



CALCULATION COVER SHEET

CALC. NO. TXUT-001-FSAR-2.4.2-CALC-036

REV. 1

PAGE NO. 1 of 156

Title:

Analysis of the Effects of Local Intense Precipitation – Comanche Peak Nuclear Power Plant Units 3 and 4.

Client: MNES

Project: Luminant COLA

Item	Cover Sheet Items	Yes	No
1	Does this calculation contain any open assumptions that require confirmation? (If YES, identify the assumptions)_____		X
2	Does this calculation serve as an "Alternate Calculation"? (If YES, identify the design verified calculation.) Design Verified Calculation No. _____		X
3	Does this calculation supersede an existing calculation? (If YES, identify the superseded calculation.) Superseded Calculation No. <u>TXUT-001-FSAR-2.4.2-CALC-020 Rev. 3</u>	X	

Scope of Revision: The calculation was revised to include the velocities for the upstream cross section of the Unit 3 Southeast Channel, East Channel, and the Off-site Channel in Section 2.0 of the calculation. The water surface elevation at these locations does not affect safety-related structures.

Revision Impact on Results: There are no changes to the water surface elevation adjacent to safety-related structures. Therefore, The maximum water surface elevation determined for the effects of local intense precipitation remains 820.98 ft.

Study Calculation

Final Calculation

Safety-Related

Non-safety-Related

(Print Name and Sign)

Originator: Anubhav Gaur

Date: 10/24/2011

Design Verifier: Suraj Balan

Date: 10/24/2011

Approver: Pat Brunette

Date: 10/24/2011

Joseph Mancinelli

10/25/2011



CALCULATION
REVISION STATUS SHEET

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CALCULATION REVISION STATUS

<u>REVISION</u>	<u>DATE</u>	<u>DESCRIPTION</u>
0	09/13/2011	Initial Issue
1	10/25/2011	Revised to include results from the East Channel and Off-site Channel in Section 2.0

PAGE REVISION STATUS

<u>PAGE NO.</u>	<u>REVISION</u>	<u>PAGE NO.</u>	<u>REVISION</u>
All	1		

APPENDIX REVISION STATUS

<u>APPENDIX NO.</u>	<u>PAGE NO.</u>	<u>REVISION NO.</u>	<u>APPENDIX NO.</u>	<u>PAGE NO.</u>	<u>REVISION NO.</u>
A	All	0			
B	All	0			
C	All	0			



CALCULATION
DESIGN VERIFICATION
PLAN AND SUMMARY SHEET

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Calculation Design Verification Plan:

Apply CSP Number 3.01, Revision 6, Section 4.5.a, Design Review Method and to include at a minimum:

1. Review and determine if the calculation provides a reasonable estimate of the resulting water surface elevations from an intense local precipitation at the site.
2. Review the design methodology and determine if it is appropriate, correctly applied and accurate.

(Print Name and Sign for Approval – mark "N/A" if not required)

Approver: Pat Brunette

Date: 10-24-2011

Joseph Mancinelli

10/25/2011

Calculation Design Verification Summary:

After reviewing the Analysis of the Effects of Local Intense Precipitation - Comanche Peak Nuclear Power Plant Units 3 and 4, Revision 1, I have come to the following conclusions:

1. The analysis provides a reasonable estimate of the resulting water surface elevations from an intense local precipitation at the site.
2. The methodology, assumptions and inputs applied are reasonable and are in accordance with Enercon's CSP Number 3.01 Revision 6.
3. The Effects of Local Intense Precipitation calculation summary has been independently verified.
4. The Originator has considered the recommendations given during the review process.

Based on the above summary, the calculation is determined to be acceptable.

(Print Name and Sign)

Design Verifier: Suraj Balan

Date: 10/24/2011

Others: N/A

Date: N/A



CALCULATION
DESIGN VERIFICATION
CHECKLIST

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Item	Cover Sheet Items	Yes	No	N/A
1	Design Inputs – Were the design inputs correctly selected, referenced (latest revision), consistent with the design basis and incorporated in the calculation?	X		
2	Assumptions – Were the assumptions reasonable and adequately described, justified and/or verified, and documented?	X		
3	Quality Assurance – Were the appropriate QA classification and requirements assigned to the calculation?	X		
4	Codes, Standard and Regulatory Requirements – Were the applicable codes, standards and regulatory requirements, including issue and addenda, properly identified and their requirements satisfied?	X		
5	Construction and Operating Experience – Have applicable construction and operating experience been considered?			X
6	Interfaces – Have the design interface requirements been satisfied, including interactions with other calculations?	X		
7	Methods – Was the calculation methodology appropriate and properly applied to satisfy the calculation objective?	X		
8	Design Outputs – Was the conclusion of the calculation clearly stated, did it correspond directly with the objectives and are the results reasonable compared to the inputs?	X		
9	Radiation Exposure – Has the calculation properly considered radiation exposure to the public and plant personnel?			X
10	Acceptance Criteria – Are the acceptance criteria incorporated in the calculation sufficient to allow verification that the design requirements have been satisfactorily accomplished?	X		
11	Computer Software – Is a computer program or software used, and if so, are the requirements of CSP 3.02 met?	X		

COMMENTS: N/A

(Print Name and Sign)

Design Verifier: Suraj Balan		Date: 10/24/2011
Others: N/A		Date: N/A

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1.0 Purpose And Scope

Determine the maximum water surface elevation for the effects of local intense precipitation at the Comanche Peak Nuclear Power Plant Units 3 and 4 (CPNPP), using calculated probable maximum precipitation (PMP) and site grading and drainage plans, for comparison with United States Advanced Pressurized Water Reactor (USAPWR) Design Control Document (DCD) criteria.

2.0 Summary Of Results And Conclusions

DCD criteria identifies that the USAPWR is designed for a maximum flood level of 1 foot below plant grade (USAPWR). The plant grade elevation is 822 ft (URS 2011b and 2011d). The maximum water surface elevation determined for the effects of local intense precipitation is 820.98 ft and meets the DCD criteria. Table 2-1 provides a summary of the analysis results. Figure 2-2 shows the approximate locations of key water surface elevations, such as upstream and downstream of weir structures and maximum water surface elevations.

Table 2-1. Summary of Maximum Results

Feature	Max Water Surface Elevation (ft)	Location	Adjacent Unit
Drainage Pond A	816	Pond	N/A
Drainage Pond B	815.1	Pond	N/A
Unit 4 UHS Channel	819.80	Cross Section 107	Unit 4
West Channel	820.98	Cross Section 23	Unit 3 and Unit 4
Center South Channel	820.98	Cross Section 8	Unit 3 and Unit 4
Unit 3 UHS Channel	819.66	Cross Section 12	Unit 3
Unit 3 North Channel	820.14	Cross Section 8	Unit 3
Center North Channel	820.44	Cross Section 13	Unit 3 and Unit 4
Unit 4 North Channel	820.11	Cross Section 6	Unit 4
Unit 3 East Channel	820.48	Cross Section 5	Unit 3
Unit 3 Southeast Channel	819.77	Cross Section 6	Unit 3
Unit 3 Southeast Channel	822.70	Cross Section 11	None
East Channel	821.88	Cross Section 7	None
Off-site Channel	820.78	Cross Section 2	None

Note: UHS = ultimate heat sink

The water surface elevation towards the upstream end of the Unit 3 Southeast Channel exceeds 822 ft. There are no safety-related structures adjacent to the upstream end of the Unit 3 Southeast Channel. The safety-related structures are present towards the downstream end of the Unit 3 Southeast Channel where the water surface elevation is at least one (1) foot or more below the plant grade of 822 ft. The higher water surface elevations in the upstream portions of the Unit 3 Southeast Channel are a function of the channel configuration. The grading and drainage map (URS 2011a, 2011b, 2011c, 2011d, and 2011e) indicates that the ground elevations at the upstream end of the Unit 3 Southeast Channel are relatively high. The higher elevations correspond to higher water surface elevations in this area. The Unit 3 Southeast Channel has steeper slopes and lower ground elevations as it carries flow past safety-related structures to the stormwater retention basin northeast of the Unit 3. Therefore, the higher water surface elevations in the upstream cross-sections of the Unit 3 Southeast Channel do not adversely affect the safety-related structures.

The East Channel and the Off-site Channel have been evaluated for potential contribution to other channels. Some cross sections of the East Channel exhibit water surface elevation higher than 821 ft. However, there are no safety-related structures adjacent to the East Channel and the Off-site Channel. Therefore, DCD criteria regarding the maximum flood level is not applicable to the East Channel.

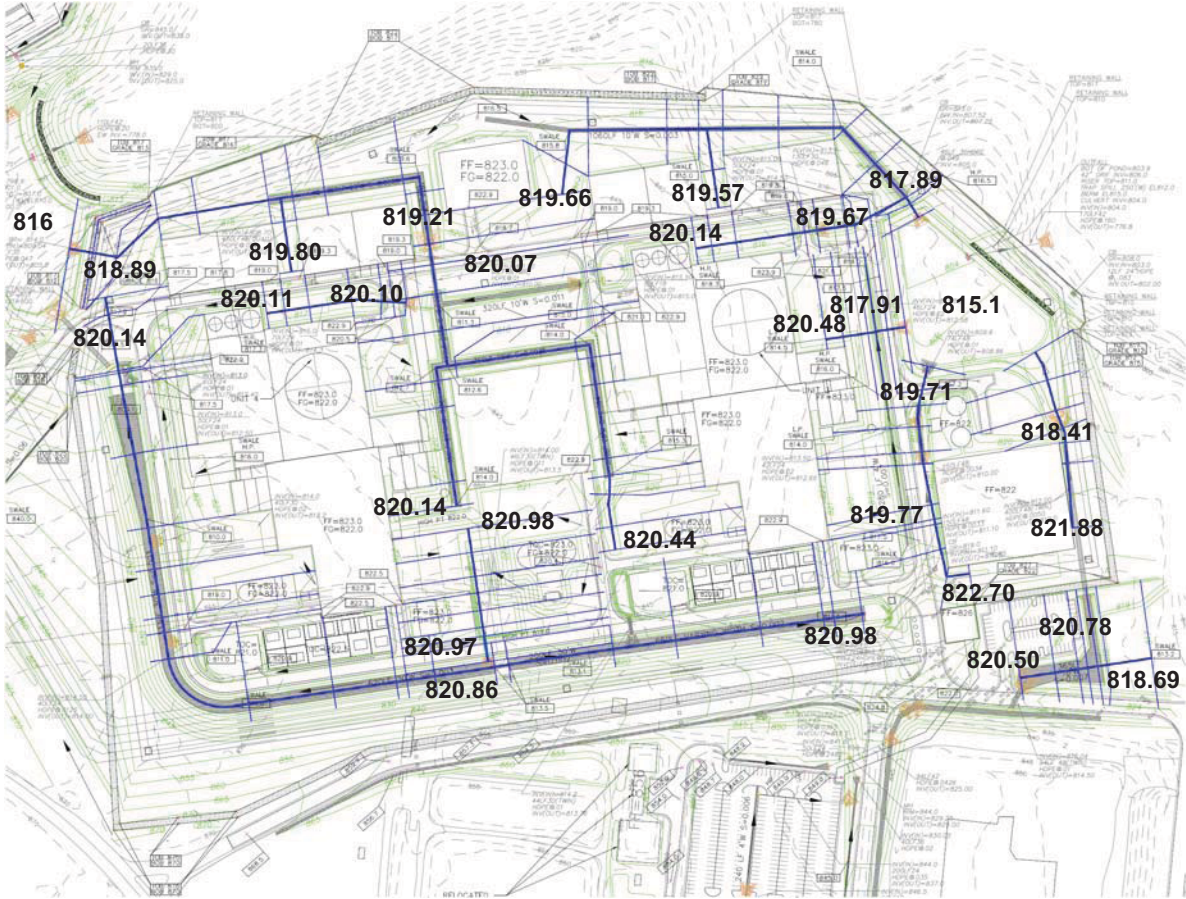


Figure 2-1. Summary Water Surface Elevations

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3.0 References

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U.S. Nuclear Regulatory Commission (NRC). 1978. *Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants*. Regulatory Guide 1.70.

U.S. Nuclear Regulatory Commission (NRC). 1977. *Design Basis Floods for Nuclear Power Plants, Alternative Methods of Estimating Probable Maximum Floods*. Regulatory Guide 1.59.

U.S. Nuclear Regulatory Commission (NRC). 1976. *Flood Protection for Nuclear Power Plants*. Regulatory Guide 1.102.

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4.0 Assumptions

The grading and drainage plan drawings (URS 2011a, 2011b, 2011c, 2011d, and 2011e) are designated non-safety related. The grading and drainage plan drawings have been transmitted (MNES 2011) for use in the analysis of the effects of local intense precipitation and represent the best information available. Future uses of the results or analyses contained herein should consider the current state of the grading and drainage plan.

For all drainage areas, it is assumed that rainfall is transformed to runoff using the most intense rate of local intense precipitation. Corresponding lesser intensities at longer durations are not considered for larger drainage areas that would be expected to have a longer response time. In addition, rainfall is transformed to runoff assuming no losses.

Site drainage structures (e.g., inlets and culverts) are assumed to be blocked or otherwise non-functional and do not allow flow passage. However, in certain cases it is more conservative to allow flow through a drainage structure to affect adjoining areas that flow would not reach if the drainage structure were blocked. In these cases, both scenarios are examined. As a minimum, full flow through a structure is assumed when drainage structure flow is considered conservative.

In some cases multiple flow paths are conceivable. Conservative assumptions are made for each channel regarding the accumulation of runoff. These assumptions are detailed for each channel analysis as applicable.

Runoff from the site ultimately empties into the Squaw Creek Reservoir (SCR). Tailwater conditions for the SCR are assumed to be the peak water surface elevation determined from evaluation of the probable maximum flood (PMF).

5.0 Design Inputs

Site grading is defined by the series of grading and drainage plan sheets (URS 2011a, 2011b, 2011c, 2011d, and 2011e). Safety-related Units 3 and 4 have a plant grade elevation of 822 ft (URS 2011b, 2011d). The site grading is used to develop spatial relationships, including elevations, for the hydrologic and hydraulic models used to perform the site analysis.

Local intense PMP estimates are derived in the referenced precipitation calculation (ENERCON 2008). The maximum rainfall intensity is 6.2 in. in 5 minutes. This intensity is used to derive the rainfall runoff for the site.

Tailwater conditions are derived in the referenced SCR PMF calculation (ENERCON 2010). The maximum water surface elevation for the SCR is 793.66 ft. The SCR maximum water surface elevation is used as the downstream boundary condition for runoff entering the SCR.

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6.0 Methodology

Reference to and compliance with the following listed design guides are considered in analyzing the effects of local intense precipitation at CPNPP Units 3 and 4. All other procedures, instructions and design guides listed in section 5.4 of the Project Planning Document (PPD No. TXUT-001, Rev. 3) are not specifically applicable in analyzing the effects of local intense precipitation at the CPNPP Units 3 and 4 site.

- U.S. Nuclear Regulatory Commission, *Standard Review Plan*, NUREG-0800 (NRC 2007b).
- U.S. Nuclear Regulatory Commission, *Design Basis Floods for Nuclear Power Plants, Alternative Methods of Estimating Probable Maximum Floods*, Regulatory Guide 1.59 (NRC 1977).
- American Nuclear Society, *American National Standard for Determining Design Basis Flooding at Power Reactor Sites*, ANSI/ANS-2.8-1992 (ANS 1992).
- U.S. Nuclear Regulatory Commission, *Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants*, Regulatory Guide 1.70 (NRC 1978).
- U.S. Nuclear Regulatory Commission, *Flood Protection for Nuclear Power Plants*, Regulatory Guide 1.102 (NRC 1976).
- U.S. Nuclear Regulatory Commission, *Combined License Applications for Nuclear Power Plants (LWR Edition)*, Regulatory Guide 1.206 (NRC 2007a).
- 10 CFR Part 52. Code of Federal Regulations, Title 10 Energy, Part 52 Licenses, Certifications, and Approvals for Nuclear Power Plants (10 CFR Part 52).
- U.S. Nuclear Regulatory Commission, *Industry Guideline for Combined License Applicants under 10 CFR Part 52*, NEI 04-01 (NRC 2005).

Drainage areas are delineated in AutoCAD (Autodesk 2009) based on the contours and features shown in the site grading plans (URS 2011a, 2011b, 2011c, 2011d, and 2011e). For each drainage area, the peak runoff is determined by multiplying the area by the maximum rainfall intensity. It is assumed there are no losses and all rainfall is converted to runoff.

Runoff across the site is modeled using the open-channel flow hydraulic modeling software, HEC-RAS (HEC 2010), and steady flow. The site grading plans (URS 2011a, 2011b, 2011c, 2011d, and 2011e) and AutoCAD (Autodesk 2009) are used to determine channel cross section distances and elevations. Site structures and buildings are modeled as obstructions and do not allow any storage in the cross section. Channel roughness coefficients are determined using the site grading plans (URS 2011a, 2011b, 2011c, 2011d, and 2011e) and applicable standard tables (Chow 1959 & USACE 1994). To ensure a conservative approach, selected roughness coefficients are increased by a factor of 50 percent. Higher roughness coefficient yield higher water surface elevations and are therefore, more conservative.

Drainage structures are assumed to be blocked or otherwise non-functional. Inline structures are utilized in HEC-RAS (HEC 2010) to model overtopping flow at the blocked structures. HEC-RAS utilizes the standard weir flow equation to model overtopping flow (USACE 2010a, Equation 8-6):

$$Q = C * L * H^{1.5}$$

Where:

Q = flow (cfs)

C = weir flow coefficient

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L = weir length (ft)
H = weir energy head (ft)

Depending on the shape of the spillway (i.e., broad crested, ogee shaped, or sharp crested) the weir flow coefficient will typically range from 2.6 to 4.1 (USACE 2010a). A lower weir flow coefficient will maximize the overtopping headwater elevation. Therefore, a weir flow coefficient of 2.6 is selected. HEC-RAS automatically accounts for submergence due to the downstream tailwater (USACE 2010a).

For some channel models it is possible that flow will spill laterally from the channel over retaining walls. Where this occurs, lateral structures are utilized in HEC-RAS (HEC 2010) to model the overtopping flow leaving the channel. HEC-RAS also utilizes the standard weir flow equation to model overtopping flow of lateral structures.

Runoff is added to the channel models and accumulated downstream without attenuation. Under normal conditions, runoff from the site is directed to two on-site ponds and is discharged to the SCR through outlet structures or in combination with overflow spillways. Under local intense precipitation conditions, runoff is directed to the same on-site ponds and one additional area that would overflow to the SCR. The pond discharge outlets are assumed to be non-functional. The standard weir flow equation is used to determine the overtopping elevation for the ponds and establish the downstream boundary conditions for upstream runoff.

Where open drainage structures would be considered more conservative, full flow capacity of the structure is calculated using Manning's formula (NRCS 1986, Equation 3-4) and the principles of the conservation of mass continuity equation (USACE 1993, Equation 2-4).

$$V = 1.49 * r^{(2/3)} * s^{(1/2)} / n$$

Where:

- V = average velocity (ft/s)
- r = hydraulic radius (ft) and is equal to a/p_w
 - a = cross sectional flow area (sq ft)
 - p_w = wetted perimeter (ft)
- s = slope of hydraulic grade line (channel slope, ft/ft)
- n = Manning's roughness coefficient for open channel flow

and

$$Q = V * A$$

Where:

- Q = volumetric flow rate (cfs)
- V = mean flow velocity (ft/s)
- A = cross sectional flow area (sq ft)

AutoCAD (Autodesk 2009) and HEC-RAS (HEC 2010) software have been verified and validated in accordance with ENERCON's Corporate Standard Procedure Number 3.02, Revision 5, Control of Computer Software. The verification and validation documents are maintained by Enercon as part of the Quality Assurance program.

7.0 Calculations

Drainage Areas, Channels, and Runoff

The site drainage area map (URS 2011e) depicts the entire site area but does not contain the detail shown in the individual grading and drainage map sheets (URS 2011a, 2011b, 2011c, and 2011d). Therefore, the grading and drainage maps are combined in AutoCAD to form a seamless detailed map as shown in Figure 7-1. Runoff across the site enters one of the two on-site drainage ponds, labeled A and B, or an additional overflow area, labeled C, under local intense precipitation conditions. Runoff is carried to the pond areas by the channels as identified in Figure 7-2. Drainage areas for major portions of the channels and contributing areas are shown in Figure 7-3.

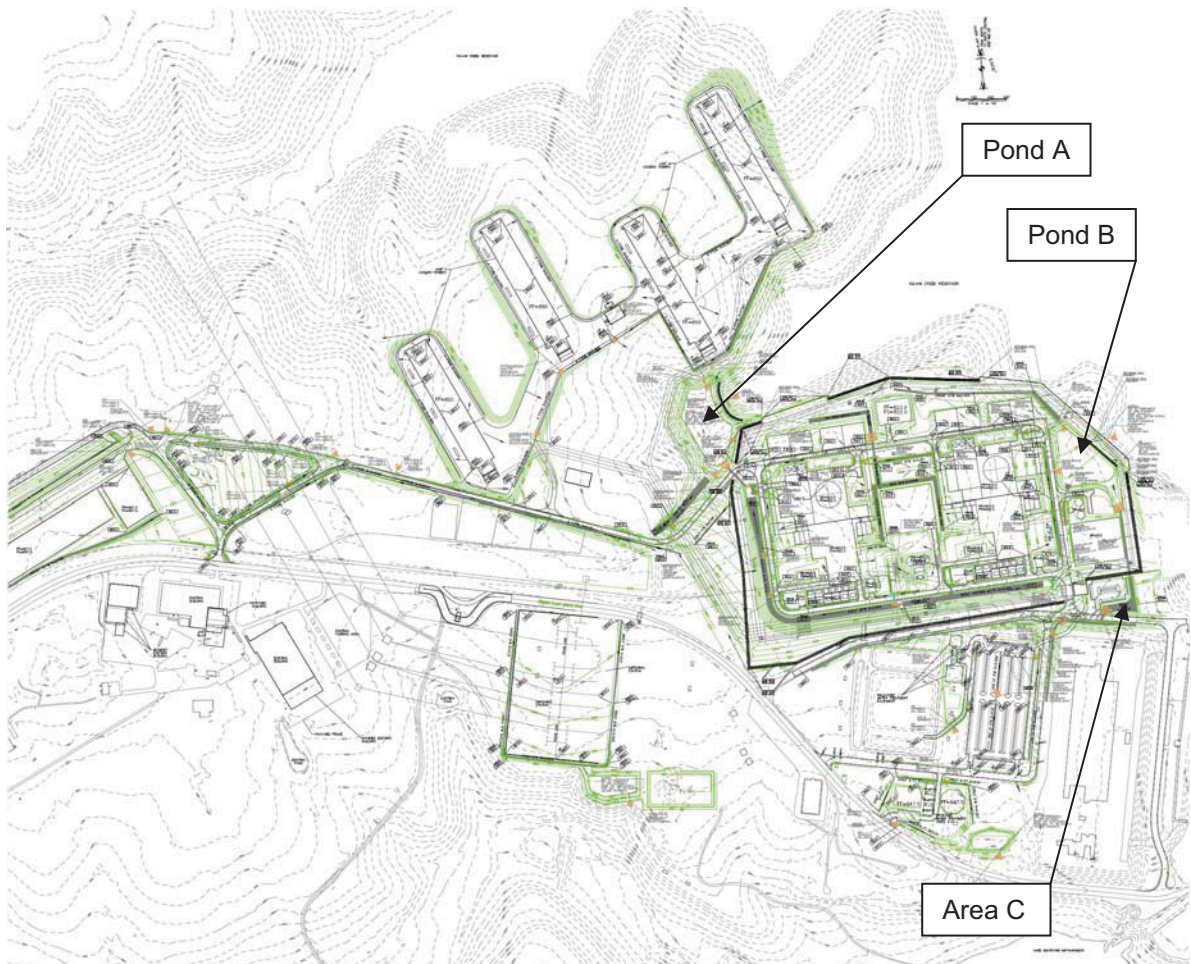


Figure 7-1. Grading Plan (Source: URS 2011a, 2011b, 2011c, and 2011d)

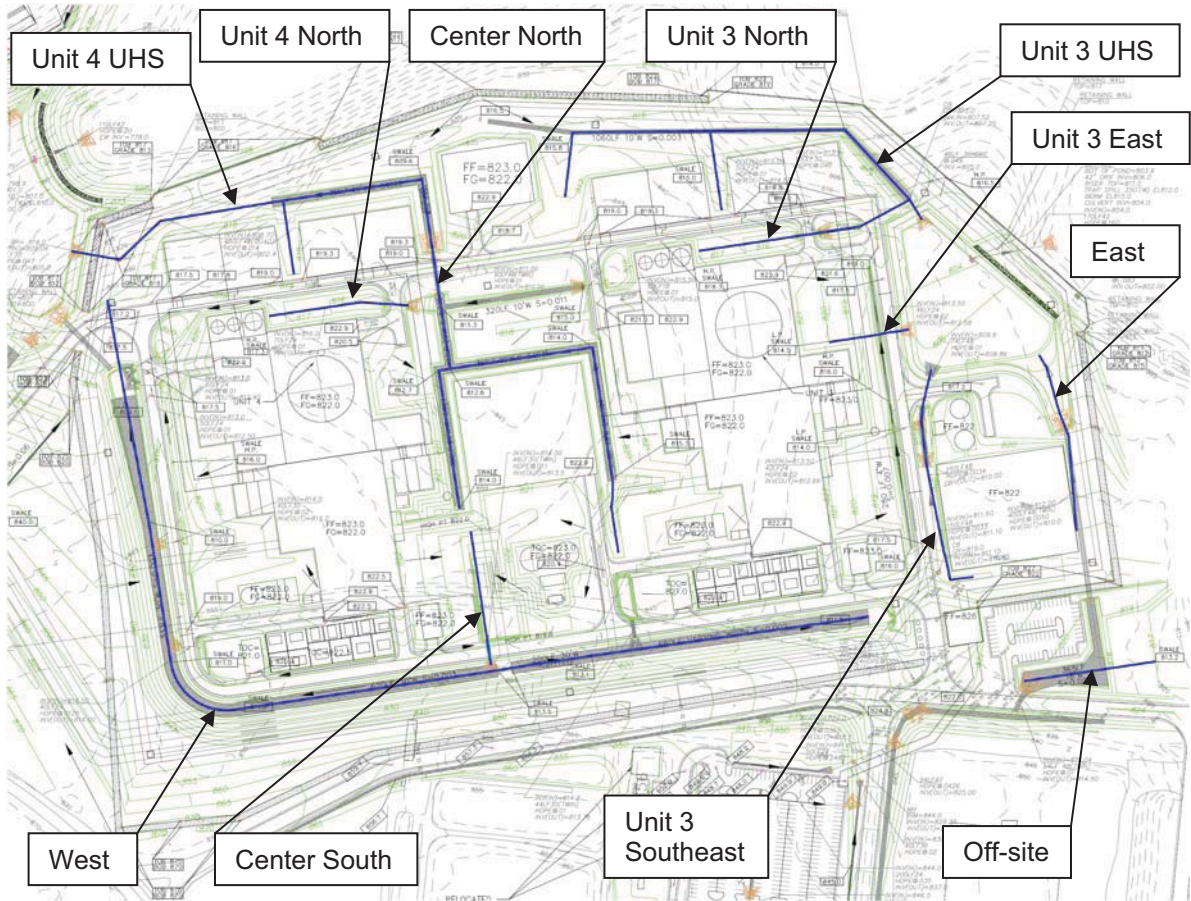


Figure 7-2. Channels (Source: URS 2011a, 2011b, 2011c, and 2011d)

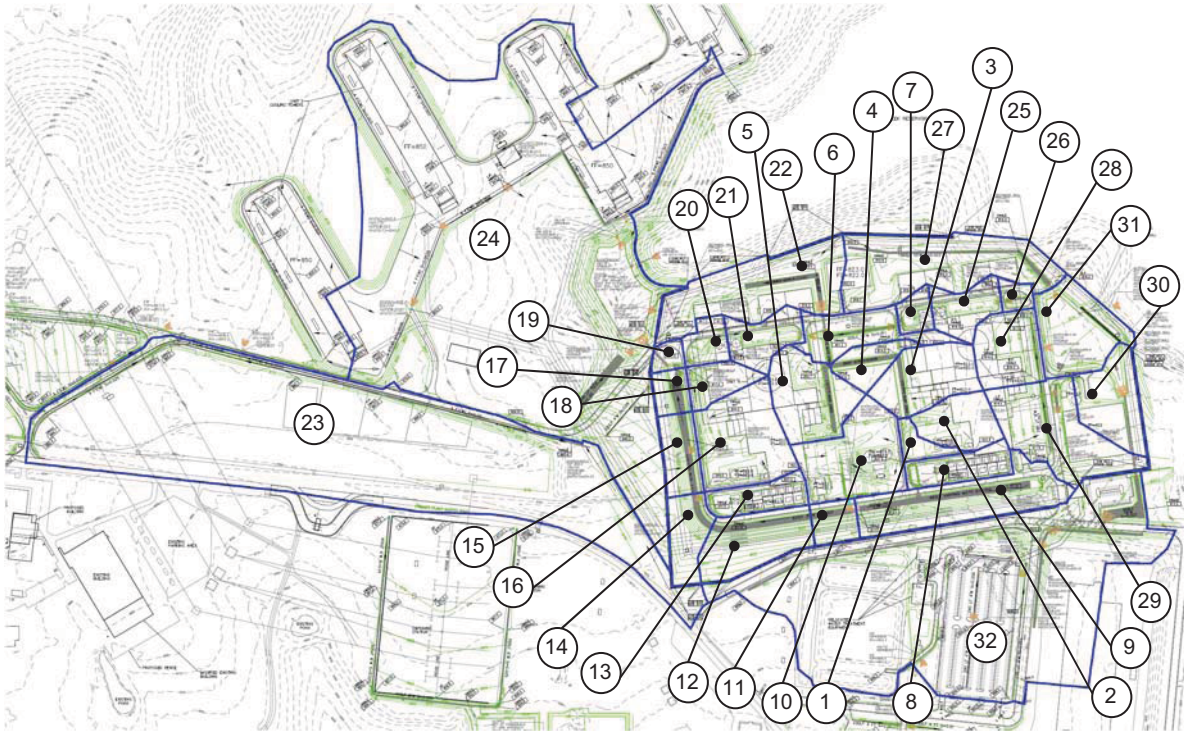


Figure 7-3. Drainage Areas (Source: URS 2011a, 2011b, 2011c, 2011d, and 2011e)

Using AutoCAD functions, the area of each drainage area is presented in Table 7-1. The raw output from AutoCAD is in square feet and rounded to a whole number. Provided for reference, the square feet area is converted to acres by dividing by 43,560 sq ft/ac.

The peak runoff for each area is also presented in Table 7-1. The peak runoff is determined by multiplying the drainage area (in square feet) by the maximum local intense precipitation intensity of 6.2 in/5 min. The result is converted to cubic feet per second. For example, the drainage area 1 peak runoff is calculated as follows:

$$30,438 \text{ sq ft} * 6.2 \text{ in} * (1 \text{ ft} / 12 \text{ in}) / [5 \text{ min} * (60 \text{ sec} / 1 \text{ min})] = 52 \text{ cfs}$$

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Table 7-1. Drainage Areas and Peak Runoff

Drainage Area	Area (sq ft)	Area (ac)	Peak Runoff (cfs)
1	30,438	0.70	52
2	91,165	2.09	157
3	135,373	3.11	233
4	55,889	1.28	96
5	149,462	3.43	257
6	106,395	2.44	183
7	32,185	0.74	55
8	76,076	1.75	131
9	212,581	4.88	366
10	188,256	4.32	324
11	46,116	1.06	79
12	141,814	3.26	244
13	71,166	1.63	123
14	78,158	1.79	135
15	71,160	1.63	123
16	194,292	4.46	335
17	38,179	0.88	66
18	56,264	1.29	97
19	21,498	0.49	37
20	44,699	1.03	77
21	78,593	1.80	135
22	254,718	5.85	439
23	1,658,736	38.08	2857
24	2,731,991	62.72	4705
25	72,655	1.67	125
26	22,370	0.51	39
27	286,858	6.59	494
28	113,866	2.61	196
29	215,210	4.94	371
30	123,621	2.84	213
31	156,931	3.60	270
32	1,406,778	32.30	2423

The main channels directing flow away from Units 3 and 4 are identified as the West Channel, the Center North Channel, which empties into the channels north of the ultimate heat sink (UHS) structures, and the Unit 3 Southeast Channel. Other channels carry flow to the main channels and also have the potential of affecting Units 3 and 4, or carry flow from the main channels to pond areas, establishing downstream boundary conditions. The East Channel does not directly affect Units 3 and 4, but is analyzed for the potential of adding flow to the adjacent Unit 3 Southeast Channel.

Drainage Area 23 is a large area to the west of Units 3 and 4. Runoff from this area is directed to several culverts. Some of the culverts would normally carry runoff away from the designated drainage areas. Assuming culverts are non-functional would result in roadway overtopping. It is likely that the roadway overtopping would also carry much of the runoff away from the designated drainage areas. However, it is conservatively assumed that all runoff from Drainage Area 23 enters Drainage Area 24 and Drainage Pond A. Furthermore, it is conservatively assumed that the rainfall is transformed to runoff using the most intense rate of local intense precipitation. It would be more

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appropriate for a large drainage area to use a longer response time and the corresponding lesser intensity.

Although Drainage Area 24 is also large, it is conservatively assumed that the rainfall is transformed to runoff using the most intense rate of local intense precipitation. All runoff from Drainage Area 24 directly enters Drainage Pond A.

Drainage Area 32 is also a large area. It is conservatively assumed that the rainfall is transformed to runoff using the most intense rate of local intense precipitation. All runoff from Drainage Area 32 is directed to the Off-site Channel. Runoff then enters Drainage Pond B through a culvert structure or overflows an embankment directly to the SCR.

Assuming drainage structures are non-functional creates overtopping conditions at various structures throughout the plant area. However, for the upper reach of the West Channel, Drainage Area 9 in Figure 7-3, the natural flow direction is east to a drainage structure at the entrance to the plant area, southeast of Unit 3. Assuming the drainage structure is non-functional causes the runoff to pool, overtop a highpoint in the West Channel, and flow west. Because the road elevation at the entrance is higher than the road looping around the units, runoff also has the potential to overtop the loop road running parallel to the channel. However, runoff overtopping the loop road finds its way back into the West Channel downstream of the channel highpoint.

Runoff flowing north between the two units flows to a culvert, Drainage Area 6 in Figure 7-3, that would normally carry runoff to Drainage Pond A. Because the culvert is assumed to be non-functional, runoff overtops the loop road and may then either flow west to Drainage Pond A or east to Drainage Pond Area B. In order to reach Drainage Pond A or Drainage Pond B, runoff would normally be carried through drainage structures. Assuming the drainage structures are non-functional cause runoff to spill over retaining walls directly to the SCR.

The optional flow paths described are accounted for by calculating the maximum runoff that could potentially be directed to each of the pond areas. Therefore, flow from a single drainage area may be applied to multiple ponds. The total flow for each pond is used to determine the downstream boundary condition for the channels flowing into each pond.

7.1 Drainage Pond A and Drainage Pond B

The total runoff that could potentially enter Drainage Pond A is the summation of runoff for drainage areas 1 through 24, a total runoff of 11,306 cfs. The total area is depicted in Figure 7-4. The total runoff that could potentially enter Drainage Pond B is the summation of runoff for drainage areas 1 through 7, 25 through 31, culvert flow from 9 (366 cfs), and culvert flow from 32 (332 cfs), a total runoff of 3439 cfs. The contributions from the culverts are discussed in detail below. The total area is depicted in Figure 7-5.

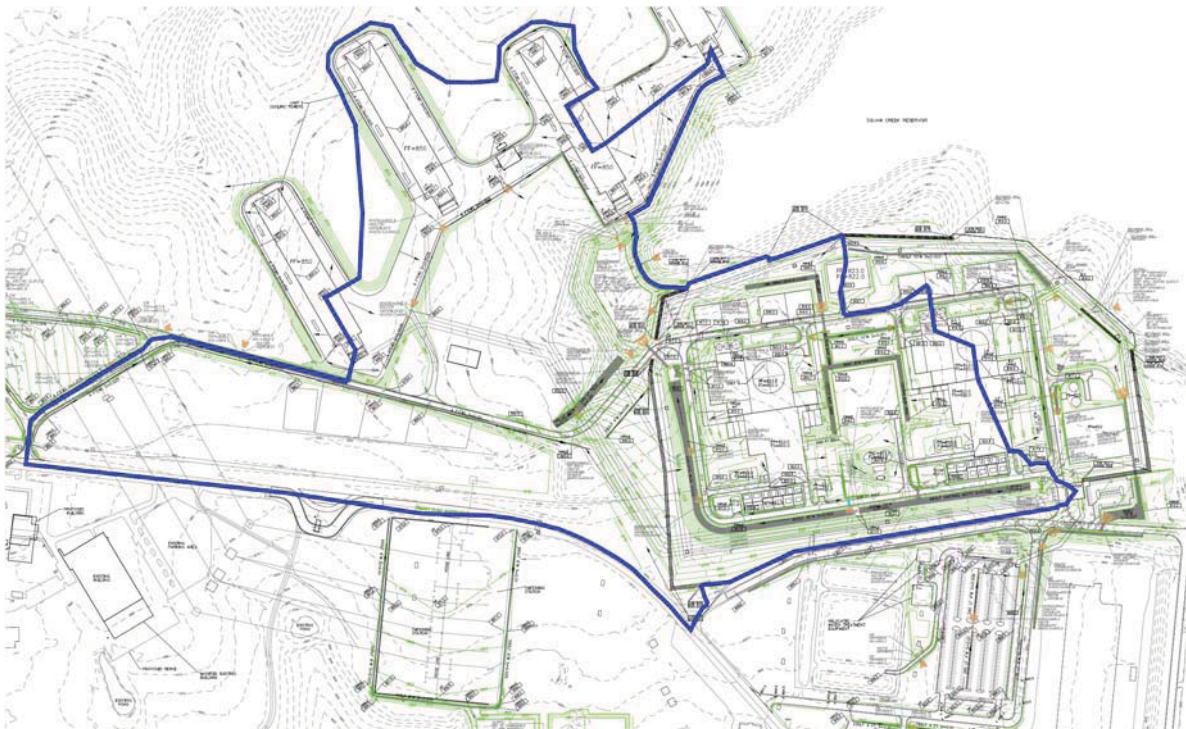


Figure 7-4. Drainage Pond A Contributing Area (Source: URS 2011a, 2011b, 2011c, 2011d, and 2011e)

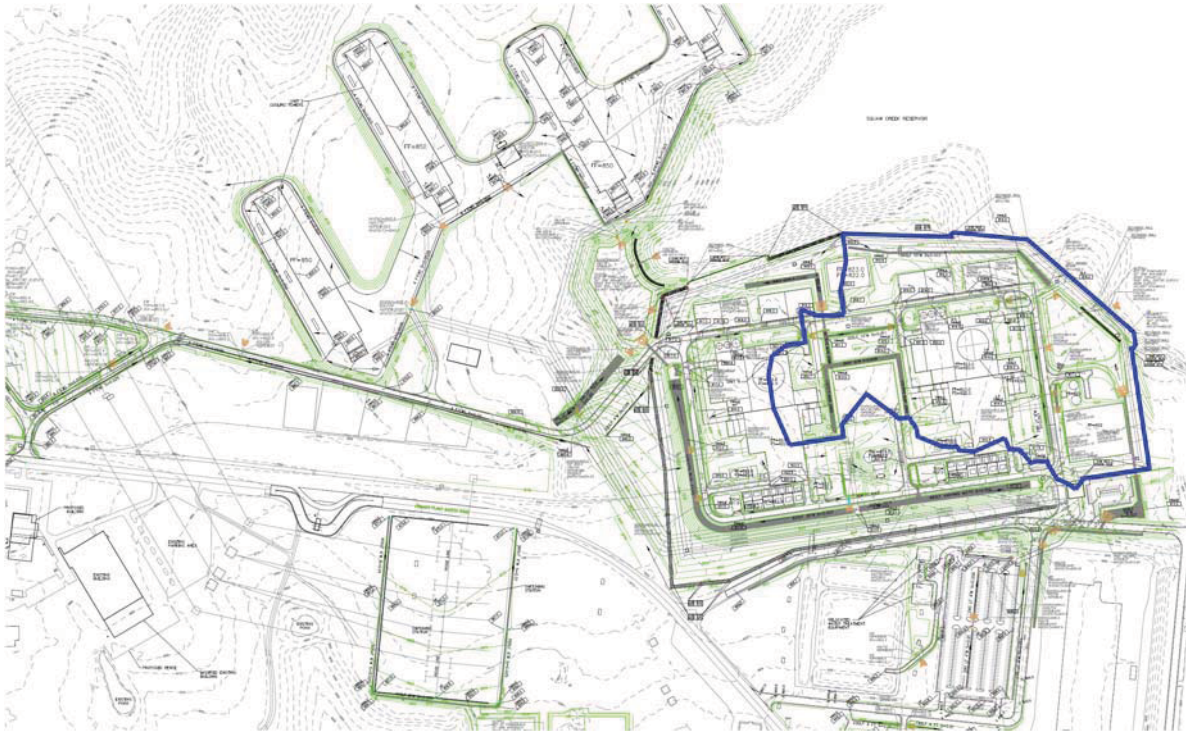


Figure 7-5. Drainage Pond B Contributing Area (Source: URS 2011a, 2011b, 2011c, 2011d, and 2011e)

For Drainage Pond B, the contribution from Drainage Area 9 is based on comparison with the full flow capacity of the culvert at the plant entrance. The grading plan (URS 2011b) identifies a 48 in HDPE culvert with a 0.0033 ft/ft slope. The full flow capacity is calculated using Manning's formula (NRCS 1986, Equation 3-4) and the principles of the conservation of mass continuity equation (USACE 1993, Equation 2-4).

$$V = 1.49 * r^{(2/3)} * s^{(1/2)} / n$$

Where:

V = average velocity (ft/s)

r = hydraulic radius (ft) and is equal to a/p_w

a = cross sectional flow area (sq ft)

p_w = wetted perimeter (ft)

s = slope of hydraulic grade line (channel slope, ft/ft)

n = Manning's roughness coefficient for open channel flow

and

$$Q = V * A$$

Where:

Q = volumetric flow rate (cfs)

V = mean flow velocity (ft/s)

A = cross sectional flow area (sq ft)

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The cross sectional flow area is $\pi * [48 \text{ in} * (1 \text{ ft}/12 \text{ in})]^2 / 4 = 12.57 \text{ sq ft}$. The wetted perimeter is $2 * \pi * [48 \text{ in} * (1 \text{ ft}/12 \text{ in})] / 2 = 12.57 \text{ sq ft}$. Therefore, the hydraulic radius is $12.57 \text{ sq ft} / 12.57 \text{ sq ft} = 1 \text{ ft}$. Based on published tables (Chow 1959) a minimum roughness coefficient for nonmetal conduits, Lucite, is 0.008. A minimum roughness coefficient results in the greatest full flow capacity for the culvert and is conservative in this case. Using the slope previously identified, the velocity is calculated.

$$V = 1.49 * r^{(2/3)} * s^{(1/2)} / n = 1.49 * (1 \text{ ft})^{(2/3)} * (0.0033 \text{ ft/ft})^{(1/2)} / 0.008 = 10.70 \text{ ft/s}$$

The full flow capacity is calculated using the velocity and the cross sectional flow area.

$$Q = V * A = 10.70 \text{ ft/s} * 12.57 \text{ sq ft} = 134 \text{ cfs}$$

Because the full flow capacity is less than the peak runoff for Drainage Area 9, it is conservative to use the peak runoff for Drainage Area 9 as the added runoff to contribute to Pond B.

Similarly, the contribution from Drainage Area 32 is based on the full flow capacity of the culvert entering Drainage Pond B. The grading plan (URS 2011b) identifies twin 48 in HDPE culvert with a 0.0050 ft/ft slope. The full flow capacity is calculated using Manning's formula (NRCS 1986, Equation 3-4) and the principles of the conservation of mass continuity equation (USACE 1993, Equation 2-4).

As previously determined, the cross sectional flow area and wetted perimeter of a 48 in pipe are both 12.57 sq ft resulting in a hydraulic radius of 1 ft. Also previously determined, is a roughness coefficient of 0.008. Using the slope previously identified, the velocity is calculated.

$$V = 1.49 * r^{(2/3)} * s^{(1/2)} / n = 1.49 * (1 \text{ ft})^{(2/3)} * (0.0050 \text{ ft/ft})^{(1/2)} / 0.008 = 13.17 \text{ ft/s}$$

The full flow capacity is calculated using the velocity and the cross sectional flow area.

$$Q = V * A = 13.17 \text{ ft/s} * 12.57 \text{ sq ft} = 166 \text{ cfs}$$

Because there are two 48 in culverts, the total flow contribution from Drainage Area 32 to Drainage Pond B is $2 * 166 \text{ cfs} = 332 \text{ cfs}$.

The maximum water surface elevations for each pond are determined to establish downstream boundary conditions for the channel flow analyses. The maximum water surface elevations are determined using the standard weir flow equation to model overtopping flow (USACE 2010a, Equation 8-6).

$$Q = C * L * H^{1.5}$$

Where:

Q = flow (cfs)

C = weir flow coefficient

L = weir length (ft)

H = weir energy head (ft)

As shown in Figure 7-6, the grading plan identifies Drainage Pond A has a 300 ft spillway at elevation 810 ft (URS 2011b). Overflow travels down a steep slope directly into the SCR. The maximum water surface elevation of the SCR, 793.66 ft (ENERCON 2010), is well below the spillway elevation and would not affect the spillway flow. Therefore, as previously discussed in Section 5.0, a weir flow coefficient of 2.6 is used. From above, the maximum runoff for Drainage Pond A is 11,306 cfs. Using the standard weir flow equation, the overtopping depth is determined to be 6 ft. Therefore, the Drainage Pond A maximum water surface elevation is 810 ft + 6 ft = 816 ft.

$$H = [Q / (C * L)]^{2/3} = [11,306 \text{ cfs} / (2.6 * 300 \text{ ft})]^{2/3} = 5.94 \text{ ft} = \text{use } 6 \text{ ft}$$

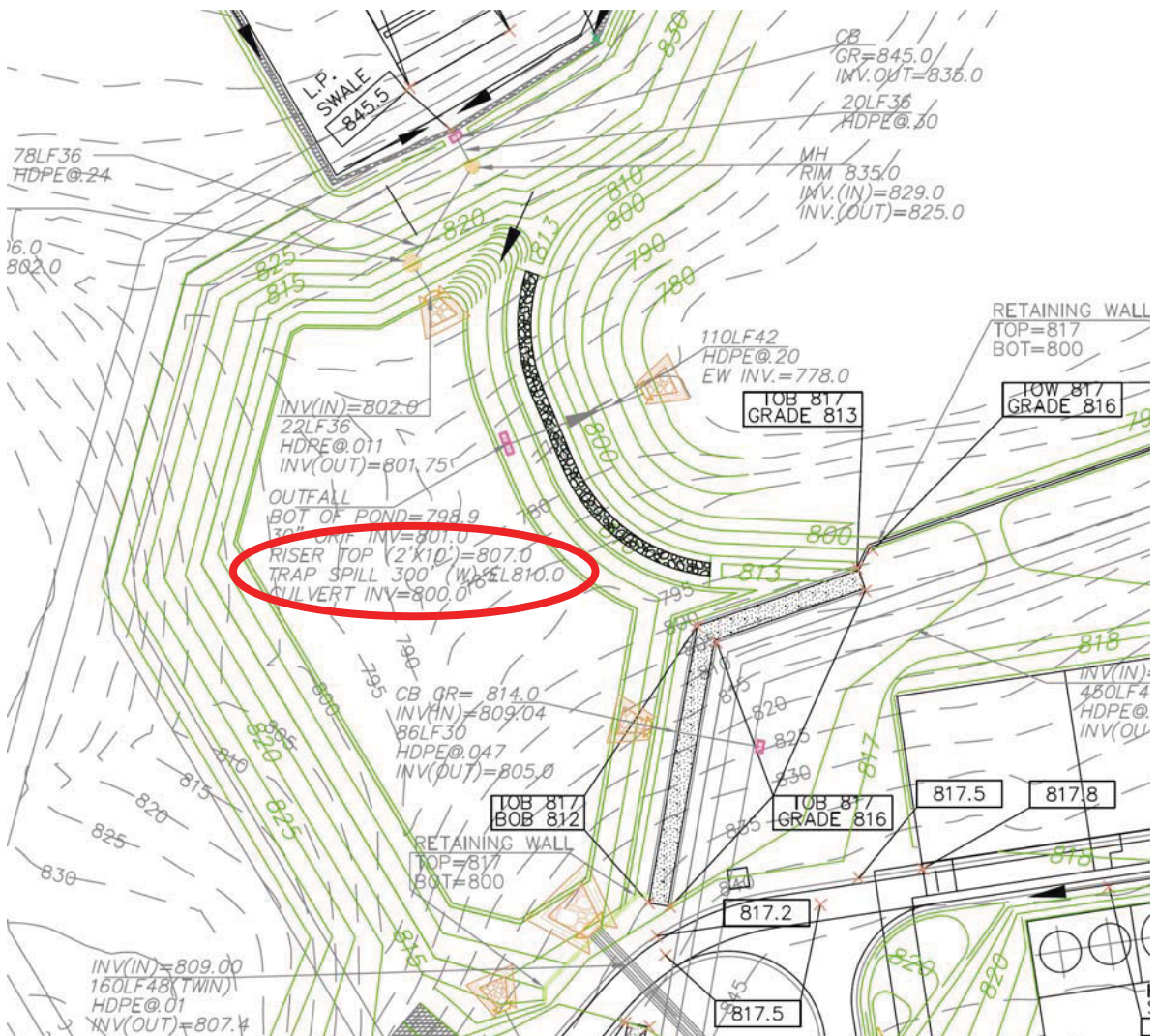


Figure 7-6. Drainage Pond A (Source: URS 2011b)

As shown in Figure 7-7, the grading plan identifies Drainage Pond B has a 250 ft spillway at elevation 812 ft (URS 2011b). Overflow spills into an area that would pond up to an elevation of 810 ft corresponding to the top of a retaining wall barrier located immediately downstream. This configuration may affect spillway flow. Overflow of the retaining wall travels down a steep slope

directly into the SCR. The maximum water surface elevation of the SCR, 793.66 ft (ENERCON 2010), is well below the top of the retaining wall and would not affect the overflow from this area.

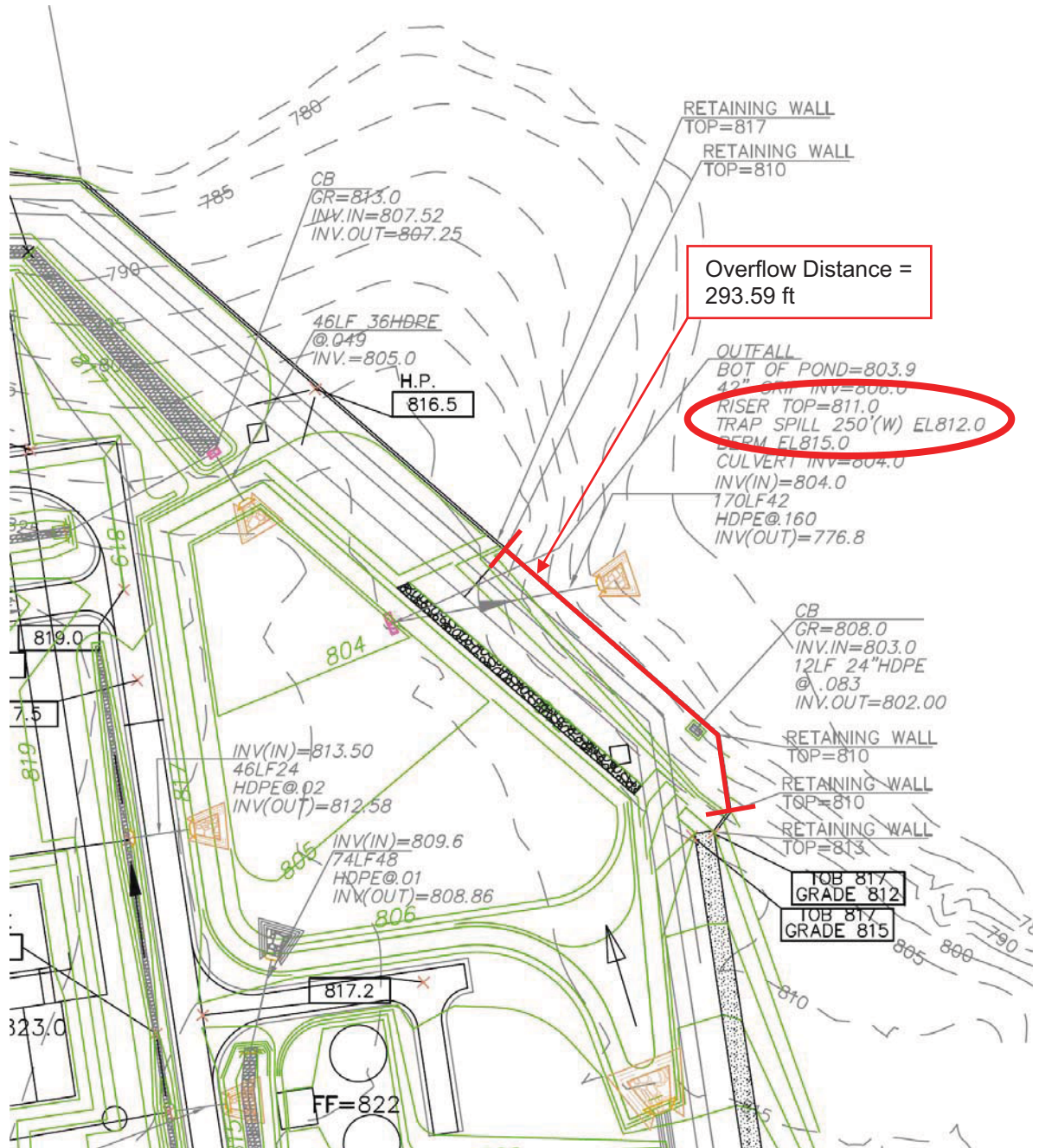


Figure 7-7. Drainage Pond B (Source: URS 2011b)

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As a first estimate for the Drainage Pond B, a weir flow coefficient of 2.6 is used. From above, the maximum runoff for Drainage Pond B is 3439 cfs. Using the standard weir flow equation, the overtopping depth is determined to be 3.1 ft. Therefore, the Drainage Pond B maximum water surface elevation is 812 ft + 3.1 ft = 815.1 ft.

$$H = [Q / (C * L)]^{2/3} = [3439 \text{ cfs} / (2.6 * 250 \text{ ft})]^{2/3} = 3.04 \text{ ft} = \text{use } 3.1 \text{ ft}$$

To evaluate the effects of the downstream retaining wall, the maximum water surface elevation for overflow at the retaining wall is determined. As shown in Figure 7-7, the top of the retaining wall is at elevation 810 ft. The overtopping distance is determined to be 293.59 ft. As previously discussed, the top of the retaining wall is above the effects of the SCR. Therefore, a weir flow coefficient of 2.6 is used. The overtopping depth is determined to be 2.8 ft. for a maximum water surface elevation of 810 ft + 2.8 ft = 812.8 ft.

$$H = [Q / (C * L)]^{2/3} = [3439 \text{ cfs} / (2.6 * 293.59 \text{ ft})]^{2/3} = 2.73 \text{ ft} = \text{use } 2.8 \text{ ft}$$

The overflow elevation of the retaining wall exceeds the elevation of the Drainage Pond B spillway. Roadway overtopping guidance (FHWA 2005), shown in Figure 7-8, is used to determine any tailwater effects for the pond. As previously determined, the headwater for the Drainage Pond B spillway is 3.1 ft. The cross-sectional length of the spillway is 10 ft. The ratio of headwater divided by length (HWr/Lr) is 3.1 ft / 10 ft = 0.31. The corresponding discharge coefficient is 3.09 for paved or gravel surfaces, as shown in Chart A of Figure 7-8.

The tailwater for the spillway is 812.8 ft – 812 ft = 0.8 ft. The ratio of tailwater divided by headwater (ht/HWr) is 0.8 ft / 3.1 ft = 0.26. The corresponding submergence factor for this condition is 1.0 for paved or gravel surfaces, as shown in Chart C of Figure 7-8. The revised discharge coefficient, 3.09 * 1.0 = 3.09, indicates there are no tailwater effects for the Drainage Pond B spillway. Furthermore, a more conservative discharge coefficient is used to determine the Drainage Pond B maximum water surface elevation.

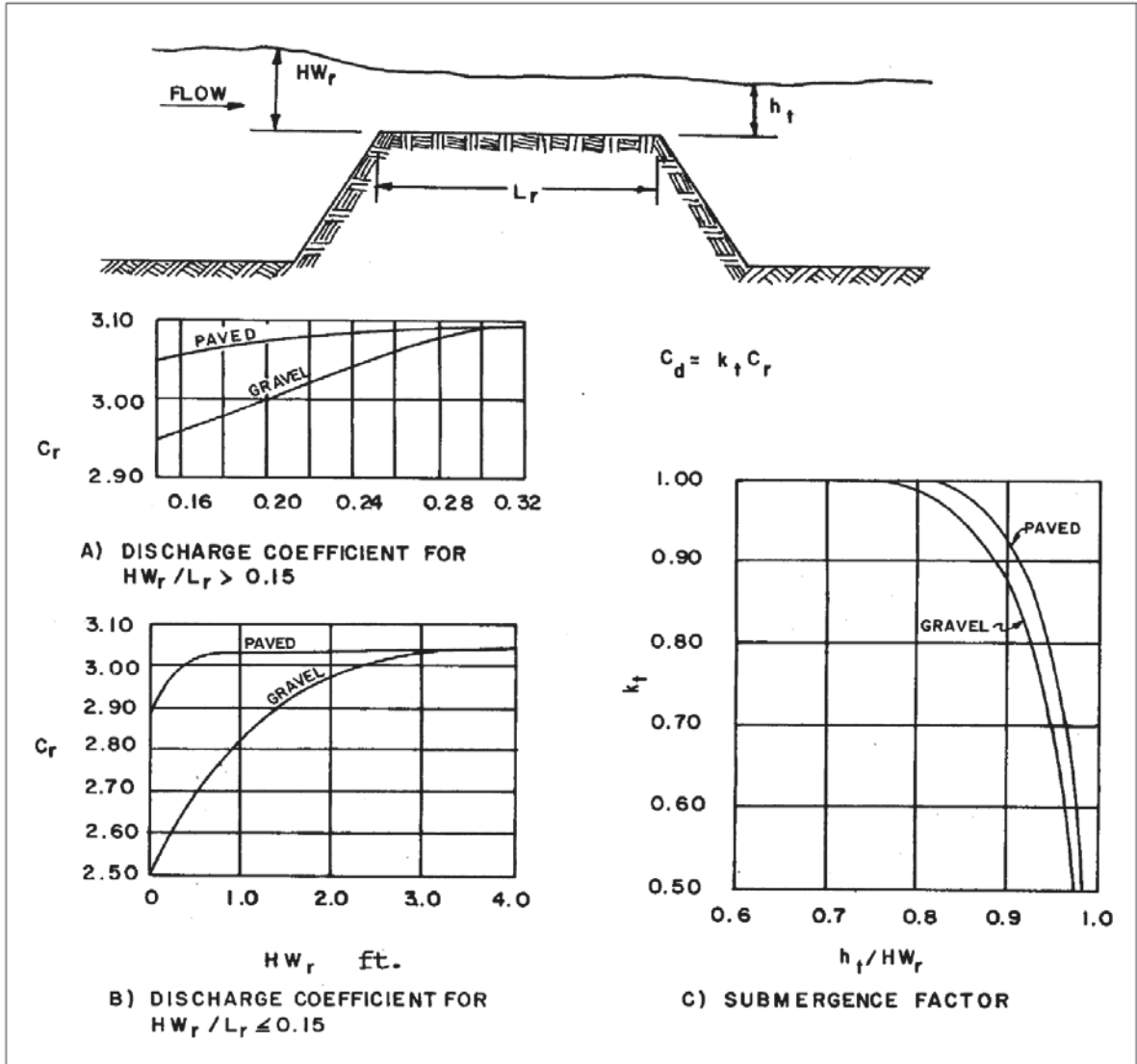


Figure 7-8. Discharge Coefficients (FHWA 2005)

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7.2 HEC-RAS Model

The contours and features of the grading plan are used to create channel cross sections. Roughness coefficients are assigned to the channel cross sections based on the surface cover material. Designated channels are lined with a concrete bottom with riprap side slopes (URS 2011a, 2011b, 2011c, 2011d, and 2011e). All other areas including swales maintain a crushed stone or gravel type surface cover (URS 2011a, 2011b, 2011c, 2011d, and 2011e).

Roughness coefficients for concrete and crushed stone or gravel are based on published tables (Chow 1959) and selected to be 0.013 and 0.026, respectively. A roughness coefficient of 0.013 is the typical design value for concrete channels. A roughness coefficient of 0.026 envelopes the coefficients for gravel bottom channels, excluding those channels with side slopes of riprap.

The roughness coefficient for riprap is based on Strickler's equation for riprap (USACE 1994, Equation 3-2) and selected to be 0.038. As the size of the riprap approaches 1 ft, the roughness coefficient is equal to the K coefficient. A higher K coefficient results in a higher roughness coefficient, and yields higher water surface elevations.

$$n = K[D_{90}(\text{min})]^{1/6}$$

Where:

n = roughness coefficient

K = 0.036, average

= 0.034 for velocity and stone size calculation

= 0.038 for capacity and freeboard calculation

D₉₀(min) = size of which 90 percent of sample is finer, ft

To ensure a conservative approach, the selected roughness coefficients are increased by a factor of 50 percent. The roughness coefficients used in the analysis are provided in Table 7-2.

Table 7-2. Manning's Roughness Coefficients

Material	Initial Estimate	Increase Factor	Final Estimate
Concrete	0.013	1.5	0.020
Crushed Stone/Gravel	0.026	1.5	0.039
Riprap	0.038	1.5	0.057

For reference, the initial estimates are consistent with a riprap size of 1 ft and a gravel size of 1.2 in. The final estimates are bounding for riprap up to a size of 12 ft, and gravel up to a size of 14 in.

Channel cross section locations are identified in Figure 7-9. The cross section stations and elevations are determined using the grading plan and AutoCAD. The data are entered into the HEC-RAS software along with the Manning's Roughness Coefficients. Site structures and buildings are modeled as obstructions and do not allow any storage in the cross section. Because drainage structures are assumed to be non-functional, inline structures are used to describe weirs in HEC-RAS. In some cases, flow will spill laterally from a channel and are included in HEC-RAS as lateral structures. For both the inline and lateral structures, the grading plan and AutoCAD are also used to determine the stations and elevations.

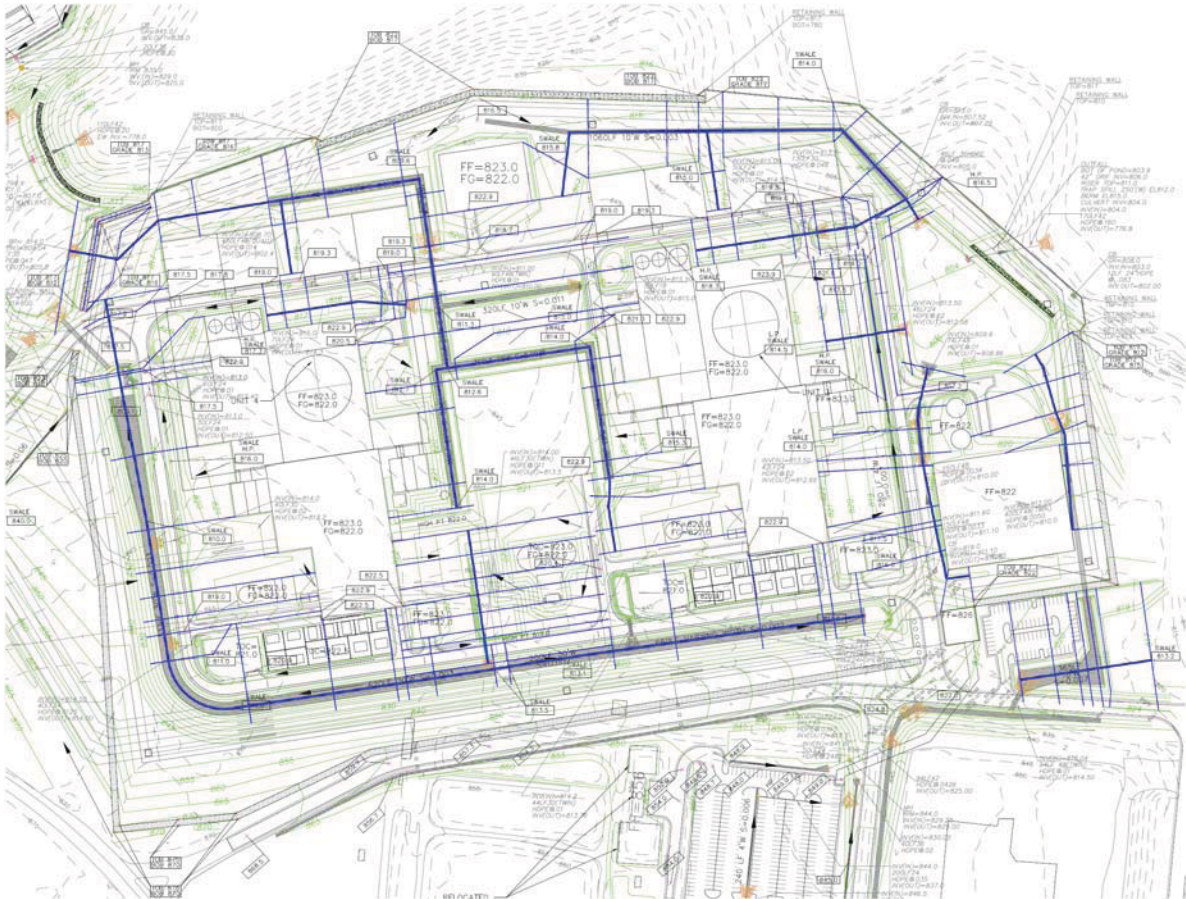


Figure 7-9. Cross Section Locations (Source: URS 2011a, 2011b, 2011c, and 2011d)

Although individual channels are disconnected from each other in the model, all the channels are included in one HEC-RAS model. The HEC-RAS overall schematic is shown in Figure 7-10. In general, the hydraulic models are solved simultaneously, with iterations performed to refine results and adjust boundary conditions as the results from one channel may affect another channel.

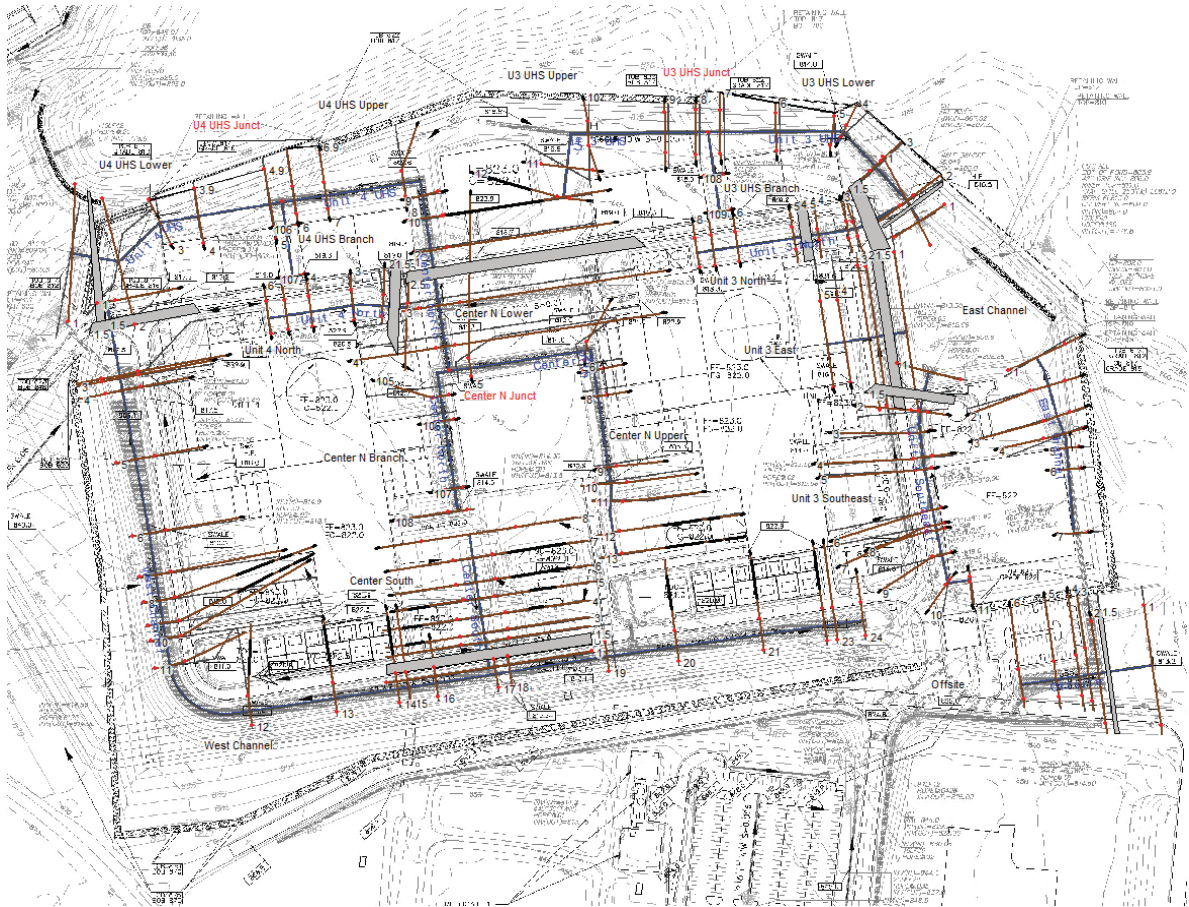


Figure 7-10. HEC-RAS Schematic

Although the analyses for all channels are performed simultaneous in HEC-RAS, the detailed inputs and discussion of the analysis for each channel are presented individually for clarification. The presentation is based on the progression outlined below, continuing from the previous determination of maximum water surface elevations for the drainage ponds or pond areas.

- **Drainage Pond A** maximum water surface elevation establishes downstream boundary condition for the Unit 4 UHS Channel
- **Unit 4 UHS Channel** analysis establishes downstream boundary condition for the West Channel and partial downstream boundary condition for the Center North Channel
- **West Channel** analysis establishes the downstream boundary condition for the Center South Channel
- **Center South Channel**
- **Drainage Pond B** maximum water surface elevation establishes downstream boundary condition for the Unit 3 UHS Channel, the Unit 3 East Channel, the Unit 3 Southeast Channel, and the East Channel
- **Unit 3 UHS Channel** analysis establishes downstream boundary condition for the Unit 3 North Channel and partial downstream boundary condition for the Center North Channel)
- **Unit 3 North Channel**

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- **Center North Channel** analysis establishes downstream boundary condition for the Unit 4 North analysis
- **Unit 4 North Channel**
- **Unit 3 East Channel**
- **Unit 3 Southeast Channel**
- **East Channel** analysis establishes potential contribution to Unit 3 Southeast Channel analysis
- **Off-site Channel** analysis establishes potential contribution to East Channel analysis

HEC-RAS cross section inputs are discussed for each channel and provided using screenshot figures from the HEC-RAS software. Cross sections are labeled by number from high to low in the downstream direction. Each cross section includes station and elevation coordinates from the perspective of viewing the cross section in the downstream direction. The Manning's roughness coefficients are included in the cross section coordinates table under the column heading labeled n Val. The distances between the current cross section and the downstream cross section are included in the figures. The default contraction and expansion coefficients are used and correspond to gradual transitions. Any blocked obstructions for a cross section are noted with the corresponding figure.

HEC-RAS is run using the steady flow option with a mixed flow regime. A mixed flow regime allows both subcritical and supercritical flow to occur in the model. Because supercritical flow is a possibility with a mixed flow regime, upstream boundary conditions are required for each channel model. The upstream boundary conditions for all reaches are set to critical depth. If supercritical flow is determined for the most upstream cross section, a critical depth boundary condition conservatively provides the highest water surface elevation. If supercritical flow is not determined, the water surface elevation is based on the subcritical flow result.

HEC-RAS detailed cross section results identify any software generated warnings. The warnings are not errors and are intended to provide information to the user that may or may not require action. As described in the HEC-RAS documentation (USACE 2010b), the hydraulic results at the warning locations are reviewed to ensure they are reasonable. If the hydraulic results are found to be reasonable, the message can be ignored.

There are several reoccurring warnings identifying that cross section end points had to be extended vertically for the computed water surface elevation, divided flow is computed for a cross section, or because of conveyance ratios, energy loss, or velocity head changes there may be a need for additional cross sections. Cross section end point vertical extension is conservative and appropriate because the flow is confined to the described cross section and is prevented from spreading out beyond the established section, which would reduce the resulting water surface elevation. Divided flow is appropriate for the analysis, because high flows are overtopping internal cross section boundaries or high points and spreading out into adjacent areas. Where additional cross sections may be needed, cross section interpolation is used to generate enough cross sections in effort to eliminate the warning or create a smooth flow profile. Other less frequent warnings, not characterized here, are addressed in the appropriate channel analysis discussions provided below.

7.3 Unit 4 UHS Channel

The Unit 4 UHS Channel runs generally west along the north side of the Unit 4 UHS structures and empties into Drainage Pond A through a culvert structure, as shown in Figure 7-11. There is also a branch of the channel that flows north into the main channel between the sets of Unit 4 UHS structures. Assuming the culvert is non-functional, runoff will continue overland to a depression adjacent to Drainage Pond A. The depression has an inlet structure discharging to the pond. However, assuming the inlet is non-functional the depression will pool with water and spill over the vehicle barrier system (VBS) acting as a weir into Drainage Pond A. Additionally, runoff will spill laterally over retaining wall sections of the VBS directly into the SCR.

The main channel is modeled using 10 cross sections and one weir, and is divided into an upper reach and lower reach with a junction between Cross Sections 5 and 6. The branch is modeled using two cross sections and connects to the main channel at the junction. The Unit 4 UHS Channel captures runoff from Drainage Area 22. Runoff from Drainage Areas 1 through 7 (Center North Channel), Drainage Area 21 (Unit 4 North Channel), and Drainage Areas 8 through 20 (West Channel and Center South Channel) also contribute to the Unit 4 UHS Channel.

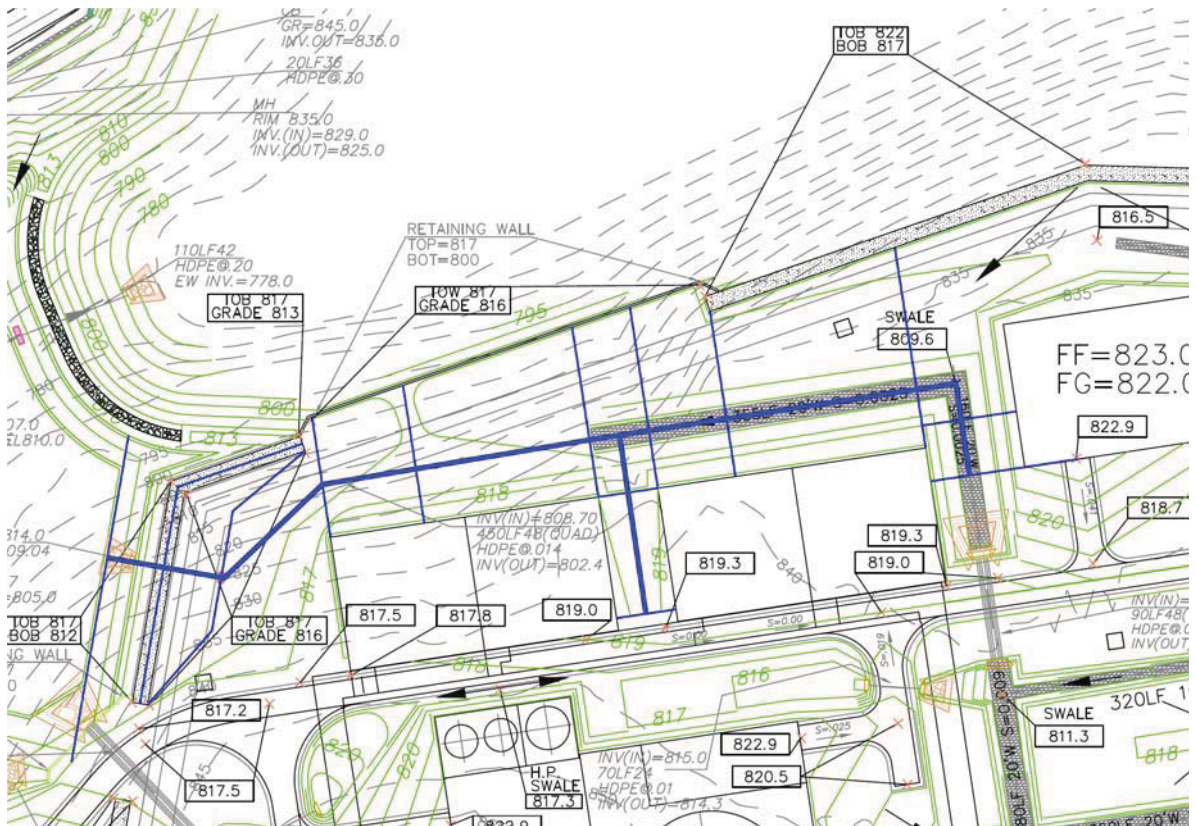


Figure 7-11. Unit 4 UHS Channel Cross Sections (Source: URS 2011b)

The Unit 4 UHS Channel HEC-RAS schematic is shown in Figure 7-12. The Unit 4 UHS Channel cross section data are shown in Figure 7-13 through Figure 7-24. The inline structure weir is shown in Figure 7-25 and the corresponding data is provided in Table 7-3.

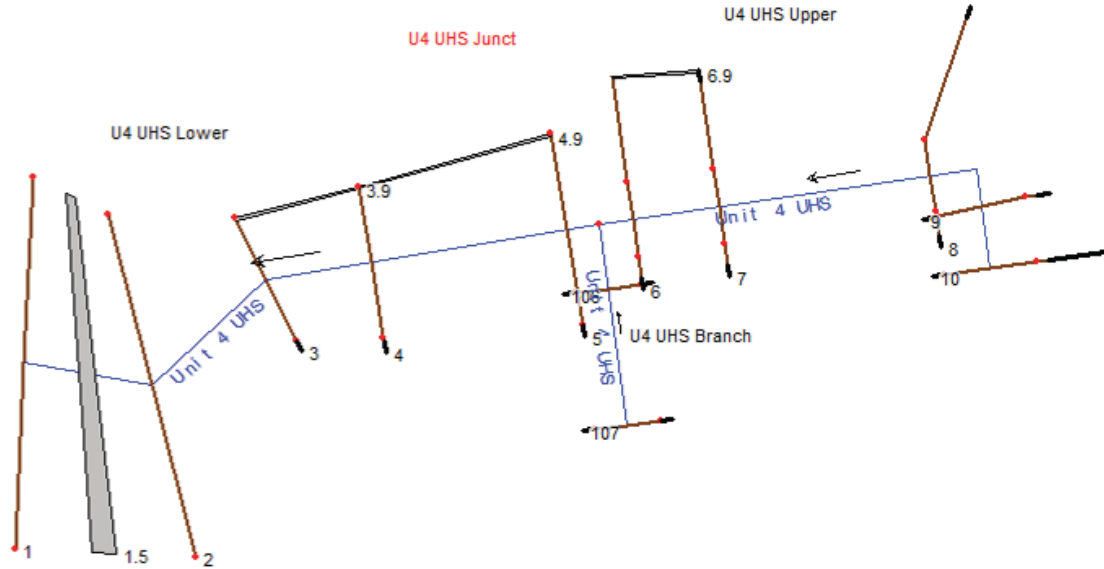
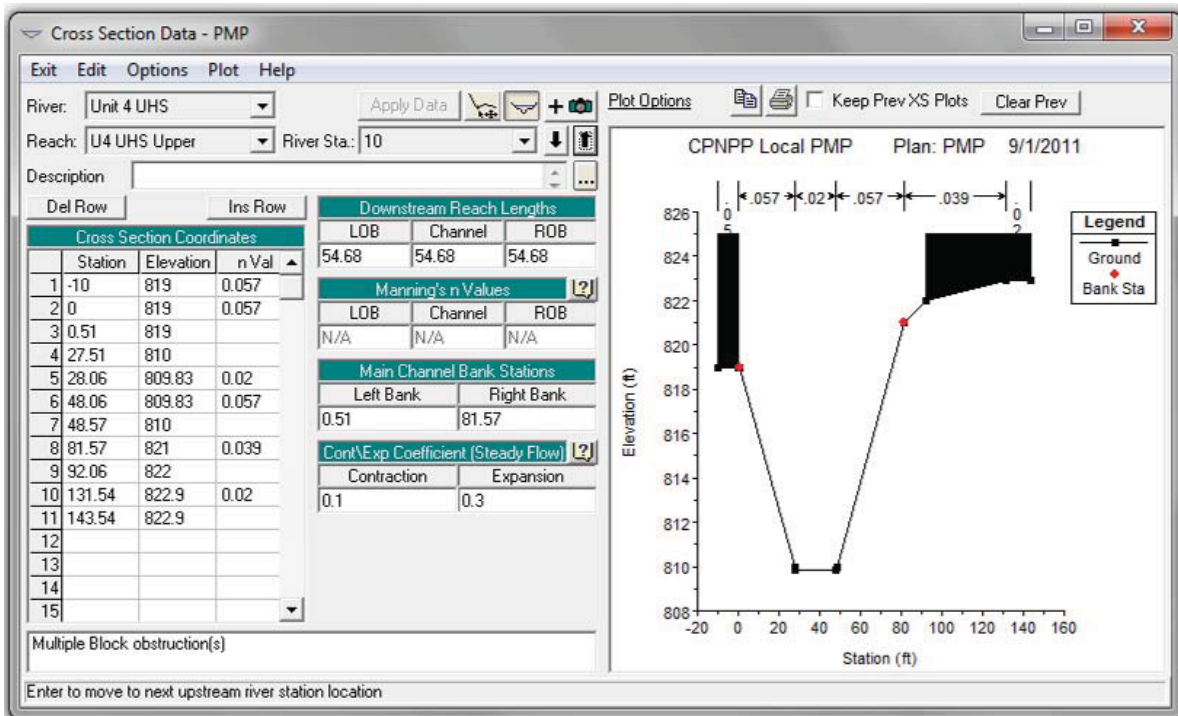
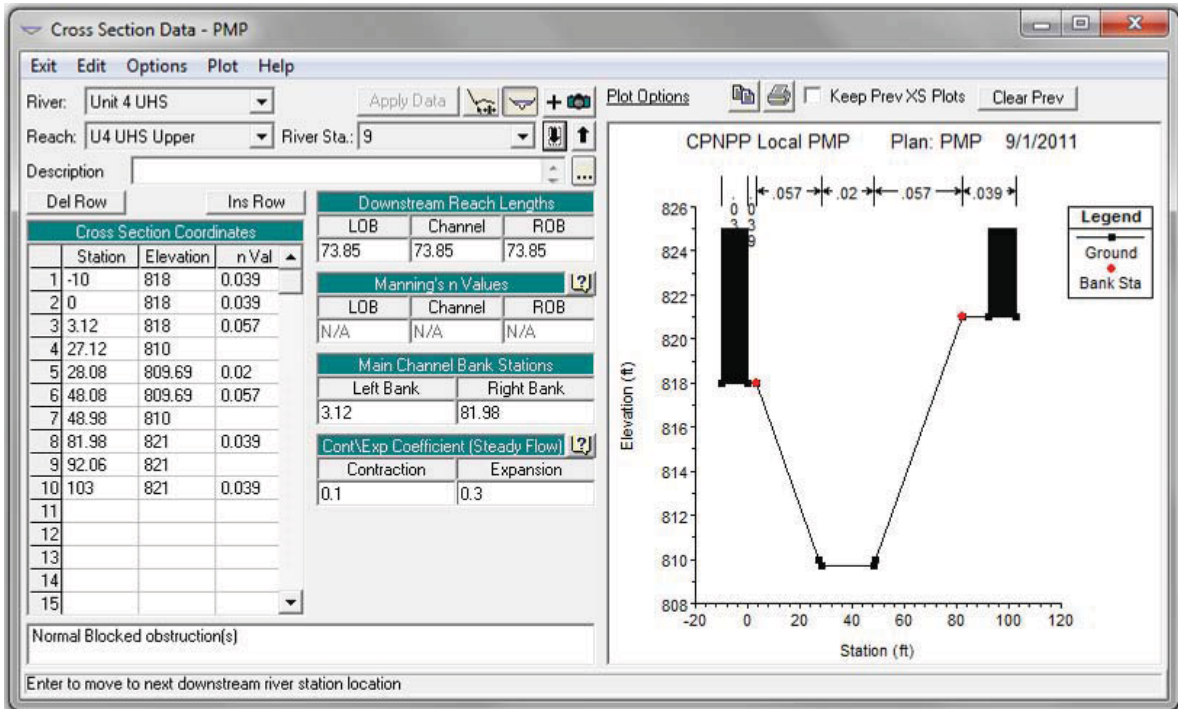


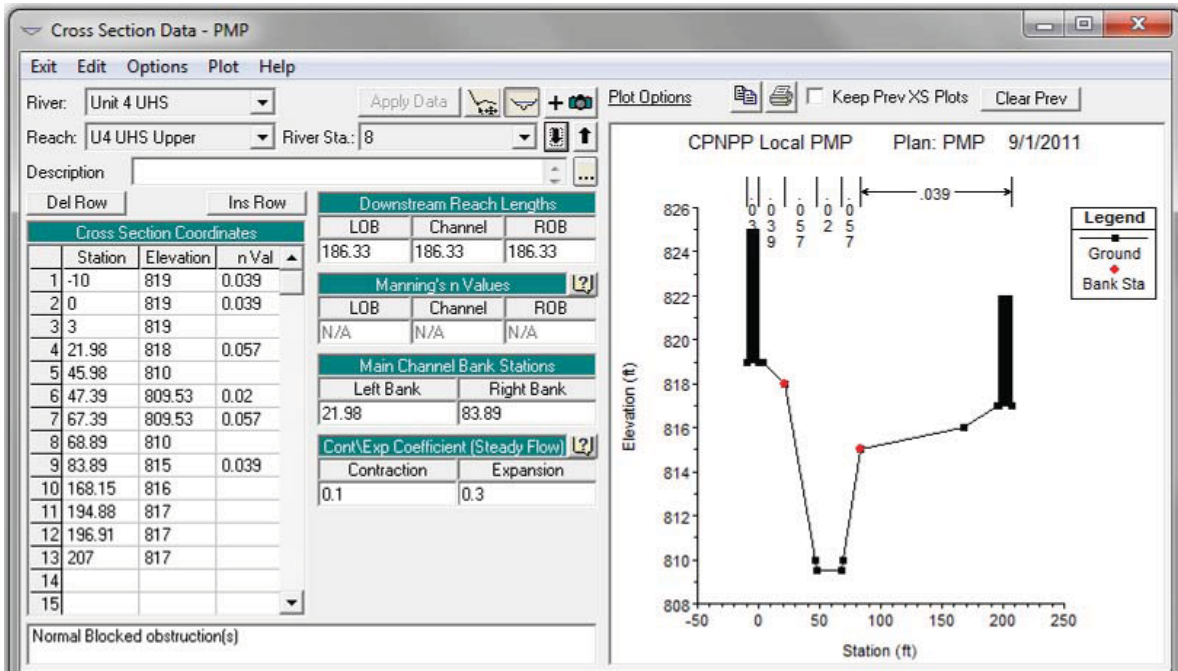
Figure 7-12. Unit 4 UHS Channel HEC-RAS Schematic



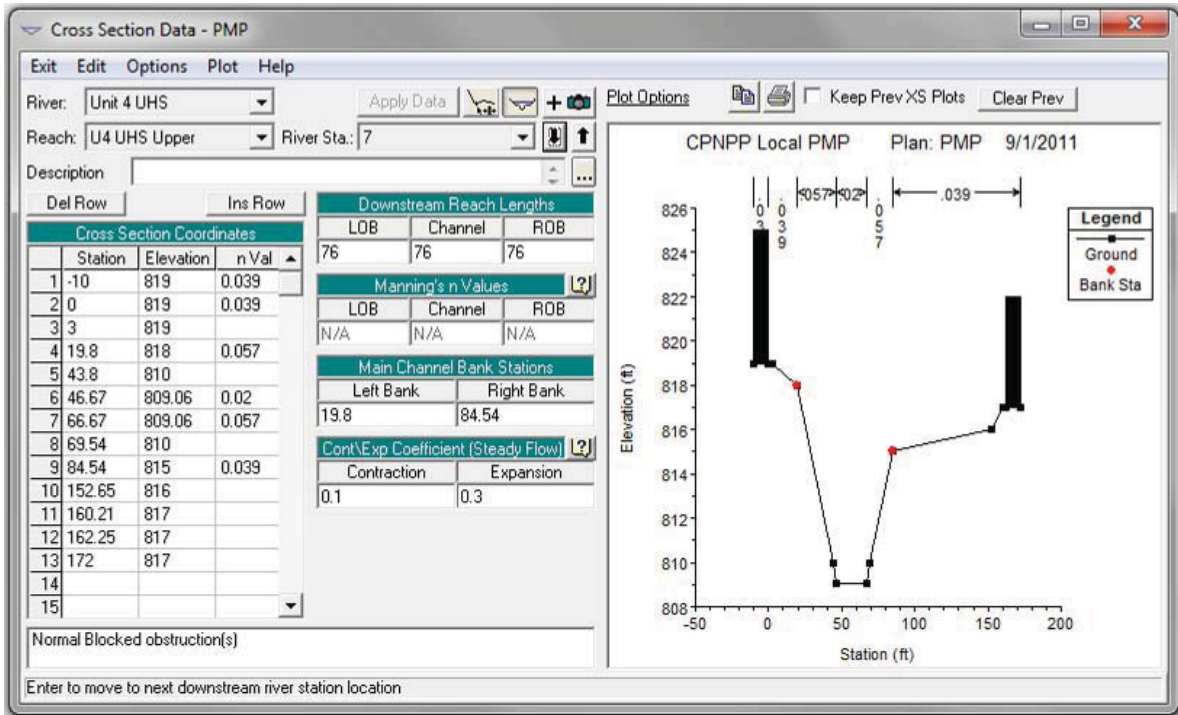
Obstructions: Station -10 to 0 and 92.06 to 143.54
 Figure 7-13. Unit 4 UHS Upper Channel Cross Section 10



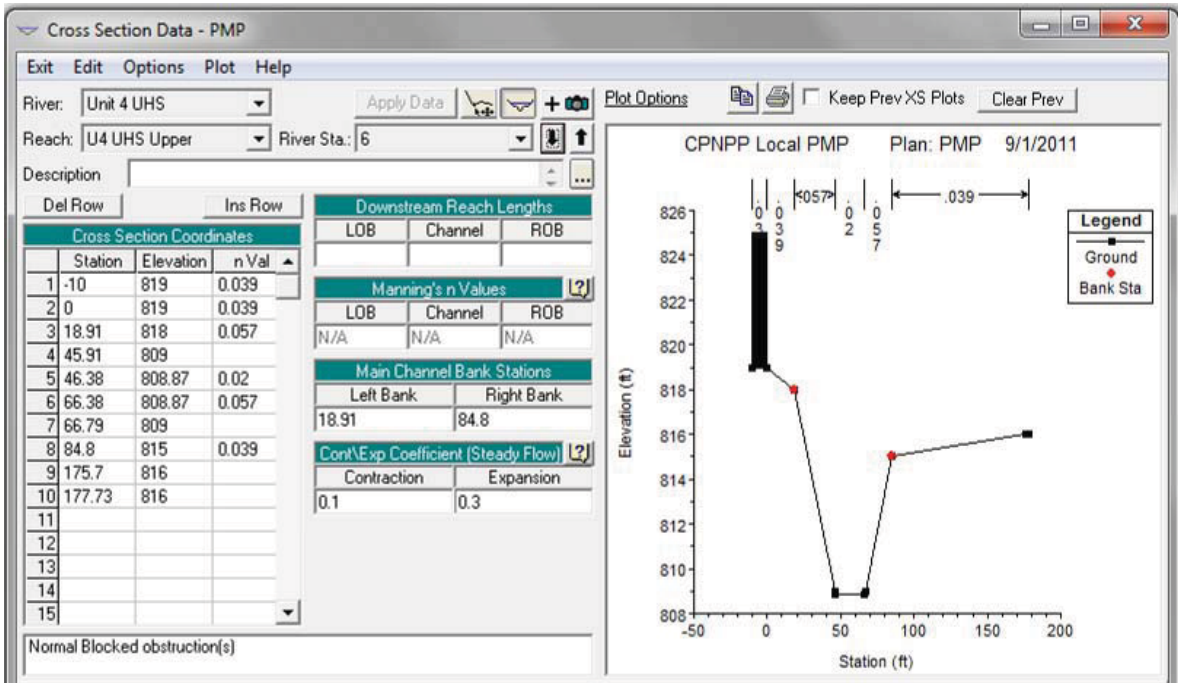
Obstructions: Station -10 to 0 and 92.06 to 103
Figure 7-14. Unit 4 UHS Upper Channel Cross Section 9



Obstructions: Station -10 to 0 and 196.91 to 207
Figure 7-15. Unit 4 UHS Upper Channel Cross Section 8

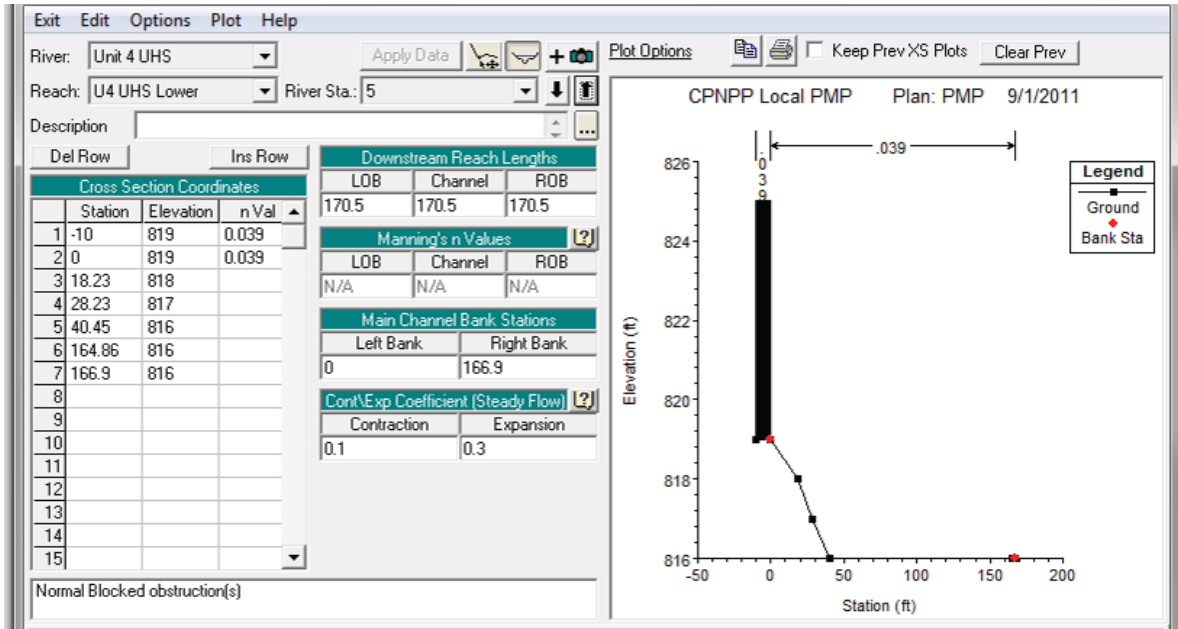


Obstructions: Station -10 to 0 and 162.25 to 172
Figure 7-16. Unit 4 UHS Upper Channel Cross Section 7

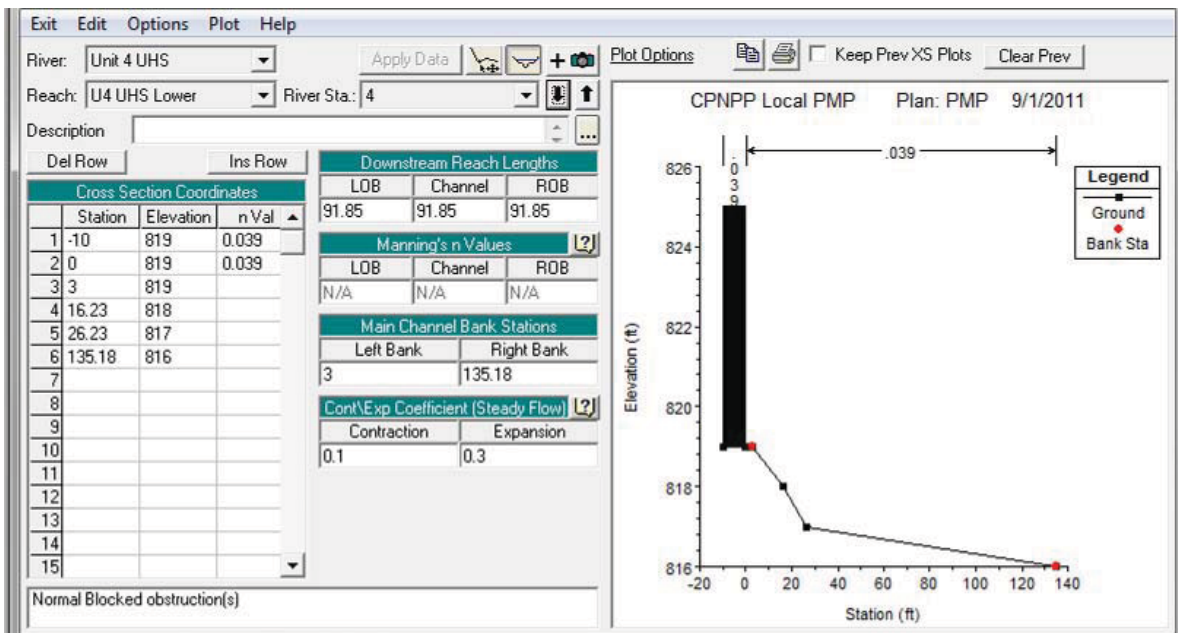


Obstructions: Station -10 to 0
Figure 7-17. Unit 4 UHS Upper Channel Cross Section 6

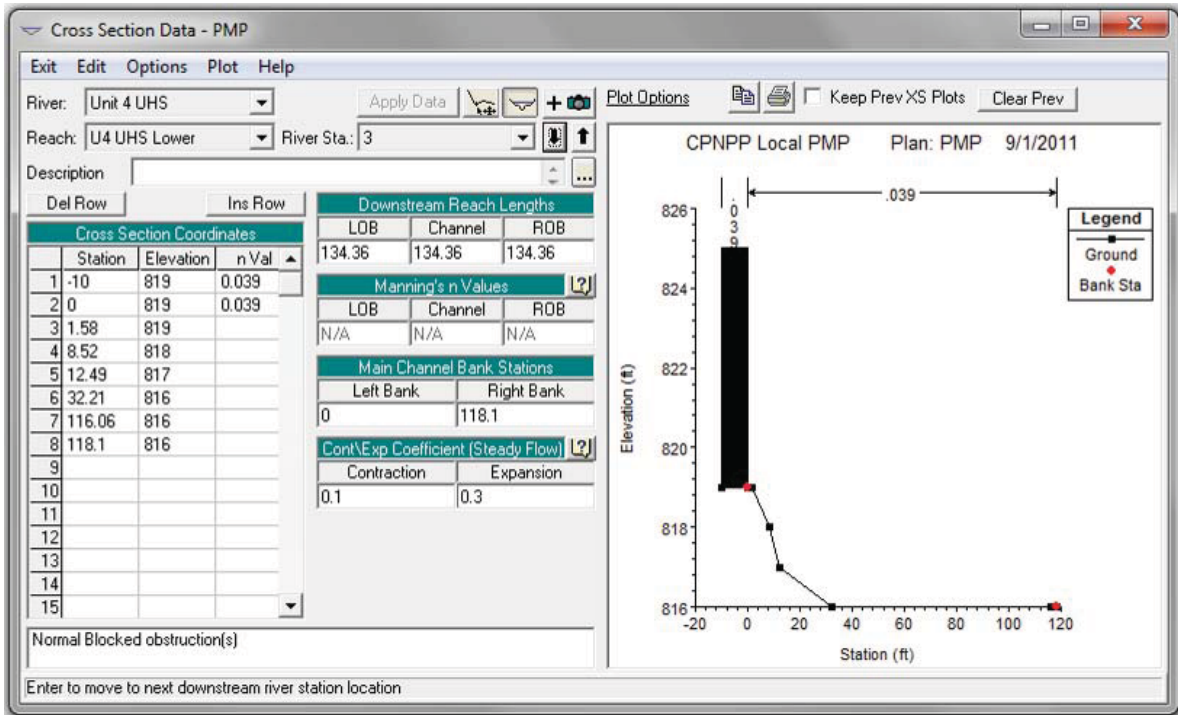
The distance across the junction between Cross Section 6 of the upper reach and Cross Section 5 of the lower reach is 58.25 ft.



Obstructions: Station -10 to 0
Figure 7-18. Unit 4 UHS Lower Channel Cross Section 5



Obstructions: Station -10 to 0
Figure 7-19. Unit 4 UHS Lower Channel Cross Section 4



Obstructions: Station -10 to 0
Figure 7-20. Unit 4 UHS Lower Channel Cross Section 3

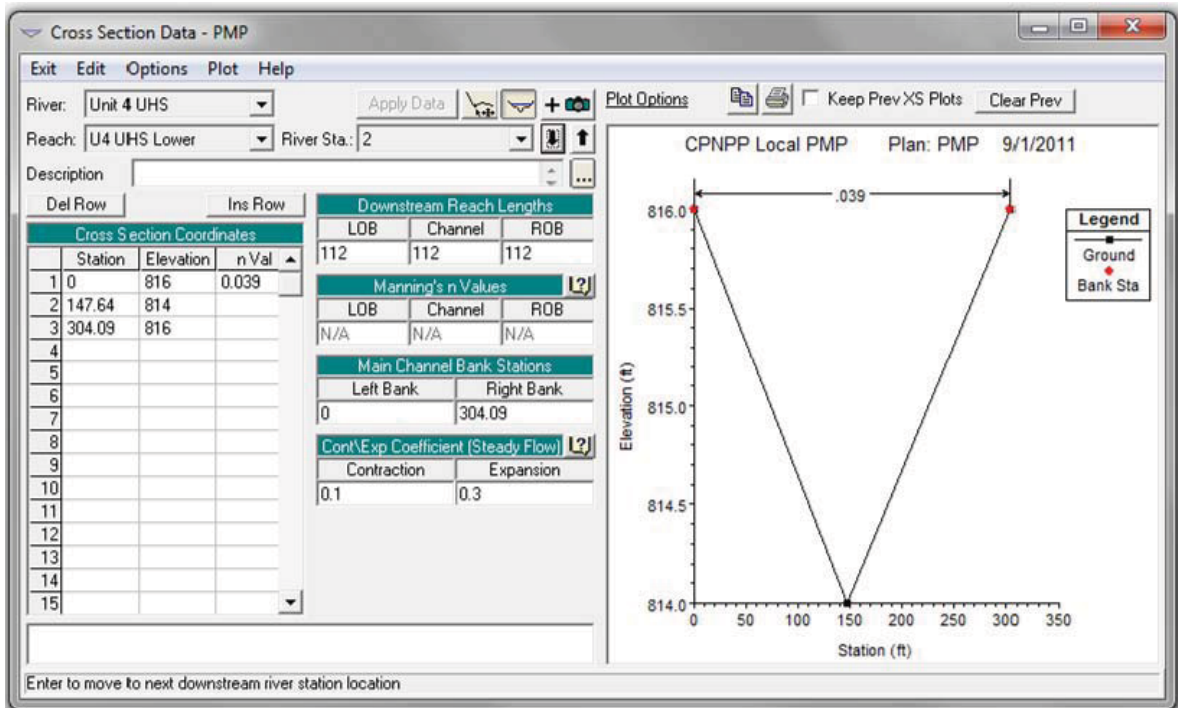


Figure 7-21. Unit 4 UHS Lower Channel Cross Section 2

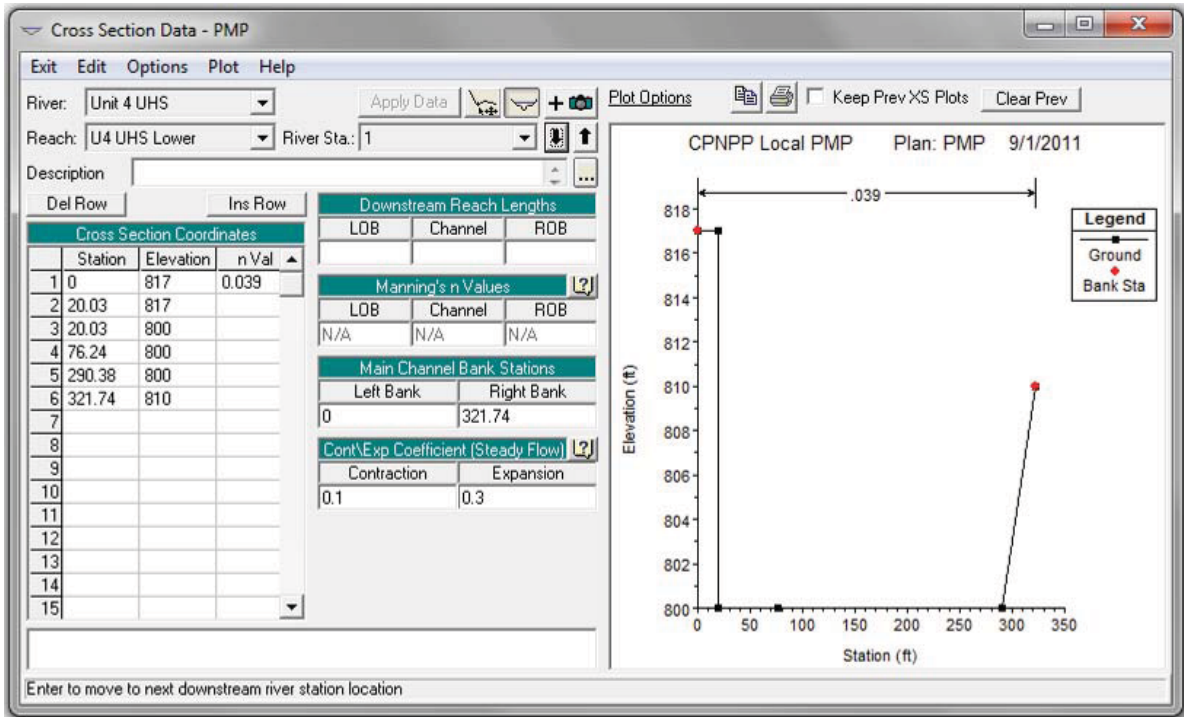
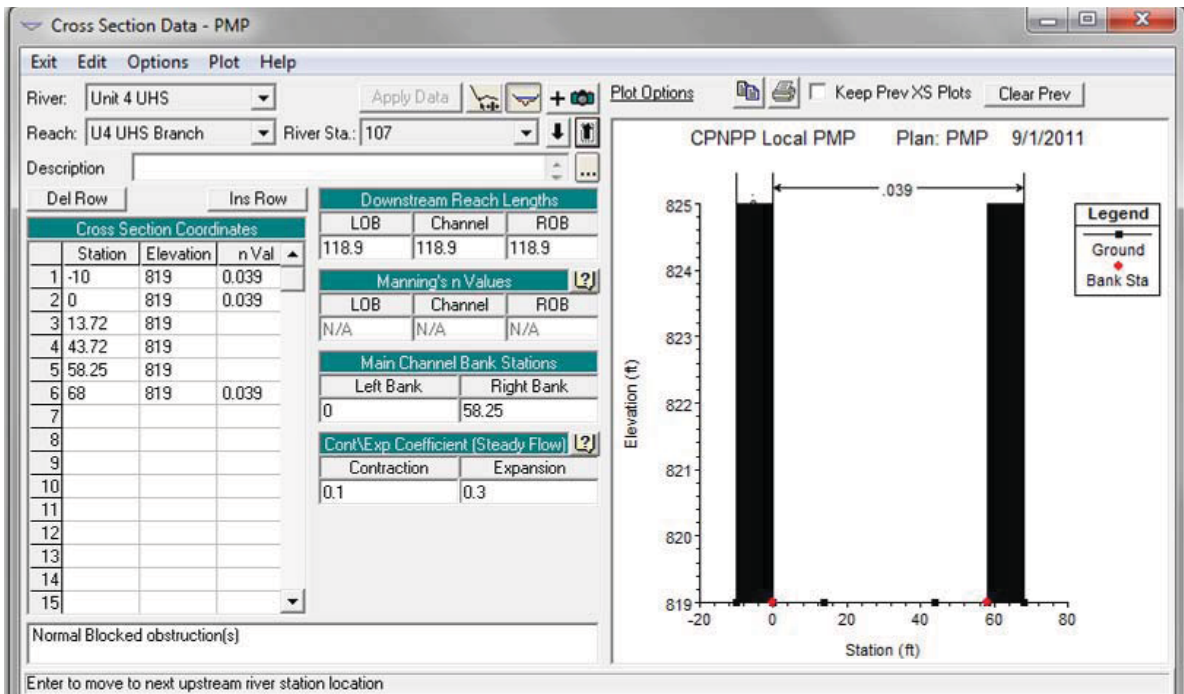
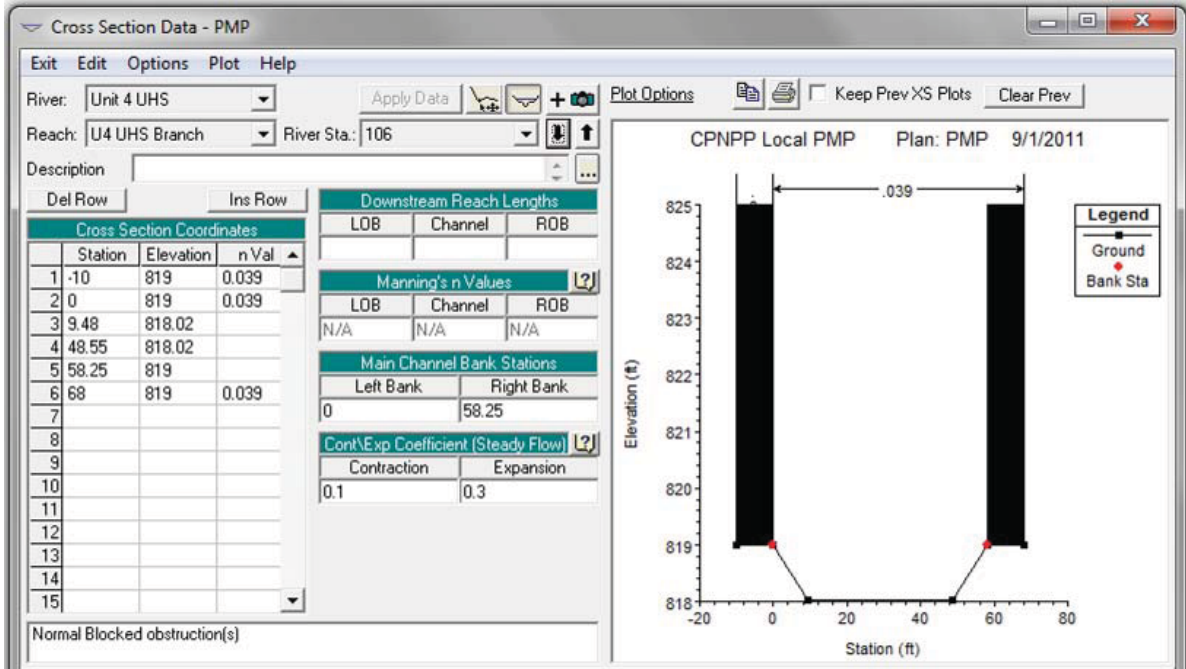


Figure 7-22. Unit 4 UHS Lower Channel Cross Section 1



Obstructions: Station -10 to 0 and 58.25 to 68
Figure 7-23. Unit 4 UHS Branch Channel Cross Section 107



Obstructions: Station -10 to 0 and 58.25 to 68
 Figure 7-24. Unit 4 UHS Branch Channel Cross Section 106

The distance across the junction between Cross Section 106 of the branch reach and Cross Section 5 of the lower channel is 85.65 ft.

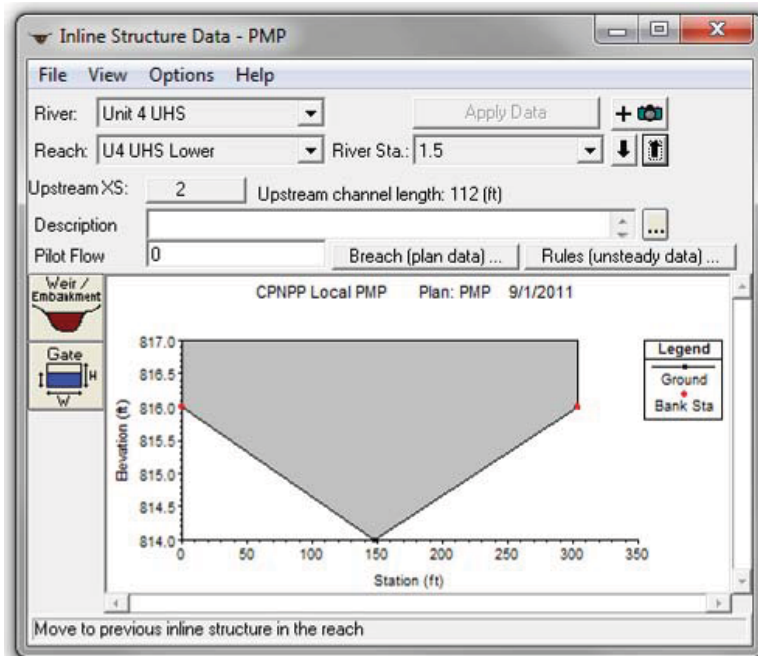


Figure 7-25. Unit 4 UHS Channel Inline Structure Weir Cross Section 1.5

Table 7-3. Unit 4 UHS Channel Inline Structure Weir Cross Section 1.5

Station (ft)	Elevation (ft)
0	817
341.29	817

Distance between upstream station and weir = 49 ft
 Weir width = 15 ft
 Weir coefficient = 2.6

Lateral weirs are added to the model to represent the retaining wall sections of the VBS. The retaining wall has a top elevation of 817 ft (URS 2011b). Lateral structure weirs are added to the model for the full distance between Cross Sections 3 and 4, 4 and 5, and 6 and 7. Although flow would spill laterally between Cross Sections 5 and 6, lateral structure weirs may not extend across or through a junction in HEC-RAS. The lateral structure weirs and the corresponding data are shown in Figure 7-26 through Figure 7-28.

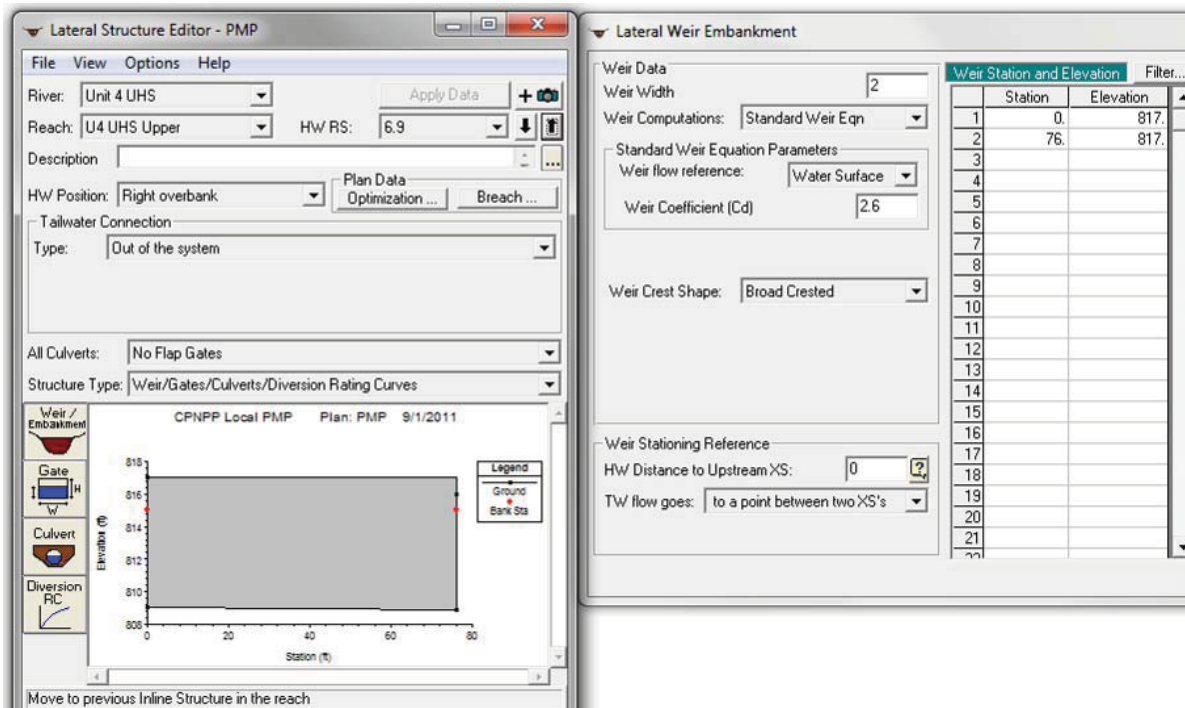


Figure 7-26. Unit 4 UHS Upper Channel Lateral Structure Weir Cross Section 6.9

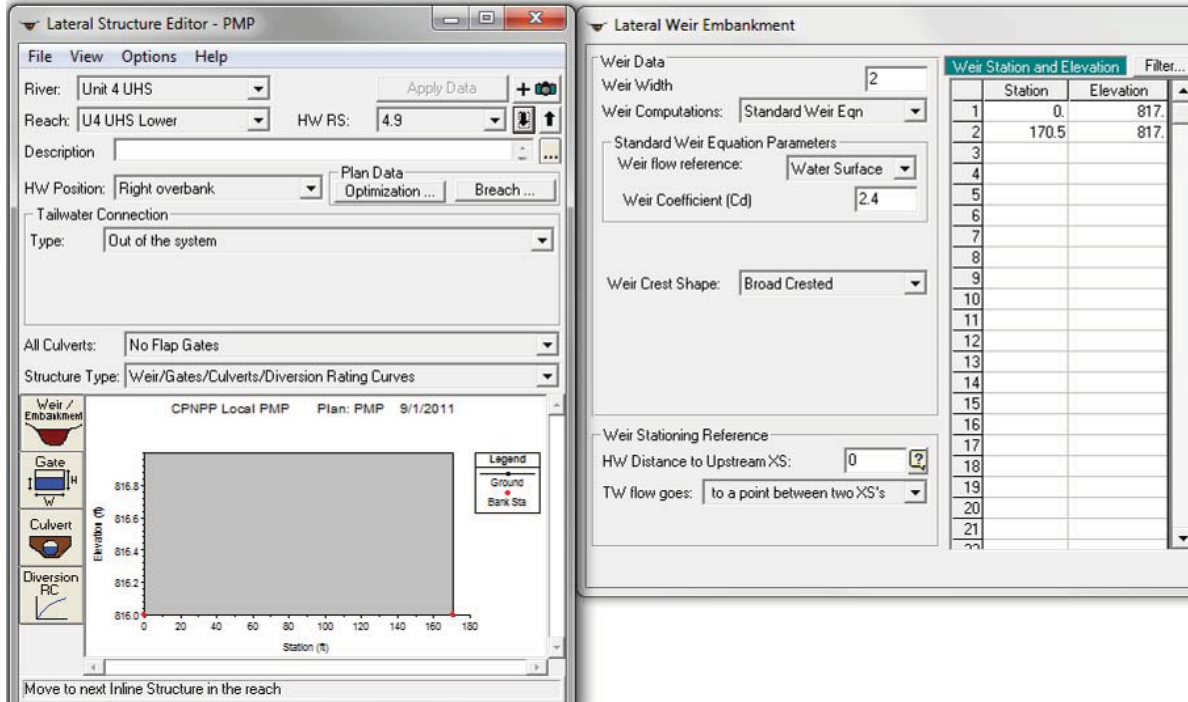


Figure 7-27. Unit 4 UHS Lower Channel Lateral Structure Weir Cross Section 4.9

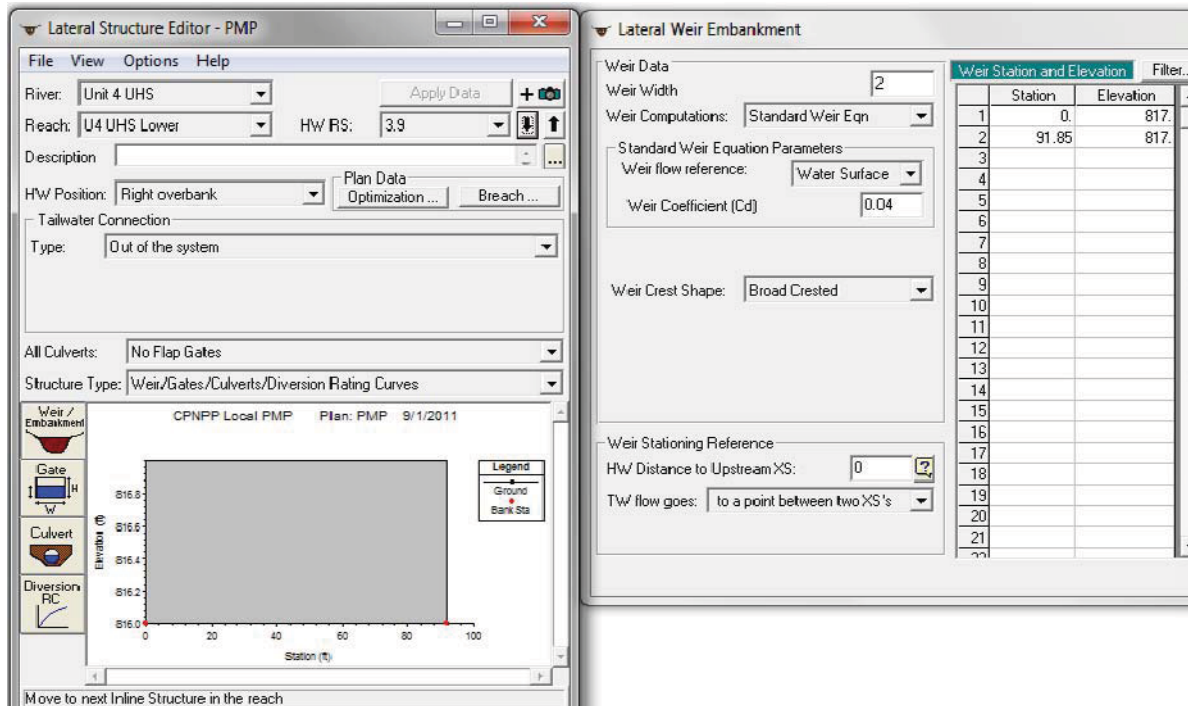


Figure 7-28. Unit 4 UHS Lower Channel Lateral Structure Weir Cross Section 3.9

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Runoff from Drainage Areas 1 through 7 (Center North Channel) is directed to a culvert in Drainage Area 6. Assuming the culvert is non-functional, the combined runoff from these areas would overtop the loop road and split. Some runoff would enter the Unit 4 UHS Channel and the remaining runoff would enter the Unit 3 UHS Channel. As a conservative approach, it is assumed for the Unit 4 UHS Channel analysis that the entire upstream runoff enters the Unit 4 UHS Channel.

Additionally, runoff from Drainage Area 21 (Unit 4 North Channel) could contribute to runoff from Drainage Areas 1 through 7 (Center North Channel) and enter the main channel or spill into Drainage Area 22 (Unit 4 UHS Channel) by entering the branch channel. As a conservative approach, it is assumed that the total runoff from Drainage Area 21 (Unit 4 North Channel) enters both the main channel and the branch channel. This assumption doubles the runoff contribution from Drainage Area 21 (Unit 4 North Channel).

Furthermore, runoff from Drainage Areas 8 through 20 (West Channel and Center South Channel) are directed to a culvert in Drainage Area 19. Assuming the culvert is non-functional, the runoff from Drainage Areas 8 through 20 (West Channel and Center South Channel) would enter the depression area of the Unit 4 UHS Channel adjacent to Drainage Pond A.

Runoff from Drainage Areas 1 through 7 (Center North Channel), 21 (Unit 4 North Channel), and 22 (Unit 4 UHS Channel) is added to the model at the upstream end, Cross Section 10. Runoff from Drainage Area 21 (Unit 4 North Channel) is also added to the model at the upstream of the branch, Cross Section 107. The total runoff applied at Cross Section 5 just downstream of the junction is the combined runoff from the upper channel and the branch channel. Runoff from Drainage Areas 8 through 20 (West Channel and Center South Channel) is added to the model at Cross Section 2. Table 7-4 provides a summary of the runoff added to the Unit 4 UHS Channel model.

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Table 7-4. Unit 4 UHS Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
10	1607	1	52
		2	157
		3	233
		4	96
		5	257
		6	183
		7	55
		21	135
		22	439
		107	135
5	1742	upstream contribution	1607
		upstream contribution	135
		upstream contribution	1742
2	3879	8	131
		9	366
		10	324
		11	79
		12	244
		13	123
		14	135
		15	123
		16	335
		17	66
		18	97
		19	37
		20	77

The upstream Cross Sections 10 and 107 are assigned a critical depth boundary condition. The downstream Cross Section 1 is assigned the Drainage Pond A maximum water surface elevation of 816 ft (see Section 7.1). The HEC-RAS model is run using the steady flow option with a mixed flow regime. Flow optimization for the lateral weirs is set to allow HEC-RAS to calculate and remove the overtopping flow from the model. Therefore, flow exiting the model at the lateral weir structures results in a decrease of flow at downstream cross sections.

The initial run fails to converge for the flow optimization of the lateral structures. The detailed results suggest the addition of the flow at Cross Section 2 from the West Channel is backing up the upstream flow causing all of the upstream flow to exit the model over the lateral weirs. This is a reasonable result given the large flow in the West Channel that is added to the model. The lateral weir flow coefficients are reduced until the model no longer fails to optimize. The lateral structure weir coefficient at Cross Section 6.9 is unchanged. The lateral structure weir coefficient at Cross Section 4.9 is reduced to 2.4. The lateral structure weir coefficient at Cross Section 3.9 is reduced to 0.04. The model is re-run and preliminary results are provided in Table 7-5.



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Table 7-5. Unit 4 UHS Channel Preliminary Results

Cross Section	Q (cfs)	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
107	135.00	819.80	819.55	819.93	0.008234	2.91	46.32	58.25	0.58
106	135.00	819.14		819.23	0.004238	2.41	56.07	58.25	0.43
10	1607.00	819.20	814.43	819.40	0.001349	3.56	451.12	76.17	0.26
9	1607.00	819.13		819.32	0.001240	3.53	457.84	76.37	0.25
8	1607.00	819.18		819.24	0.000364	2.18	844.18	196.91	0.14
7	1607.00	819.09		819.16	0.000424	2.37	754.88	162.25	0.15
6.9	Lateral Structure								
6	1001.86	819.11		819.13	0.000133	1.34	838.61	177.73	0.09
5	1136.86	819.00		819.10	0.001362	2.62	433.26	166.82	0.29
4.9	Lateral Structure								
4	5.03	818.98		818.98	0.000000	0.02	291.21	131.90	0.00
3.9	Lateral Structure								
3	1.74	818.98		818.98	0.000000	0.01	313.94	116.37	0.00
2	2137.00	818.89	816.14	818.94	0.000377	1.81	1182.38	304.09	0.16
1.5	Inline Structure								
1	2137.00	816.00	801.24	816.00	0.000004	0.46	4670.56	301.71	0.02

Preliminary results identify the overtopping water surface elevation at the downstream weir is 818.89 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 819.20 ft at the most upstream cross section of the main channel (Cross Section 10) and 819.80 ft at the most upstream cross section of the branch channel (Cross Section 107). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. The 819.20 ft water surface elevation result at Cross Section 10 establishes a potential downstream boundary condition for the Center North Channel. The water surface elevation result for Cross Section 2 is 818.89 ft and establishes the downstream boundary condition for the West Channel. All Froude numbers for the main channel and the branch channel are less than one, indicating there is no supercritical flow. There are no indications of hydraulic jumps in the channels.

Warnings indicate there may be a need for additional cross sections between Cross Sections 2 and 3, Cross Sections 4 and 5, and Cross Sections 8 and 9 of the main channel. HEC-RAS interpolation with 50 ft maximum spacing is used to generate three new cross sections between Cross Sections 4 and 5. Interpolation with 10 ft maximum spacing is used to generate seven new cross sections between Cross Sections 8 and 9, and 13 new cross sections between Cross Sections 2 and 3. Because of the interpolation, the lateral structure weir coefficient at Cross Section 4.9 is able to increase to 2.45. The other lateral structure weir coefficients remain unchanged. The model is re-run and the warnings are eliminated. Table 7-6 provides the final results.



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Table 7-6. Unit 4 UHS Channel Final Results

Cross Section	Q (cfs)	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
107	135.00	819.80	819.55	819.93	0.008139	2.90	46.48	58.25	0.57
106	135.00	819.13		819.22	0.004405	2.44	55.42	58.25	0.44
10	1607.00	819.21	814.43	819.41	0.001338	3.55	452.33	76.21	0.26
9	1607.00	819.15		819.34	0.001230	3.52	459.10	76.42	0.25
8	1607.00	819.17		819.23	0.000366	2.19	842.36	196.91	0.14
7	1607.00	819.08		819.16	0.000427	2.38	753.32	162.25	0.15
6.9	Lateral Structure								
6	1004.78	819.10		819.12	0.000135	1.35	836.88	177.73	0.09
5	1139.78	818.98		819.09	0.001386	2.64	431.38	166.61	0.29
4.9	Lateral Structure								
4	7.57	818.95		818.95	0.000000	0.03	286.74	131.45	0.00
3.9	Lateral Structure								
3	1.74	818.95		818.95	0.000000	0.01	310.00	116.14	0.00
2	2137.00	818.89	816.14	818.94	0.000377	1.81	1182.38	304.09	0.16
1.5	Inline Structure								
1	2137.00	816.00	801.24	816.00	0.000004	0.46	4670.56	301.71	0.02

The overtopping water surface elevation at the downstream weir remains 818.89 ft (Cross Section 2). The backwater effects result in an increased maximum water surface elevation of 819.21 ft at the most upstream cross section of the main channel (Cross Section 10). However, the maximum water surface elevation for the most upstream cross section of the branch channel remains unchanged at 819.80 ft (Cross Section 107). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. The 819.21 ft water surface elevation result at Cross Section 10 establishes a potential downstream boundary condition for the Center North Channel. The water surface elevation result for Cross Section 2 is 818.89 ft and establishes the downstream boundary condition for the West Channel. All Froude numbers for the main channel and the branch channel are less than one, indicating there is no supercritical flow. There are no indications of hydraulic jumps in the channels. The channel flow profile is provided in Figure 7-29.

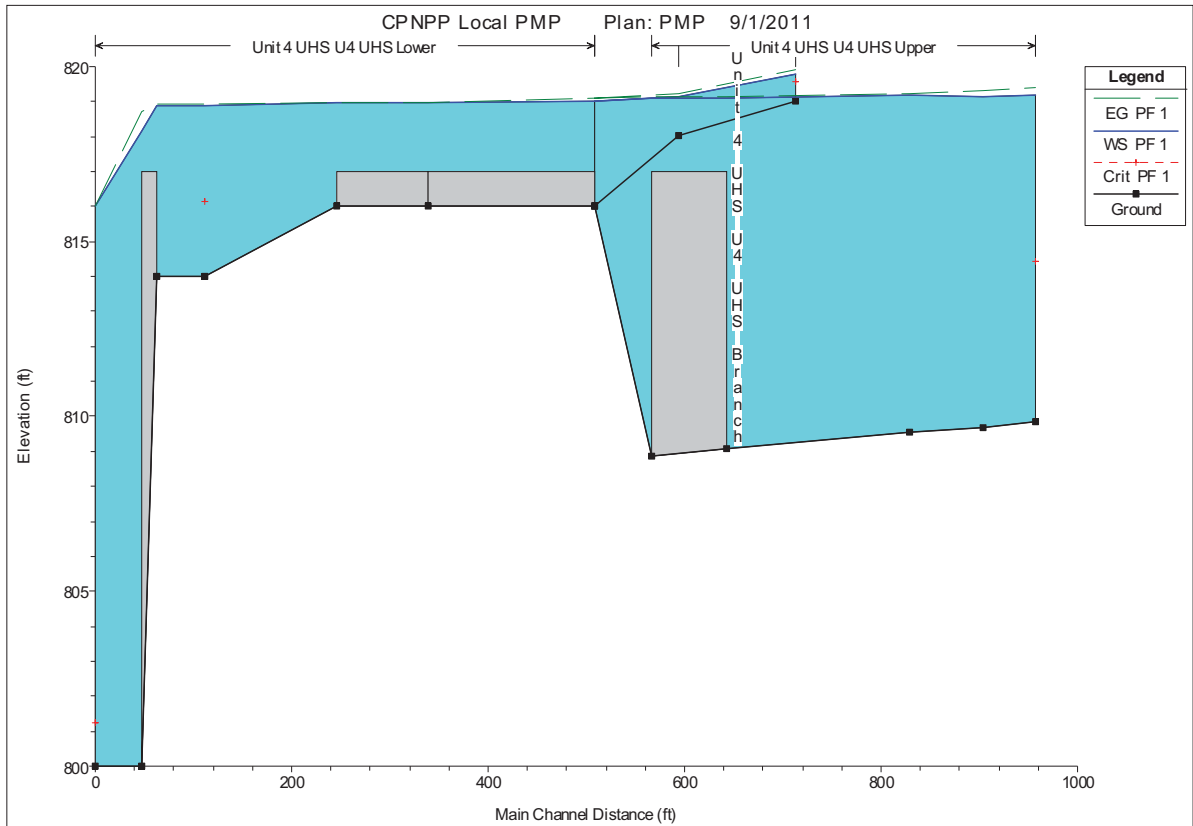


Figure 7-29. Unit 4 UHS Channel Flow Profile

7.4 West Channel

The West Channel runs along the south and west side of Units 3 and 4 and empties into Drainage Pond A through a culvert structure, as shown in Figure 7-30. Assuming the culvert is non-functional, runoff will overtop the plant loop road and combine with the runoff from the Unit 4 UHS Channel as previously described in Section 7.3.

The channel is modeled using 24 cross sections and one weir. Assuming culverts are non-functional, and as previously described in Section 7.0, the runoff in Drainage Area 9 will pool behind the culvert at the entrance to the plant area and form the upper reaches of the channel. Runoff will eventually spill over a highpoint in the channel and flow west through Drainage Areas 11 and 12, then north through Drainage Areas 14, 15, 17 and 19 to the non-functional culvert and roadway weir. Runoff from Drainage Areas 10 (Center South Channel), 13, 16, 18, and 20 also contribute to the West Channel.

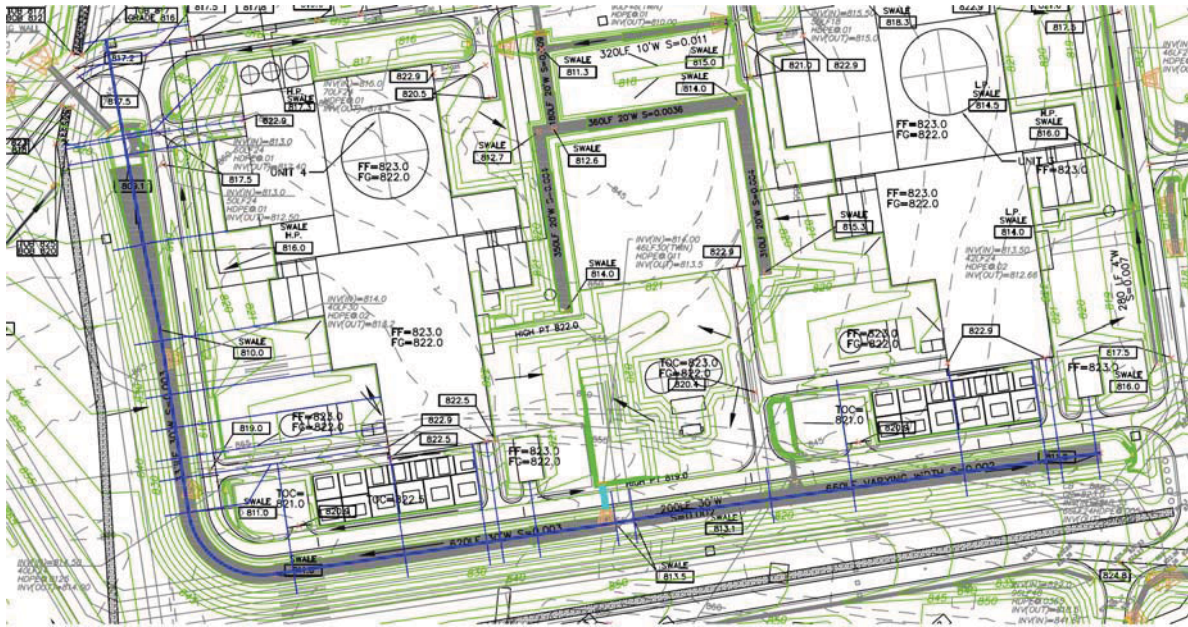


Figure 7-30. West Channel Cross Sections (Source: URS 2011b and 2011d)

The West Channel HEC-RAS schematic is shown in Figure 7-31. The West Channel cross section data are shown in Figure 7-32 through Figure 7-55. The inline structure weir is shown in Figure 7-56 and the corresponding data is provided in Table 7-7.

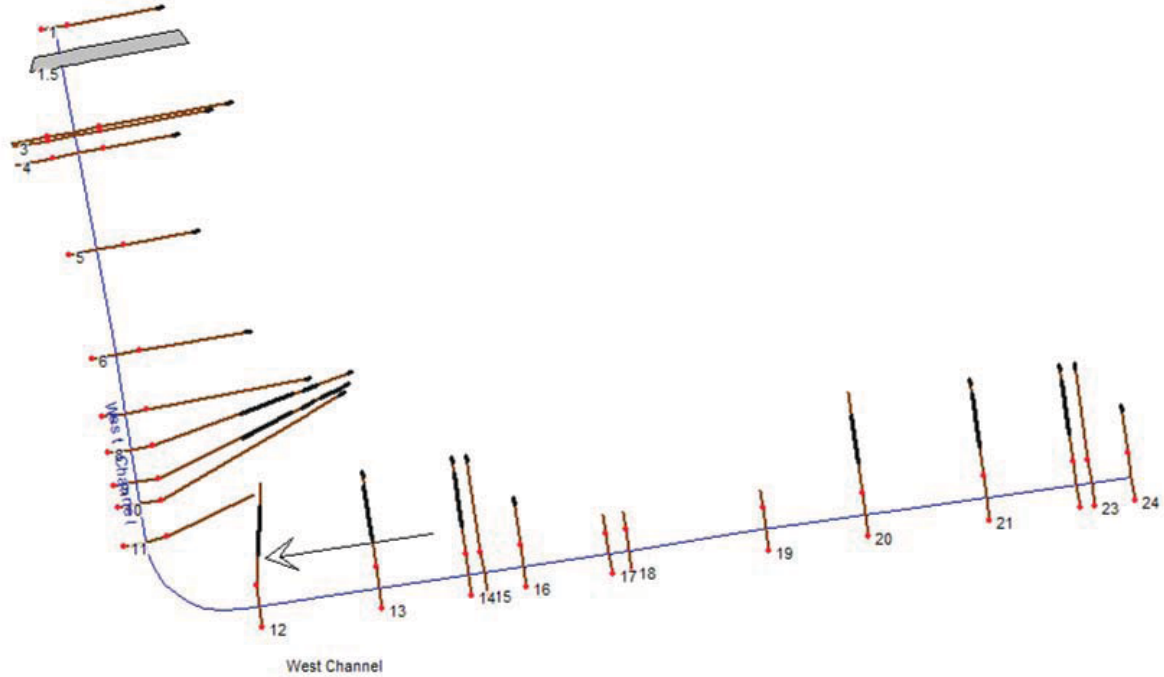
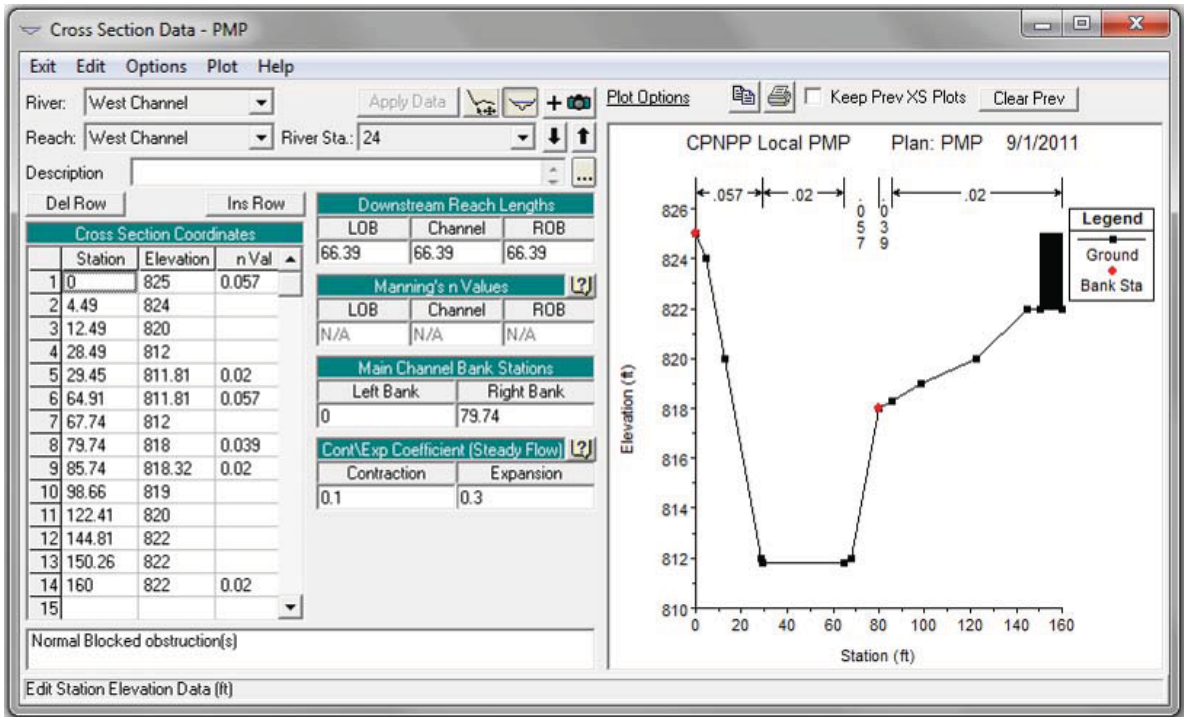
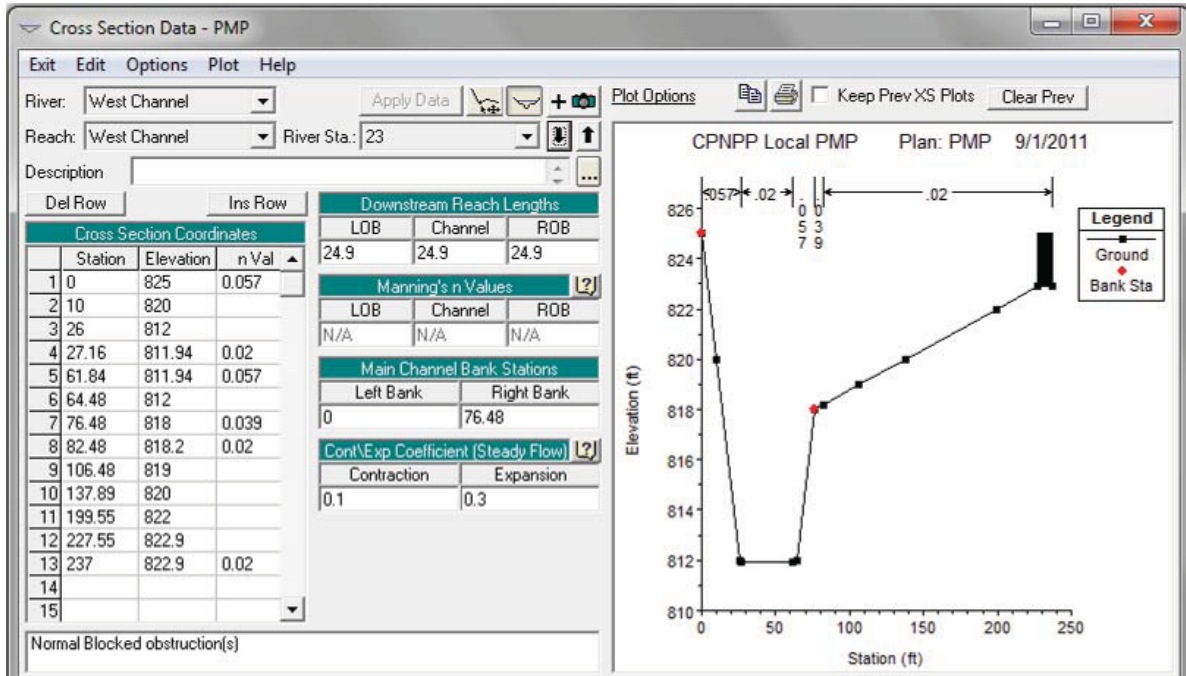


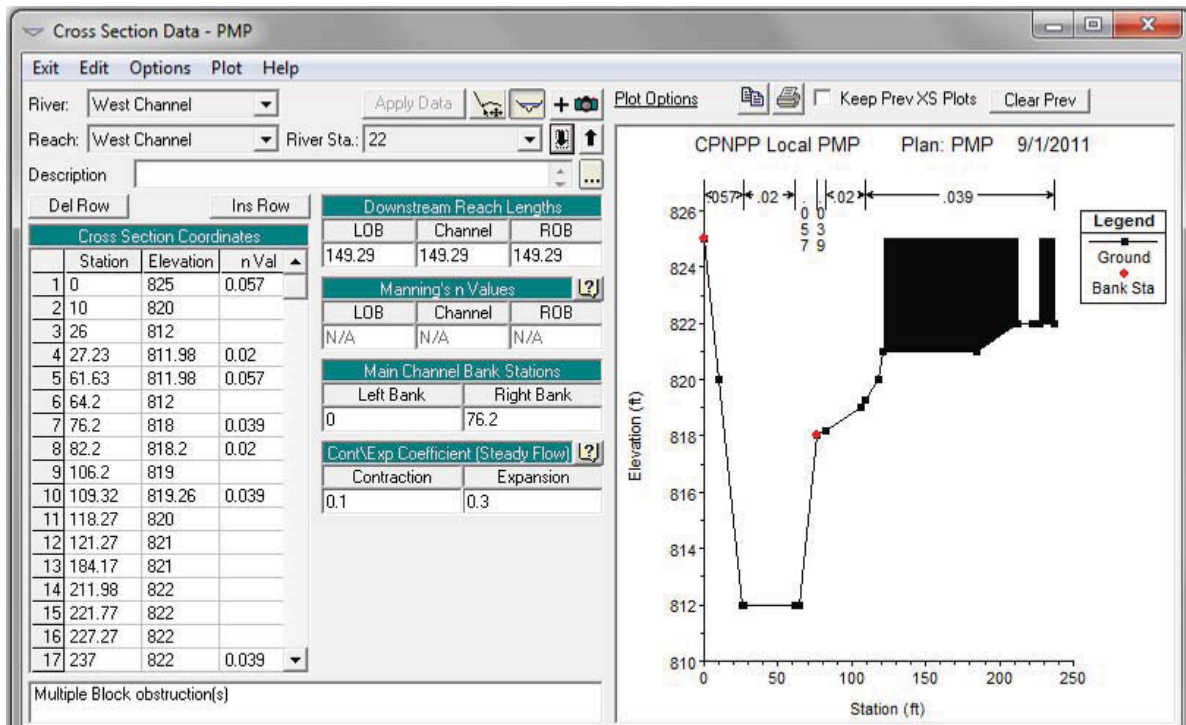
Figure 7-31. West Channel HEC-RAS Schematic



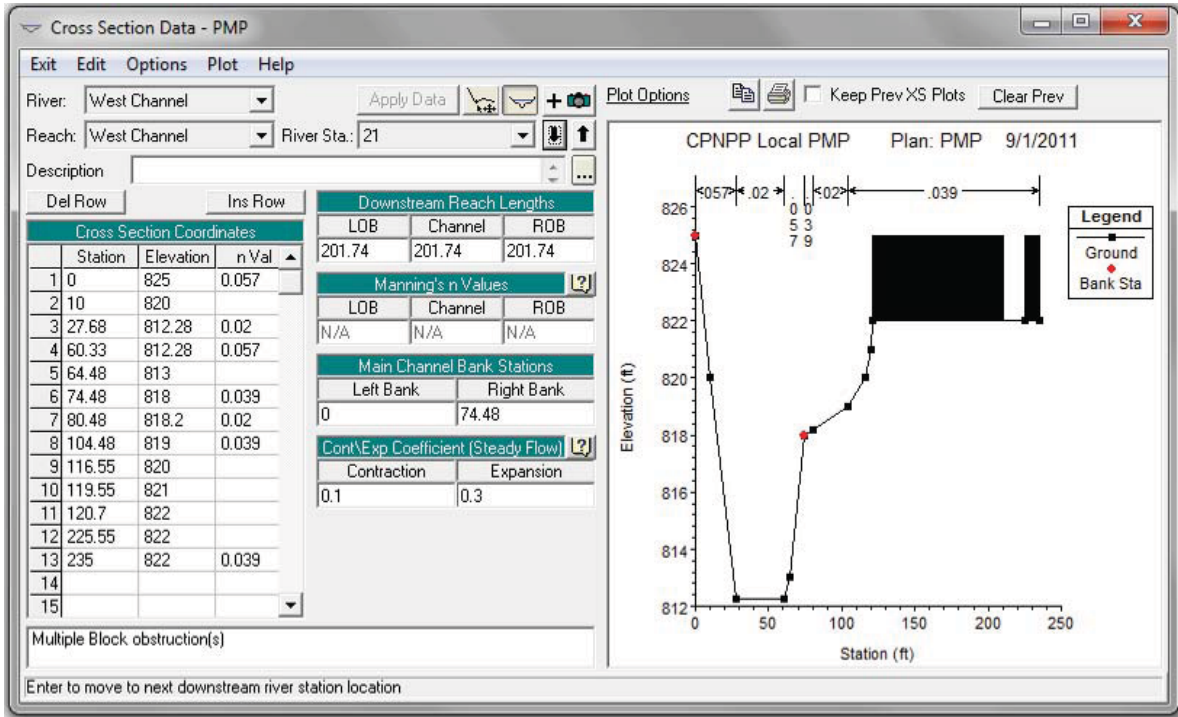
Obstructions: Station 150.26 to 160
 Figure 7-32. West Channel Cross Section 24



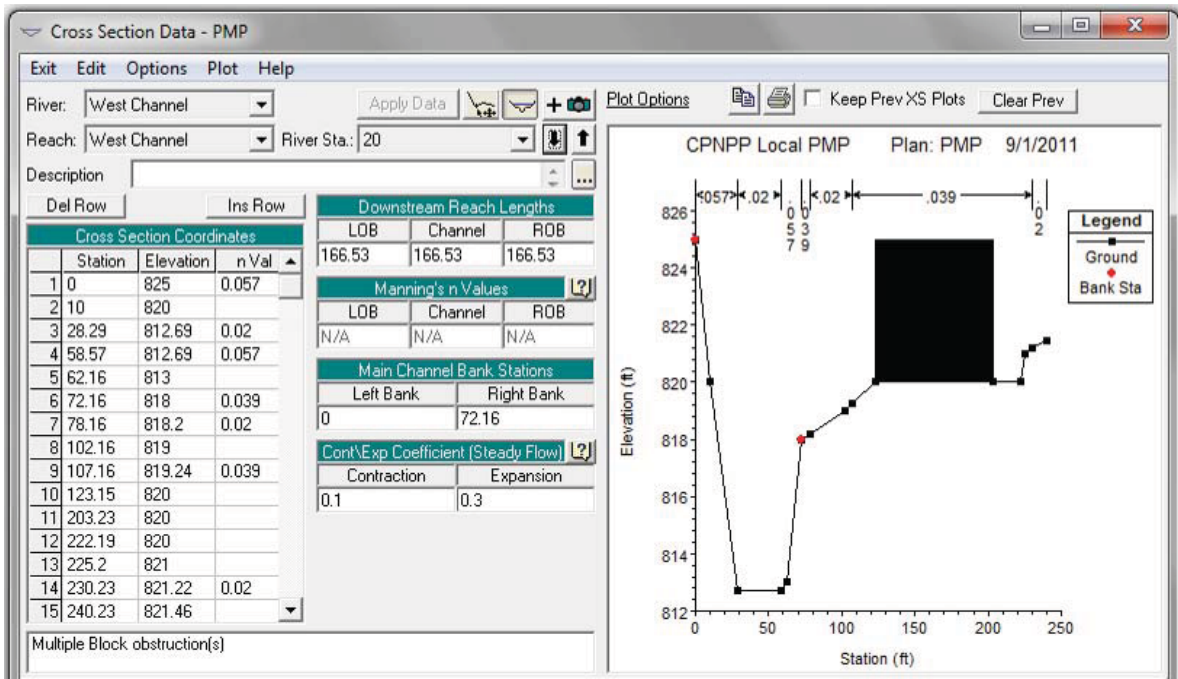
Obstructions: Station 227.55 to 237
Figure 7-33. West Channel Cross Section 23



Obstructions: Station 122.42 to 221.98 and 227.27 to 237
Figure 7-34. West Channel Cross Section 22



Obstructions: Station 120.7 to 210.26 and 225.55 to 235
Figure 7-35. West Channel Cross Section 21



Obstructions: Station 123.04 to 203.07
Figure 7-36. West Channel Cross Section 20

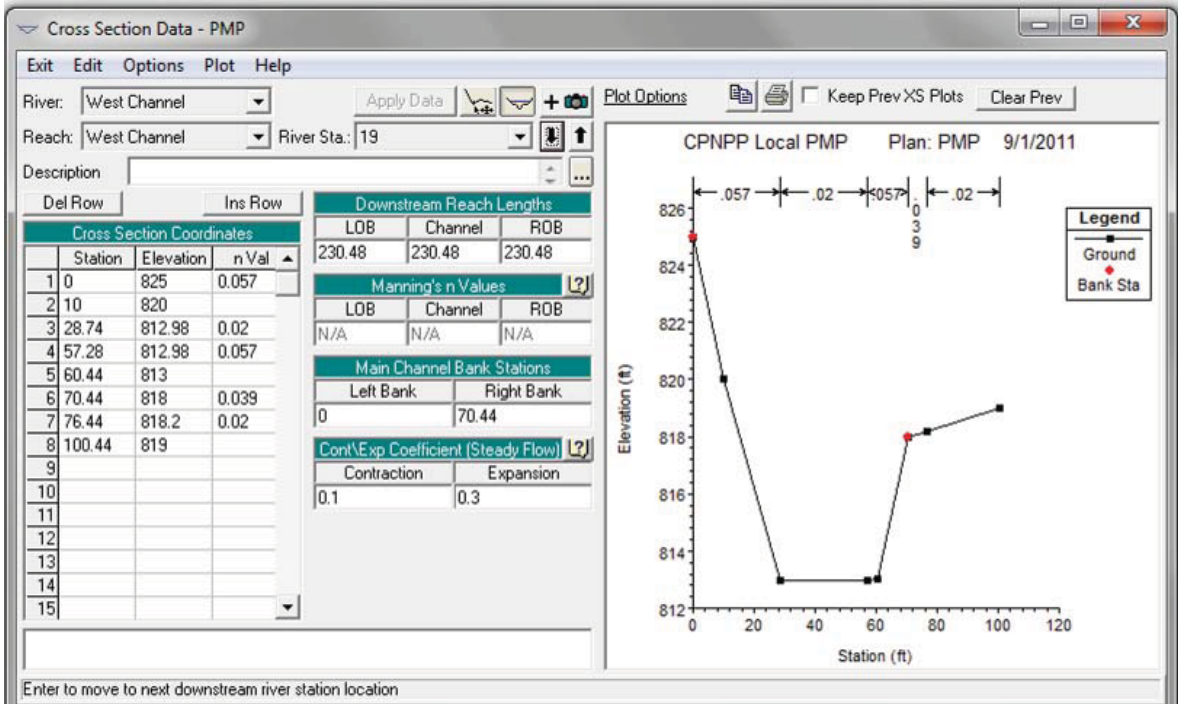


Figure 7-37. West Channel Cross Section 19

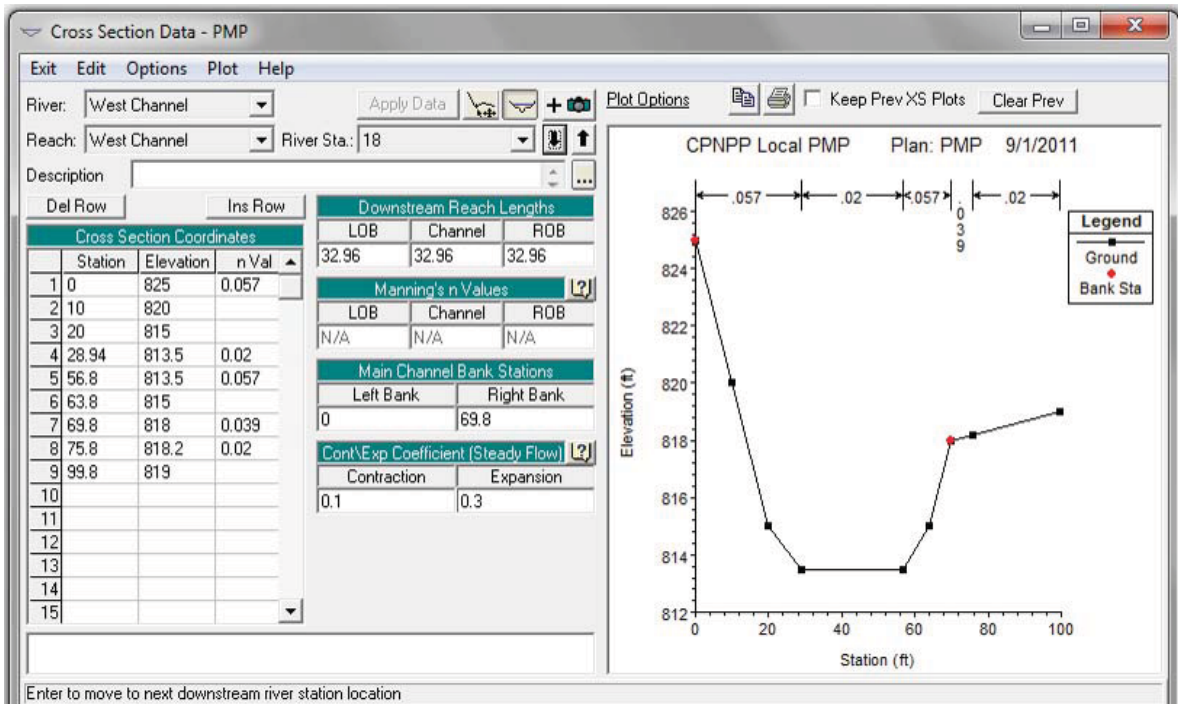


Figure 7-38. West Channel Cross Section 18

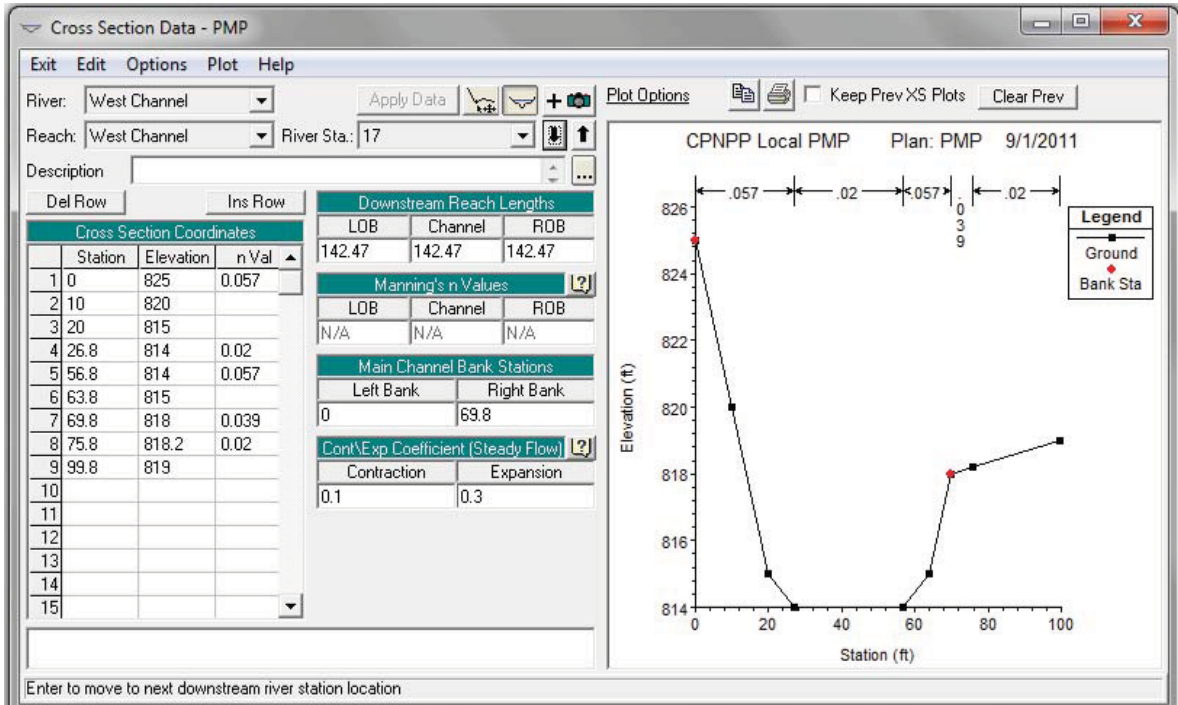
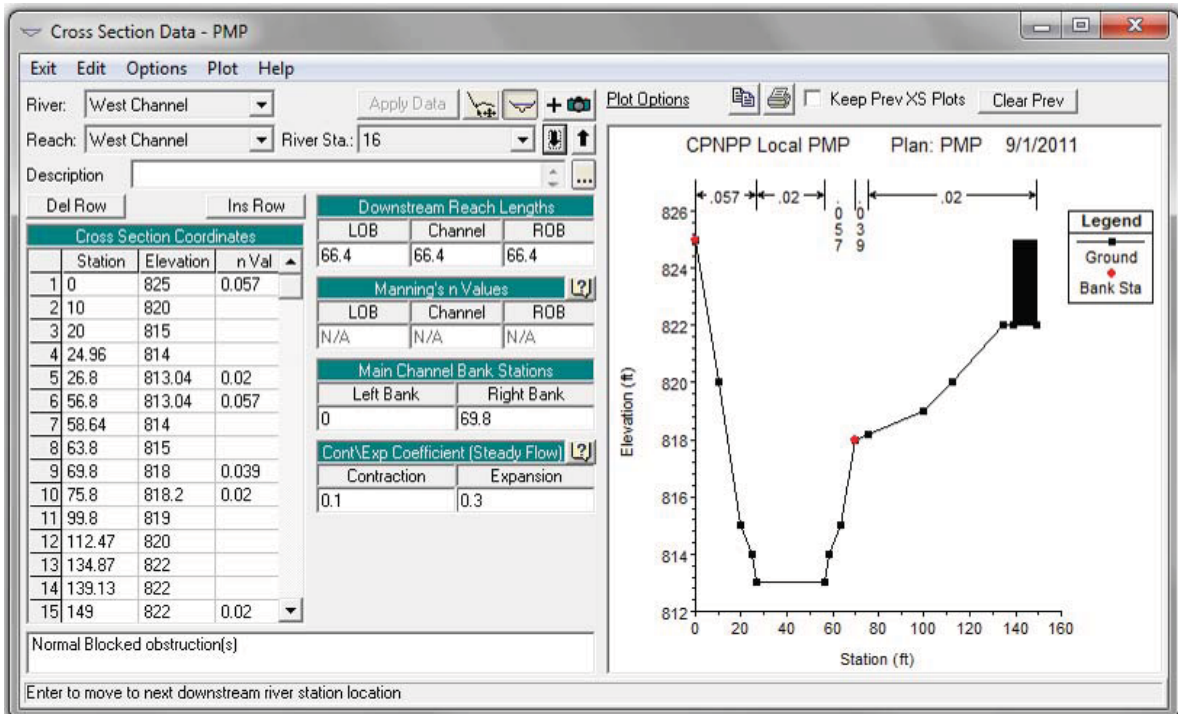
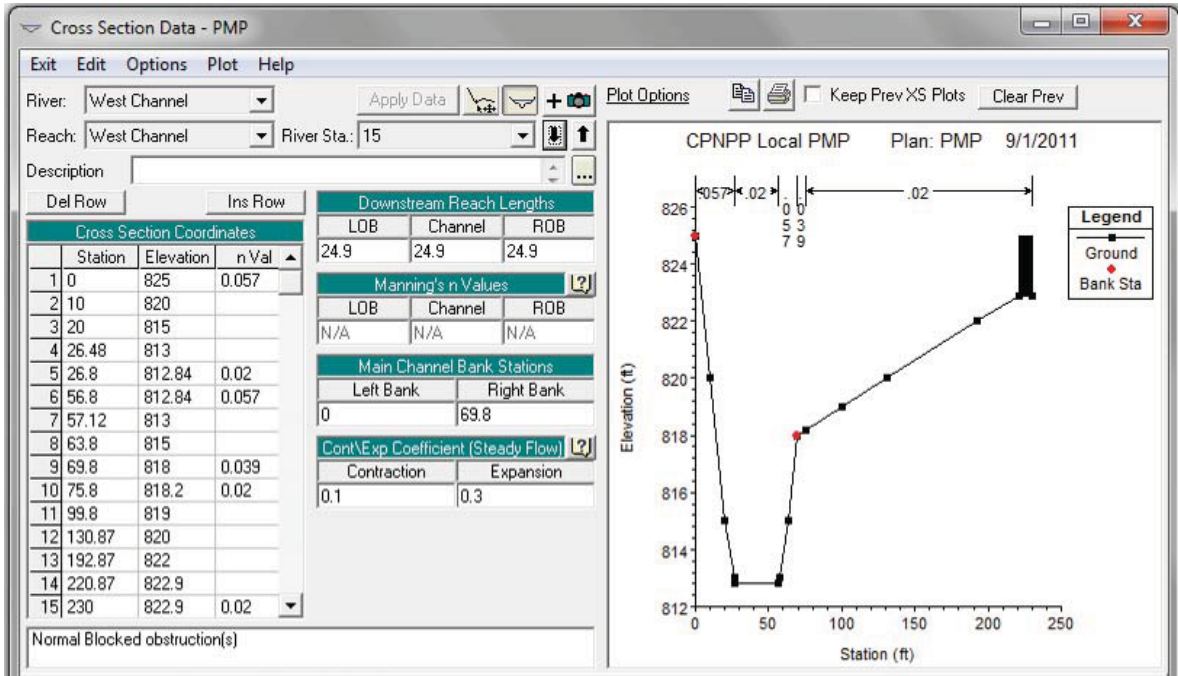


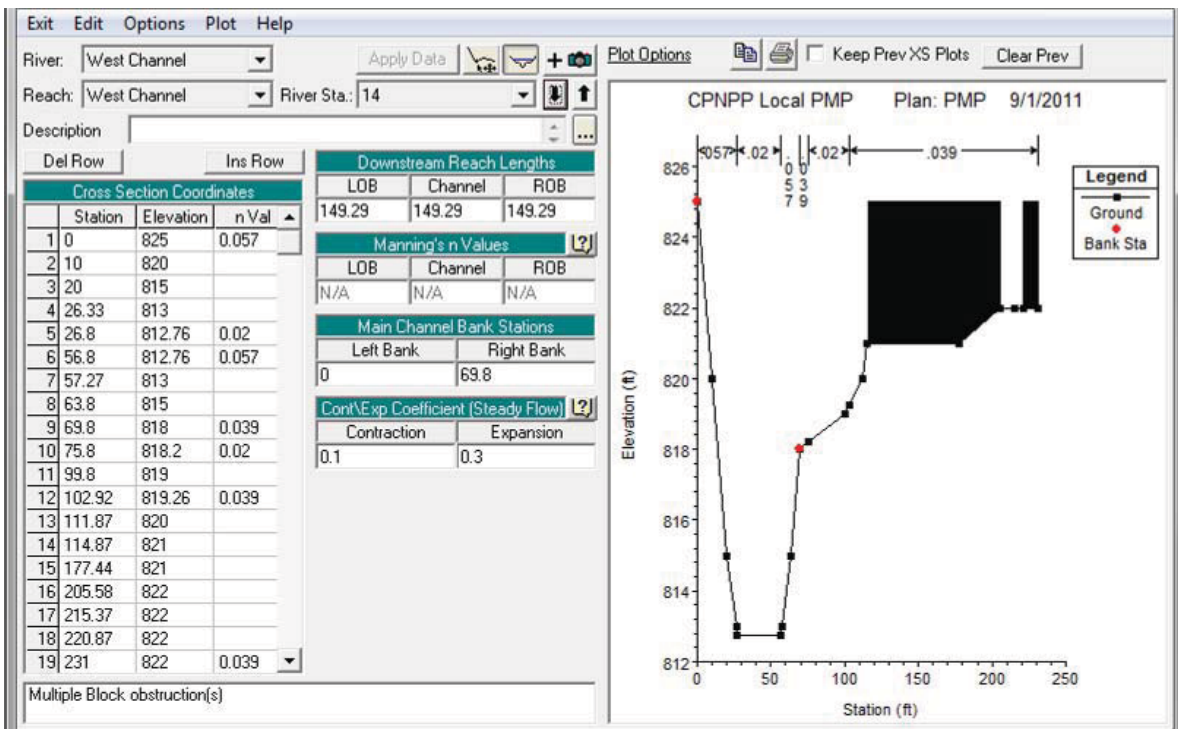
Figure 7-39. West Channel Cross Section 17



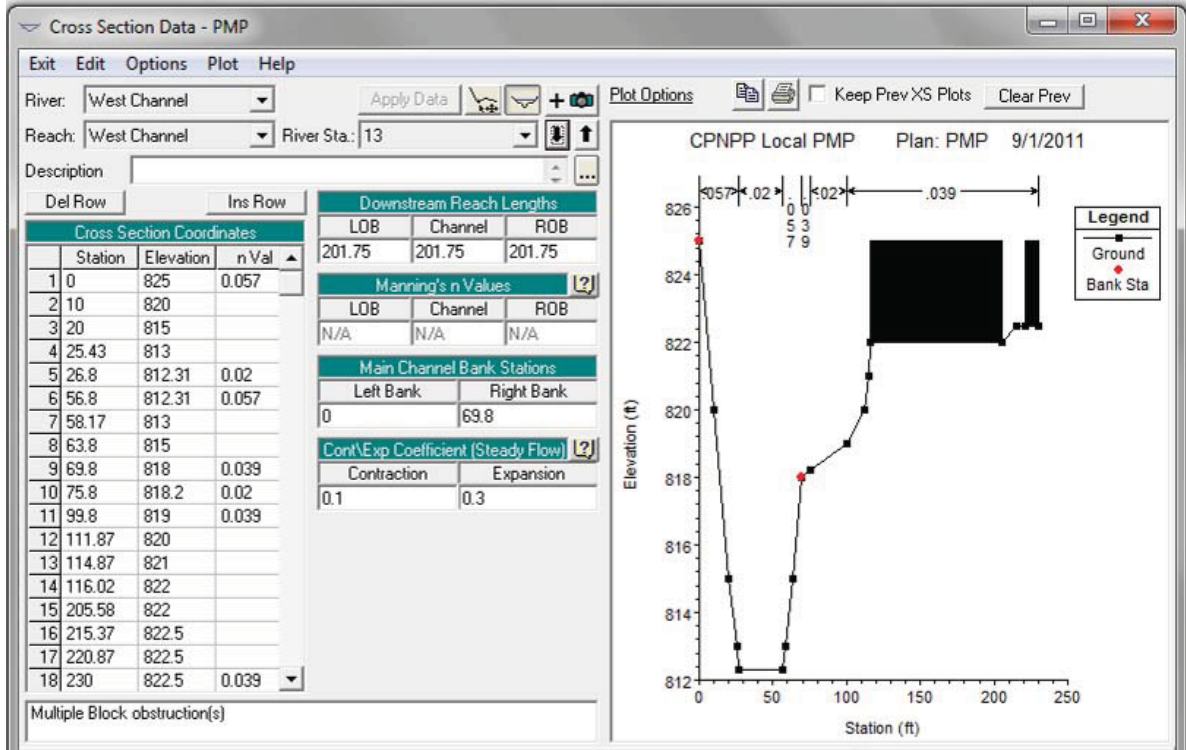
Obstructions: Station 139.13 to 149
Figure 7-40. West Channel Cross Section 16



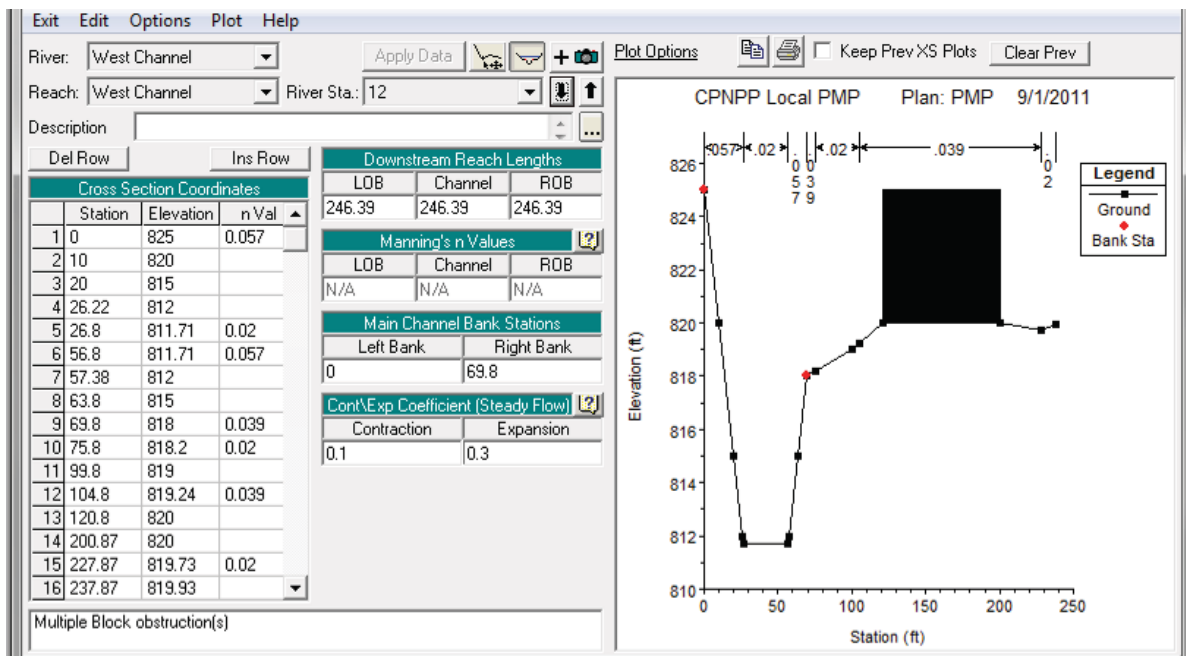
Obstructions: Station 220.87 to 230
Figure 7-41. West Channel Cross Section 15



Obstructions: Station 116.02 to 205.58 and 220.87 to 231
Figure 7-42. West Channel Cross Section 14



Obstructions: Station 116.02 to 205.58 and 220.87 to 230
Figure 7-43. West Channel Cross Section 13



Obstructions: Station 120.68 to 200.71
Figure 7-44. West Channel Cross Section 12

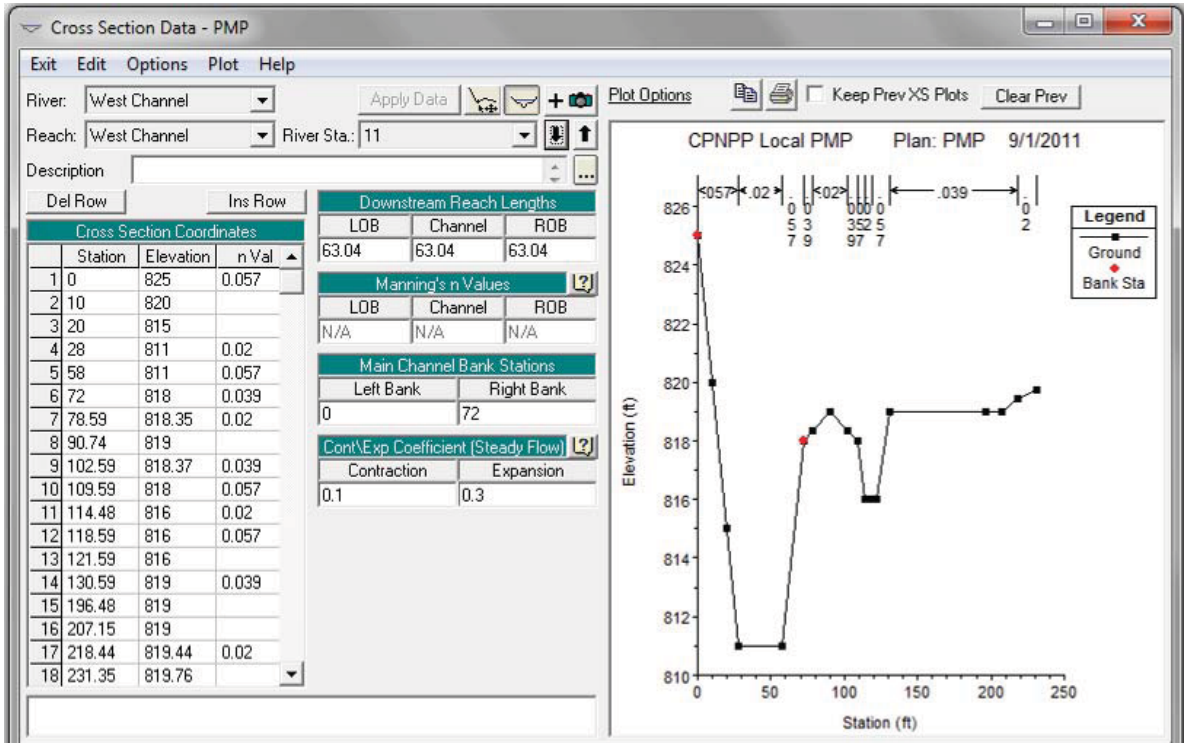
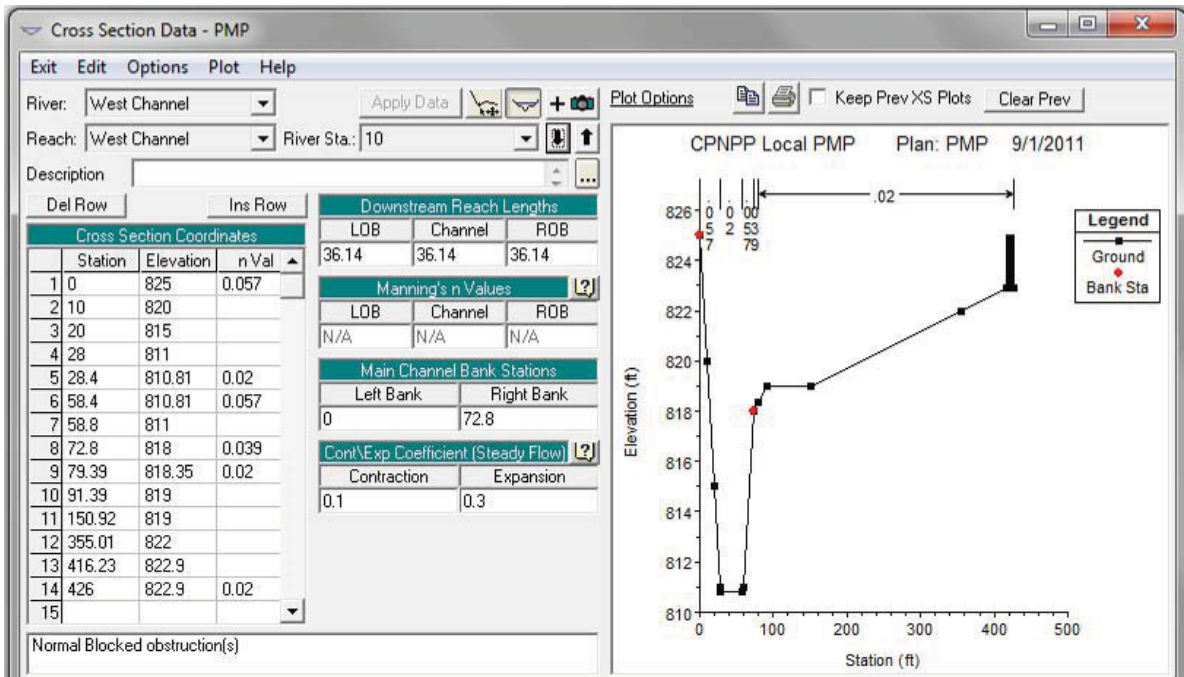
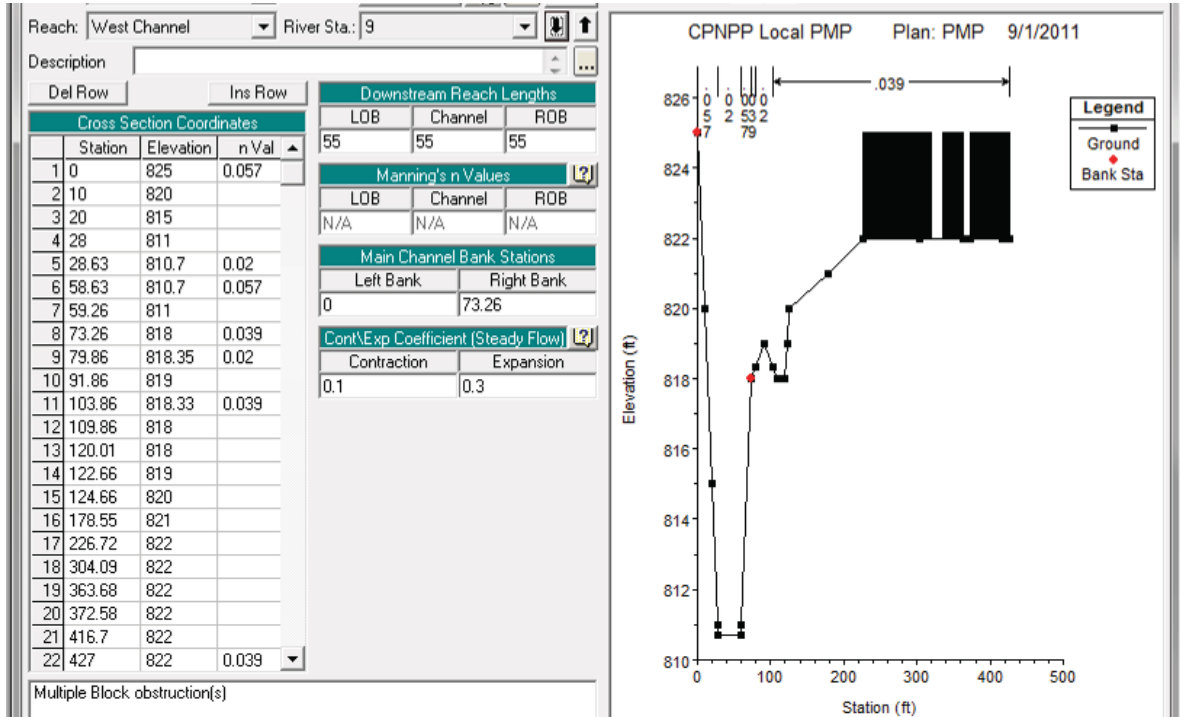


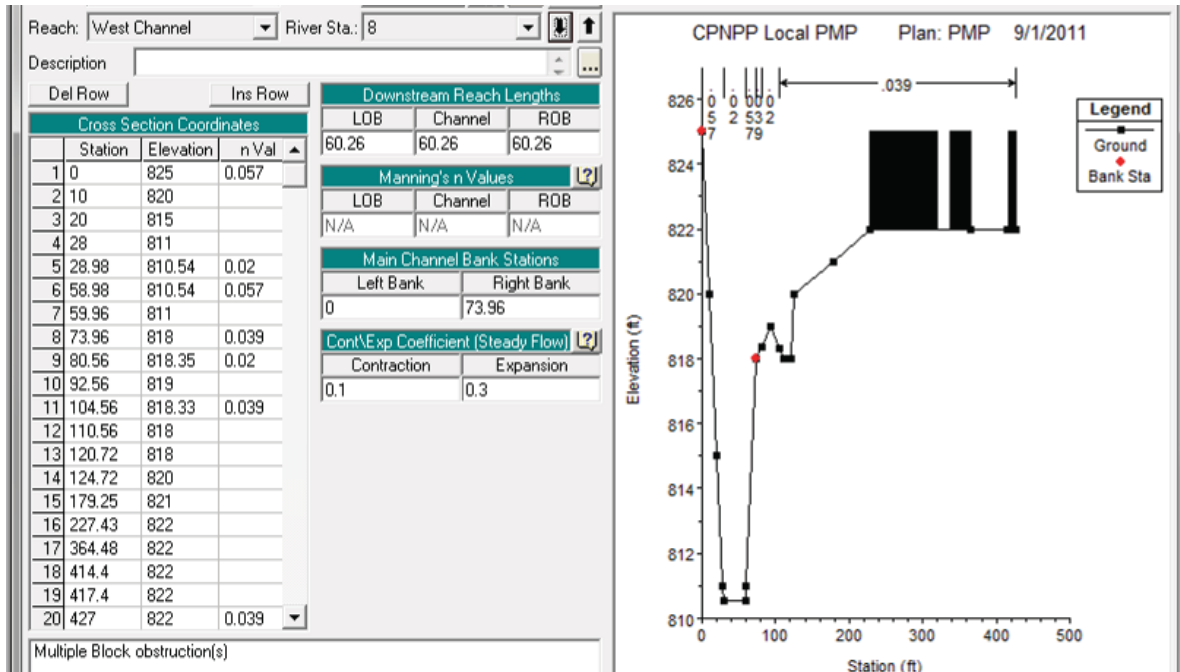
Figure 7-45. West Channel Cross Section 11



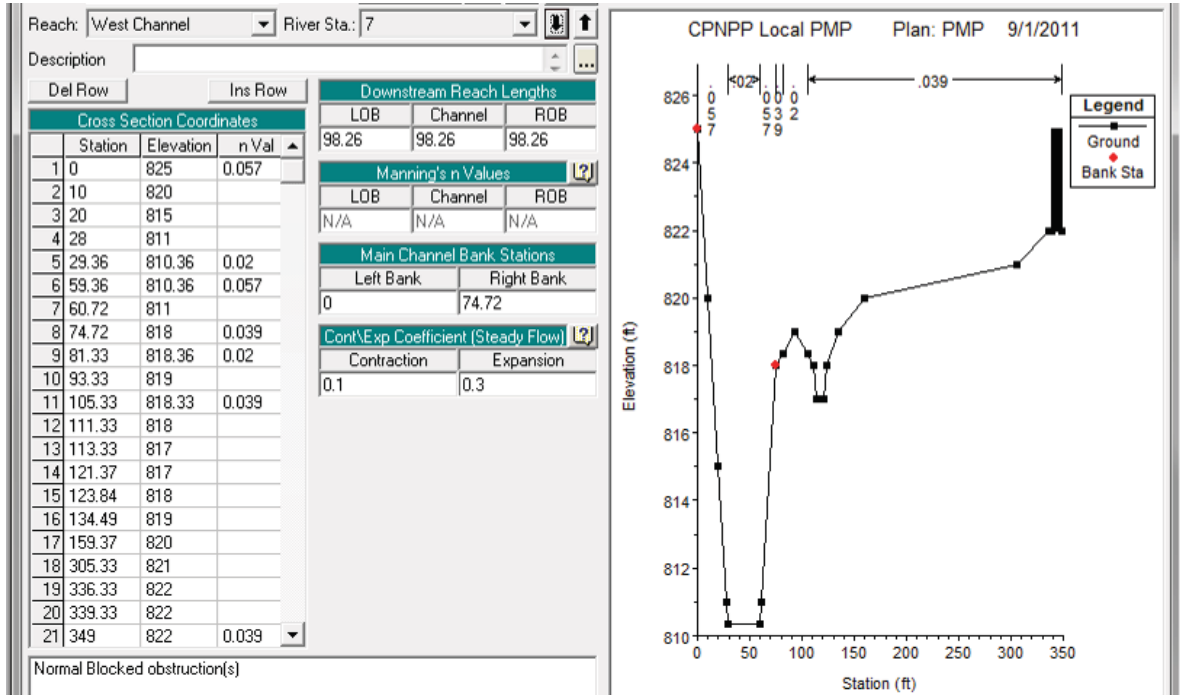
Obstructions: Station 416.23 to 426
Figure 7-46. West Channel Cross Section 10



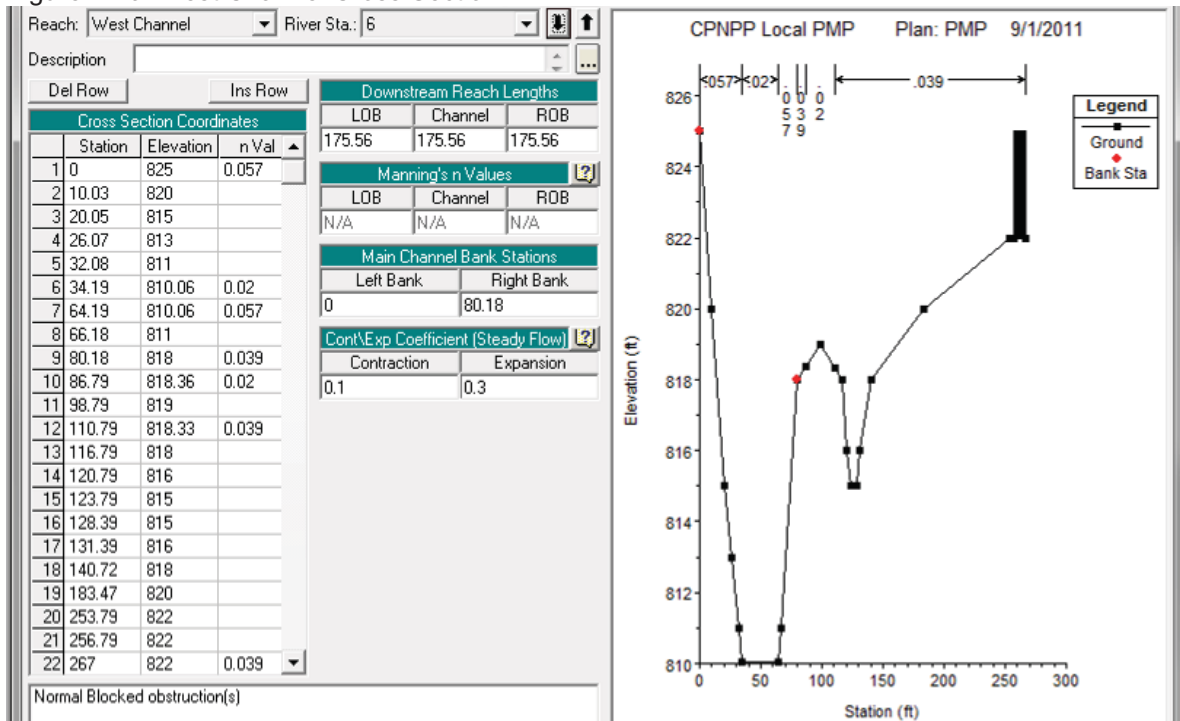
Obstructions: Station 226.72 to 318.72; 335.85 to 363.85; 373.78 to 413.77; and 416.7 to 427
Figure 7-47. West Channel Cross Section 9



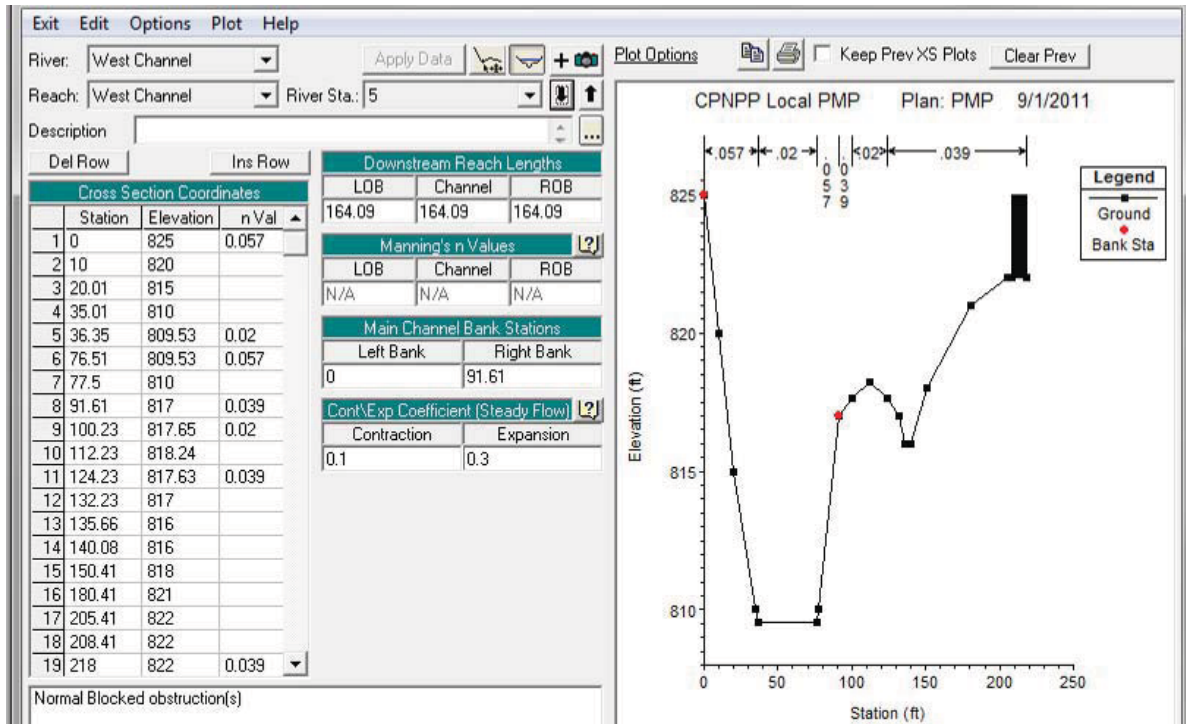
Obstructions: Station 227.43 to 319.43; 336.55 to 364.55; and 417.4 to 427
Figure 7-48. West Channel Cross Section 8



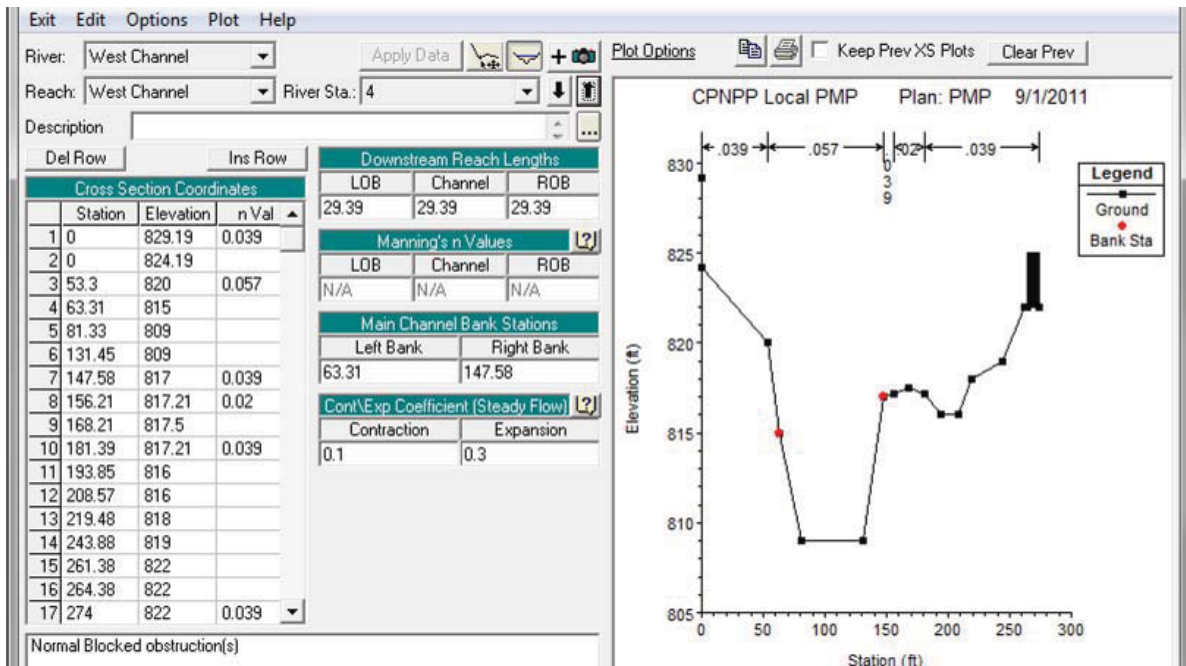
Obstructions: Station 339.33 to 349
Figure 7-49. West Channel Cross Section 7



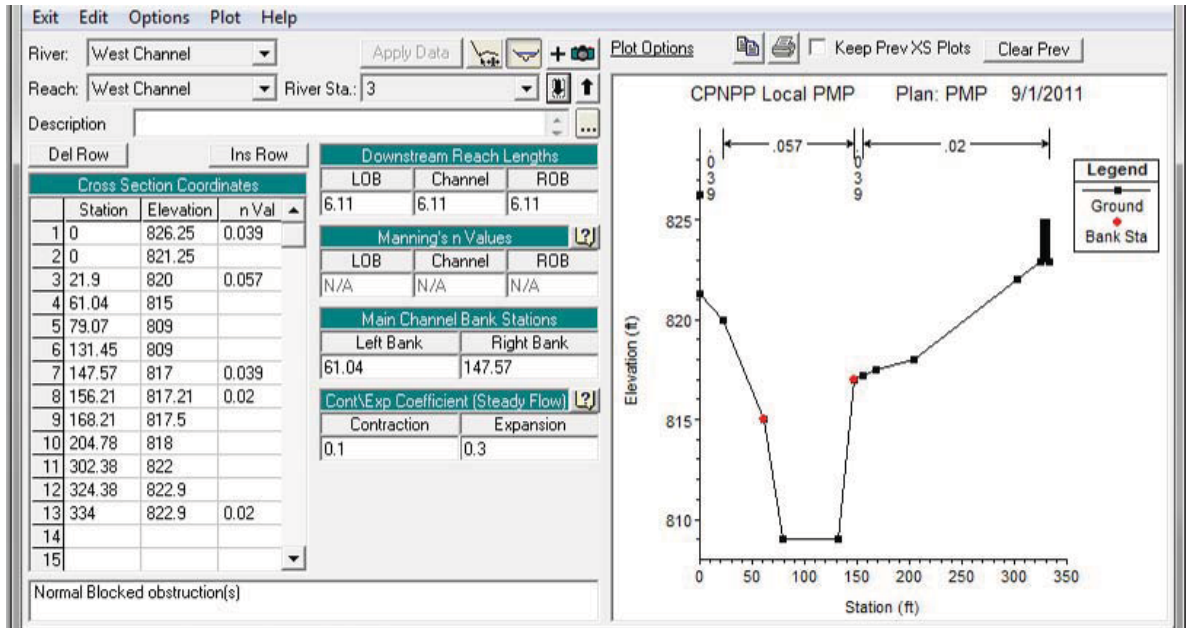
Obstructions: Station 256.79 to 267
Figure 7-50. West Channel Cross Section 6



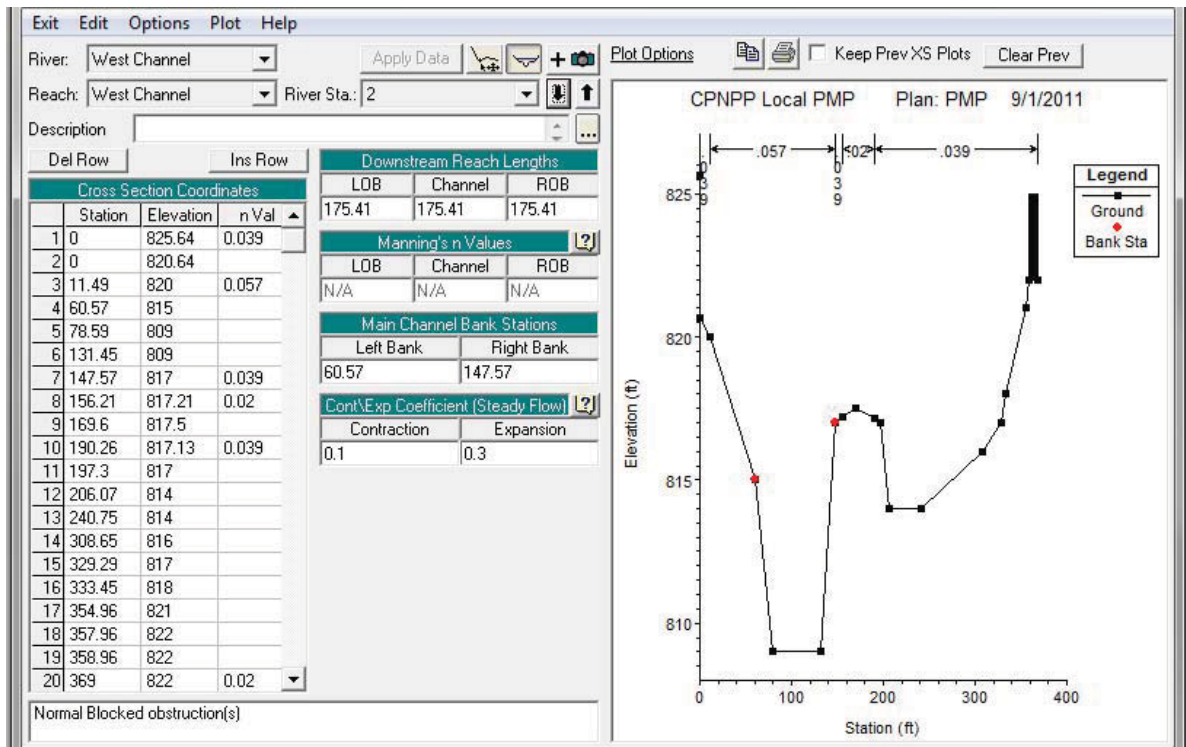
Obstructions: Station 208.41 to 218
Figure 7-51. West Channel Cross Section 5



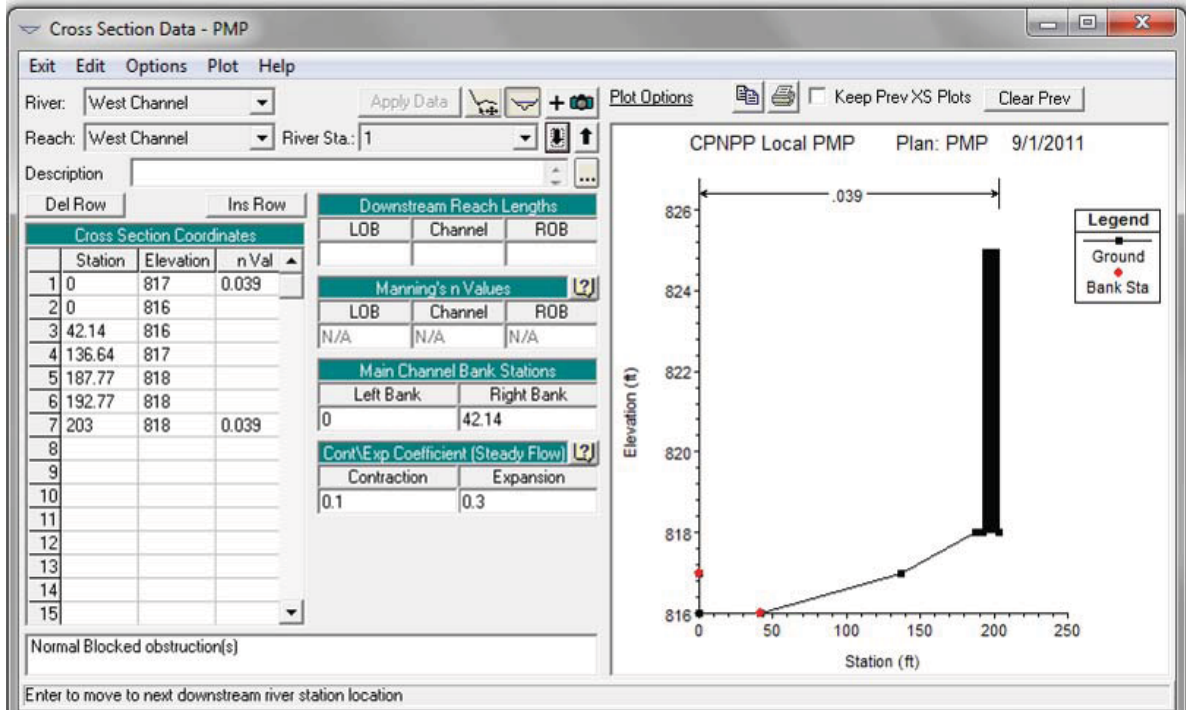
Obstructions: Station 264.38 to 274
Figure 7-52. West Channel Cross Section 4



Obstructions: Station 324.38 to 334
Figure 7-53. West Channel Cross Section 3



Obstructions: Station 358.96 to 369
Figure 7-54. West Channel Cross Section 2



Obstructions: Station 192.77 to 203
Figure 7-55. West Channel Cross Section 1

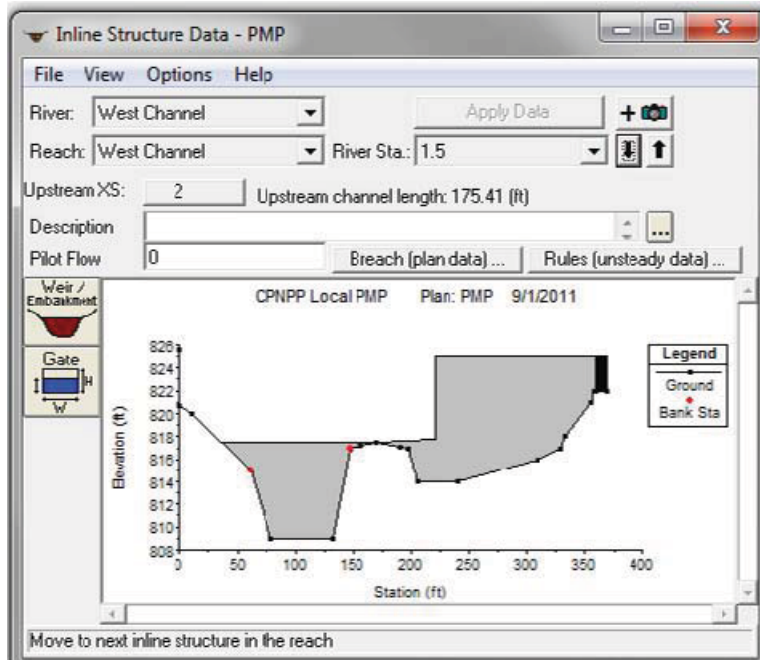


Figure 7-56. West Channel Inline Structure Weir Cross Section 1.5

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Table 7-7. West Channel Inline Structure Weir Cross Section 1.5

Station (ft)	Elevation (ft)
0	817.5
133.94	817.5
170.3	817.5
220.3	817.8
220.3	825
369	825

Distance between upstream station and weir = 109.58 ft

Weir width = 24 ft

Weir coefficient = 2.6

Runoff from Drainage Areas 8 and 9 is added to the model at Cross Section 24. Runoff from Drainage Areas 10 (Center South Channel) and 11 is added to the model at Cross Section 17. Runoff from Drainage Area 12 through Drainage Area 20 is added to the model cross section at the upstream boundary of the respective drainage area. Table 7-8 provides a summary of the runoff added to the West Channel model.

