							
* W.S. Elev (ft)	*	426.68	* Reach Len. (ft)	*	51.51	* 50.00	*
50.01 *							
* Crit W.S. (ft)	*	426.68	* Flow Area (sq ft)	*	1.77	* 32.73	*
3.98 *							
* E.G. Slope (ft/ft)	*	0.004144	* Area (sq ft)	*	1.77	* 32.73	*
3.98 *							
* Q Total (cfs)	*	203.25	* Flow (cfs)	*	2.66	* 190.74	*
9.85 *							
* Top Width (ft)	*	44.68	* Top Width (ft)	*	10.04	* 23.99	*
10.65 *							
* Vel Total (ft/s)	*	5.28	* Avg. Vel. (ft/s)	*	1.50	* 5.83	*
2.48 *							
* Max Chl Dpth (ft)	*	2.14	* Hydr. Depth (ft)	*	0.18	* 1.36	*
0.37 *							
* Conv. Total (cfs)	*	3157.4	* Conv. (cfs)	*	41.4	* 2963.0	*
153.0 *							
* Length Wtd. (ft)	*	50.02	* Wetted Per. (ft)	*	10.07	* 24.33	*
10.68 *							
* Min Ch El (ft)	*	424.54	* Shear (lb/sq ft)	*	0.05	* 0.35	*
0.10 *							
* Alpha	*	1.15	* Stream Power (lb/ft s)	*	531.65	* 0.00	*
0.00 *							
* Frctn Loss (ft)	*	0.20	* Cum Volume (acre-ft)	*	0.00	* 0.04	*
0.01 *							
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*	0.01	* 0.03	*
0.02 *							

Warning: The energy equation could not be balanced within the specified number of iterations.
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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: Cl_Creek_Prop
REACH: Cl_Creek_Prop RS: 0

INPUT

Description:

Station Elevation Data			num= 175						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	4251.840027		424.473.340027		424 5.77002		423.867.410034		423.78
7.890015	423.778.299988		423.7811.14001		42423.59003		424.34 28.56		424.47
30.77002	424.52	31.69	424.54	32.25	424.54	32.81	424.5433.70001		424.53
35.12003	424.536.52002		424.538.40002		424.5440.36002		424.5942.09003		424.65
43.43002	424.71	45.28	424.845.58002		424.8	46	424.8148.87003		424.81
50.81	424.8173.09003		425.2678.07001		425.2979.52002		425.380.89001		425.32
82.08002	425.34	105.06	425.46	107.2	425.5	108.04	425.51	108.85	425.52
110.63	425.51	111.53	425.51	115.23	425.53	117.03	425.55	117.77	425.56
127.46	425.64	132.65	425.76	134.27	425.78	139.72	425.84	155.84	425.96
163.34	426	163.37	426	163.38	426	165.75	426	165.76	426
165.77	426	171.16	425.96	171.38	425.96	186.39	425.82	187.51	425.82
194.7	425.77	197.27	425.76	199.34	425.77	201.36	425.81	203.71	425.89
206.65	426	212.2	426.15	214.33	426.2	216.79	426.24	229.6	426.4
230.29	426.41	235.13	426.45	237.06	426.47	243.05	426.5	256.78	426.6
258.99	426.63	260.19	426.64	264.68	426.67	265.84	426.68	266.74	426.7
267.5	426.71	268.22	426.71	269.8	426.7	275.25	426.7	278.6	426.7
288.12	426.97	289.41	426.96	290.64	426.95	292	426.94	299.82	426.8
308.16	426.75	312.26	426.68	314.18	426.66	317.12	426.65	322.93	426.6
323.92	426.61	324.8	426.63	326.45	426.62	329.12	426.68	330.99	426.71
333.09	426.74	335.4	426.74	340.13	426.73	357.2	426.44	358.58	426.44
358.84	426.44	359.04	426.44	359.53	426.43	359.92	426.42	360.46	426.42
361.15	426.42	363.63	426.43	365.7	426.43	365.79	426.42	366.07	426.42
377.26	426.28	394.6	426.19	396.98	426.12	397.67	426.11	399.07	426.07
400.08	426.06	401.72	426.06	402.65	426.08	404.94	426.13	405.98	426.13
406.87	426.08	407.71	426	410.18	425.67	417.75	424.78	424.42	424
429.73	422.56	430.15	422.45	430.47	422.39	430.98	422.31	431.42	422.25
431.62	422.23	432.04	422.2	432.22	422.18	432.43	422.14	432.53	422.13
432.66	422.13	432.85	422.14	432.86	422.14	433.45	422.18	435.16	422.27
442.75	422.79	448.35	423.07	467.54	424	473.7	424.53	474.86	424.6
476.42	424.65	480.86	424.76	487.38	425.15	490.47	425.2	491.85	425.29
492.63	425.34	493.16	425.36	493.71	425.39	494.25	425.39	494.74	425.4
495.33	425.39	496.09	425.4	497.15	425.35	498.08	425.34	500.18	425.32
501.35	425.32	501.74	425.33	503.36	425.41	505.42	425.49	509.39	425.62
510.43	425.66	511.11	425.71	512.33	425.83	514.8	425.99	514.97	426
519.27	426.62	530.29	428	533.98	429.27	535.81	430	536.95	430.33

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

0	.02	417.75	.02	448.35	.02		

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Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 417.75 448.35 0 0 0 .1 .3

CROSS SECTION OUTPUT Profile #Q-100yr

```
*****
* E.G. Elev (ft)      * 424.12 * Element      * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.42 * Wt. n-Val.   *      * 0.020 *
0.020 *
* W.S. Elev (ft)      * 423.70 * Reach Len. (ft) *      *      *
* Crit W.S. (ft)      * 423.70 * Flow Area (sq ft) *      * 23.51 *
4.14 *
* E.G. Slope (ft/ft)  * 0.005023 * Area (sq ft)    *      * 23.51 *
4.14 *
* Q Total (cfs)       * 135.50 * Flow (cfs)      *      * 125.38 *
10.12 *
* Top Width (ft)      * 35.91 * Top Width (ft)   *      * 22.84 *
13.07 *
* Vel Total (ft/s)     * 4.90 * Avg. Vel. (ft/s) *      * 5.33 *
2.44 *
* Max Chl Dpth (ft)    * 1.57 * Hydr. Depth (ft) *      * 1.03 *
0.32 *
* Conv. Total (cfs)    * 1911.9 * Conv. (cfs)      *      * 1769.1 *
142.8 *
* Length Wtd. (ft)     *      * Wetted Per. (ft) *      * 23.05 *
13.09 *
* Min Ch El (ft)       * 422.13 * Shear (lb/sq ft) *      * 0.32 *
0.10 *
* Alpha               * 1.11 * Stream Power (lb/ft s) * 536.95 * 0.00 *
0.00 *
* Frctn Loss (ft)      *      * Cum Volume (acre-ft) *      *      *
*
* C & E Loss (ft)      *      * Cum SA (acres)    *      *      *
*****
*****
```

Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal depth is below critical depth).
 Water surface set to critical depth.

CROSS SECTION OUTPUT Profile #1.5 X Q-100yr

```
*****
* E.G. Elev (ft)      * 424.46 * Element      * Left OB * Channel *
Right OB *
* Vel Head (ft)      * 0.43 * Wt. n-Val.   * 0.020 * 0.020 *
0.020 *
* W.S. Elev (ft)      * 424.04 * Reach Len. (ft) *      *      *
* Crit W.S. (ft)      * 424.04 * Flow Area (sq ft) *      * 31.31 *
9.62 *
* E.G. Slope (ft/ft)  * 0.004012 * Area (sq ft)    *      * 31.31 *
9.62 *
* Q Total (cfs)       * 203.25 * Flow (cfs)      *      * 173.50 *
28.14 *
* Top Width (ft)      * 53.07 * Top Width (ft)   *      * 24.24 *
19.61 *
* Vel Total (ft/s)     * 4.82 * Avg. Vel. (ft/s) *      * 5.54 *
2.93 *
*****
```

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* Max Chl Dpth (ft)	* 1.91	* Hydr. Depth (ft)	* 0.14	* 1.29	*
0.49					
* Conv. Total (cfs)	* 3208.7	* Conv. (cfs)	* 25.6	* 2739.0	*
444.2					
* Length Wtd. (ft)	*	* Wetted Per. (ft)	* 9.25	* 24.50	*
19.63					
* Min Ch El (ft)	* 422.13	* Shear (lb/sq ft)	* 0.03	* 0.32	*
0.12					
* Alpha	* 1.18	* Stream Power (lb/ft s)	* 536.95	* 0.00	*
0.00					
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	*	*	*
* C & E Loss (ft)	*	* Cum SA (acres)	*	*	*

Warning: Divided flow computed for this cross-section.
Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal depth is below critical depth).
Water surface set to critical depth.