Table 7-8. West Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
24	497	8	131
		9	366
17	900	upstream contribution	497
		10	324
		11	79
15	1267	upstream contribution	900
		12	244
		13	123
11	1402	upstream contribution	1267
		14	135
10	1860	upstream contribution	1402
		15	123
		16	335
5	2023	upstream contribution	1860
		17	66
		18	97
3	2137	upstream contribution	2023
		19	37
		20	77

The upstream Cross Section 24 is assigned a critical depth boundary condition. The downstream Cross Section 1 is assigned the water surface elevation from the Unit 4 UHS Channel Cross Section 2. The preliminary result for the Unit 4 UHS Channel is 818.89 ft (see Section 7.3). The HEC-RAS model is run using the steady flow option with a mixed flow regime. Preliminary results are provided in Table 7-9.



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Table 7-9. West Channel Preliminary Results

Cross Section	Q (cfs)	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
24	497.00	820.98	813.49	821.00	0.000043	0.87	599.95	122.92	0.06
23	497.00	820.98		820.99	0.000041	0.84	636.25	160.15	0.05
22	497.00	820.98		820.99	0.000044	0.87	589.88	113.17	0.06
21	497.00	820.97		820.98	0.000055	0.93	552.72	111.41	0.06
20	497.00	820.96		820.97	0.000066	0.97	543.32	136.96	0.07
19	497.00	820.94		820.96	0.000088	1.07	464.26	92.32	0.08
18	497.00	820.92		820.94	0.000098	1.11	447.03	91.64	0.08
17	900.00	820.86		820.93	0.000362	2.12	424.46	91.51	0.16
16	900.00	820.82		820.88	0.000282	1.96	474.04	113.29	0.14
15	1267.00	820.74		820.85	0.000516	2.69	503.71	145.38	0.19
14	1267.00	820.72		820.83	0.000540	2.76	472.57	105.46	0.19
13	1267.00	820.64		820.75	0.000512	2.73	480.67	105.08	0.19
12	1267.00	820.56		820.65	0.000438	2.59	529.81	148.95	0.17
11	1402.00	820.49		820.55	0.000317	2.25	748.86	222.33	0.15
10	1860.00	820.37		820.51	0.000672	3.26	644.42	234.82	0.21
9	1860.00	820.30		820.48	0.000801	3.56	565.92	131.53	0.23
8	1860.00	820.26		820.44	0.000777	3.52	571.07	129.48	0.23
7	1860.00	820.23		820.39	0.000710	3.37	629.33	183.32	0.22
6	1860.00	820.20		820.32	0.000520	2.87	747.07	181.02	0.18
5	2023.00	820.15		820.24	0.000320	2.54	872.19	162.19	0.15
4	2023.00	820.13		820.18	0.000276	1.93	1123.49	198.77	0.11
3	2137.00	820.11		820.17	0.000298	2.01	1145.21	236.39	0.11
2	2137.00	820.14	812.48	820.16	0.000117	1.26	1827.76	339.72	0.07
1.5	Inline Structure								
1	2137.00	818.89	818.31	819.30	0.006188	5.82	423.16	192.77	0.60

Preliminary results identify the overtopping water surface elevation at the downstream weir is 820.14 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 820.98 ft at the most upstream cross sections (Cross Sections 22 through 24). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. The 820.86 ft water surface elevation result at Cross Section 17 establishes the downstream boundary condition for the Center South Channel. All Froude numbers are less than one, indicating there is no supercritical flow in the channel. Additionally, there are no indications of hydraulic jumps in the channel.

Warnings indicate there may be a need for additional cross sections between Cross Sections 2 and 3. HEC-RAS interpolation with 3 ft maximum spacing is used to generate two new cross sections between Cross Sections 2 and 3. The downstream boundary condition, established by the final results of the Unit 4 UHS Channel, remains unchanged. The model is re-run and the warnings are eliminated. Table 7-10 provides the final results.



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Table 7-10. West Channel Final Results

Cross Section	Q (cfs)	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
24	497.00	820.98	813.49	821.00	0.000043	0.87	599.95	122.92	0.06
23	497.00	820.98		820.99	0.000041	0.84	636.25	160.15	0.05
22	497.00	820.98		820.99	0.000044	0.87	589.88	113.17	0.06
21	497.00	820.97		820.98	0.000055	0.93	552.72	111.41	0.06
20	497.00	820.96		820.97	0.000066	0.97	543.32	136.96	0.07
19	497.00	820.94		820.96	0.000088	1.07	464.26	92.32	0.08
18	497.00	820.92		820.94	0.000098	1.11	447.03	91.64	0.08
17	900.00	820.86		820.93	0.000362	2.12	424.46	91.51	0.16
16	900.00	820.82		820.88	0.000282	1.96	474.04	113.29	0.14
15	1267.00	820.74		820.85	0.000516	2.69	503.71	145.38	0.19
14	1267.00	820.72		820.83	0.000540	2.76	472.57	105.46	0.19
13	1267.00	820.64		820.75	0.000512	2.73	480.66	105.08	0.19
12	1267.00	820.56		820.65	0.000438	2.59	529.80	148.95	0.17
11	1402.00	820.49		820.55	0.000317	2.25	748.85	222.33	0.15
10	1860.00	820.37		820.51	0.000672	3.26	644.41	234.82	0.21
9	1860.00	820.30		820.48	0.000801	3.56	565.91	131.52	0.23
8	1860.00	820.26		820.44	0.000777	3.52	571.06	129.48	0.23
7	1860.00	820.23		820.39	0.000710	3.37	629.31	183.31	0.22
6	1860.00	820.20		820.32	0.000520	2.87	747.06	181.02	0.18
5	2023.00	820.15		820.24	0.000320	2.54	872.18	162.19	0.15
4	2023.00	820.13		820.18	0.000276	1.93	1123.48	198.77	0.11
3	2137.00	820.11		820.17	0.000298	2.01	1145.23	236.39	0.11
2	2137.00	820.14	812.48	820.16	0.000117	1.26	1827.76	339.72	0.07
1.5	Inline Structure								
1	2137.00	818.89	818.31	819.30	0.006188	5.82	423.16	192.77	0.60

The final results are generally unchanged from the preliminary results. The overtopping water surface elevation at the downstream weir remains 820.14 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 820.98 ft at the most upstream cross sections (Cross Section 22 through 24). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. The 820.86 ft water surface elevation result at Cross Section 17 establishes the downstream boundary condition for the Center South Channel. All Froude numbers are less than one, indicating there is no supercritical flow in the channel. Additionally, there are no indications of hydraulic jumps in the channel. The channel flow profile is provided in Figure 7-57.

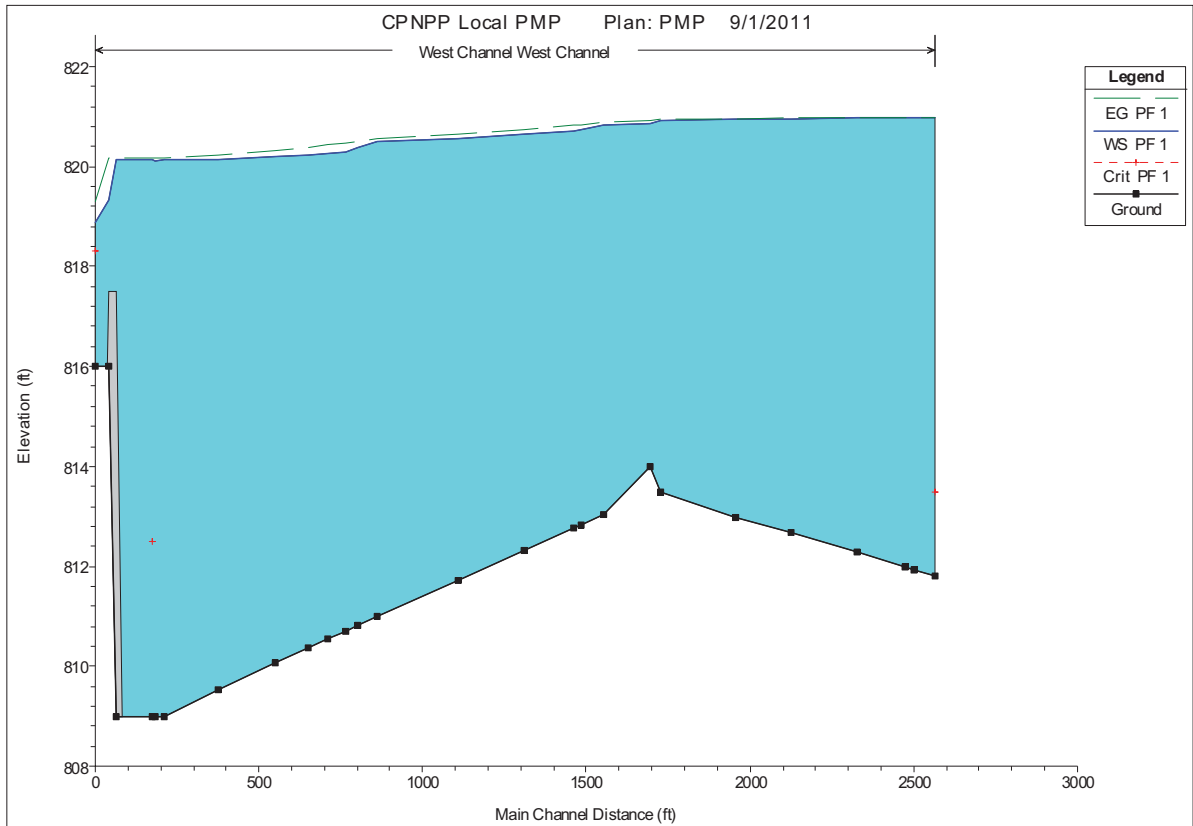


Figure 7-57. West Channel Flow Profile

7.5 Center South Channel

The Center South Channel captures runoff in Drainage Area 10 from between Units 3 and 4 and directs the flow south to a culvert emptying into the West Channel, as shown in Figure 7-58. Assuming the culvert is non-functional, runoff will overtop the plant loop road and combine with the runoff in the West Channel as previously described in Section 7.4. The channel is modeled using eight cross sections and one weir.

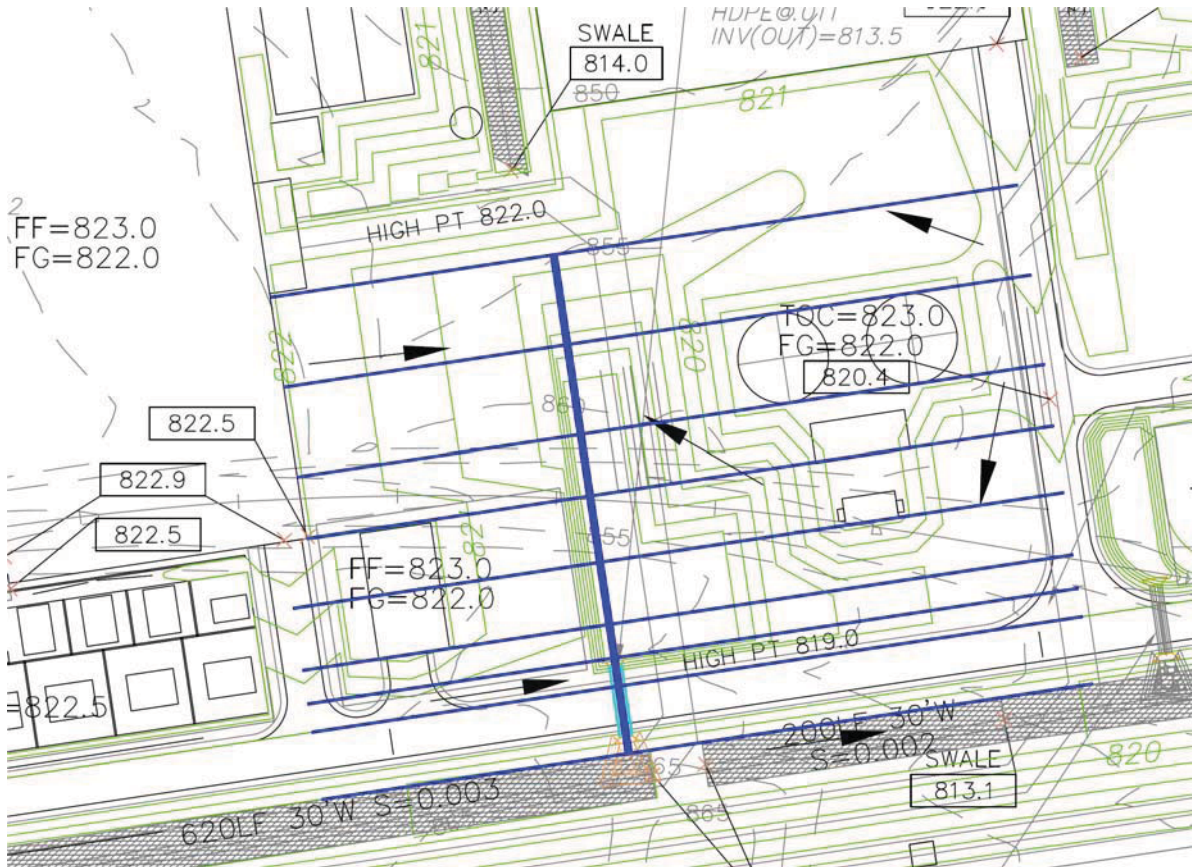


Figure 7-58. Center South Channel Cross Sections (Source: URS 2011d)

The Center South Channel HEC-RAS schematic is shown in Figure 7-59. The Center South Channel cross section data are shown in Figure 7-60 through Figure 7-67.

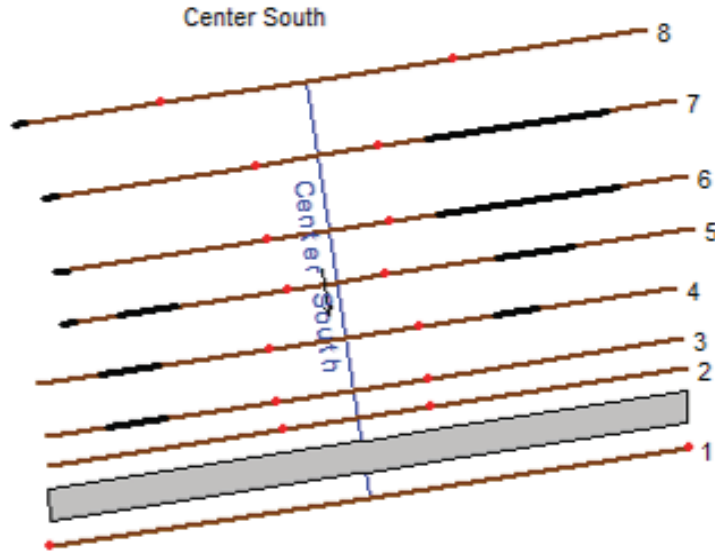
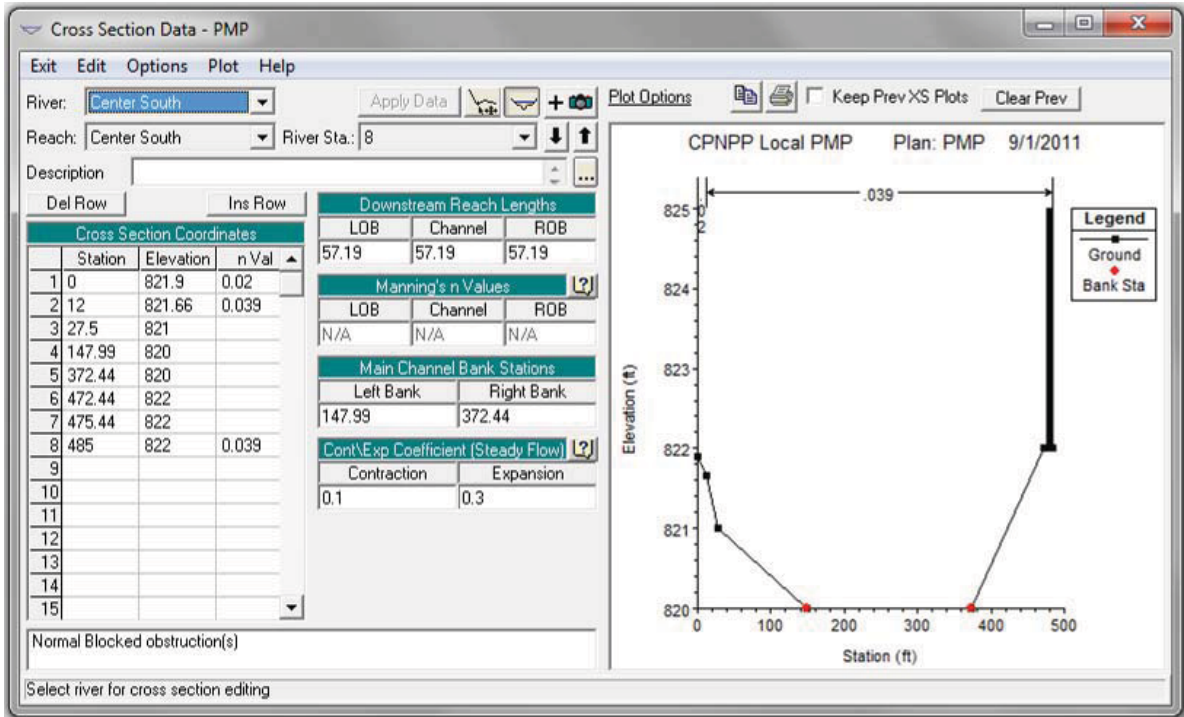
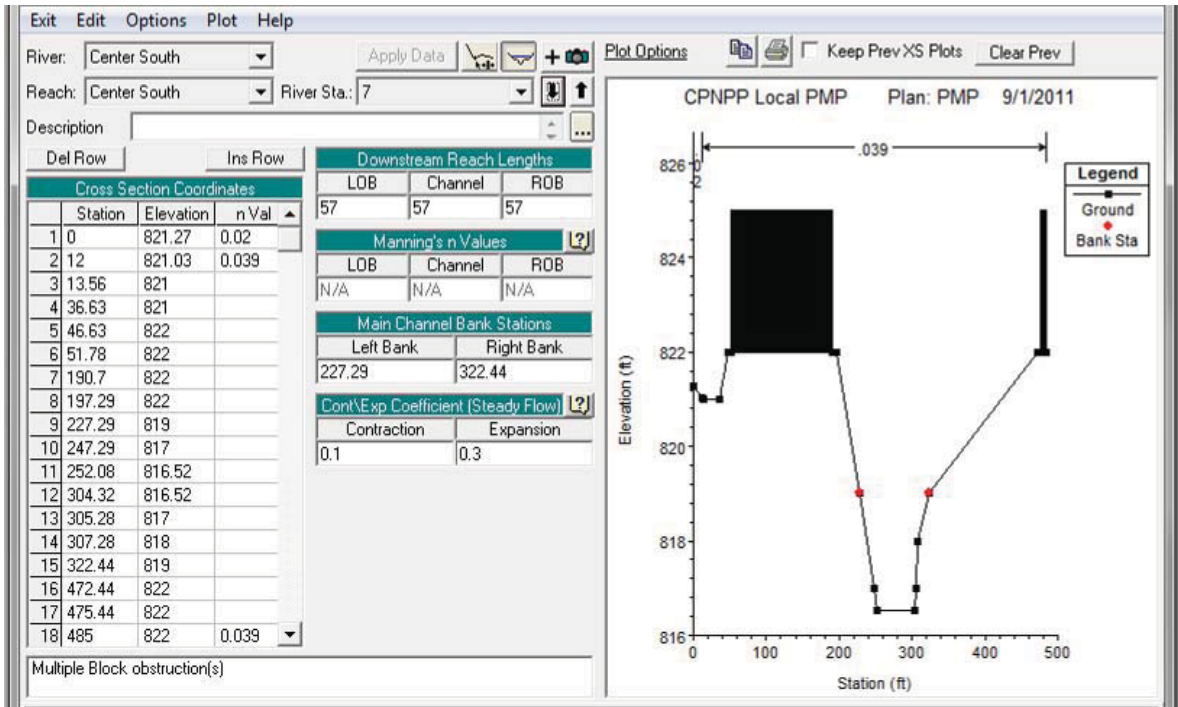


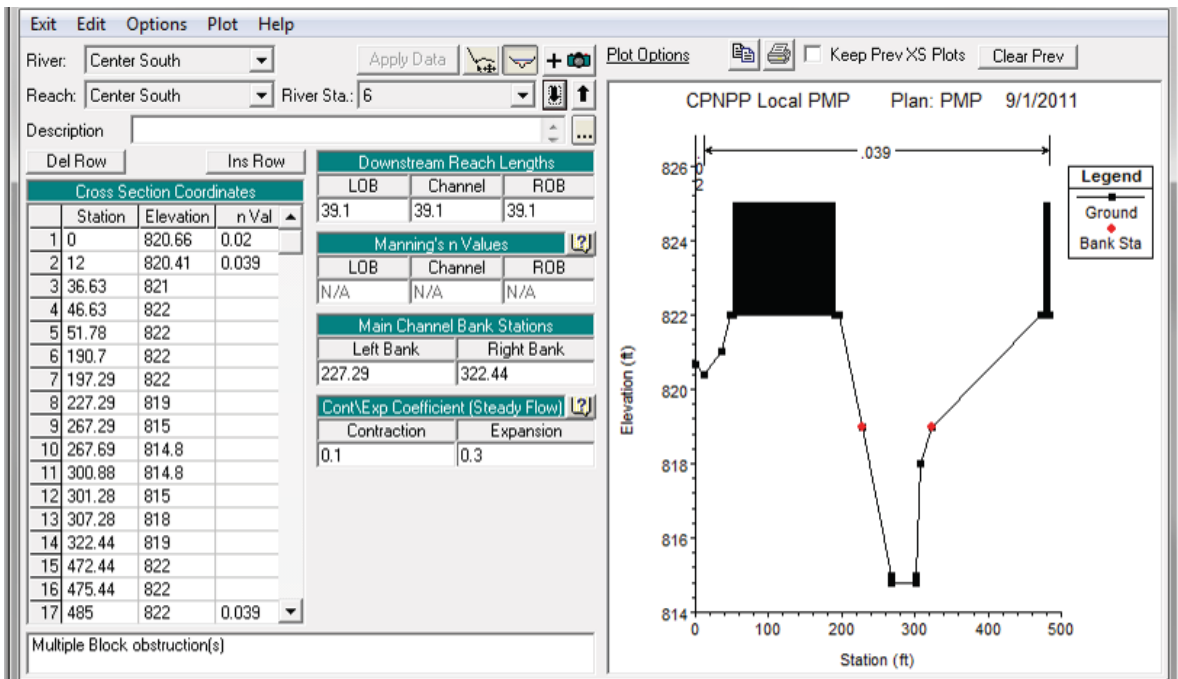
Figure 7-59. Center South Channel HEC-RAS Schematic



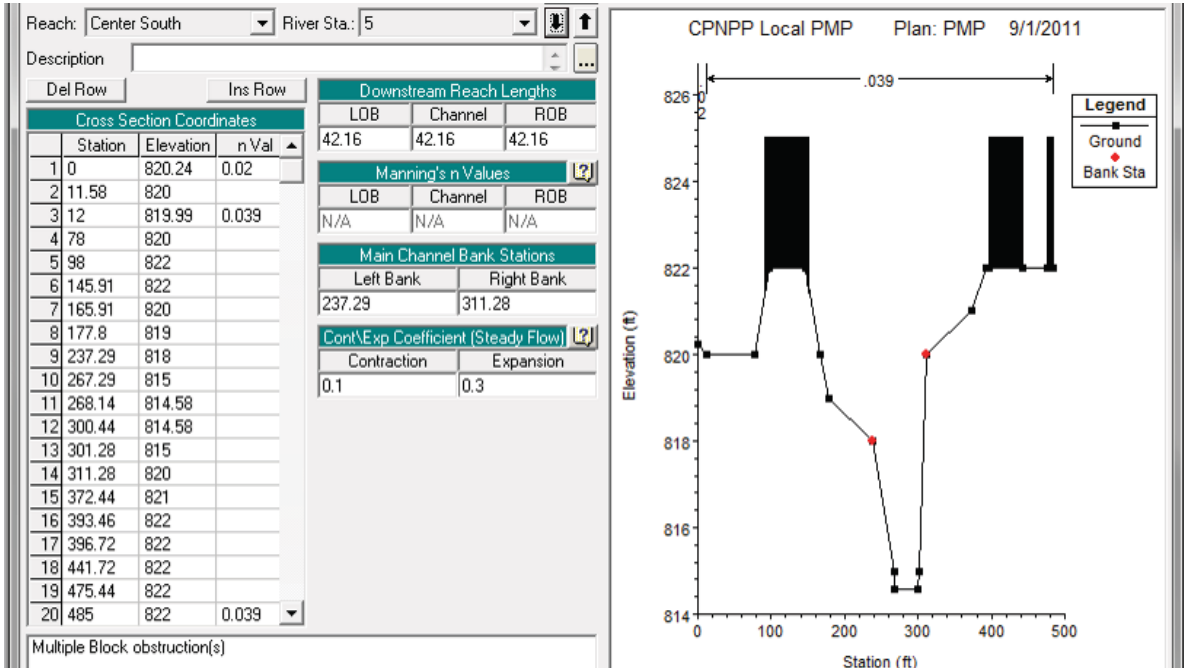
Obstructions: Station 475.44 to 485
Figure 7-60. Center South Channel Cross Section 8



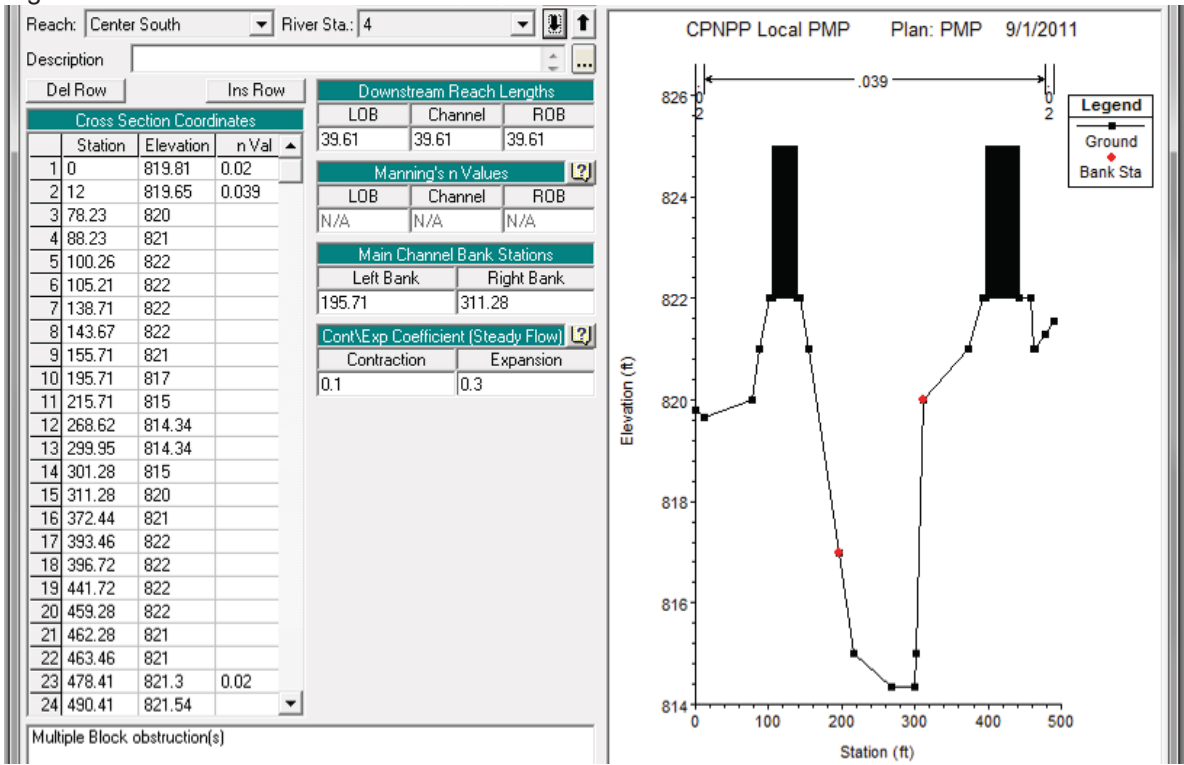
Obstructions: Station 51.78 to 190.7 and 475.44 to 485
Figure 7-61. Center South Channel Cross Section 7



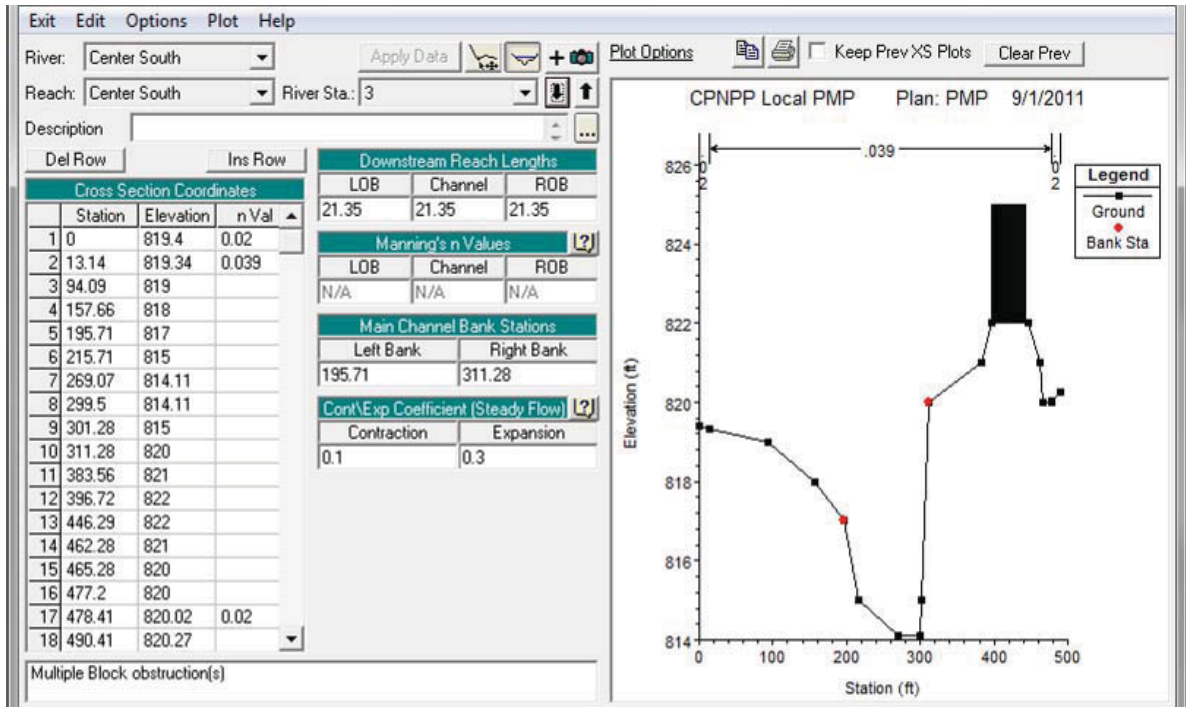
Obstructions: Station 51.78 to 190.7 and 475.44 to 485
Figure 7-62. Center South Channel Cross Section 6



Obstructions: Station 91.65 to 151.65; 396.72 to 441.72; and 475.44 to 485
Figure 7-63. Center South Channel Cross Section 5



Obstructions: Station 105.21 to 138.71 and 396.72 to 441.72
Figure 7-64. Center South Channel Cross Section 4



Obstructions: Station 396.72 to 441.72
Figure 7-65. Center South Channel Cross Section 3

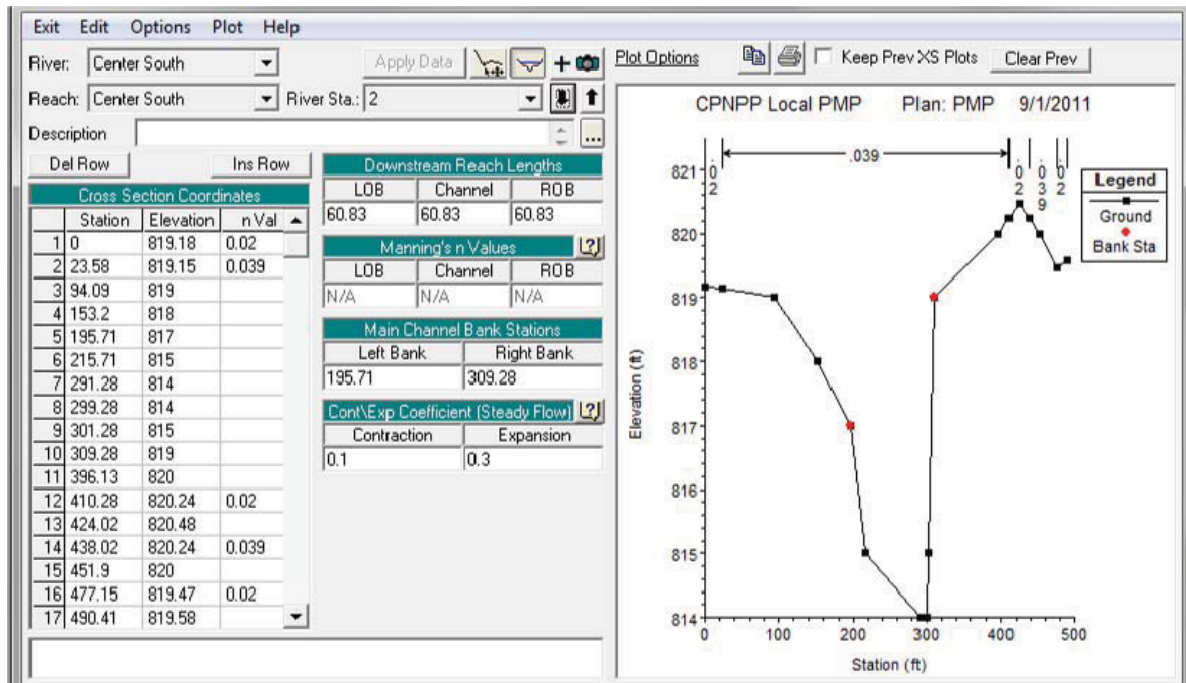


Figure 7-66. Center South Channel Cross Section 2

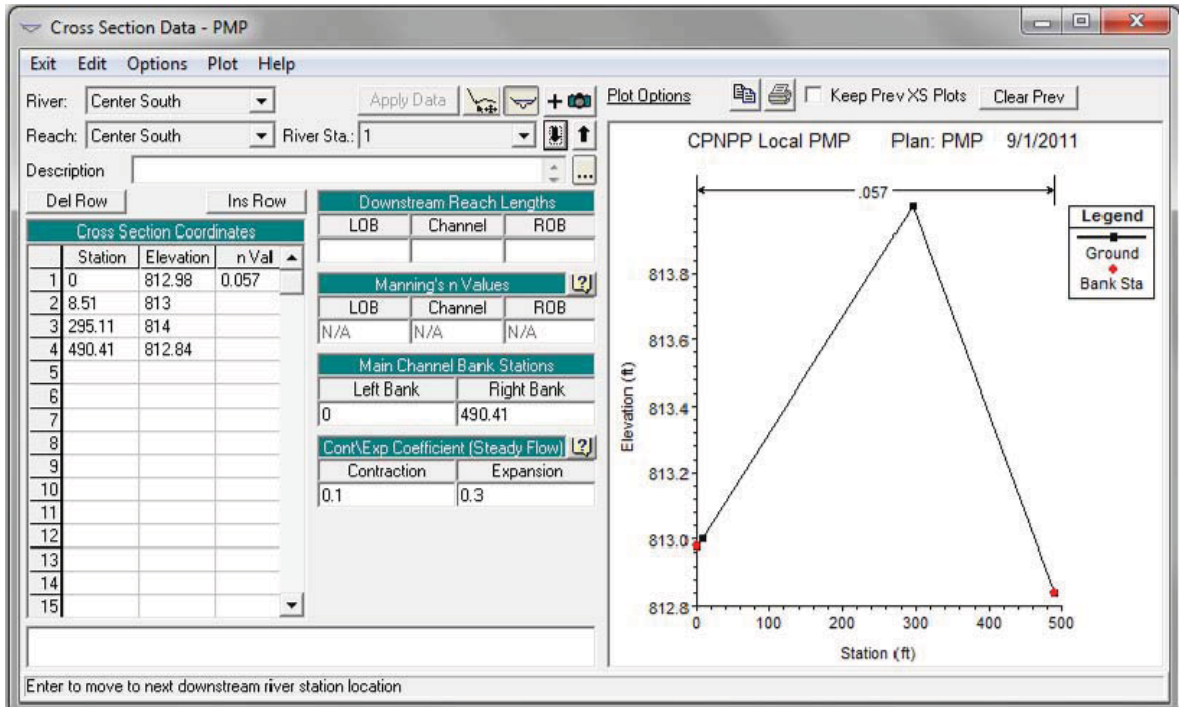


Figure 7-67. Center South Channel Cross Section 1

As determined for the West Channel analysis, resulting water surface elevations in the West Channel exceed the loop road boundary elevation that separates the Center South Channel from the West Channel. This creates a potential for water surface elevations in the West Channel to affect the outflow from the Center South Channel, and even the potential for flow to enter Drainage Area 10 from the West Channel. As a conservative approach it is assumed runoff from Drainage Areas 8 and 9 of the West Channel enters Drainage Area 10 upstream of the West Channel high point. Runoff is allowed to exit Drainage Area 10 downstream of the West Channel high point. Therefore, the inline weir is artificially blocked for a distance upstream of the high point. The inline structure weir is shown in Figure 7-68 and the corresponding data is provided in Table 7-11.

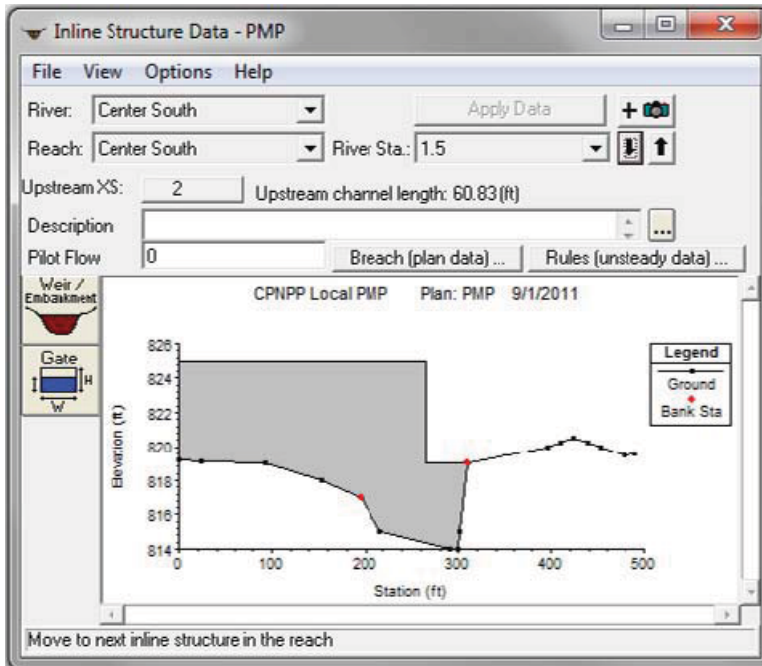


Figure 7-68. Center South Channel Inline Structure Weir Cross Section 1.5

Table 7-11. Center South Channel Inline Structure Weir Cross Section 1.5

Station (ft)	Elevation (ft)
0	825
265.53	825
265.53	819
490.41	819

Distance between upstream station and weir = 18 ft

Weir width = 24 ft

Weir coefficient = 2.6

Runoff from Drainage Area 10 is added to the model at Cross Section 8. Runoff from Drainage Areas 8 and 9, of the West Channel, is added to the model at Cross Section 2. Table 7-12 provides a summary of the runoff added to the Center South Channel model.

Table 7-12. Center South Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
8	324	10	324
2	821	upstream contribution	324
		8	131
		9	366

The upstream Cross Section 8 is assigned a critical depth boundary condition. Because runoff over the weir is limited, downstream Cross Section 1 is affected by the West Channel Cross Sections 15, 16, and 17. The West Channel Cross Section 17 is immediately downstream from the high point and conservatively used as the downstream boundary condition, because it exhibits the highest water surface elevation of the applicable cross sections. For the preliminary run, the downstream

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boundary condition is assigned the West Channel preliminary water surface elevation of 820.86 ft (see Section 7.4). The HEC-RAS model is run using the steady flow option with a mixed flow regime. Preliminary results are provided in Table 7-13.

Table 7-13. Center South Channel Preliminary Results

Cross Section	Q (cfs)	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
8	324.00	820.98	820.38	821.00	0.001025	1.20	300.06	390.76	0.21
7	324.00	820.97		820.98	0.000074	0.79	477.44	213.51	0.07
6	324.00	820.97		820.98	0.000043	0.68	561.15	248.83	0.06
5	324.00	820.97		820.98	0.000031	0.63	663.04	302.15	0.05
4	324.00	820.97		820.97	0.000012	0.42	886.99	302.65	0.03
3	324.00	820.97		820.97	0.000007	0.34	1211.21	409.58	0.02
2	821.00	820.97	815.87	820.97	0.000039	0.78	1374.84	490.41	0.06
1.5	Inline Structure								
1	821.00	820.86	813.87	820.86	0.000005	0.23	3629.37	490.41	0.01

Preliminary results identify the overtopping water surface elevation at the downstream weir is 820.97 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 820.98 ft at the most upstream cross section (Cross Section 8). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. All Froude numbers are less than one, indicating there is no supercritical flow in the channel. Additionally, there are no indications of hydraulic jumps in the channel.

Warnings indicate there may be a need for additional cross sections between Cross sections 4 and 5 and Cross sections 7 and 8. HEC-RAS interpolation with 10 ft maximum spacing is used to generate four new cross sections between Cross sections 4 and 5, and 5 ft maximum spacing is used to generate 11 new cross sections between Cross sections 7 and 8. The downstream boundary condition, established by the final results of the West Channel, remains unchanged. The model is re-run and the warnings are eliminated. Table 7-14 provides the final results.

Table 7-14. Center South Channel Final Results

Cross Section	Q (cfs)	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
8	324.00	820.98	820.38	821.00	0.001020	1.20	300.53	390.97	0.21
7	324.00	820.97		820.98	0.000074	0.79	477.40	213.49	0.07
6	324.00	820.97		820.98	0.000043	0.68	561.10	248.81	0.06
5	324.00	820.97		820.98	0.000031	0.63	662.98	302.13	0.05
4	324.00	820.97		820.97	0.000012	0.42	886.99	302.65	0.03
3	324.00	820.97		820.97	0.000007	0.34	1211.21	409.58	0.02
2	821.00	820.97	815.87	820.97	0.000039	0.78	1374.84	490.41	0.06
1.5	Inline Structure								
1	821.00	820.86	813.87	820.86	0.000005	0.23	3629.37	490.41	0.01

The final results are generally unchanged from the preliminary results. The overtopping water surface elevation at the downstream weir remains 820.97 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 820.98 ft at the upstream cross section (Cross Section 8). All cross section water surface elevations do not exceed 1 ft below plant grade and meet

DCD criteria. All Froude numbers are less than one, indicating no supercritical flow. Additionally, there are no indications of hydraulic jumps. The channel flow profile is provided in Figure 7-69.

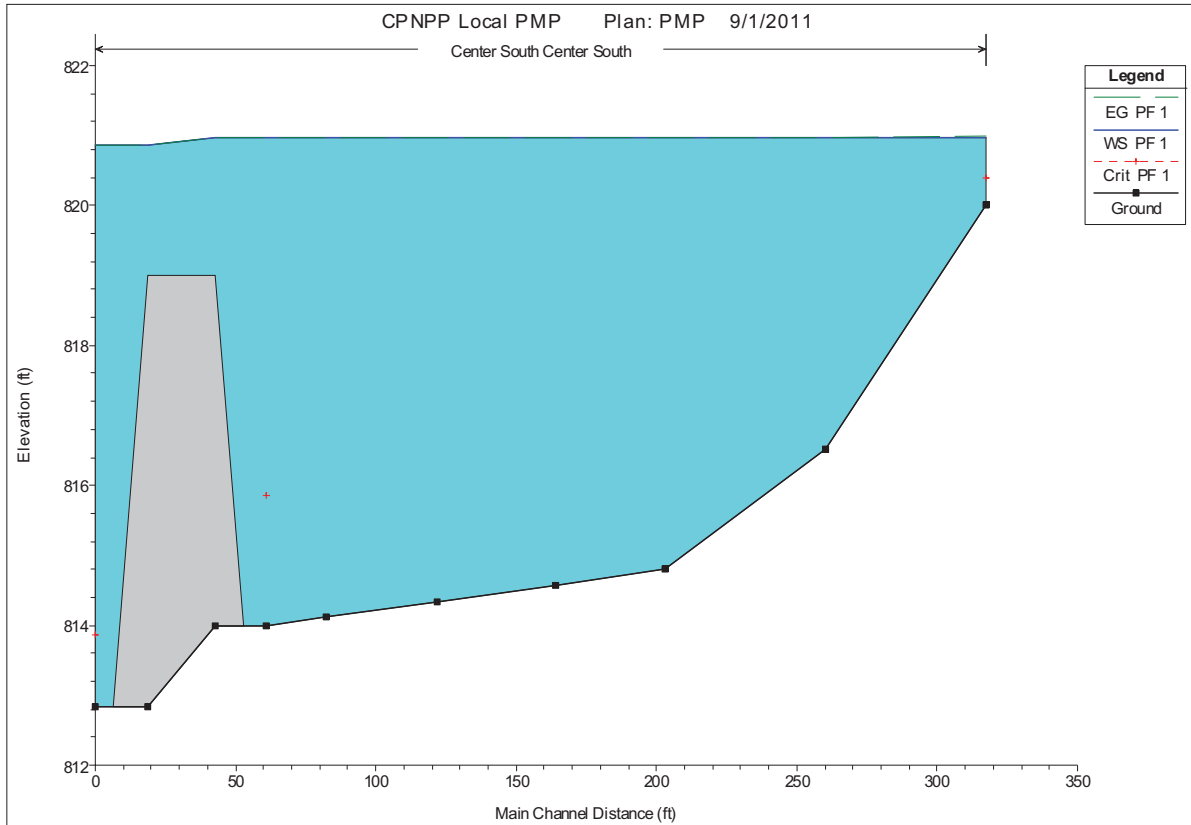


Figure 7-69. Center South Channel Flow Profile

7.6 Unit 3 UHS Channel

The Unit 3 UHS Channel runs generally east along the north side of the Unit 3 UHS structures and empties directly into Drainage Pond B through an inlet structure, as shown in Figure 7-70. There is also a branch of the channel that flows north into the main channel between the sets of Unit 3 UHS structures. Assuming the culvert is non-functional, runoff will overtop an embankment weir into Drainage Pond B. Additionally, runoff will spill laterally over retaining wall sections of the VBS directly into the SCR.

The main channel is modeled using 12 cross sections and is divided into an upper reach and lower reach with a junction between Cross Sections 7 and 8. The branch is modeled using two cross sections and connects to the main channel at the junction. The Unit 3 UHS Channel captures runoff from Drainage Area 27. Runoff from Drainage Areas 1 through 7 (Center North Channel) and Drainage Areas 5 and 6 (Unit 3 North Channel) also contribute to the Unit 3 UHS Channel.

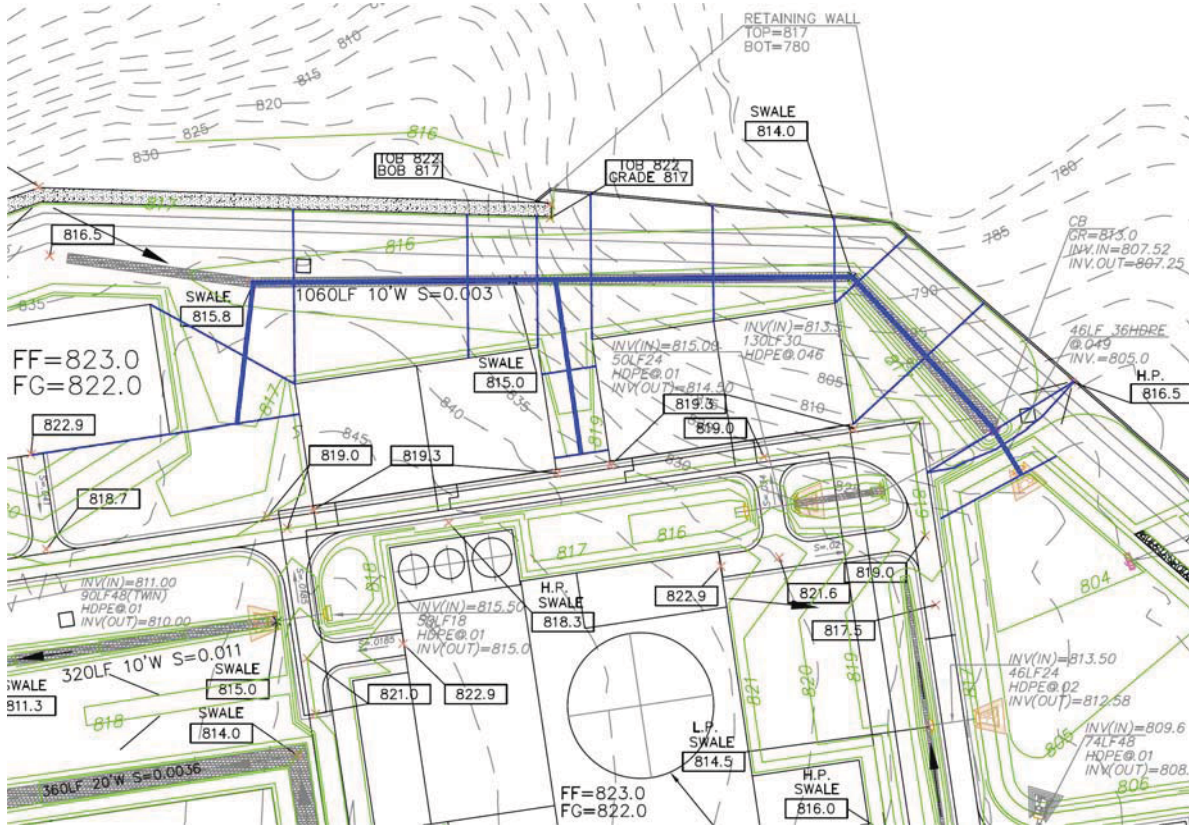


Figure 7-70. Unit 3 UHS Channel Cross Sections (Source: URS 2011b)

The Unit 3 UHS Channel HEC-RAS schematic is shown in Figure 7-71. The Unit 3 UHS Channel cross section data are shown in Figure 7-72 through Figure 7-85. The inline structure weir is shown in Figure 7-86 and the corresponding data is provided in Table 7-15.

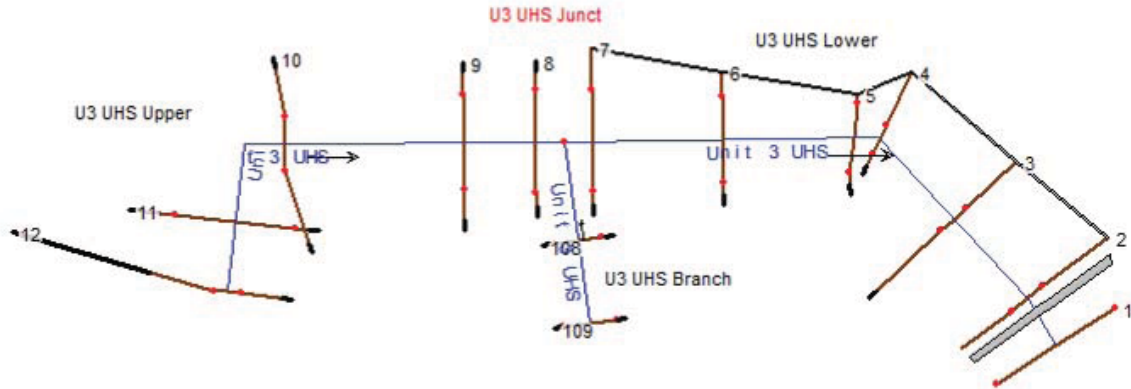
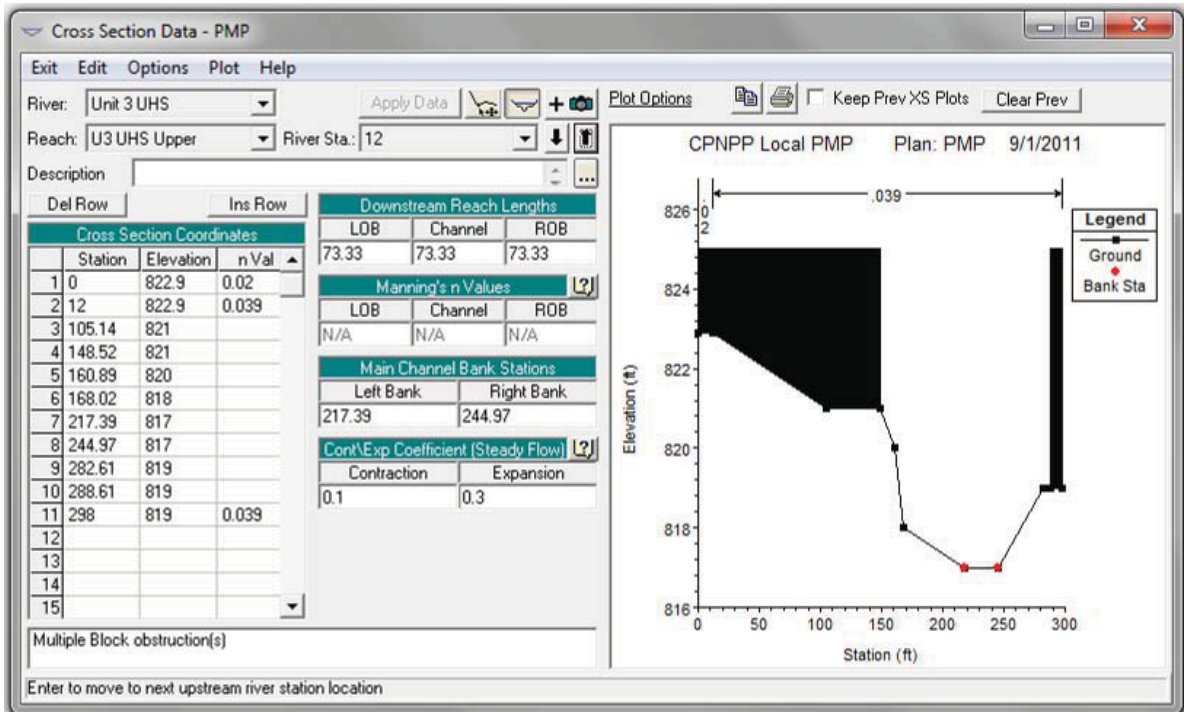
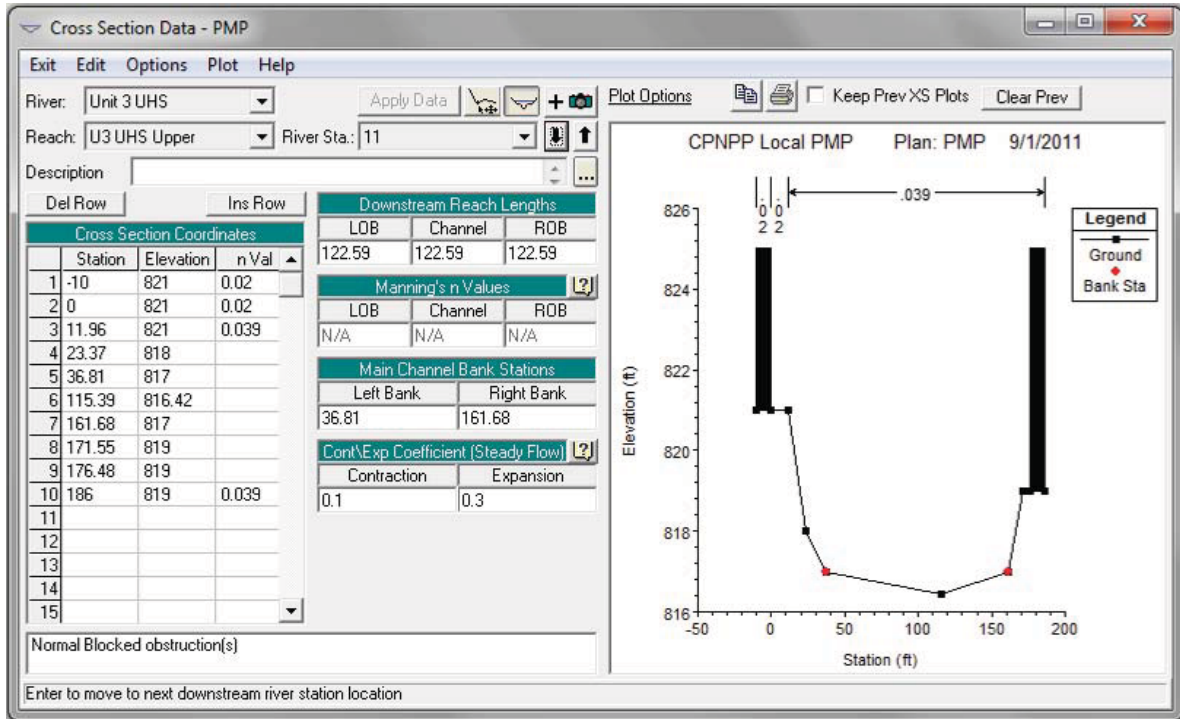


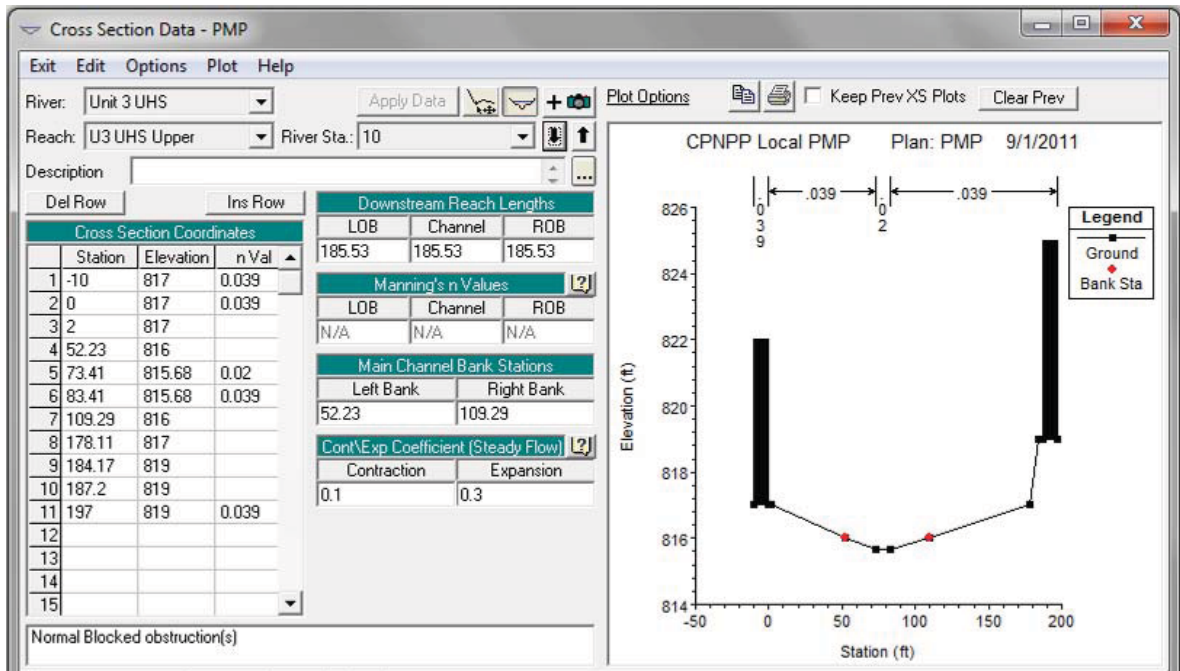
Figure 7-71. Unit 3 UHS Channel HEC-RAS Schematic



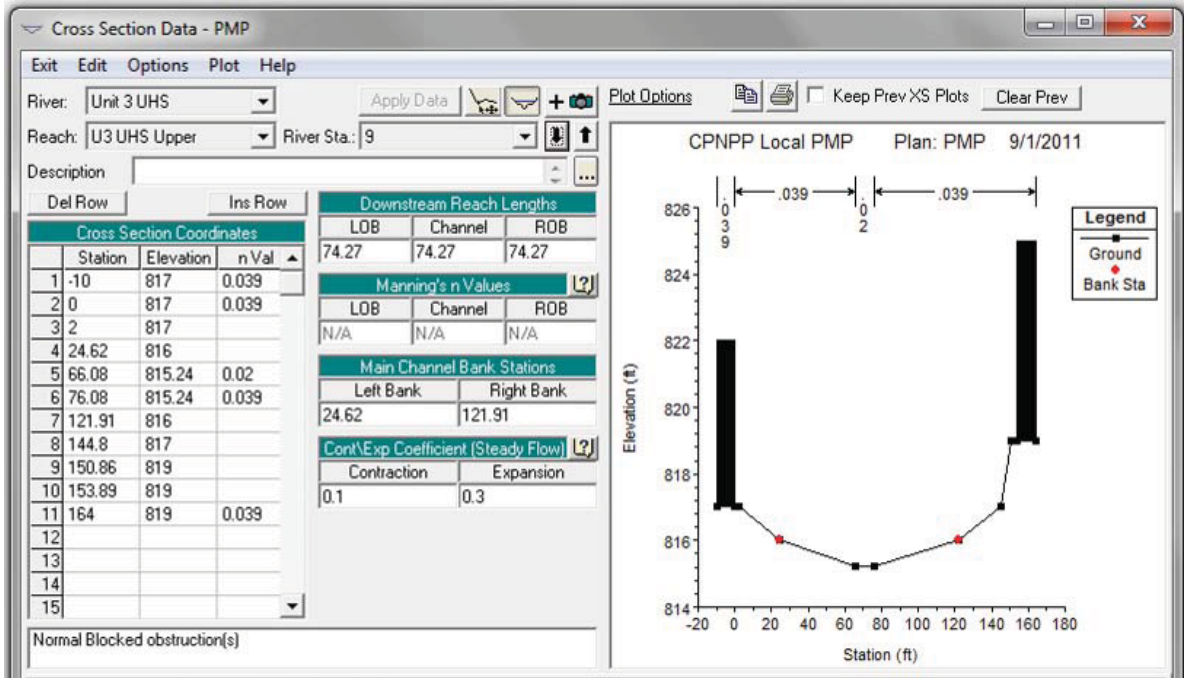
Obstructions: Station 0 to 148.52 and 288.61 to 298
 Figure 7-72. Unit 3 UHS Upper Channel Cross Section 12



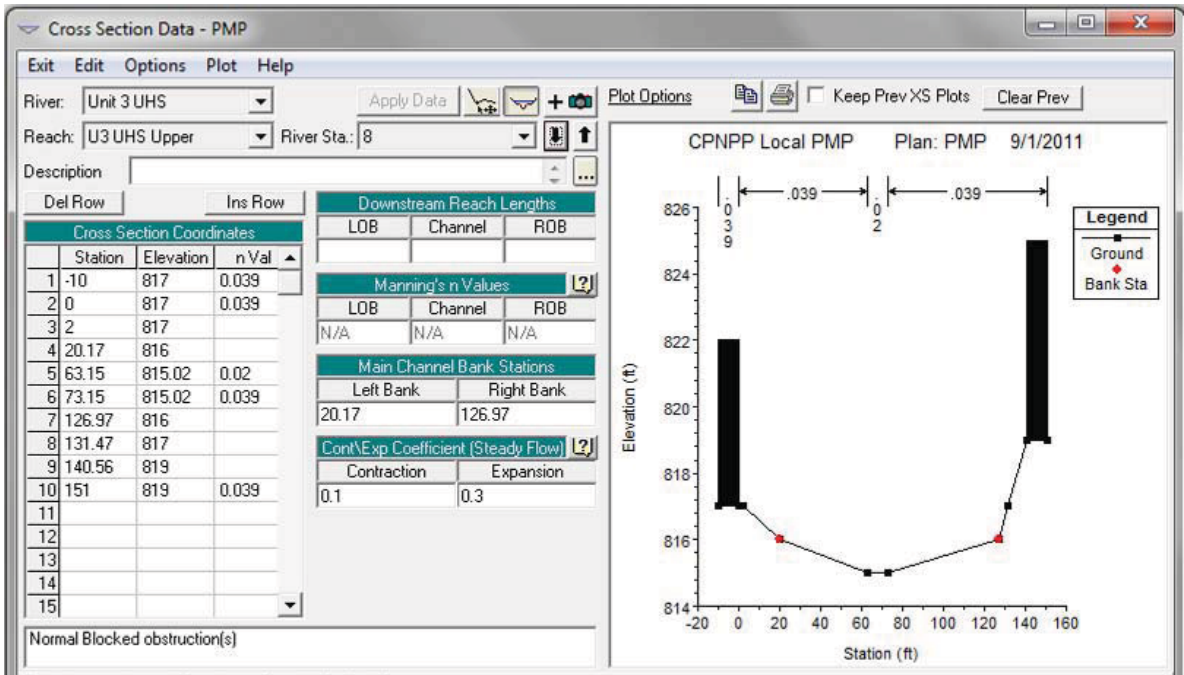
Obstructions: Station -10 to 0 and 176.48 to 186
Figure 7-73. Unit 3 UHS Upper Channel Cross Section 11



Obstructions: Station -10 to 0 and 187.2 to 197
Figure 7-74. Unit 3 UHS Upper Channel Cross Section 10

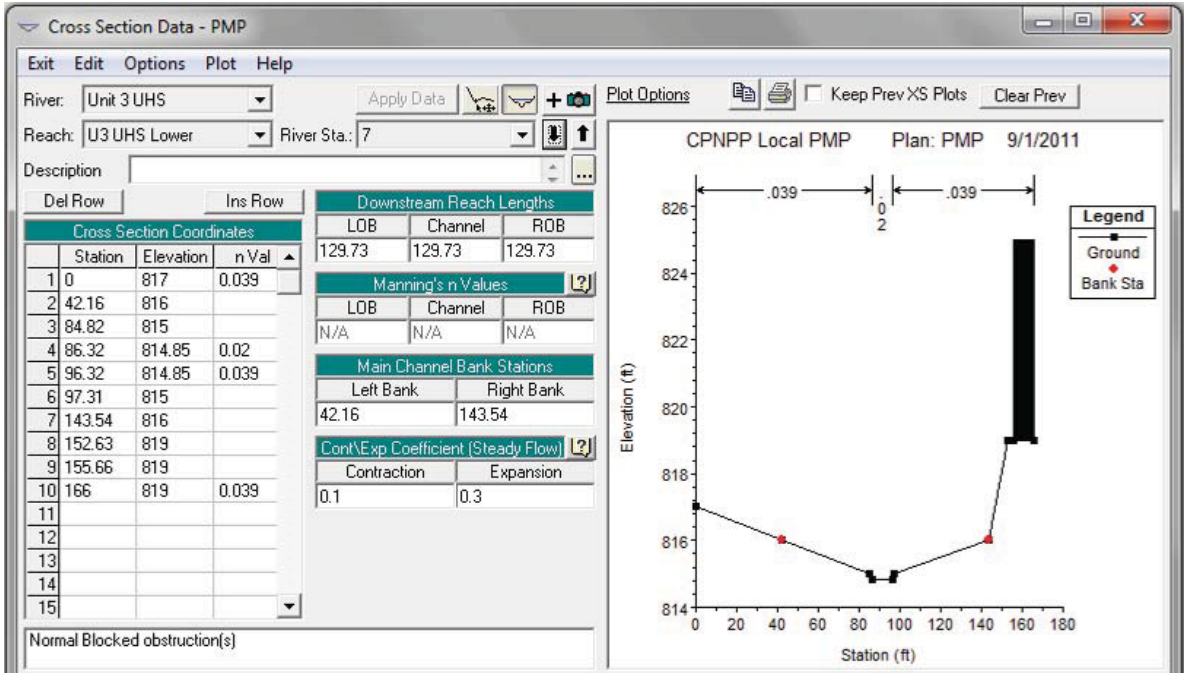


Obstructions: Station -10 to 0 and 153.89 to 164
Figure 7-75. Unit 3 UHS Upper Channel Cross Section 9

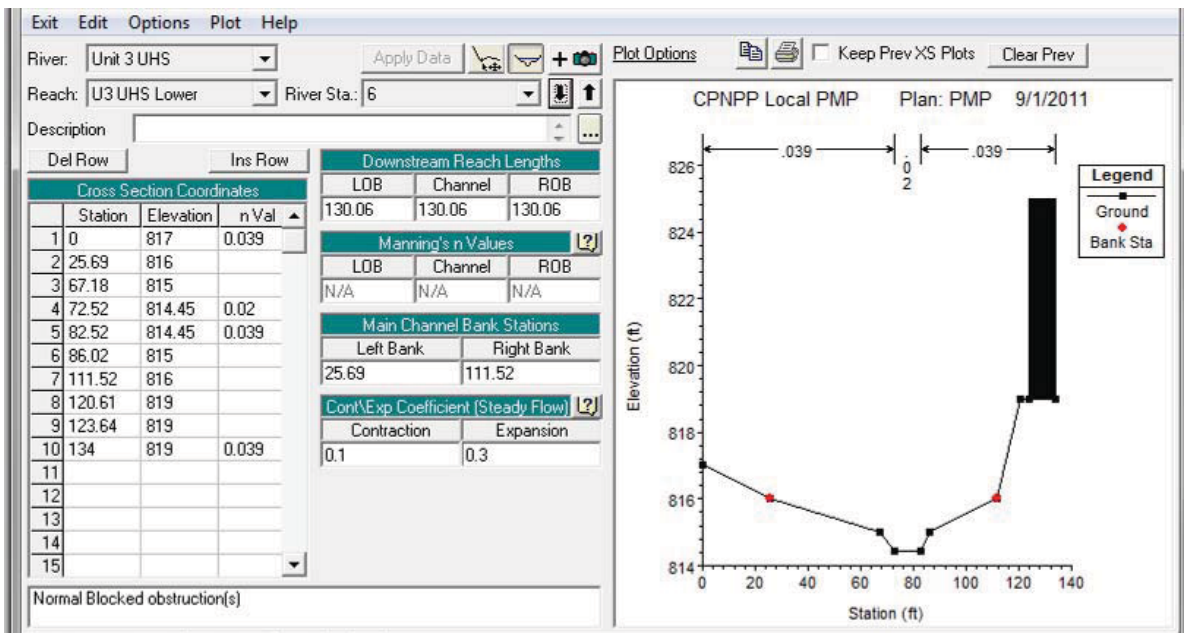


Obstructions: Station -10 to 0 and 140.56 to 151
Figure 7-76. Unit 3 UHS Lower Channel Cross Section 8

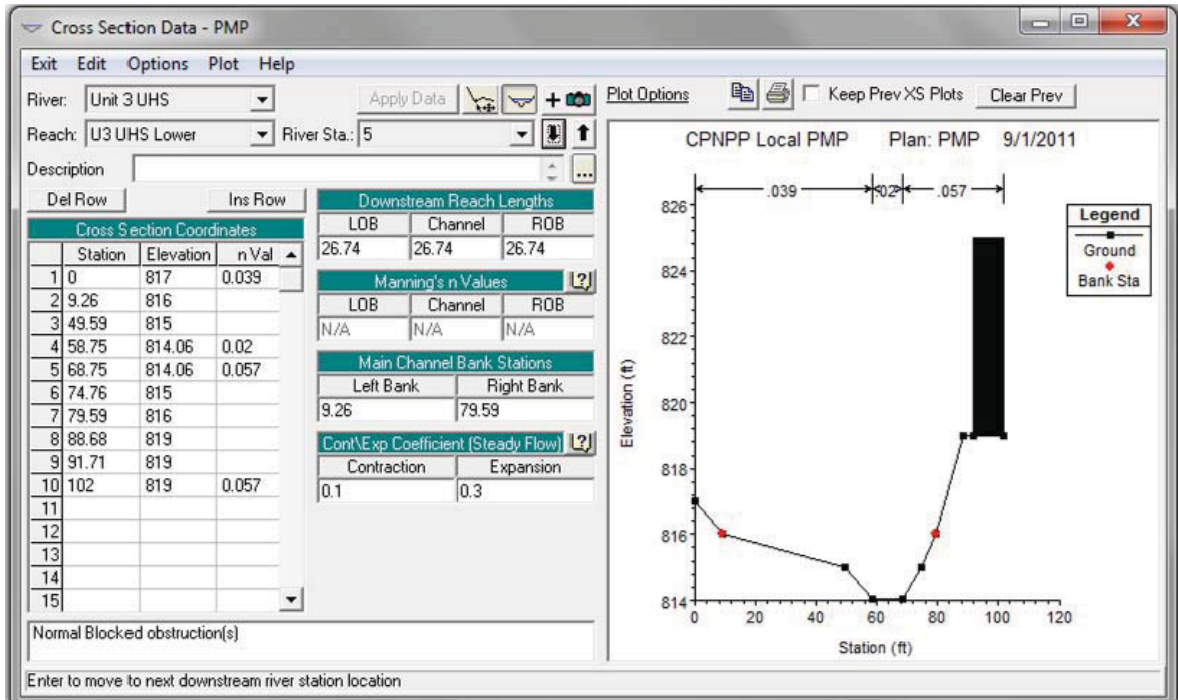
The distance across the junction between Cross Section 8 of the upper channel and Cross Section 7 of the lower channel is 57.69 ft.



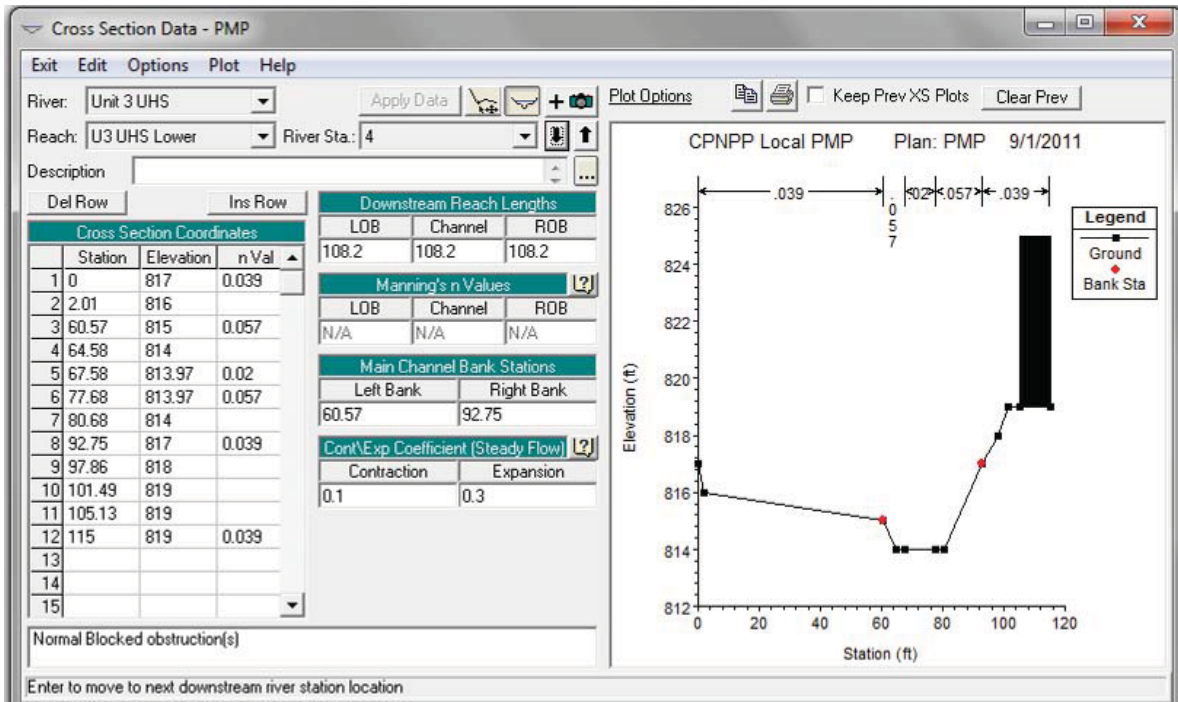
Obstructions: Station 155.66 to 166
Figure 7-77. Unit 3 UHS Lower Channel Cross Section 7



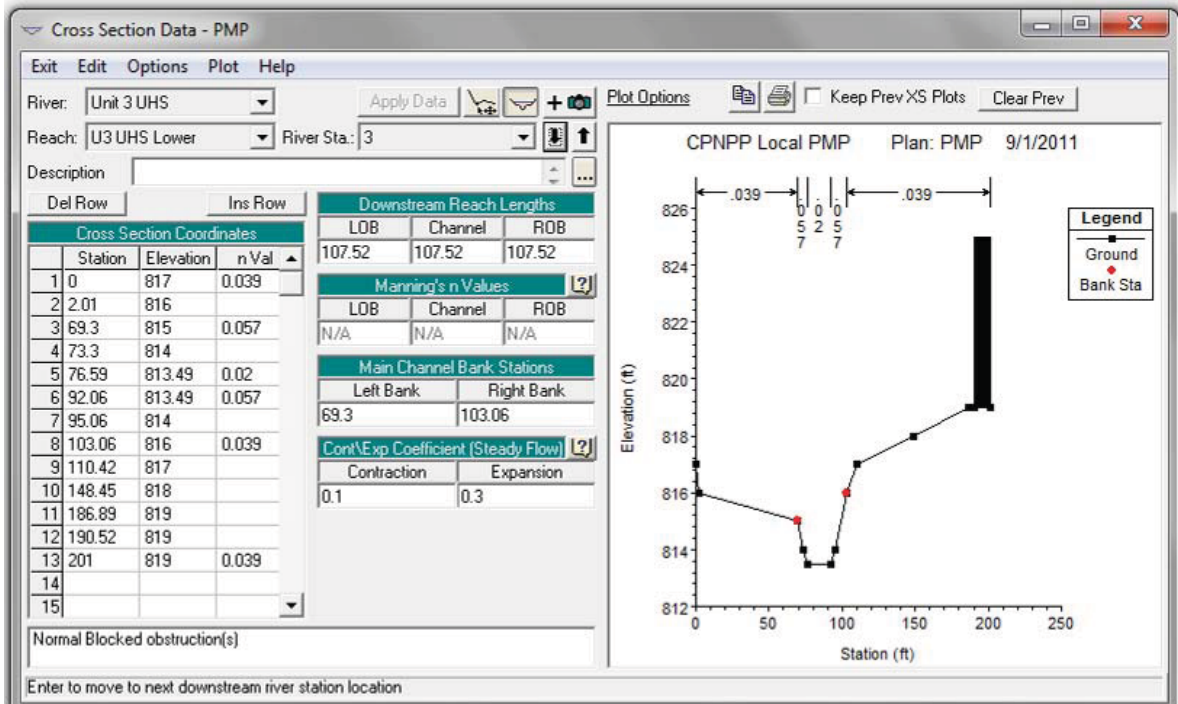
Obstructions: Station 123.64 to 134
Figure 7-78. Unit 3 UHS Lower Channel Cross Section 6



Obstructions: Station 91.71 to 102
Figure 7-79. Unit 3 UHS Lower Channel Cross Section 5



Obstructions: Station 105.13 to 115
Figure 7-80. Unit 3 UHS Lower Channel Cross Section 4



Obstructions: Station 190.52 to 201
Figure 7-81. Unit 3 UHS Lower Channel Cross Section 3

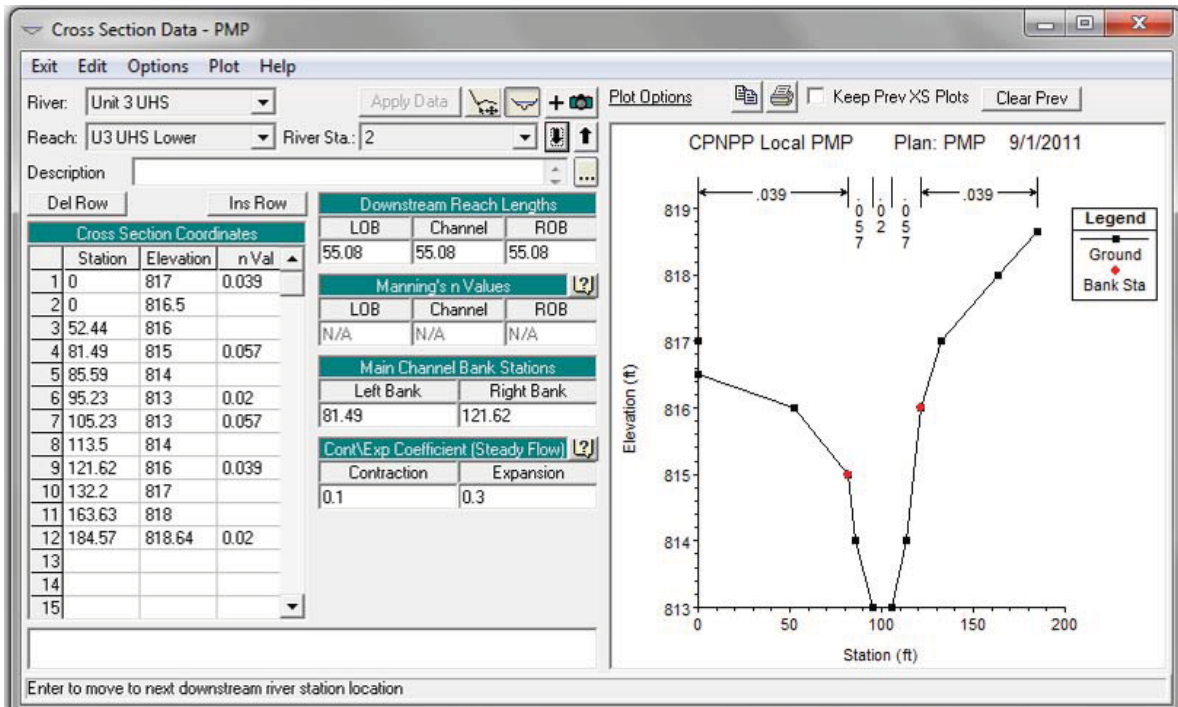


Figure 7-82. Unit 3 UHS Lower Channel Cross Section 2

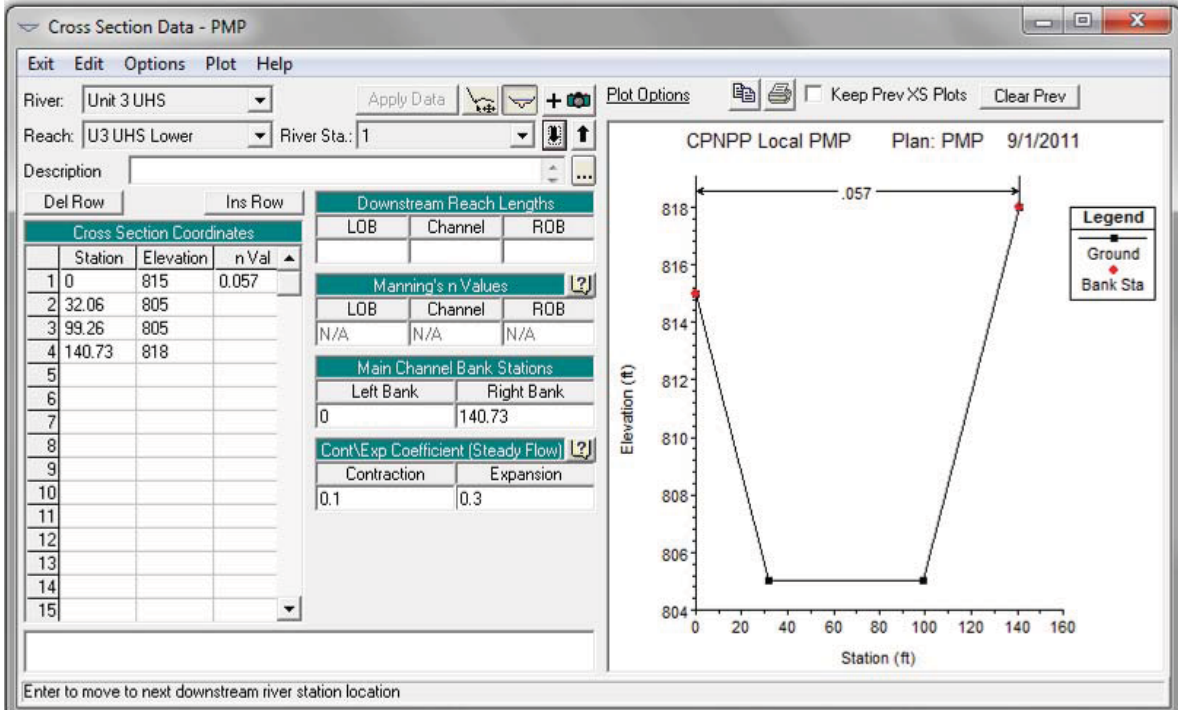
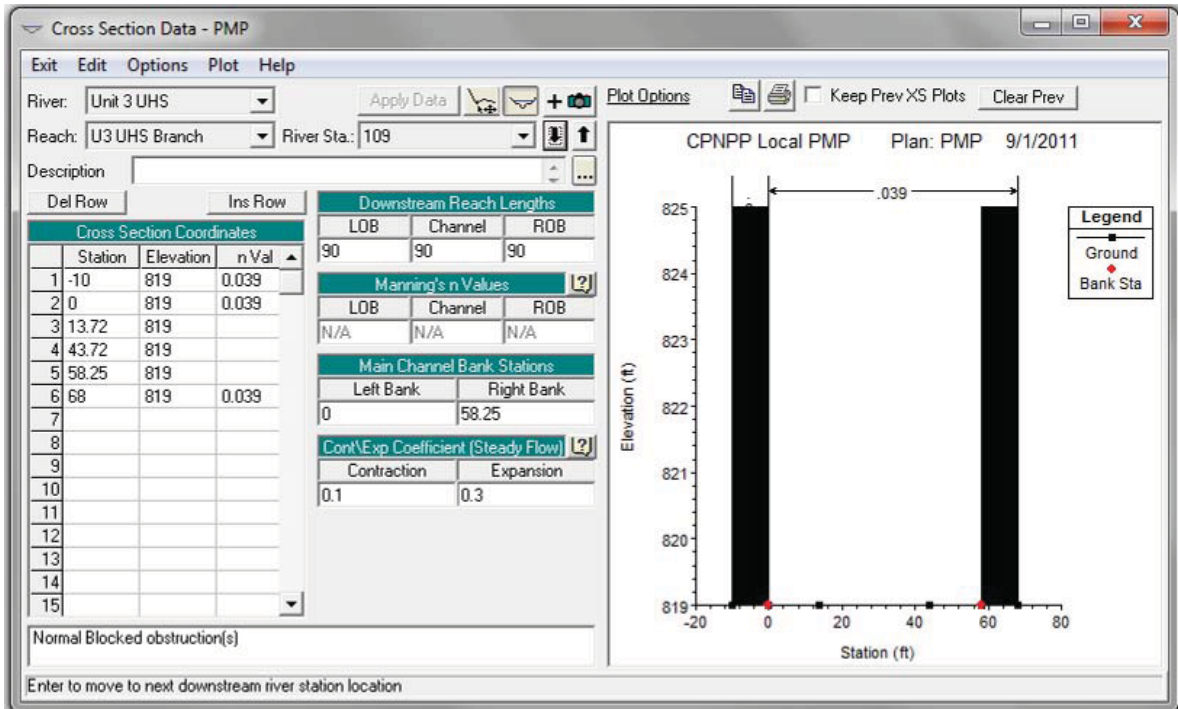
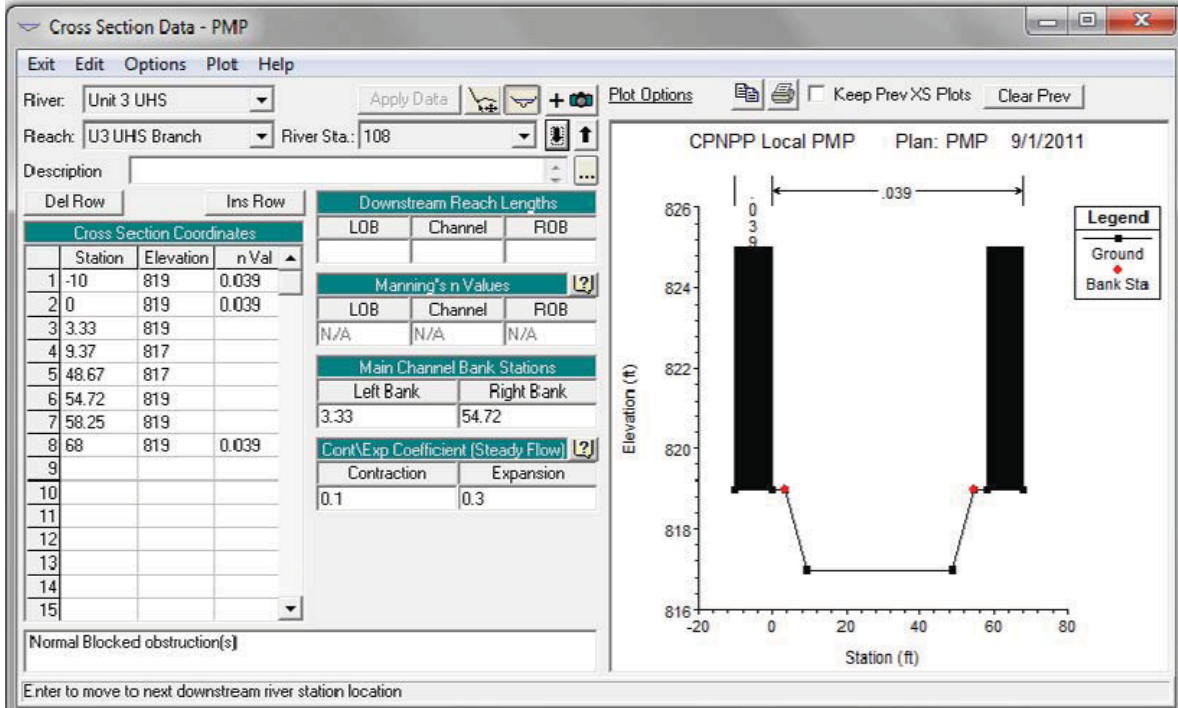


Figure 7-83. Unit 3 UHS Lower Channel Cross Section 1



Obstructions: Station -10 to 0 and 58.25 to 68
Figure 7-84. Unit 3 UHS Branch Channel Cross Section 109



Obstructions: Station -10 to 0 and 58.25 to 68
Figure 7-85. Unit 3 UHS Branch Channel Cross Section 108

The distance across the junction between Cross Section 108 of the branch channel and Cross Section 7 of the lower channel is 136.09 ft.

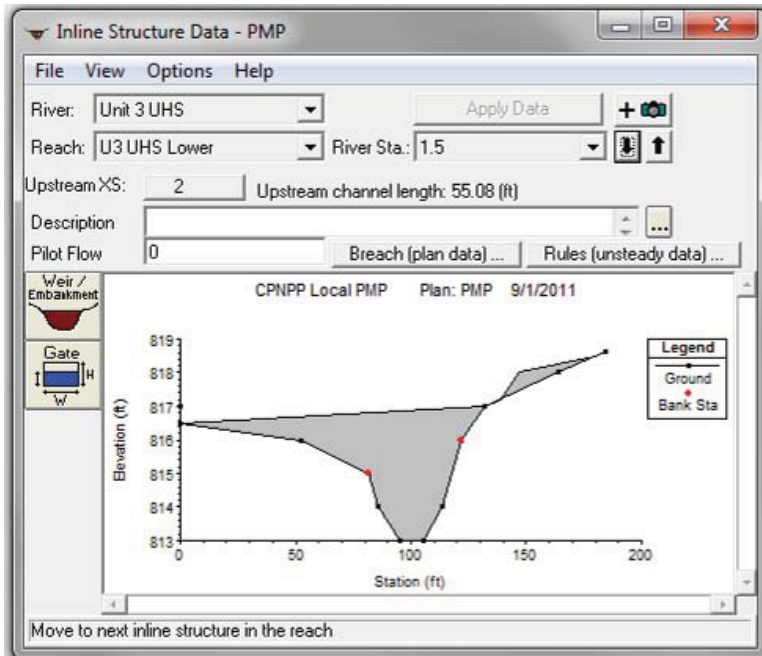


Figure 7-86. Unit 3 UHS Channel Inline Structure Weir Cross Section 1.5

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Table 7-15. Unit 3 UHS Channel Inline Structure Weir Cross Section 1.5

Station (ft)	Elevation (ft)
0	817
0	816.5
136.43	817
147.01	818
189.28	818.64

Distance between upstream station and weir = 13 ft
Weir width = 8.6 ft
Weir coefficient = 2.6

Lateral weirs are added to the model to represent the retaining wall sections of the VBS. The retaining wall has a top elevation of 817 ft (URS 2011b). Lateral structure weirs are added to the model for the full distance of the lower reach between Cross Sections 1 and 7. There are no retaining wall sections of the VBS in the upper reach. The lateral structure weir and the corresponding data are shown in Figure 7-87.

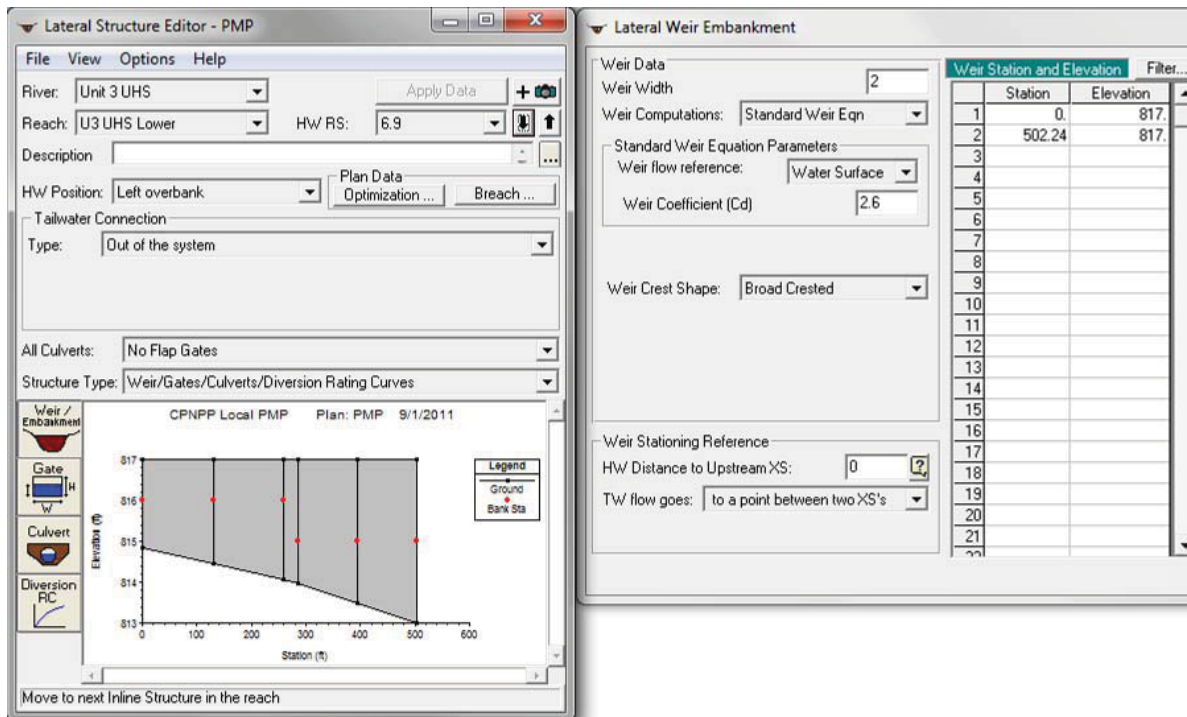


Figure 7-87. Unit 3 UHS Lower Channel Lateral Structure Weir Cross Section 6.9

Runoff from Drainage Areas 1 through 7 (Center North Channel) is directed to a culvert in Drainage Area 6. Assuming the culvert is non-functional, the combined runoff from these areas would overtop the loop road and split. Some runoff would enter the Unit 3 UHS Channel and the remaining runoff would enter the Unit 4 UHS Channel. As a conservative approach, it is assumed for the Unit 3 UHS Channel analysis that the entire upstream runoff enters the Unit 3 UHS Channel.

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Additionally, runoff from Drainage Area 25 (Unit 3 North Channel) could spill into Drainage Area 27 (Unit 3 UHS Channel) by entering the branch channel, or flow into Drainage Area 26 (Unit 3 North Channel). Runoff from Drainage Areas 25 and 26 (Unit 3 North Channel) also contributes to the main channel. As a conservative approach, it is assumed that the total runoff from Drainage Area 25 (Unit 3 North Channel) enters both the branch channel and Drainage Area 26 (Unit 3 North Channel), eventually entering the main channel. This assumption doubles the runoff contribution from Drainage Area 25 (Unit 3 North Channel).

Runoff from Drainage Areas 1 through 7 (Center North Channel) and 27 (Unit 3 UHS Channel) is added to the model at the upstream end, Cross Section 12. Runoff from Drainage Area 25 (Unit 3 North Channel) is also added to the model at the upstream of the branch, Cross Section 108. The total runoff applied at Cross Section 7 just downstream of the junction is the combined runoff from the upper channel and the branch channel. Runoff from Drainage Areas 25 and 26 (Unit 3 North Channel) is added to the model at Cross Section 2. Table 7-16 provides a summary of the runoff added to the Unit 3 UHS Channel model.

Table 7-16. Unit 3 UHS Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
		1	52
		2	157
		3	233
		4	96
12	1652	5	257
		6	183
		7	55
		25	125
		27	494
109	125	25	125
7	1777	upstream contribution	1652
		upstream contribution	125
2	1941	upstream contribution	1777
		25	125
		26	39

The upstream Cross Sections 12 and 109 are assigned a critical depth boundary condition. The downstream Cross Section 1 is assigned the Drainage Pond B maximum water surface elevation of 815.1 ft (see Section 7.1). The HEC-RAS model is run using the steady flow option with a mixed flow regime. Flow optimization for the lateral weirs is set to allow HEC-RAS to calculate and remove the overtopping flow from the model. Therefore, flow exiting the model at the lateral weir structures results in a decrease of flow at downstream cross sections. The preliminary results are provided in Table 7-17.



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Table 7-17. Unit 3 UHS Channel Preliminary Results

Cross Section	Q (cfs)	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
109	125.00	819.52	819.52	819.78	0.028193	4.10	30.46	58.25	1.00
108	125.00	819.15	817.67	819.18	0.000472	1.27	99.54	58.25	0.16
12	1652.00	819.54	819.47	820.35	0.013825	8.35	236.64	126.09	0.92
11	1652.00	819.44		819.73	0.003606	4.47	386.84	158.58	0.48
10	1652.00	819.28		819.44	0.001348	3.77	541.62	187.20	0.36
9	1652.00	818.90		819.14	0.001882	4.10	441.84	150.57	0.40
8	1652.00	818.71		818.98	0.002158	4.31	406.84	139.24	0.42
7	1777.00	818.52		818.84	0.002707	4.75	409.17	151.18	0.48
6.9	Lateral Structure								
6	1237.72	818.21		818.50	0.002362	4.44	301.59	118.22	0.46
5	858.07	817.95		818.20	0.002032	4.10	220.31	85.49	0.43
4	793.13	817.96		818.11	0.002033	3.14	257.54	97.68	0.30
3	535.63	817.92		817.97	0.000530	1.98	324.21	145.44	0.18
2	459.32	817.89	815.35	817.92	0.000277	1.80	347.06	160.09	0.16
1.5	Inline Structure								
1	459.32	815.10	806.11	815.10	0.000021	0.46	1004.93	131.48	0.03

Preliminary results identify the overtopping water surface elevation at the downstream weir is 817.89 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 819.54 ft at the most upstream cross section of the main channel (Cross Section 12) and 819.52 ft at the most upstream cross section of the branch channel (Cross Section 109). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. The 819.54 ft water surface elevation result at Cross Section 12 establishes a potential downstream boundary condition for the Center North Channel. The water surface elevation result for Cross Section 3 is 817.92 ft and establishes the downstream boundary condition for the Unit 3 North Channel.

All Froude numbers for the main channel are less than one, indicating there is no supercritical flow in the main channel. However, the upstream Cross Section 109 of the branch channel has a Froude number equal to one, indicating the potential for supercritical flow as runoff flows into the main channel from the branch channel. There is also potential for a hydraulic jump to occur between Cross Sections 108 and 109 of the branch channel.

Warnings indicate there may be a need for additional cross sections between Cross Sections 10 and 11 and Cross Sections 11 and 12 of the main channel, and Cross Sections 108 and 109 of the branch channel. HEC-RAS interpolation with 100 ft maximum spacing is used to generate one new cross section between Cross Sections 10 and 11, and 50 ft maximum spacing is used to generate one new cross section between Cross Sections 11 and 12. Interpolation with 5 ft maximum spacing is used to generate 17 new cross sections between Cross Sections 108 and 109 of the branch channel. Cross section interpolation generally includes interpolation of obstructions. However, for the cross section added between Cross Sections 11 and 12, the appropriate obstructions are added as necessary. The model is re-run and the warnings are eliminated. Table 7-18 provides the final results.



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Table 7-18. Unit 3 UHS Channel Final Results

Cross Section	Q (cfs)	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
109	125.00	819.57	819.52	819.79	0.021260	3.77	33.17	58.25	0.88
108	125.00	819.15		819.18	0.000473	1.27	99.47	58.25	0.16
12	1652.00	819.66	819.47	820.37	0.011459	7.83	251.21	126.50	0.85
11	1652.00	819.47		819.76	0.003470	4.41	391.58	158.69	0.47
10	1652.00	819.28		819.44	0.001350	3.77	541.40	187.20	0.36
9	1652.00	818.90		819.13	0.001885	4.11	441.56	150.56	0.40
8	1652.00	818.71		818.98	0.002163	4.31	406.53	139.23	0.42
7	1777.00	818.52		818.84	0.002716	4.75	408.73	151.17	0.48
6.9	Lateral Structure								
6	1235.13	818.21		818.49	0.002359	4.43	301.30	118.22	0.46
5	855.38	817.95		818.20	0.002021	4.09	220.23	85.48	0.43
4	790.68	817.96		818.11	0.002024	3.14	257.42	97.67	0.30
3	534.08	817.92		817.97	0.000527	1.98	324.07	145.41	0.18
2	458.73	817.89	815.35	817.92	0.000276	1.80	346.91	160.06	0.16
1.5	Inline Structure								
1	458.73	815.10	806.11	815.10	0.000021	0.46	1004.93	131.48	0.03

The overtopping water surface elevation at the downstream weir remains 817.89 ft (Cross Section 2). Backwater effects result in an increased maximum water surface elevation of 819.66 ft at the most upstream cross section of the main channel (Cross Section 12) and 819.57 ft at the most upstream cross section of the branch channel (Cross Section 109). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. The 819.66 ft water surface elevation result for Cross Section 12 establishes a potential downstream boundary condition for the Center North Channel. The water surface elevation result for Cross Section 3 remains 817.92 ft and establishes the downstream boundary condition for the Unit 3 North Channel. The revised analysis shows all Froude numbers for the main channel and the branch channel are less than one, indicating the potential for supercritical flow is eliminated. The revised analysis also indicates the potential for hydraulic jumps in the channels is eliminated. The channel flow profile is provided in Figure 7-88.

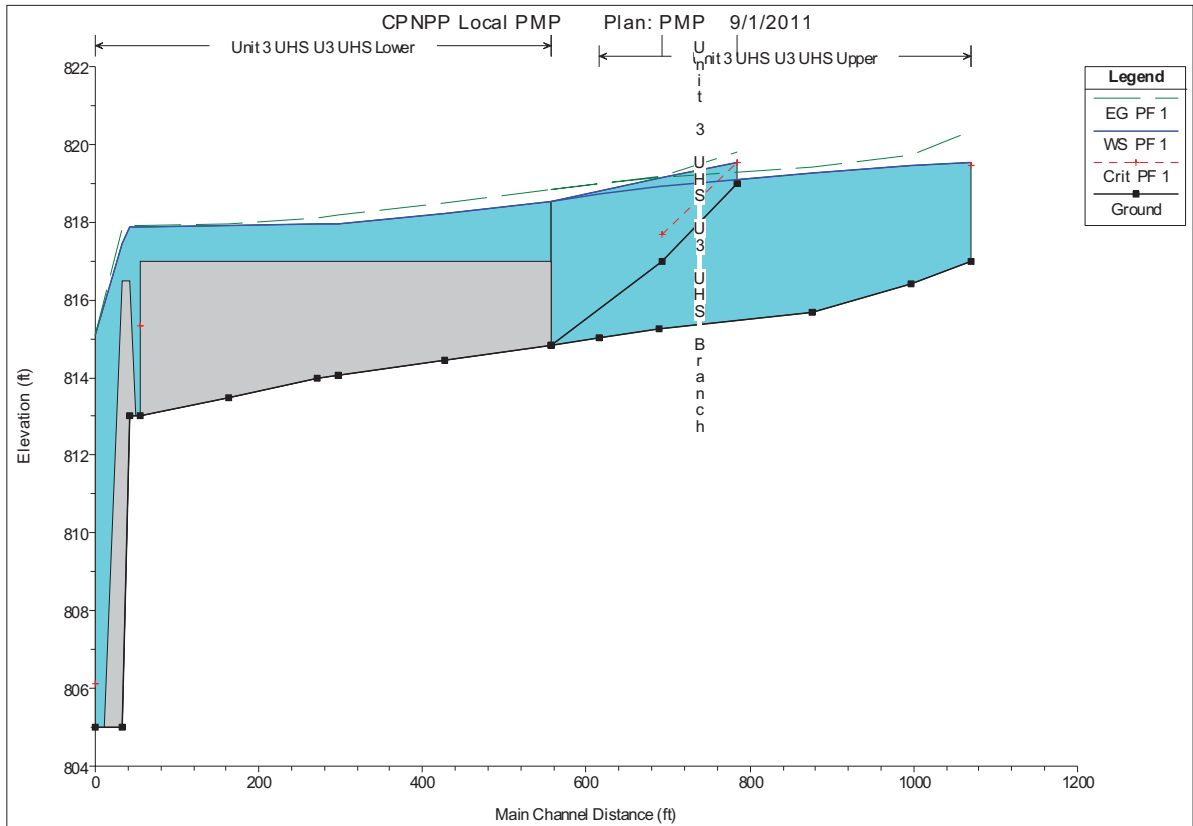


Figure 7-88. Unit 3 UHS Channel Flow Profile

7.7 Unit 3 North Channel

The Unit 3 North Channel captures runoff in Drainage Area 25 just north of Unit 3 and directs flow east to a culvert structure at a road. The channel continues to the east and captures additional runoff in Drainage Area 26. The combined runoff empties into Drainage Pond B through a culvert structure at the plant loop road as shown in Figure 7-89. Assuming the culverts are non-functional, runoff will overtop the first road into Drainage Area 26. The runoff then overtops the plant loop road into the Unit 3 UHS Channel or directly into Drainage Pond B. The channel is modeled using eight cross sections and two weirs.

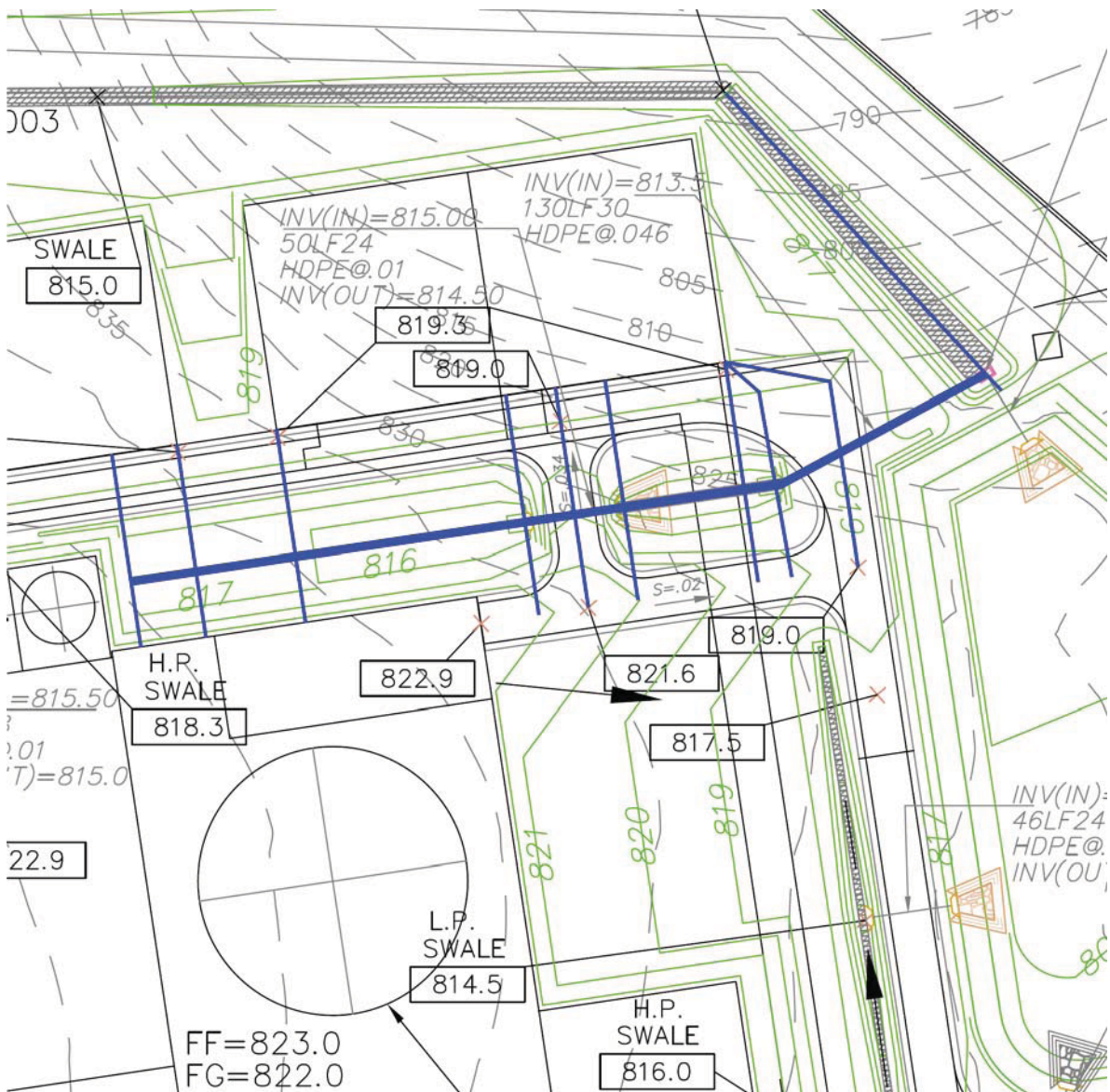


Figure 7-89. Unit 3 North Channel Cross Sections (Source: URS 2011b)

The Unit 3 North Channel HEC-RAS schematic is shown in Figure 7-90. The Unit 3 North Channel cross section data are shown in Figure 7-91 through Figure 7-98. The inline structure weirs are shown in Figure 7-99 and Figure 7-100. The corresponding data are provided in Table 7-19 and Table 7-20.

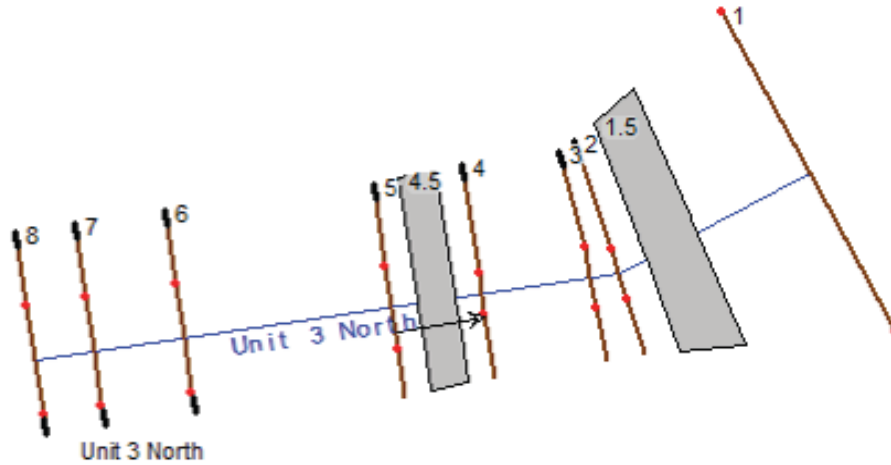
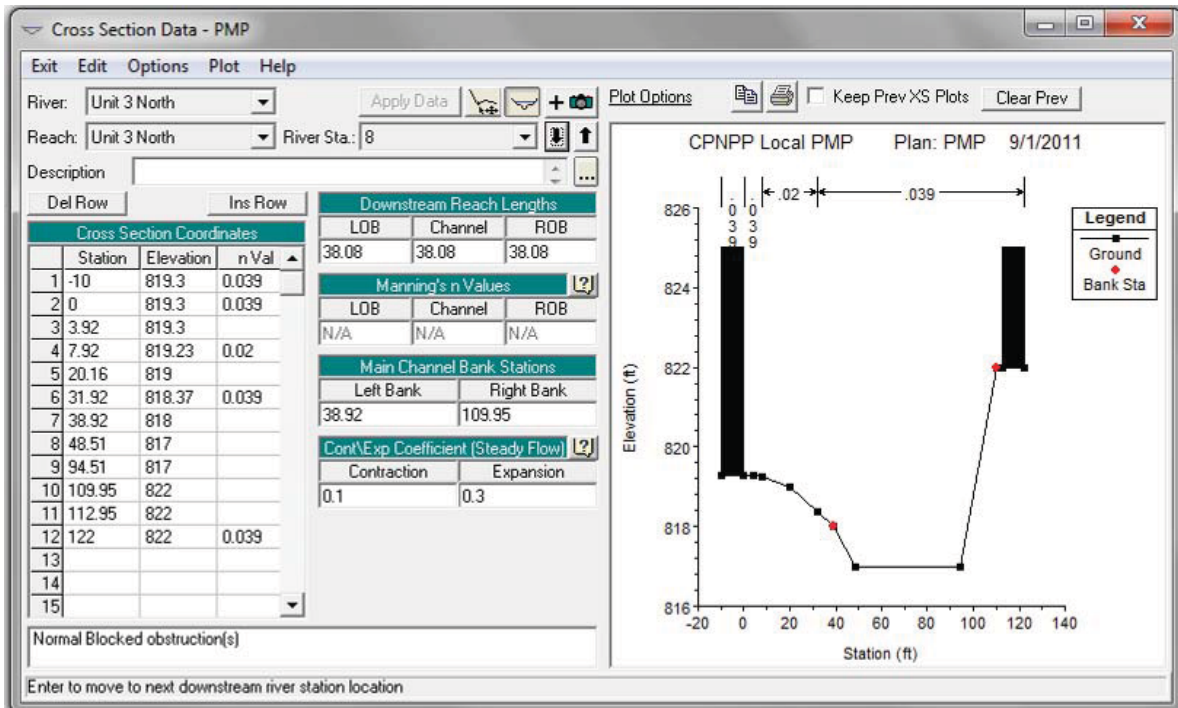
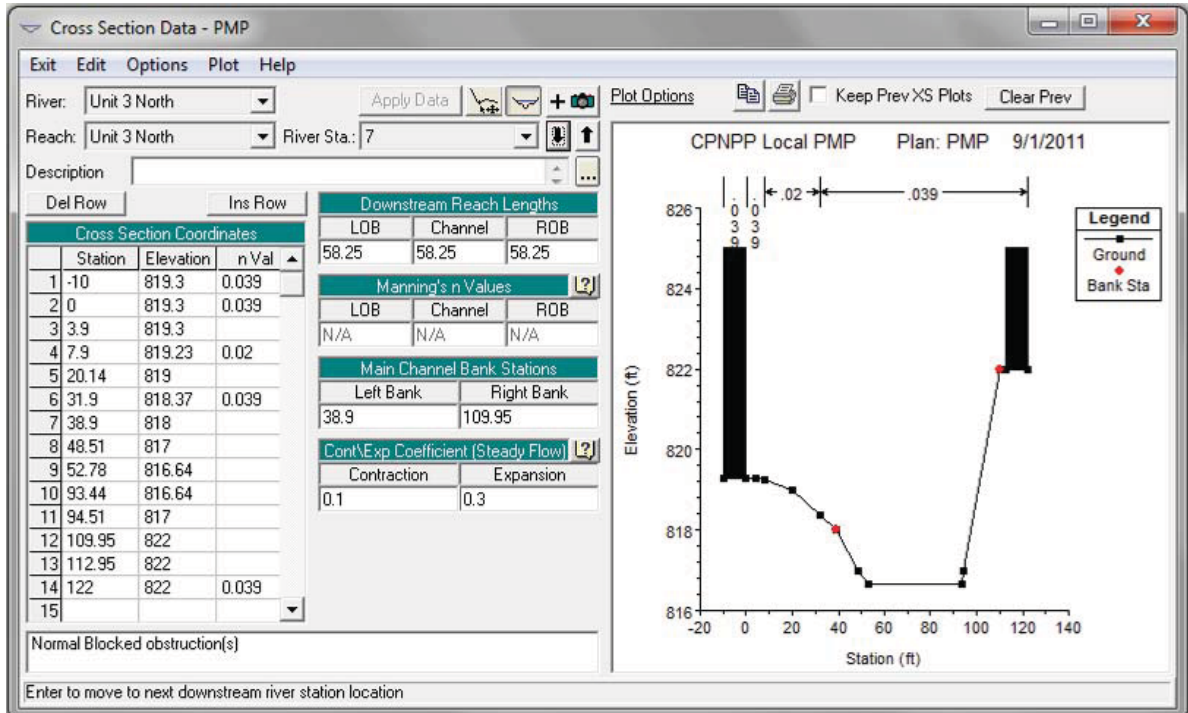


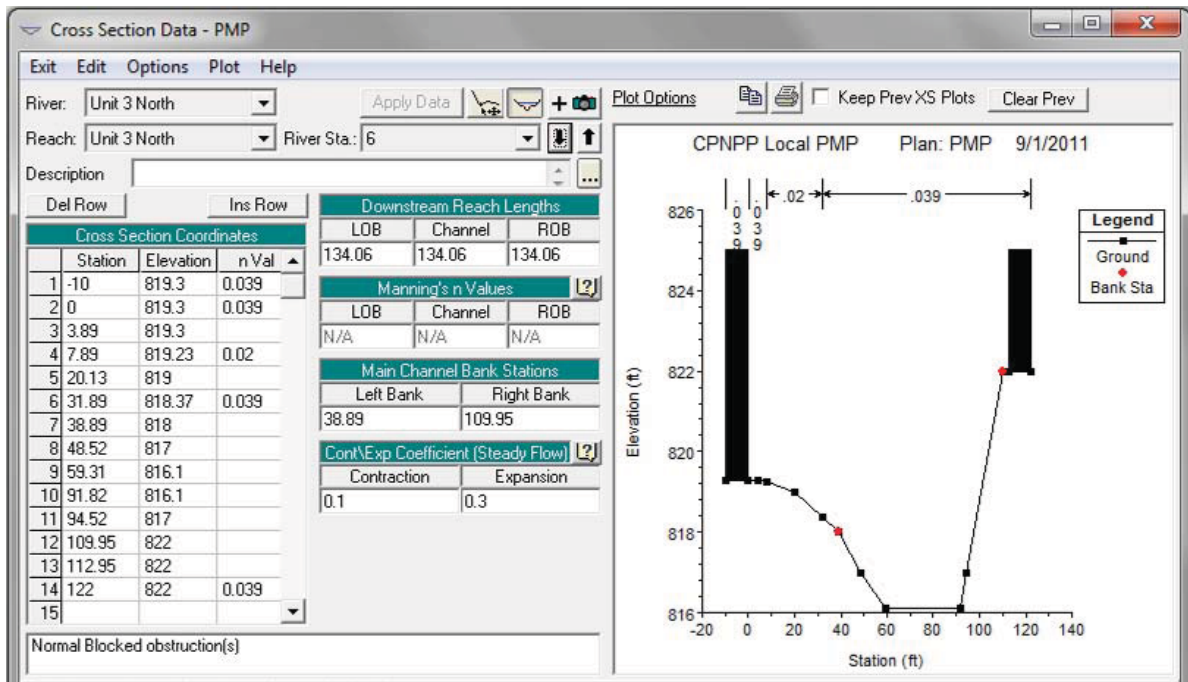
Figure 7-90. Unit 3 North Channel HEC-RAS Schematic



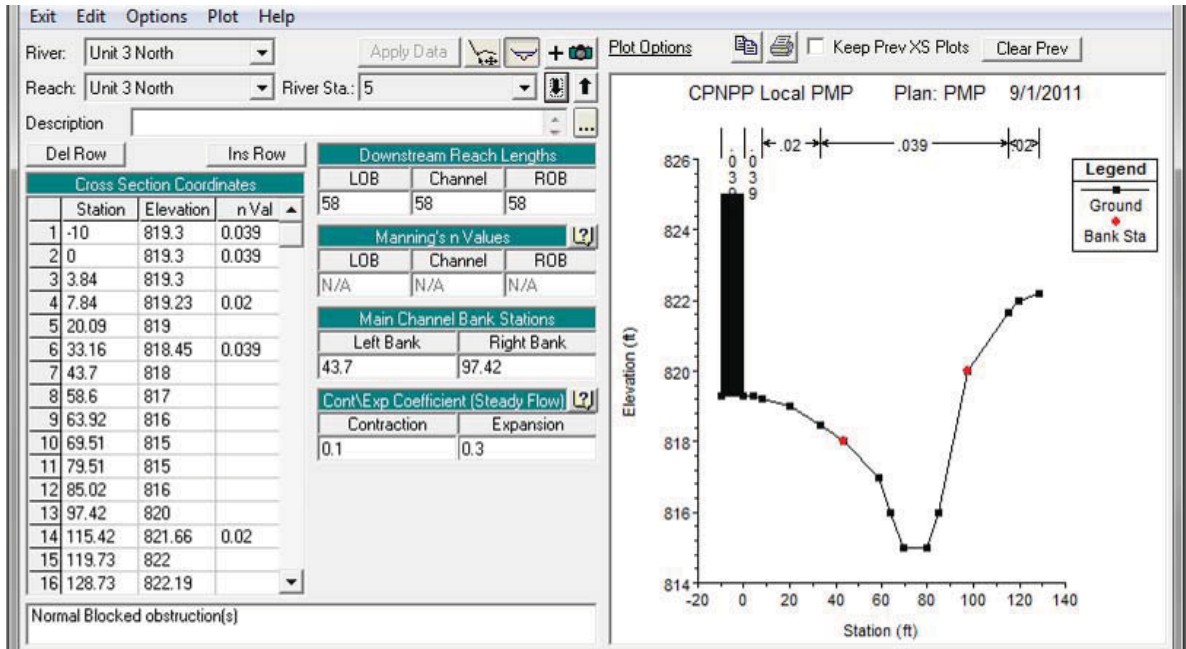
Obstructions: Station -10 to 0 and 112.95 to 122
 Figure 7-91. Unit 3 North Channel Cross Section 8



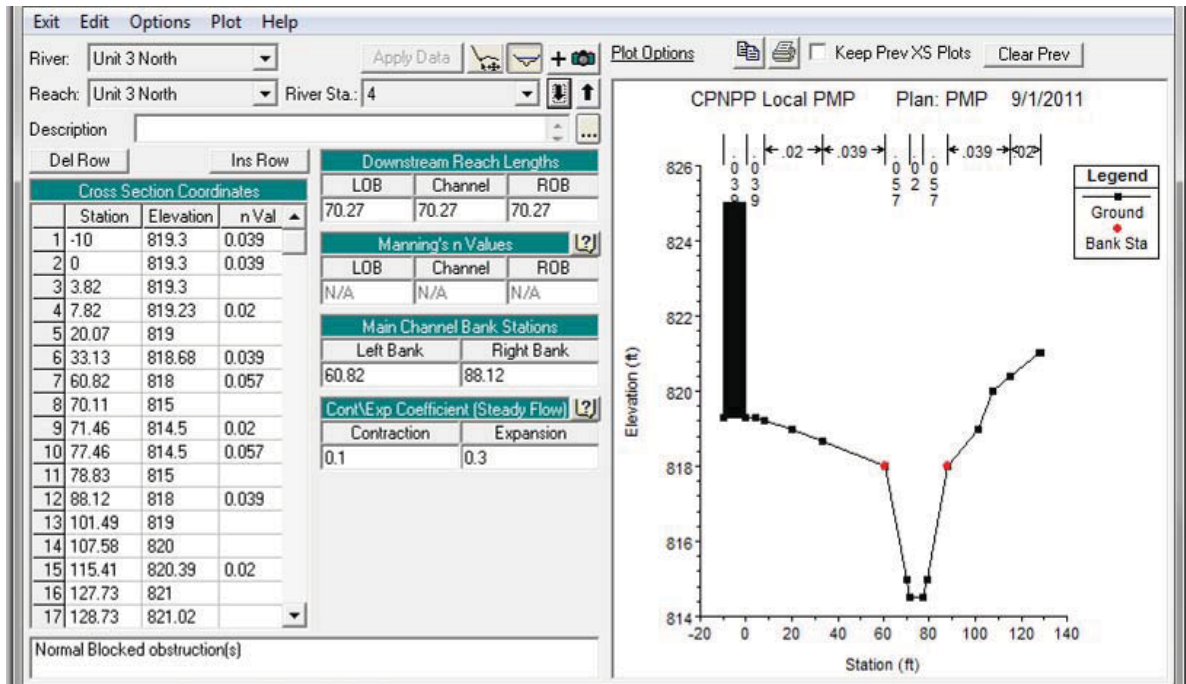
Obstructions: Station -10 to 0 and 112.95 to 122
Figure 7-92. Unit 3 North Channel Cross Section 7



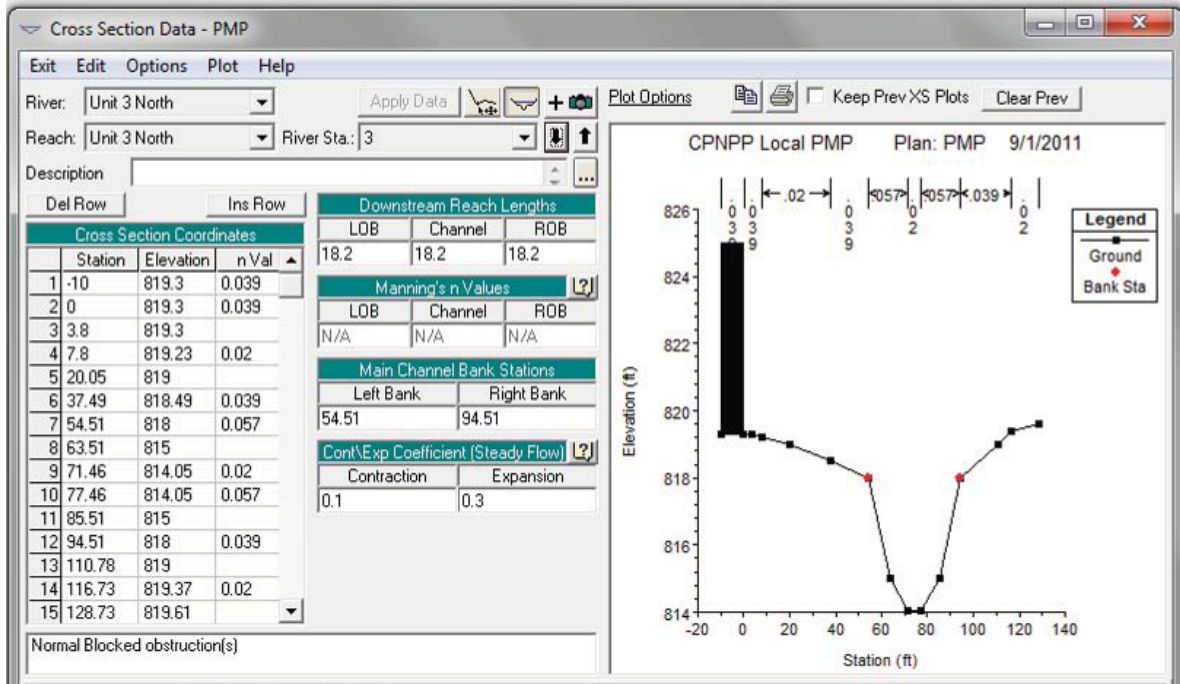
Obstructions: Station -10 to 0 and 112.95 to 122
Figure 7-93. Unit 3 North Channel Cross Section 6



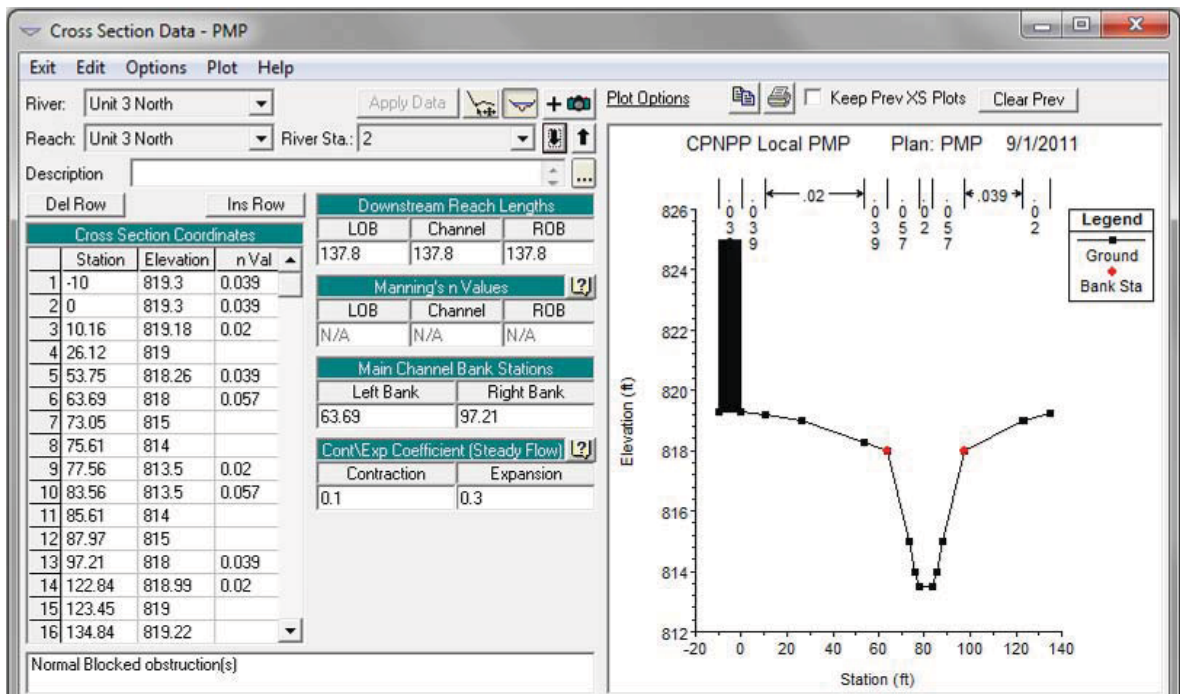
Obstructions: Station -10 to 0
Figure 7-94. Unit 3 North Channel Cross Section 5



Obstructions: Station -10 to 0
Figure 7-95. Unit 3 North Channel Cross Section 4



Obstructions: Station -10 to 0
Figure 7-96. Unit 3 North Channel Cross Section 3



Obstructions: Station -10 to 0
Figure 7-97. Unit 3 North Channel Cross Section 2

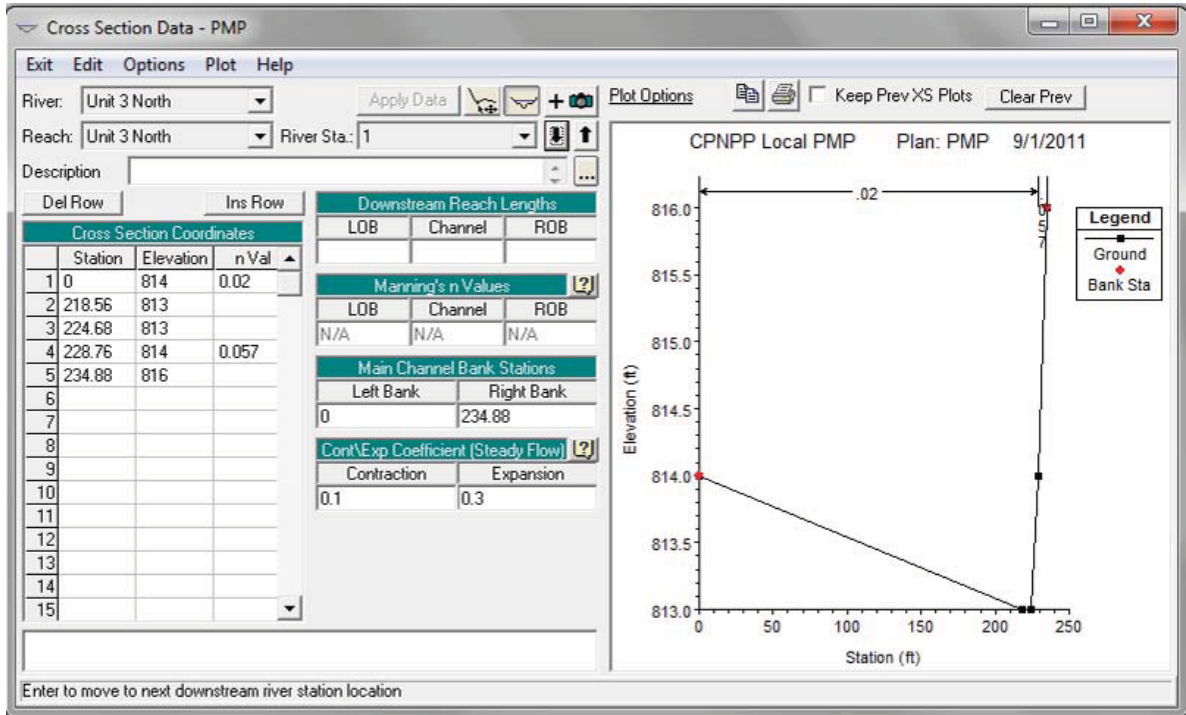


Figure 7-98. Unit 3 North Channel Cross Section 1

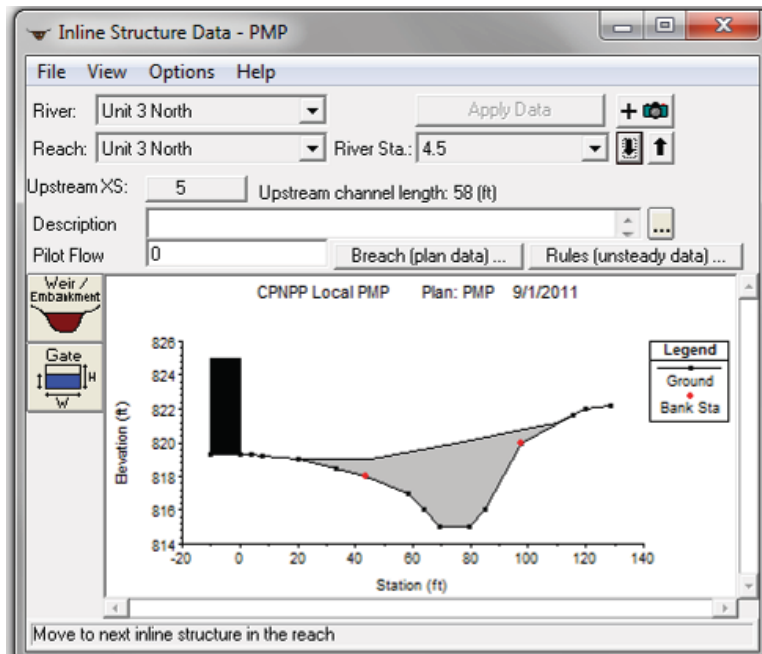


Figure 7-99. Unit 3 North Channel Inline Structure Weir Cross Section 4.5

Table 7-19. Unit 3 North Channel Inline Structure Weir Cross Section 4.5

Station (ft)	Elevation (ft)
0	819.3
3.83	819.3
20.08	819
45.13	819
74.53	820
103.93	821
128.78	821.6

Distance between upstream station and weir = 17 ft
 Weir width = 24 ft
 Weir coefficient = 2.6

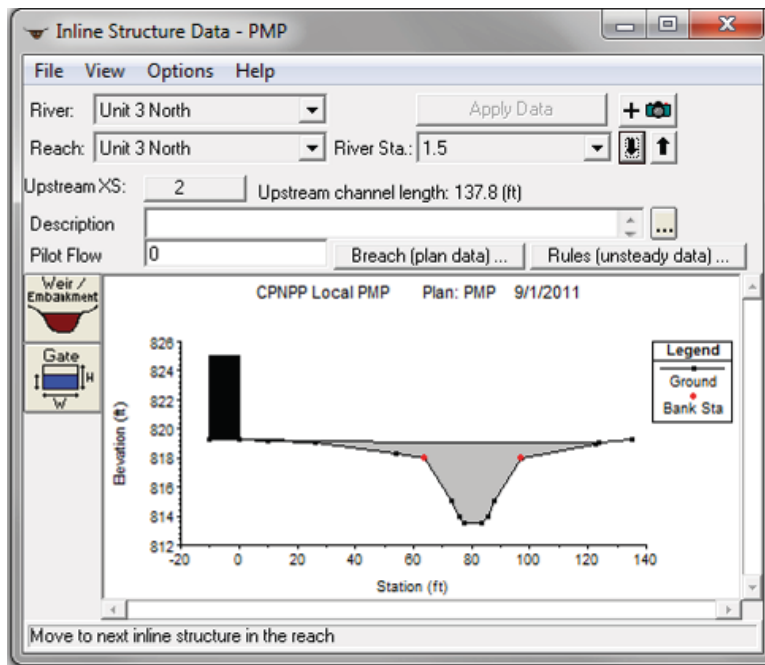


Figure 7-100. Unit 3 North Channel Inline Structure Weir Cross Section 1.5

Table 7-20. Unit 3 North Channel Inline Structure Weir Cross Section 1.5

Station (ft)	Elevation (ft)
0	819.3
61.47	819
170.17	819

Distance between upstream station and weir = 19.04 ft
 Weir width = 36.16 ft
 Weir coefficient = 2.6

Runoff from Drainage Area 25 could laterally overtop the plant loop road and enter Drainage Area 27 (Unit 3 UHS Channel). However, as a conservative approach for the Unit 3 North Channel analysis, it is assumed all runoff is directed downstream. Furthermore, the combined runoff from Drainage Areas 25 and 26 would overtop the loop road and enter both the Unit 3 UHS Channel and Drainage Pond B. However, as a conservative approach, it is assumed the combined runoff is

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directed into the Unit 3 UHS Channel, which has a higher downstream boundary condition. Runoff from Drainage Areas 25 and 26 are added to the model at Cross Section 8. Table 7-21 provides a summary of the runoff added to the Unit 3 North Channel model.

Table 7-21. Unit 3 North Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
8	164	25	125
		26	39

The upstream Cross Section 8 is assigned a critical depth boundary condition. Overtopping runoff enters the Unit 3 UHS Channel between Cross Sections 2 and 3 of that channel. The downstream Cross Section 1 is assigned the higher water surface elevation from the Unit 3 UHS Channel Cross Section 3. The preliminary result for the Unit 3 UHS Channel Cross Section 3 is 817.92 ft (see Section 7.6). The HEC-RAS model is run using the steady flow option with a mixed flow regime. Preliminary results are provided in Table 7-22.

Table 7-22. Unit 3 North Channel Preliminary Results

Cross Section	Q (cfs)	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
8	164.00	820.14	817.71	820.14	0.000087	0.71	234.74	104.20	0.07
7	164.00	820.13		820.14	0.000070	0.67	250.13	104.19	0.07
6	164.00	820.13		820.14	0.000055	0.63	269.59	104.18	0.06
5	164.00	820.12	816.52	820.13	0.000066	0.70	244.39	98.74	0.07
4.5	Inline Structure								
4	164.00	819.68		819.69	0.000236	1.07	178.43	105.61	0.10
3	164.00	819.67		819.68	0.000101	0.74	247.46	128.73	0.06
2	164.00	819.67	815.49	819.68	0.000108	0.77	239.43	134.84	0.07
1.5	Inline Structure								
1	164.00	817.92	813.64	817.92	0.000001	0.16	1032.05	234.88	0.01

Preliminary results identify the overtopping water surface elevation at the intermediate weir is 820.12 ft (Cross Section 5). The overtopping water surface elevation at the downstream plant loop road weir is 819.67 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 820.14 ft at the most upstream cross section (Cross Section 8). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. All Froude numbers are less than one, indicating there is no supercritical flow in the channel. Additionally, there are no indications of hydraulic jumps in the channel.

Warnings indicate there may be a need for additional cross sections between Cross Sections 3 and 4. HEC-RAS interpolation with 50 ft maximum spacing is used to generate one new cross section between Cross Sections 3 and 4. The downstream boundary condition, established by the final results of the Unit 3 UHS Channel, remains unchanged. The model is re-run and the warnings are eliminated. Table 7-23 provides the final results.



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Table 7-23. Unit 3 North Channel Final Results

Cross Section	Q (cfs)	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
8	164.00	820.14	817.71	820.14	0.000087	0.71	234.74	104.20	0.07
7	164.00	820.13		820.14	0.000070	0.67	250.13	104.19	0.07
6	164.00	820.13		820.14	0.000055	0.63	269.59	104.18	0.06
5	164.00	820.12	816.52	820.13	0.000066	0.70	244.39	98.74	0.07
4.5	Inline Structure								
4	164.00	819.68		819.69	0.000236	1.07	178.52	105.61	0.10
3	164.00	819.67		819.68	0.000101	0.74	247.46	128.73	0.06
2	164.00	819.67	815.49	819.68	0.000108	0.77	239.43	134.84	0.07
1.5	Inline Structure								
1	164.00	817.92	813.64	817.92	0.000001	0.16	1032.05	234.88	0.01

The final results are generally unchanged from the preliminary results. The overtopping water surface elevation at the intermediate weir remains 820.12 ft (Cross Section 5). The overtopping water surface elevation at the downstream plant loop road weir remains 819.67 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 820.14 ft at the most upstream cross section (Cross Section 8). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. All Froude numbers are less than one, indicating there is no supercritical flow in the channel. Additionally, there are no indications of hydraulic jumps in the channel. The channel flow profile is provided in Figure 7-101.

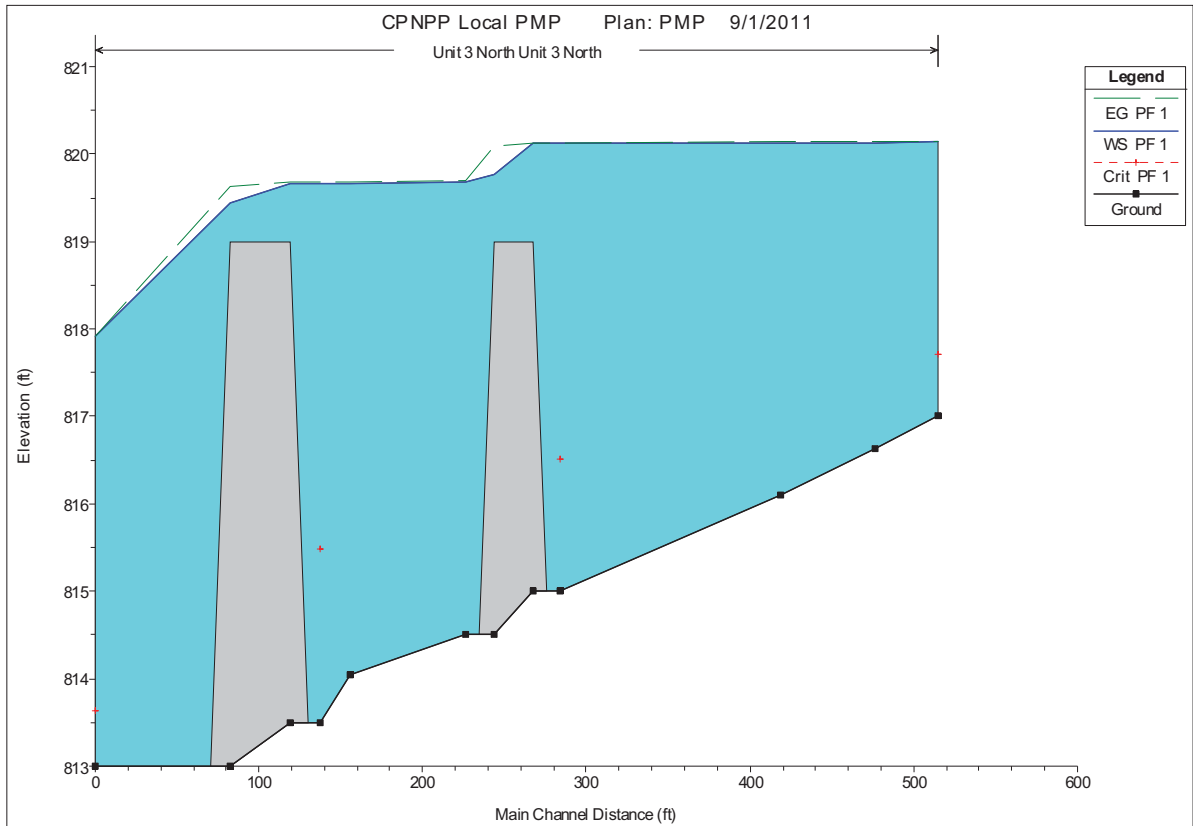


Figure 7-101. Unit 3 North Channel Flow Profile

7.8 Center North Channel

The Center North Channel runs generally north in two branches between Units 3 and 4 to a culvert structure at the plant loop road, as shown in Figure 7-102. Assuming the culvert is non-functional, runoff will overtop the plant loop road and enter the Unit 3 UHS Channel and the Unit 4 UHS Channel. The main channel, running adjacent to Unit 3, is modeled using 13 cross sections and is divided into an upper reach and lower reach with a junction between Cross Sections 4 and 5. The branch, running adjacent to Unit 4, is modeled using four cross sections and connects to the main channel at the junction. The Center North Channel captures runoff from Drainage Areas 1 through 7. Runoff from Drainage Area 21 (Unit 4 North Channel) also contributes to the Center North Channel.

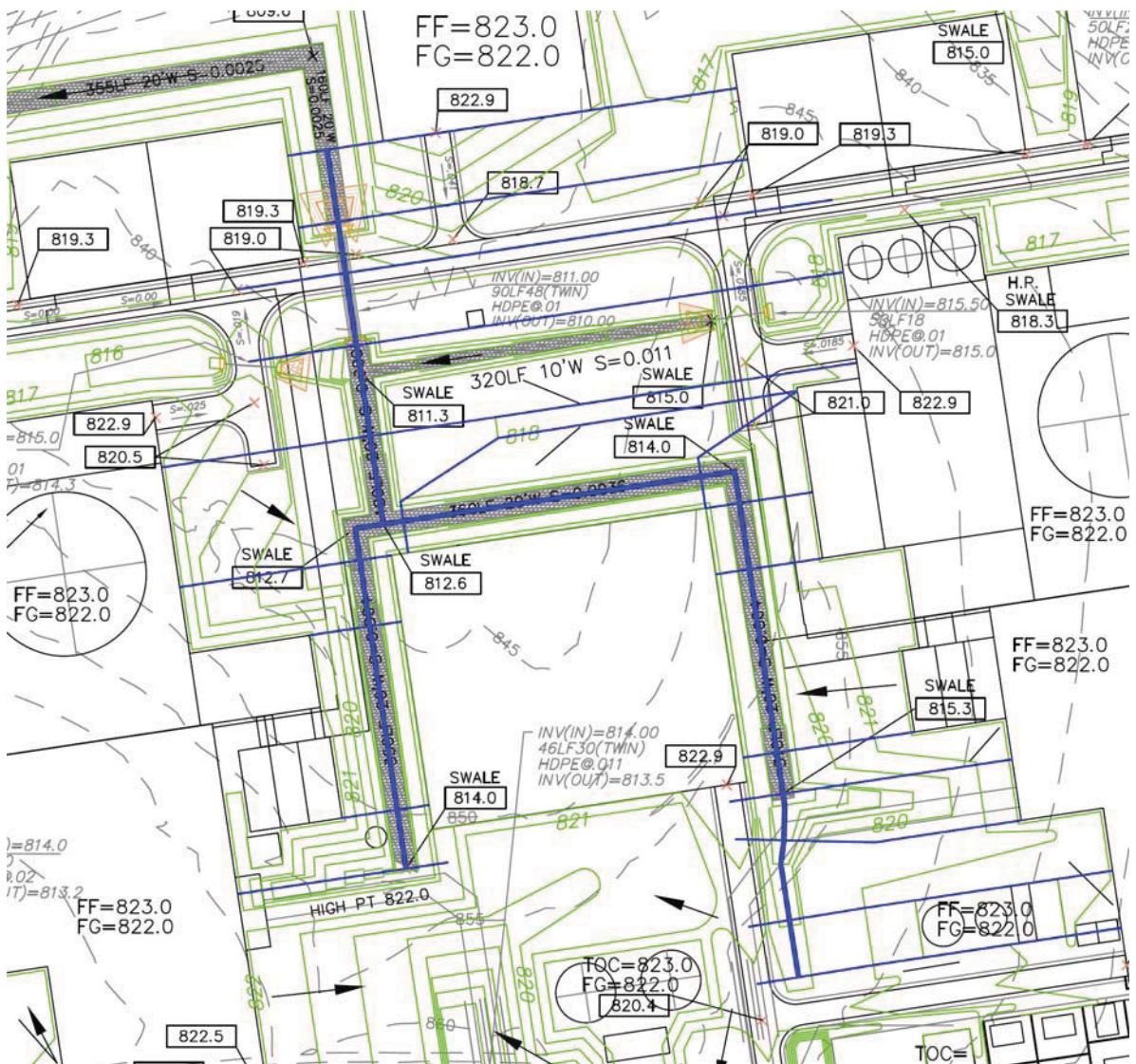


Figure 7-102. Center North Channel Cross Sections (Source: URS 2011b and 2011d)

The Center North Channel HEC-RAS schematic is shown in Figure 7-103. The Center North Channel cross section data are shown in Figure 7-104 through Figure 7-120. The inline structure weir is shown in Figure 7-121 and the corresponding data is provided in Table 7-24.

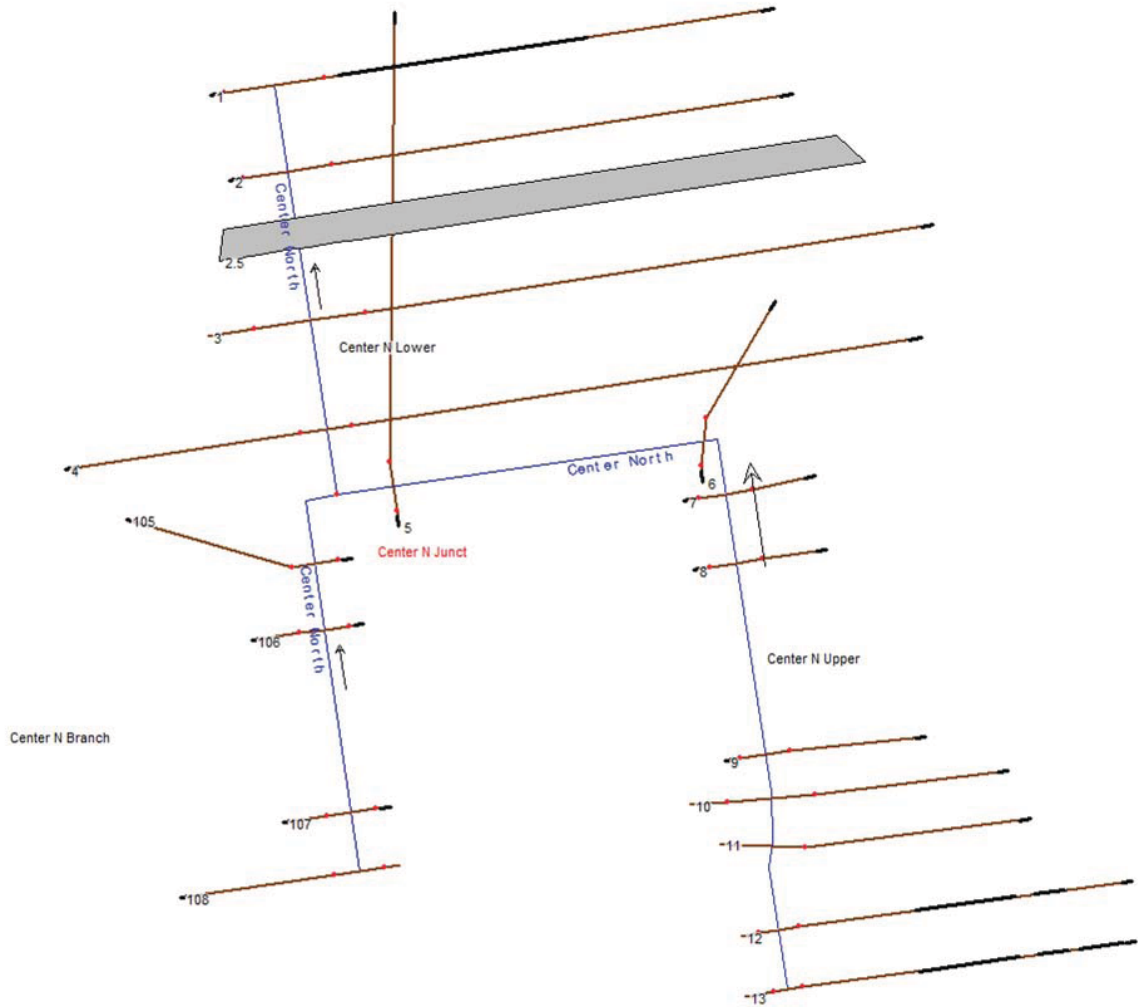
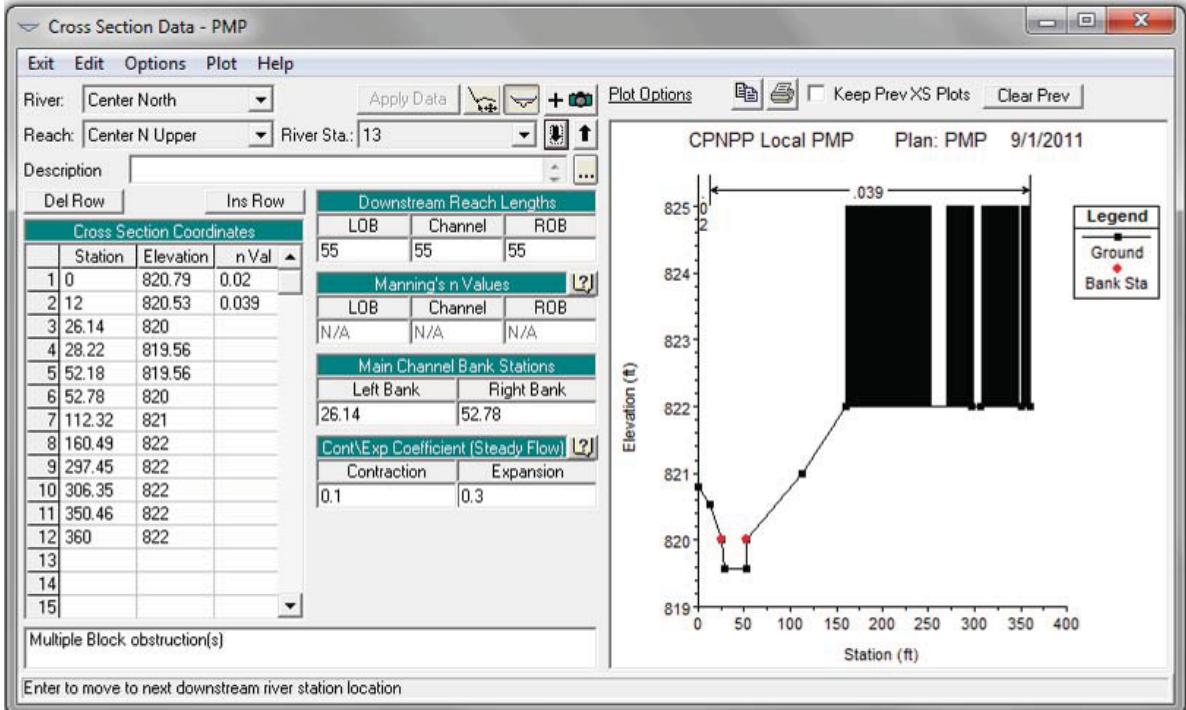
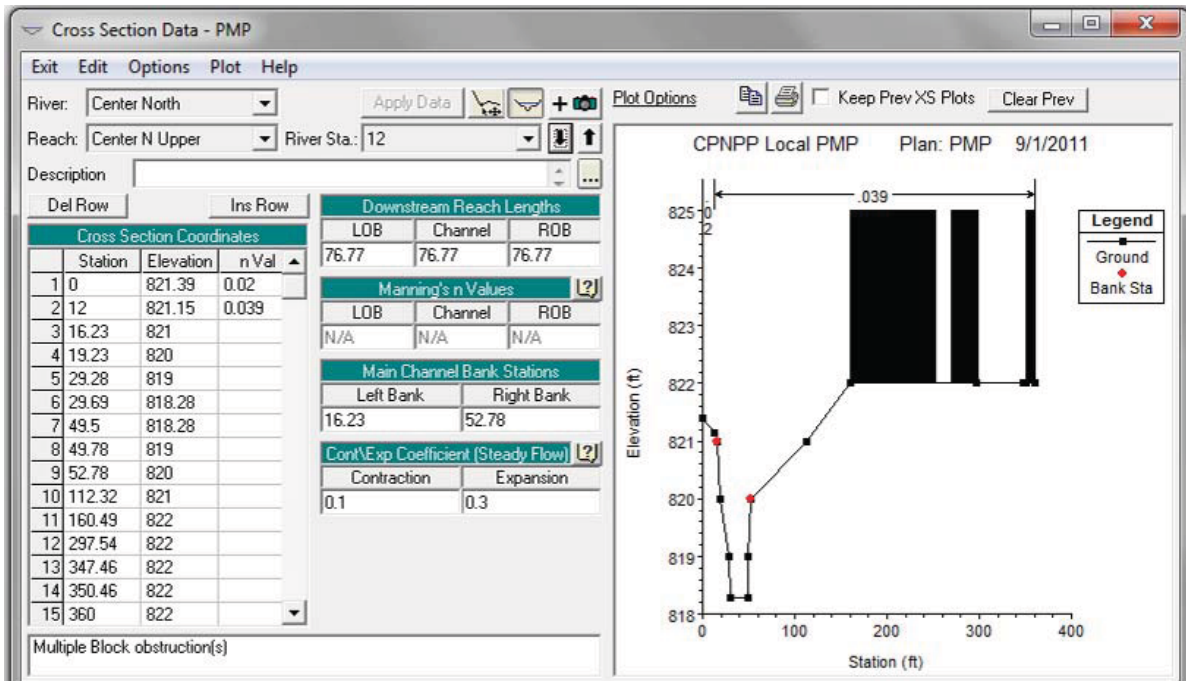


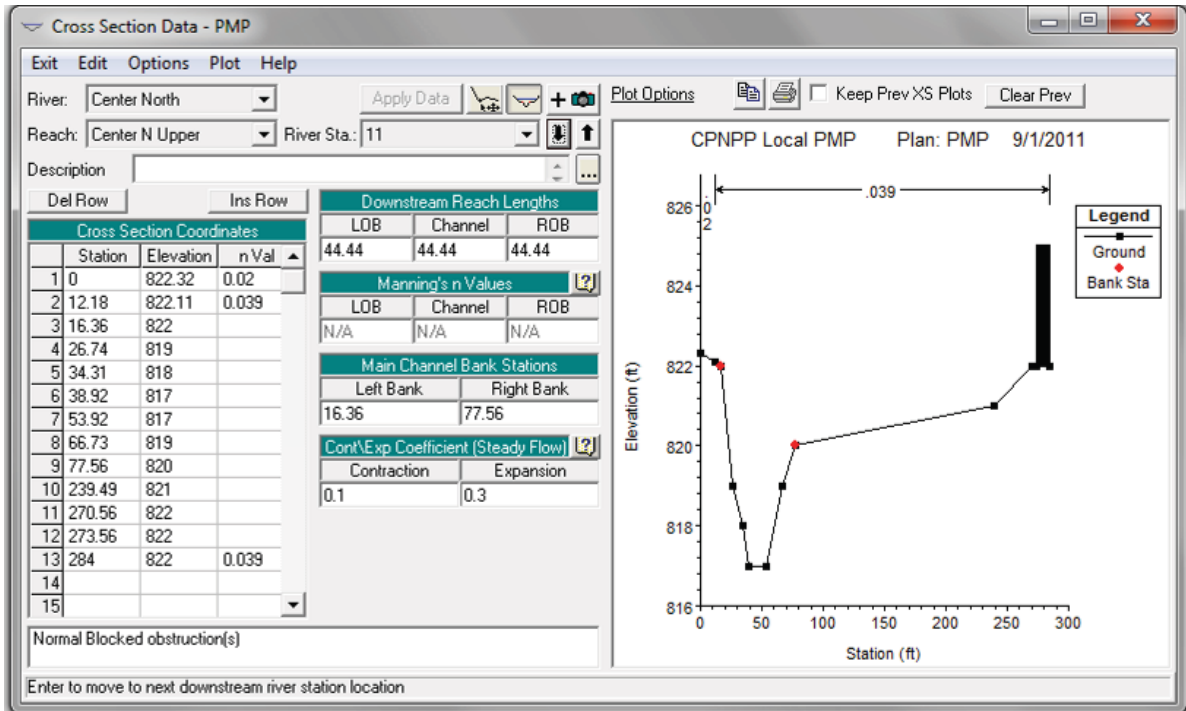
Figure 7-103. Center North Channel HEC-RAS Schematic



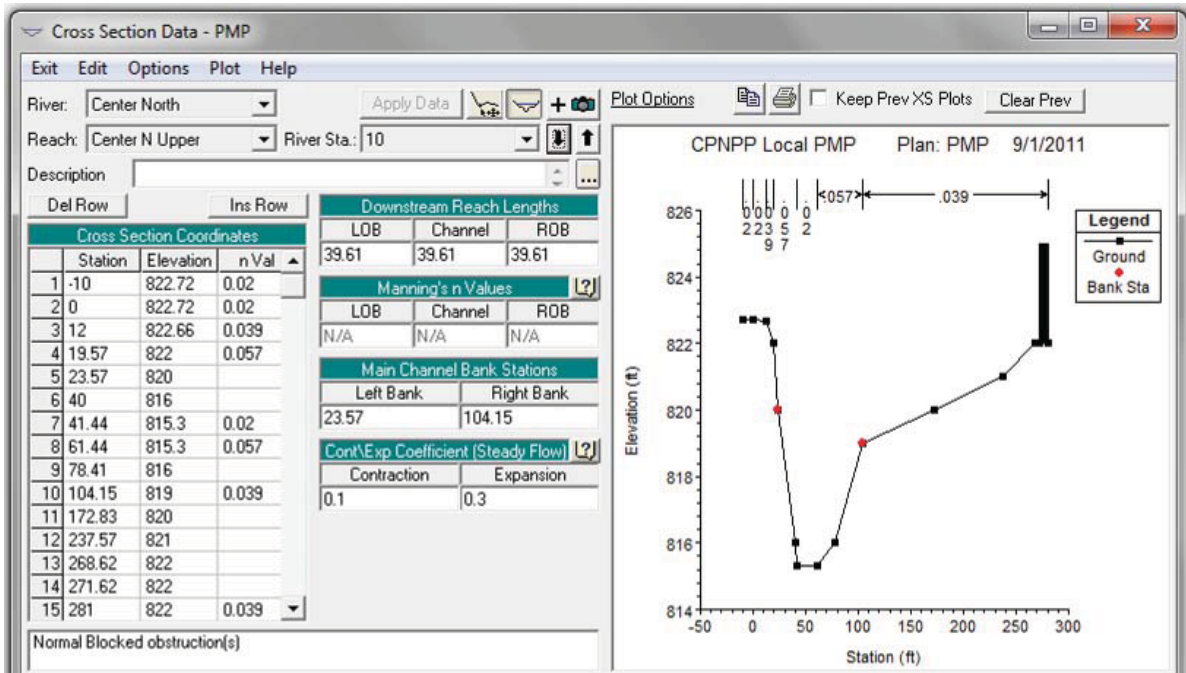
Obstructions: Station 160.49 to 252.49; 269.62 to 297.62; 307.54 to 347.54; and 350.46 to 360 Figure 7-104. Center North Upper Channel Cross Section 13



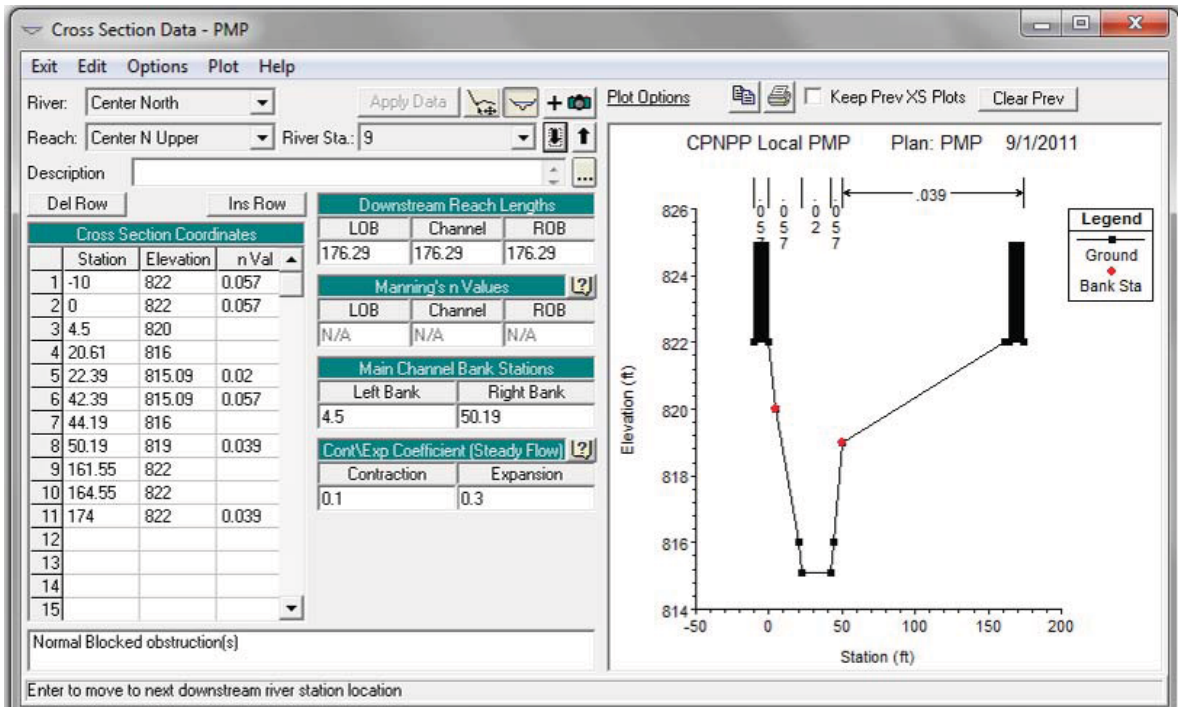
Obstructions: Station 160.49 to 252.49; 269.62 to 297.62; and 350.46 to 360 Figure 7-105. Center North Upper Channel Cross Section 12



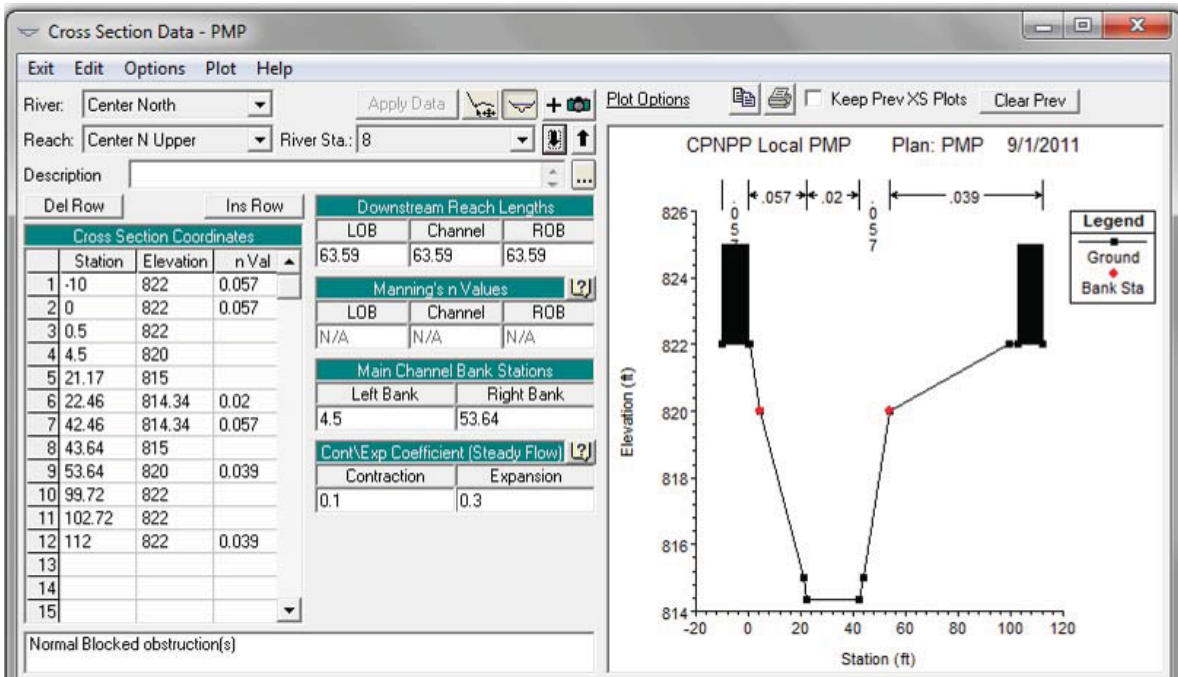
Obstructions: Station 273.56 to 284
Figure 7-106. Center North Upper Channel Cross Section 11



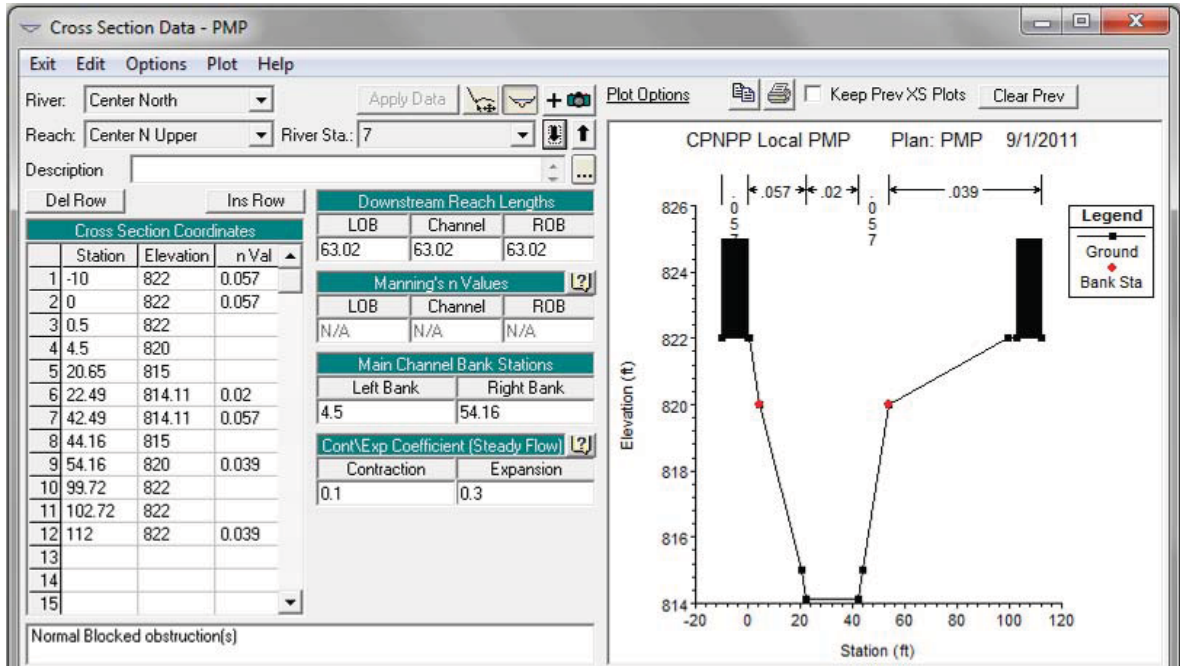
Obstructions: Station 271.62 to 281
Figure 7-107. Center North Upper Channel Cross Section 10



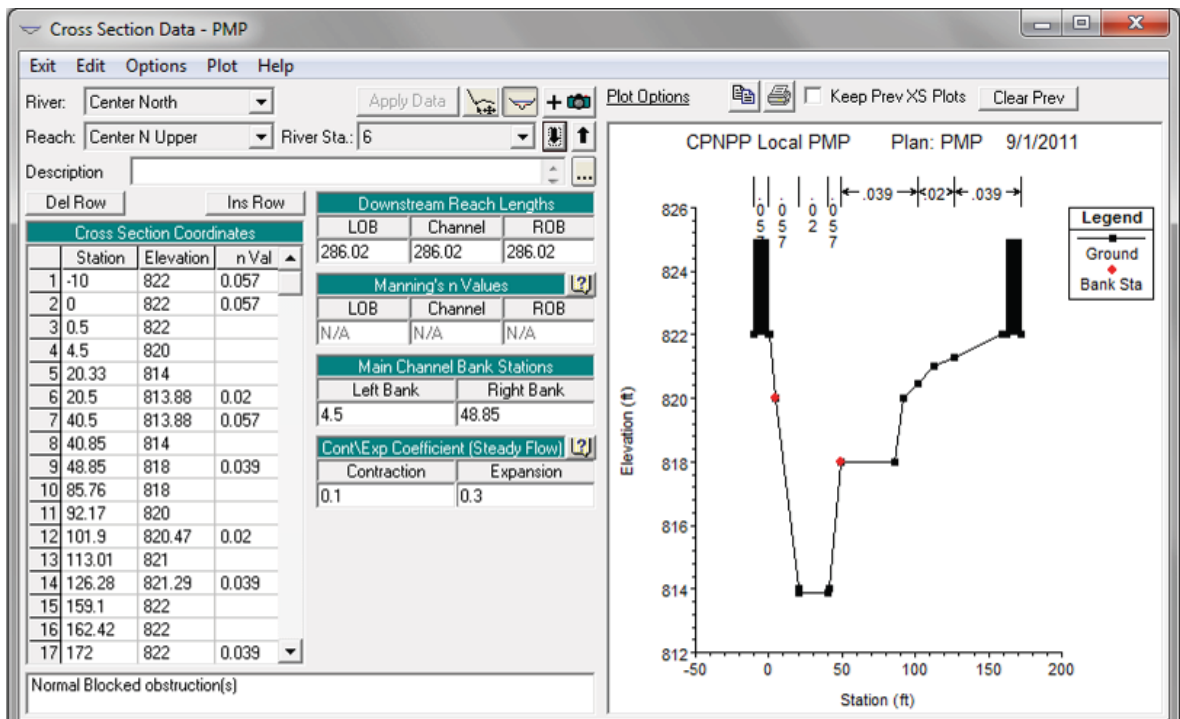
Obstructions: Station -10 to 0 and 164.55 to 174
Figure 7-108. Center North Upper Channel Cross Section 9



Obstructions: Station -10 to 0 and 102.72 to 112
Figure 7-109. Center North Upper Channel Cross Section 8



Obstructions: Station -10 to 0 and 102.72 to 112
Figure 7-110. Center North Upper Channel Cross Section 7



Obstructions: Station -10 to 0 and 162.42 to 172
Figure 7-111. Center North Upper Channel Cross Section 6

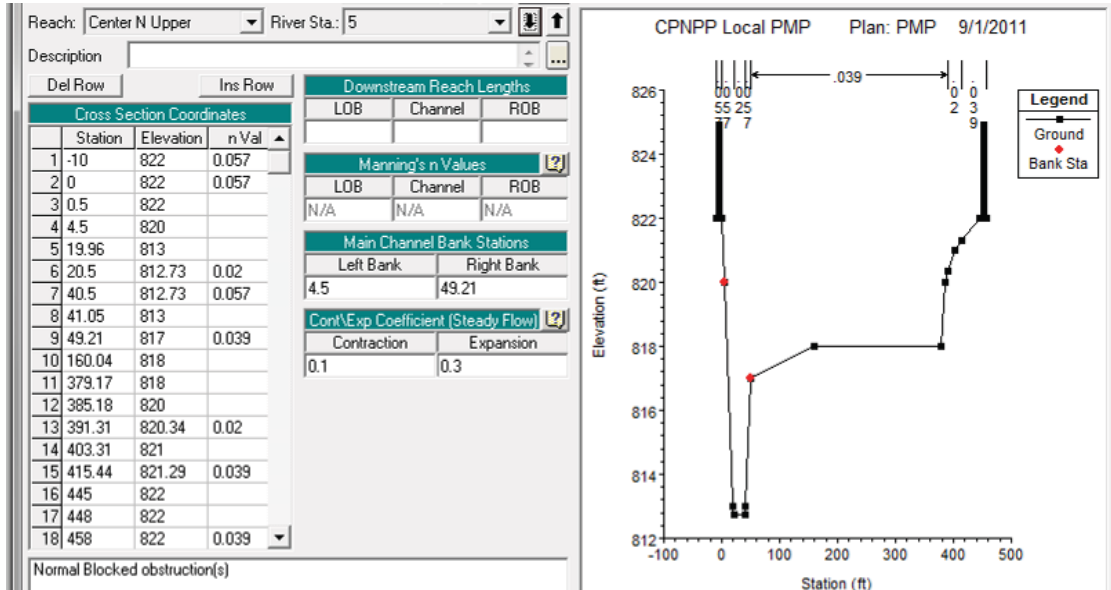


Figure 7-112. Center North Upper Channel Cross Section 5

The distance across the junction between Cross Section 5 of the upper channel and Cross Section 4 of the lower channel is 104.11 ft.

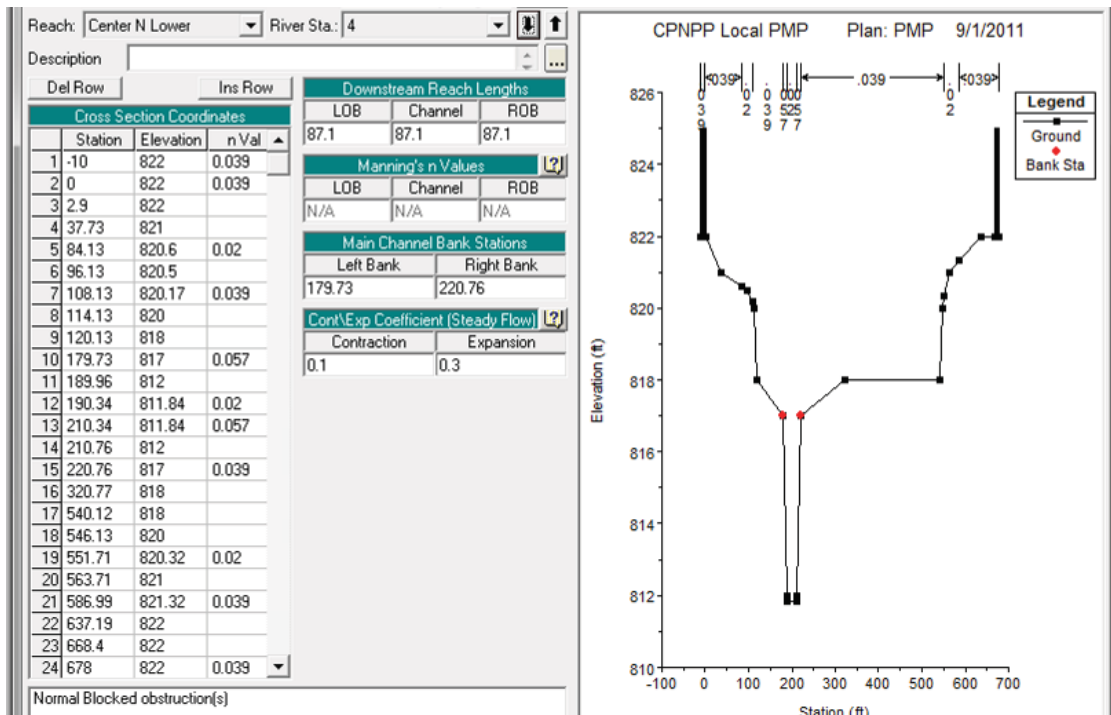
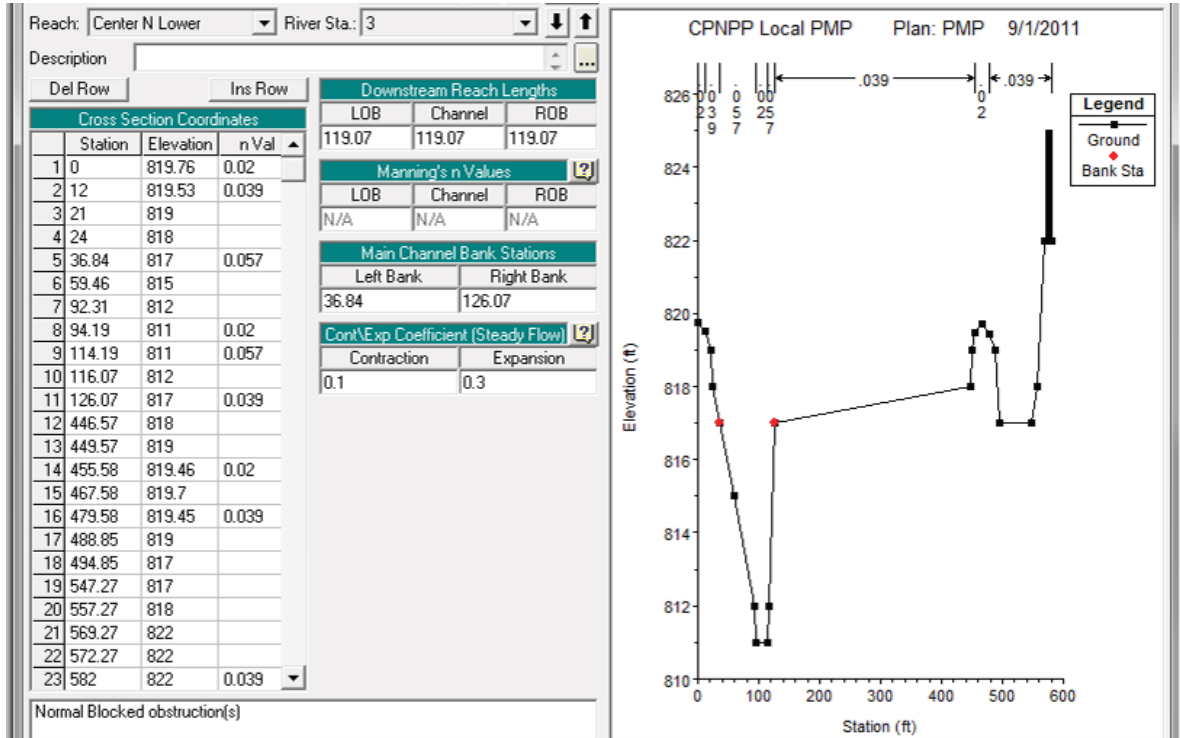
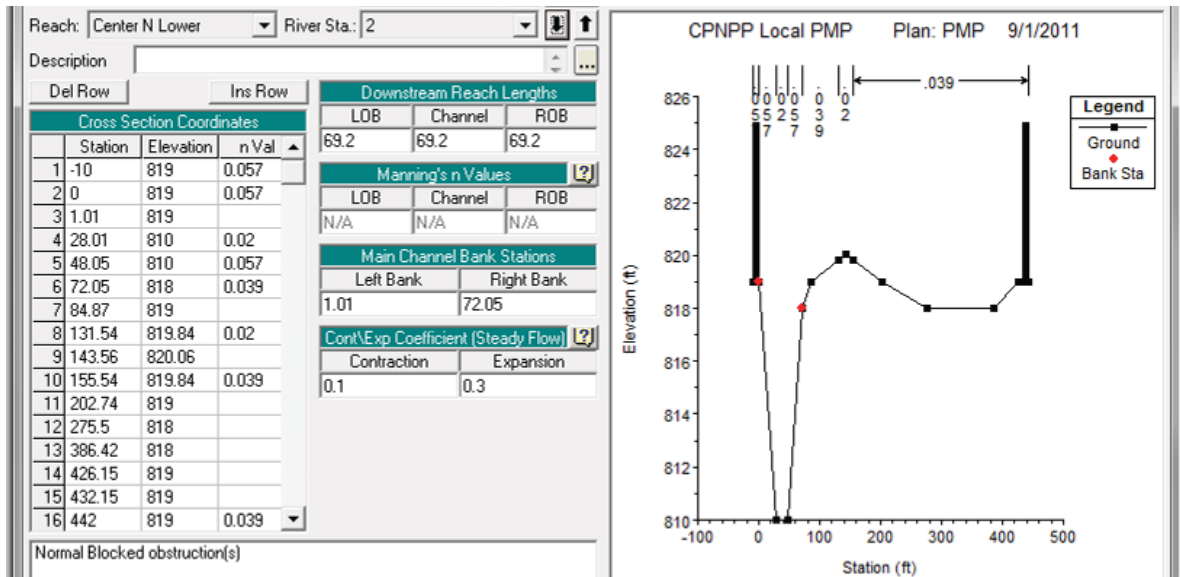


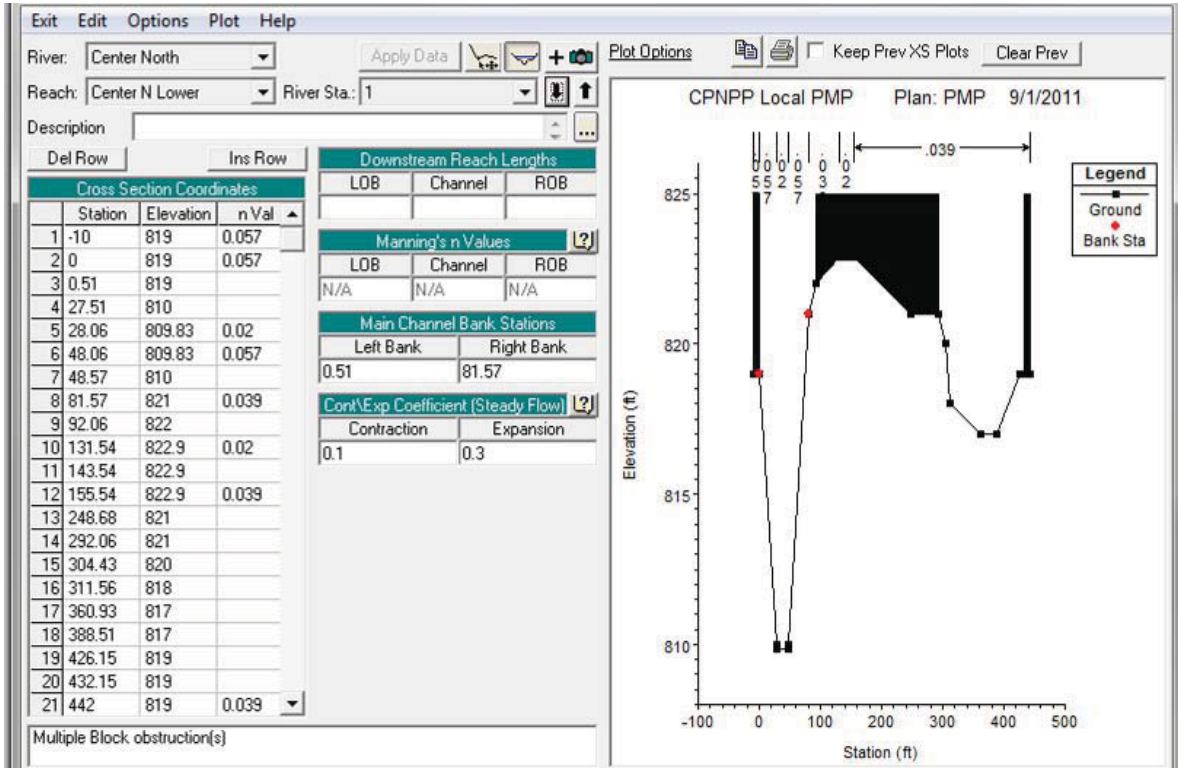
Figure 7-113. Center North Lower Channel Cross Section 4



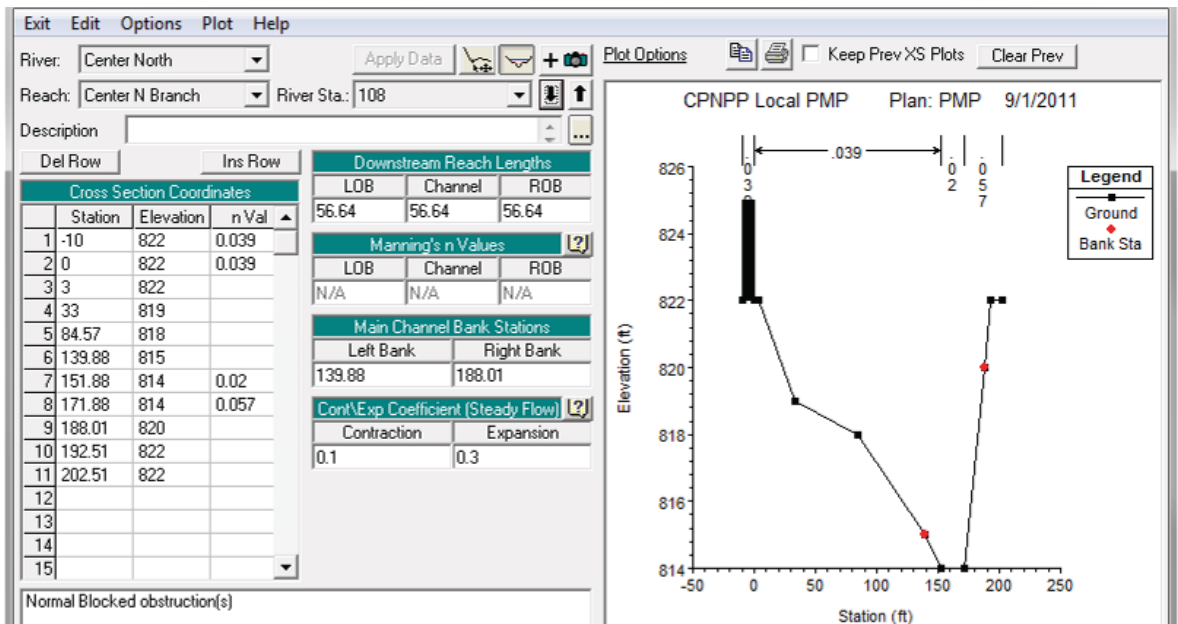
Obstructions: Station 572.27 to 582
Figure 7-114. Center North Lower Channel Cross Section 3



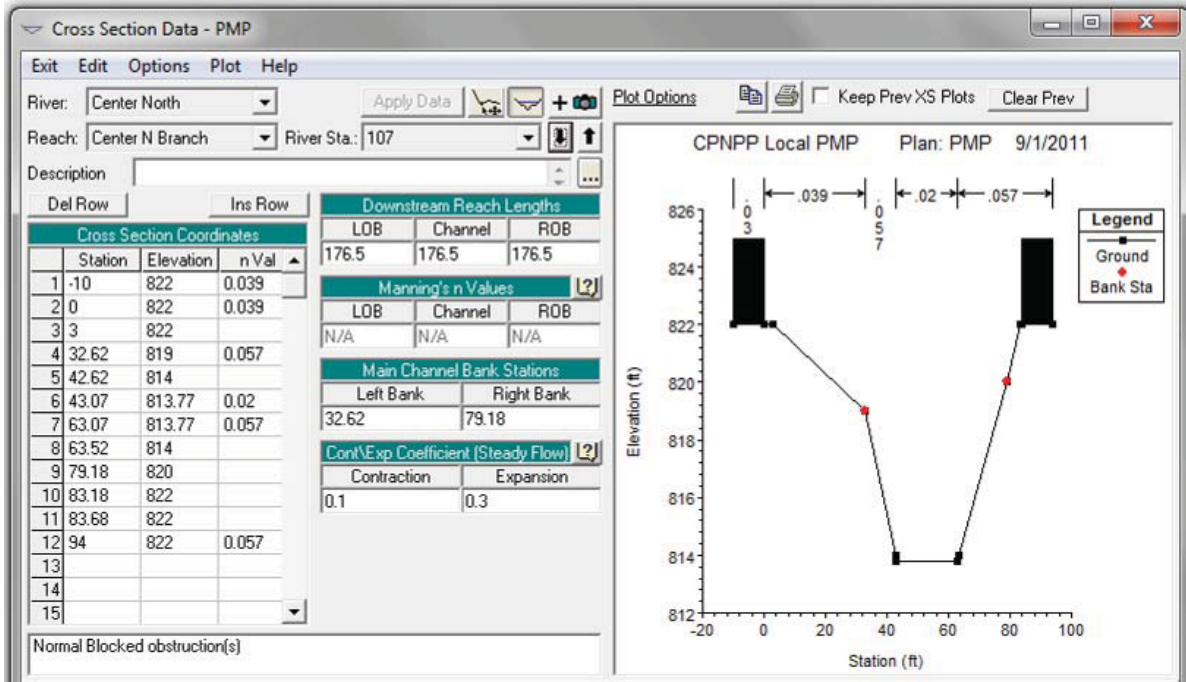
Obstructions: Station -10 to 0 and 432.15 to 442
Figure 7-115. Center North Lower Channel Cross Section 2



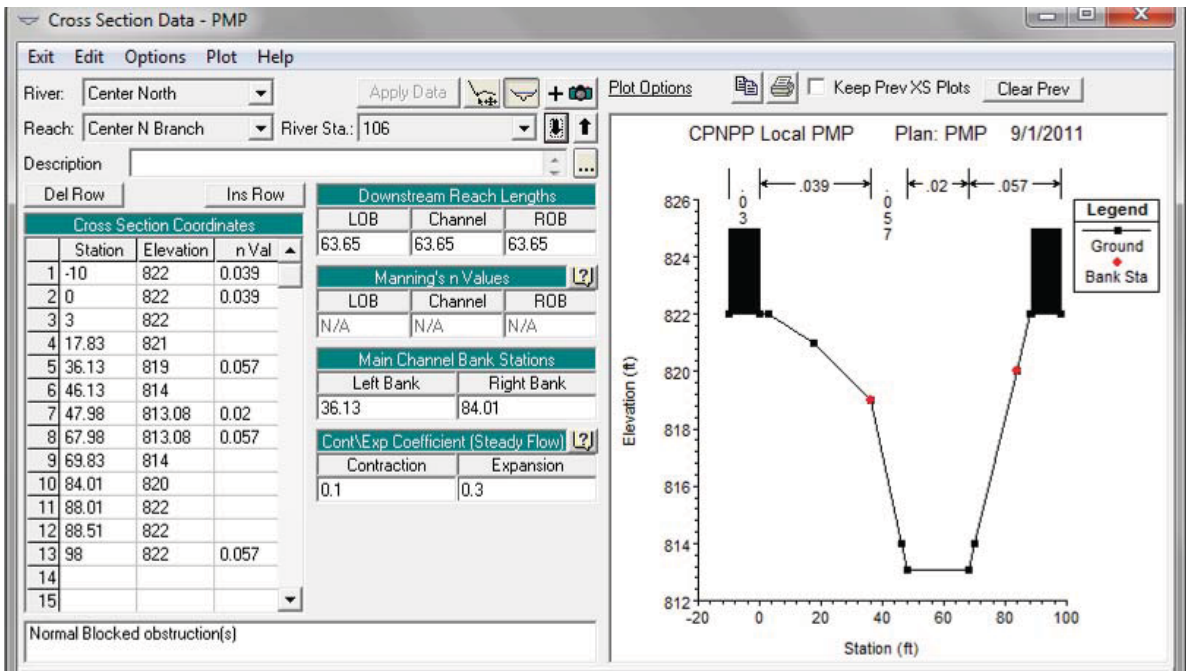
Obstructions: Station -10 to 0; 92.06 to 292.06; and 432.15 to 442
Figure 7-116. Center North Lower Channel Cross Section 1



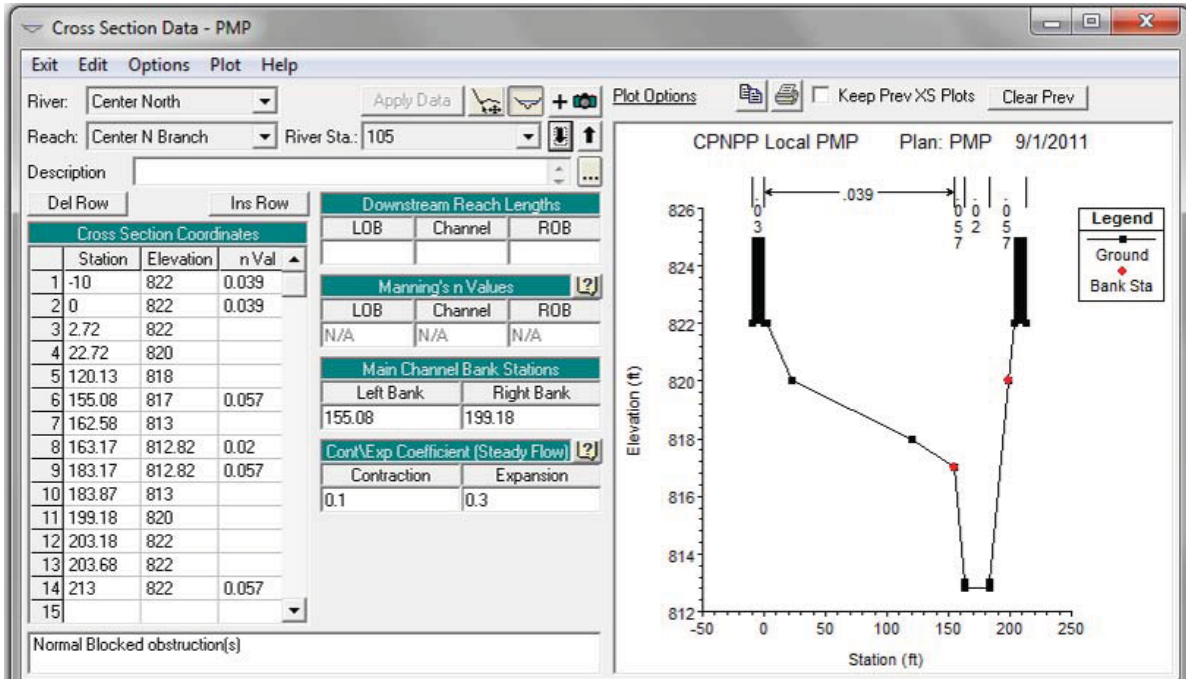
Obstructions: Station -10 to 0
Figure 7-117. Center North Branch Channel Cross Section 108



Obstructions: Station -10 to 0 and 83.68 to 94
Figure 7-118. Center North Branch Channel Cross Section 107



Obstructions: Station -10 to 0 and 88.51 to 98
Figure 7-119. Center North Branch Channel Cross Section 106



Obstructions: Station -10 to 0 and 203.68 to 213
Figure 7-120. Center North Branch Channel Cross Section 105

The distance across the junction between Cross Section 105 of the branch channel and Cross Section 4 of the lower channel is 142.47 ft.

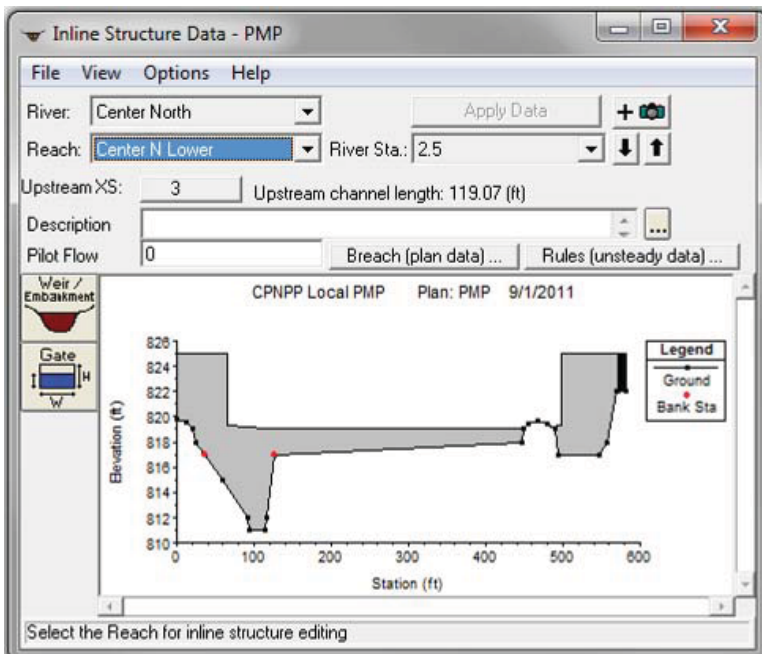


Figure 7-121. Center North Channel Inline Structure Weir Cross Section 2.5

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Table 7-24. Center North Channel Inline Structure Weir Cross Section 2.5

Station (ft)	Elevation (ft)
0	825
66.21	825
66.21	819.3
116.21	819
448.35	819
498.36	819.3
498.36	825
572.27	825

Distance between upstream station and weir = 57.81 ft

Weir width = 24 ft

Weir coefficient = 2.6

Runoff from Drainage Area 21 (Unit 4 North Channel) could contribute to runoff from Drainage Areas 1 through 7 (Center North Channel) and spill into Drainage Area 22 (Unit 4 UHS Channel). As a conservative approach for the Center North Channel analysis, it is assumed that the total runoff from Drainage Area 21 (Unit 4 North Channel) enters the Center North Channel.

Runoff from Drainage Area 1 is added to the model at the upstream end of the upper channel, Cross Section 13. Runoff from Drainage Areas 2 and 3 is added to the model at Cross Section 10. Runoff from Drainage Area 4 is added to the model at Cross Section 6. Runoff from Drainage Area 5 is added to the model at the upstream of the branch, Cross Section 108. The total runoff applied at Cross Section 4 just downstream of the junction is the combined runoff from the upper channel and the branch channel, and the runoff from Drainage Areas 6 and 7. Runoff from Drainage Area 21 (Unit 4 North Channel) is added to the model at Cross Section 3. Table 7-25 provides a summary of the runoff added to the Unit 3 UHS Channel model.

Table 7-25. Center North Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
13	52	1	52
		upstream contribution	52
10	442	2	157
		3	233
6	538	upstream contribution	442
		4	96
108	257	5	257
		upstream contribution	538
4	1033	upstream contribution	257
		6	183
		7	55
3	1168	upstream contribution	1033
		21	135

The upstream Cross Sections 13 and 108 are assigned a critical depth boundary condition. The downstream Cross Section 1 is subject to the water surface elevations in the Unit 3 UHS Channel and the Unit 4 UHS Channel. As a conservative approach the higher of the water surface elevations is used. The upstream cross section of the Unit 3 UHS Channel provides the highest preliminary result of 819.54 ft for the downstream boundary condition (see Section 7.6). The HEC-RAS model is

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run using the steady flow option with a mixed flow regime. Preliminary results are provided in Table 7-26.

Table 7-26. Center North Channel Preliminary Results

Cross Section	Q (cfs)	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
108	257.00	820.14	815.43	820.15	0.000030	0.60	533.69	166.73	0.05
107	257.00	820.12		820.14	0.000164	1.17	223.80	57.84	0.10
106	257.00	820.10		820.11	0.000120	1.04	250.01	58.11	0.08
105	257.00	820.10		820.11	0.000052	0.75	446.21	177.65	0.06
13	52.00	820.42	820.08	820.48	0.003717	2.05	29.87	62.78	0.40
12	52.00	820.41		820.42	0.000324	0.92	60.47	59.11	0.13
11	52.00	820.41		820.41	0.000041	0.41	136.68	121.92	0.05
10	442.00	820.37		820.40	0.000350	1.35	365.80	174.10	0.12
9	442.00	820.29		820.37	0.000854	2.39	205.43	94.16	0.22
8	442.00	820.16		820.23	0.000709	2.20	201.09	53.08	0.19
7	442.00	820.12		820.19	0.000643	2.12	208.33	52.59	0.18
6	538.00	820.09		820.15	0.000483	2.06	293.45	89.76	0.17
5	538.00	820.10		820.10	0.000051	0.75	1006.03	382.60	0.06
4	1033.00	820.07		820.09	0.000126	1.38	1162.95	435.92	0.09
3	1168.00	820.07	814.73	820.08	0.000074	0.87	1686.94	563.49	0.06
2.5	Inline Structure								
2	1168.00	819.56		819.61	0.000360	1.98	790.49	377.31	0.14
1	1168.00	819.54	813.70	819.59	0.000365	1.90	713.47	203.27	0.13

Preliminary results identify the overtopping water surface elevation at the downstream weir is 820.07 ft (Section 3). Backwater effects result in a maximum water surface elevation of 820.42 ft at the most upstream cross section of the main channel (Cross Section 13) and 820.14 ft at the most upstream cross section of the branch channel (Cross Section 108). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. The 820.07 ft water surface elevation result at Cross Section 3 establishes the downstream boundary condition for the Unit 4 North Channel. All Froude numbers are less than one, indicating there is no supercritical flow in the channel. Additionally, there are no indications of hydraulic jumps in the channel.

Warnings indicate there may be a need for additional cross sections between Cross Sections 3 and 4, 5 and 6, 9 and 10, 10 and 11, 11 and 12, and 12 and 13 of the main channel. In addition, warnings indicate there may be a need for additional cross sections between Cross Sections 105 and 106 and Cross Sections 107 and 108 of the branch channel.

HEC-RAS interpolation with 50 ft maximum spacing is used to generate one new cross section between Cross Sections 3 and 4, and five new cross sections between Cross Sections 5 and 6. Interpolation with 1 ft maximum spacing is used to generate 39 new cross sections between Cross Sections 9 and 10. Interpolation with 10 ft maximum spacing is used to generate four new cross sections between Cross Sections 10 and 11 and five new cross sections between Cross Sections 12 and 13. Interpolation with 25 ft maximum spacing is used to generate three new cross sections between Cross Sections 11 and 12.

HEC-RAS interpolation with 50 ft maximum spacing is used to generate one new cross section between Cross Sections 105 and 106 of the branch channel. Interpolation with 10 ft maximum

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spacing is used to generate five new cross sections between Cross Sections 107 and 108 of the branch channel.

The downstream boundary condition, established by the final results of the Unit 3 UHS Channel, is increased to 819.66 ft (see Section 7.6). The model is re-run and the warnings are eliminated. Table 7-27 provides the final results.

Table 7-27. Center North Channel Final Results

Cross Section	Q (cfs)	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
108	257.00	820.14	815.43	820.15	0.000030	0.60	534.27	166.78	0.05
107	257.00	820.12		820.14	0.000164	1.17	223.92	57.87	0.10
106	257.00	820.10		820.12	0.000120	1.04	250.12	58.14	0.08
105	257.00	820.10		820.11	0.000051	0.75	446.42	177.67	0.06
13	52.00	820.44	820.08	820.50	0.003276	1.97	31.50	64.97	0.37
12	52.00	820.41		820.43	0.000321	0.91	60.73	59.38	0.13
11	52.00	820.41		820.41	0.000041	0.41	136.86	122.17	0.05
10	442.00	820.38		820.41	0.000346	1.34	367.57	174.77	0.12
9	442.00	820.30		820.39	0.000839	2.37	206.99	94.81	0.21
8	442.00	820.18		820.25	0.000698	2.19	202.07	53.54	0.19
7	442.00	820.14		820.21	0.000634	2.11	209.34	53.06	0.18
6	538.00	820.11		820.17	0.000476	2.05	295.21	90.21	0.17
5	538.00	820.10		820.10	0.000051	0.75	1006.47	382.62	0.06
4	1033.00	820.08		820.09	0.000126	1.38	1163.46	435.98	0.09
3	1168.00	820.07	814.73	820.08	0.000074	0.87	1687.01	563.49	0.06
2.5	Inline Structure								
2	1168.00	819.68		819.73	0.000321	1.89	836.10	390.59	0.13
1	1168.00	819.66	813.70	819.70	0.000334	1.84	737.91	204.06	0.13

The overtopping water surface elevation at the downstream weir remains 820.07 ft (Cross Section 3). Backwater effects result in an increased maximum water surface elevation of 820.44 ft at the most upstream cross section of the main channel (Cross Section 13). The maximum water surface elevation at the most upstream cross section of the branch channel remains 820.14 ft (Cross Section 108). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. The water surface elevation result for Cross Section 3 remains 820.07 ft and establishes the downstream boundary condition for the Unit 4 North Channel. All Froude numbers are less than one, indicating there is no supercritical flow in the channel. Additionally, there are no indications of hydraulic jumps in the channel. The channel flow profile is provided in Figure 7-122.

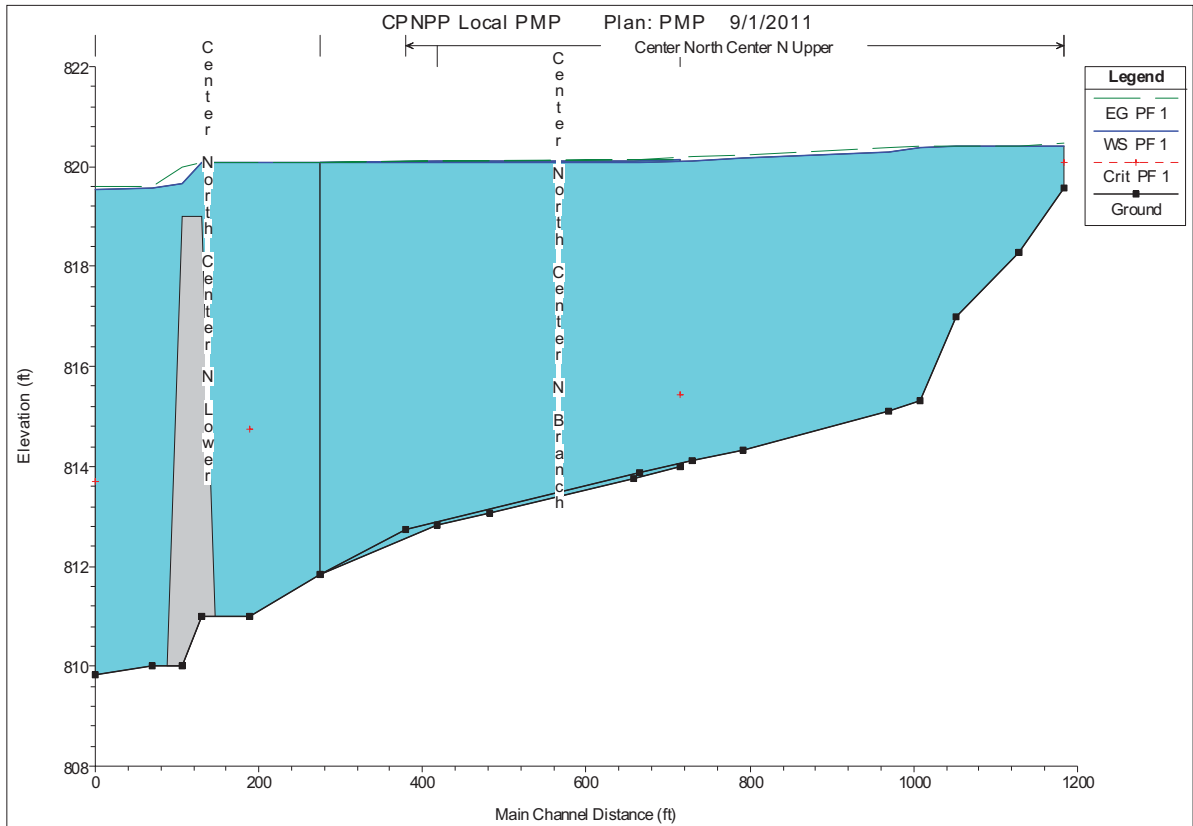


Figure 7-122. Center North Channel Flow Profile

7.9 Unit 4 North Channel

The Unit 4 North Channel captures runoff in Drainage Area 21 just north of Unit 4 and directs flow east to a culvert structure at a road, as shown in Figure 7-123. Assuming the culvert is non-functional, runoff will overtop the road into Drainage Area 6. The channel is modeled using six cross sections and one weir.

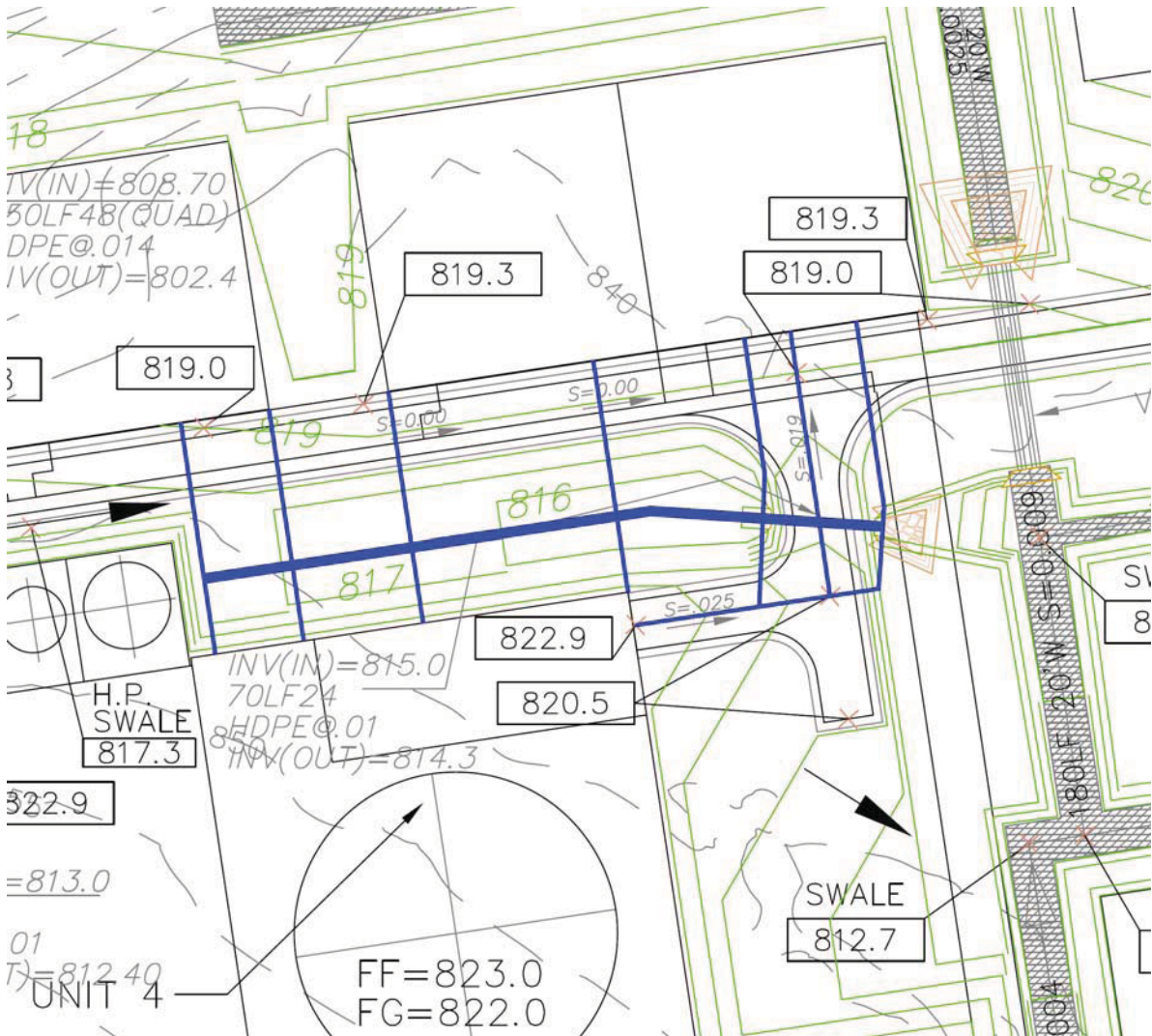


Figure 7-123. Unit 4 North Channel Cross Sections (Source: URS 2011b)

The Unit 4 North Channel HEC-RAS schematic is shown in Figure 7-124. The Unit 4 North Channel cross section data are shown in Figure 7-125 through Figure 7-130. The inline structure weir is shown in Figure 7-131. The corresponding data are provided in Table 7-28.

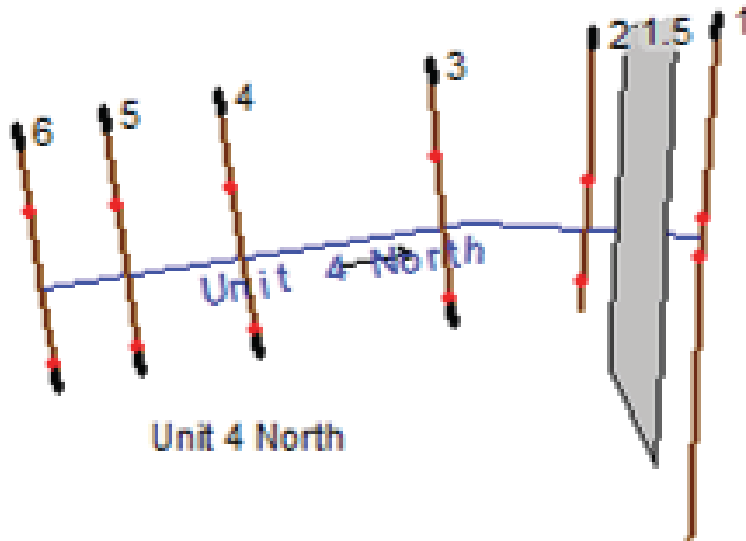
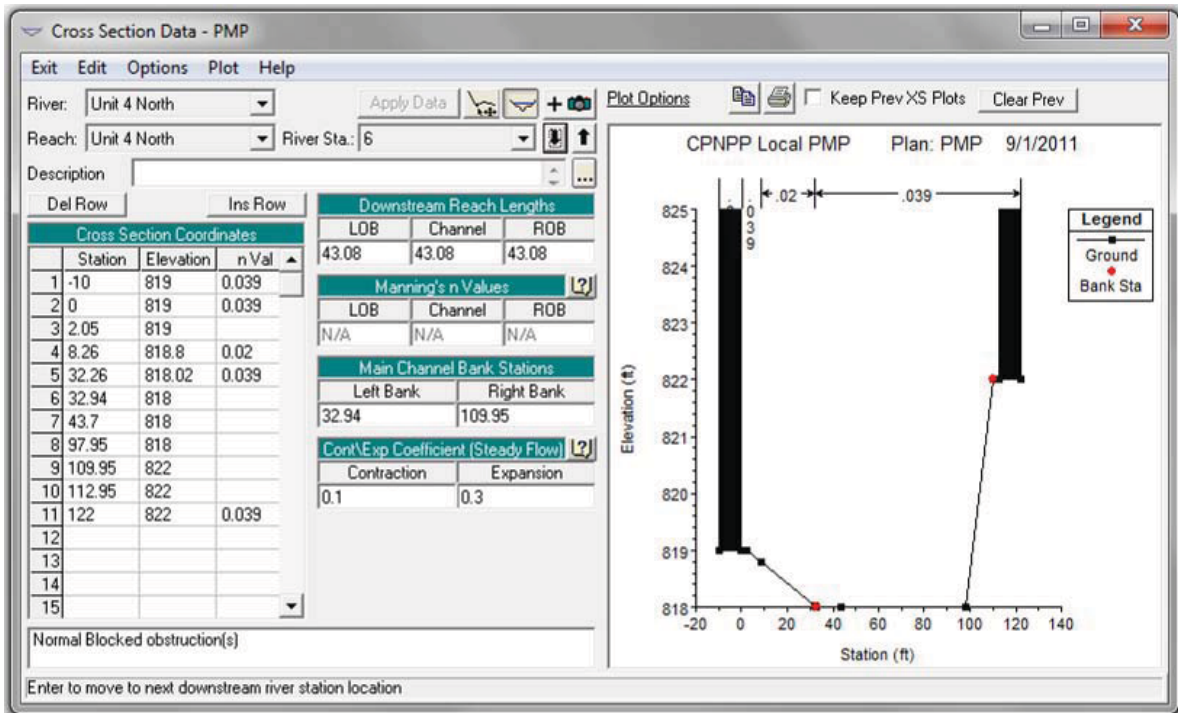
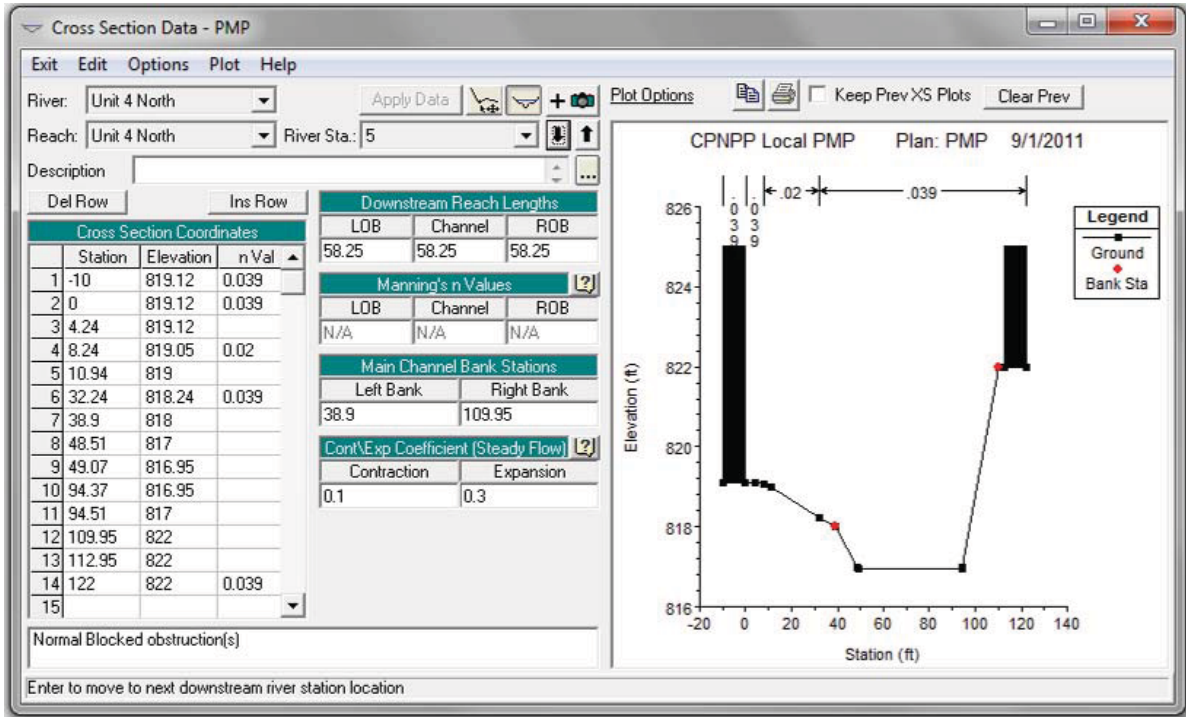


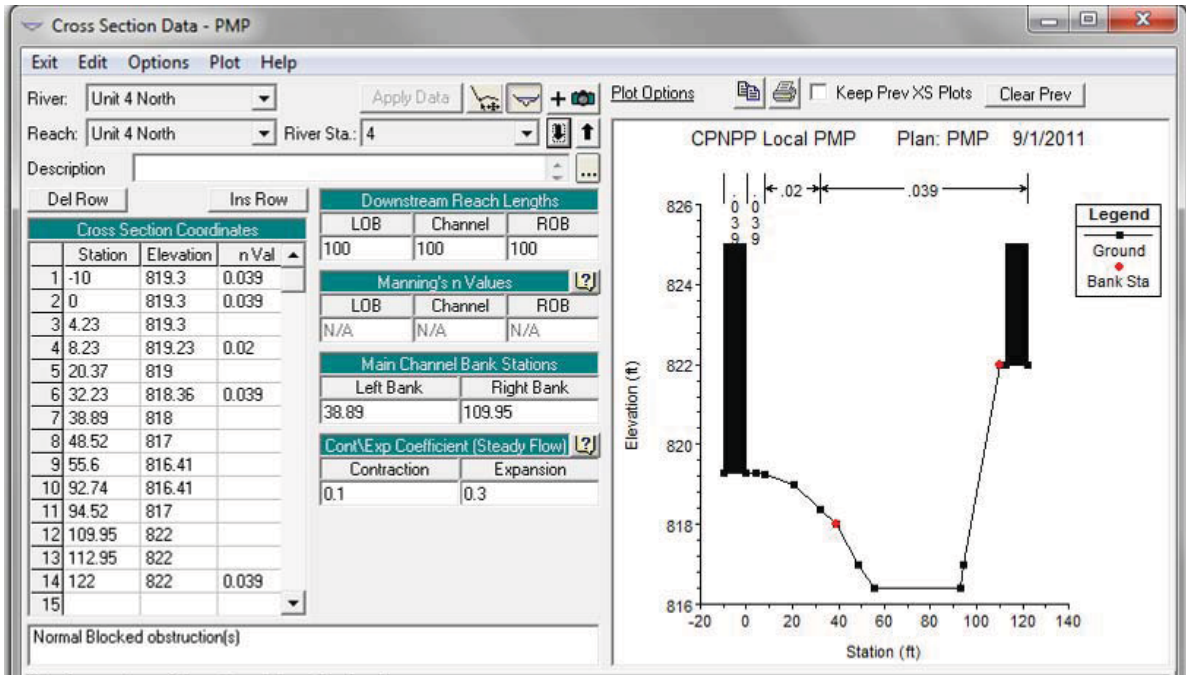
Figure 7-124. Unit 4 North Channel HEC-RAS Schematic



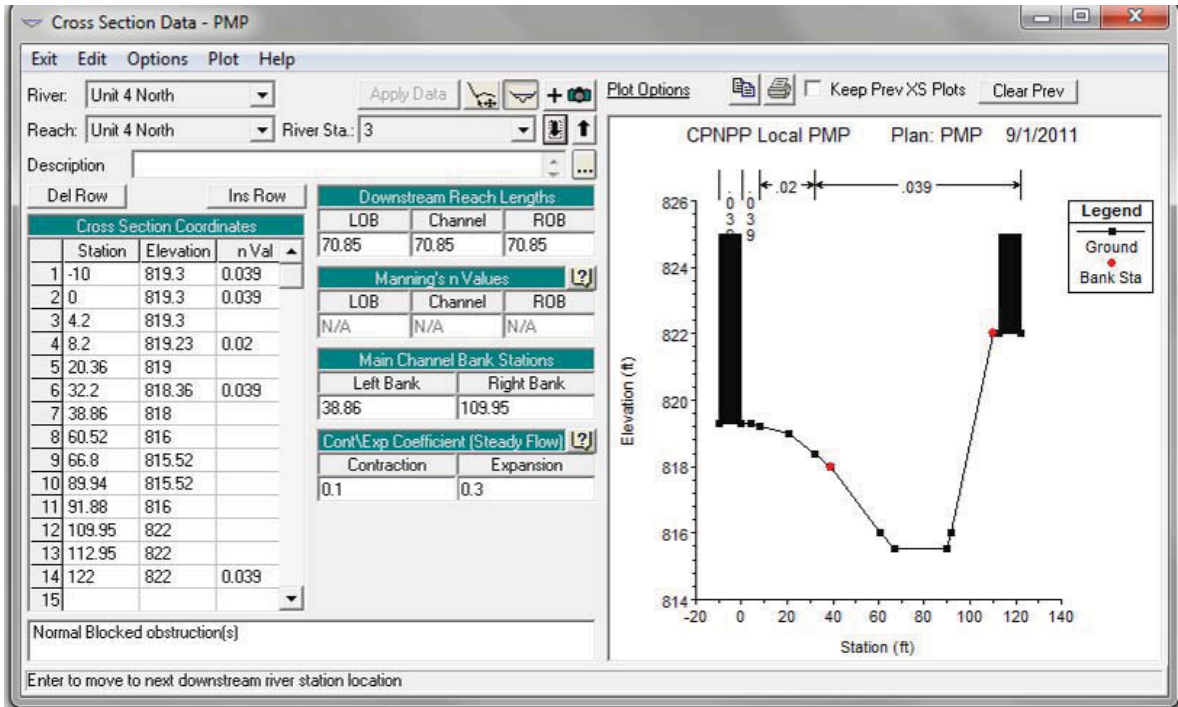
Obstructions: Station -10 to 0 and 112.95 to 122
 Figure 7-125. Unit 4 North Channel Cross Section 6



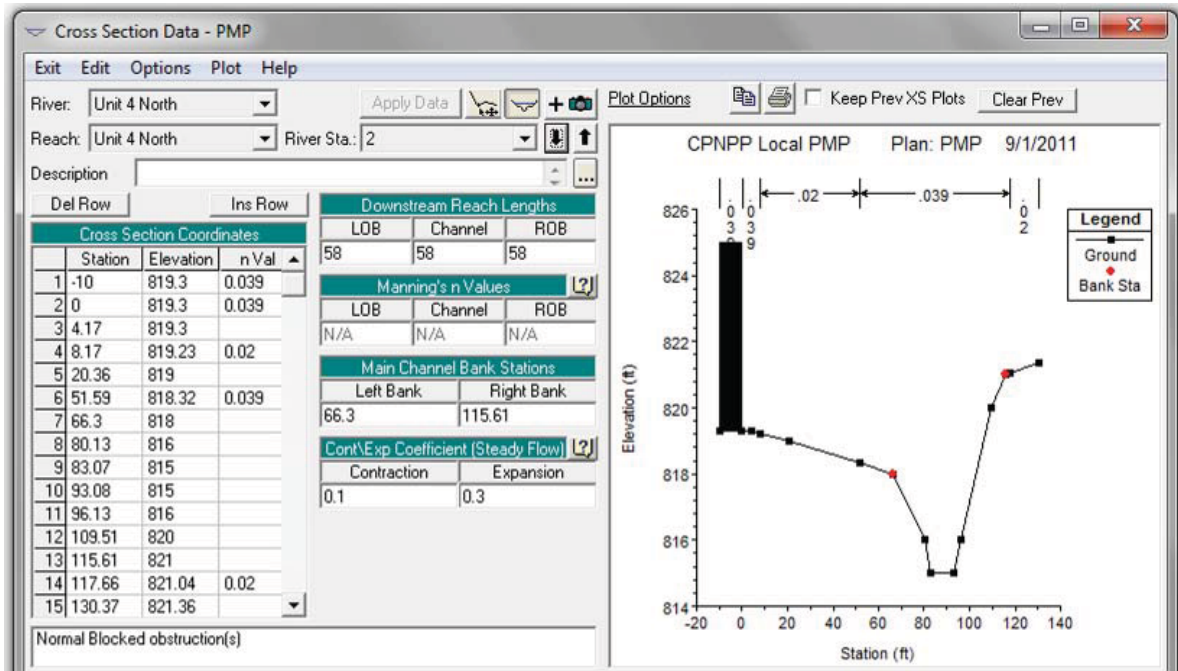
Obstructions: Station -10 to 0 and 112.95 to 122
Figure 7-126. Unit 4 North Channel Cross Section 5



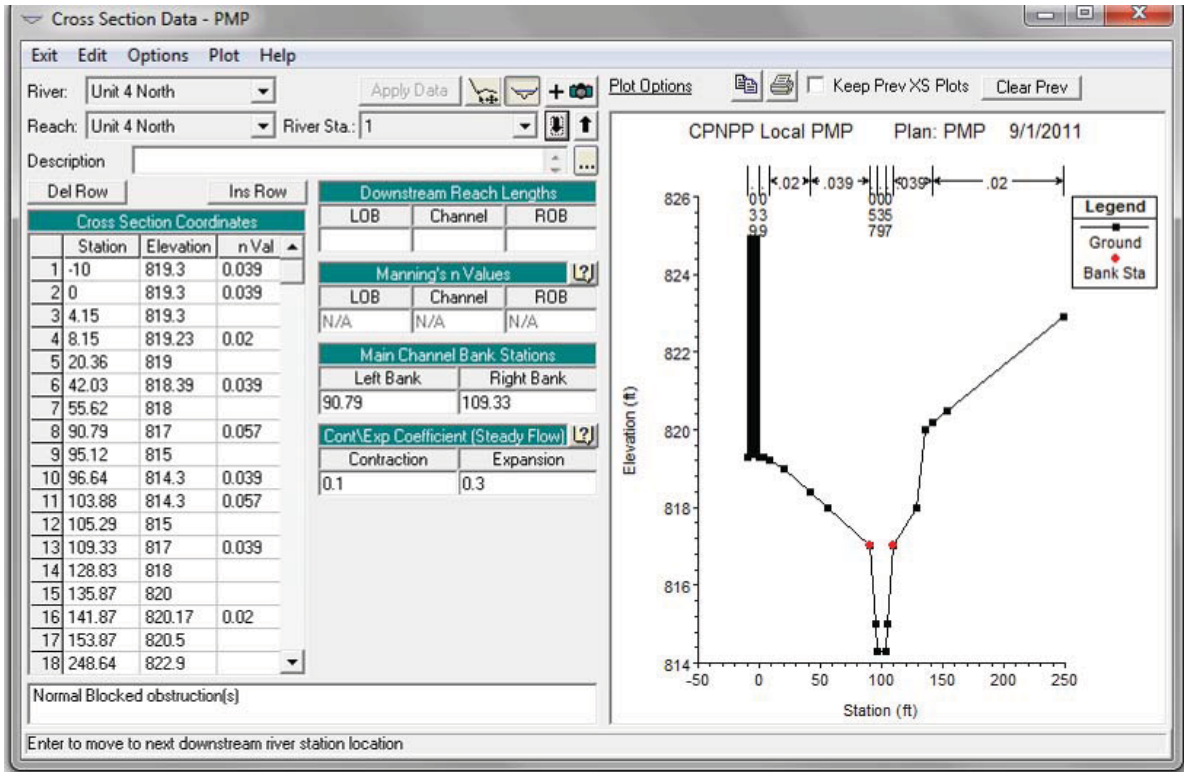
Obstructions: Station -10 to 0 and 112.95 to 122
Figure 7-127. Unit 4 North Channel Cross Section 4



Obstructions: Station -10 to 0 and 112.95 to 122
Figure 7-128. Unit 4 North Channel Cross Section 3



Obstructions: Station -10 to 0
Figure 7-129. Unit 4 North Channel Cross Section 2



Obstructions: Station -10 to 0
Figure 7-130. Unit 4 North Channel Cross Section 1

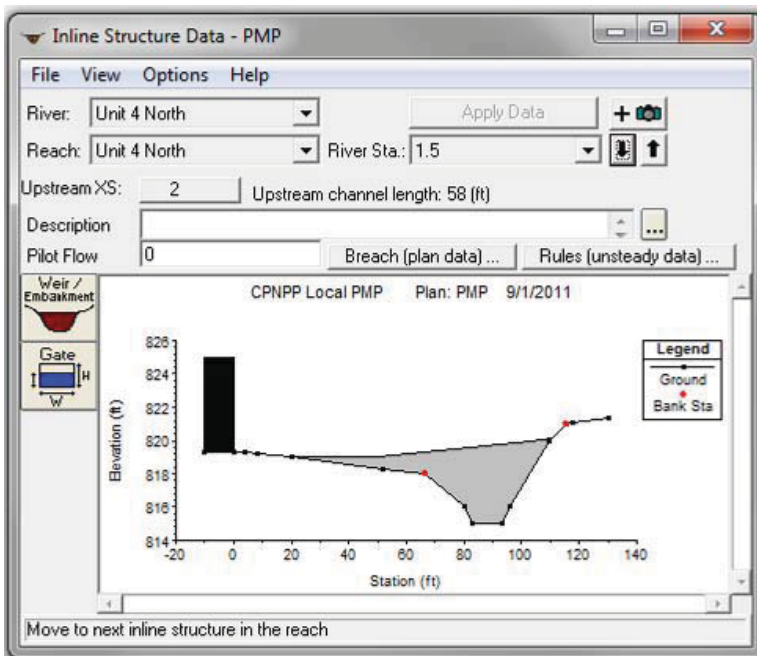


Figure 7-131. Unit 4 North Channel Inline Structure Weir Cross Section 1.5

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Table 7-28. Unit 4 North Channel Inline Structure Weir Cross Section 1.5

Station (ft)	Elevation (ft)
0	819.3
4.16	819.3
20.36	819
50.13	819
102.73	820
129.23	820.5

Distance between upstream station and weir = 14.88 ft

Weir width = 24.57 ft

Weir coefficient = 2.6

Runoff from Drainage Area 21 could laterally overtop the plant loop road and enter Drainage Area 22 (Unit 4 UHS Channel). However, as a conservative approach for the Unit 4 North Channel analysis, it is assumed all runoff is directed downstream. Runoff from Drainage Area 21 is added to the model at Cross Section 6. Table 7-29 provides a summary of the runoff added to the Unit 4 North Channel model.

Table 7-29. Unit 4 North Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
6	135	21	135

The upstream Cross Section 6 is assigned a critical depth boundary condition. The downstream Cross Section 1 is assigned the water surface elevation from the Center North Channel Cross Section 3. The preliminary result for the Center North Channel Cross Section 3 is 820.07 ft (see Section 7.6). The HEC-RAS model is run using the steady flow option with a mixed flow regime. Preliminary results are provided in Table 7-30.

Table 7-30. Unit 4 North Channel Preliminary and Final Results

Cross Section	Q (cfs)	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
6	135.00	820.11	818.49	820.12	0.000100	0.61	195.79	104.28	0.08
5	135.00	820.11		820.11	0.000054	0.56	241.43	104.11	0.06
4	135.00	820.11		820.11	0.000044	0.54	255.94	104.11	0.05
3	135.00	820.10		820.11	0.000031	0.50	282.70	104.24	0.05
2	135.00	820.10	816.53	820.10	0.000047	0.58	241.67	110.11	0.06
1.5	Inline Structure								
1	135.00	820.07	816.13	820.07	0.000036	0.49	313.20	138.34	0.04

The results identify the overtopping water surface elevation at the downstream weir is 820.10 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 820.11 ft at the upstream cross sections (Cross Sections 4 through 6). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. All Froude numbers are less than one, indicating there is no supercritical flow in the channel. Additionally, there are no indications of hydraulic jumps in the channel.

There are no warnings for the Unit 4 North Channel preliminary results. Additionally, the downstream boundary condition, established by the final results of the Center North Channel,

remains unchanged. Therefore, the final results for the Unit 4 North Channel are identical to the preliminary results in Table 7-30. The channel flow profile is provided in Figure 7-132.

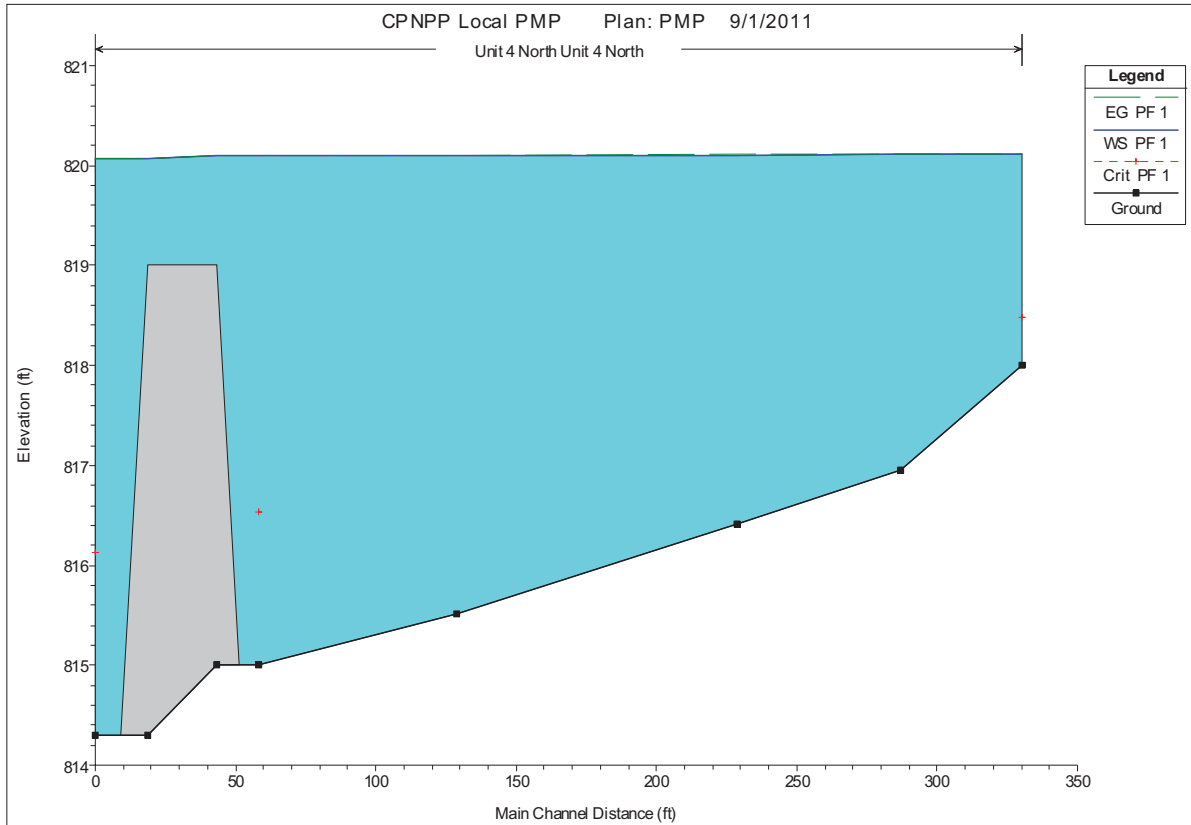


Figure 7-132. Unit 4 North Channel Flow Profile

7.10 Unit 3 East Channel

The Unit 3 East Channel captures runoff in Drainage Area 28 and directs flow across the wide area adjacent to the east of Unit 3 to a culvert structure at the plant loop road, as shown in Figure 7-133. Assuming the culvert is non-functional, runoff will overtop the road into Drainage Pond B. The channel is modeled using five cross sections and one weir.

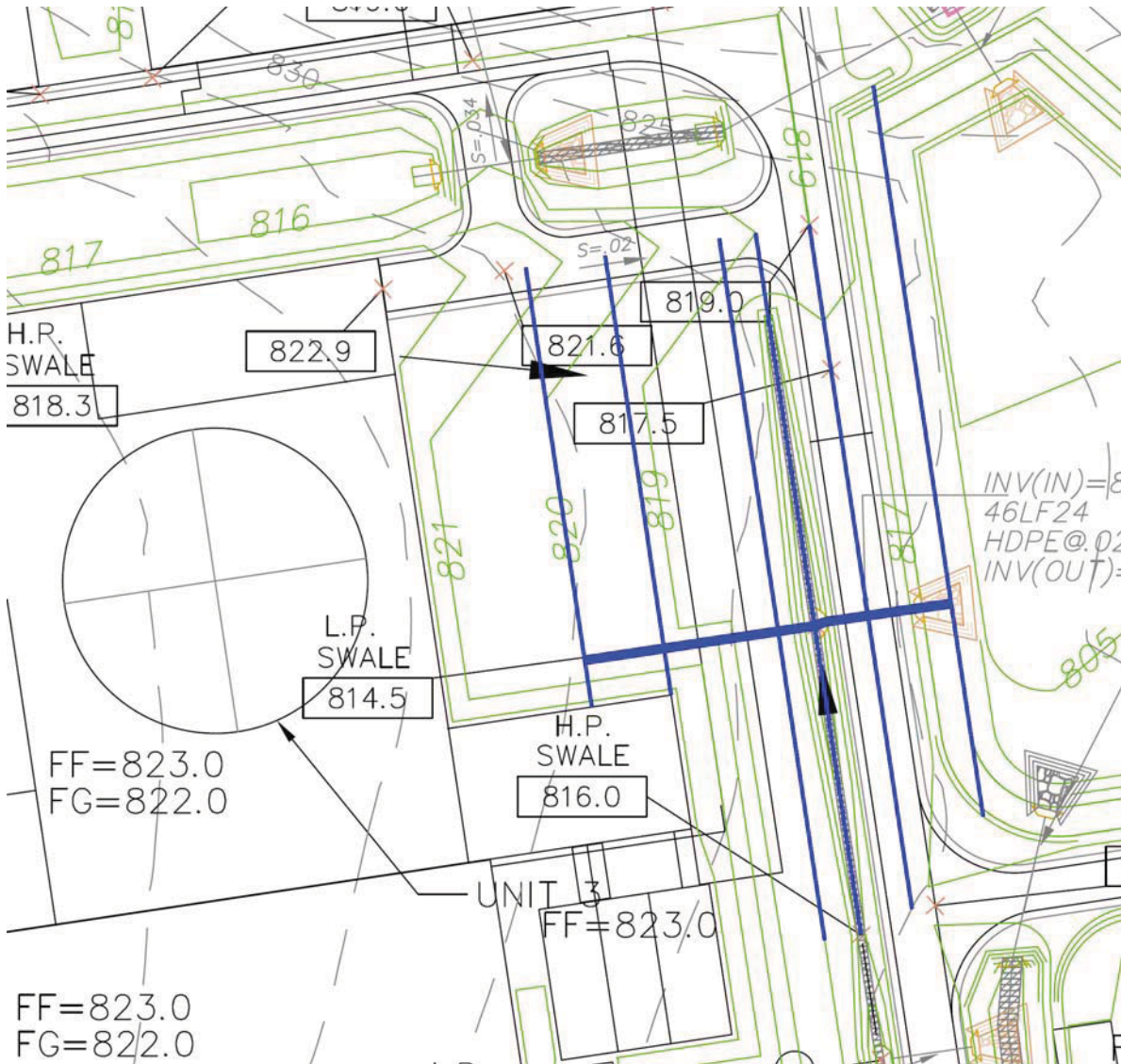


Figure 7-133. Unit 3 East Channel Cross Sections (Source: URS 2011b and 2011d)

The Unit 3 East Channel HEC-RAS schematic is shown in Figure 7-134. The Unit 3 East Channel cross section data are shown in Figure 7-135 through Figure 7-139. The inline structure weir is shown in Figure 7-140. The corresponding data are provided in Table 7-31.

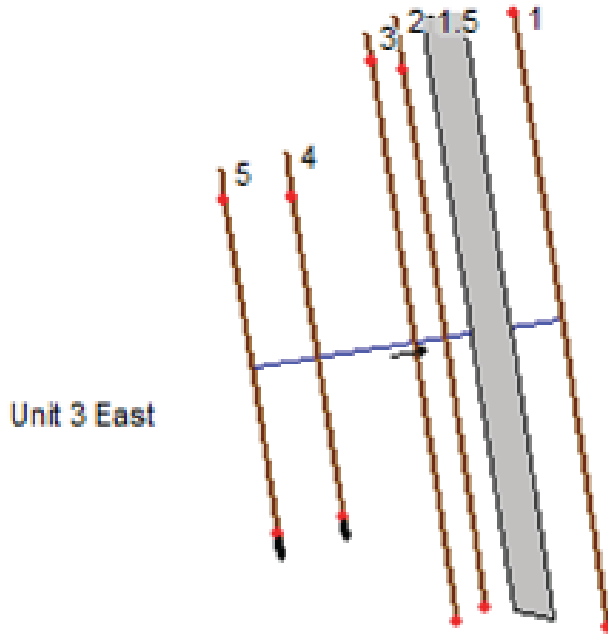
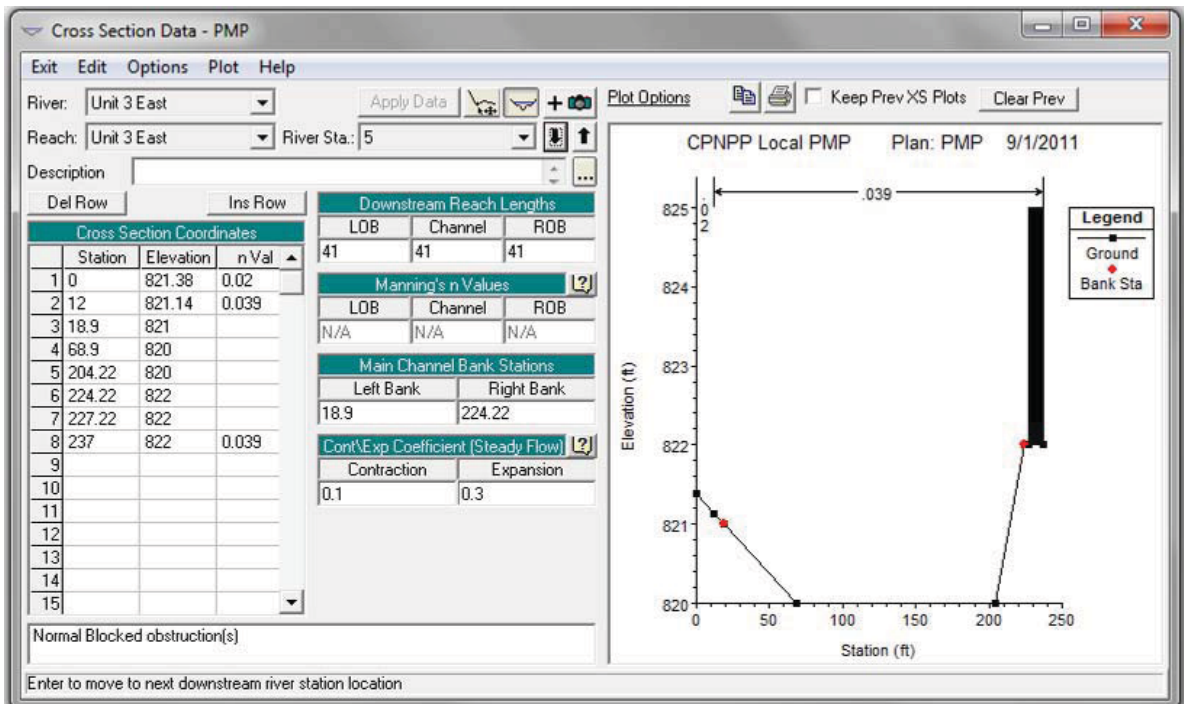
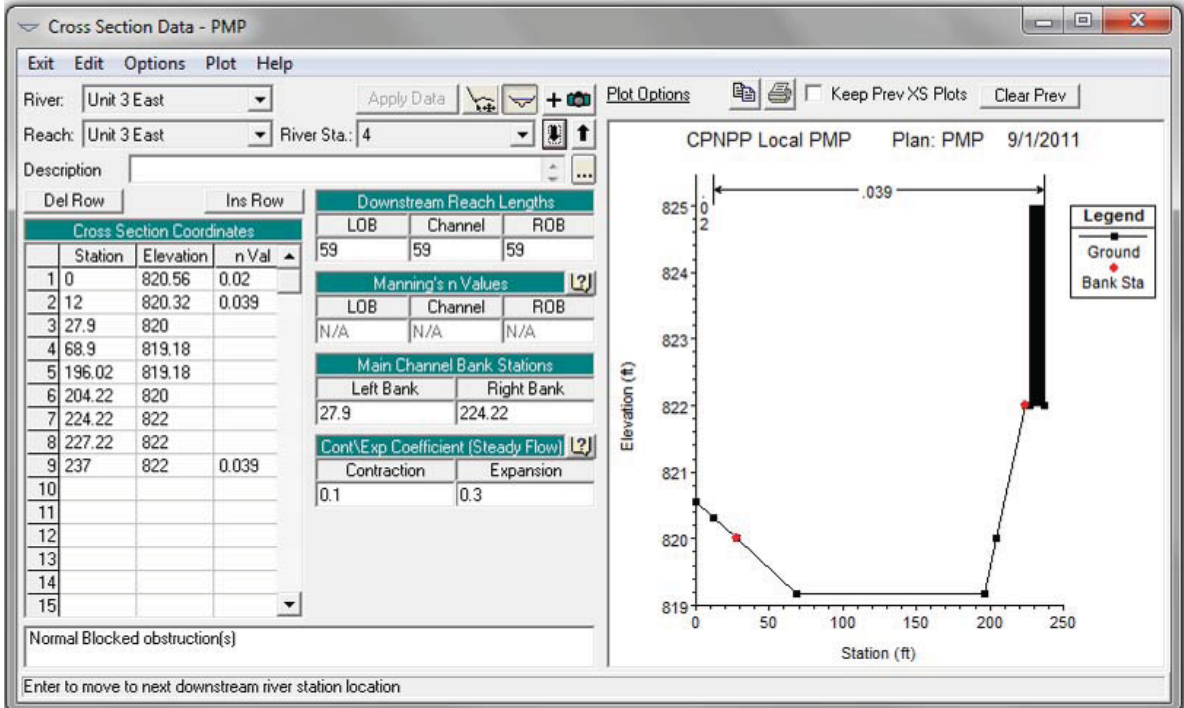


Figure 7-134. Unit 3 East Channel HEC-RAS Schematic



Obstructions: Station 227.22 to 237
 Figure 7-135. Unit 3 East Channel Cross Section 5



Obstructions: Station 227.22 to 237
Figure 7-136. Unit 3 East Channel Cross Section 4

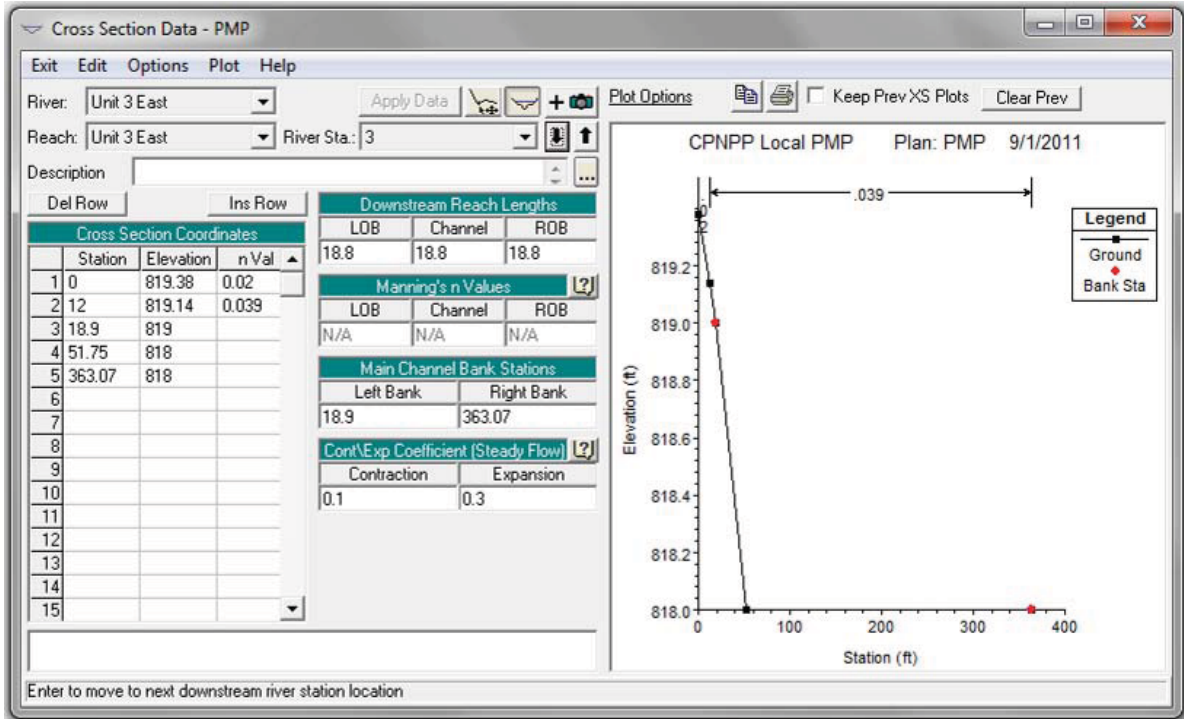


Figure 7-137. Unit 3 East Channel Cross Section 3

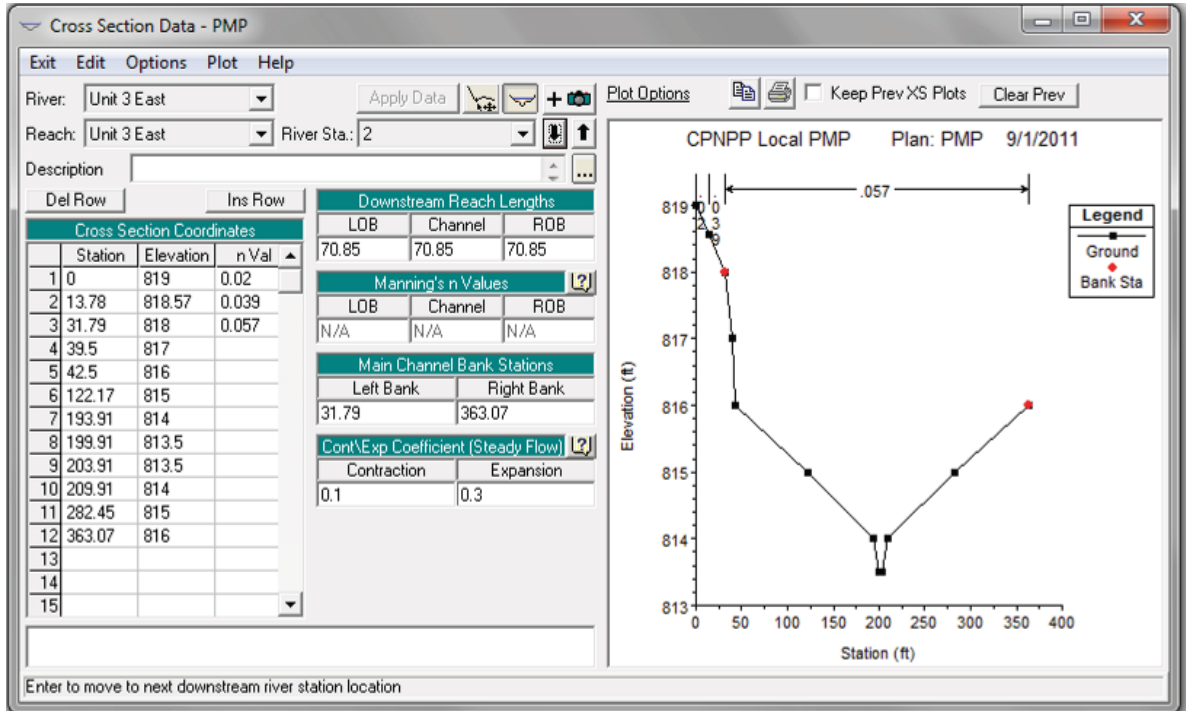


Figure 7-138. Unit 3 East Channel Cross Section 2

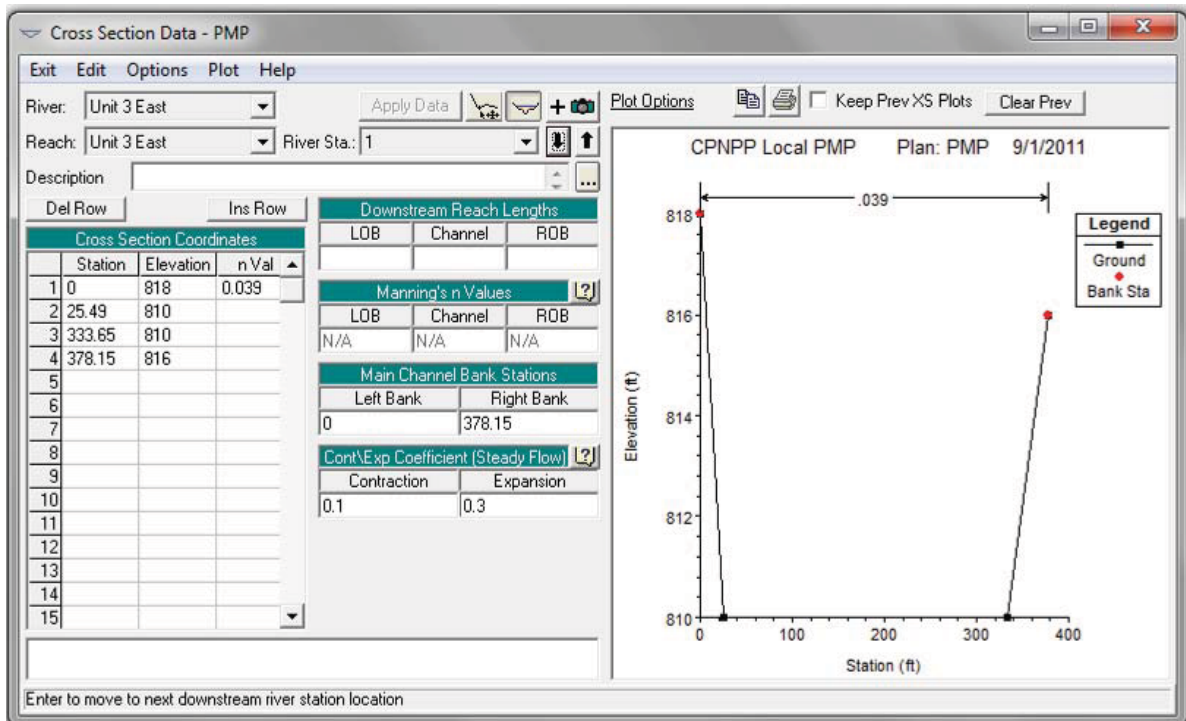


Figure 7-139. Unit 3 East Channel Cross Section 1

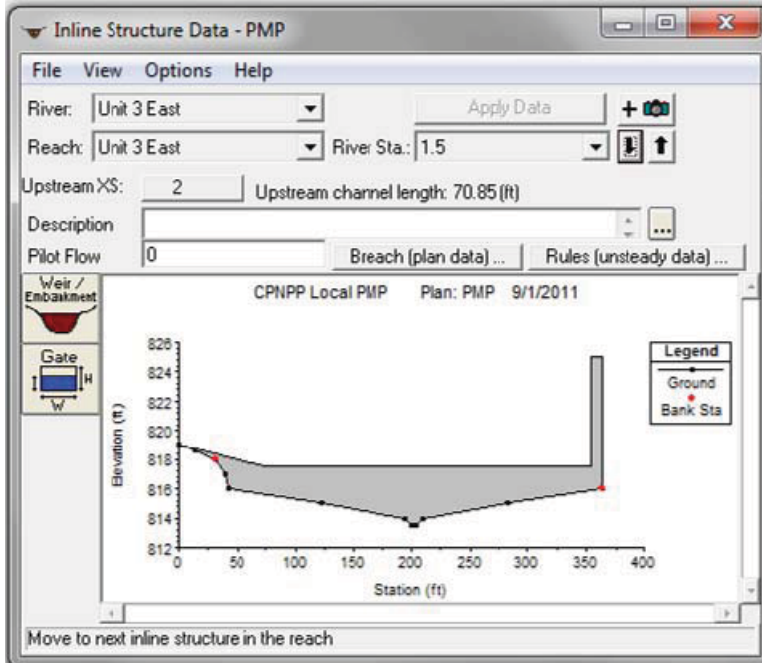


Figure 7-140. Unit 3 East Channel Inline Structure Weir Cross Section 1.5

Table 7-31. Unit 3 East Channel Inline Structure Weir Cross Section 1.5

Station (ft)	Elevation (ft)
0	819
50	818
75	817.5
353.88	817.5
353.88	825
363.07	825

Distance between upstream station and weir = 15.85 ft
 Weir width = 24 ft
 Weir coefficient = 2.6

Runoff from Drainage Area 28 is added to the model at Cross Section 5. Table 7-32 provides a summary of the runoff added to the Unit 3 East Channel model.

Table 7-32. Unit 3 East Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
5	196	28	196

The upstream Cross Section 5 is assigned a critical depth boundary condition. The downstream Cross Section 1 is assigned the Drainage Pond B maximum water surface elevation of 815.1 ft (see Section 7.1). The HEC-RAS model is run using the steady flow option with a mixed flow regime. Preliminary results are provided in Table 7-33.

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Table 7-33. Unit 3 East Channel Preliminary Results

Cross Section	Q (cfs)	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
5	196.00	820.44	820.39	820.58	0.021347	3.03	64.76	161.50	0.84
4	196.00	819.66	819.58	819.79	0.017477	2.89	67.79	155.87	0.77
3	196.00	818.23	818.23	818.34	0.036309	2.70	72.51	318.88	1.00
2	196.00	817.91	814.69	817.91	0.000015	0.21	953.67	330.60	0.02
1.5	Inline Structure								
1	196.00	815.10	810.23	815.10	0.000001	0.11	1709.50	362.23	0.01

Preliminary results identify the overtopping water surface elevation at the downstream weir is 817.91 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 820.44 ft at the most upstream cross section (Cross Section 5). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. The Froude number at Cross Section 3 is equal to one, indicating the potential for supercritical flow as runoff travels over a steep slope and enters a smaller transverse channel parallel to the road. There is also potential for a hydraulic jump to occur between Cross Sections 2 and 3.

Warnings indicate there may be a need for additional cross sections between Cross Sections 2 and 3 and Cross Sections 3 and 4. HEC-RAS interpolation with 1 ft maximum spacing is used to generate 18 new cross sections between Cross Sections 2 and 3. Interpolation with 2 ft maximum spacing is used to generate 29 new cross sections between Cross Sections 3 and 4. The model is re-run and most warnings are eliminated as noted below. Table 7-34 provides the final results.

Table 7-34. Unit 3 East Channel Final Results

Cross Section	Q (cfs)	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
5	196.00	820.48	820.39	820.59	0.015666	2.74	71.49	163.98	0.73
4	196.00	819.60	819.58	819.77	0.026820	3.32	59.10	152.48	0.94
3	196.00	818.23	818.23	818.34	0.036309	2.70	72.51	318.88	1.00
2	196.00	817.91	814.69	817.91	0.000015	0.21	953.67	330.60	0.02
1.5	Inline Structure								
1	196.00	815.10	810.23	815.10	0.000001	0.11	1709.50	362.23	0.01

The overtopping water surface elevation at the downstream weir remains 817.91 ft (Cross Section 2). Backwater effects result in an increased maximum water surface elevation of 820.48 ft at the most upstream cross section (Cross Section 5). All cross section water surface elevations do not exceed 1 ft below plant grade and meet DCD criteria. Froude numbers are equal to or exceed one at Cross Section 3 and between Cross Sections 2 and 3. Therefore supercritical flow is present as runoff travels over the steep slope of the transverse channel. Additionally, there are indications of a hydraulic jump between Cross Sections 2 and 3. There is one remaining warning concerning critical depth used for Cross Section 3. This is appropriate because supercritical flow is present immediately downstream from Cross Section 3. The channel flow profile is provided in Figure 7-141.

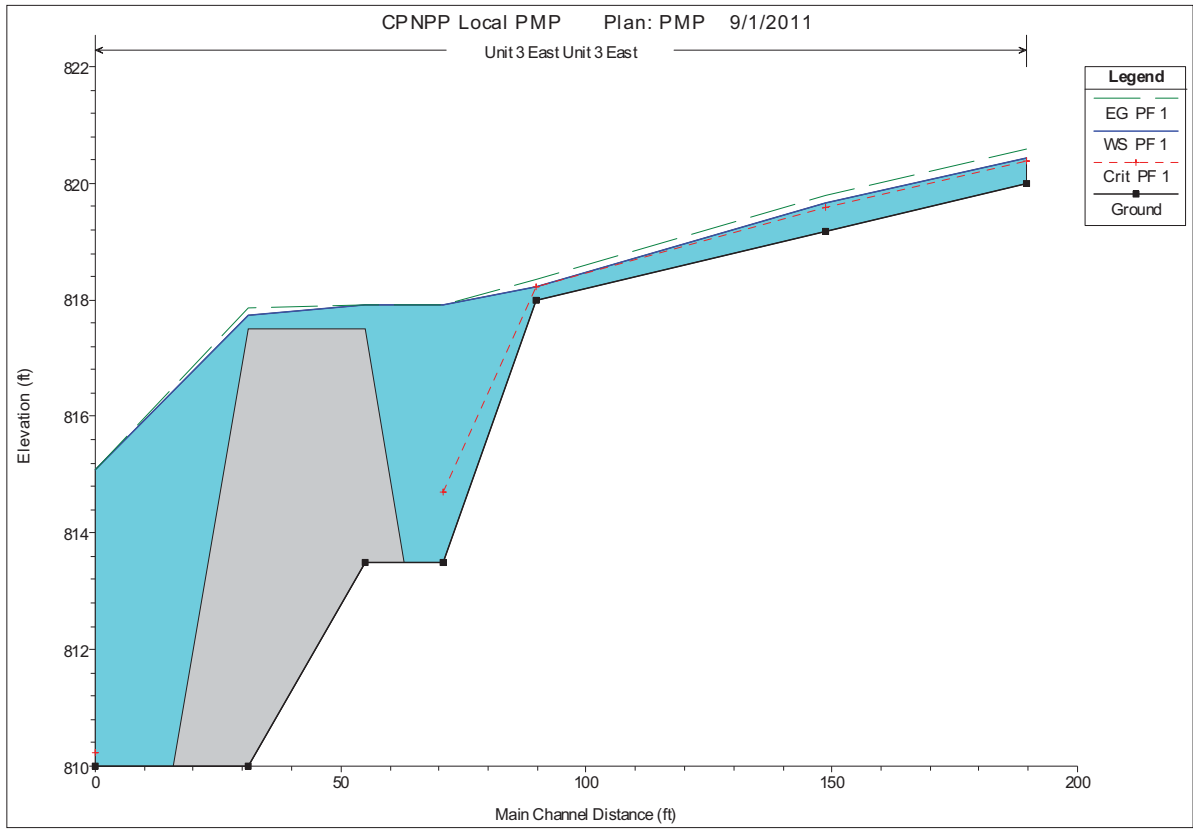


Figure 7-141. Unit 3 East Channel Flow Profile

7.11 Unit 3 Southeast Channel

The Unit 3 Southeast Channel captures runoff in Drainage Area 29 southeast of Unit 3 and directs flow north to a culvert structure that empties into Drainage Pond B, as shown in Figure 7-142. The channel runs parallel to the plant loop road adjacent to the southern portion of Unit 3. Assuming the culvert is non-functional, runoff will overtop a drive road that intersects the plant loop road and spill into Drainage Pond B. The channel is modeled using 11 cross sections and one weir.

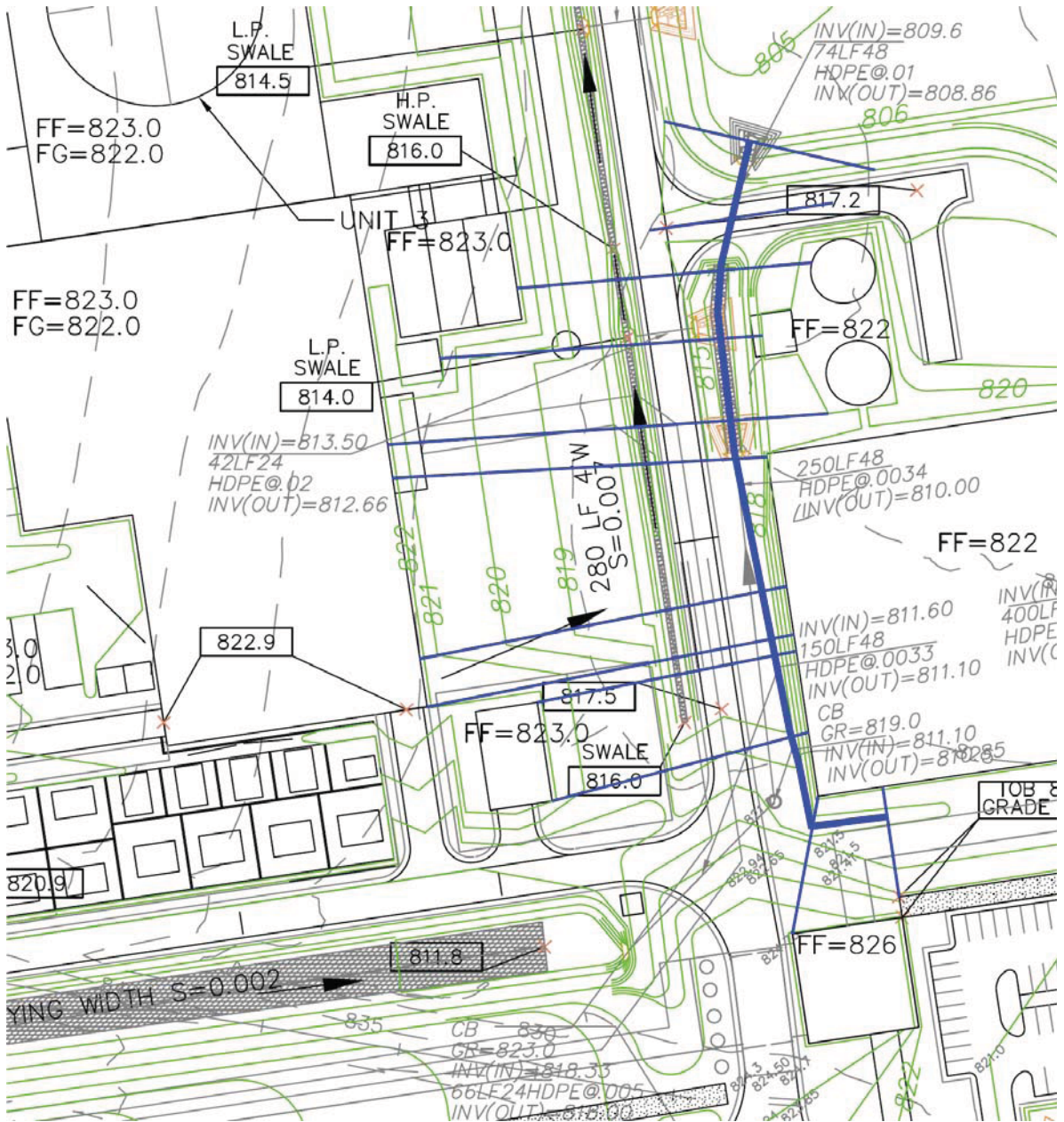


Figure 7-142. Unit 3 Southeast Channel Cross Sections (Source: URS 2011b and 2011d)

The Unit 3 Southeast Channel HEC-RAS schematic is shown in Figure 7-143. The Unit 3 Southeast Channel cross section data are shown in Figure 7-144 through Figure 7-154. The inline structure weir is shown in Figure 7-155. The corresponding data are provided in Table 7-35.

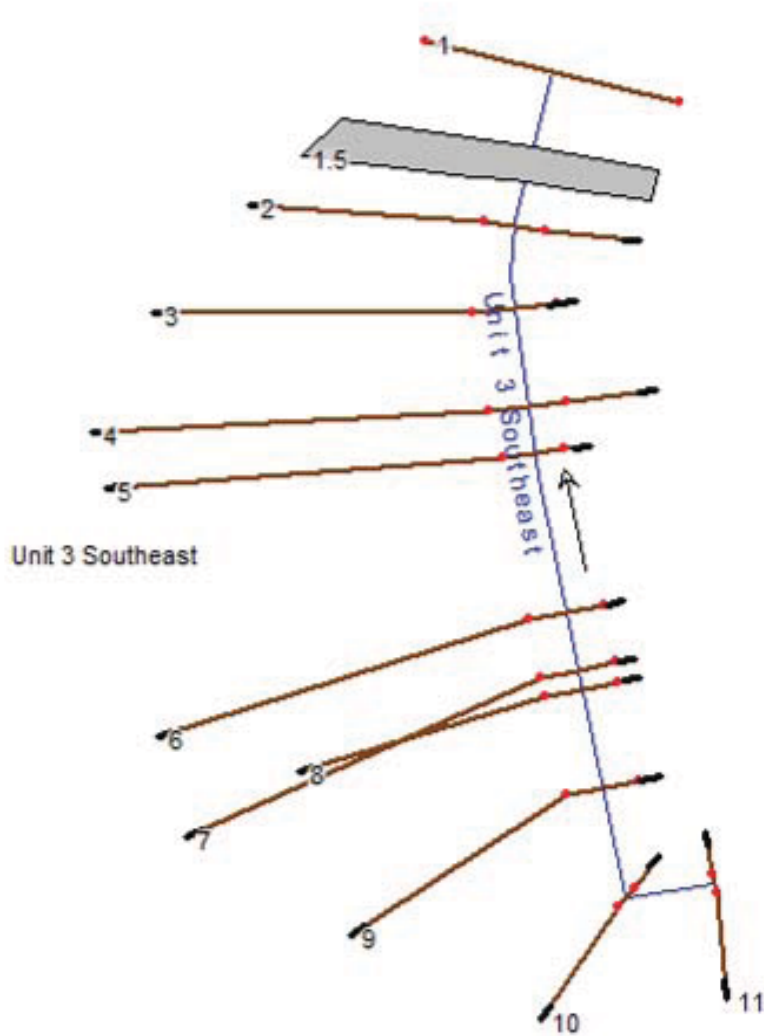
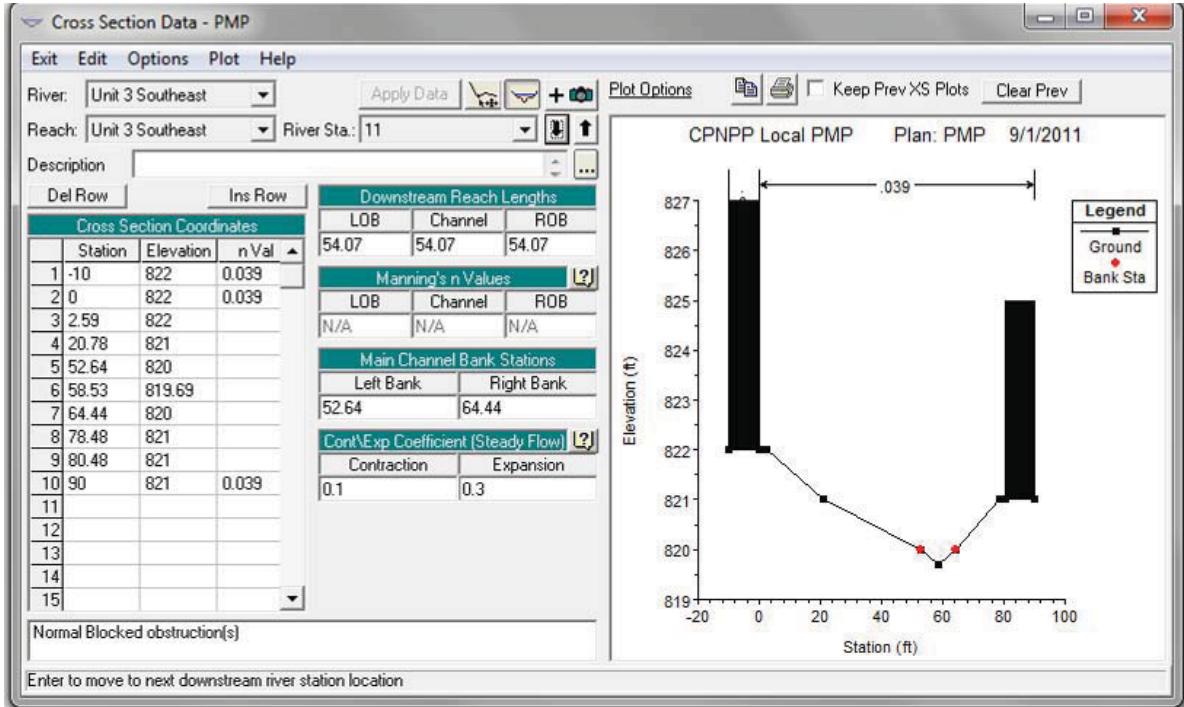
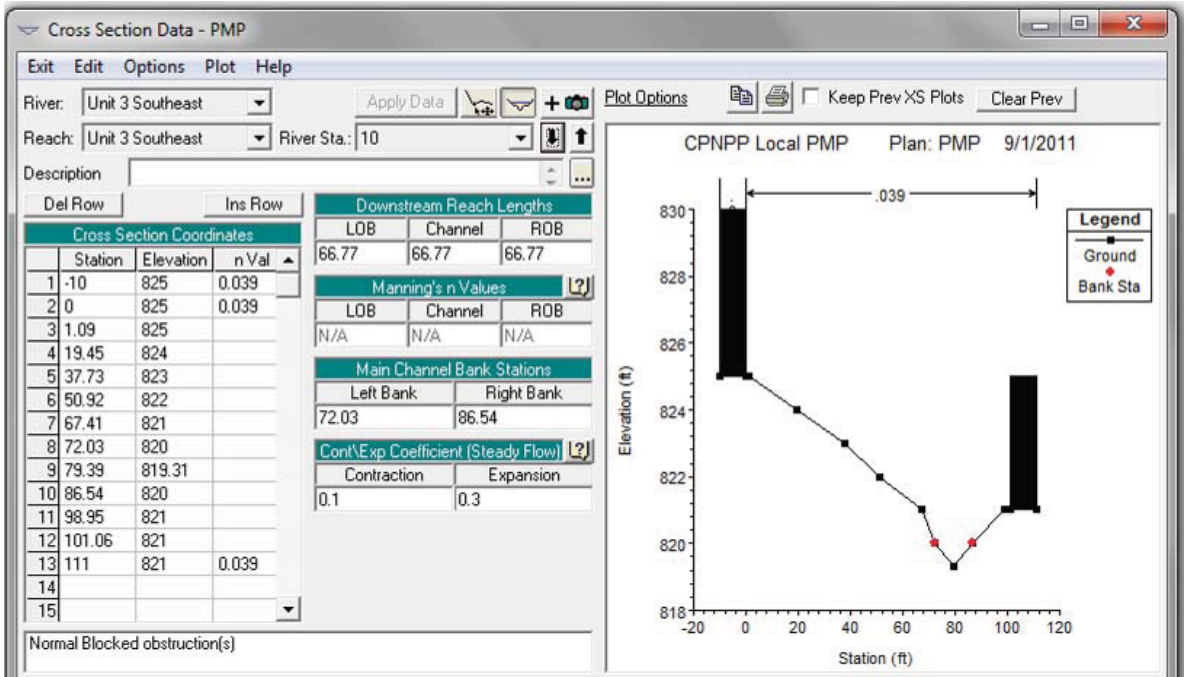


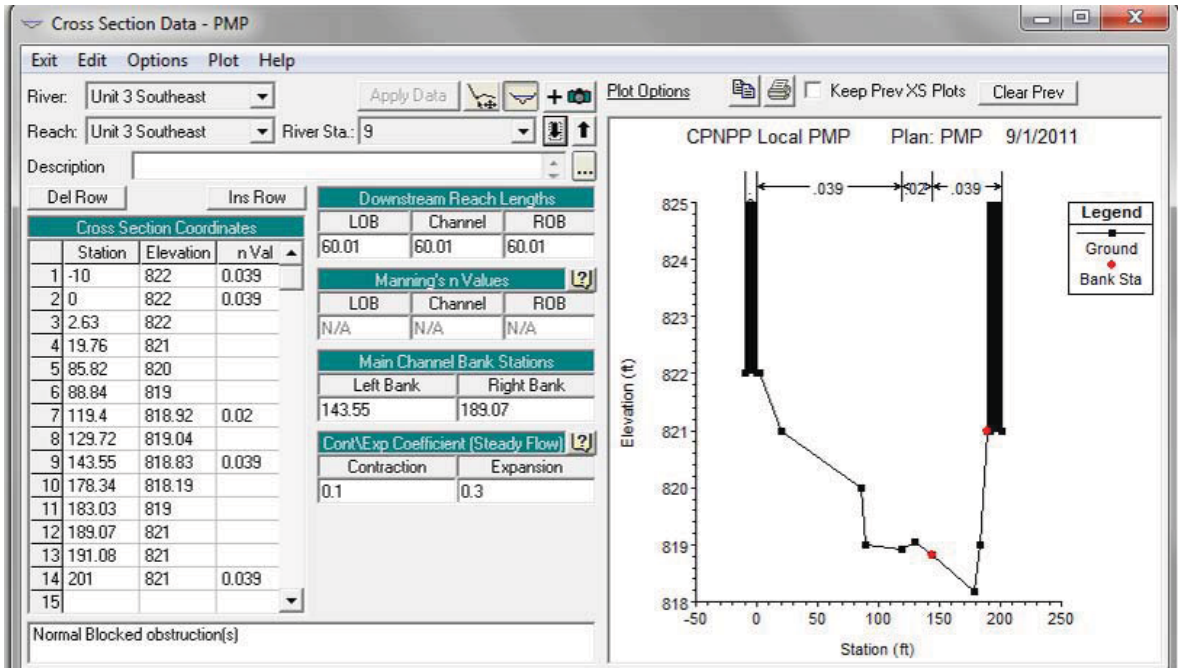
Figure 7-143. Unit 3 Southeast Channel HEC-RAS Schematic



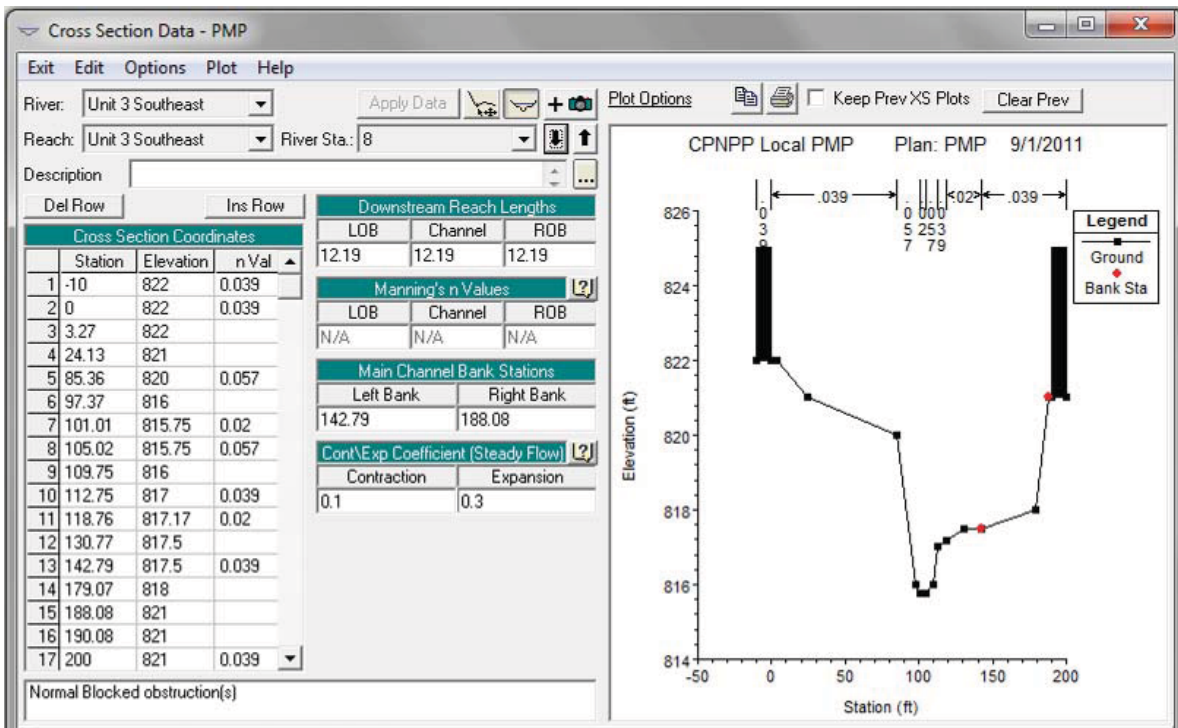
Obstructions: Station -10 to 0 and 80.48 to 90
Figure 7-144. Unit 3 Southeast Channel Cross Section 11



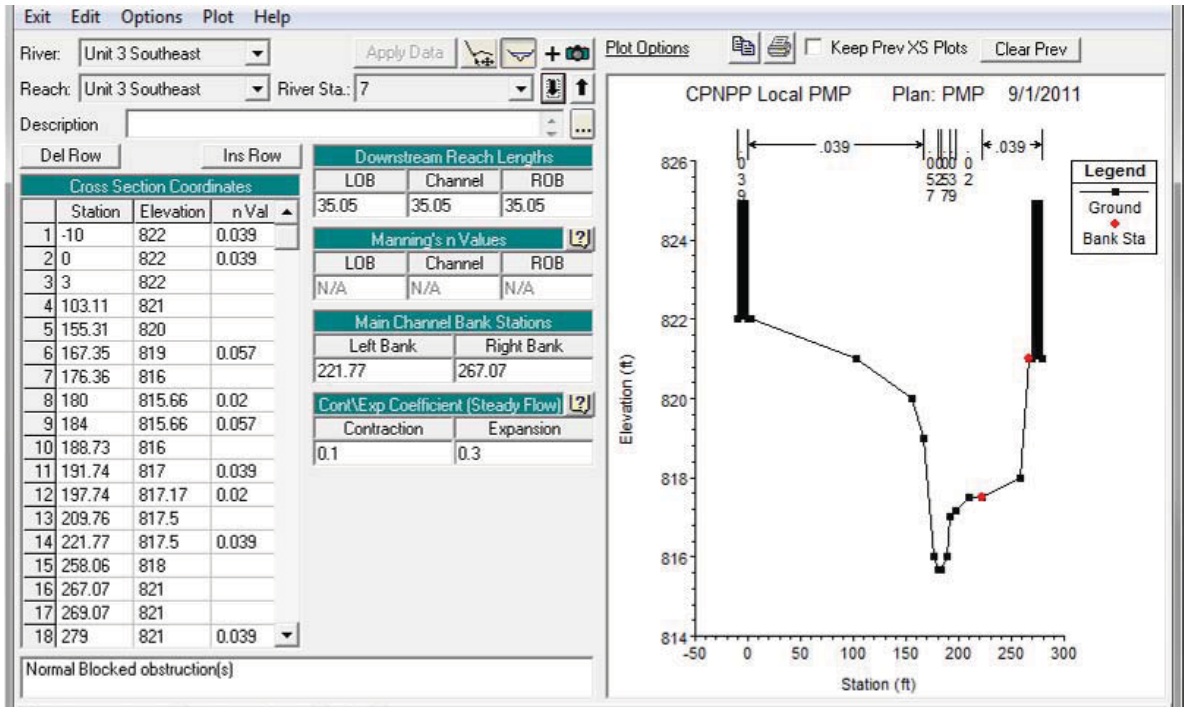
Obstructions: Station -10 to 0 and 101.06 to 111
Figure 7-145. Unit 3 Southeast Channel Cross Section 10



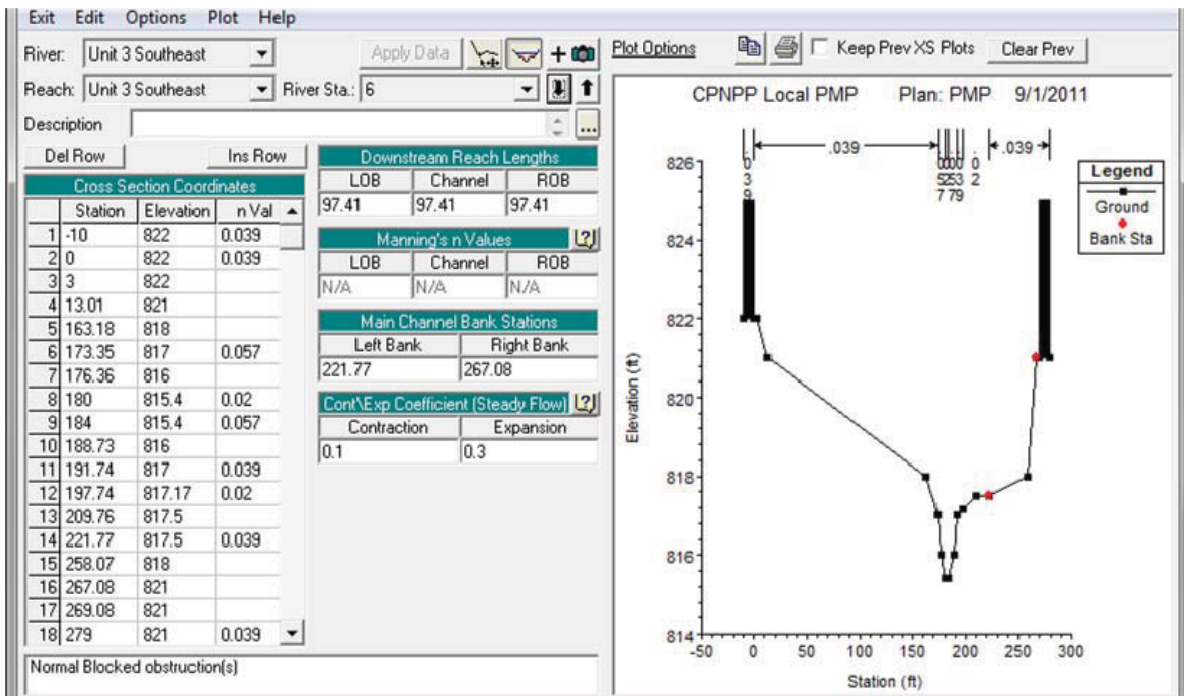
Obstructions: Station -10 to 0 and 191.08 to 201
Figure 7-146. Unit 3 Southeast Channel Cross Section 9



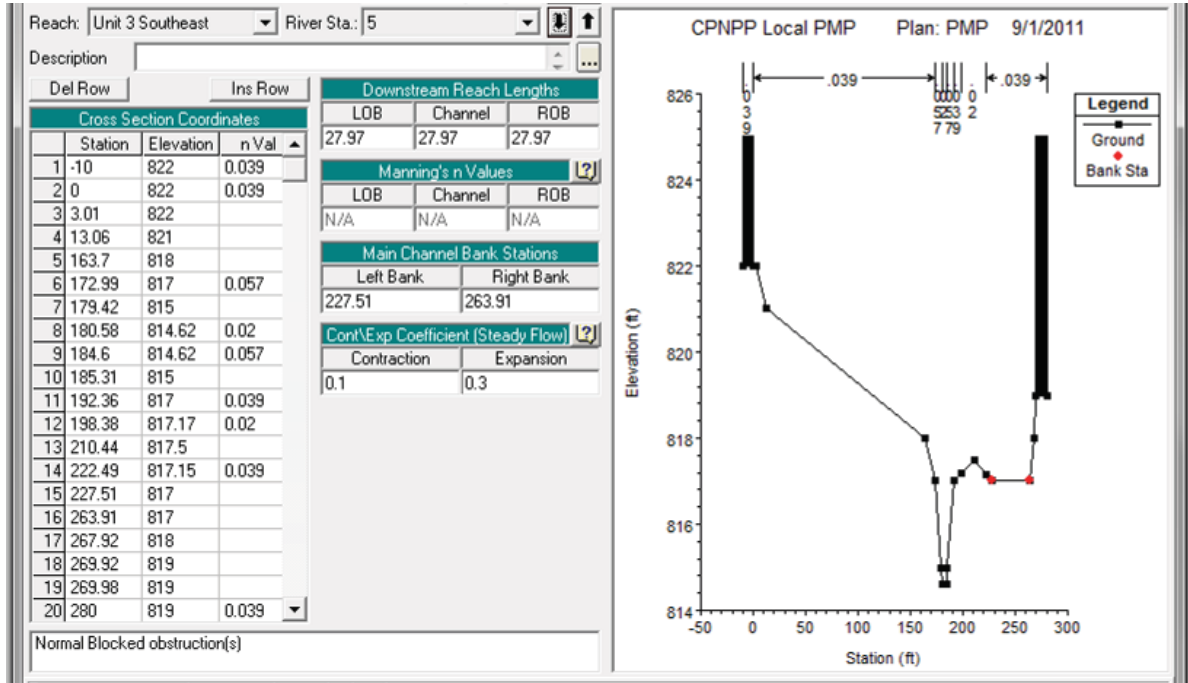
Obstructions: Station -10 to 0 and 190.08 to 200
Figure 7-147. Unit 3 Southeast Channel Cross Section 8



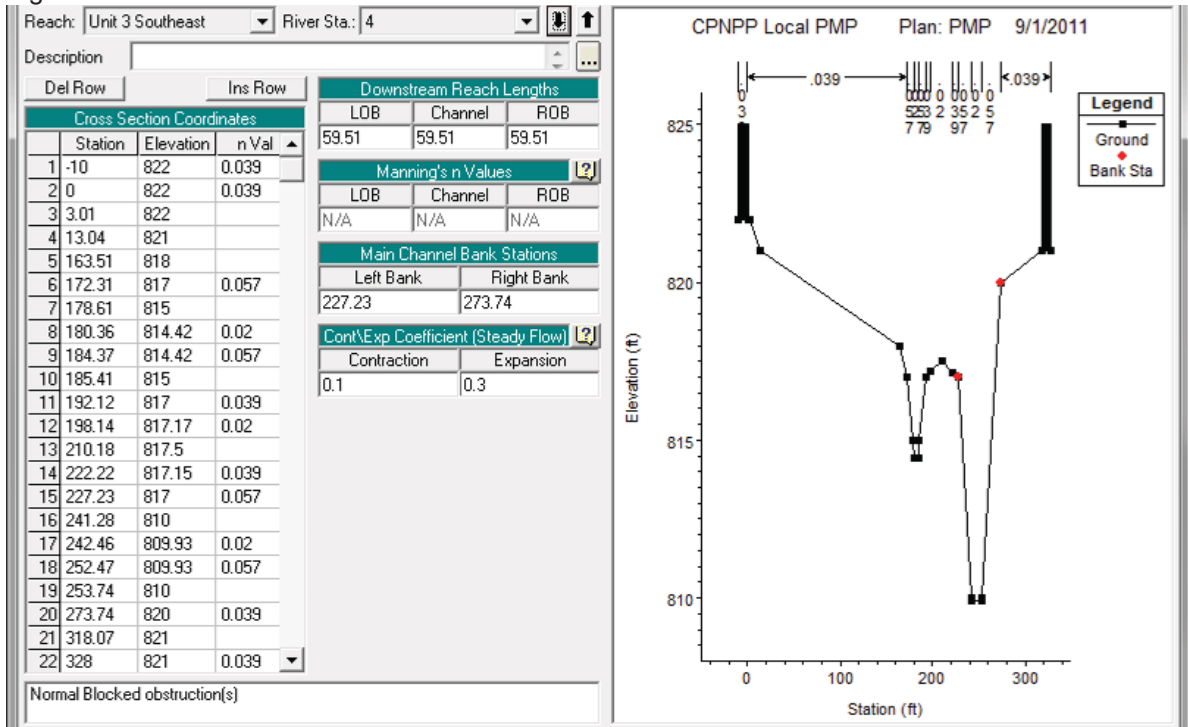
Obstructions: Station -10 to 0 and 269.07 to 279
Figure 7-148. Unit 3 Southeast Channel Cross Section 7



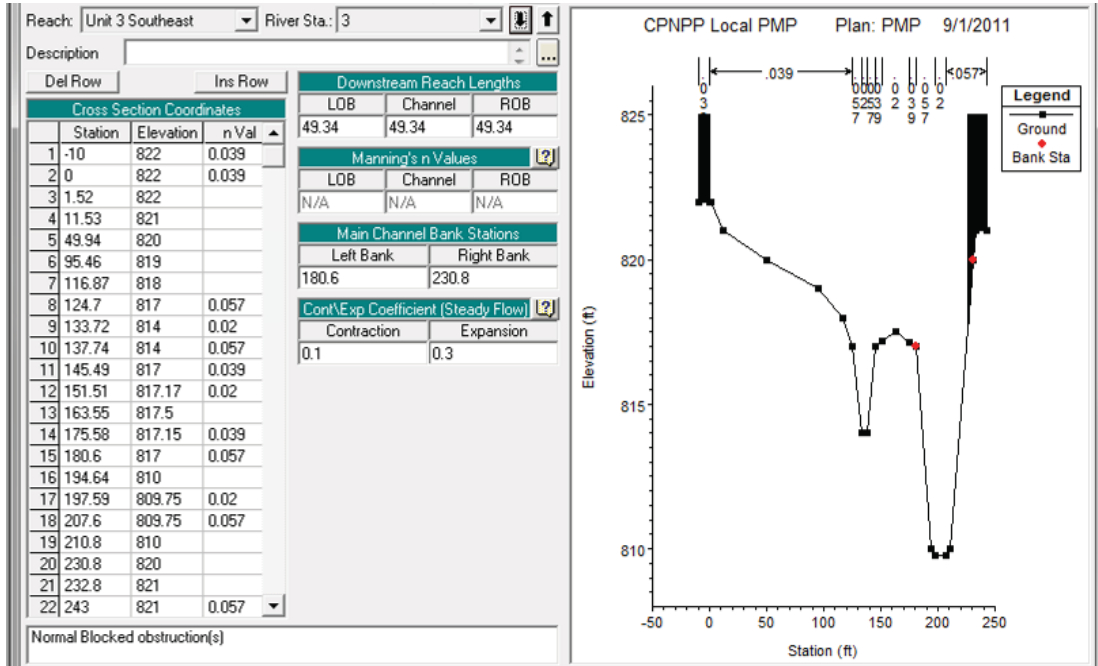
Obstructions: Station -10 to 0 and 269.08 to 279
Figure 7-149. Unit 3 Southeast Channel Cross Section 6



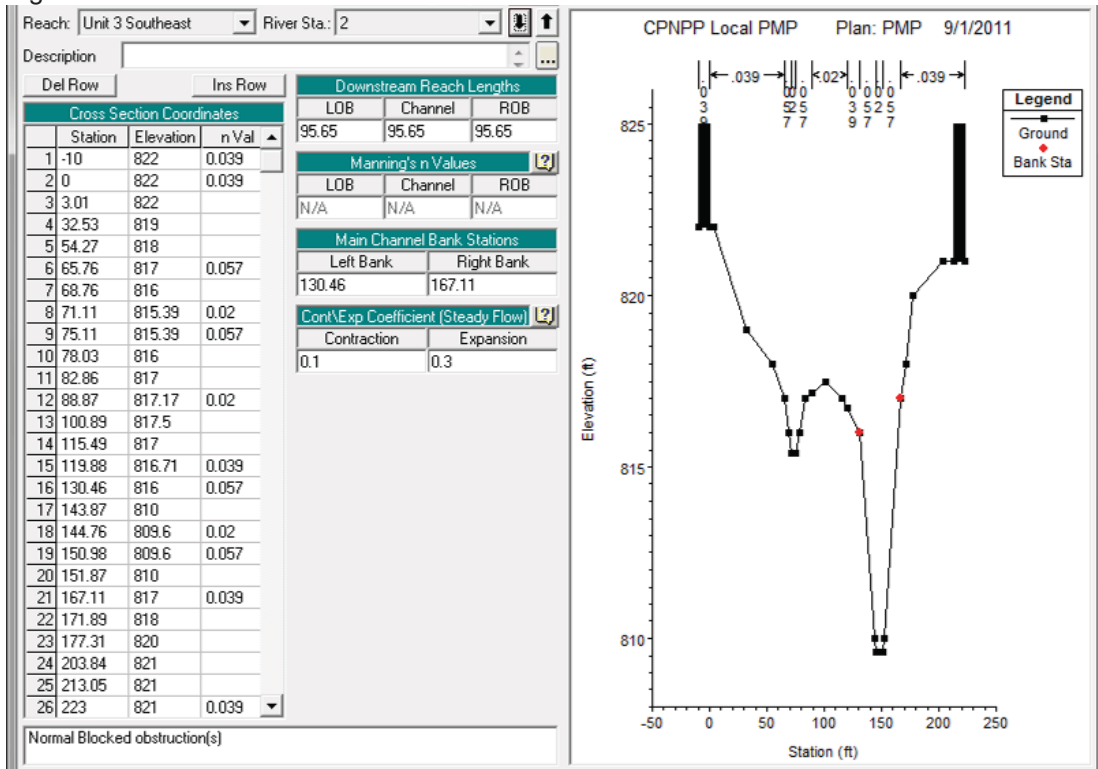
Obstructions: Station -10 to 0 and 269.98 to 280
Figure 7-150. Unit 3 Southeast Channel Cross Section 5



Obstructions: Station -10 to 0 and 318.07 to 328
Figure 7-151. Unit 3 Southeast Channel Cross Section 4



Obstructions: Station -10 to 0 and 225.71 to 243
Figure 7-152. Unit 3 Southeast Channel Cross Section 3



Obstructions: Station -10 to 0 and 213.05 to 223
Figure 7-153. Unit 3 Southeast Channel Cross Section 2

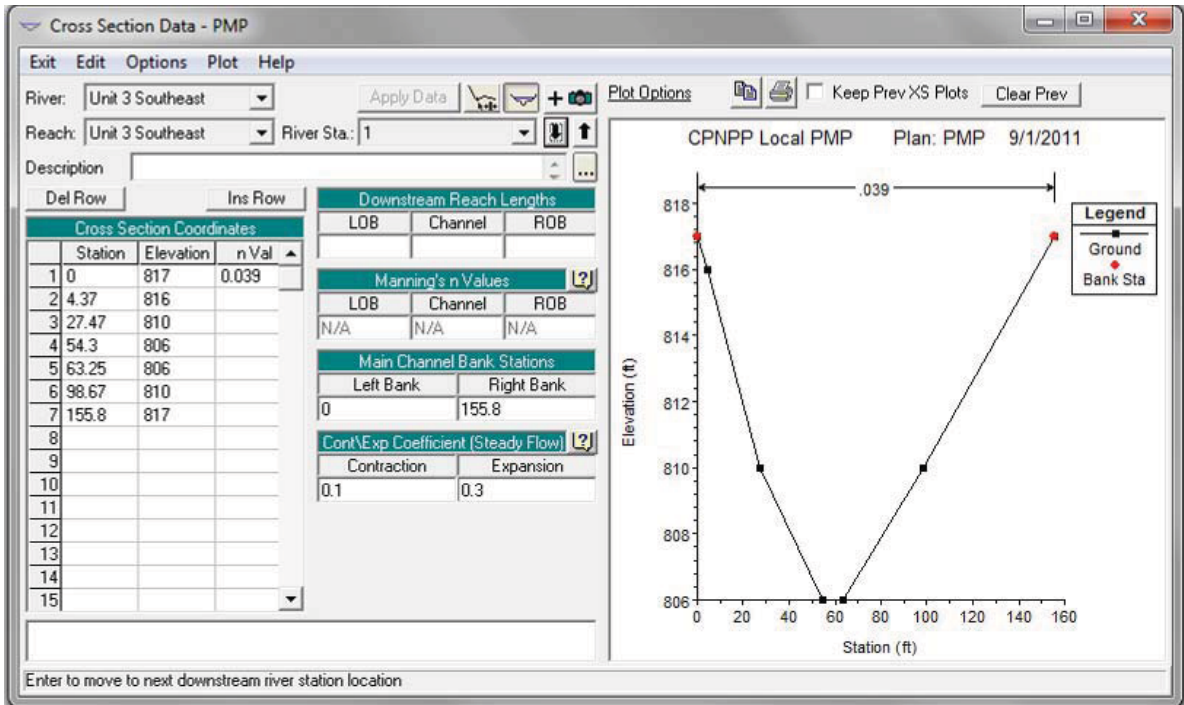


Figure 7-154. Unit 3 Southeast Channel Cross Section 1

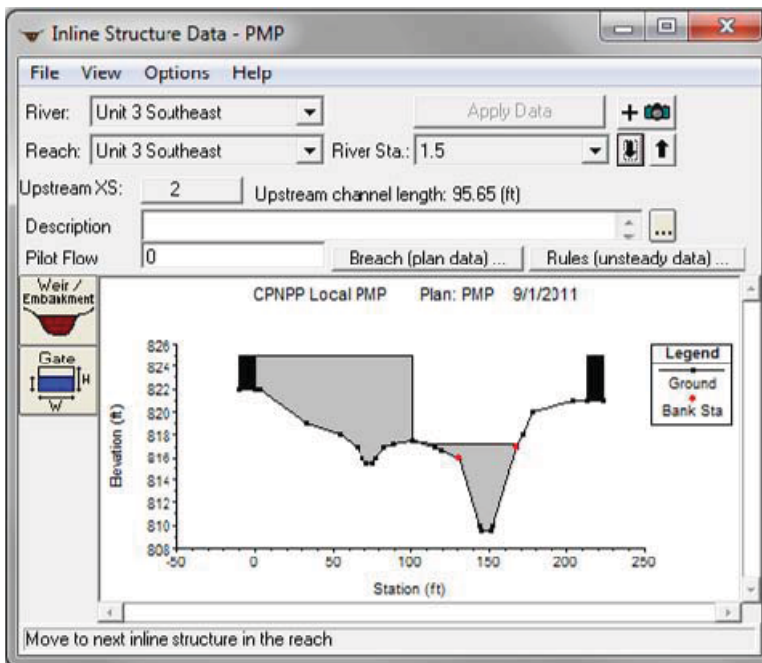


Figure 7-155. Unit 3 Southeast Channel Inline Structure Weir Cross Section 1.5

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Table 7-35. Unit 3 Southeast Channel Inline Structure Weir Cross Section 1.5

Station (ft)	Elevation (ft)
0	825
100.89	825
100.89	817.5
112.89	817.2
234.13	817.2

Distance between upstream station and weir = 27.56 ft

Weir width = 21.92 ft

Weir coefficient = 2.6

Runoff from Drainage Area 29 (Unit 3 Southeast Channel) is added to the model at Cross Section 11. As previously discussed in Section 7.0, runoff from Drainage Area 9 (West Channel) could enter the Unit 3 Southeast Channel through the culvert structure in the West Channel. It is conservative for the Unit 3 Southeast Channel analysis to assume this culvert is fully functional. The total runoff from Drainage Area 9 (West Channel), as previously determined in Section 7.1, is added to the culvert outlet at Cross Section 4. Table 7-36 provides a summary of the runoff added to the Unit 3 Southeast Channel model.

Table 7-36. Unit 3 Southeast Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
11	371	29	371
4	737	upstream contribution 9 (culvert flow)	371 366

The upstream Cross Section 11 is assigned a critical depth boundary condition. The downstream Cross Section 1 is assigned the Drainage Pond B maximum water surface elevation of 815.1 ft (see Section 7.1). The HEC-RAS model is run using the steady flow option with a mixed flow regime. Preliminary results are provided in Table 7-37.

Table 7-37. Unit 3 Southeast Channel Preliminary Results

Cross Section	Q (cfs)	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
11	371.00	822.67	821.52	822.76	0.001504	2.95	159.27	80.48	0.31
10	371.00	821.86	821.86	822.52	0.013351	7.43	62.87	47.76	0.88
9	371.00	819.22	819.55	820.51	0.108276	9.74	41.76	95.49	2.07
8	371.00	819.76	818.10	819.81	0.000367	1.10	229.77	98.29	0.14
7	371.00	819.76		819.80	0.000356	1.09	232.76	105.13	0.14
6	371.00	819.77		819.79	0.000244	0.90	322.49	188.55	0.12
5	371.00	819.75		819.77	0.000152	0.92	377.89	194.21	0.10
4	737.00	819.73		819.76	0.000201	1.39	570.47	196.65	0.09
3	737.00	819.72		819.75	0.000170	1.34	573.25	163.16	0.09
2	737.00	819.71	814.25	819.74	0.000214	1.48	525.35	150.95	0.10
1.5	Inline Structure								
1	737.00	815.10	809.02	815.12	0.000093	1.08	679.63	132.46	0.08

The results identify the overtopping water surface elevation at the downstream weir is 819.71 ft (Cross Section 2). Backwater effects result in a maximum water surface elevation of 819.77 ft at Cross Section 6 adjacent to the southern end of the Unit 3 nuclear island. All cross section water

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surface elevations affecting safety-related structures do not exceed 1 ft below plant grade and meet DCD criteria. The Froude number at Cross Section 9 exceeds one, indicating the potential for supercritical flow as runoff travels down the steeper slopes of the plant loop road near the entrance to the plant area. Additionally, there is potential for a hydraulic jump to occur between Cross Sections 8 and 9.

Warnings indicate there may be a need for additional cross sections between Cross Sections 4 and 5, 8 and 9, 9 and 10, and 10 and 11. HEC-RAS interpolation with 10 ft maximum spacing is used to generate two new cross sections between Cross Sections 4 and 5, six new cross sections between Cross Sections 8 and 9, and six new cross sections between Cross Sections 9 and 10. Interpolation with 5 ft maximum spacing is used to generate 10 new cross sections between Cross Sections 10 and 11. The model is re-run and most warnings are eliminated as noted below. Table 7-38 provides the final results.

Table 7-38. Unit 3 Southeast Channel Final Results

Cross Section	Q (cfs)	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
11	371.00	822.70	821.52	822.79	0.001435	2.90	161.61	80.48	0.30
10	371.00	821.86	821.86	822.52	0.013351	7.43	62.87	47.76	0.88
9	371.00	819.39	819.55	820.02	0.038395	6.66	58.06	96.52	1.28
8	371.00	819.76		819.81	0.000367	1.10	229.82	98.29	0.14
7	371.00	819.76		819.80	0.000356	1.08	232.81	105.14	0.14
6	371.00	819.77		819.79	0.000244	0.90	322.59	188.58	0.12
5	371.00	819.75		819.77	0.000152	0.92	378.00	194.23	0.10
4	737.00	819.73		819.76	0.000201	1.39	570.47	196.65	0.09
3	737.00	819.72		819.75	0.000170	1.34	573.25	163.16	0.09
2	737.00	819.71	814.25	819.74	0.000214	1.48	525.35	150.95	0.10
1.5	Inline Structure								
1	737.00	815.10	809.02	815.12	0.000093	1.08	679.63	132.46	0.08

The final results identify the overtopping water surface elevation at the downstream weir remains 819.71 ft (Cross Section 2). Backwater effects result in an unchanged maximum water surface elevation of 819.77 ft at Cross Section 6 adjacent to the southern end of the Unit 3 nuclear island. All cross section water surface elevations affecting safety-related structures do not exceed 1 ft below plant grade and meet DCD criteria. The Froude number at cross sections between Cross Sections 9 and 10 exceed one, indicating supercritical flow is present as runoff travels down the steeper slopes of the plant loop road. Additionally, there are indications of a hydraulic jump between Cross Sections 8 and 9. There is one remaining warning concerning critical depth used for Cross Section 10. This is appropriate because supercritical flow is present immediately downstream from Cross Section 10. The channel flow profile is provided in Figure 7-156.

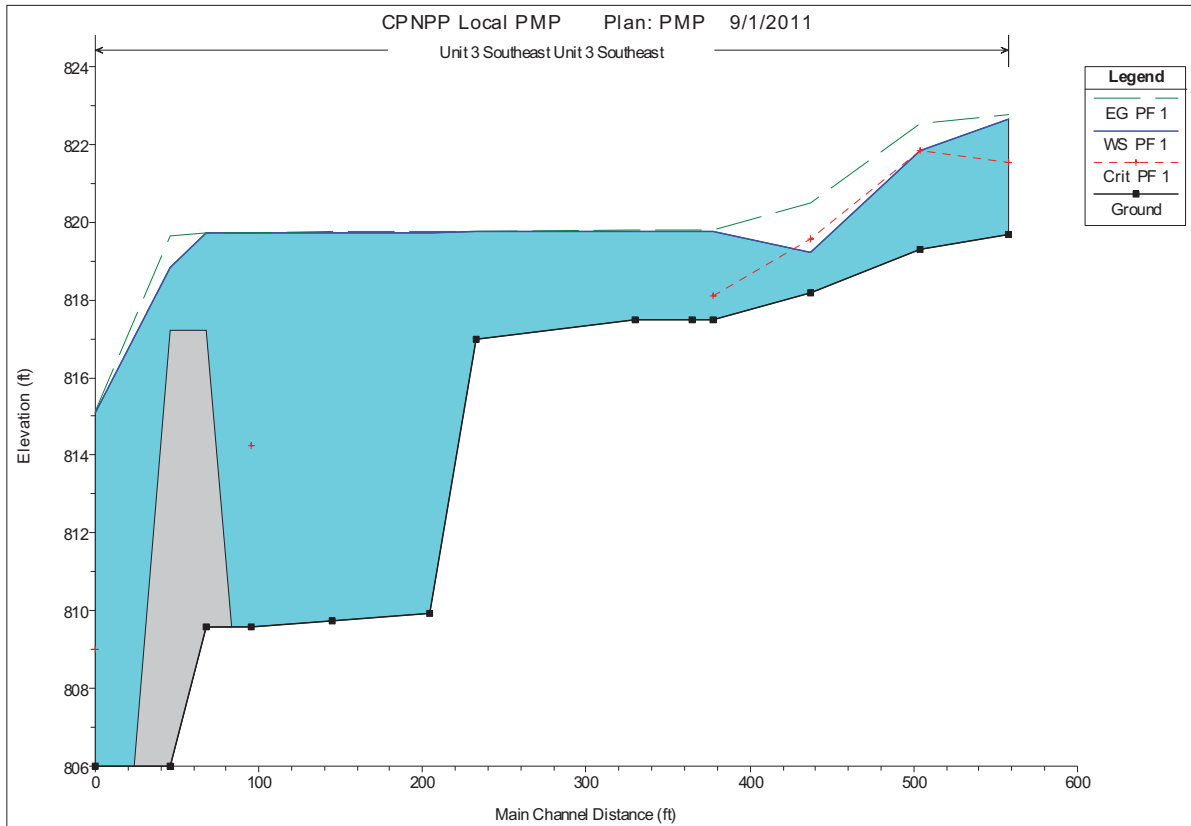


Figure 7-156. Unit 3 Southeast Channel Flow Profile

7.12 East Channel

The East Channel captures runoff in Drainage Area 30, east of Unit 3 and beyond the immediate area of Units 3 and 4. The channel directs runoff into Drainage Pond B, as shown in Figure 7-157. The channel is modeled using seven cross sections and has a potential to contribute flow to the adjacent Unit 3 Southeast Channel.

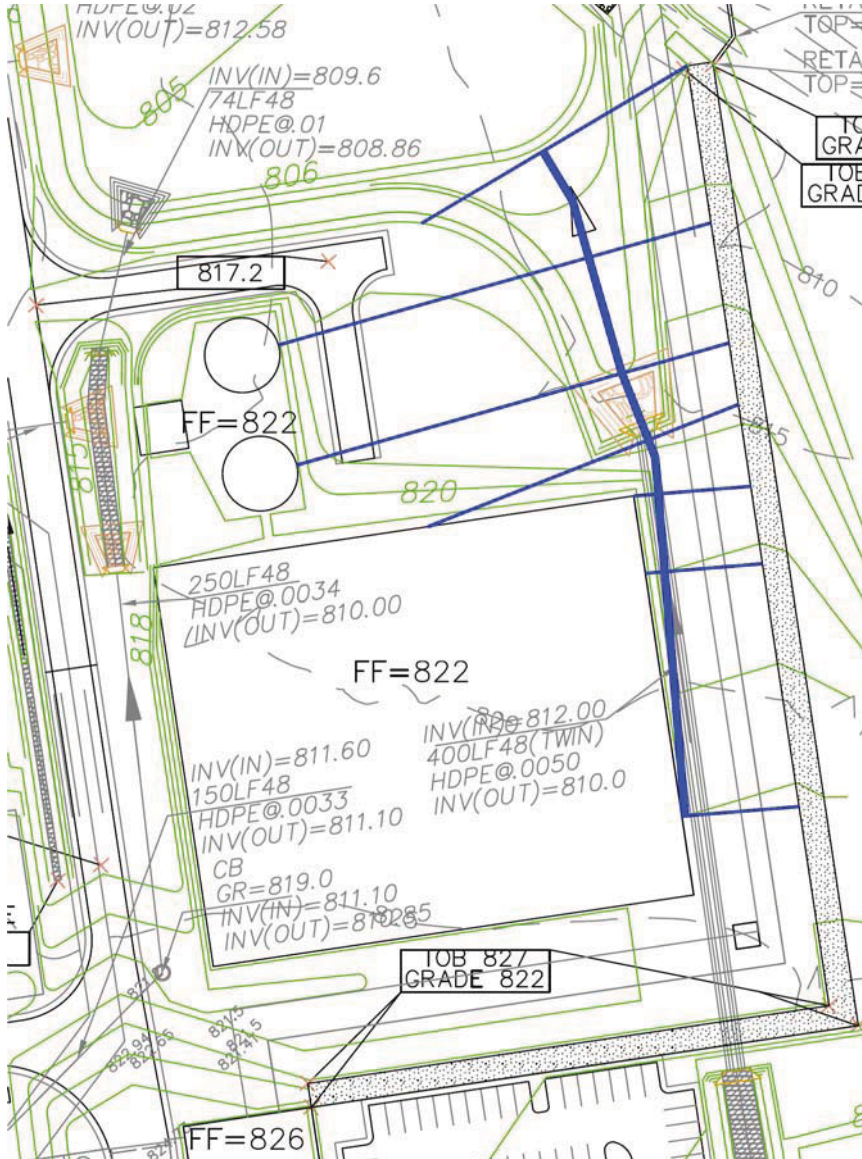


Figure 7-157. East Channel Cross Sections (Source: URS 2011b and 2011d)

The East Channel HEC-RAS schematic is shown in Figure 7-158. The East Channel cross section data are shown in Figure 7-159 through Figure 7-165.

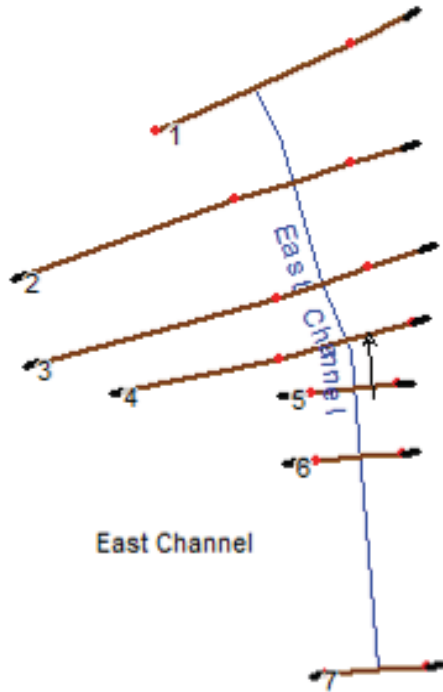
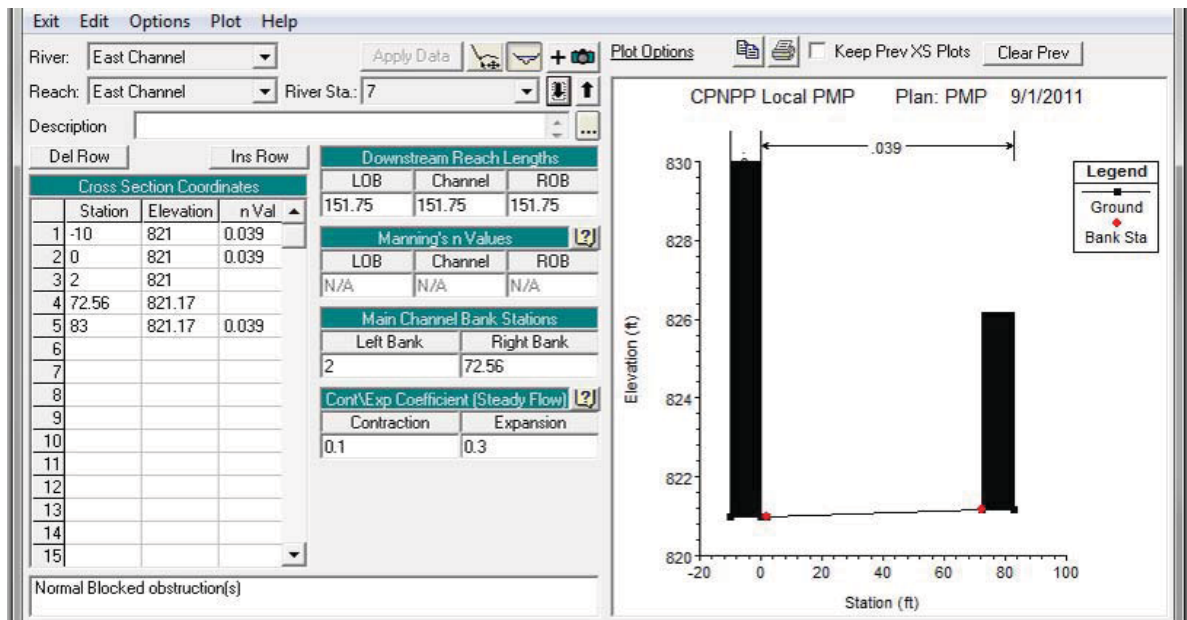
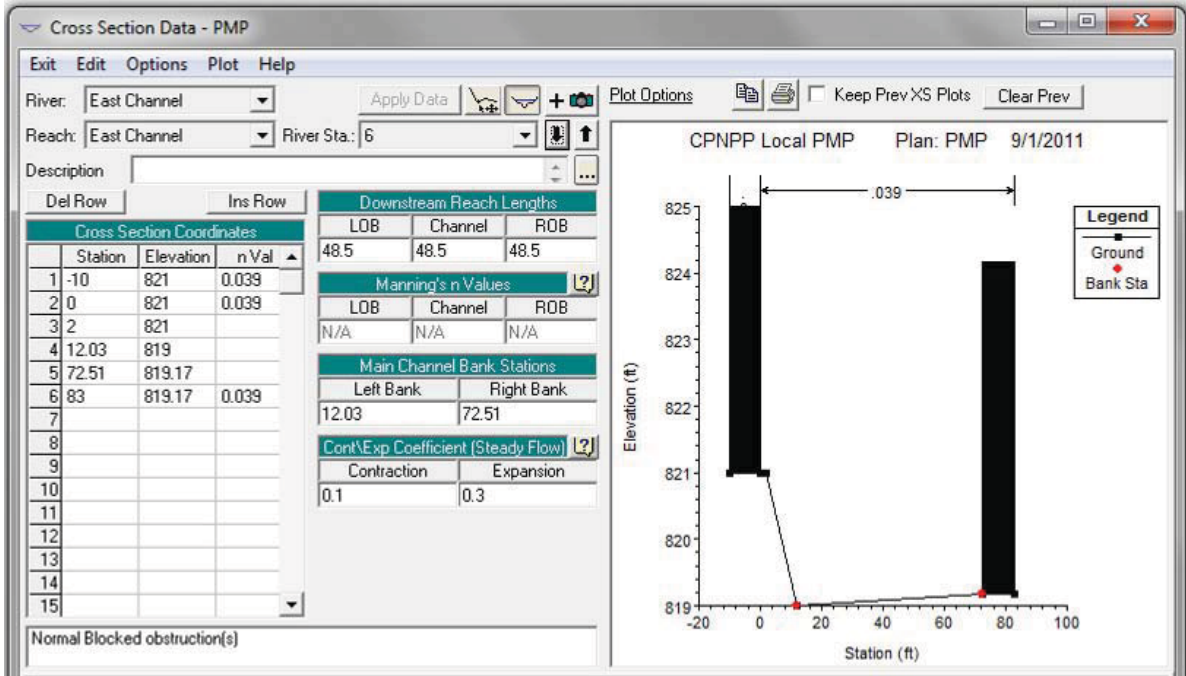


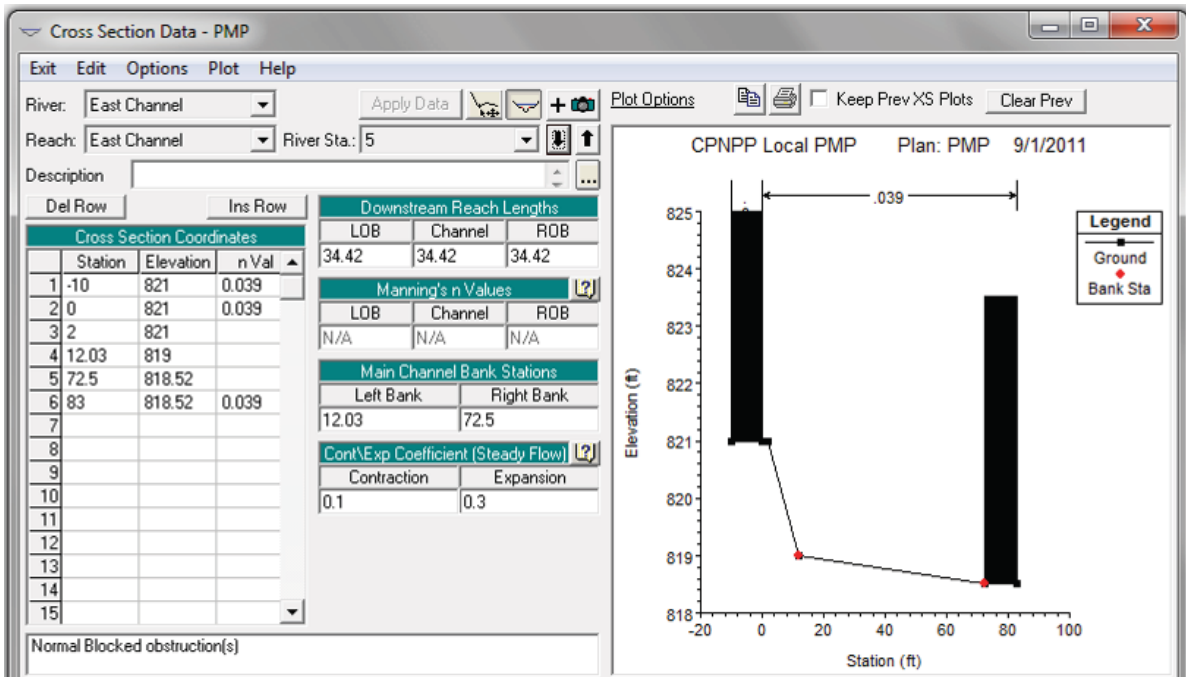
Figure 7-158. East Channel HEC-RAS Schematic



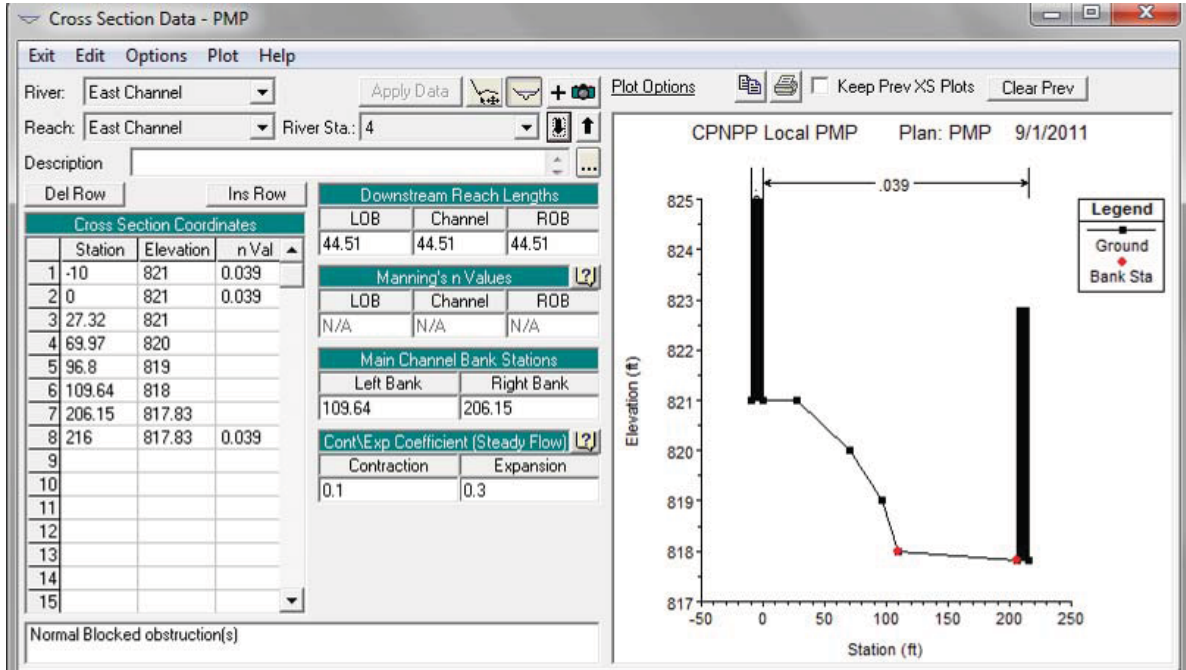
Obstructions: Station -10 to 0 and 72.56 to 83
Figure 7-159. East Channel Cross Section 7



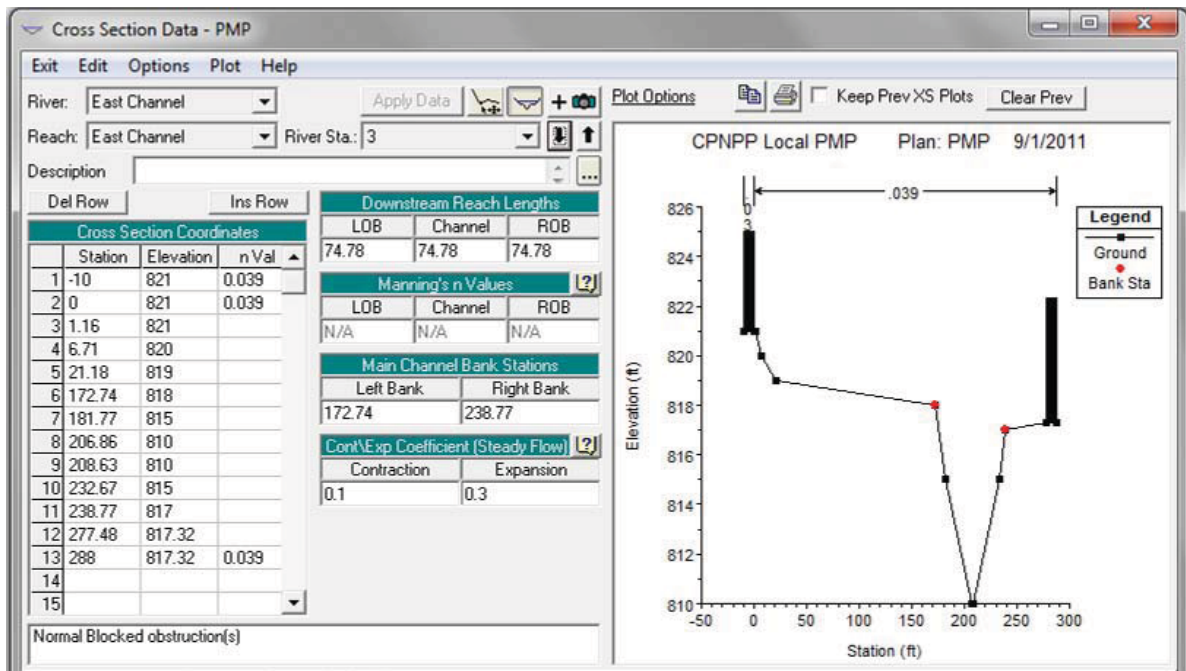
Obstructions: Station -10 to 0 and 72.51 to 83
Figure 7-160. East Channel Cross Section 6



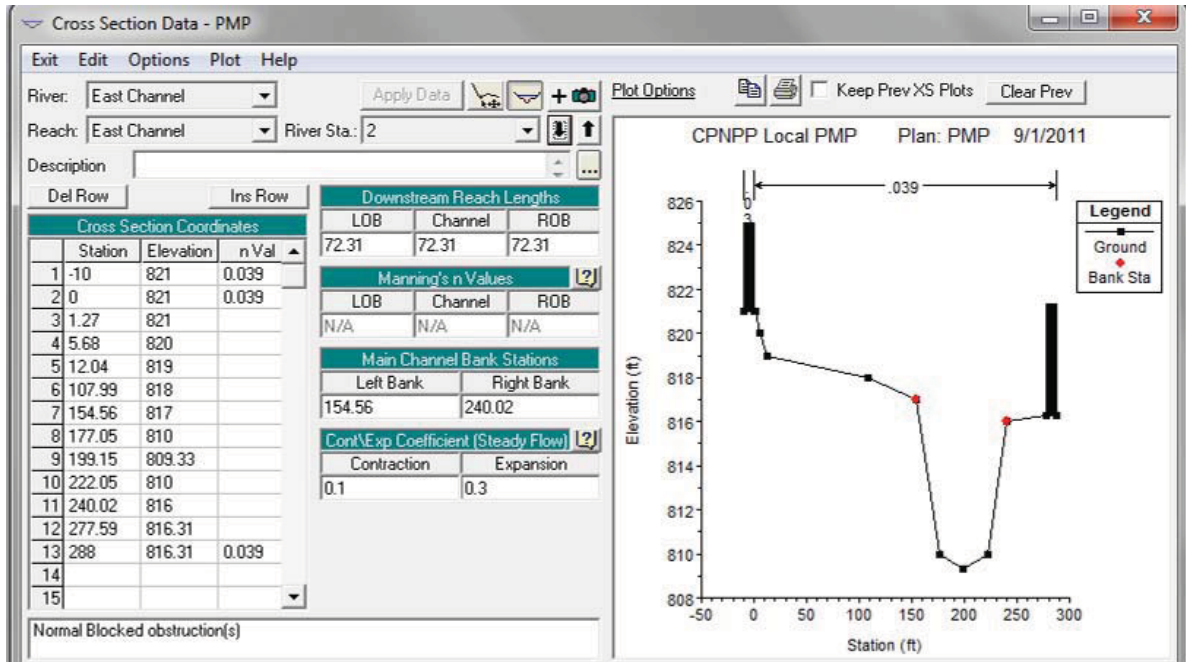
Obstructions: Station -10 to 0 and 72.5 to 83
Figure 7-161. East Channel Cross Section 5



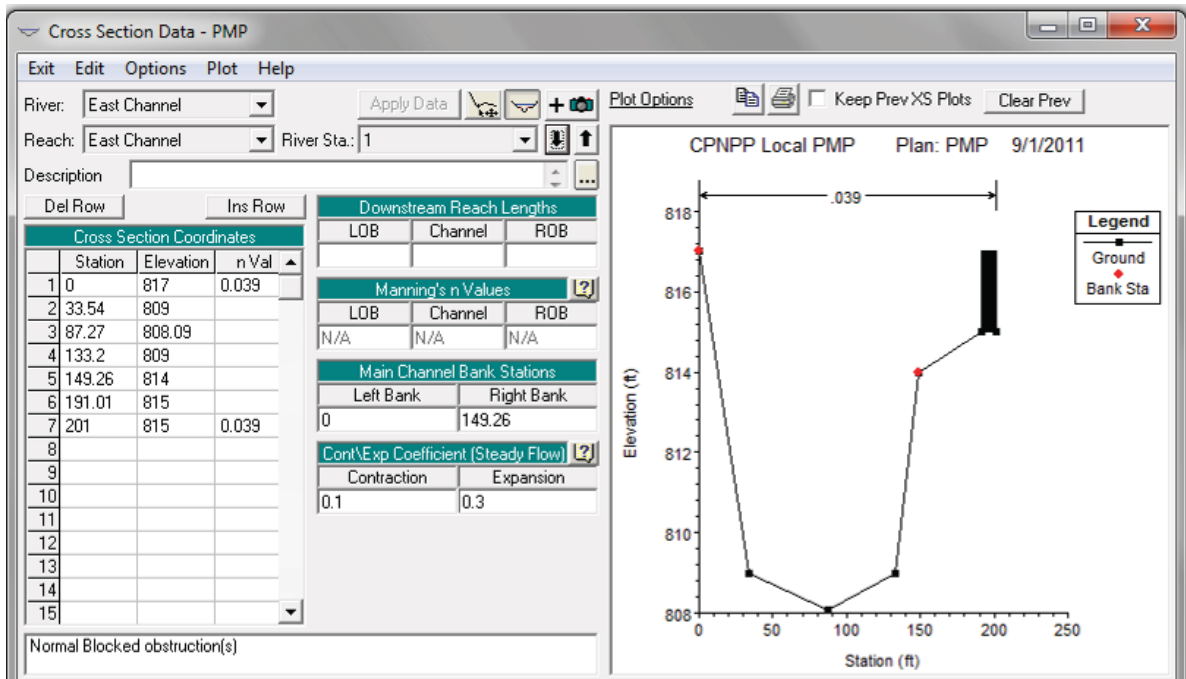
Obstructions: Station -10 to 0 and 206.15 to 216
Figure 7-162. East Channel Cross Section 4



Obstructions: Station -10 to 0 and 277.48 to 288
Figure 7-163. East Channel Cross Section 3



Obstructions: Station -10 to 0 and 277.59 to 288
Figure 7-164. East Channel Cross Section 2



Obstructions: Station 191.01 to 201
Figure 7-165. East Channel Cross Section 1

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Runoff from Drainage Area 30 is added to the model at Cross Section 7. As previously discussed in Section 7.1, a culvert in Drainage Area 32 contributes 332 cfs to the East Channel. It is conservative for the East Channel analysis to assume this culvert is fully functional. The culvert flow from Drainage Area 32 is added to the culvert outlet at Cross Section 3. Table 7-39 provides a summary of the runoff added to the East Channel model.

Table 7-39. East Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
7	213	30	213
3	545	upstream contribution 32 (culvert flow)	213 332

The upstream Cross Section 7 is assigned a critical depth boundary condition. The downstream Cross Section 1 is assigned the Drainage Pond B maximum water surface elevation of 815.1 ft (see Section 7.1). The HEC-RAS model is run using the steady flow option with a mixed flow regime. Preliminary results are provided in Table 7-40.

Table 7-40. East Channel Preliminary Results

Cross Section	Q (cfs)	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
7	213.00	821.72	821.72	822.05	0.026687	4.59	46.53	72.56	1.01
6	213.00	820.22	819.80	820.36	0.005366	3.00	72.28	66.59	0.50
5	213.00	819.48	819.48	819.85	0.025383	4.84	44.32	62.89	1.00
4	213.00	818.38	818.44	818.72	0.043191	4.72	45.56	101.36	1.22
3	545.00	814.97	813.59	815.24	0.003507	4.18	130.31	50.64	0.46
2	545.00	815.08		815.12	0.000293	1.68	323.75	76.53	0.14
1	545.00	815.10	809.52	815.11	0.000033	0.69	814.13	183.04	0.05

Preliminary results indicate flow in the East Channel does not exceed cross sections limits and would not spill over and affect the Unit 3 Southeast Channel. Additionally, there are no safety-related structures adjacent to the East Channel. Froude numbers are equal to or exceed one at Cross Sections 4, 5, and 7, indicating the potential for supercritical flow in the channel. Additionally, there is potential for hydraulic jumps in the channel between Cross Sections 3 and 4 and Cross Sections 6 and 7.

Warnings indicate there may be a need for additional cross sections between all cross sections. HEC-RAS interpolation with 20 ft maximum spacing is used to generate three new cross sections between Cross Sections 1 and 2. Interpolation with 10 ft maximum spacing is used to generate seven new cross sections between Cross Sections 2 and 3. Interpolation with 1 ft maximum spacing is used to generate 44 new cross sections between Cross Sections 3 and 4. Interpolation with 5 ft maximum spacing is used to generate six new cross sections between Cross Sections 4 and 5. Interpolation with 1 ft maximum spacing is used to generate 48 new cross sections between Cross Sections 5 and 6. Interpolation with 50 ft maximum spacing is used to generate three new cross sections between Cross Sections 6 and 7. The model is re-run and most warnings are eliminated as noted below. Table 7-41 provides the final results.



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Table 7-41. East Channel Final Results

Cross Section	Q (cfs)	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
7	213.00	821.88	821.72	822.09	0.013092	3.71	57.69	72.56	0.73
6	213.00	820.08		820.26	0.008269	3.42	63.22	65.90	0.60
5	213.00	819.48	819.48	819.85	0.025383	4.84	44.32	62.89	1.00
4	213.00	818.41	818.44	818.71	0.034650	4.41	48.74	101.76	1.11
3	545.00	815.01		815.28	0.003358	4.12	132.39	50.99	0.45
2	545.00	815.08		815.13	0.000293	1.68	323.95	76.55	0.14
1	545.00	815.10	809.52	815.11	0.000033	0.69	814.13	183.04	0.05

The final results also indicate flow in the East Channel does not exceed cross section limits and would not spill over and affect the Unit 3 Southeast Channel. There are no safety-related structures adjacent to the East Channel. Froude numbers are equal to or exceed one at Cross Sections 4 and 5. Therefore supercritical flow is present in the channel. Additionally, there are indications of a hydraulic jump between Cross Sections 3 and 4. The revised analysis indicates the potential for a hydraulic jump between Cross Sections 6 and 7 is eliminated. There is one remaining warning concerning critical depth used for Cross Section 5. This is appropriate because supercritical flow is present immediately downstream from Cross Section 5. The channel flow profile is provided in Figure 7-166.

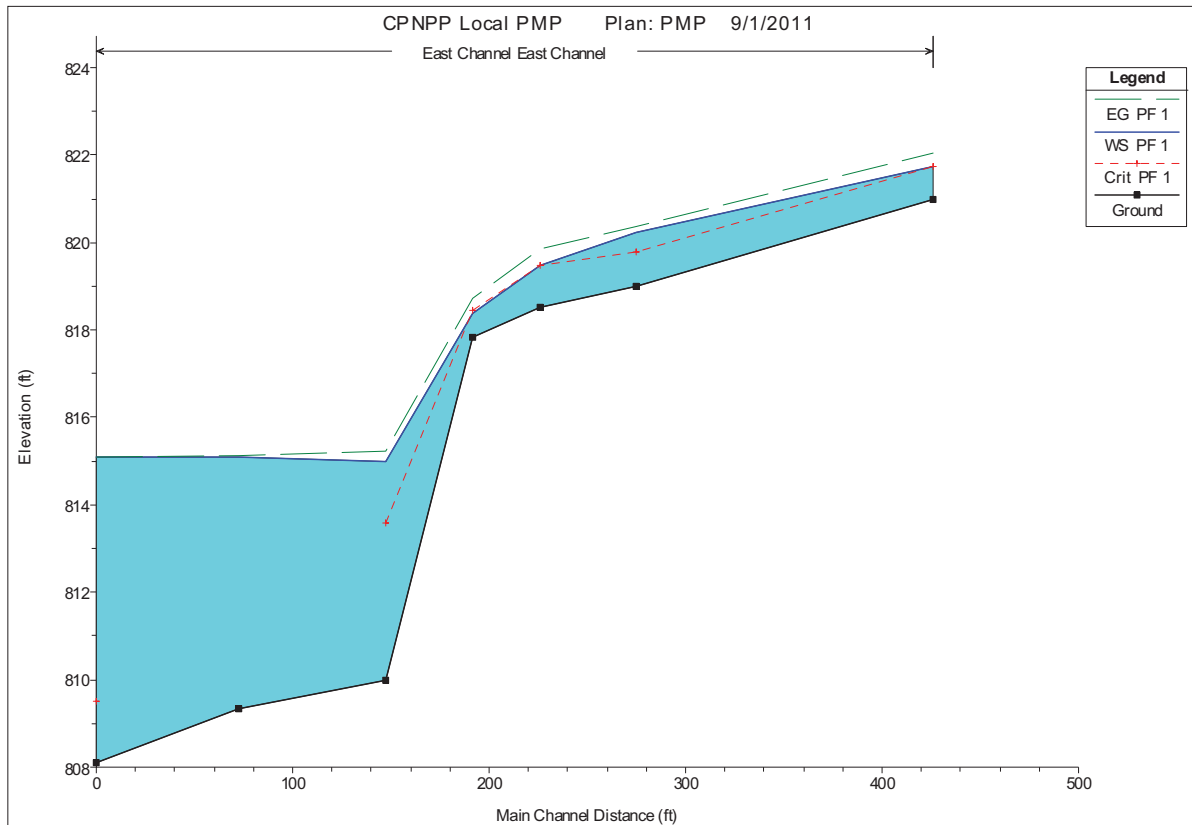


Figure 7-166. East Channel Flow Profile

7.13 Off-site Channel

The Off-site Channel captures runoff in Drainage Area 32, generally south of the plant area and beyond the immediate area of Units 3 and 4. The Off-site Channel directs runoff to a culvert structure at the VBS and empties into the East Channel, as shown in Figure 7-167. An overflow embankment directs excess runoff to the SCR. The channel is modeled using six cross sections and has a potential to contribute additional runoff to the East Channel should water surface elevations exceed the VBS elevation of 827 ft.

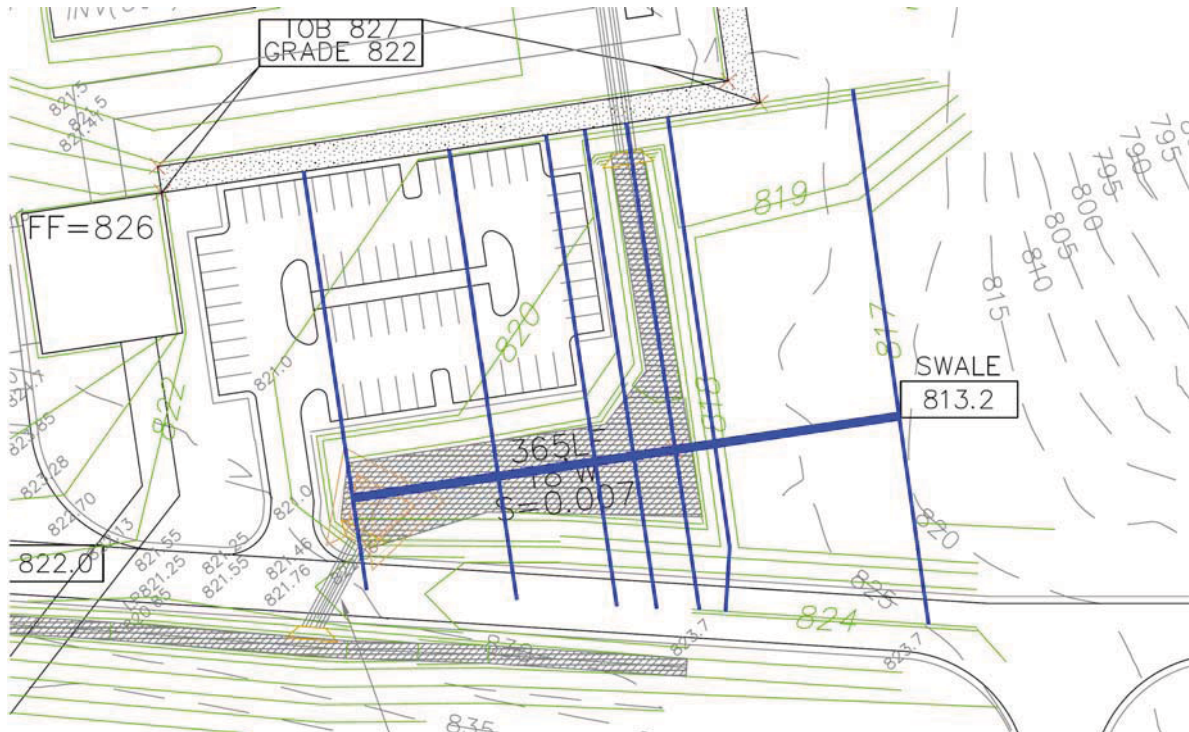


Figure 7-167. Off-site Channel Cross Sections (Source: URS 2011d)

The Off-site Channel HEC-RAS schematic is shown in Figure 7-168. The Off-site Channel cross section data are shown in Figure 7-169 through Figure 7-174. The inline structure weir is shown in Figure 7-175. The corresponding data are provided in Table 7-42.