SUMMARY OF REACH LENGTHS

River: Cl_Creek_Prop

* Reach	* River Sta.	* Left	* Channel	* Right	*
*Cl_Creek_Prop	* 1100.00	* 51.79*	50*	43.58*	
*Cl_Creek_Prop	* 1050	* 50.18*	50*	49.43*	
*Cl_Creek_Prop	* 1000	* 48.69*	50*	48.85*	
*Cl_Creek_Prop	* 950	* 49.87*	50*	49.98*	
*Cl_Creek_Prop	* 900	* 51.65*	50*	49.46*	
*Cl_Creek_Prop	* 850	* 48.06*	50*	50.3*	
*Cl_Creek_Prop	* 800	* 50.11*	50*	49.99*	
*Cl_Creek_Prop	* 750	* 50.12*	50*	50.04*	
*Cl_Creek_Prop	* 700	* 49.58*	50*	52.14*	
*Cl_Creek_Prop	* 650	* 49.04*	50*	50.64*	
*Cl_Creek_Prop	* 600	* 49.43*	50*	49.19*	
*Cl_Creek_Prop	* 550	* 49.94*	50*	50*	
*Cl_Creek_Prop	* 500	* 49.72*	50*	49.15*	
*Cl_Creek_Prop	* 450	* 50.28*	50*	48.87*	
*Cl_Creek_Prop	* 400	* 49.39*	50*	49.1*	
*Cl_Creek_Prop	* 350	* 49.76*	50*	51.18*	
*Cl_Creek_Prop	* 300	* 49.5*	50*	49.57*	
*Cl_Creek_Prop	* 250	* 49.83*	50*	50.53*	
*Cl_Creek_Prop	* 200	* 51.69*	50*	50.23*	
*Cl_Creek_Prop	* 150	* 50.7*	50*	50.4*	
*Cl_Creek_Prop	* 100	* 48.38*	50*	50.42*	
*Cl_Creek_Prop	* 50	* 51.51*	50*	50.01*	
*Cl_Creek_Prop	* 0	* 0*	0*	0*	

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Cl_Creek_Prop

* Reach	* River Sta.	* Contr.	* Expan.	*
*	*	*	*	*

			Prop_Condn_100yr.rep	
*Cl_Creek_Prop	*	1100.00	*.1*	.3*
*Cl_Creek_Prop	*	1050	*.1*	.3*
*Cl_Creek_Prop	*	1000	*.1*	.3*
*Cl_Creek_Prop	*	950	*.1*	.3*
*Cl_Creek_Prop	*	900	*.1*	.3*
*Cl_Creek_Prop	*	850	*.1*	.3*
*Cl_Creek_Prop	*	800	*.1*	.3*
*Cl_Creek_Prop	*	750	*.1*	.3*
*Cl_Creek_Prop	*	700	*.1*	.3*
*Cl_Creek_Prop	*	650	*.1*	.3*
*Cl_Creek_Prop	*	600	*.1*	.3*
*Cl_Creek_Prop	*	550	*.1*	.3*
*Cl_Creek_Prop	*	500	*.1*	.3*
*Cl_Creek_Prop	*	450	*.1*	.3*
*Cl_Creek_Prop	*	400	*.1*	.3*
*Cl_Creek_Prop	*	350	*.1*	.3*
*Cl_Creek_Prop	*	300	*.1*	.3*
*Cl_Creek_Prop	*	250	*.1*	.3*
*Cl_Creek_Prop	*	200	*.1*	.3*
*Cl_Creek_Prop	*	150	*.1*	.3*
*Cl_Creek_Prop	*	100	*.1*	.3*
*Cl_Creek_Prop	*	50	*.1*	.3*
*Cl_Creek_Prop	*	0	*.1*	.3*

ATTACHMENT D:

Excerpts from Hydrology Manual

**Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS**

Land Use		Runoff Coefficient "C"				
NRCS Elements	County Elements	% IMPER.	Soil Type			
			A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

-Exist.
Condition

Prop.
Condition

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, C_p , for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).

DU/A = dwelling units per acre

NRCS = National Resources Conservation Service

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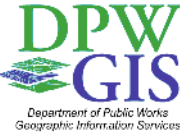


Rainfall Isophuvials

100 Year Rainfall Event - 6 Hours

3.4	Isopluvial (inches)
-----	---------------------

SITE LOCATION



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Rainfall Isophyvals

100 Year Rainfall Event - 24 Hours

6.0 Isophyval (inches)

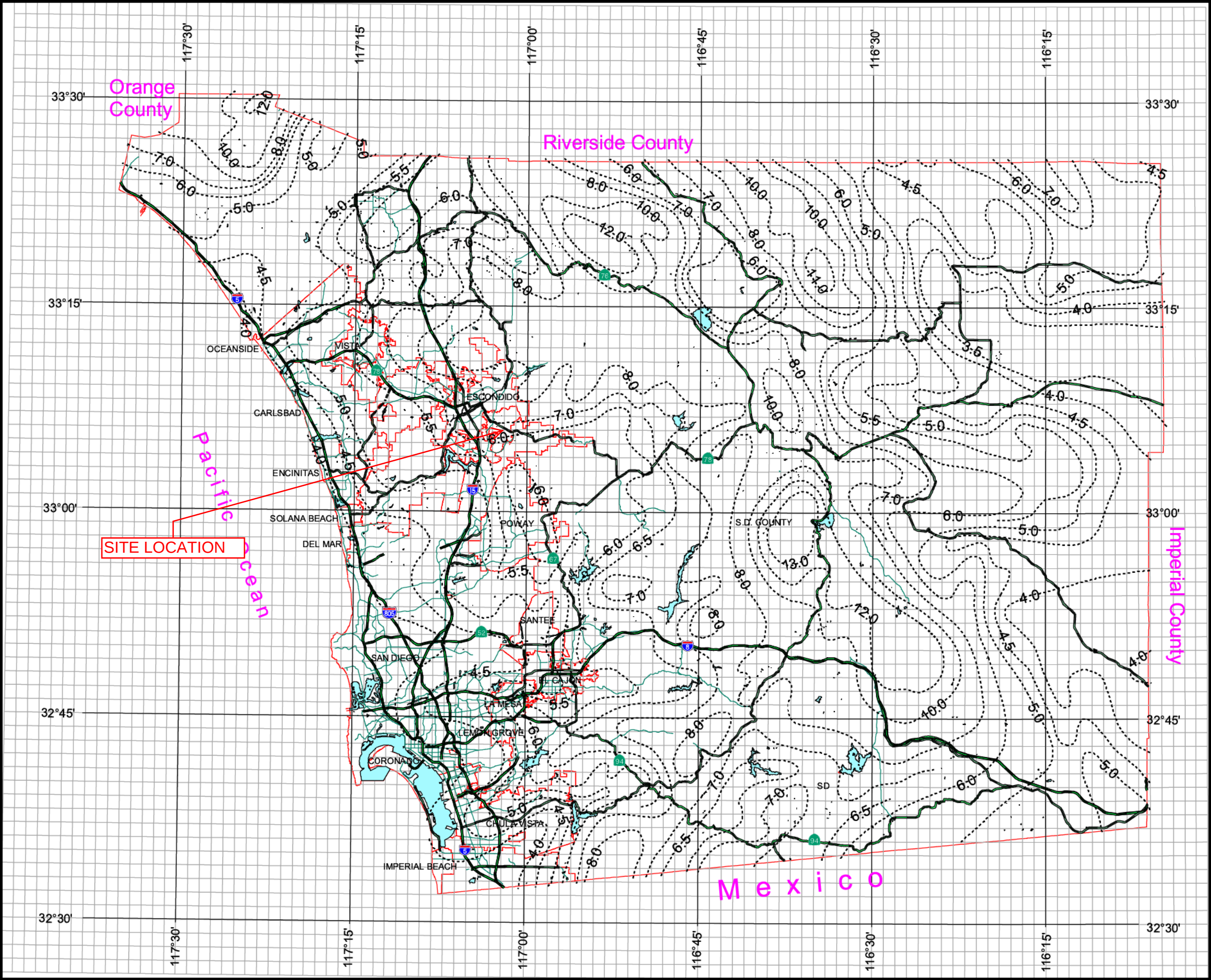


3 0 3 Miles

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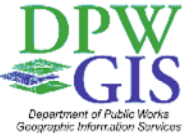
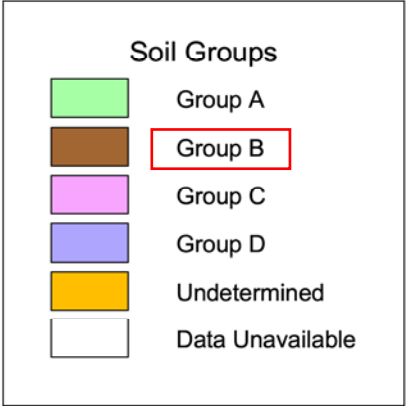