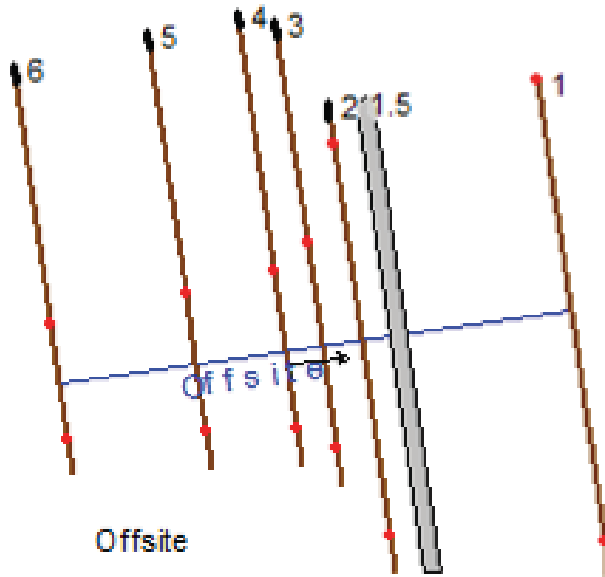


Figure 7-168. Off-site Channel HEC-RAS Schematic

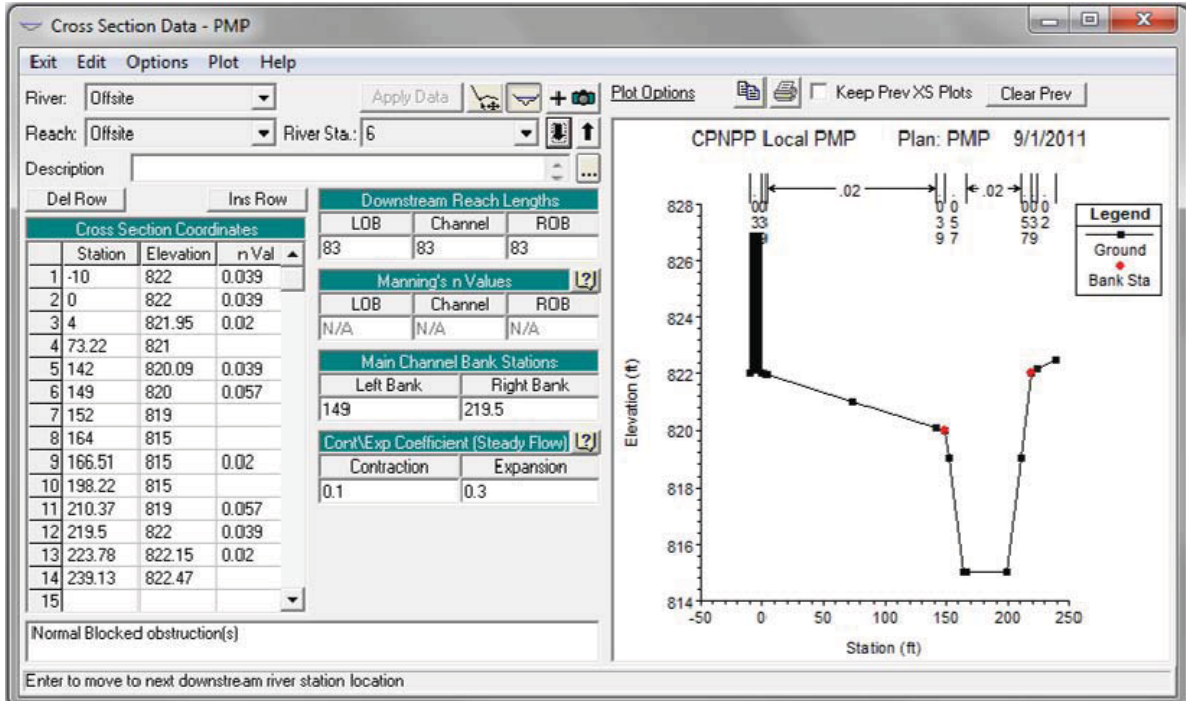
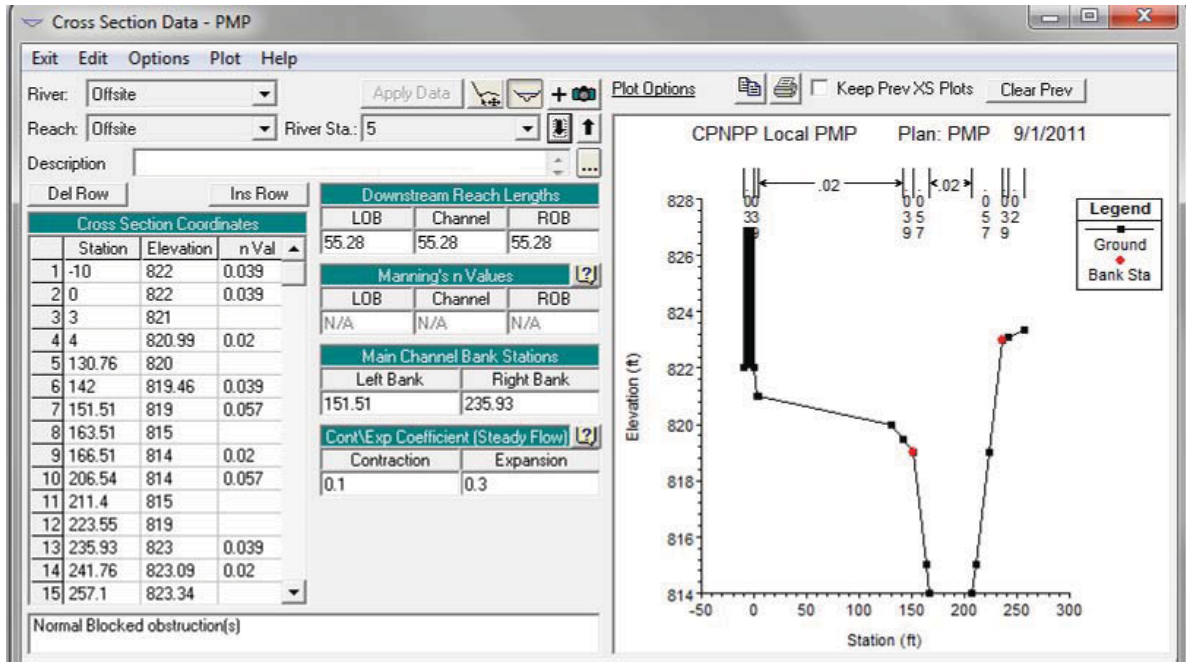
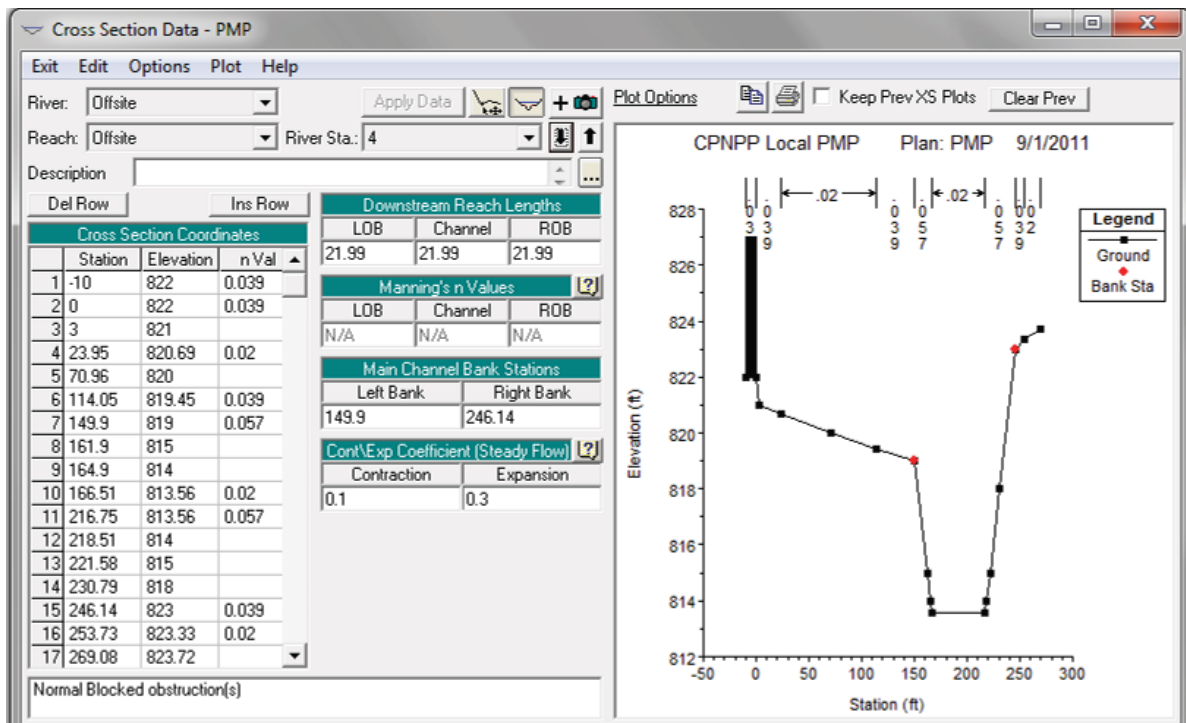


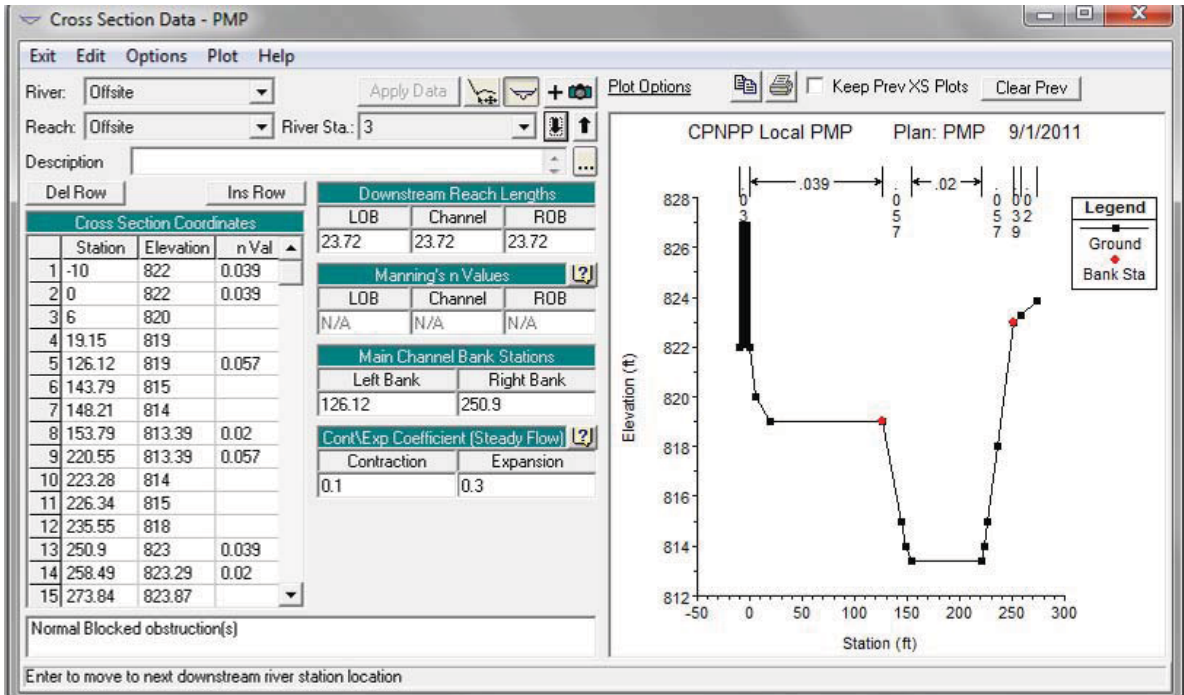
Figure 7-169. Off-site Channel Cross Section 6



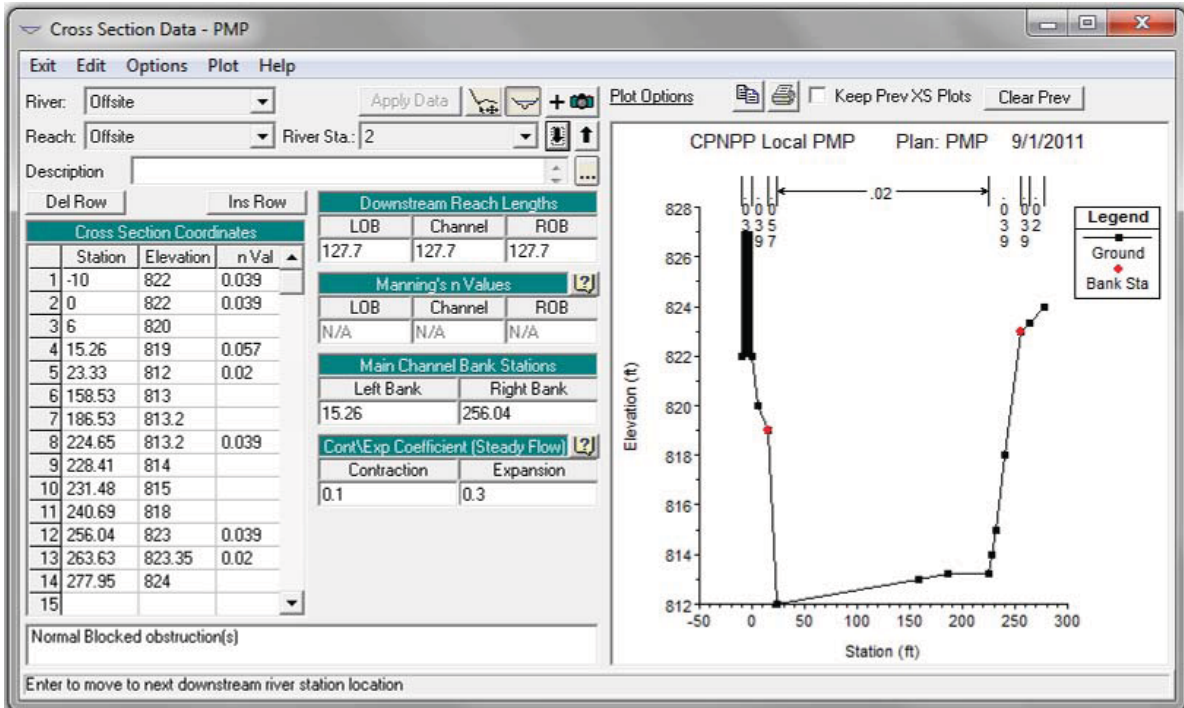
Obstructions: Station -10 to 0
Figure 7-170. Off-site Channel Cross Section 5



Obstructions: Station -10 to 0
Figure 7-171. Off-site Channel Cross Section 4



Obstructions: Station -10 to 0
Figure 7-172. Off-site Channel Cross Section 3



Obstructions: Station -10 to 0
Figure 7-173. Off-site Channel Cross Section 2

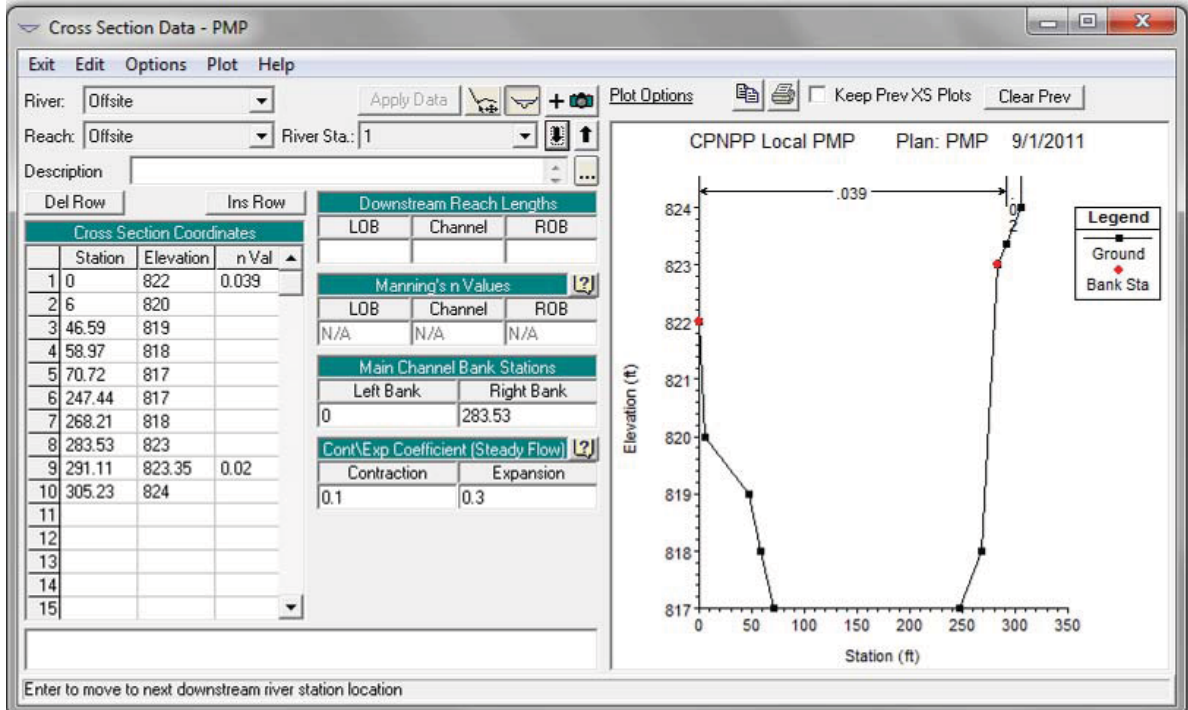


Figure 7-174. Off-site Channel Cross Section 1

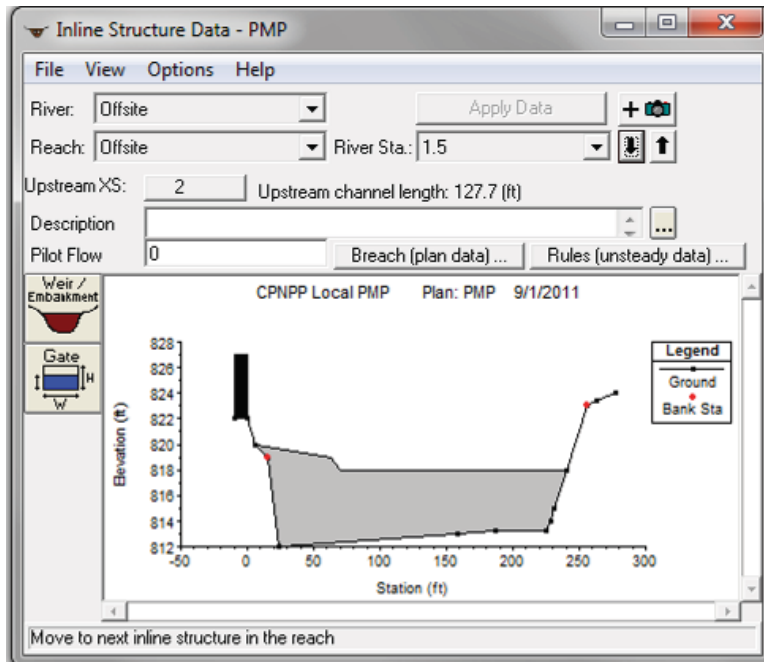


Figure 7-175. Off-site Channel Inline Structure Weir Cross Section 1.5

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Table 7-42. Off-site Channel Inline Structure Weir Cross Section 1.5

Station (ft)	Elevation (ft)
-10	822
0	822
6	820
62.83	819
70.32	818
245.5	818
260.5	823
281.9	824

Distance between upstream station and weir = 17.7 ft

Weir width = 10 ft

Weir coefficient = 2.6

Runoff from Drainage Area 32 is added to the model at Cross Section 6. Table 7-43 provides a summary of the runoff added to the Off-site Channel model.

Table 7-43. Off-site Channel Runoff

Cross Section	Total Runoff (cfs)	Drainage Areas	Runoff (cfs)
6	2421	32	2421

The upstream Cross Section 6 is assigned a critical depth boundary condition. Excess runoff exceeding the overflow embankment of the Off-Site Channel empties into the SCR. However, the downstream cross section elevation is well above the PMF elevation of the SCR (see Section 5.0). Therefore, the downstream Cross Section 1 is assigned a normal depth slope of 0.2 ft/ft based on the steep slopes of the existing topography, as shown in Figure 7-176. The HEC-RAS model is run using the steady flow option with a mixed flow regime. Preliminary results are provided in Table 7-44.

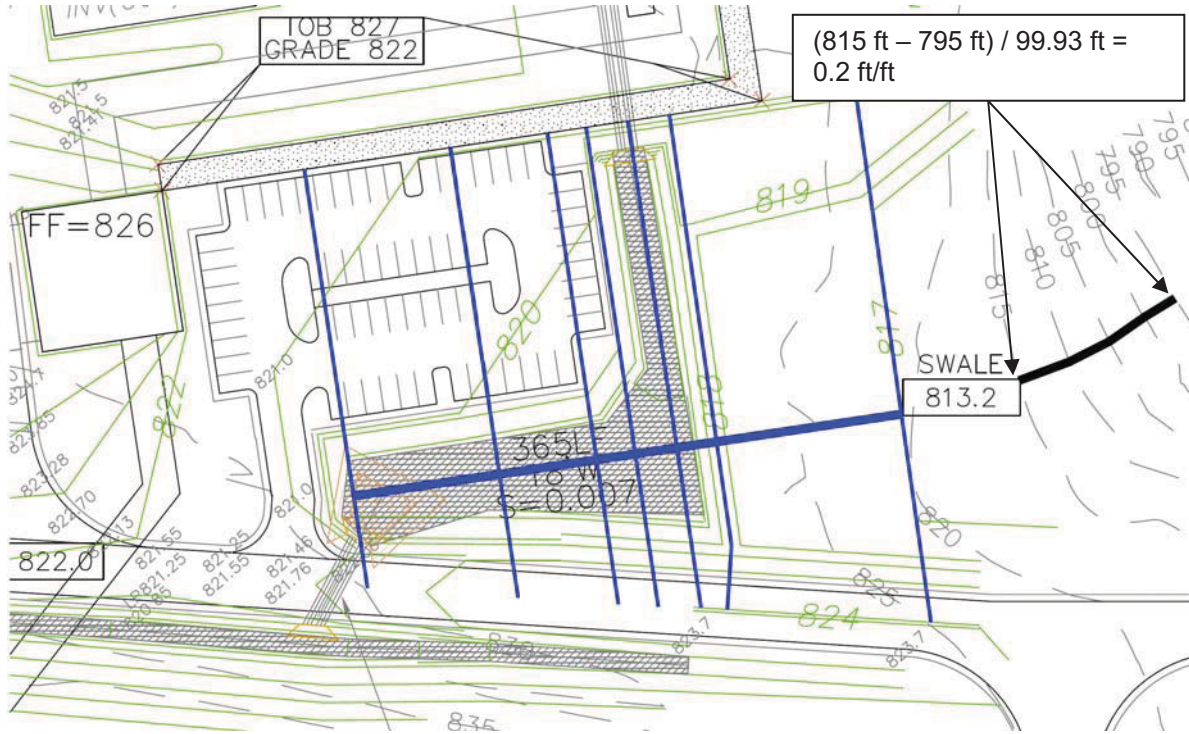


Figure 7-176. Off-site Channel Downstream Boundary Condition (Source: URS 2011d)

Table 7-44. Off-site Channel Preliminary Results

Cross Section	Q (cfs)	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
6	2421.00	820.44	819.65	821.62	0.006452	8.75	282.37	99.02	0.75
5	2421.00	820.57		821.08	0.002856	5.81	443.45	170.43	0.45
4	2421.00	820.62		820.90	0.001340	4.40	608.84	210.24	0.33
3	2421.00	820.71		820.84	0.000587	3.06	908.04	239.99	0.22
2	2421.00	820.78	814.34	820.81	0.000035	1.37	1775.73	245.55	0.09
1.5	Inline Structure								
1	2421.00	818.69	818.69	819.47	0.019407	7.10	340.79	219.88	1.01

Preliminary results indicate flow in the Off-site Channel does not exceed the VBS elevation of 827 ft and affect the East Channel. Additionally, there are no safety-related structures adjacent to the Off-site Channel. The Froude number for the downstream Cross Section 1 exceeds one, indicating the potential for supercritical flow in the channel. There are no indications of hydraulic jumps in the channel.

Warnings indicate there may be a need for additional cross sections between Cross Sections 3 and 4, 4 and 5, and 5 and 6. HEC-RAS interpolation with 2 ft maximum spacing is used to generate 11 new cross sections between Cross Sections 2 and 3. Interpolation with 20 ft maximum spacing is used to generate one new cross section between Cross Sections 3 and 4. Interpolation with 50 ft maximum spacing is used to generate one new cross section between Cross Sections 4 and 5, and one new cross section between Cross Sections 5 and 6. The model is re-run and most warnings are eliminated as noted below. Table 7-45 provides the final results.

Table 7-45. Off-site Channel Final Results

Cross Section	Q (cfs)	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
6	2421.00	820.50	819.64	821.64	0.006149	8.60	289.04	104.18	0.74
5	2421.00	820.58		821.09	0.002825	5.79	445.95	172.34	0.45
4	2421.00	820.63		820.91	0.001332	4.39	610.44	210.77	0.32
3	2421.00	820.71		820.85	0.000585	3.05	909.50	240.02	0.22
2	2421.00	820.78	814.34	820.81	0.000035	1.37	1775.73	245.55	0.09
1.5	Inline Structure								
1	2421.00	818.69	818.69	819.47	0.019407	7.10	340.79	219.88	1.01

The final results also indicate flow in the Off-site Channel does not exceed the VBS elevation of 827 ft and affect the East Channel. There are no safety-related structures adjacent to the Off-site Channel. The Froude number for the downstream Cross Section 1 exceeds one, indicating there is supercritical flow at the downstream end of the channel. There is one remaining warning concerning critical depth used for Cross Section 1. This is appropriate because the steep boundary condition would be expected to exhibit supercritical flow. There are no indications of hydraulic jumps in the channel. The channel flow profile is provided in Figure 7-177.

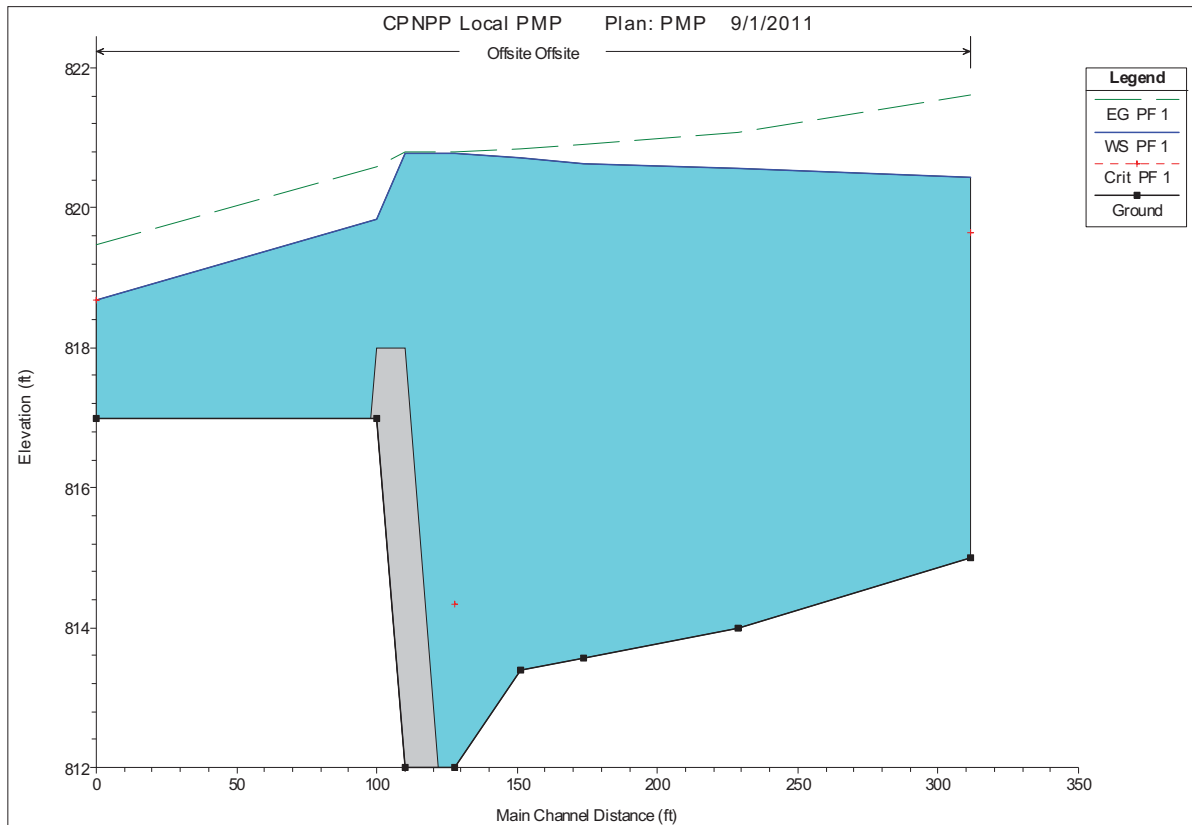


Figure 7-177. Off-site Channel Flow Profile

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7.14 Summary

All water surface elevations adjacent to safety-related structures determined for the effects of local intense precipitation do not exceed 1 foot below plant grade. The plant grade elevation is 822 ft (URS 2011b and 2011d). The maximum water surface elevation is 820.98 ft. Table 7-46 provides a summary of the analysis results. Figure 7-178 shows the approximate locations of key water surface elevations, such as upstream and downstream of weir structures and maximum water surface elevations.

Table 7-46. Summary of Maximum Results

Feature	Max Water Surface Elevation (ft)	Location	Adjacent Unit
Drainage Pond A	816	Pond	N/A
Drainage Pond B	815.1	Pond	N/A
Unit 4 UHS Channel	819.80	Cross Section 107	Unit 4
West Channel	820.98	Cross Section 23	Unit 3 and Unit 4
Center South Channel	820.98	Cross Section 8	Unit 3 and Unit 4
Unit 3 UHS Channel	819.66	Cross Section 12	Unit 3
Unit 3 North Channel	820.14	Cross Section 8	Unit 3
Center North Channel	820.44	Cross Section 13	Unit 3 and Unit 4
Unit 4 North Channel	820.11	Cross Section 6	Unit 4
Unit 3 East Channel	820.48	Cross Section 5	Unit 3
Unit 3 Southeast Channel	819.77	Cross Section 6	Unit 3
East Channel	N/A	N/A	N/A
Off-site Channel	N/A	N/A	N/A

The East Channel and the Off-site Channel are not located adjacent to safety-related structures. These channels are evaluated for potential contribution to other channels. Cross sections of the Unit 3 Southeast Channel exhibit higher water surface elevations than identified in Table 7-46. However, the higher water surface elevations are at upstream cross sections that are not located adjacent to safety-related structures.

Cross section plots for each channel depicting the final run water surface elevations are provided in Appendix A. Appendix B contains the HEC-RAS computation report for the preliminary run. Appendix C contains the HEC-RAS computation report for the final run. The HEC-RAS input data are provided in the output reports.

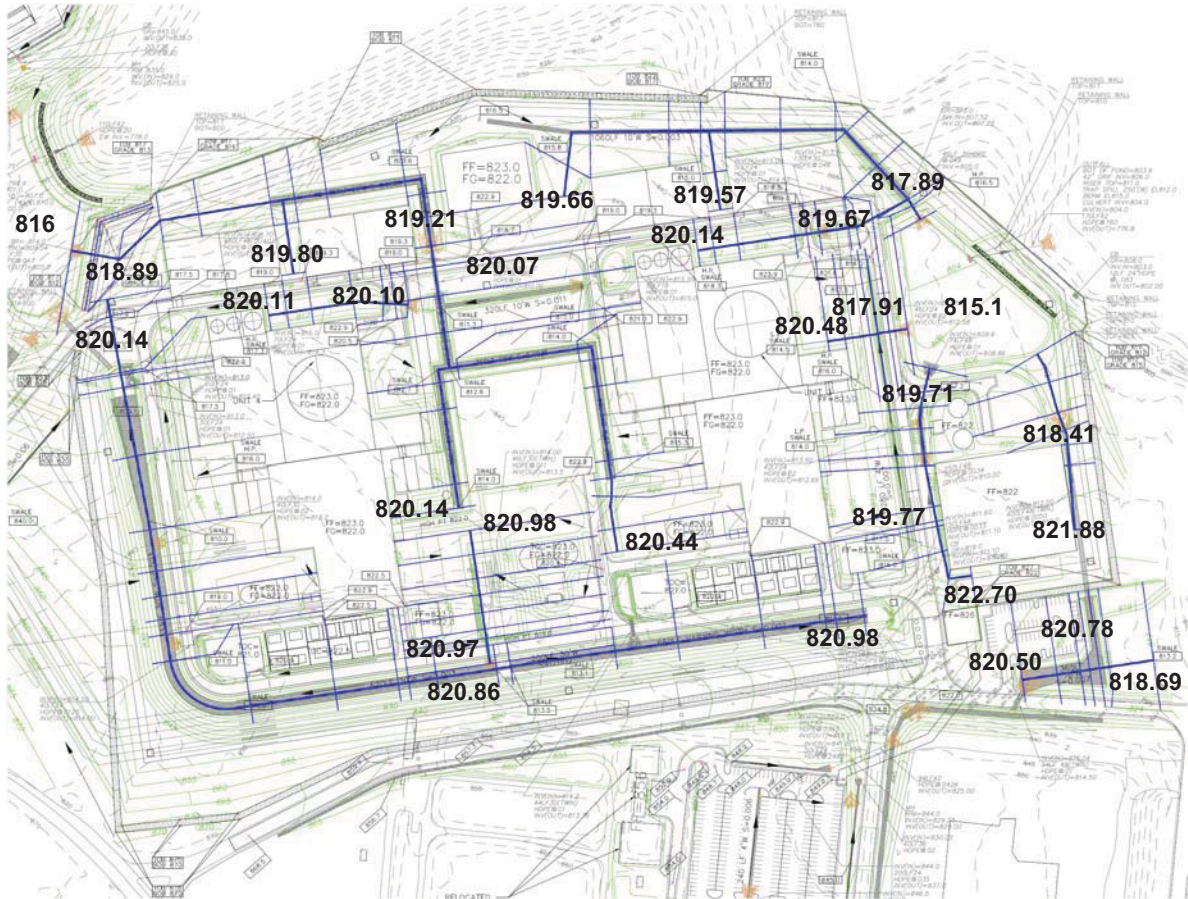


Figure 7-178. Summary Water Surface Elevations

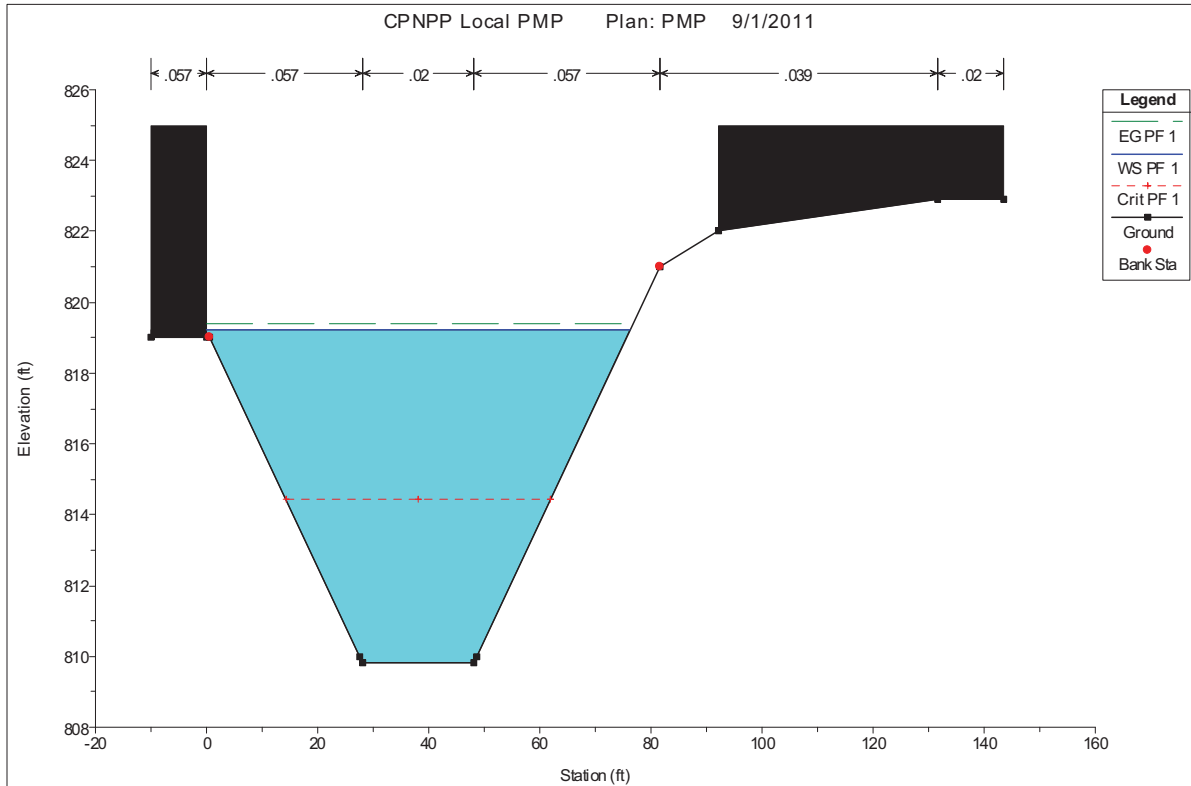
8.0 Appendices

Appendix A – HEC-RAS Cross Section Plots

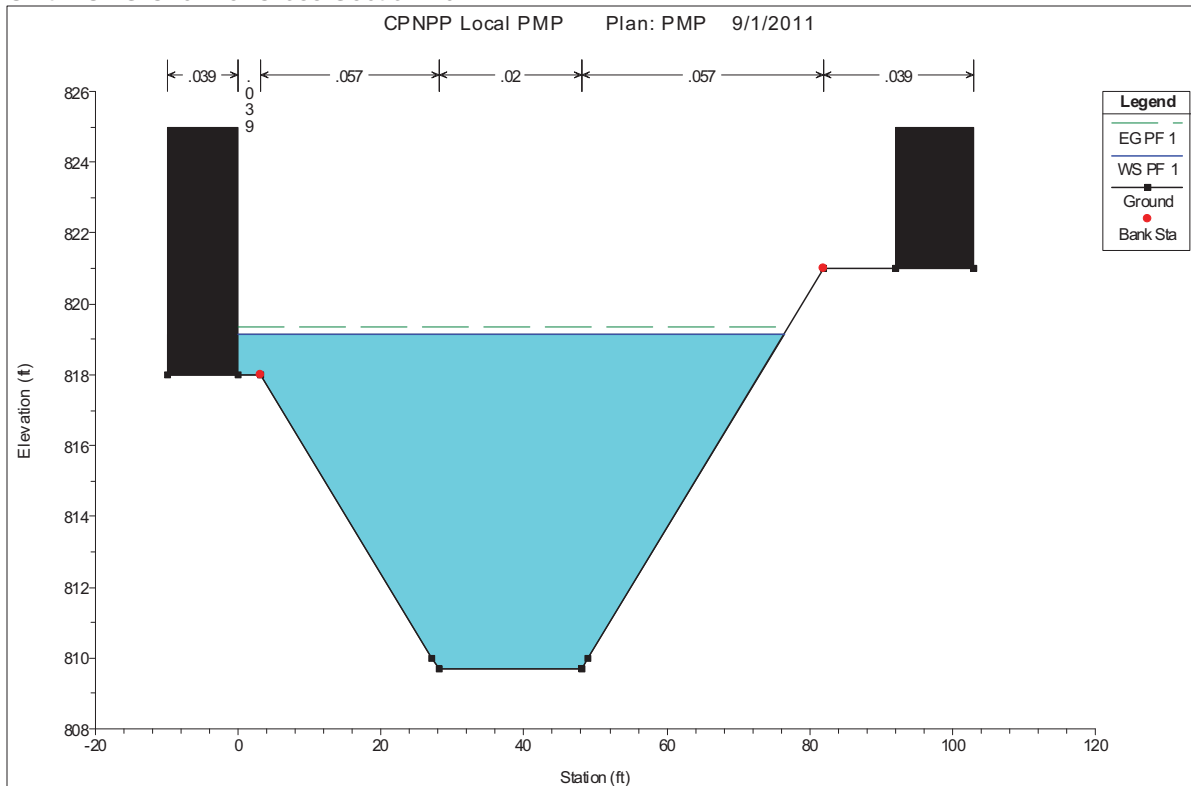
Appendix B – HEC-RAS Preliminary Run Report

Appendix C – HEC-RAS Final Run Report

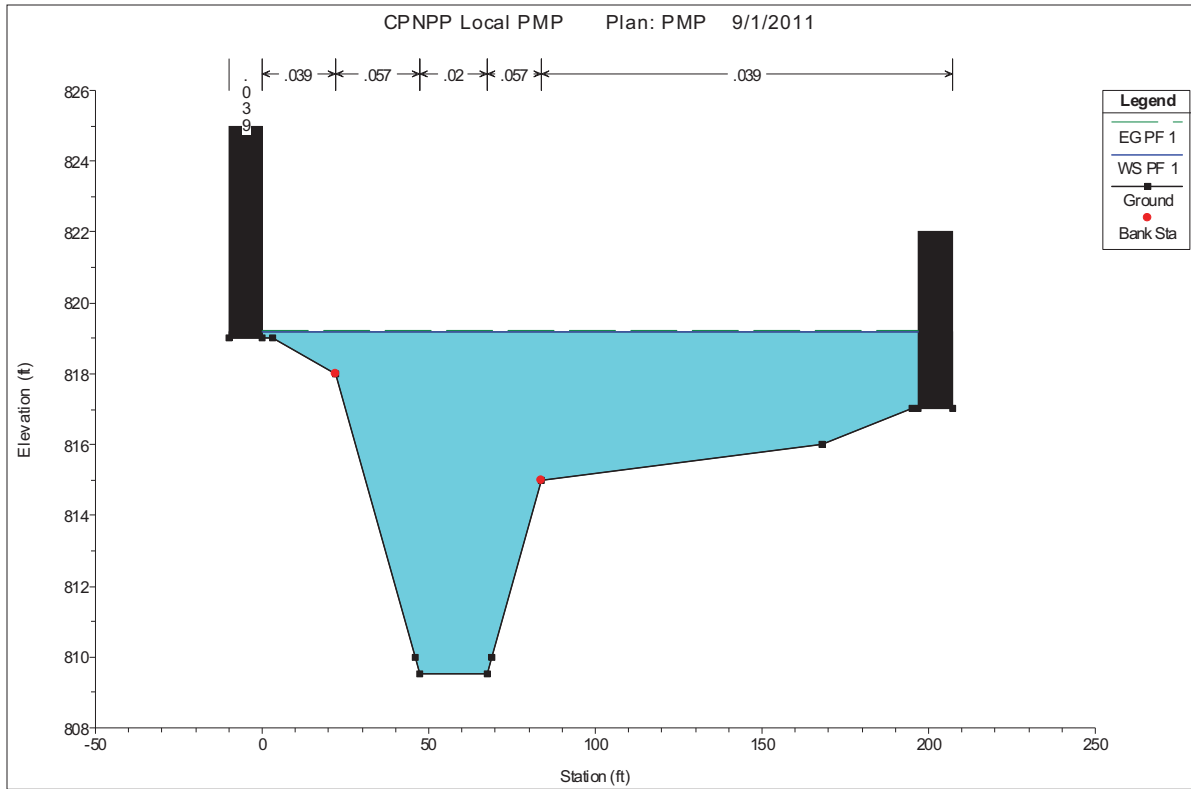
Unit 4 UHS Channel Cross Section Plots



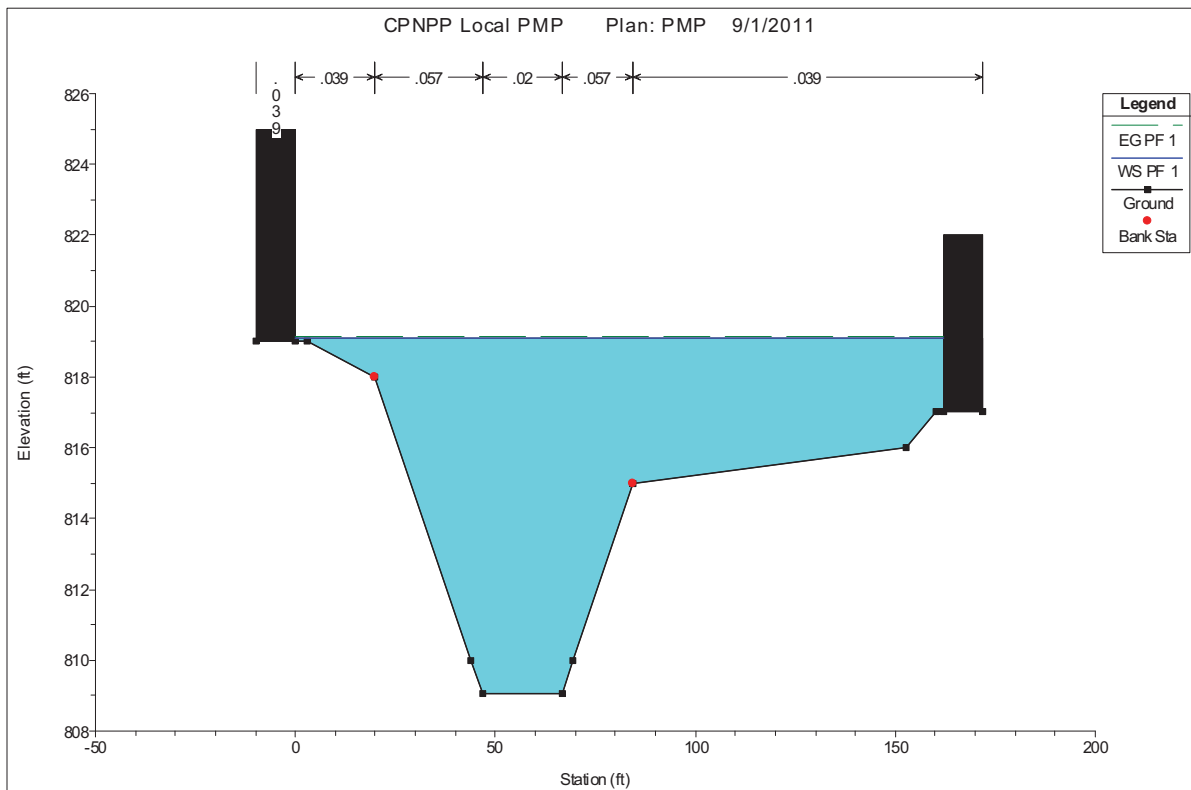
Unit 4 UHS Channel Cross Section 10



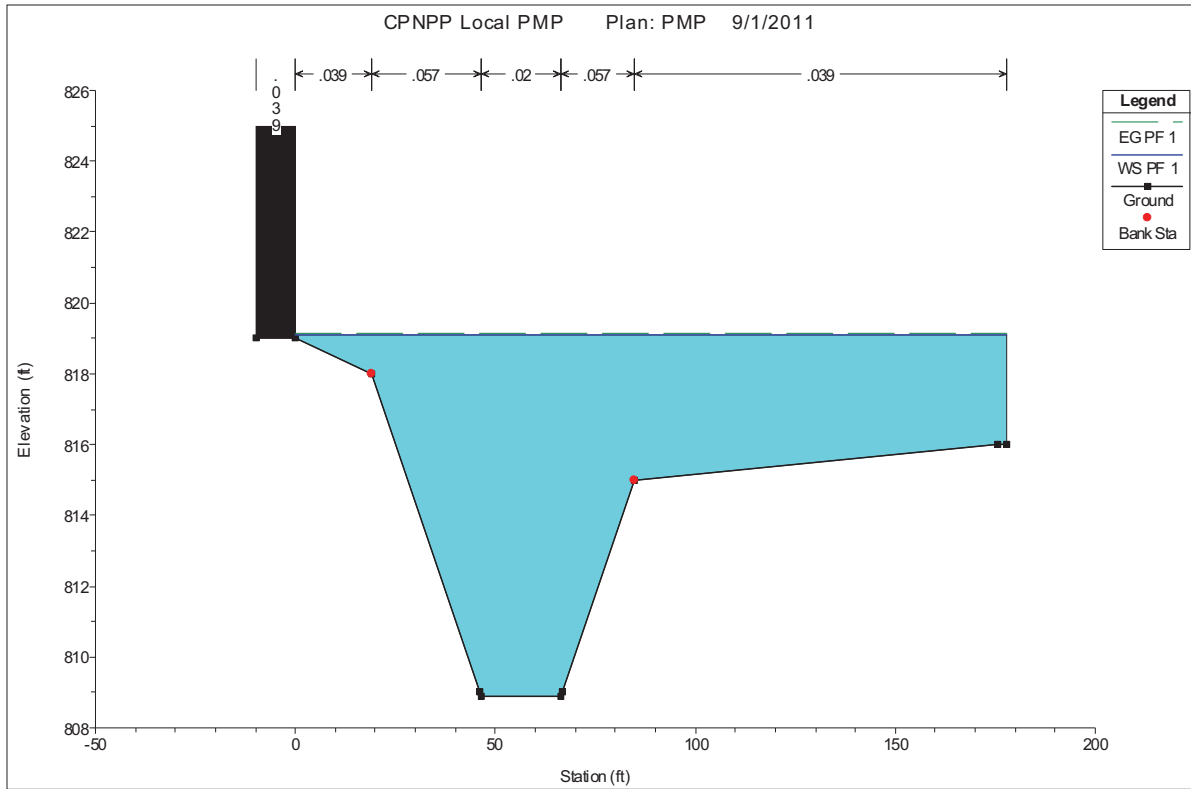
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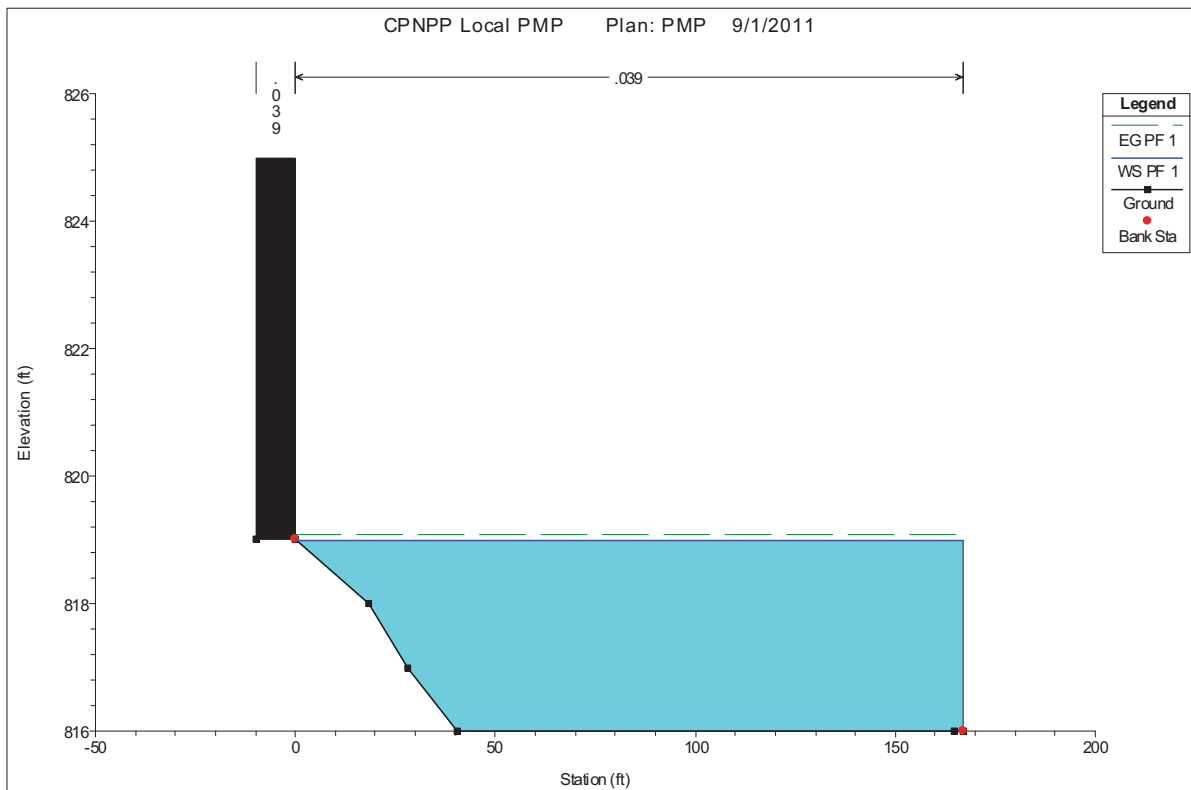
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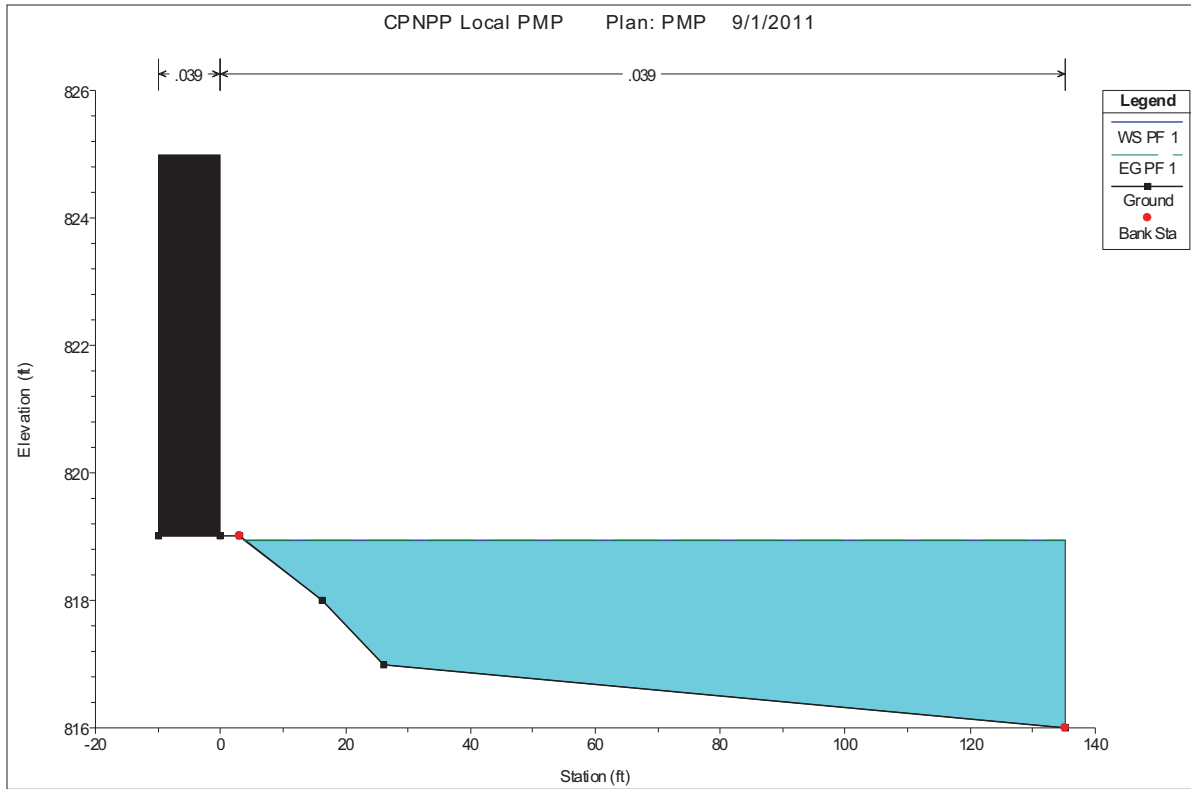
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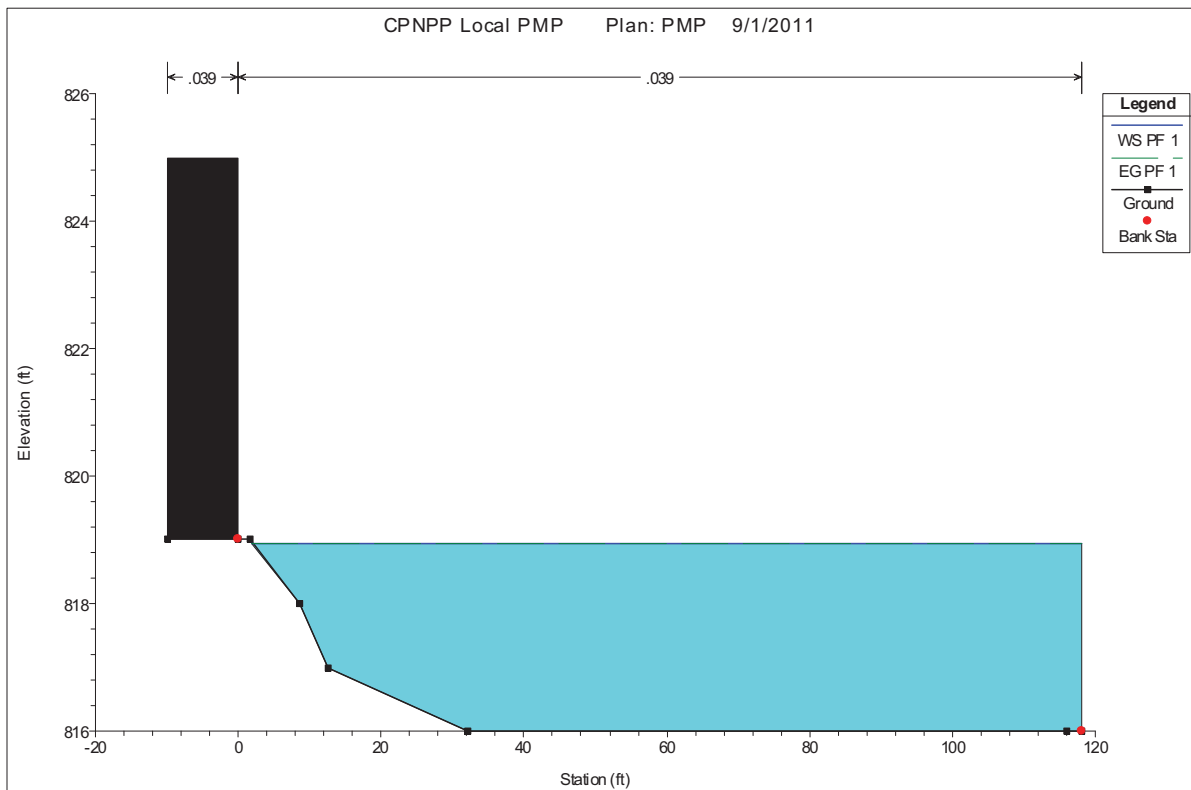
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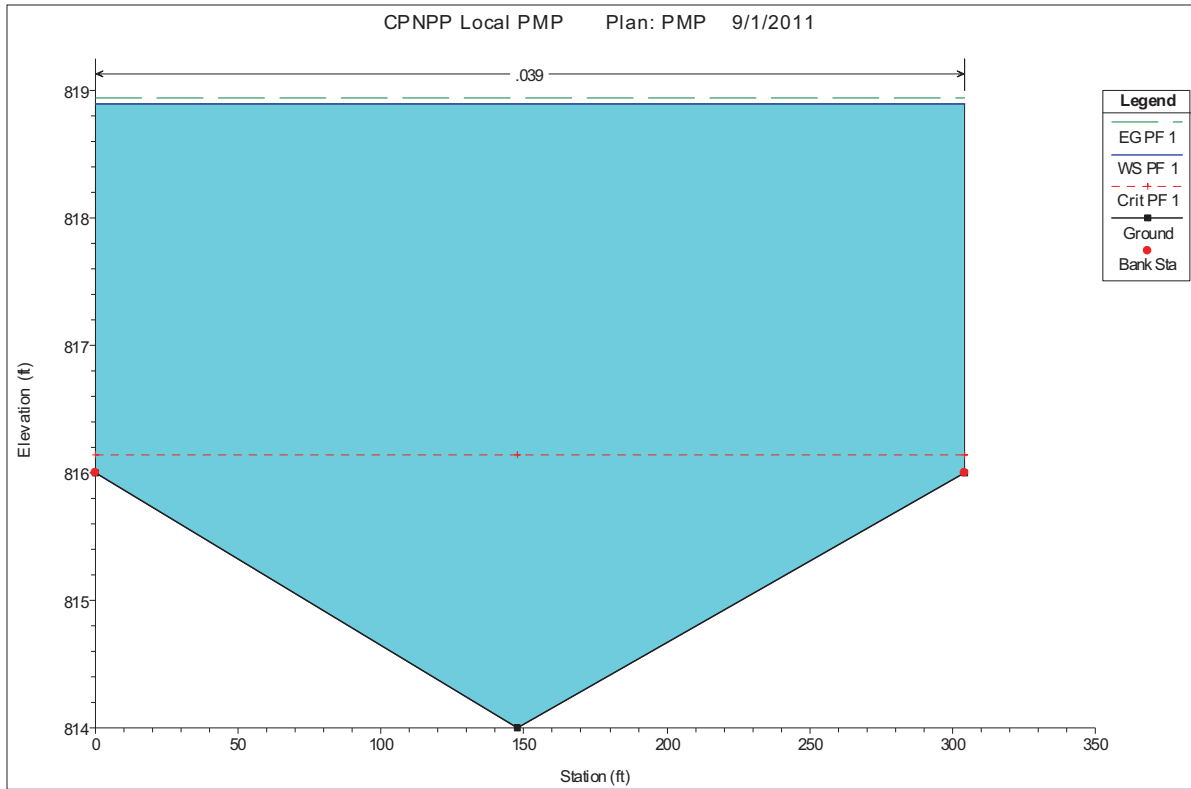
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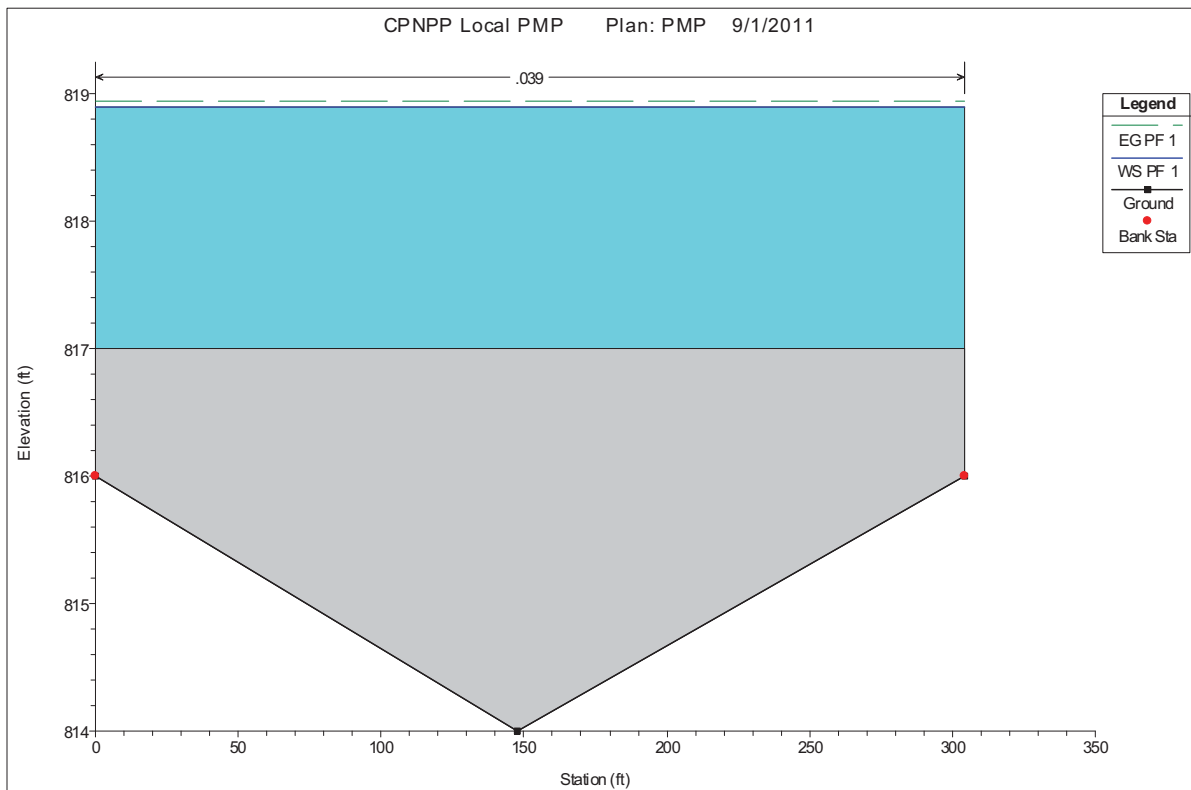
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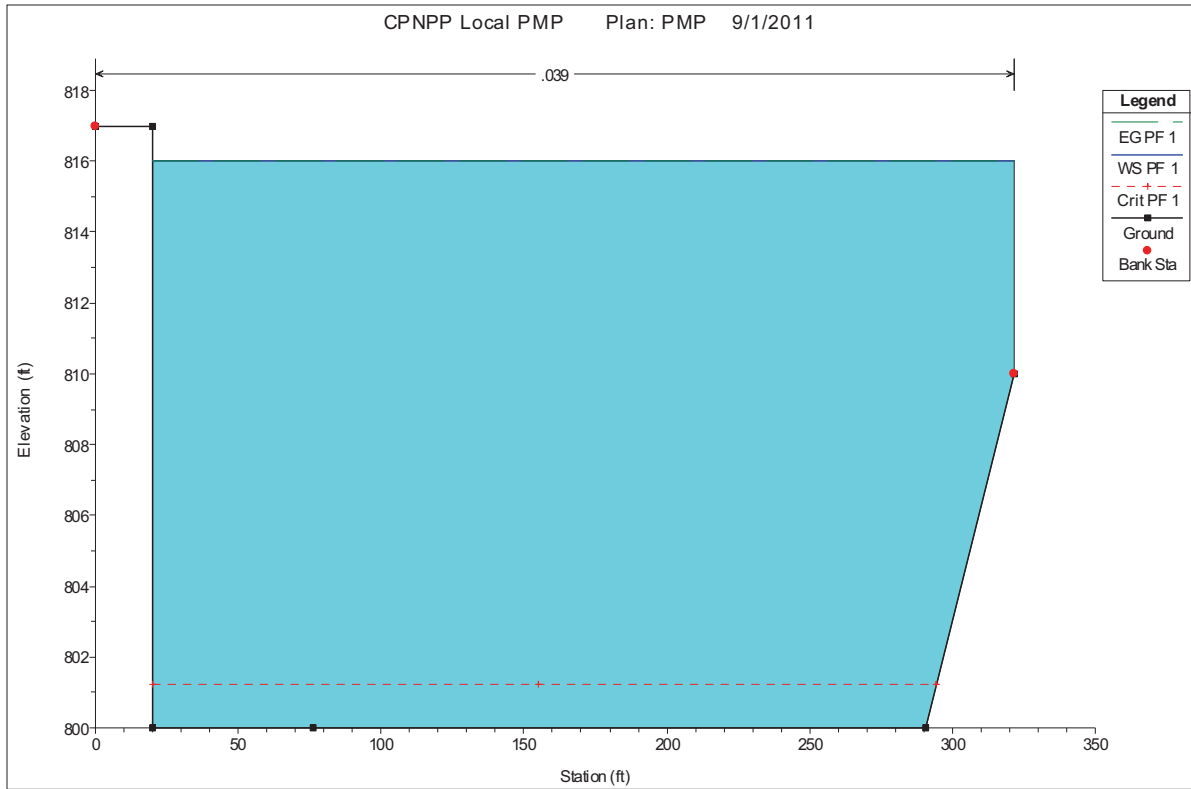
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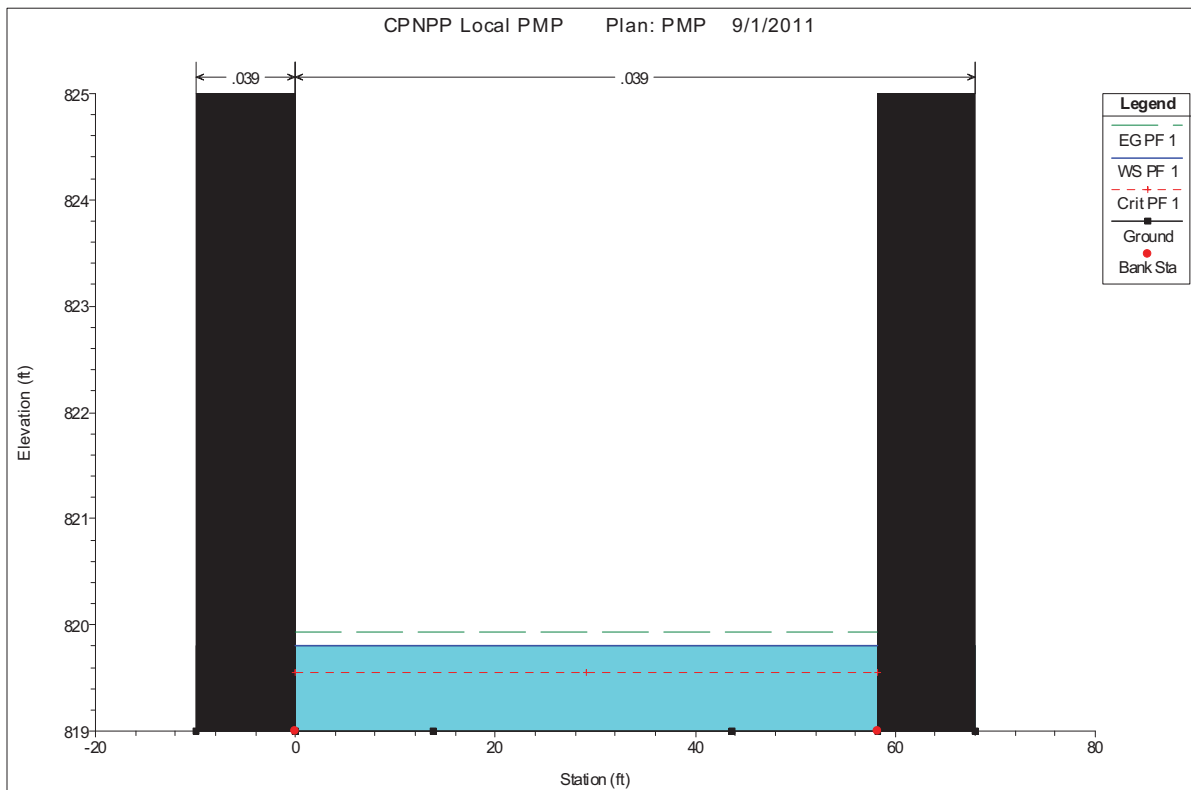
Unit 4 UHS Channel Cross Section 2



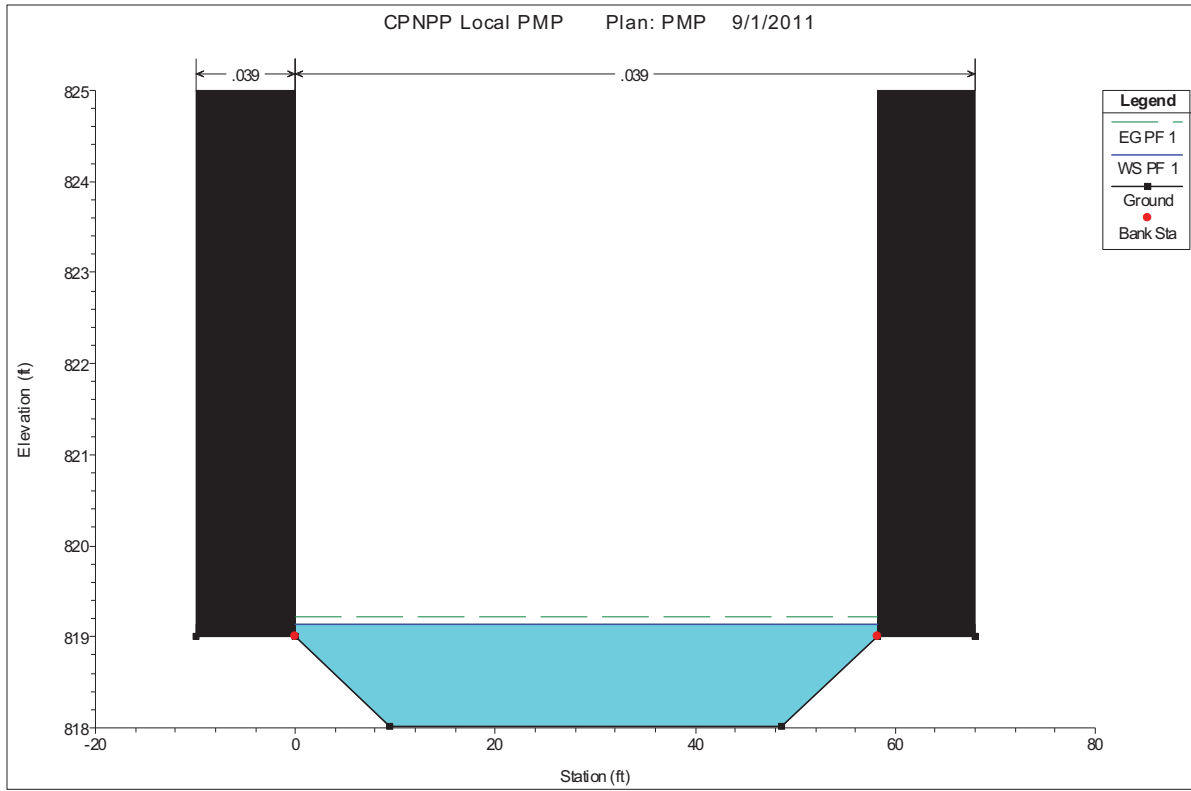
Unit 4 UHS Channel Inline Structure 1.5



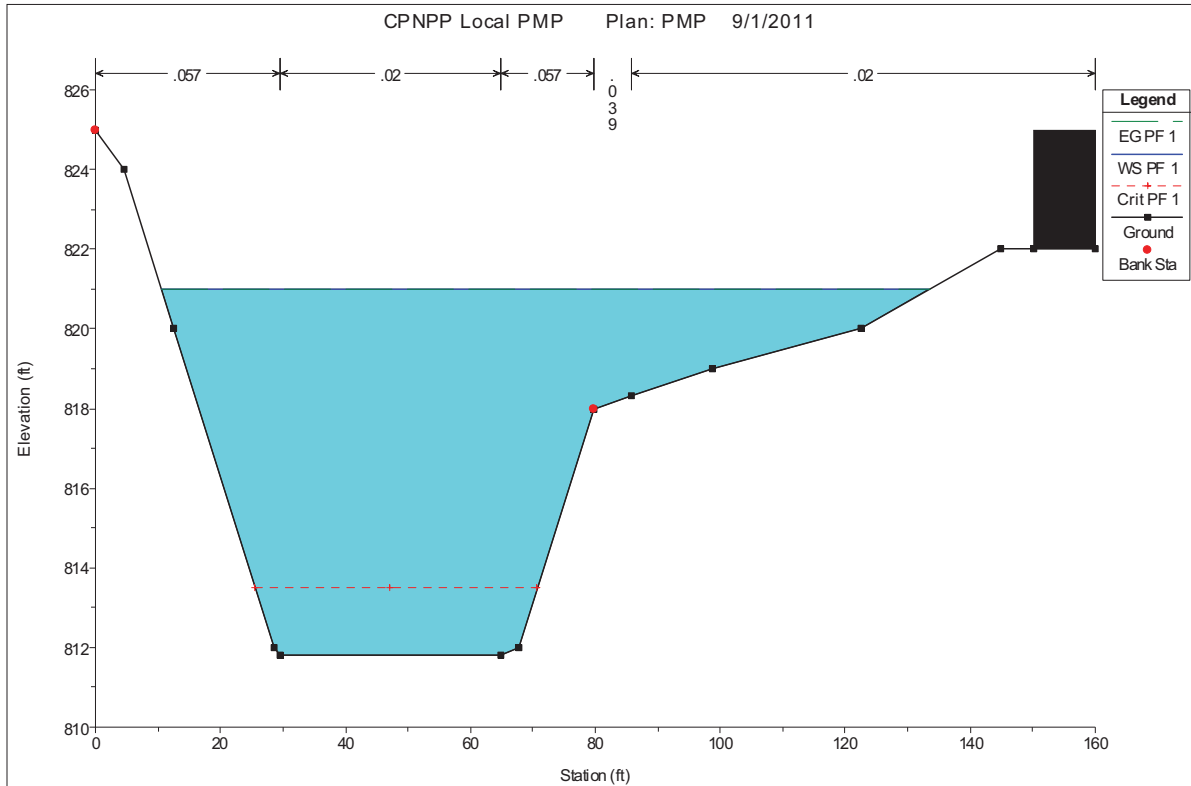
Unit 4 UHS Channel Cross Section 1



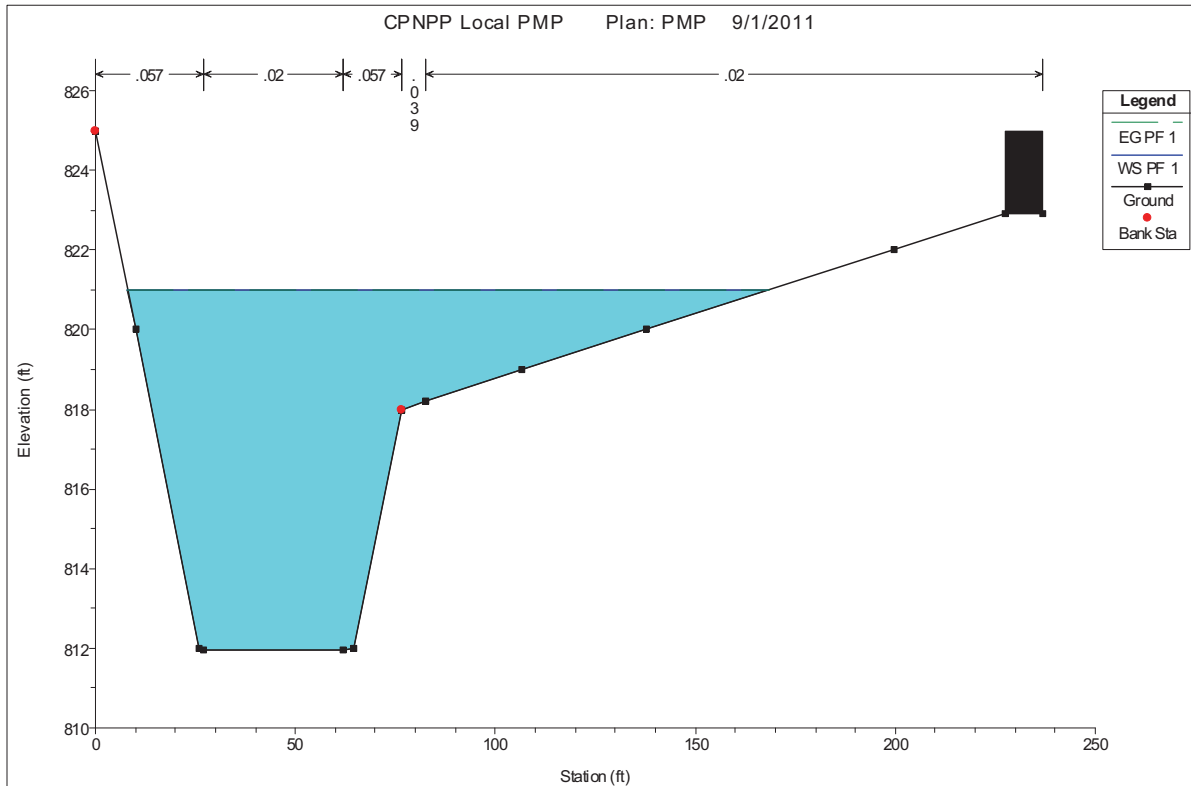
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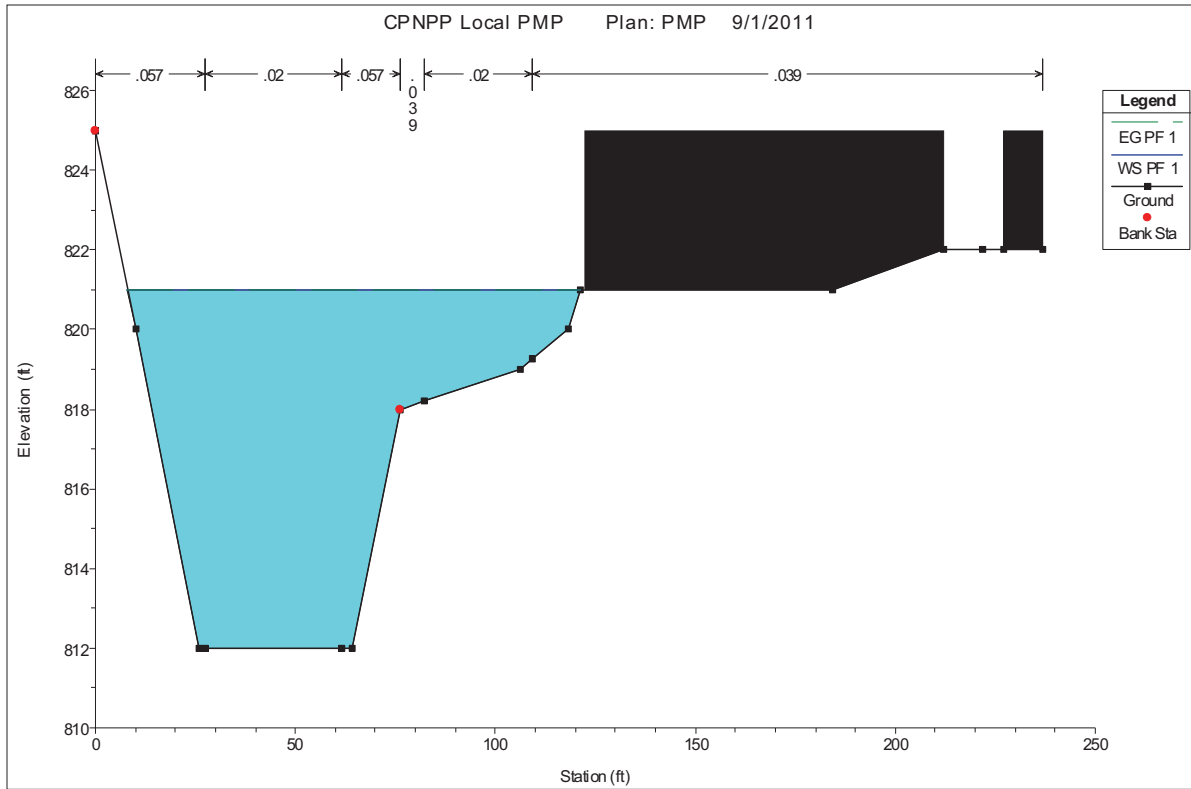
West Channel Cross Section Plots



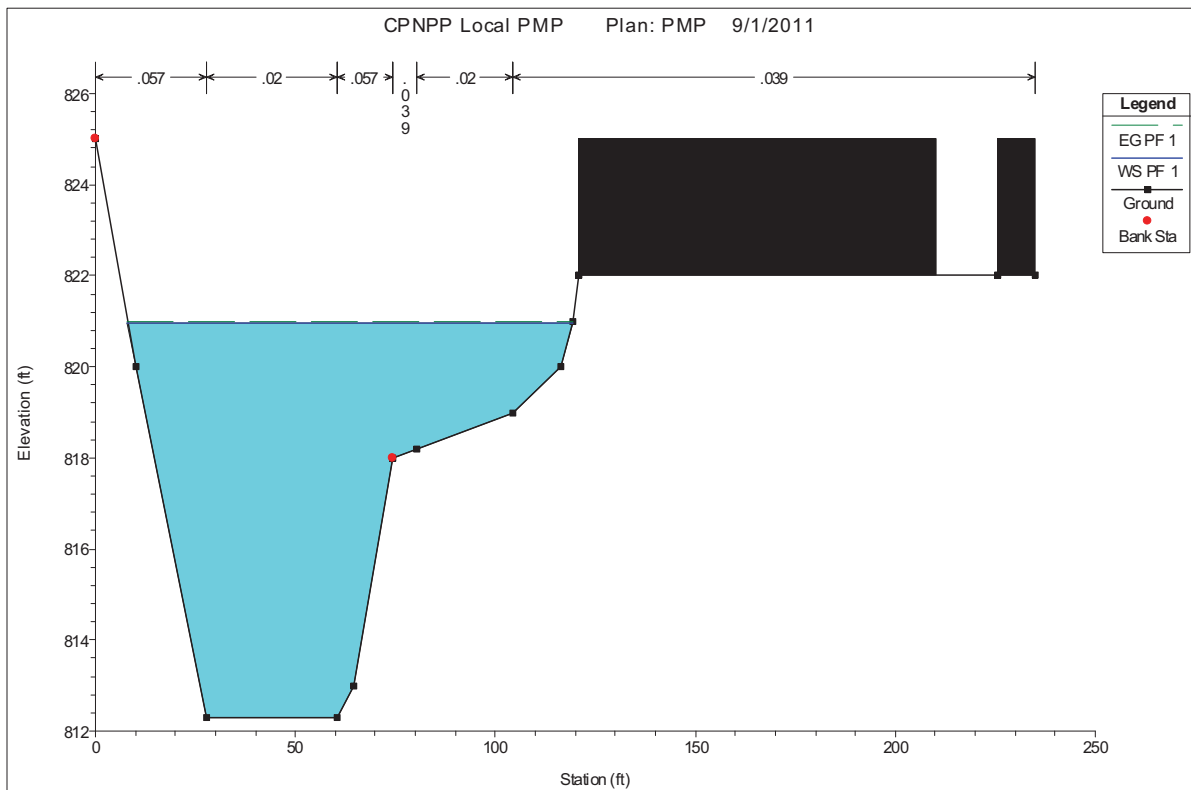
West Channel Cross Section 24



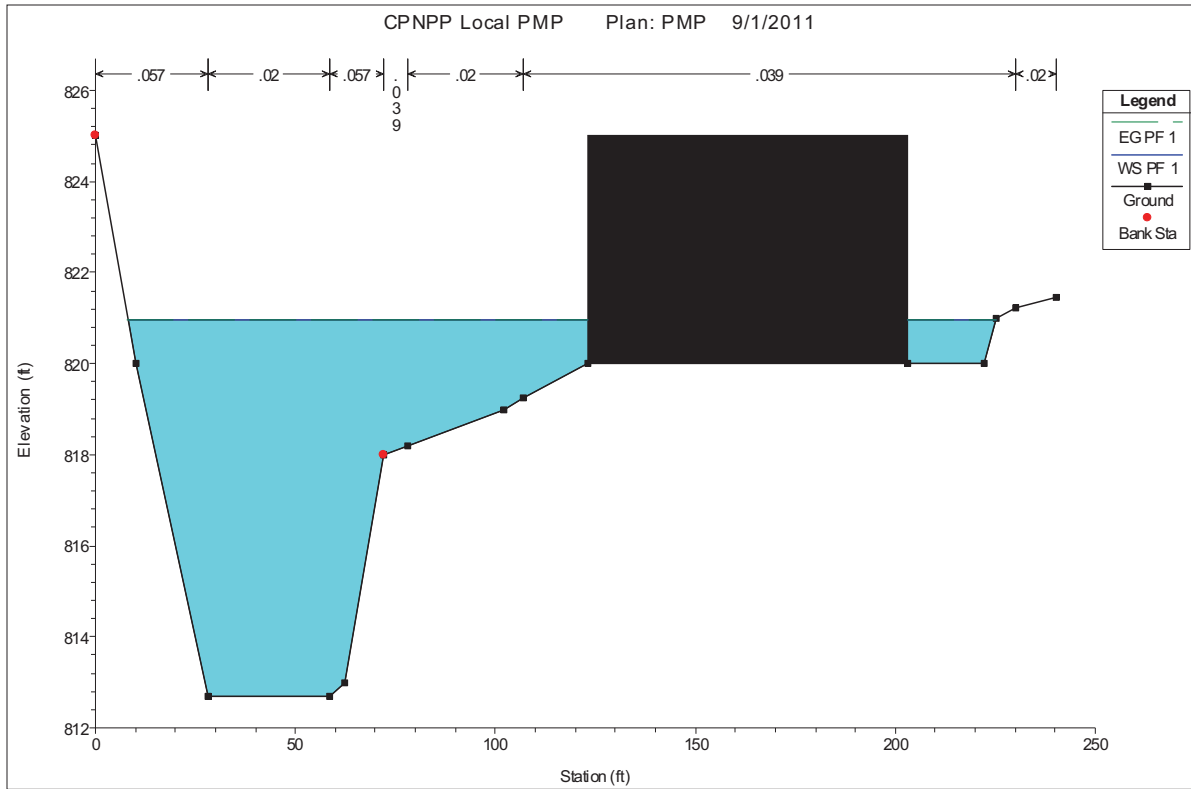
West Channel Cross Section 23



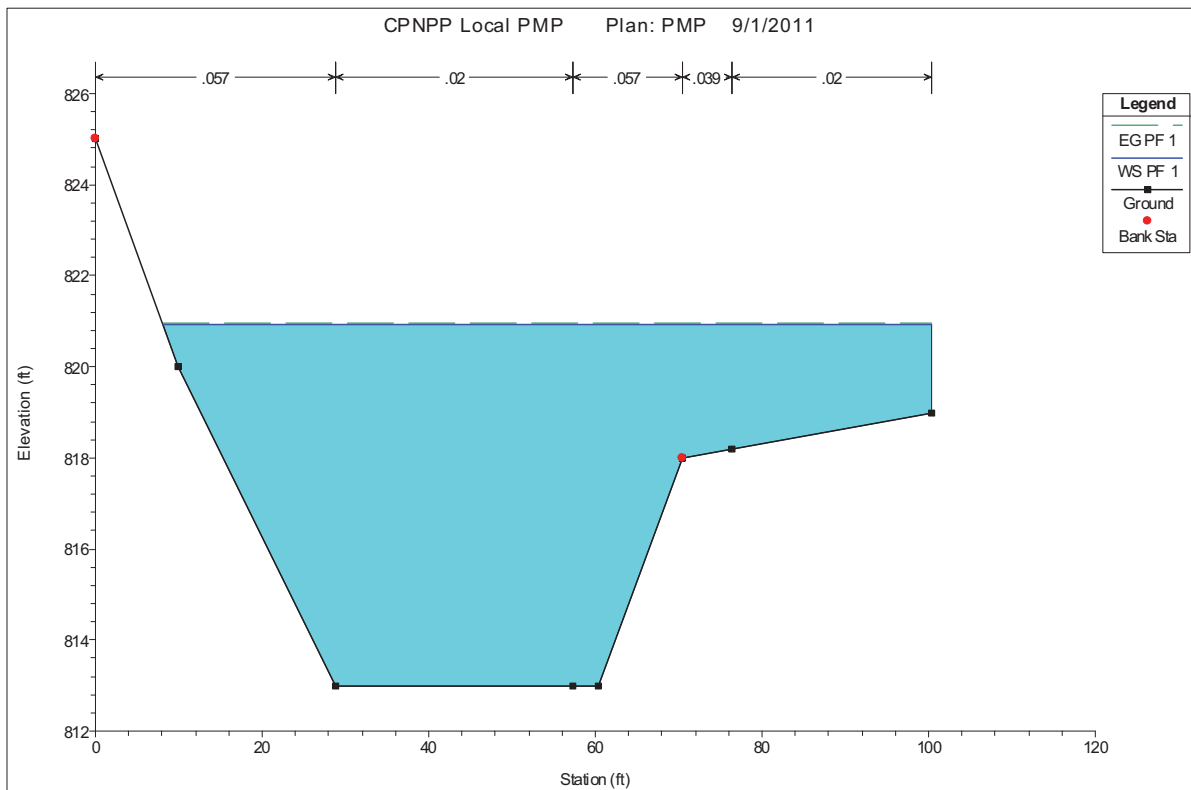
West Channel Cross Section 22



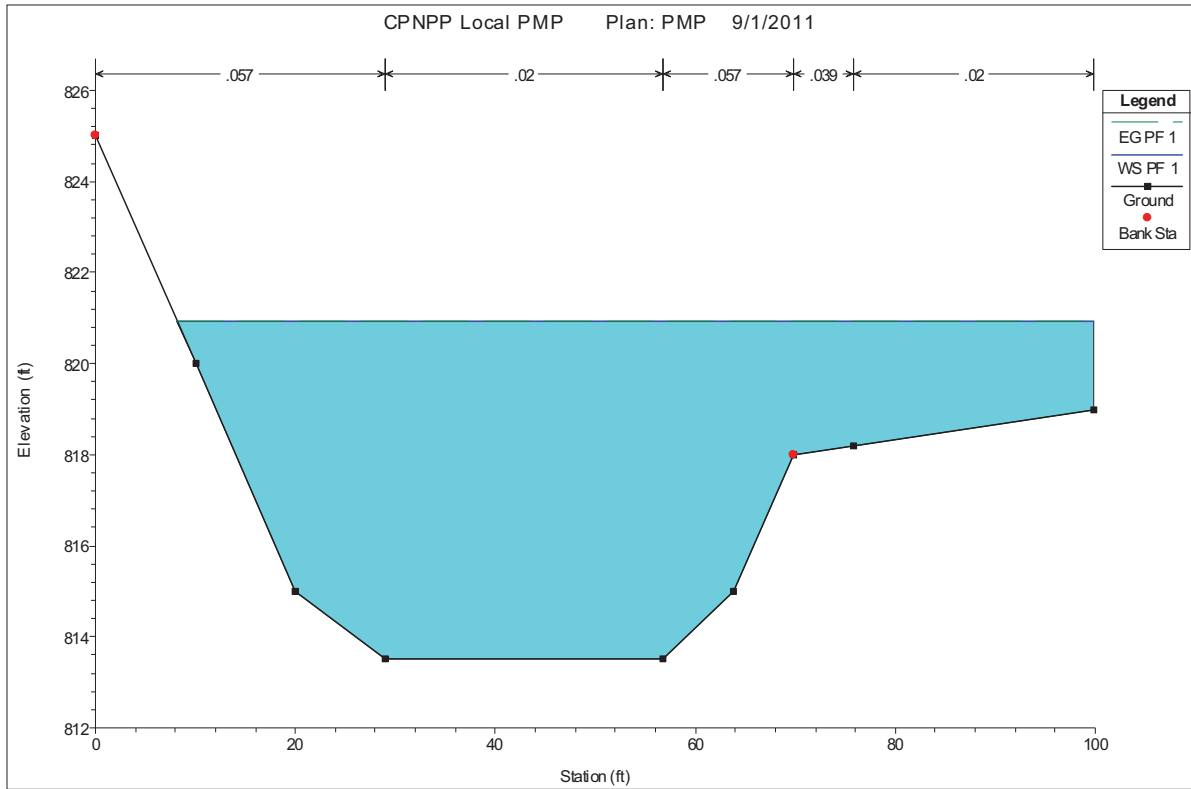
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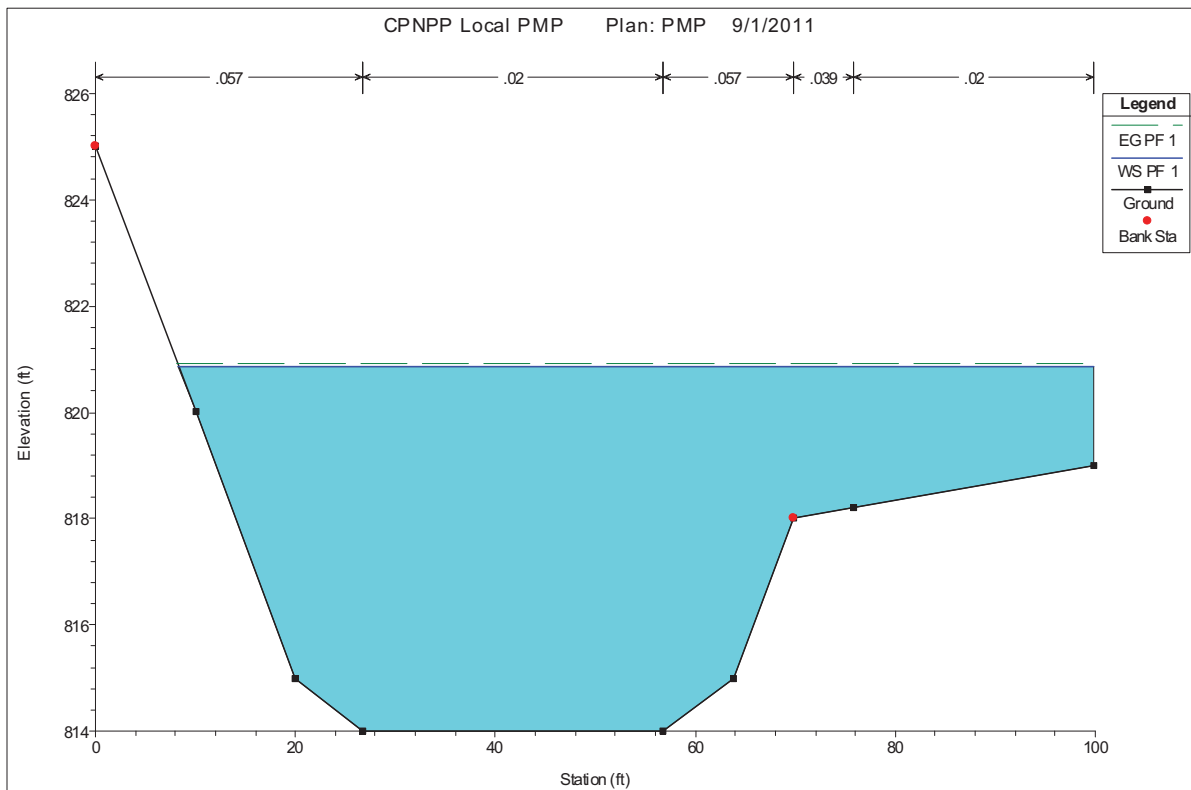
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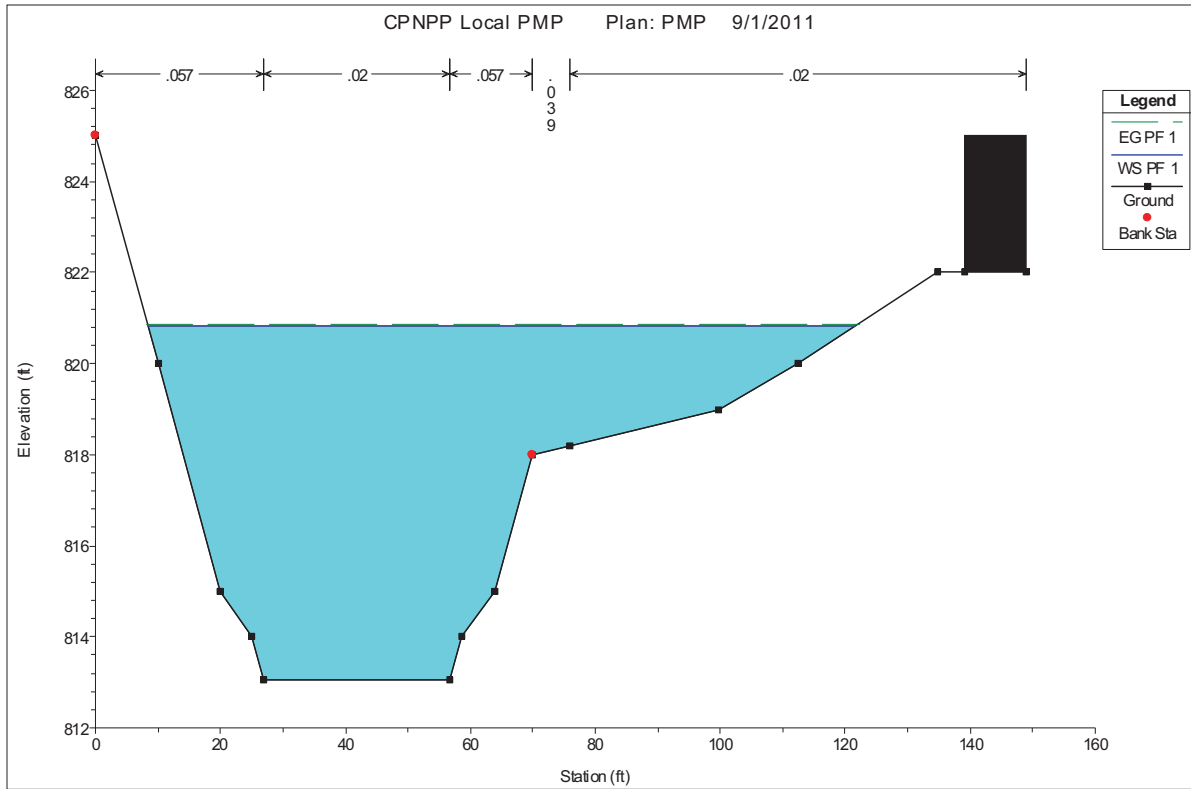
West Channel Cross Section 19



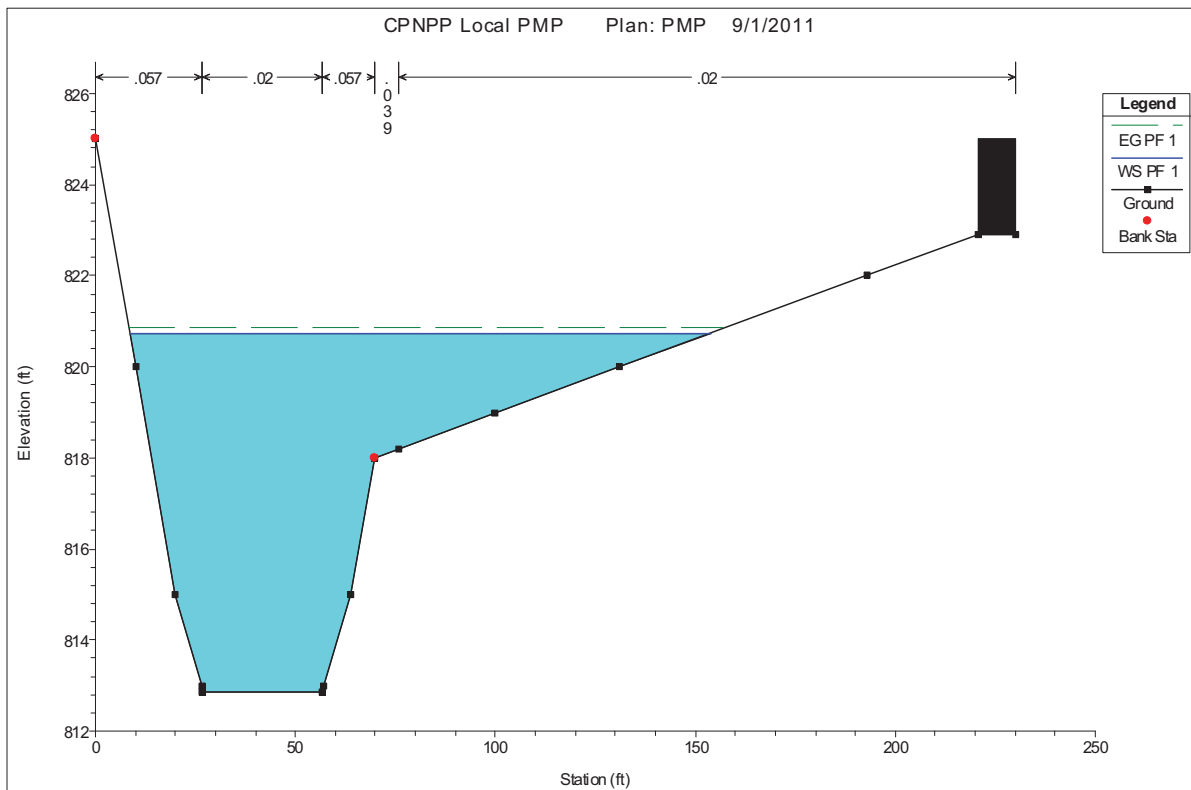
West Channel Cross Section 18



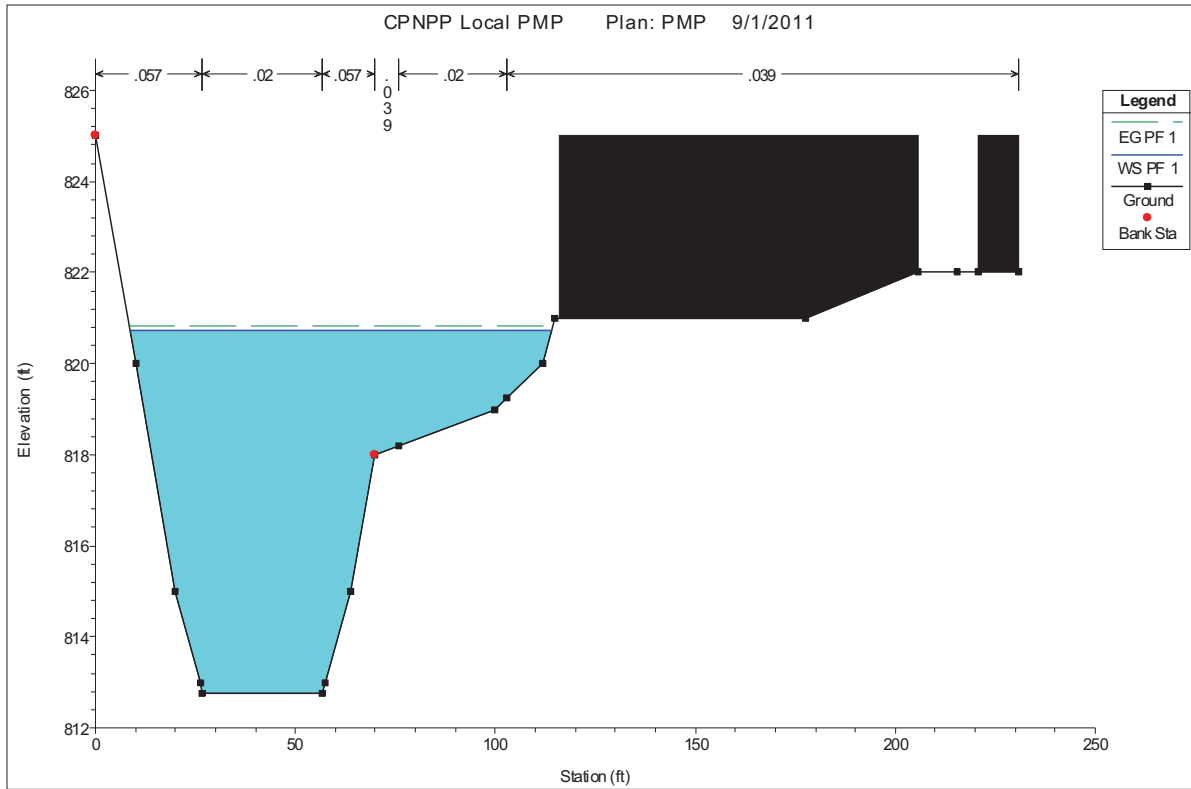
West Channel Cross Section 17



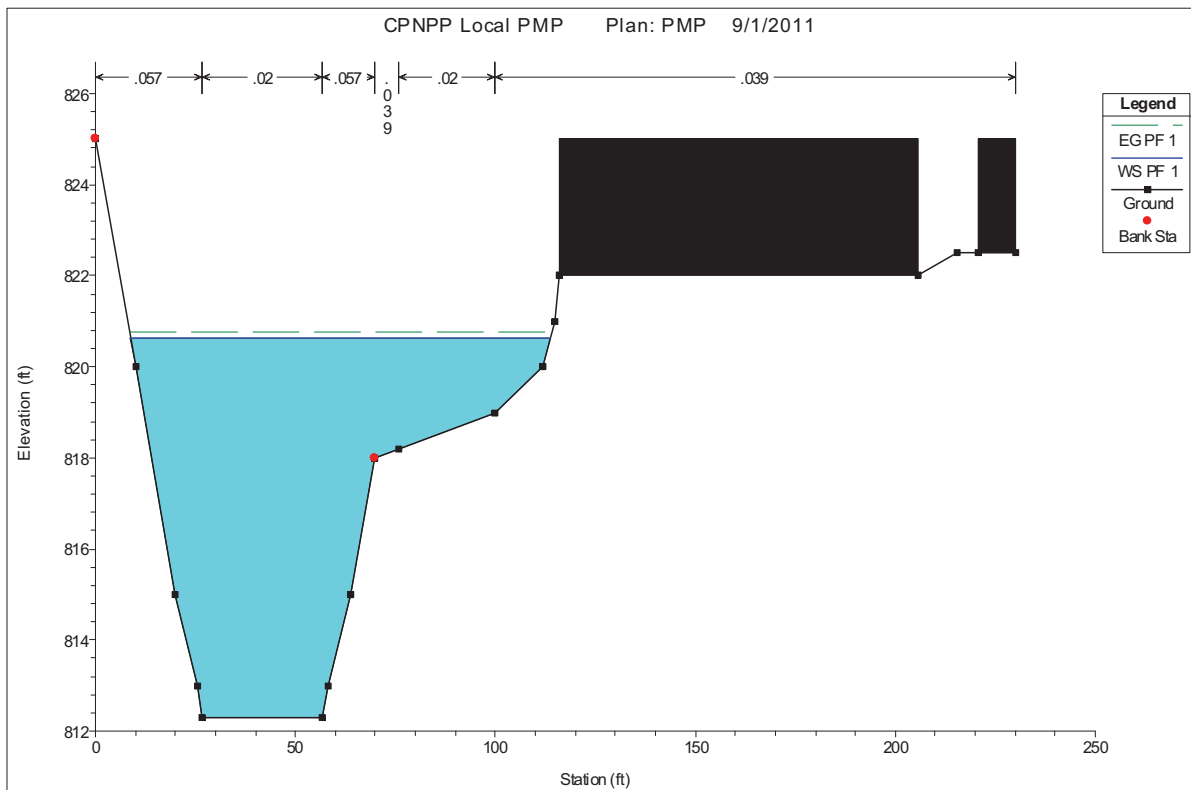
West Channel Cross Section 16



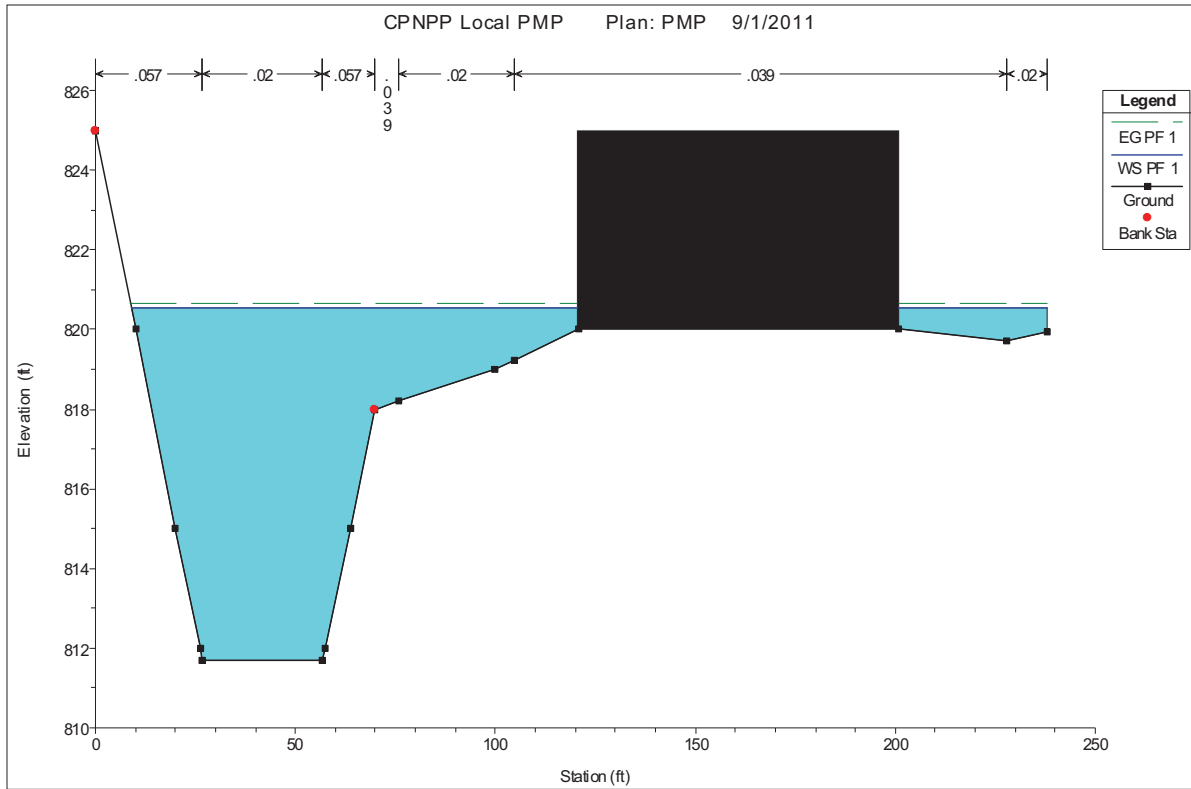
West Channel Cross Section 15



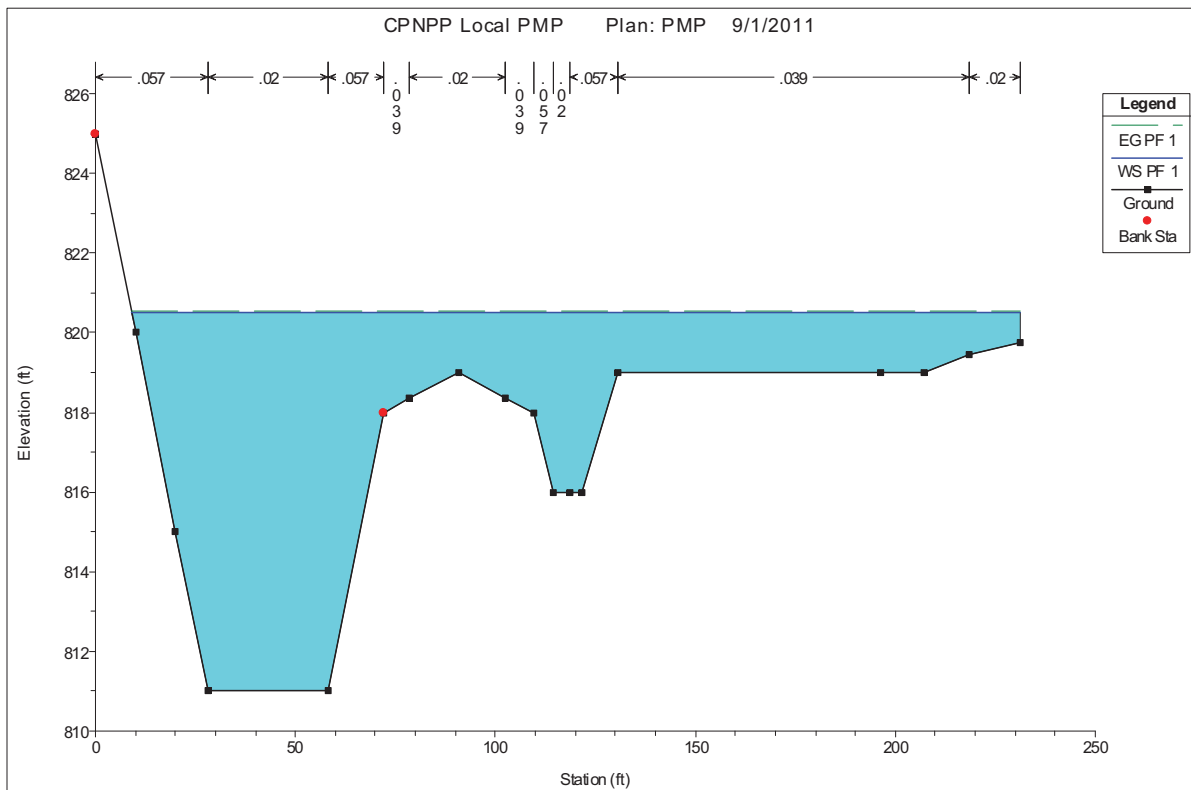
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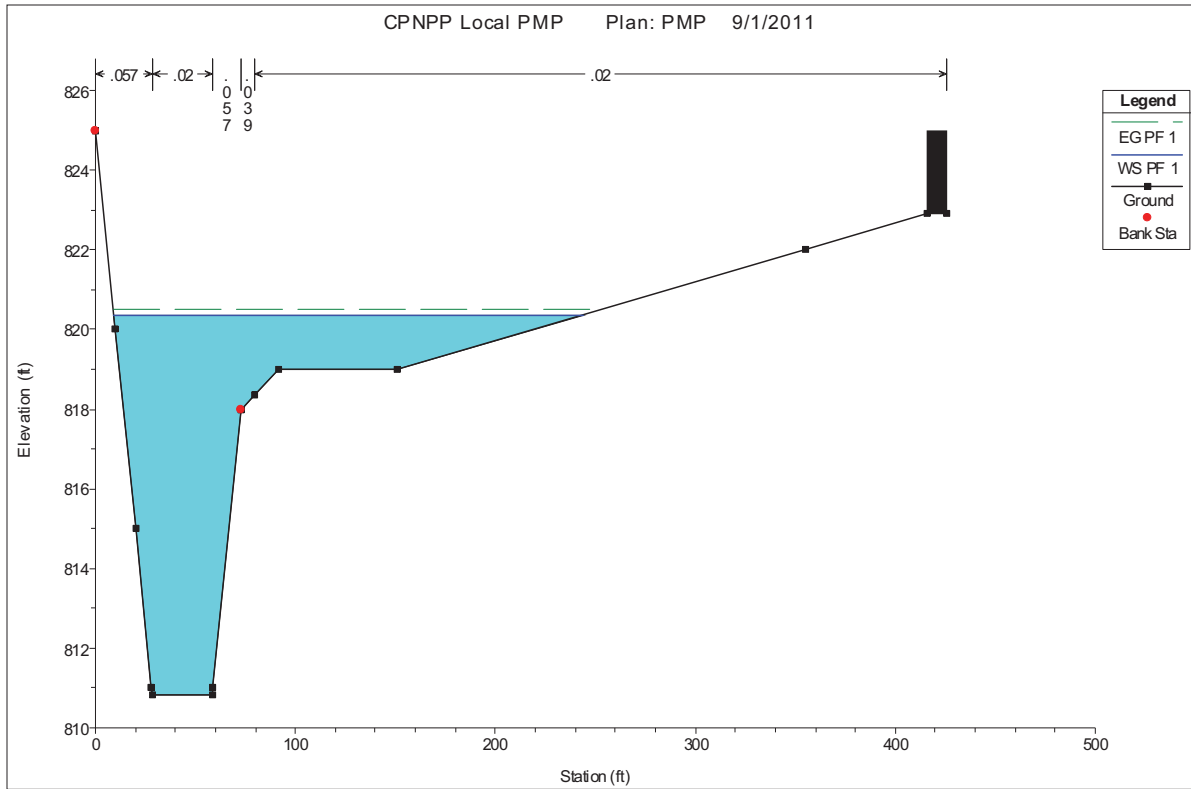
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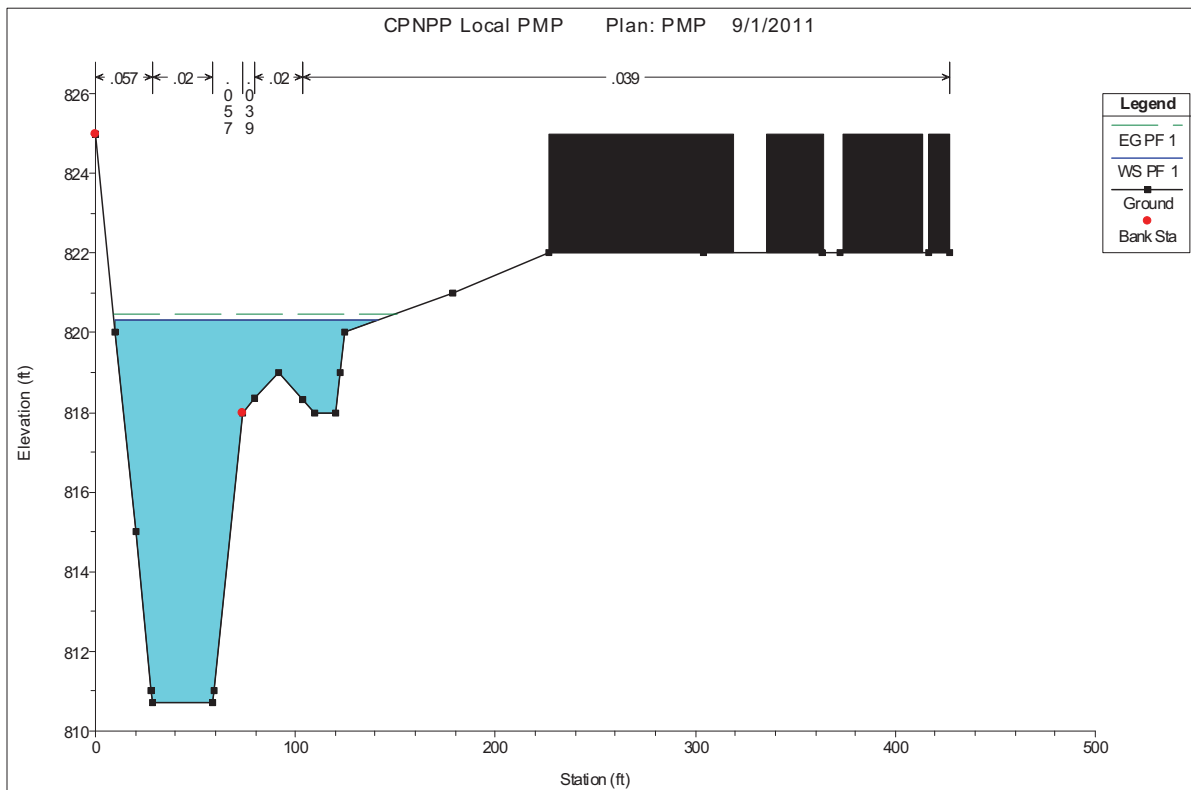
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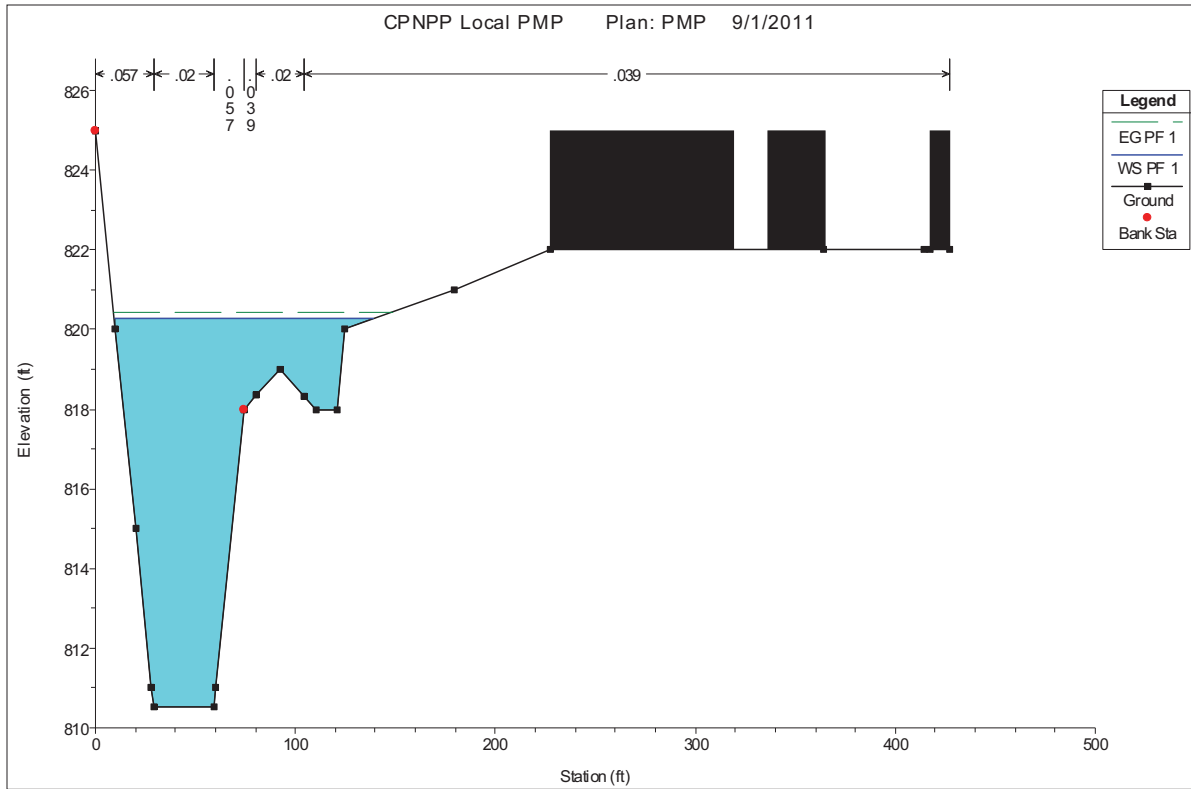
West Channel Cross Section 11



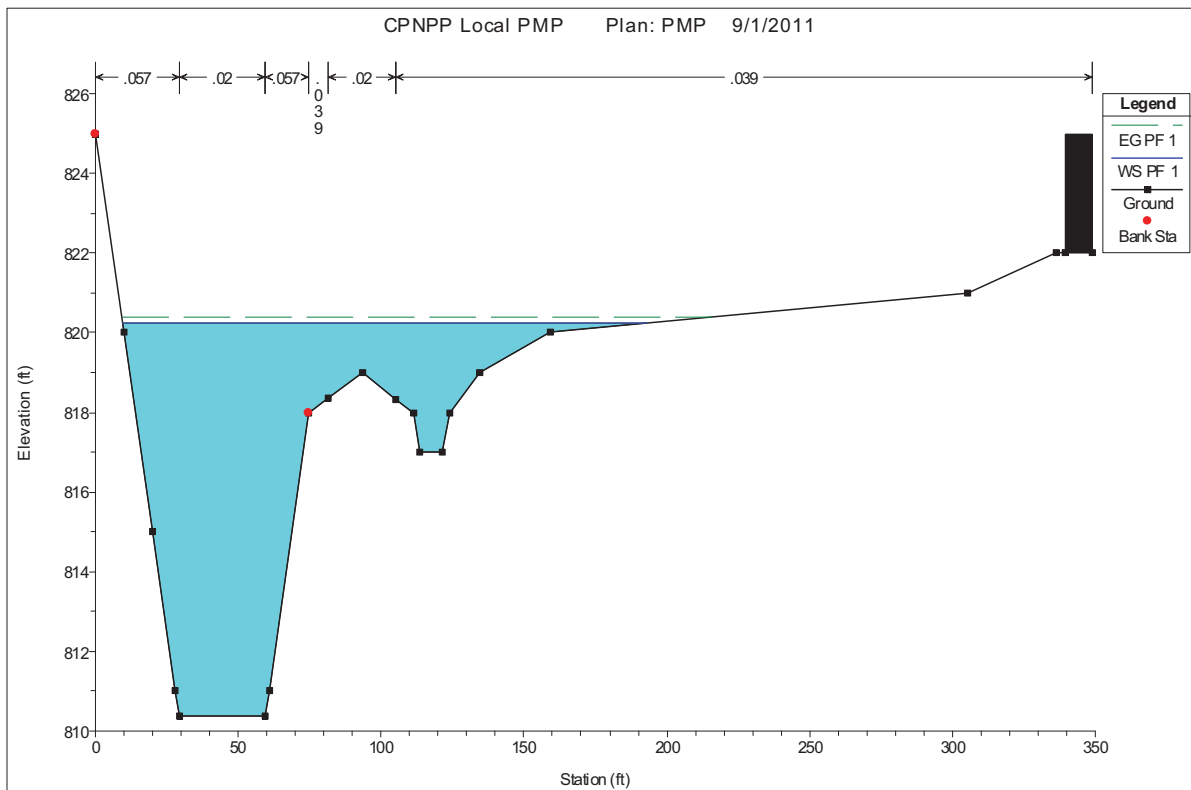
West Channel Cross Section 10



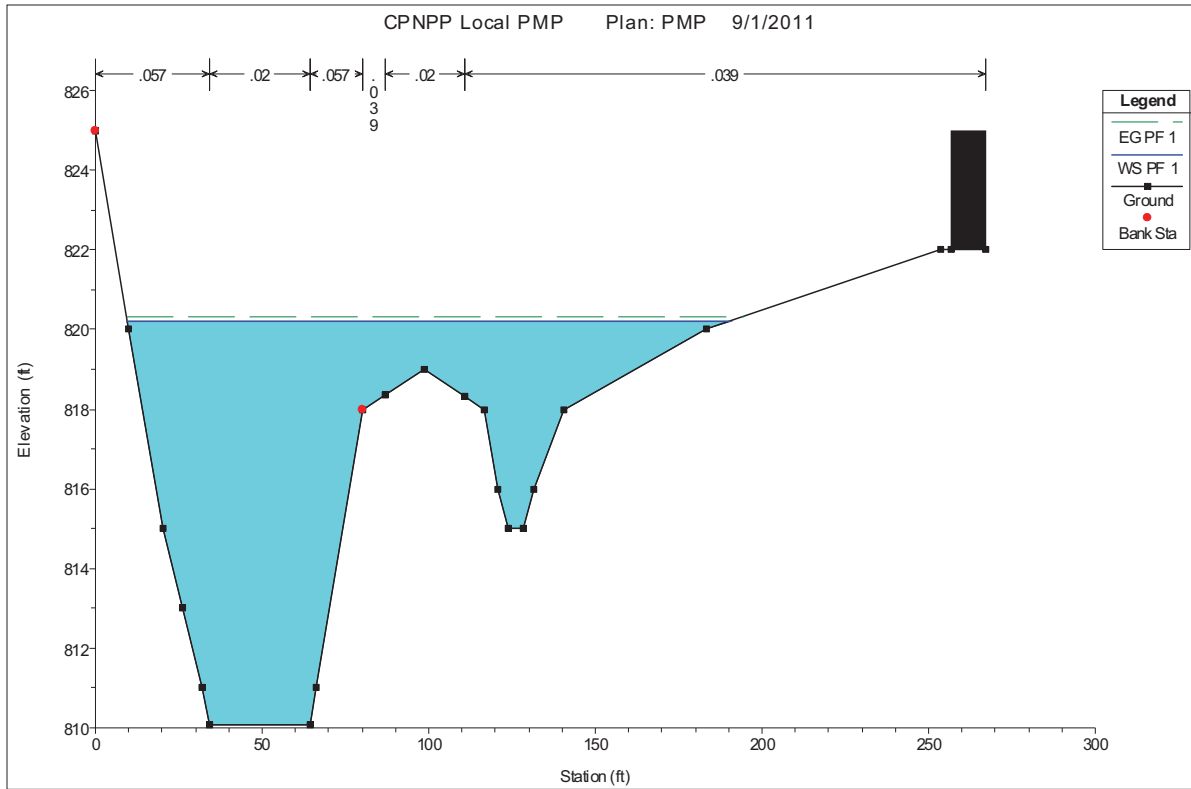
West Channel Cross Section 9



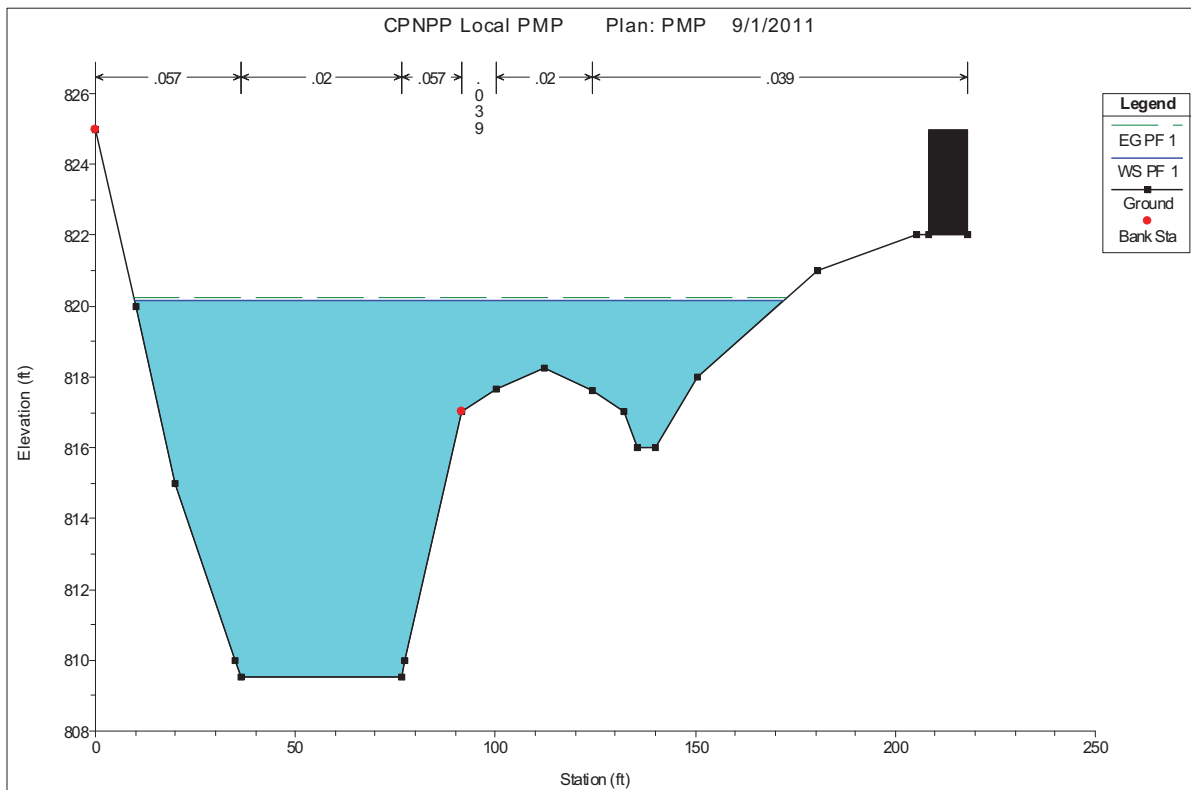
West Channel Cross Section 8



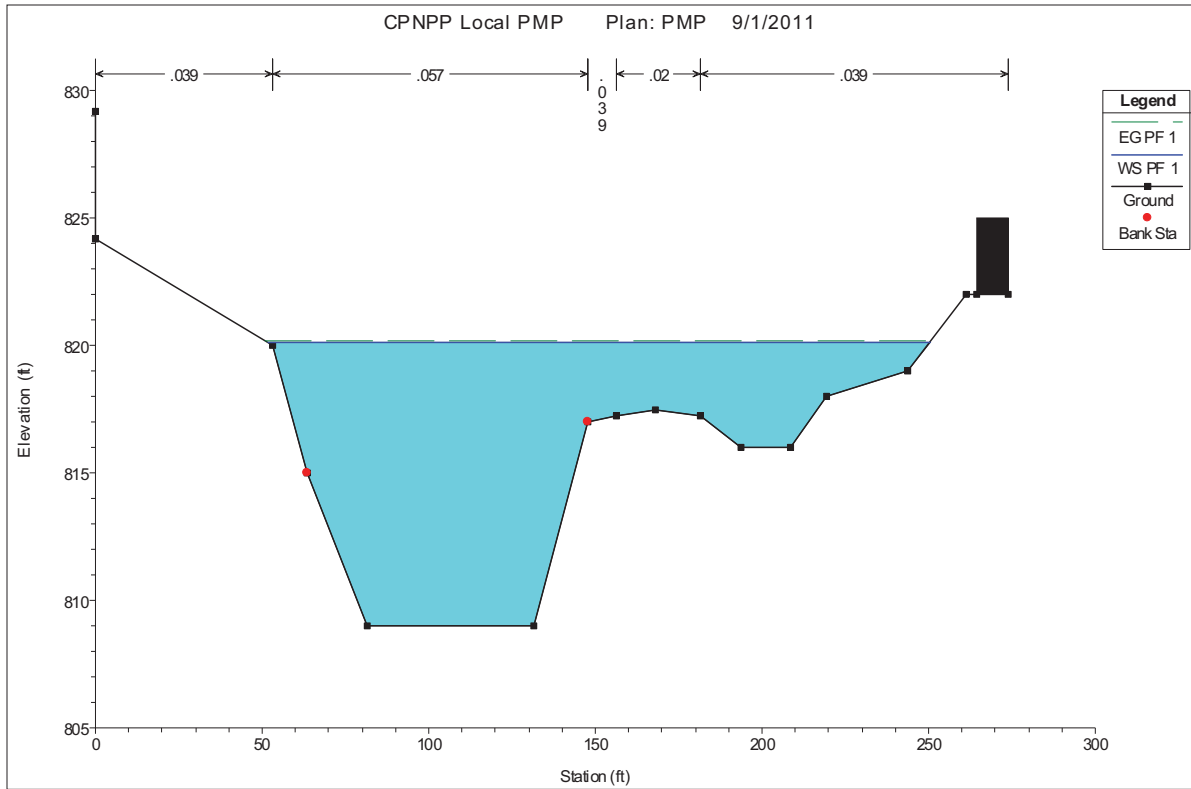
West Channel Cross Section 7



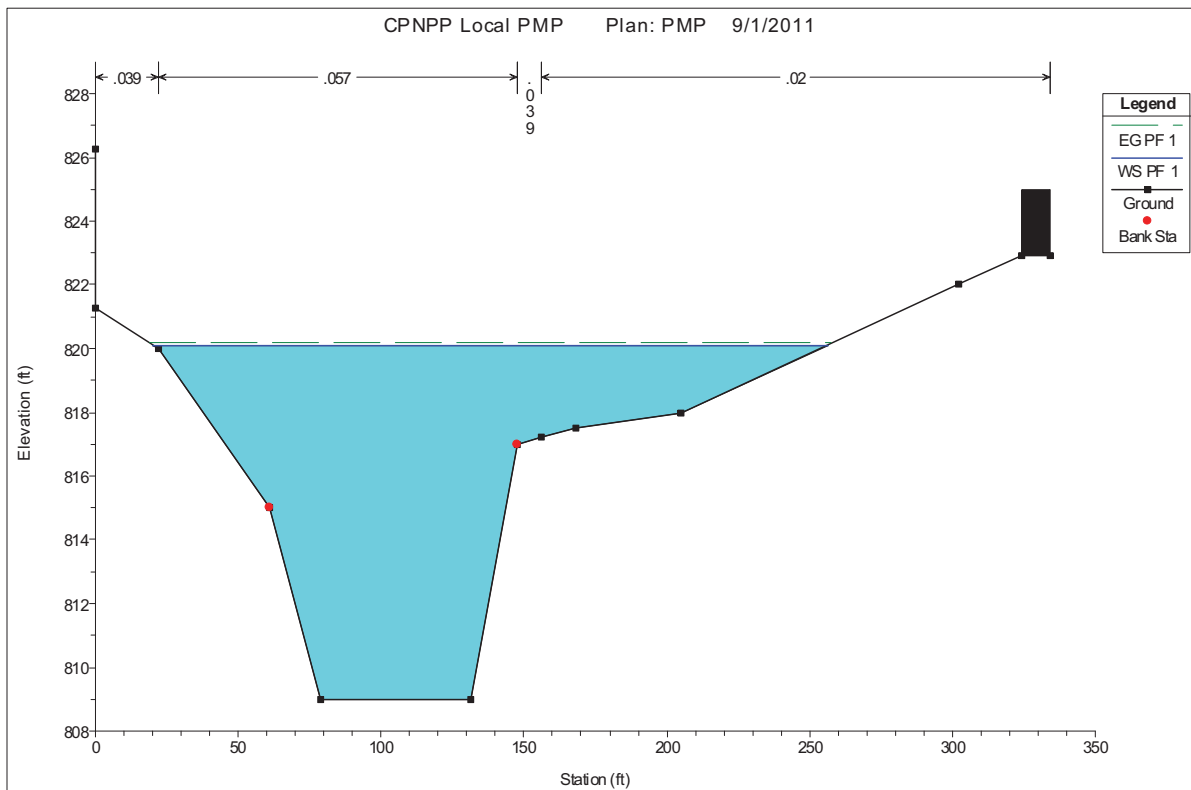
West Channel Cross Section 6



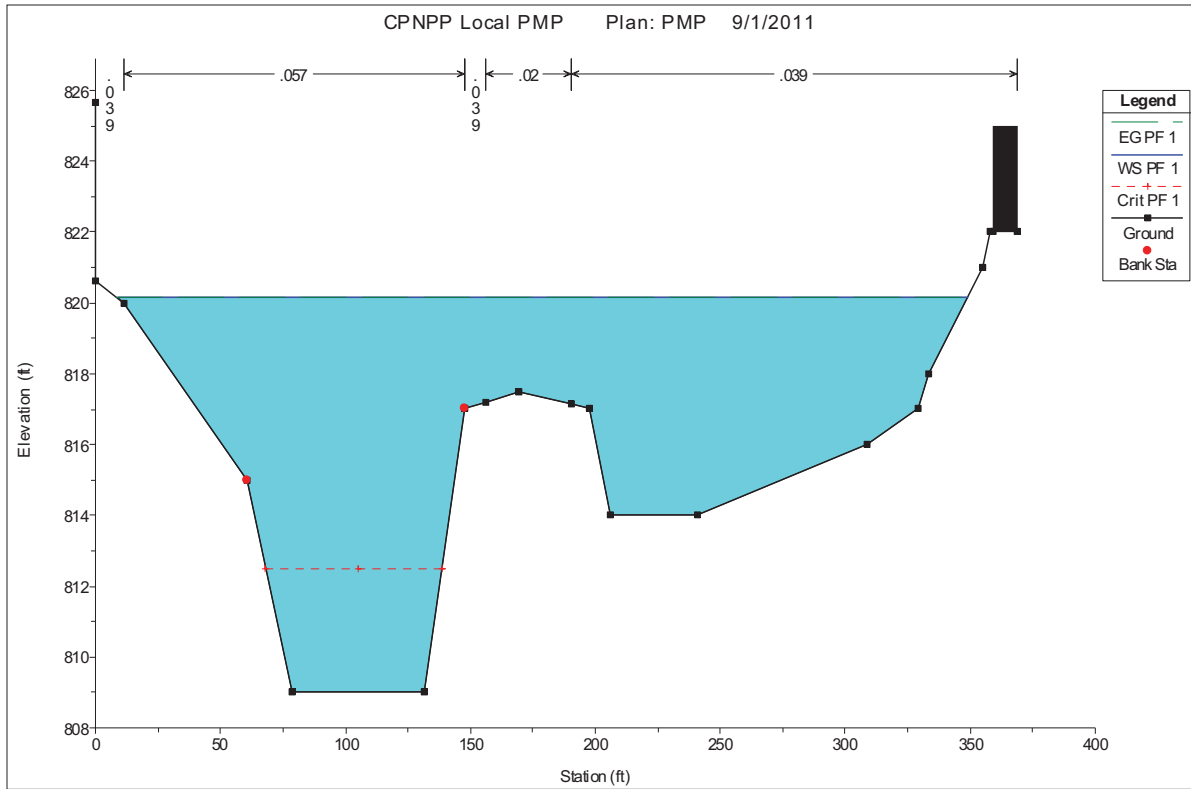
West Channel Cross Section 5



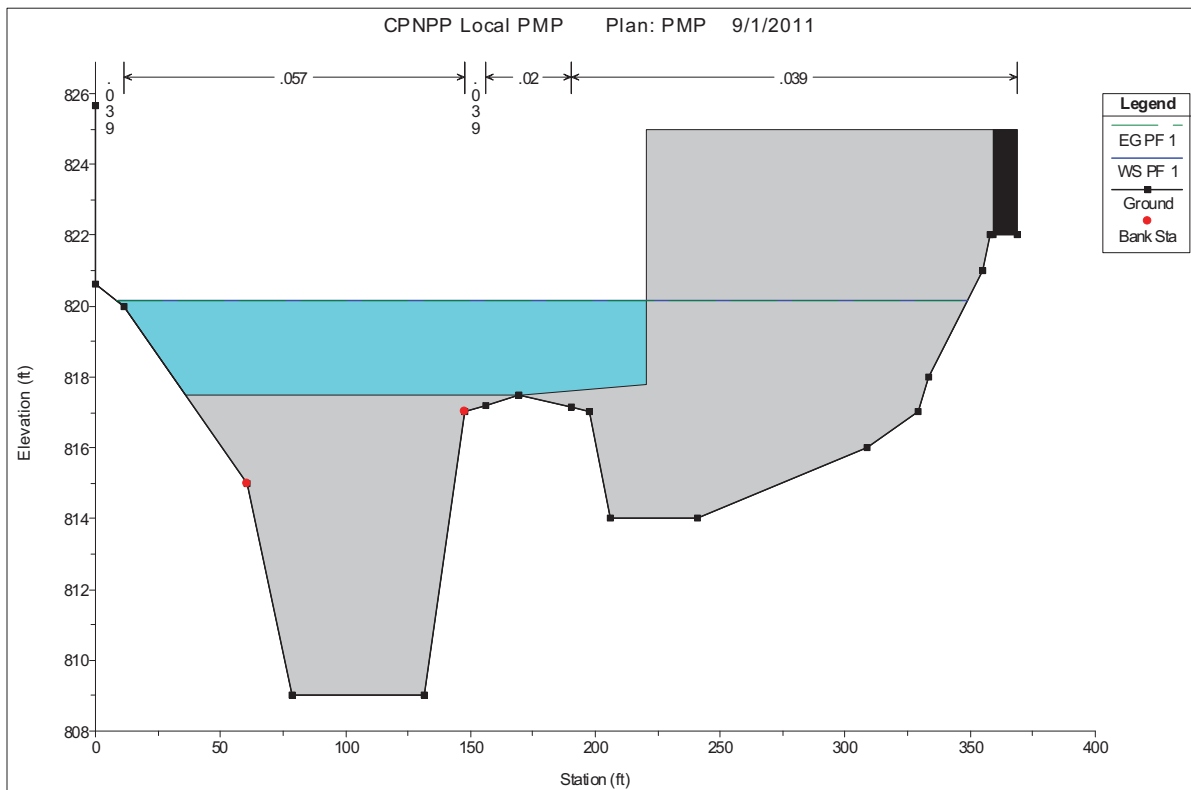
West Channel Cross Section 4



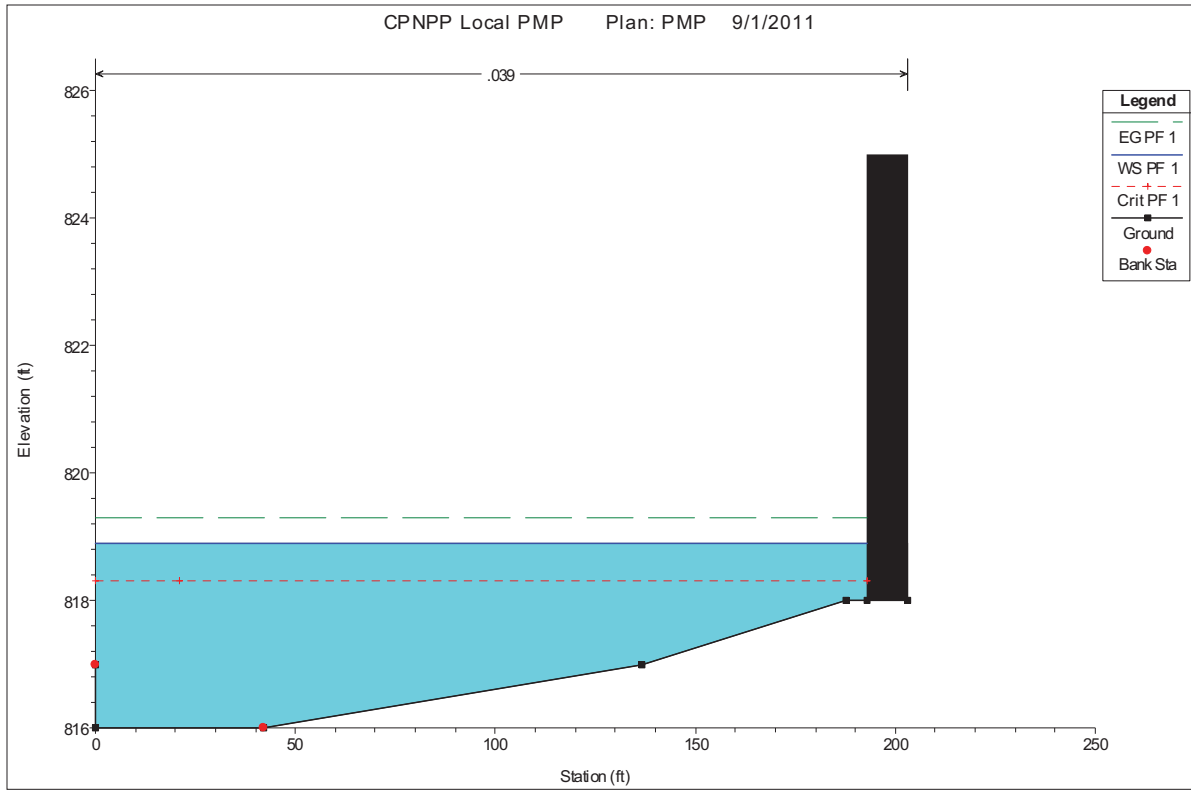
West Channel Cross Section 3



West Channel Cross Section 2

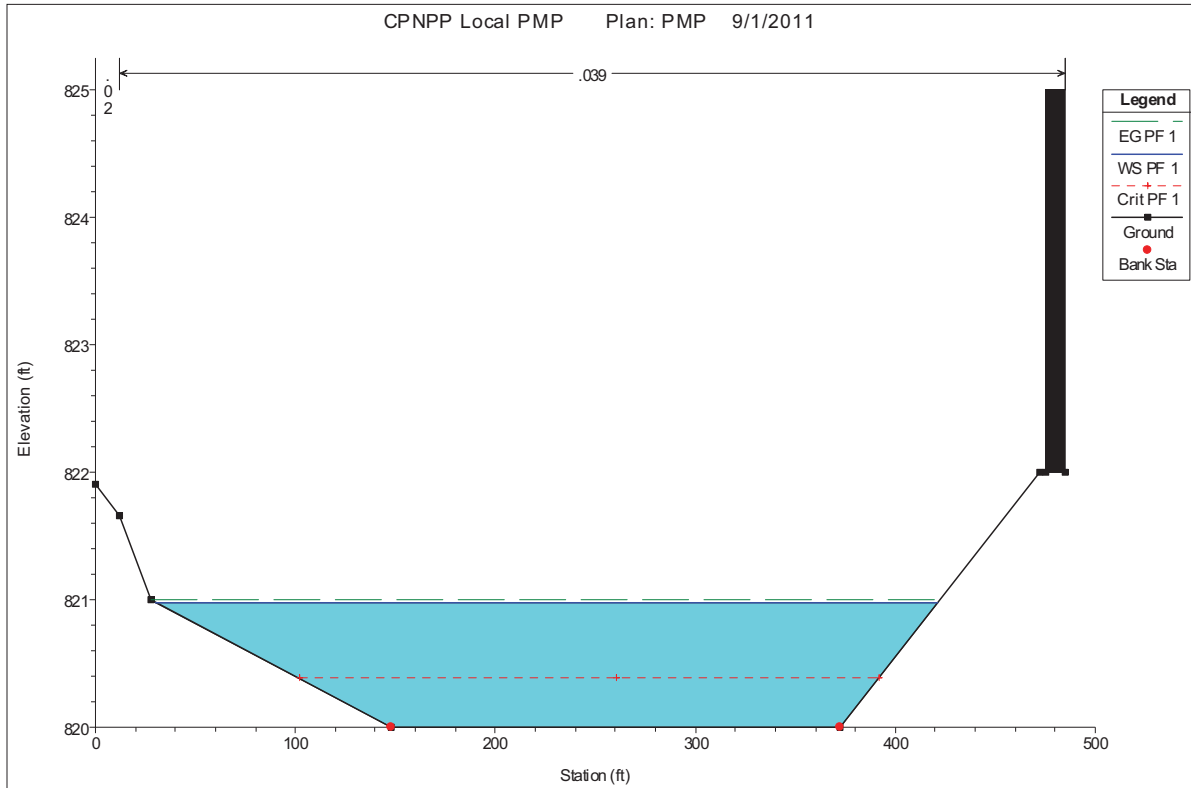


West Channel Inline Structure Cross Section 1.5

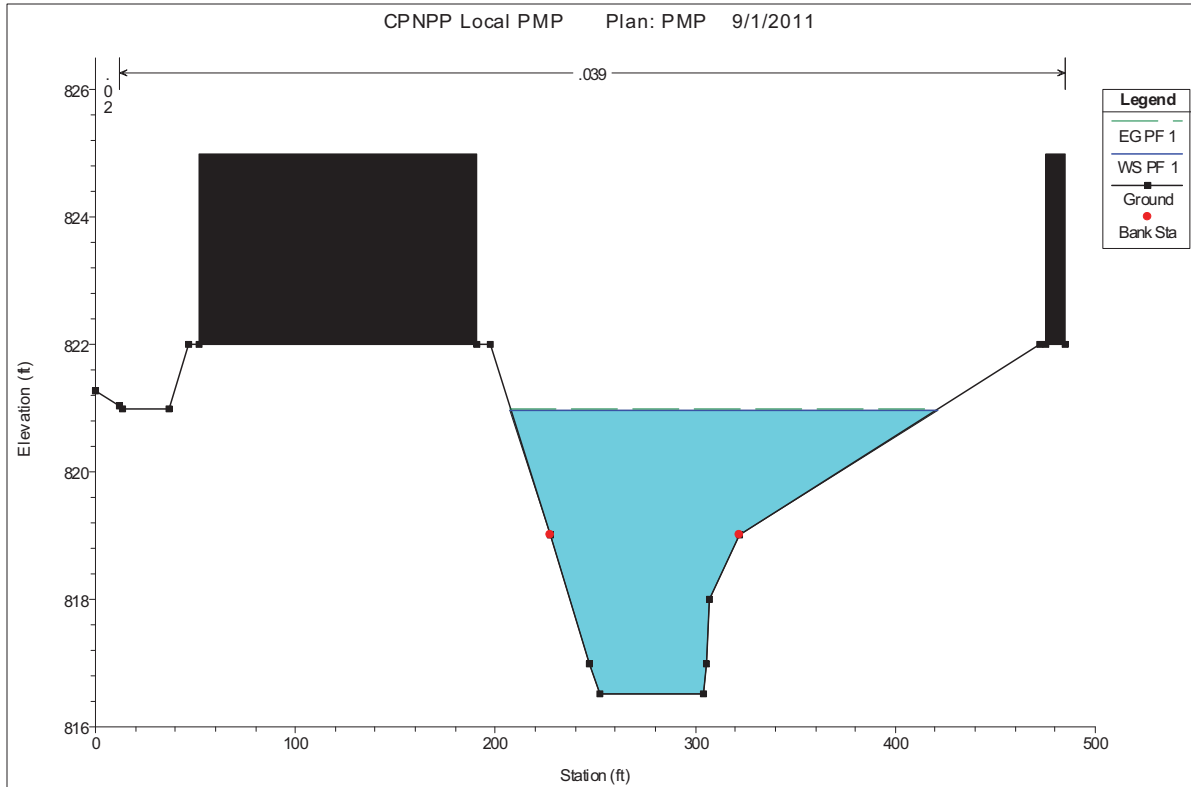


West Channel Cross Section 1

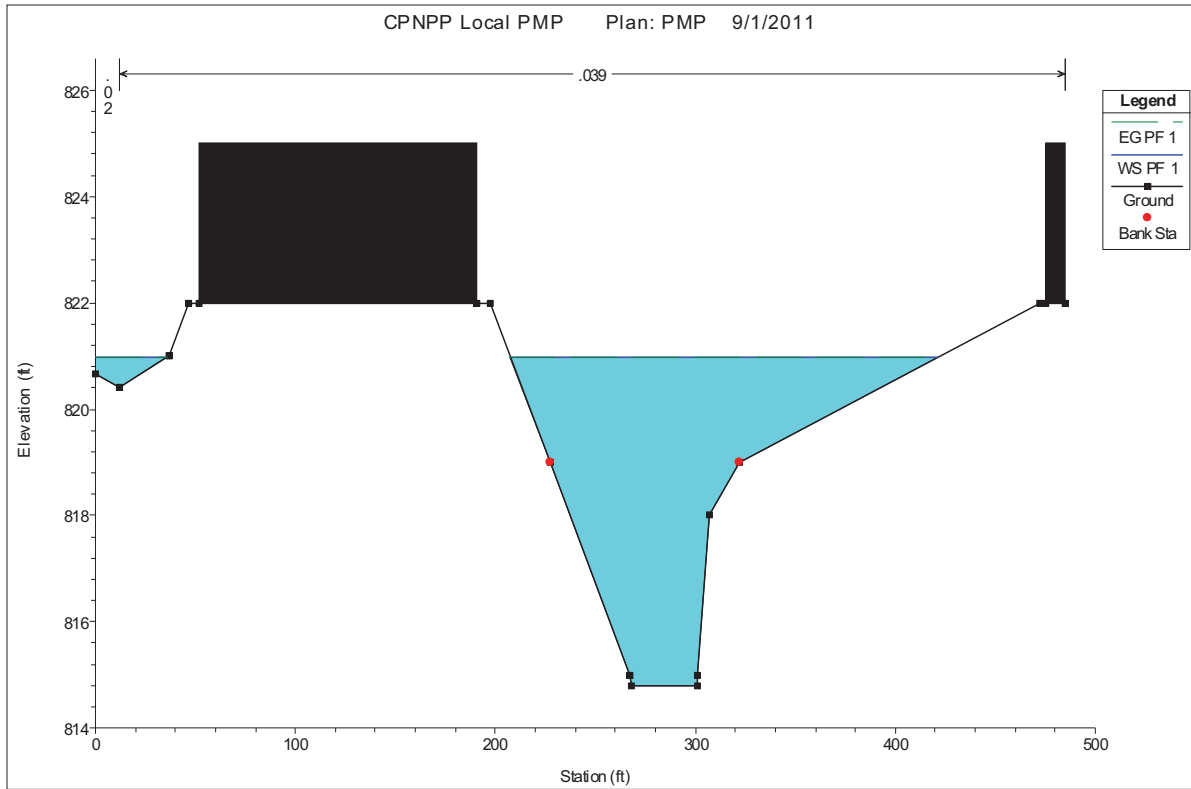
Center South Channel Cross Section Plots