County of San Diego Hydrology Manual



Soil Hydrologic Groups

Legend

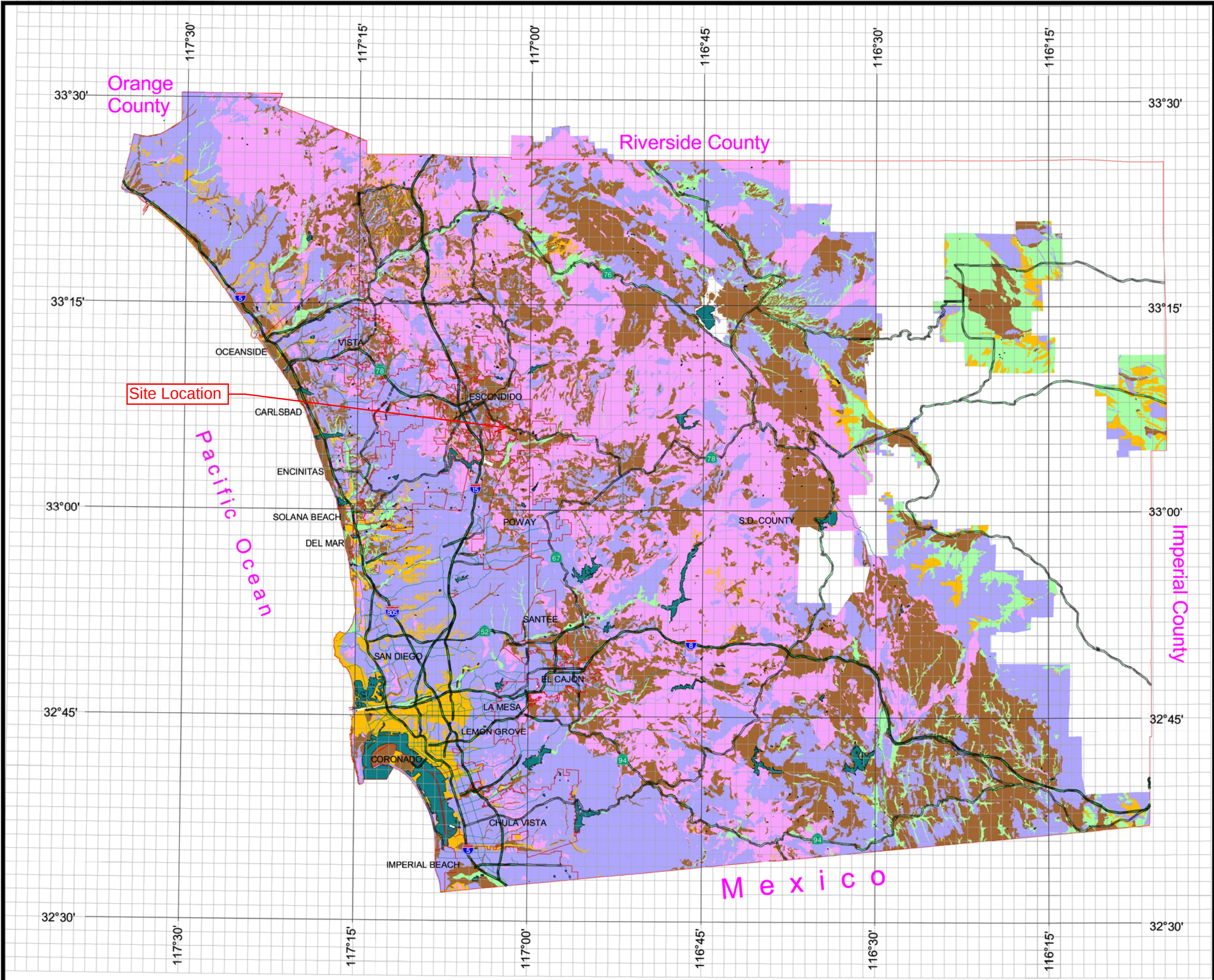


3 0 3 Miles

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5.6.6 Side Slopes

Side slopes of wetland-bottom channels shall not be steeper than 3H:1V whenever practical. When the side slopes of a wetland-bottom channel are grass-lined, refer to the guidelines provided in Section 5.5.

5.6.7 Horizontal Channel Alignment and Bend Protection

Channel bends shall be designed according to the criteria provided in Section 5.5.8.

5.6.8 Maintenance

Wetland-bottom channels require a maintenance and operation plan, along with appropriate easements and mechanisms for assuring the perpetual maintenance of the facility. The project owner shall ensure that appropriate mechanism is in place to provide maintenance for the lifetime of the facility.

5.7 DESIGN CRITERIA – RIPRAP-LINED CHANNELS

This Section presents minimum design criteria for rock riprap-lined channels. Riprapped transitions and bends in otherwise non-riprap channels are also considered riprap-lined channels, and shall be designed in accordance with the design standards outlined in this Section. The design engineer is responsible for confirming that a channel design meets these criteria, the general open-channel criteria outlined in Section 5.3, and any special considerations for a particular design situation.

5.7.1 Longitudinal Channel Slope

The longitudinal slope of riprap-lined channels shall be dictated by maximum permissible velocity requirements. Table 5-3 summarizes the maximum permissible velocity for standard riprap gradations. Where topography is steeper than desirable, drop structures may be used to maintain design velocities (see Section 5.12).

Table 5-3 Channel Bottom Riprap Protection

Design Velocity (ft/s)	Rock Gradation
6-10	No. 2 Backing
10-12	¼ ton
12-14	½ ton
14-16	1 ton
16-18	2 ton
> 18	Special Design

5.7.2 Roughness Coefficients

The Manning roughness coefficient (n) for hydraulic computations shall be estimated for loose rock riprap using the Manning-Strickler equation (Equation 5-5). Equation 5-5 (Chang, 1992) does not apply to grouted rock riprap or to very shallow flow. Table 5-4 provides Manning roughness coefficients for standard rock riprap classifications based on the Manning-Strickler method.

$$n = 0.0395d_{50}^{1/6} \quad (5-5)$$

where ...

- n = Manning roughness coefficient (dimensionless); and
 d_{50} = median stone diameter (feet).

Table 5-4 Standard Rock Riprap Gradations

##Rock Gradation ^a	Median Stone Weight (W_{50}) ^c	Median Stone Diameter (d_{50}) ^d	Manning n (UngROUTED) ^e
No. 3 Backing	5 lb	0.4 ft	0.034
No. 2 Backing	25 lb	0.7 ft	0.037
No. 1 Backing ^b	75 lb	1.0 ft	0.039
Light	200 lb	1.3 ft	0.041
¼ Ton	500 lb	1.8 ft	0.044
½ Ton	1000 lb	2.3 ft	0.045
1 Ton	2000 lb	2.9 ft	0.047
2 Ton	4000 lb	3.6 ft	0.049

(a) Except for 2 ton rock, classification is based upon Caltrans Method B Placement, which allows dumping of the rock and spreading by mechanical equipment. Local surface irregularities shall not vary from the planned grade by more than 1 foot, measured perpendicular to the slope. Two-ton rock requires special placement, see Caltrans (2002) or Greenbook for more information. (b) No. 1 Backing has same gradation as Facing Riprap. (c) per Caltrans (2002). (d) Assumes specific weight of 165 lb/ft³. The designer shall take care to apply a unit weight that is applicable to the type of riprap specified for the project, and adjust their calculations when necessary. (e) Based on Manning-Strickler relationship (Chang, 1988).

Where hydraulic radius is less than or equal to two times the maximum rock size, the roughness coefficient will be greater than indicated by Equation 5-5. In these cases, the design engineer shall use the method outlined in Section 5.7.17 to calculate the roughness of the channel. Appendix A (Table A-3) provides recommended Manning roughness coefficient (n) for grouted riprap applications. A 20% roughness coefficient reduction ($N_{grouted} = 0.80 N_{ungROUTED}$) for grouted rip-rap shall be required for velocity-based design for energy dissipation/scour minimization measures applications. For channel capacity design, the roughness coefficients in Table 5-4 and Appendix A shall be used.

5.7.3 Low Flow and Trickle Channels

Riprap-lined channels conveying a 100-year peak runoff of 20 cfs or less do not require trickle channels. The design engineer shall evaluate the factors such as drainage slope, flow velocity, soil type, and upstream impervious area, and specify a trickle channel when needed based on their engineering judgment. Low-flow channels shall be designed in accordance with Section 5.5.3.2.

5.7.4 Bottom Width

The selection of the over-all channel bottom width shall consider factors such as ultimate conveyance requirements, constructability, channel stability, and maintenance.