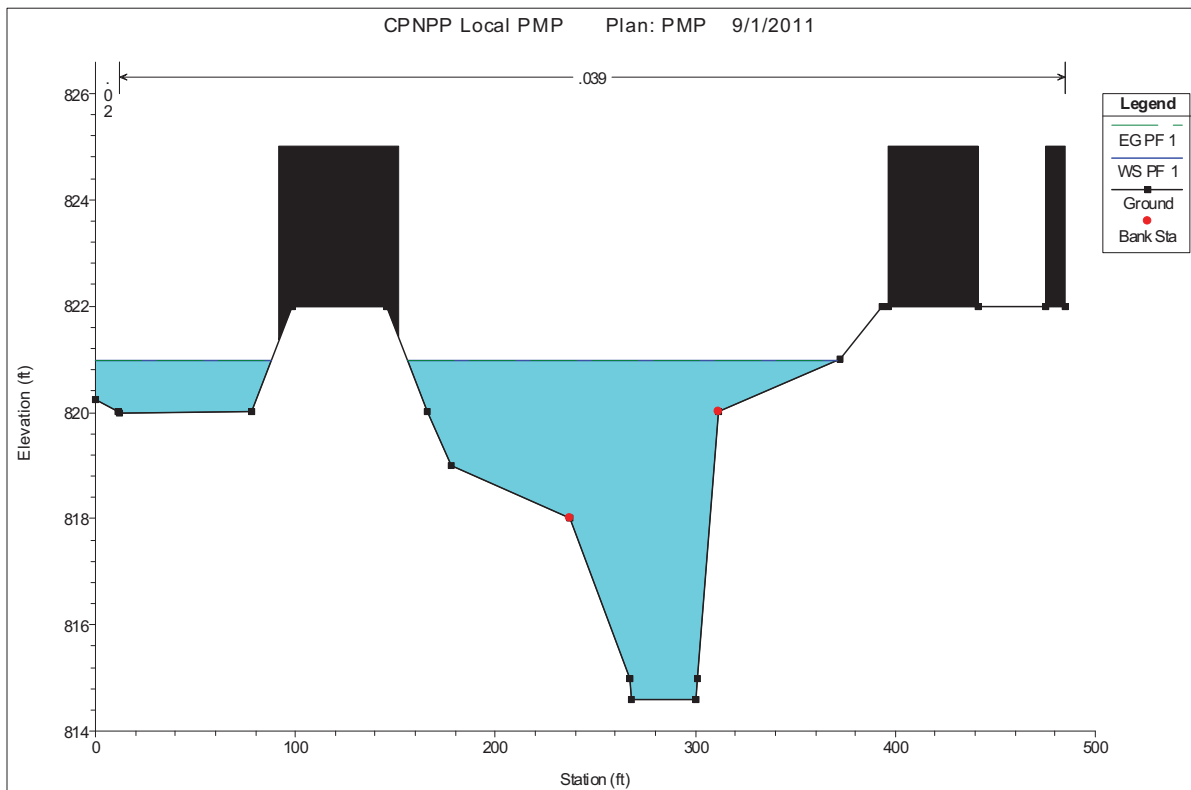
Center South Channel Cross Section 8



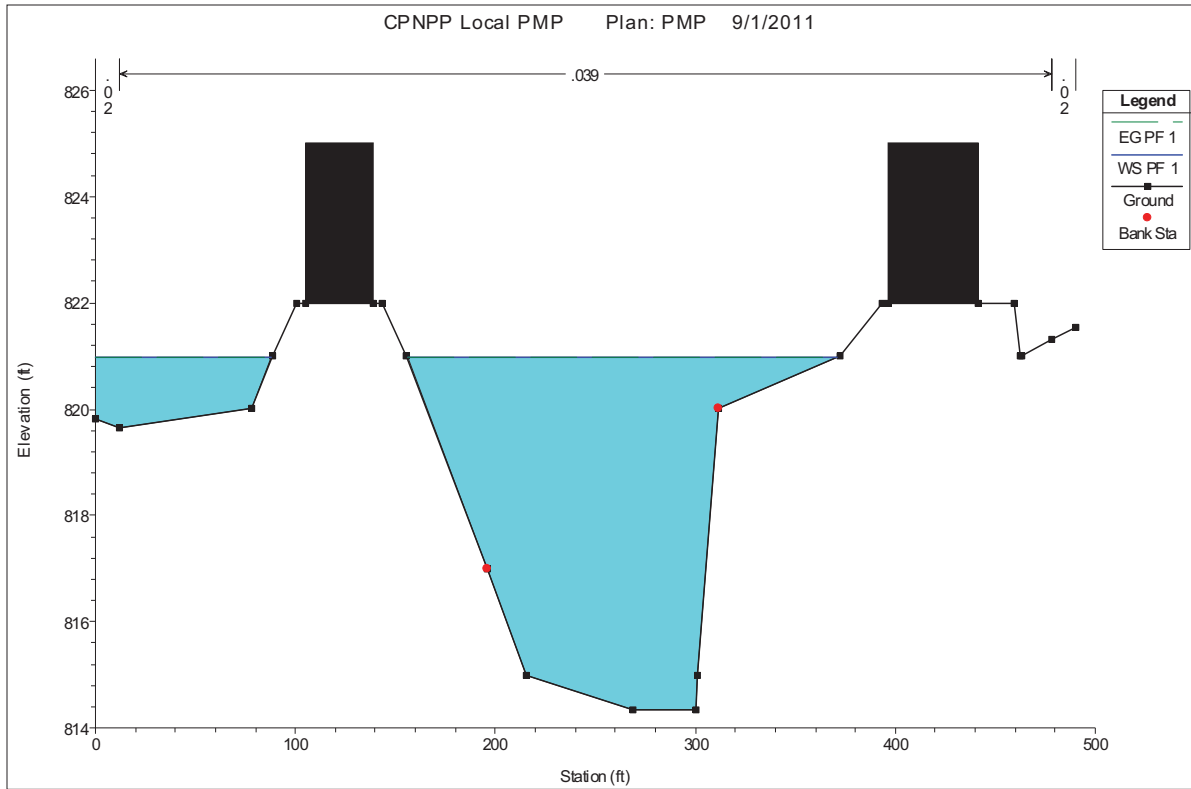
Center South Channel Cross Section 7



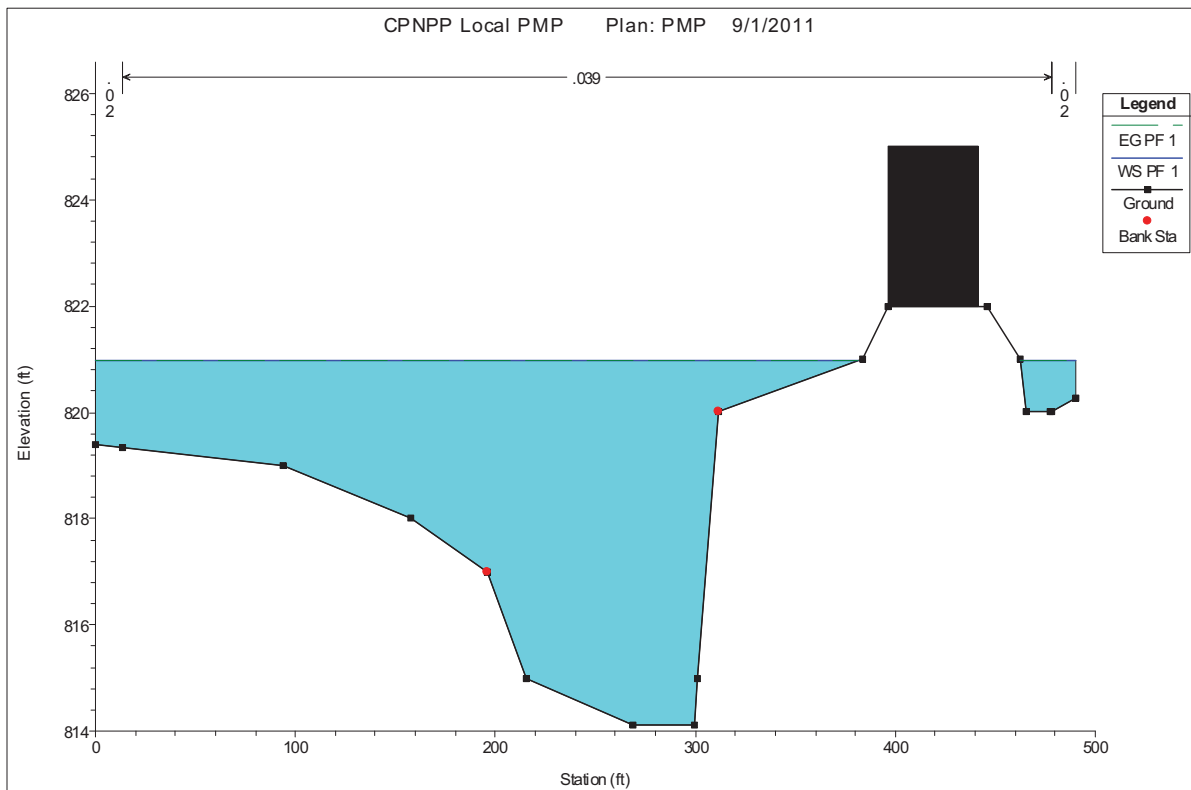
Center South Channel Cross Section 6



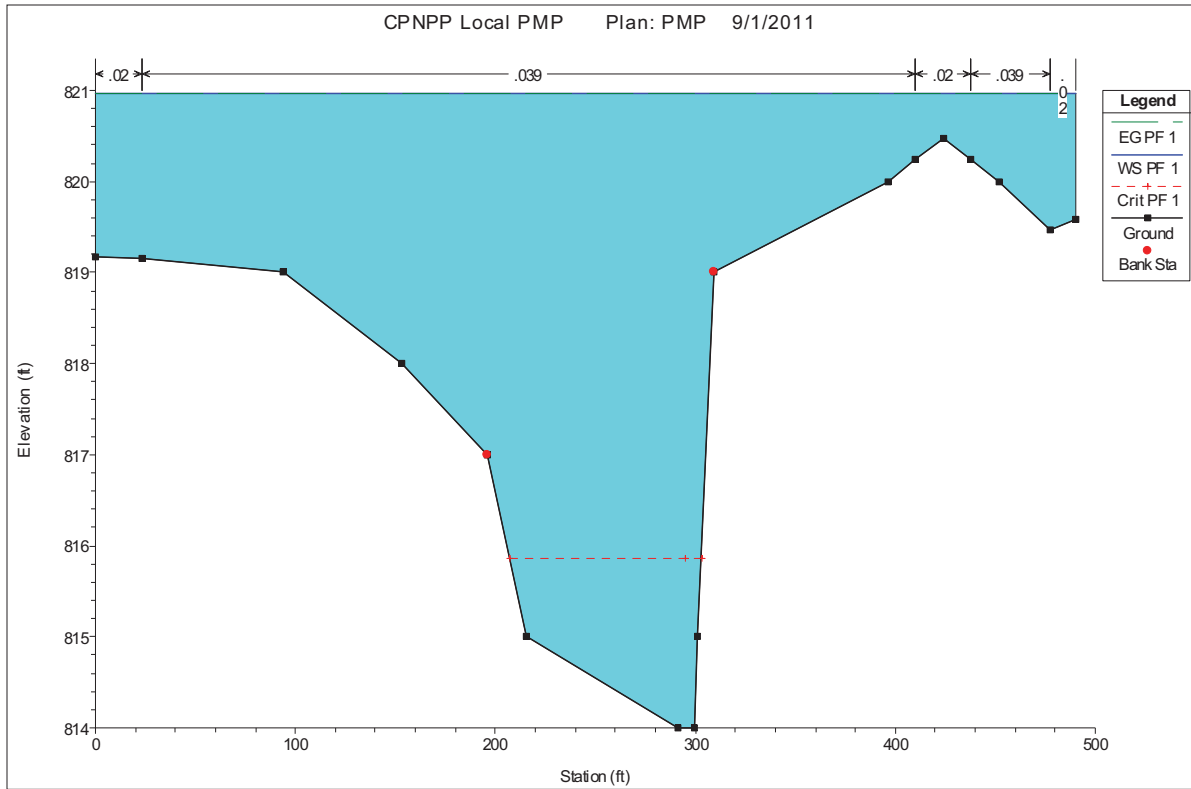
Center South Channel Cross Section 5



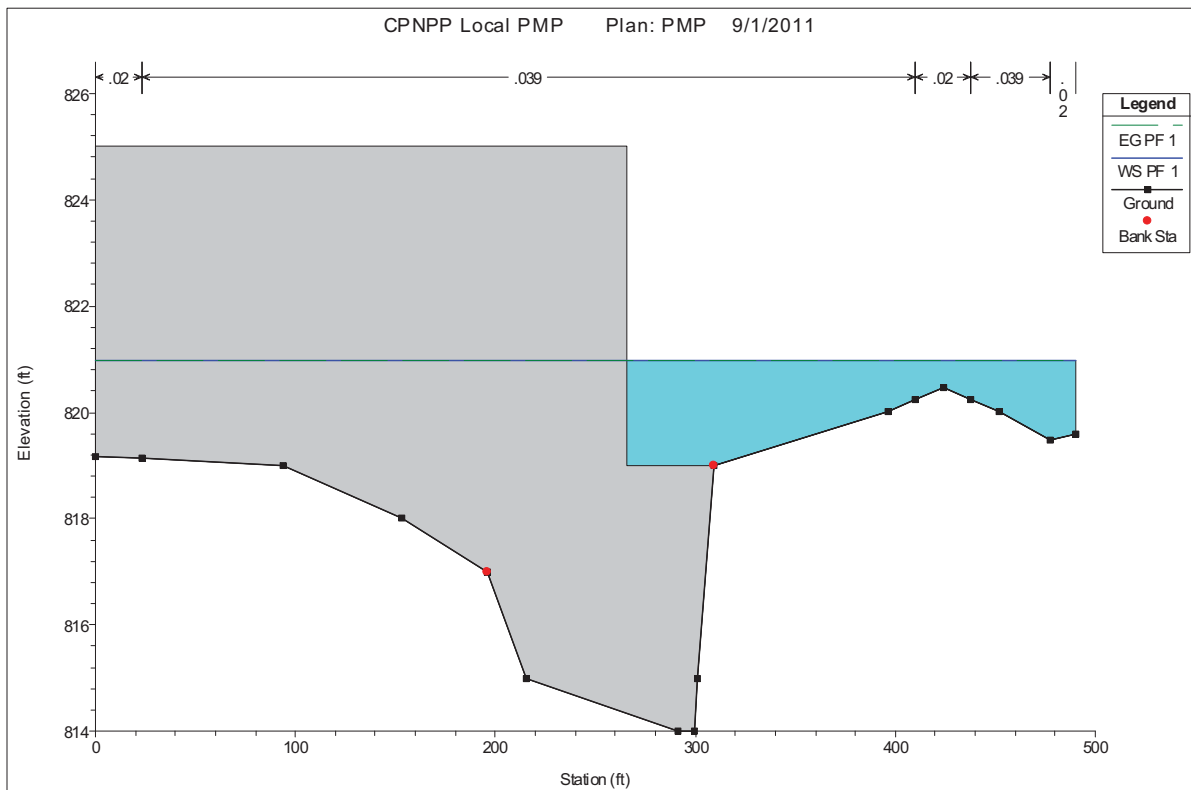
Center South Channel Cross Section 4



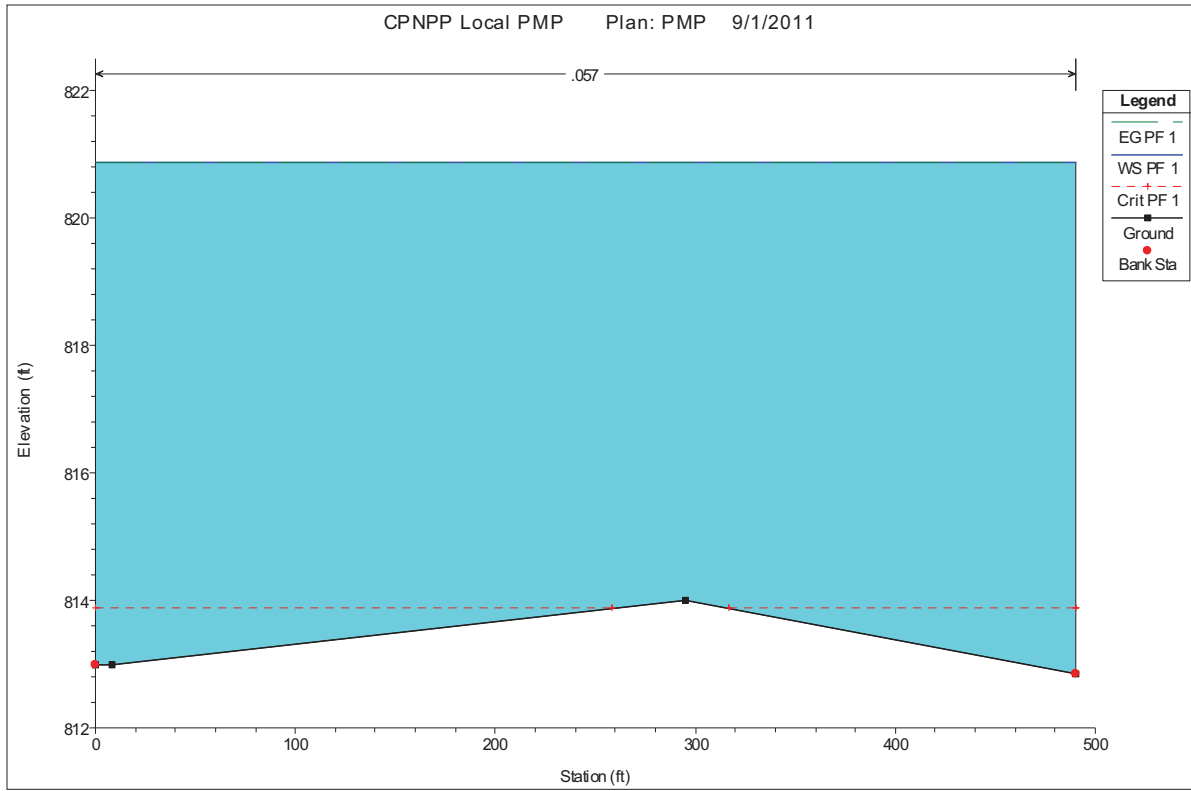
Center South Channel Cross Section 3



Center South Channel Cross Section 2

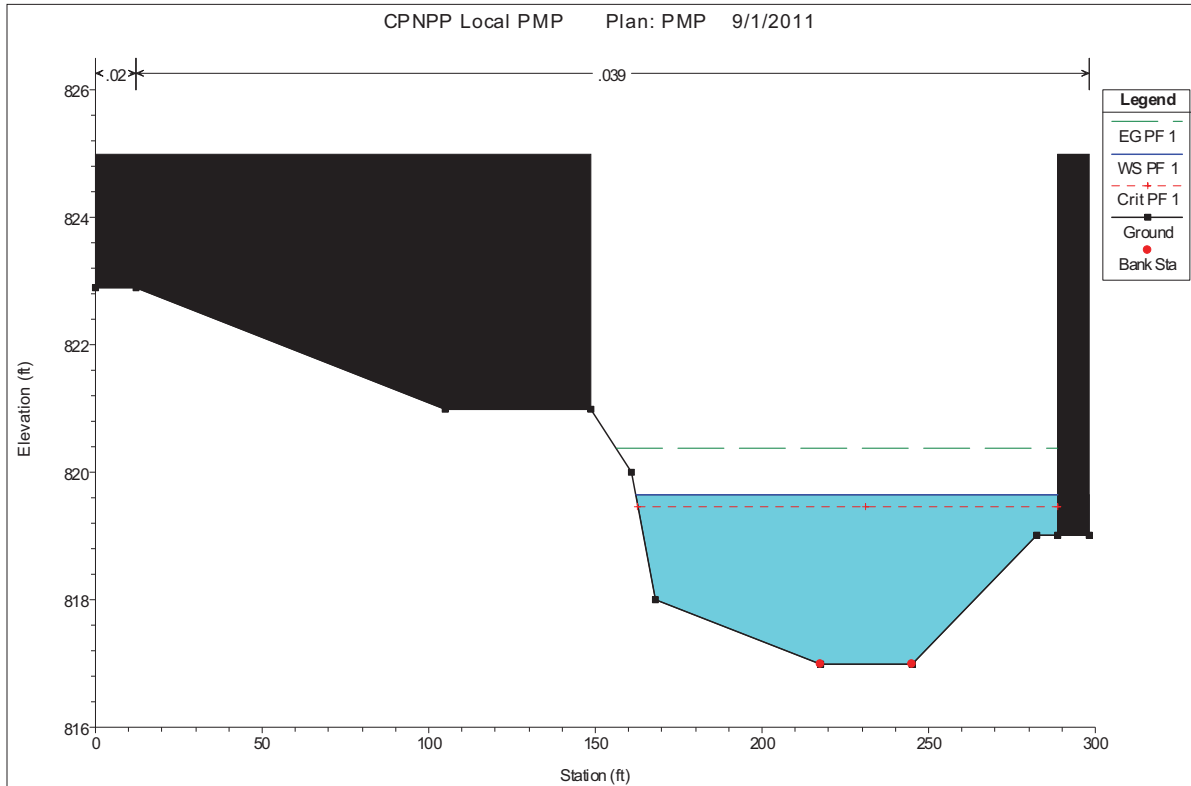


Center South Channel Inline Structure 1.5

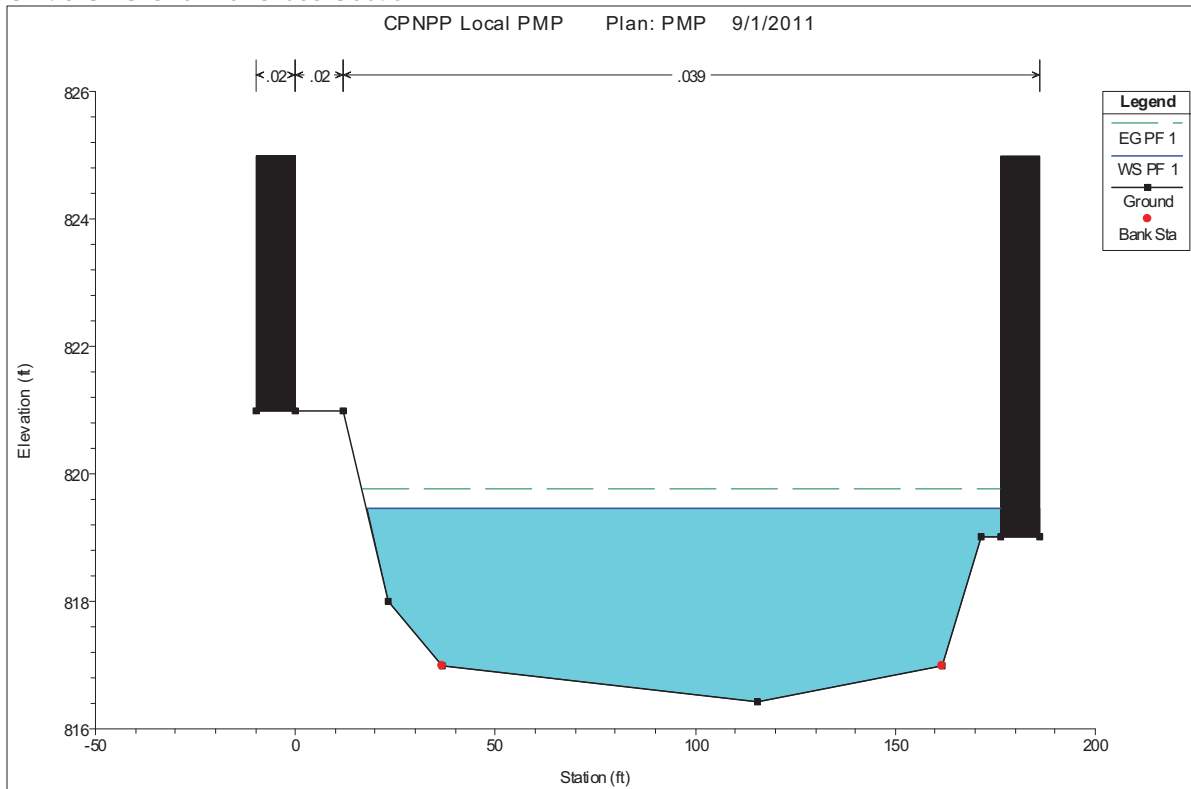


Center South Channel Cross Section 1

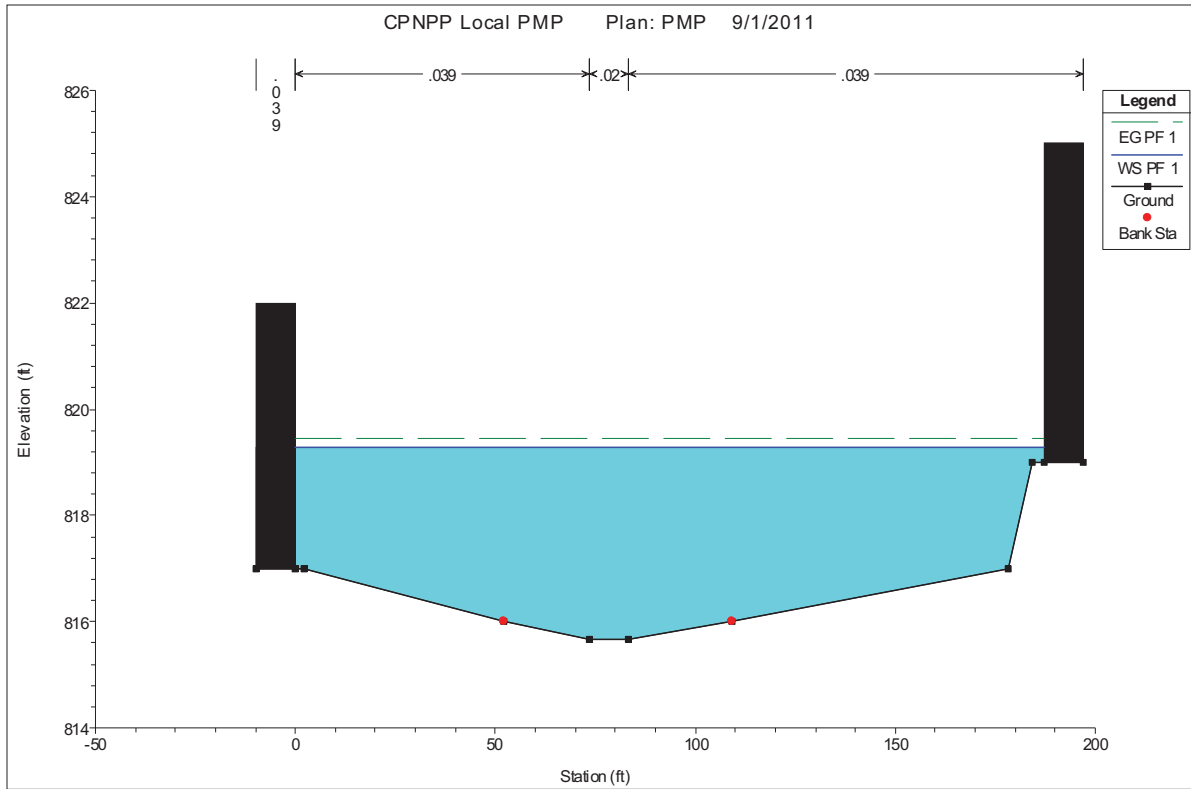
Unit 3 UHS Channel Cross Section Plots



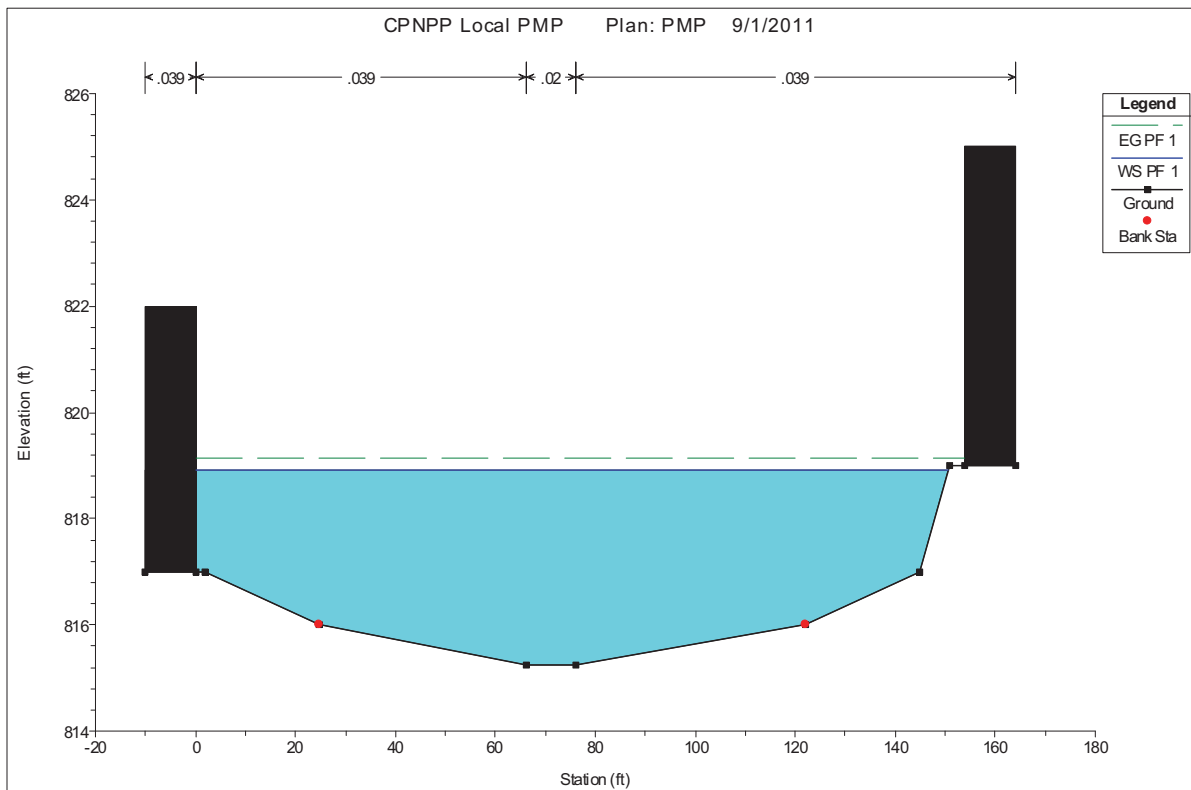
Unit 3 UHS Channel Cross Section 12



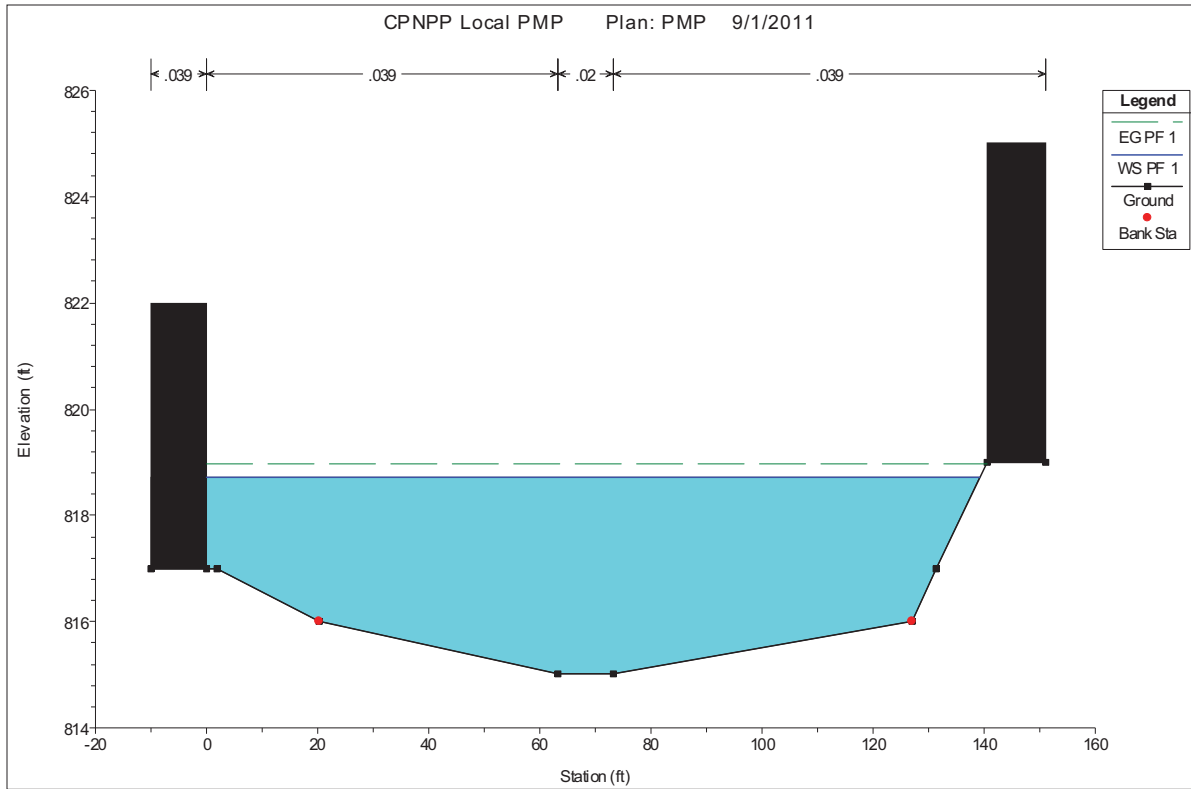
Unit 3 UHS Channel Cross Section 11



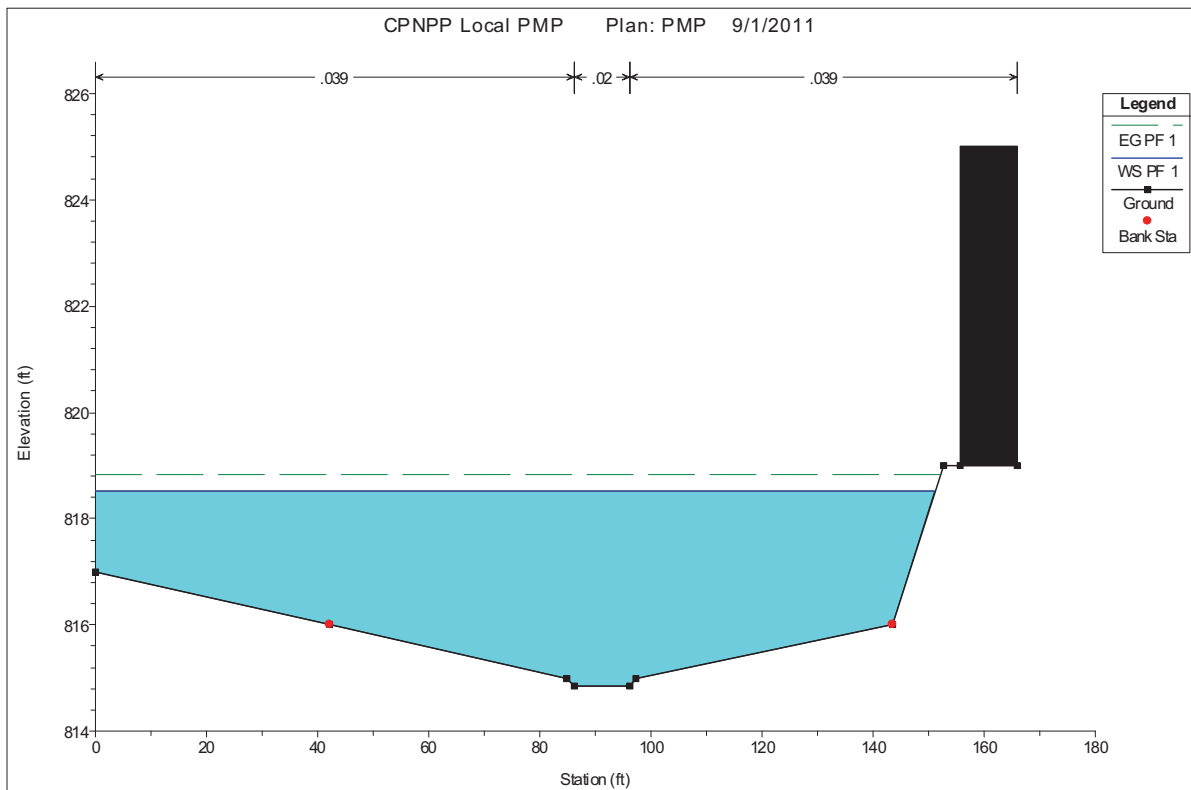
Unit 3 UHS Channel Cross Section 10



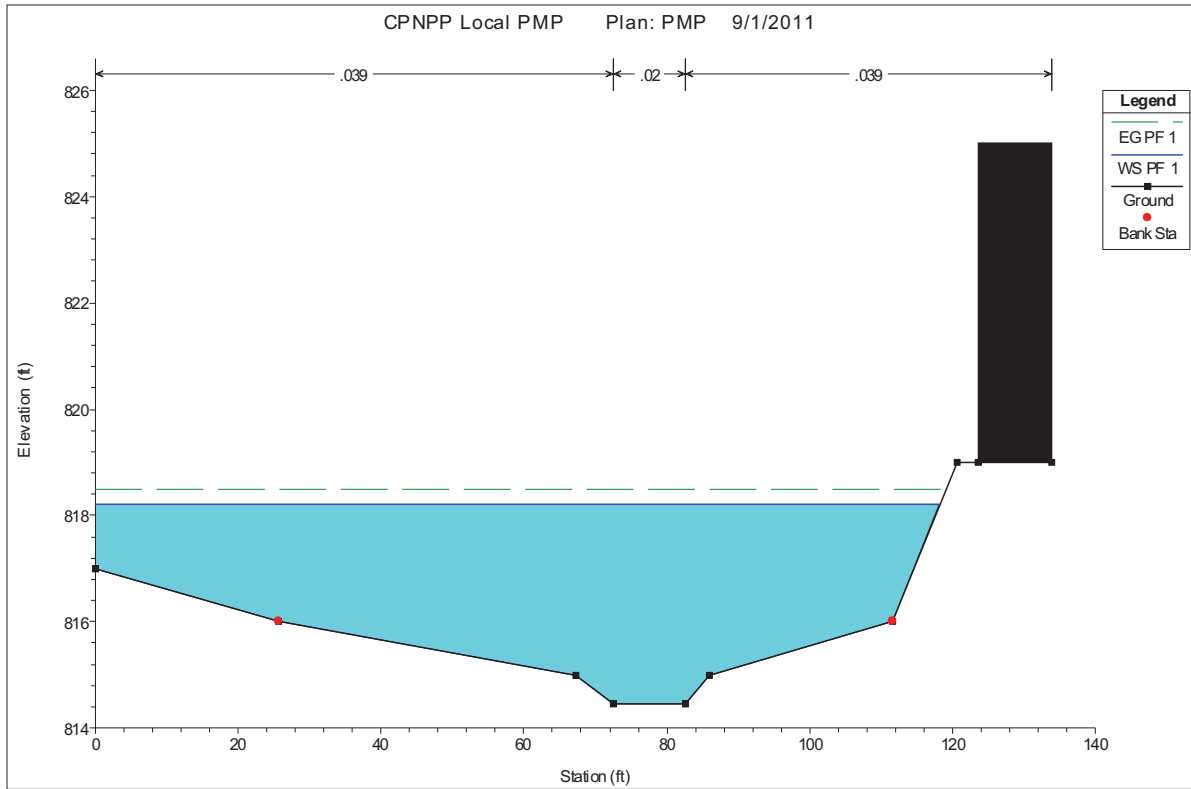
Unit 3 UHS Channel Cross Section 9



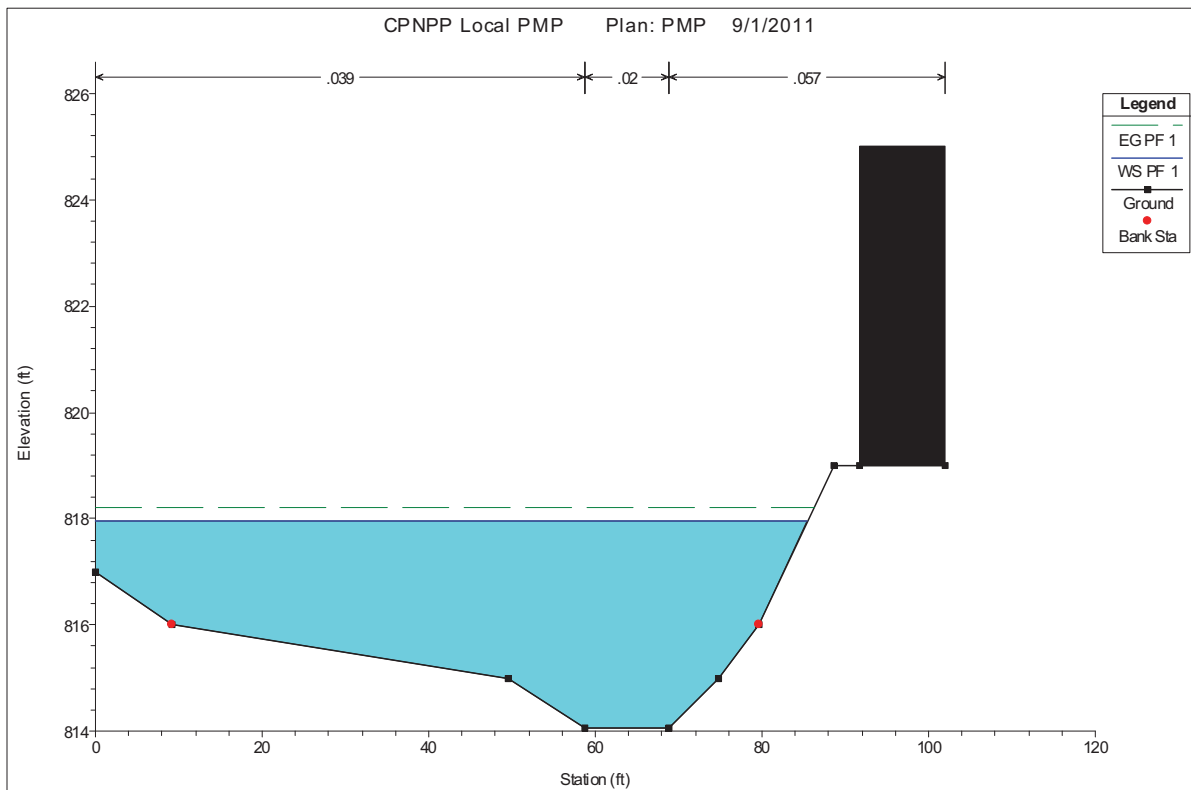
Unit 3 UHS Channel Cross Section 8



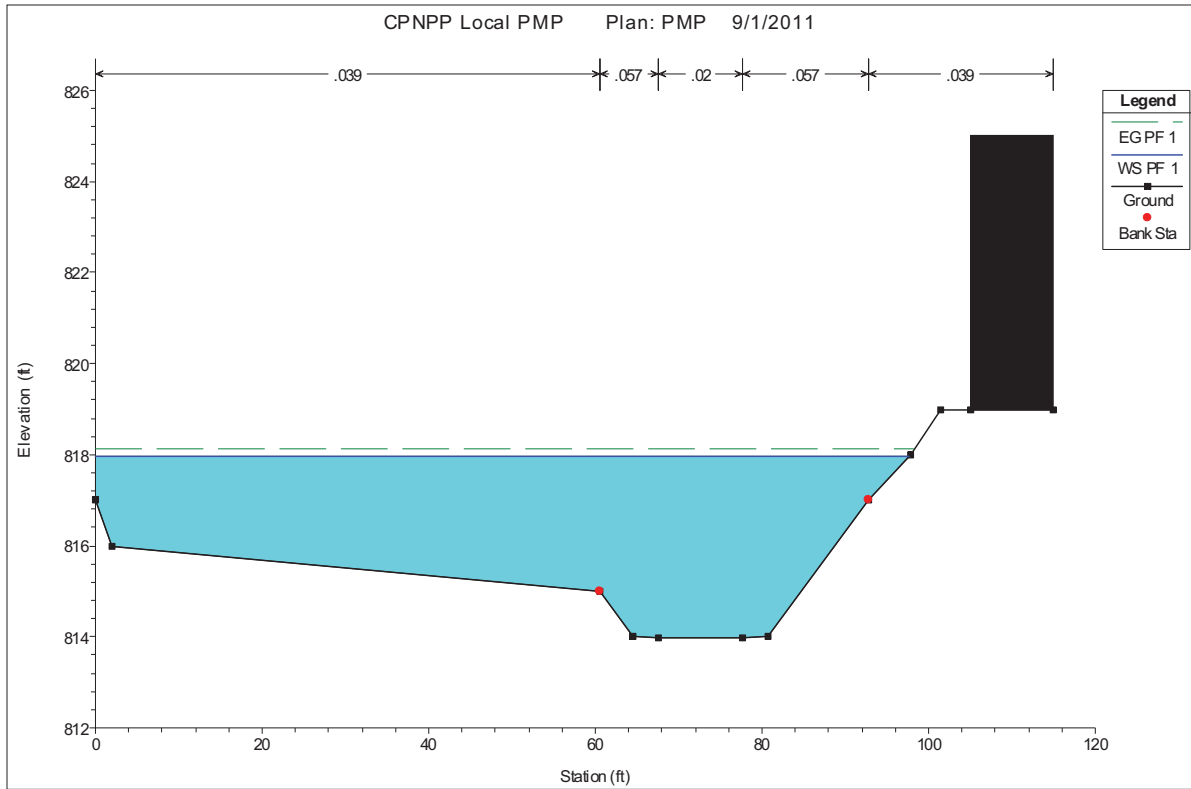
Unit 3 UHS Channel Cross Section 7



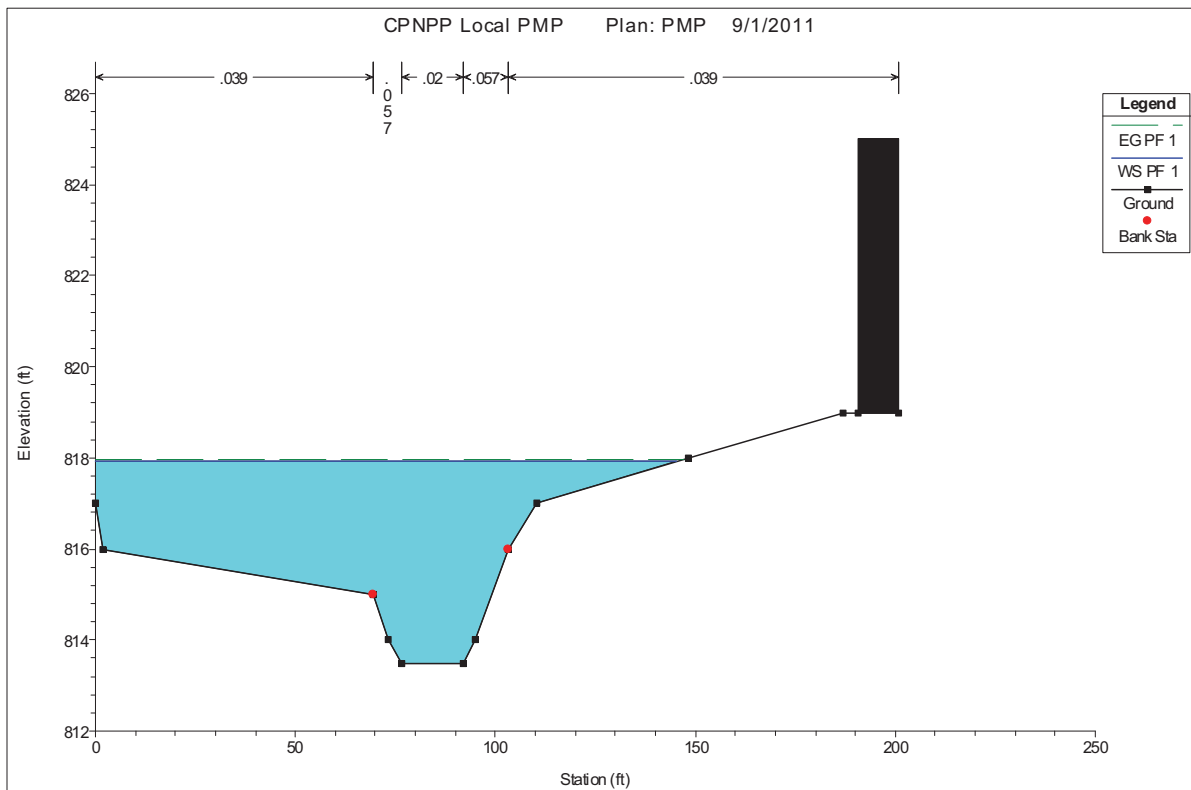
Unit 3 UHS Channel Cross Section 6



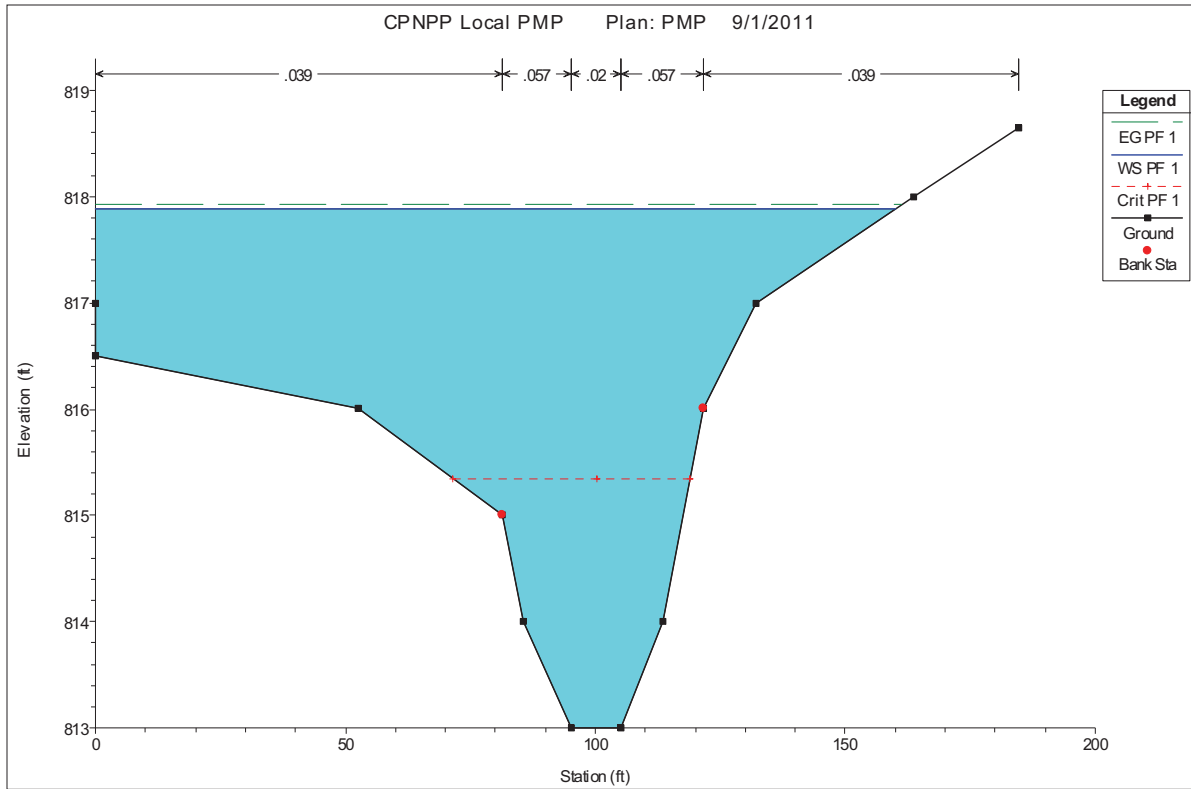
Unit 3 UHS Channel Cross Section 5



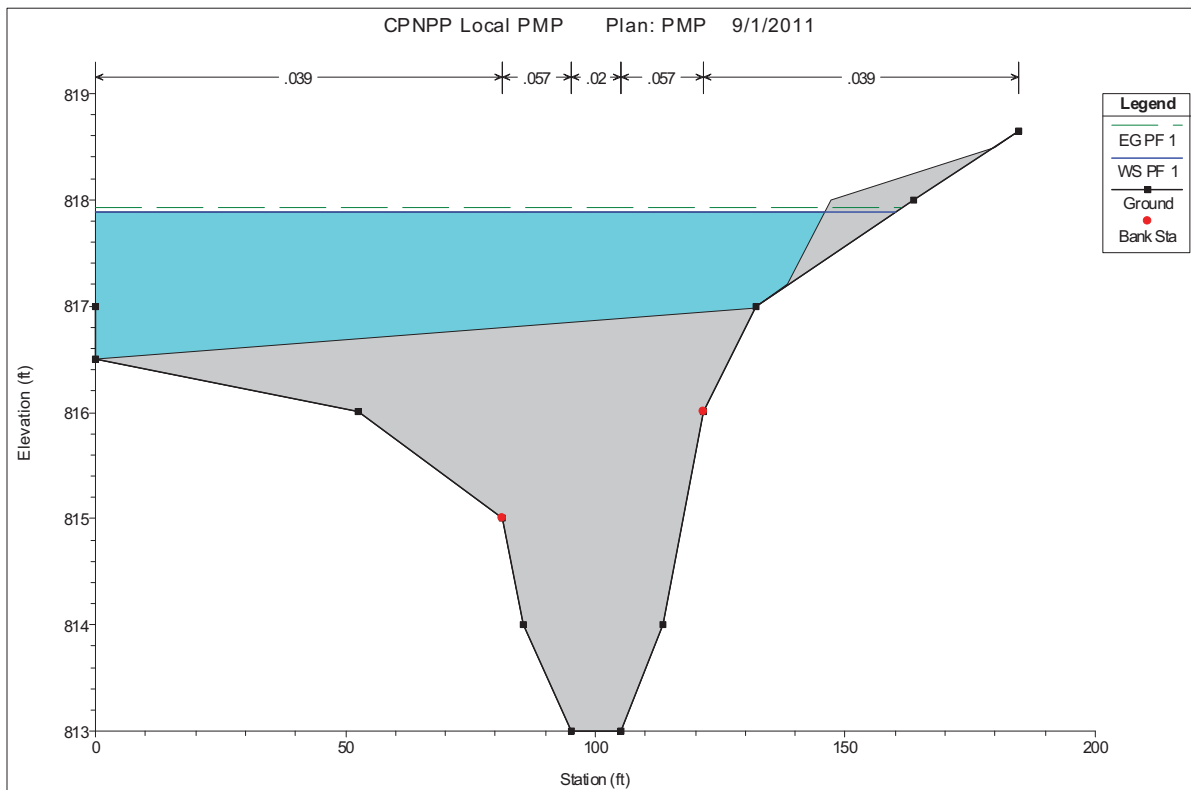
Unit 3 UHS Channel Cross Section 4



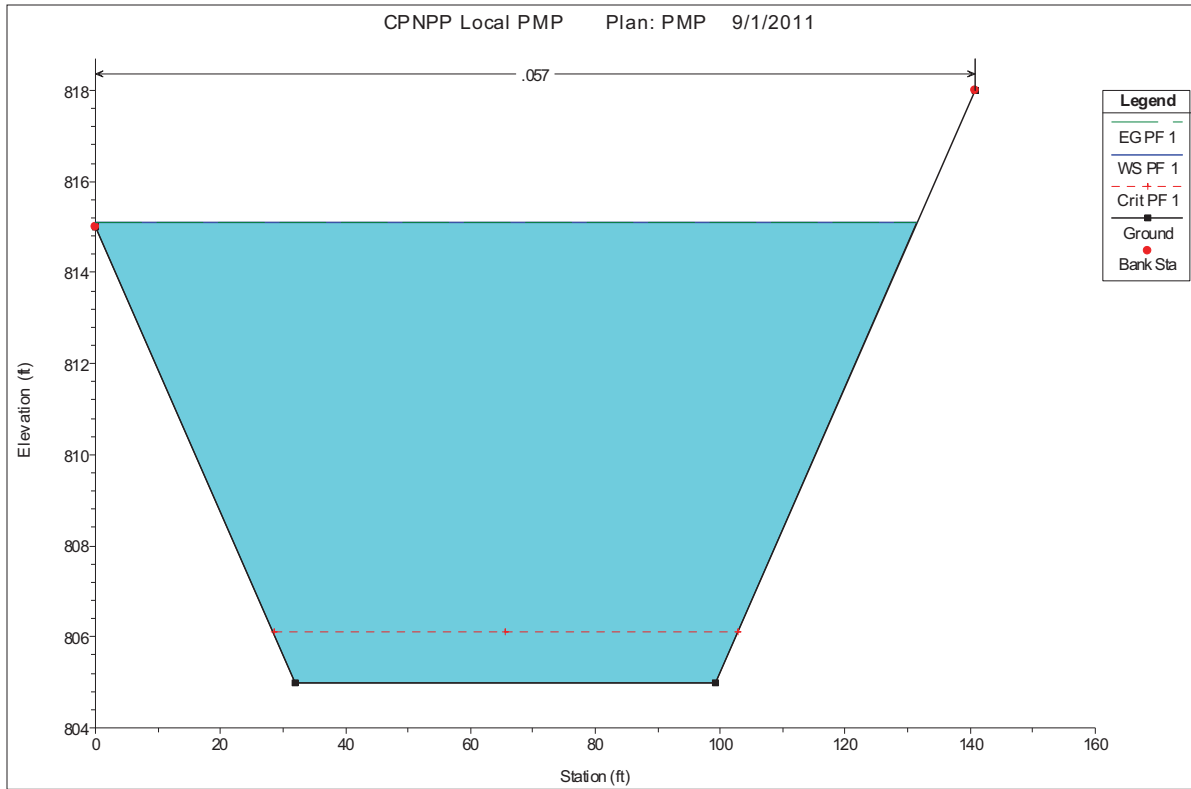
Unit 3 UHS Channel Cross Section 3



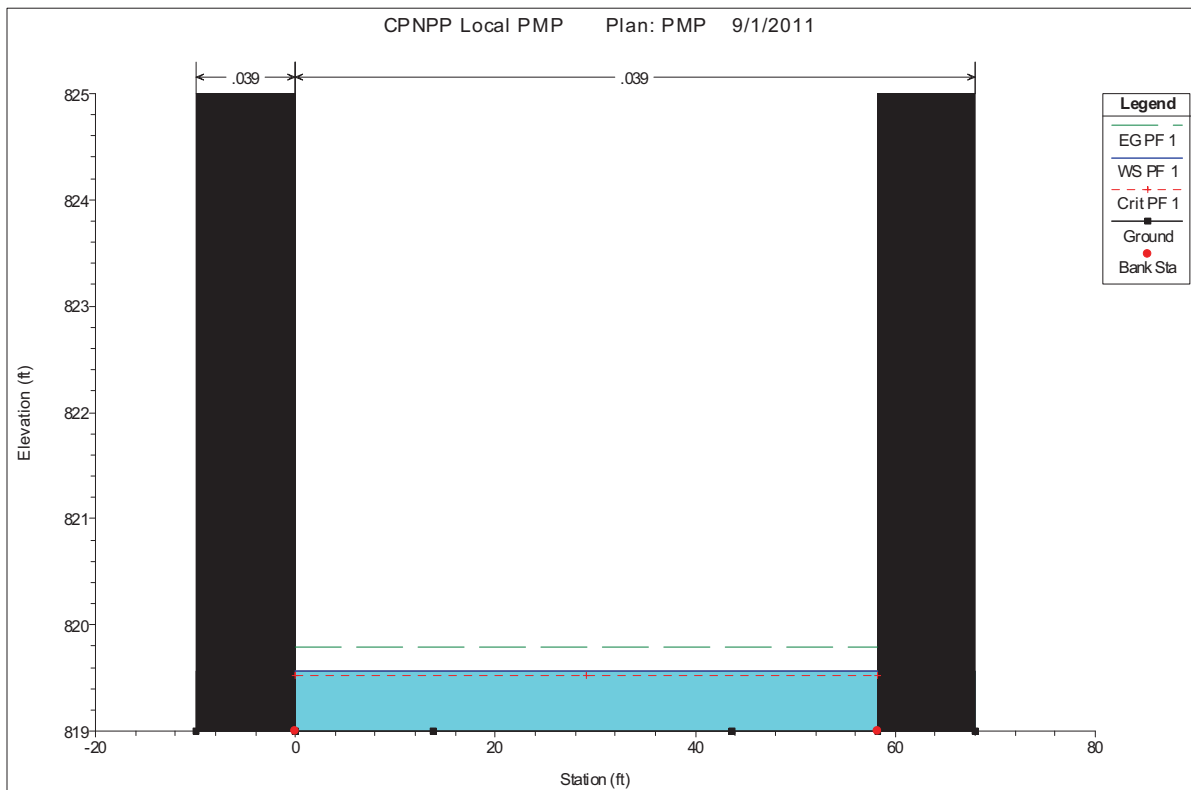
Unit 3 UHS Channel Cross Section 2



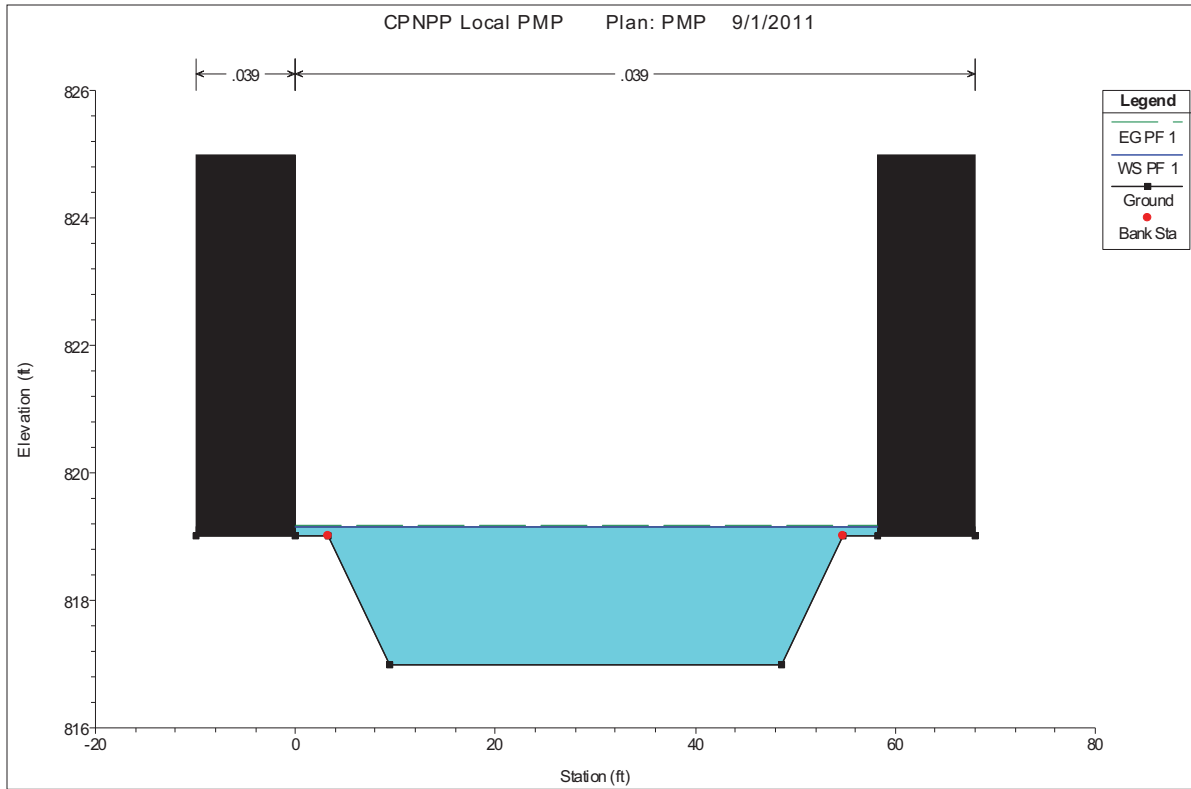
Unit 3 UHS Channel Inline Structure 1.5



Unit 3 UHS Channel Cross Section 1

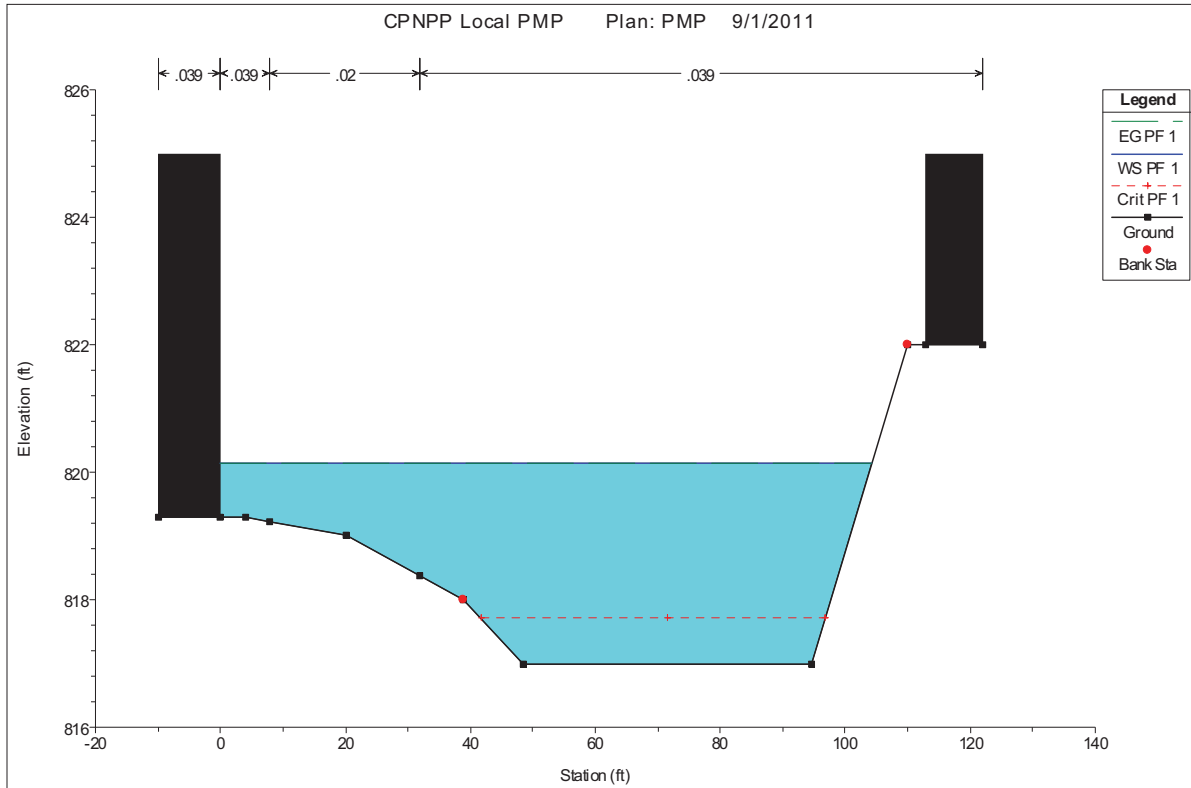


Unit 3 UHS Channel Cross Section 109

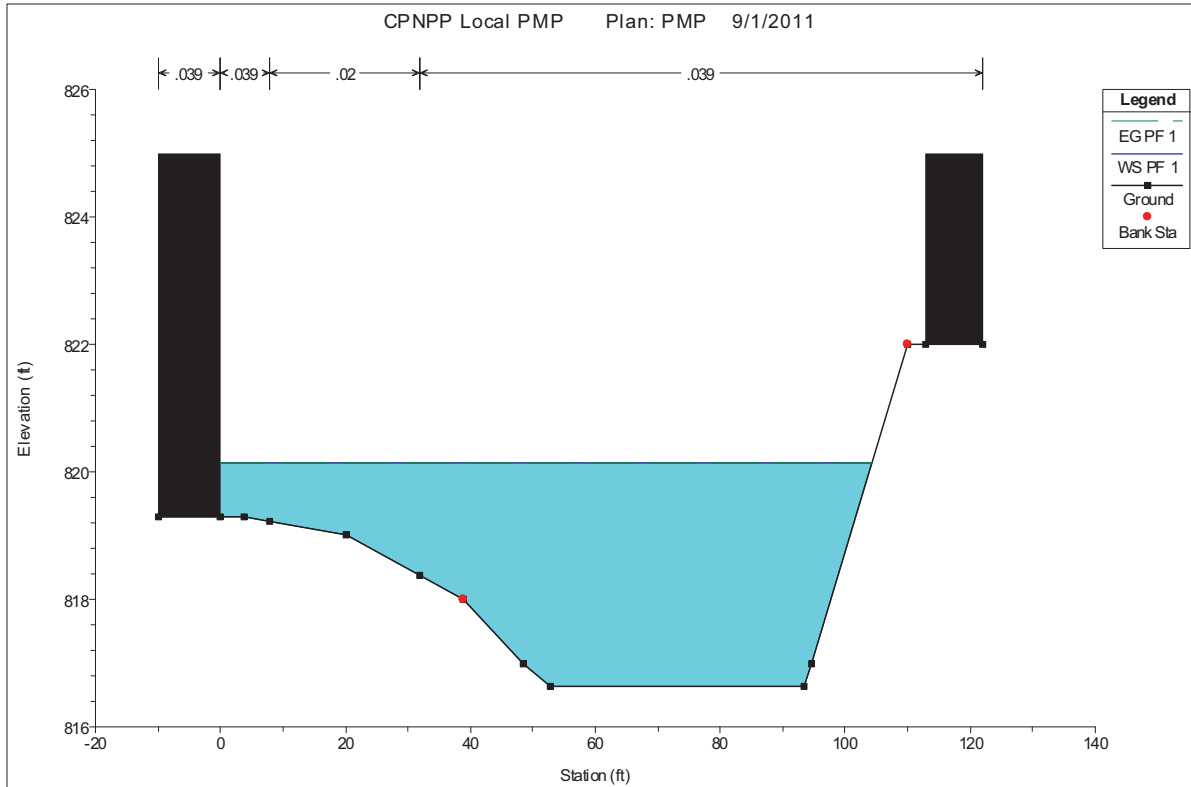


Unit 3 UHS Channel Cross Section 108

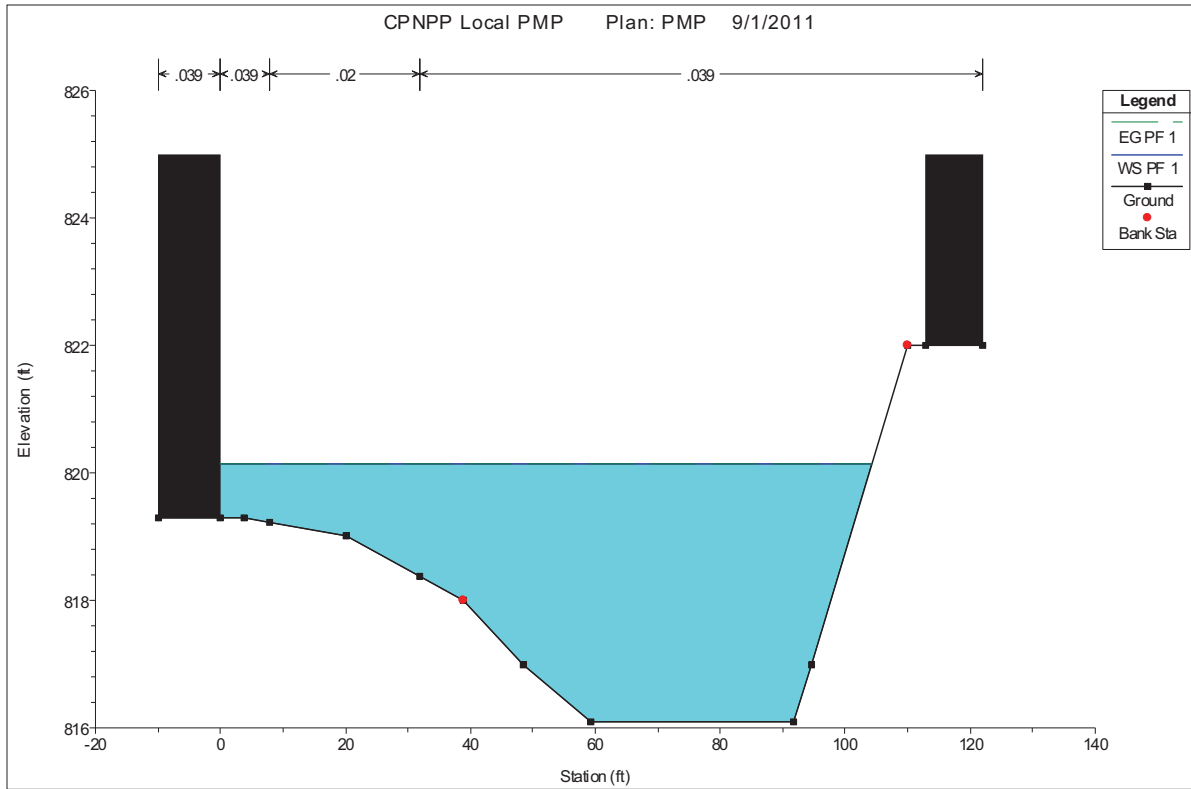
Unit 3 North Channel Cross Section Plots



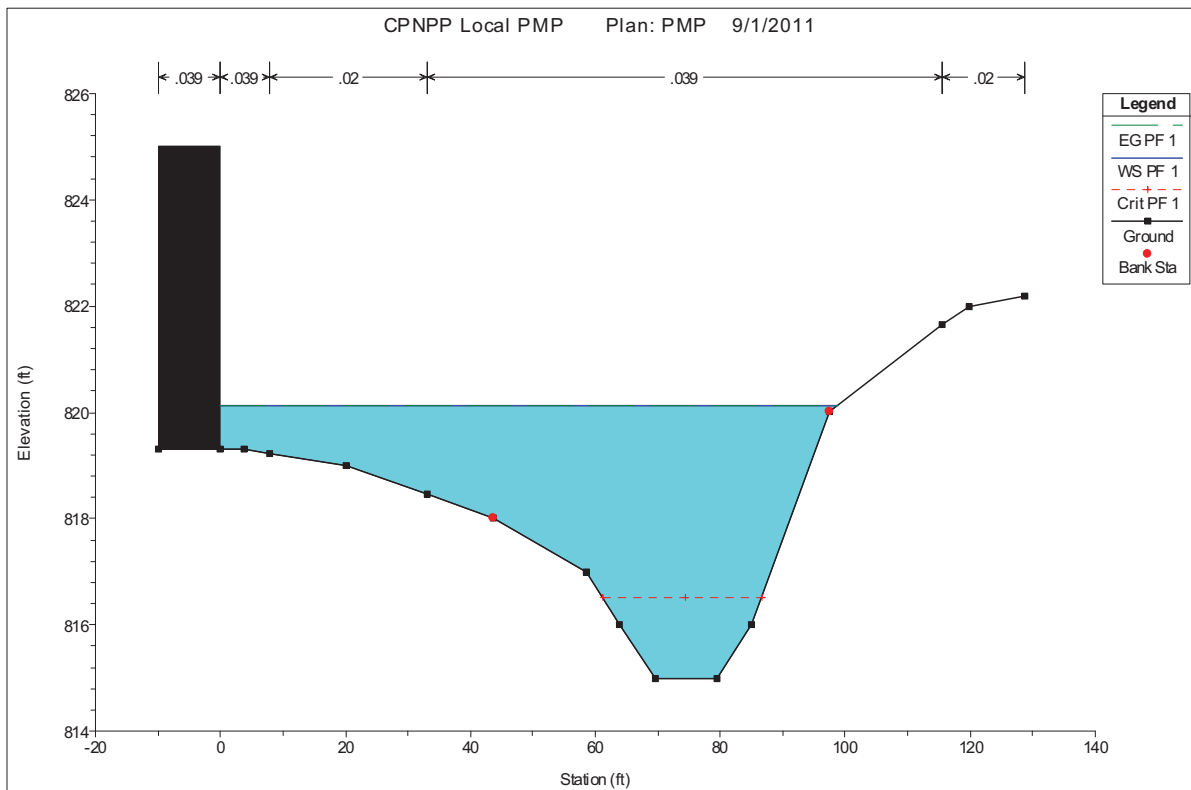
Unit 3 North Channel Cross Section 8



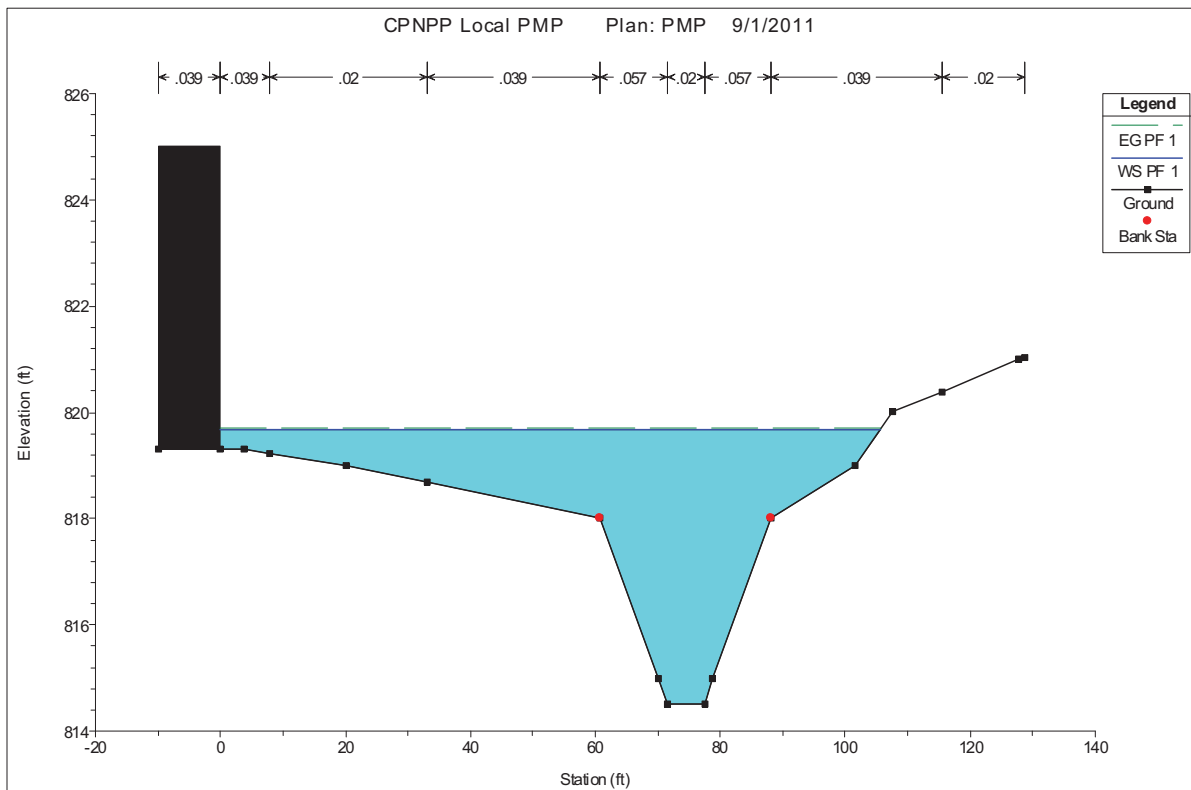
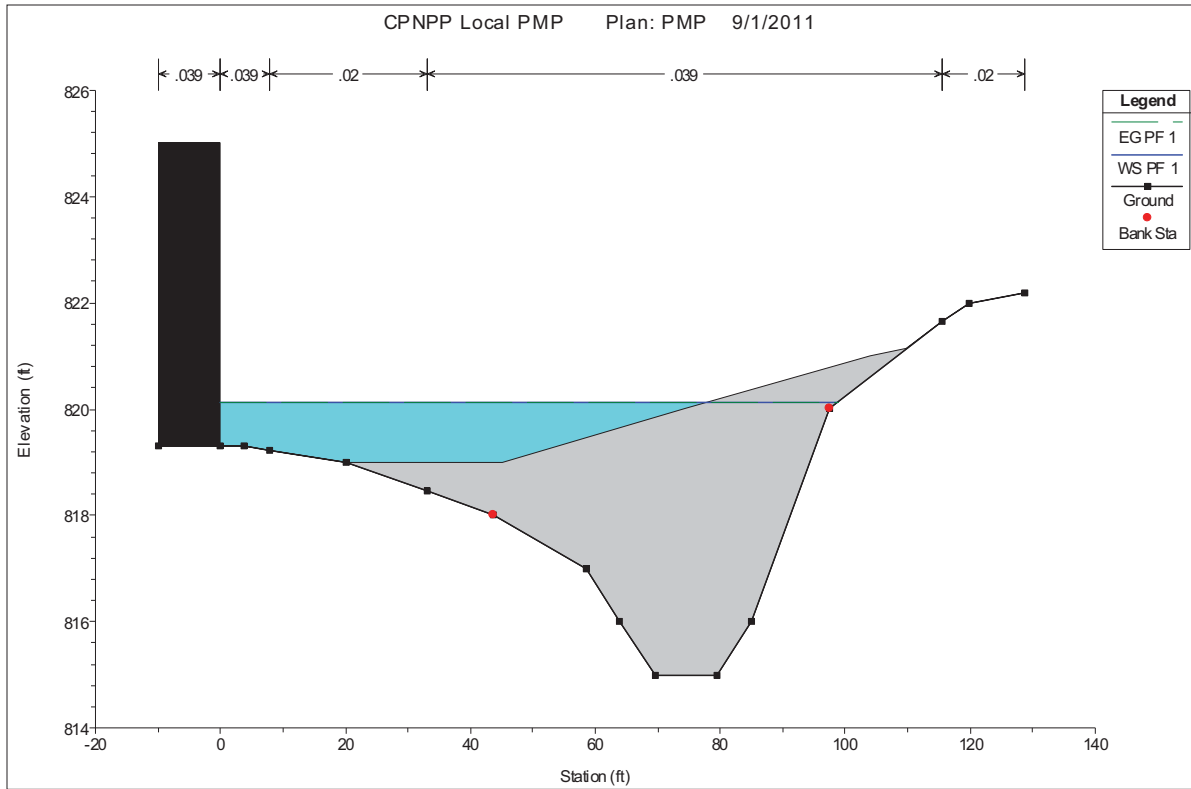
Unit 3 North Channel Cross Section 7

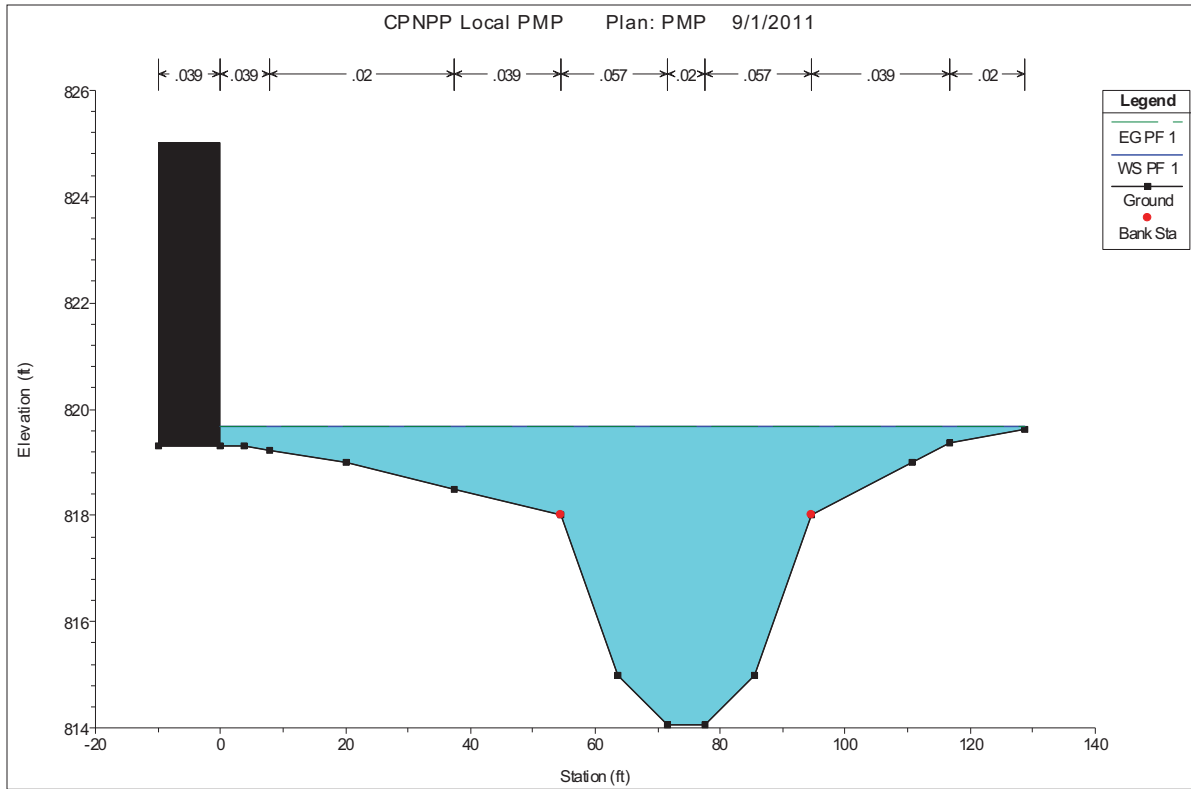


Unit 3 North Channel Cross Section 6

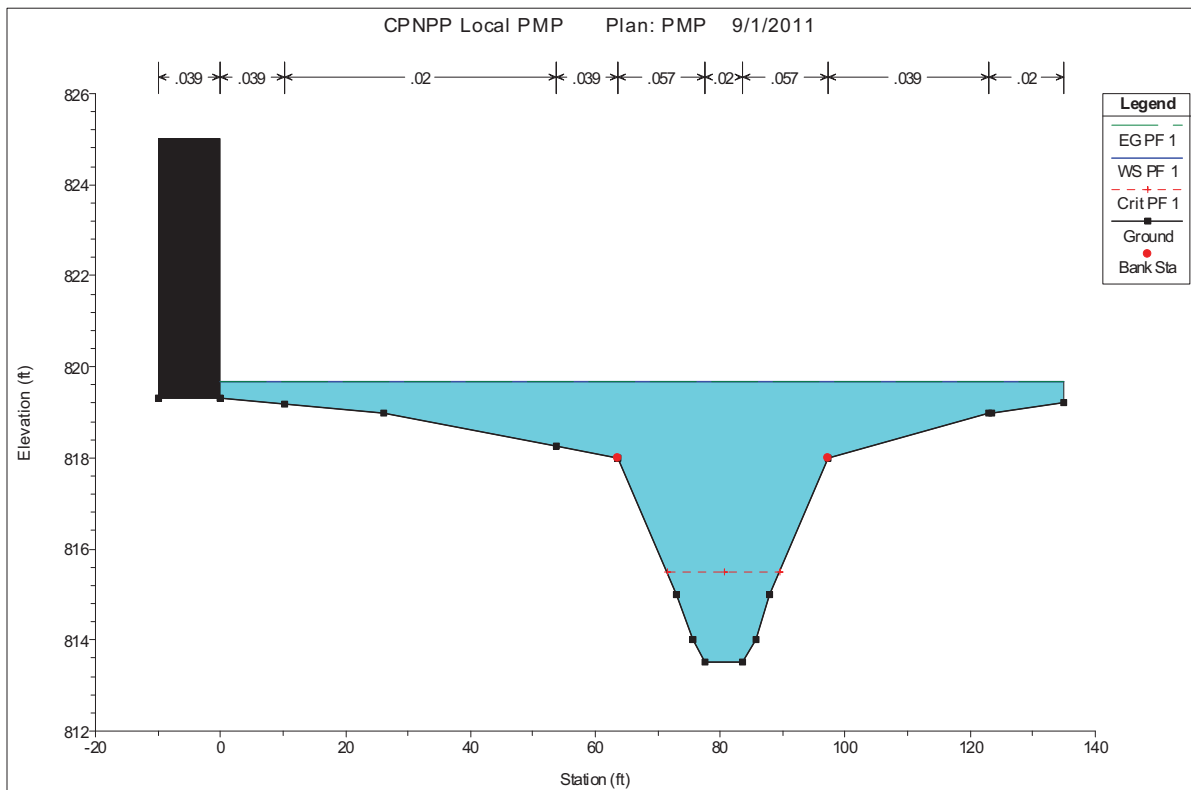


Unit 3 North Channel Cross Section 5

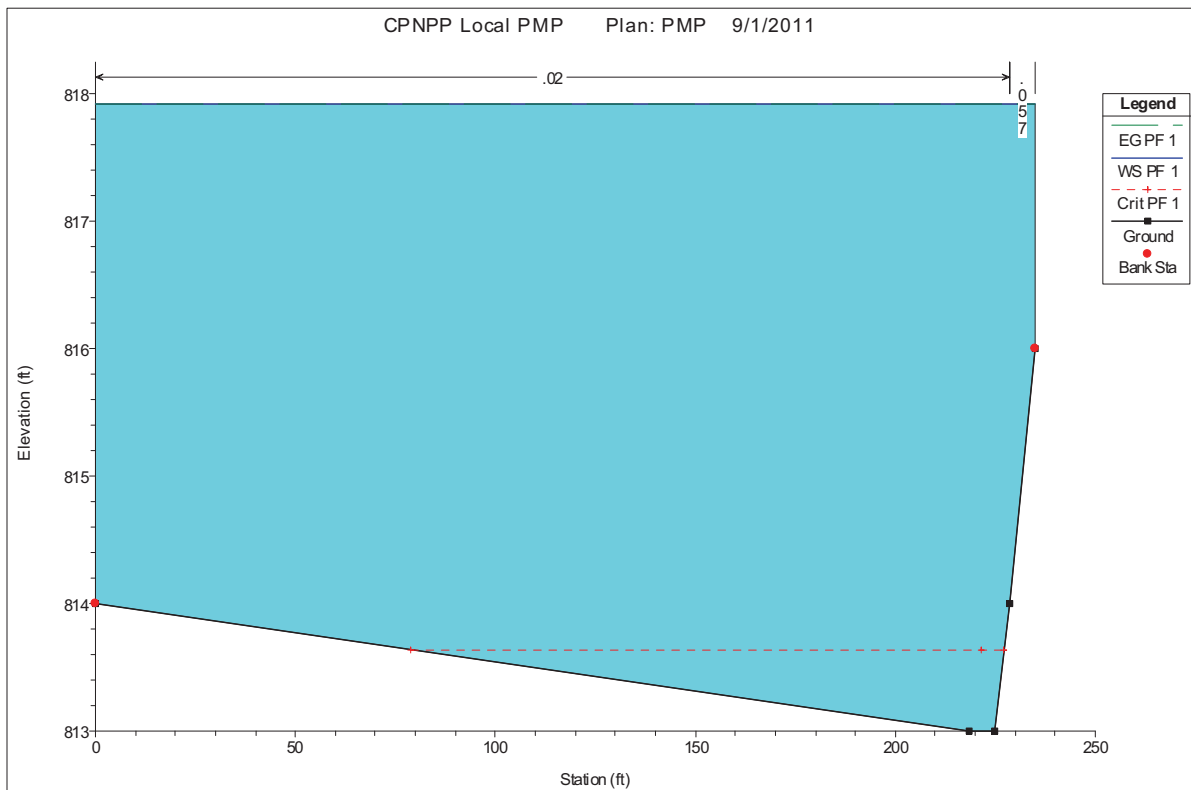
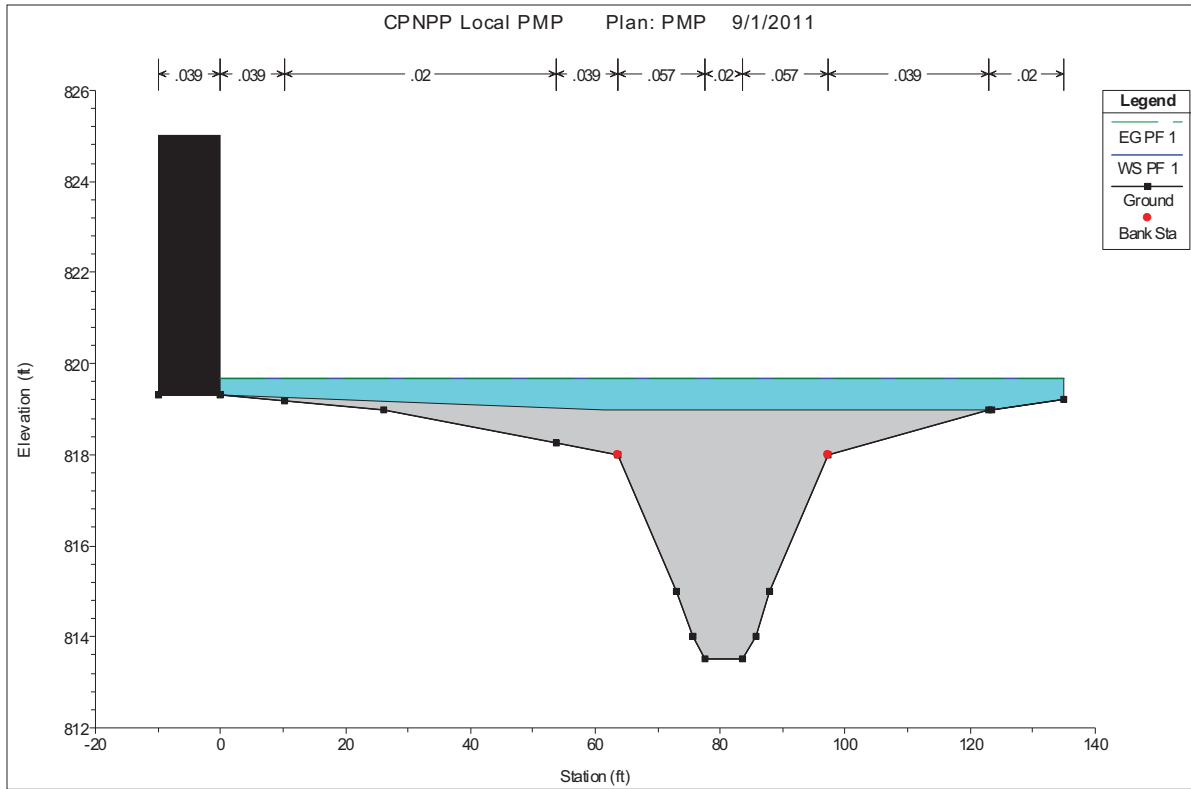




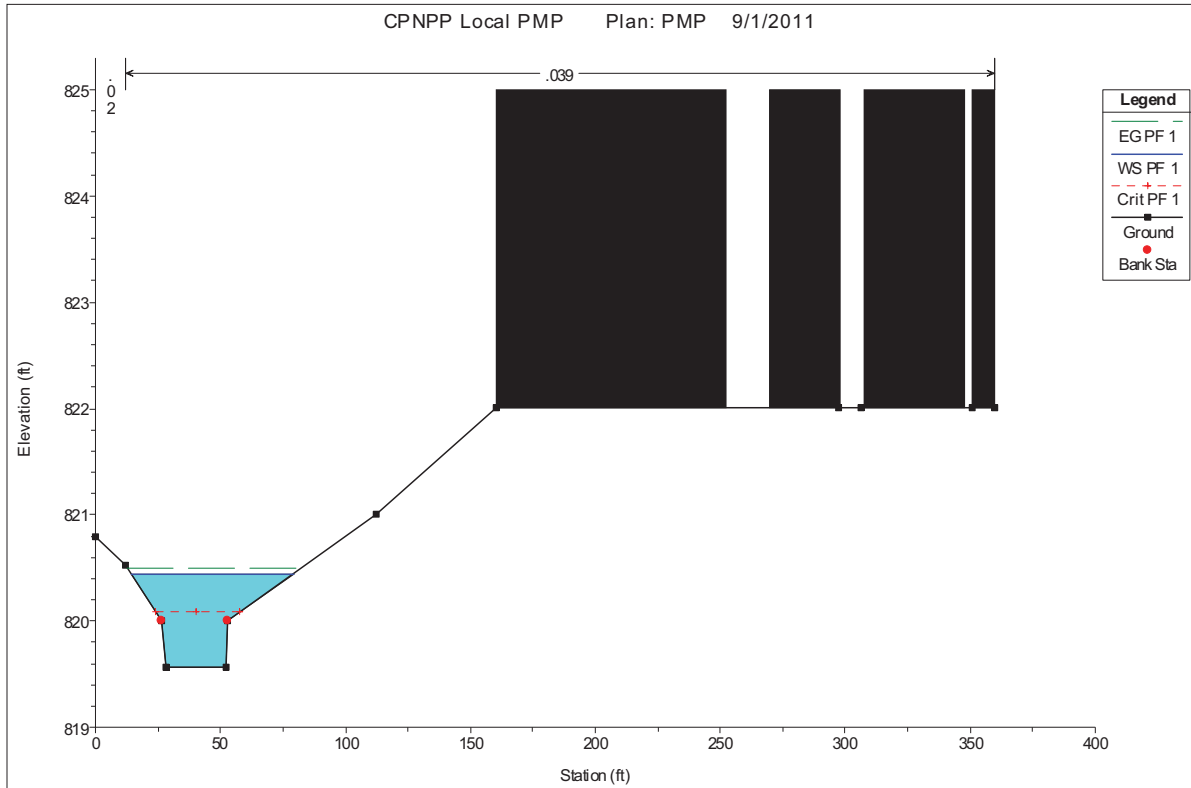
Unit 3 North Channel Cross Section 3



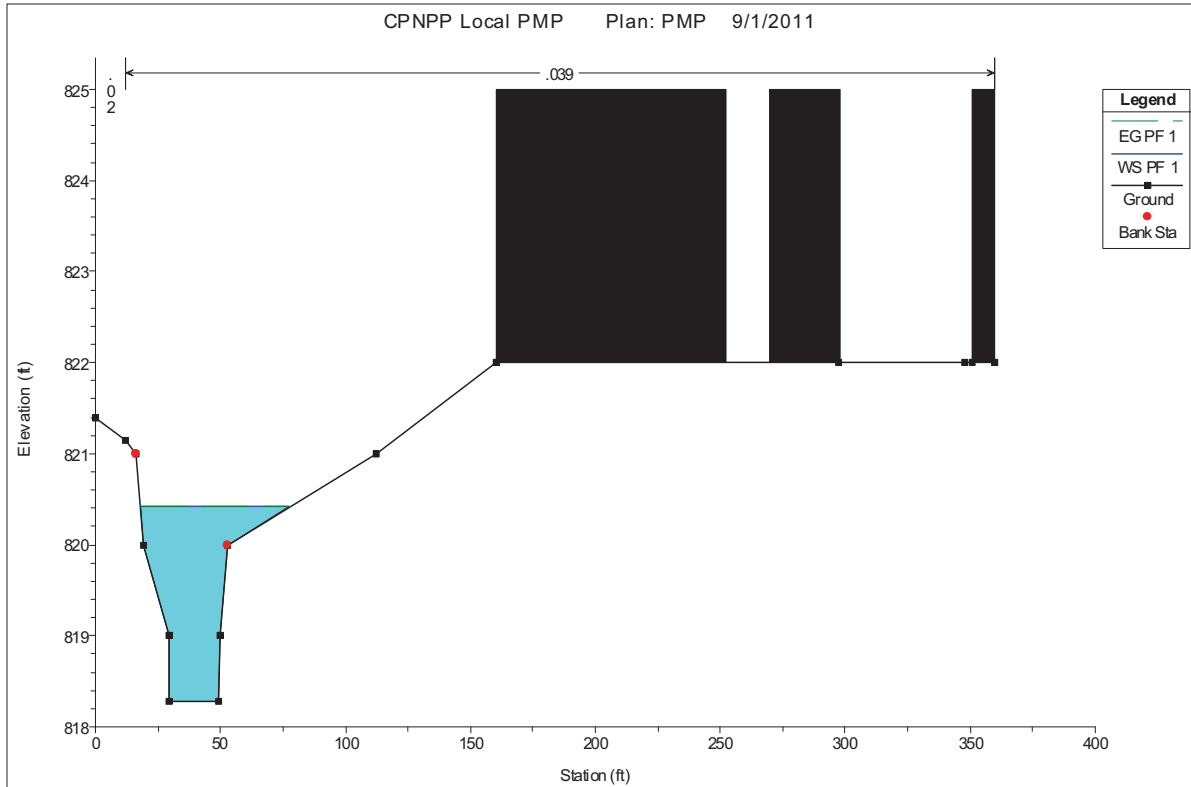
Unit 3 North Channel Cross Section 2



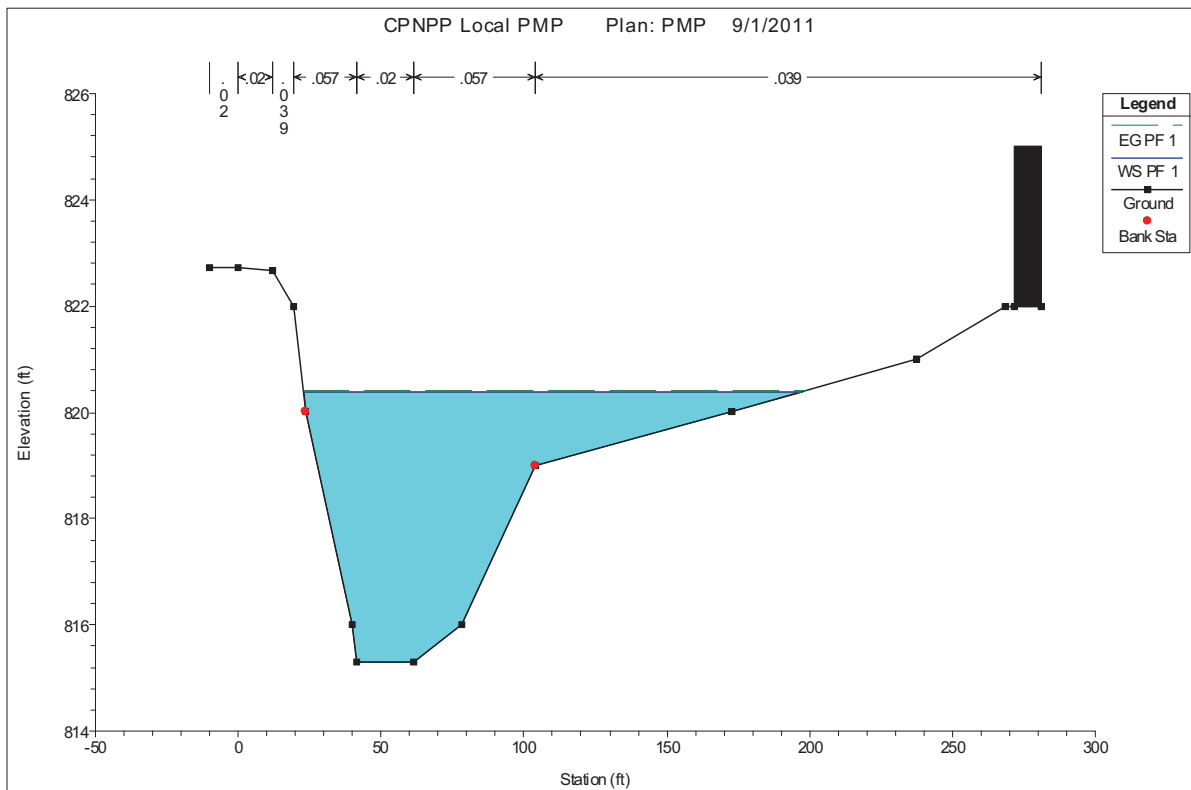
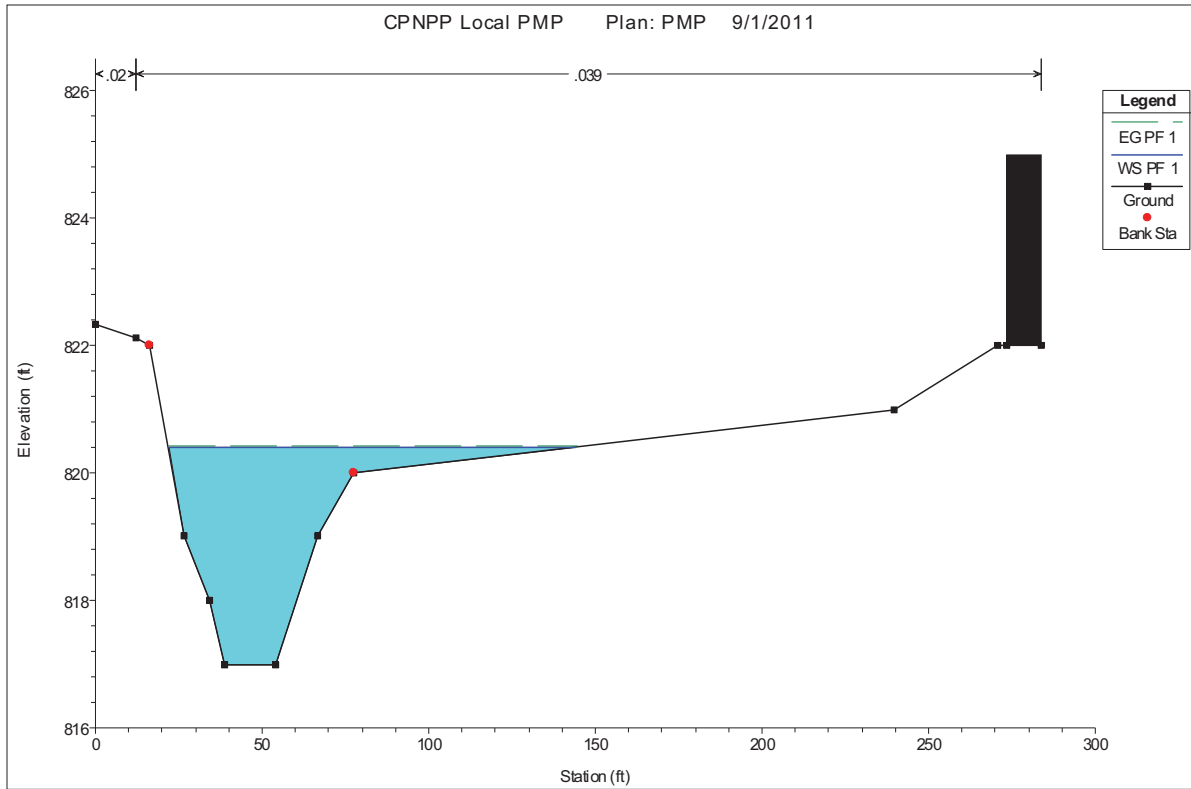
Center North Channel Cross Section Plots

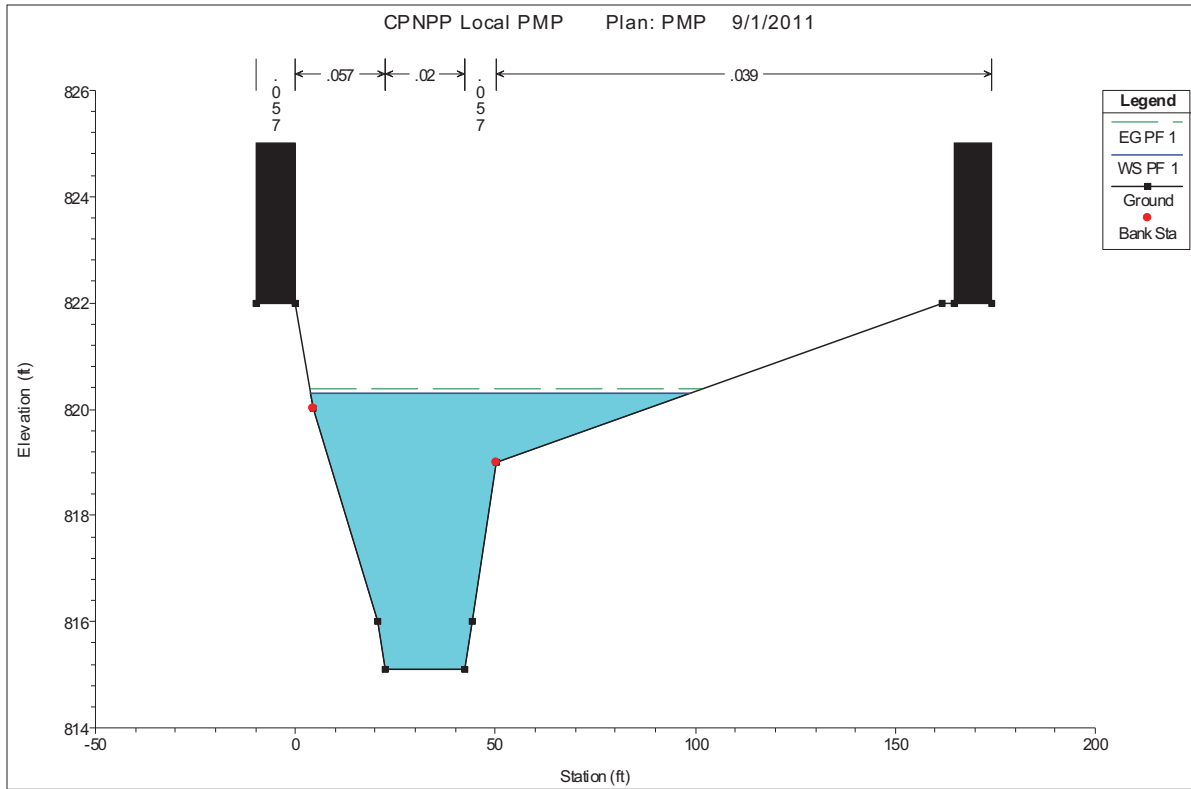


Center North Channel Cross Section 13

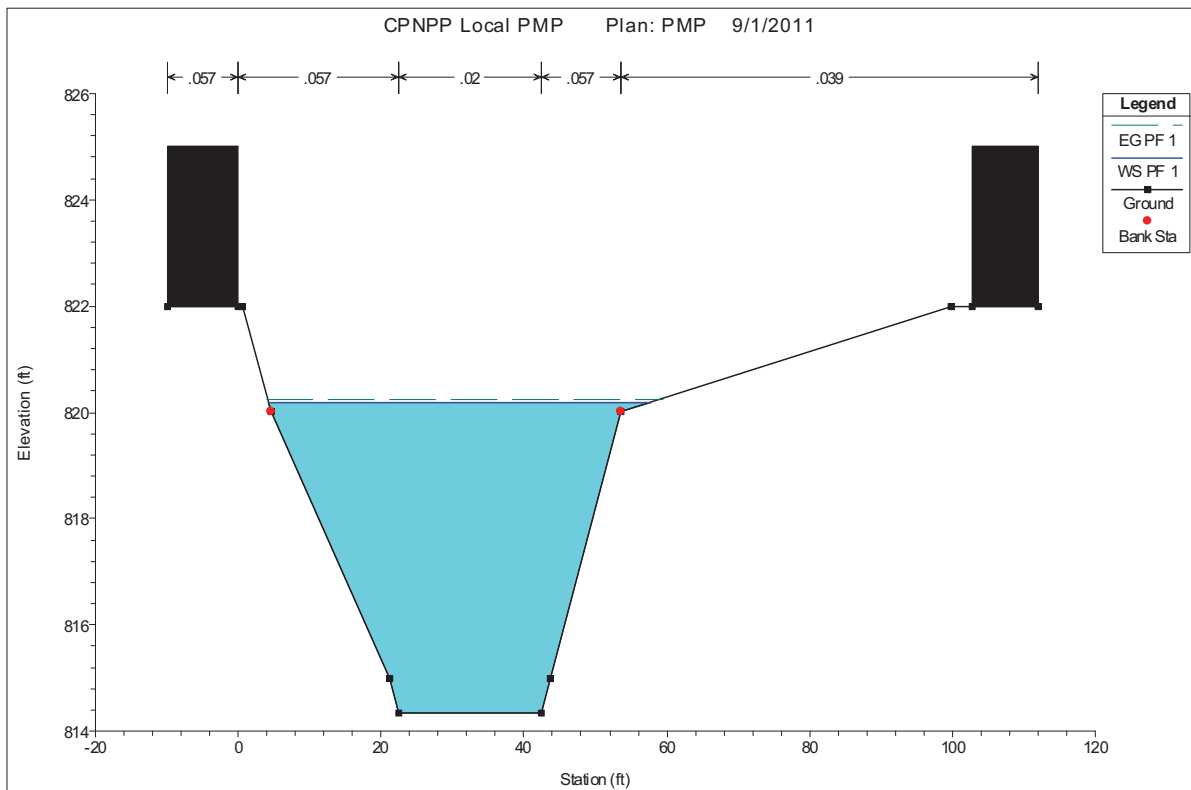


Center North Channel Cross Section 12

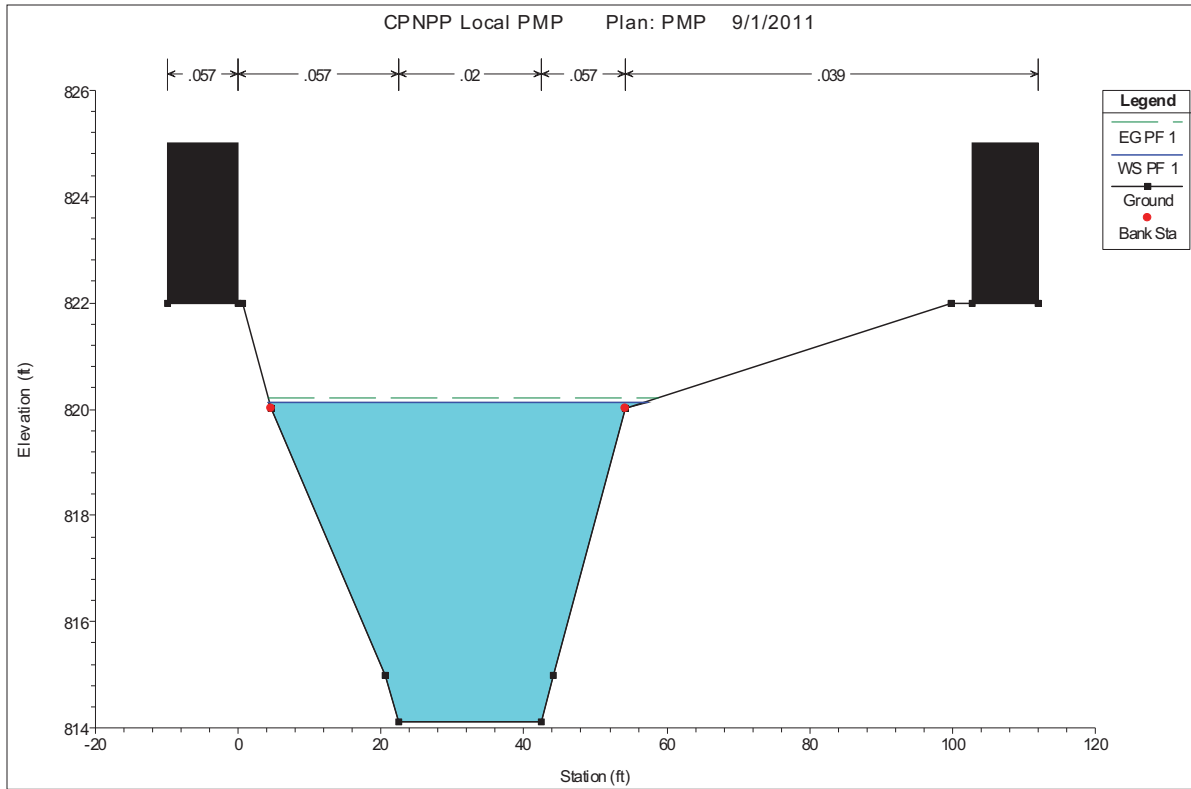




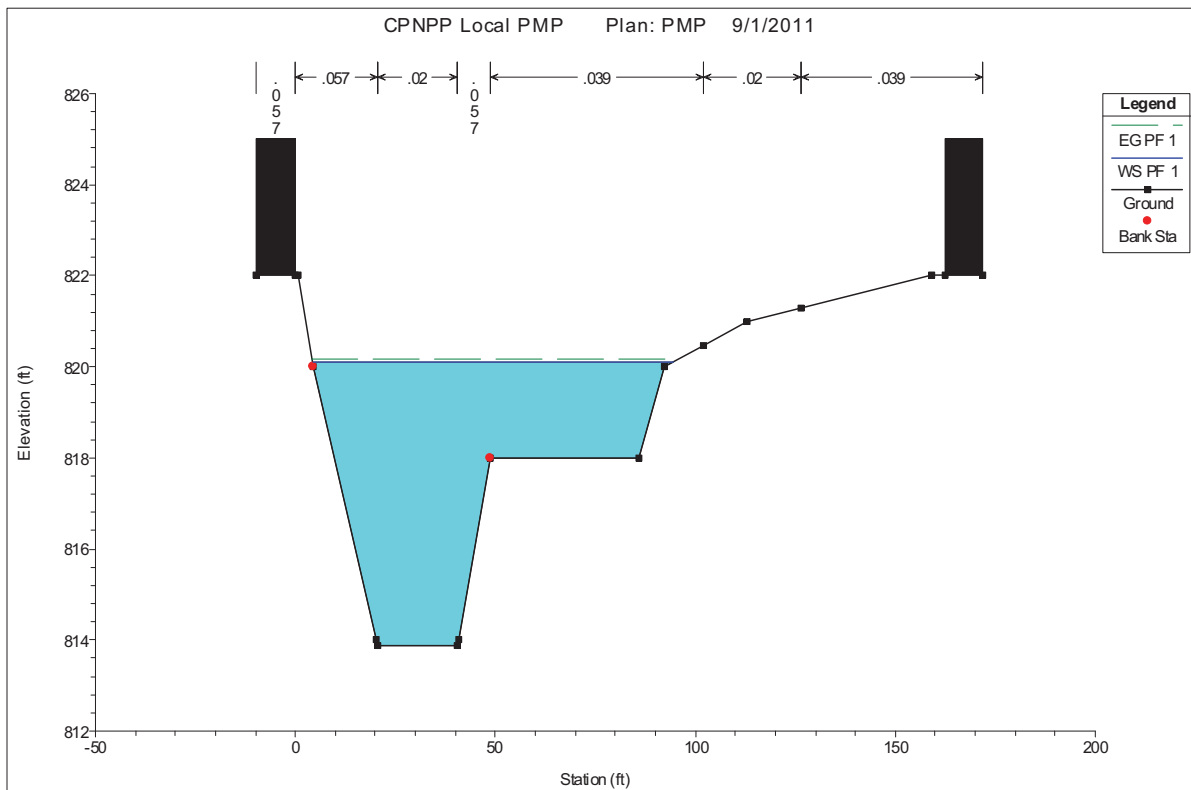
Center North Channel Cross Section 9



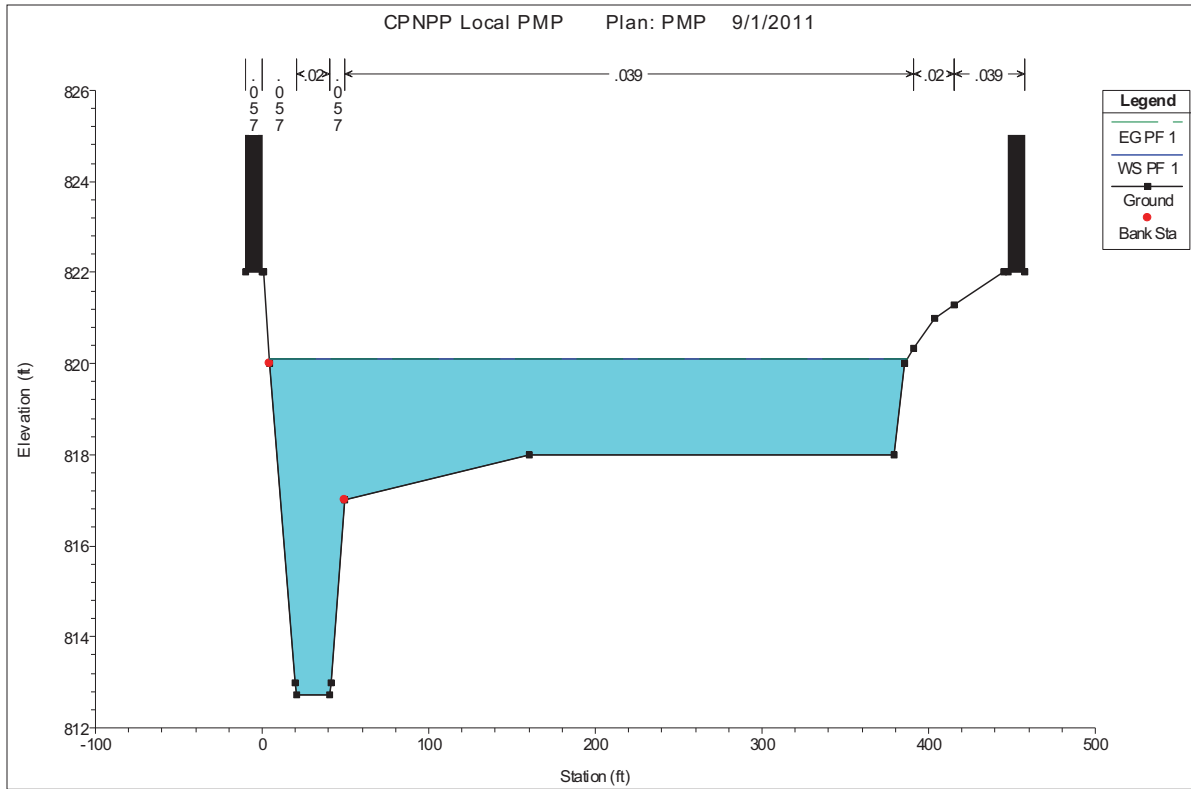
Center North Channel Cross Section 8



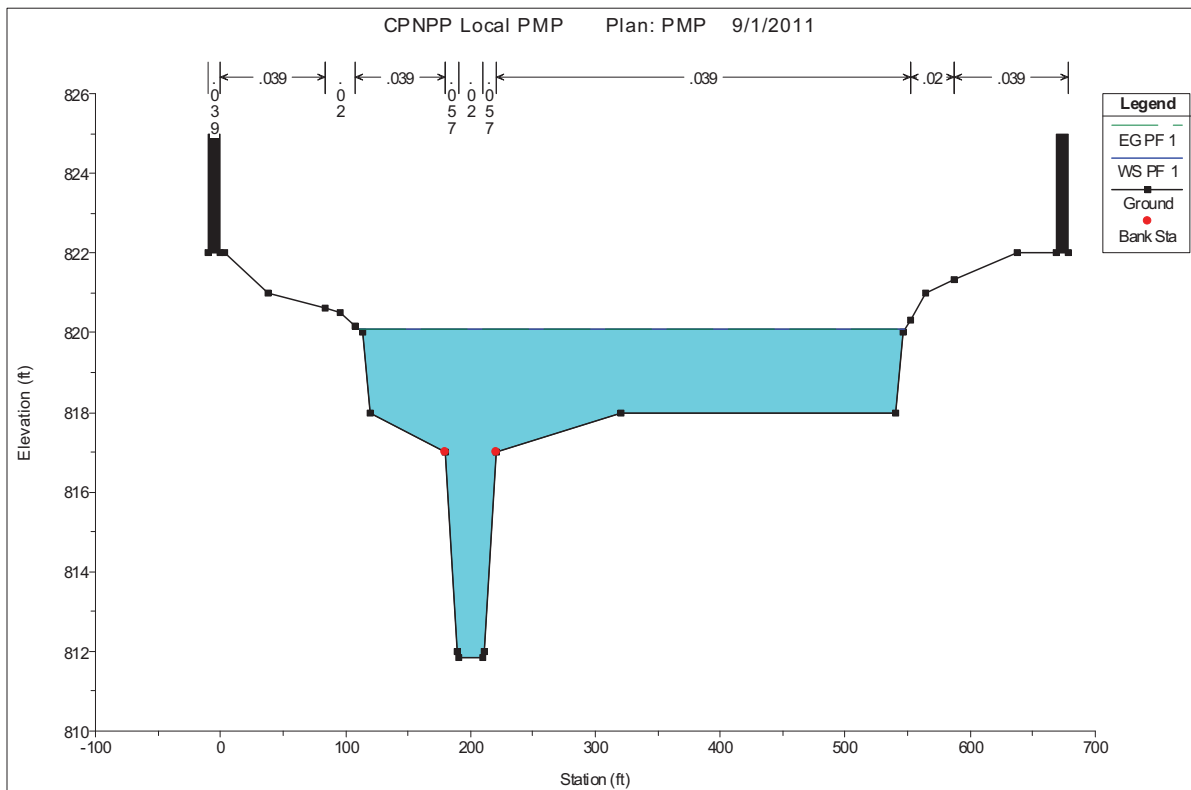
Center North Channel Cross Section 7



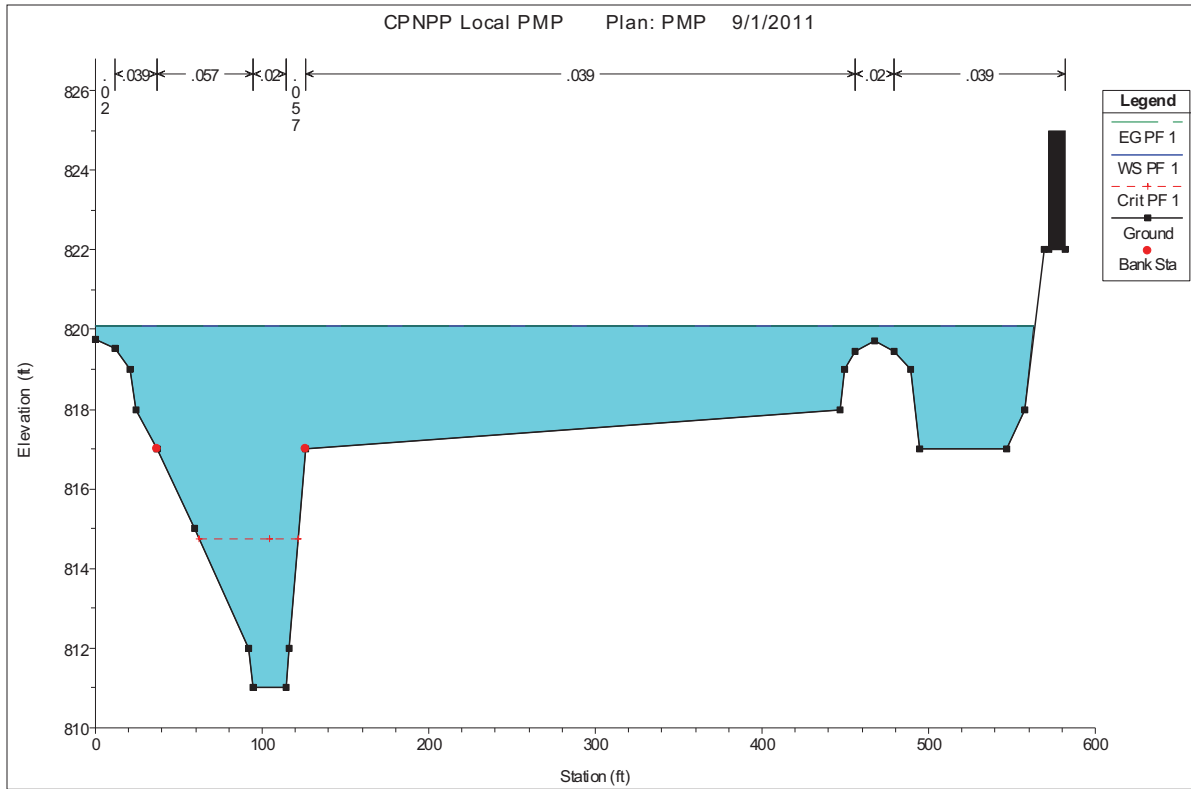
Center North Channel Cross Section 6



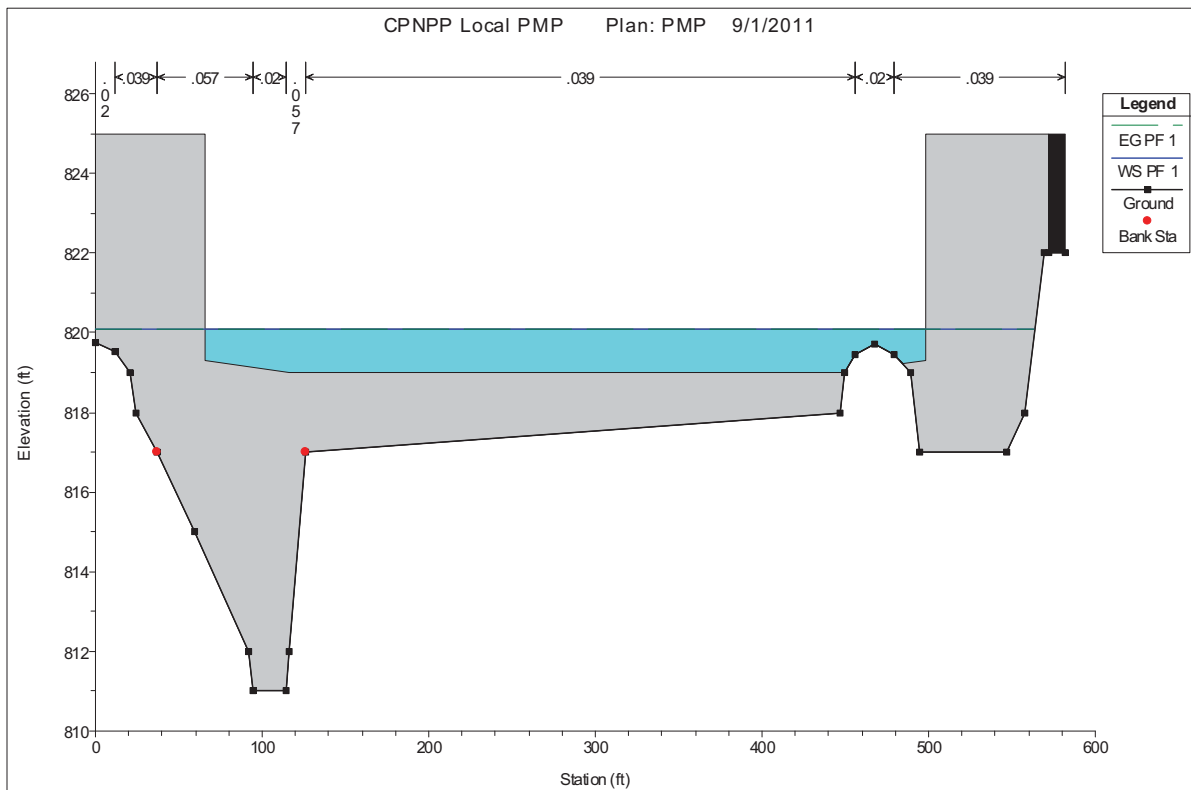
Center North Channel Cross Section 5



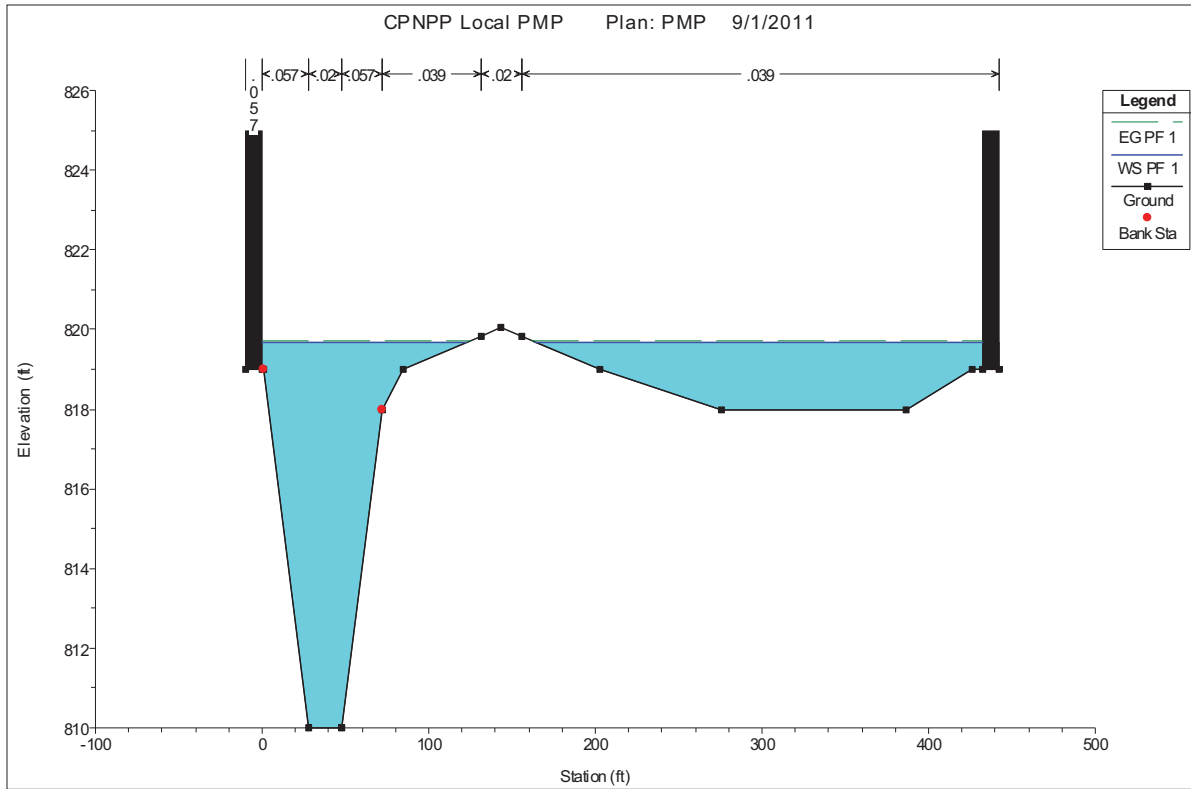
Center North Channel Cross Section 4



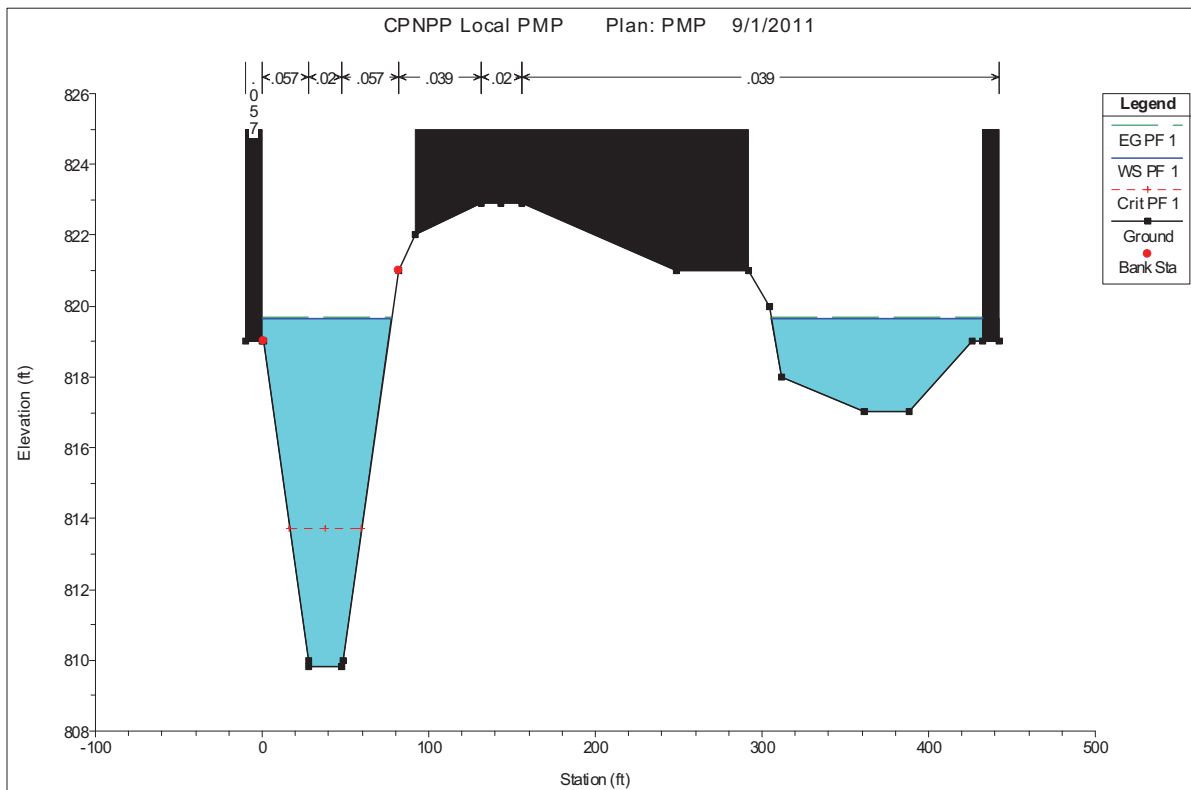
Center North Channel Cross Section 3



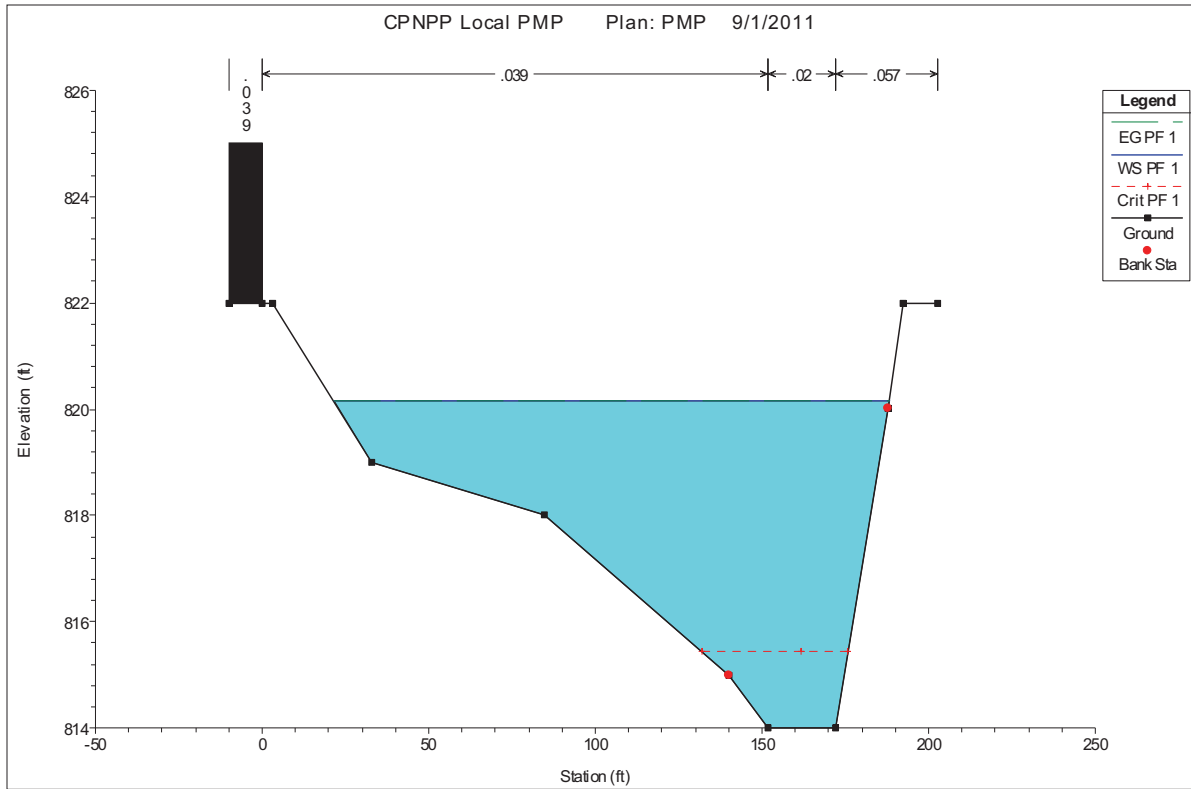
Center North Channel Inline Structure 2.5



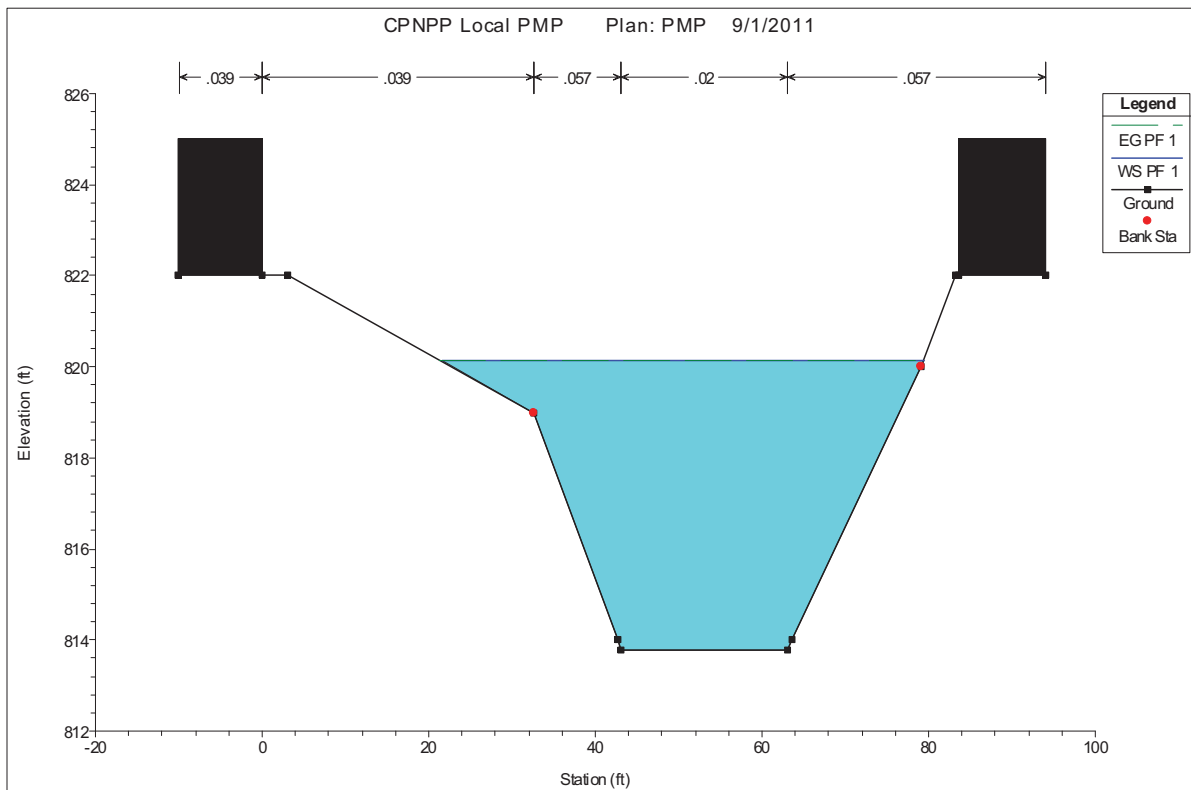
Center North Channel Cross Section 2



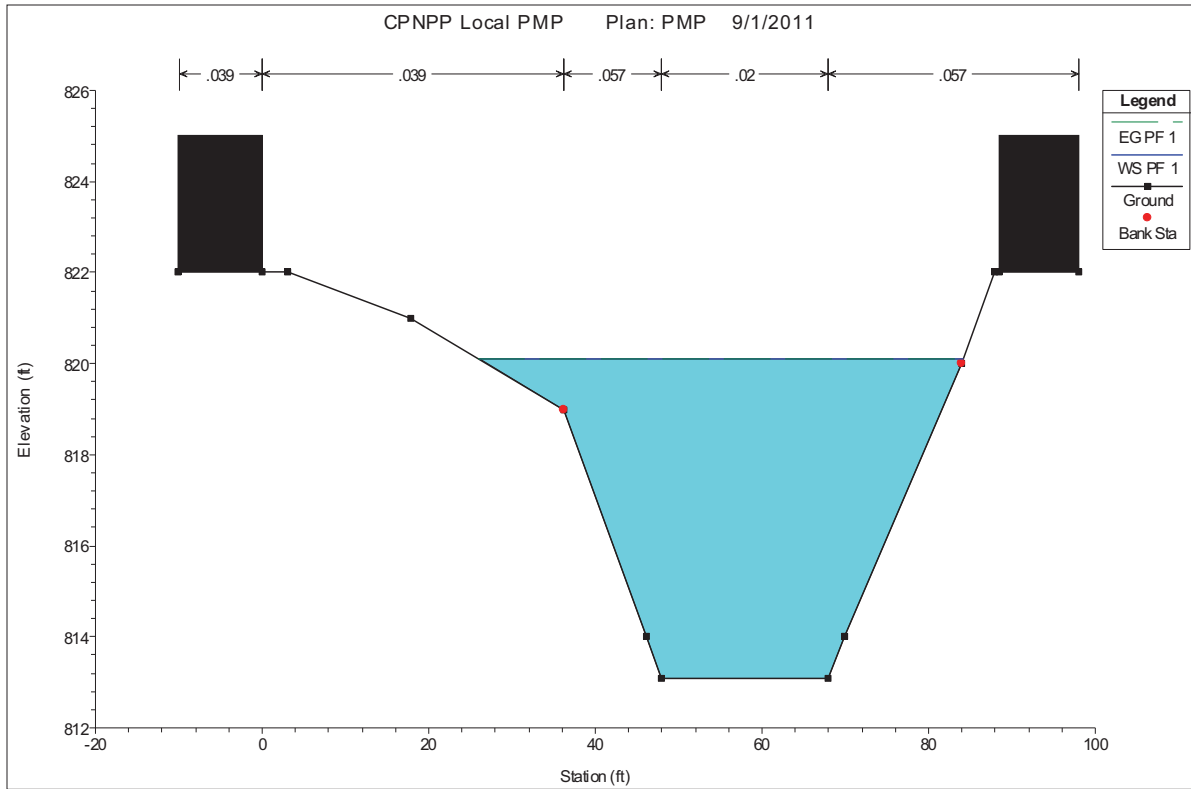
Center North Channel Cross Section 1



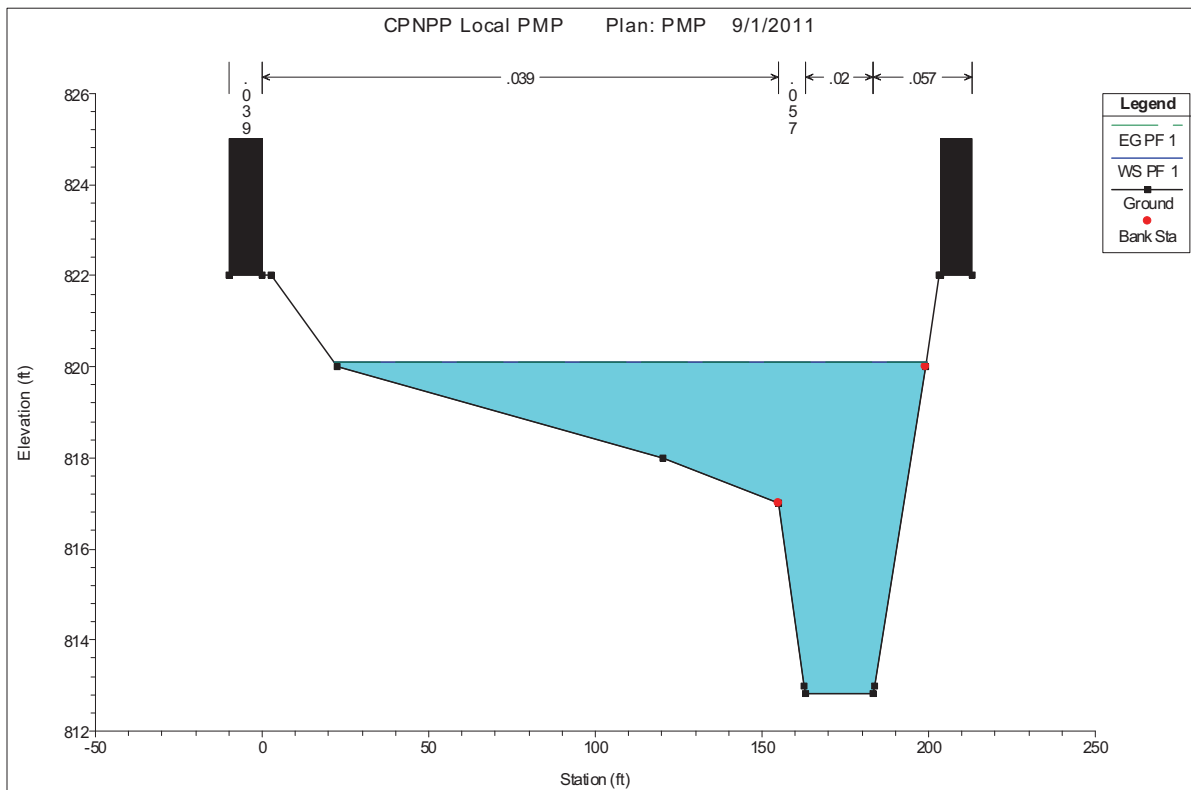
Center North Channel Cross Section 108



Center North Channel Cross Section 107

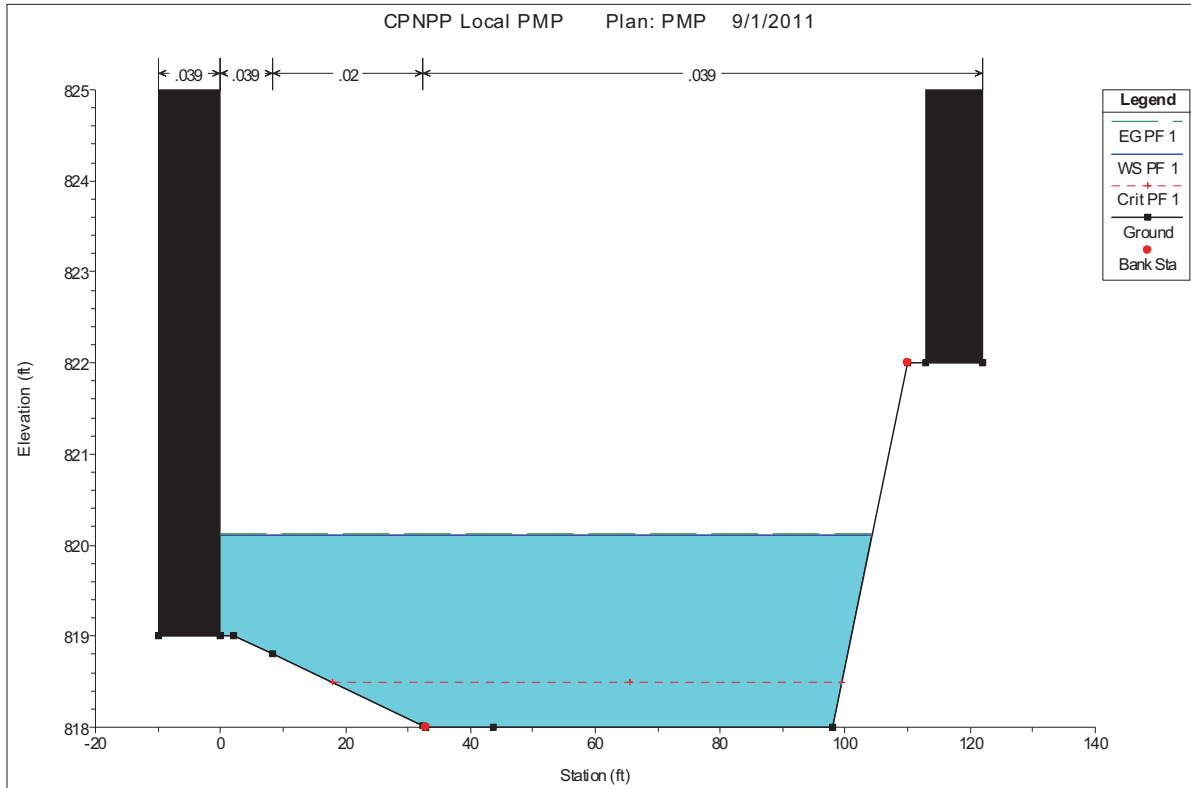


Center North Channel Cross Section 106

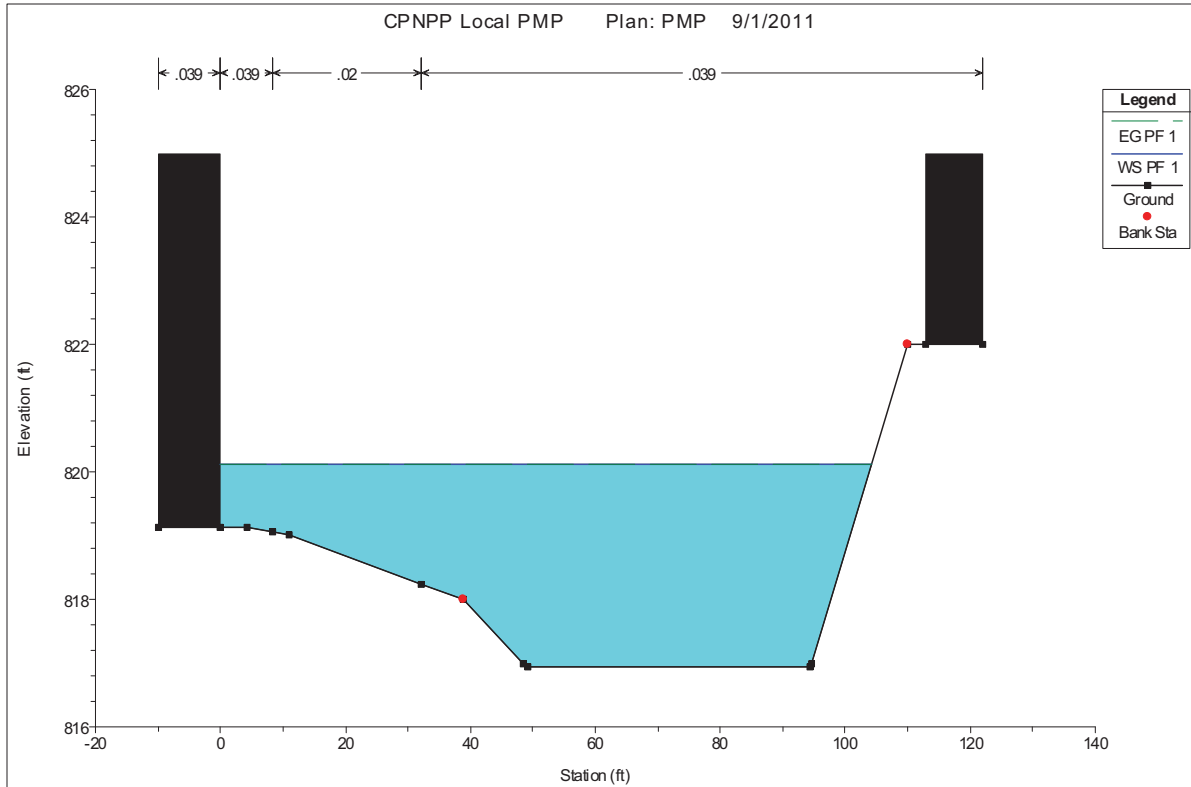


Center North Channel Cross Section 105

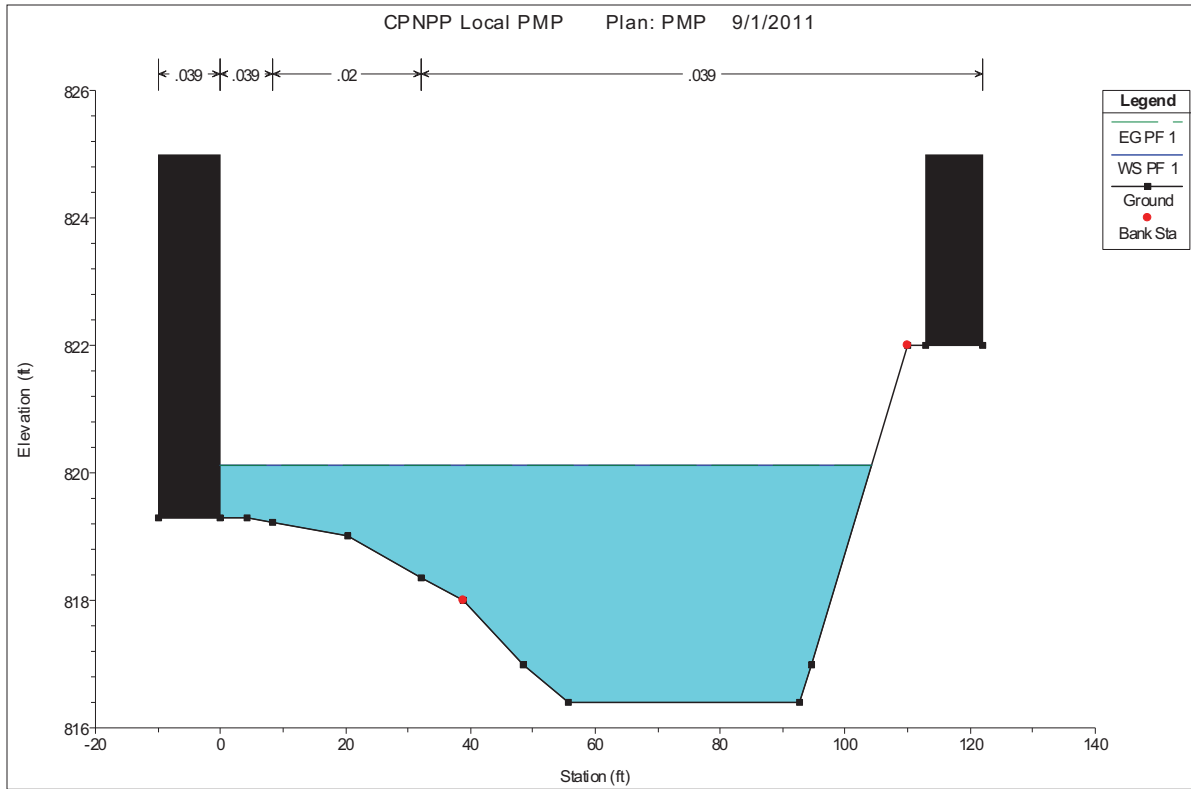
Unit 4 North Channel Cross Section Plots



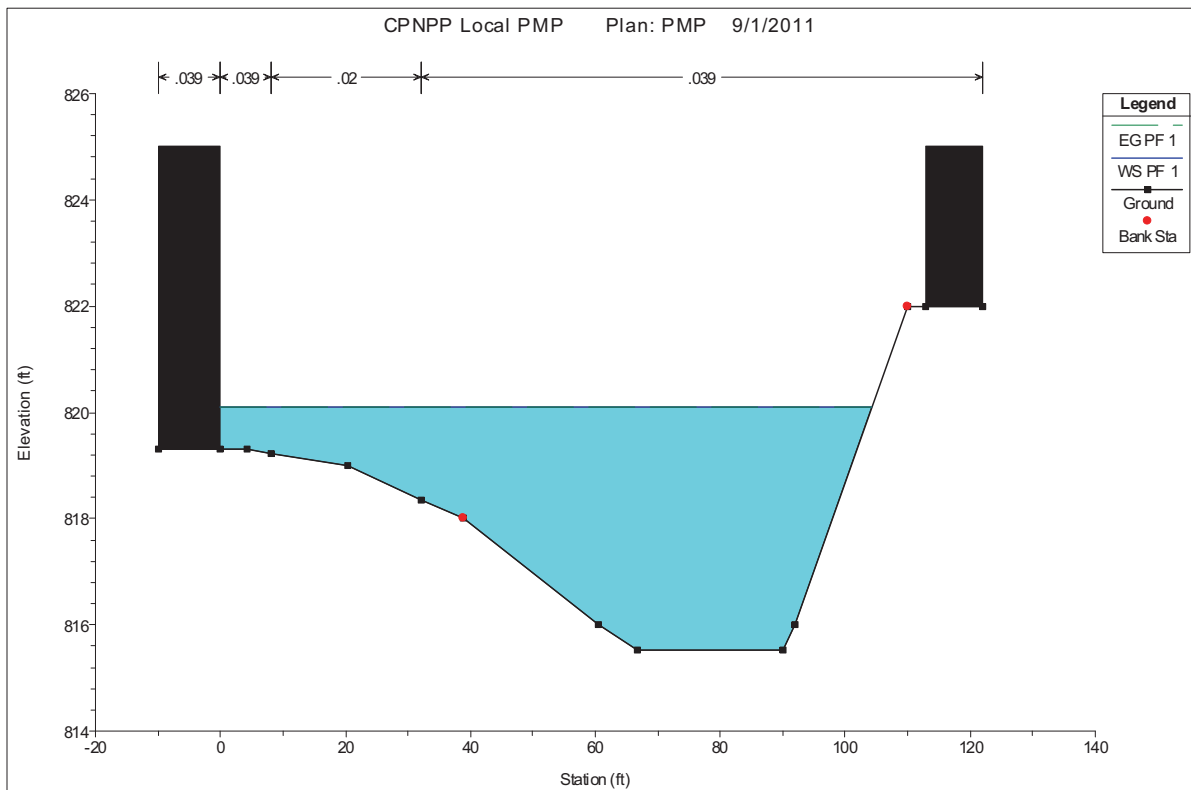
Unit 4 North Channel Cross Section 6



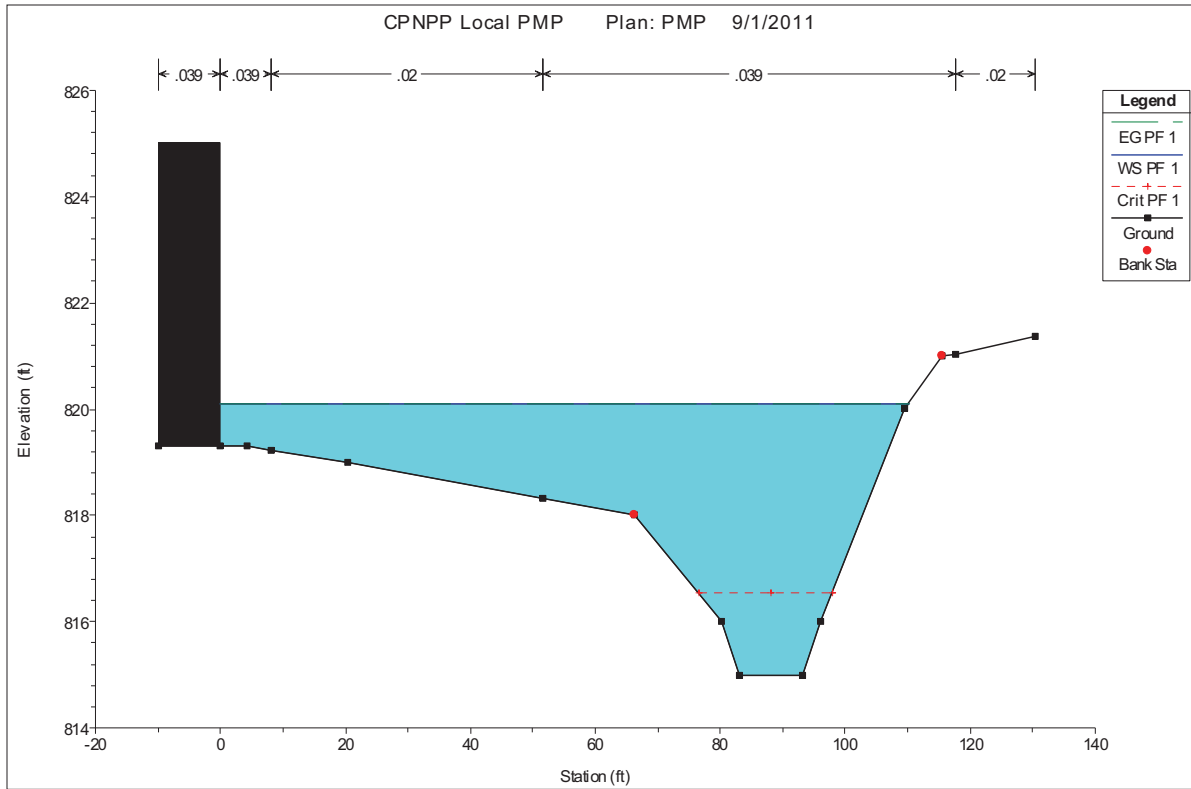
Unit 4 North Channel Cross Section 5



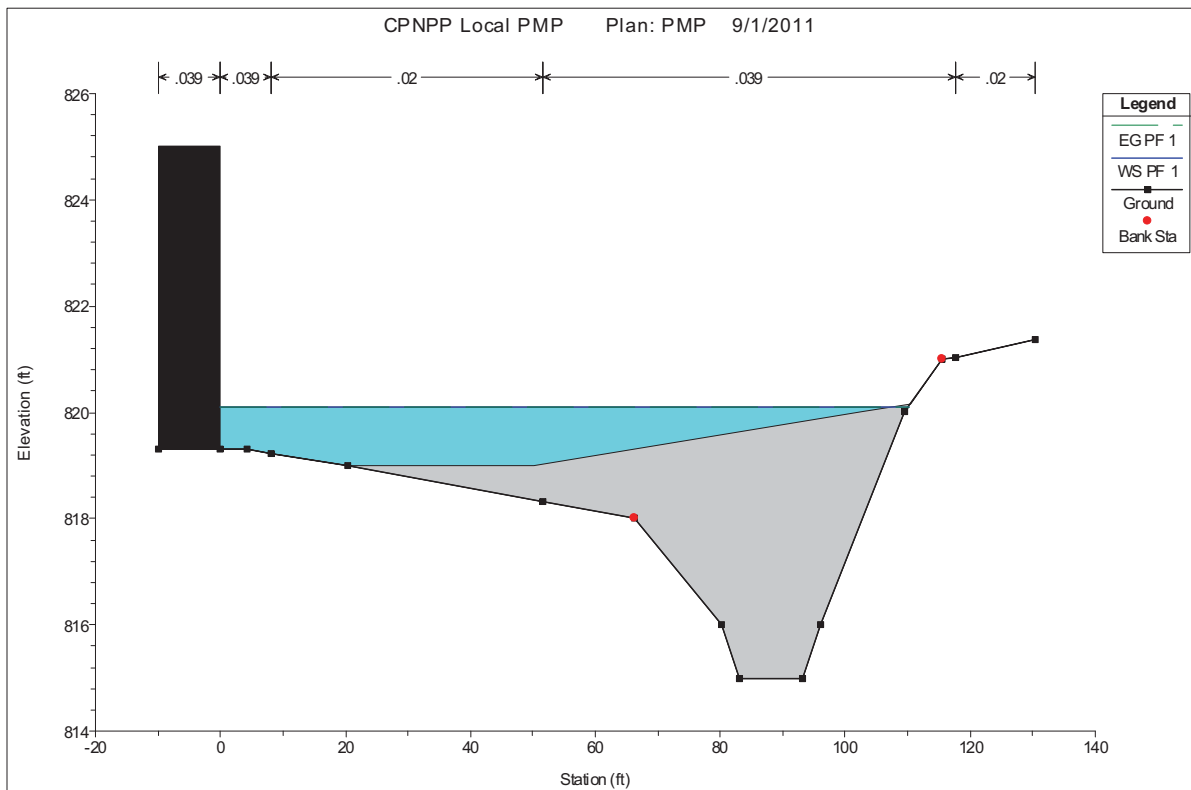
Unit 4 North Channel Cross Section 4



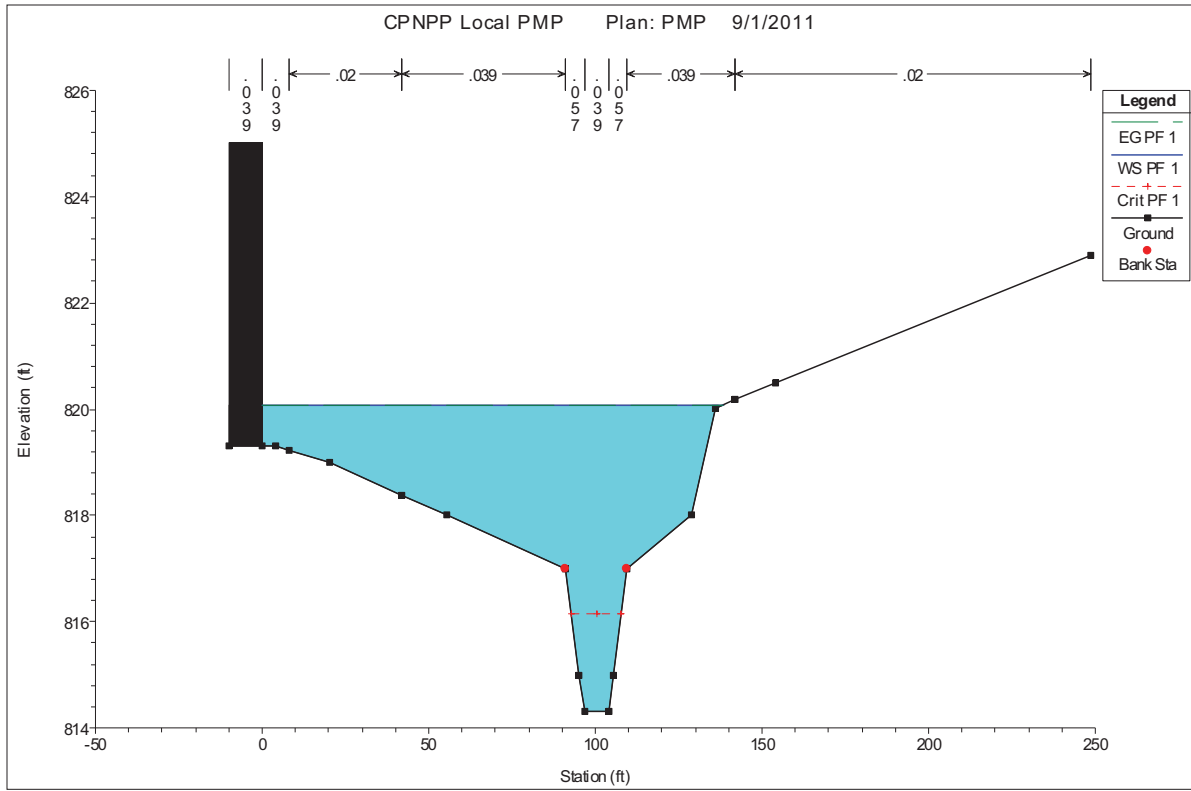
Unit 4 North Channel Cross Section 3



Unit 4 North Channel Cross Section 2

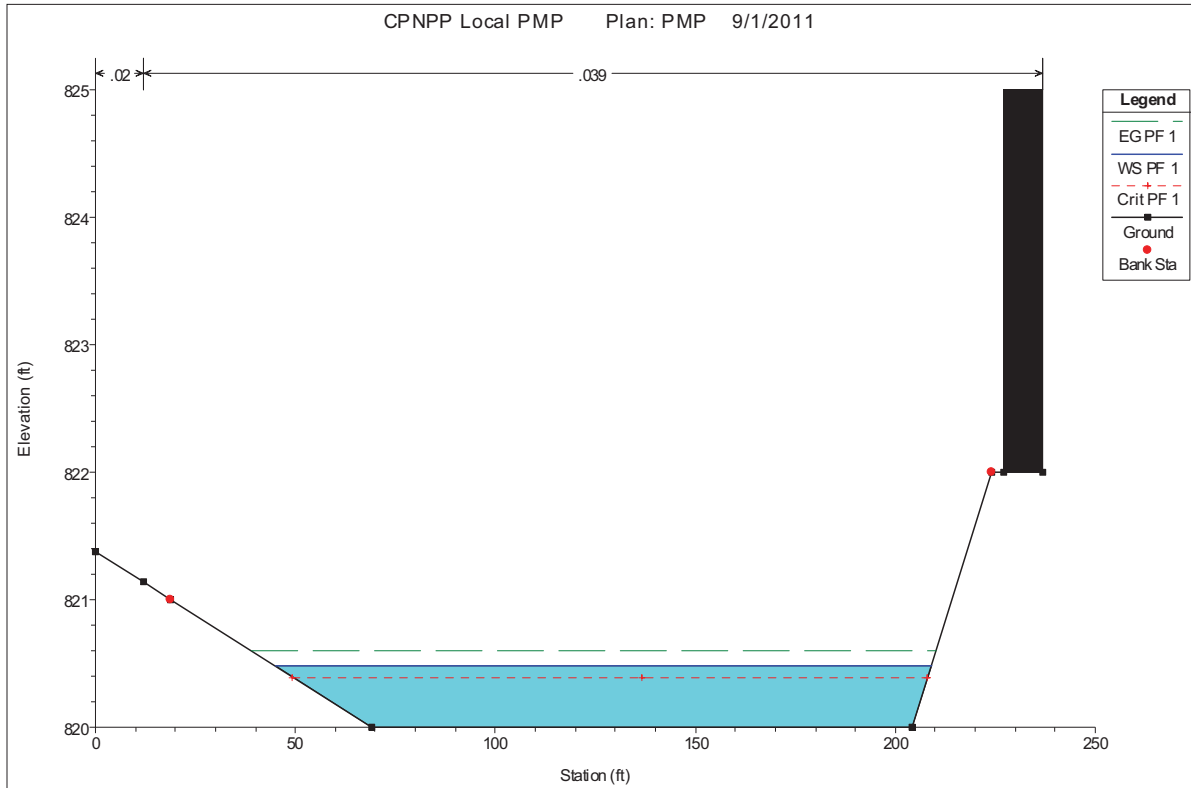


Unit 4 North Channel Inline Structure 1.5

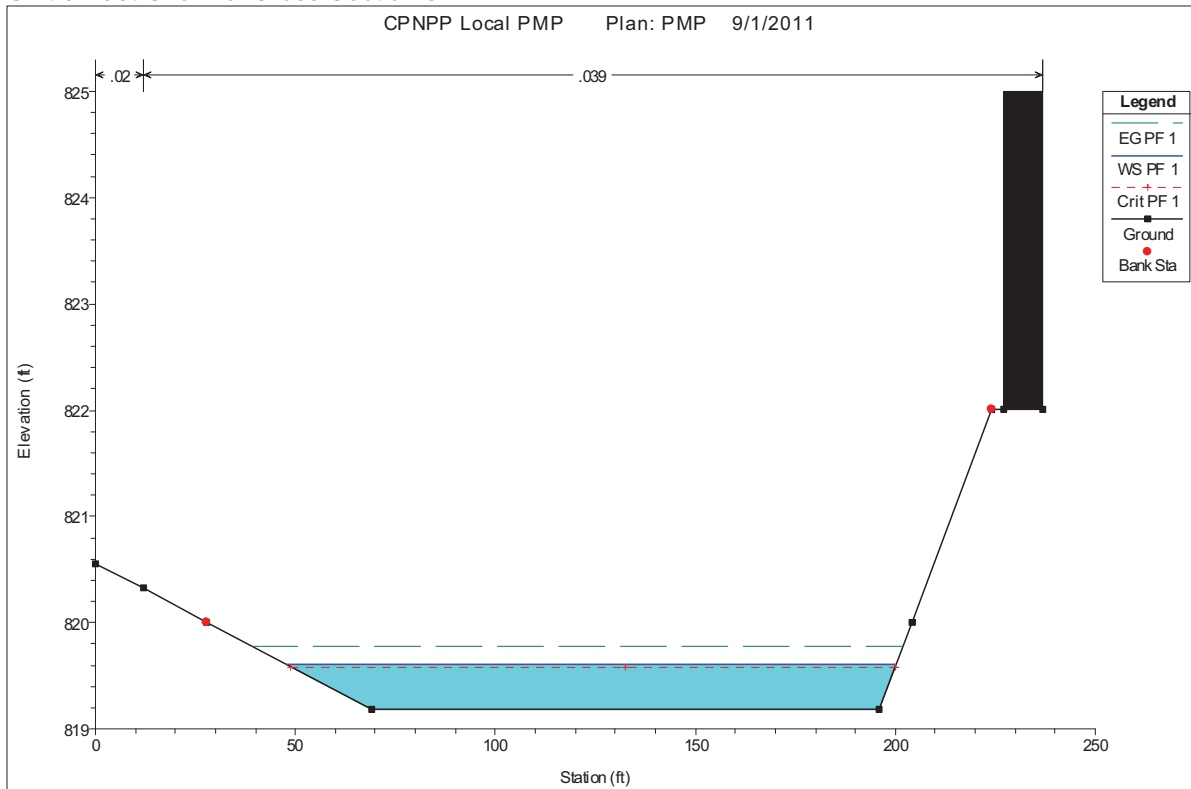


Unit 4 North Channel Cross Section 1

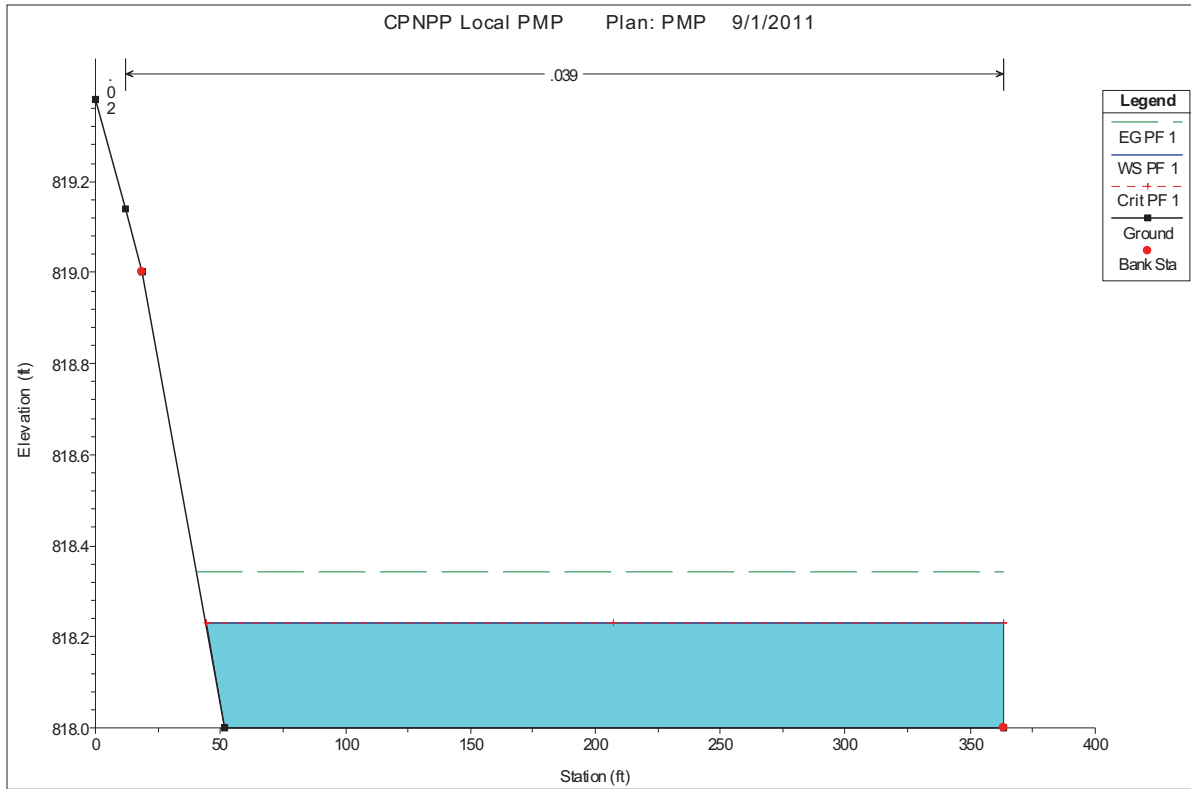
Unit 3 East Channel Cross Section Plots



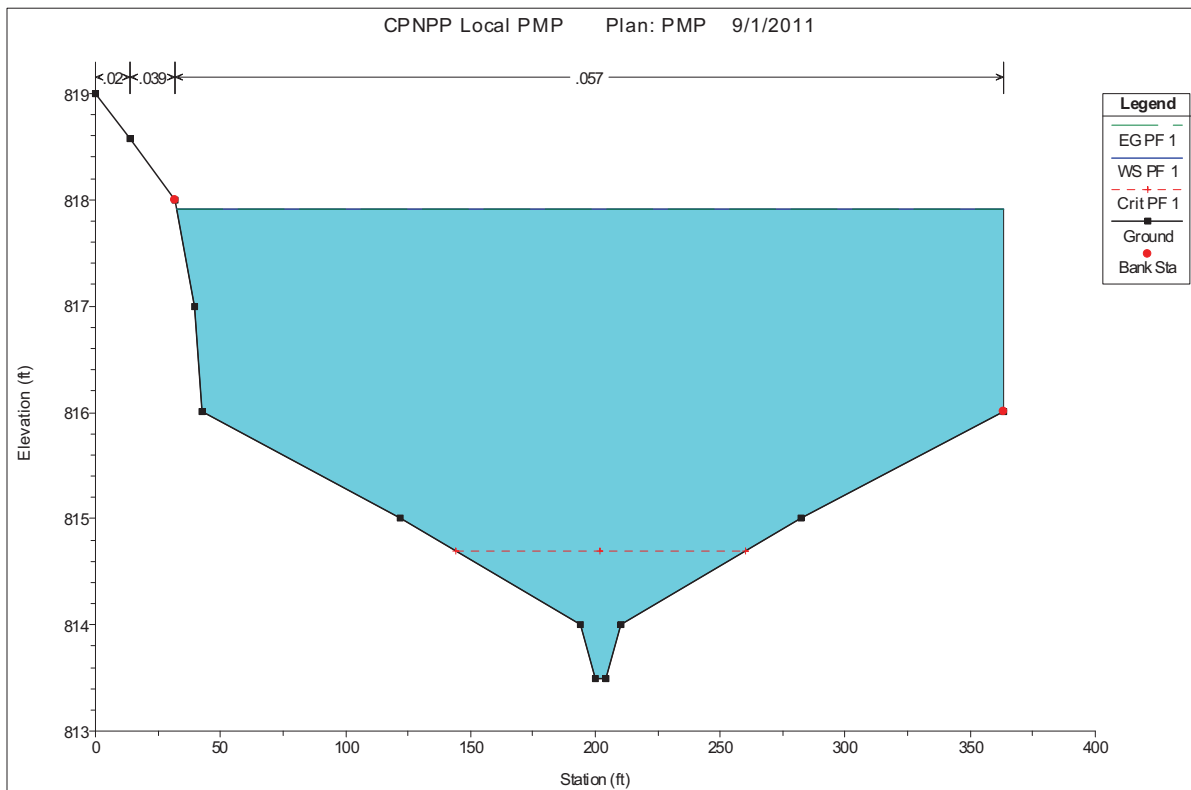
Unit 3 East Channel Cross Section 5



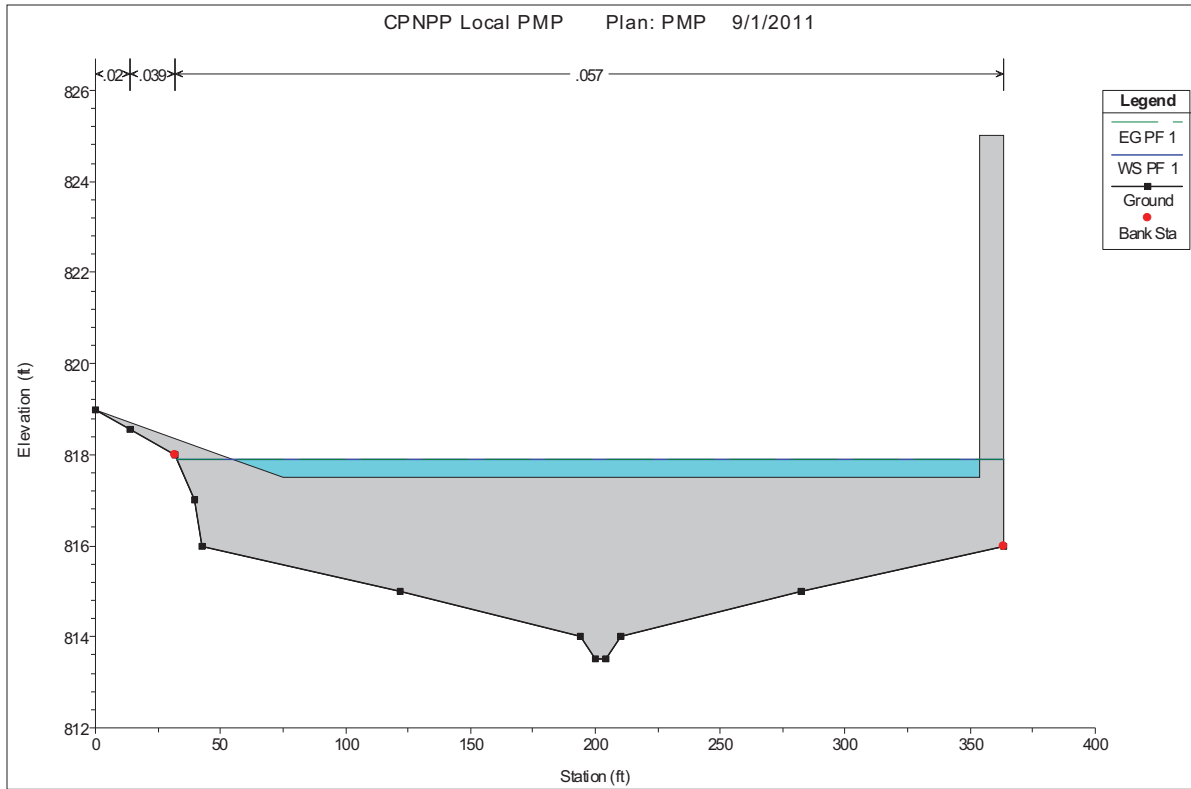
Unit 3 East Channel Cross Section 4



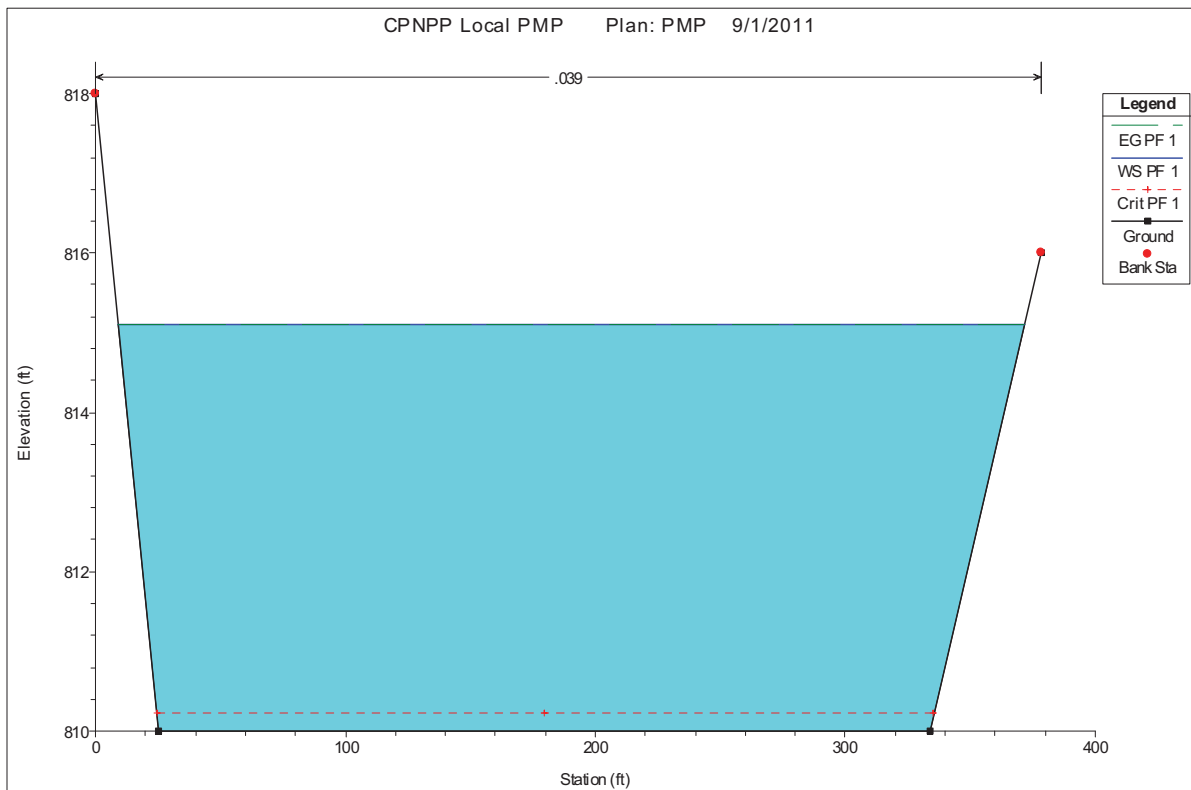
Unit 3 East Channel Cross Section 3



Unit 3 East Channel Cross Section 2

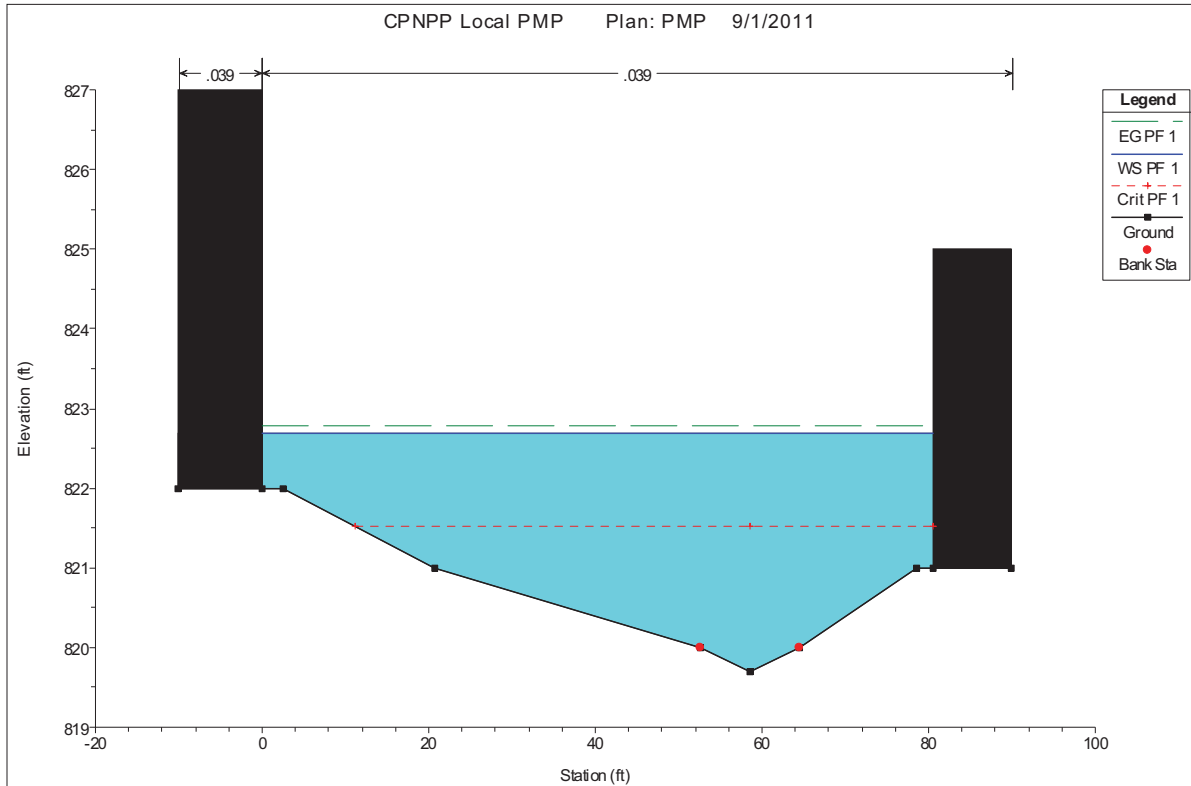


Unit 3 East Channel Inline Structure 1.5

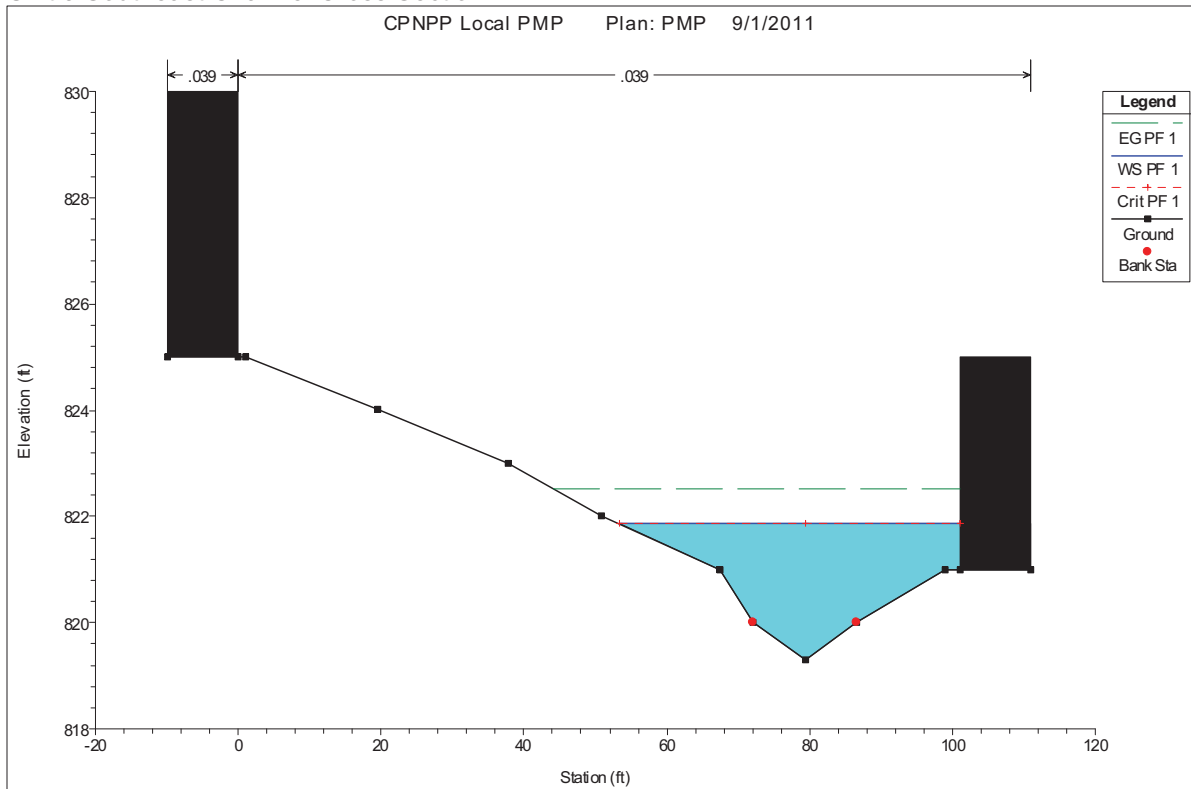


Unit 3 East Channel Cross Section 1

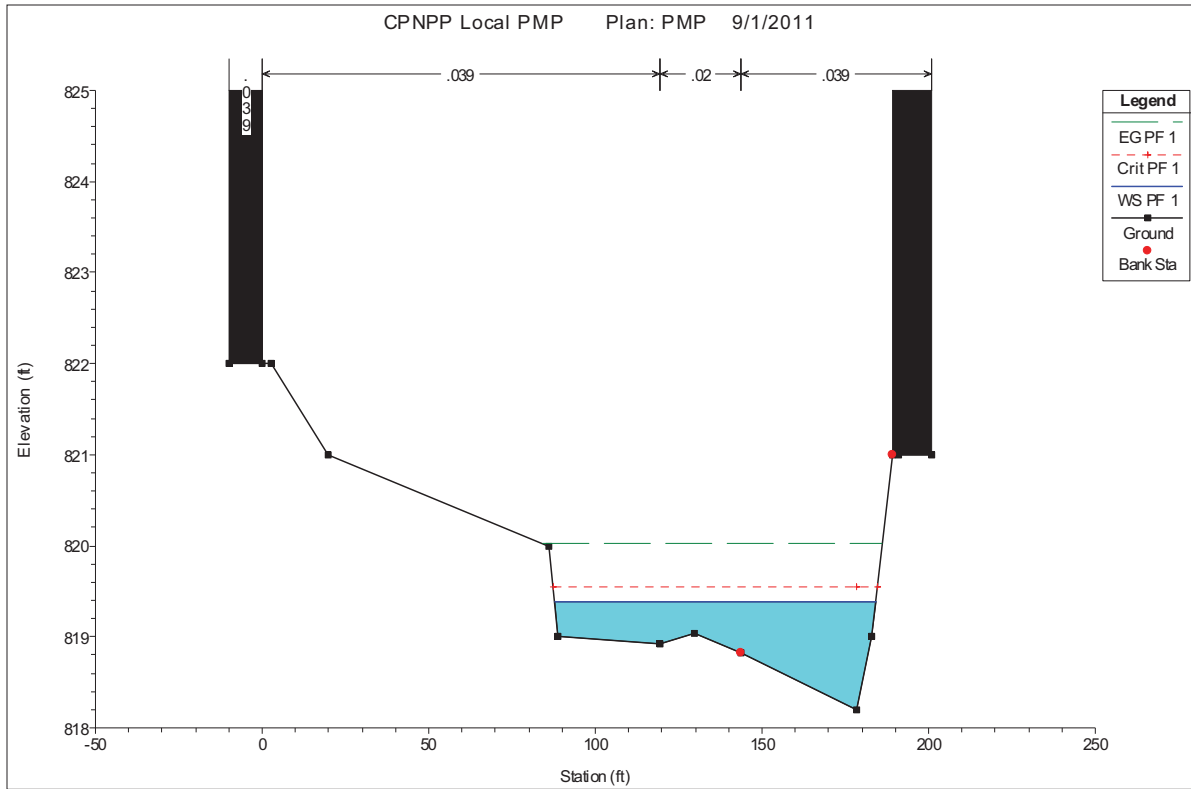
Unit 3 Southeast Channel Cross Section Plots



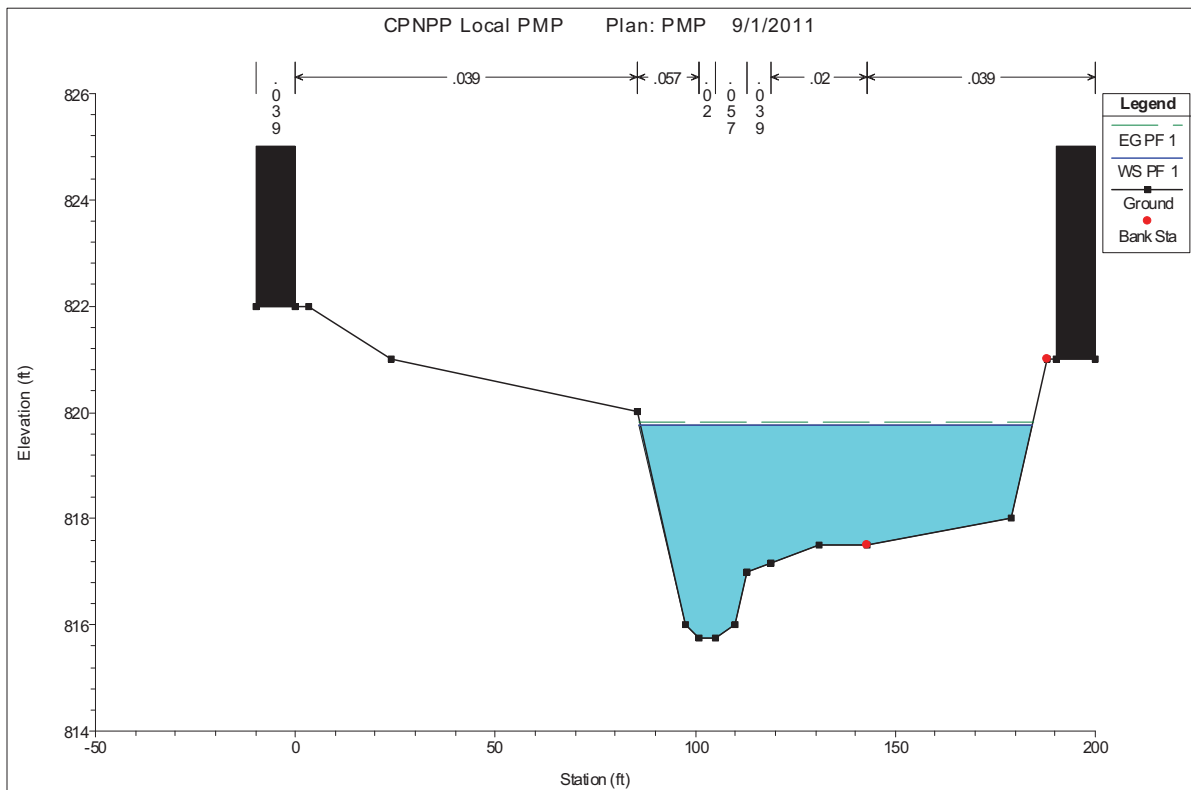
Unit 3 Southeast Channel Cross Section 11



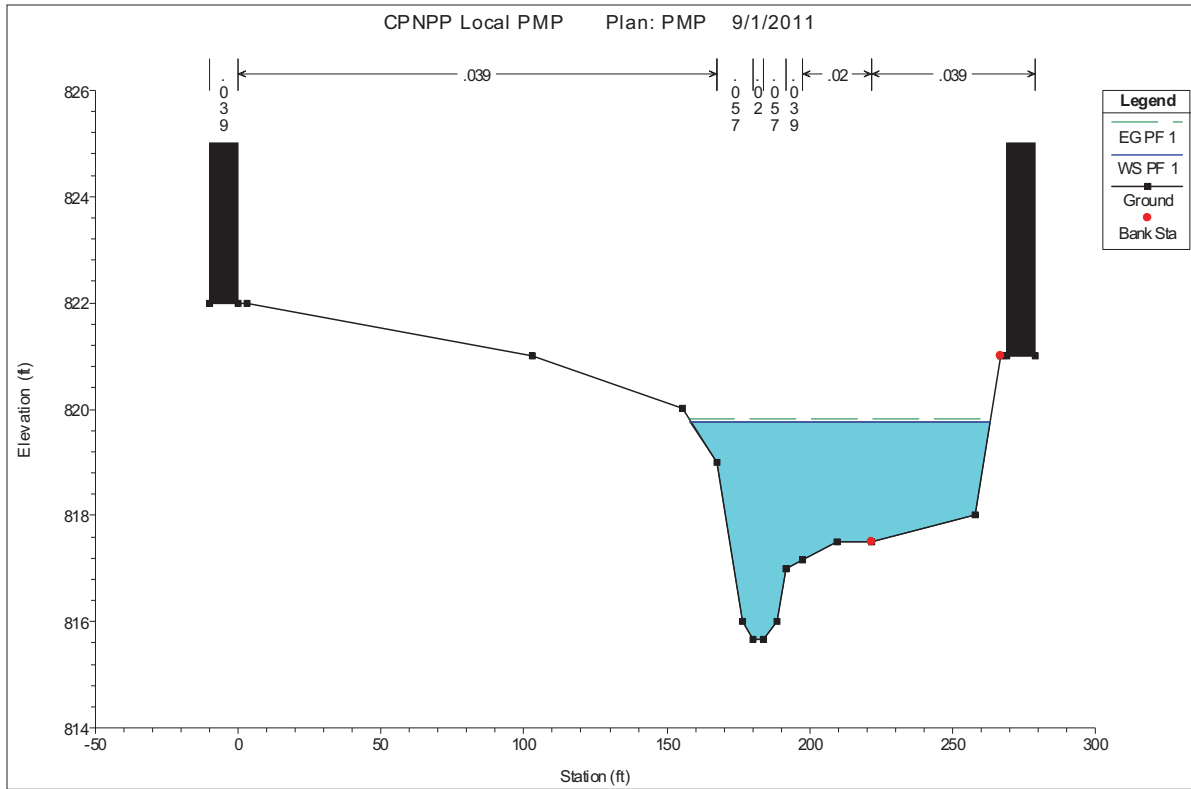
Unit 3 Southeast Channel Cross Section 10



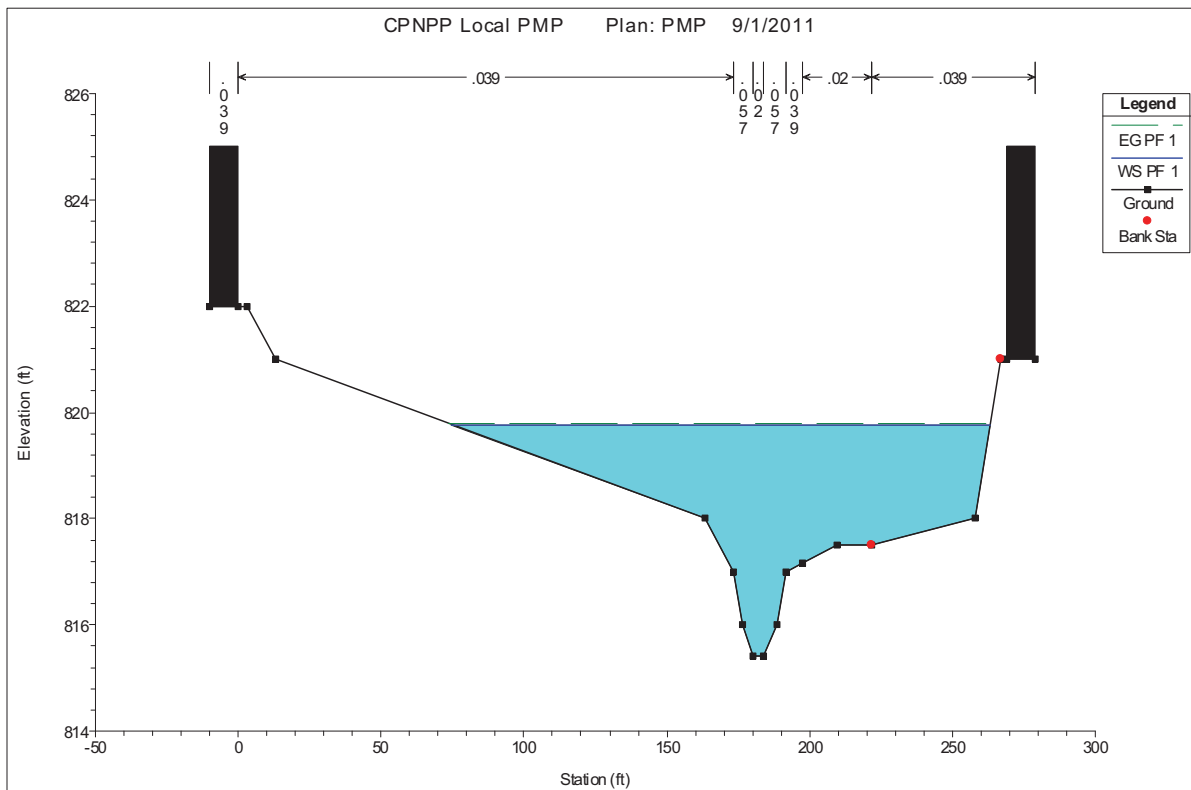
Unit 3 Southeast Channel Cross Section 9



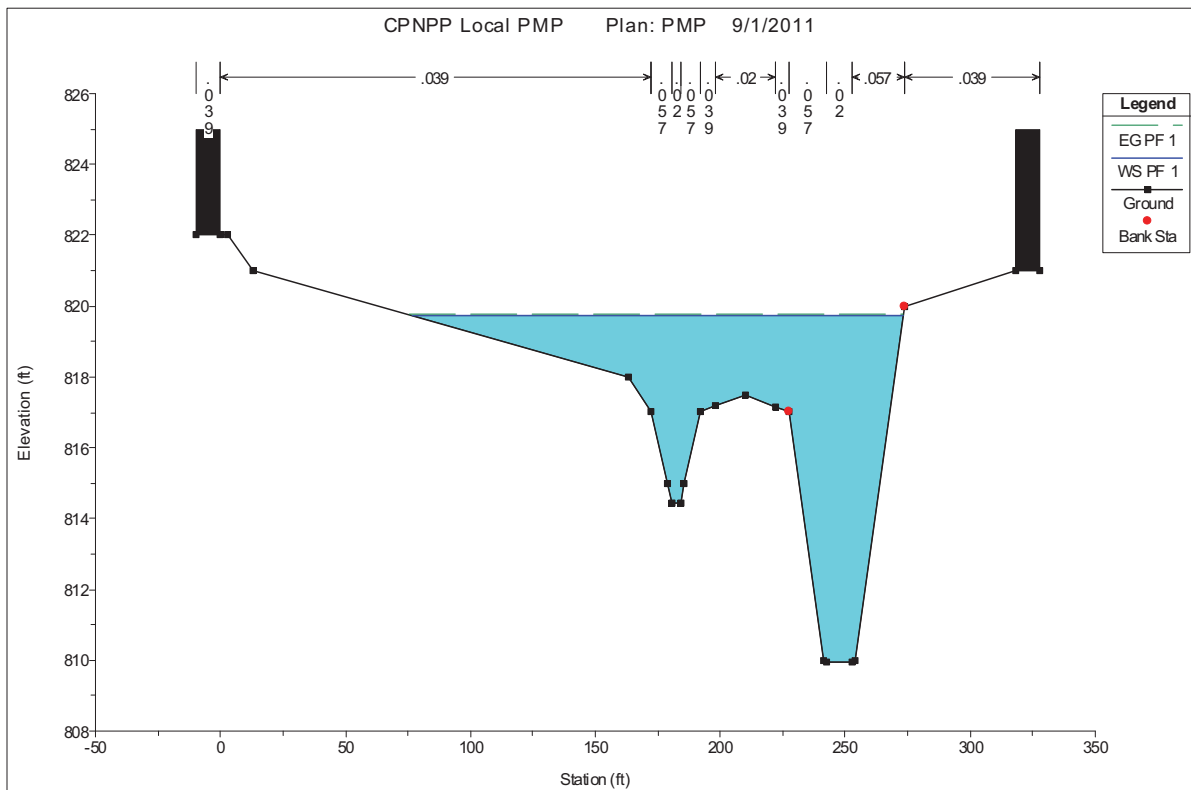
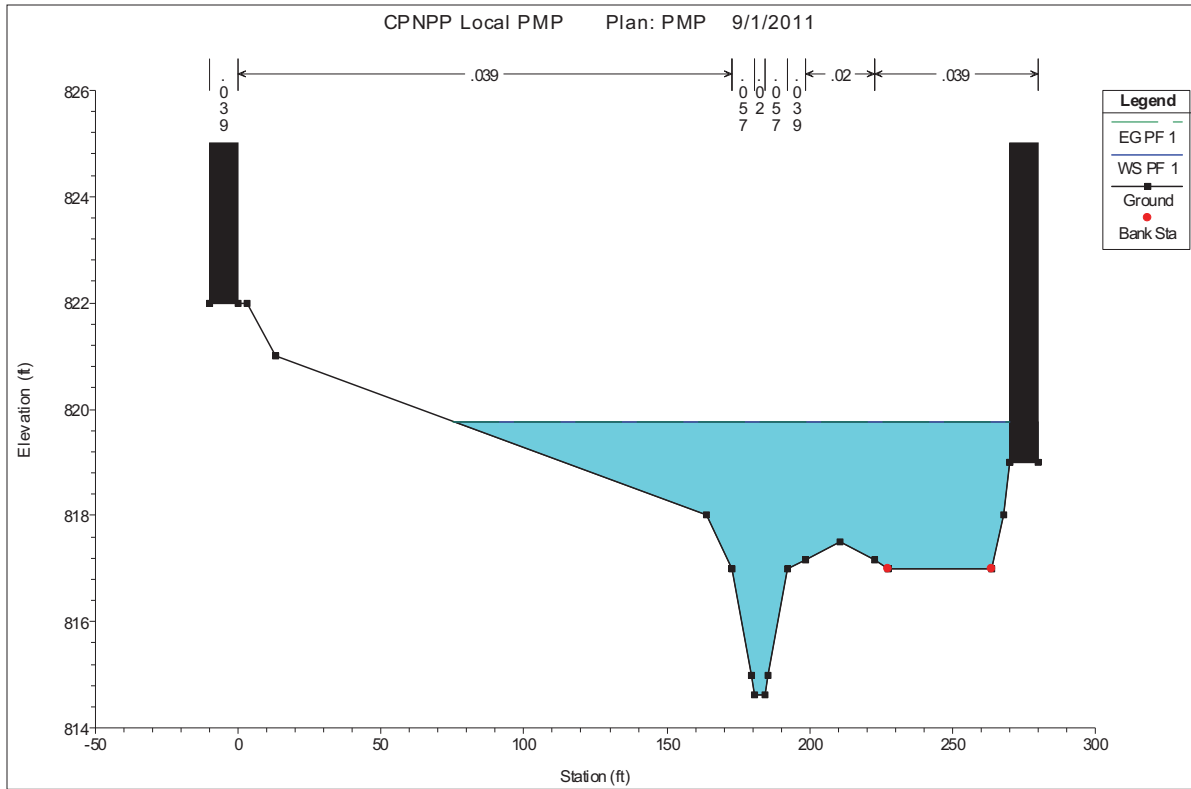
Unit 3 Southeast Channel Cross Section 8

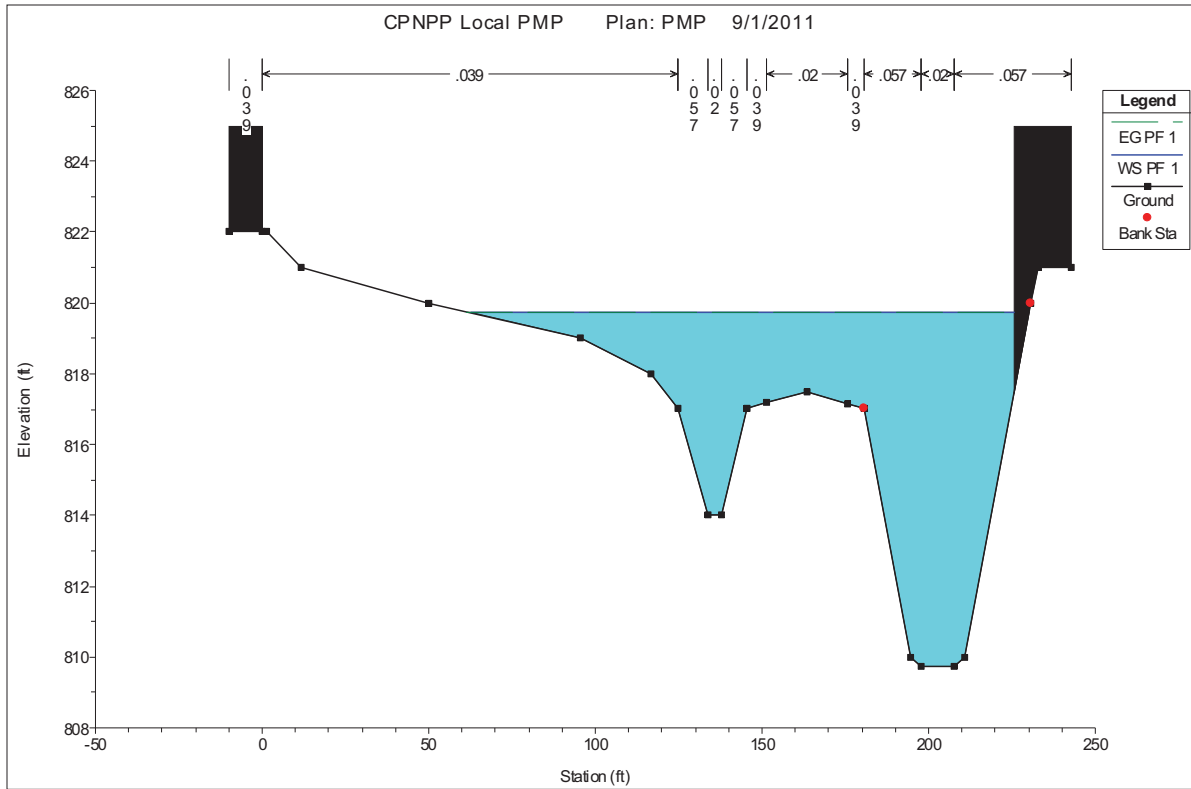


Unit 3 Southeast Channel Cross Section 7

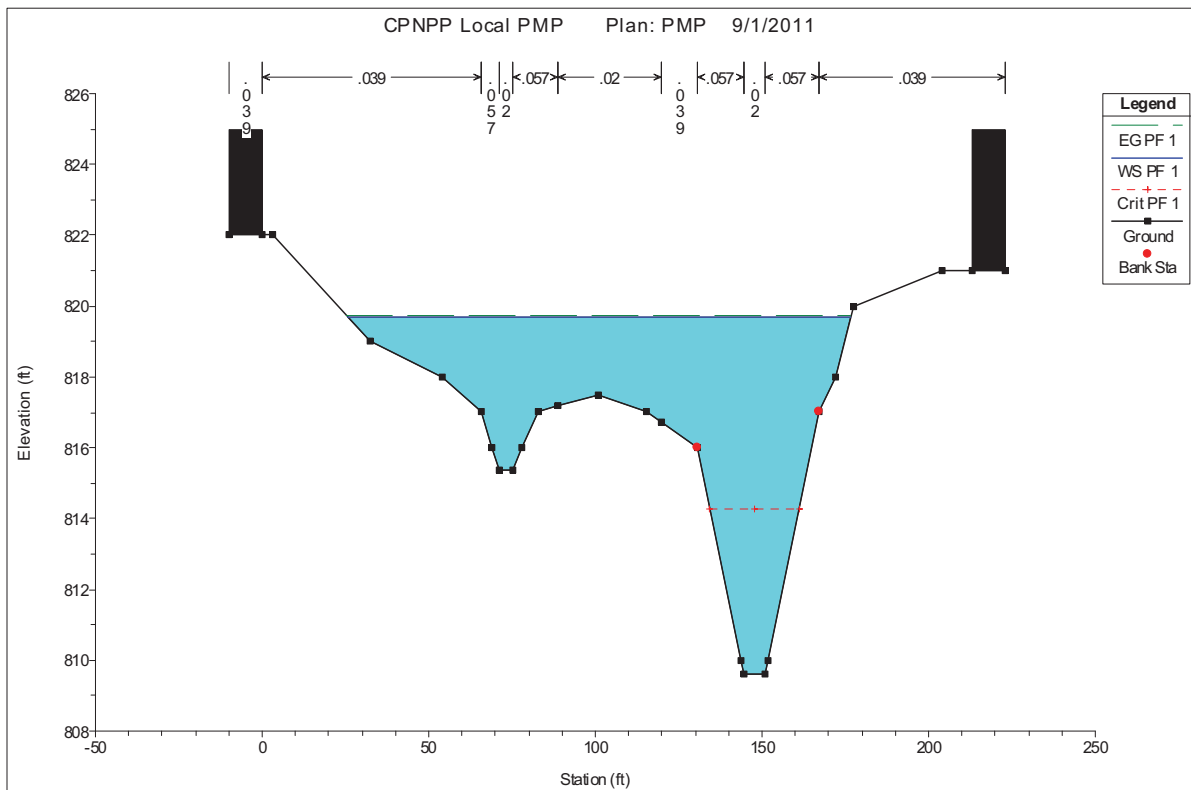


Unit 3 Southeast Channel Cross Section 6

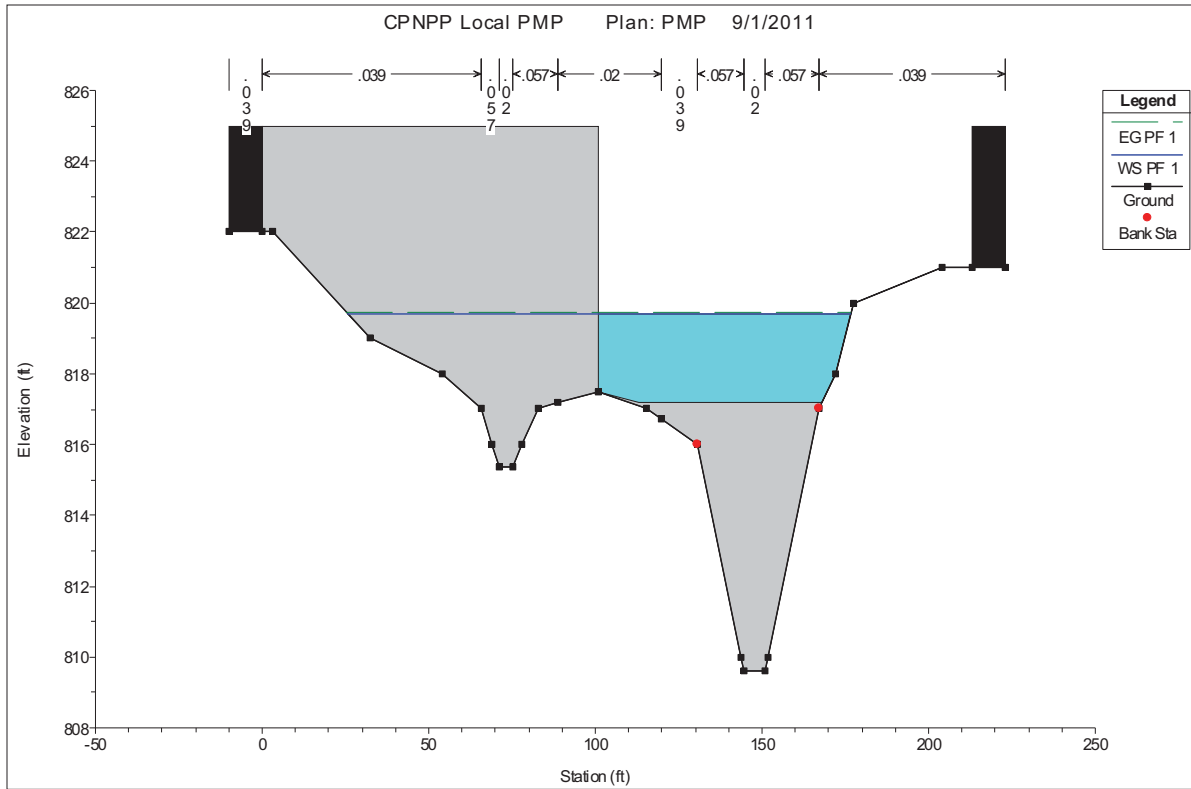




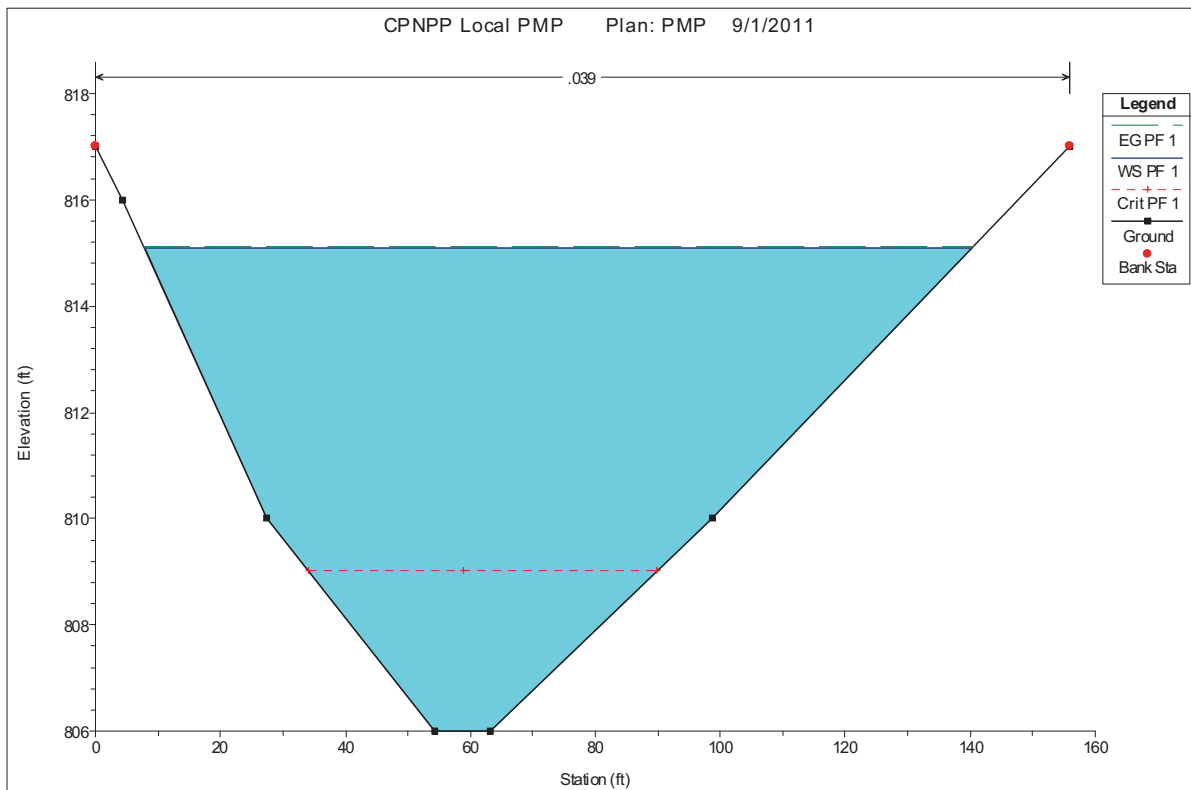
Unit 3 Southeast Channel Cross Section 3