5.7.5 Freeboard and Flow Depth

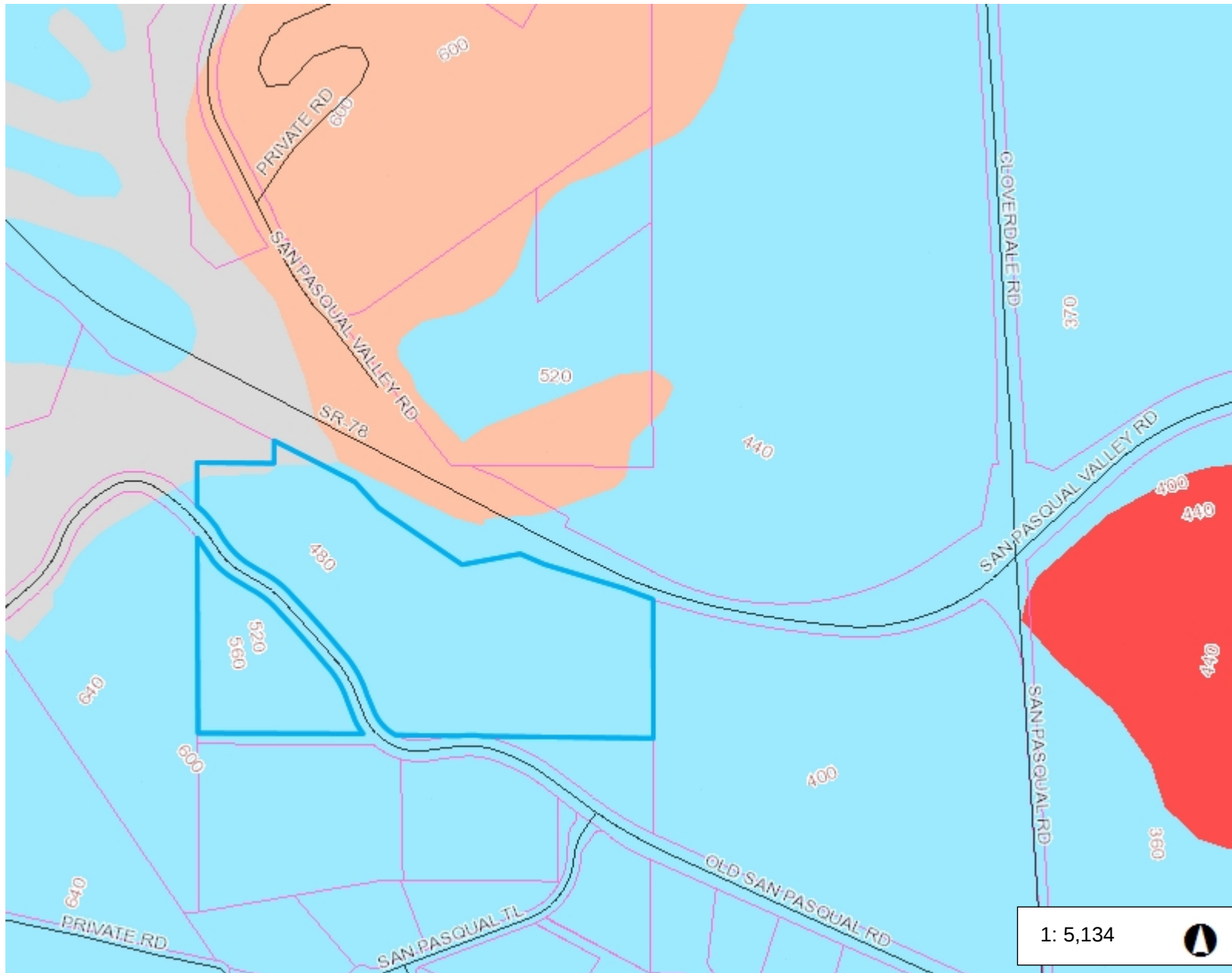
Riprap-lined channels shall meet the minimum freeboard requirements outlined in Section 5.3.7. Excessive depths and high velocities shall be avoided whenever practicable to maintain public safety. Section 5.3.9 discusses access and safety for open channels, including thresholds for flow depth and velocity.

5.7.6 Side Slopes

The side slopes of riprap-lined channel shall not ordinarily be steeper than 2H:1V, except in cases where an embankment stability analysis can justify a steeper side slope. The stability analysis should be completed in consultation with a soils engineer, and consider such factors such as: soil

ATTACHMENT E:
FEMA Flood Plain Map

PDS2015-MUP-15-011 Soil Map



Legend

- Streets
- Parcels with no labels
- Soil Hydrologic Group**
 - Hydrologic Group Undefined
 - Hydrologic Group A
 - Hydrologic Group B
 - Hydrologic Group C
 - Hydrologic Group D
- Topography - 40' Contour Inter

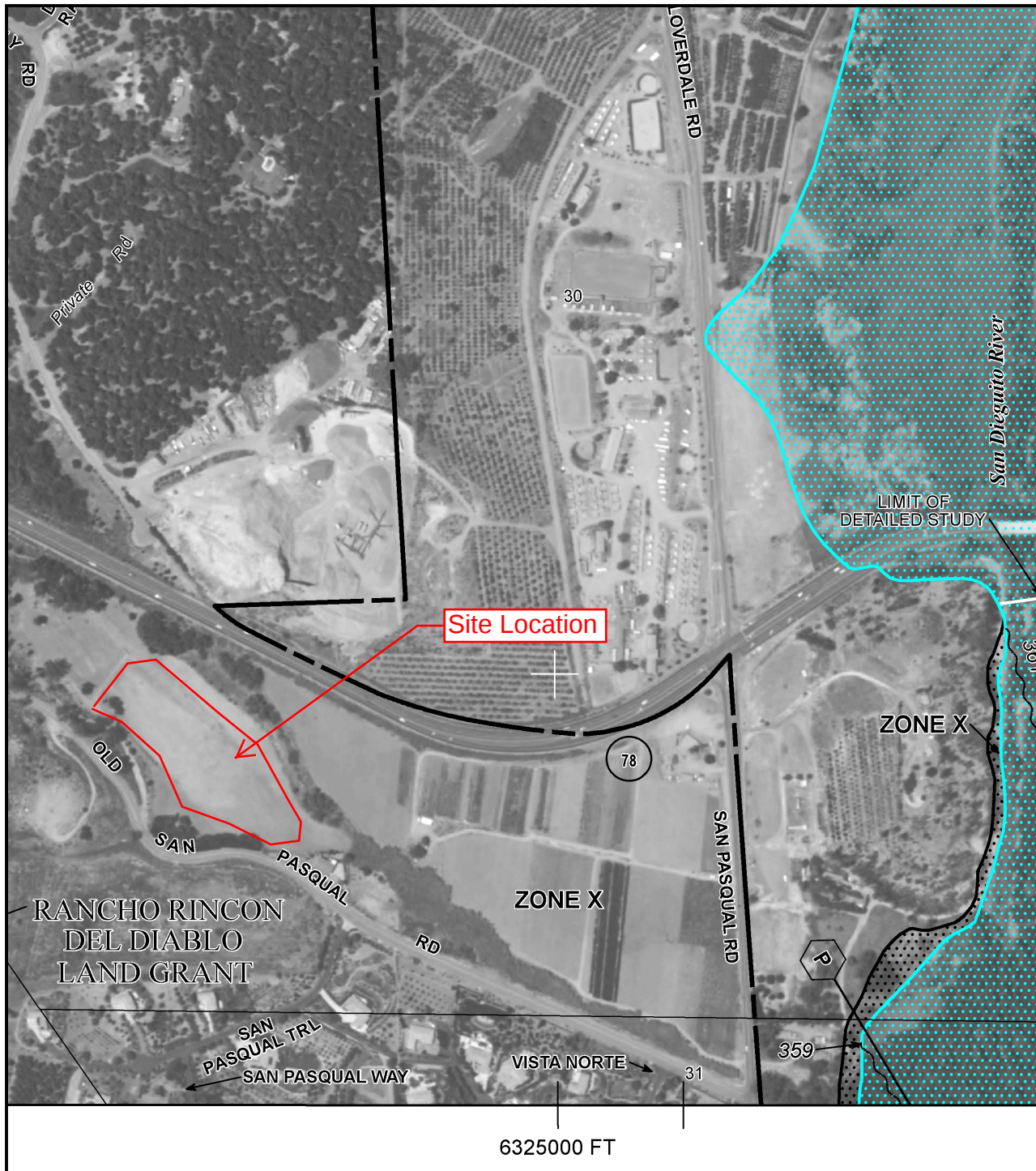
Notes

0.2 0 0.08 0.2 Miles

NAD_1983_StatePlane_California_VI_FIPS_0406_Feet
Department of Public Works

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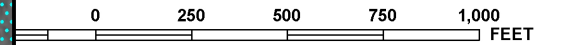
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MAP SCALE 1" = 500'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1082G

FIRM

**FLOOD INSURANCE RATE MAP
SAN DIEGO COUNTY,
CALIFORNIA
AND INCORPORATED AREAS**

PANEL 1082 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ESCONDIDO, CITY OF	060290	1082	G
SAN DIEGO COUNTY	060284	1082	G
SAN DIEGO, CITY OF	060295	1082	G

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



**MAP NUMBER
06073C1082G**

**MAP REVISED
MAY 16, 2012**

Federal Emergency Management Agency

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