Unit 3 Southeast Channel Cross Section 2

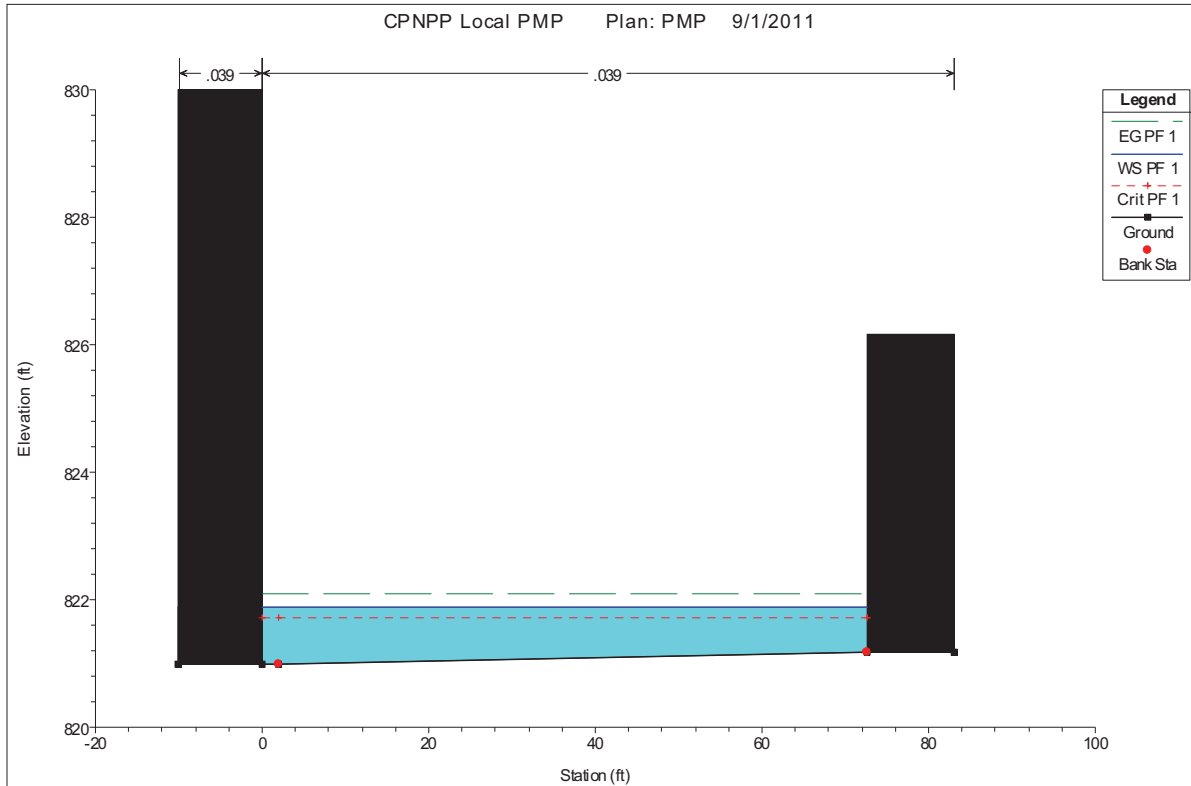


Unit 3 Southeast Channel Inline Structure 1.5

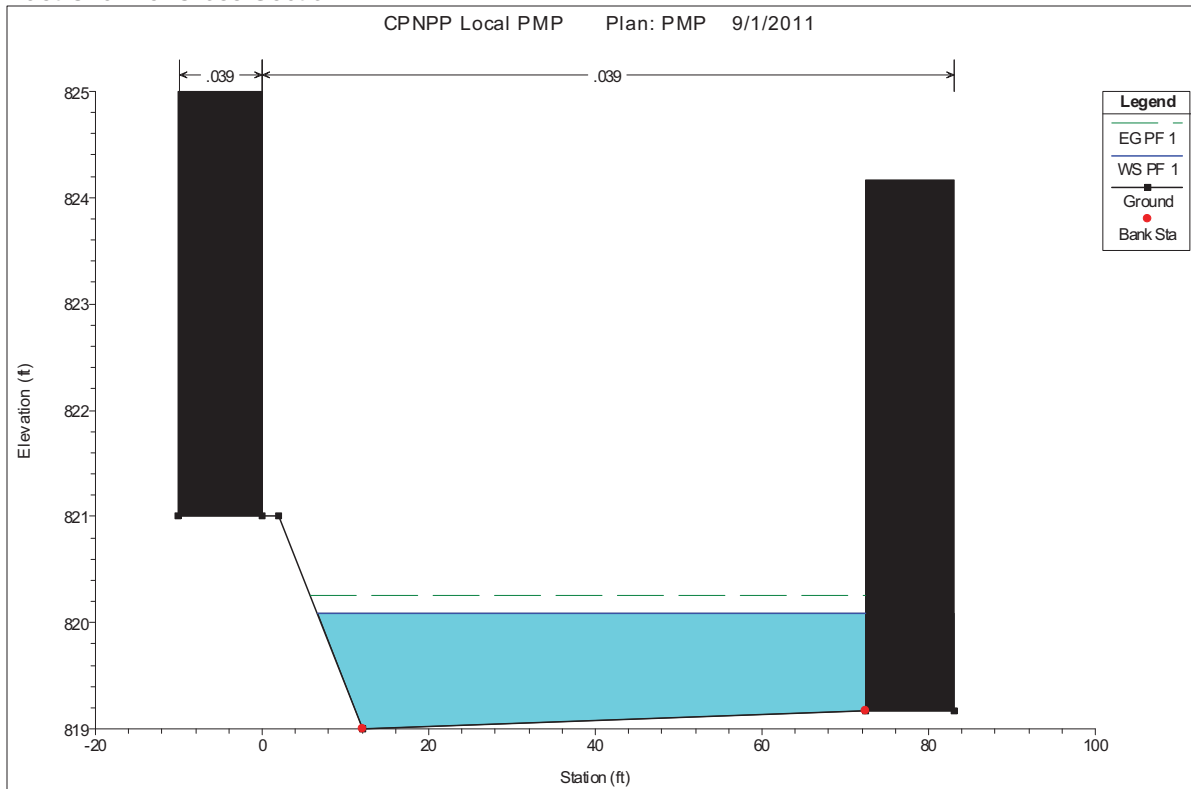


Unit 3 Southeast Channel Cross Section 1

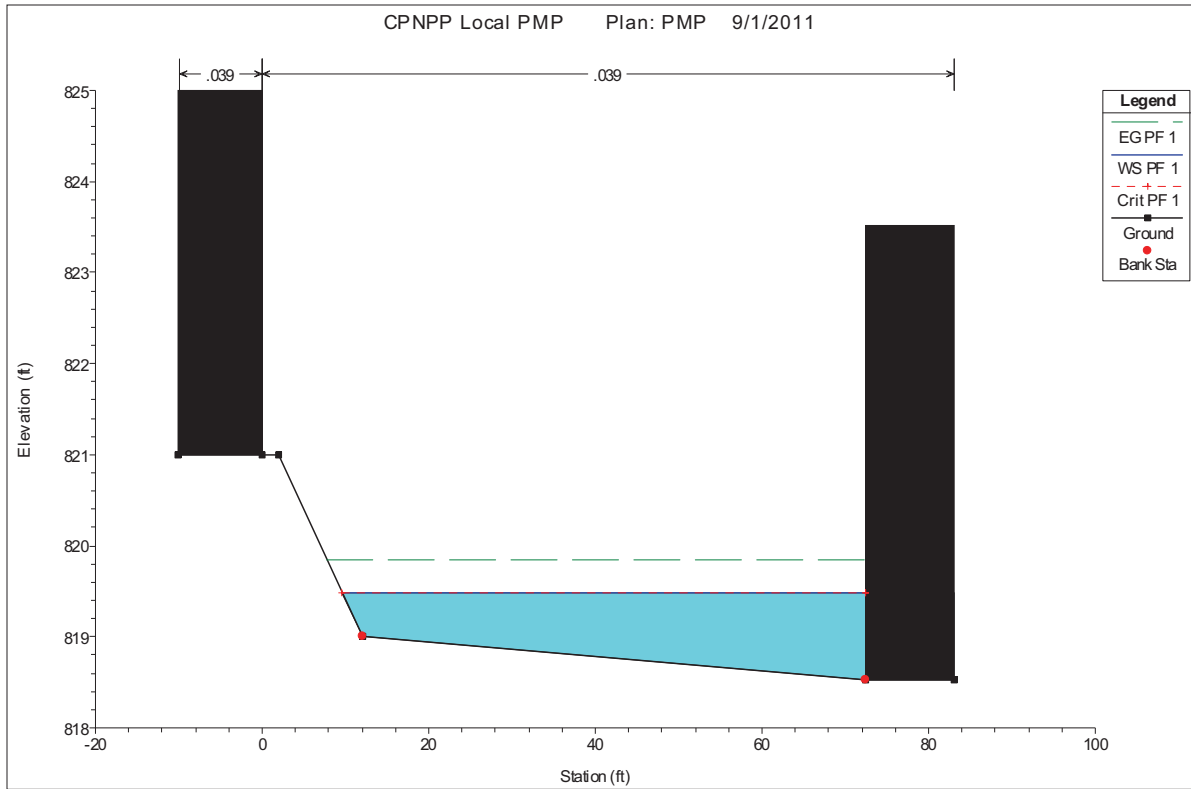
East Channel Cross Section Plots



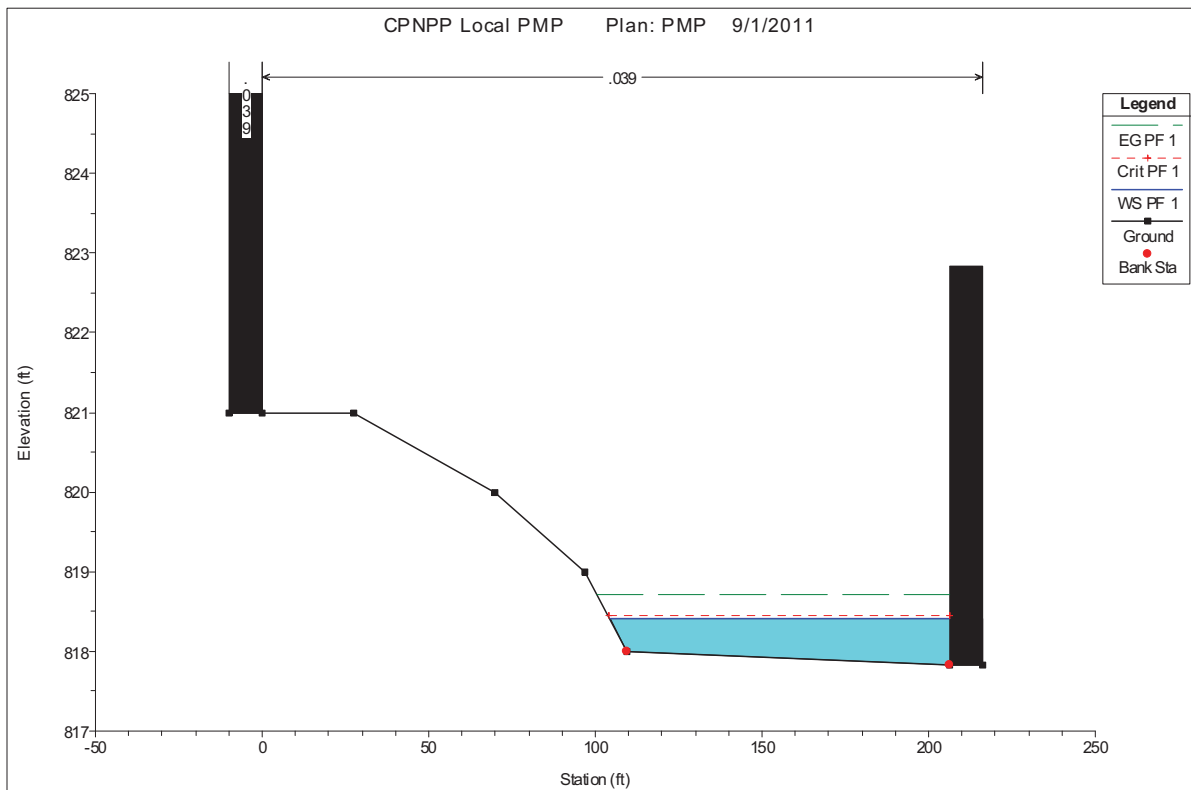
East Channel Cross Section 7



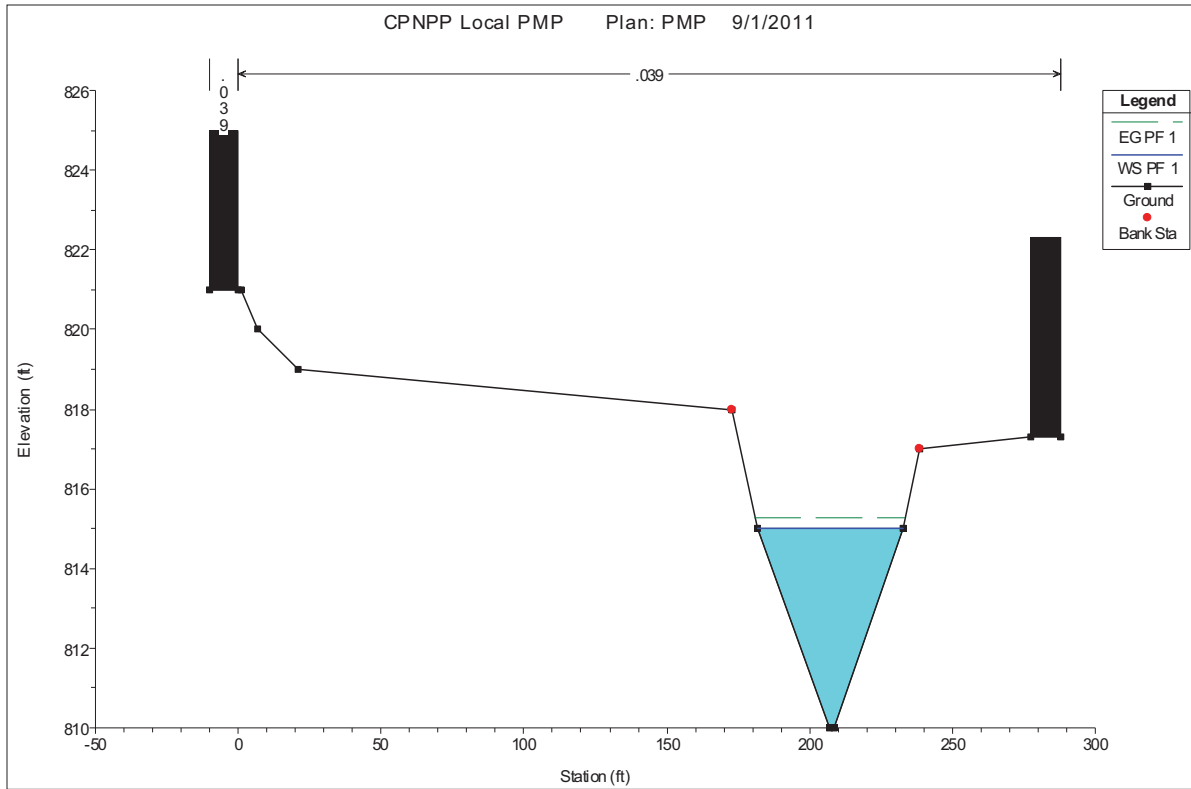
East Channel Cross Section 6



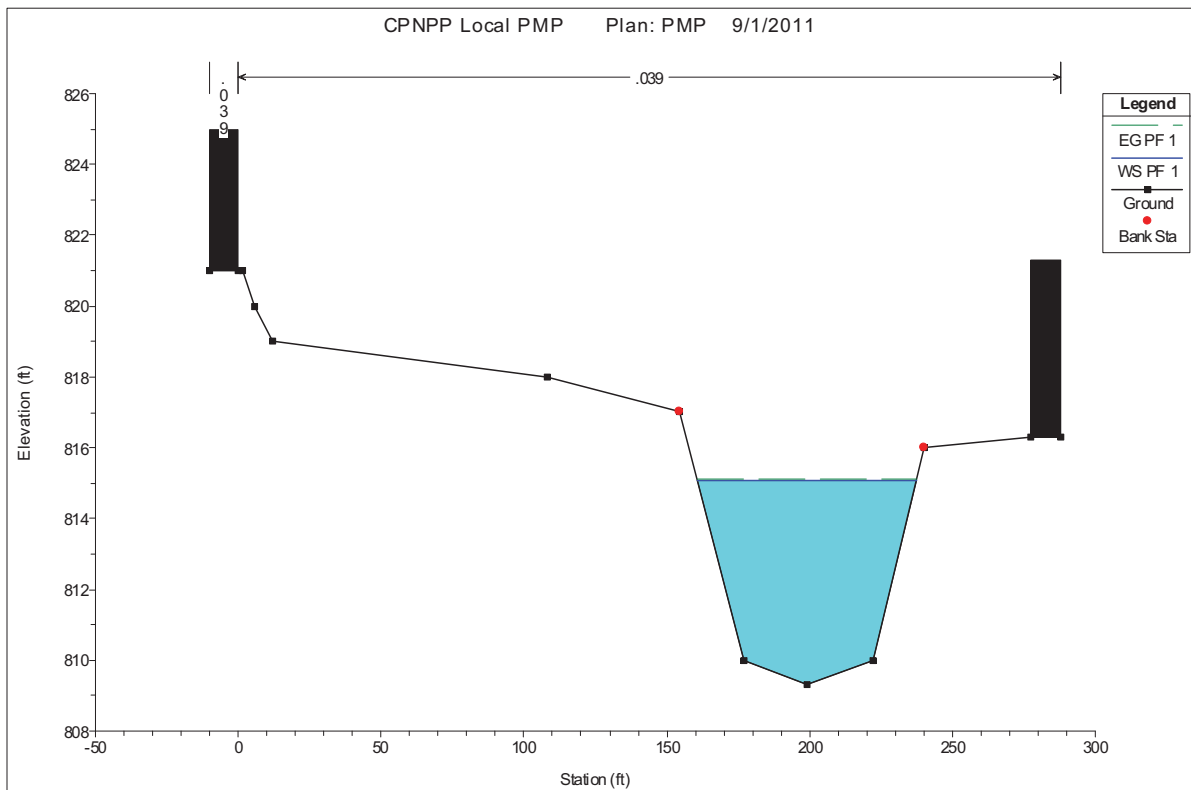
East Channel Cross Section 5



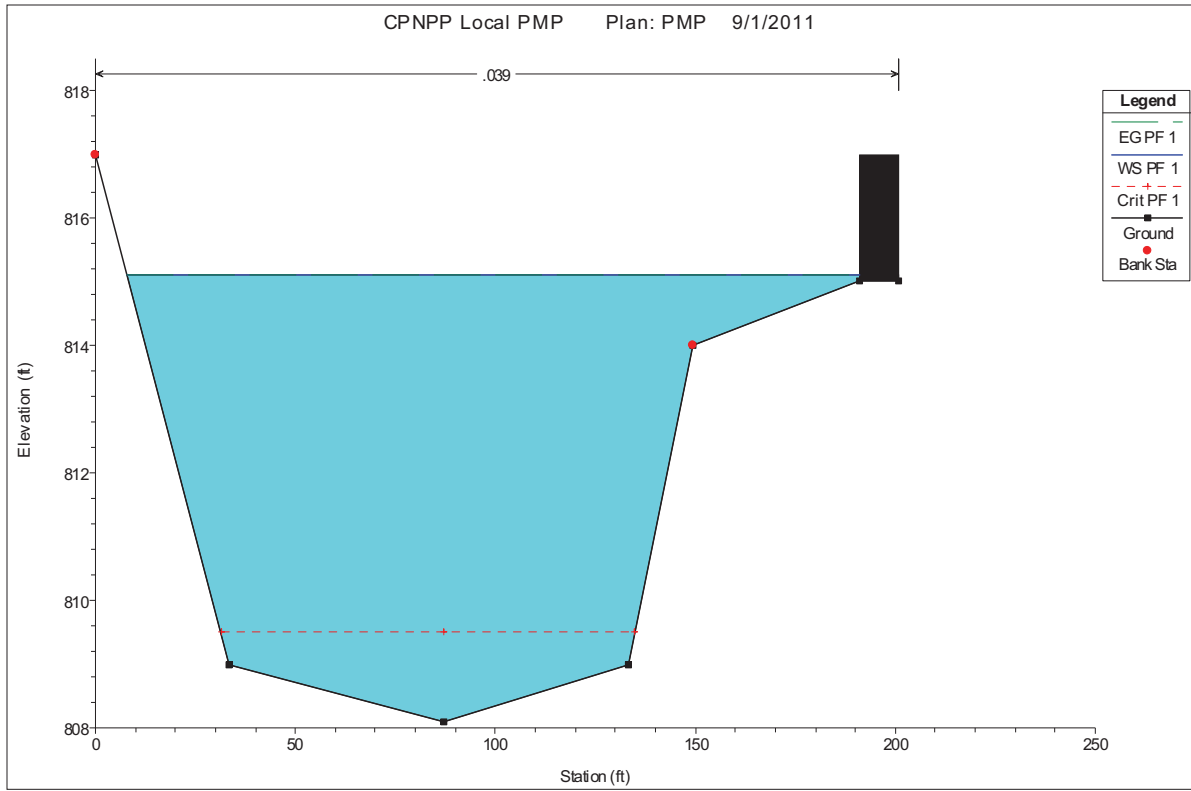
East Channel Cross Section 4



East Channel Cross Section 3

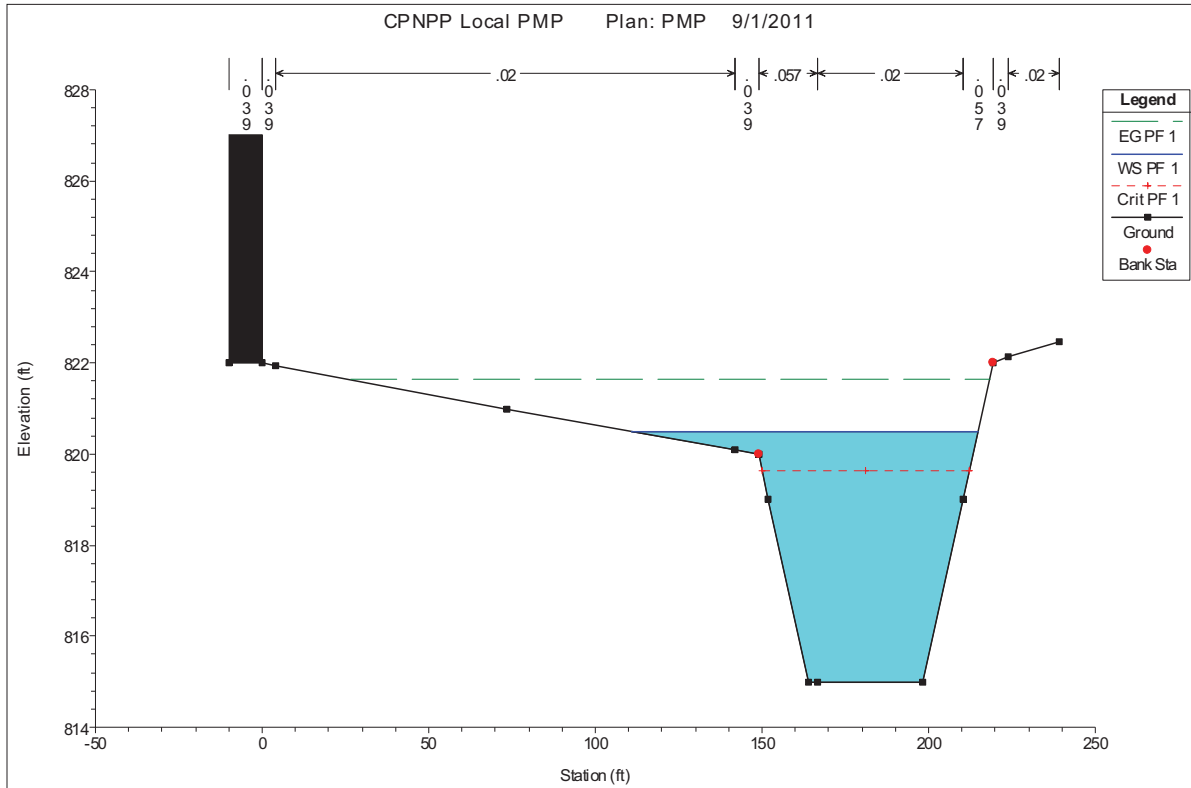


East Channel Cross Section 2

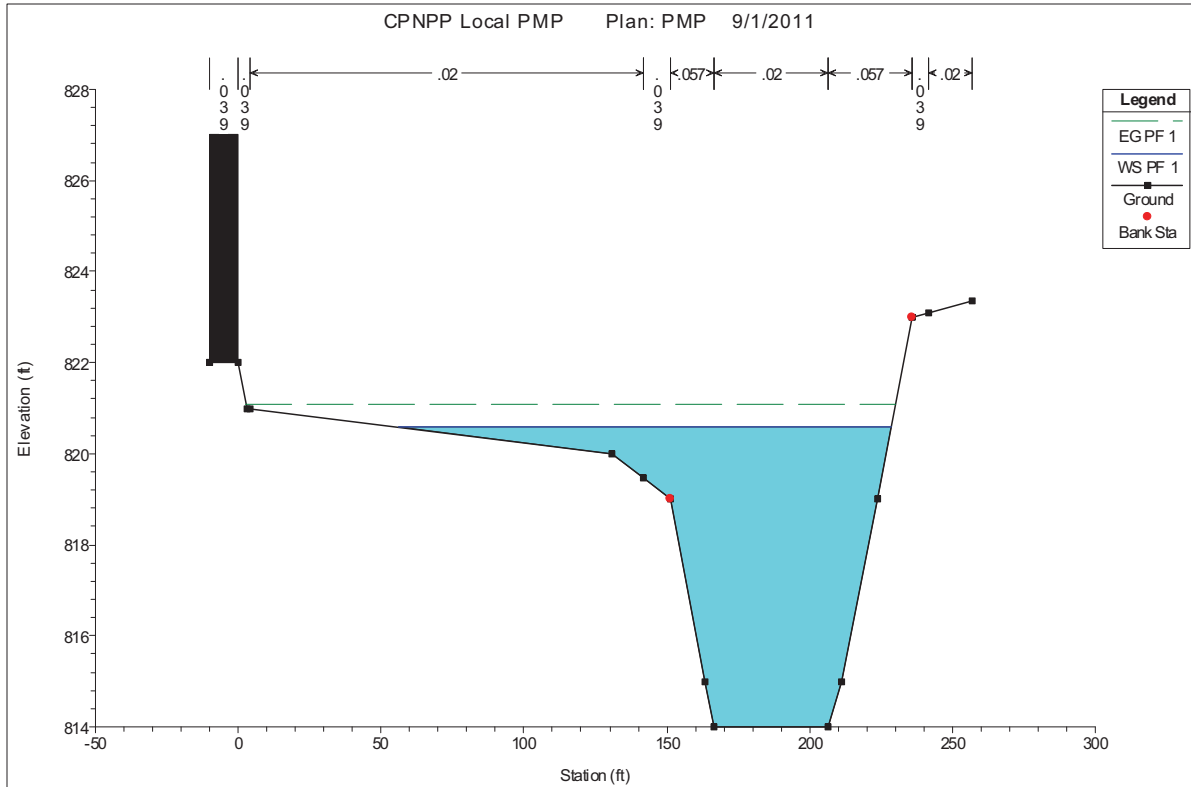


East Channel Cross Section 1

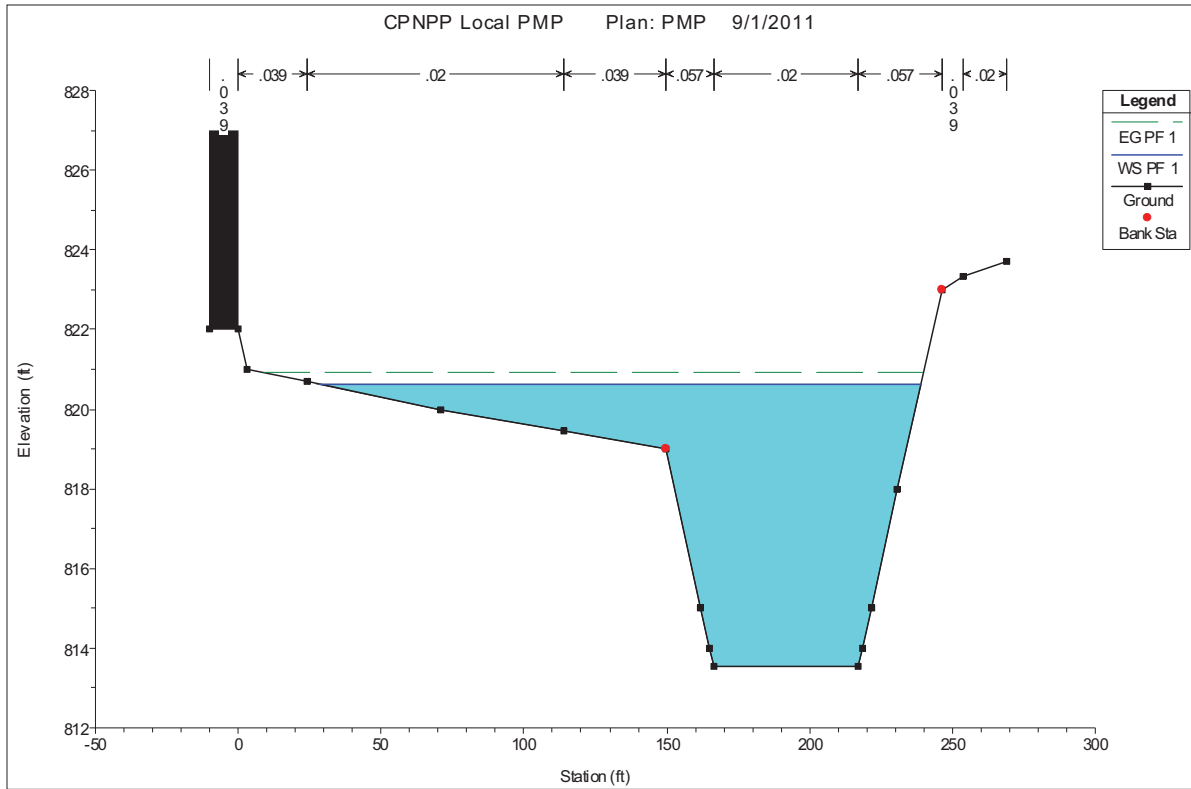
Off-site Channel Cross Section Plots



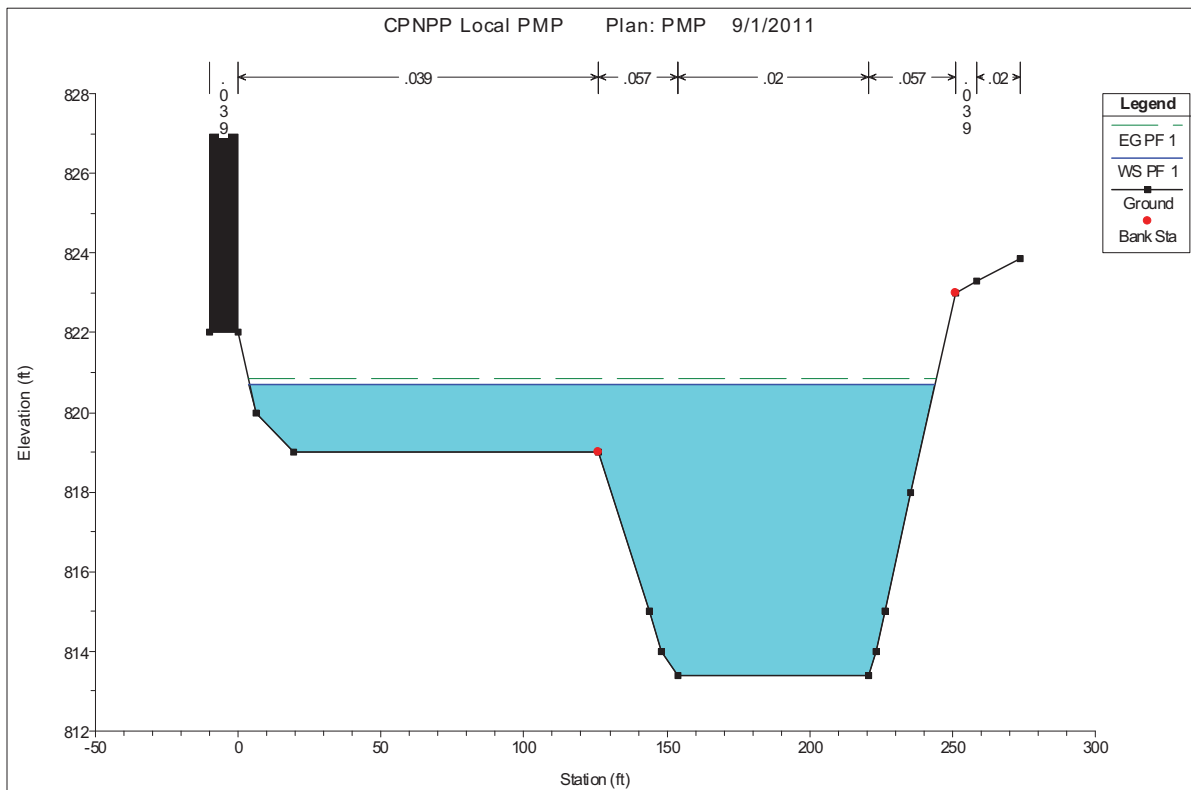
Off-Site Channel Cross Section 6



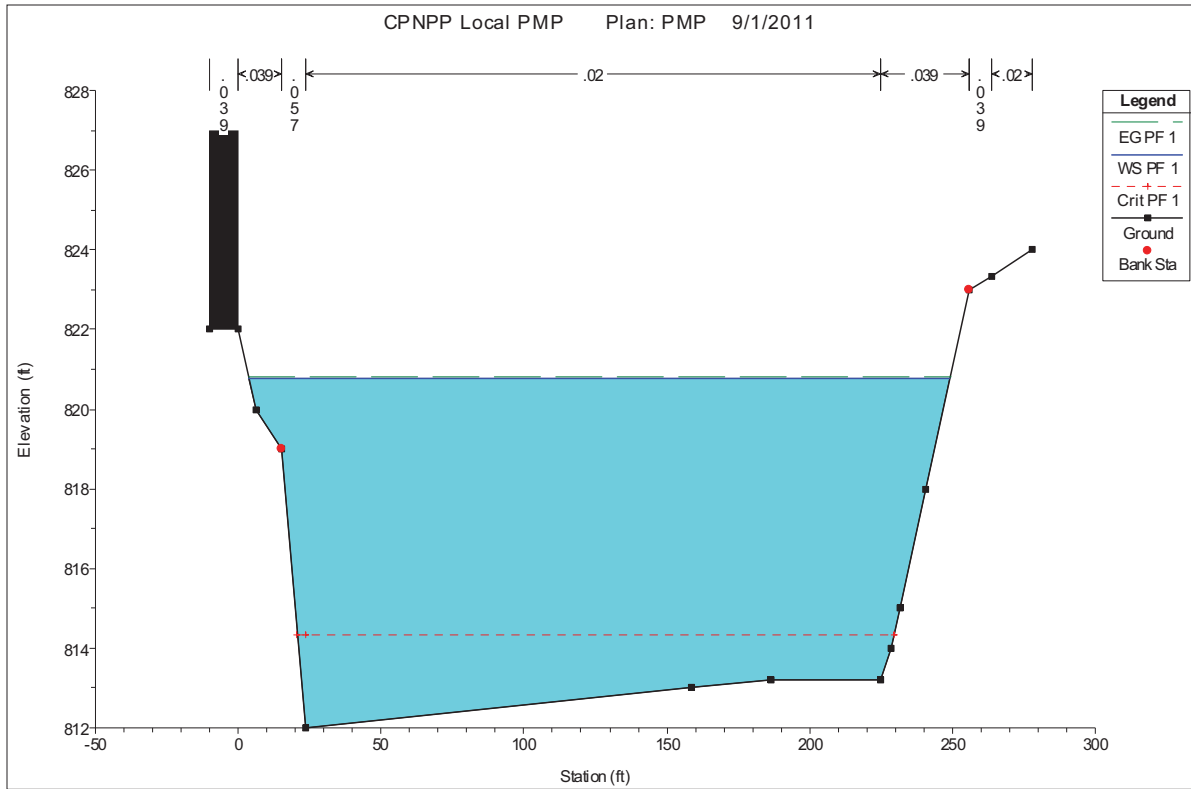
Off-Site Channel Cross Section 5



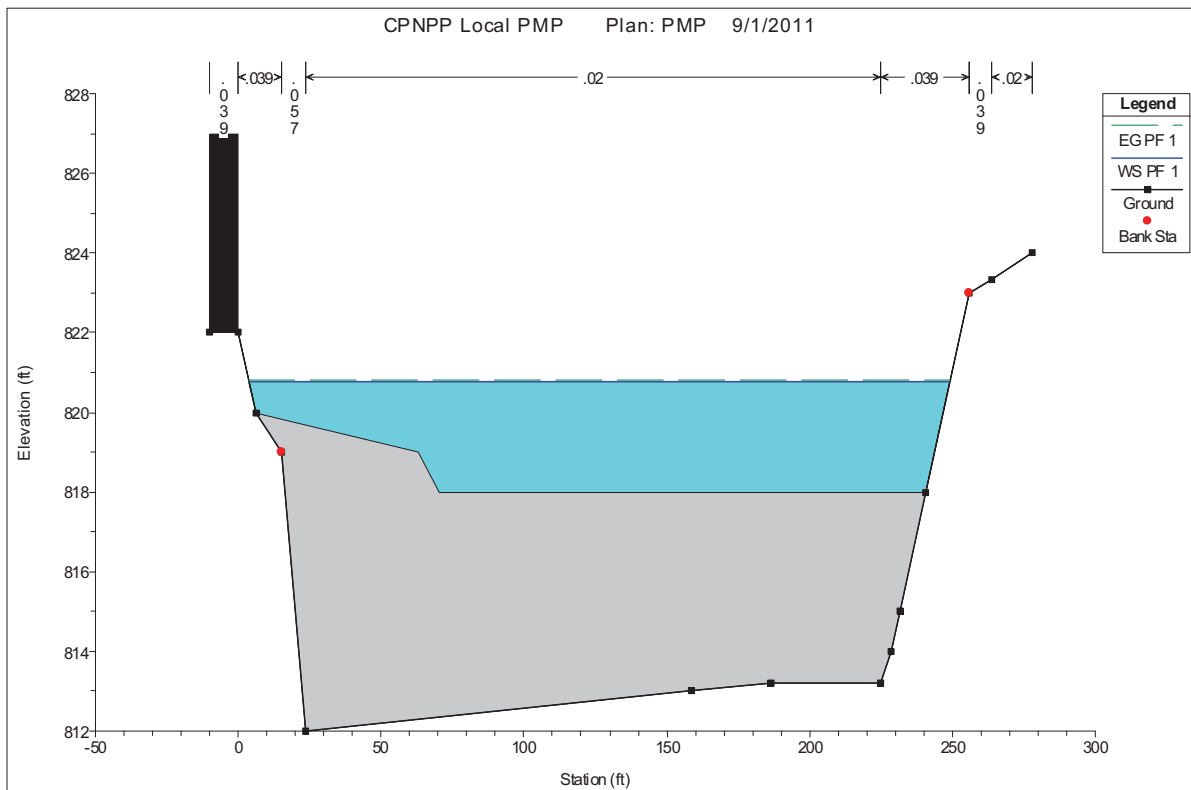
Off-Site Channel Cross Section 4



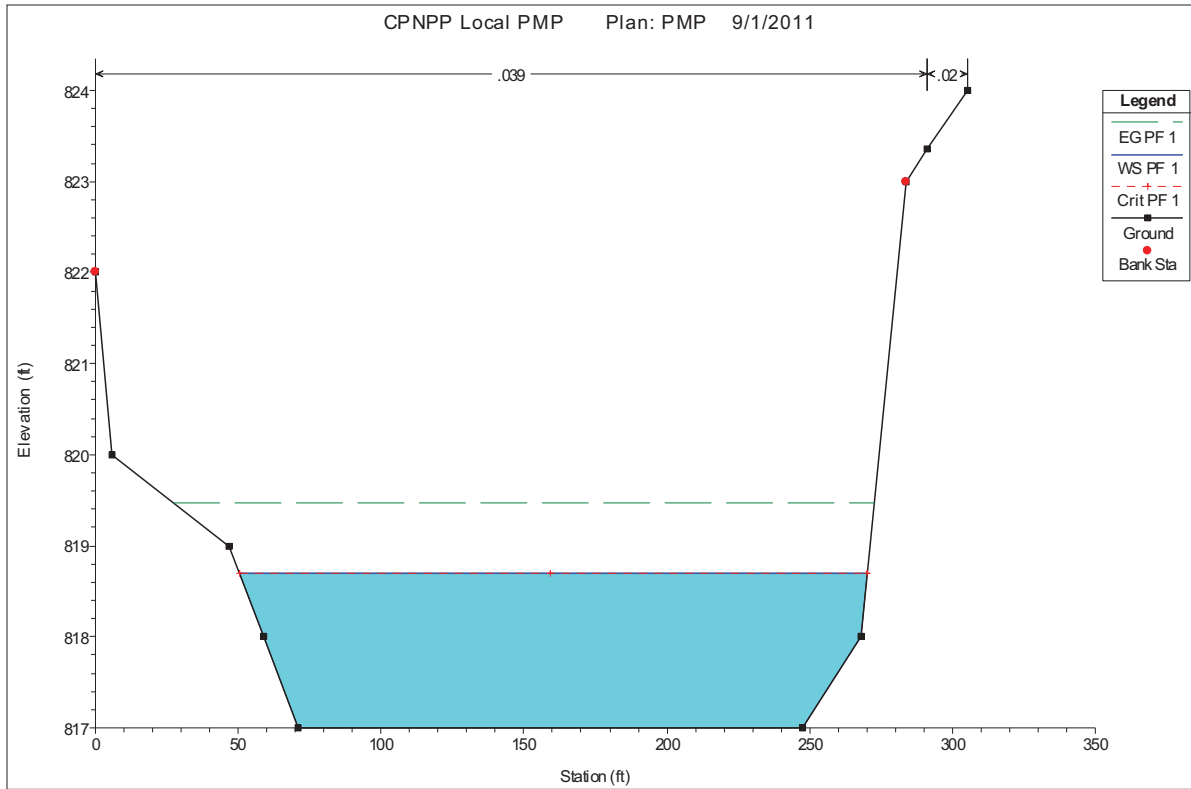
Off-Site Channel Cross Section 3



Off-Site Channel Cross Section 2



Off-Site Channel Cross Section 1.5



Off-Site Channel Cross Section 1

HEC-RAS Version 4.1.0 Jan 2010
 U.S. Army Corps of Engineers
 Hydrologic Engineering Center
 609 Second Street
 Davis, California

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PROJECT DATA
 Project Title: CPNPP Local1PMP
 Project File : CPNPPLOca1PMP.prj
 Run Date and Time: 9/1/2011 10:08:34 AM
 Project in English units

PLAN DATA
 Plan Title: PMP
 Plan File : C:\Users\kroblyer\Documents\HEC-RAS Prelim CPNPP\CPNPPLOca1PMP.p01
 Geometry Title: PMP
 Geometry File : C:\Users\kroblyer\Documents\HEC-RAS Prelim CPNPP\CPNPPLOca1PMP.g01

Flow Title : PMP
 Flow File : C:\Users\kroblyer\Documents\HEC-RAS Prelim CPNPP\CPNPPLOca1PMP.f01

Plan Summary Information:
 Number of: Cross Sections = 118 Multiple Openings = 0
 Culverts = 0 Inlining Structures = 11
 Bridges = 0 Lateral Structures = 4

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

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

FLOW DATA
 Flow Title: PMP
 Flow File : C:\Users\kroblyer\Documents\HEC-RAS Prelim CPNPP\CPNPPLOca1PMP.f01
 Flow Data (cfs)

River	Reach	RS	PF 1
Center North	Center N Upper	13	52
Center North	Center N Upper	10	442
Center North	Center N Upper	6	538
Center North	Center N Branch 108		257
Center North	Center N Lower	3	1033
Center North	Center South	8	1326
Center South	Center South	2	821
East Channel	East Channel	7	213
East Channel	East Channel	3	545
Offsite	Offsite	6	2421
Unit 3 East	Unit 3 East	5	196
Unit 3 North	Unit 3 North	8	164
Unit 3 Southeast	Unit 3 Southeast	11	371
Unit 3 Southeast	Unit 3 Southeast	11	737
Unit 3 UHS	U3 UHS Branch	109	1625
Unit 3 UHS	U3 UHS Upper	12	1772
Unit 3 UHS	U3 UHS Lower	2	1941
Unit 4 North	Unit 4 North	6	135
Unit 4 UHS	U4 UHS Upper	10	1607

CPNPPLOCA1PMP

Unit 4 UHS	U4 UHS Branch	107	135
Unit 4 UHS	U4 UHS Lower	5	1742
Unit 4 UHS	U4 UHS Lower	2	3879
West Channel	West Channel	24	497
West Channel	West Channel	17	900
West Channel	West Channel	15	1267
West Channel	West Channel	11	1866
West Channel	West Channel	5	1866
West Channel	West Channel	2023	2137
West Channel	West Channel	3	

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Center North	Center N Upper	PF 1	Critical	
Center North	Center N Branch	PF 1	Critical	
Center North	Center N Upper	PF 1		Known WS = 819.54
Center South	Center South	PF 1	Critical	Known WS = 820.86
Center South	Center South	PF 1	Critical	Known WS = 815.1
East Channel	East Channel	PF 1	Critical	Normal S = 0.2
Offsite	Offsite	PF 1	Critical	Known WS = 815.1
Unit 3 East	Unit 3 East	PF 1	Critical	Known WS = 817.92
Unit 3 North	Unit 3 North	PF 1	Critical	Known WS = 815.1
Unit 3 Southeast	Unit 3 Southeast	PF 1	Critical	Known WS = 815.1
Unit 3 UHS	U3 UHS Branch	PF 1	Critical	
Unit 3 UHS	U3 UHS Upper	PF 1	Critical	
Unit 3 UHS	U3 UHS Lower	PF 1	Critical	Known WS = 815.1
Unit 4 North	Unit 4 North	PF 1	Critical	Known WS = 820.07
Unit 4 UHS	U4 UHS Branch	PF 1	Critical	
Unit 4 UHS	U4 UHS Branch	PF 1	Critical	
Unit 4 UHS	U4 UHS Lower	PF 1	Critical	Known WS = 816
West Channel	West Channel	PF 1	Critical	Known WS = 818.89

GEOMETRY DATA

Geometry Title: PMP
 Geometry File : C:\Users\kroblyer\Documents\WEC-RAS Prelim CPNPP\CPNPPLOCA1PMP.g01

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
Center North	Center N Upper		Center N Junct
Center North	Center N Branch		Center N Junct
Center North	Center N Lower	Center N Junct	
Center South	Center South		
East Channel	East Channel		
Unit 3 East	Unit 3 East		
Unit 3 North	Unit 3 North		
Unit 3 Southeast	Unit 3 Southeast		
Unit 3 UHS	U3 UHS Branch		U3 UHS Junct
Unit 3 UHS	U3 UHS Upper		U3 UHS Junct
Unit 3 UHS	U3 UHS Lower		
Unit 4 North	Unit 4 North		
Unit 4 UHS	U4 UHS Upper		
Unit 4 UHS	U4 UHS Branch		
Unit 4 UHS	U4 UHS Lower		
West Channel	West Channel		

JUNCTION INFORMATION

Name:	Center N Junct	Reach	Length	Angle
Description:	Center N Junct	Center N Lower	104.41	
Energy computation Method	Center N Junct	Center N Lower	142.47	
Length across Junction				
River	Center N Upper	Center N Lower		
Center North	Center N Branch	Center N Lower		
Center North	Center N Branch	Center N Lower		
Name:	U4 UHS Junct	Reach <td>Length <td>Angle</td> </td>	Length <td>Angle</td>	Angle
Description:	U4 UHS Junct	U4 UHS Lower	58.25	
Energy computation Method	U4 UHS Junct	U4 UHS Lower	85.65	
Length across Junction				
River	U4 UHS Upper	U4 UHS Lower		
Unit 4 UHS	U4 UHS Branch	U4 UHS Lower		
Unit 4 UHS	U4 UHS Branch	U4 UHS Lower		
Name:	U3 UHS Junct	Reach <td>Length <td>Angle </td></td>	Length <td>Angle </td>	Angle
Description:	U3 UHS Junct	U3 UHS Lower		
Energy computation Method	U3 UHS Junct	U3 UHS Lower		

CPNPPLOCA1PMP

Length across junction	Tributary	Reach	Angle
River	River	Reach	Angle
Unit 3 UHS	to Unit 3 UHS	U3 UHS Lower	57.69
Unit 3 UHS	to Unit 3 UHS	U3 UHS Lower	136.09

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 13

INPUT

Description:	num=
Station Elevation Data	12
Sta Elev Sta	26.14
0 820.79 12	820.53
52.78 820 112.32	821
350.46 822 360	822

Manning's n Values

num=	2
Sta n Val	0
0 .02 12	.039

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

Blocked Obstructions	num=	4
Sta L Sta R Elev Sta L Sta R	26.14 52.78	55 55
160.49 252.49	825 269.62	825 307.54
350.46 360	825	347.54 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	820.42	Reach Len. (ft)	55.00	55.00	55.00
Crit W.S. (ft)	820.08	Flow Area (sq ft)	2.34	22.30	5.23
E.G. Slope (ft/ft)	0.003717	Area (sq ft)	2.34	22.30	5.23
Q Total (cfs)	52.00	Flow (cfs)	11.92	45.79	4.29
Top width (ft)	62.78	Top width (ft)	11.18	26.64	24.96
Vel Head (ft)	1.84	Avg. Vel (ft/s)	0.92	2.85	0.92
W.S. Elev (ft)	820.42	Conv. Depth (ft)	31.1	751.0	70.3
Max Chl Dpth (ft)	852.99	Wetted Per. (ft)	11.19	26.83	24.96
Length Wtd. (ft)	55.00	Shear (lb/sq ft)	0.05	0.19	0.05
Min Ch El (ft)	819.56	Stream Power (lb/ft s)	360.00	0.00	0.00
Alpha	1.25	Cum Volume (acre-ft)	0.19	4.16	4.74
Frctn Loss (ft)	0.04	Cum SA (acres)	0.01	0.87	1.66
C & E Loss (ft)	0.01				

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

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 12

INPUT

Description:	num=	15
Station Elevation Data	16.53	
Sta Elev Sta	821.78	821 19.72
29.69 818.78	49.75	819 52.78
160.49 822 297.54	822 347.46	822 350.46

Manning's n Values

num=	2
Sta n Val	0
0 .02 12	.039

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

Blocked Obstructions	num=	3
Sta L Sta R Elev Sta L Sta R	16.23 52.78	76.77 76.77
160.49 252.49	825 269.62	825 350.46

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	76.77	76.77	76.77
W.S. Elev (ft)	820.41	Reach Len. (ft)	76.77	76.77	76.77
Crit W.S. (ft)	0.000324	Flow Area (sq ft)	55.50	55.50	4.97
E.G. Slope (ft/ft)	0.000324	Area (sq ft)	55.50	55.50	4.97
Q Total (cfs)	52.00	Flow (cfs)	30.92	30.92	2.18
Top width (ft)	50.81	Top width (ft)	0.93	0.93	0.24
Vel Head (ft)	1.81	Avg. Vel (ft/s)	0.20	0.20	0.20
W.S. Elev (ft)	2.13	Conv. Depth (ft)	1.60	1.60	0.20
Max Chl Dpth (ft)	2889.5	Wetted Per. (ft)	2823.8	2823.8	65.7
Length Wtd. (ft)	76.77		35.97	35.97	24.34

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Min Ch El (ft)	818.28	Shear (lb/sq ft)	0.03	0.00
Alpha	1.11	Stream Power (lb/ft s)	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.19	4.11
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.83

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

CROSS SECTION

RIVER: Center North RS: 11
 REACH: Center N Upper

INPUT

Description:	num=	13	Elev	Sta	Elev	Sta	Elev	Sta
Station	Sta	822.32	17.38	822.11	16.36	822.11	16.36	822.11
Frctn Loss	Frctn Loss	38.92	817	53.92	819	77.56	820	239.49
C & E Loss	C & E Loss	270.56	822	273.56	822	284	822	821

Manning's n Values	num=	3	Sta	n Val	Sta	n Val	Sta	n Val
Frctn Loss	Frctn Loss	0	.02	12.18	.039	284	.039	284

Bank Sta:	Left	16.36	Right	44.44	Left Channel	Right	44.44
Blocked Obstructions	num=	1	Sta	1	Sta	1	Sta
Frctn Loss	Frctn Loss	273.56	284	825	284	825	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	44.44	0.039	0.039
W.S. Elev (ft)	820.41	Flow Len. (ft)	44.44	44.44	44.44
Crit W.S. (ft)	0.000041	Flow Area (sq ft)	123.13	13.54	13.54
E.G. Slope (ft/ft)	52.00	Area (sq ft)	15.88	13.14	13.14
Top Width (ft)	121.92	Flow width (ft)	55.70	66.23	66.23
Vel Total (ft/s)	3.41	AVG. Vel (ft/s)	0.41	0.20	0.20
Max Chl Dpth (ft)	8086.9	Hvdr. Depth (ft)	7907.7	179.1	179.1
Conv. Total (cfs)	44.44	Conv. (cfs)	56.27	66.23	66.23
Length wtd. (ft)	817.00	wetted Per. (ft)	0.01	0.01	0.01
Min Ch El (ft)	1.15	Shear (lb/sq ft)	0.19	0.00	0.00
Alpha	0.01	Stream Power (lb/ft s)	3.95	4.72	4.72
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.75	1.55
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.75	1.55

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

CROSS SECTION

RIVER: Center North RS: 10
 REACH: Center N Upper

INPUT

Description:	num=	15	Elev	Sta	Elev	Sta	Elev	Sta
Station	Sta	822.72	0	822.72	12	822.66	19.57	820
Frctn Loss	Frctn Loss	40	816	41.44	815.3	78.41	816	104.15
C & E Loss	C & E Loss	172.83	820	237.57	821	268.62	822	281

Manning's n Values	num=	8	Sta	n Val	Sta	n Val	Sta	n Val
Frctn Loss	Frctn Loss	-10	.02	0	.039	19.57	.057	41.44
C & E Loss	C & E Loss	61.44	.057	104.15	.039	281	.039	281

Bank Sta:	Left	23.57	Right	39.61	Left Channel	Right	39.61
Blocked Obstructions	num=	1	Sta	1	Sta	1	Sta
Frctn Loss	Frctn Loss	271.62	281	825	281	825	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	39.61	0.057	0.039
W.S. Elev (ft)	820.37	Flow Len. (ft)	39.61	39.61	39.61
Crit W.S. (ft)	0.000350	Flow Area (sq ft)	0.14	301.28	64.38
E.G. Slope (ft/ft)	0.44200	Area (sq ft)	0.02	406.02	35.96
Top Width (ft)	174.10	Flow width (ft)	0.74	80.58	92.77

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Vel Total (ft/s) 1.21
 Max Chl Dpth (ft) 5.07
 Conv. Total (cfs) 23631.5
 Length Wtd. (ft) 39.61
 Min Ch El (ft) 815.30
 Alpha 1.16
 Frctn Loss (ft) 0.02
 C & E Loss (ft) 0.01

Avg. Vel. (ft/s) 0.15
 Hydr. Depth (ft) 0.19
 Conv. (cfs) 1.1
 Wetted Per. (ft) 0.83
 Shear (lb/sq ft) 281.00
 Stream Power (lb/ft s) 0.19
 Cum Volume (acre-ft) 0.19
 Cum SA (acres) 0.68

1.35
 3.74
 21707.8
 81.41
 0.08
 9.90
 0.00
 3.73
 4.68

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 9

INPUT

Description: num= 11
 Station Elevation Data num= 11
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 822 0 822 4.5 820 20.61 816 22.39 815.09
 174 822

Manning's n Values num= 6
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .057 0 0.057 22.39 .02 42.39 .057 50.19 .039
 174 .039

Bank Sta: Left Right Lengths: Left Channel Right
 4.5 50.19 176.29 176.29
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 0 825 164.55 174 825

Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 820.37 Element Left Ob Channel Right Ob
 Vel Head (ft) 0.08 Wt. n-Val. 0.057 0.043 0.039
 W.S. Elev (ft) 820.29 Reach Len. (ft) 176.29 176.29 176.29
 Crit W.S. (ft) 0.000854 Flow Area (sq ft) 0.09 174.54 30.80
 E.G. Slope (ft/ft) 442.00 Area (sq ft) 0.02 174.54 30.80
 Q Total (cfs) 94.16 Top Width (ft) 0.65 45.69 47.82
 Top Width (ft) 2.15 Avg. Vel. (ft/s) 0.20 2.39 0.83
 Vel Total (ft/s) 5.20 Hydr. Depth (ft) 0.14 3.82 0.64
 Max Chl Dpth (ft) 15129.6 Conv. (cfs) 0.6 14233.0 875.0
 Conv. Total (cfs) 1752.6 Reach (lb/sq ft) 0.71 4.26 0.84
 Length Wtd. (ft) 815.09 Stream Power (lb/ft s) 0.19 3.52 0.00
 Manning's n 1.17 Alpha 0.02 Cum Volume (acre-ft) 174.00 3.52 4.64
 Frctn Loss (ft) 0.14 Cum Volume (acre-ft) 0.19 3.52 4.64
 C & E Loss (ft) 0.00 Cum SA (acres) 0.00 0.62 1.40

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 8

INPUT

Description: num= 12
 Station Elevation Data num= 12
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 822 0 822 4.5 820 21.17 815
 22.46 814.34 42.46 814.34 43.64 815 53.64 822
 102.72 822

Manning's n Values num= 6
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .057 0 0.057 22.46 .02 42.46 .057 53.64 .039
 112 .039

Bank Sta: Left Right Lengths: Left Channel Right
 4.5 53.64 63.59 63.59
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 0 825 102.72 112 825

Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 820.23 Element Left Ob Channel Right Ob
 Vel Head (ft) 0.08 Wt. n-Val. 0.057 0.045 0.039

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W.S. Elev (ft)	820.16	Reach Len. (ft)	63.59	63.59
Crit W.S. (ft)		Flow Area (sq ft)	0.02	200.78
E.G. Slope (ft/ft)	0.000709	Area (sq ft)	0.00	200.78
Q Total (cfs)	442.00	Flow (cfs)	0.00	441.94
Top Width (ft)	53.08	Top Width (ft)	0.31	49.14
Vel Total (ft/s)	2.20	Avg. Vel. (ft/s)	0.12	2.20
Max Ch Depth (ft)	16603.86	Ch Depth (ft)	0.08	2.08
Length Wtd. (cfs)	63.59	Wetted Per. (ft)	0.31	16601.07
Min Ch El (ft)	814.34	Shear. (lb/sq ft)	0.00	51.39
Alpha	1.00	Stream Power (lb/ft s)	112.00	0.00
Frctn Loss	0.04	Cum Volume (acre-ft)	0.19	2.76
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	4.43

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North RS: 7
 REACH: Center N Upper

INPUT

Description:	num=	12
Station Elev Data	Elev	Sta
-10	822	820
22.09	814.11	47.44
102.72	822	811.822

Manning's n Values	num=	6
-10	.057	Sta
112	.039	Sta

Bank Sta: Left Right Lengths: Left Channel Right

Blocked Obstructions	num=	2
-10	Sta L	Sta R
825	102.72	112

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	wt. n-Val.	0.057	0.045	0.039
W.S. Elev (ft)	820.12	Reach Len. (ft)	63.02	63.02	63.02
E.G. Slope (ft/ft)	0.000643	Flow Area (sq ft)	0.01	208.16	0.16
Q Total (cfs)	442.00	Area (sq ft)	0.00	208.16	0.16
Top Width (ft)	52.39	Flow (cfs)	0.04	441.98	0.02
Max Ch Depth (ft)	6.01	Top Width (ft)	0.76	42.95	2.09
Conv. Total (cfs)	17424.4	Avg. Vel. (ft/s)	0.06	4.16	0.06
Length Wtd. (ft)	63.02	Hvly. Depth (ft)	0.1	17423.4	0.9
Min Ch El (ft)	814.11	Wetted Per. (ft)	0.26	52.02	2.70
Alpha	1.00	Shear (lb/sq ft)	112.00	0.16	0.00
Frctn Loss	0.03	Stream Power (lb/ft s)	0.19	2.46	4.57
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	2.46	1.29

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North RS: 6
 REACH: Center N Upper

INPUT

Description:	num=	17
Station Elev Data	Elev	Sta
-10	822	820
201.5	813.88	40.5
92.17	820	101.9
162.42	822	172

Manning's n Values	num=	8
-10	.057	Sta
101.9	.02	Sta

Bank Sta: Left Right Lengths: Left Channel Right

Blocked Obstructions	num=	2
-10	Sta L	Sta R
825	162.42	172

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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.15		Element		Left OB		Channel		Right OB	
Wt. Head (ft)	0.06	820.09	0.06	Wt. n-Val.	0.057	286.02	0.039	286.02	286.02	0.039	286.02
Crit W.S. (ft)	0.000483	0.000483	0.000483	Flow Area (sq ft)	0.01	209.13	84.31	209.13	84.31	0.01	209.13
Flow Area (sq ft)	538.00	538.00	538.00	Area (sq ft)	0.01	431.53	106.48	431.53	106.48	0.01	431.53
Top Width (ft)	89.76	89.76	89.76	Top Width (ft)	0.18	44.35	45.23	44.35	45.23	0.18	44.35
Vel Total (ft/s)	1.83	1.83	1.83	Avg. Vel. (ft/s)	0.07	2.06	1.26	2.06	1.26	0.07	2.06
Max Chl Dpth (ft)	6.21	6.21	6.21	Hydr. Depth (ft)	0.05	4.72	1.86	4.72	1.86	0.05	4.72
Conv. Total (cfs)	24474.1	24474.1	24474.1	Wetted Per. (ft)	0.0	19630.3	4843.8	19630.3	4843.8	0.0	19630.3
Length wtd. (ft)	286.02	286.02	286.02	Stream Power (lb/ft s)	0.00	46.45	45.54	46.45	45.54	0.00	46.45
Min Ch El (ft)	813.88	813.88	813.88	Shear (lb/sq ft)	172.00	0.00	0.00	0.00	0.00	172.00	0.00
Alpha	1.11	1.11	1.11	Cum Volume (acre-ft)	0.19	2.16	4.51	2.16	4.51	0.19	2.16
Frctn Loss (ft)	0.03	0.03	0.03	Cum SA (acres)	0.00	0.29	1.26	0.29	1.26	0.00	0.29
C & E Loss (ft)	0.02	0.02	0.02								

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

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
REACH: Center N Upper

RS: 5

INPUT

Station Elevation Data		num= 18		Element		Left OB		Channel		Right OB	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	5	822	4.5	19.96	813	813	820	19.96
20.5	812.73	40.5	812.73	41.05	813	49.21	817	160.04	818	817	160.04
379.17	818	385.18	820	391.31	820.34	403.31	821	415.44	821.29	821	415.44
445	822	448	822	458	822						

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
391.31	.02	415.44	.039	458	.039	40.5	.057	49.21	.039		

Bank Sta: Left Right Coeff Contr. Expan.

Blocked Obstructions num= 1

Sta L Sta R Elev

-10 Sta 0 825 448 458 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.10		Element		Left OB		Channel		Right OB	
Wt. Head (ft)	0.01	820.10	0.01	Wt. n-Val.	0.057	104.11	104.11	104.11	104.11	0.039	104.11
Crit W.S. (ft)	0.000051	0.000051	0.000051	Flow Area (sq ft)	0.01	252.37	753.64	252.37	753.64	0.01	252.37
Flow Area (sq ft)	538.00	538.00	538.00	Area (sq ft)	0.00	188.27	349.73	188.27	349.73	0.00	188.27
Top Width (ft)	382.60	382.60	382.60	Top Width (ft)	0.19	44.71	337.70	44.71	337.70	0.19	44.71
Vel Total (ft/s)	0.53	0.53	0.53	Avg. Vel. (ft/s)	0.02	0.75	0.46	0.75	0.46	0.02	0.75
Max Chl Dpth (ft)	7.37	7.37	7.37	Hydr. Depth (ft)	0.05	5.64	2.23	5.64	2.23	0.05	5.64
Conv. Total (cfs)	75285.1	75285.1	75285.1	Wetted Per. (ft)	0.0	26380.5	49004.6	26380.5	49004.6	0.0	26380.5
Length wtd. (ft)	304.71	304.71	304.71	Stream Power (lb/ft s)	0.21	47.28	338.03	47.28	338.03	0.21	47.28
Alpha	1.12	1.12	1.12	Cum Volume (acre-ft)	0.00	0.02	0.00	0.00	0.00	0.00	0.00
Frctn Loss (ft)	0.01	0.01	0.01	Cum SA (acres)	0.19	0.64	1.76	0.19	0.64	0.19	0.64
C & E Loss (ft)	0.00	0.00	0.00								

Warning: Manning's n values were composited to a single value in the main channel. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Center North
REACH: Center N Branch

RS: 108

INPUT

Station Elevation Data		num= 11		Element		Left OB		Channel		Right OB	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	3	822	33	84.57	818	818	820	84.57
139.88	815	151.88	814	171.88	814	188.01	188.01	188.01	188.01	820	188.01
202.51	822										

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	151.88	.02	171.88	.057				

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

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Blocked Obstructions num= 1 56.64 56.64 56.64 .1 .3

139.88 188.01
Sta L Sta R Elev
-10 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt n-Val.	0.039		0.057
W.S. Elev (ft)	820.14	Reach Len. (ft)	56.64	56.64	56.64
Crit W.S. (ft)	815.43	Flow Area (sq ft)	292.50	241.17	0.02
E.G. Slope (ft/ft)	0.000030	Area (sq ft)	292.50	241.17	0.00
Q Total (cfs)	257.00	Flow (cfs)	112.14	144.86	0.00
Top Width (ft)	166.73	Top Width (ft)	118.29	48.13	0.32
Vel Total (ft/s)	0.48	Avg. Vel. (ft/s)	0.38	0.60	0.02
Max Ch Dpth (ft)	6.14	Hydr. Depth (ft)	2.47	5.01	0.07
Conv. Total (cfs)	46664.6	Conv. (cfs)	20361.5	26303.0	0.1
Length wtd. (ft)	36.04	Wetted Per. (ft)	118.44	49.35	0.35
W.S. Elev (ft)	83.00	Wetted Area (sq ft)	202.51	0.00	0.00
Alpha	1.15	Stream Power (lb/ft s)	0.95	2.46	1.18
Frctn Loss (ft)	0.00	Cum Volume (acres)	0.23	0.32	0.00
C & E Loss (ft)	0.00	Cum SA (acres)			

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

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North RS: 107

INPUT

Description:	num=	12	Elev	Sta	Elev	Sta	Elev	Sta
Station Elevation Data								
Sta	822	822	32.62	814	819	42.62	814	
Elev	822	822	814	79.18	820	83.18	822	
Sta	822	822						

Manning's n Values

num=	6	Sta	n Val	Sta	n Val	Sta	n Val
Sta	0	0	.039	32.62	.057	43.07	.02
n Val	0	0	.039	32.62	.057	43.07	.02
Sta	94	94	.057			63.07	.057

Bank Sta: Left 32.62 Right 176.5 Lengths: Left channel 176.5 Right 176.5

Blocked Obstructions

num=	2	Sta L	Elev	Sta R	Elev	Expans.
Sta L	825	825	83.68	94	825	.1
Elev	825	825	83.68	94	825	.1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt n-Val.	0.039	0.044	0.057
W.S. Elev (ft)	820.12	Reach Len. (ft)	176.50	176.50	176.50
Crit W.S. (ft)		Flow Area (sq ft)	6.18	217.61	0.01
E.G. Slope (ft/ft)	0.000164	Area (sq ft)	6.18	217.61	0.01
Q Total (cfs)	257.00	Flow (cfs)	2.04	234.96	0.00
Top Width (ft)	57.84	Top Width (ft)	11.35	46.39	0.04
Vel Total (ft/s)	6.33	Avg. Vel. (ft/s)	0.56	4.67	0.06
Max Ch Dpth (ft)	6.33	Hydr. Depth (ft)	0.56	4.67	0.06
Conv. Total (cfs)	20060.4	Conv. (cfs)	159.3	19901.1	0.1
Length wtd. (ft)	176.50	Wetted Per. (ft)	11.10	48.96	0.27
Min Ch El (ft)	813.77	Shear (lb/sq ft)	0.01	0.05	0.00
Alpha	1.03	Stream Power (lb/ft s)	94.00	0.00	0.00
Frctn Loss (ft)	0.02	Cum Volume (acres)	0.76	2.17	1.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.15	0.26	0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North RS: 106

INPUT

Description:	num=	13	Elev	Sta	Elev	Sta	Elev
Station Elevation Data							
Sta	825	825	82	178	81	36.13	820
Elev	825	825	82	178	81	84.01	820
Sta	825	825					

Manning's n Values

num=	6	Sta	n Val	Sta	n Val	Sta	n Val
Sta	825	825	.039	67.98	.057	81.4	.02
n Val	825	825	.039	67.98	.057	81.4	.02
Sta	88.01	88.01	.057	81.4	.057	84.01	.057

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Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	36.13	.057	47.98	.02
98	.057					67.98	.057

Bank Sta: Left 36.13 Right 84.01 Lengths: Left Channel 63.65 Right Channel 63.65 Coeff Contr. .1 Expan. .3

Blocked Obstructions	Sta L	Sta R	Elev
	-10	825	88.51
		98	825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.11		820.11
Vel Head (ft)	0.02	0.039	0.044
W.S. Elev (ft)	820.10	63.65	63.65
Crit W.S. (ft)	0.000120	244.49	244.49
E.G. Slope (ft/ft)	58.10	5.31	5.31
Top Width (ft)	58.10	11.08	11.08
Flow (cfs)	1.01	4.04	4.04
Top Width (ft/s)	1.01	0.28	0.28
Vel Total (ft/s)	7.02	0.55	0.55
Max Chl Dpth (ft)	23490.5	140.1	140.1
Conv. Total (cfs)	63.65	50.71	50.71
Length wtd. (ft)	813.08	10.10	10.10
Min Ch El (ft)	1.03	98.00	98.00
Alpha	0.00	0.73	1.23
Frctn Loss	0.00	0.10	0.07
C & E Loss (ft)			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North REACH: Center N Branch RS: 105

INPUT

Description	Station	Elevation	Data	num=
	-10	822	2.72	14
	813	163.17	812.82	2
	199.18	820	203.68	822

Manning's n Values	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
	-10	.039	0	.039	155.08	.057	163.17	.02
	213	.057					183.17	.057

Bank Sta: Left 155.08 Right 199.18 Coeff Contr. .3 Expan. .3

Blocked Obstructions	Sta L	Sta R	Elev
	-10	825	203.68
		213	825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.11		820.11
Vel Head (ft)	0.01	142.09	142.09
W.S. Elev (ft)	820.10	197.99	197.99
Crit W.S. (ft)	0.000052	248.21	248.21
E.G. Slope (ft/ft)	257.00	186.55	186.55
Top Width (ft)	177.65	70.45	70.45
Flow (cfs)	0.58	133.35	133.35
Top Width (ft/s)	7.28	0.36	0.36
Vel Total (ft/s)	35807.1	1.48	1.48
Max Chl Dpth (ft)	142.47	9815.2	9815.2
Conv. Total (cfs)	812.82	133.39	133.39
Length wtd. (ft)	1.34	0.00	0.00
Min Ch El (ft)	0.00	213.00	213.00
Alpha	0.00	0.87	0.87
Frctn Loss	0.00	0.00	0.00
C & E Loss (ft)			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North REACH: Center N Lower RS: 4

INPUT

Description	Station	Elevation	Data	num=
	24			24

Manning's n Values	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
	24							

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-10	822	0	822	2.9	822	37.73	821	84.13	820.6
96.13	820.5	108.13	820.17	114.13	820	120.13	818	179.73	817
189.96	812	190.34	811.84	210.34	811.84	210.76	812	220.76	817
320.77	818	540.12	818	546.13	820	551.71	820	563.71	821
586.99	821.32	637.19	822	668.4	822	678	822		

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	84.13	.02	108.13	.039	179.73	.057
190.34	.02	210.34	.057	220.76	.039	551.71	.02	586.99	.039
678	.039								

Bank Sta: Left 179.73 Right 220.76 Lengths: Left Channel 87.1 Right Channel 87.1

Blocked Obstructions num= 2 Sta L 87.1 Sta R 87.1 Elev 825

Sta L 825 Sta R 678 Elev 825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.09	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.02</td> <td>Wt. n-Val.</td> <td>0.039</td> <td>0.042</td> <td>0.039</td>	0.02	Wt. n-Val.	0.039	0.042	0.039
W.S. Elev (ft) <td>820.07</td> <td>Reach Len. (ft)</td> <td>87.10</td> <td>87.10</td> <td>87.10</td>	820.07	Reach Len. (ft)	87.10	87.10	87.10
Crit W.S. (ft) <td>0.000126</td> <td>Flow Area (sq ft)</td> <td>159.98</td> <td>283.98</td> <td>718.99</td>	0.000126	Flow Area (sq ft)	159.98	283.98	718.99
E.G. Slope (ft/ft) <td>1033.00</td> <td>Area (sq ft)</td> <td>159.98</td> <td>283.98</td> <td>718.99</td>	1033.00	Area (sq ft)	159.98	283.98	718.99
Q Total (cfs) <td>435.92</td> <td>Flow (cfs)</td> <td>120.30</td> <td>393.04</td> <td>519.66</td>	435.92	Flow (cfs)	120.30	393.04	519.66
Top width (ft) <td>0.89</td> <td>Top width (ft)</td> <td>68.23</td> <td>41.03</td> <td>326.67</td>	0.89	Top width (ft)	68.23	41.03	326.67
Max Chl Dpth (ft) <td>9207.23</td> <td>Avg. Vel. (ft/s)</td> <td>0.75</td> <td>1.38</td> <td>0.72</td>	9207.23	Avg. Vel. (ft/s)	0.75	1.38	0.72
Length wtd. (ft) <td>87.10</td> <td>Hydr. Depth (ft)</td> <td>1073.34</td> <td>3503.92</td> <td>46320.20</td>	87.10	Hydr. Depth (ft)	1073.34	3503.92	46320.20
Min Ch El (ft) <td>811.84</td> <td>Wetted Per (ft)</td> <td>68.56</td> <td>43.43</td> <td>327.00</td>	811.84	Wetted Per (ft)	68.56	43.43	327.00
Alpha <td>1.34</td> <td>Stream Power (lb/ft s)</td> <td>0.02</td> <td>0.05</td> <td>0.02</td>	1.34	Stream Power (lb/ft s)	0.02	0.05	0.02
Frctn Loss <td>0.01</td> <td>Shear (lb/sq ft)</td> <td>678.00</td> <td>0.00</td> <td>0.00</td>	0.01	Shear (lb/sq ft)	678.00	0.00	0.00
C & E Loss <td>0.00</td> <td>Cum Volume (acres-ft)</td> <td>0.21</td> <td>3.87</td> <td>2.23</td>	0.00	Cum Volume (acres-ft)	0.21	3.87	2.23
		Cum SA (acres)	0.16	0.47	2.12

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

Note: This may indicate the need for additional cross sections.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North

REACH: Center N Lower

RS: 3

INPUT

Description: Station Elevation Data num= 23

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
816.19	.02	816.19	.02	819	.02	819	.02	819	.02
59.46	.02	815	.02	812	.02	811	.02	811	.02
126.07	.02	817	.02	818	.02	819	.02	819	.02
479.58	.02	819.45	.02	488.85	.02	494.85	.02	547.27	.02
569.27	.02	822	.02	572.27	.02	822	.02	822	.02

Bank Sta: Left 36.84 Right 126.07

Blocked Obstructions num= 1

Sta L 582 Sta R 825 Elev 825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.08	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.01</td> <td>Wt. n-Val. <td>0.038</td> <td>0.050</td> <td>0.039</td> </td>	0.01	Wt. n-Val. <td>0.038</td> <td>0.050</td> <td>0.039</td>	0.038	0.050	0.039
W.S. Elev (ft) <td>820.07</td> <td>Reach Len. (ft) <td>119.07</td> <td>119.07</td> <td>119.07</td> </td>	820.07	Reach Len. (ft) <td>119.07</td> <td>119.07</td> <td>119.07</td>	119.07	119.07	119.07
Crit W.S. (ft) <td>0.000072</td> <td>Flow Area (sq ft) <td>50.13</td> <td>577.39</td> <td>1059.43</td> </td>	0.000072	Flow Area (sq ft) <td>50.13</td> <td>577.39</td> <td>1059.43</td>	50.13	577.39	1059.43
E.G. Slope (ft/ft) <td>0.000072</td> <td>Area (sq ft) <td>50.13</td> <td>577.39</td> <td>1059.43</td> </td>	0.000072	Area (sq ft) <td>50.13</td> <td>577.39</td> <td>1059.43</td>	50.13	577.39	1059.43
Q Total (cfs) <td>1168.00</td> <td>Flow (cfs) <td>23.60</td> <td>503.05</td> <td>641.36</td> </td>	1168.00	Flow (cfs) <td>23.60</td> <td>503.05</td> <td>641.36</td>	23.60	503.05	641.36
Top width (ft) <td>563.49</td> <td>Top width (ft) <td>36.84</td> <td>89.23</td> <td>437.42</td> </td>	563.49	Top width (ft) <td>36.84</td> <td>89.23</td> <td>437.42</td>	36.84	89.23	437.42
Max Chl Dpth (ft) <td>9.07</td> <td>Avg. Vel. (ft/s) <td>0.47</td> <td>0.87</td> <td>0.61</td> </td>	9.07	Avg. Vel. (ft/s) <td>0.47</td> <td>0.87</td> <td>0.61</td>	0.47	0.87	0.61
Length wtd. (ft) <td>119.07</td> <td>Hydr. Depth (ft) <td>2745.5</td> <td>6.47</td> <td>2.42</td> </td>	119.07	Hydr. Depth (ft) <td>2745.5</td> <td>6.47</td> <td>2.42</td>	2745.5	6.47	2.42
Min Ch El (ft) <td>811.00</td> <td>Conv. (cfs) <td>37.37</td> <td>91.13</td> <td>438.32</td> </td>	811.00	Conv. (cfs) <td>37.37</td> <td>91.13</td> <td>438.32</td>	37.37	91.13	438.32
Alpha <td>1.11</td> <td>Wetted Per. (ft) <td>0.01</td> <td>0.03</td> <td>0.01</td> </td>	1.11	Wetted Per. (ft) <td>0.01</td> <td>0.03</td> <td>0.01</td>	0.01	0.03	0.01
Frctn Loss <td>0.00</td> <td>Stream Power (lb/ft s) <td>582.00</td> <td>0.00</td> <td>0.00</td> </td>	0.00	Stream Power (lb/ft s) <td>582.00</td> <td>0.00</td> <td>0.00</td>	582.00	0.00	0.00
C & E Loss <td>0.00</td> <td>Cum Volume (acres-ft) <td>0.00</td> <td>3.01</td> <td>0.45</td> </td>	0.00	Cum Volume (acres-ft) <td>0.00</td> <td>3.01</td> <td>0.45</td>	0.00	3.01	0.45
		Cum SA (acres) <td>0.05</td> <td>0.34</td> <td>1.56</td>	0.05	0.34	1.56

INLINE STRUCTURE

RIVER: Center North RS: 2.5
 REACH: Center N Lower

INPUT
 Description: Distance from Upstream XS = 57.81
 Downstream Weir Crest = 2.6
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.3	825	66.21	819.3	116.21	819	448.35
498.36	819.3	825	572.27	825		819	

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	820.08	Q Gates (cfs)	
W.S. Elev (ft)	820.07	Q Gate Group (cfs)	0.00
Q Total (cfs)	1168.00	Gate Open Ht (ft)	819.56
Q Weir (cfs)	1168.00	Gate #Open	1.00
Weir Flow Area (sq ft)	438.38	Gate Submerg	0.00
Weir Sta L (ft)	66.21	Gate Superf. Coef	0.000
Weir Sta R (ft)	498.36	Q Breach (cfs)	
Weir Max Depth (ft)	1.08	Breach Avg Velocity (ft/s)	
Weir Avg Depth (ft)	1.02	Breach Flow Area (sq ft)	
Weir Coef (ft ^{1/2})	2.600		
Weir Submerg	0.50		
Min El Weir Flow (ft)	819.01		
Wr Top width (ft)	432.15		

CROSS SECTION

RIVER: Center North RS: 2
 REACH: Center N Lower

INPUT
 Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	0	819	1.01	819	28.01	810
72.05	818	84.87	819	131.54	819.84	143.56	820.06
202.43	819	275.5	818	386.42	818	426.15	819
442							

 Manning's n values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.057	0	.02	28.01	.02	48.05	.057
131.54	.02	155.54	.039	442	.039	72.05	.039

Bank Sta: Left 1.01 Right 72.05 Lengths: Left Channel 69.2 Right 69.2
 Blocked Obstructions num= 2

Sta L	Sta R	Elev L	Elev R
-10	0	825	432.15
		442	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.61	Element		Left OB		Right OB
Vel Head (ft)	0.05	wt. n-Val.	0.057	0.057	0.049	0.039
W.S. Elev (ft)	819.56	Reach Len. (ft)	69.20	69.20	69.20	69.20
Crit W.S. (ft)		Flow Area (sq ft)	0.57	461.93	327.99	327.99
E.G. Slope (ft/ft)	0.000360	Area (sq ft)	0.14	912.50	255.36	255.36
Q Total (cfs)	1168.00	Flow (cfs)	0.14	71.04	305.26	305.26
Top width (ft)	377.31	Top width (ft)	0.91	1.07	1.07	1.07
Wetted Per. (ft)	0.56	AVG. Vel. (ft/s)	0.55	1.57	1.57	1.57
Max Ch Depth (ft)	0.56	Hyd. Depth (ft)	0.55	0.55	0.55	0.55
Conv. Total (cfs)	61525.9	Conv. (cfs)	7.5	48067.0	13451.4	13451.4
Length Wtd. (ft)	69.20	Wetted Per. (ft)	1.57	73.80	305.90	305.90
Min Ch El (ft)	810.00	Shear (lb/sq ft)	0.01	0.14	0.02	0.02
Alpha	1.46	Stream Power (lb/ft s)	442.00	0.00	0.00	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.00	0.75	0.45	0.45
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.12	0.34	0.34

Warning: Divided Flow computed for this cross-section.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

CPNPPLOCA\1PMP

RIVER: Center North
 REACH: Center N Lower
 RS: 1

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	21	num=	8	num=	8	num=	8
Sta	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
510	819	810	27.51	819	28.06	819	28.06	819
48.06	809.83	48.57	810	811.57	810	811.57	810	811.57
143.54	822.9	155.54	821	822.9	821	822.9	821	822.9
311.56	818	360.93	817	388.51	817	426.15	819	432.15
442	819		817	388.51	817	426.15	819	432.15

Manning's n Values	Sta	Val	Sta	Val	Sta	Val	Sta	Val
num=	8	num=	8	num=	8	num=	8	num=
Sta	Sta	Val	Sta	Val	Sta	Val	Sta	Val
-10	.057	0	.057	0	.057	0	.057	0
131.54	.02	155.54	.039	442	.02	48.06	81.57	.039

Bank Sta: Left Right Coeff Contr. Expan.

Blocked Obstructions num= .3

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	825	92.06	292.06	825	432.15	442

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-val.	0.057	0.049	0.039
W.S. Elev (ft)	813.74	Reach Len. (ft)	0.28	477.00	236.20
Fr. Sl. Slope (ft/ft)	813.74	Area (sq ft)	0.28	477.00	236.20
E.G. Slope (ft/ft)	0.000365	Flow (cfs)	0.06	907.70	260.25
G. Total (cfs)	1168.00	Top width (ft)	0.51	76.68	126.08
Top width (ft)	203.27	Avg. Vel. (ft/s)	0.20	1.90	1.10
Vel Total (ft/s)	1.64	Hydr. Depth (ft)	0.54	6.22	1.87
Max Chl Dpth (ft)	9.71	Conv. (cfs)	2.9	47495.6	13617.4
Conv. Total (cfs)	61116.0	Wetted Per. (ft)	1.05	79.74	126.90
Length wtd. (ft)		Stream Power (lb/ft s)	0.01	0.14	0.04
Min Ch El (ft)	809.83	Cum Volume (acre-ft)	442.00	0.00	0.00
Alpha	1.15				
Frctn Loss (ft)					
C & E Loss (ft)					

Warning: Divided flow computed for this cross-section.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center South
 REACH: Center South
 RS: 8

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	8	num=	8	num=	8
Sta	Sta	Elev	Sta	Elev	Sta	Elev
0	821.9	12	821.66	27.5	147.99	820
472.44	822	475.44	822	485	822	820

Manning's n Values	Sta	Val	Sta	Val	Sta	Val
num=	3	num=	3	num=	3	num=
Sta	Sta	Val	Sta	Val	Sta	Val
0	.02	12	.039	485	.039	485

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

Blocked Obstructions num= 1

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
475.44	485	825	57.19	57.19	57.19	57.19

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	821.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-val.	0.02	0.039	0.039
W.S. Elev (ft)	820.38	Reach Len. (ft)	0.28	477.00	236.20
Fr. Sl. Slope (ft/ft)	820.38	Area (sq ft)	0.28	477.00	236.20
E.G. Slope (ft/ft)	0.001025	Flow (cfs)	0.06	907.70	260.25
G. Total (cfs)	324.00	Top width (ft)	0.51	76.68	126.08
Top width (ft)	390.76	Avg. Vel. (ft/s)	0.20	1.90	1.10
Vel Total (ft/s)	1.08	Hydr. Depth (ft)	0.54	6.22	1.87
Max Chl Dpth (ft)	0.98	Conv. (cfs)	2.9	47495.6	13617.4
Conv. Total (cfs)	10119.6	Wetted Per. (ft)	1.05	79.74	126.90
Length wtd. (ft)	57.19	Stream Power (lb/ft s)	0.01	0.14	0.04
Min Ch El (ft)	820.00	Cum Volume (acre-ft)	442.00	0.00	0.00
Alpha	1.09				
Frctn Loss (ft)	0.01				
C & E Loss (ft)	0.00				

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

This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Center South RS: 7 REACH: Center South

INPUT

Description: Station Elevation Data num= 18 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Elevation Data num= 18 Sta Elev Sta Elev Sta Elev Sta Elev

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

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expans. Blocked Obstructions num= 2 Sta L Sta R Elevation Data num= 18 Sta Elev Sta Elev Sta Elev Sta Elev

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 820.98 Element Wt n-Val. Left Ob Channel Right Ob Channel W.S. Elev (ft) 820.97 Reach Len. (ft) 0.039 57.00 57.00

CROSS SECTION

RIVER: Center South RS: 6 REACH: Center South

INPUT

Description: Station Elevation Data num= 17 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Elevation Data num= 17 Sta Elev Sta Elev Sta Elev Sta Elev

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

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expans. Blocked Obstructions num= 2 Sta L Sta R Elevation Data num= 17 Sta Elev Sta Elev Sta Elev Sta Elev

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 820.98 Element Wt n-Val. Left Ob Channel Right Ob Channel W.S. Elev (ft) 820.97 Reach Len. (ft) 0.039 39.10 39.10

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Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 5

INPUT

Description:		Station Elevation Data		num= 20		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.24	11.58	820	12	819.99	27.78	820	98	822						
145.91	822	165.91	820	177.78	819	237.29	818	267.29	815						
268.14	814.58	300.44	814.58	301.28	815	311.28	820	372.44	821						
393.46	822	396.72	822	441.72	822	475.44	822	485	822						

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.02	.12	.039	485	.039			

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

237.29 311.28 42.16 42.16 42.16 42.16

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta L	Elev
91.65	131.65	825	396.72	441.72	825	475.44

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.038	0.039	0.039
W.S. Elev (ft)	820.97	Reach Len. (ft)	42.16	42.16	42.16
Crit W.S. (ft)		Flow Area (sq ft)	248.54	385.69	28.81
E.G. Slope (ft/ft)	0.000031	Area (sq ft)	248.54	385.69	28.81
Q Total (cfs)	302.15	Flow (cfs)	168.79	243.83	3.79
Top width (ft)	0.49	Top width (ft)	0.31	0.63	0.13
Vel Total (ft/s)	0.49	Avg. Vel. (ft/s)	0.31	0.63	0.13
Max Ch Depth (ft)	5790.63	Cydr. Depth (ft)	1365.43	672.49	672.49
Channel Bed (ft)	42.16	Wetted Per (ft)	169.62	75.52	59.37
Min Ch El (ft)	814.58	Shear (lb/sq ft)	0.01	0.01	0.00
Alpha	1.35	Stream Power (lb/ft s)	485.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.73	4.56	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.52	0.67	0.32

CROSS SECTION OUTPUT Profile #PF 1

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (Upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 4

INPUT

Description:		Station Elevation Data		num= 24		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.87	819	822	822	822	882.73	821	100.71	822						
105.21	822	138.71	822	143.67	822	155.71	821	195.71	817						
215.71	815	268.62	814.34	299.95	814.34	301.28	815	311.28	820						
372.44	821	393.46	822	396.72	822	441.72	822	459.28	822						
462.28	821	463.46	821	478.41	821.3	490.41	821.54								

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.02	.12	.039	478.41	.02			

Bank Sta: Left Right Lengths: Left Channel Right

195.71 311.28 39.61 39.61 39.61

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev
105.21	138.71	825	396.72	441.72

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.036	0.039	0.039
W.S. Elev (ft)	820.97	Reach Len. (ft)	39.61	39.61	39.61
Crit W.S. (ft)		Flow Area (sq ft)	174.42	683.71	28.87
E.G. Slope (ft/ft)	0.000012	Area (sq ft)	174.42	683.71	28.87
Q Total (cfs)	324.00	Flow (cfs)	31.37	290.30	2.33
Top width (ft)	302.65	Top width (ft)	127.66	115.57	59.42
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)	0.18	0.42	0.08

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Max Ch1 Dpth (ft)	6.63	Hydr. Depth (ft)	1.37	5.92	0.49
Conv. Total (cfs)	94319.6	Conv. (cfs)	9131.1	84508.9	679.6
Length Wtd. (ft)	39.61	Wetted Per. (ft)	129.07	117.01	59.43
Min Ch El (ft)	814.34	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.23	Stream Power (lb/ft s)	490.41	0.00	0.00
Frcn Loss (ft)	0.00	Cum Volume (acre-ft)	0.53	4.04	0.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.38	0.38	0.27

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 3

INPUT

Station	0	819.4	13.14	819.34	94.09	819	157.66	Elev	817
Sta	0	815	269.07	814.11	299.5	814.11	301.28	Sta	820
Elev	383.56	821	396.72	822	446.29	822	462.28	Elev	820
num=	18	820	478.41	820.02	490.41	820.27			

Manning's n Values
 Sta n Val Sta n Val
 0 .02 13.14 .039 478.41 .02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 195.71 311.28 21.35 21.35 21.35 .1 .3

Blocked Obstructions num= 1

Sta L Sta R Elev
 396.72 441.72 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.97	Element	Left Ob	Channel	Right Ob
W.S. Elev (ft)	0.00	Wt n Val	6.038	0.038	6.038
Crit W.S. (ft)	820.97	Reach Len. (ft)	21.35	21.35	21.35
E.G. Slope (ft/ft)	0.000007	Flow Area (sq ft)	456.17	696.80	58.23
Q Total (cfs)	324.00	Area (sq ft)	456.17	696.80	58.23
Vel Total (ft/s)	409.58	Flow (cfs)	84.74	234.10	5.16
Conv. Total (cfs)	0.27	AVG. Vel. (ft/s)	195.71	115.57	98.30
Min Ch El (ft)	6.86	Hydr. Depth (ft)	0.19	0.34	0.09
Dpth	120680.9	Conv. (cfs)	2.33	6.03	0.59
Frcn Loss (ft)	21.35	Wetted Per. (ft)	31563.3	87194.6	1922.9
C & E Loss (ft)	814.71	Shear (lb/sq ft)	197.30	117.07	99.17
	0.00	Stream Power (lb/ft s)	0.00	0.00	0.00
	0.00	Cum Volume (acre-ft)	490.41	3.41	0.09
	0.00	Cum SA (acres)	0.23	0.48	0.19

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 2

INPUT

Station	0	819.18	23.58	819.15	94.09	819	153.2	Elev	817
Sta	0	815	291.28	814	299.28	814	301.28	Sta	819
Elev	396.13	820	410.28	820.24	424.02	820.48	438.02	Elev	820
num=	17	819.15	490.41	819.58					

Manning's n Values
 Sta n Val Sta n Val
 0 .02 23.58 .039 410.28 .02 438.02 .039 477.15 .02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 195.71 309.28 60.83 60.83 60.83 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.97	Element	Left Ob	Channel	Right Ob
W.S. Elev (ft)	0.00	Wt n Val	6.038	0.038	6.038
Crit W.S. (ft)	820.97	Reach Len. (ft)	21.35	21.35	21.35
E.G. Slope (ft/ft)	0.000039	Flow Area (sq ft)	468.73	688.24	217.87
Q Total (cfs)	821.00	Area (sq ft)	468.73	688.24	217.87
		Flow (cfs)	213.24	539.84	67.92

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Top Width (ft)	490.41	Top Width (ft)	195.71	181.13
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)	0.45	0.31
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)	2.40	1.20
Conv. Total (cfs)	131564.2	Wetted Per. (ft)	34172.1	10883.5
Length Wtd. (ft)	60.83	Shear (lb/sq ft)	197.52	182.54
Min Ch El (ft)	814.00	Stream Power (lb/ft.s)	490.01	0.00
Alpha Loss (ft)	1.31	Channel Area (acre-ft)	0.01	0.00
C & E Loss (ft)		Cum SA (acres)	0.14	0.13

INLINE STRUCTURE

RIVER: Center South
 REACH: Center South

RS: 1.5

INPUT

Description:
 Distance from Upstream XS = 18
 Deck/Roadway Width = 24
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 4

Sta	Elev	Sta	Elev	Sta	Elev
0	825	265.53	819	490.41	819

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	820.97	Q Gates (cfs)	0.00
W.S. Elev (ft)	820.97	Q Gate Group (cfs)	0.00
Q Total (cfs)	821.00	Gate Open Ht (ft)	820.86
Weir Flow Area (sq ft)	202.53	Gate #Open	1.00
Weir Sta Rgt (ft)	490.41	Gate Submerg	0.00
Weir Max Depth (ft)	1.97	Gate Invert	0.00
Weir Avg Depth (ft)	1.36	Gate Weir Coef	0.000
Weir Coef (ft ^{1/2})	2.600	Q Breach (cfs)	
Weir Submerg	0.92	Breach Avg Velocity (ft/s)	
Min El Weir Flow (ft)	819.01	Breach Flow Area (sq ft)	
W Top Wtd (ft)	224.88		

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 1

INPUT

Description:
 Station Elevation Data num= 4
 Sta Elev Sta Elev Sta Elev
 0 812.98 8.51 295.11 814 490.41 812.84
 Manning's n Values num= 1
 Sta n Sta n
 0 .057

Bank Sta: Left Right Coeff Contr. Expan.
 0 490.41 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.86	Element	Channel	Left OB	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.057		
Friction Loss (ft)	821.89	Reach Len. (ft)	3629.37		
Crit Vel (ft)	813.89	Flow Area (sq ft)	821.00		
E.G. Slope (ft/ft)	0.000005	Area (sq ft)	490.41		
Q Total (cfs)	821.00	Flow (cfs)	490.41		
Top Width (ft)	490.41	Top Width (ft)	490.41		
Vel Total (ft/s)	0.23	Avg. Vel. (ft/s)	0.23		
Max Chl Dpth (ft)	8.02	Hydr. Depth (ft)	7.40		
Conv. Total (cfs)	351743.0	Conv. (cfs)	351743.0		
Length Wtd. (ft)		Wetted Per. (ft)	506.32		
Alpha Loss (ft)	812.84	Stream Power (lb/ft.s)	0.00		0.00
Friction Loss (ft)	1.00	Cum Volume (acre-ft)	0.00		
C & E Loss (ft)		Cum SA (acres)	0.00		

CROSS SECTION

CPNPPLOCA\1PMP

RIVER: East Channel
REACH: East Channel

RS: 7

INPUT

Description: Station Elev Sta num=

-10 821 0 821 5
Sta Elev Sta num=

Manning's n Values

Sta n Val Sta n Val
-10 .039 0 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right

Blocked obstructions Sta L Sta R Elev

-10 830 72.56 83 826.17

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	821.72	Reach Len. (ft)	151.75	151.75	151.75
Crit W.S. (ft)	821.72	Flow Area (sq ft)	1.45	45.08	45.08
E.G. Slope (ft/ft)	0.026687	Area (sq ft)	1.45	45.08	45.08
Top width (ft)	713.00	Flow Vel (ft/s)	3.01	270.99	270.99
Top Total (ft/s)	4.58	AVG Vel (ft/s)	4.08	4.59	4.59
Max Chl Dpth (ft)	0.72	Hvdr. Depth (ft)	0.72	0.64	0.64
Conv. Total (cfs)	1303.8	Conv. (cfs)	36.2	1267.6	1267.6
Length Wtd. (ft)	151.75	wetted per. (ft)	2.72	71.11	71.11
Min Ch El (ft)	821.00	Shear (lb/sq ft)	0.89	1.06	1.06
Alpha	1.00	Stream Power (lb/ft s)	83.00	0.00	0.00
Frctn Loss		Cum Volume (acre-ft)	0.01	1.70	0.02
C & E Loss		Cum SA (acres)	0.02	0.72	0.03

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 6

INPUT

Description: Station Elev Sta num=

-10 821 0 821 6
Sta Elev Sta num=

Manning's n Values

Sta n Val Sta n Val
-10 .039 0 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right

Blocked obstructions Sta L Sta R Elev

-10 825 72.51 83 824.17

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	820.22	Reach Len. (ft)	48.5	48.5	48.5
Crit W.S. (ft)	819.80	Flow Area (sq ft)	3.72	68.55	68.55
E.G. Slope (ft/ft)	0.005366	Area (sq ft)	3.72	68.55	68.55
Top width (ft)	213.00	Flow (cfs)	7.37	205.63	205.63
Top Total (ft/s)	66.59	Top width (ft)	6.11	60.48	60.48
Max Chl Dpth (ft)	2.25	AVG. Vel (ft/s)	1.98	3.00	3.00
Conv. Total (cfs)	2907.8	Hvdr. Depth (ft)	6.23	2807.12	2807.12
Length Wtd. (ft)	48.50	Conv. (cfs)	100.6	61.53	61.53
Min Ch El (ft)	819.00	wetted per. (ft)	6.23	0.37	0.37
Alpha	1.02	Stream Power (lb/ft s)	83.00	0.00	0.00
Frctn Loss		Cum Volume (acre-ft)	0.00	1.50	0.02
C & E Loss		Cum SA (acres)	0.01	0.49	0.03

CROSS SECTION

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

Note: Hydraulic Jump has occurred between this cross section and the previous upstream section.

CPNPPLOCA1PMP

RIVER: East Channel
 REACH: East Channel
 RS: 5

INPUT

Description: Station Elevation Data
 Sta Elev Sta num= 6
 -10 821 0 821 2
 83 818.52

Manning's n Values
 Sta n Val Sta n Val
 -10 .039 0 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right
 12.03 72.5 34.42 34.42 34.42

Blocked Obstructions
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 0 825 72.5 83 825.52

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Sta	Elev	Sta	Elev	Channel	Right OB
E.G. Elev (ft)	819.85					0.039	34.42
Vel Head (ft)	0.36					34.42	34.42
W.S. Elev (ft)	819.48					0.59	43.73
Crit W.S. (ft)	819.48					0.59	43.73
E.G. Slope (ft/ft)	0.025383					1.36	211.64
Q Total (Cfs)	213.00					2.32	60.84
Top Width (ft)	62.89					0.72	0.72
Max Chl Dpth (ft)	0.96					8.5	1328.4
Conv. Total (cfs)	1336.9					2.47	61.44
Length wtd. (ft)	34.42					0.38	1.13
Min Ch El (ft)	818.52					83.00	0.00
Alpha	1.01					0.00	0.02
Frcn Loss (ft)	0.91					0.01	1.44
C & E Loss (ft)	0.03					0.00	0.03

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth
 warning: The energy loss was greater than 0 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: East Channel
 REACH: East Channel
 RS: 4

INPUT

Description: Station Elevation Data
 Sta Elev Sta num= 8
 -10 821 0 821 27.32 821 69.97 817.83

Manning's n Values
 Sta n Val Sta n Val
 -10 .039 0 .039 216 .039

Bank Sta: Left Right Lengths: Left Channel Right
 109.64 206.15 44.51 44.51 44.51

Blocked Obstructions
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 0 825 206.15 216 822.83

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Sta	Elev	Sta	Elev	Channel	Right OB
E.G. Elev (ft)	818.72					0.039	44.51
Vel Head (ft)	0.36					44.51	44.51
W.S. Elev (ft)	818.38					0.92	44.64
Crit W.S. (ft)	818.44					0.92	44.64
E.G. Slope (ft/ft)	0.043191					2.38	210.62
Q Total (Cfs)	213.00					4.85	96.51
Top Width (ft)	101.36					2.60	4.72
Vel Total (ft/s)	4.68					11.5	1013.5
Max Chl Dpth (ft)	0.55					4.86	97.06
Conv. Total (cfs)	1024.9					210.00	1.24
Length wtd. (ft)	44.51					0.00	1.40
Min Ch El (ft)	817.83					0.00	0.00
Alpha	1.01					0.00	0.03
Frcn Loss (ft)	1.11					0.00	0.03
C & E Loss (ft)	0.01					0.00	0.03

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

CPNPPLOCA\MP

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num= 13							
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	1.16	821	6.71	819	21.18	819
	172.74	818	181.77	815	206.86	810	208.63	815
	238.77	817	277.48	817.32	288	817.32		

Manning's n Values
 Sta n Val Sta n Val
 -10 .039 0 .039 288 .039

Bank Sta: Left 172.74 Right 238.77 Lengths: Left Channel 74.78 Right 74.78
 Blocked Obstructions num= 2 Coeff Contr. .1 Expan. .3

Sta L Sta R Sta L Sta R
 -10 0 825 277.48 288 822.32

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.24	Element		Left OB	74.78	Channel	0.039	Right OB	74.78
Vel Head (ft)	0.27	Wt. n-Val.							
W.S. Elev (ft)	814.97	Reach Len. (ft)							
Crit W.S. (ft)	813.59	Flow Area (sq ft)							
E.G. Slope (ft/ft)	0.003507	Area (sq ft)							
Q Total (cfs)	545.00	Flow (cfs)							
Top Width (ft)	50.64	Top Width (ft)							
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)							
Max Ch Dpth (ft)	4.97	Hydr. Depth (ft)							
Conv. Total (cfs)	9203.1	Conv. (cfs)							
Length Wtd. (ft)	874.76	Wetted Per. (ft)							
W.S. El (ft)	814.76	Stream Power (lb/ft s)							
Alpha El (ft)	1.00	Stream Power (lb/acre-ft)							
Frctn Loss (ft)	0.05	Cum Volume (acres)							
C & E Loss (ft)	0.07	Cum SA (acres)							

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

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 2

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num= 13							
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	1.27	821	5.68	819	12.04	819
	107.09	818	154.56	817	177.03	810	199.15	810
	240.02	816	277.59	816.31	288	816.31		

Manning's n Values
 Sta n Val Sta n Val
 -10 .039 0 .039 288 .039

Bank Sta: Left 154.56 Right 240.02 Lengths: Left Channel 72.31 Right 72.31
 Blocked Obstructions num= 2 Coeff Contr. .1 Expan. .3

Sta L Sta R Sta L Sta R
 -10 0 825 277.59 288 821.31

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.12	Element		Left OB	72.31	Channel	0.039	Right OB	72.31
Vel Head (ft)	0.04	Wt. n-Val.							
W.S. Elev (ft)	815.08	Reach Len. (ft)							
Crit W.S. (ft)	813.59	Flow Area (sq ft)							
E.G. Slope (ft/ft)	0.000293	Area (sq ft)							
Q Total (cfs)	545.00	Flow (cfs)							
Top Width (ft)	76.53	Top Width (ft)							
Vel Total (ft/s)	1.68	Avg. Vel. (ft/s)							
Max Ch Dpth (ft)	1.72	Hydr. Depth (ft)							
Conv. Total (cfs)	31816.23	Conv. (cfs)							
Length Wtd. (ft)	809.33	Wetted Per. (ft)							
W.S. El (ft)	814.76	Stream Power (lb/ft s)							
Alpha El (ft)	1.00	Stream Power (lb/acre-ft)							

Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 0.92 0.02
 C & E Loss (ft) 0.01 Cum SA (acres) 0.18 0.03 CPNPPLOca]PMP

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

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 1

INPUT

Description: Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev
 0 809 817 809 817 809 817

Manning's n Values

Sta n Val Sta n Val num= 2
 0 .039 201 .039

Bank Sta: Left Right Coeff Contr. Expan.
 0 149.26 .1 .3

Blocked Obstructions num= 1

Sta L Sta R Elev num= 1
 191.01 201 817

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 815.11 Element
 Vel Head (ft) 0.01 Wt. n-Val. 0.039
 W.S. Elev (ft) 815.10 Reach Len. (ft) 25.05
 Crit W.S. (ft) 809.52 Flow Area (sq ft) 789.08
 E.G. Slope (ft/ft) 0.000033 Area (sq ft) 541.10
 Q Total (cfs) 545.00 Top Width (ft) 141.29
 Top width (ft) 183.04 Avg. Vel (ft/s) 3.66
 Vel Total (ft/s) 9.67 Max Depth (ft) 5.99
 Max Ch Depth (ft) 9.67 Conv. Cfs (cfs) 94651.5
 Length Wtd. (ft) 94651.5 Wetted Per. (ft) 677.97
 Min Ch El (ft) 808.09 Shear (lb/sq ft) 142.79
 Alpha Stream Power (lb/ft s) 201.00
 Frctn Loss (ft) 1.04 Cum Volume (acre-ft) 0.00
 C & E Loss (ft) 1.04 Cum SA (acres) 0.00

CROSS SECTION

RIVER: Offsite
 REACH: Offsite

RS: 6

INPUT

Description: Station Elevation Data num= 14
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 822 0 821.95 73.22 821 142
 149 820 152 819 166.51 815 198.22
 210.37 819 219.5 822 223.78 822.13 239.13 822.47

Manning's n Values

Sta n Val Sta n Val num= 9
 -10 .039 0 .039 4 .02 142 .039 149 .057
 166.51 .02 210.37 .057 219.5 .039 223.78 .02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 149 219.5 83 83 .1 .3

Blocked Obstructions num= 1

Sta L Sta R Elev num= 1
 -10 827

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 821.62 Element
 Vel Head (ft) 1.18 Wt. n-Val. 0.027
 W.S. Elev (ft) 820.44 Reach Len. (ft) 83.00
 Crit W.S. (ft) 819.65 Flow Area (sq ft) 83.00
 E.G. Slope (ft/ft) 0.006452 Area (sq ft) 7.32
 Q Total (cfs) 2421.00 Top Width (ft) 13.00
 Top width (ft) 99.02 Avg. Vel (ft/s) 33.28
 Vel Total (ft/s) 8.37 Max Depth (ft) 65.75
 Max Ch Depth (ft) 30136.44 Conv. Cfs (cfs) 16128 29977.19
 Length Wtd. (ft) 83.00 Wetted Per. (ft) 33.28
 Min Ch El (ft) 815.00 Shear (lb/sq ft) 37.09
 Alpha Stream Power (lb/ft s) 1.04 239.13

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Frctn Loss (ft) 0.34 Cum Volume (acre-ft) 3.99 55.32
 C & E Loss (ft) 0.20 Cum SA (acres) 0.37 1.05 7.51

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite RS: 5
 REACH: Offsite

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Frctn Loss	-10	822	0	822	99	130.76	820	820
C & E Loss	142	819.46	151.51	819	166.51	206.54	814	814
	211.4	815	223.55	819	235.93	823	241.76	823.34

Manning's n	Val	Sta	num	Val	Sta	num	Val	Sta	num
-10	.039	0	0	.039	4	.02	142	.039	151.51
166.51	.02	206.54	.057	235.93	.039	241.76	.02		

Bank Sta: Left 151.51 Right 235.93 Lengths: Left Channel 55.28 Right Channel 55.28 Coeff Contr. .1 Expan. .3
 Blocked Obstructions 1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	821.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.027	0.040	0.027
W.S. Elev (ft)	820.57	Reach Len. (ft)	35.28	35.28	35.28
Frctn Loss (ft)	0.002856	Flow Area (sq ft)	42.84	40.62	40.62
C & E Loss (ft)	2421.00	Area (cfs)	91.75	2329.75	2329.75
Total Wtd. (ft)	170.43	Top width (ft)	93.53	76.89	76.89
Vel Total (ft/s)	5.46	Avg. Vel. (ft/s)	2.14	5.81	5.81
Max Chl Dpth (ft)	6.57	Hydr. Depth (ft)	0.46	5.21	5.21
Conv. Total (cfs)	45303.8	Wetted Per. (ft)	1717.0	43586.8	43586.8
Length Wtd. (ft)	55.28	Shear (lb/sq ft)	93.56	78.70	78.70
Min Ch El (ft)	814.00	Stream Power (lb/ft s)	257.10	0.08	0.91
Alpha	1.10	Cum Volume (acre-ft)	3.94	0.00	0.00
Frctn Loss (ft)	0.10	Cum SA (acres)	0.25	0.92	0.92
C & E Loss (ft)	0.07				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite RS: 4
 REACH: Offsite

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev
Frctn Loss	-10	822	0	821	23.95	70.96
C & E Loss	114.05	819.45	149.9	819	164.9	814
	216.75	813.56	218.51	814	221.58	814
	253.73	823.33	269.08	823.72	818	246.14

Manning's n	Val	Sta	num	Val	Sta	num	Val	Sta	num
-10	.039	0	0	.039	4	.02	149.9	.039	149.9
166.51	.02	216.75	.057	246.14	.039	253.73	.02		

Bank Sta: Left 149.9 Right 246.14 Lengths: Left Channel 21.99 Right Channel 21.99 Coeff Contr. .1 Expan. .3
 Blocked Obstructions 1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.029	0.039	0.029
W.S. Elev (ft)	820.62	Reach Len. (ft)	21.99	21.99	21.99
Crit W.S. (ft)		Flow Area (sq ft)	101.88	506.97	506.97

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E.G. Slope (ft/ft)	0.001340	Area (sq ft)	101.88	506.97
Q Total (cfs)	2421.00	Flow (cfs)	188.15	2232.86
Top Width (ft)	210.24	Top Width (ft)	121.30	88.94
Vel Total (ft/s)	3.98	Avg. Vel. (ft/s)	1.85	4.40
Max Chl Dpth (ft)	7.06	Hydr. Depth (ft)	0.84	5.70
Conv. Total (cfs)	66147.06	Conv. (cfs)	5140.0	61007.0
Length wtd. (ft)	813.59	Wetted Per. (ft)	121.01	90.47
Max Chl Dpth (ft)	813.59	Stream Power (lb/ft s)	269.08	0.00
Alpha	1.15	Cum Volume (acre-ft)	3.85	54.10
Frctn Loss (ft)	0.02	Cum SA (acres)	0.11	0.81
C & E Loss (ft)	0.04			

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

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 3

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	820	19.15	819	126.12	819
143.49	815	148.2	814	153.79	813.72	220.55	813.72
226.34	815	235.55	818	230.9	823	258.49	823.29

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	126.12	.057	153.79	.02
250.9	.039	258.49	.02				

Bank Sta: Left 126.12 Right 23.72 Lengths: Left Channel 1 Right 23.72

Blocked Obstructions: 1
Sta L Sta R Elev num=

-10 827

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.039	0.039	
W.S. Elev (ft)	820.71	Reach Len. (ft)	23.72	23.72	23.72
Crit W.S. (ft)		Flow Area (sq ft)	199.29	708.75	
E.G. Slope (ft/ft)	0.000587	Area (sq ft)	199.29	708.75	
Q Total (cfs)	2421.00	Flow (cfs)	254.64	2166.36	
Top Width (ft)	235.89	Top Width (ft)	122.24	112.04	
Vel Total (ft/s)	7.32	Avg. Vel. (ft/s)	1.63	6.09	
Max Chl Dpth (ft)	7.32	Hydr. Depth (ft)	0.84	5.70	
Conv. Total (cfs)	99914.6	Conv. (cfs)	10509.1	89405.5	
Length wtd. (ft)	23.72	Wetted Per. (ft)	122.40	119.47	
Min Ch El (ft)	813.39	Shear (lb/sq ft)	0.06	0.22	
Alpha	1.20	Stream Power (lb/ft s)	273.84	0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.77	53.79	
C & E Loss (ft)	0.03	Cum SA (acres)	0.05	0.76	

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

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	820	15.26	819	23.33	812
158.53	813	186.53	813.2	224.65	814	231.48	815
240.69	818	256.04	823	263.63	823.35	277.95	824

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	15.26	.057	23.33	.02
256.04	.039	263.63	.02				

Bank Sta: Left 15.26 Right 256.04 Lengths: Left Channel 1 Right 127.7

Blocked Obstructions: 1
Sta L Sta R Elev num=

-10 827

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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val. (ft)	0.039	0.025	
W.S. Elev (ft)	820.78	Reach Len. (ft)	127.70	127.70	127.70
Cr. Sl. Sp. (ft/ft)	0.000034	Flow Area (sq ft)	12.73	1762.99	
G. Total (cfs)	2421.00	Flow (cfs)	3.04	2417.96	
Top width (ft)	245.55	Top width (ft)	11.59	233.96	
Vel Total (ft/s)	1.36	Avg. Vel. (ft/s)	0.24	1.37	
Max Chl Dpth (ft)	8.78	Hydr. Depth (ft)	1.10	7.54	
Conv. Total (cfs)	406748.4	Conv. (cfs)	511.3	406237.1	
Length wrd. (ft)	127.70	wetted Per. (ft)	11.77	237.73	
Min Ch El (ft)	812.00	Shear (lb/sq ft)	0.00	0.02	0.00
Alpha	1.01	Stream Power (lb/ft s)	277.95	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	3.72	53.12	7.51
C & E Loss (ft)		Cum SA (acres)	0.02	0.67	

INLINE STRUCTURE

RIVER: Offsite RS: 1.5
 REACH: Offsite

INPUT

Description: Distance from upstream XS = 17.7
 Downstream side slope = 2:1
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 8

Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	62.83	819
245.5	818	260.5	823	281.9	824

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	820.81	Q Gates (cfs)	0.00
W.S. Elev (ft)	820.78	Q Gate Group (cfs)	0.00
Q Total (cfs)	2421.00	Gate Open Ht (ft)	818.69
Q Weir (cfs)	2421.00	Gate #Open	1.00
Weir Flow Area (sq ft)	582.74	Gate Submerg	0.00
Weir Sta Lft (ft)	240.38	Gate Weir Coef	0.000
Weir Sta Rgt (ft)	2.81		
Weir Max Depth (ft)	2.37		
Weir Avg Depth (ft)	2.600		
Weir Coef (ft ^{1/2})	0.21		
Weir Submerg	818.01		
Min El Weir Flow (ft)	245.73		
Wr Top Wtdh (ft)			

CROSS SECTION

RIVER: Offsite RS: 1
 REACH: Offsite

INPUT

Description: num= 10
 Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev
0	822	6	820	46.59	817
247.44	817	268.21	818	283.53	823
				291.11	823.35
				305.23	824

Manning's n Values num= 2

Sta	n	Sta	n	Sta	n
0	.039	291.11	.02		

Bank Sta: Left 0 Right 283.53 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val. (ft)	0.039	0.039	
W.S. Elev (ft)	818.69	Reach Len. (ft)	340.79	340.79	
Cr. Sl. Sp. (ft/ft)	0.019407	Flow Area (sq ft)	2421.00	2421.00	
G. Total (cfs)	219.88	Flow (cfs)	219.88	219.88	
Top width (ft)		Top width (ft)			

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Vel Total (ft/s)	7.10	Avg. Vel. (ft/s)	7.10
Max Chl Dpth (ft)	1.69	Hydr. Depth (ft)	1.55
Conv. Total (cfs)	17378.8	Wetted Per. (ft)	17378.8
Length Wtd. (ft)	817.00	Stream Power (lb/ft.s)	1.88
Alpha	1.00	Cum Volume (acre-ft)	0.00
Frcn Loss (ft)		Cum Sk (acres)	
C & E Loss (ft)			

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

RIVER: Unit 3 East
REACH: Unit 3 East

RS: 5

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	821.38	12	821.14	68.9	820	204.22	820
224.22	822	227.22	822				

Manning's n Values

Sta	n	Val	Sta	n	Val
0	.02	12	.039	41	.41
224.22		227.22			

Bank Sta: Left 18.9 Right 224.22 Lengths: Left Channel Right Coeff Contr. Expan.

Blocked Obstructions num= 1

Sta L	Sta R	Elev
227.22	237	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.58	Element	Left OB	Right OB
Vel Head (ft)	820.14	Wt. n-Val.	41.00	41.00
W.S. Elev (ft)	820.39	Flow Len. (ft)		
Crfl W.S. (ft)	820.39	Flow Area (sq ft)		
E.G. Slope (ft/ft)	0.021347	Area (sq ft)		
O. Total (cfs)	196.00	Flow (cfs)		
Top Width (ft)	161.50	Top Width (ft)		
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)		
Max Chl Dpth (ft)	0.44	Hydr. Depth (ft)		
Conv. Total (cfs)	1341.5	Conv. (cfs)		
Length Wtd. (ft)	41.00	Wetted Per. (ft)		
Min Chl El (ft)	820.00	Shear (lb/sq ft)		
Alpha	1.70	Stream Power (lb/ft.s)		
Frcn Loss (ft)	0.00	Cum Volume (acre-ft)		
C & E Loss (ft)	0.00	Cum Sk (acres)		

CROSS SECTION

RIVER: Unit 3 East
REACH: Unit 3 East

RS: 4

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev
0	820.56	12	820.32	27.9	820
204.22	820	224.22	822	227.22	822

Manning's n Values

Sta	n	Val	Sta	n	Val
0	.02	12	.039	39	.39
204.22		224.22			

Bank Sta: Left 37.0 Right 224.22 Lengths: Left Channel Right Coeff Contr. Expan.

Blocked Obstructions num= 1

Sta L	Sta R	Elev
227.22	237	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.79	Element	Left OB	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	59.00	59.00
W.S. Elev (ft)	819.66	Flow Len. (ft)		
Crfl W.S. (ft)	819.66	Flow Area (sq ft)		
E.G. Slope (ft/ft)	0.019476	Area (sq ft)		
O. Total (cfs)	196.07	Flow (cfs)		
Top Width (ft)	155.87	Top Width (ft)		
Vel Total (ft/s)	2.89	Avg. Vel. (ft/s)		
Max Chl Dpth (ft)	0.48	Hydr. Depth (ft)		

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Conv. Total (cfs)	1482.6	Conv. (cfs)	1482.6
Length wtd. (ft)	59.00	wetted Per. (ft)	155.90
Min Ch El (ft)	819.18	Shear (lb/sq ft)	0.47
Alpha	1.00	Stream Power (lb/ft s)	0.00
Frctn Loss (ft)	1.44	Cum Volume (acre-ft)	50.78
C & E Loss (ft)	0.00	Cum SA (acres)	1.03

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

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3

INPUT

Description: num= 5
 Station Elevation Data num= 5
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 819.38 12 819.14 18.9 819 51.75 818 363.07 818

Manning's n values num= 2

Sta n Val Sta n Val
 0 .02 12 .039

Bank Sta: Left 363.07 Right 363.07
 Lengths: Left Channel 18.8 Right 18.8
 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	wt. n-Val.	18.80	0.039	18.80
W.S. Elev (ft)	818.23	Reach Len. (ft)	18.80	18.80	18.80
Crit W.S. (ft)	818.23	Flow Area (sq ft)	18.80	72.51	72.51
E.G. Slope (ft/ft)	0.036309	Area (sq ft)	102.51	102.51	102.51
Q Total (cfs)	398.80	Top width (ft)	318.80	318.80	318.80
Vel wtdl (ft/s)	3.12	Avr Vel (ft/s)	2.70	2.70	2.70
Max Chl Dpth (ft)	0.23	Hvdr. Depth (ft)	0.23	0.23	0.23
Conv. Total (cfs)	1028.6	Conv. (cfs)	1028.6	1028.6	1028.6
Length wtd. (ft)	18.80	wetted per. (ft)	319.11	319.11	319.11
Min Ch El (ft)	818.00	Shear (lb/sq ft)	0.52	0.52	0.52
Alpha	1.00	Stream Power (lb/ft s)	363.07	363.07	363.07
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	50.69	50.69	50.69
C & E Loss (ft)	0.03	Cum SA (acres)	3.72	3.72	3.72

warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 warning: The cross-section end points had to be extended vertically for the computed water surface.
 warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 warning: 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: Unit 3 East
 REACH: Unit 3 East
 RS: 2

INPUT

Description: num= 12
 Station Elevation Data num= 12
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 819 13.78 818.57 31.79 818 39.5 817 42.5 816 209.91
 122.17 815 193.91 814 199.91 813.5 203.91 813.5 209.91 814
 282.45 815 363.07 816

Manning's n values num= 3

Sta n Val Sta n Val Sta n Val
 0 .02 13.78 .039 31.79 .057

Bank Sta: Left 31.79 Right 363.07
 Lengths: Left Channel 70.85 Right 70.85
 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	wt. n-Val.	70.85	0.039	70.85
W.S. Elev (ft)	817.90	Reach Len. (ft)	70.85	70.85	70.85
Crit W.S. (ft)	814.69	Flow Area (sq ft)	70.85	953.67	953.67
E.G. Slope (ft/ft)	0.000015	Area (sq ft)	196.00	196.00	196.00
Q Total (cfs)	196.00	Flow (cfs)	196.00	196.00	196.00

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Top Width (ft)	330.60	330.60
Vel Total (ft/s)	0.21	0.21
Max Chl Dpth (ft)	4.41	2.88
Conv. Total (cfs)	50157.1	50157.1
Length Wtd. (ft)	70.85	332.80
Min Ch El (ft)	813.50	0.00
Alpha Loss (ft)	1.00	0.00
C & E Loss (ft)		7.51

Top Width (ft)	363.07	363.07
Avg. Vel. (ft/s)	0.21	0.21
Hydr. Depth (ft)	4.41	2.88
Conv. (cfs)	50157.1	50157.1
Wetted Per. (ft)	70.85	332.80
Shear (lb/sq ft)	1.00	0.00
Stream Power (lb/ft.s)	3.72	0.00
Channel Area (acre-ft)		50.46
Cum SA (acres)		0.56

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

INLINE STRUCTURE

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 1.5

INPUT

Description: Distance from Upstream XS = 15.85
 Deck/Roadway Width = 24
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 6

Sta	Elev	Sta	Elev	Sta	Elev
0	819	50	818	75	817.5
				817.5	353.88
				825	

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	817.91	Q Gates (cfs)	0.00
W.S. Elev (ft)	906.01	Q Gate group (cfs)	0.00
Q Weir (cfs)	196.00	Gate #Open	815.10
Weir Flow Area (sq ft)	119.10	Gate Area (sq ft)	1.00
Weir Sta Lft (ft)	54.41	Gate Submerg	0.00
Weir Sta Rgt (ft)	353.88	Gate Invert (ft)	0.00
Weir Max Depth (ft)	0.41	Gate Weir Coef	0.000
Weir Avg Depth (ft)	2.600	Q Breach (cfs)	
Weir Coef (ft ^{1/2})	817.51	Breach Avg Velocity (ft/s)	
Min El Weir Flow (ft)	299.47	Breach Flow Area (sq ft)	
W-Top Wdth (ft)			

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 1

INPUT

Description: Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev
0	818	25.49	810	333.65	810
				378.15	816

 Manning's n values num= 1

Sta	n Val
0	.039

 Bank sta: Left 0 Right 378.15 Expan. .1
 Coeff Contr. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.10	Element	Left OB	Right OB
Vel Head (ft)	0.00	Wt n-Val.	0.039	
W.S. Elev (ft)	815.10	Reach Len. (ft)	1709.50	
Crit W.S. (ft)	810.23	Flow Area (sq ft)	1709.50	
E.G. Slope (ft/ft)	0.000001	Area (sq ft)	196.00	
Q Total (cfs)	196.00	Flow (cfs)	362.23	
Top Width (ft)	362.23	Top Width (ft)	0.11	
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	4.72	
Max Chl Dpth (ft)	5.10	Hydr. Depth (ft)	182875.2	
Conv. Total (cfs)	182875.2	Conv. (cfs)	362.23	
Length Wtd. (ft)	1.00	Wetted Per. (ft)	362.23	
Alpha Loss (ft)	810.00	Stream Power (lb/ft.s)	362.23	
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	0.00	
C & E Loss (ft)		Cum SA (acres)	0.00	

CROSS SECTION

RIVER: Unit 3 North
 REACH: Unit 3 North

RS: 8

INPUT

Description: num= 12
 Station Elevation Data num= 12
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819.3 0 819.3 3.92 819.3 7.92 819.23 20.16 819
 31.92 818.37 38.92 818 48.51 817 94.51 817 109.95 822
 112.95 822 122

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039		0	.039		31.92	.02		122	.039	

Bank Sta: Left 38.92 Right 109.95 Lengths: Left Channel 38.08 Right 38.08 Coeff Contr. .1

Blocked obstructions num= 2 Sta L Sta R Elev

-10 0 825 112.95 122 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Chl El (ft)	Frict Loss	C & E Loss (ft)	Left OB	Channel	Right OB
820.14	0.01	820.14	817.71	0.000087	164.00	104.20	0.70	3.14	17538.5	38.08	817.00	0.00	0.00	0.026	38.08	38.08
														38.08		
														50.00	184.75	
														33.18	130.82	
														38.92	65.28	
														0.66	0.71	
														1.28	2.83	
														3552.6	14005.8	
														39.79	65.82	0.00
														122.01	0.02	0.00
														3.77	49.18	7.51
														0.50	0.88	0.13

CROSS SECTION

RIVER: Unit 3 North
 REACH: Unit 3 North

RS: 7

INPUT

Description: num= 14
 Station Elevation Data num= 14
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819.3 0 819.3 3.9 819.3 7.9 819.23 20.14 819
 31.9 818.37 38.9 818 48.51 817 52.78 816.64 93.44 816.64
 94.51 817 109.95 822 112.95 822 122

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039		0	.039		31.9	.02		122	.039	

Bank Sta: Left 38.9 Right 109.95 Lengths: Left Channel 58.25 Right 58.25 Coeff Contr. .1

Blocked obstructions num= 2 Sta L Sta R Elev

-10 0 825 112.95 122 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Chl El (ft)	Frict Loss	C & E Loss (ft)	Left OB	Channel	Right OB
820.14	0.01	820.14	817.71	0.000070	164.00	104.19	0.66	3.49	19545.3	58.25	816.64	1.01	0.00	0.026	58.25	58.25
														49.80	58.09	
														49.89	200.24	
														29.71	134.29	
														38.90	65.29	
														0.60	0.67	
														1.28	3.07	
														3541.3	16004.0	
														39.76	65.91	0.00
														122.00	0.01	0.00
														3.47	49.81	7.11
														0.82	0.82	0.13

CROSS SECTION

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RIVER: Unit 3 North
REACH: Unit 3 North

RS: 6

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	14						
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	819.3	0	819.3	7.89	819.23	20.13	819
	31.89	818.37	38.89	818	48.52	817	59.31	816.1
	94.52	817	109.95	822	112.95	822	122	822

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	31.89	.02	122	.039

Bank Sta: Left

Lengths:	Left Channel	Right Channel	Expan.
38.89	134.06	134.06	.3

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Sta R	Elev
-10	0	825	112.95	122	825

CROSS SECTION OUTPUT

Profile #PF 1		Profile #PF 1	
E.G. Elev (ft)	Element	Left OB	Right OB
820.14	Wt. n-Val.	0.026	0.039
0.01	Reach Len. (ft)	134.06	134.06
820.13	Flow Area (Sq Ft)	49.76	219.83
0.000055	Flow (cfs)	26.06	137.94
164.00	Top width (ft)	38.89	65.29
104.18	Avg. Vel. (ft/s)	0.52	0.63
0.61	Hydr. Depth (ft)	1.28	3.37
4.03	Conv. (cfs)	3527.9	18675.3
22203.2	wetted Per. (ft)	39.75	66.02
134.06	Shear (lb/sq ft)	0.00	0.00
816.10	Stream Power (lb/acre-ft)	122.00	0.00
1.01	Cum Volume (acre-ft)	3.61	48.73
0.00	Cum SA (acres)	0.42	0.73

CROSS SECTION

RIVER: Unit 3 North
REACH: Unit 3 North

RS: 5

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	16						
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	819.3	0	819.3	7.84	819.23	20.09	819
	33.16	818.45	43.7	818	58.6	817	63.92	815
	79.51	815	85.02	816	97.42	820	115.42	822

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	33.16	.02	115.42	.02

Bank Sta: Left

Lengths:	Left Channel	Right Channel	Expan.
43.7	138	38	.3

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Sta R	Elev
-10	0	825	115.42	122	825

CROSS SECTION OUTPUT

Profile #PF 1		Profile #PF 1	
E.G. Elev (ft)	Element	Left OB	Right OB
820.13	Wt. n-Val.	0.027	0.039
0.01	Reach Len. (ft)	58.00	58.00
820.12	Flow Area (Sq Ft)	57.16	187.15
0.0652	Flow (cfs)	32.16	131.84
164.00	Top width (ft)	43.70	53.72
98.74	Avg. Vel. (ft/s)	0.56	0.70
0.67	Hydr. Depth (ft)	1.31	3.48
5.12	Conv. (cfs)	3951.3	16199.5
20151.2	wetted Per. (ft)	44.55	54.65
58.00	Shear (lb/sq ft)	0.01	0.00
815.00	Stream Power (lb/acre-ft)	128.73	0.00
1.02	Cum Volume (acre-ft)	3.44	48.10
0.00	Cum SA (acres)	0.29	0.55

INLINE STRUCTURE

CPNPPLOCA1PMP

RIVER: Unit 3 North
 REACH: Unit 3 North
 RS: 4.5

INPUT

Description: Distance from Upstream XS = 17
 Weck/Roadway width = 24
 Weir Crest Elevation = 246
 Weir Embankment Coordinates num = 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.3	3.83	819.3	20.08	819	45.13	819
103.93	821	128.78	821.6				

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir Crest Shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 STRUCT:

E.G. Elev (ft)	820.13	Q Gates (cfs)	0.00
W.S. Elev (ft)	820.12	Q Gate Group (cfs)	0.00
Q Total (cfs)	164.00	Gate Open Ht (ft)	819.68
Weir (cfs)	164.00	Gate #Open	1.00
Weir Flow Area (sq ft)	66.05	Gate Area (sq ft)	0.00
Weir Sta Lift (ft)	0.00	Gate Submerg	0.00
Weir Sta Hgt (ft)	71.13	Gate Invert (ft)	0.00
Weir Avg Depth (ft)	0.84	Gate Weir Coef	0.000
Weir Coef (ft ³ /2)	2.600	Q Breach (cfs)	
Weir Submerg	0.50	Breach Avg Velocity (ft/s)	
Min El Weir Flow (ft)	819.01	Breach Flow Area (sq ft)	
Wr Top width (ft)	78.31		

CROSS SECTION

RIVER: Unit 3 North
 REACH: Unit 3 North
 RS: 4

INPUT

Description: Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819.3	0	819.3	3.82	819.3	7.82	819.23
33.13	818.68	60.82	818	70.11	815	71.46	814.5
78.93	815	88.12	818	101.49	819	107.58	820
127.73	821	128.73	821.02				

Manning's n values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	33.13	.039	60.82	.057
71.46	.02	77.46	.057	88.12	.039	115.41	.02

Bank Sta: Left 60.82 Right 88.12 Lengths: Left Channel 70.27 Right 70.27
 Blocked Obstructions num= 1

Sta L	Sta R	Elev	num	Coeff	Contr.	Expan.
-10	0	825	1		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	0.032	0.050	0.039
W.S. Elev (ft)	819.68	Reach Len. (ft)	70.27	70.27	70.27
Crit W.S. (ft)	0.000236	Flow Area (sq ft)	57.86	103.46	17.11
E.G. Slope (ft/ft)	0.000236	Area (sq ft)	57.86	103.46	17.11
Q Total (cfs)	164.00	Flow (cfs)	43.28	110.87	9.85
Top width (ft)	105.61	Top width (ft)	60.82	27.30	17.49
Vel Total (ft/s)	0.92	Avg. Vel (ft/s)	0.95	1.97	0.38
Max Top Wd (ft)	106.62	Conv. Depth (ft)	2814.93	7210.74	640.94
Conv. Top Wd (cfs)	814.50	Wetted Per. (ft)	61.21	28.42	17.58
Length Wd. (ft)	1.12	Stream Power (lb/ft s)	128.73	0.00	0.00
Min Ch El (ft)	0.01	Cum Volume (acre-ft)	3.44	47.95	7.51
Frctn Loss	0.00	Cum SA (acres)	0.22	0.49	0.12
C & E Loss (ft)					

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

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

CPNPPLOCA\1PMP

RIVER: Unit 3 North
REACH: Unit 3 North

RS: 3

INPUT

Description:

Station	Elevation	Data	num=	15	Elev	Sta	Elev	Sta	Elev
-10	819.3	0	819.3	378	819.3	78	819.3	20.70	819
37.49	818.49	54.51	818	63.51	815	71.46	814.05	77.46	814.05
85.51	815	94.51	818	110.78	819	116.73	819.37	128.73	819.61

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	0	7.8	.02	37.49	.039	54.51	.057
71.46	.02	77.46	94.51	.039	116.73	.02		

Bank Sta: Left 94.51 Right 18.2

Blocked obstructions num= 1

Sta L Sta R Elev num= 18.2 18.2

-10 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.029	0.053	0.038
W.S. Elev (ft)	819.67	Reach Len. (ft)	18.20	18.20	18.20
Crit W.S. (ft)	0.000101	Flow Area (sq ft)	50.24	173.12	24.10
E.G. Slope (ft/ft)	154.00	Area (sq ft)	20.78	128.32	28.80
Top width (ft)	128.73	Flow (cfs)	54.51	40.00	34.32
Vel Total (ft/s)	5.66	Top width (ft)	0.53	0.74	0.37
Max Chl Dpth (ft)	0.62	AVG. Vel (ft/s)	0.92	4.33	0.70
Conv. Total (cfs)	16323.5	Hydr. Depth (ft)	2665.7	12779.2	878.7
Length wtd. (ft)	18.20	Wetted Per. (ft)	54.90	41.09	34.33
Min Ch El (ft)	814.05	Shear (lb/sq ft)	0.01	0.03	0.00
Alpha	1.10	Stream Power (lb/ft s)	128.73	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.35	47.73	7.47
C & E Loss (ft)	0.00	Cum SA (acres)	0.13	0.44	0.07

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 North
REACH: Unit 3 North

RS: 2

INPUT

Description:

Station	Elevation	Data	num=	16	Elev	Sta	Elev	Sta	Elev
-10	819.3	0	819.3	10.16	819.18	26.12	819	53.75	818.26
63.69	818	73.05	815	75.61	814	77.56	813.5	83.56	813.5
85.61	814	87.97	815	97.21	818	122.84	818.99	123.45	819
134.84	819.22								

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	0	10.16	.02	53.75	.039	63.69	.057
77.56	.02	87.97	97.21	.039	122.84	.02		

Bank Sta: Left 63.69 Right 137.8

Blocked obstructions num= 1

Sta L Sta R Elev num= 137.8 137.8

-10 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.029	0.053	0.038
W.S. Elev (ft)	819.67	Reach Len. (ft)	18.20	18.20	18.20
Crit W.S. (ft)	0.000108	Flow Area (sq ft)	57.55	145.04	36.84
E.G. Slope (ft/ft)	164.00	Area (sq ft)	35.65	111.65	16.70
Top width (ft)	134.84	Flow (cfs)	0.62	0.77	0.45
Vel Total (ft/s)	6.18	Top width (ft)	0.90	4.33	0.98
Max Chl Dpth (ft)	0.67	AVG. Vel (ft/s)	3434.3	10756.6	1608.8
Conv. Total (cfs)	15799.7	Hydr. Depth (ft)	64.07	34.98	38.10
Length wtd. (ft)	137.80	Wetted Per. (ft)	0.01	0.03	0.01
Min Ch El (ft)	813.50	Shear (lb/sq ft)	137.8	0.00	0.00
Alpha	1.08	Stream Power (lb/ft s)	3.33	47.69	7.46
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.10	0.42	0.06
C & E Loss (ft)	0.00	Cum SA (acres)	0.10	0.42	0.06

CPNPPLOCA\1PMP

INLINE STRUCTURE

RIVER: Unit 3 North RS: 1.5
 REACH: Unit 3 North

INPUT
 Description:
 Distance from Upstream XS = 19.04
 Deck/Roadway Width = 36.16
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 3
 Sta Elev Sta Elev Sta Elev
 0 819.3 61.47 819 170.17 819

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	819.68	Q Gates (cfs)					
W.S. Elev (ft)	819.67	Q Gate Group (cfs)					0.00
Q Total (cfs)	164.00	Gate Open Ht (ft)					817.92
Q Weir (cfs)	164.00	Gate #open					1.00
Weir Flow Area (sq ft)	80.00	Gate Area (sq ft)					0.00
Weir Sta Rgt (ft)	134.84	Gate Invert (ft)					0.00
Weir Max Depth (ft)	0.68	Gate Weir Coef					0.000
Weir Avg Depth (ft)	0.60	Q Breach (cfs)					
Weir Coef (ft ^{1/2})	2.600	Breach Avg Velocity (ft/s)					
Weir Submerg	0.00	Breach Flow Area (sq ft)					
Min El Weir Flow (ft)	819.01						
Wt Top Wtdh (ft)	134.84						

CROSS SECTION

RIVER: Unit 3 North RS: 1
 REACH: Unit 3 North

INPUT

Description:
 Station Elev Station Elev num= 5
 0 814 218.56 813 224.68 813 228.76 814 234.88 816
 Manning's n Values num= 2
 Sta n Val Sta n Val
 0 .02 228.76 .057
 Bank Sta: Left Right Coeff Contr. Expan.
 0 234.88 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.92	Element					
Vel Head (ft)	0.00	Wt. n-Val.					Channel
Friction Loss (ft)	817.90	Reach Len. (ft)					0.022
Friction Loss (ft)	813.64	Area (sq ft)					1032.05
E.G. Slope (ft/ft)	0.000001	Flow (cfs)					164.00
Q Total (cfs)	164.00	Top width (ft)					234.88
Top width (ft)	234.88	Avg. Vel. (ft/s)					0.16
Vel Total (ft/s)	0.16	Hydr. Depth (ft)					4.39
Max Chl Dpth (ft)	4.92	Conv. (cfs)					186066.6
Conv. Total (cfs)	186066.6	Wetted Per. (ft)					241.16
Length Wtd. (ft)		Shear (lb/sq ft)					0.00
Min Chl El (ft)	813.00	Stream Power (lb/ft.s)					0.00
Alpha	1.00	Cum Volume (acre-ft)					
Frict Loss (ft)		Cum SA (acres)					
C & E Loss (ft)							

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 Southeast RS: 11
 REACH: Unit 3 Southeast

INPUT

Description:
 Station Elev Station Elev num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

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-10 822 0 822 2-59 822 20.78 821 52.64 820
 58.53 819.69 64.44 820 78.48 821 80.48 821 80.90 821

Manning's n Values num= 3
 Sta n Val Sta n Val
 -10 .039 0 .039 90 .039
 Bank Sta: Left Right Lengths: Left Channel Right
 52.64 64.44 54.07 54.07
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 827 80.48 90 825

Coeff Contr. Expan.
 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	822.57	Reach Len. (ft)	94.14	33.37	33.87
Crit W.S. (ft)	821.57	Flow Area (sq ft)	92.14	33.33	33.80
E.G. Slope (ft/ft)	0.001504	Area (sq ft)	92.14	33.33	33.80
Q Total (cfs)	371.00	Flow (cfs)	195.95	98.31	76.74
Top Width (ft)	80.48	Top Width (ft)	52.64	11.80	16.04
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)	2.13	2.95	2.27
Max Chl Dpth (ft)	2.98	Hydr. Depth (ft)	1.75	2.82	2.11
Conv. Total (cfs)	9567.2	Conv. (cfs)	5053.0	2535.3	1979.0
Length Wtd. (ft)	54.07	Wetted Per. (ft)	53.35	11.82	17.75
Min Ch El (ft)	819.69	Shear (lb/sq ft)	90.00	0.26	0.18
Frctn Loss (ft)	1.06	Stream Power (lb/ft s)	3.33	46.59	7.46
C & E Loss (ft)	0.18	Cum Volume (acre-ft)	3.33	46.59	7.46
	0.16	Cum SA (acres)	1.14	0.57	0.05

warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
 warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 10

INPUT

Description: Station Elevation Data num= 13
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 825 0 825 1.09 825 19.45 824 37.73 823
 50.92 822 67.41 821 72.03 820 79.39 819.31 86.54 820
 98.95 821 101.06 821 III

Manning's n Values num= 3
 Sta n Val Sta n Val
 -10 .039 0 .039 III .039

Bank Sta: Left Right Lengths: Left Channel Right
 72.03 86.54 66.77 66.77
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 830 101.06 III 825

Coeff Contr. Expan.
 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	821.86	Reach Len. (ft)	66.77	66.77	66.77
Crit W.S. (ft)	821.86	Flow Area (sq ft)	12.31	31.94	18.63
E.G. Slope (ft/ft)	0.013351	Area (sq ft)	12.31	31.94	18.63
Q Total (cfs)	371.00	Flow (cfs)	40.74	237.18	93.08
Top Width (ft)	47.76	Top Width (ft)	18.73	14.51	14.52
Vel Total (ft/s)	5.90	Avg. Vel. (ft/s)	3.31	7.43	5.00
Max Chl Dpth (ft)	2.55	Hydr. Depth (ft)	0.66	2.20	1.28
Conv. Total (cfs)	3210.8	Conv. (cfs)	352.6	2052.6	805.6
Length Wtd. (ft)	86.54	Wetted Per. (ft)	18.87	14.38	15.42
Min Ch El (ft)	811.73	Shear (lb/sq ft)	111.00	0.35	0.01
Frctn Loss (ft)	0.84	Stream Power (lb/ft s)	111.00	0.00	0.00
C & E Loss (ft)	0.11	Cum Volume (acre-ft)	3.27	46.04	7.43
	0.11	Cum SA (acres)	1.09	0.55	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

CPNPPLOCA1PMP

RIVER: Unit 3 Southeast RS: 9
 REACH: Unit 3 Southeast

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
14	822	2.63	822	19.76	821	85.82	820		
88.84	819	119.4	819.04	143.55	818.83	178.34	818.19		
183.03	819	189.07	821	191.08	821				

Manning's n Values	num=	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	119.4	.02	143.55	.039	201	.039

Bank Sta: Left Right Lengths: Left Channel Right
 143.55 189.07 60.01 60.01

Blocked Obstructions num= 2
 Sta L Sta R Elev
 -10 825 189.07 201 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.29	Wt. n-Val.	0.027	0.039	60.01
W.S. Elev (ft)	819.22	Reach Len. (ft)	60.01	60.01	60.01
Crit W.S. (ft)	819.55	Flow Area (sq ft)	14.22	27.54	77.54
E.G. Slope (ft/ft)	0.37	Area (sq ft)	104.82	268.74	268.74
Flow width (ft)	95.49	Top width (ft)	55.30	40.13	40.13
Top width (ft)	8.88	AVG. Vel (ft/s)	7.23	9.74	9.74
Max Chl Dpth (ft)	1.03	Hvdr. Depth (ft)	0.26	0.69	0.69
Conv. Total (cfs)	1127.5	Conv. (cfs)	312.4	815.1	815.1
Length wtd. (ft)	60.01	wetted Per. (ft)	55.40	40.24	40.24
Min Ch El (ft)	818.19	Shear (lb/sq ft)	1.73	4.63	4.63
Alpha	1.05	Stream Power (lb/ft s)	201.00	0.00	0.00
Frctn Loss (ft)	1.95	Cum Volume (acre-ft)	3.25	45.99	7.41
C & E Loss (ft)	0.06	Cum SA (acres)	1.03	0.51	0.02

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

CROSS SECTION

RIVER: Unit 3 Southeast RS: 8
 REACH: Unit 3 Southeast

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
17	822	3.27	822	24.13	821	85.36	820		
97.37	816	101.01	815.75	109.75	816	112.75	817		
118.76	817.17	130.77	817.5	142.79	817.5	179.07	821		
190.08	821	200							

Manning's n Values	num=	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	101.01	.039	200	.057	201	.057
112.75	.039	118.76	.02	142.79	.039	200	.039	200	.039

Bank Sta: Left Right Lengths: Left Channel Right
 142.79 188.08 12.19 12.19

Blocked Obstructions num= 2
 Sta L Sta R Elev
 -10 825 190.08 200 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.81	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.05</td> <td>Wt. n-Val.</td> <td>0.030</td> <td>0.039</td> <td>12.19</td>	0.05	Wt. n-Val.	0.030	0.039	12.19
W.S. Elev (ft) <td>819.76</td> <td>Reach Len. (ft)</td> <td>12.19</td> <td>12.19</td> <td>12.19</td>	819.76	Reach Len. (ft)	12.19	12.19	12.19
Crit W.S. (ft) <td>818.10</td> <td>Flow Area (sq ft)</td> <td>152.10</td> <td>77.67</td> <td>77.67</td>	818.10	Flow Area (sq ft)	152.10	77.67	77.67
E.G. Slope (ft/ft) <td>0.000367</td> <td>Area (sq ft)</td> <td>285.41</td> <td>85.59</td> <td>85.59</td>	0.000367	Area (sq ft)	285.41	85.59	85.59
Q Total (cfs)	371.00	Flow (cfs)	56.72	41.57	41.57
Top width (ft)	98.29	Top width (ft)	1.88	1.10	1.10
Top width (ft)	1.61	AVG. Vel. (ft/s)	148.68	44.87	44.87
Max Chl Dpth (ft)	4.01	Hvdr. Depth (ft)	57.15	4.04	4.04
Conv. Total (cfs)	1036.16	Conv. (cfs)	200.00	0.00	0.00
Length wtd. (ft)	817.50	Stream Power (lb/ft s)	3.13	45.92	7.41
Min Ch El (ft)	817.15	Shear (lb/sq ft)	0.06	0.00	0.00
Alpha	1.15	Stream Power (lb/ft s)	200.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.13	45.92	7.41

C & E Loss (ft) 0.00 Cum SA (acres) 0.96 0.45 0.02 CPNPPLOCA\PMF

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast

RS: 7

INPUT

Description	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	18						
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	822	0	822	103.11	821	155.31	820
	167.35	819	176.36	816	180	815.66	184	816
	191.74	817	197.74	815	209.77	817.5	238.06	818
	267.08	821	269.07	821	279	821		

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	197.74	0	.039	167.35	180	.02	184
191.74	.039	197.74	.02	221.77	.039	279	.039	

Bank Sta.: Left Right Lengths: Left Channel Right

Blocked Obstructions num= 2

Sta L Sta R Elev Sta L Elev Sta R Elev

-10 825 269.07 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.80	Element	Left OB	Right OB
Vel Head (ft)	0.05	wt. n-Val.	0.030	0.039
W.S. Elev (ft)	819.76	Flow Len. (ft)	35.05	35.05
Crit W.S. (ft)	0.000356	Flow Area (sq ft)	155.21	77.54
E.G. Slope (ft/ft)	0.000356	Area (sq ft)	286.86	84.14
Q Total (CFS)	105.15	Top width (ft)	63.86	41.00
Top width (ft)	4.10	Avg. Vel. (ft/s)	2.44	1.87
Max Ch Depth (ft)	4.10	Hvdr. Depth (ft)	1.87	1.87
Conv. Total (CFS)	19649.6	Conv. (CFS)	15193.3	4456.3
Length wtd. (ft)	35.05	wetted per. (ft)	64.27	41.86
Min Ch El (ft)	817.50	Shear (lb/sq ft)	0.05	0.04
Alpha	1.14	Stream Power (lb/ft s)	279.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	3.09	45.90
C & E Loss (ft)	0.01	Cum SA (acres)	0.94	0.44

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast

RS: 6

INPUT

Description	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	18						
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	822	0	822	13.01	818	163.18	818
	173.35	817	176.36	816	180	815.66	184	816
	191.74	817	197.74	815	209.77	817.5	238.06	818
	267.08	821	269.07	821	279	821		

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	197.74	0	.039	173.35	180	.02	184
191.74	.039	197.74	.02	221.77	.039	279	.039	

Bank Sta.: Left Right Lengths: Left Channel Right

Blocked Obstructions num= 2

Sta L Sta R Elev Sta L Elev Sta R Elev

-10 825 269.07 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.79	Element	Left OB	Right OB
Vel Head (ft)	0.02	wt. n-Val.	0.031	0.039
W.S. Elev (ft)	819.77	Flow Len. (ft)	97.41	97.41
Crit W.S. (ft)	0.000244	Flow Area (sq ft)	244.66	77.83
E.G. Slope (ft/ft)	0.000244	Area (sq ft)	500.98	140.02
Q Total (CFS)	321.00	Top width (ft)	140.02	41.00
Top width (ft)	168.15	Avg. Vel. (ft/s)	1.66	1.87
Max Ch Depth (ft)	4.13	Hvdr. Depth (ft)	1.66	1.87
Conv. Total (CFS)	23747.2	Conv. (CFS)	19265.6	4481.6
Length wtd. (ft)	97.41	wetted per. (ft)	147.43	41.89

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Min Ch El (ft)	817.50	Stream Power (lb/ft s)	279.00	0.03	0.03
Alpha	1.04	Cum Volume (acre-ft)	0.86	0.00	0.00
Frctn Loss (ft)	0.02	Cum SA (acres)	0.86	45.84	7.41
C & E Loss (ft)	0.00			0.41	0.02

CROSS SECTION

RIVER: Unit 3 Southeast
REACH: Unit 3 Southeast RS: 5

INPUT

Description:		Station Elevation Data		num= 20	
Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	13.06	818
172.31	817	179.38	817	163.7	818
192.12	817	198.14	817	185.41	815
241.28	810	242.46	809.93	227.23	817
318.07	821	328	821	273.74	820

Manning's n Values		num= 9	
Sta	n Val	Sta	n Val
-10	.039	0	.039
172.31	.039	179.38	.039
192.12	.039	198.14	.039
241.28	.039	242.46	.039
318.07	.039	328	.039

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

Blocked Obstructions		num= 27	
Sta L	Sta R	Elev	
-10	825	269.98	280

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.77	Element	wt.	n-Val.	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Reach Len. (ft)	0.031	0.039	27.97	27.97	27.97
W.S. Elev (ft)	819.75	Flow Area (sq ft)	266.18	100.14	11.57	11.57	11.57
Crit W.S. (ft)	0.000152	Area (sq ft)	296.18	32.26	6.07	6.07	6.07
E.G. Slope (ft/ft)	0.000152	Flow Cfs (cfs)	151.74	1.75	0.65	0.65	0.65
Top Width (ft)	194.72	Top Width (ft)	151.74	1.75	1.91	1.91	1.91
Vel Total (ft/s)	0.98	Hydr. Depth (ft)	22024.3	7490.8	606.2	606.2	606.2
Max Chl Dpth (ft)	5.13	Conv. (cfs)	152.56	36.40	0.02	0.02	0.02
Length Wtd. (ft)	27.97	Wetted Per. (ft)	280.00	280.00	0.00	0.00	0.00
Min Ch El (ft)	817.00	Shear (lb/sq ft)	2.36	45.64	7.40	7.40	7.40
Alpha	1.02	Stream Power (lb/ft s)	0.52	0.00	0.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)					
C & E Loss (ft)	0.00	Cum SA (acres)					

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

CROSS SECTION

RIVER: Unit 3 Southeast
REACH: Unit 3 Southeast RS: 4

INPUT

Description:		Station Elevation Data		num= 22	
Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	13.04	818
172.31	817	178.61	815	163.51	818
192.12	817	198.14	817.17	185.41	815
241.28	810	242.46	809.93	227.23	817
318.07	821	328	821	273.74	820

Manning's n Values		num= 13	
Sta	n Val	Sta	n Val
-10	.039	0	.039
172.31	.039	178.61	.039
192.12	.039	198.14	.039
241.28	.039	242.46	.039
318.07	.039	328	.039

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

Blocked Obstructions		num= 2	
Sta L	Sta R	Elev	
-10	825	318.07	328

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.76	Element	wt.	n-Val.	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Reach Len. (ft)	0.031	0.039	27.97	27.97	27.97
W.S. Elev (ft)	819.73	Flow Area (sq ft)	266.18	100.14	11.57	11.57	11.57
Crit W.S. (ft)	0.000201	Area (sq ft)	296.18	32.26	6.07	6.07	6.07
E.G. Slope (ft/ft)	0.000201	Flow Cfs (cfs)	151.74	1.75	0.65	0.65	0.65
Top Width (ft)	194.72	Top Width (ft)	151.74	1.75	1.91	1.91	1.91
Vel Total (ft/s)	0.98	Hydr. Depth (ft)	22024.3	7490.8	606.2	606.2	606.2
Max Chl Dpth (ft)	5.13	Conv. (cfs)	152.56	36.40	0.02	0.02	0.02
Length Wtd. (ft)	27.97	Wetted Per. (ft)	280.00	280.00	0.00	0.00	0.00
Min Ch El (ft)	817.00	Shear (lb/sq ft)	2.36	45.64	7.40	7.40	7.40
Alpha	1.02	Stream Power (lb/ft s)	0.52	0.00	0.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)					
C & E Loss (ft)	0.00	Cum SA (acres)					

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Q Total (cfs)	737.00	Flow (cfs)	315.28	421.72
Top Width (ft)	196.65	Top Width (ft)	150.67	45.98
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	1.18	1.39
Max Chl Dpth (ft)	9.80	Hydr. Depth (ft)	1.77	6.62
Conv. Total (cfs)	51936.8	Wetted Per. (ft)	2217.7	29719.2
Length Wtd. (ft)	859.51	Wetted Area (sq ft)	151.61	49.93
Min Ch El (ft)	803.51	Shear (lb/sq ft)	328.00	0.06
Alpha	1.01	Stream Power (lb/ft s)	2.19	45.51
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.42	0.29
C & E Loss (ft)	0.00	Cum SA (acres)		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 3

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	22	num=	22	num=	22	num=	22
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	822	1-52	822	11-53	821	49-94	820
	95.46	819	116.87	818	124.7	817	133.72	814
	145.49	817	151.51	817	163.55	817.5	175.58	817
	194.64	810	197.59	809.75	207.6	809.75	210.8	810
	232.8	821						820

Manning's n values	num=	12	num=	12	num=	12	num=	12
	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
	-10	.039	124.7	.057	133.72	.02	137.74	.057
	145.49	.039	151.51	.02	175.58	.039	180.6	.057
	207.6	.057						.02

Bank Sta: Left	180.6	Right	230.8	Left Channel	Right	180.6	Right	230.8
Blocked Obstructions	num=	2	num=	2	num=	2	num=	2
	Sta	R	Sta	R	Sta	R	Sta	R
	-10	0	825	225.71	243	825	243	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	wt. n-Val.	0.031	0.051	
W.S. Elev (ft)	819.72	Reach Len. (ft)	49.34	49.34	49.34
Crit W.S. (ft)		Flow Area (sq ft)	236.09	337.16	337.16
E.G. Slope (ft/ft)	0.000170	Area (sq ft)	236.09	337.16	337.16
Q Total (cfs)	737.00	Flow (cfs)	284.39	452.61	452.61
Top Width (ft)	163.16	Top Width (ft)	118.25	43.34	43.34
Wetted Per. (ft)	9.97	Wetted Per. (ft)	7.00	7.47	7.47
Max Ch Dpth (ft)	0.97	Hydr. Depth (ft)	1.00	1.00	1.00
Conv. Total (cfs)	56594.4	Conv. (cfs)	21838.3	34756.0	34756.0
Length Wtd. (ft)	49.34	Wetted Per. (ft)	119.21	50.81	50.81
Min Ch El (ft)	809.75	Shear (lb/sq ft)	0.02	0.07	0.07
Alpha	1.01	Stream Power (lb/ft s)	243.00	45.07	45.07
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.84	45.07	45.07
C & E Loss (ft)	0.00	Cum SA (acres)	0.24	0.23	0.23

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 2

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	26	num=	26	num=	26	num=	26
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	30.0	812	32.0	812	32.0	812	32.0	812
	65.76	817	68.76	817	75.11	815.39	78.03	816
	82.86	817	88.67	817	100.89	817.5	115.49	819.88
	130.46	816	143.87	810	144.76	809.6	150.98	810
	167.11	817	171.89	818	177.31	820	203.84	821
	223	821						821

Manning's n values	num=	12	num=	12	num=	12	num=	12
	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
	-10	.039	65.76	.057	71.11	.02	75.11	.057
	88.87	.02	119.88	.039	130.46	.057	144.76	.057
	167.11	.039						.057

Bank Sta: Left	130.46	Right	167.11	Left Channel	Right	95.65	Right	167.11
Blocked Obstructions	num=	2	num=	2	num=	2	num=	2
	Sta	R	Sta	R	Sta	R	Sta	R
	130.46	167.11	130.46	167.11	95.65	167.11	95.65	167.11

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Sta L Sta R Elev Sta L Sta R Elev
-10 0 825 213.05 223 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 819.74 Element
Weir Head (ft) 819.73 Rch. h-Val. (ft)
W.S. Elev (ft) 819.73 Rch. Elev (ft)
Crit W.S. (ft) 814.25 Flow Area (sq ft)
E.G. Slope (ft/ft) 0.000214 Area (sq ft)
Q Total (cfs) 737.00 Flow Area (sq ft)
Top Width (ft) 150.95 Top Width (ft)
Vel Total (ft/s) 1.40 Avg. Vel. (ft/s)
Max Chl Dpth (ft) 10.11 Hydr. Depth (ft)
Conv. Total (cfs) 50415.6 Wetted Per. (ft)
Length Wtd. (ft) 95.65 Shear (lb/sq ft)
Min Ch El (ft) 809.60 Stream Power (lb/ft.s)
Alpha 1.02 Cum Slope (acre-ft)
F Loss (ft) C & E Loss (ft)

Channel Left OB Right OB
Elev 95.62 Elev 95.62
Elev 14.50 Elev 14.50
Elev 391.74 Elev 391.74
Elev 36.65 Elev 36.65
Elev 1.48 Elev 1.48
Elev 26797.9 Elev 26797.9
Elev 39.63 Elev 39.63
Elev 0.09 Elev 0.09
Elev 7.30 Elev 7.30
Elev 0.13 Elev 0.13

INLINE STRUCTURE

RIVER: Unit 3 Southeast RS: 1.5
REACH: Unit 3 Southeast

INPUT
Description:
Distance from Upstream XS = 27.56
Deck/Roadway Width = 21.92
Weir Coefficient = 2.6
Weir Embankment Coordinates num = 5
Sta Elev Sta Elev Sta Elev Sta Elev
0 825 100.89 825 100.89 817.5 112.89 817.2 234.13 817.2
Upstream Embankment side slope = 2 horiz. to 1.0 vertical
Downstream Embankment side slope = 2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins = Broad Crested
Weir crest shape

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft) 819.74 Q Gates (cfs) 0.00
W.S. Elev (ft) 819.71 Q Gate Group (cfs) 0.00
Q Total (cfs) 737.00 Gate Open Ht (ft) 815.10
Weir Flow Area (sq ft) 737.00 Gate #Open 1.00
Weir Sta Rgt (ft) 161.84 Gate Area (sq ft) 1.00
Weir Sta Lft (ft) 176.60 Gate Invert (ft) 0.00
Weir Max Depth (ft) 2.54 Gate Weir Coef 0.000
Weir Avg Depth (ft) 2.39 Q Breach (cfs)
Weir Coef (ft^{1/2}) 2.600 Breach Avg Velocity (ft/s)
Weir Submerg 0.00 Breach Flow Area (sq ft)
Min El Weir Flow (ft) 817.21
Wr Top Wtd (ft) 75.71

CROSS SECTION

RIVER: Unit 3 Southeast RS: 1
REACH: Unit 3 Southeast

INPUT
Description:
Station Elevation Data num= 7 Elev Sta Elev Sta Elev
0 817 4.37 816 27.47 810 54.3 806 63.25 806
98.67 810 135.8 817
Manning's n Values num= 1
Sta n Val
0 .039
Bank Sta: Left Right Coeff Contr. Expan.
0 155.8 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 815.12 Element
Weir Head (ft) 815.10 Rch. h-Val. (ft)
W.S. Elev (ft) 815.10 Rch. Elev (ft)
Crit W.S. (ft) 809.02 Flow Area (sq ft)
E.G. Slope (ft/ft) 0.000093 Area (sq ft)
Q Total (cfs) 737.00 Flow (cfs)

Channel Left OB Right OB
Elev 679.63 Elev 679.63
Elev 737.00 Elev 737.00

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Top Width (ft)	132.46	Top Width (ft)	132.46
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)	1.08
Max Chl Dpth (ft)	9.10	Hydr. Depth (ft)	5.13
Conv. Total (cfs)	76460.0	Wetted Per. (ft)	76460.0
Length Wtd. (ft)	806.00	Shear (lb/sq ft)	133.94
Min Ch El (ft)	1.00	Stream Power (lb/ft. s)	0.03
Alpha Loss (ft)		Cum SA (acres-ft)	155.80
C & E Loss (ft)		Cum SA (acres)	0.00

CROSS SECTION

RIVER: Unit 3 UHS RS: 109
 REACH: U3 UHS Branch

INPUT

Description:

Station	Elev	Sta	num=	6	Elev	Sta	Elev	Sta	Elev
-10	819	0	819	13.72	819	43.72	819	58.25	819
68	819								

Manning's n Values

Sta	n Val	Sta	n Val
-10	.039	68	.039

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

Blocked Obstructions	num=	2	90	90	.1	.3
Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	825	58.25	68	825		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	90.00	90.00	90.00
W.S. Elev (ft)	819.52	Reach Len. (ft)			
CRT S.C. (ft)	0.028192	Flow Area (Sq Ft)			
E. Total (ft/ft)	0.125100	Area (cfs)			
Top Width (ft)	58.25	Top Width (ft)			
Vel Total (ft/s)	4.10	Avg. Vel. (ft/s)			
Max Chl Dpth (ft)	0.52	Hydr. Depth (ft)			
Conv. Total (cfs)	744.5	Conv. (cfs)			
Length Wtd. (ft)	90.00	Wetted Per. (ft)			
Min Ch El (ft)	819.00	Shear (lb/sq ft)			
Alpha Loss (ft)	1.00	Stream Power (lb/ft. s)			
C & E Loss (ft)	0.13	Cum Volume (acre-ft)			
	0.07	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 conveyance ratio (upstream 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: Unit 3 UHS RS: 108
 REACH: U3 UHS Branch

INPUT

Description:

Station	Elev	Sta	num=	8	Elev	Sta	Elev	Sta	Elev
-10	819	0	819	3.33	819	9.37	819	48.67	817
54.72	819	58.25	819	68	819				

Manning's n Values

Sta	n Val	Sta	n Val
-10	.039	68	.039

Bank Sta: Left Right Coeff Contr. Expan.

Blocked Obstructions	num=	1	.1	.3
Sta L	Sta R	Elev	Sta L	Elev
-10	825	58.25	68	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	819.15	Reach Len. (ft)			

Crit W.S. (ft)	817.67	Flow Area (sq ft)	0.51	98.50	0.54
E.G. Slope (ft/ft)	0.000472	Area (sq ft)	0.51	98.50	0.54
Q Total (Cfs)	125.00	Flow (Cfs)	0.12	124.76	0.12
Top Width (ft)	58.25	Top Width (ft)	3.33	51.39	3.53
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)	0.23	1.27	0.23
Max Chl Dpnt (ft)	572.15	Hydr. Depth (ft)	0.15	1.92	0.15
Conv. Area (Cfs)	718.06	Nonv. Area (Cfs)	3.43	572.09	3.43
Length El (ft)	817.00	Shear (lb/ft)	0.00	52.06	0.00
Min Ch El (ft)	817.00	Stream Power (lb/ft s)	68.00	0.00	0.00
Alpha	1.02	Cum Volume (acre-ft)	0.13	0.64	0.02
Frctn Loss	0.31	Cum SA (acres)			
C & E Loss (ft)	0.03				

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Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Upper

RS: 12

INPUT

Description:					
Station	Elev	Sta	Elev	Sta	Elev
168.02	818	217.39	817	244.97	819
298					

Manning's n values	num=	n	Val	Sta	n	Val
	0	.02	.12	.039	298	.039

Bank Sta: Left Right Lengths: Left Channel Right

217.39	244.97	73.33	73.33	73.33
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Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R
0	148.52	825	288.61	298	825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.35	Element	Left OB	Right OB
Vel Head (ft)	0.81	Wt. n-Val.	0.039	0.039
W.S. Elev (ft)	819.54	Reach Len. (ft)	73.33	73.33
Crit W.S. (ft)	819.47	Flow Area (sq ft)	105.13	61.36
E.G. Slope (ft/ft)	0.013825	Area (sq ft)	70.15	341.86
Q Total (Cfs)	1652.00	Flow (Cfs)	54.87	43.64
Top Width (ft)	126.09	Top Width (ft)	6.89	5.57
Vel Total (ft/s)	6.98	Avg. Vel. (ft/s)	8.35	5.57
Max Chl Dpnt (ft)	1402.58	Hydr. Depth (ft)	614.92	2907.41
Conv. Area (Cfs)	1402.58	Nonv. Area (Cfs)	55.09	44.24
Length El (ft)	73.33	Wetted Per (ft)	1.65	2.20
Min Ch El (ft)	817.00	Shear (lb/ft)	298.00	0.00
Alpha	1.07	Stream Power (lb/ft s)	3.22	1.01
Frctn Loss	0.46	Cum Volume (acre-ft)	0.96	0.89
C & E Loss (ft)	0.15	Cum SA (acres)	0.36	0.44

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Upper

RS: 11

INPUT

Description:					
Station	Elev	Sta	Elev	Sta	Elev
115.39	816.42	161.68	817	171.55	819

Manning's n values	num=	n	Val	Sta	n	Val
	-10	.02	0	.02	11.96	.039

Bank Sta: Left Right Lengths: Left Channel Right

36.81	161.68	122.59	122.59	122.59
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Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R
-10	0	825	176.48	186	825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.73	Element	Left OB	Right OB
Vel Head (ft)	0.81	Wt. n-Val.	0.039	0.039
W.S. Elev (ft)	819.54	Reach Len. (ft)	73.33	73.33
Crit W.S. (ft)	819.47	Flow Area (sq ft)	105.13	61.36
E.G. Slope (ft/ft)	0.013825	Area (sq ft)	70.15	341.86
Q Total (Cfs)	1652.00	Flow (Cfs)	54.87	43.64
Top Width (ft)	126.09	Top Width (ft)	6.89	5.57
Vel Total (ft/s)	6.98	Avg. Vel. (ft/s)	8.35	5.57
Max Chl Dpnt (ft)	1402.58	Hydr. Depth (ft)	614.92	2907.41
Conv. Area (Cfs)	1402.58	Nonv. Area (Cfs)	55.09	44.24
Length El (ft)	73.33	Wetted Per (ft)	1.65	2.20
Min Ch El (ft)	817.00	Shear (lb/ft)	298.00	0.00
Alpha	1.07	Stream Power (lb/ft s)	3.22	1.01
Frctn Loss	0.46	Cum Volume (acre-ft)	0.96	0.89
C & E Loss (ft)	0.15	Cum SA (acres)	0.36	0.44

Left		Right		Channel		Right OB	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
83.41	815.68	109.29	816	178.11	819	187.2	819
197	819						

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

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Upper RS: 10

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	810	817	816	817	817	817	817	817
Wt. n-Val.	0.30							
Reach Len. (ft)	819.44							
Flow Area (sq ft)	0.003606							
Area (sq ft)	1652.00							
Top width (ft)	138.56							
Wetted Per. (ft)	3.07							
Hyd. Depth (ft)	27511.6							
Conv. Total (cfs)	122.59							
Length Wtd. (ft)	816.42							
Min Ch El (ft)	1.04							
Alpha	1.02							
Frctn Loss	0.25							
C & E Loss	0.04							

Manning's n Values	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
	-10	.039	0	.039	73.41	.02	83.41	.039

Bank Sta:	Left	Right	Lengths:	Left Channel	Right Channel	Expan.
	52.23	109.29		185.53	185.53	

Blocked Obstructions	Sta L	Sta R	Elev L	Elev R
	-10	822	187.2	197

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Top width (ft)	Wetted Per. (ft)	Hyd. Depth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Ch El (ft)	Alpha	Frctn Loss	C & E Loss
819.44	0.16	819.28	0.001348	1652.00	138.56	3.07	27511.6	122.59	816.42	1.04	1.02	0.25	0.04
819.28	0.16	819.28	0.001348	1652.00	138.56	3.07	27511.6	122.59	816.42	1.04	1.02	0.25	0.04
815.68	0.039	109.29	185.53	185.53	185.53	185.53	185.53	185.53	185.53	185.53	185.53	185.53	185.53
819.44	0.16	819.28	0.001348	1652.00	138.56	3.07	27511.6	122.59	816.42	1.04	1.02	0.25	0.04

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Upper RS: 9

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	76.08	815.68	121.91	816	144.8	817	150.86	819
Wt. n-Val.	0.30							
Reach Len. (ft)	819.44							
Flow Area (sq ft)	0.003606							
Area (sq ft)	1652.00							
Top width (ft)	138.56							
Wetted Per. (ft)	3.07							
Hyd. Depth (ft)	27511.6							
Conv. Total (cfs)	122.59							
Length Wtd. (ft)	816.42							
Min Ch El (ft)	1.04							
Alpha	1.02							
Frctn Loss	0.25							
C & E Loss	0.04							

Manning's n Values	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
	-10	.039	0	.039	66.08	.02	76.08	.039

Bank Sta:	Left	Right	Lengths:	Left Channel	Right Channel	Expan.
	24.62	121.91		74.27	74.27	

Blocked Obstructions	Sta L	Sta R	Elev L	Elev R
	-10	822	153.89	164

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Top width (ft)	Wetted Per. (ft)	Hyd. Depth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Ch El (ft)	Alpha	Frctn Loss	C & E Loss
819.44	0.16	819.28	0.001348	1652.00	138.56	3.07	27511.6	122.59	816.42	1.04	1.02	0.25	0.04
819.28	0.16	819.28	0.001348	1652.00	138.56	3.07	27511.6	122.59	816.42	1.04	1.02	0.25	0.04
815.68	0.039	109.29	185.53	185.53	185.53	185.53	185.53	185.53	185.53	185.53	185.53	185.53	185.53
819.44	0.16	819.28	0.001348	1652.00	138.56	3.07	27511.6	122.59	816.42	1.04	1.02	0.25	0.04

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Vel Head (ft)	0.23	Wt. n-Val. (ft)	0.039	0.039
W.S. Elev (ft)	818.90	Reach Len. (ft)	74.27	74.27
Crit W.S. (ft)	0.001882	Flow Area (sq ft)	58.16	323.19
E.G. Slope (ft/ft)	1652.00	Area (sq ft)	162.15	1326.58
Q Total (cfs)	130.57	Top width (ft)	24.62	97.29
Vel Total (ft/s)	3.74	Hyd. Vel (ft/s)	2.39	2.10
Max Ch Depth (ft)	3.74	Conv. (cfs)	3.30	3.30
Q Conv Total (cfs)	38082.9	Wetted Per. (ft)	3738.0	3763.7
Length Wtd. (ft)	74.27	Shear (lb/sq ft)	26.54	28.98
Min Ch El (ft)	815.24	Stream Power (lb/ft s)	164.00	0.25
Alpha	1.07	Cum Volume (acre-ft)	0.17	0.00
Frctn Loss (ft)	0.15	Cum SA (acres)	0.04	0.08
C & E Loss (ft)	0.00			0.17

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Upper

RS: 8

INPUT

Description:	num=	10
Station Elevation Data	num=	10
Sta Elev Sta	Elev Sta	Elev Sta
-10 817 0	817 2	817 20.17
73.15 815.02 126.97	816 131.47	817 140.56

Manning's n Values

Sta n Val	Sta n Val	Sta n Val	Sta n Val
-10 .039	0	5	63.15
.039	63.15	.02	73.15
		.039	151

Bank Sta: Left Right

Coef Contr.	Expan.
20.17 126.97	.1

Blocked obstructions

num=	2
Sta L Sta R Elev	Sta L Elev
-10 822	140.56 151 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.98	Element	Left Ob	Right Ob
Vel Head (ft)	0.27	Wt. n-Val. (ft)	0.039	0.039
W.S. Elev (ft)	818.71	Reach Len. (ft)	57.69	57.69
Crit W.S. (ft)	0.002158	Flow Area (sq ft)	43.58	16.59
E.G. Slope (ft/ft)	1652.00	Area (sq ft)	122.00	35.34
Q Total (cfs)	139.24	Top width (ft)	20.17	106.80
Top width (ft)	4.06	AVG. Vel. (ft/s)	2.80	2.13
Vel Total (ft/s)	3.69	Hydr. depth (ft)	2.16	1.35
Max Ch Dp (ft)	3.69	Conv. (cfs)	262.62	760.7
Conv Total (cfs)	35596.5	Wetted Per. (ft)	20.17	151.00
Length Wtd. (ft)	815.02	Stream Power (lb/ft s)	10.44	0.18
Min Ch El (ft)	815.02	Cum Volume (acre-ft)	0.00	0.00
Alpha	1.06	Cum SA (acres)	0.09	0.02
Frctn Loss (ft)	0.14			
C & E Loss (ft)	0.00			

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower

RS: 7

INPUT

Description:	num=	10
Station Elevation Data	num=	10
Sta Elev Sta	Elev Sta	Elev Sta
0 817 42.16	816 84.82	815 86.32
97.31 815 143.54	816 152.63	819 155.66

Manning's n Values

Sta n Val	Sta n Val	Sta n Val	Sta n Val
0 .039	86.32	4	96.32
.039	.02	.039	166
		.039	166

Bank Sta: Left Right

Lengths:	Left Channel	Right	Expan.
42.16 143.54	129.73	129.73	.3

Blocked obstructions

num=	1
Sta L Sta R Elev	Sta L Elev
155.66 166	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.84	Element	Left Ob	Right Ob
Vel Head (ft)	0.27	Wt. n-Val. (ft)	0.039	0.039
W.S. Elev (ft)	818.57	Reach Len. (ft)	129.73	129.73
Crit W.S. (ft)	0.002707	Flow Area (sq ft)	85.24	9.64
E.G. Slope (ft/ft)	1777.00	Area (sq ft)	85.24	314.29
Q Total (cfs)	139.24	Top width (ft)	263.84	1491.62

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Top Width (ft)	151.18	Top Width (ft)	42.16	101.38	7.64
Vel Total (ft/s)	4.34	Avg. Vel. (ft/s)	3.10	4.75	2.24
Max Chl Dpth (ft)	3.67	Hydr. Depth (ft)	2.02	3.10	1.26
Conv. Total (cfs)	34153.1	5070.9	28668.2	414.0	8.05
Length Wtd. (ft)	129.73	Wetted Per. (ft)	43.69	101.42	0.20
Min Ch El (ft)	814.85	Shear (lb/sq ft)	0.33	0.52	7.30
Alpha	0.38	Stream Power (lb/ft.s)	160.57	43.50	7.30
F Loss (ft)	0.38	Cum Area (acre-ft)	1.57	0.82	0.23
C & E Loss (ft)	0.01	Cum SA (acres)	0.57	0.82	0.23

Warning: The cross-section end points had to be extended vertically for the computed water surface.

LATERAL STRUCTURE

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower RS: 6.9

INPUT

Description: = Left overbank
 Lateral structure position
 Distance from Upstream XS = 2
 Deck/Roadway Width = 2.6
 Weir Coefficient = Water Surface
 Weir Flow Reference num = 2
 Weir Embankment Coordinates num = 2
 Sta Elev Sta Elev
 0 817 502.24 817

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US. (ft)	818.84	Weir Sta US (ft)	0.00
W.S. US. (ft)	818.52	Weir Sta DS (ft)	502.24
E.G. DS (ft)	817.92	Min El Weir Flow (ft)	817.00
W.S. DS (ft)	817.89	Wp Top width (ft)	502.24
Q US (cfs)	1463.04	Weir Max Depth (ft)	1.08
Q DS (cfs)	459.32	Weir Flow Depth (ft)	1.08
Percr Q Leaving	83.38	Weir Flow Area (sq ft)	542.57
Q Weir (cfs)	1483.04	Weir Coef (ft ^{1/2})	2.600
Q Gates (cfs)	0.00	Weir Submerg	0.00
Q Culv (cfs)		Q Gate Group (cfs)	
Q Lat RC (cfs)		Gate Open Ht (ft)	
		Gate Area (sq ft)	
Q Breach (cfs)		Gate Submerg	
Breach Avg Velocity (ft/s)		Gate Invert (ft)	
Breach Flow Area (sq ft)		Gate Weir Coef	

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower RS: 6

INPUT

Description: Station Elevation Data
 Sta Elev Sta Elev
 0 817 25.59 816
 86.02 815 111.52 816 120.61 819 123.64 819 134 819
 Manning's n Values num= 4
 Sta n Val Sta n Val
 0 .039 72.52 .02 82.52 .039 134 .039
 Bank Sta: Left Right Lengths: Left Channel Right
 25.69 111.52 130.06 130.06
 Blocked obstructions num= 1
 Sta L Sta R Elev
 123.64 134 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.50	Element	Left OB	Right OB
Vel Head (ft)	0.28	wt. n-Val.	0.039	0.039
W.S. Elev (ft)	818.21	Reach Len. (ft)	130.06	130.06
Crit W.S. (ft)		Flow Area (sq ft)	44.00	250.18
E.G. Slope (ft/ft)	0.002362	Area (sq ft)	113.04	14.19
Q Total (cfs)	1237.72	Flow (cfs)	23.59	83.43
Top Width (ft)	118.72	Top width (ft)	1.71	9.00
Wp Width (ft)	3.76	Avg. Vel. (ft/s)	1.91	1.11
Max Chl Dpth (ft)	3.76	Hydr. Depth (ft)	2.91	1.11
Conv. Total (cfs)	25465.4	Conv. (cfs)	2325.8	292.0
Length wtd. (ft)	130.06	wetted per. (ft)	26.92	85.93

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Min Ch El (ft)	814.45	Shear (lb/sq ft)	0.24	0.43	0.15
Alpha	1.09	Stream Power (lb/ft s)	134.00	0.00	0.00
Frctn Loss	0.29	Cum Volume (acre-ft)	1.38	42.75	7.36
C & E Loss (ft)	0.01	Cum SA (acres)	0.47	0.55	0.21

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 UHS
REACH: U3 UHS Lower RS: 5

INPUT

Description:	num=	10
Station Elevation Data	Sta	Elev
	817	91.56
	815	79.59
	816	88.68
	818	81.71

Manning's n values	num=	4	
Sta	n Val	Sta	n Val
0	.039	58.75	.02
		68.75	.057
		102	.057

Bank Sta: Left 9.26 Right 79.59 Lengths: Left Channel 26.74 Right 26.74 Coeff Contr. .1

Blocked obstructions Sta L Sta R Elev num= 1

91.71	102	825
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	wt. n-Val.	0.039	0.033	0.057
W.S. Elev (ft)	817.95	Reach Len. (ft)	26.74	26.74	26.74
Crit W.S. (ft)	0.002032	Flow Area (sq ft)	13.39	201.18	5.74
E.G. Slope (ft/ft)	0.002032	Area (sq ft)	13.39	201.18	5.74
Q Total (cfs)	838.07	Flow (cfs)	27.48	824.19	6.40
Top width (ft)	83.89	Top width (ft)	2.76	70.33	3.10
Flow width (ft)	3.89	Flow width (ft)	1.43	2.86	0.97
Max Ch Depth (ft)	3.89	Hvdr. Depth (ft)	1.43	2.86	0.97
Conv. Total (cfs)	19036.5	Conv. (cfs)	609.6	18284.9	142.0
Length wtd. (ft)	26.74	wetted per. (ft)	10.26	70.57	6.21
Min Ch El (ft)	814.06	Shear (lb/sq ft)	0.17	0.36	0.00
Alpha	1.07	Stream Power (lb/ft s)	102.00	0.00	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.29	42.08	7.34
C & E Loss (ft)	0.03	Cum SA (acres)	0.42	0.31	0.19

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 UHS
REACH: U3 UHS Lower RS: 4

INPUT

Description:	num=	12
Station Elevation Data	Sta	Elev
	816	60.57
	810	92.75
	817	97.86
	819	81.9

Manning's n values	num=	6	
Sta	n Val	Sta	n Val
0	.039	60.57	.057
		67.58	.02
		77.68	.057
		92.75	.039

Bank Sta: Left 60.57 Right 92.75 Lengths: Left Channel 108.2 Right 108.2 Coeff Contr. .1

Blocked obstructions Sta L Sta R Elev num= 1

105.13	115	825
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	wt. n-Val.	0.039	0.047	0.039
W.S. Elev (ft)	817.96	Reach Len. (ft)	108.20	108.20	108.20
Crit W.S. (ft)	0.002033	Flow Area (sq ft)	147.29	107.87	2.38
E.G. Slope (ft/ft)	0.002033	Area (sq ft)	147.29	107.87	2.38
Q Total (cfs)	797.63	Flow (cfs)	457.29	332.67	4.98
Top width (ft)	97.63	Top width (ft)	60.57	32.18	4.98
Flow width (ft)	3.08	Flow width (ft)	3.07	3.14	1.04
Max Ch Depth (ft)	3.08	Hvdr. Depth (ft)	3.07	3.35	0.48
Conv. Total (cfs)	17589.4	Conv. (cfs)	10014.7	7519.6	55.0

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Length wtd. (ft)	108.20	wetted Per. (ft)	61.78	32.67	5.02
Min Ch El (ft)	813.97	Shear (lb/sq ft)	0.30	0.42	0.06
Alpha	1.01	Stream Power (lb/ft s)	115.00	0.00	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	1.24	41.98	7.34
C & E Loss (ft)	0.03	Cum SA (acres)	0.40	0.28	0.18

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower

RS: 3

INPUT

Description: num= 13

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	817	2.01	815	73.3	814	76.59	813.49
92.06	813.49	814	103.06	816	110.42	817	148.45
186.89	819	190.52	819	201	819		818

Manning's n Values num= 6

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.039		69.3	.057	76.59	.02	92.06	
201	.039					.057	103.06	.039

Bank Sta: Left 69.3 Right 103.06

Blocked obstructions num= 1

Lengths: Left Channel 107.52 Right 107.52

Coeff Contr. .1

Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-val.	0.039	0.042	0.039
W.S. Elev (ft)	817.92	Reach Len. (ft)	165.72	131.82	177.52
E.G. Slope (ft/ft)	0.000530	Area (sq ft)	165.76	131.87	26.59
G-Total (cfs)	535.63	Flow (cfs)	257.13	261.43	17.06
Top width (ft)	145.44	Top width (ft)	69.30	33.76	42.38
Vel Total (ft/s)	1.65	Avg. Vel. (ft/s)	1.55	1.98	0.64
Max Ch Dpth (ft)	4.43	Hydr. Depth (ft)	2.39	3.91	0.63
Conv. Total (cfs)	23270.2	Wetted Per. (ft)	11171.2	11357.7	741.3
Length wtd. (ft)	107.52	Stream Power (lb/ft s)	70.46	34.21	42.46
Min Ch El (ft)	813.49	Shear (lb/sq ft)	201.00	0.13	0.00
Alpha	1.13	Cum Volume (acre-ft)	0.93	41.98	7.34
Frctn Loss (ft)	0.04	Cum SA (acres)	0.24	0.28	0.18
C & E Loss (ft)	0.00				

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower

RS: 2

INPUT

Description: num= 12

Station	Elev	Sta	Elev	Sta	Elev
0	817	0	816.5	816	81.49
95.23	813	105.23	813	814	121.62
163.63	818	184.57	818.64		817

Manning's n Values num= 6

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.050		81.49	.057	95.23	.02	105.23	
184.57	.02					.057	121.62	.039

Bank Sta: Left 81.49 Right 121.62

Lengths: Left Channel 55.08 Right 55.08

Coeff Contr. .1

Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-val.	0.039	0.035	0.039
W.S. Elev (ft)	817.89	Reach Len. (ft)	153.98	125.08	25.08
E.G. Slope (ft/ft)	0.000372	Area (sq ft)	153.72	164.79	27.05
G-Total (cfs)	459.32	Flow (cfs)	149.45	296.33	13.54
Top width (ft)	160.09	Top width (ft)	81.49	40.13	38.47
Vel Total (ft/s)	1.32	Avg. Vel. (ft/s)	0.96	1.80	0.50

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Max Ch1 Dpth (ft)	4.89	Hydr. Depth (ft)	1.90	4.11	0.70
Conv. Total (cfs)	27612.7	8984.1	8984.1	17814.3	814.2
Length Wtd. (ft)	55.08	Wetted Per. (ft)	82.90	40.60	38.53
Min Ch El (ft)	813.00	Shear (lb/sq ft)	0.03	0.07	0.01
Alpha	1.37	Stream Power (lb/ft s)	184.57	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.46	41.32	7.24
C & E Loss (ft)		Cum SA (acres)	0.05	0.11	0.02

INLINE STRUCTURE

RIVER: Unit 3 UHS RS: 1.5
REACH: U3 UHS Lower

INPUT

Description: Distance from upstream XS = 13
Downstream side slope = 8.16
Weir crest width = 2.6
Weir coefficient = 2.6
Weir Embankment Coordinates num = 5

Sta	Elev	Sta	Elev	Sta	Elev
0	817	0	816.5	136.43	817
				147.01	818
				189.28	818.64

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
Downstream Embankment side slope = 2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins = Broad Crested
Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	817.92	Q Gates (cfs)	0.00
W.S. Elev (ft)	817.89	Q Gate Group (cfs)	0.00
Q Total (cfs)	459.32	Gate Open Ht (ft)	815.10
Q Weir (cfs)	459.32	Gate #Open	1.00
Weir Flow Area (sq ft)	164.30	Gate Area (sq ft)	0.00
Weir Sta Lft (ft)	0.00	Gate Submerg	0.00
Weir Sta Rgt (ft)	146.21	Gate Invert (ft)	0.00
Weir Avg Depth (ft)	1.12	Gate Weir Coef	0.000
Weir Coef (ft ^{1/2})	2.600	Q Breach (cfs)	
Weir Submerg	0.00	Breach Avg Velocity (ft/s)	
Min El Weir Flow (ft)	816.51	Breach Flow Area (sq ft)	
Wr Top width (ft)	146.21		

CROSS SECTION

RIVER: Unit 3 UHS RS: 1
REACH: U3 UHS Lower

INPUT

Description:	num=	4	Elev	Sta	Elev	Sta
Station	Elev	Sta	Elev	Sta	Elev	Sta
0	815	32.06	805	99.26	805	140.73
						818

Manning's n Values num= 1
Sta n Val
0 .057

Bank Sta: Left 0 Right 140.73 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.10	Element	Channel	Left OB	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.057		
W.S. Elev (ft)	815.10	Reach Len. (ft)	1004.93		
Cr1 L.S. (ft)	806.11	Flow Area (sq ft)	100.99		
E.G. Elev (ft)	0.45932	Area (sq ft)	459.32		
Top width (ft)	131.48	Top width (ft)	131.48		
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)	0.46		
Max Ch1 Dpth (ft)	10.10	Hydr. Depth (ft)	7.64		
Conv. Total (cfs)	100048.8	Conv. (cfs)	100048.8		
Length wtd. (ft)		Wetted Per. (ft)	134.65		
Min Ch El (ft)	805.00	Shear (lb/sq ft)	0.01		
Alpha	1.00	Cum Volume (lb/ft s)	140.73		0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00		
C & E Loss (ft)					

CROSS SECTION

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RIVER: Unit 4 North
REACH: Unit 4 North

RS: 6

INPUT

Description: Station Elevation Data
Sta Elev Sta Elev Sta Elev
-10 819 819 818 818 818
32.94 818 43.7 817 109.95 822
122

Manning's n Values
Sta n Val Sta n Val
-10 .039 0

Bank Sta: Left Right
32.94 109.95
Lengths: Left Channel Right

Blocked Obstructions
Sta L Sta R Elev
-10 825 112.95 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	0.022	0.039	43.08
W.S. Elev (ft)	820.11	Reach Len. (ft)	43.08	43.08	
Crit W.S. (ft)	818.49	Flow Area (sq ft)	51.99	143.80	
E.G. Slope (ft/ft)	0.000100	Area (sq ft)	31.99	143.80	
Top width (ft)	132.28	Flow Vel (ft/s)	32.86	71.34	
Top width (ft/s)	102.70	AVG Vel (ft/s)	0.97	0.61	
Vel Total (ft/s)	0.69	AVG Vel (ft/s)	2.02	2.02	
Max Chl Dpth (ft)	2.11	Hvdr. Depth (ft)	1.58	1.58	
Conv. Total (cfs)	135000.3	Conv. (cfs)	4785.8	8714.5	
Length wtd. (ft)	43.08	wetted per. (ft)	34.07	71.68	
Min Ch El (ft)	818.00	Shear (lb/sq ft)	0.01	0.01	0.00
Alpha	1.13	Stream Power (lb/ft s)	122.00	40.61	7.24
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.46	40.61	0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.37	0.43	

CROSS SECTION

RIVER: Unit 4 North
REACH: Unit 4 North

RS: 5

INPUT

Description: Station Elevation Data
Sta Elev Sta Elev Sta Elev
32.30 818.72 38.0 818.72 817.82
94.51 817 109.95 822 112.95 822

Manning's n Values
Sta n Val Sta n Val
-10 .039 0

Bank Sta: Left Right
38.9 109.95
Lengths: Left Channel Right

Blocked Obstructions
Sta L Sta R Elev
-10 825 112.95 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	wt. n-Val.	0.025	0.039	58.25
W.S. Elev (ft)	820.11	Reach Len. (ft)	58.25	58.25	
Crit W.S. (ft)	818.49	Flow Area (sq ft)	56.16	185.27	
E.G. Slope (ft/ft)	0.000054	Area (sq ft)	32.01	102.99	
Top width (ft)	135.00	Flow Vel (ft/s)	38.50	65.21	
Top width (ft/s)	104.11	AVG Vel (ft/s)	1.44	2.80	
Vel Total (ft/s)	3.16	Hvdr. Depth (ft)	3.16	3.16	
Max Chl Dpth (ft)	3.16	Conv. (cfs)	4375.9	14079.9	
Conv. Total (cfs)	184555.8	wetted per. (ft)	39.91	65.76	
Length wtd. (ft)	58.25	Shear (lb/sq ft)	0.00	0.01	0.00
Min Ch El (ft)	816.95	Stream Power (lb/ft s)	122.00	40.45	7.24
Alpha	1.00	Cum Volume (acre-ft)	0.40	40.45	0.02
Frctn Loss (ft)	0.00	Cum SA (acres)	0.33	0.37	
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: Unit 4 North
REACH: Unit 4 North

RS: 4

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INPUT

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819.3	0	14	819.3	4.23	819.3	8.2	819.23	20.37	819			
32.23	818.36	38.89	818	48.52	817	55.6	816.41	92.74	816.41				
94.32	817	109.95	822	112.95	822								

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	8.23	.02	32.23	.039	122	.039				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
38.89 109.95 100 100 100 100 .1 .3

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	0	825	112.95	122	825	

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.11	Element	Left OB	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.025	100.00
W.S. Elev (ft)	820.11	Reach Len. (ft)	100.00	100.00
Crit W.S. (ft)	0.000044	Flow Area (sq ft)	48.55	207.39
E.G. Slope (ft/ft)	135.00	Area (sq ft)	22.55	112.45
Q Total (cfs)	104.11	Top Width (ft)	38.89	65.22
Top Width (ft)	0.53	Avg. Vel. (ft/s)	0.46	0.54
Vel Total (ft/s)	20377.70	Hydr. Depth (ft)	3400.25	16973.16
Max Chl Dpth (ft)	100.00	Conc. (cfs)	39.73	65.88
Length Total (ft)	816.41	Wetted Per (ft)	122.00	0.01
Min Ch El (ft)	1.01	Shear (lb/sq ft)	0.00	0.00
Alpha	0.00	Stream Power (lb/ft s)	0.33	40.19
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.28	0.28
C & E Loss (ft)	0.00	Cum SA (acres)		

CROSS SECTION

RIVER: Unit 4 North
REACH: Unit 4 North

RS: 3

INPUT

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819.3	0	14	819.3	4.2	819.3	8.2	819.23	20.36	819			
32.2	818.36	38.86	818	60.52	816	66.8	815.52	89.94	815.52				
91.88	816	109.95	822	112.95	822								

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	8.2	.02	32.2	.039	122	.039				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
38.86 109.95 100 100 100 100 .1 .3

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	0	825	112.95	122	825	

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.11	Element	Left OB	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.025	70.85
W.S. Elev (ft)	820.10	Reach Len. (ft)	70.85	70.85
Crit W.S. (ft)	0.000031	Flow Area (sq ft)	48.39	234.31
E.G. Slope (ft/ft)	135.00	Area (sq ft)	18.96	116.04
Q Total (cfs)	104.24	Top Width (ft)	38.86	65.38
Top Width (ft)	0.48	Avg. Vel. (ft/s)	0.39	0.50
Vel Total (ft/s)	24119.9	Hydr. Depth (ft)	3386.3	20731.6
Max Chl Dpth (ft)	100.00	Conc. (cfs)	39.73	67.01
Length Total (ft)	815.52	Wetted Per (ft)	122.00	0.00
Min Ch El (ft)	1.02	Shear (lb/sq ft)	0.00	0.00
Alpha	0.00	Stream Power (lb/ft s)	0.22	39.68
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.19	0.19
C & E Loss (ft)	0.00	Cum SA (acres)		

CROSS SECTION

RIVER: Unit 4 North
REACH: Unit 4 North

RS: 2

INPUT

Station	Elevation	Data	num=
-10	819.3	0	15

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Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819.3	0	819.3	4.17	819.3	8.17	819.23	20.36	819
51.59	818.32	66.3	818	80.13	816	83.07	815	93.08	815
96.13	816	109.51	820	115.61	821	117.66	821.04	130.37	821.36

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	8.17	.02	51.59	.039	117.66	.02

Bank Sta: Left: 66.3 Right: 115.61
 Lengths: Left Channel: 58 Right: 58
 Blocked obstructions num= 1
 Sta L Sta R Elev num= 58
 -10 0 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.10	0.036	58.00
W.S. Elev (ft)	820.10	58.00	58.00
W.S. Elev (ft)	820.10	58.00	58.00
Crit W.S. (ft)	816.53	92.12	149.56
E.G. Slope (ft/ft)	0.000047	47.78	87.22
Q Total (Cfs)	135.00	66.30	43.81
Top Width (ft)	110.11	0.52	0.58
Vel Total (ft/s)	0.56	1.39	3.41
Max Chl Dpth (ft)	5.10	6963.9	12713.7
Conv. Total (CFS)	19677.6	67.11	44.88
Length Wtd. (ft)	58.00	0.01	0.01
Wing Ch El (ft)	815.00	130.37	7.24
Frctn Loss (ft)	1.01	0.11	39.37
C & E Loss (ft)		0.10	0.04

INLINE STRUCTURE

RIVER: Unit 4 North
 REACH: Unit 4 North
 RS: 1.5

INPUT

Description:
 Distance from Upstream XS = 14.88
 Deck/Roadway Width = 24.57
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.3	4.16	819.3	20.36	819	50.13	819
129.23	820.5					102.73	820

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	Q Gates (cfs)	Q Gate Group (cfs)	Gate Open Ht (ft)	Gate Open (sq ft)	Gate Submerg	Gate Invert (ft)	Gate Weir Coef	Q Breach (cfs)	Breach Avg Velocity (ft/s)	Breach Flow Area (sq ft)
820.10	820.10	820.10	0.00	820.07	0.00	0.00	0.000			
W.S. Elev (ft)	820.10	820.10								
Q Total (CFS)	132.00	132.00								
Weir Flow Area (sq ft)	837.66	837.66								
Weir Sta Lft (ft)	0.00	0.00								
Weir Sta Rgt (ft)	108.23	108.23								
Weir Max Depth (ft)	1.10	0.77								
Weir Avg Depth (ft)	2.600	0.96								
Weir Coef (ft ^{1/2})	819.01	108.23								
Min El Weir Flow (ft)										
W Top Wtd (ft)										

CROSS SECTION

RIVER: Unit 4 North
 REACH: Unit 4 North
 RS: 1

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
42.03	818.39	55.62	818	60.70	815	66.26	815	70.60	814.3
103.88	814.3	109.29	815	109.33	817	128.83	818	135.87	820
141.87	820.17	153.87	820.5	248.64	822.9				

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Manning's n Values num= 9
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 8.15 .02 42.03 .039 90.79 .057
 96.64 .039 103.88 .057 109.33 .039 141.87 .02

Bank Sta: Left Right Coeff Contr. Expan.
 90:79 109:33
 Blocked observations num= .1 .3
 Sta L Sta R Elev num= .1 .3
 -10 -10

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	wt. n-val.	0.033	0.051	0.039
W.S. Elev (ft)	820.07	Reach Len. (ft)	163.74	91.72	57.73
Crit W.S. (ft)	816.13	Flow Area (sq ft)	169.47	41.82	20.74
E.G. Slope (ft/ft)	0.001349	Area (sq ft)	169.47	41.82	20.74
Top width (ft)	138.34	Top width (ft)	90.79	18.54	29.01
Vel Total (ft/s)	0.43	Avg. Vel. (ft/s)	0.42	0.36	0.36
Max Chl Dpth (ft)	5.77	Hydr. Depth (ft)	1.80	4.95	1.99
Conv. Total (cfs)	22500.8	Conv. (cfs)	11578.4	7466.3	3456.1
Length wtd. (ft)	814.30	wetted Per. (ft)	91.59	19.77	29.32
Min Ch El (ft)	1.03	Stream Power (lb/ft.s)	0.00	0.01	0.00
Alpha	1.03	Cum Volume (acre-ft)	248.64	0.00	0.00
Frctn Loss (ft)		Cum SA (acres)		0.00	0.00
C & E Loss (ft)					

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS RS: 10
 REACH: U4 UHS Upper

INPUT Description: num= 11
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819 0 819 51 819 27.51 810 28.06 809.83
 48.06 809.83 48.57 810 81.57 821 92.06 822 131.54 822.9
 143.54 822.9

Manning's n Values num= 6
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .057 0 .057 28.06 .02 48.06 .057 81.57 .039
 131.54 .02

Bank Sta: Left Right Lengths: Left Channel Right
 51 81.57 54.68 54.68
 Blocked observations num= 2
 Sta L Sta R Elev num= 2
 -10 825 92.06 143.54 825

CROSS SECTION OUTPUT Profile #PF 1
 E.G. Elev (ft) 819.40 Element
 Vel Head (ft) 0.20 wt. n-val.
 W.S. Elev (ft) 819.20 Reach Len. (ft)
 Crit W.S. (ft) 813.20 Flow Area (sq ft)
 E.G. Slope (ft/ft) 0.001349 Area (sq ft)
 Top width (ft) 1607.00 Flow (cfs)
 Vel Total (ft/s) 76.17 Top width (ft)
 Max Chl Dpth (ft) 3.56 Avg. Vel. (ft/s)
 Conv. Total (cfs) 43757.0 Hydr. Depth (ft)
 Length wtd. (ft) 54.68 Conv. (cfs)
 Min Ch El (ft) 809.83 Stream Power (lb/ft.s)
 Alpha 1.00 Stream Power (lb/ft.s)
 Frctn Loss (ft) 0.07 Cum Volume (acre-ft)
 C & E Loss (ft) 0.00 Cum SA (acres)

Manning's n Values num= 10
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 818 0 818 3.12 818 27.12 810 28.08 809.69

Bank Sta: Left Right Coeff Contr. Expan.
 3.12 27.12 810 28.08 809.69

CROSS SECTION OUTPUT Profile #PF 1
 E.G. Elev (ft) 819.40 Element
 Vel Head (ft) 0.20 wt. n-val.
 W.S. Elev (ft) 819.20 Reach Len. (ft)
 Crit W.S. (ft) 813.20 Flow Area (sq ft)
 E.G. Slope (ft/ft) 0.001349 Area (sq ft)
 Top width (ft) 1607.00 Flow (cfs)
 Vel Total (ft/s) 76.17 Top width (ft)
 Max Chl Dpth (ft) 3.56 Avg. Vel. (ft/s)
 Conv. Total (cfs) 43757.0 Hydr. Depth (ft)
 Length wtd. (ft) 54.68 Conv. (cfs)
 Min Ch El (ft) 809.83 Stream Power (lb/ft.s)
 Alpha 1.00 Stream Power (lb/ft.s)
 Frctn Loss (ft) 0.07 Cum Volume (acre-ft)
 C & E Loss (ft) 0.00 Cum SA (acres)

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS RS: 9
 REACH: U4 UHS Upper

INPUT Description: num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 818 0 818 3.12 818 27.12 810 28.08 809.69

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48.08	809.69	48.98	810	81.98	821	92.06	821	103	821
Manning's n Values									
num=	7	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	3.12	.057	28.08	.02	48.08	.057
81.98	.039	103	.039						
Bank Sta: Left 3.12 Right 81.98									
Lengths: Left Channel 73.85 Right 73.85									
Blocked Obstructions num= 2									
Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R
-10	825	92.06	103	825					
Coeff Contr. .1									
Expan. .3									

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.039	7.049	73.85
W.S. Elev (ft)	819.13	Reach Len. (ft)	73.85	454.32	
Crit W.S. (ft)		Area (sq ft)	3.53	454.32	
E.G. Slope (ft/ft)	0.001240	Flow (cfs)	4.18	1602.82	
Q Total (cfs)	1607.00	Top width (ft)	3.12	73.25	
Top width (ft)	76.37	Avg. Vel. (ft/s)	1.19	3.53	
Vel Total (ft/s)	3.51	Hydr. Depth (ft)	1.13	6.20	
Max Chl Dpth (ft)	9.44	Conv. (cfs)	118.8	4521.1	
Conv. Total (cfs)	45639.9	Wetted Per. (ft)	4.25	76.13	
Length wtd. (ft)	73.85	Shear (lb/sq ft)	103.00	0.46	0.00
Min Ch El (ft)	809.69	Stream Power (lb/ft s)	0.09	4.20	2.48
Alpha	1.01	Cum Volume (acre-ft)	0.14	0.50	0.65
Frctn Loss (ft)	0.05				
C & E Loss (ft)	0.04				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel.

GROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper RS: 8

INPUT

Station	Elevation	Data	num=	13	
Sta	Elev	Sta	Elev	Sta	Elev
-10	819	0	819	21.98	810
47.39	809.53	67.39	809.53	810	83.89
194.88	817	196.91	817	207	817

Manning's n Values	num=	6	Sta <th>n Val <th>Sta <th>n Val <th>Sta <th>n Val <th>Sta <th>n Val </th></th></th></th></th></th></th>	n Val <th>Sta <th>n Val <th>Sta <th>n Val <th>Sta <th>n Val </th></th></th></th></th></th>	Sta <th>n Val <th>Sta <th>n Val <th>Sta <th>n Val </th></th></th></th></th>	n Val <th>Sta <th>n Val <th>Sta <th>n Val </th></th></th></th>	Sta <th>n Val <th>Sta <th>n Val </th></th></th>	n Val <th>Sta <th>n Val </th></th>	Sta <th>n Val </th>	n Val
-10	.039	0	.039	21.98	.057	47.39	.02	67.39	.057	
83.89	.039									
Coeff Contr. .1										
Expan. .3										

Bank Sta: Left	Right	Lengths: Left	Channel	Right
21.98	83.89	186.33	186.33	186.33
Blocked Obstructions num= 2				
Sta L	Sta R	Elev	Sta L	Elev
-10	825	196.91	207	822

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.039	0.047	0.039
W.S. Elev (ft)	819.18	Reach Len. (ft)	186.33	186.33	186.33
Crit W.S. (ft)		Flow Area (sq ft)	13.41	444.81	385.95
E.G. Slope (ft/ft)	0.000364	Area (sq ft)	13.41	444.81	385.95
Q Total (cfs)	1607.00	Flow (cfs)	6.97	971.85	628.18
Top width (ft)	196.91	Top width (ft)	21.98	61.91	113.02
Vel Total (ft/s)	1.90	Avg. Vel. (ft/s)	0.52	2.18	1.63
Max Chl Dpth (ft)	9.46	Hydr. Depth (ft)	0.61	7.18	3.41
Conv. Total (cfs)	8423.31	Conv. (cfs)	395.13	5025.09	3292.00
Length wtd. (ft)	162.33	Wetted Per. (ft)	2.18	61.91	113.02
Min Ch El (ft)	809.53	Shear (lb/sq ft)	0.16	0.16	0.00
Alpha	1.08	Stream Power (lb/ft s)	207.00	0.00	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.08	3.44	2.15
C & E Loss (ft)	0.00	Cum SA (acres)	0.12	0.38	0.56

Note: Manning's n values were composited to a single value in the main channel.

GROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper RS: 7

INPUT

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Description: Station Elevation Data num= 13
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819 0 819 3 819 19.8 818 43.8 810
 46.67 809.06 66.57 809.06 69.54 810 84.54 815 152.65 816
 160.21 817 162.25 817 I/2

Manning's n Values num= 6
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 19.8 .057 46.67 .02 66.67 .057
 84.54 .039

Bank Sta: Left Right Lengths: Left Channel Right Right Expan.
 19.8 84.54 2 76 76 76 76 .1 .3
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 0 825 162.25 I/2 822

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	Element	Left OB	Channel	Right OB
819.16	wt. n-Val.	0.039	0.048	0.039
0.08	Vel Head (ft)	76.00	76.00	76.00
819.09	W.S. Elev (ft)	10.16	476.43	268.29
0.000424	Crit W.S. (ft)	10.16	476.43	268.29
1607.00	E.G. Slope (ft/ft)	5.09	1129.83	472.08
162.25	Q Total (cfs)	19.80	64.74	77.71
162.25	Top Width (ft)	0.50	2.37	1.76
2.13	Avg. Vel. (ft/s)	0.50	2.37	1.76
7804.03	Max Ch Depth (ft)	247.31	54869.39	22926.45
76.00	Ch Total Wd (ft)	19.92	67.11	79.87
809.06	Min Ch El (ft)	0.01	0.19	0.09
1.07	Alpha	172.00	0.00	0.00
0.02	Frctn Loss (ft)	0.03	1.47	0.75
0.02	C & E Loss (ft)	0.03	0.11	0.15

Note: Manning's n values were composited to a single value in the main channel.

LATERAL STRUCTURE

RIVER: Unit 4 UHS RS: 6.9
 REACH: U4 UHS Upper

INPUT

Description: Lateral structure position = Right overbank
 Distance from Upstream XS = 2
 Deck/Roadway Width = 2
 Weir Coefficient = Water Surface
 Weir Reference = Water Surface
 Weir Embankment Coordinates: num = 2
 Sta Elev Sta Elev num = 2
 0 817 76 817

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. U.S. (ft)	Weir Sta US (ft)	Lat Struct
819.06	819.16	0.00
819.06	Weir Sta DS (ft)	76.00
819.13	Weir El Weir Flow (ft)	817.00
819.11	W. Top Width (ft)	76.00
1607.00	Weir Max Depth (ft)	2.11
600.34	Weir Avg Depth (ft)	2.10
1001.86	Weir Flow Area (sq ft)	159.42
37.66	Weir Coef (ft ^{1/2})	2.600
600.34	Weir Submerg	0.00
0.00	Q Gate Group (cfs)	
	Gate Open Ht (ft)	
	Gate #Open	
	Gate Area (sq ft)	
	Gate Submerg	
	Gate Invert (ft)	
	Gate Weir Coef	

Q Breach (cfs)
 Breach Avg Velocity (ft/s)
 Breach Flow Area (sq ft)

CROSS SECTION

RIVER: Unit 4 UHS RS: 6
 REACH: U4 UHS Upper

INPUT

Description: Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 10 817 10 817 10 817 10 817 10 817 10 817

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-10	819	0	819	18.91	818	45.91	809	46.38	808.87
66.38	808.87	66.79	84.8	84.8	815	175.7	816	177.73	816
Manning's n Values									
Sta	n	Val	num=	6	Sta	n	Val	Sta	n
-10	.039	0	.039	18.91	.057	46.38	.02	66.38	.057
84.8	.039								

Bank Sta: Left 18.91 Right 84.8 Expan. .3

Blocked Obstructions num= 1

Sta L Sta R Elev 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.13	Element	Left OB	Channel	Right OB
W.S. Elev (ft)	819.02	Rch. n-Val.	58.25	58.25	58.25
Crit W.S. (ft)	819.11	Flow Area (sq ft)	11.46	493.03	334.11
E.G. Slope (ft/ft)	0.000133	Area (sq ft)	11.46	493.03	334.11
Q Total (Cfs)	1001.86	Flow (cfs)	3.60	660.67	337.60
Top Width (ft)	177.73	Top Width (ft)	18.91	65.89	92.93
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)	0.31	1.34	1.01
Max Chl Dpth (ft)	10.24	Hydr. Depth (ft)	0.61	7.48	3.60
Conv. Total (Cfs)	86734.6	Wetted Per. (ft)	311.4	57196.2	29227.0
Length Wtd. (ft)	808.87	Shear (lb/sq ft)	19.04	68.36	96.04
Min Ch El (ft)	1.07	Stream Power (lb/ft.s)	0.01	0.06	0.03
Alpha	1.07	Cum Volume (acre-ft)	177.73	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.02	0.22

Warning: The cross-section end points had to be extended vertically for the computed water surface. Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS Branch RS: 107

INPUT

Description:	num=	6	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	6	819	13.72	819	43.72	819	58.25
-10	819	0	819	13.72	819	43.72	819	58.25
68	819							

Manning's n Values num= 3

Sta n Val Sta n Val

-10 .039 68 .039

Bank Sta: Left 118.9 Right 118.9 Lengths: Left Channel Right

Blocked Obstructions num= 2

Sta L Sta R Elev Sta L Sta R Elev

-10 825 0 825 58.25 68 825

Coeff Contr. .1 Expan. .3

Sta L Sta R Elev Sta L Sta R Elev

-10 825 0 825 58.25 68 825

Cross Section Output Profile #PF 1

E.G. Elev (ft)	819.93	Element	Left OB	Channel	Right OB
W.S. Elev (ft)	819.80	Rch. n-Val.	118.90	118.90	118.90
Crit W.S. (ft)	819.55	Flow Area (sq ft)	46.32	46.32	46.32
E.G. Slope (ft/ft)	0.008234	Area (sq ft)	46.32	46.32	46.32
Q Total (Cfs)	135.00	Flow (cfs)	135.00	135.00	135.00
Top Width (ft)	58.25	Top Width (ft)	58.25	58.25	58.25
Vel Total (ft/s)	2.91	Avg. Vel. (ft/s)	2.91	2.91	2.91
Max Chl Dpth (ft)	1487.7	Hydr. Depth (ft)	0.80	0.80	0.80
Conv. Total (Cfs)	118.90	Wetted Per. (ft)	59.84	1487.7	1487.7
Length Wtd. (ft)	819.00	Shear (lb/sq ft)	0.40	59.84	59.84
Min Ch El (ft)	0.68	Stream Power (lb/ft.s)	0.62	0.62	0.62
Alpha	0.68	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.16	0.16	0.16

CROSS SECTION

RIVER: Unit 4 UHS Branch RS: 106

INPUT

Description:	num=	6	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	6	819	9.48	818.02	48.55	818.02	58.25
-10	819	0	819	9.48	818.02	48.55	818.02	58.25
819	0							

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68 819

Manning's n Values num= 3
 Sta n Val Sta n Val
 -10 .039 0 .039 68 .039

Bank Sta: Left Right
 Coeff Contr. Expan.
 Blocked obstructions num= 1

Sta L Sta R Elev Sta L Sta R Elev
 -10 825 58.25 68 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.23	Element	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.039	85.65
W.S. Elev (ft)	819.14	Reach Len. (ft)	85.65	85.65
Crit W.S. (ft)	0.004238	Flow Area (sq ft)	65.65	
E. G. Slope (ft/ft)	0.004238	Flow Area (sq ft)	56.07	
Total (cfs)	135.00	Flow (cfs)	135.00	
Top width (ft)	58.25	Top width (ft)	58.25	
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	2.41	
Max Chl Dpth (ft)	1.12	Hydr. Depth (ft)	0.96	
Conv. Total (cfs)	2073.6	Conv. (cfs)	2073.6	
Length wtd. (ft)	85.65	wetted per. (ft)	58.64	
Min Ch El (ft)	818.02	Shear (lb/sq ft)	0.25	
Alpha	1.00	Stream Power (lb/ft s)	0.00	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.00	
C & E Loss (ft)	0.00	Cum SA (acres)	0.48	

CROSS SECTION

RIVER: Unit 4 UHS RS: 5
 REACH: U4 UHS Lower

INPUT

Description: Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819 0 819 18.23 818 28.23 817 40.45 816
 164.86 816 166.9 816

Manning's n Values num= 2

Sta n Val Sta n Val
 -10 .039 0 .039

Bank Sta: Left Right Lengths: Left Channel Right
 Blocked obstructions num= 1
 Sta L Sta R Elev num= 170.5 170.5 170.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.10	Element	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.039	170.50
W.S. Elev (ft)	819.00	Reach Len. (ft)	170.50	170.50
Crit W.S. (ft)	0.001362	Flow Area (sq ft)	433.26	
E. G. Slope (ft/ft)	0.001362	Flow Area (sq ft)	1136.86	
Total (cfs)	109.62	Top width (ft)	162.62	
Top width (ft)	109.62	Avg. Vel. (ft/s)	2.60	
Vel Total (ft/s)	3.00	Hydr. Depth (ft)	30808.1	
Max Chl Dpth (ft)	3.00	Conv. (cfs)	169.93	
Conv. Total (cfs)	30808.1	wetted per. (ft)	169.93	
Length wtd. (ft)	170.50	Shear (lb/sq ft)	0.22	
Min Ch El (ft)	816.00	Stream Power (lb/ft s)	0.00	0.00
Alpha	1.00	Cum Volume (acre-ft)	39.18	
Frctn Loss (ft)	0.09	Cum SA (acres)	2.27	
C & E Loss (ft)	0.03			

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (stream conveyance divided by damstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

LATERAL STRUCTURE

RIVER: Unit 4 UHS RS: 4.9
 REACH: U4 UHS Lower

INPUT

Description: Lateral structure position = Right overbank
 Distance from Upstream XS = 2
 Deck/Roadway width = 2.4
 Weir Coefficient = 2.4

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Weir Flow Reference = Water Surface
 Weir Embankment Coordinates num = 2
 Sta Elev 170.5
 0 817 817

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US. (ft) 819.10 Weir Sta US (ft) 0.00
 W.S. US. (ft) 819.00 Weir Sta DS (ft) 170.50
 E.G. DS (ft) 818.98 Min El Weir Flow (ft) 817.00
 W.S. DS (ft) 818.98 W.R. Top Width (ft) 170.50
 Q US (cfs) 1136.86 Weir Max Depth (ft) 2.00
 Q Leaving Total (cfs) 1153.47 Weir Avg Depth (ft) 1.99
 Q DS (cfs) 5.03 Weir Flow Area (sq ft) 338.82
 Q Leaking Weir Submerg (ft) 2.00
 Q Gates (cfs) 1153.47 Weir Submerg (ft) 0.00
 Q CUJV (cfs) 0.00 Gate Group (cfs)
 Q Lat RC (cfs) 0.00 Gate Open Ht (ft)
 Q Breach (cfs) Gate Area (sq ft)
 Breach Avg Velocity (ft/s) Gate Submerg
 Breach Flow Area (sq ft) Gate Invert (ft)
 Gate Weir Coef

CROSS SECTION

RIVER: Unit 4 UHS RS: 4
 REACH: U4 UHS Lower

INPUT

Description: num= 6 Elev Sta Elev Sta Elev Sta Elev Sta Elev
 Station Elevation Data num= 6 Elev Sta Elev Sta Elev Sta Elev Sta Elev
 135.18 -10 819 0 819 3 819 16.23 819 818 26.23 817
 Manning's n Values num= 2
 Sta n Val Sta n Val
 -10 .039 0 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 3 135.18 91.85 91.85 91.85 91.85 .1 .3
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 -10 0 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 818.98 Element wt. n-Val. Channel Right
 Vel Head (ft) 0.00 0.039 91.85 91.85
 W.S. Elev (ft) 818.98 Reach Len. (ft) 91.85 91.85
 Crit W.S. (ft) 0.000000 Flow Area (sq ft) 291.21 291.21
 E.G. Slope (ft/ft) 5.03 Area (sq ft) 5.03
 Q Total (cfs) 131.90 Top Width (ft) 131.90
 Top Width (ft) 0.02 Avg. Vel. (ft/s) 0.02
 Vel Total (ft/s) 1852.96 Hydr. Depth (ft) 1852.21
 Max Chl Dpnt (ft) 91.85 Wetted Per (ft) 134.97
 Convth Weir (cfs) 91.85 Shear (lb/sq ft) 0.00
 Min Ch El (ft) 816.00 Stream Power (lb/ft s) 135.18 0.00
 Alpha 1.00 Cum Volume (acre-ft) 37.76 7.24
 Frctn Loss (ft) 0.00 C & E Loss (ft) 0.11 1.69
 C & E Loss (ft) 0.00 Cum SA (acres)

Warning: The cross-section end points had to be extended vertically for the computed water surface.

LATERAL STRUCTURE

RIVER: Unit 4 UHS RS: 3.9
 REACH: U4 UHS Lower

INPUT

Description: num= 2
 Lateral structure position = Right overbank
 Distance from Upstream XS = 2
 Deck/Roadway width = .04
 Weir Coefficient = Water Surface
 Weir Flow Reference num = 2
 Weir Embankment Coordinates num = 2
 Sta Elev 170.5
 0 817 817 91.85 817

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weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US (ft)	818.98	Weir Sta US (ft)	0.00
W.S. DS (ft)	818.98	Weir Sta DS (ft)	91.85
W.S. DS (ft)	818.98	Weir Top Width (ft)	817.00
Q US (cfs)	5.03	Weir Max Depth (ft)	91.85
Q Leaving Total (cfs)	10.23	Weir Avg Depth (ft)	1.98
Q DS (cfs)	201.45	Weir Flow Area (sq ft)	181.77
Perc Q Leaving	1.74	Weir Coef (ft ^{1/2})	0.040
Q Weir (cfs)	10.23	Weir Submerg	0.00
Q Gates (cfs)	0.00	Q Gate Group (cfs)	
Q Culv (cfs)		Gate Open Ht (ft)	
		Gate Area (sq ft)	
Q Breach (cfs)		Gate Submerg	
Breach Avg Velocity (ft/s)		Gate Invert (ft)	
Breach Flow Area (sq ft)		Gate Weir Coef	

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Lower RS: 3

INPUT

Description:					
Station	Elev	Sta	Elev	Sta	Elev
-10	819	0	819	8.52	817
32.21	816	116.06	816	118.1	816
Manning's n Values num= 2					
Sta	n	Val	Sta	n	Val
-10	.039	0	.039		
Bank Sta: Left Right Lengths: Left Channel Right					
Blocked Obstructions num= 1					
Sta	L	Sta	R	Elev	Expan.
-10	0	825	134.36	134.36	.3
Coeff Contr. .1					

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.98	Element	Left OB	Right OB	Channel
Vel Head (ft)	0.00	Wt. n-Val.	134.36	134.36	0.039
W.S. Elev (ft)	818.98	Reach Len. (ft)	134.36	134.36	134.36
E.G. Slope (ft/ft)	0.0000000	Flow Area (sq ft)	313.94	313.94	313.94
G-Total (cfs)	1.74	Flow (cfs)	1.74	1.74	1.74
Top Width (ft)	116.37	Top Width (ft)	116.37	116.37	116.37
Vel Total (ft/s)	0.01	Avg. Vel. (ft/s)	2.70	2.70	2.70
Max Chl Dpth (ft)	2.98	Hydr. Depth (ft)	22764.7	22764.7	22764.7
Conv. Total (cfs)	134.36	Wetted Per. (ft)	119.57	119.57	119.57
Length Wtd. (ft)	816.00	Shear (lb/sq ft)	0.00	0.00	0.00
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	118.10	118.10	118.10
Alpha	0.03	Cum Volume (acre-ft)	0.11	0.11	0.11
Frcn Loss (ft)	0.01	Cum SA (acres)	7.24	7.24	7.24
C & E Loss (ft)	0.01				

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Lower RS: 2

INPUT

Description:					
Station	Elev	Sta	Elev	Sta	Elev
0	816	147.64	814	304.09	816
Manning's n Values num= 1					
Sta	n	Val	Sta	n	Val
0	.039	0	.039		
Bank Sta: Left Right Lengths: Left Channel Right					
Blocked Obstructions num= 1					
Sta	L	Sta	R	Elev	Expan.
0	304.09	112	112	112	.3
Coeff Contr. .1					

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	816.00	Element	Left OB	Right OB	Channel
Vel Head (ft)	0.00	Wt. n-Val.	112	112	0.039
W.S. Elev (ft)	816.00	Reach Len. (ft)	112	112	112
E.G. Slope (ft/ft)	0.0000000	Flow Area (sq ft)	112	112	112
G-Total (cfs)	1.74	Flow (cfs)	1.74	1.74	1.74
Top Width (ft)	116.37	Top Width (ft)	116.37	116.37	116.37
Vel Total (ft/s)	0.01	Avg. Vel. (ft/s)	2.70	2.70	2.70
Max Chl Dpth (ft)	2.98	Hydr. Depth (ft)	22764.7	22764.7	22764.7
Conv. Total (cfs)	134.36	Wetted Per. (ft)	119.57	119.57	119.57
Length Wtd. (ft)	816.00	Shear (lb/sq ft)	0.00	0.00	0.00
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	118.10	118.10	118.10
Alpha	0.03	Cum Volume (acre-ft)	0.11	0.11	0.11
Frcn Loss (ft)	0.01	Cum SA (acres)	7.24	7.24	7.24
C & E Loss (ft)	0.01				

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E.G. Elev (ft)	818.94	Element		Channel		Right OB
Vel Head (ft)	0.05	wt. n-Val.		0.039		
W.S. Elev (ft)	818.89	Reach Len. (ft)		112.00		112.00
Crit W.S. (ft)	816.14	Flow Area (sq ft)		1182.38		
E.G. Slope (ft/ft)	0.000377	Area (sq ft)		1182.38		
Total (cfs)	2137.00	Top width (ft)		304.00		
Flow Area (sq ft)	304.00	Top width (ft)		304.00		
Vel Total (ft/s)	1.81	AVG Vel (ft/s)		1.81		
Max Chl Dpth (ft)	4.89	Hvdr. Depth (ft)		3.89		
Conv. Total (cfs)	109997.4	Conv. (cfs)		109997.4		
Length wtd. (ft)	112.00	wetted per. (ft)		309.89		
Min Ch El (ft)	814.00	Shear (lb/sq ft)		0.09		
Frctn Loss (ft)	1.00	Stream Power (lb/ft s)		0.00		0.00
C & E Loss (ft)		Cum Volume (acre-ft)		34.82		7.24
		Cum SA (acres)		0.11		0.78

INLINE STRUCTURE

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower RS: 1.5

INPUT

Description:
 Distance from upstream XS = 49
 Deck/Roadway width = 15
 Weir coefficient = 2.6
 Weir Embankment Coordinates num = 2
 Sta Elev Sta Elev num = 817 341.29 817

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In] Struct:

E.G. Elev (ft)	818.94	Q Gates (cfs)		Q Gate Group (cfs)		0.00
W.S. Elev (ft)	818.89	Gate Open Ht (ft)		816.00		
Q Total (cfs)	2137.00	Gate #Open		1.00		
Weir (cfs)	2137.00	Gate Area (sq ft)		0.00		
Weir Flow Area (sq ft)	589.62	Gate Submerg.		0.00		
Weir Sta Lft (ft)	0.00	Gate Invert (ft)		0.000		
Weir Sta Rgt (ft)	304.09	Gate Weir Coef				
Weir Max Depth (ft)	1.94	Q Breach (cfs)				
Weir Avg Depth (ft)	1.60	Breach Avg Velocity (ft/s)				
Weir Submerg (ft/2)	0.00	Breach Flow Area (sq ft)				
Min El Weir Flow (ft)	817.01					
W Top width (ft)	304.09					

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower RS: 1

INPUT

Description:
 Station Elevation Data num= 6
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 817 20.03 817 20.03 800 76.24 800 290.38 800
 321.74 810

Manning's n Values num= 1

Bank Sta: Left Right Coeff Contr. Expan.
 0 321.74 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	816.00	Element		Channel		Right OB
Vel Head (ft)	0.00	wt. n-Val.		0.039		
W.S. Elev (ft)	816.00	Reach Len. (ft)		4670.56		
Crit W.S. (ft)	801.24	Flow Area (sq ft)		269.56		
E.G. Slope (ft/ft)	0.000004	Area (sq ft)		301.70		
Total (cfs)	2137.00	Top width (ft)		301.70		
Flow Area (sq ft)	301.70	AVG Vel (ft/s)		15.48		
Vel Total (ft/s)	10.46	Hvdr. Depth (ft)		1051284.0		
Max Chl Dpth (ft)	16.00	Conv. (cfs)				
Conv. Total (cfs)	1051284.0					

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Length Wtd. (ft) 800.00
 Min Ch El (ft) 1.00
 Alpha 321.74
 Frctn Loss (ft) 0.00
 C & E Loss (ft) 0.00

wetted Per. (ft) 325.27
 Shear (lb/sq ft) 0.00
 Stream Power (lb/ft s) 321.74
 Cum Volume (acre-ft) 0.00
 Cum SA (acres) 0.00

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 24

INPUT

Description:		Station Elevation Data		num= 14	
Sta	Elev	Sta	Elev	Sta	Elev
64.91	811.81	67.74	818.32	79.74	818.32
122.41	820.14	144.81	822.160	160.822	822.160

Manning's n values

num= 6	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	29.45	.02	64.91	.057	79.74
160	.02			85.74	.039	85.74

Bank Sta: Left 0 Right 66.39
 Lengths: Left Channel 66.39 Right 66.39
 Blocked obstructions num= 1
 Sta L Sta R Elev num= 1
 150.26 160 825

Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	821.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	66.39	0.041	0.023
W.S. Elev (ft)	820.98	Reach Len. (ft)	66.39	66.39	66.39
Crit W.S. (ft)	813.49	Flow Area (sq ft)		512.28	87.67
E.G. Slope (ft/ft)	0.000043	Area (sq ft)		512.28	87.67
T. Area (cfs)	127.90	Top width (ft)		443.75	53.75
Top width (ft)	127.90	Hydr. Vel (ft/s)		68.27	53.70
Vel Total (ft/s)	0.83	Avg Vel (ft/s)		7.40	0.60
Max Chl Dpth (ft)	9.17	Hydr. Depth (ft)		7.40	1.63
Conv. Total (cfs)	76005.5	Conv. (cfs)		67892.0	8113.4
Length Wtd. (ft)	66.39	wetted per. (ft)		72.78	53.79
Min Ch El (ft)	811.81	Shear (lb/sq ft)	160.00	0.02	0.00
Alpha	1.03	Stream Power (lb/ft s)	0.11	30.22	7.24
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.15	3.88	4.72
C & E Loss (ft)	0.00	Cum SA (acres)			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 23

INPUT

Description:		Station Elevation Data		num= 13	
Sta	Elev	Sta	Elev	Sta	Elev
64.48	812.76	76.48	818.819	81.94	811.94
199.55	822.227	227.55	822.9	237.822	822.9

Manning's n values

num= 6	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	27.16	.02	61.84	.057	76.48
237	.02			82.48	.039	82.48

Bank Sta: Left 0 Right 24.9
 Lengths: Left Channel 24.9 Right 24.9
 Blocked obstructions num= 1
 Sta L Sta R Elev num= 1
 227.55 237 825

Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	24.90	0.041	0.022
W.S. Elev (ft)	820.98	Reach Len. (ft)	24.90	24.90	24.90
Crit W.S. (ft)	0.000041	Flow Area (sq ft)		500.32	133.93
E.G. Slope (ft/ft)	1497.00	Area (sq ft)		500.32	133.93
T. Area (cfs)	160.15	Top width (ft)		418.46	78.57
Top width (ft)	160.15	Hydr. Vel (ft/s)		68.45	91.70
Vel Total (ft/s)	0.78	Avg Vel (ft/s)		68.45	0.58
Max Chl Dpth (ft)	9.04	Hydr. Depth (ft)		7.31	1.48

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Conv. Total (cfs)	77724.3	Conv. (cfs)	65446.4
Length wtd. (ft)	24.90	wetted Per.	71.98
Min Ch El (ft)	811.94	Shear (lb/sq ft)	0.02
Alpha	1.05	Stream Power (lb/ft.s)	237.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.11
C & E Loss (ft)	0.00	Cum SA (acres)	3.78

12277.9	91.75	0.00	0.00
71.98	0.02	29.45	7.07
811.94	0.11	0.15	3.78

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 22

Description:		num=		17		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	26	812	27.23	811.98	61.63	811.98	81.77	811.98	109.32	811.98	149.29	811.98
64.2	812	76.2	818	82.2	818.2	106.2	819	109.32	819.26	118.27	820	121.27	821	184.17	821
227.27	822	237	822				822	221.77	822						

Manning's n Values		num=	7	Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.057	27.23	.02	61.63	.057	76.2	.039	82.2	.02	109.32	.039				

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	0	76.2	2	149.29	149.29	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.99	Element	Left OB	Channel	Right OB
Wt. Head (ft)	0.01	Wt. n-Val.	149.29	149.29	149.29
Frctn Loss (ft)	820.98	Flow Len. (ft)	496.18	496.18	93.70
E.G. Slope (ft/ft)	0.000044	Area (sq ft)	429.98	429.98	67.02
O. Total (Cfs)	497.00	Flow (cfs)	68.16	68.16	45.01
Top Width (ft)	113.17	Top Width (ft)	0.87	0.87	2.08
Vel Total (ft/s)	9.00	Avg. Vel. (ft/s)	7.28	7.28	2.08
Max Ch Dpth (ft)	149.29	Hydr. Depth (ft)	64608.5	64608.5	10071.0
Conv. Total (cfs)	811.98	Wetted Per. (ft)	71.70	71.70	45.23
Length wtd. (ft)	1.01	Shear (lb/sq ft)	0.02	0.02	0.01
Alpha	1.01	Stream Power (lb/ft.s)	29.00	29.00	7.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.11	0.11	3.78
C & E Loss (ft)	0.00	Cum SA (acres)	0.15	0.15	3.78

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 21

Description:		num=		13		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	27.68	812.28	60.33	812.28	64.48	813	81.77	813	109.32	813	149.29	813
74.48	818	80.48	818.2	104.48	819	116.55	820	119.55	821	120.7	822	225.55	822		

Manning's n Values		num=	7	Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.039	27.68	.036	60.33	.057	74.48	.039	80.48	.02	109.32	.039				

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	0	74.48	2	201.74	201.74	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.98	Element	Left OB	Channel	Right OB
Wt. Head (ft)	0.01	Wt. n-Val.	201.74	201.74	201.74
Frctn Loss (ft)	820.97	Flow Len. (ft)	459.41	459.41	93.31
Crit W.S. (ft)	0.000055	Area (sq ft)	459.41	459.41	93.31

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Q Total (cfs)	497.00	Flow (cfs)	425.32	71.68
Top Width (ft)	111.41	Top Width (ft)	66.42	44.98
Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)	0.93	0.77
Max Chl Dpth (ft)	8.69	Hydr. Depth (ft)	6.92	2.07
Conv. Total (CFS)	67218.9	Wetted Per. (ft)	57524.6	9694.3
Length Wtd. (ft)	201.74	Wetted Area (sq ft)	69.51	45.20
Altn Ch El (ft)	812.76	Wetted Per. (ft)	0.02	0.01
Frctn Loss (ft)	0.01	Stream Power (lb/ft s)	235.00	0.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	27.52	6.68
		Cum SA (acres)	3.51	4.42

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 20

INPUT

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	28.29	812.69	58.57	812.69
72.16	818	78.16	818.2	102.16	819	107.16	819.24
203.23	820	222.19	820	225.2	821	230.23	821.22

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
0	.057	28.29	.02	58.57	.057	72.16	.039
107.16	.039	230.23	.02			78.16	.02

Bank Sta: Left Right Lengths: Left Channel Right

166.53 166.53 166.53

Blocked Obstructions num= 1

Sta L Sta R Elev

123.04 203.07 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (CFS)	Length Wtd. (ft)	Wetted Per. (ft)	Stream Power (lb/ft s)	Frctn Loss (ft)	C & E Loss (ft)
820.97	0.01	820.96	0.000066	497.00	136.96	0.91	8.27	61344.1	166.53	812.69	240.23	0.01	0.00
											0.11	0.15	3.21
											0.15	0.15	3.21

Warning: Divided flow computed for this cross-section.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 19

INPUT

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	28.74	812.98	57.28	812.98
70.44	818	76.44	818.2	100.44	819		

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
0	.057	28.74	.02	57.28	.057	70.44	.039
70.44	.039	230.48	.02			76.44	.02

Bank Sta: Left Right Lengths: Left Channel Right

230.48 230.48 230.48

Blocked Obstructions num= 1

Sta L Sta R Elev

123.04 203.07 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (CFS)	Length Wtd. (ft)	Wetted Per. (ft)	Stream Power (lb/ft s)	Frctn Loss (ft)	C & E Loss (ft)
820.96	0.01	820.94	0.000088	497.00	136.96	0.91	8.27	61344.1	166.53	812.69	240.23	0.01	0.00
											0.11	0.15	3.21
											0.15	0.15	3.21

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Top Width (ft)	92.32	Top Width (ft)	62.32	30.00
Vel Total (ft/s)	1.07	Avg. Vel. (ft/s)	1.07	1.06
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)	6.27	2.44
Conv. Total (cfs)	53125.6	Wetted Per. (ft)	44838.6	8287.0
Length Wtd. (ft)	230.48	Shear (lb/sq ft)	65.00	31.96
Min Ch El (ft)	812.98	Stream Power (lb/ft.s)	0.03	0.01
Alpha	0.00	Cum Area (acre-ft)	23.94	5.80
F & E Loss (ft)	0.00	Cum SA (acres)	0.11	2.96
C & E Loss (ft)	0.00		0.11	3.95

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 18

INPUT

Description:					
Station	Elev	Sta	Elev	Sta	Elev
0	825	10	820	20	815
63.8	815	69.8	818	75.8	818.2
				99.8	

Manning's n Values	num=	Sta	n Val	Sta	n Val	Sta	n Val
	0	.057	.02	26.34	.02	69.8	.057
	5	56.8	.057	69.8	.039	75.8	.02
Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
	0	69.8	32.96	32.96	32.96	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	32.96	0.043	0.023
W.S. Elev (ft)	820.92	Reach Len. (ft)		32.96	32.96
Crit W.S. (ft)		Flow Area (sq ft)		374.49	72.54
E. Total (ft/ft)	0.000098	Area (cfs)		416.16	80.84
Top Width (ft)	91.64	Top Width (ft)		61.64	30.00
Vel Total (ft/s)	1.11	Avg. Vel. (ft/s)		1.11	1.11
Max Chl Dpth (ft)	7.42	Hydr. Depth (ft)		6.08	2.42
Conv. Total (cfs)	50167.9	Wetted Per. (ft)		42007.4	8160.5
Length Wtd. (ft)	32.96	Stream Power (lb/ft.s)		64.03	31.93
Min Ch El (ft)	813.50	Shear (lb/sq ft)		0.04	0.01
Alpha	1.00	Cum Volume (acre-ft)		21.91	5.42
Frcn Loss (ft)	0.01	Cum SA (acres)		0.11	3.79
C & E Loss (ft)	0.01			0.11	2.64

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 17

INPUT

Description:					
Station	Elev	Sta	Elev	Sta	Elev
0	825	10	820	20	815
63.8	815	69.8	818	75.8	818.2
				99.8	

Manning's n Values	num=	Sta	n Val	Sta	n Val	Sta	n Val
	0	.057	.02	26.8	.02	69.8	.057
	5	56.8	.057	69.8	.039	75.8	.02
Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
	0	69.8	142.47	142.47	142.47	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	142.47	0.042	0.023
W.S. Elev (ft)	820.86	Reach Len. (ft)		142.47	142.47
Crit W.S. (ft)		Flow Area (sq ft)		353.80	70.67
E.G. Slope (ft/ft)	0.000362	Area (cfs)		416.16	80.84
Q Total (cfs)	900.00	Top Width (ft)		61.64	30.00
Top Width (ft)	91.11	Avg. Vel. (ft/s)		1.11	1.11
Max Chl Dpth (ft)	6.86	Hydr. Depth (ft)		5.75	2.36
Conv. Total (cfs)	47276.1	Wetted Per. (ft)		39458.4	7817.8
Length Wtd. (ft)	142.47			63.75	31.87

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Min Ch El (ft)	814.00	Shear (lb/sq ft)	0.13	0.05
Alpha	1.00	Stream Power (lb/ft s)	0.00	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.11	21.64
C & E Loss (ft)	0.00	Cum SA (acres)	0.15	2.59

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 16

INPUT

Description:								
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0	825	20	815	24.96	814	26.8	813.04	
56.8	813.04	58.64	815	69.8	818	75.8	818.2	
99.8	819	112.47	820	134.87	822	149	822	

Manning's n Values	num=	6	Sta	n Val	Sta	n Val	Sta	n Val
			0	.057	26.8	.02	56.8	.057
			149	.02			69.8	.039
							75.8	.02

Bank Sta: Left 0, Right 69.8 Lengths: Left Channel 66.4, Right 66.4 Coeff Contr. .1, Expan. .3

Blocked Obstructions	num=	1	Sta L	Sta R	Elev
			139.13	149	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	66.40	0.042	0.023
W.S. Elev (ft)	820.82	Reach Len. (ft)		66.40	66.40
Cr. L.S. (ft)		Flow Area (sq ft)		383.98	90.06
E. Total (cfs)	0.000282	Area (cfs)		753.66	146.40
Top width (ft)	900.00	Top width (ft)		61.44	51.85
Vel Total (ft/s)	113.29	Avg. Vel. (ft/s)		1.96	1.63
Max Chl Dpth (ft)	1.90	Hydr. Depth (ft)		6.25	1.74
Conv. Total (cfs)	7.78	Conv. (cfs)		44896.8	8722.1
Length wtd. (ft)	53618.9	wetted Per. (ft)		64.19	51.94
Min Ch El (ft)	66.40	Shear (lb/sq ft)		0.11	0.03
Alpha	813.04	Stream Power (lb/ft s)		0.11	0.00
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)		0.11	3.10
C & E Loss (ft)	0.00	Cum SA (acres)		0.15	2.39

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 15

INPUT

Description:								
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0	825	10	820	20	815	26.48	813	26.8
56.8	812.84	57.12	813	63.8	815	69.8	818.2	
99.8	819	130.87	820	192.87	822	220.87	822.9	230

Manning's n Values	num=	6	Sta	n Val	Sta	n Val	Sta	n Val
			0	.057	26.8	.02	56.8	.057
			230	.02			69.8	.039
							75.8	.02

Bank Sta: Left 0, Right 69.8 Lengths: Left Channel 24.9, Right 24.9 Coeff Contr. .1, Expan. .3

Blocked Obstructions	num=	1	Sta L	Sta R	Elev
			220.87	230	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	24.90	0.042	0.022
W.S. Elev (ft)	820.74	Reach Len. (ft)		24.90	24.90
Cr. L.S. (ft)		Flow Area (sq ft)		389.26	114.40
E. Total (cfs)	0.000516	Area (cfs)		389.26	114.45
Top width (ft)	1267.00	Top width (ft)		1046.44	220.56
Vel Total (ft/s)	145.38	Hydr. Depth (ft)		61.29	84.10

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Vel Total (ft/s) 2.52 Avg. Vel. (ft/s) 2.69
 Max Chl Dpth (ft) 7.90 Hydr. Depth (ft) 6.35
 Conv. Total (cfs) 55766.2 Conv. (cfs) 46058.6
 Length Wtd. (ft) 24.90 Wetted Per. (ft) 84.14
 Min Ch El (ft) 812.84 Shear (lb/sq ft) 0.20
 Alpha 1.05 Stream Power (lb/ft s) 230.00
 Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 0.11
 C & E Loss (ft) 0.00 Cum SA (acres) 2.30

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 14

INPUT		Description:		Station Elevation Data		num= 19	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	20	815	26.33	813
56.8	812.76	57.27	813	63.8	815	69.8	818.2
99.8	819	102.92	819.26	111.87	820	114.87	821
205.58	822	215.37	822	220.87	822	231	822

Manning's n Values		num= 7	
Sta	n	Sta	n
0	.039	69.8	.057
102.92	.039	231	.039

Bank Sta: Left 0 Right 69.8 Lengths: Left Channel 149.29 Right 149.29
 Blocked Obstructions num= 2 Coeff Contr. .1

Bank Sta L Sta R Elev Sta L Elev Sta R Elev
 116.02 205.58 825 220.87 231 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.83	Element	Left 08	Channels	Right 08
Vel Head (ft)	0.11	Wt n-Val.	149.29	0.042	0.026
W.S. Elev (ft)	820.72	Reach Len. (ft)	149.29	149.29	149.29
Crit W.S. (ft)	0.000540	Flow Area (sq ft)	390.54	390.54	82.03
E.G. Slope (ft/ft)	1267.00	Area (sq ft)	1075.96	1075.96	191.04
Q Total (cfs)	105.46	Top Width (ft)	61.24	61.24	44.23
Top Width (ft)	2.68	Avg. Vel. (ft/s)	2.76	2.76	2.33
Vel Total (ft/s)	7.96	Hydr. Depth (ft)	6.38	6.38	1.85
Max Chl Dpth (ft)	54534.3	Conv. (cfs)	46311.6	46311.6	8222.7
Conv. Total (cfs)	493.29	Wetted Per. (ft)	64.92	64.92	44.00
Length Wtd. (ft)	819.29	Stream Power (lb/ft s)	231.00	231.00	0.00
Min Ch El (ft)	11.01	Stream Power (acre-ft)	0.11	0.11	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.11	0.11	4.89
C & E Loss (ft)	0.00	Cum SA (acres)	0.15	0.15	3.49

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 13

INPUT		Description:		Station Elevation Data		num= 18	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	20	815	25.43	813
56.8	812.31	58.17	813	63.8	815	69.8	818.2
99.8	819	111.87	820	114.87	821	116.02	822
215.37	822.5	220.87	822.5	230	822.5	230	822.5

Manning's n Values		num= 7	
Sta	n	Sta	n
0	.057	69.8	.057
99.8	.039	230	.039

Bank Sta: Left 0 Right 69.8 Lengths: Left Channel 201.75 Right 201.75
 Blocked Obstructions num= 2 Coeff Contr. .1

Bank Sta L Sta R Elev Sta L Elev Sta R Elev
 116.02 205.58 825 220.87 230 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.75	Element	Left 08	Channels	Right 08
Vel Head (ft)	0.11	Wt. n-Val.	201.75	0.042	0.024

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W.S. Elev (ft)	820.64	201.75	201.75
Crit W.S. (ft)	0.000512	402.00	402.00
E.G. Slope (ft/ft)	1267.00	1097.35	169.65
Q Total (Cfs)	105.08	61.08	44.00
Top Width (ft)	2.64	2.73	2.16
Vel Total (ft/s)	55986.3	48490.58	7496.72
Max Chl Dpth (ft)	201.75	64.11	44.16
Length Wtd. (ft)	812.31	230.00	0.06
Min Ch El (ft)	1.02	0.11	0.00
Alpha	0.10	18.26	4.61
Frctn Loss (ft)	0.00	0.15	2.05
C & E Loss (ft)			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 12

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
num=	16		16		16		16	
Sta	825	10	820	26.22	812	26.8	811.71	
Elev	57.38	820	63.5	815	89.6	818.7	819.75	
Sta	99.8	104.8	819.24	820	200.87	820	227.87	
Elev	819.93							

Manning's n Values	num=	7	Sta	n Val	Sta	n Val	Sta	n Val
Sta	0	69.8	26.8	.02	69.8	.039	75.8	.02
Elev	104.8	.039	227.87	.02				

Bank Sta: Left Right Lengths: Left Channel Right

Blocked Obstructions: num= 1

Sta	120.68	200.71	825
Elev			

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	wt. n-Val.	0.042	0.042	0.025
W.S. Elev (ft)	820.56	Reach Len. (ft)	246.39	246.39	246.39
Crit W.S. (ft)	0.000438	Flow Area (sq ft)	419.93	419.93	109.87
E.G. Slope (ft/ft)	1267.00	Area (sq ft)	1086.99	1086.99	188.01
Q Total (Cfs)	146.90	Top Width (ft)	6.01	6.01	88.04
Vel Total (ft/s)	2.39	Avg Vel (ft/s)	2.50	2.50	1.64
Max Chl Dpth (ft)	8.85	Hvdr. Depth (ft)	6.89	6.89	1.25
Conv. Total (Cfs)	60544.0	Conv. (Cfs)	51918.4	8625.5	8625.5
Length Wtd. (ft)	246.39	wetted per. (ft)	64.42	89.83	0.03
Min Ch El (ft)	811.71	Shear (lb/sq ft)	0.18	0.18	0.00
Alpha	1.07	Stream Power (lb/ft s)	237.87	0.11	16.36
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.15	16.36	4.18
C & E Loss (ft)	0.01	Cum SA (acres)	0.15	1.77	3.04

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 11

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
num=	18		18		18		18	
Sta	825	10	820	28	811	58	811	
Elev	57.38	820	63.5	815	89.6	818	819	
Sta	99.8	104.8	819.24	820	200.87	820	227.87	
Elev	819.93							

Manning's n Values	num=	11	Sta	n Val	Sta	n Val	Sta	n Val
Sta	0	69.8	26.8	.02	69.8	.039	78.59	.02
Elev	104.8	.039	227.87	.02				

Bank Sta: Left Right Lengths: Left Channel Right

Sta	120.68	200.71	825
Elev			

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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.55	Element	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.043	0.033
W.S. Elev (ft)	820.49	Reach Len. (ft)	63.04	293.04
Cr. Sl. Sp. (ft/ft)	0.000317	Flow Area (sq ft)	458.51	290.35
G. Total (cfs)	1402.00	Flow (cfs)	1029.55	372.45
Top Width (ft)	222.33	Top width (ft)	62.98	159.35
Vel Total (ft/s)	1.87	Avg. Vel. (ft/s)	2.25	1.28
Max Chl Dpth (ft)	9.49	Hydr. Depth (ft)	7.28	1.82
Conv. Total (cfs)	78726.3	Wetted Per. (ft)	57812.3	20914.0
Length wrd. (ft)	63.04	Shear (lb/sq ft)	66.87	161.02
Min Ch El (ft)	811.00	Stream Power (lb/ft s)	0.14	0.04
Alpha	1.18	Cum Volume (acre-ft)	0.11	0.00
Frcn Loss (ft)	0.03	Cum SA (acres)	13.87	3.04
C & E Loss (ft)	0.01		0.15	2.34

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 10

INPUT Description: Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	20	815	28	811
58.4	810.81	58.8	811	72.8	818	79.39	818.35
150.92	819	355.01	822	416.23	822.9	426	822.9

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	28.4	.02	58.4	.057	72.8	.039
426	.02					79.39	.02

Bank Sta: Left 0 Right 72.8 Lengths: Left Channel 36.14 Right 36.14
 Blocked obstructions num= 1
 Sta L Sta R Elev
 416.23 426 825

Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.51	Element	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.045	0.024
W.S. Elev (ft)	820.37	Reach Len. (ft)	36.14	36.14
Cr. Sl. Sp. (ft/ft)	0.000672	Flow Area (sq ft)	464.31	180.11
E.G. Slope (ft/ft)	1860.00	Area (sq ft)	1515.72	344.28
Q Total (cfs)	234.82	Flow (cfs)	63.54	171.28
Top Width (ft)	2.89	Top width (ft)	3.26	1.91
Vel Total (ft/s)	9.56	Avg. Vel. (ft/s)	7.31	1.05
Max Chl Dpth (ft)	36.14	Hydr. Depth (ft)	58478.0	13282.7
Conv. Total (cfs)	810.81	Wetted Per. (ft)	67.49	171.32
Length wrd. (ft)	0.03	Shear (lb/sq ft)	0.79	0.04
Alpha	1.02	Stream Power (lb/ft s)	13.21	2.70
Frcn Loss (ft)	0.00	Cum Volume (acre-ft)	0.11	2.10
C & E Loss (ft)	0.00	Cum SA (acres)	0.15	2.10

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 9

INPUT Description: Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	20	815	28	811
58.63	810.7	59.26	811	73.26	818	79.86	818.35
103.86	818.33	109.86	818	120.01	822	122.66	822
178.55	821	226.72	822	304.09	822	363.68	822
416.7	822	427	822			372.58	822

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	28.63	.02	58.63	.057	73.26	.039
103.86	.039	427	.039			79.86	.02

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Bank Sta: Left 0 Right 73.26 Lengths: Left Channel 55 Right 55 Coeff Contr. .1 Expan. .3
 Blocked Obstructions num= 4
 Sta L Sta R Elev Sta L Sta L Elev Sta R Elev
 226.72 318.72 825 335.85 363.85 825 373.78 413.77 825
 416.7 427

CROSS SECTION OUTPUT Profile #PF 1

Element	Left 08	Channel	Right 08
E.G. Elev (ft)	820.48		
Vel Head (ft)	0.18		
W.S. Elev (ft)	820.30	55.00	
Crit W.S. (ft)			
E.G. Slope (ft/ft)	0.000801		
Q Total (cfs)	1860.00		
Top Width (ft)	131.53		
Vel Total (ft/s)	9.29		
Hyd. Vel (ft/s)	7.36		
Hyd. Depth (ft)	65720.8		
Conv. Total (cfs)	55.00		
Length Wtd. (ft)	810.70		
Min Ch El (ft)	1.09	427.00	
Alpha	0.04		
Frctn Loss	0.00		
C & E Loss (ft)	0.00		
			12.82
			2.59
			0.07
			68.14
			67.85
			58871.0
			7.36
			1.47
			67.86
			193.86
			1666.14
			98.21
			98.21
			467.71
			467.71
			55.00
			55.00
			0.043

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 8

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=		20					
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	58.98	810.82	59.00	820.00	81.18	80.58	818.51	825.34
	104.56	818.33	110.56	818.00	818.00	124.72	820.00	819.00
	227.43	822.36	484.48	822.00	417.4	822.00	427.00	822.00

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.057	28.98	.02	58.98	.057	73.96	.039	80.56
104.56	.039	.427						

Bank Sta: Left 0 Right 73.96 Lengths: Left Channel 60.26 Right 60.26 Coeff Contr. .1 Expan. .3

Blocked Obstructions num= 3
 Sta L Sta R Elev Sta L Sta L Elev Sta R Elev
 227.43 319.43 825 336.55 364.55 825 417.4 427 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left 08	Channel	Right 08
E.G. Elev (ft)	820.44		
Vel Head (ft)	0.18		
W.S. Elev (ft)	820.26	60.26	
Crit W.S. (ft)			
E.G. Slope (ft/ft)	0.000777		
Q Total (cfs)	1860.00		
Top Width (ft)	129.48		
Vel Total (ft/s)	3.26		
Max Ch Dpth (ft)	9.72		
Hyd. Depth (ft)	66707.3		
Conv. Total (cfs)	60.26		
Length Wtd. (ft)	810.54		
Min Ch El (ft)	1.09	427.00	
Alpha	0.04		
Frctn Loss	0.00		
C & E Loss (ft)	0.00		
			12.22
			2.47
			1.94
			60145.0
			6562.3
			65.53
			0.07
			0.00
			2.47
			1.92

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 7

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=		21					
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	59.36	810.36	60.72	811.00	74.72	818.36	819.00	819.00
	105.33	818.33	111.33	818.00	113.33	817.00	123.84	818.00

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134.49	819	159.37	820	305.33	821	336.33	822	339.33	822		
349	822										
Manning's n Values											
Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.057	29.36	02	59.36	.057	74.72	.039	81.33	.02		
105.33	.059	349									
Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.											
		0	74.72	98.26	98.26	98.26		.1	.3		
Blocked Obstructions											
Sta L	Sta R	Elev	num=								
339.33	349	825	1								

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.			
W.S. Elev (ft)	820.23	Reach Len. (ft)	98.26		
Crit W.S. (ft)	820.26	Flow Area (sq ft)	487.45		
E.G. Slope (ft/ft)	0.000710	Area (sq ft)	487.45		
Q Total (Cfs)	1860.00	Flow (cfs)	1644.25		
Top Width (ft)	183.32	Top Width (ft)	65.18		
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)	3.37		
Max Chl Dpth (ft)	9.87	Hydr. Depth (ft)	7.48		
Conv. Total (Cfs)	69825.2	Conv. (cfs)	61725.7		
Length Wtd. (ft)	810.36	Wetted Per. (ft)	69.30		
Min Ch El (ft)	1.16	Shear (lb/sq ft)	0.31		
Alpha	0.00	Stream Power (lb/ft.s)	11.90		
Friction Loss (ft)	0.00	Cum Volume (acre-ft)	11.90		
C & E Loss (ft)	0.01	Cum SA (acres)	0.15		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 6

INPUT											
Description:											
Station	Elevation	Data	num=								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev		
0	825	10.03	820	20.05	815	26.07	813	32.08	811		
34.19	810.06	64.19	810.06	66.18	811	80.18	818	86.79	818.36		
98.79	819	110.79	818.33	116.79	818	120.79	816	123.79	815		
128.39	815	131.39	816	140.72	818	183.47	820	253.79	822		
256.79	822	267	822								
Manning's n Values											
Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.057	34.19	.02	64.19	.057	80.18	.039	86.79	.02		
110.79	.039	267	.039								
Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.											
		0	80.18	175.56	175.56	175.56		.1	.3		
Blocked Obstructions											
Sta L	Sta R	Elev	num=								
256.79	267	825	1								

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.			
W.S. Elev (ft)	820.20	Reach Len. (ft)	175.56		
Crit W.S. (ft)	820.20	Flow Area (sq ft)	175.56		
E.G. Slope (ft/ft)	0.000520	Area (sq ft)	537.63		
Q Total (Cfs)	1860.00	Flow (cfs)	1541.46		
Top Width (ft)	181.02	Top Width (ft)	70.56		
Vel Total (ft/s)	12.49	Avg. Vel. (ft/s)	2.87		
Max Chl Dpth (ft)	1593.14	Hydr. Depth (ft)	67619.62		
Conv. Total (Cfs)	81593.14	Conv. (cfs)	74.55		
Length Wtd. (ft)	175.56	Wetted Per. (ft)	0.23		
Min Ch El (ft)	1.16	Stream Power (lb/ft.s)	267.00		
Alpha	0.07	Shear (lb/ft.s)	0.11		
Friction Loss (ft)	0.01	Cum Volume (acre-ft)	10.40		
C & E Loss (ft)	0.01	Cum SA (acres)	0.15		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 5

INPUT											
Description:											
Station	Elevation	Data	num=								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev		
0	825	10.03	820	20.05	815	26.07	813	32.08	811		
34.19	810.06	64.19	810.06	66.18	811	80.18	818	86.79	818.36		
98.79	819	110.79	818.33	116.79	818	120.79	816	123.79	815		
128.39	815	131.39	816	140.72	818	183.47	820	253.79	822		
256.79	822	267	822								
Manning's n Values											
Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.057	34.19	.02	64.19	.057	80.18	.039	86.79	.02		
110.79	.039	267	.039								
Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.											
		0	80.18	175.56	175.56	175.56		.1	.3		
Blocked Obstructions											
Sta L	Sta R	Elev	num=								
256.79	267	825	1								

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INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	20.01	35.01	810	36.35	809.53						
176.31	809.53	77.5	810	100.23	817.65	112.23	818.74					
174.43	817.53	137.5	817	140.58	822	130.41	818					
180.41	821	203.41	822	208.41	822	218						

Manning's n values

num=	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	36.35	.02	76.51	.057	91.61	.039	100.23
124.23	.039	218	.039					

Bank Sta: Left 0 91.61 Right 164.09 164.09 164.09

Blocked obstructions

num=	Sta L	Sta R	Elev
1	208.41	218	825

GROSS SECTION OUTPUT Profile #PF 1

	Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.24			
Vel Head (ft)	0.09			0.031
W.S. Elev (ft)	820.15	164.09	164.09	164.09
Crit W.S. (ft)				186.48
E.G. Slope (ft/ft)	0.000320			186.48
Q Total (cfs)	2023.00			280.90
Top width (ft)	102.33			81.54
Max Chl Dpth (ft)	10.62			2.32
Conv. Total (cfs)	113058.2			15698.3
Length wtd. (ft)	809.53			80.81
Min Ch El (ft)	Alpha	218.00		0.05
Frctn Loss (ft)	C & E Loss (ft)	0.11	7.94	1.11
		0.15	0.64	1.15

Note: Manning's n values were composited to a single value in the main channel.

GROSS SECTION

RIVER: West Channel

REACH: West Channel

RS: 4

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
131.85	809	147.58	817	168.21	817.5	181.39	817.21	
193.85	816	208.57	816	219.48	818	243.88	822	
264.38	822	274						

Manning's n values

num=	Sta	n Val	Sta	n Val	Sta	n Val
0	.039	53.3	.057	147.58	.039	156.21
274	.039				.02	181.39

Bank Sta: Left 63.31 Right 147.58

Blocked obstructions

num=	Sta L	Sta R	Elev
1	264.38	274	825

GROSS SECTION OUTPUT Profile #PF 1

	Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.18			
Vel Head (ft)	0.05			0.057
W.S. Elev (ft)	820.13	29.39	29.39	29.39
Crit W.S. (ft)				578.01
E.G. Slope (ft/ft)	0.000276			423.54
Q Total (cfs)	2023.00			102.87
Top width (ft)	198.77			1.52
Max Chl Dpth (ft)	11.80			2.70
Conv. Total (cfs)	121837.3			23508.0
Length wtd. (ft)	29.39			103.24
Min Ch El (ft)	Alpha	274.00		0.05
Frctn Loss (ft)	C & E Loss (ft)	0.01	5.10	0.00
		0.00	0.13	0.23

Note: Manning's n values were composited to a single value in the main channel.

GROSS SECTION

RIVER: West Channel

REACH: West Channel

RS: 4

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
131.85	809	147.58	817	168.21	817.5	181.39	817.21	
193.85	816	208.57	816	219.48	818	243.88	822	
264.38	822	274						

Manning's n values

num=	Sta	n Val	Sta	n Val	Sta	n Val
0	.039	53.3	.057	147.58	.039	156.21
274	.039				.02	181.39

Bank Sta: Left 63.31 Right 147.58

Blocked obstructions

num=	Sta L	Sta R	Elev
1	264.38	274	825

Note: Manning's n values were composited to a single value in the main channel.

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RIVER: West Channel
REACH: West Channel

RS: 3

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	826.57	0	820.64	0	820.64	0	820.64
131.45	809	147.57	817	156.21	817.21	168.21	818
302.38	822	324.38	822.9	822.9			

Manning's n	Values	num=	5
0	.039	21.9	.057
131.45	.039	21.9	.057
147.57	.039	21.9	.057
156.21	.039	21.9	.057
168.21	.039	21.9	.057
822.9	.039	21.9	.057

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Expan.
61.04	147.57	175.41	175.41	175.41	175.41	
324.38	334	825	6.11	6.11	6.11	

Blocked Obstructions	num=	1
324.38	334	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	wt. n-Val.	0.057	0.057	0.022
W.S. Elev (ft)	820.11	Reach Len. (ft)	6.11	6.11	6.11
Crit W.S. (ft)	0.000298	Flow Area (sq ft)	102.35	842.97	199.89
E.G. Slope (ft/ft)	2337.30	Area (sq ft)	40.17	182.50	108.75
Total (cfs)	11.87	Top Width (ft)	0.85	2.01	1.75
Vel Total (ft/s)	11.87	Avg Vel (ft/s)	2.49	9.74	1.84
Max Chl Dpth (ft)	11.11	Hydr. Depth (ft)	5028.9	20727.0	20727.0
Conv. Total (cfs)	123852.8	Conv. (cfs)	41.43	89.38	108.80
Length Wtd. (ft)	6.11	wetted Per. (ft)	41.43	89.38	108.80
Min Ch El (ft)	809.00	Shear (lb/sq ft)	0.18	0.18	0.03
Alpha	1.08	Stream Power (lb/ft s)	334.00	0.00	0.00
Frctn Loss	0.00	Cum Volume (acre-ft)	0.02	4.54	0.07
C & E Loss (ft)	0.01	Cum SA (acres)	0.11	0.27	0.73

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

CROSS SECTION

RIVER: West Channel
REACH: West Channel

RS: 2

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825.64	0	820.64	11.49	820	60.57	809
131.45	809	147.57	817	156.21	817.21	169.6	817.13
197.3	818	206.07	814	240.75	814	308.65	817
333.45	818	354.96	821	357.96	822	358.96	822

Manning's n	Values	num=	6
0	.039	11.49	.057
131.45	.039	11.49	.057
147.57	.039	11.49	.057
156.21	.039	11.49	.057
169.6	.039	11.49	.057
822	.039	11.49	.057

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Expan.
60.57	147.57	175.41	175.41	175.41	175.41	
358.96	369	825	6.11	6.11	6.11	

Blocked Obstructions	num=	1
358.96	369	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	wt. n-Val.	0.057	0.057	0.036
W.S. Elev (ft)	820.11	Reach Len. (ft)	6.11	6.11	6.11
Crit W.S. (ft)	0.000117	Flow Area (sq ft)	129.51	850.30	847.91
E.G. Slope (ft/ft)	2137.00	Area (sq ft)	129.51	850.30	847.91
Total (cfs)	339.72	Top Width (ft)	69.29	1071.17	996.54
Vel Total (ft/s)	339.72	Avg Vel (ft/s)	51.52	87.00	201.20
Max Chl Dpth (ft)	11.14	Hydr. Depth (ft)	0.53	1.26	1.18
Conv. Total (cfs)	197855.0	Conv. (cfs)	6415.2	99174.7	92265.1
Length Wtd. (ft)	175.41	wetted Per. (ft)	51.78	89.85	202.03
Min Ch El (ft)	809.00	Stream Power (lb/ft s)	0.02	0.07	0.00
Alpha	1.06	Cum Volume (acre-ft)	0.40	4.42	0.00
Frctn Loss	0.00	Cum SA (acres)	0.10	0.26	0.71
C & E Loss (ft)	0.00				

INLINE STRUCTURE

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RIVER: West Channel
 REACH: West Channel

RS: 1.5

INPUT

Description: Deck/Roadway Width = 109.58
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 6
 Sta Elev Sta Elev Sta Elev Sta Elev
 0 817.5 133.94 817.5 170.3 817.5 220.3 817.8 220.3 825

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at reach weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	820.16	Q Gates (cfs)	0.00
W.S. Elev (ft)	818.89	Q Gate Group (cfs)	0.00
Q Total (cfs)	2137.00	Gate Open Ht (ft)	818.89
Q Weir (cfs)	2137.00	Gate #open	1.00
Weir Flow Area (sq ft)	518.24	Gate Area (sq ft)	0.00
Weir Sta Rgt (ft)	220.30	Gate Invert (ft)	0.00
Weir Max Depth (ft)	2.44	Gate Weir Coef	0.000
Weir Avg Depth (ft)	2.44	Q Breach (cfs)	
Weir Coef (ft ^{1/2})	2.600	Breach Avg Velocity (ft/s)	
Weir Submerg	0.49	Breach Flow Area (sq ft)	
Min El Weir Flow (ft)	817.51		
W Top Width (ft)	211.66		

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 1

INPUT

Description: Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 817 818 203 816 816 136.64 817 187.77 818
 Manning's n Values num= 2
 Sta n Val Sta n Val
 0 .039 203 .039

Bank Sta: Left Right Coeff Contr. Expan.
 0 42.14 .1 .3

Blocked Obstructions num= 1
 Sta L Sta R Elev
 192.77 203 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.30	Element	Right OB
Vel Head (ft)	0.41	wt. n-Val.	0.039
W.S. Elev (ft)	818.89	Reach Len. (ft)	
Crit W.S. (ft)	818.31	Flow Area (sq ft)	301.38
E.G. Slope (ft/ft)	0.006188	Area (sq ft)	121.79
Q Total (cfs)	2137.00	Flow (cfs)	301.38
Top Width (ft)	192.77	Top Width (ft)	708.52
Vel Total (ft/s)	5.05	AVG. Vel. (ft/s)	42.14
Max Chl Dp (ft)	2.69	Hydr. Depth (ft)	5.82
Convth Weir (ft)	27106.8	Wetted P (ft)	907.89
Min Ch El (ft)	816.00	Shear (lb/ft)	151.54
Alpha	1.03	Stream Power (lb/ft s)	45.03
Frctn Loss		Cum Volume (acre-ft)	1.04
C & E Loss		Cum SA (acres)	0.00

SUMMARY OF MANNING'S N VALUES

River: Center North

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11
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		CPNPPLOca]PMP								
Center N Upper	13	.02	.039							
Center N Upper	12	.02	.039							
Center N Upper	11	.02	.039							
Center N Upper	10	.02	.039							
Center N Upper	9	.057	.039	.057	.02	.057	.039	.039		
Center N Upper	8	.057	.039	.057	.02	.057	.039	.039		
Center N Upper	7	.057	.039	.057	.02	.057	.039	.039		
Center N Upper	6	.057	.039	.057	.02	.057	.039	.039		
Center N Branch	108	.039	.039	.02	.057	.057	.039	.039		
Center N Branch	107	.039	.039	.057	.02	.057	.039	.039		
Center N Branch	106	.039	.039	.057	.02	.057	.039	.039		
Center N Branch	105	.039	.039	.057	.02	.057	.039	.039		
Center N Lower	4	.039	.039	.057	.02	.057	.039	.039		
Center N Lower	3	.02	.039	.057	.02	.057	.039	.039		
Center N Lower	2.5	In1 struct	.057	.02	.057	.039	.039	.039		
Center N Lower	2	.057	.039	.057	.02	.057	.039	.039		
Center N Lower	1	.057	.039	.057	.02	.057	.039	.039		

River:Center South

Reach	River Sta.	n1	n2	n3	n4	n5
Center South	8	.02	.039	.039		
Center South	7	.02	.039	.039		
Center South	6	.02	.039	.039		
Center South	5	.02	.039	.039		
Center South	4	.02	.039	.039		
Center South	3	.02	.039	.039		
Center South	2	.02	.039	.039		
Center South	1.5	In1 struct	.039	.039	.02	
Center South	1	.057	.039	.039		

River:East Channel

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9
East Channel	7	.039	.039	.039	.039	.039	.057	.02	.039	.02
East Channel	6	.039	.039	.039	.039	.039	.057	.02	.039	.02
East Channel	5	.039	.039	.039	.039	.039	.057	.02	.039	.02
East Channel	4	.039	.039	.039	.039	.039	.057	.02	.039	.02
East Channel	3	.039	.039	.039	.039	.039	.057	.02	.039	.02
East Channel	2	.039	.039	.039	.039	.039	.057	.02	.039	.02
East Channel	1	.039	.039	.039	.039	.039	.057	.02	.039	.02

River:Offsite

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9
Offsite	6	.039	.039	.02	.039	.057	.02	.057	.039	.02
Offsite	5	.039	.039	.02	.039	.057	.02	.057	.039	.02
Offsite	4	.039	.039	.02	.039	.057	.02	.057	.039	.02
Offsite	3	.039	.039	.057	.02	.057	.039	.02	.039	.02
Offsite	2	.039	.039	.057	.02	.057	.039	.02	.039	.02
Offsite	1.5	In1 struct	.039	.057	.02	.039	.039	.02	.039	.02
Offsite	1	.039	.039	.057	.02	.039	.039	.02	.039	.02

River:Unit 3 East

Reach	River Sta.	n1	n2	n3
Unit 3 East	5	.02	.039	.039
Unit 3 East	4	.02	.039	.039
Unit 3 East	3	.02	.039	.039
Unit 3 East	2	.02	.039	.039
Unit 3 East	1.5	In1 struct	.057	.039
Unit 3 East	1	.039	.039	.039

River:Unit 3 North

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9
Unit 3 North	8	.039	.039	.039	.039	.039	.039			
Unit 3 North	7	.039	.039	.039	.039	.039	.039			
Unit 3 North	6	.039	.039	.039	.039	.039	.039			
Unit 3 North	5	.039	.039	.039	.039	.039	.039			
Unit 3 North	4.5	In1 struct	.039	.039	.039	.039	.039			
Unit 3 North	4	.039	.039	.039	.039	.039	.039			
Unit 3 North	3	.039	.039	.039	.039	.039	.039			
Unit 3 North	2	.039	.039	.039	.039	.039	.039			
Unit 3 North	1.5	In1 struct	.039	.039	.039	.039	.039			
Unit 3 North	1	.02	.039	.039	.039	.039	.039			

West Channel	14	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	13	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	12	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	11	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	10	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	9	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	8	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	7	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	6	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	5	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	4	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	3	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	2	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	1.5	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
West Channel	1	.057	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02	.057	.02	.039	.02
In1 struct																							

SUMMARY OF REACH LENGTHS

River: Center North

Reach	River Sta.	Left	Channel	Right
Center N Upper	13	55	55	55
Center N Upper	12	76.77	76.77	76.77
Center N Upper	11	46.44	46.44	46.44
Center N Upper	10	179.90	179.90	179.90
Center N Upper	9	16.59	16.59	16.59
Center N Upper	8	63.59	63.59	63.59
Center N Upper	7	63.02	63.02	63.02
Center N Upper	6	286.02	286.02	286.02
Center N Upper	5			
Center N Branch	108	56.64	56.64	56.64
Center N Branch	107	176.5	176.5	176.5
Center N Branch	106	63.65	63.65	63.65
Center N Branch	105			
Center N Lower	4	87.1	87.1	87.1
Center N Lower	3	119.07	119.07	119.07
Center N Lower	2.5	In1 Struct		
Center N Lower	2	69.2	69.2	69.2
Center N Lower	1			

River: Center South

Reach	River Sta.	Left	Channel	Right
Center South	8	57.19	57.19	57.19
Center South	7	39.7	39.7	39.7
Center South	6	42.16	42.16	42.16
Center South	5	39.61	39.61	39.61
Center South	4	21.35	21.35	21.35
Center South	3	21.35	21.35	21.35
Center South	2	60.83	60.83	60.83
Center South	1.5	In1 Struct		
Center South	1			

River: East Channel

Reach	River Sta.	Left	Channel	Right
East Channel	7	151.75	151.75	151.75
East Channel	6	48.5	48.5	48.5
East Channel	5	34.42	34.42	34.42
East Channel	4	44.51	44.51	44.51
East Channel	3	74.78	74.78	74.78
East Channel	2	72.31	72.31	72.31
East Channel	1			

River: Offsite

Reach	River Sta.	Left	Channel	Right
Offsite	6	83	83	83
Offsite	5	55.28	55.28	55.28
Offsite	4	21.99	21.99	21.99
Offsite	3	23.72	23.72	23.72
Offsite	2	127.7	127.7	127.7
Offsite	1.5	In1 Struct		
Offsite	1			

River: Unit 3 East

Reach	River Sta.	Left	Channel	Right

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Unit 3 East	5	41	41
Unit 3 East	4	59	59
Unit 3 East	3	18.8	18.8
Unit 3 East	2	70.85	70.85
Unit 3 East	1	In] Struct	

River: Unit 3 North

Reach	River Sta.	Left	Channel	Right
Unit 3 North	8	38.08	38.08	38.08
Unit 3 North	7	58.25	58.25	58.25
Unit 3 North	6	134.06	134.06	134.06
Unit 3 North	5	58	58	58
Unit 3 North	4.5	In] Struct		
Unit 3 North	4	70.27	70.27	70.27
Unit 3 North	3	18.2	18.2	18.2
Unit 3 North	2	137.8	137.8	137.8
Unit 3 North	1	In] Struct		

River: Unit 3 Southeast

Reach	River Sta.	Left	Channel	Right
Unit 3 Southeast	11	54.07	54.07	54.07
Unit 3 Southeast	10	66.77	66.77	66.77
Unit 3 Southeast	9	60.01	60.01	60.01
Unit 3 Southeast	8	12.19	12.19	12.19
Unit 3 Southeast	7	35.05	35.05	35.05
Unit 3 Southeast	6	97.41	97.41	97.41
Unit 3 Southeast	5	27.97	27.97	27.97
Unit 3 Southeast	4	59.51	59.51	59.51
Unit 3 Southeast	3	49.34	49.34	49.34
Unit 3 Southeast	2	95.65	95.65	95.65
Unit 3 Southeast	1	In] Struct		

River: Unit 3 UHS

Reach	River Sta.	Left	Channel	Right
U3 UHS Branch	109	90	90	90
U3 UHS Upper	12	73.33	73.33	73.33
U3 UHS Upper	11	182.59	182.59	182.59
U3 UHS Upper	10	182.59	182.59	182.59
U3 UHS Upper	9	74.27	74.27	74.27
U3 UHS Lower	8	129.73	129.73	129.73
U3 UHS Lower	6.9	Lat Struct		
U3 UHS Lower	6	130.06	130.06	130.06
U3 UHS Lower	5	26.74	26.74	26.74
U3 UHS Lower	4	108.2	108.2	108.2
U3 UHS Lower	3	107.52	107.52	107.52
U3 UHS Lower	2	55.08	55.08	55.08
U3 UHS Lower	1.5	In] Struct		

River: Unit 4 North

Reach	River Sta.	Left	Channel	Right
Unit 4 North	6	43.08	43.08	43.08
Unit 4 North	5	58.25	58.25	58.25
Unit 4 North	4	100	100	100
Unit 4 North	3	70.88	70.88	70.88
Unit 4 North	2	38	38	38
Unit 4 North	1.5	In] Struct		

River: Unit 4 UHS

Reach	River Sta.	Left	Channel	Right
U4 UHS Upper	10	54.68	54.68	54.68
U4 UHS Upper	9	73.55	73.55	73.55
U4 UHS Upper	8	186.76	186.76	186.76
U4 UHS Upper	6.9	Lat Struct		
U4 UHS Upper	6	118.9	118.9	118.9
U4 UHS Branch	107			

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U4 UHS Branch	106								
U4 UHS Lower	5	170.5	170.5	170.5					
U4 UHS Lower	4.9	Lat Struct	91.85	91.85					
U4 UHS Lower	4	134.36	134.36	134.36					
U4 UHS Lower	3.9	Lat Struct	112	112					
U4 UHS Lower	3	134.36	134.36	134.36					
U4 UHS Lower	2	In] Struct							
U4 UHS Lower	1.5								
U4 UHS Lower	1								

River: West Channel

Reach	River Sta.	Left	Channel	Right
West Channel	24	66.39	66.39	66.39
West Channel	23	124.9	124.9	124.9
West Channel	21	169.74	169.74	169.74
West Channel	20	201.74	201.74	201.74
West Channel	19	166.53	166.53	166.53
West Channel	18	230.48	230.48	230.48
West Channel	17	32.96	32.96	32.96
West Channel	16	142.47	142.47	142.47
West Channel	15	66.4	66.4	66.4
West Channel	14	24.9	24.9	24.9
West Channel	13	149.29	149.29	149.29
West Channel	12	201.75	201.75	201.75
West Channel	11	246.39	246.39	246.39
West Channel	10	93.04	93.04	93.04
West Channel	9	36.55	36.55	36.55
West Channel	8	60.26	60.26	60.26
West Channel	7	98.26	98.26	98.26
West Channel	6	175.56	175.56	175.56
West Channel	5	164.09	164.09	164.09
West Channel	4	29.39	29.39	29.39
West Channel	3	6.11	6.11	6.11
West Channel	2	175.41	175.41	175.41
West Channel	1	In] Struct		

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Center North

Reach	River Sta.	Contr.	Expan.
Center N Upper	13	.1	.3
Center N Upper	12	.1	.3
Center N Upper	11	.1	.3
Center N Upper	10	.1	.3
Center N Upper	9	.1	.3
Center N Upper	8	.1	.3
Center N Upper	7	.1	.3
Center N Upper	6	.1	.3
Center N Upper	5	.1	.3
Center N Branch	108	.1	.3
Center N Branch	107	.1	.3
Center N Branch	106	.1	.3
Center N Branch	105	.1	.3
Center N Lower	4	.1	.3
Center N Lower	3	.1	.3
Center N Lower	2.5	In] Struct	
Center N Lower	2	.1	.3
Center N Lower	1	.1	.3

River: Center South

Reach	River Sta.	Contr.	Expan.
Center South	8	.1	.3
Center South	7	.1	.3
Center South	6	.1	.3
Center South	5	.1	.3
Center South	4	.1	.3
Center South	3	.1	.3
Center South	2	.1	.3
Center South	1.5	In] Struct	
Center South	1	.1	.3

River: East Channel

Reach	River Sta.	Contr.	Expan.
Center South	8	.1	.3
Center South	7	.1	.3
Center South	6	.1	.3
Center South	5	.1	.3
Center South	4	.1	.3
Center South	3	.1	.3
Center South	2	.1	.3
Center South	1.5	In] Struct	
Center South	1	.1	.3

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East Channel]	7	.1	.3
East Channel]	6	.1	.3
East Channel]	5	.1	.3
East Channel]	4	.1	.3
East Channel]	3	.1	.3
East Channel]	2	.1	.3
East Channel]	1	.1	.3

River: Offsite

Reach	River Sta.	Contr.	Expan.
Offsite	6	.1	.3
Offsite	5	.1	.3
Offsite	4	.1	.3
Offsite	3	.1	.3
Offsite	2	.1	.3
Offsite	1.5	Inl Struct	.3
Offsite	1	.1	.3

River: Unit 3 East

Reach	River Sta.	Contr.	Expan.
Unit 3 East	5	.1	.3
Unit 3 East	4	.1	.3
Unit 3 East	3	.1	.3
Unit 3 East	2	.1	.3
Unit 3 East	1.5	Inl Struct	.3
Unit 3 East	1	.1	.3

River: Unit 3 North

Reach	River Sta.	Contr.	Expan.
Unit 3 North	8	.1	.3
Unit 3 North	7	.1	.3
Unit 3 North	6	.1	.3
Unit 3 North	5	.1	.3
Unit 3 North	4.5	Inl Struct	.3
Unit 3 North	4	.1	.3
Unit 3 North	3	.1	.3
Unit 3 North	2	.1	.3
Unit 3 North	1.5	Inl Struct	.3
Unit 3 North	1	.1	.3

River: Unit 3 Southeast

Reach	River Sta.	Contr.	Expan.
Unit 3 Southeast	11	.1	.3
Unit 3 Southeast	10	.1	.3
Unit 3 Southeast	9	.1	.3
Unit 3 Southeast	8	.1	.3
Unit 3 Southeast	7	.1	.3
Unit 3 Southeast	6	.1	.3
Unit 3 Southeast	5	.1	.3
Unit 3 Southeast	4	.1	.3
Unit 3 Southeast	3	.1	.3
Unit 3 Southeast	2	.1	.3
Unit 3 Southeast	1.5	Inl Struct	.3
Unit 3 Southeast	1	.1	.3

River: Unit 3 UHS

Reach	River Sta.	Contr.	Expan.
U3 UHS Branch	109	.1	.3
U3 UHS Branch	108	.1	.3
U3 UHS Upper	12	.1	.3
U3 UHS Upper	11	.1	.3
U3 UHS Upper	10	.1	.3
U3 UHS Upper	9	.1	.3
U3 UHS Upper	8	.1	.3
U3 UHS Lower	7	.1	.3
U3 UHS Lower	6.9	Lat Struct	.3
U3 UHS Lower	6	.1	.3
U3 UHS Lower	5	.1	.3
U3 UHS Lower	4	.1	.3
U3 UHS Lower	3	.1	.3
U3 UHS Lower	2	.1	.3
U3 UHS Lower	1.5	Inl Struct	.3
U3 UHS Lower	1	.1	.3

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River: Unit 4 North

Reach	River Sta.	Contr.	Expan.
Unit 4 North	6	.1	.3
Unit 4 North	4	.1	.3
Unit 4 North	3	.1	.3
Unit 4 North	2	.1	.3
Unit 4 North	1.5	Inl Struct	.3
Unit 4 North	1	.1	.3

River: Unit 4 UHS

Reach	River Sta.	Contr.	Expan.
U4 UHS Upper	10	.1	.3
U4 UHS Upper	9	.1	.3
U4 UHS Upper	8	.1	.3
U4 UHS Upper	7	.1	.3
U4 UHS Upper	6.9	Lat Struct	.3
U4 UHS Upper	6	.1	.3
U4 UHS Branch	107	.1	.3
U4 UHS Branch	106	.1	.3
U4 UHS Lower	5	.1	.3
U4 UHS Lower	4.9	Lat Struct	.3
U4 UHS Lower	3.9	Lat Struct	.3
U4 UHS Lower	3	.1	.3
U4 UHS Lower	2	.1	.3
U4 UHS Lower	1.5	Inl Struct	.3
U4 UHS Lower	1	.1	.3

River: West Channel

Reach	River Sta.	Contr.	Expan.
West Channel	24	.1	.3
West Channel	23	.1	.3
West Channel	22	.1	.3
West Channel	21	.1	.3
West Channel	20	.1	.3
West Channel	19	.1	.3
West Channel	18	.1	.3
West Channel	17	.1	.3
West Channel	16	.1	.3
West Channel	15	.1	.3
West Channel	14	.1	.3
West Channel	13	.1	.3
West Channel	12	.1	.3
West Channel	11	.1	.3
West Channel	10	.1	.3
West Channel	9	.1	.3
West Channel	8	.1	.3
West Channel	7	.1	.3
West Channel	6	.1	.3
West Channel	5	.1	.3
West Channel	4	.1	.3
West Channel	3	.1	.3
West Channel	2	.1	.3
West Channel	1.5	Inl Struct	.3
West Channel	1	.1	.3

Profile Output Table - Standard Table 1

River	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
West Channel	West Channel	24	PF 1	497.00	811.81	820.98	813.49	821.00	0.000043	0.87	599.95	122.92	0.06	0.06
West Channel	West Channel	23	PF 1	497.00	811.94	820.98		820.99	0.000041	0.87	599.75	122.92	0.06	0.06
West Channel	West Channel	22	PF 1	497.00	811.98	820.98		820.99	0.000044	0.87	599.88	113.17	0.06	0.06
West Channel	West Channel	21	PF 1	497.00	812.28	820.97		820.98	0.000055	0.93	552.72	111.41	0.06	0.06
West Channel	West Channel	20	PF 1	497.00	812.69	820.96		820.97	0.000066	0.97	543.32	136.96	0.07	0.07
West Channel	West Channel	19	PF 1	497.00	812.98	820.94		820.96	0.000088	1.07	464.26	92.32	0.08	0.08
West Channel	West Channel	18	PF 1	497.00	813.50	820.92		820.94	0.000098	1.11	447.03	91.64	0.08	0.08
West Channel	West Channel	17	PF 1	900.00	814.00	820.86		820.93	0.000362	2.12	424.46	91.51	0.16	0.16
West Channel	West Channel	16	PF 1	900.00	812.84	820.82		820.88	0.000282	1.96	474.04	113.29	0.14	0.14
West Channel	West Channel	15	PF 1	1267.00	812.76	820.74		820.85	0.000516	2.69	503.71	145.38	0.19	0.19
West Channel	West Channel	14	PF 1	1267.00	812.31	820.64		820.83	0.000540	2.76	472.57	105.46	0.19	0.19
West Channel	West Channel	13	PF 1	1267.00	811.71	820.54		820.72	0.000532	2.78	560.87	103.08	0.19	0.19
West Channel	West Channel	12	PF 1	1402.00	811.00	820.49		820.55	0.000377	2.39	748.81	222.33	0.17	0.17
West Channel	West Channel	11	PF 1	1860.00	810.80	820.37		820.51	0.000672	3.26	644.42	234.82	0.21	0.21
West Channel	West Channel	10	PF 1	1860.00	810.70	820.30		820.48	0.000801	3.56	565.92	131.53	0.23	0.23
West Channel	West Channel	9	PF 1	1860.00	810.54	820.26		820.44	0.000777	3.52	571.07	129.48	0.23	0.23

West Channel]	west Channel]	1860.00	810.36	820.23	820.39	0.000710	629.33	183.32	0.22
West Channel]	west Channel]	1860.00	810.06	820.20	820.32	0.000520	747.07	181.02	0.18
West Channel]	west Channel]	2023.00	809.53	820.15	820.24	0.000320	872.19	162.19	0.15
West Channel]	west Channel]	2023.00	809.00	820.13	820.18	0.000276	1123.49	198.77	0.11
West Channel]	west Channel]	2137.00	809.00	820.11	820.17	0.000298	1145.21	236.39	0.11
In]	In]	2137.00	809.00	820.14	820.16	0.000117	1827.76	339.72	0.07
West Channel]	west Channel]	1607.00	816.00	818.89	819.30	0.006188	423.16	192.77	0.60
U4 UHS Upper	U4 UHS Upper	1607.00	809.83	819.20	819.40	0.001349	76.17	76.17	0.26
U4 UHS Upper	U4 UHS Upper	1607.00	809.69	819.13	819.32	0.001240	457.84	76.37	0.25
U4 UHS Upper	U4 UHS Upper	1607.00	809.53	819.18	819.24	0.000364	844.18	196.91	0.14
U4 UHS Upper	U4 UHS Upper	1607.00	809.06	819.09	819.16	0.000424	754.88	162.25	0.15
Lat Struct	Lat Struct	1001.86	808.87	819.11	819.13	0.000133	838.61	177.73	0.09
U4 UHS Branch	U4 UHS Branch	135.00	819.00	819.80	819.93	0.008234	46.32	58.25	0.58
U4 UHS Branch	U4 UHS Branch	135.00	818.02	819.14	819.23	0.004238	56.07	58.25	0.43
U4 UHS Lower	U4 UHS Lower	1136.86	816.00	819.00	819.10	0.001362	35.26	166.82	0.29
Lat Struct	Lat Struct		816.00	818.98	818.98	0.000000	291.21	131.90	0.00
U4 UHS Lower	U4 UHS Lower	1174	816.00	818.98	818.98	0.000000	313.94	116.37	0.00
U4 UHS Lower	U4 UHS Lower	2137.00	814.00	818.89	818.94	0.000377	1182.38	304.09	0.16
In]	In]	2137.00	800.00	816.00	816.00	0.000004	4670.56	301.71	0.02
U4 UHS Lower	U4 UHS Lower	2137.00	818.49	818.49	818.49	0.000100	195.79	104.28	0.06
Unit 4 North	Unit 4 North	135.00	816.95	820.11	820.12	0.000054	241.43	104.11	0.08
Unit 4 North	Unit 4 North	135.00	816.41	820.11	820.11	0.000044	255.94	104.11	0.05
Unit 4 North	Unit 4 North	135.00	820.11	820.11	820.11	0.000031	282.70	104.11	0.05
Unit 4 North	Unit 4 North	135.00	815.00	820.10	820.10	0.000047	241.67	110.11	0.06
In]	In]	135.00	814.30	820.07	820.07	0.000036	313.20	138.34	0.04
Unit 3 UHS	Unit 3 UHS	125.00	819.00	819.52	819.78	0.028193	30.46	58.25	1.00
U3 UHS Branch	U3 UHS Branch	125.00	817.00	819.15	819.18	0.000472	99.54	58.25	0.16
Unit 3 UHS	Unit 3 UHS	1652.00	817.00	819.54	819.47	0.003625	236.64	126.09	0.92
Unit 3 UHS	Unit 3 UHS	1652.00	816.42	819.44	819.73	0.003606	386.84	158.58	0.48
Unit 3 UHS	Unit 3 UHS	1652.00	815.68	819.28	819.44	0.001348	541.62	187.20	0.36
Unit 3 UHS	Unit 3 UHS	1652.00	815.24	818.90	819.14	0.001882	441.84	150.57	0.40
Unit 3 UHS	Unit 3 UHS	1652.00	815.02	818.71	818.98	0.002158	406.84	139.24	0.42
Unit 3 UHS	Unit 3 UHS	1777.00	814.85	818.52	818.84	0.002707	409.17	151.18	0.48
Lat Struct	Lat Struct		814.45	818.21	818.22	0.002362	301.59	118.22	0.46
U3 UHS Lower	U3 UHS Lower	1858.07	814.06	817.96	818.20	0.023032	220.31	85.49	0.43
U3 UHS Lower	U3 UHS Lower	793.13	813.97	817.96	818.11	0.020333	257.54	97.68	0.30
U3 UHS Lower	U3 UHS Lower	535.63	813.49	817.96	817.97	0.000530	324.21	145.44	0.18
U3 UHS Lower	U3 UHS Lower	459.32	813.00	817.89	817.92	0.000277	347.06	160.09	0.16
In]	In]	459.32	805.00	815.10	815.10	0.000021	1004.93	131.48	0.03
Unit 3 Southeast	Unit 3 Southeast	371.00	819.69	822.67	822.76	0.001504	159.27	80.48	0.31
Unit 3 Southeast	Unit 3 Southeast	371.00	819.31	821.86	821.52	0.013351	61.87	47.76	0.88
Unit 3 Southeast	Unit 3 Southeast	371.00	818.19	819.22	820.51	0.108276	92.74	95.49	2.07
Unit 3 Southeast	Unit 3 Southeast	371.00	817.80	819.76	819.80	0.000376	232.77	108.19	0.14
Unit 3 Southeast	Unit 3 Southeast	371.00	817.50	819.77	819.79	0.000244	322.49	188.53	0.12
Unit 3 Southeast	Unit 3 Southeast	371.00	817.00	819.75	819.77	0.000152	377.89	194.21	0.10
Unit 3 Southeast	Unit 3 Southeast	737.00	809.93	819.73	819.76	0.000201	570.47	196.65	0.09
Unit 3 Southeast	Unit 3 Southeast	737.00	809.75	819.72	819.75	0.000170	573.25	163.16	0.10
Unit 3 Southeast	Unit 3 Southeast	737.00	809.60	819.71	819.74	0.000214	525.35	150.95	0.09
In]	In]	737.00	806.00	815.10	815.12	0.000093	679.63	132.46	0.08
Unit 3 North	Unit 3 North	164.00	817.00	820.14	820.14	0.000087	234.74	104.20	0.07
Unit 3 North	Unit 3 North	164.00	816.64	820.13	820.14	0.000070	250.13	104.19	0.07
Unit 3 North	Unit 3 North	164.00	816.10	820.13	820.13	0.000055	269.59	108.78	0.06
Unit 3 North	Unit 3 North	164.00	815.00	820.12	820.13	0.000066	244.39	98.74	0.07
Unit 3 North	Unit 3 North	164.00	814.50	819.68	819.69	0.000236	178.43	105.61	0.10
Unit 3 North	Unit 3 North	164.00	814.05	819.67	819.68	0.000101	247.46	128.73	0.06
Unit 3 North	Unit 3 North	164.00	813.50	819.67	819.68	0.000108	239.43	134.84	0.07
In]	In]	164.00	813.00	817.92	817.92	0.000001	1032.05	234.88	0.01
Unit 3 East	Unit 3 East	196.00	820.00	820.44	820.39	0.021347	64.76	161.50	0.84
Unit 3 East	Unit 3 East	196.00	819.18	819.66	819.58	0.012477	67.79	155.87	0.77
Unit 3 East	Unit 3 East	196.00	818.23	818.23	818.34	0.036509	72.51	318.88	1.00
Unit 3 East	Unit 3 East	196.00	813.50	817.91	817.91	0.000015	953.60	350.60	0.02
In]	In]	196.00	810.00	815.10	815.10	0.000001	1709.50	362.23	0.01
Unit 3 East	Unit 3 East	2421.00	815.00	820.44	821.62	0.006452	282.37	99.02	0.75
Offsite	Offsite	2421.00	814.00	820.57	821.08	0.002856	443.45	170.43	0.45
Offsite	Offsite	2421.00	813.56	820.62	820.90	0.001340	608.84	210.24	0.33
Offsite	Offsite	2421.00	813.39	820.71	820.84	0.000587	908.04	239.99	0.22
Offsite	Offsite	2421.00	812.00	820.78	820.81	0.000035	1775.73	245.55	0.09
In]	In]	2421.00	817.00	818.69	818.69	0.019407	340.79	219.88	1.01
East Channel]	East Channel]	213.00	821.72	821.72	821.72	0.026687	46.53	72.56	0.50
East Channel]	East Channel]	213.00	819.80	820.42	819.80	0.043366	66.39	66.39	0.50
East Channel]	East Channel]	213.00	819.82	819.82	819.82	0.043366	42.59	42.59	0.50
East Channel]	East Channel]	213.00	818.38	818.38	818.38	0.043366	45.52	45.52	1.20
East Channel]	East Channel]	545.00	810.00	814.97	813.59	0.003507	130.31	50.64	0.46
East Channel]	East Channel]	545.00	809.33	815.08	815.12	0.000293	323.75	76.53	0.14
East Channel]	East Channel]	545.00	808.09	815.10	809.52	0.000033	814.13	183.04	0.05

Center South	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)	
Center South	PF 1	324.00	820.00	820.86	820.38	820.98	0.001025	1.20	300.06	390.76	0.21
Center South	PF 1	324.00	816.52	820.97	820.97	820.97	0.000074	0.79	477.44	213.51	0.07
Center South	PF 1	324.00	814.80	820.97	820.97	820.97	0.000043	0.68	561.15	248.83	0.06
Center South	PF 1	324.00	814.58	820.97	820.97	820.97	0.000031	0.63	663.04	302.15	0.05
Center South	PF 1	324.00	814.34	820.97	820.97	820.97	0.000012	0.42	886.99	409.58	0.03
Center South	PF 1	324.00	814.11	820.97	820.97	820.97	0.000007	0.34	1211.21	490.41	0.02
Center South	In1	821.00	814.00	820.97	820.97	820.97	0.000039	0.78	3629.37	490.41	0.01
Center South	PF 1	52.00	812.84	820.86	813.87	820.86	0.000005	0.23	29.87	62.78	0.40
Center N Upper	PF 1	52.00	819.56	820.42	820.08	820.48	0.003717	2.05	60.47	59.11	0.13
Center N Upper	PF 1	52.00	818.28	820.41	820.08	820.42	0.000324	0.92	136.68	121.92	0.05
Center N Upper	PF 1	52.00	817.00	820.41	820.08	820.41	0.000041	0.41	365.80	174.10	0.12
Center N Upper	PF 1	442.00	815.30	820.37	820.37	820.37	0.000350	1.35	205.43	94.16	0.22
Center N Upper	PF 1	442.00	815.09	820.29	820.29	820.37	0.000854	2.39	201.09	53.08	0.19
Center N Upper	PF 1	442.00	814.34	820.16	820.16	820.37	0.000709	2.20	208.33	52.59	0.18
Center N Upper	PF 1	338.00	814.11	820.12	820.12	820.15	0.000643	2.12	208.45	48.70	0.17
Center N Upper	PF 1	338.00	813.98	820.09	820.09	820.15	0.000483	2.06	189.76	46.70	0.16
Center N Upper	PF 1	257.00	813.77	820.14	820.14	820.15	0.000340	1.60	159.68	46.20	0.15
Center N Branch	PF 1	257.00	813.77	820.14	820.14	820.14	0.000164	0.59	223.80	57.84	0.10
Center N Branch	PF 1	257.00	812.08	820.10	820.10	820.11	0.000120	1.04	250.01	58.11	0.08
Center N Branch	PF 1	257.00	812.82	820.11	820.11	820.11	0.000052	0.75	446.21	177.65	0.06
Center N Lower	PF 1	1033.00	811.84	820.09	820.09	820.09	0.000126	1.38	1162.95	435.92	0.09
Center N Lower	PF 1	1168.00	811.00	820.07	814.73	820.08	0.000074	0.87	1686.94	563.49	0.06
Center N Lower	In1 Struct	810.00	819.56	819.56	819.56	819.61	0.000360	1.98	790.49	377.31	0.14
Center N Lower	PF 1	1168.00	809.83	819.54	813.70	819.59	0.000365	1.90	713.47	203.27	0.13

Profile output Table - Standard Table 2

River	Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
West Channel	West Channel	24	PF 1	821.00	820.98	0.01	0.00	0.00	443.95	53.05	122.92	160.15
West Channel	West Channel	23	PF 1	820.99	820.98	0.01	0.00	0.00	418.49	78.51	160.15	113.17
West Channel	West Channel	22	PF 1	820.99	820.98	0.01	0.01	0.00	429.98	67.02	113.17	71.68
West Channel	West Channel	21	PF 1	820.97	820.97	0.01	0.01	0.00	425.32	71.68	136.96	91.54
West Channel	West Channel	20	PF 1	820.97	820.96	0.01	0.01	0.00	404.84	72.16	91.54	80.33
West Channel	West Channel	19	PF 1	820.96	820.96	0.02	0.02	0.00	419.47	80.33	91.54	148.83
West Channel	West Channel	18	PF 1	820.93	820.86	0.07	0.01	0.00	753.17	148.83	113.29	146.40
West Channel	West Channel	16	PF 1	820.88	820.84	0.06	0.03	0.00	1046.44	146.40	105.46	105.46
West Channel	West Channel	15	PF 1	820.85	820.74	0.10	0.01	0.00	1075.96	191.04	148.95	148.95
West Channel	West Channel	14	PF 1	820.75	820.64	0.11	0.10	0.00	1097.35	169.65	222.33	222.33
West Channel	West Channel	13	PF 1	820.65	820.56	0.10	0.09	0.01	1086.49	180.51	234.82	234.82
West Channel	West Channel	12	PF 1	820.55	820.49	0.06	0.03	0.01	1029.55	372.45	131.53	131.53
West Channel	West Channel	11	PF 1	820.51	820.37	0.15	0.04	0.00	1515.72	344.28	163.9	163.9
West Channel	West Channel	10	PF 1	820.48	820.30	0.18	0.04	0.01	1666.14	193.86	183.52	183.52
West Channel	West Channel	9	PF 1	820.34	820.34	0.18	0.04	0.01	1677.52	392.78	183.52	183.52
West Channel	West Channel	8	PF 1	820.32	820.32	0.16	0.05	0.01	1541.46	318.54	162.19	162.19
West Channel	West Channel	7	PF 1	820.32	820.30	0.16	0.07	0.01	1743.10	280.90	198.77	198.77
West Channel	West Channel	6	PF 1	820.24	820.18	0.09	0.05	0.01	1579.34	423.54	357.63	357.63
West Channel	West Channel	5	PF 1	820.24	820.15	0.05	0.01	0.00	1692.60	236.39	339.72	339.72
West Channel	West Channel	4	PF 1	820.17	820.14	0.02	0.00	0.00	1071.17	996.54	192.77	192.77
West Channel	West Channel	3	PF 1	819.30	818.89	0.41	0.07	0.00	708.52	1428.48	76.17	76.17
West Channel	West Channel	2	PF 1	819.30	819.20	0.20	0.05	0.04	1606.97	628.18	196.51	196.51
West Channel	West Channel	1	PF 1	819.40	819.13	0.19	0.05	0.00	1602.82	472.08	168.25	168.25
U4 UHS Upper	U4 UHS Upper	10	PF 1	819.32	819.13	0.19	0.07	0.02	1721.83	337.60	58.25	58.25
U4 UHS Upper	U4 UHS Upper	9	PF 1	819.24	819.08	0.08	0.06	0.00	1129.83	1136.86	131.90	131.90
U4 UHS Upper	U4 UHS Upper	8	PF 1	819.24	819.09	0.08	0.02	0.00	2137.00	304.79	116.37	116.37
U4 UHS Upper	U4 UHS Upper	7	PF 1	819.24	819.09	0.08	0.02	0.00	2137.00	304.79	116.37	116.37
U4 UHS Upper	U4 UHS Upper	6	PF 1	819.13	819.11	0.02	0.02	0.01	2137.00	304.79	116.37	116.37
U4 UHS Upper	U4 UHS Upper	5	PF 1	819.13	819.80	0.13	0.68	0.01	660.67	177.73	58.25	58.25
U4 UHS Upper	U4 UHS Upper	4	PF 1	819.93	819.80	0.13	0.13	0.00	135.00	135.00	166.82	166.82
U4 UHS Branch	U4 UHS Branch	107	PF 1	819.23	819.14	0.09	0.13	0.00	1136.86	166.82	131.90	131.90
U4 UHS Branch	U4 UHS Branch	106	PF 1	819.23	819.14	0.09	0.13	0.00	1136.86	166.82	131.90	131.90
U4 UHS Lower	U4 UHS Lower	5	PF 1	819.10	819.00	0.11	0.09	0.03	5.03	131.90	116.37	116.37
U4 UHS Lower	U4 UHS Lower	4	PF 1	818.98	818.98	0.00	0.00	0.00	1.74	304.79	304.79	304.79
U4 UHS Lower	U4 UHS Lower	3	PF 1	818.98	818.98	0.00	0.03	0.01	2137.00	116.37	304.79	304.79
U4 UHS Lower	U4 UHS Lower	2	PF 1	818.98	818.89	0.05	0.00	0.00	2137.00	116.37	304.79	304.79
U4 UHS Lower	U4 UHS Lower	1	PF 1	818.98	818.89	0.05	0.03	0.01	2137.00	116.37	304.79	304.79
Unit 4 North	Unit 4 North	1	In1	816.00	816.00	0.00	0.00	0.00	2137.00	304.79	116.37	116.37
Unit 4 North	Unit 4 North	5	PF 1	820.12	820.11	0.01	0.00	0.00	2137.00	304.79	116.37	116.37
Unit 4 North	Unit 4 North	6	PF 1	820.11	820.11	0.00	0.00	0.00	47.86	301.71	104.11	104.11
Unit 4 North	Unit 4 North	4	PF 1	820.11	820.11	0.00	0.00	0.00	32.01	102.99	104.11	104.11
Unit 4 North	Unit 4 North	3	PF 1	820.11	820.11	0.00	0.00	0.00	112.45	104.11	104.11	104.11
Unit 4 North	Unit 4 North	2	PF 1	820.11	820.11	0.00	0.00	0.00	116.04	104.24	110.11	110.11
Unit 4 North	Unit 4 North	1	PF 1	820.10	820.10	0.00	0.00	0.00	87.22	110.11	110.11	110.11
Unit 4 North	Unit 4 North	109	PF 1	820.07	820.07	0.00	0.00	0.07	44.80	138.34	138.34	138.34
Unit 4 North	Unit 4 North	108	PF 1	819.52	819.52	0.26	0.13	0.00	125.00	58.25	58.25	58.25
Unit 4 North	Unit 4 North	107	PF 1	819.18	819.13	0.31	0.31	0.12	524.76	0.12	38.60	38.60
Unit 4 North	Unit 4 North	106	PF 1	819.18	819.13	0.31	0.31	0.12	524.76	0.12	38.60	38.60
Unit 3 UHS Upper	Unit 3 UHS Upper	11	PF 1	819.73	819.44	0.80	0.60	0.05	72.56	341.89	156.58	156.58
Unit 3 UHS Upper	Unit 3 UHS Upper	10	PF 1	819.73	819.44	0.80	0.60	0.05	1520.72	388.89	156.58	156.58
Unit 3 UHS Upper	Unit 3 UHS Upper	9	PF 1	819.44	819.28	0.16	0.23	0.01	745.63	520.77	189.20	189.20
Unit 3 UHS Upper	Unit 3 UHS Upper	8	PF 1	819.14	818.90	0.23	0.15	0.00	162.15	1326.58	150.57	150.57
Unit 3 UHS Upper	Unit 3 UHS Upper	7	PF 1	818.98	818.71	0.27	0.14	0.00	1494.66	163.27	139.24	139.24

Unit 3 UHS	Profile	E.G. Elev (FT)	w.s. Elev (FT)	Vel head (FT)	Frctn Loss (FT)	C & E Loss (FT)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top width (FT)
Unit 3 UHS Lower	PF 1	818.84	818.52	0.32	0.33	0.01	263.84	1491.62	21.54	151.18
Unit 3 UHS Lower	PF 1	818.50	818.21	0.28	0.29	0.01	113.04	1110.48	14.19	118.22
Unit 3 UHS Lower	PF 1	818.20	817.95	0.25	0.25	0.03	27.48	82.19	6.40	85.49
Unit 3 UHS Lower	PF 1	818.11	817.96	0.13	0.11	0.03	451.58	339.07	2.48	97.68
Unit 3 UHS Lower	PF 1	817.97	817.82	0.05	0.04	0.00	237.13	261.43	17.06	145.44
Unit 3 UHS Lower	PF 1	817.82	817.67	0.04	0.04	0.00	349.43	261.43	13.34	160.09
Unit 3 UHS Lower	In1	815.10	815.10	0.00	0.00	0.00	459.32	459.32		131.48
Unit 3 Southeast	PF 1	822.76	822.67	0.09	0.18	0.06	195.95	88.31	76.74	80.81
Unit 3 Southeast	PF 1	822.52	821.86	0.66	0.84	0.11	40.74	237.18	93.08	47.76
Unit 3 Southeast	PF 1	820.51	819.22	1.29	1.95	0.06	102.80	268.20		95.49
Unit 3 Southeast	PF 1	819.81	819.76	0.05	0.00	0.00	285.41	85.59		98.29
Unit 3 Southeast	PF 1	819.80	819.76	0.05	0.01	0.00	84.14	80.13		105.13
Unit 3 Southeast	PF 1	819.79	819.77	0.02	0.02	0.00	286.86	70.02		188.55
Unit 3 Southeast	PF 1	819.77	819.75	0.02	0.00	0.00	271.27	92.26	7.47	194.21
Unit 3 Southeast	PF 1	819.76	819.75	0.03	0.01	0.00	315.28	421.17		196.62
Unit 3 Southeast	PF 1	819.75	819.74	0.03	0.01	0.00	344.39	391.91		195.95
Unit 3 Southeast	PF 1	819.74	819.71	0.03	0.01	0.00	334.78	334.78	10.48	130.93
Unit 3 Southeast	In1	815.12	815.10	0.02	0.02	0.00	737.00	737.00		132.46
Unit 3 North	PF 1	820.14	820.14	0.02	0.00	0.00	33.18	130.82		104.20
Unit 3 North	PF 1	820.14	820.13	0.01	0.01	0.00	29.71	134.29		104.19
Unit 3 North	PF 1	820.14	820.13	0.01	0.01	0.00	26.06	137.94		104.18
Unit 3 North	PF 1	820.13	820.12	0.01	0.01	0.00	32.16	131.84	0.00	98.74
Unit 3 North	In1	819.68	819.68	0.01	0.01	0.00	43.28	110.87	9.85	105.61
Unit 3 North	PF 1	819.68	819.67	0.01	0.00	0.00	26.78	128.39	8.83	128.73
Unit 3 North	PF 1	819.68	819.67	0.01	0.00	0.00	35.65	111.65	16.70	134.84
Unit 3 North	In1	817.95	817.92	0.00	0.00	0.00	164.00	164.00		234.88
Unit 3 East	PF 1	820.44	820.44	0.14	0.79	0.00	196.00	196.00		161.50
Unit 3 East	PF 1	819.79	819.66	0.13	1.44	0.00	196.00	196.00		155.87
Unit 3 East	PF 1	818.34	818.23	0.11	0.00	0.03	196.00	196.00		318.88
Unit 3 East	PF 1	817.91	817.91	0.00	0.00	0.00	196.00	196.00		330.60
Unit 3 East	In1	815.10	815.10	0.00	0.00	0.20	13.00	196.00		362.23
Unit 3 East	PF 1	821.62	820.44	1.18	0.34	0.00	2408.00	2408.00		99.02
Unit 3 East	PF 1	821.62	820.37	0.25	0.10	0.07	539.52	539.52		170.43
Unit 3 East	PF 1	820.80	820.71	0.09	0.02	0.04	252.56	252.56		230.99
Unit 3 East	PF 1	820.80	820.71	0.13	0.00	0.03	250.78	250.78		239.84
Unit 3 East	PF 1	820.71	820.78	0.03	0.03	0.00	3.04	2417.96		245.35
Unit 3 East	In1	819.47	818.69	0.78	0.00	0.00	2421.00	2421.00		219.88
Unit 3 East	PF 1	822.05	821.72	0.33	0.33	0.00	207.09	207.09		72.56
Unit 3 East	PF 1	820.36	820.22	0.14	0.49	0.02	7.37	205.63		66.59
Unit 3 East	PF 1	819.85	819.48	0.36	0.91	0.01	211.64	211.64		62.89
Unit 3 East	PF 1	818.72	818.38	0.34	1.12	0.01	2.38	210.62		101.36
Unit 3 East	PF 1	815.24	814.97	0.27	0.05	0.07	545.00	545.00		50.64
Unit 3 East	PF 1	815.12	815.08	0.04	0.01	0.01	45.00	45.00	3.00	76.53
Unit 3 East	PF 1	815.11	814.98	0.13	0.01	0.00	262.10	262.10		393.94
Unit 3 East	PF 1	820.98	820.97	0.01	0.00	0.00	286.95	286.95		219.51
Unit 3 East	PF 1	820.98	820.97	0.01	0.00	0.00	293.70	293.70		248.83
Unit 3 East	PF 1	820.98	820.97	0.01	0.00	0.00	76.38	243.83	3.79	302.15
Unit 3 East	PF 1	820.97	820.97	0.00	0.00	0.00	31.37	290.30	2.33	302.65
Unit 3 East	PF 1	820.97	820.97	0.00	0.00	0.00	84.74	234.10	5.16	409.58
Unit 3 East	PF 1	820.97	820.97	0.01	0.00	0.00	213.24	539.84	67.92	490.41
Unit 3 East	In1	820.86	820.86	0.00	0.00	0.01	1.92	821.00		490.41
Unit 3 East	PF 1	820.48	820.42	0.06	0.04	0.01	45.79	45.79	4.29	62.78
Unit 3 East	PF 1	820.42	820.41	0.01	0.01	0.00	50.82	50.82	1.18	72.91
Unit 3 East	PF 1	820.41	820.40	0.01	0.01	0.00	406.02	406.02	35.92	171.32
Unit 3 East	PF 1	820.40	820.37	0.03	0.01	0.01	416.42	416.42	25.56	174.40
Unit 3 East	PF 1	820.37	820.29	0.08	0.14	0.00	0.00	441.94	0.05	94.16
Unit 3 East	PF 1	820.23	820.16	0.08	0.04	0.00	0.00	441.98	0.02	53.08
Unit 3 East	PF 1	820.19	820.12	0.07	0.03	0.00	0.00	431.52	106.48	89.76
Unit 3 East	PF 1	820.15	820.10	0.06	0.00	0.00	0.00	188.27	349.73	382.60
Unit 3 East	PF 1	820.15	820.10	0.01	0.01	0.00	112.14	144.86	0.00	166.73
Unit 3 East	PF 1	820.15	820.14	0.00	0.00	0.00	2.04	254.96	0.00	57.84
Unit 3 East	PF 1	820.14	820.10	0.02	0.02	0.00	1.53	255.47	0.00	58.11
Unit 3 East	PF 1	820.11	820.11	0.02	0.00	0.00	70.35	386.53	510.00	477.62
Unit 3 East	PF 1	820.11	820.10	0.01	0.01	0.00	120.36	303.05	477.62	477.62
Unit 3 East	PF 1	820.08	820.07	0.01	0.01	0.00	23.60	503.05	641.36	563.49
Unit 3 East	In1	819.61	819.56	0.05	0.03	0.00	0.14	912.50	255.36	377.31
Unit 3 East	PF 1	819.59	819.54	0.05	0.05	0.00	0.06	907.70	260.25	203.27

Profile Output Table - Four XS inline structure

River	Reach	River Sta	Profile	E.G. Elev (FT)	w.s. Elev (FT)	Vel head (FT)	Frctn Loss (FT)	C & E Loss (FT)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top width (FT)
West Channel		3	PF 1	820.17	820.11	0.06	0.00	0.01	86.77	1692.60	357.63	236.39
West Channel		1-5	PF 1	820.16	820.14	0.02	0.00	0.00	69.29	1071.17	996.54	339.72
West Channel		1	PF 1	819.30	818.89	0.41	0.00	0.00	708.52	708.52	1428.48	192.77

Profile Output Table - In-Line Structure														
River	Reach	River Sta	Profile	Q US (cfs)	E.g. Elev (ft)	w.s. Elev (ft)	Q DS (cfs)	Q Weir (cfs)	Q Gates (cfs)	Wt Top Width (ft)	Weir Max Depth (ft)	Weir Avg Depth (ft)	Min El Weir Flow (ft)	E.g. Us. W.S. (ft)
Unit 4 UHS	U4 UHS Lower	3	PF 1	818.98	818.98	818.98	0.00	0.03	0.01	0.01	1.74	116.37		
Unit 4 UHS	U4 UHS Lower	2	PF 1	818.94	818.89	818.89	0.05			2137.00	304.09			
Unit 4 UHS	U4 UHS Lower	1.5	In1	816.00	816.00	816.00	0.00			2137.00	301.71			
Unit 4 North	Unit 4 North	3	PF 1	820.11	820.10	820.10	0.00			18.96	104.24			
Unit 4 North	Unit 4 North	2	PF 1	820.10	820.10	820.10	0.00			47.78	110.11			
Unit 4 North	Unit 4 North	1.5	In1	820.07	820.07	820.07	0.00			69.47	138.34			
Unit 3 UHS	U3 UHS Lower	3	PF 1	817.97	817.92	817.92	0.05			257.13	145.44			
Unit 3 UHS	U3 UHS Lower	2	PF 1	817.89	817.89	817.89	0.04			296.33	146.09			
Unit 3 UHS	U3 UHS Lower	1.5	In1	815.10	815.10	815.10	0.00			459.32	131.48			
Unit 3 Southeast	Unit 3 Southeast	3	PF 1	819.75	819.72	819.72	0.03			284.39	163.16			
Unit 3 Southeast	Unit 3 Southeast	2	PF 1	819.74	819.71	819.71	0.03			334.78	150.95			
Unit 3 Southeast	Unit 3 Southeast	1.5	In1	815.12	815.10	815.10	0.02			737.00	132.46			
Unit 3 North	Unit 3 North	6	PF 1	820.14	820.13	820.13	0.01			26.06	104.18			
Unit 3 North	Unit 3 North	5	PF 1	820.13	820.12	820.12	0.01			32.16	98.74			
Unit 3 North	Unit 3 North	4.5	In1	819.69	819.68	819.68	0.01			110.87	105.61			
Unit 3 North	Unit 3 North	4	PF 1	819.68	819.67	819.67	0.01			128.39	128.73			
Unit 3 North	Unit 3 North	3	PF 1	819.68	819.67	819.67	0.01			111.65	134.84			
Unit 3 North	Unit 3 North	2	PF 1	817.92	817.92	817.92	0.00			164.00	234.88			
Unit 3 North	Unit 3 North	1.5	PF 1	818.34	818.23	818.23	0.11			196.00	318.88			
Unit 3 East	Unit 3 East	3	PF 1	817.91	817.91	817.91	0.00			196.00	330.80			
Unit 3 East	Unit 3 East	2	PF 1	815.10	815.10	815.10	0.00			196.00	362.23			
Unit 3 East	Unit 3 East	1.5	PF 1	820.84	820.71	820.71	0.13			2166.36	239.99			
Offsite	Offsite	3	PF 1	820.81	820.78	820.78	0.03			2417.96	245.55			
Offsite	Offsite	2	PF 1	819.47	818.69	818.69	0.78			2421.00	219.88			
Offsite	Offsite	1.5	PF 1	820.97	820.97	820.97	0.00			234.10	409.58			
Center South	Center South	3	PF 1	820.97	820.97	820.97	0.01			539.84	490.41			
Center South	Center South	2	PF 1	820.86	820.86	820.86	0.00			821.00	490.41			
Center South	Center South	1.5	PF 1	820.09	820.07	820.07	0.02			393.04	435.92			
Center North	Center N Lower	4	PF 1	820.08	820.07	820.07	0.01			23.60	563.49			
Center North	Center N Lower	3	PF 1	819.61	819.56	819.56	0.05			912.50	377.31			
Center North	Center N Lower	2.5	PF 1	819.54	819.54	819.54	0.03			0.06	203.27			
Center North	Center N Lower	1	PF 1	820.81	820.78	820.78	0.03			255.36	377.31			
Center North	Center N Lower	1.5	PF 1	820.97	820.97	820.97	0.05			907.70	260.25			
Center North	Center N Lower	2.5	PF 1	820.08	820.07	820.07	0.02			821.00	490.41			

Profile Output Table - Lateral Structures														
River	Reach	River Sta	Profile	Q US (cfs)	E.g. Elev (ft)	w.s. Elev (ft)	Q DS (cfs)	Q Weir (cfs)	Q Gates (cfs)	Wt Top Width (ft)	Weir Max Depth (ft)	Weir Avg Depth (ft)	Min El Weir Flow (ft)	E.g. Us. W.S. (ft)
West Channel	West Channel	1.5	PF 1	820.16	820.14	820.14	2137.00	2137.00	2137.00	76.00	2.11	2.10	817.00	819.16
Unit 4 UHS	U4 UHS Lower	1.5	PF 1	818.94	818.89	818.89	2137.00	2137.00	2137.00	170.50	2.00	1.99	817.00	819.10
Unit 4 North	Unit 4 North	1.5	PF 1	820.10	820.10	820.10	135.00	135.00	135.00	91.85	1.98	1.98	817.00	818.98
Unit 3 UHS	U3 UHS Lower	1.5	PF 1	817.92	817.89	817.89	459.32	459.32	459.32	502.24	1.52	1.08	817.00	818.84
Unit 3 Southeast	Unit 3 Southeast	1.3	PF 1	819.74	819.73	819.73	164.00	164.00	164.00					
Unit 3 North	Unit 3 North	4	PF 1	819.68	819.67	819.67	196.00	196.00	196.00					
Unit 3 North	Unit 3 North	1.5	PF 1	817.91	817.91	817.91	2421.00	2421.00	2421.00					
Unit 3 East	Unit 3 East	1.5	PF 1	820.81	820.78	820.78	821.00	821.00	821.00					
Offsite	Offsite	1.5	PF 1	820.97	820.97	820.97	1168.00	1168.00	1168.00					
Center South	Center South	2.5	PF 1	820.08	820.07	820.07	600.34	600.34	600.34					
Center North	U4 UHS Upper	6.9	PF 1	1607.00	600.34	1001.86	600.34	600.34	600.34					
Center North	U4 UHS Lower	4.9	PF 1	1136.86	1153.47	5.03	1153.47	1153.47	1153.47					
Center North	U4 UHS Lower	3.9	PF 1	5.03	10.23	1.74	10.23	10.23	10.23					
Center North	U4 UHS Lower	6.9	PF 1	1777.00	1483.04	459.32	1483.04	1483.04	1483.04					
Center North	U4 UHS Lower	818.32	PF 1	817.92	817.89	817.89								

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Profile Output Table - Junctions

River	Reach	River Sta	Profile	W.S. Elev (FT)	E.G. Elev (FT)	Q Total (cfs)
Center North	Center N Upper	5	PF 1	820.10	820.10	538.00
Center North Junction:	Center N Branch	105	PF 1	820.10	820.11	237.00
Center North	Center N Lower	4	PF 1	820.07	820.09	1033.00
Unit 4 UHS	U4 UHS Upper	6	PF 1	819.13	819.13	1001.86
Unit 4 UHS Junction:	U4 UHS Branch	106	PF 1	819.14	819.23	135.00
Unit 4 UHS	U4 UHS Lower	5	PF 1	819.00	819.10	1136.86
Unit 3 UHS	U3 UHS Upper	8	PF 1	818.71	818.98	1652.00
Unit 3 UHS Junction:	U3 UHS Branch	108	PF 1	819.15	819.18	123.00
Unit 3 UHS	U3 UHS Lower	7	PF 1	818.52	818.84	1777.00

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

River: Center North Reach: Center N Upper
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel. RS: 13 Profile: PF 1

River: Center North Reach: Center N Upper
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel. RS: 12 Profile: PF 1

River: Center North Reach: Center N Upper
 Warning: This may indicate the need for additional cross sections.
 Note: Manning's n values were composited to a single value in the main channel. RS: 11 Profile: PF 1

River: Center North Reach: Center N Upper
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel. RS: 10 Profile: PF 1

River: Center North Reach: Center N Upper
 Note: Manning's n values were composited to a single value in the main channel. RS: 9 Profile: PF 1

River: Center North Reach: Center N Upper
 Note: Manning's n values were composited to a single value in the main channel. RS: 8 Profile: PF 1

River: Center North Reach: Center N Upper
 Note: Manning's n values were composited to a single value in the main channel. RS: 7 Profile: PF 1

River: Center North Reach: Center N Upper
 Note: Manning's n values were composited to a single value in the main channel. RS: 6 Profile: PF 1

River: Center North Reach: Center N Upper
 Note: Manning's n values were composited to a single value in the main channel. RS: 5 Profile: PF 1

River: Center North Reach: Center N Branch
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel. RS: 108 Profile: PF 1

River: Center North Reach: Center N Branch
 Warning: This may indicate the need for additional cross sections.
 Note: Manning's n values were composited to a single value in the main channel. RS: 107 Profile: PF 1

River: Center North Reach: Center N Branch
 Note: Manning's n values were composited to a single value in the main channel. RS: 106 Profile: PF 1

River: Center North Reach: Center N Branch
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel. RS: 105 Profile: PF 1

River: Center North Reach: Center N Lower
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel. RS: 4 Profile: PF 1

River: Center North Reach: Center N Lower
 Warning: This may indicate the need for additional cross sections.
 Note: Manning's n values were composited to a single value in the main channel. RS: 3 Profile: PF 1

River: Center North Reach: Center N Lower
 Warning: Divided Flow computed for this cross-section.
 Note: Manning's n values were composited to a single value in the main channel. RS: 2 Profile: PF 1

River: Center North Reach: Center N Lower
 Warning: Divided Flow computed for this cross-section.
 Note: Manning's n values were composited to a single value in the main channel. RS: 1 Profile: PF 1

River: Center North Reach: Center South
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composited to a single value in the main channel. RS: 8 Profile: PF 1

River: Center North Reach: Center South
 Warning: This may indicate the need for additional cross sections.
 Note: Manning's n values were composited to a single value in the main channel. RS: 6 Profile: PF 1

River: Center North Reach: Center South
 Warning: Divided Flow computed for this cross-section.
 Note: Manning's n values were composited to a single value in the main channel. RS: 5 Profile: PF 1

River: Center North Reach: Center South
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel. RS: 5 Profile: PF 1

River: Center North Reach: Center South
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel. RS: 4 Profile: PF 1

River: Center North Reach: Center South
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel. RS: 3 Profile: PF 1

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warning:Divided flow computed for this cross-section.
 warning:The cross-section end points had to be extended vertically for the computed water surface.
 River: East Channel Reach: East Channel RS: 6 Profile: PF 1
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Hydraulic jump has occurred between this cross-section and the previous upstream section.
 River: East Channel Reach: East Channel RS: 5 Profile: PF 1
 warning:The energy loss was 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:For the water surface and continued on with the calculations
 warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 warning:during the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 River: East Channel Reach: East Channel RS: 4 Profile: PF 1
 warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 River: East Channel Reach: East Channel RS: 3 Profile: PF 1
 warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Note: Manning's n values were composed of a single value in the main channel.
 River: East Channel Reach: East Channel RS: 2 Profile: PF 1
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 River: Offsite Reach: Offsite RS: 6 Profile: PF 1
 warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composed of a single value in the main channel.
 River: Offsite Reach: Offsite RS: 5 Profile: PF 1
 warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Note: Manning's n values were composed of a single value in the main channel.
 River: Offsite Reach: Offsite RS: 4 Profile: PF 1
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Manning's n values were composed of a single value in the main channel.
 River: Offsite Reach: Offsite RS: 3 Profile: PF 1
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Manning's n values were composed of a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2 Profile: PF 1
 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.
 River: Unit 3 East Reach: Unit 3 East RS: 4 Profile: PF 1
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 River: Unit 3 East Reach: Unit 3 East RS: 3 Profile: PF 1
 warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the cross-section and points had to be extended vertically for the computed water surface.
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 warning:during the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 River: Unit 3 East Reach: Unit 3 East RS: 2 Profile: PF 1
 Note: Hydraulic jump has occurred between this cross-section and the previous upstream section.
 River: Unit 3 North Reach: Unit 3 North RS: 4 Profile: PF 1
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Manning's n values were composed of a single value in the main channel.
 River: Unit 3 North Reach: Unit 3 North RS: 3 Profile: PF 1
 warning:The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composed of a single value in the main channel.
 River: Unit 3 North Reach: Unit 3 North RS: 1 Profile: PF 1
 Note: Manning's n values were composed of a single value in the main channel.
 River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 11 Profile: PF 1
 warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 10 Profile: PF 1
 warning:The energy loss was 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:For the water surface and continued on with the calculations
 warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 warning:during the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 9 Profile: PF 1
 warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 8 Profile: PF 1
 Note: Hydraulic jump has occurred between this cross-section and the previous upstream section.

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River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 5 Profile: PF 1
 warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 4 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 3 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 109 Profile: PF 1
 warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 warning: during the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

River: Unit 3 UHS Reach: U3 UHS Branch RS: I08 Profile: PF 1
 Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

River: Unit 3 UHS Reach: U3 UHS Upper RS: 12 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

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

River: Unit 3 UHS Reach: U3 UHS Upper RS: 11 Profile: PF 1
 warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

River: Unit 3 UHS Reach: U3 UHS Lower RS: 7 Profile: PF 1
 warning: The cross-section end points had to be extended vertically for the computed water surface.

River: Unit 3 UHS Reach: U3 UHS Lower RS: 6 Profile: PF 1
 warning: The cross-section end points had to be extended vertically for the computed water surface.

River: Unit 3 UHS Reach: U3 UHS Lower RS: 5 Profile: PF 1
 warning: The cross-section end points had to be extended vertically for the computed water surface.

River: Unit 3 UHS Reach: U3 UHS Lower RS: 4 Profile: PF 1
 warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Manning's n values were composited to a single value in the main channel.

River: Unit 3 UHS Reach: U3 UHS Lower RS: 3 Profile: PF 1
 warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Manning's n values were composited to a single value in the main channel.

River: Unit 4 North Reach: Unit 4 North RS: 1 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: Unit 4 UHS Reach: U4 UHS Upper RS: 10 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: Unit 4 UHS Reach: U4 UHS Upper RS: 9 Profile: PF 1
 warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

Note: Manning's n values were composited to a single value in the main channel.

River: Unit 4 UHS Reach: U4 UHS Upper RS: 8 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: Unit 4 UHS Reach: U4 UHS Upper RS: 7 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: Unit 4 UHS Reach: U4 UHS Upper RS: 6 Profile: PF 1
 warning: The cross-section end points had to be extended vertically for the computed water surface.

River: Unit 4 UHS Reach: U4 UHS Lower RS: 10 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: Unit 4 UHS Reach: U4 UHS Lower RS: 9 Profile: PF 1
 warning: The cross-section end points had to be extended vertically for the computed water surface.

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

River: Unit 4 UHS Reach: U4 UHS Lower RS: 4 Profile: PF 1
 warning: The cross-section end points had to be extended vertically for the computed water surface.

River: Unit 4 UHS Reach: U4 UHS Lower RS: 3 Profile: PF 1
 warning: The cross-section end points had to be extended vertically for the computed water surface.

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

River: West Channel Reach: West Channel RS: 24 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: West Channel Reach: West Channel RS: 23 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: West Channel Reach: West Channel RS: 22 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: West Channel Reach: West Channel RS: 21 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: West Channel Reach: West Channel RS: 20 Profile: PF 1
 warning: Divided flow computed for this cross-section.

Note: Manning's n values were composited to a single value in the main channel.

River: West Channel Reach: West Channel RS: 19 Profile: PF 1
 Note: The cross-section end points had to be extended vertically for the computed water surface.

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

River: West Channel Reach: West Channel RS: 18 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

River: West Channel Reach: West Channel RS: 17 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

River: West Channel Reach: West Channel RS: 16 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: West Channel Reach: West Channel RS: 15 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: West Channel Reach: West Channel RS: 14 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

River: West Channel Reach: West Channel RS: 13 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.

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River: West Channel Reach: West Channel RS: 12 Profile: PF 1
 warning:divided flow computed for this cross-section.
 warning:The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning' s n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 11 Profile: PF 1
 warning:The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning' s n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 10 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 9 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 8 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 7 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 6 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 5 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 3 Profile: PF 1
 warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CPNPPLOca1PMP

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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PROJECT DATA
Project Title: CPNPP Local1 PMP
Project File : CPNPPLOca1PMP.prj
Run Date and Time: 9/1/2011 10:09:28 AM
Project in English units

PLAN DATA

Plan Title: PMP
Plan File : C:\Users\kroblyer\Documents\HEC-RAS Final\CPNPP\CPNPPLOca1PMP.p01
Geometry Title: PMP
Geometry File : C:\Users\kroblyer\Documents\HEC-RAS Final\CPNPP\CPNPPLOca1PMP.g01

Flow Title : PMP
Flow File : C:\Users\kroblyer\Documents\HEC-RAS Final\CPNPP\CPNPPLOca1PMP.f01
Plan Summary Information:
Number of: Cross Sections = 437 Multiple Openings = 0
Culverts = 0 In-line Structures = 11
Bridges = 0 Lateral Structures = 4

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

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

FLOW DATA

Flow Title: PMP
Flow File : C:\Users\kroblyer\Documents\HEC-RAS Final\CPNPP\CPNPPLOca1PMP.f01
Flow Data (cfs)

Table with 2 columns: River/Reach and PF 1. Rows include River Center North, Center North, Center North, Center North, Center North, Center North, Center South, East Channel, East Channel, Offsite, Unit 3 East, Unit 3 North, Unit 3 Southeast, Unit 3 Southeast, U3 UHS Branch, U3 UHS Upper, U3 UHS Lower, Unit 4 North, Unit 4 UHS Upper.

CPNPPLOca1PMP

Unit 4 UHS	U4 UHS Branch	107	135
Unit 4 UHS	U4 UHS Lower	5	1742
Unit 4 UHS	U4 UHS Lower	2	3879
West Channel	West Channel	24	497
West Channel	West Channel	17	900
West Channel	West Channel	15	1267
West Channel	West Channel	11	1866
West Channel	West Channel	5	1866
West Channel	West Channel	2023	2137
West Channel	West Channel	3	

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Center North	Center N Upper	PF 1	Critical	
Center North	Center N Branch	PF 1	Critical	
Center North	Center N Upper	PF 1		Known WS = 819.66
Center South	Center South	PF 1	Critical	Known WS = 820.86
East Channel	East Channel	PF 1	Critical	Known WS = 815.1
Offsite	Offsite	PF 1	Critical	Normal S = 0.2
Unit 3 East	Unit 3 East	PF 1	Critical	Known WS = 815.1
Unit 3 North	Unit 3 North	PF 1	Critical	Known WS = 817.92
Unit 3 Southeast	Unit 3 Southeast	PF 1	Critical	Known WS = 815.1
Unit 3 UHS	U3 UHS Branch	PF 1	Critical	
Unit 3 UHS	U3 UHS Upper	PF 1	Critical	
Unit 3 UHS	U3 UHS Lower	PF 1	Critical	Known WS = 815.1
Unit 4 UHS	Unit 4 UHS North	PF 1	Critical	Known WS = 820.07
Unit 4 UHS	U4 UHS Branch	PF 1	Critical	
Unit 4 UHS	U4 UHS Lower	PF 1	Critical	Known WS = 816
West Channel	West Channel	PF 1	Critical	Known WS = 818.89

GEOMETRY DATA

Geometry Title: PMP
 Geometry File : C:\Users\kroblyer\Documents\WEC-RAS Final CPNPPLOca1PMP.g01

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
Center North	Center N Upper		Center N Junct
Center North	Center N Branch		Center N Junct
Center North	Center N Lower	Center N Junct	
Center South	Center South		
East Channel	East Channel		
Unit 3 East	Unit 3 East		
Unit 3 North	Unit 3 North		
Unit 3 Southeast	Unit 3 Southeast		
Unit 3 UHS	U3 UHS Branch		U3 UHS Junct
Unit 3 UHS	U3 UHS Upper		U3 UHS Junct
Unit 3 UHS	U3 UHS Lower		
Unit 4 North	Unit 4 North		
Unit 4 UHS	U4 UHS Upper		U4 UHS Junct
Unit 4 UHS	U4 UHS Branch		U4 UHS Junct
Unit 4 UHS	U4 UHS Lower		
West Channel	West Channel		

JUNCTION INFORMATION

Name:	Center N Junct	Reach	Length	Angle
Description:	Center N Upper	Center N Lower	104.41	
Energy computation Method	Center N Branch	Center N Lower	142.47	
Length across Junction	Tributary River	Reach		
Center North	Center N Upper	Center N Lower		
Center North	Center N Branch	Center N Lower		
Name: U4 UHS Junct	to Unit 4 UHS	to Unit 4 UHS		
Description:	to Unit 4 UHS	to Unit 4 UHS		
Energy computation Method	to Unit 4 UHS	to Unit 4 UHS		
Length across Junction	Tributary River	Reach		
Unit 4 UHS	U4 UHS Upper	U4 UHS Lower	58.25	
Unit 4 UHS	U4 UHS Branch	U4 UHS Lower	85.65	
Name: U3 UHS Junct	to Unit 4 UHS	to Unit 4 UHS		
Description:	to Unit 4 UHS	to Unit 4 UHS		
Energy computation Method	to Unit 4 UHS	to Unit 4 UHS		

Length across junction
 River Reach
 Unit 3 UHS U3 UHS Upper to Unit 3 UHS U3 UHS Lower Length Angle
 Unit 3 UHS U3 UHS Branch to Unit 3 UHS U3 UHS Lower 57.69
 136.09

CROSS SECTION

RIVER: Center North RS: 13
 REACH: Center N Upper

INPUT

Description: Station Elevation Data num= 12
 Sta Elev Sta Elev Sta Elev Sta Elev
 0 820.79 12 820.53 26.14 820.17 9.17 820.17 9.17
 52.78 820 112.32 821 160.49 822 297.45 822 819.56 819.56
 350.46 822 360

Manning's n Values num= 2

Sta n Val Sta n Val
 0 .02 12 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 26.14 52.78 9.17 9.17 .1 .3

Blocked Obstructions

num= 4
 Sta L Sta R Elev Sta L Elev Sta L Elev
 160.49 252.49 825 269.62 297.62 825 307.54 347.54 825
 350.46 360

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	820.44	Reach Len. (ft)	9.17	9.17	9.17
Crit W.S. (ft)	820.08	Flow Area (sq ft)	2.64	22.98	5.88
E.G. Slope (ft/ft)	0.003276	Area (sq ft)	2.11	45.18	4.71
Q Total (cfs)	52.00	Top width (ft)	11.86	26.64	26.47
Top width (ft)	64.97	Avg. Vel (ft/s)	0.20	1.87	0.20
Vel Total (ft/s)	0.83	Conv. Cfs (cfs)	0.20	1.87	0.20
Max Chl Dpth (ft)	1.88	Wetted Per. (ft)	36.8	789.84	82.3
Conv. Total (cfs)	908.5	Shear (lb/sq ft)	11.87	26.83	26.47
Length Wtd. (ft)	9.17	Stream Power (lb/ft s)	360.00	0.00	0.00
Min Ch El (ft)	819.56	Cum Volume (acre-ft)	0.19	4.15	4.15
Alpha	1.26	Cum SA (acres)	0.01	0.87	1.66
Frctn Loss (ft)	0.02				
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: Center North RS: 12.83333*

REACH: Center N Upper

INPUT

Description: Station Elevation Data num= 18
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 820.89 11.24 820.65 18.11 820.4 24.49 820.17 25.37 819.92
 28.34 819.48 28.47 819.35 51.73 819.35 51.82 819.5 52.78 820
 112.32 821 160.49 822 297.45 822 297.54 822 306.35 822
 347.46 822 350.46 822 360

Manning's n Values num= 6

Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 11.24 .038 18.11 .039 24.49 .039 25.37 .039
 360 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 24.49 52.78 9.17 9.17 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	820.43	Reach Len. (ft)	9.17	9.17	9.17
Crit W.S. (ft)	0.001981	Flow Area (sq ft)	0.94	28.51	5.51
E.G. Slope (ft/ft)	52.00	Area (sq ft)	0.43	48.21	3.35
Q Total (cfs)	61.10	Top width (ft)	0.46	1.69	0.61
Top width (ft)	1.49	Avg. Vel. (ft/s)	0.13	1.01	0.22
Vel Total (ft/s)	1166.2	Hydr. Depth (ft)	9.8	20.12	20.12
Max Chl Dpth (ft)	1.08	Wetted Per. (ft)	360.00	0.00	0.00
Conv. Total (cfs)	819.37	Stream Power (lb/ft s)	0.19	4.14	4.15
Length Wtd. (ft)	1.21	Cum Volume (acre-ft)	0.01	0.87	1.66
Min Ch El (ft)	0.00	Cum SA (acres)			
Alpha	1.26				
Frctn Loss (ft)	0.02				
C & E Loss (ft)	0.00				

CPNPPLOCA1PMP

RIVER: Center North
 REACH: Center N Upper
 RS: 12.3333*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
28.91	819.19	29.2	818.71	50.39	818.71	50.6	819.2
112.32	821	160.49	822	297.45	822	297.54	822
347.46	822	350.46	822				

Manning's n values

Sta	n	Sta	n	Sta	n	Sta	n
0	.02	8.97	.034	14.44	.039	19.53	.039
360	.039						

Bank Sta: Left

Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
19.53	9.17	9.17	9.17	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	wt. n-Val.	9.17	0.039	9.17
W.S. Elev (ft)	820.42	Flow Area (sq ft)	45.02	45.02	5.16
Crit W.S. (ft)	0.000577	Area (sq ft)	50.34	50.34	1.66
E.G. Slope (ft/ft)	52.00	Flow (cfs)	31.17	31.17	0.31
Q Total (cfs)	57.77	Top Width (ft)	1.36	1.36	0.21
Top Width (ft)	1.71	Avg. Depth (ft)	2096.5	2096.5	69.1
Max Ch Depth (ft)	1.71	Hydr. Depth (ft)	33.32	33.32	24.80
Conv. Total (cfs)	2165.6	Wetted Per. (ft)	0.05	0.05	0.01
Length wtd. (ft)	9.17	Stream Power (lb/ft s)	0.00	0.00	0.00
Min Ch El (ft)	818.71	Shear (lb/sq ft)	360.00	360.00	4.12
Alpha	1.13	Stream Power (lb/ft s)	0.19	0.19	4.14
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	1.64
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.85	

CROSS SECTION

RIVER: Center North

REACH: Center N Upper

RS: 12.1666*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
29.09	819.1	120.49	821	297.45	821	297.54	821
112.32	821	160.49	822	297.45	822	297.54	822
347.46	822	350.46	822				

Manning's n values

Sta	n	Sta	n	Sta	n	Sta	n
0	.02	8.21	.033	13.22	.039	17.88	.039
360	.039						

Bank Sta: Left

Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
17.88	9.17	9.17	9.17	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	wt. n-Val.	9.17	0.039	9.17
W.S. Elev (ft)	820.41	Flow Area (sq ft)	50.50	50.50	5.12
Crit W.S. (ft)	0.000419	Area (sq ft)	50.60	50.60	1.40
E.G. Slope (ft/ft)	52.00	Flow (cfs)	33.64	33.64	24.69
Q Total (cfs)	58.33	Top Width (ft)	1.00	1.00	0.27
Top Width (ft)	0.93	Avg. Depth (ft)	2472.50	2472.50	68.21
Vel Total (ft/s)	2540.92	Hydr. Depth (ft)	34.62	34.62	24.63
Max Ch Depth (ft)	2540.92	Wetted Per. (ft)	0.04	0.04	0.01
Conv. Total (cfs)	2165.6	Stream Power (lb/ft s)	360.00	360.00	4.14
Length wtd. (ft)	9.17	Shear (lb/sq ft)	0.19	0.19	4.14
Min Ch El (ft)	818.49	Stream Power (lb/ft s)	0.00	0.00	1.64
Alpha	1.12	Cum Volume (acre-ft)	0.00	0.84	
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.84	
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: Center North

REACH: Center N Upper

RS: 12

INPUT

Description:

CPNPPLOCA1PMP

Station Elevation Data		num= 15		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	821.39	12	821.15	16.23	820.14	19.23	820.29	28	821.81	29.28	821.81	30	821.81
29.69	818.28	49.5	818.28	49.78	819.52	78	820.11	32	821.32	821.32	360	822	
160.49	822.297	54	822.347	46	822.350	46	822	350.46	822	350.46	360	822	

Manning's n Values		num= 2		Sta		Elev		Coeff		Contr.		Expan.	
Sta	n Val	Sta	n Val	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	.02	12	.039	19.19	820.14	19.19	820.29	28	821.81	29.28	821.81	30	821.81
16.23	52.78	3	1.3	19.19	820.14	19.19	820.29	28	821.81	29.28	821.81	30	821.81

Bank Sta: Left Right		Lengths: Left Channel Right		Coeff		Contr.		Expan.	
Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R
160.49	252.49	825	269.62	297.62	825	350.46	360	825	360

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt n-Val	19.19	19.19	19.19
W.S. Elev (ft)	820.41	Reach Len. (ft)	19.19	19.19	19.19
Crit W.S. (ft)	820.41	Flow Area (sq ft)	55.65	55.65	5.08
E.G. Slope (ft/ft)	0.000321	Area (sq ft)	50.79	50.79	1.21
Q Total (cfs)	52.00	Flow (cfs)	34.79	34.79	24.60
Top Width (ft)	59.38	Top Width (ft)	0.24	0.24	0.21
Vel Total (ft/s)	0.86	Avg. Vel. (ft/s)	1.60	1.60	0.21
Max Chl Dpth (ft)	2903.5	Hydr. Depth (ft)	2835.9	2835.9	67.6
Conv. Total (cfs)	2.13	Conv. (cfs)	35.03	35.03	24.00
Length Wtd. (ft)	818.19	Wetted Per. (ft)	0.00	0.00	0.00
Min Chl El (ft)	1.11	Stream Power (lb/ft s)	360.00	360.00	0.19
Alpha	0.00	Cum Volume (acre-ft)	0.19	0.19	4.14
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.00	1.63
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: Center North
REACH: Center N Upper
RS: 11.75*

INPUT

Description:		num= 22		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	821.62	12.02	821.39	12.11	821.39	16.26	821.25	19.77	820.14		
23.5	819.51	28.78	818.92	31.52	818.54	32	817.96	50.6	817.96		
51.32	818.58	55.14	819.37	58.97	820	113.63	820.81	157.85	821.61		
280.19	821.75	283.66	821.77	322.64	822	326.74	822	329.49	822		
332.24	822	341	822								

Manning's n Values		num= 6		Sta		n Val		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	12.02	.039	12.11	.039	16.26	.039	58.97	.039		
341	.039										

Bank Sta: Left Right		Lengths: Left Channel Right		Coeff		Contr.		Expan.	
Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R
16.26	58.97	19.19	19.19	19.19	19.19	19.19	19.19	19.19	19.19

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.42	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.01</td> <td>Wt n-Val</td> <td>19.19</td> <td>19.19</td> <td>19.19</td>	0.01	Wt n-Val	19.19	19.19	19.19
W.S. Elev (ft) <td>820.41</td> <td>Reach Len. (ft)</td> <td>19.19</td> <td>19.19</td> <td>19.19</td>	820.41	Reach Len. (ft)	19.19	19.19	19.19
Crit W.S. (ft) <td>820.41</td> <td>Flow Area (sq ft)</td> <td>69.68</td> <td>69.68</td> <td>5.72</td>	820.41	Flow Area (sq ft)	69.68	69.68	5.72
E.G. Slope (ft/ft) <td>0.000181</td> <td>Area (sq ft)</td> <td>50.98</td> <td>50.98</td> <td>1.02</td>	0.000181	Area (sq ft)	50.98	50.98	1.02
Q Total (cfs)	52.00	Flow (cfs)	40.06	40.06	27.78
Top Width (ft)	67.84	Top Width (ft)	0.73	0.73	0.18
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)	1.74	1.74	0.21
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)	3790.5	3790.5	76.0
Conv. Total (cfs)	3866.4	Conv. (cfs)	40.85	40.85	27.78
Length Wtd. (ft)	817.96	Wetted Per. (ft)	0.02	0.02	0.00
Min Chl El (ft)	1.19	Stream Power (lb/ft s)	341.00	341.00	0.19
Alpha	0.00	Cum Volume (acre-ft)	0.19	0.19	4.14
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.00	1.62
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: Center North
REACH: Center N Upper
RS: 11.5*

INPUT

Description:		num= 22		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	821.85	12.05	821.63	12.13	821.63	16.3	821.5	20.31	820.27		

CPNPPLOCA\1PMP

24.58	819.34	30.62	818.62	33.76	818.07	34.31	817.64	51.71	817.64
52.86	818.16	59	819.25	65.17	820	114.94	820.62	155.21	821.22
266.63	821.5	269.78	821.54	305.28	822	309.01	822	311.52	822
314.02	822	322	822						

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
322	.039		322	.039		322	.039		322	.039	

Bank Sta: Left 16.3 Right 65.17 Lengths: Left Channel 19.19 Right 19.19 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.42	Element	Left 08	Right 08
Vel Head (ft)	0.01	Wt. n-Val.	19.19	
W.S. Elev (ft)	820.41	Reach Len. (ft)		
Cr L S. (ft)		Area (Sg ft)	85.58	
E.G. Slope (ft/ft)	0.000107	Flow (cfs)	6.78	
G-Total (cfs)	52.00	Top width (ft)	51.07	
Vel Total (ft/s)	78.31	Avg. Vel. (ft/s)	32.99	
Max Chl Dpth (ft)	0.56	Hydr. Depth (ft)	0.14	
Conv. Total (cfs)	5027.4	Wetted Per. (ft)	1.89	
Length Wtd. (ft)	19.19	Stream Power (lb/ft s)	4937.4	
Min Ch El (ft)	817.64	Cum Volume (acre-ft)	0.01	
Alpha	1.10	Cum SA (acres)	0.00	
Frctn Loss (ft)	0.00		4.84	
C & E Loss (ft)	0.00		1.61	

CROSS SECTION

RIVER: Center North
REACH: Center N Upper RS: 11.25*

INPUT

Description:	Station	Elevation	Data	num=	22
Sta	Elev	Sta	Elev	Sta	Elev
0	822.09	12.07	821.87	12.16	821.75
25.66	819.17	32.47	818.31	35.99	817.32
54.4	817.74	62.87	819.12	71.36	820.44
253.06	821.25	255.91	821.31	287.92	822
295.81	822	303	822	291.29	822

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
303	.039		303	.039		303	.039		303	.039	

Bank Sta: Left 16.33 Right 71.36 Lengths: Left Channel 19.19 Right 19.19 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	Left 08	Right 08
Vel Head (ft)	0.00	Wt. n-Val.	19.19	
W.S. Elev (ft)	820.41	Reach Len. (ft)		
Cr L S. (ft)		Flow Area (Sq ft)	103.46	
E.G. Slope (ft/ft)	0.000065	Area (Sg ft)	51.08	
G-Total (cfs)	92.42	Top width (ft)	50.51	
Vel Total (ft/s)	92.42	Avg. Vel. (ft/s)	0.49	
Max Chl Dpth (ft)	3.09	Hydr. Depth (ft)	2.05	
Conv. Total (cfs)	6425.5	Wetted Per. (ft)	6311.4	
Length Wtd. (ft)	19.19	Stream Power (lb/ft s)	51.07	
Min Ch El (ft)	817.32	Cum Volume (acre-ft)	0.01	
Alpha	1.11	Cum SA (acres)	0.00	
Frctn Loss (ft)	0.00		4.00	
C & E Loss (ft)	0.00		0.78	

CROSS SECTION

RIVER: Center North
REACH: Center N Upper RS: 11

INPUT

Description:	Station	Elevation	Data	num=	13
Sta	Elev	Sta	Elev	Sta	Elev
38.92	817	12.58	825.11	16.36	820
270.56	822	273.56	822	66.73	819
				77.56	820
				239.49	821

CPNPPLOCA\1PMP

Manning's n Values	num= 3	Sta n Val	Right	Channel	Left	Channel	Right	Channel	Right
Sta n Val	0	12.18	.039	284	.039	284	.039	284	.039
Bank Sta: Left	16.36	77.56	8.89	8.89	8.89	8.89	8.89	8.89	8.89
Blocked Obstructions	Sta n Val	1	1	1	1	1	1	1	1
Sta n Val	273.56	284	825	825	825	825	825	825	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	Channel	Right	Channel	Right
Vel Head (ft)	0.00	wt. n-Val.	0.039	0.039	0.039	0.039
W.S. Elev (ft)	820.41	Reach Len. (ft)	8.89	8.89	8.89	8.89
Crit W.S. (ft)	0.000041	Flow Area (sq ft)	123.22	123.22	123.22	123.22
E.G. Slope (ft/ft)	0.000041	Area (sq ft)	13.64	13.64	13.64	13.64
Top width (ft)	122.10	Top width (ft)	55.74	55.74	55.74	55.74
Vel Total (ft/s)	0.38	AVG Vel (ft/s)	0.09	0.09	0.09	0.09
Max Chl Dpth (ft)	3.41	Hydr. Depth (ft)	2.21	2.21	2.21	2.21
Conv. Total (cfs)	8096.8	Conv. (cfs)	7916.0	7916.0	7916.0	7916.0
Length wtd. (ft)	8.89	wetted Per. (ft)	56.27	56.27	56.27	56.27
Min Ch El (ft)	817.00	Shear (lb/sq ft)	0.01	0.01	0.01	0.01
Alpha	1.15	Stream Power (lb/ft s)	284.00	284.00	284.00	284.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.19	0.19	0.19	0.19
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.00	0.00	0.00

CROSS SECTION

RIVER: Center North
REACH: Center N Upper RS: 10.8*

INPUT	num= 22	Sta n Val	Right	Channel	Left	Channel	Right	Channel	Right
Description:	22	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Sta n Val	17.8	32.23	.035	48.39	.043	283.4	.039	283.4	.039
Bank Sta: Left	17.8	82.88	8.89	8.89	8.89	8.89	8.89	8.89	8.89
Blocked Obstructions	Sta n Val	1	1	1	1	1	1	1	1
Sta n Val	273.172	283.4	825	825	825	825	825	825	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	Channel	Right	Channel	Right
Vel Head (ft)	0.00	wt. n-Val.	0.043	0.043	0.043	0.043
W.S. Elev (ft)	820.41	Reach Len. (ft)	8.89	8.89	8.89	8.89
Crit W.S. (ft)	0.000023	Flow Area (sq ft)	152.34	152.34	152.34	152.34
E.G. Slope (ft/ft)	0.000023	Area (sq ft)	50.18	50.18	50.18	50.18
Top width (ft)	140.12	Top width (ft)	60.85	60.85	60.85	60.85
Vel Total (ft/s)	0.29	AVG Vel. (ft/s)	0.33	0.33	0.33	0.33
Max Chl Dpth (ft)	3.75	Hydr. Depth (ft)	2.50	2.50	2.50	2.50
Conv. Total (cfs)	10845.7	Conv. (cfs)	10466.3	10466.3	10466.3	10466.3
Length wtd. (ft)	8.89	wetted Per. (ft)	61.46	61.46	61.46	61.46
Min Ch El (ft)	816.66	Shear (lb/sq ft)	0.00	0.00	0.00	0.00
Alpha	1.21	Stream Power (lb/ft s)	283.40	283.40	283.40	283.40
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.19	0.19	0.19	0.19
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.00	0.00	0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
REACH: Center N Upper RS: 10.6*

INPUT	num= 22	Sta n Val	Right	Channel	Left	Channel	Right	Channel	Right
Description:	22	11.23	11.23	11.23	11.23	11.23	11.23	11.23	11.23
Sta n Val	19.24	821.2	28.76	818.6	35.7	817.42	38.26	816.84	39.93
Bank Sta: Left	19.24	821.2	28.76	818.6	35.7	817.42	38.26	816.84	39.93
Blocked Obstructions	Sta n Val	4	4	4	4	4	4	4	4
Sta n Val	19.24	821.2	28.76	818.6	35.7	817.42	38.26	816.84	39.93

CPNPPLOCA1PMP

56.93 816.32 69.35 817.48 73.87 818.09 88.2 819.6 163.77 820.3
 235.01 820.98 240.84 821.07 269.18 821.98 270.13 822 272.48 822
 272.96 822 282.8 822

Manning's n Values
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 4 .032 2.34 .035 11.23 .048 13.53 .052 16.47 .046
 19.24 .031 34.34 .031 51.63 .046 282.8 .039
 Bank Sta: Left 19.24 Right 88.2
 Lengths: Left Channel 8.89 Right Channel 8.89
 Coeff Contr. .1
 Expan. .3

Blocked obstructions
 Sta L Sta R Elev
 272.784 282.8 825

CROSS SECTION OUTPUT Profile #PF 1
 E.G. Elev (ft) 820.41 Element
 Vel Head (ft) 0.00 Wt. n-Val.
 W.S. Elev (ft) 820.41 Reach (ft) 8.89 Channel
 Crit W.S. (ft) 0.000013 Area (sq ft) 184.93 0.046
 E.G. Slope (ft/ft) 52.00 Flow Area (sq ft) 184.93 184.93
 Q Total (Cfs) 153.28 Top Width (ft) 49.71 66.07
 Vel Total (ft/s) 0.24 Avg. Vel. (ft/s) 2.80 0.41
 Max Chl Dpth (ft) 4.09 Hydr. Depth (ft) 13686.9 629.6
 Conv. Total (Cfs) 14316.5 Wetted Per. (ft) 66.73 87.21
 Length Wtd. (ft) 8.89 Shear Power (lb/ft s) 0.00 0.00
 Min Chl El (ft) 816.32 Stream Power (lb/ft s) 0.19 3.88
 Frctn Loss (ft) 0.00 Cum Volume (acre-ft) 4.12 4.12
 C & E Loss (ft) 0.00 Cum SA (acres) 0.00 0.73 1.53

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 10.4*

INPUT

Station Elevation Data num= 22
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -6 822.56 1.95 822.53 11.49 822.45 13.87 822.28 17.51 822.02
 20.69 820.8 29.72 818.4 36.4 817.12 38.84 816.56 40.43 815.98
 58.43 815.98 72.37 816.99 77.44 817.63 93.51 819.4 166.79 820.2
 235.86 820.98 241.52 821.1 268.99 821.99 269.92 822 272.19 822
 272.96 822 282.2 822

Manning's n Values
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -6 .02 1.95 .023 11.49 .038 13.87 .043 17.51 .05
 20.69 .028 36.84 .028 54.91 .05 282.2 .039

Bank Sta: Left 20.69 Right 93.51
 Lengths: Left Channel 8.89 Right Channel 8.89
 Coeff Contr. .1
 Expan. .3

Blocked obstructions
 Sta L Sta R Elev
 272.396 282.2 825

CROSS SECTION OUTPUT Profile #PF 1
 E.G. Elev (ft) 820.41 Element
 Vel Head (ft) 0.00 Wt. n-Val.
 W.S. Elev (ft) 820.41 Reach Len. (ft) 8.89 Channel
 Crit W.S. (ft) 0.000008 Area (sq ft) 221.22 221.22
 E.G. Slope (ft/ft) 52.00 Flow Area (sq ft) 49.44 49.44
 Q Total (Cfs) 163.34 Top Width (ft) 71.35 91.99
 Vel Total (ft/s) 0.19 Avg. Vel. (ft/s) 3.22 0.05
 Max Chl Dpth (ft) 4.09 Hydr. Depth (ft) 17986.8 885.3
 Conv. Total (Cfs) 17986.8 Wetted Per. (ft) 17101.9 91.99
 Length Wtd. (ft) 8.89 Shear Power (lb/ft s) 72.07 0.00
 Min Chl El (ft) 815.98 Stream Power (lb/ft s) 282.20 0.00
 Alpha 1.27 Cum Volume (acre-ft) 0.19 3.84
 Frctn Loss (ft) 0.00 Cum SA (acres) 0.00 0.71 1.52
 C & E Loss (ft) 0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 10.2*

CPNPPLOCA\1PMP

INPUT

Description	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	22	num=	9	num=	15	num=	8	num=	9
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
8	822.64	30	822.62	11	822.55	14	822.34	18	822.01	20
9	822.64	30	822.62	11	822.55	14	822.34	18	822.01	20
10	822.72	0	822.72	12	822.66	19	822.57	23	822.57	23
40	816	41	815.3	61	815.3	78	816	104	819	819
172	83	820	237.57	821	268.62	822	271.62	822	281	822

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
8	.02	.97	11	.022	11.74	14	.039	14.43	18	.045	18.54
9	.024	.97	12	.024	11.74	15	.039	14.43	19	.045	18.54

Bank Sta: Left Right

Lengths	Left Channel	Right	Coeff	Contr.	Expan.
8.85	8.89	8.89	.1	.3	.3

Blocked Observations

Sta	L	R	Elev
272	.008	281	.6

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.000	0.041	0.053
W.S. Elev (ft)	820.41	Reach Len. (ft)	8.89	8.89	8.89
Crit W.S. (ft)	0.000005	Flow Area (sq ft)	0.00	261.13	57.68
E.G. Slope (ft/ft)	52.00	Area (sq ft)	0.00	261.13	57.68
Top Width (ft)	171.11	Flow (cfs)	0.03	76.76	94.39
Vel Total (ft/s)	4.16	Top width (ft)	0.00	0.19	0.05
Max Chl Dpth (ft)	4.77	AVG. Vel. (ft/s)	0.01	3.40	0.61
Conv. Total (cfs)	22632.5	Hydr. Depth (ft)	0.00	21468.0	1164.6
Length wtd. (ft)	8.89	Conv. (cfs)	0.03	77.50	94.39
Min Ch El (ft)	815.64	wetted Per. (ft)	281.60	0.00	0.00
Alpha	1.28	Stream Power (lb/ft s)	0.19	3.79	4.10
Frctn Loss (ft)	0.00	Shear (lb/sq ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	3.79	4.10
		Cum SA (acres)	0.00	0.70	1.50

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North

REACH: Center N Upper

RS: 10

INPUT

Description	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	15	num=	8	num=	1	num=	1
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
-10	822.72	0	822.72	12	822.66	19	822.57	23
40	816	41	815.3	61	815.3	78	816	104
172	83	820	237.57	821	268.62	822	271.62	822

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.02	.97	12	.039	19.57	19	.057	41.44
61	.057	104.15	281	.039				

Bank Sta: Left Right

Lengths	Left Channel	Right	Coeff	Contr.	Expan.
10.15	.99	.99	.1	.3	.3

Blocked Observations

Sta	L	R	Elev
271	.62	281	.6

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.03</td> <td>Wt. n-Val.</td> <td>0.057</td> <td>0.049</td> <td>0.039</td>	0.03	Wt. n-Val.	0.057	0.049	0.039
W.S. Elev (ft) <td>820.38</td> <td>Reach Len. (ft)</td> <td>0.99</td> <td>0.99</td> <td>0.99</td>	820.38	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft) <td>0.000346</td> <td>Flow Area (sq ft)</td> <td>0.11</td> <td>302.10</td> <td>65.32</td>	0.000346	Flow Area (sq ft)	0.11	302.10	65.32
E.G. Slope (ft/ft)	442.00	Area (sq ft)	0.02	405.52	36.46
Top Width (ft)	174.77	Flow (cfs)	0.76	80.58	93.43
Vel Total (ft/s)	1.20	Top width (ft)	0.19	1.34	0.56
Max Chl Dpth (ft)	5.08	AVG. Vel. (ft/s)	0.15	3.75	0.70
Conv. Total (cfs)	23767.6	Hydr. Depth (ft)	0.85	21806.0	1960.5
Length wtd. (ft)	0.99	Conv. (cfs)	0.00	0.08	0.02
Min Ch El (ft)	815.30	wetted Per. (ft)	281.00	0.00	0.00
Alpha	1.16	Stream Power (lb/ft s)	0.19	3.74	4.09
Frctn Loss (ft)	0.00	Shear (lb/sq ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	3.74	4.09
		Cum SA (acres)	0.00	0.68	1.48

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
REACH: Center N Upper

RS: 9.975*

INPUT		Description:		Station Elevation Data		num= 20		Elev		Sta		Elev		Sta		Elev		
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
-10	822.7	-14	822.7	11.69	822.64	12.82	822.55	19.15	821.97	19.15	821.97	19.15	821.97	19.15	821.97	19.15	821.97	
23.09	820	39.19	816.08	39.52	816	40.96	815.29	60.96	815.29	60.96	815.29	60.96	815.29	60.96	815.29	60.96	815.29	
70.62	815.71	77.59	816.02	102.8	817	170.97	820.01	235.22	821.01	235.22	821.01	235.22	821.01	235.22	821.01	235.22	821.01	
260.67	821.83	264.93	821.96	266.04	822	269.02	822	278.33	822	278.33	822	278.33	822	278.33	822	278.33	822	278.33

Manning's n Values		num= 11		Sta		n Val		Sta		n Val		Sta		n Val		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
23.09	.021	39.19	.021	39.52	.021	40.96	.021	60.96	.021	60.96	.021	60.96	.021	60.96	.021	60.96	.021	60.96	.021
70.62	.039	77.59	.039	102.8	.039	170.97	.039	235.22	.039	235.22	.039	235.22	.039	235.22	.039	235.22	.039	235.22	.039
260.67	.039	264.93	.039	266.04	.039	269.02	.039	278.33	.039	278.33	.039	278.33	.039	278.33	.039	278.33	.039	278.33	.039

Bank Sta:		Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
23.09	102.8	.99	.99	1	.99	.99	.1	.3	.3

Blocked Obstructions		num= 1		Sta		Elev	
Sta L	Sta R	Sta L	Sta R	Sta L	Elev	Sta R	Elev
268.9432	278.33	268.9432	278.33	268.9432	278.33	278.33	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	Wt	n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Top Width (ft)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Conv. (cfs)	Wetted Per. (ft)	Stream Power (lb/ft s)	Frctn Loss (ft)	C & E Loss (ft)	Right OB
820.41	0.03	W.S. Elev (ft)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.045
820.38	0.03	Crit W.S. (ft)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.045
0.000253	0.000253	E.G. Slope (ft/ft)	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.045
172.37	172.37	Q Total (cfs)	172.37	172.37	172.37	172.37	172.37	172.37	172.37	172.37	172.37	172.37	172.37	172.37	172.37	172.37	0.99
5.09	5.09	Top Width (ft)	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.09	5.09	0.99
27777.63	27777.63	Max Chl Dpth (ft)	27777.63	27777.63	27777.63	27777.63	27777.63	27777.63	27777.63	27777.63	27777.63	27777.63	27777.63	27777.63	27777.63	27777.63	0.99
815.29	815.29	Length Wtd. (ft)	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	0.99
1.72	1.72	Alphn El (ft)	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	0.99
0.00	0.00	Frctn Loss (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99
0.00	0.00	C & E Loss (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
REACH: Center N Upper

RS: 9.95*

INPUT		Description:		Station Elevation Data		num= 20		Elev		Sta		Elev		Sta		Elev		
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
-10	822.68	-28	822.68	11.38	822.63	12.49	822.53	18.73	821.94	18.73	821.94	18.73	821.94	18.73	821.94	18.73	821.94	
22.62	820	38.71	816.08	39.05	815.99	40.49	815.29	60.49	815.29	60.49	815.29	60.49	815.29	60.49	815.29	60.49	815.29	
69.94	815.72	76.76	816.03	101.45	819	169.1	820.01	232.87	821.03	232.87	821.03	232.87	821.03	232.87	821.03	232.87	821.03	
258.13	821.83	262.35	821.97	263.46	822	266.41	822	275.65	822	275.65	822	275.65	822	275.65	822	275.65	822	275.65

Manning's n Values		num= 11		Sta		n Val		Sta		n Val		Sta		n Val		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
23.09	.022	39.19	.022	39.52	.022	40.49	.022	60.49	.022	60.49	.022	60.49	.022	60.49	.022	60.49	.022	60.49	.022
70.62	.039	76.76	.039	101.45	.039	169.1	.039	232.87	.039	232.87	.039	232.87	.039	232.87	.039	232.87	.039	232.87	.039
260.67	.039	262.35	.039	263.46	.039	266.41	.039	275.65	.039	275.65	.039	275.65	.039	275.65	.039	275.65	.039	275.65	.039

Bank Sta:		Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
22.62	101.45	.99	.99	1	.99	.99	.1	.3	.3

Blocked Obstructions		num= 1		Sta		Elev	
Sta L	Sta R	Sta L	Sta R	Sta L	Elev	Sta R	Elev
266.2065	275.65	266.2065	275.65	266.2065	275.65	275.65	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	Wt	n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Top Width (ft)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Conv. (cfs)	Wetted Per. (ft)	Stream Power (lb/ft s)	Frctn Loss (ft)	C & E Loss (ft)	Right OB
820.41	0.03	W.S. Elev (ft)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.045
820.38	0.03	Crit W.S. (ft)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.045
0.000253	0.000253	E.G. Slope (ft/ft)	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.045
170.27	170.27	Q Total (cfs)	170.27	170.27	170.27	170.27	170.27	170.27	170.27	170.27	170.27	170.27	170.27	170.27	170.27	170.27	0.99
5.03	5.03	Top Width (ft)	5.03	5.03	5.03	5.03	5.03	5.03	5.03	5.03	5.03	5.03	5.03	5.03	5.03	5.03	0.99
27766.2	27766.2	Max Chl Dpth (ft)	27766.2	27766.2	27766.2	27766.2	27766.2	27766.2	27766.2	27766.2	27766.2	27766.2	27766.2	27766.2	27766.2	27766.2	0.99
815.29	815.29	Length Wtd. (ft)	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	815.29	0.99
1.12	1.12	Alphn El (ft)	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	0.99
0.00	0.00	Frctn Loss (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99
0.00	0.00	C & E Loss (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99

Alpha Frctn Loss (ft) 1.24 Stream Power (lb/ft s) 275.65 0.00
 C & E Loss (ft) 0.00 Cum Volume (acre-ft) 0.00 3.72 4.08
 C & E Loss (ft) 0.00 Cum SA (acres) 0.00 0.68 1.47

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Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.925*

Description		Station Elevation Data		Manning's n Values		Blocked obstructions		Bank Sta: Left		Right		Lengths: Left Channel		Right		Coeff Contr.		Expan.	
Sta	Elev	Sta	Elev	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
22.14	822.870	38.73	822.08	11	0.03	20	0.03	11	0.03	11	0.03	11	0.03	11	0.03	11	0.03	11	0.03
69.76	815.773	78.64	816.05	11	0.02	20	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02
255.59	821.84	259.78	821.97	11	0.02	20	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02
				11	0.02	20	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02

Bank Sta: Left 22.14 100.1
 Blocked obstructions 100.1
 Sta L Sta R Elev num= 1
 263.5898 272.98 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	0.055	Left OB	0.040	Channel	0.046	Right OB	0.046
Vel Head (ft)	0.03	Wt. n-Val.	0.99	Reach Len. (ft)	0.99	Area (sq ft)	201.80	Flow Area (sq ft)	201.80
W.S. Elev (ft)	820.38	Flow Area (sq ft)	0.03	Area (sq ft)	416.47	Top width (ft)	77.96	Avg. Vel. (ft/s)	1.43
Cr. L.S. (ft)	0.000262	Area (cfs)	0.03	Top width (ft)	0.76	Hydr. Depth (ft)	0.19	Conv. (cfs)	1.2
E. Total (ft)	442.00	Top width (ft)	0.03	Avg. Vel. (ft/s)	0.19	Wetted Per. (ft)	0.85	Stream Power (lb/ft s)	272.98
Top width (ft)	168.01	Vel Total (ft/s)	1.25	Hydr. Depth (ft)	0.19	Shear (lb/sq ft)	0.00	Cum Volume (acre-ft)	0.19
Vel Total (ft/s)	5.10	Max Chl Dpth (ft)	5.10	Conv. (cfs)	27330.6	Stream Power (lb/ft s)	0.00	Cum SA (acres)	0.68
Max Chl Dpth (ft)	0.99	Length wtd. (ft)	0.99	Length wtd. (ft)	815.28	Alpha	1.24		
Conv. Total (cfs)	27330.6	Length wtd. (ft)	0.99	Alpha	1.24				
Length wtd. (ft)	815.28	Frctn Loss (ft)	0.00						
Min Ch El (ft)	815.28	C & E Loss (ft)	0.00						
Alpha	1.24								
Frctn Loss (ft)	0.00								
C & E Loss (ft)	0.00								

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.9*

Description		Station Elevation Data		Manning's n Values		Blocked obstructions		Bank Sta: Left		Right		Lengths: Left Channel		Right		Coeff Contr.		Expan.	
Sta	Elev	Sta	Elev	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
21.66	820	37.76	816.07	11	0.03	20	0.03	11	0.03	11	0.03	11	0.03	11	0.03	11	0.03	11	0.03
68.59	815.74	75.12	816.06	11	0.02	20	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02
253.05	821.84	257.21	821.97	11	0.02	20	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02
				11	0.02	20	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02	11	0.02

Bank Sta: Left 21.66 98.75
 Blocked obstructions 98.75
 Sta L Sta R Elev num= 1
 260.913 270.3 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.41	Element	0.055	Left OB	0.040	Channel	0.046	Right OB	0.046
Vel Head (ft)	0.03	Wt. n-Val.	0.99	Reach Len. (ft)	0.99	Area (sq ft)	201.80	Flow Area (sq ft)	201.80
W.S. Elev (ft)	820.38	Flow Area (sq ft)	0.03	Area (sq ft)	416.47	Top width (ft)	77.96	Avg. Vel. (ft/s)	1.43
Cr. L.S. (ft)	0.000262	Area (cfs)	0.03	Top width (ft)	0.76	Hydr. Depth (ft)	0.19	Conv. (cfs)	1.2
E. Total (ft)	442.00	Top width (ft)	0.03	Avg. Vel. (ft/s)	0.19	Wetted Per. (ft)	0.85	Stream Power (lb/ft s)	272.98
Top width (ft)	168.01	Vel Total (ft/s)	1.25	Hydr. Depth (ft)	0.19	Shear (lb/sq ft)	0.00	Cum Volume (acre-ft)	0.19
Vel Total (ft/s)	5.10	Max Chl Dpth (ft)	5.10	Conv. (cfs)	27330.6	Stream Power (lb/ft s)	0.00	Cum SA (acres)	0.68
Max Chl Dpth (ft)	0.99	Length wtd. (ft)	0.99	Length wtd. (ft)	815.28	Alpha	1.24		
Conv. Total (cfs)	27330.6	Frctn Loss (ft)	0.00						
Length wtd. (ft)	815.28	C & E Loss (ft)	0.00						
Min Ch El (ft)	815.28								
Alpha	1.24								
Frctn Loss (ft)	0.00								
C & E Loss (ft)	0.00								

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CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.41	0.039	0.047
Wt. n-Val.	0.03	0.99	0.99
W.S. Elev (ft)	820.37	0.99	59.29
Crit W.S. (ft)	0.000268	281.64	24.09
E.G. Slope (ft/ft)	0.44200	417.94	85.42
Top width (ft)	161.52	75.35	0.41
Vel Total (ft/s)	1.30	1.48	0.69
Max Chl Dpth (ft)	5.10	3.74	1469.4
Conv. Total (cfs)	27014.9	1.2	85.43
Length Wtd. (ft)	0.99	76.21	0.01
Min Ch El (ft)	815.27	0.06	0.00
Alpha	1.25	0.00	4.08
Frctn Loss (ft)	0.00	3.70	1.46
C & E Loss (ft)	0.00	0.67	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.825*

Description:	num=	20	20	20	20
Station	Elev	Sta	Elev	Sta	Elev
-10	822.59	-99	822.54	10.85	821.78
20.23	820	36.33	815.97	38.11	815.26
66.55	815.76	72.65	819	159.78	820.05
245.42	821.86	249.49	821.97	250.54	822

Manning's n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.026	9.81	.042	10.85	16.63	.033				
20.23	.02	49.39	.041	55.23	81.99	.047				
262.27	.039									

Bank Sta: Left 20.23 Right 94.71 Lengths: Left Channel .99 Right .99 Coeff Contr. .1 Expan. .3
 Blocked obstructions num= 1

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.41	0.039	0.047
Wt. n-Val.	0.03	0.99	0.99
W.S. Elev (ft)	820.37	0.99	58.20
Crit W.S. (ft)	0.000273	278.47	23.79
E.G. Slope (ft/ft)	0.44200	418.19	84.08
Q Total (cfs)	159.32	0.75	0.41
Top width (ft)	1.31	1.50	0.69
Vel Total (ft/s)	5.11	3.74	1439.8
Max Chl Dpth (ft)	0.99	1.2	84.10
Conv. Total (cfs)	813.26	0.06	0.01
Length Wtd. (ft)	0.04	3.60	4.08
Min Ch El (ft)	0.00	0.67	1.46
Alpha	0.00		
Frctn Loss (ft)	0.00		
C & E Loss (ft)	0.00		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N upper RS: 9.8*

Description:	num=	20	20	20	20
Station	Elev	Sta	Elev	Sta	Elev
-10	822.58	-1.14	822.53	10.52	822.45
19.76	820	35.85	815.97	37.63	815.26
65.87	815.77	71.83	819	157.92	820.06
242.88	821.86	246.91	821.97	247.96	822

Manning's n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.027	9.5	.043	10.52	16.21	.045				
19.76	.02	48.57	.04	54.35	80.79	.047				
259.6	.039									

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Bank Sta: Left 19.76 Right 93.36
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 250.206 259.6 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left Channel	Right Channel	Lengths	Left Channel	Right Channel	Coeff	Contr.	Expan.	Channel	Left OB	Right OB
E-G. Elev (ft)	820.41									0.052	0.047
Vel Head (ft)	0.03								0.039	0.99	0.99
W.S. Elev (ft)	820.37								0.14	0.14	57.13
Crit W.S. (ft)									274.91	274.91	57.13
E.G. Slope (ft/ft)	0.000274								418.63	418.63	23.35
Q Total (cfs)	442.00								73.60	73.60	82.76
Top Width (ft)	157.11								1.52	1.52	0.41
Vel Total (ft/s)	1.33								1.19	1.19	1410.69
Max Chl Dpth (ft)	26696.11								0.84	0.84	82.77
Hydr. Depth (ft)	0.99								259.60	259.60	0.01
Length Wtd. (ft)	815.25								0.19	0.19	4.08
Min Ch El (ft)	0.00								0.00	0.00	1.46
Alpha											
Frctn Loss	0.00										
C & E Loss	0.00										

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.775*

INPUT

Description:	Station	Elev	Sta	num=	20	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	19	822.56	-1.28	822.56	9.79	822.51	10.19	822.43	15.79	821.72		
	18	815.97	35.39	816.16	82.01	815.96	156.15	820.07	216.15	821.73		
	06	821.87	244.34	821.97	245.38	822	248.18	822	256.92	822		

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.028	-1.28	9.19	.043	10.19	.045	15.79	.052
19.28	.02	35.41	.02	47.76	.04	53.46	.05	79.59
256.92	.039							.048

Bank Sta: Left 19.28 Right 92.01
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 247.5293 256.92 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left Channel	Right Channel	Lengths	Left Channel	Right Channel	Coeff	Contr.	Expan.	Channel	Left OB	Right OB
E-G. Elev (ft)	820.40									0.052	0.048
Vel Head (ft)	0.04								0.038	0.99	0.99
W.S. Elev (ft)	820.37								0.14	0.14	56.04
Crit W.S. (ft)									271.78	271.78	56.04
E.G. Slope (ft/ft)	0.000378								411.78	411.78	26.94
Q Total (cfs)	1492.00								72.79	72.79	81.29
Top Width (ft)	154.70								0.71	0.71	0.40
Vel Total (ft/s)	1.35								1.18	1.18	0.69
Max Chl Dpth (ft)	5.12								1.2	1.2	1353.7
Conv. Total (cfs)	26499.4								25144.5	25144.5	81.28
Length Wtd. (ft)	0.99								0.06	0.06	0.01
Min Ch El (ft)	815.25								256.92	256.92	4.07
Alpha	1.25								0.19	0.19	4.07
Frctn Loss	0.00								0.00	0.00	1.46
C & E Loss	0.00										

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.75*

INPUT

Description:	Station	Elev	Sta	num=	20	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	18	822.54	-1.42	822.54	8.88	822.49	9.86	822.42	15.37	821.69		
	18.8	820	34.9	816.06	35.24	815.96	36.68	815.25	56.68	815.25		
	64.52	815.78	70.18	816.16	90.66	819	154.19	820.07	214.08	821.13		

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237.8	821.87	241.76	821.97	242.8	822	245.57	822	254.25	822
Manning's n Values									
Sta	n Val	Sta	num=	n Val	Sta	n Val	Sta	n Val	Sta
-10	.029	-1.42	.029	8.88	.043	9.86	15.37	.051	
18.6	.02	34.74	.02	46.94	.039	52.57	.049	78.39	.048
254.23	.039								
Bank Sta: Left 18.8 Right 90.66 Lengths: Left Channel .99 Right .99 Coeff Contr. .1 Expan. .3									
Blocked Obstructions num= 1									
Sta L	Sta R	Elev							
244.8525	254.25	825							

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element		Left OB		Channel		Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.051	0.051	0.038	0.048		0.048
W.S. Elev (ft)	820.34	Reach Len. (ft)	0.99	0.99	0.99	0.99		0.99
Crit W.S. (ft)	820.37	Flow Area (sq ft)	0.14	0.14	268.41	268.41		55.46
E.G. Slope (ft/ft)	0.000279	Area (sq ft)	0.14	0.14	268.41	268.41		55.46
Q Total (cfs)	442.00	Flow (cfs)	0.02	0.02	419.61	419.61		22.37
Top Width (ft)	153.00	Top Width (ft)	0.75	0.75	71.86	71.86		80.39
Vel Total (ft/s)	1.36	Avg. Vel. (ft/s)	0.18	0.18	1.56	1.56		0.40
Max Chl Dpth (ft)	5.12	Hydr. Depth (ft)	1.2	1.2	3.74	3.74		0.69
Conv. Total (cfs)	26482.3	Conv. (cfs)	0.00	0.00	25140.7	25140.7		1340.4
Length Wtd. (ft)	0.99	Wetted Per. (ft)	0.83	0.83	72.74	72.74		80.40
Min Ch El (ft)	815.25	Shear (lb/sq ft)	0.00	0.00	0.06	0.06		0.01
Alpha	0.75	Stream Power (lb/ft.s)	254.15	254.15	3.69	3.69		4.07
Friction Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.66	0.66		1.46
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.00	0.66	0.66		1.46

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.725*

INPUT

Description:	Station	Elevation	Data	num=	20
Sta	Elev	Sta	Elev	Sta	Elev
-10	822.52	-1.56	822.52	8.56	822.41
18.33	820	34.42	816.06	34.76	815.24
63.84	815.79	69.36	816.18	89.31	820.08
235.26	821.87	239.19	821.97	240.22	822

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.03	-1.56	.03	8.56	.046
18.33	.02	34.07	.02	46.12	.038
251.57	.039			51.69	.049

Bank Sta: Left	18.33	Right	89.31	Lengths: Left	.99	Right	.99	Coeff Contr.	.1	Expan.	.3
Blocked Obstructions num= 1											
Sta L	Sta R	Elev									
242.1758	251.57	825									

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element		Left OB		Channel		Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.051	0.051	0.038	0.048		0.048
W.S. Elev (ft)	820.37	Reach Len. (ft)	0.99	0.99	0.99	0.99		0.99
Crit W.S. (ft)	820.37	Flow Area (sq ft)	0.14	0.14	265.16	265.16		54.43
E.G. Slope (ft/ft)	0.000285	Area (sq ft)	0.14	0.14	265.16	265.16		54.43
Q Total (cfs)	442.00	Flow (cfs)	0.02	0.02	419.83	419.83		22.15
Top Width (ft)	150.83	Top Width (ft)	0.75	0.75	70.98	70.98		79.11
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)	0.15	0.15	1.58	1.58		0.41
Max Chl Dpth (ft)	5.12	Hydr. Depth (ft)	1.18	1.18	24836.74	24836.74		1303.69
Conv. Total (cfs)	26200.13	Conv. (cfs)	0.00	0.00	71.87	71.87		79.11
Length Wtd. (ft)	0.99	Wetted Per. (ft)	0.83	0.83	0.07	0.07		0.01
Min Ch El (ft)	815.25	Stream Power (lb/ft.s)	251.57	251.57	3.67	3.67		4.07
Alpha	0.75	Cum Volume (acre-ft)	0.00	0.00	0.66	0.66		1.46
Friction Loss (ft)	0.00	Cum SA (acres)	0.00	0.00	0.66	0.66		1.46
C & E Loss (ft)	0.00							

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.7*

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INPUT

Description:		Station		Elevation Data		num=		20		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.15	-1.7	822.5	8.25	822.46	9.21	822.39	14.53	821.63								
17.85	815.820	33.9	816.06	81.9	815.72	81.9	815.72	81.9	815.72	81.9	815.72	81.9	815.72	81.9	815.72	81.9	815.72
232.72	821.68	236.82	821.97	237.63	822	240.36	822	248.36	822								

Manning's n values

num=	Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
11	-10	.031	-1.7	8.25	.044	9.21	.046	14.53	.05			
	17.85	.02	33.4	.02	45.3	.038	50.8	75.99	.048			
	248.9	.039										

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

Blocked Obstructions num= 1

239.499 246.9 ELEV num= 1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.037	0.048
W.S. Elev (ft)	820.37	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.000286	Flow Area (sq ft)	0.14	261.85	53.40
E.G. Slope (ft/ft)	148.00	Area (sq ft)	0.72	470.12	71.86
Top Width (ft)	1.40	Top Width (ft)	0.15	1.60	0.41
Vel Total (ft/s)	5.13	Avg Vel (ft/s)	0.18	3.73	0.69
Max Chl Dpth (ft)	26120.5	Hydr. Depth (ft)	0.83	24833.3	1286.0
Conv. Total (cfs)	0.99	Conv. (cfs)	0.83	71.01	77.83
Length Wtd. (ft)	815.24	wetted per. (ft)	0.00	0.07	0.01
Min Ch El (ft)	0.00	Shear (lb/sq ft)	248.90	0.00	4.00
Alpha	1.25	Stream Power (lb/ft s)	3.66	4.07	4.07
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	3.66	4.07
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.66	1.45

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North RS: 9.675*

REACH: Center N Upper

INPUT

Description:		Station		Elevation Data		num=		20		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.49	-1.55	822.49	7.94	822.45	8.88	825.58	14.11	821.6								
17.37	820	33.47	820	81.9	815.94	81.9	815.94	81.9	815.94	81.9	815.94	81.9	815.94	81.9	815.94	81.9	815.94
62.49	815.8	67.71	816.21	86.61	819	148.6	820.1	207.03	821.17								
230.17	821.88	234.04	821.98	235.05	822	237.76	822	246.23	822								

Manning's n values

num=	Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
11	-10	.032	-1.55	7.94	.045	8.88	.047	14.11	.05			
	17.37	.02	32.73	.02	44.48	.037	49.91	74.79	.049			
	246.23	.059										

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

Blocked Obstructions num= 1

236.8223 246.23 ELEV num= 1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.00	0.037	0.049
W.S. Elev (ft)	820.36	Reach Len. (ft)	0.14	258.63	52.37
Crit W.S. (ft)	0.000290	Flow Area (sq ft)	0.14	420.96	21.02
E.G. Slope (ft/ft)	146.39	Area (sq ft)	0.02	69.24	76.41
Top Width (ft)	1.42	Top Width (ft)	0.15	1.63	0.40
Vel Total (ft/s)	5.13	Avg Vel (ft/s)	0.18	3.74	0.69
Max Chl Dpth (ft)	25951.3	Hydr. Depth (ft)	0.83	24715.7	1234.4
Conv. Total (cfs)	0.99	Conv. (cfs)	0.83	70.14	76.42
Length Wtd. (ft)	815.23	wetted per. (ft)	0.00	0.07	0.01
Min Ch El (ft)	0.00	Shear (lb/sq ft)	246.23	3.00	0.00
Alpha	1.25	Stream Power (lb/ft s)	0.00	3.66	4.07
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.66	1.45
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.66	1.45

Note: Manning's n values were composited to a single value in the main channel.

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Min Ch El (ft)	815.22	Shear (lb/sq ft)	0.00	0.07	0.01
Alpha	1.26	Stream Power (lb/ft s)	240.88	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.19	3.64	4.07
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.66	1.45

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.6*

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.41	20	822.38	20	822.38	20	822.38
15.94	820.36	32.38	815.93	32.38	815.93	32.38	815.93
60.45	815.82	81.26	819.14	81.26	819.14	81.26	819.14
222.55	821.9	226.32	821.98	227.31	822	228.2	822

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.035	20	.046	20	.046	20	.046
15.94	.02	32.38	.035	32.38	.035	32.38	.035
238.2	.039	42.03	.045	47.25	.045	71.19	.05

Bank Sta: Left Right

15.94	821.98	226.32	821.98
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Blocked obstructions num=

1

Lengths: Left Channel Right

.99	.99
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Coeff Contr. Expan.

.1	.3
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Sta L Sta R Elev num=

228.792	238.2	825
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Channel
Vel Head (ft)	0.04	Wt. n-Val.	0.048
W.S. Elev (ft)	820.36	Reach Len. (ft)	0.39
E.G. Slope (ft/ft)	0.000303	Area (sq ft)	248.83
G-Total (cfs)	442.00	Flow (cfs)	49.82
Top width (ft)	140.32	Top width (ft)	0.02
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)	0.74
Max Chl Dpth (ft)	5.14	Hydr. Depth (ft)	0.18
Conv. Total (cfs)	25402.5	Conv. (cfs)	1.2
Length wtd. (ft)	0.99	Wetted Per. (ft)	0.82
Min Ch El (ft)	815.22	Stream Power (lb/ft s)	238.20
Alpha	1.26	Shear (lb/sq ft)	0.00
Frctn Loss (ft)	0.00	Stream Power (acre-ft)	0.19
C & E Loss (ft)	0.00	Cum Volume (acres)	3.64
		Cum SA (acres)	0.66

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.575*

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.41	20	822.38	20	822.38	20	822.38
15.47	820	31.56	816.05	31.9	815.93	33.34	815.21
59.78	815.83	64.42	816.28	81.22	819	141.14	821.22
220.01	821.9	223.75	821.98	224.72	822	227.34	822

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.047	20	.046	20	.046	20	.046
15.47	.02	31.56	.035	31.9	.035	33.34	.044
235.53	.039	41.21	.045	46.37	.045	69.99	.05

Bank Sta: Left Right

15.47	81.22	223.75	821.98
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Blocked obstructions num=

1

Lengths: Left Channel Right

.99	.99
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Coeff Contr. Expan.

.1	.3
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Sta L Sta R Elev num=

226.1152	235.53	825
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Channel
Vel Head (ft)	0.04	Wt. n-Val.	0.047
W.S. Elev (ft)	820.36	Reach Len. (ft)	0.99
Crit W.S. (ft)		Flow Area (sq ft)	0.13

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E.G. Slope (ft/ft)	0.000304	Area (sq ft)	0.13	245.64	48.84
Q Total (cfs)	442.00	Flow (cfs)	0.02	422.38	19.60
Top Width (ft)	138.21	Top Width (ft)	0.73	65.75	71.72
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)	0.16	1.72	0.40
Max Chl Dpth (ft)	5.15	Hydr. Depth (ft)	0.18	3.74	0.68
Conv. Total (cfs)	25332.00	Conv. (cfs)	1.22	24207.3	1123.5
Length wtd. (ft)	815.29	Wetted Per. (ft)	0.02	60.07	70.74
Min Ch El (ft)	1.26	Stream Power (lb/ft s)	235.53	0.00	0.00
Alpha	0.00	Cum Volume (acre-ft)	0.19	3.63	4.06
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.65	1.45
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.55*

INPUT

Description:		num=	20
Station Elevation Data			
Sta Elev	Sta Elev	Sta Elev	Sta Elev
-10 822.4	-2.56 822.4	6.38 822.36	7.23 822.31
14.99 820	31.09 816.05	31.43 815.92	32.87 815.21
59.1 815.84	63.6 816.29	79.87 819	139.28 820.13
217.47 821.9	221.17 821.98	222.14 822	224.74 822

Manning's n Values		num=	11
Sta n Val	Sta n Val	Sta n Val	Sta n Val
-10 .037	-2.56 .037	6.38 .047	7.23 .049
14.99 .02	29.38 .02	40.39 .034	45.48 .043
232.85 .039			

Bank Sta: Left	14.99	Right	79.87	Lengths: Left	.99	Channel	.99	Right	.99	Coef. Contr.	.1	Expand.	.3
Blocked Obstructions													
Sta L	223.4585	Sta R	825										

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.047	0.035	0.050
W.S. Elev (ft)	820.36	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)		Flow Area (sq ft)	0.13	242.35	48.30
E.G. Slope (ft/ft)	0.000305	Area (sq ft)	0.02	242.35	48.30
Q Total (cfs)	442.00	Flow (cfs)	0.13	422.37	19.41
Top Width (ft)	136.23	Top Width (ft)	0.73	64.28	70.42
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)	0.16	1.72	0.40
Max Chl Dpth (ft)	5.15	Hydr. Depth (ft)	0.18	3.74	0.68
Conv. Total (cfs)	25302.9	Conv. (cfs)	1.22	24190.7	1110.9
Length wtd. (ft)	0.99	Wetted Per. (ft)	0.81	65.83	70.93
Min Ch El (ft)	1.26	Stream Power (lb/ft s)	232.85	0.00	0.00
Alpha	0.00	Cum Volume (acre-ft)	0.19	3.62	4.06
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.65	1.44
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.525*

INPUT

Description:		num=	20
Station Elevation Data			
Sta Elev	Sta Elev	Sta Elev	Sta Elev
-10 822.4	-2.56 822.4	6.38 822.36	7.23 822.31
14.51 820	30.61 816.04	30.95 815.95	32.39 815.2
58.42 815.85	62.7 816.31	78.52 819	137.41 820.14
214.92 821.91	218.6 821.98	219.56 822	222.13 822

Manning's n Values		num=	11
Sta n Val	Sta n Val	Sta n Val	Sta n Val
-10 .038	-2.7 .038	6.06 .048	6.9 .049
14.51 .02	28.71 .02	39.57 .033	44.59 .043
230.18 .039			

Bank Sta: Left	14.51	Right	78.52	Lengths: Left	.99	Channel	.99	Right	.99	Coef. Contr.	.1	Expand.	.3
Blocked Obstructions													
Sta L	220.7618	Sta R	825										

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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.40		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.05	820.35	0.05	Wt. n-Val.	0.046	0.99	0.036	0.051			
W.S. Elev (ft)	820.35	820.35	0.05	Reach Len. (ft)	0.99	0.99	0.99	0.99			
Crit W.S. (ft)	820.35	820.35	0.05	Flow Area (sq ft)	0.13	239.79	47.34	47.34			
E. G. Slope (ft/ft)	0.000316	0.000316	0.05	Flow (cfs)	0.02	423.03	18.95	18.95			
Q Total (cfs)	134.35	134.35	0.05	Top width (ft)	0.73	64.01	69.61	69.61			
Top width (ft)	1.54	1.54	0.05	Avg. Vel. (ft/s)	0.18	3.74	0.40	0.40			
Vel Total (ft/s)	5.15	5.15	0.05	Hydr. Depth (ft)	1.2	23804.9	1066.4	1066.4			
Max Chl Dpth (ft)	24872.5	24872.5	0.05	Wetted Per. (ft)	0.81	64.97	69.62	69.62			
Conv. Total (cfs)	815.20	815.20	0.05	Shear (lb/sq ft)	230.18	0.00	0.00	0.00			
Length wrd. (ft)	1.26	1.26	0.05	Stream Power (lb/ft s)	0.19	3.62	4.06	4.06			
Min Ch El (ft)	0.00	0.00	0.05	Cum Volume (acre-ft)	0.00	0.65	1.44	1.44			
Alpha	0.00	0.00	0.05	Cum SA (acres)	0.00	0.65	1.44	1.44			
Frctn Loss	0.00	0.00	0.05								
C & E Loss (ft)	0.00	0.00	0.05								

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.5*

INPUT Description: Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.36	-2.84	822.36	5.75	822.33	6.58	822.28
14.04	820.30	30.14	816.04	30.47	815.91	31.92	815.2
57.74	815.85	61.95	816.32	77.17	819	135.55	820.15
212.38	821.91	216.03	821.98	216.98	822	219.53	822

Manning's n Values num= 11

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14.04	.039	28.04	.02	38.76	.08	43.71	.042
57.74	.039	77.17	.099	111.17	.086	166.39	.051

Bank Sta: Left 14.04 Right 77.17 Lengths: Left Channel .99 Right .1

Blocked obstructions num= 1

Sta L	Sta R	Elev	Coeff	Constr.	Expan.
218.085	227.5	825	.1	.3	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.40		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.05	820.35	0.05	Wt. n-Val.	0.046	0.99	0.036	0.051			
W.S. Elev (ft)	820.35	820.35	0.05	Reach Len. (ft)	0.99	0.99	0.99	0.99			
Crit W.S. (ft)	820.35	820.35	0.05	Flow Area (sq ft)	0.13	236.04	46.40	46.40			
E. G. Slope (ft/ft)	0.000318	0.000318	0.05	Flow (cfs)	0.02	423.37	18.61	18.61			
Q Total (cfs)	132.28	132.28	0.05	Top width (ft)	0.73	63.13	68.42	68.42			
Top width (ft)	1.56	1.56	0.05	Avg. Vel. (ft/s)	0.17	1.79	0.40	0.40			
Vel Total (ft/s)	5.15	5.15	0.05	Hydr. Depth (ft)	1.2	3.74	0.68	0.68			
Max Chl Dpth (ft)	24784.8	24784.8	0.05	Wetted Per. (ft)	0.81	64.00	68.43	68.43			
Conv. Total (cfs)	815.20	815.20	0.05	Shear (lb/sq ft)	227.50	0.00	0.00	0.00			
Length wrd. (ft)	1.26	1.26	0.05	Stream Power (lb/ft s)	0.19	3.61	4.06	4.06			
Min Ch El (ft)	0.00	0.00	0.05	Cum Volume (acre-ft)	0.00	0.65	1.44	1.44			
Alpha	0.00	0.00	0.05	Cum SA (acres)	0.00	0.65	1.44	1.44			
Frctn Loss	0.00	0.00	0.05								
C & E Loss (ft)	0.00	0.00	0.05								

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.475*

INPUT Description: Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.34	-2.98	822.34	5.44	822.31	6.25	822.27
13.56	820.29	29.66	816.04	30	815.91	31.44	815.19
57.07	815.86	61.13	816.34	75.82	819	133.69	820.16
209.84	821.92	213.45	821.98	214.39	822	216.92	822

Manning's n Values num= 11

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14.04	.039	27.37	.02	37.94	.048	42.82	.041
57.07	.039	77.17	.099	111.17	.086	166.39	.051

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224.83 .039

Bank Sta: Left Right Lengths: Left Channel Right Left Channel Right
 13.56 75.82
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 215.4083 224.83 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.045	0.035	0.051
W.S. Elev (ft)	820.35	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.000319	Flow Area (sq ft)	0.13	232.94	45.49
E.G. Slope (ft/ft)	0.000319	Area (sq ft)	0.02	232.94	45.49
Q Total (cfs)	442.00	Flow (cfs)	0.73	62.26	18.23
Top width (ft)	130.23	Top width (ft)	0.16	3.72	0.60
Vel Total (ft/s)	5.39	AVG. Vel. (ft/s)	0.19	23741.75	1021.02
Wetted Per. (ft)	24764.0	Conv. (cfs)	0.81	63.24	67.25
Conv. Total (cfs)	0.99	wetted Per. (ft)	0.00	0.07	0.01
Length wtd. (ft)	815.19	Shear (lb/sq ft)	224.83	0.00	0.00
Min Ch El (ft)	1.26	Stream Power (lb/ft s)	0.19	3.61	4.06
Alpha	0.00	Cum Volume (acre-ft)	0.00	0.65	1.44
Frctn Loss	0.00	Cum SA (acres)	0.00	0.65	1.44
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.45*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	20	num=	20	num=	20	num=	20
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	13.08	822.82	29.16	815.18	30.92	815.18	10.33	815.18
	56.39	815.87	60.3	816.36	81.9	820.16	50.3	815.18
	207.3	821.92	210.88	821.98	211.81	822	222.15	822

Manning's n Values	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
	-10	.04	-3.12	.04	5.92	.05	10.33	.044
	13.08	.02	26.7	.02	37.12	.031	41.93	.052
	222.15	.039						

Bank Sta: Left Right Lengths: Left Channel Right Left Channel Right
 13.08 71.47
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 212.7315 222.15 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.044	0.035	0.052
W.S. Elev (ft)	820.35	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.000323	Flow Area (sq ft)	0.13	229.84	44.94
E.G. Slope (ft/ft)	0.000323	Area (sq ft)	0.03	229.84	44.94
Q Total (cfs)	442.00	Flow (cfs)	0.73	424.19	17.78
Top width (ft)	128.57	Top width (ft)	0.18	61.39	66.46
Vel Total (ft/s)	5.17	AVG. Vel. (ft/s)	0.17	3.74	0.68
Wetted Per. (ft)	24588.7	Conv. (cfs)	1.2	23598.1	989.3
Conv. Total (cfs)	0.99	wetted Per. (ft)	0.81	62.39	66.47
Length wtd. (ft)	815.18	Shear (lb/sq ft)	222.15	0.00	0.01
Min Ch El (ft)	1.27	Stream Power (lb/ft s)	0.19	3.60	4.06
Alpha	0.00	Cum Volume (acre-ft)	0.00	0.65	1.44
Frctn Loss	0.00	Cum SA (acres)	0.00	0.65	1.44
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.425*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	20	num=	20	num=	20	num=	20
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	12.6	820	28.71	816.03	29.05	815.9	30.49	815.18
	-10	822.31	-3.27	822.31	4.81	822.28	5.59	822.24
					4.81	815.18	50.49	815.18

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55.71	815.88	59.48	816.37	73.12	819	129.96	820.17	183.53	821.3
204.76	821.93	208.3	821.98	209.23	822	211.71	822	219.48	822
Manning's n Values									
num=	11	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12.10	.041	3.27	.041	4.81	.049	5.59	.051	9.91	.044
17.6	.036	26.05	.02	36.3	.031	41.05	.04	62.79	.032
219.48	.039								
Bank Sta: Left 12.6 Right 73.12 Lengths: Left Channel .99 Right .99 Coeff Contr. .1 Expan. .3									
Blocked obstructions num= 1									
Sta L	Sta R	Elev							
210.0548	219.48	825							

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.05	Wt. n-Val.	0.043	0.034	0.052
W.S. Elev (ft)	820.35	Reach Len. (ft)	0.99	0.99	0.96
Crit W.S. (ft)	820.35	Flow Area (sq ft)	0.13	226.67	44.03
E.G. Slope (ft/ft)	0.000332	Area (sq ft)	0.13	226.67	44.03
Q Total (Cfs)	442.00	Flow (cfs)	0.02	424.32	17.65
Top Width (ft)	126.46	Top Width (ft)	0.72	60.52	65.22
Vel Total (ft/s)	1.63	AVG. Vel. (ft/s)	0.18	1.87	0.40
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)	0.17	3.75	0.68
Conv. Total (Cfs)	24242.3	Conv. (Cfs)	1.2	23272.8	968.3
Length Wtd. (ft)	0.99	Wetted Per. (ft)	0.80	61.53	65.23
Min Ch El (ft)	813.72	Shear Power (lb/ft s)	219.48	0.08	0.01
Frctn Loss (ft)	0.00	Stream Power (acre-ft)	0.19	3.60	4.06
C & E Loss (ft)	0.00	Cum Volume (acres)	0.00	0.64	1.44

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 9.40000*

INPUT

Station	Elevation	Data	num=	20	
Sta	Elev	Sta	Elev	Sta	Elev
-10	822.29	-3.41	822.29	4.5	822.26
12.13	820	28.23	816.03	28.57	815.9
55.03	815.88	58.66	816.39	71.77	819
202.22	821.93	205.73	821.99	206.65	822

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.042	-3.41	.042	4.5	.051
12.13	.02	25.36	.02	35.48	.03
216.8	.039				

Bank Sta: Left 12.13 Right 71.77 Lengths: Left Channel .99 Right .99 Coeff Contr. .1 Expan. .3

Blocked obstructions num= 1

Sta L	Sta R	Elev			
207.378	216.8	825			

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.05	Wt. n-Val.	0.043	0.034	0.052
W.S. Elev (ft)	820.34	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	820.34	Flow Area (sq ft)	0.12	223.63	43.14
E.G. Slope (ft/ft)	0.000333	Area (sq ft)	0.12	223.63	43.14
Q Total (Cfs)	442.00	Flow (cfs)	0.02	424.69	17.28
Top Width (ft)	124.43	Top Width (ft)	0.72	59.64	64.06
Vel Total (ft/s)	1.66	AVG. Vel. (ft/s)	0.18	1.90	0.40
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)	0.17	3.75	0.68
Conv. Total (Cfs)	24221.2	Conv. (Cfs)	1.2	23272.9	947.9
Length Wtd. (ft)	0.99	Wetted Per. (ft)	0.80	60.66	64.08
Min Ch El (ft)	815.17	Shear Power (lb/ft s)	216.80	0.00	0.00
Frctn Loss (ft)	0.00	Stream Power (lb/ft s)	0.19	3.59	4.06
C & E Loss (ft)	0.00	Cum Volume (acres)	0.00	0.64	1.43

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 9.375*

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INPUT

Description:		Station		Elevation Data		Manning's n Values		Blocked obstructions	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.27	3.52	822.27	4.19	822.25	4.93	822.71	9.07	821.73
11.17	815.89	57.63	816.43	20.43	819.18	178.83	821.32	821.32	821.32
199.67	821.93	203.16	821.99	204.07	822.206.5	822.214.13	822.214.13	822.214.13	822.214.13

Manning's n Values		Blocked obstructions	
Sta	n Val	Sta	Elev
-10	.043	3.52	822.27
11.17	.02	57.63	816.43
199.67	.039	203.16	821.93

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

Blocked obstructions num= 1

204.7013 214.13 Elev 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.043	0.034	0.052
W.S. Elev (ft)	820.34	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.000335	Flow Area (sq ft)	0.12	220.36	42.59
E.G. Slope (ft/ft)	142.70	Area (sq ft)	0.02	424.88	17.39
Top width (ft)	122.79	Flow (cfs)	0.72	58.78	63.30
Vel Total (ft/s)	1.68	Top width (ft)	0.18	1.93	0.40
Max Chl Dpth (ft)	5.17	Avg. Vel (ft/s)	0.17	3.75	0.67
Conv. Total (cfs)	24162.0	Hydr. Depth (ft)	1.2	23226.3	934.5
Length wtd. (ft)	0.99	Conv. (cfs)	0.80	59.82	63.31
Min Ch El (ft)	815.17	wetted Per. (ft)	0.00	0.08	0.01
Alpha	1.27	Shear (lb/sq ft)	214.13	0.00	0.00
Frctn Loss (ft)	0.00	Stream Power (lb/ft s)	0.19	3.59	4.06
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.64	1.43

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North RS: 9.35*

REACH: Center N Upper

INPUT

Description:		Station		Elevation Data		Manning's n Values		Blocked obstructions	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.25	3.69	822.25	4.6	822.2	8.65	821.2	9.07	821.73
11.17	820.27	27.28	816.03	27.62	815.89	29.06	815.16	49.06	815.16
53.68	815.9	57.01	816.42	69.08	819.124.37	820.19	176.49	821.34	821.34
197.13	821.94	200.58	821.99	201.48	822.203.9	822.211.45	822.211.45	822.211.45	822.211.45

Manning's n Values		Blocked obstructions	
Sta	n Val	Sta	Elev
-10	.044	3.69	822.25
11.17	.02	27.28	816.03
197.13	.039	200.58	821.94

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

Blocked obstructions num= 1

202.0245 211.45 Elev 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.06</td> <td>Wt. n-Val.</td> <td>0.043</td> <td>0.034</td> <td>0.052</td>	0.06	Wt. n-Val.	0.043	0.034	0.052
W.S. Elev (ft) <td>820.34</td> <td>Reach Len. (ft)</td> <td>0.99</td> <td>0.99</td> <td>0.99</td>	820.34	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft) <td>0.000341</td> <td>Flow Area (sq ft)</td> <td>0.12</td> <td>217.38</td> <td>41.71</td>	0.000341	Flow Area (sq ft)	0.12	217.38	41.71
E.G. Slope (ft/ft) <td>142.70</td> <td>Area (sq ft)</td> <td>0.02</td> <td>425.41</td> <td>16.57</td>	142.70	Area (sq ft)	0.02	425.41	16.57
Top width (ft)	120.72	Flow (cfs)	0.71	57.91	62.10
Vel Total (ft/s)	1.71	Top width (ft)	0.19	1.96	0.40
Max Chl Dpth (ft)	5.18	Avg. Vel (ft/s)	0.17	3.75	0.67
Conv. Total (cfs)	23931.0	Hydr. Depth (ft)	1.2	23032.9	896.9
Length wtd. (ft)	0.99	Conv. (cfs)	0.79	58.97	62.11
Min Ch El (ft)	815.16	wetted Per. (ft)	0.00	0.08	0.01
Alpha	1.27	Shear (lb/sq ft)	211.13	0.00	0.00
Frctn Loss (ft)	0.00	Stream Power (lb/ft s)	0.19	3.59	4.06
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.64	1.43

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.325*

INPUT		Description:		Station Elevation Data		Manning's n Values	
Sta	Elev	Sta	Elev	Sta	Elev	num	n Val
-10	822.23	-3.83	822.23	3.56	822.21	20	0.042
10.7	820	26.8	816.03	27.14	815.88	3.56	0.051
53	815.9	56.19	816.44	67.73	819	3.56	0.028
194.59	821.94	198.01	821.99	198.9	822	3.56	0.036

Manning's n Values		Element		Left OB		Right OB	
Sta	n Val	wt.	n-Val.	Left OB	Channel	Right OB	Channel
-10	0.045	0.06	0.06	0.042	0.033	0.053	0.033
10.7	0.02	0.34	0.34	0.99	0.99	0.99	0.99
208.78	0.039	0.06	0.06	0.99	0.99	0.99	0.99

Bank Sta: Left 10.7 Right 67.73 Lengths: Left Channel 199 Right 199 Coeff Contr. 0.1 Expan. 0.3

Blocked Obstructions
 Sta L Sta R Elev num= 1

199.3478 208.78 825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Top width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Length Wtd (ft)	Min Chl El (ft)	Alpha	Frctn Loss	C & E Loss (ft)	Left OB	Channel	Right OB
820.40	0.06	820.34	0.000343	118.70	1.73	2386.16	1.73	815.127	1.27	0.00	0.00	0.042	0.033	0.053
820.34	0.06	820.34	0.000343	118.70	1.73	2386.16	1.73	815.127	1.27	0.00	0.00	0.99	0.99	0.99
816.03	0.06	816.03	0.000352	117.70	1.73	2386.16	1.73	815.127	1.27	0.00	0.00	0.99	0.99	0.99
819	0.06	819	0.000352	117.70	1.73	2386.16	1.73	815.127	1.27	0.00	0.00	0.99	0.99	0.99
822	0.06	822	0.000352	117.70	1.73	2386.16	1.73	815.127	1.27	0.00	0.00	0.99	0.99	0.99

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.3*

INPUT		Description:		Station Elevation Data		Manning's n Values	
Sta	Elev	Sta	Elev	Sta	Elev	num	n Val
-10	822.22	-3.99	822.22	3.25	822.22	20	0.046
10.7	820	26.8	816.02	27.14	815.88	3.25	0.046
53	815.9	56.19	816.44	67.73	819	3.25	0.02
192.05	821.95	195.44	821.95	196.32	822	3.25	0.02

Manning's n Values		Element		Left OB		Right OB	
Sta	n Val	wt.	n-Val.	Left OB	Channel	Right OB	Channel
-10	0.046	0.06	0.06	0.046	0.041	0.053	0.041
10.7	0.02	0.34	0.34	0.99	0.99	0.99	0.99
206.1	0.039	0.06	0.06	0.99	0.99	0.99	0.99

Bank Sta: Left 10.7 Right 66.38 Lengths: Left Channel 199 Right 199 Coeff Contr. 0.1 Expan. 0.3

Blocked Obstructions
 Sta L Sta R Elev num= 1

196.671 206.1 825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Top width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Length Wtd (ft)	Min Chl El (ft)	Alpha	Frctn Loss	C & E Loss (ft)	Left OB	Channel	Right OB
820.40	0.06	820.34	0.000352	117.70	1.76	23549.8	1.76	815.127	1.27	0.00	0.00	0.041	0.033	0.053
820.34	0.06	820.34	0.000352	117.70	1.76	23549.8	1.76	815.127	1.27	0.00	0.00	0.99	0.99	0.99
816.03	0.06	816.03	0.000352	117.70	1.76	23549.8	1.76	815.127	1.27	0.00	0.00	0.99	0.99	0.99
819	0.06	819	0.000352	117.70	1.76	23549.8	1.76	815.127	1.27	0.00	0.00	0.99	0.99	0.99
822	0.06	822	0.000352	117.70	1.76	23549.8	1.76	815.127	1.27	0.00	0.00	0.99	0.99	0.99

Length Wtd. (ft)	0.99	wetted Per. (ft)	0.78	57.25	59.86
Min Ch El (ft)	815.15	Shear (lb/sq ft)	0.00	0.08	0.01
Alpha	1.27	Stream Power (lb/ft s)	206.10	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.19	3.57	4.05
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.64	1.43

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Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.27500*

Description:		Station Elevation Data		Manning's n Values		Blocked Obstructions		Bank Sta:		Lengths:		Coeff Contr.		Expan.	
Sta	Elev	Sta	Elev	Sta	n Val	Sta	n Val	Left	Right	Left	Right	Left	Right	Left	Right
-10	822.2	-4.12	822.2	2.94	0.99	3.62	0.99	3.62	0.99	3.62	0.99	3.62	0.99	3.62	0.99
9.74	820	25.85	816.02	26.19	0.99	27.63	0.99	27.63	0.99	27.63	0.99	27.63	0.99	27.63	0.99
51.64	815.92	54.54	816.47	65.03	0.99	81.9	0.99	81.9	0.99	81.9	0.99	81.9	0.99	81.9	0.99
189.51	821.95	192.86	821.99	193.74	0.99	822	0.99	822	0.99	822	0.99	822	0.99	822	0.99

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	0.00	Left OB	0.00	Channel	0.00	Right OB	0.00
Vel Head (ft)	0.36	Wt. n-Val.	0.99	Flow Len. (ft)	0.12	208.01	0.12	39.46	0.99
Frctn Loss (ft)	0.00	Flow Area (sq ft)	0.02	Area (sq ft)	0.02	426.26	0.02	39.46	0.00
W.S. Elev (ft)	820.33	Flow (cfs)	0.70	Top Width (ft)	0.20	55.29	0.70	59.12	0.00
E.G. Slope (ft/ft)	0.000360	Avg. Vel. (ft/s)	0.17	Hydr. Depth (ft)	1.2	3.76	0.17	0.40	0.67
O Total (cfs)	442.00	Wetted Per. (ft)	0.78	Shear (lb/sq ft)	0.00	22480.8	0.78	829.0	0.00
Top Width (ft)	115.11	Stream Power (lb/ft s)	203.13	Cum Volume (acre-ft)	0.19	3.57	203.13	59.13	0.01
Vel Total (ft/s)	1.79	Cum SA (acres)	0.00		0.00	0.64	0.00	0.00	0.00
Max Ch Dpth (ft)	5.18							0.00	0.00
Conv. Total (cfs)	23311.1							0.00	0.00
Length Wtd. (ft)	0.99							0.00	0.00
Min Ch El (ft)	815.15							0.00	0.00
Alpha	1.27							0.00	0.00
Frctn Loss (ft)	0.00							0.00	0.00
C & E Loss (ft)	0.00							0.00	0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.25*

Description:		Station Elevation Data		Manning's n Values		Blocked Obstructions		Bank Sta:		Lengths:		Coeff Contr.		Expan.	
Sta	Elev	Sta	Elev	Sta	n Val	Sta	n Val	Left	Right	Left	Right	Left	Right	Left	Right
-10	822.18	-4.26	822.18	2.63	0.99	3.29	0.99	3.29	0.99	3.29	0.99	3.29	0.99	3.29	0.99
9.27	820	25.37	816.02	25.71	0.99	27.15	0.99	27.15	0.99	27.15	0.99	27.15	0.99	27.15	0.99
50.97	815.93	53.72	816.49	63.68	0.99	81.9	0.99	81.9	0.99	81.9	0.99	81.9	0.99	81.9	0.99
186.97	821.96	190.29	821.99	191.15	0.99	822	0.99	822	0.99	822	0.99	822	0.99	822	0.99

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.40	Element	0.00	Left OB	0.00	Channel	0.00	Right OB	0.00
Vel Head (ft)	0.06	Wt. n-Val.	0.99	Flow Len. (ft)	0.04	208.01	0.04	39.46	0.99
Frctn Loss (ft)	0.00	Flow Area (sq ft)	0.02	Area (sq ft)	0.02	426.26	0.02	39.46	0.00
W.S. Elev (ft)	820.33	Flow (cfs)	0.70	Top Width (ft)	0.20	55.29	0.70	59.12	0.00

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Crit W.S. (ft)	0.000361	Flow Area (sq ft)	0.12	205.00	38.61
E.G. Slope (ft/ft)	442.00	Area (sq ft)	0.12	205.00	38.61
Q Total (Cfs)	113.08	Flow (Cfs)	0.02	426.59	15.39
Top Width (ft)	1.81	Top Width (ft)	0.70	54.41	57.97
Max Chl Dpth (ft)	3.19	Hydr. Vel. (ft/s)	0.20	2.08	0.40
Conv. Total (Cfs)	2320.92	Hydr. Depth (ft)	0.17	2243.77	0.67
Length (ft)	815.14	Wetted Per. (ft)	0.72	55.58	57.97
Min Ch El (ft)	1.27	Stream Power (lb/ft s)	0.00	0.08	0.02
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	200.75	0.00	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.19	3.56	4.05
			0.00	0.64	1.43

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.225*

INPUT		Station Elevation Data		num= 20	
Description:	Sta	Elev	Sta	Elev	Sta
	-10	822.16	2.31	822.15	2.96
	8.79	820.74	815.87	26.68	815.14
	50.39	815.93	820.53	105.83	820.74
	184.42	821.96	187.71	821.99	188.57
Manning's n Values		num= 11		Sta n Val	
	-10	.049	-4.4	.049	2.96
	8.79	.02	20.66	.02	29.75
	198.08	.039		.026	33.95
Bank Sta:		Left	Right	Left	Right
	8.79	62.33	1.99	.99	.99
Blocked obstructions		num= 1		Coeff Contr.	
	188.6408	198.08	825		.1
CROSS SECTION OUTPUT		Profile #PF 1		Expans.	

E.G. Elev (ft)	820.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	wt. n-Val.	0.039	0.032	0.054
W.S. Elev (ft)	820.33	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.000365	Flow Area (sq ft)	0.11	201.87	37.78
Q Total (Cfs)	442.00	Area (sq ft)	0.72	201.87	37.78
Top Width (ft)	11.84	Top Width (ft)	0.70	426.59	15.39
Max Chl Dpth (ft)	5.19	Hydr. Depth (ft)	0.16	54.41	57.97
Conv. Total (Cfs)	23146.9	Wetted Per. (ft)	0.77	22354.5	791.2
Length wtd. (ft)	0.99	Shear (lb/sq ft)	0.00	54.70	56.89
Min Ch El (ft)	1.27	Stream Power (lb/ft s)	198.08	0.08	0.02
Alpha	0.00	Cum Volume (acre-ft)	0.19	3.56	4.05
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.64	1.43
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.2*

INPUT		Station Elevation Data		num= 20	
Description:	Sta	Elev	Sta	Elev	Sta
	-10	822.14	-4.54	822.13	2.63
	8.31	820.24	816.02	815.13	46.2
	49.61	815.94	52.07	816.52	60.98
	181.88	821.97	185.14	821.99	185.99
Manning's n Values		num= 11		Sta n Val	
	-10	.05	-4.54	.053	2.63
	8.31	.02	19.99	.02	28.94
	195.4	.039		.025	33.07
Bank Sta:		Left	Right	Left	Right
	8.31	60.98	1.99	.99	.99
Blocked obstructions		num= 1		Coeff Contr.	
	181.88	195.4	825		.1
CROSS SECTION OUTPUT		Profile #PF 1		Expans.	

E.G. Elev (ft)	820.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	wt. n-Val.	0.039	0.032	0.054
W.S. Elev (ft)	820.33	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.000365	Flow Area (sq ft)	0.11	201.87	37.78
Q Total (Cfs)	442.00	Area (sq ft)	0.72	201.87	37.78
Top Width (ft)	11.84	Top Width (ft)	0.70	426.59	15.39
Max Chl Dpth (ft)	5.19	Hydr. Depth (ft)	0.16	54.41	57.97
Conv. Total (Cfs)	23146.9	Wetted Per. (ft)	0.77	22354.5	791.2
Length wtd. (ft)	0.99	Shear (lb/sq ft)	0.00	54.70	56.89
Min Ch El (ft)	1.27	Stream Power (lb/ft s)	198.08	0.08	0.02
Alpha	0.00	Cum Volume (acre-ft)	0.19	3.56	4.05
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.64	1.43
C & E Loss (ft)	0.00				

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185.964 195.4 825
 CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.39		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.07	Wt. n-Val.	0.039	Reach Len. (ft)	0.39	Sta	Elev	Sta	Elev	Sta	Elev
Frict Loss (ft)	820.32	Flow Area (sq ft)	1.69	Area (sq ft)	822.12	2.3	822.1	5.71	820.98	6.99	820.98
E.G. Slope (ft/ft)	0.000380	Top Width (ft)	24.28	Hydr. Depth (ft)	815.86	25.72	815.13	45.72	815.13	36.95	36.95
Q Total (cfs)	109.14	Vel Total (ft/s)	5.19	Conv. (cfs)	819	111.32	820.24	160.04	821.43	14.78	14.78
Vel Total (ft/s)	1.87	Wetted Per. (ft)	1.22	Stream Power (lb/ft s)	822	185.67	822	192.73	822	55.77	55.77
Max Chl Dpth (ft)	5.19	Stream Power (lb/ft s)	195.40	Cum Volume (acre-ft)	0.19	0.00	0.00	0.00	0.00	0.40	0.40
Conv. Total (cfs)	22680.1	Cum SA (acres)	0.00							758.4	758.4
Length Wtd. (ft)	815.13									55.79	55.79
Min Ch El (ft)	1.27									0.02	0.02
Frictn Loss (ft)	0.00									3.23	3.23
C & E Loss (ft)	0.00									1.42	1.42

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.175*

Station Elevation Data		num= 20		Element		Left OB		Channel		Right OB	
Sta	Elev	Sta	Elev	Reach Len. (ft)	0.39	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.13	-4.69	822.13	Flow Area (sq ft)	1.69	822.12	2.3	822.1	5.71	820.98	6.99
7.84	820	23.94	816.01	Top Width (ft)	24.28	815.86	25.72	815.13	45.72	815.13	36.95
48.93	815.95	51.25	816.54	Hydr. Depth (ft)	59.63	819	111.32	820.24	160.04	821.43	14.78
179.34	821.97	182.57	821.99	Conv. (cfs)	822	185.67	822	192.73	822	55.77	55.77

Manning's n Values		num= 11		Element		Left OB		Channel		Right OB	
Sta	n Val	Sta	n Val	Reach Len. (ft)	0.39	Sta	Elev	Sta	Elev	Sta	Elev
-10	.051	-4.69	.051	Flow Area (sq ft)	1.69	822.12	2.3	822.1	5.71	820.98	6.99
7.84	.02	19.32	.02	Top Width (ft)	24.28	815.86	25.72	815.13	45.72	815.13	36.95
192.73	.039			Hydr. Depth (ft)	59.63	819	111.32	820.24	160.04	821.43	14.78

Bank Sta: Left Right		Lengths: Left Channel Right		Coeff Contr.		Expan.	
7.84	59.63	.99	.99	.1	.1	.3	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.39		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.07	Wt. n-Val.	0.038	Reach Len. (ft)	0.39	Sta	Elev	Sta	Elev	Sta	Elev
Frict Loss (ft)	820.32	Flow Area (sq ft)	1.69	Area (sq ft)	822.12	2.3	822.1	5.71	820.98	6.99	820.98
E.G. Slope (ft/ft)	0.000382	Top Width (ft)	24.28	Hydr. Depth (ft)	815.86	25.72	815.13	45.72	815.13	36.95	36.95
Q Total (cfs)	107.54	Vel Total (ft/s)	5.19	Conv. (cfs)	819	111.32	820.24	160.04	821.43	14.61	14.61
Vel Total (ft/s)	1.90	Wetted Per. (ft)	1.22	Stream Power (lb/ft s)	822	185.67	822	192.73	822	55.05	55.05
Max Chl Dpth (ft)	5.19	Stream Power (lb/ft s)	192.73	Cum Volume (acre-ft)	0.19	0.00	0.00	0.00	0.00	0.40	0.40
Conv. Total (cfs)	22604.6	Cum SA (acres)	0.00							758.4	758.4
Length Wtd. (ft)	815.13									55.06	55.06
Min Ch El (ft)	1.27									0.00	0.00
Frictn Loss (ft)	0.00									4.05	4.05
C & E Loss (ft)	0.00									1.42	1.42

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper
 RS: 9.15000*

Station Elevation Data		num= 20		Element		Left OB		Channel		Right OB	
Sta	Elev	Sta	Elev	Reach Len. (ft)	0.38	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.11	-4.83	822.11	Flow Area (sq ft)	1.38	822.1	1.97	822.08	5.29	820.95	6.99
7.36	820	23.47	816.01	Top Width (ft)	23.81	815.85	25.25	815.12	45.25	815.12	36.95
48.28	815.96	50.43	816.55	Hydr. Depth (ft)	819	109.46	820.52	157.69	821.64	14.78	14.78
176.8	821.97	179.39	821.99	Conv. (cfs)	822	183.06	822	190.05	822	55.05	55.05

Manning's n Values		num= 11		Element		Left OB		Channel		Right OB	
Sta	n Val	Sta	n Val	Reach Len. (ft)	0.38	Sta	Elev	Sta	Elev	Sta	Elev
-10	.051	-4.83	.051	Flow Area (sq ft)	1.38	822.1	1.97	822.08	5.29	820.95	6.99
				Top Width (ft)	23.81	815.85	25.25	815.12	45.25	815.12	36.95
				Hydr. Depth (ft)	819	109.46	820.52	157.69	821.64	14.78	14.78

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7.36 .02 18.65 .02 27.3 .024 31.29 .031 49.59 .055
 190.05 .039

Bank Sta: Left Right Lengths: Left Channel Right Channel
 7.36 38.28 .99 .99 .99 .99
 Blocked obstructions num= 1

Station Elev num= 1
 180.6105 190.05 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.39		820.39
Vel Head (ft)	0.07	0.038	0.055
W.S. Elev (ft)	820.32	0.99	0.99
Crit W.S. (ft)		0.11	0.11
E.G. Slope (ft/ft)	0.000386	0.11	192.89
Q Total (cfs)	442.00	0.02	427.65
Top width (ft)	103.99	0.0	54.38
Max Chl Dpth (ft)	5.20	0.16	0.46
Conv. Total (cfs)	22506.2	1.12	21775.8
Length wtd. (ft)	815.12	0.77	729.3
Min Ch El (ft)	1.27	0.00	54.00
Alpha	0.00	190.05	0.00
Frctn Loss (ft)	0.00	0.19	3.55
C & E Loss (ft)	0.00	0.00	1.42

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.125*

INPUT

Description	num=	20	Elev	Sta	Elev	Sta	Elev	Sta
Station Elevation Data								
Sta L	516	825.10	825.08	1	825.07	4.88	825.07	890.97
Sta R	820	816.01	815.85	24.77	815.12	44.77	815.12	815.12
		47.58	815.96	56.94	819	107.59	820.26	155.34
		174.26	821.98	177.42	822	180.46	822	187.38

Manning's n Values	num=	11	Sta	n Val	Sta	n Val	Sta	n Val
Sta L	10	0.052	-4.97	1.06	0.055	1.64	0.055	4.87
Sta R	02	17.98	.02	26.48	.023	30.41	.03	48.39
		187.38	.039					.055

Bank Sta: Left Right Lengths: Left Channel Right Channel
 6.88 56.94 .99 .99 .99 .99
 Blocked obstructions num= 1

Station Elev num= 1
 177.9338 187.38 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.39		820.39
Vel Head (ft)	0.08	0.037	0.055
W.S. Elev (ft)	820.32	0.99	0.99
Crit W.S. (ft)		0.11	0.11
E.G. Slope (ft/ft)	0.000389	0.11	189.77
Q Total (cfs)	442.00	0.02	427.94
Top width (ft)	103.64	0.02	50.06
Max Chl Dpth (ft)	1.97	0.22	2.26
Conv. Total (cfs)	22397.5	1.12	21685.2
Length wtd. (ft)	815.12	0.76	711.1
Min Ch El (ft)	1.27	0.00	51.36
Alpha	0.00	187.38	0.00
Frctn Loss (ft)	0.00	0.19	3.54
C & E Loss (ft)	0.00	0.00	1.42

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 9.1*

INPUT

Description	num=	20	Elev	Sta	Elev	Sta	Elev	Sta
Station Elevation Data								
Sta L	511	822.07	822.07	1	822.06	4.45	822.06	820.89
Sta R	825	822.07	822.07	1.32	822.07	1.32	822.07	820.89

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6.41	820	22.52	816.01	22.85	815.84	24.3	815.11	44.3	815.11
46.9	815.97	48.78	816.58	55.59	819	105.73	820.27	152.99	821.46
171.72	821.98	174.85	822	175.66	822	177.85	822	184.7	822

Manning's n Values											
Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
6.41	.02	17:31	.02	25:66	.023	29:52	.03	47:19	.036		
184.7	.039										

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
6.41	6.41	55.59	1	.99	.99	.1	.3	
Blocked Obstructions								
Sta L	Sta R	Elev	num=					
175.257	184.7	825	1					

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.39	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.08	Wt. n-Val.	0.036	0.036	0.056
W.S. Elev (ft)	820.31	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.000409	Flow Area (sq ft)	0.11	186.87	34.01
E.G. Slope (ft/ft)	442.00	Area (sq ft)	0.02	428.20	13.77
Q Total (cfs)	101.70	Flow (cfs)	0.23	49.18	51.83
Top Width (ft)	2.00	Avg. Vel. (ft/s)	0.16	2.29	0.40
Vel Total (ft/s)	5.20	Hydr. Depth (ft)	1.72	21184.4	0.66
Max Chl Dpth (ft)	21867.0	Conv. (cfs)	0.06	30.53	51.05
Conv. Total (cfs)	815.319	Wetted Per. (ft)	0.06	0.00	0.00
Length Wtd. (ft)	1.72	Stream Power (lb/ft s)	184.70	0.00	0.00
Alpha El (ft)	0.00	Cum Volume (acre-ft)	0.19	3.54	4.05
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.63	1.42
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
REACH: Center N Upper

RS: 9.07500*

INPUT

Description:									
Station	Elevation	Data	num=	20					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.05	-5.25	822.05	.44	822.05	.99	822.04	4.03	820.86
5.93	820	22.04	816.01	22.38	815.84	23.82	815.11	43.82	815.11
46.22	815.98	47.96	816.6	819	103.86	820.27	150.64	184.48	821.46
169.18	821.99	172.27	822	173.08	822	175.25	822	182.03	822

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.054	-5.25	.44	.056	.99	4.03	.036	.056
5.93	.02	16.64	.02	24.84	.022	28.63	.029	45.99
182.03	.039							

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
5.93	54.24	172.3803	1	.99	.99	.1	.3	

Blocked Obstructions
Sta L Sta R Elev num=

172.3803 182.03 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.39	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.08	Wt. n-Val.	0.036	0.036	0.056
W.S. Elev (ft)	820.31	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.000413	Flow Area (sq ft)	0.11	183.75	33.49
E.G. Slope (ft/ft)	442.00	Area (sq ft)	0.02	428.36	13.62
Q Total (cfs)	100.13	Flow (cfs)	0.98	48.31	51.14
Top Width (ft)	5.20	Avg. Vel. (ft/s)	0.13	2.80	0.61
Max Chl Dpth (ft)	21739.9	Hydr. Depth (ft)	1.72	21068.8	0.69
Conv. Total (cfs)	815.11	Conv. (cfs)	0.75	49.71	51.15
Length Wtd. (ft)	1.72	Wetted Per. (ft)	0.00	0.00	0.00
Alpha El (ft)	0.00	Stream Power (lb/ft s)	182.03	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.19	3.53	4.05
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.63	1.42

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North

CPNPPLOCA1PMP

REACH: Center N Upper RS: 9.05*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
820	822.02	814	815.99	820	822.02	814	815.99	820	822.02
5	815.99	47.14	816.63	822	170.5	822	170.5	822	170.5
166.63	821.99	169.7							

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
820	0.05	814	0.055	820	0.056	814	0.056
5	0.02	47.14	0.02	822	0.021	822	0.028
166.63	0.039						

Bank Sta: Left 5.45 Right 822 Lengths: Left Channel 199 Right Channel 199 Coeff Contr. 1.1 Expan. 3

Blocked Obstructions num= 1

Sta L Sta R Elev num= 179.35 179.35 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.035	0.031	0.056
W.S. Elev (ft)	820.31	Reach Len. (ft)	0.99	0.99	0.99
Cr. Sl. S. (ft/ft)	0.000417	Flow Area (sq ft)	0.10	180.95	32.71
Q Total (cfs)	442.00	Flow (cfs)	0.02	428.64	13.33
Top Width (ft)	98.22	Top Width (ft)	0.68	47.44	50.10
Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)	0.23	2.37	0.41
Max Chl Dpth (ft)	5.21	Hydr. Depth (ft)	0.15	3.81	0.65
Conv. Total (cfs)	21651.5	Conv. (cfs)	1.2	20997.2	653.1
Length Wtd. (ft)	0.99	Wetted Per. (ft)	0.74	48.91	50.11
Min Ch El (ft)	815.10	Shear (lb/sq ft)	179.35	0.00	0.00
Alpha	1.27	Stream Power (lb/ft s)	0.19	3.53	4.04
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.63	1.42
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.63	1.42

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North

REACH: Center N Upper RS: 9.02500*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
820	822.02	816	815.99	820	822.02	816	815.99
4.98	820	21.09	816.63	822	170.5	822	170.5
44.87	815.99	46.31	816.63	822	170.5	822	170.5
164.09	822	167.12					

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
820	0.05	816	0.056	820	0.057	816	0.057
4.98	0.02	21.09	0.02	822	0.021	822	0.028
164.09	0.039						

Bank Sta: Left 4.98 Right 822 Lengths: Left Channel 199 Right Channel 199 Coeff Contr. 1.1 Expan. 3

Blocked Obstructions num= 1

Sta L Sta R Elev num= 167.2268 176.68 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.035	0.031	0.057
W.S. Elev (ft)	820.30	Reach Len. (ft)	0.99	0.99	0.99
Cr. Sl. S. (ft/ft)	0.000432	Flow Area (sq ft)	0.10	177.85	31.93
Q Total (cfs)	442.00	Flow (cfs)	0.02	428.98	13.00
Top Width (ft)	96.29	Top Width (ft)	0.68	46.56	49.05
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)	0.24	2.41	0.41
Max Chl Dpth (ft)	5.20	Hydr. Depth (ft)	0.15	3.82	0.65
Conv. Total (cfs)	21258.1	Wetted Per. (ft)	0.74	48.10	49.07
Length Wtd. (ft)	0.99	Shear (lb/sq ft)	176.68	0.00	0.00
Min Ch El (ft)	811.70	Stream Power (lb/ft s)	0.19	3.52	4.04
Alpha	1.27	Cum Volume (acre-ft)	0.00	0.63	1.42
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.63	1.42
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 9

INPUT

Description: num= 11
 Station Elevation Data num= 11
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 822 0 822 4.5 820 20.61 816 22.39 815.09
 42.39 815.09 44.19 816 50.19 819 161.55 822 164.55 822

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.057	0	22.39	.02	42.39	816	.057	50.19	815	.039	
174	.039										

Bank Sta: Left Right Lengths: Left Channel Right

4.5 50.19 176.29 176.29 176.29

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R	Elev	Expan.
-10	0	825	164.55	174	825						.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Max Chl Dpth (ft)	Conv Total (cfs)	Length (ft)	Min Ch El (ft)	Frctn Loss	C & E Loss (ft)	Left OB	Channel	Right OB
820.39	0.08	820.30	0.000839	442.00	94.81	2.14	1526.2	3.21	815.09	0.13	0.00	0.057	0.043	0.039
												176.29	176.29	176.29
												0.10	0.10	0.10
												0.02	0.02	0.02
												0.20	0.20	0.20
												0.15	0.15	0.15
												0.7	0.7	0.7
												4.3	4.3	4.3
												0.16	0.16	0.16
												174.00	174.00	174.00
												0.19	0.19	0.19
												3.52	3.52	3.52
												0.00	0.00	0.00
												0.00	0.00	0.00
												0.62	0.62	0.62

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 8

INPUT

Description: num= 12
 Station Elevation Data num= 12
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 822 0 822 4.5 822 4.5 820 21.17 815
 22.46 814.34 42.46 814.34 43.64 815 53.64 820 99.72 822
 102.72 822

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.057	0	22.46	.02	42.46	815	.057	53.64	815	.039	
112	.039										

Bank Sta: Left Right Lengths: Left Channel Right

4.5 53.64 63.59 63.59 63.59

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R	Elev	Expan.
-10	0	825	102.72	112	825						.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Max Chl Dpth (ft)	Conv Total (cfs)	Length (ft)	Min Ch El (ft)	Frctn Loss	C & E Loss (ft)	Left OB	Channel	Right OB
820.25	0.07	820.18	0.000698	442.00	53.54	2.19	1672.6	3.21	814.34	0.13	0.00	0.057	0.045	0.039
												63.59	63.59	63.59
												0.03	0.03	0.03
												0.00	0.00	0.00
												0.35	0.35	0.35
												2.19	2.19	2.19
												0.03	0.03	0.03
												0.39	0.39	0.39
												112.00	112.00	112.00
												0.33	0.33	0.33
												0.00	0.00	0.00
												0.62	0.62	0.62

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Fcrtn Loss (ft) 0.04 Cum Volume (acre-ft) 0.19 2.76 3.98
 C & E Loss (ft) 0.00 Cum SA (acres) 0.00 0.00 0.43 1.31

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North RS: 7
 REACH: Center N Upper

INPUT

Description: num= 12
 Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev
 22.10 814.21 47.49 811.41 44.16 822.82
 102.72 822

Manning's n values num= 6
 Sta n Val Sta n Val Sta n Val
 -10 .057 0 .057 22.49 .02 42.49 .057 54.16 .039
 112 .039

Bank Sta: Left Right Lengths: Left Channel Right
 4.5 34.16 63.02 63.02

Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 825 102.72 112 825

CROSS SECTION OUTPUT Profile #PF 1

Element	820.21	820.14	820.07	813.88	811.41	811.41	822.82	822	Channel	Right OB
E.G. Elev (ft)	820.21	820.14	820.07	813.88	811.41	811.41	822.82	822	0.045	0.039
Vel Head (ft)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.057	0.039
W.S. Elev (ft)	820.14	820.14	820.07	813.88	811.41	811.41	822.82	822	63.02	63.02
Crit W.S. (ft)									0.02	0.21
E.G. Slope (ft/ft)	0.000634	0.000634	0.000634	0.000634	0.000634	0.000634	0.000634	0.000634	0.00	0.21
Q Total (cfs)	442.00	442.00	442.00	442.00	442.00	442.00	442.00	442.00	0.00	0.03
Top width (ft)	52.06	52.06	52.06	52.06	52.06	52.06	52.06	52.06	42.66	3.13
Max Chl Dpth (ft)	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	4.21	0.07
Hydr. Depth (ft)	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	4.21	0.07
Conv. Total (cfs)	17557.0	17557.0	17557.0	17557.0	17557.0	17557.0	17557.0	17557.0	17555.5	1.4
Length wtd. (ft)	63.02	63.02	63.02	63.02	63.02	63.02	63.02	63.02	52.02	3.13
Min Ch El (ft)	814.11	814.11	814.11	814.11	814.11	814.11	814.11	814.11	0.00	0.00
Alpha	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	112.00	0.00
Frctn Loss (ft)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.19	2.46
C & E Loss (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North RS: 6
 REACH: Center N Upper

INPUT

Description: num= 17
 Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 20.5 813.88 40.5 813.88 40.85 814.85 81.8 818.85 81.8 818.85
 92.17 820 101.9 820.47 113.01 821.29 159.1 822
 162.42 822

Manning's n values num= 8
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .057 0 .057 20.5 .02 40.5 .057 48.85 .039
 101.9 .02 126.28 .039 172 .039

Bank Sta: Left Right Lengths: Left Channel Right
 4.5 48.85 47.67 47.67

Blocked obstructions num= 4
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 825 162.42 172 825

CROSS SECTION OUTPUT Profile #PF 1

Element	820.17	820.11	820.11	813.88	811.41	811.41	822.82	822	Channel	Right OB
E.G. Elev (ft)	820.17	820.11	820.11	813.88	811.41	811.41	822.82	822	0.043	0.039
Vel Head (ft)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.057	0.039
W.S. Elev (ft)	820.11	820.11	820.11	813.88	811.41	811.41	822.82	822	47.67	47.67
Crit W.S. (ft)									0.01	0.21
E.G. Slope (ft/ft)	0.000476	0.000476	0.000476	0.000476	0.000476	0.000476	0.000476	0.000476	0.00	0.21
Q Total (cfs)	90.21	90.21	90.21	90.21	90.21	90.21	90.21	90.21	431.10	102.88
Top width (ft)	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	44.35	45.63
Max Chl Dpth (ft)	6.23	6.23	6.23	6.23	6.23	6.23	6.23	6.23	2.05	1.25
Hydr. Depth (ft)	6.23	6.23	6.23	6.23	6.23	6.23	6.23	6.23	4.74	1.87

Conv. Total (cfs)	24666.1	Conv. (cfs)	0.0	19766.0	4900.0
Length wtd. (ft)	47.67	wetted Per. (ft)	0.25	46.94	45.94
Min Ch El (ft)	813.88	Shear (lb/sq ft)	0.00	0.13	0.06
Alpha	1.11	Stream Power (lb/ft s)	172.00	0.00	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.19	2.15	3.92
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.29	1.27

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Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 5.833333*

Description:		Station		Elevation Data		num= 27		Elev		Sta		Elev		Sta	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	0	822	4.5	820	19.96	813.95						
20.33	813.8	20.5	813.69	40.5	813.69	40.85	813.82	41.03	813.91						
48.91	817.83	818	100.09	818	100.09	818	100.98	819.67	820.06						
137.87	820.5	156.27	820.74	186.74	821.14	189.25	821.5	191.81	821.59						
196.82	821.77	201.78	821.88	201.89	821.88	206.38	821.92	214.24	822						
215.49	822	219.67	822												

Manning's n Values		num= 8		Sta		n Val		Sta		n Val		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.057	0	.057	4.5	.03	20.33	.02	20.52	.02						
40.26	.057	40.55	.057	219.67	.039										

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Expan.
4.5	48.91	47.67	47.67	47.67	.3
Blocked obstructions		2			
Sta L	Sta R	Elev			
-10	0	825210.0167	219.67	825	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		Element		Left Ob		Channel		Right Ob	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
820.11	0.06	0.06	0.06	0.057	0.029	0.057	0.029	0.057	0.029
820.09	0.06	0.06	0.06	47.67	47.67	47.67	47.67	47.67	47.67
0.000237	0.000237	0.000237	0.000237	0.01	216.09	0.01	216.09	0.01	216.09
538.00	538.00	538.00	538.00	0.00	467.22	0.00	467.22	0.00	467.22
119.17	119.17	119.17	119.17	0.18	44.41	0.18	44.41	0.18	44.41
1.58	1.58	1.58	1.58	0.05	2.16	0.05	2.16	0.05	2.16
34922.1	34922.1	34922.1	34922.1	0.04	4.87	0.04	4.87	0.04	4.87
813.67	813.67	813.67	813.67	0.0	30328.0	0.0	30328.0	0.0	30328.0
1.65	1.65	1.65	1.65	0.20	46.02	0.20	46.02	0.20	46.02
0.01	0.01	0.01	0.01	219.67	0.00	219.67	0.00	219.67	0.00
0.00	0.00	0.00	0.00	0.19	1.92	0.19	1.92	0.19	1.92
				0.00	0.24	0.00	0.24	0.00	0.24

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 5.666666*

Description:		Station		Elevation Data		num= 27		Elev		Sta		Elev		Sta	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	0	822	4.5	820	19.96	813.76						
20.33	813.6	20.5	813.5	40.5	813.5	40.86	813.64	41.03	813.73						
48.97	817.67	108.17	818	114.42	818	125.78	819.33	143.04	819.65						
192.74	820	186.26	820.19	223.22	820.51	226.44	821.82	231.71	821.84						
208.73	821.77	201.78	821.88	201.89	821.88	206.38	821.92	214.24	822						
261.99	822	267.33	822												

Manning's n Values		num= 8		Sta		n Val		Sta		n Val		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.057	0	.057	4.5	.02	20.41	.02	20.54	.02						
40.31	.057	40.6	.057	267.33	.039										

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Expan.
4.5	48.97	47.67	47.67	47.67	.3
Blocked obstructions		2			
Sta L	Sta R	Elev			
-10	0	825257.6133	267.33	825	

CROSS SECTION OUTPUT Profile #PF 1

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Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Left OB	Right OB
E.G. Elev (ft)	820.14										
Vel Head (ft)	0.05									0.057	0.057
W.S. Elev (ft)	820.09									47.67	47.67
Crit W.S. (ft)										0.01	0.01
E.G. Slope (ft/ft)	0.000202									222.98	178.20
Q Total (cfs)	538.00									453.99	84.01
Top Width (ft)	108.32									42.42	122.42
Max Chl Dpth (ft)	6.58									2.04	1.43
Conv. Total (cfs)	37809.4									31905.5	5903.9
Length wtd. (ft)	47.67									46.71	124.37
Min Ch El (ft)	813.50									0.06	0.00
Alpha	1.96									0.19	0.02
Frctn Loss (ft)	0.01									0.19	3.64
C & E Loss (ft)	0.00									0.00	1.09

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 5.5*

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	27	820.14	820.14	820.14	820.14	820.14	820.14	820.14	820.14
Left Channel	4.5	813.50	813.50	813.50	813.50	813.50	813.50	813.50	813.50
Right Channel	4.5	813.50	813.50	813.50	813.50	813.50	813.50	813.50	813.50
Blocked Obstructions	2	813.50	813.50	813.50	813.50	813.50	813.50	813.50	813.50

Manning's n Values	num=	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
Left Channel	4.5	813.50	0.057	813.50	0.057	813.50	0.057	813.50	0.057
Right Channel	4.5	813.50	0.057	813.50	0.057	813.50	0.057	813.50	0.057

Bank Sta: Left 4.5 Right 4.5
 Lengths: Left Channel 47.67 Right 47.67
 Coeff Contr. .1

CROSS SECTION OUTPUT Profile #PF 1

Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Left OB	Right OB
E.G. Elev (ft)	820.13										
Vel Head (ft)	0.04									47.67	47.67
W.S. Elev (ft)	820.08									0.01	0.01
Crit W.S. (ft)										230.33	273.49
E.G. Slope (ft/ft)	0.000164									230.33	273.49
Q Total (cfs)	538.00									430.91	107.09
Top Width (ft)	260.16									44.53	215.46
Max Chl Dpth (ft)	1.07									1.87	1.27
Conv. Total (cfs)	41979.1									33622.8	8356.3
Length wtd. (ft)	47.67									46.86	215.53
Min Ch El (ft)	813.30									0.05	0.01
Alpha	2.49									1.40	1.30
Frctn Loss (ft)	0.01									1.15	3.39
C & E Loss (ft)	0.00									0.00	0.91

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper RS: 5.333333*

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	27	820.14	820.14	820.14	820.14	820.14	820.14	820.14	820.14
Left Channel	4.5	813.50	813.50	813.50	813.50	813.50	813.50	813.50	813.50
Right Channel	4.5	813.50	813.50	813.50	813.50	813.50	813.50	813.50	813.50
Blocked Obstructions	2	813.50	813.50	813.50	813.50	813.50	813.50	813.50	813.50

Manning's n Values	num=	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
Left Channel	4.5	813.50	0.057	813.50	0.057	813.50	0.057	813.50	0.057
Right Channel	4.5	813.50	0.057	813.50	0.057	813.50	0.057	813.50	0.057

CPNPPLOCA\1PMP

Bank Sta: Left 4.5 49.09 Right 47.67 47.67
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 825352.8067 362.67 825

Lengths: Left Channel 47.67 Right 47.67
 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	27	Elev	Sta	Elev	Sta	Left OB	Channel	Right OB
E-G. Elev (ft)	820.12						0.057		0.057
Vel Head (ft)	0.03						47.67		47.67
W.S. Elev (ft)	820.09						0.01		406.94
Crit W.S. (ft)							0.00		381.97
E.G. Slope (ft/ft)	0.000117						0.00		255.96
Q Total (cfs)	538.00						0.03		1.61
Top width (ft)	300.72						0.04		1444.59
Vel Total (ft/s)	0.83						0.20		256.09
Max Chl Dpth (ft)	49808.96						0.00		0.00
Length wtd. (ft)	47.67						362.67		3.02
Min Ch El (ft)	813.11						0.19		1.18
Alpha	2.69						0.00		0.00
Frctn Loss	0.00						0.10		0.65
C & E Loss	0.00								

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 5.16666*

INPUT

Description:	num=	27	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data									
-10	813.822	20.0	812.822	4.5	812.822	4.5	19.96	813.19	
20.5	817.01	147.0	816.812	157.4	816.812	157.4	20.48	817.46	
37.3	818.5	276.24	818.55	340.68	818.63	345.99	820.3	351.41	820.59
362.01	821.15	372.5	821.4	372.73	821.41	382.24	821.62	398.85	822
401.5	822	410.33	822						

Manning's n Values

num=	8	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	0.057	0	0.057	4.5	0.02	20.48	20.61	0.02
40.45	0.057	40.74	0.056	410.33	0.039			

Blocked Obstructions

num=	2	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1	49.15	47.67	47.67	47.67	47.67			
2	49.15	47.67	47.67	47.67	47.67			

Blocked Obstructions

num=	8	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	825400.4033	410.33	825					

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	8	Elev	Sta	Elev	Sta	Left OB	Channel	Right OB
E-G. Elev (ft)	820.11						0.057		0.056
Vel Head (ft)	0.02						47.67		47.67
W.S. Elev (ft)	820.09						0.01		566.59
Crit W.S. (ft)							0.00		205.48
E-G. Slope (ft/ft)	0.000079						0.18		296.17
Top width (ft)	341.01						0.05		1.91
Vel Total (ft/s)	0.66						0.20		23156.3
Max Chl Dpth (ft)	7.17						47.14		296.41
Conv. Total (cfs)	60635.6						0.03		0.00
Length wtd. (ft)	47.67						0.19		2.48
Min Ch El (ft)	812.92						0.00		0.00
Alpha	2.71						0.00		0.00
Frctn Loss	0.00						0.10		0.35
C & E Loss	0.00								

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Upper

RS: 5

INPUT

Description:	num=	18	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data									
-10	822	0	822	4.5	820	19.96	813	818	
20.5	812.73	40.5	812.73	41.05	813	49.21	817	160.04	818

CPNPPLOCA\1PMP

379.17 818 385.18 820 391.31 820.34 403.31 821 415.44 821.29
 445 822 448 822 458 822

Manning's n Values num= 8
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .057 0 .057 20.5 .02 40.5 .057 49.21 .039
 391.31 .02 415.44 .039 458

Bank Sta: Left Right Coeff Contr. Expan.
 4.5 49.21
 Blocked Obstructions num= 2
 Sta L Sta R Elev
 -10 825 448 458 825

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.10	Element	Left OB	Channel	Right OB
W.S. Head (ft)	0.01	Rc. h-Val. (ft)	104.57	104.57	104.57
W.S. Elev (ft)	820.10	Flow Area (sq ft)	104.57	252.43	104.57
Crit W.S. (ft)	0.000051	Area (sq ft)	0.01	252.43	754.03
E.G. Slope (ft/ft)	0.000051	Flow (cfs)	0.00	188.21	349.79
Q Total (Cfs)	382.62	Top Width (ft)	0.00	44.71	337.72
Top Width (ft)	0.53	Avg. Vel. (ft/s)	0.02	0.75	0.46
Vel Total (ft/s)	7.37	Hydr. Depth (ft)	0.05	5.65	2.23
Max Chl Dpth (ft)	75434.6	Conv. (cfs)	0.0	26389.5	49045.0
Conv. Total (cfs)	104.11	Wetted Per. (ft)	0.22	47.28	338.05
Length Wtd. (ft)	812.73	Shear (lb/sq ft)	0.00	0.02	0.01
Min Ch El (ft)	0.01	Stream Power (lb/ft.s)	458.10	0.00	0.00
Alpha Loss (ft)	0.01	Cum Volume (acre-ft)	0.19	0.04	1.76
C & E Loss (ft)	0.00	Cum SA (acres)			

Note: Manning's n values were composited to a single value in the main channel.

GROSS SECTION

RIVER: Center North RS: 108
 REACH: Center N Branch

INPUT

Description:	Station	Elevation	Data	num=	11	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	3	822	33	819	84.57	818	818
139.88	815	151.88	814	171.88	814	188.01	820	192.51	822	822
202.51	822									

Manning's n Values

num= 4
 Sta n Val Sta n Val Sta n Val
 -10 .039 151.88 .02 171.88 .037
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 139.88 188.01 9.44 9.44 9.44
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 -10 825

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.15	Element	Left OB	Channel	Right OB
W.S. Head (ft)	0.039	Rc. h-Val. (ft)	9.44	9.44	9.44
W.S. Elev (ft)	820.14	Flow Area (sq ft)	292.91	241.33	9.44
Crit W.S. (ft)	815.43	Area (sq ft)	112.20	241.33	0.02
E.G. Slope (ft/ft)	0.000030	Flow (cfs)	118.32	144.80	0.00
Q Total (Cfs)	257.00	Top Width (ft)	0.38	48.13	0.32
Top Width (ft)	166.78	Avg. Vel. (ft/s)	2.48	0.60	0.07
Vel Total (ft/s)	6.14	Hydr. Depth (ft)	20405.3	5.01	0.07
Max Chl Dpth (ft)	46738.9	Conv. (cfs)	118.47	49.25	0.36
Conv. Total (cfs)	814.00	Wetted Per. (ft)	0.00	0.01	0.00
Length Wtd. (ft)	1.05	Shear (lb/sq ft)	200.81	0.00	0.00
Min Ch El (ft)	0.00	Stream Power (lb/ft.s)	0.81	2.47	1.18
Alpha Loss (ft)	0.00	Cum Volume (acre-ft)	0.21	0.32	0.00
C & E Loss (ft)	0.00	Cum SA (acres)			

Note: Manning's n values were composited to a single value in the main channel.

GROSS SECTION

RIVER: Center North RS: 107.833*
 REACH: Center N Branch

INPUT

Description:	Station	Elevation	Data	num=	17
-10	825				

CPNPPLOCA\PMF

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	.822	-1.19	.822	1.45	.822	20.97	820.15	27.87	819.5		
30.26	819.46	73.29	818.43	122	815.67	133.24	814.04	133.75	813.96		
153.75	813.96	154.2	814.14	169.87	820	173.8	821.78	174.29	821.96		
174.39	822	184.43	822								

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-1.19	20.97	.036	122	.026	132.75	.02			
133.94	.02	153.31	.056	153.83	.057	169.87	.057	184.43	.057		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
122	169.87	9.44	9.44	9.44				

Blocked Obstructions	num=
1	1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	0.036	0.037	0.057
W.S. Elev (ft)	820.14	Reach Len. (ft)	9.44	9.44	9.44
Crit W.S. (ft)	0.000039	Flow Area (sq ft)	205.84	237.06	0.02
E.G. Slope (ft/ft)	257.00	Area (sq ft)	85.27	237.06	0.00
Q Total (cfs)	149.12	Flow (cfs)	100.94	47.87	0.31
Top Width (ft)	0.58	Top Width (ft)	0.41	0.72	0.03
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)	2.104	4.95	0.07
Max Ch Depth (ft)	4119.44	Hydr. Depth (ft)	1363.19	2749.02	0.11
Conv. Total (cfs)	9.44	Conv. (cfs)	103.10	49.01	0.34
Max Ch Depth (ft)	813.96	Shear (lb/sq ft)	0.00	0.01	0.00
Min Ch El (ft)	1.21	Stream Power (lb/ft s)	184.43	0.00	0.00
Alpha	0.00	Cum Volume (acre-ft)	0.80	2.41	1.18
Frctn Loss	0.00	Cum SA (acres)	0.19	0.31	0.00
C & E Loss	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Branch RS: 107.666*

INPUT

Description:	Station	Elevation	Data	num=	
Sta	Elev	Sta	Elev	Sta	Elev
-10	.822	-2.39	.822	16.78	820.52
24.81	819.96	62.01	818.86	104.13	816.33
135.91	813.92	136.96	814.11	151.73	815.12
156.27	822	166.34	822	151.73	820.52

Manning's n Values	num=
10	10

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
104.13	151.73	9.44	9.44	9.44				

Blocked Obstructions	num=
1	1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	0.037	0.038	0.057
W.S. Elev (ft)	820.14	Reach Len. (ft)	9.44	9.44	9.44
Crit W.S. (ft)	0.000060	Flow Area (sq ft)	134.60	232.92	0.02
E.G. Slope (ft/ft)	257.00	Area (sq ft)	134.60	232.92	0.00
Q Total (cfs)	130.86	Flow (cfs)	82.97	199.24	0.00
Top Width (ft)	6.70	Top Width (ft)	1.63	47.80	0.00
Vel Total (ft/s)	6.70	Avg. Vel. (ft/s)	1.63	4.86	0.00
Max Ch Depth (ft)	33179.5	Hydr. Depth (ft)	1.63	4.86	0.07
Conv. Total (cfs)	9.44	Conv. (cfs)	7457.02	25722.2	0.11
Max Ch Depth (ft)	813.92	wetted per. (ft)	83.07	48.96	0.33
Min Ch El (ft)	1.24	Stream Power (lb/ft s)	166.34	0.02	0.00
Alpha	0.00	Cum Volume (acre-ft)	0.77	2.36	1.18
Frctn Loss	0.00	Cum SA (acres)	0.17	0.30	0.00
C & E Loss	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North

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REACH: Center N Branch RS: 107.5*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19.36	820.47	50.23	817.89	86.25	821.87	17.48	817.89	83.80	821.98
117.48	813.89	117.03	814.08	133.6	821.87	138.05	821.87	138.05	821.98

Manning's n Values num= 10

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-3.58	.039	86.25	.038	96.88	.02
98.05	.021	117.21	.057	117.73	.057	148.26	.057

Bank Sta: Left Right Lengths: Left Channel Right

Blocked Obstructions num= 1

Sta L	Sta R	Elev
-10	8	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.037	0.039	0.057
W.S. Elev (ft)	820.13	Reach Len. (ft)	9.44	9.44	9.44
Crit W.S. (ft)	0.000083	Flow Area (sq ft)	79.75	228.78	0.02
E.G. Slope (ft/ft)	257.00	Area (sq ft)	39.75	228.68	0.02
Top Width (ft)	105.49	Flow (cfs)	57.80	47.35	0.28
Vel Total (ft/s)	6.24	AVG. Vel (ft/s)	1.45	0.97	0.04
Max Chl Dpth (ft)	28130.8	Hydr. Depth (ft)	1.38	4.83	0.07
Conv. Total (cfs)	9.44	Conv. (cfs)	3962.7	24168.0	0.1
Length wtd. (ft)	813.89	wetted Per. (ft)	57.95	48.89	0.31
Min Ch El (ft)	1.20	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	0.00	Stream Power (lb/ft s)	148.26	0.00	0.00
Frcn Loss (ft)	0.00	Cum Volume (acre-ft)	0.74	2.31	1.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.15	0.29	0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North

REACH: Center N Branch RS: 107.333*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.91	820.98	39.45	819.73	68.37	817.67	83.39	814.01
99.34	813.85	99.79	814.06	115.46	820	119.43	821.91
120.02	822	130.17	822				821.99

Manning's n Values num= 10

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-4.77	.039	68.37	.045	78.94	.02
80.11	.021	99.17	.057	115.46	.057	130.17	.057

Bank Sta: Left Right Lengths: Left Channel Right

Blocked Obstructions num= 1

Sta L	Sta R	Elev
-10	8	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.038	0.041	0.057
W.S. Elev (ft)	820.13	Reach Len. (ft)	9.44	9.44	9.44
Crit W.S. (ft)	0.000111	Flow Area (sq ft)	42.94	224.85	0.02
E.G. Slope (ft/ft)	257.00	Area (sq ft)	19.48	224.85	0.00
Top Width (ft)	84.42	Flow (cfs)	37.07	37.52	0.00
Vel Total (ft/s)	0.96	AVG. Vel (ft/s)	0.45	1.06	0.27
Max Chl Dpth (ft)	24405.8	Hydr. Depth (ft)	1.16	4.77	0.06
Conv. Total (cfs)	9.44	Conv. (cfs)	1849.4	22556.3	0.1
Length wtd. (ft)	813.85	wetted Per. (ft)	37.15	48.87	0.30
Min Ch El (ft)	1.14	Shear (lb/sq ft)	0.01	0.03	0.00
Alpha	0.00	Stream Power (lb/ft s)	130.17	9.00	0.00
Frcn Loss (ft)	0.00	Cum Volume (acre-ft)	0.13	0.28	1.08
C & E Loss (ft)	0.00	Cum SA (acres)	0.14	0.28	0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Branch RS: 107.166*

INPUT Description:		Station Elevation Data		Manning's n Values	
Sta	Elev	Sta	Elev	Sta	n
-10	822	4.19	821.63	50.5	0.039
8.45	821.49	28.17	820.16	50.5	0.039
81.21	813.81	81.66	814.03	97.32	0.057
101.9	822	112.09	822		

INPUT Description:		Element		Blocked Obstructions	
Sta	Elev	Sta	Elev	Sta L	Sta R
50.5	97.32	50.5	97.32		
97.32	97.32	97.32	97.32		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpthn (ft)	Conv. Total (cfs)	Length Wd. (ft)	Wetted Per. (ft)	Stream Power (lb/ft sq)	Frctn Loss (ft)	C & E Loss (ft)	Left Ob Channel	Right Ob
820.14	820.12	0.000140	257.00	68.97	1.07	6.31	21726.3	813.84	1.08	112.09	0.00	0.00	0.043	0.057
													9.44	9.44
													221.19	221.19
													248.57	248.57
													46.82	46.82
													1.12	1.12
													4.72	4.72
													21013.2	21013.2
													48.89	48.89
													0.78	0.78
													0.00	0.00
													2.22	2.22
													0.14	0.14
													0.27	0.27

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Branch RS: 107

INPUT Description:		Station Elevation Data		Manning's n Values	
Sta	Elev	Sta	Elev	Sta	n
-10	822	32.62	176.5	32.62	0.039
43.07	813.77	63.07	813.77	63.52	0.057
83.68	822	94	822		

INPUT Description:		Element		Blocked Obstructions	
Sta	Elev	Sta	Elev	Sta L	Sta R
32.62	176.5	32.62	176.5		
176.5	176.5	176.5	176.5		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpthn (ft)	Conv. Total (cfs)	Length Wd. (ft)	Wetted Per. (ft)	Stream Power (lb/ft sq)	Frctn Loss (ft)	C & E Loss (ft)	Left Ob Channel	Right Ob
820.14	820.12	0.000164	257.00	57.87	1.15	9.35	20075.0	813.84	1.08	94.00	0.00	0.00	0.039	0.057
													176.50	176.50
													217.70	217.70
													46.56	46.56
													1.17	1.17
													19915.0	19915.0
													48.90	48.90
													0.00	0.00
													94.00	94.00
													0.72	0.72
													2.17	2.17

C & E Loss (ft) 0.00 Cum SA (acres) 0.13 0.26 0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
REACH: Center N Branch RS: 106

INPUT

Description:		Station Elevation Data		num= 13	
Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	17.83	819
46.13	814	47.98	813.08	69.83	820
88.01	822	88.51	822		

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.057	47.98	.057
98	.057				

Bank Sta: Left 36.13 Right 84.01
Blocked Obstructions num= 2

Lengths:	Left Channel	Right Channel	Expan.
Sta L Sta R	31.83 31.83	31.83	.3
Elev	88.51	825	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.039	0.044	0.057
W.S. Elev (ft)	820.10	Reach Len. (ft)	31.83	31.83	31.83
Crit W.S. (ft)	0.000120	Flow Area (sq ft)	5.53	244.59	0.01
E.G. Slope (ft/ft)	0.000120	Area (sq ft)	1.54	255.46	0.00
Q Total (cfs)	58.14	Flow (cfs)	10.06	47.88	0.20
Top width (ft)	7.05	Top width (ft)	0.58	1.04	0.04
Vel Total (ft/s)	7.05	AVG. Vel (ft/s)	10.12	50.71	0.00
Max Chl Dpth (ft)	23506.01	Conv. Cfs (cfs)	140.57	23365.13	0.00
Length Wtd. (ft)	31.83	Wetted Per. (ft)	10.12	50.71	0.22
Min Ch El (ft)	813.08	Shear (lb/sq ft)	0.00	0.04	0.00
Alpha	1.03	Stream Power (lb/ft s)	98.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.70	1.23	1.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	0.07	0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
REACH: Center N Branch RS: 105.5*

INPUT

Description:		Station Elevation Data		num= 21	
Sta	Elev	Sta	Elev	Sta	Elev
19	820	53	822	11.96	819
104.85	813.25	103.77	812.91	126.2	813
141.6	820	145.57	821.99	146.07	822
155.5	822				

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-3.6	.039	12.89	.04
106.99	.023	124.9	.056	126.2	.057

Bank Sta: Left 141.6 Right 141.6
Blocked Obstructions num= 2

Lengths:	Left Channel	Right Channel	Expan.
Sta L Sta R	31.83 31.83	31.83	.3
Elev	155.5	825	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.044	0.057
W.S. Elev (ft)	820.10	Reach Len. (ft)	31.83	31.83	31.83
Crit W.S. (ft)	0.000094	Flow Area (sq ft)	49.98	247.46	0.01
E.G. Slope (ft/ft)	0.000094	Area (sq ft)	17.73	239.28	0.00
Q Total (cfs)	257.00	Flow (cfs)	51.21	45.99	0.20
Top width (ft)	97.40	Top width (ft)	0.35	0.97	0.03
Vel Total (ft/s)	0.86	AVG. Vel. (ft/s)	0.98	5.38	0.05
Max Chl Dpth (ft)	7.15	Hydr. Depth (ft)			

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Conv. Total (cfs)	26481.1	Conv. (cfs)	1825.9	24655.2	0.0
Length wtd. (ft)	31.83	wetted Per. (ft)	51.25	48.68	0.22
Min Ch El (ft)	812.95	Shear (lb/sq ft)	0.01	0.00	0.00
Alpha	1.18	Stream Power (lb/ft.s)	155.50	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.68	1.05	1.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.07	0.03	0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Branch RS: 105

INPUT

Description:	num=	14
Station	Sta	Elev
-10	822	2-72
155.08	817	162.58
199.18	820	203.18

Manning's n Values	num=	6
Sta	n Val	Sta
-10	.039	155.08
213	.057	199.18

Bank Sta: Left 155.08 Right 199.18
 Coeff Contr. 1 Expan. .3

Blocked Obstructions num= 2
 Sta L Sta R Elev
 -10 825 203.68 213 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.039	0.043	0.057
W.S. Elev (ft)	820.10	Reach Len. (ft)	198.14	248.76	142.77
E.G. Slope (ft/ft)	0.000051	Area (sq ft)	198.14	248.76	0.01
G-Total (cfs)	257.00	Flow (cfs)	170.49	186.51	0.00
Top width (ft)	177.67	Top width (ft)	133.37	44.10	0.20
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)	1.49	5.63	0.05
Max Ch Dpth (ft)	7.28	Hydr. Depth (ft)	9827.4	26000.8	0.0
Conv. Total (cfs)	35828.3	Conv. (cfs)	133.41	46.67	0.22
Length wtd. (ft)	142.47	Wetted Per. (ft)	213.00	0.00	0.00
Min Ch El (ft)	812.82	Shear (lb/sq ft)	0.39	0.87	1.18
Alpha	1.34	Stream Power (lb/ft.s)	0.39	0.87	1.18
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.39	0.87	1.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.39	0.87	1.18

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Lower RS: 4

INPUT

Description:	num=	24
Station	Sta	Elev
-10	822	2-9
96.13	820.13	114.13
189.96	812	190.34
320.77	818	540.12
586.99	821.32	637.19

Manning's n Values	num=	11
Sta	n Val	Sta
-10	.039	84.13
190.34	.02	210.34
678	.039	637.19

Bank Sta: Left 179.73 Right 220.76
 Lengths: Left Channel 43.55 Right 43.55

Blocked Obstructions num= 2
 Sta L Sta R Elev
 -10 825 668.4 678 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.039	0.042	0.039
W.S. Elev (ft)	820.08	Reach Len. (ft)	43.55	43.55	43.55

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Crit W.S. (ft)	0.000126	Flow Area (sq ft)	160.06	284.03	719.37
E.G. Slope (ft/ft)	1033.00	Area (sq ft)	120.28	284.03	719.37
Q Total (cfs)	435.98	Flow (cfs)	68.27	392.92	519.80
Top Width (ft)	0.89	Top Width (ft)	0.75	41.03	326.69
Vel Total (ft/s)	8.24	Avg. Vel. (ft/s)	107.54	1.38	0.72
Max Chl Dpth (ft)	921.51	Hydr. Depth (ft)	68.60	6.92	4830.90
Conv. Total (cfs)	433.11	Wetted Per. (ft)	68.60	43.43	327.02
Length Wtd. (ft)	811.84	Shear (lb/sq ft)	0.02	0.02	0.02
Min Ch El (ft)	1.34	Stream Power (lb/ft.s)	678.00	0.00	0.00
Alpha	0.01	Cum Volume (acre-ft)	0.21	3.89	2.20
Frctn Loss (ft)	0.00	Cum SA (acres)	0.17	0.47	2.17
C & E Loss (ft)					

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Lower

RS: 3.5*

INPUT		Description		Station Elevation Data		num= 41	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
51.2	820.88	59.7	820.86	21.7	820.86	23.5	820.29
51.2	819.88	59.7	819.76	59.58	819.72	65.33	819.26
149.15	811.99	142.56	811.45	169.58	811.42	163.79	814.29
173.41	817.87	275.28	817.66	492.32	818.8	494.38	818.34
498.32	819.54	503.4	819.89	503.89	819.89	515.42	820.34
527.43	820.3	536.72	820.14	539.12	819.76	542.72	819.18
595.22	819.5	605.23	820	617.25	822	620.26	822
630							

Manning's n Values		num= 11		num= 1		num= 1	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
108.58	.03	31.9	.033	51.2	.032	65.53	.043
630	.039	130.15	.035	156.87	.047	164.74	.033

Bank Sta: Left 108.28 Right 173.41 Lengths: Left Channel 43.55 Right 43.55 Coeff Contr. .1 Expan. .3

Blocked Obstructions num= 1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		Element		Left Ob		Channel		Right Ob	
Sta	Elev	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
820.09	0.00	820.09	0.00	43.55	0.043	43.55	0.05	43.55	0.05
820.07	0.00	820.07	0.00	43.55	0.043	43.55	0.05	43.55	0.05
0.000117	0.00	0.000117	0.00	108.25	0.043	108.25	0.05	108.25	0.05
1033.00	0.00	1033.00	0.00	430.50	0.043	430.50	0.05	430.50	0.05
537.36	0.76	537.36	0.76	68.61	0.64	68.61	0.64	68.61	0.64
8.65	0.00	8.65	0.00	1.58	0.00	1.58	0.00	1.58	0.00
95653.9	0.00	95653.9	0.00	6376.0	0.00	6376.0	0.00	6376.0	0.00
811.42	0.00	811.42	0.00	68.80	0.00	68.80	0.00	68.80	0.00
0.00	0.00	0.00	0.00	630.00	0.00	630.00	0.00	630.00	0.00
0.00	0.00	0.00	0.00	0.11	0.00	0.11	0.00	0.11	0.00

Warning: Divided Flow computed for this cross-section.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
 REACH: Center N Lower

RS: 3

INPUT		Description		Station Elevation Data		num= 23	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
59.46	815	92.31	812	819	21	818	36.84
126.07	817	446.57	818	114.19	811	116.07	812
479.58	819.55	488.55	819	455.58	819	455.58	819.7
569.27	822	572.27	822	547.27	817	547.27	818

Manning's n Values num= 9

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126.07 .039 455.58 .02 479.58 .039 582 .039
 Bank Sta: Left 36.84 Right 126.07 Lengths: Left Channel 119.07 Right 119.07 Coeff Contr. .1 Expan. .3
 Blocked Obstructions num= 1
 Station Elev 572.27 582 825

CROSS SECTION OUTPUT Profile #PF 1

Element	num	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Right OB
E.G. Elev (ft)	820.08							0.050	0.039
Vel Head (ft)	0.01							119.07	119.07
W.S. Elev (ft)	820.07							577.40	1059.48
Crit W.S. (ft)	814.73							503.03	641.37
E.G. Slope (ft/ft)	0.000074							89.23	437.42
Q Total (cfs)	1168.00							6.47	2.41
Top width (ft)	563.49							2745.9	74632.9
Vel Pot (ft/s)	9.07							37.37	438.32
W.S. Vel (ft/s)	0.01							91.13	0.01
Conv. Total (cfs)	135913.9							582.00	0.00
Length Wtd. (ft)	119.07							3.03	0.49
Min Ch El (ft)	811.00							0.05	1.39
Alpha	1.11								
Frctn Loss (ft)									
C & E Loss (ft)									

INLINE STRUCTURE

RIVER: Center North
 REACH: Center N Lower RS: 2.5

INPUT

Description: Distance from Upstream XS = 57.81
 Deck/Roadway width = 24
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 8
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 498.96 813.3 498.36 823 572.27 819.3 116.21 819 448.35 819

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In Struct:

E.G. Elev (ft)	820.08	Q Gates (cfs)	0.00
W.S. Elev (ft)	820.07	Q Gate Group (cfs)	819.68
Q Total (cfs)	1168.00	Gate Open Ht (ft)	
Weir Flow Area (sq ft)	438.91	Gate #Open	1.00
Weir Sta Lft (ft)	66.21	Gate Area (sq ft)	0.00
Weir Sta Rgt (ft)	498.36	Gate Submerg	0.00
Weir Max Depth (ft)	1.08	Gate Invert (ft)	0.000
Weir Avg Depth (ft)	2.600	Gate Weir Coef	
Weir Coef (FTAL/2)	819.01	Q Breach (cfs)	
Weir Submerg	432.15	Breach Avg Velocity (ft/s)	
Weir Flow (ft)		Breach Flow Area (sq ft)	
Weir Top width (ft)			

CROSS SECTION

RIVER: Center North
 REACH: Center N Lower RS: 2

INPUT

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	0	16	819	1.01	819	28.01	810	48.05
72.05	818	84.87	819	131.54	819.84	143.56	820.06	155.54	819.84
202.74	819	275.5	818	386.42	818	426.15	819	432.15	819
442	819								

Manning's n Values num= 8
 Sta n Val Sta n Val Sta n Val
 131.54 .02 155.54 .039 280.01 .039 442 .039 48.05 48.05 72.05 .039
 Bank Sta: Left 1.01 Right 72.05 Lengths: Left Channel 69.2 Right 69.2 Coeff Contr. .1 Expan. .3

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Blocked obstructions
Sta L Sta R Elev
-10 825 432.15 825

CROSS SECTION OUTPUT Profile #PF 1
num= 2
Sta L Sta R Elev
-10 825 432.15 825

Element	num=	Sta	Elev	Channel	Left OB	Right OB
E.G. Elev (ft)	819.73			0.049	0.057	0.039
Vel Head (ft)	0.04			69.20	69.20	69.20
W.S. Elev (ft)	819.68			470.37	470.37	365.04
Crit W.S. (ft)	0.000321			887.37	887.37	280.45
E.G. Slope (ft/ft)	1168.00			1.01	1.01	318.54
Q Total (Cfs)	390.59			0.26	0.26	1.89
Top Width (ft)	1.40			0.68	0.68	1.15
Vel Total (ft/s)	9.68			1.99	1.99	15656.8
Max Chl Dpth (ft)	65205.8			9.9	9.9	319.29
Conv. Total (CFS)	892.0			0.35	0.35	0.02
Length Wtd. (ft)	810.00			442.00	442.00	0.49
Min Ch El (ft)	0.02			0.76	0.76	0.49
Frctn Loss (ft)	0.00			0.00	0.00	0.35
C & E Loss (ft)	0.00			0.00	0.00	0.35

Warning: Divided Flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center North
REACH: Center N Lower RS: 1

INPUT

Description:	Station	Elevation	Data	num=	21	Sta	Elev	Sta	Elev
Blocked obstructions	-10	819	0	819	51	819	27.51	810	28.06
Sta L Sta R Elev	-10	825	432.15	825	442	825	432.15	442	825

Manning's n Values	num=	8	Sta	n Val	Sta	n Val	Sta	n Val
Left	0.057	28.06	0.02	48.06	0.057	81.57	0.039	
Right	0.049							

Bank Sta: Left Right Coeff Contr. Expan.

Blocked obstructions num= 1

Sta L Sta R Elev num= 3
-10 825 432.15 825

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Sta	Elev	Channel	Left OB	Right OB
E.G. Elev (ft)	819.70			0.049	0.057	0.039
Vel Head (ft)	0.04			486.22	486.22	251.35
W.S. Elev (ft)	819.66			892.68	892.68	275.25
Crit W.S. (ft)	0.000334			71.84	71.84	126.31
E.G. Slope (ft/ft)	1168.00			1.01	1.01	318.54
Q Total (Cfs)	204.06			0.26	0.26	1.89
Top Width (ft)	1.40			0.68	0.68	1.15
Vel Total (ft/s)	9.68			1.99	1.99	15656.8
Max Chl Dpth (ft)	63906.6			3.8	3.8	15059.9
Conv. Total (CFS)	809.83			1.17	1.17	127.46
Length Wtd. (ft)	1.14			442.00	442.00	0.04
Min Ch El (ft)	0.02			0.00	0.00	0.00
Frctn Loss (ft)	0.00			0.00	0.00	0.00
C & E Loss (ft)	0.00			0.00	0.00	0.00

Warning: Divided Flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Center South
REACH: Center South RS: 8

INPUT

Description:	Station	Elevation	Data	num=	8	Sta	Elev	Sta	Elev
Blocked obstructions	-10	825	432.15	825	485	825	432.15	485	825
Sta L Sta R Elev	-10	825	475.44	825	485	825	475.44	485	825

Manning's n Values num= 3

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Sta	n Val	Sta	n Val	Sta	n Val
0	.02	12	.039	485	.039
Bank Sta: Left 147.99 Right 372.44 Lengths: Left Channel 4.77 Right 4.77					
Blocked Obstructions num= 1					
Sta L	Sta R	Elev			
473.44	485	825			

Coeff Contr. .1
Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		821.00		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.02	821.68	97.22	821.66	12.54	821.56	24.92	0.039	0.039	821.14	0.039
W.S. Elev (ft)	820.98	819.76	136.62	819.71	367.71	819.71	366.89	4.77	4.77	819.72	4.77
Crit W.S. (ft)	0.001020	0.98	10143.1	0.98	471.98	0.98	475.09	219.22	219.22	23.85	23.85
E.G. Slope (ft/ft)	324.00	0.94	377.21	0.94	377.21	110.63	213.67	57.47	57.47	23.85	23.85
Q Total (Cfs)	391.08	0.94	13742.27	0.94	13742.27	24.02	283.59	219.22	219.22	18.00	18.00
Top Width (ft)	4.77	4.77	4.77	4.77	4.77	110.63	213.67	57.47	57.47	48.00	48.00
Max Ch Depth (ft)	10143.1	0.98	471.98	0.98	471.98	0.51	1.05	111.78	111.78	40.75	40.75
Conv. Total (Cfs)	820.00	4.77	wetted per. (ft)	1157.8	8221.9	1008.6	12038.26	222.45	222.45	1.78	1.78
Length wtd. (ft)	820.00	1.09	Stream Power (lb/ft s)	485.00	0.03	485.00	0.00	563.4	563.4	0.49	0.49
Min Ch El (ft)	0.00	0.00	Stream Power (acre-ft)	0.91	0.74	0.91	5.86	224.45	224.45	0.03	0.03
Frctn Loss (ft)	0.00	0.00	Cum Volume (acres)	0.74	0.74	0.74	5.86	0.00	0.00	0.00	0.00
C & E Loss (ft)	0.00	0.00					5.86	0.00	0.00	0.00	0.00
							1.09	1.09	1.09	0.62	0.62

CROSS SECTION

RIVER: Center South
REACH: Center South

RS: 7.91666*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data num= 22	28	0	821.68	97.22	821.66	12.54	821.56	24.92
	184.6	819.05	158.72	819.76	136.62	819.71	366.89	819.72
	367.01	819.83	368.27	819.92	471.98	471.98	475.09	822
	478.14	822	485	822				822
Manning's n Values num= 5	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
	0	.02	8.16	.033	12.54	.039	154.6	.039
	154.6	368.27	4.77	4.77	4.77	4.77	485	.039
Bank Sta: Left 154.6 Right 368.27 Lengths: Left Channel 4.77 Right 4.77								

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.99		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.02	820.98	97.22	820.96	12.54	820.86	24.92	0.039	0.039	820.14	0.039
W.S. Elev (ft)	820.98	819.76	136.62	819.71	367.71	819.71	366.89	4.77	4.77	819.72	4.77
Crit W.S. (ft)	0.000556	0.94	377.21	0.94	377.21	110.63	213.67	270.08	270.08	27.94	27.94
E.G. Slope (ft/ft)	324.00	0.94	377.21	0.94	377.21	24.02	283.59	270.08	270.08	16.39	16.39
Q Total (Cfs)	391.08	0.94	13742.27	0.94	13742.27	110.63	213.67	270.08	270.08	52.91	52.91
Top Width (ft)	4.77	4.77	4.77	4.77	4.77	110.63	213.67	213.67	213.67	0.59	0.59
Max Ch Depth (ft)	10143.1	0.98	471.98	0.98	471.98	0.51	1.05	1.05	1.05	0.59	0.59
Conv. Total (Cfs)	820.00	4.77	wetted per. (ft)	1008.6	8221.9	1008.6	12038.26	52.91	52.91	0.59	0.59
Length wtd. (ft)	820.00	1.14	Stream Power (lb/ft s)	485.00	0.01	485.00	0.00	52.91	52.91	0.02	0.02
Min Ch El (ft)	0.00	0.00	Stream Power (acre-ft)	0.91	0.73	0.91	5.83	0.00	0.00	0.00	0.00
Frctn Loss (ft)	0.00	0.00	Cum Volume (acres)	0.73	0.73	0.73	5.83	0.00	0.00	0.00	0.00
C & E Loss (ft)	0.00	0.00					1.06	1.06	1.06	0.62	0.62

CROSS SECTION

RIVER: Center South
REACH: Center South

RS: 7.83333*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data num= 22	29	96	821.09	33.07	821.15	36.73	821.12	135.26
	161.21	819.83	164.54	819.5	165.34	819.42	361.09	820.47
	361.38	819.67	364.11	819.83	471.51	821.98	474.73	819.5
	477.89	822	485	822				822
Manning's n Values num= 5	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
	0	.02	8.51	.033	13.07	.039	161.21	.039
	154.6	368.27	4.77	4.77	4.77	4.77	485	.039
Bank Sta: Left 154.6 Right 368.27 Lengths: Left Channel 4.77 Right 4.77								

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Bank Sta: Left 161.21 Right 364.11 Lengths: Left Channel 4.77 Right 4.77 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.99		Element		Left OB		Right OB	
Wt. Head (ft)		0.01		Wt. n-Val.		0.039		0.039	
W.S. Elev (ft)		820.98		Reach		4.77		4.77	
Crit W.S. (ft)		0.000339		Flow Area (sq ft)		37.88		32.80	
E.G. Slope (ft/ft)		324.00		Area (sq ft)		131.75		15.86	
Q Total (cfs)		361.75		Flow (cfs)		101.60		57.25	
Top Width (ft)		0.84		Top Width (ft)		0.36		0.48	
Vel Total (ft/s)		1.56		Avg. Vel. (ft/s)		0.37		0.57	
Max Chl Dpth (ft)		17609.2		Conv. (cfs)		747.4		15995.7	
Conv. Total (cfs)		4.77		Wetted Per. (ft)		101.61		862.1	
Length Wtd. (ft)		819.12		Shear Power (lb/ft s)		485.00		57.26	
Min Ch El (ft)		0.00		Stream Power (lb/ft s)		0.90		0.01	
Frctn Loss (ft)		0.00		Cum Volume (acre-ft)		0.90		0.40	
C & E Loss (ft)		0.00		Cum SA (acres)		0.72		1.04	

CROSS SECTION

RIVER: Center South
 REACH: Center South
 RS: 7.75*

INPUT Description:		Station Elevation Data		num= 22	
Sta	Elev	Sta	Elev	Sta	Elev
0	821.74	8.86	821.57	10.01	821.54
31.18	821.14	34.43	821.23	821.21	140.8
167.82	819.75	172.82	819.25	174.01	819.13
356.15	819.5	359.94	819.75	471.05	821.97
477.65	822	485	822	474.38	821.99

Manning's n Values		num= 5	
Sta	n Val	Sta	n Val
0	.02	8.86	.039
167.82	359.94	13.61	167.82
		4.77	4.77

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.99		Element		Left OB		Right OB	
Wt. Head (ft)		0.01		Wt. n-Val.		0.039		0.039	
W.S. Elev (ft)		820.98		Reach Len. (ft)		4.77		4.77	
Crit W.S. (ft)		0.000227		Area (sq ft)		28.92		37.62	
E.G. Slope (ft/ft)		324.00		Flow (cfs)		7.98		15.57	
Q Total (cfs)		340.23		Top Width (ft)		86.74 <th colspan="2">61.37</th>		61.37	
Top Width (ft)		0.78		Avg. Vel. (ft/s)		0.28		0.41	
Vel Total (ft/s)		1.85		Hydr. Depth (ft)		0.33		0.61	
Max Chl Dpth (ft)		21515.8		Conv. (cfs)		529.7		1034.2	
Conv. Total (cfs)		4.77		Wetted Per. (ft)		86.76		61.38	
Length Wtd. (ft)		819.13		Shear Power (lb/ft s)		485.00		0.01	
Min Ch El (ft)		0.00		Stream Power (lb/ft s)		0.90		0.00	
Alpha		1.15		Cum Volume (acre-ft)		0.71		1.02	
Frctn Loss (ft)		0.00		Cum SA (acres)		0.71		1.02	
C & E Loss (ft)		0.00							

CROSS SECTION

RIVER: Center South
 REACH: Center South
 RS: 7.666666*

INPUT Description:		Station Elevation Data		num= 22	
Sta	Elev	Sta	Elev	Sta	Elev
0	821.69	9.21	821.51	10.41	821.48
32.41	821.19	35.78	821.32	39.74	821.3
174.42	819.67	181.09	819	182.69	818.84
350.72	819.33	355.77	819.67	470.58	821.96
477.4	822	485	822	474.02	821.99

Manning's n Values		num= 5	
Sta	n Val	Sta	n Val
0	.02	9.21	.039
174.42	355.77	14.14	174.42
		4.77	4.77

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.99		Element		Left OB		Right OB	
Wt. Head (ft)		0.01		Wt. n-Val.		0.039		0.039	
W.S. Elev (ft)		820.98		Reach Len. (ft)		4.77		4.77	
Crit W.S. (ft)		0.000227		Area (sq ft)		28.92		37.62	
E.G. Slope (ft/ft)		324.00		Flow (cfs)		7.98		15.57	
Q Total (cfs)		340.23		Top Width (ft)		86.74 <th colspan="2">61.37</th>		61.37	
Top Width (ft)		0.78		Avg. Vel. (ft/s)		0.28		0.41	
Vel Total (ft/s)		1.85		Hydr. Depth (ft)		0.33		0.61	
Max Chl Dpth (ft)		21515.8		Conv. (cfs)		529.7		1034.2	
Conv. Total (cfs)		4.77		Wetted Per. (ft)		86.76		61.38	
Length Wtd. (ft)		819.13		Shear Power (lb/ft s)		485.00		0.01	
Min Ch El (ft)		0.00		Stream Power (lb/ft s)		0.90		0.00	
Alpha		1.15		Cum Volume (acre-ft)		0.71		1.02	
Frctn Loss (ft)		0.00		Cum SA (acres)		0.71		1.02	
C & E Loss (ft)		0.00							

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E.G. Elev (ft)	820.99	Element		Left OB	0.039	Channel	0.039	Right OB	0.039
Vel Head (ft)	0.01	wt. n-Val.							
W.S. Elev (ft)	820.98	Reach Len. (ft)							
Crit W.S. (ft)	0.000163	Flow Area (sq ft)							
E.G. Slope (ft/ft)	0.37249	Area (sq ft)							
Top width (ft)	317.49	Top width (ft)							
Vel Total (ft/s)	0.73	AVG Vel (ft/s)							
Max Chl Dpth (ft)	2.14	Hvdr. Depth (ft)							
Conv. Total (cfs)	25353.4	Conv. (cfs)							
Length wtd. (ft)	4.77	wetted per. (ft)							
Min Ch El (ft)	818.84	Shear (lb/sq ft)							
Alpha	1.14	Stream Power (lb/ft s)							
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)							
C & E Loss (ft)	0.00	Cum SA (acres)							

CROSS SECTION

RIVER: Center South
REACH: Center South

RS: 7.583333*

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	821.45	11.24	821.36	14.88	821.93	20	821.93
33	821.93	37.50	821.36	41.24	821.93	45	821.93
181	809.58	189.57	818.75	191.36	818.55	344	818.55
345	819.17	351.61	819.58	470.12	821.93	473	821.93
477	822	485	822				

Manning's n values

Sta	n	Sta	n	Sta	n	Sta	n
0	.02	9.56	.035	14.68	.039	181.03	.039

Bank Sta: Left 181.03 Right 351.61
Lengths: Left Channel 4.77 Right 4.77
Coeff Contr. 1.1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.98	Element		Left OB	0.039	Channel	0.039	Right OB	0.039
Vel Head (ft)	0.01	wt. n-Val.							
W.S. Elev (ft)	820.98	Reach Len. (ft)							
Crit W.S. (ft)	0.000124	Flow Area (sq ft)							
E.G. Slope (ft/ft)	0.37249	Area (sq ft)							
Top width (ft)	324.00	Top width (ft)							
Vel Total (ft/s)	0.69	AVG Vel (ft/s)							
Max Chl Dpth (ft)	2.14	Hvdr. Depth (ft)							
Conv. Total (cfs)	29082.7	Conv. (cfs)							
Length wtd. (ft)	4.77	wetted per. (ft)							
Min Ch El (ft)	818.55	Shear (lb/sq ft)							
Alpha	1.12	Stream Power (lb/ft s)							
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)							
C & E Loss (ft)	0.00	Cum SA (acres)							

CROSS SECTION

RIVER: Center South
REACH: Center South

RS: 7.5*

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	821.59	9.91	821.39	11.19	821.36	15.22	821.33
34	821.28	38.5	821.47	42.75	821.11	157	821.11
197	819.15	197.94	818.5	200.64	818.26	336	818.26
347	822	347.88	822	469.65	821.94	473	821.94
476	822	485	822				

Manning's n values

Sta	n	Sta	n	Sta	n	Sta	n
0	.02	9.91	.036	15.22	.039	187.64	.039

Bank Sta: Left 187.64 Right 347.44
Lengths: Left Channel 4.77 Right 4.77
Coeff Contr. 1.1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.98	Element		Left OB	0.039	Channel	0.039	Right OB	0.039
Vel Head (ft)	0.01	wt. n-Val.							
W.S. Elev (ft)	820.98	Reach Len. (ft)							
Crit W.S. (ft)	0.000124	Flow Area (sq ft)							

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E.G. Slope (ft/ft)	0.000100	Area (sq ft)	17.08	418.30	54.57
Q Total (cfs)	324.00	Flow (cfs)	5.30	301.76	16.94
Top Width (ft)	256.88	Top Width (ft)	23.14	159.80	73.93
Vel Total (ft/s)	0.66	Avg. Vel. (ft/s)	0.31	0.72	0.31
Max Chl Dpth (ft)	32467.2	Hydr. Depth (ft)	0.74	30236.7	16977.8
Conv. Total (cfs)	818.27	Wetted Per. (ft)	23.05	160.05	70.95
Length Wtd. (ft)	1.12	Stream Power (lb/ft.s)	485.00	0.00	0.00
Alpha	0.00	Cum Volume (acres-ft)	0.69	5.64	0.38
Frctn Loss (ft)	0.00	Cum SA (acres)	0.69	0.96	0.58
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: Center South
REACH: Center South

RS: 7.41666*

INPUT

Description:		num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data		22						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	821.53	10.26	821.33	11.59	821.33	15.75	821.27	31.31
36.1	821.33	39.85	821.57	44.25	821.56	162.98	821.25	168.61
194.25	819.42	205.91	818.25	208.71	817.97	332.7	817.37	333.26
334.43	818.83	343.27	819.42	469.19	821.93	472.96	821.99	474.05
476.67	822	485						822

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	10.26	.036	15.75	.039	194.25	.039
36.1	.036	44.25	.039	162.98	.039	485	.039

Bank Sta: Left 194.25 Right 343.27
Lengths: Left Channel 4.77 Right 4.77
Coeff Contr. .1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		Element		Left OB		Channel		Right OB	
Wt. Head (ft)	820.98	Wt. n-Val.	0.01	Wt. Head (ft)	0.039	Wt. Head (ft)	0.039	Wt. Head (ft)	0.039
W.S. Elev (ft)	820.98	Flow Len. (ft)	0.01	Flow Len. (ft)	17.15	Flow Len. (ft)	17.15	Flow Len. (ft)	60.73
Crfl W.S. (ft)	820.98	Area (sq ft)	0.000085	Area (sq ft)	17.15	Area (sq ft)	426.55	Area (sq ft)	60.73
E.G. Slope (ft/ft)	0.000085	Flow (cfs)	324.00	Flow (cfs)	5.08	Flow (cfs)	300.92	Flow (cfs)	18.00
Top Width (ft)	249.12	Top Width (ft)	0.64	Top Width (ft)	22.04	Top Width (ft)	149.02	Top Width (ft)	78.06
Vel Total (ft/s)	3.01	Avg. Vel. (ft/s)	4.77	Avg. Vel. (ft/s)	0.78	Avg. Vel. (ft/s)	0.71	Avg. Vel. (ft/s)	0.30
Max Chl Dpth (ft)	35224.5	Hydr. Depth (ft)	817.97	Hydr. Depth (ft)	551.7	Hydr. Depth (ft)	2.86	Hydr. Depth (ft)	0.78
Conv. Total (cfs)	1.14	Wetted Per. (ft)	0.00	Wetted Per. (ft)	22.10	Wetted Per. (ft)	149.31	Wetted Per. (ft)	78.07
Length Wtd. (ft)	0.00	Shear (lb/sq ft)	485.00	Shear (lb/sq ft)	0.00	Shear (lb/sq ft)	0.02	Shear (lb/sq ft)	0.00
Min Chl El (ft)	0.00	Stream Power (lb/ft.s)	1.14	Stream Power (lb/ft.s)	485.00	Stream Power (lb/ft.s)	5.90	Stream Power (lb/ft.s)	0.30
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.69	Cum Volume (acre-ft)	0.69	Cum Volume (acre-ft)	5.90	Cum Volume (acre-ft)	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.69	Cum SA (acres)	0.69	Cum SA (acres)	0.94	Cum SA (acres)	0.57

CROSS SECTION

RIVER: Center South
REACH: Center South

RS: 7.333333*

INPUT

Description:		num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data		22						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	821.48	10.6	821.27	11.98	821.24	16.29	821.22	32.37
37.32	821.37	41.21	821.66	45.76	821.65	168.52	821.4	174.35
200.86	819.33	214.19	818	217.38	817.68	327.03	817.68	327.67
329	818.67	339.11	819.33	468.72	821.93	472.61	821.98	473.73
476.42	822	485						822

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	10.6	.037	16.29	.039	200.86	.039
37.32	.037	41.21	.039	168.52	.039	485	.039

Bank Sta: Left 200.86 Right 339.11
Lengths: Left Channel 4.77 Right 4.77
Coeff Contr. .1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		Element		Left OB		Channel		Right OB	
Wt. Head (ft)	820.98	Wt. n-Val.	0.01	Wt. Head (ft)	0.039	Wt. Head (ft)	0.039	Wt. Head (ft)	0.039
W.S. Elev (ft)	820.98	Flow Len. (ft)	0.01	Flow Len. (ft)	17.43	Flow Len. (ft)	17.43	Flow Len. (ft)	67.50
Crfl W.S. (ft)	820.98	Area (sq ft)	0.000075	Area (sq ft)	17.43	Area (sq ft)	427.66	Area (sq ft)	67.50
E.G. Slope (ft/ft)	0.000075	Flow (cfs)	324.00	Flow (cfs)	5.08	Flow (cfs)	269.38	Flow (cfs)	19.57
Top Width (ft)	241.46	Top Width (ft)	0.63	Top Width (ft)	21.18	Top Width (ft)	138.25	Top Width (ft)	82.04
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)	4.77	Avg. Vel. (ft/s)	0.82	Avg. Vel. (ft/s)	0.70	Avg. Vel. (ft/s)	0.29
Max Chl Dpth (ft)	35224.5	Hydr. Depth (ft)	817.97	Hydr. Depth (ft)	0.82	Hydr. Depth (ft)	3.09	Hydr. Depth (ft)	0.82

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Conv. Total (cfs)	37376.7	Conv. (cfs)	581.8	34537.0	2257.9
Length wtd. (ft)	4.77	wetted Per. (ft)	21.24	138.59	82.05
Min Ch El (ft)	817.68	Stream Power (lb/ft s)	485.00	0.00	0.00
Alpha	1.15	Cum Volume (acre-ft)	0.89	5.54	0.36
Frctn Loss (ft)	0.00	Cum SA (acres)	0.68	0.93	0.56
C & E Loss (ft)	0.00				

GROSS SECTION

RIVER: Center South
REACH: Center South

RS: 7.25*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	821.38	10.55	821.18	16.82	821.56	33.24	821.04
38.55	821.42	47.26	821.79	174.07	821.55	180.08	821.54
207.46	819.25	222.46	817.39	321.35	817.39	322.07	817.75
323.57	818.5	334.94	819.25	468.26	821.92	472.26	821.98
476.18	822	485	822				822

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
0	.02	10.95	.037	16.82	.039	207.46	.039

Bank Sta: Left Right
207.46 334.94

Lengths: Left Channel Right
4.77 4.77

Coeff Contr. Expan.
.1 .3

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	820.98	Reach Len. (ft)	4.77	4.77	4.77
Crit W.S. (ft)	0.000070	Flow Area (sq ft)	17.79	421.63	74.31
E.G. Slope (ft/ft)	0.000070	Area (sq ft)	17.79	421.63	74.31
Q Total (cfs)	234.23	Flow width (ft)	20.53	297.44	21.44
Top width (ft)	3.59	Top width (ft)	0.82	127.78	86.25
Vel Head (ft)	3.59	AVG. Vel. (ft/s)	0.82	3.31	0.82
Max Ch Depth (ft)	3.59	Hydr. Depth (ft)	0.82	3.31	0.82
Conv. Total (cfs)	38767.8	Wetted Per. (ft)	612.9	35589.7	2565.2
Length wtd. (ft)	4.77	Stream Power (lb/ft s)	20.70	127.86	86.16
Min Ch El (ft)	817.39	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.17	Stream Power (lb/ft s)	485.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.89	5.50	0.36
C & E Loss (ft)	0.00	Cum SA (acres)	0.68	0.91	0.55

GROSS SECTION

RIVER: Center South
REACH: Center South

RS: 7.166666*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	821.38	11.3	821.15	12.77	821.12	17.36	821.11
39.0	819.47	34.34	817.83	248.73	817.82	318.61	817.7
218.0	818.17	230.77	819.17	467.79	821.91	471.9	821.98
318.14	818.33	330.77	819.17	467.79	821.91	471.9	821.98
475.93	822	485	822				822

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
0	.02	11.3	.038	17.36	.039	214.07	.039

Bank Sta: Left Right
214.07 330.77

Lengths: Left Channel Right
4.77 4.77

Coeff Contr. Expan.
.1 .3

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	820.97	Reach Len. (ft)	4.77	4.77	4.77
Crit W.S. (ft)	0.000068	Flow Area (sq ft)	18.25	408.42	81.42
E.G. Slope (ft/ft)	0.000068	Area (sq ft)	18.25	408.42	81.42
Q Total (cfs)	227.17	Flow (cfs)	5.34	294.80	23.86
Top width (ft)	0.64	Top width (ft)	20.23	116.70	90.24
Vel Head (ft/s)	0.64	AVG. Vel. (ft/s)	0.29	0.72	0.29
Max Ch Depth (ft)	0.64	Hydr. Depth (ft)	0.29	0.72	0.29
Conv. Total (cfs)	39327.72	Wetted Per. (ft)	607.1	3573.50	2866.90
Length wtd. (ft)	4.77	Stream Power (lb/ft s)	20.31	112.12	90.24
Min Ch El (ft)	817.10	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.18	Stream Power (lb/ft s)	485.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.88	5.45	0.35

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 7.083333*

INPUT

Description:		Station Elevation Data		num= 22	
Sta	Elev	Sta	Elev	Sta	Elev
0	821.32	11.65	821.06	17.89	821.01
41.01	821.51	45.27	821.91	50.27	821.85
220.68	819.08	239.01	817.25	243.41	816.81
312.71	818.17	326.61	819.08	467.33	821.98
475.69	822	485	822	471.55	821.98

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	11.65	.038	17.89	.039
220.68	.038	326.61	.039	477	.039

Bank Sta: Left Right Lengths: Left Channel Right

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (Cfs)	Length Wtd. (ft)	Min Ch El (ft)	Frict Data	C & E Loss (ft)
820.98	820.97	820.97	0.000069	324.00	220.34	0.65	4.16	39029.5	4.77	816.52	4.77	0.00
Wetted Per. (ft)	Reach (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Conv. (Cfs)	Wetted Per. (ft)	Shear (lb/sq ft)	Frict Power (1b/ft.s)	Cum Volume (acre-ft)	Cum SA (acres)
0.00	0.00	18.86	18.86	19.91	0.30	0.95	690.7	20.00	485.00	0.88	0.68	0.88

Left OB	Channel	Right OB
0.039	0.039	0.039
4.77	4.77	4.77
89.47	388.19	89.47
27.28	290.98	27.28
94.50	105.93	94.50
0.30	0.75	0.30
0.95	3.66	0.95
3286.6	35052.3	3286.6
94.51	106.39	94.51
0.00	0.02	0.00
0.34	5.41	0.34
0.53	0.89	0.53

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 7

INPUT

Description:		Station Elevation Data		num= 18	
Sta	Elev	Sta	Elev	Sta	Elev
0	821.27	12	821.03	13.56	821
51.78	822	190.7	822	197.29	822
252.08	816.52	304.32	816.52	305.28	817
472.44	822	475.44	822	485	822

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	12	.039	13.56	.039
227.29	.039	322.44	.039	477	.039

Bank Sta: Left Right Lengths: Left Channel Right

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (Cfs)	Length Wtd. (ft)	Min Ch El (ft)	Frict Data	C & E Loss (ft)
820.98	820.97	820.97	0.000074	324.00	213.49	0.68	4.45	37695.2	57.00	816.52	4.77	0.00
Wetted Per. (ft)	Reach (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Conv. (Cfs)	Wetted Per. (ft)	Shear (lb/sq ft)	Frict Power (1b/ft.s)	Cum Volume (acre-ft)	Cum SA (acres)
0.00	0.00	19.45	19.45	19.72	0.32	0.99	731.9	19.82	480.88	0.88	0.67	0.88

Left OB	Channel	Right OB
0.039	0.039	0.039
4.77	4.77	4.77
89.47	360.69	89.47
27.28	286.16	27.28
94.50	97.26	94.50
0.30	31.55	0.30
0.95	98.62	0.95
3671.0	33292.3	3671.0
98.64	95.66	98.64
0.00	0.02	0.00
0.33	5.37	0.33
0.52	0.88	0.52

CPNPPLOCA1PMP

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 6

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.66	12	820.41	36.63	821	46.63	822	51.78	822
190.7	822	197.29	822	277.29	819	267.29	815	267.69	814.8
300.88	814.8	301.28	815	307.28	818	322.44	819	472.44	822
475.44	822	485							

Manning's n Values

Sta	n	Val	Sta	n	Val
0	.02		12	.039	
			485	.039	

Bank Sta: Left 227.29 Right 322.44

Lengths: Left Channel 39.1 Right 39.1

Blocked Obstructions num= 2

Sta L Sta R Elev

51.78 190.7 825 475.44 485 825

Coeff Contr. .1

Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt n-Val.	39.15	39.039	39.039
W.S. Elev (ft)	820.97	Reach Len. (ft)	31.22	432.78	37.10
Crit W.S. (ft)		Flow Area (sq ft)	31.22	432.78	97.10
E.G. Slope (ft/ft)	0.000043	Area (sq ft)	6.90	293.20	23.90
Q Total (cfs)	324.00	Flow (cfs)	55.12	95.15	98.54
Top Width (ft)	248.81	Top Width (ft)	0.22	0.68	0.25
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)	0.57	4.55	0.99
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)	1057.0	44940.9	3663.1
Conv. Total (cfs)	49661.0	Wetted Per. (ft)	55.54	96.19	98.56
Length Wtd. (ft)	39.10	Shear (lb/sq ft)	485.00	0.01	0.00
Min Ch El (ft)	814.80	Stream Power (lb/ft.s)	0.83	0.80	0.70
Frict Loss (ft)	1.26	Cum Volume (acre-ft)	0.63	0.75	0.39
Alpha	0.00	Cum SA (acres)			
C & E Loss (ft)	0.00				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 5

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.24	11.58	820	12	819.99	78	822
145.91	822	165.91	820	177.8	819	237.29	815
268.14	814.58	300.44	814.58	301.28	815	311.28	820
393.46	822	396.72	822	441.72	822	475.44	822

Manning's n Values

Sta	n	Val	Sta	n	Val
0	.02		12	.039	
			485	.039	

Bank Sta: Left 237.29 Right 311.28

Lengths: Left Channel 8.43 Right 8.43

Blocked Obstructions num= 3

Sta L Sta R Elev

91.65 151.65 825 396.72 441.72 825 475.44

Coeff Contr. .1

Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt n-Val.	0.038	0.039	0.039
W.S. Elev (ft)	820.97	Reach Len. (ft)	8.43	8.43	8.43
Crit W.S. (ft)		Flow Area (sq ft)	248.51	385.67	28.80
E.G. Slope (ft/ft)	0.000031	Area (sq ft)	76.38	243.83	3.79
Q Total (cfs)	302.13	Flow (cfs)	168.79	73.99	59.35
Top Width (ft)	0.49	Top Width (ft)	0.31	0.63	0.13
Vel Total (ft/s)	6.39	Avg. Vel. (ft/s)	1.47	5.21	0.49
Max Chl Dpth (ft)	57909.15	Hydr. Depth (ft)	13649.9	43526.1	677.5
Conv. Total (cfs)	184.53	Wetted Per. (ft)	160.00	70.01	50.36
Length Wtd. (ft)	814.58	Stream Power (lb/ft.s)	485.00	0.00	0.00
Min Ch El (ft)	1.35	Cum Volume (acre-ft)	0.72	4.48	0.14
Alpha	0.00	Cum SA (acres)	0.52	0.67	0.32
Frict Loss (ft)	0.00				
C & E Loss (ft)	0.00				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 4.8*

INPUT

Description:		Station Elevation Data		num= 38		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.15	11.17	819.94	11.58	819.93	14.04	819.92	75.27	819.99						
91.3	821.35	94.57	821.35	103.23	821.8	117.3	821.8	173.09	819.822						
180.8	819.57	230.7	817.8	239.74	820.75	269.15	819.87	568.24	814.53						
300.34	814.53	301.39	814.96	301.63	815.17	311.28	820.370.96	820.98	820.98						
372.82	821.02	391.47	821.91	393.97	822.442.53	822	394.66	822	397.25						
438.57	822.442.53	822	455.7	822	458.63	821.8	459.78	821.8	821.8						
474.37	821.86	476.46	821.87	486.08	821.91										

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.02	11.58	14.04	.039	228.97	.035	311.28	.035			
474.37	.035	486.08	.035								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 228.97 311.28 8.43 8.43 8.43 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.038	0.035	0.035
W.S. Elev (ft)	820.97	Reach Len. (ft)	8.43	8.43	8.43
Crit W.S. (ft)	0.000023	Flow Area (sq ft)	225.51	435.94	28.67
E.G. Slope (ft/ft)	0.000023	Area (sq ft)	132.76	281.36	53.08
Q Total (cfs)	304.00	Top Wtd. (ft)	163.71	81.31	53.08
Vel Total (ft/s)	0.47	Avr Vel (ft/s)	1.71	0.61	0.12
Max Chl Dpth (ft)	6.44	Hvdr. Depth (ft)	1.39	5.30	0.49
Conv. Total (cfs)	68067.3	Conv. (cfs)	11735.6	55580.3	751.5
Length Wtd. (ft)	8.43	Wetted Per. (ft)	163.69	83.77	59.10
Min Ch El (ft)	814.53	Shear (lb/sq ft)	486.08	0.00	0.00
Alpha	1.41	Stream Power (lb/ft s)	0.68	4.40	0.14
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.49	0.66	0.31
C & E Loss (ft)	0.00	Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 4.6*

INPUT

Description:		Station Elevation Data		num= 38		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.07	10.77	819.87	11.16	819.87	13.53	819.85	72.53	819.97						
88.2	821.01	91.13	821.3	99.48	821.6	113.04	820.822	118.62	820.1						
135.68	822.154.28	820.8	156.39	820.69	161.98	820.38	165.34	820.1	820.1						
175.56	819.69	220.66	817.6	233.74	816.29	267.02	814.75	268.33	814.48						
300.24	814.48	301.1	814.91	301.54	815.13	311.28	820.371.33	820.98	820.98						
373.2	821.04	391.97	821.93	394.48	822.394.48	822	395.17	822	397.78						
439.36	822.443.34	822	456.6	822	459.54	821.6	460.7	821.6	821.6						
475.38	821.72	477.48	821.74	487.16	821.82										

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.02	11.16	13.53	.039	220.66	.031	311.28	.031			
475.38	.031	487.16	.031								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 220.66 311.28 8.43 8.43 8.43 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.038	0.031	0.031
W.S. Elev (ft)	820.97	Reach Len. (ft)	8.43	8.43	8.43
Crit W.S. (ft)	0.000015	Flow Area (sq ft)	205.40	490.67	28.85
E.G. Slope (ft/ft)	0.000015	Area (sq ft)	39.96	280.70	3.34
Q Total (cfs)	324.00	Flow (cfs)			

Top Width (ft)	306.71	Top Width (ft)	156.63	90.62	59.47
Vel Total (ft/s)	0.45	Avg. Vel. (ft/s)	0.19	0.57	0.12
Max Chl Dpth (ft)	6.49	Hydr. Depth (ft)	1.31	5.41	0.49
Conv. Total (Cfs)	82837.2	Wetted Per. (ft)	10216.6	71766.6	854.0
Length Wtd. (ft)	8.43	Shear (lb/sq ft)	157.65	92.05	59.47
Min Chl El (ft)	814.46	Stream Power (lb/ft.s)	48.00	0.01	0.00
Alpha	0.04	Channel Slope (acre-ft)	0.65	4.31	0.13
F Loss	0.00	Cum SA (acres)	0.46	0.64	0.30
C & E Loss (ft)	0.00				

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Warning: Divided Flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 4.4*

INPUT		Description:		Station Elevation Data		num= 38		Manning's n Values		num= 7	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	n Val	Sta	n Val
0	819.98	10.36	819.81	10.74	819.8	13.02	819.79	69.8	0.028	311.28	0.028
84.88	820.67	87.7	820.96	95.73	821.4	108.78	822	114.15	0.028	311.28	0.028
130.57	820.13	212.34	821.2	150.5	821.2	155.88	820.92	159.11	0.028	311.28	0.028
168.94	820.13	212.34	821.2	150.5	821.2	155.88	820.92	159.11	0.028	311.28	0.028
300.58	814.05	391.97	821.97	301.95	815.86	266.88	814.62	268.43	0.028	311.28	0.028
370.18	821.05	391.97	821.97	301.95	815.86	266.88	814.62	268.43	0.028	311.28	0.028
440.14	822.44	447.16	822.82	457.49	822	351.26	822	358.37	0.028	311.28	0.028
476.39	821.58	478.51	821.61	488.25	821.72	460.46	821.4	461.62	0.028	311.28	0.028

CROSS SECTION OUTPUT Profile #PF 1

Bank Sta; Left		Right		Lengths: Left Channel		Right		Coeff Contr.		Expan.	
212.34	311.28	8.43	8.43	8.43	8.43	0.1	0.1	0.1	0.3	0.1	0.3
E.G. Elev (ft)											
820.97											
Vel Head (ft)											
0.00											
W.S. Elev (ft)											
820.97											
E.G. Slope (ft/ft)											
0.000010											
Q Total (Cfs)											
324.00											
Top Width (ft)											
303.90											
Vel Total (ft/s)											
0.52											
Wetted Per. (ft)											
101032.5											
Conv. Total (Cfs)											
8.43											
Length Wtd. (ft)											
814.44											
Min Chl El (ft)											
1.42											
Alpha											
0.00											
Frctn Loss (ft)											
0.00											
C & E Loss (ft)											
0.43											

Warning: Divided Flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 4.2*

INPUT		Description:		Station Elevation Data		num= 38		Manning's n Values		num= 7	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	n Val	Sta	n Val
0	819.98	10.36	819.81	10.74	819.8	13.02	819.79	69.8	0.028	311.28	0.028
81.55	820.34	84.26	820.63	91.98	821.2	104.51	822	109.68	0.028	311.28	0.028
125.46	822	147.65	821.6	144.6	821.56	149.77	821.46	152.88	0.028	311.28	0.028
162.33	820.56	204.03	817.2	221.72	815.43	266.75	814.49	268.52	0.028	311.28	0.028
300.05	814.39	300.92	814.82	301.37	815.04	311.28	820	372.07	0.028	311.28	0.028
373.96	821.07	392.96	821.98	395.51	822	396.2	822	398.85	0.028	311.28	0.028
440.93	822	444.97	822	458.39	822	461.37	821.2	462.54	0.028	311.28	0.028
477.4	821.44	479.53	821.47	489.33	821.63				0.028	311.28	0.028

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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.97	Element	
Vel Head (ft)	0.00	Wt. n-Val.	0.037
W.S. Elev (ft)	820.97	Reach Len. (ft)	8.43
Cr. Sl. S. (ft/ft)	0.0000006	Flow Area (sq ft)	179.50
G. Total (Cfs)	324.00	Flow (Cfs)	614.56
Top Width (ft)	303.63	Avg. Vel. (ft/s)	2.74
Vel Total (ft/s)	0.39	Top Width (ft)	136.75
Max Chl Dpth (ft)	6.58	Avg. Vel. (ft/s)	0.09
Conv. Total (Cfs)	130897.4	Hydr. Depth (ft)	1.31
Length Wtd. (ft)	8.43	Conv. (Cfs)	9017.8
Min Ch El (ft)	814.39	Wetted Per. (ft)	138.01
Alpha	1.42	Shear (lb/sq ft)	489.33
Frctn Loss	0.00	Stream Power (lb/ft s)	0.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	4.10
		Cum SA (acres)	0.60

Left OB	0.037	Channel	8.43	Right OB	0.024
	8.43		614.56		28.43
	179.50		298.94		2.74
	22.32		107.25		59.62
	136.75		0.49		0.09
	0.12		5.73		0.49
	9017.8		120772.6		1107.0
	138.01		108.67		59.63
	489.33		0.00		0.00
	0.56		4.10		0.12
	0.41		0.60		0.28

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 4

INPUT					
Station	Elevation	Data	num=	Sta	Elev
0	819.81	12	819.65	78.23	820
105.21	822	138.71	822	143.67	822
215.71	815	268.62	814.34	299.95	814.34
372.44	821	393.46	822	396.72	822
462.28	821	463.46	821	478.41	821.3
			821	490.41	821.54

Manning's n Values	num=	Sta	n Val	
0	.02	12	478.41	
	.039	478.41	.02	
Bank Sta: Left	Right	Lengths: Left	Channel	Right
195.71	311.28	39.61	39.61	39.61
Blocked Obstructions				
105.21	138.71	825	396.72	441.72
		Sta L	Sta R	Elev

E.G. Elev (ft)	820.97	Element	
Vel Head (ft)	0.00	Wt. n-Val.	0.036
W.S. Elev (ft)	820.97	Reach Len. (ft)	39.61
Cr. Sl. S. (ft)	0.0000012	Flow Area (sq ft)	174.42
E.G. Slope (ft/ft)	324.00	Area (sq ft)	683.71
Q Total (Cfs)	302.65	Flow (Cfs)	28.87
Top Width (ft)	0.37	Top Width (ft)	31.37
Vel Total (ft/s)	6.63	Avg. Vel. (ft/s)	127.66
Max Chl Dpth (ft)	39.91	Hydr. Depth (ft)	0.18
Conv. Total (Cfs)	81.73	Conv. (Cfs)	9131.1
Length Wtd. (ft)	0.00	Wetted Per. (ft)	129.07
Min Ch El (ft)	1.23	Shear (lb/sq ft)	490.41
Alpha	1.42	Stream Power (lb/ft s)	0.00
Frctn Loss	0.00	Cum Volume (acre-ft)	3.97
C & E Loss (ft)	0.00	Cum SA (acres)	0.58

Left OB	0.036	Channel	39.61	Right OB	0.039
	39.61		683.71		28.87
	174.42		290.30		2.33
	31.37		115.57		59.42
	127.66		0.42		0.08
	9131.1		5.92		0.49
	129.07		117.01		679.6
	490.41		0.00		59.43
	0.53		3.97		0.00
	0.38		0.58		0.12

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South

RS: 3

INPUT					
Station	Elevation	Data	num=	Sta	Elev
0	819.4	13.14	819.34	94.09	819
215.71	815	269.07	814.11	299.5	814.11
383.56	821	396.72	822	446.29	822
477.2	820	478.41	820.02	490.41	820.27

Manning's n Values	num=	Sta	n Val	
0	.02	13.14	478.41	
	.039	478.41	.02	
Bank Sta: Left	Right	Lengths: Left	Channel	Right
195.71	311.28	39.61	39.61	39.61
Blocked Obstructions				
105.21	138.71	825	396.72	441.72
		Sta L	Sta R	Elev

Left OB	0.036	Channel	39.61	Right OB	0.039
	39.61		683.71		28.87
	174.42		290.30		2.33
	31.37		115.57		59.42
	127.66		0.42		0.08
	9131.1		5.92		0.49
	129.07		117.01		679.6
	490.41		0.00		59.43
	0.53		3.97		0.00
	0.38		0.58		0.12

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Bank Sta: Left 195.71 311.28
 Right 21.35 21.35
 Lengths: Left Channel 1
 Right 1
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 396.72 441.72 825

Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	wt. n-Val.	0.038	0.039	0.033
W.S. Elev (ft)	820.97	Reach Len. (ft)	21.35	21.35	21.35
Crit W.S. (ft)	0.000007	Flow Area (sq ft)	456.17	696.80	58.23
E.G. Slope (ft/ft)	324.00	Area (sq ft)	84.74	234.10	5.16
Q Total (Cfs)	409.58	Flow (cfs)	195.71	115.57	98.30
Top Width (ft)	0.27	Top Width (ft)	0.19	0.34	0.09
Vel Total (ft/s)	120686.86	Avg. Vel. (ft/s)	31563.33	87194.03	1922.59
Max Chl Dpth (ft)	21.35	Hydr. Depth (ft)	197.30	117.02	99.17
Length Total (ft)	814.11	Wetted Per (ft)	490.41	0.00	0.00
Min Ch El (ft)	0.00	Shear (lb/sq ft)	0.24	0.00	0.00
Alpha	1.27	Stream Power (lb/ft s)	0.24	3.35	0.08
Frctn Loss (ft)	0.00	Cum Volume (acres-ft)	0.23	0.48	0.19
C & E Loss (ft)	0.00	Cum SA (acres)			

Warning: Divided Flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Center South
 REACH: Center South RS: 2

INPUT

Description:	num=	17	Elev	Sta	Sta	Elev	Sta	Elev	Sta
Station Elevation Data									
Sta Elev	23	819.15	64.09	15.5	105	819	309.71	819	820
Sta Elev	25	815	261.28	818	307.28	818	309.71	819	820
Sta Elev	27	820	410.28	820.24	424.02	820.48	438.02	820.74	451.9
Sta Elev	28	820	410.28	820.24	424.02	820.48	438.02	820.74	451.9
Sta Elev	29	819.47	490.41	819.58					

Manning's n Values	num=	5	Sta	Sta	Sta	Sta	Sta	Sta	Sta
Sta n Val	0	.02	23.58	.039	410.28	.02	438.02	.039	477.15
Sta n Val	0	.02	23.58	.039	410.28	.02	438.02	.039	477.15

Bank Sta: Left 195.71 309.28
 Right 60.83 60.83
 Lengths: Left Channel 1
 Right 1
 Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	0.037	0.039	0.034
W.S. Elev (ft)	820.97	Reach Len. (ft)	60.83	60.83	60.83
Crit W.S. (ft)	815.87	Flow Area (sq ft)	468.73	688.24	217.87
E.G. Slope (ft/ft)	0.000039	Area (sq ft)	468.73	688.24	217.87
Q Total (Cfs)	821.00	Flow (cfs)	213.24	539.84	67.92
Top Width (ft)	490.41	Top Width (ft)	195.71	113.57	181.13
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)	0.45	0.78	0.31
Max Chl Dpth (ft)	13156.97	Hydr. Depth (ft)	34172.40	86508.06	10883.20
Length Total (ft)	60.83	Wetted Per (ft)	197.51	114.80	182.52
Min Ch El (ft)	814.00	Shear (lb/sq ft)	490.41	0.01	0.00
Alpha	1.31	Stream Power (lb/ft s)	490.41	0.00	0.00
Frctn Loss (ft)		Cum Volume (acres-ft)	0.01	3.01	0.01
C & E Loss (ft)		Cum SA (acres)	0.14	0.42	0.13

INLINE STRUCTURE

RIVER: Center South
 REACH: Center South RS: 1.5

INPUT

Description:	num=	18	Sta	Sta	Sta	Sta	Sta	Elev	Elev
Distance from Upstream XS									
Deck/Roadway width		24							
Weir Coefficient		2.6							
Weir Embankment Coordinates		4							
Sta Elev	0	825	265.53	825	265.53	819	490.41	819	490.41
Upstream Embankment side slope									2 horiz. to 1.0 vertical
Downstream Embankment side slope									2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow									.98
Elevation at which weir flow begins									

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weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In] Struct:

E.G. Elev (ft)	820.97	Q Gates (cfs)	0.00
W.S. Elev (ft)	821.00	Q Gate group	820.86
Q Weir (cfs)	821.00	Gate #Open	1.00
Weir Flow Area (sq ft)	305.48	Gate Area (sq ft)	0.00
Weir Sta Lft (ft)	265.53	Gate Submerg	0.00
Weir Sta Rgt (ft)	490.41	Gate Invert (ft)	0.000
Weir Max Depth (ft)	1.97	Q Breach (cfs)	
Weir Avg Depth (ft)	1.36	Breach Avg Velocity (ft/s)	
Weir Coef (ft^1/2)	2.600	Breach Flow Area (sq ft)	
Weir Submerg	0.92		
Min El Weir Flow (ft)	819.01		
W-Top Wdch (ft)	224.88		

CROSS SECTION

RIVER: Center South RS: 1
 REACH: Center South

INPUT

Description:	num=	4	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	Sta	813	295.11	814	490.41	812.84	
Sta	812.98						

Manning's n Values
 num= 1
 Sta n Val

Bank Sta: Left Right Coeff Contr. Expan.
 0 490.41 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.057	
W.S. Elev (ft)	820.86	Reach Len. (ft)		3629.37	
Crit W.S. (ft)	813.87	Flow Area (sq ft)		3629.37	
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		821.00	
Q Total (cfs)	821.00	Flow (cfs)		490.41	
Top Width (ft)	490.41	Top Width (ft)		0.23	
Vel Total (ft/s)	0.23	Avg. Vel. (ft/s)		351743.0	
Max Chl Dpht (ft)	8.02	Hydr. depth (ft)		500.32	
Conv'tl Area (cfs)	351743.0	Wetted (lb/sq ft)		0.00	
Length (ft)	812.84	Stream Power (lb/ft s)	490.41	0.00	0.00
Wetted Area (cfs)	1.00	Cum Volume (acres)			
Alpha El (ft)		Cum SA (acres)			
Frctn Loss (ft)					
C & E Loss (ft)					

CROSS SECTION

RIVER: East Channel RS: 7
 REACH: East Channel

INPUT

Description:	num=	5	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	Sta	821	72.56	821.17	83	821.17	
Sta	-10	821					

Manning's n Values
 num= 3
 Sta n Val

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 -10 .039 0 37.94 37.94 .1 .3

Crossed Obstructions

Sta L	Sta R	Elev	Sta L	Elev
-10	830	72.56	83	826.17

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.039	
W.S. Elev (ft)	821.75	Reach Len. (ft)		37.94	
Crit W.S. (ft)	821.75	Flow Area (sq ft)		37.94	
E.G. Slope (ft/ft)	0.013092	Area (sq ft)		55.94	
Q Total (cfs)	213.00	Flow (cfs)		207.50	
Top Width (ft)	72.56	Top Width (ft)		70.56	

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Vel Total (ft/s)	3.69	Avg. Vel. (ft/s)	3.14	3.71
Max Chl Dpth (ft)	0.88	Hydr. Depth (ft)	0.88	0.79
Conv. Total (cfs)	1861.5	Wetted Per. (ft)	48.1	1813.4
Length Wtd. (ft)	37.94	Shear (lb/sq ft)	0.50	0.64
Min Ch El (ft)	821.00	Stream Power (lb/ft s)	83.00	0.00
Alpha	1.00	Cum Volume (acre-ft)	0.01	0.00
Frcn Loss (ft)	0.49	Cum SA (acres)	0.03	0.70
C & E Loss (ft)	0.00			0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 6.75*

INPUT

Description:	
Station	7
Sta Elev	821
Elev	-3.41
Sta	83
Elev	820.67

Manning's n Values

num=	5
Sta	-10
n Val	-3.41
Sta	.039
n Val	.039

Bank Sta: Left Right Lengths: Left Channel Right

4.51 72.55 37.94 37.94

Blocked observations num=

Sta L Sta R Elev

-10 0 828.75 72.5475 83 825.67

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	821.60	Element		Left OB		Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.039	0.039	Channel	
W.S. Elev (ft)	821.39	Flow Len. (ft)	37.94	37.94	37.94	
Crit W.S. (ft)	0.012528	Flow Area (sq ft)	3.27	5.03		
E.G. Slope (ft/ft)	213.00	Area (sq ft)	13.77	203.78		
Top width (ft)	72.55	Top width (ft)	4.51	68.04		
Vel Total (ft/s)	3.65	Avg. Vel (ft/s)	3.28	3.68		
Max Chl Dpth (ft)	0.89	Hydr. Depth (ft)	0.73	0.81		
Conv. Total (cfs)	1903.0	Conv. (cfs)	95.8	1807.3		
Length Wtd. (ft)	37.94	Wetted Per. (ft)	5.08	68.76		
Min Ch El (ft)	820.50	Shear (lb/sq ft)	0.50	0.63		
Alpha	1.00	Stream Power (lb/ft s)	83.00	0.00		0.00
Frcn Loss (ft)	0.47	Cum Volume (acre-ft)	0.01	1.58		0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	0.64		0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 6.5*

INPUT

Description:	
Station	7
Sta Elev	821
Elev	-2.88
Sta	83
Elev	820.17

Manning's n Values

num=	5
Sta	-10
n Val	-2.28
Sta	.039
n Val	.039

Bank Sta: Left Right Lengths: Left Channel Right

7.01 72.54 37.94 37.94

Blocked observations num=

Sta L Sta R Elev

-10 0 827.5 72.333 83 823.17

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	821.13	Element		Left OB		Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.039	0.039	Channel	
W.S. Elev (ft)	820.92	Flow Len. (ft)	37.94	37.94	37.94	
Crit W.S. (ft)	0.012190	Flow Area (sq ft)	3.28	54.90		
E.G. Slope (ft/ft)	213.00	Area (sq ft)	3.28	54.90		
Top width (ft)	72.54	Flow (cfs)	9.28	203.72		
Vel Total (ft/s)	3.65	Top width (ft)	7.01	63.73		
Max Chl Dpth (ft)	0.96	Avg. Vel (ft/s)	0.47	0.81		
Conv. Total (cfs)	1929.2	Hydr. Depth (ft)	0.84	1.845		
Length Wtd. (ft)	37.94	Conv. (cfs)	84.1	1845.2		
Min Ch El (ft)	820.00	Wetted Per. (ft)	7.08	66.28		
		Shear (lb/sq ft)	0.35	0.63		

Alpha Frctn Loss (ft) 1.01 Stream Power (lb/ft s) 83.00 0.00
 C & E Loss (ft) 0.47 Cum Volume (acre-ft) 0.01 1.53
 C & E Loss (ft) 0.00 Cum SA (acres) 0.02 0.58

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CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 6.25*

INPUT

Description Data num= 7

Station Elev Sta Elev Sta Elev Sta Elev

-10 821 -1.14 821 819.67

72.52 819.67

Manning's n Values num= 5

Sta n Val Sta n Val Sta n Val

-10 .039 -1.14 .039 6.27 .039

Lengths: Left Channel Right

9.52 72.52 37.94 37.94

Blocked obstructions num= 2

Sta L Sta R Elev Sta L Elev

-10 0 826.25 72.5225 83 824.67

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 820.66 Element

Vel Head (ft) 0.23 Wt. n-Val.

W.S. Elev (ft) 820.43 Reach Len. (ft)

E.G. Slope (ft/ft) 0.012693 Flow Area (sq ft)

Q Total (cfs) 213.00 Top Width (ft)

Top Width (ft) 68.53 Avg. Vel. (ft/s)

Max Chl Dpth (ft) 3.80 Hydr. Depth (ft)

Conv. Total (cfs) 183.96 Conv. (cfs)

Length Total (ft) 37.94 W. Area (sq ft)

W. Area (sq ft) 819.50 Stream Power (lb/ft s)

Alpha 1.01 Stream Power (lb/ft s)

Frctn Loss (ft) 0.38 Cum Volume (acre-ft)

C & E Loss (ft) 0.01 Cum SA (acres)

Left OB Channel Right OB
 0.039 0.039 0.000
 37.94 37.94 37.94
 2.57 53.43 0.00
 2.57 53.43 0.00
 7.50 205.50 0.00
 5.52 63.00 0.08
 2.91 3.85 0.76
 0.47 0.85 0.77
 9.65 183.96 0.00
 0.30 62.00 0.67
 83.00 0.00 0.00
 0.01 1.49 0.01
 0.01 0.53 0.02

Left OB Channel Right OB
 0.039 0.039 0.000
 37.94 37.94 37.94
 2.57 53.43 0.00
 2.57 53.43 0.00
 7.50 205.50 0.00
 5.52 63.00 0.08
 2.91 3.85 0.76
 0.47 0.85 0.77
 9.65 183.96 0.00
 0.30 62.00 0.67
 83.00 0.00 0.00
 0.01 1.49 0.01
 0.01 0.53 0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 6

INPUT

Description Data num= 6

Station Elev Sta Elev Sta Elev

-10 821 819.17

Manning's n Values num= 3

Sta n Val Sta n Val

-10 .039 0 821 .039

Lengths: Left Channel Right

12.03 72.51 2 .99

Blocked obstructions num= 2

Sta L Sta R Elev Sta L Elev

-10 0 825 72.51 83 824.17

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 820.26 Element

Vel Head (ft) 0.23 Wt. n-Val.

W.S. Elev (ft) 820.08 Reach Len. (ft)

E.G. Slope (ft/ft) 0.008269 Flow Area (sq ft)

Q Total (cfs) 213.00 Top Width (ft)

Top Width (ft) 65.90 Avg. Vel. (ft/s)

Max Chl Dpth (ft) 3.37 Hydr. Depth (ft)

Conv. Total (cfs) 2342.3 Conv. (cfs)

Length Total (ft) 819.50 W. Area (sq ft)

W. Area (sq ft) 819.50 Stream Power (lb/ft s)

Alpha 1.01 Stream Power (lb/ft s)

Frctn Loss (ft) 0.01 Cum Volume (acre-ft)

C & E Loss (ft) 0.00 Cum SA (acres)

Left OB Channel Right OB
 0.039 0.039 0.000
 2.93 60.28 0.99
 2.93 60.28 0.99
 6.66 206.34 0.00
 5.42 60.48 0.00
 2.27 3.42 0.00
 0.54 1.00 0.00
 73.3 2269.0 0.00
 5.53 61.39 0.01
 9.27 0.51 0.01
 83.00 0.00 0.00
 0.01 1.49 0.01
 0.01 0.47 0.02

Left OB Channel Right OB
 0.039 0.039 0.000
 2.93 60.28 0.99
 2.93 60.28 0.99
 6.66 206.34 0.00
 5.42 60.48 0.00
 2.27 3.42 0.00
 0.54 1.00 0.00
 73.3 2269.0 0.00
 5.53 61.39 0.01
 9.27 0.51 0.01
 83.00 0.00 0.00
 0.01 1.49 0.01
 0.01 0.47 0.02

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CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.97959*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	0	821	12.03	819	13.26	818.99
72.51	819.16	83	819.16				

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	12.03	.039	83	.039

Bank Sta: Left Right Lengths: Left Channel Right

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
-10	0	825	72.5098	83824.1567							

Blocked obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
-10	0	825	72.5098	83824.1567				

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	820.07	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	820.07	Flow Area (sq ft)	2.85	60.50	60.50
E. Total (cfs)	0.008183	Flow (cfs)	6.50	206.50	206.50
G. Total (cfs)	213.00	Top width (ft)	5.38	60.48	60.48
Top width (ft)	65.86	Avg. Vel. (ft/s)	2.25	3.41	3.41
Vel Total (ft/s)	3.36	Hydr. Depth (ft)	0.54	1.00	1.00
Max Chl Dpth (ft)	1.08	Conv. (cfs)	71.8	2282.8	2282.8
Conv. Total (cfs)	2354.6	wetted per. (ft)	5.49	61.39	61.39
Length wtd. (ft)	0.99	Shear (lb/sq ft)	83.00	0.50	0.50
Min Ch El (ft)	818.99	Stream Power (lb/acre-ft)	0.00	1.43	1.43
Alpha	1.01	Cum Volume (acres)	0.01	0.47	0.47
Frctn Loss (ft)	0.01				
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.95918*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	0	821	12.03	819	14.5	818.98
72.51	819.14	83	819.14				

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	12.03	.039	83	.039

Bank Sta: Left Right Lengths: Left Channel Right

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
-10	0	825	72.5098	83824.1434				

Blocked obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
-10	0	825	72.5098	83824.1434				

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	820.07	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	820.07	Flow Area (sq ft)	2.85	61.07	61.07
E. Total (cfs)	0.007949	Area (sq ft)	6.30	206.70	206.70
G. Total (cfs)	213.00	Flow (cfs)	2.21	63.38	63.38
Top width (ft)	63.33	Top width (ft)	2.21	3.38	3.38
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)	0.53	1.01	1.01
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)	0.26	0.49	0.49
Conv. Total (cfs)	2389.1	Conv. (cfs)	70.6	2318.5	2318.5
Length wtd. (ft)	0.99	wetted per. (ft)	5.46	61.41	61.41
Min Ch El (ft)	818.98	Shear (lb/sq ft)	83.00	0.00	0.00
Alpha	1.01	Stream Power (lb/acre-ft)	0.00	1.43	1.43
Frctn Loss (ft)	0.01	Cum Volume (acres)	0.01	0.47	0.47
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.93877*

INPUT
Description: num=
Station Elev Station Sta Elev Sta Elev Sta Elev Sta Elev
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-10 821 83 819.13

Manning's n Values num=
Sta n Val Sta n Val Sta n Val Sta n Val
-10 .039 0 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right
12.03 72.51
Blocked obstructions num=
Sta L Sta R Elev Sta L Elev Sta R Elev
-10 0 82572.50939 83824.1302

CROSS SECTION OUTPUT Profile #PF 1
E-G. Elev (ft) 820.23 Element
Vel Head (ft) 0.17 Wt. n-Val.
W.S. Elev (ft) 820.06 Reach Len. (ft) 0.99
Crit W.S. (ft) 0.007873 Flow Area (sq ft) 0.99
E.G. Slope (ft/ft) 213.00 Flow Area (sq ft) 2.81
Q Total (cfs) 65.79 Top Width (ft) 6.14
Top Width (ft) 3.32 Avg. Vel. (ft/s) 5.31
Max Chl Dpth (ft) 0.09 Hydr. Depth (ft) 2.18
Length Wtd. (ft) 2400.09 Conv. (cfs) 69.33
Wetted Per (ft) 0.99 5.42
Min Ch El (ft) 818.97 Shear (lb/sq ft) 0.26
Alpha 1.01 Stream Power (lb/ft s) 83.00
Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 0.00
C & E Loss (ft) 0.00 Cum SA (acres) 0.01

CROSS SECTION
RIVER: East Channel
REACH: East Channel
RS: 5.91836*

INPUT
Description: num=
Station Elev Station Sta Elev Sta Elev Sta Elev Sta Elev
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-10 821 83 819.12

Manning's n Values num=
Sta n Val Sta n Val Sta n Val Sta n Val
-10 .039 0 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right
12.03 72.51
Blocked obstructions num=
Sta L Sta R Elev Sta L Elev Sta R Elev
-10 0 82572.50919 83824.1169

CROSS SECTION OUTPUT Profile #PF 1
E-G. Elev (ft) 820.22 Element
Vel Head (ft) 0.17 Wt. n-Val.
W.S. Elev (ft) 820.05 Reach Len. (ft) 0.99
Crit W.S. (ft) 0.007803 Flow Area (sq ft) 0.99
E.G. Slope (ft/ft) 213.00 Flow Area (sq ft) 2.77
Q Total (cfs) 65.75 Top Width (ft) 6.00
Top Width (ft) 3.32 Avg. Vel. (ft/s) 5.27
Max Chl Dpth (ft) 0.09 Hydr. Depth (ft) 2.16
Length Wtd. (ft) 2411.3 Conv. (cfs) 67.9
Wetted Per (ft) 0.99 5.38
Min Ch El (ft) 818.96 Shear (lb/sq ft) 0.26
Alpha 1.01 Stream Power (lb/ft s) 83.00
Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 0.00
C & E Loss (ft) 0.00 Cum SA (acres) 0.01

CROSS SECTION
RIVER: East Channel
REACH: East Channel
RS: 5.89795*

INPUT
Description: num=
Station Elev Station Sta Elev Sta Elev Sta Elev Sta Elev
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-10 821 83 819.13

Manning's n Values num=
Sta n Val Sta n Val Sta n Val Sta n Val
-10 .039 0 .039 12.03 .039 83 .039

Station Elev Station Sta Elev Sta Elev Sta Elev Sta Elev
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-10 821 83 819.13

Manning's n Values num=
Sta n Val Sta n Val Sta n Val Sta n Val
-10 .039 0 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right
12.03 72.51
Blocked obstructions num=
Sta L Sta R Elev Sta L Elev Sta R Elev
-10 0 82572.50939 83824.1302

CROSS SECTION OUTPUT Profile #PF 1
E-G. Elev (ft) 820.23 Element
Vel Head (ft) 0.17 Wt. n-Val.
W.S. Elev (ft) 820.06 Reach Len. (ft) 0.99
Crit W.S. (ft) 0.007873 Flow Area (sq ft) 0.99
E.G. Slope (ft/ft) 213.00 Flow Area (sq ft) 2.81
Q Total (cfs) 65.79 Top Width (ft) 6.14
Top Width (ft) 3.32 Avg. Vel. (ft/s) 5.31
Max Chl Dpth (ft) 0.09 Hydr. Depth (ft) 2.18
Length Wtd. (ft) 2400.09 Conv. (cfs) 69.33
Wetted Per (ft) 0.99 5.42
Min Ch El (ft) 818.97 Shear (lb/sq ft) 0.26
Alpha 1.01 Stream Power (lb/ft s) 83.00
Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 0.00
C & E Loss (ft) 0.00 Cum SA (acres) 0.01

CROSS SECTION
RIVER: East Channel
REACH: East Channel
RS: 5.91836*

INPUT
Description: num=
Station Elev Station Sta Elev Sta Elev Sta Elev Sta Elev
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-10 821 83 819.12

Manning's n Values num=
Sta n Val Sta n Val Sta n Val Sta n Val
-10 .039 0 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right
12.03 72.51
Blocked obstructions num=
Sta L Sta R Elev Sta L Elev Sta R Elev
-10 0 82572.50919 83824.1169

CROSS SECTION OUTPUT Profile #PF 1
E-G. Elev (ft) 820.22 Element
Vel Head (ft) 0.17 Wt. n-Val.
W.S. Elev (ft) 820.05 Reach Len. (ft) 0.99
Crit W.S. (ft) 0.007803 Flow Area (sq ft) 0.99
E.G. Slope (ft/ft) 213.00 Flow Area (sq ft) 2.77
Q Total (cfs) 65.75 Top Width (ft) 6.00
Top Width (ft) 3.32 Avg. Vel. (ft/s) 5.27
Max Chl Dpth (ft) 0.09 Hydr. Depth (ft) 2.16
Length Wtd. (ft) 2411.3 Conv. (cfs) 67.9
Wetted Per (ft) 0.99 5.38
Min Ch El (ft) 818.96 Shear (lb/sq ft) 0.26
Alpha 1.01 Stream Power (lb/ft s) 83.00
Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 0.00
C & E Loss (ft) 0.00 Cum SA (acres) 0.01

CROSS SECTION
RIVER: East Channel
REACH: East Channel
RS: 5.89795*

INPUT
Description: num=
Station Elev Station Sta Elev Sta Elev Sta Elev Sta Elev
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-10 821 83 819.13

Manning's n Values num=
Sta n Val Sta n Val Sta n Val Sta n Val
-10 .039 0 .039 12.03 .039 83 .039

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-10	821	0	821	2	821	12.03	819	18.2	818.95
72.51	819.1	83	819.1						
Manning's n Values									
Sta	n	Val	num=	Sta	n	Val	Sta	n	Val
-10	.039	0	.039	12.03	.039	83			
Bank Sta: Left 12.03 Right 72.51									
Blocked obstructions 2 Lengths: Left Channel Right Coeff Contr. Expan.									
Sta L	Sta R	Elev	Sta L	Sta R	Elev				
-10	82572.50898	83824.1036							

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	820.04	Reach Len. (ft)	0.99	0.99	
Crit W.S. (ft)		Flow Area (sq ft)	2.70	61.99	
E.G. Slope (ft/ft)	0.007603	Area (sq ft)	2.74	61.99	
G-Total (cfs)	213.00	Flow (cfs)	5.82	207.18	
Top width (ft)	65.72	Top width (ft)	5.24	60.48	
Vel Total (ft/s)	3.29	Avg. Vel. (ft/s)	2.13	3.34	
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)	0.52	1.02	
Conv. Total (cfs)	2442.8	Conv. (cfs)	66.8	2376.0	
Length Wtd. (ft)	0.99	Wetted Per. (ft)	5.34	61.42	
Min Ch El (ft)	818.95	Shear (lb/sq ft)	0.24	0.48	
Alpha	1.01	Stream Power (lb/ft s)	83.00	0.00	0.00
Frcn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	1.43	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.47	0.02

GROSS SECTION

RIVER: East Channel

REACH: East Channel

RS: 5.87755*

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station	7	821	821	12.03	819	19.43	818.94		
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	0	821	12.03	819	19.43	818.94		
72.51	819.09	83	819.09						
Manning's n Values									
Sta	n	Val	num=	Sta	n	Val	Sta	n	Val
-10	.039	0	.039	12.03	.039	83			
Bank Sta: Left 12.03 Right 72.51									
Blocked obstructions 2 Lengths: Left Channel Right Coeff Contr. Expan.									
Sta L	Sta R	Elev	Sta L	Sta R	Elev				
-10	82572.50877	83824.0904							

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	820.04	Reach Len. (ft)	0.99	0.99	
Crit W.S. (ft)		Flow Area (sq ft)	2.70	62.15	
E.G. Slope (ft/ft)	0.007545	Area (sq ft)	2.60	207.15	
G-Total (cfs)	213.00	Flow (cfs)	5.20	207.15	
Top width (ft)	65.68	Top width (ft)	2.11	60.48	
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)	0.52	3.34	
Max Chl Dpth (ft)	1.10	Hydr. Depth (ft)	0.52	1.03	
Conv. Total (cfs)	2452.1	Conv. (cfs)	65.5	2386.6	
Length Wtd. (ft)	0.99	Wetted Per. (ft)	5.30	61.43	
Min Ch El (ft)	818.94	Shear (lb/sq ft)	0.24	0.48	
Alpha	1.01	Stream Power (lb/ft s)	83.00	0.00	0.00
Frcn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	1.43	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.46	0.02

GROSS SECTION

RIVER: East Channel

REACH: East Channel

RS: 5.85714*

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station	7	821	821	12.03	819	20.67	818.93		
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	83	819.08						
72.51	819.08	83	819.08						
Manning's n Values									
Sta	n	Val	num=	Sta	n	Val	Sta	n	Val
-10	.039	83	819.08						

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Bank Sta: Left 0 .039 12.03 .039 83 .039
 Right 12.03 72.51
 Lengths: Left Channel 2 .99 .99
 Right 2 .99 .99
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 0 82572.50858 83824.0771

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	820.03	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.007492	Flow Area (sq ft)	2.66	62.31	62.31
E.G. Slope (ft/ft)	0.007492	Area (sq ft)	5.56	207.44	207.44
Q Total (cfs)	213.00	Flow (cfs)	5.56	60.48	60.48
Top Width (ft)	65.64	Top Width (ft)	5.16	3.03	3.03
Vel Total (ft/s)	3.26	Avg. Vel. (ft/s)	6.91	1.04	1.04
W.S. Elev (ft)	1.26	Hydr. Depth (ft)	0.23	0.47	0.47
Conv. Total (cfs)	2460.18	Conv. (cfs)	64.7	2396.0	2396.0
Length Wtd. (ft)	0.99	Wetted Per. (ft)	5.26	61.43	61.43
Min Ch El (ft)	818.99	Shear (lb/sq ft)	0.24	0.47	0.47
Alpha	1.01	Stream Power (lb/ft s)	83.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	1.43	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.46	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.83673*

INPUT

Description:	num=	7	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	7	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
			-10	821	0	821	12.03	819	21.9	818.92		
			72.51	819.06	83	819.06						
Manning's n Values	num=	4	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
			-10	.039	0	.039	83	.039				
Bank Sta: Left 12.03 72.51	Lengths: Left Channel	2	Right	12.03	72.51	72.51	83	72.51	72.51	83	72.51	83
Blocked Obstructions	num=	2	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev
			-10	0	82572.50837	83824.0638						

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	820.02	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.007324	Flow Area (sq ft)	2.62	62.77	62.77
E.G. Slope (ft/ft)	0.007324	Area (sq ft)	5.40	207.60	207.60
Q Total (cfs)	213.00	Flow (cfs)	5.40	60.48	60.48
Top Width (ft)	65.61	Top Width (ft)	5.13	3.31	3.31
Vel Total (ft/s)	3.26	Avg. Vel. (ft/s)	0.51	1.04	1.04
Max Ch Dpth (ft)	3.10	Hydr. Depth (ft)	0.23	0.47	0.47
Conv. Total (cfs)	2460.19	Conv. (cfs)	64.7	2396.0	2396.0
Length Wtd. (ft)	0.99	Wetted Per. (ft)	5.26	61.43	61.43
Min Ch El (ft)	818.99	Shear (lb/sq ft)	0.24	0.47	0.47
Alpha	1.01	Stream Power (lb/ft s)	83.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	1.42	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.46	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.81632*

INPUT

Description:	num=	7	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	7	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
			-10	821	0	821	12.03	819	23.14	818.91		
			72.51	819.05	83	819.05						
Manning's n Values	num=	4	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
			-10	.039	0	.039	83	.039				
Bank Sta: Left 12.03 72.51	Lengths: Left Channel	2	Right	12.03	72.51	72.51	83	72.51	72.51	83	72.51	83
Blocked Obstructions	num=	2	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev
			-10	0	82572.50837	83824.0638						

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Sta L Sta R Elev Sta L Sta R Elev
-10 0 82572.50816 83824.0506

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 820.18 Element
Vel Head (ft) 0.17 Wt. n-Val.
W.S. Elev (ft) 820.02 Reach (ft) 0.99
Crit W.S. (ft) 2.58 Flow Area (sq ft) 0.99
E.G. Slope (ft/ft) 0.007284 Area (sq ft) 62.89
Q Total (cfs) 213.00 Flow (cfs) 207.72
Top Width (ft) 65.57 Top Width (ft) 5.09
Vel Total (ft/s) 3.25 Avg. Vel. (ft/s) 3.30
Max Chl Dpth (ft) 1.11 Hydr. Depth (ft) 1.04
Conv. Total (cfs) 2495.7 Conv. (cfs) 2433.8
Length Wtd. (ft) 0.99 Wetted Per. (ft) 61.9
Min Ch El (ft) 818.91 Shear (lb/sq ft) 5.19
Alpha 0.02 Stream Power (lb/ft s) 83.00
Frctn Loss 0.01 Cum Volume (acre-ft) 1.42
C & E Loss (ft) 0.00 Cum SA (acres) 0.01

Left OB Channel Right OB
0.39 0.99 0.99
2.58 62.89 0.99
5.09 207.72 0.99
3.30 2433.8 0.99
61.9 2433.8 0.99
5.19 61.44 0.99
83.00 1.42 0.99
0.01 0.46 0.99

GROSS SECTION

RIVER: East Channel
REACH: East Channel RS: 5.79591*

INPUT

Description: Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev
-10 821 0 821 2 821 12.03 819 24.37 818.9

Manning's n Values num= 4
Sta n Val Sta n Val Sta n Val
-10 .039 0 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
12.03 72.51 .99 .99 .1 .3

Blocked obstructions num= 2
Sta L Sta R Elev Sta L Sta R Elev
-10 0 82572.50796 83824.0374

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 820.17 Element
Vel Head (ft) 0.17 Wt. n-Val.
W.S. Elev (ft) 820.01 Reach (ft) 0.99
CRT S. (ft) 2.58 Flow Area (sq ft) 0.99
E.G. Slope (ft/ft) 0.007284 Area (sq ft) 63.01
Q Total (cfs) 213.00 Flow (cfs) 207.84
Top Width (ft) 65.53 Top Width (ft) 5.16
Vel Total (ft/s) 3.25 Avg. Vel. (ft/s) 3.30
Max Chl Dpth (ft) 1.11 Hydr. Depth (ft) 1.04
Conv. Total (cfs) 2501.8 Conv. (cfs) 2441.1
Length Wtd. (ft) 0.99 Wetted Per. (ft) 60.6
Min Ch El (ft) 818.90 Shear (lb/sq ft) 5.15
Alpha 1.02 Stream Power (lb/ft s) 83.00
Frctn Loss 0.01 Cum Volume (acre-ft) 1.42
C & E Loss (ft) 0.00 Cum SA (acres) 0.01

Left OB Channel Right OB
0.39 0.99 0.99
2.58 63.01 0.99
5.16 207.84 0.99
3.30 2441.1 0.99
60.6 2441.1 0.99
5.15 61.45 0.99
83.00 1.42 0.99
0.01 0.46 0.99

GROSS SECTION

RIVER: East Channel
REACH: East Channel RS: 5.77551*

INPUT

Description: Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev
-10 821 0 821 2 821 12.03 819 25.6 818.89

Manning's n Values num= 4
Sta n Val Sta n Val Sta n Val
-10 .039 0 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
12.03 72.51 .99 .99 .1 .3

Blocked obstructions num= 2
Sta L Sta R Elev Sta L Sta R Elev
-10 0 82572.50776 83 824.024

GROSS SECTION OUTPUT Profile #PF 1

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Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Right OB
E.G. Elev (ft)	820.17								0.039	
Vel Head (ft)	0.16								0.99	
W.S. Elev (ft)	820.00								0.99	
Crit W.S. (ft)	0.007110								0.99	
E.G. Slope (ft/ft)	0.007110								0.99	
Q Total (cfs)	213.00								0.99	
Top width (ft)	63.72								0.99	
Max Chl Depth (ft)	1.11								0.99	
Conv. Total (cfs)	2526.0								0.99	
Length wtd. (ft)	818.89								0.99	
Min Ch El (ft)	1.02								0.99	
Alpha	0.01								0.99	
Frctn Loss (ft)	0.00								0.99	
C & E Loss (ft)	0.00								0.99	

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.75510*

INPUT

Description: num= 7
 Station Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 83 819.01

Manning's n Values

num= 4
 Sta n Val Sta n Val Sta n Val
 -10 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right

12.03 72.51
 Blocked obstructions num= 2

Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 Sta 0 82572.50755 83824.0108

CROSS SECTION OUTPUT Profile #PF 1

Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Right OB
E.G. Elev (ft)	820.16								0.039	
Vel Head (ft)	0.16								0.99	
W.S. Elev (ft)	819.99								0.99	
Crit W.S. (ft)	0.007088								0.99	
E.G. Slope (ft/ft)	0.007088								0.99	
Q Total (cfs)	213.00								0.99	
Top width (ft)	65.46								0.99	
Max Chl Depth (ft)	3.23								0.99	
Conv. Total (cfs)	2530.11								0.99	
Length wtd. (ft)	818.88								0.99	
Min Ch El (ft)	1.02								0.99	
Alpha	0.01								0.99	
Frctn Loss (ft)	0.00								0.99	
C & E Loss (ft)	0.00								0.99	

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.73469*

INPUT

Description: num= 7
 Station Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 83 819

Manning's n Values

num= 4
 Sta n Val Sta n Val Sta n Val
 -10 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right

12.03 72.51
 Blocked obstructions num= 2

Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 Sta 0 82572.50735 83823.9976

CROSS SECTION OUTPUT Profile #PF 1

Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Right OB
E.G. Elev (ft)	820.15								0.039	
Vel Head (ft)	0.15								0.99	
W.S. Elev (ft)	819.99								0.99	
Crit W.S. (ft)	0.007069								0.99	
E.G. Slope (ft/ft)	0.007069								0.99	

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Q Total (cfs)	213.00	Flow (cfs)	4.81	208.19
Top Width (ft)	65.42	Top Width (ft)	4.94	60.48
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)	1.97	3.28
Max Chl Dpth (ft)	1.12	Hydr. Depth (ft)	0.49	1.05
Conv. Total (cfs)	2533.3	Wetted Per. (ft)	5.94	2476.1
Length Wtd. (ft)	0.99	Shear (lb/sq ft)	0.06	61.46
Alin Ch El (ft)	813.07	Stream Power (lb/ft s)	83.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.46

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.71428*

INPUT

Description:	
Station Elevation Data	num= 7
Sta Elev Sta Elev Sta Elev Sta Elev	0 821 2 821 12.03 819 29.31 818.86
72.51 818.98	83 818.98

Manning's n Values

Sta n Val	Sta n Val	Sta n Val	Sta n Val
-10 .039	0 .039	12.03 .039	83 .039

Bank Sta: Left 12.03 Right Lengths: Left Channel Right

Blocked Obstructions num= 2 .99

Sta L Sta R Elev Sta L Sta R Elev

-10 82572.50714 83823.9843

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	819.98	Reach Len. (ft)	0.49	63.89	
E.G. Slope (ft/ft)	0.006956	Area (sq ft)	2.40	63.89	
G. Total (cfs)	213.00	Flow (cfs)	4.69	208.31	
Top Width (ft)	65.39	Top Width (ft)	4.91	60.48	
Vel Total (ft/s)	3.21	Avg. Vel. (ft/s)	1.95	3.26	
Max Chl Dpth (ft)	1.12	Hydr. Depth (ft)	0.49	1.06	
Conv. Total (cfs)	2553.8	Conv. (cfs)	56.2	2497.7	
Length Wtd. (ft)	0.99	Wetted Per. (ft)	5.01	61.48	
Min Ch El (ft)	818.86	Stream Power (lb/ft s)	83.00	0.00	
Alpha	1.02	Cum Volume (acre-ft)	0.00	0.46	
Frctn Loss (ft)	0.01	Cum SA (acres)	0.00	1.42	
C & E Loss (ft)	0.00		0.00	0.02	

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.69387*

INPUT

Description:	
Station Elevation Data	num= 7
Sta Elev Sta Elev Sta Elev Sta Elev	0 821 2 821 12.03 819 30.54 818.85
72.51 818.97	83 818.97

Manning's n Values

Sta n Val	Sta n Val	Sta n Val	Sta n Val
-10 .039	0 .039	12.03 .039	83 .039

Bank Sta: Left 12.03 Right Lengths: Left Channel Right

Blocked Obstructions num= 2 .99

Sta L Sta R Elev Sta L Sta R Elev

-10 82572.50694 83 823.971

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	819.97	Reach Len. (ft)	0.99	63.93	
Crit W.S. (ft)	0.006950	Flow Area (sq ft)	2.37	63.93	
E.G. Slope (ft/ft)	0.006950	Area (sq ft)	2.37	208.93	
Top Width (ft)	65.30	Flow (cfs)	4.87	208.93	
Vel Total (ft/s)	3.21	Top Width (ft)	4.87	60.48	
Max Chl Dpth (ft)	1.12	Avg Vel (ft/s)	1.94	3.26	
Conv. Total (cfs)	2554.9	Conv. (cfs)	55.0	2499.9	

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Length Wtd. (ft) 0.99 Wetted Per. (ft) 4.97 61.48
 Min Ch El (ft) 818.85 Shear (lb/sq ft) 0.21 0.45
 Alpha 1.02 Stream Power (lb/ft s) 83.00 0.00
 Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 0.00 1.41
 C & E Loss (ft) 0.00 Cum SA (acres) 0.01 0.45

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.67347*

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev
-10	821	83	818.96

Manning's n Values

Sta	n Val	Sta	n Val
-10	.039	83	.039

Bank Sta: Left Right

Lengths:	Left Channel	Right	Coef	Contr.	Expan.
12.03	72.51	.99	.99	.1	.3

Blocked Obstructions

Sta L	Sta R	Elev
-10	0	82572.30674

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	819.96	Reach Len. (ft)	0.99	0.99	0.99
E.G. Slope (ft/ft)	0.006951	Flow Area (sq ft)	2.33	63.94	63.94
Q Total (cfs)	213.00	Area (sq ft)	4.49	208.51	208.51
Top Width (ft)	65.31	Flow Width (ft)	4.83	60.48	60.48
Vel Total (ft/s)	3.25	Avg. Vel (ft/s)	1.48	3.25	3.25
Max Chl Dpth (ft)	1.13	Hydr. Depth (ft)	53.9	2500.9	2500.9
Conv. Total (cfs)	2554.7	Wetted Per. (ft)	4.93	61.48	61.48
Length Wtd. (ft)	0.99	Shear (lb/sq ft)	0.21	0.45	0.45
Min Ch El (ft)	818.84	Stream Power (lb/ft s)	83.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	1.41	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.45	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.65306*

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev
-10	821	83	818.94

Manning's n Values

Sta	n Val	Sta	n Val
-10	.039	83	.039

Bank Sta: Left Right

Lengths:	Left Channel	Right	Coef	Contr.	Expan.
12.03	72.51	.99	.99	.1	.3

Blocked Obstructions

Sta L	Sta R	Elev
-10	0	82572.50653

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	819.96	Reach Len. (ft)	0.99	0.99	0.99
E.G. Slope (ft/ft)	0.006865	Flow Area (sq ft)	2.30	64.21	64.21
Q Total (cfs)	213.00	Area (sq ft)	4.38	208.62	208.62
Top Width (ft)	65.28	Flow Width (ft)	4.80	60.48	60.48
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)	1.91	3.25	3.25
Max Chl Dpth (ft)	1.13	Hydr. Depth (ft)	52.9	2517.9	2517.9
Conv. Total (cfs)	2570.6	Wetted Per. (ft)	4.93	61.48	61.48
Length Wtd. (ft)	0.99	Shear (lb/sq ft)	0.20	0.45	0.45
Min Ch El (ft)	818.83	Stream Power (lb/ft s)	83.00	0.00	0.00
Frctn Loss (ft)	1.02	Cum Volume (acre-ft)	0.00	1.41	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.45	0.02

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GROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 5.63265*

INPUT

Description:	num=	7	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	0	821	12.03	819	34.24	818.82		
72.51	818.93	83	818.93						

Manning's n Values	num=	4	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	12.03	.039	83	.039				

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
12.03	72.51			.99	.99	.1	.3	

Blocked obstructions num= 2
 Sta L Sta R Elev 83823.9312

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	819.16	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	819.95	Reach Len. (ft)	2.26	2.26	2.26
Crit W.S. (ft)		Flow Area (sq ft)	64.19	64.19	64.19
E.G. Slope (ft/ft)	0.006878	Area (sq ft)	4.29	208.71	208.71
0 Total (cfs)	213.00	Flow (cfs)	4.76	60.48	60.48
Top Width (ft)	65.24	Top Width (ft)	1.90	3.25	3.25
Vel Total (ft/s)	3.21	Avg. Vel. (ft/s)	0.47	1.06	1.06
Max Chl Dpth (ft)	1.13	Hydr. Depth (ft)	4.85	2516.6	2516.6
Conv. Total (cfs)	2568.3	Conv. (cfs)	83.00	0.45	0.45
Length Wtd. (ft)	818.82	Wetted Per. (ft)	0.00	1.41	1.41
Min Ch El (ft)	1.02	Shear (lb/sq ft)	0.00	0.01	0.01
Alpha	1.02	Stream Power (lb/ft.s)	0.00	0.01	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.45	0.45
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.45	0.45

GROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 5.61224*

INPUT

Description:	num=	7	Elev	Sta	Elev	Sta	Elev
Station Elevation Data							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	0	821	12.03	819	35.48	818.81
72.51	818.92	83	818.92				

Manning's n Values	num=	4	Sta	n Val	Sta	n Val	Sta	n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	12.03	.039	83	.039		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
12.03	72.51			.99	.99	.1	.3	

Blocked obstructions num= 2
 Sta L Sta R Elev 82572.50613

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	819.16	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	819.94	Reach Len. (ft)	2.26	2.26	2.26
Crit W.S. (ft)		Flow Area (sq ft)	4.76	60.48	60.48
E.G. Slope (ft/ft)	0.006895	Area (sq ft)	4.76	208.80	208.80
0 Total (cfs)	213.00	Flow (cfs)	4.76	60.48	60.48
Top Width (ft)	65.20	Top Width (ft)	1.89	3.25	3.25
Vel Total (ft/s)	3.21	Avg. Vel. (ft/s)	0.47	1.06	1.06
Max Chl Dpth (ft)	1.13	Hydr. Depth (ft)	50.6	2514.5	2514.5
Conv. Total (cfs)	2565.1	Conv. (cfs)	83.00	0.45	0.45
Length Wtd. (ft)	818.81	Wetted Per. (ft)	0.20	0.20	0.20
Min Ch El (ft)	1.02	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.02	Stream Power (lb/ft.s)	0.00	0.01	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.45	0.45
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.45	0.45

GROSS SECTION

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RIVER: East Channel
 REACH: East Channel
 RS: 5.59183*

INPUT

Description:
 Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 0 821 83 818.9
 72.51 818.9

Manning's n Values
 Sta n Val Sta n Val
 -10 .039 0

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 12.03 72.51 .99 .99 .1 .3

Blocked Obstructions
 Sta L Sta R Elev num= Sta L Elev
 -10 82572.50592 83823.9047

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.10	0.039	0.00
Vel Head (ft)	0.16	0.99	0.99
W.S. Elev (ft)	819.93	2.19	64.35
Crit W.S. (ft)	0.006836	4.10	208.90
E.G. Slope (ft/ft)	213.00	1.87	63.78
Q Total (Cfs)	63.16	1.06	2526.6
Top Width (ft)	1.13	49.6	61.51
Max Ch Depth (ft)	1.13	4.78	0.45
Conv. Total (Cfs)	2576.1	0.20	0.00
Length Wtd. (ft)	0.99	83.00	0.01
Min Ch El (ft)	818.80	0.00	1.41
Alpha	1.02	0.00	0.02
Frctn Loss (ft)	0.01	0.00	0.01
C & E Loss (ft)	0.00	0.00	0.00

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.57142*

INPUT

Description:
 Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 83 818.89
 72.51 818.89

Manning's n Values
 Sta n Val Sta n Val
 -10 .039 0

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 12.03 72.51 .99 .99 .1 .3

Blocked Obstructions
 Sta L Sta R Elev num= Sta L Elev
 -10 82572.50571 83823.8914

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.09	0.039	0.00
Vel Head (ft)	0.16	0.99	0.99
W.S. Elev (ft)	819.93	2.15	64.28
Crit W.S. (ft)	0.006868	4.02	208.98
E.G. Slope (ft/ft)	213.00	1.87	60.48
Q Total (Cfs)	65.12	1.06	2511.09
Top Width (ft)	3.21	49.6	61.51
Vel Total (ft/s)	3.21	4.78	0.45
Max Ch Depth (ft)	2576.14	0.20	0.00
Conv. Total (Cfs)	2576.14	83.00	0.01
Length Wtd. (ft)	0.99	0.00	1.41
Min Ch El (ft)	818.79	0.00	0.02
Alpha	1.02	0.00	0.01
Frctn Loss (ft)	0.01	0.00	0.01
C & E Loss (ft)	0.00	0.00	0.00

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.55102*

INPUT

Description:

CPNPPLOCA\PMF

Station Elevation Data		num=	7		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
-10	821	0	821	2	821	12.03	819	39.18	818.78					
72.51	818.88	83	818.88											

Manning's n Values		num=	4		Sta		n Val		Sta		n Val		Expan.	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
-10	.039	0	.039	12.03	.039	83	.039							

Bank Sta: Left		Right		Lengths: Left Channel		Right		Coeff		Contr.		Expan.	
Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R
-10	0	82572.50551	83823.8782										

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	819.92	Reach	0.99	0.99	0.99
Crit W.S. (ft)		Flow Area (sq ft)	2.11	64.18	
E.G. Slope (ft/ft)	0.006907	Area (sq ft)	3.93	209.07	
Q Total (cfs)	213.00	Flow (cfs)	1.86	3.26	
Top Width (ft)	65.08	Top Width (ft)	4.73	2515.7	
Vel Total (ft/s)	3.21	AVG. Vel. (ft/s)	83.00	0.05	
Max Chl Dpth (ft)	1.14	Hydr. Depth (ft)	0.00	1.40	
Conv. Total (cfs)	2563.0	Wetted Per. (ft)	0.01	0.44	
Length Wtd. (ft)	0.99	Shear Power (lb/ft s)			
Min Ch El (ft)	818.78	Stream Power (acre-ft)			
Alpha	1.02	Cum Volume (acres)			
Frcn Loss (ft)	0.01	Cum SA (acres)			
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 5.53061*

INPUT

Description:		num=	7		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
-10	821	0	821	2	821	12.03	819	40.41	818.77					
72.51	818.86	83	818.86											

Manning's n Values		num=	4		Sta		n Val		Sta		n Val		Expan.	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
-10	.039	0	.039	12.03	.039	83	.039							

Bank Sta: Left		Right		Lengths: Left Channel		Right		Coeff		Contr.		Expan.	
Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R	Sta L	Sta R
-10	0	82572.50531	83823.8649										

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	819.91	Reach	0.99	0.99	0.99
Crit W.S. (ft)		Flow Area (sq ft)	2.08	64.29	
E.G. Slope (ft/ft)	0.006876	Area (sq ft)	3.84	209.16	
Q Total (cfs)	213.00	Flow (cfs)	4.57	60.48	
Top Width (ft)	65.04	Top Width (ft)	1.85	3.25	
Vel Total (ft/s)	3.21	AVG. Vel. (ft/s)	0.46	1.06	
Max Chl Dpth (ft)	1.14	Hydr. Depth (ft)	46.3	2522.3	
Conv. Total (cfs)	2568.7	Wetted Per. (ft)	83.00	0.45	
Length Wtd. (ft)	0.99	Stream Power (lb/ft s)	0.00	1.40	
Min Ch El (ft)	818.77	Cum Volume (acre-ft)			
Alpha	1.02	Cum SA (acres)			
Frcn Loss (ft)	0.01				
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 5.51020*

INPUT

Description:		num=	7		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
-10	821	0	821	2	821	12.03	819	41.65	818.76					
72.51	818.85	83	818.85											

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Manning's n Values
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 12.03 12.03 83 .039
 num= 4
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 12.03 72.51 .99 .99 .1 .3
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 825 72.5051 825 72.5051 83823.8516

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.07		
Vel Head (ft)	0.16	0.039	0.99
W.S. Elev (ft)	819.90	0.99	0.99
Crit W.S. (ft)	0.006929	2.04	64.16
E.G. Slope (ft/ft)	0.006929	2.04	64.16
Flow Area (sq ft)	63.00	260.24	60.24
Top Width (ft)	3.72	1.84	3.26
Flow Vel (ft/s)	1.14	1.84	1.06
Hydr. Depth (ft)	2558.9	45.2	2513.7
Conv. Total (cfs)	0.99	4.62	61.53
Length Wtd. (ft)	818.76	83.00	0.45
Min Ch El (ft)	1.02	0.00	0.00
Alpha	0.01	0.00	0.01
Frctn Loss (ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	0.01	0.44

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.48979*

INPUT

Description: Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 83 818.84 72.5 818.84 83 818.84
 num= 7

Manning's n Values

Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 12.03 12.03 83 .039
 num= 4

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 12.03 72.5 .99 .99 .1 .3
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 825 72.5049 825 72.5049 83823.8384

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.06		
Vel Head (ft)	0.17	0.039	0.99
W.S. Elev (ft)	819.89	0.99	0.99
Crit W.S. (ft)	0.006957	2.00	63.65
E.G. Slope (ft/ft)	0.006957	2.00	63.65
Flow Area (sq ft)	213.00	3.67	209.33
Top Width (ft)	64.96	4.48	60.47
Flow Vel (ft/s)	3.24	1.83	1.09
Hydr. Depth (ft)	2553.7	44.0	2509.2
Conv. Total (cfs)	0.99	4.57	60.47
Length Wtd. (ft)	818.76	83.00	0.46
Min Ch El (ft)	1.02	0.00	0.00
Alpha	0.01	0.00	0.01
Frctn Loss (ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	0.01	0.44

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.46938*

INPUT

Description: Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 83 818.83 72.5 818.83 83 818.83
 num= 7

Manning's n Values

Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 12.03 12.03 83 .039
 num= 4

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 12.03 72.5 .99 .99 .1 .3

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Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 82572.50469 83823.8251 .99 .99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.88	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.007026	Flow Area (sq ft)	1.96	63.48	0.00
E.G. Slope (ft/ft)	213.00	Area (sq ft)	1.96	63.48	0.00
Q Total (cfs)	64.91	Flow (cfs)	4.44	209.41	0.00
Top Width (ft)	3.25	Top Width (ft)	0.44	60.47	0.09
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)	1.83	3.30	1.05
Max Chl Dpth (ft)	2541.01	Hydr. Depth (ft)	42.9	2498.2	0.0
Conv. Total (cfs)	818.74	Wetted Per. (ft)	4.13	60.47	1.06
Length Wtd. (ft)	1.02	Stream Power (lb/ft.s)	83.00	0.00	0.00
Min Chl El (ft)	0.01	Cum Volume (acre-ft)	0.01	1.40	0.01
Frctn Loss (ft)	0.00	Cum SA (acres)	0.01	0.44	0.02
C & E Loss (ft)					

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.44898*

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7	0	821	12.03	819	45.35	818.74		
2	-10	821	12.03	819	45.35	818.74		
4	83	818.81						

Manning's n Values num= 4
 Sta n Val Sta n Val Sta n Val
 -10 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 12.03 72.5 .99 .99 .1 .3

Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 82572.50449 83823.8118

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.86	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.007035	Flow Area (sq ft)	1.93	63.47	0.00
E.G. Slope (ft/ft)	213.00	Area (sq ft)	1.93	63.47	0.00
Q Total (cfs)	64.87	Flow (cfs)	3.51	209.49	0.00
Top Width (ft)	3.26	Top Width (ft)	0.44	60.47	0.09
Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)	1.82	3.30	1.07
Max Chl Dpth (ft)	2539.4	Hydr. Depth (ft)	41.9	2497.5	0.0
Conv. Total (cfs)	818.74	Wetted Per. (ft)	4.48	60.47	1.07
Length Wtd. (ft)	1.02	Stream Power (lb/ft.s)	83.00	0.46	0.00
Min Chl El (ft)	0.01	Cum Volume (acre-ft)	0.01	1.40	0.01
Frctn Loss (ft)	0.00	Cum SA (acres)	0.01	0.44	0.02
C & E Loss (ft)					

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.42857*

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7	0	821	12.03	819	46.58	818.73		
2	-10	821	12.03	819	46.58	818.73		
4	83	818.8						

Manning's n Values num= 4
 Sta n Val Sta n Val Sta n Val
 -10 .039 12.03 .039 83 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 12.03 72.5 .99 .99 .1 .3

Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 82572.50429 83823.7986

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CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Elev	Sta	Left OB	Channel	Right OB
E.G. Elev (ft)	820.04			0.039	0.039	0.000
Wt. n-Val.	0.17			0.99	0.99	0.99
Flow Len. (ft)	819.87			1.89	63.25	0.00
Flow Area (sq ft)	0.007122			3.49	209.52	0.00
E.G. Top (ft)	213.02			4.35	60.47	0.00
Flow width (ft)	64.83			1.82	3.31	0.08
Top width (ft)	3.27			1.05	1.07	1.07
Max Chl Dpth (ft)	1.14			4.44	60.47	0.00
Conv. Total (cfs)	2523.9			83.00	1.40	0.01
Length wtd. (ft)	0.99			0.00	0.43	0.02
Min Ch El (ft)	818.73			0.01	0.00	0.00
Alpha	1.02			0.00	0.00	0.00
Frctn Loss (ft)	0.01			0.01	0.01	0.01
C & E Loss (ft)	0.00			0.00	0.00	0.00

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.40816*

INPUT

Description:	num=	Elev	Sta	Left OB	Channel	Right OB
Station Elevation Data	7			819	819	819
Sta L	821			12.03	12.03	12.03
Sta R	83			47.82	47.82	47.82
72.5	818.79					
821	818.79					
83	818.79					
Manning's n values	4					
Sta n Val	0					
Sta n Val	.039					
Sta n Val	12.03					
Sta n Val	83					
Bank Sta: Left	12.03					
Bank Sta: Right	72.5					
Blocked Obstructions	2					
Sta L	821					
Sta R	83					
82572.50408						
-10	83823.7853					

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Elev	Sta	Left OB	Channel	Right OB
E.G. Elev (ft)	820.03			0.039	0.039	0.000
Wt. n-Val.	0.17			0.99	0.99	0.99
Flow Len. (ft)	819.86			1.85	63.01	0.00
Flow Area (sq ft)	0.007220			3.37	209.63	0.00
E.G. Top (ft)	213.00			4.31	63.32	0.00
Flow width (ft)	64.78			1.81	3.31	0.08
Top width (ft)	3.27			1.04	1.04	1.07
Max Chl Dpth (ft)	1.14			4.39	60.47	0.00
Conv. Total (cfs)	2506.8			83.00	1.39	0.01
Length wtd. (ft)	0.99			0.00	0.43	0.02
Min Ch El (ft)	818.72			0.01	0.00	0.00
Alpha	1.02			0.01	0.00	0.00
Frctn Loss (ft)	0.01			0.01	0.01	0.01
C & E Loss (ft)	0.00			0.00	0.00	0.00

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.38775*

INPUT

Description:	num=	Elev	Sta	Left OB	Channel	Right OB
Station Elevation Data	7			819	819	819
Sta L	821			12.03	12.03	12.03
Sta R	83			49.05	49.05	49.05
72.5	818.77					
821	818.77					
83	818.77					
Manning's n values	4					
Sta n Val	0					
Sta n Val	.039					
Sta n Val	12.03					
Sta n Val	83					
Bank Sta: Left	12.03					
Bank Sta: Right	72.5					
Blocked Obstructions	2					
Sta L	821					
Sta R	83					
82572.50388						
-10	83823.772					

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Elev	Sta	Left OB	Channel	Right OB
E.G. Elev (ft)	820.02			0.039	0.039	0.000
Wt. n-Val.	0.17			0.99	0.99	0.99
Flow Len. (ft)	819.85			1.85	63.01	0.00

RIVER: East Channel		REACH: East Channel		RS: 5.36734*		CPNPPLOCA]PMP	
Crit W.S. (ft)	0.007266	Flow Area (sq ft)	1.81	62.90	0.00		
E.G. Slope (ft/ft)	213.00	Area (sq ft)	1.81	62.90	0.00		
Q Total (Cfs)	64.74	Flow (Cfs)	3.29	209.71	0.00		
Top Width (ft)	3.29	Top Width (ft)	4.27	60.47	0.08		
Max Vel. (ft/s)	3.29	Avg. Vel. (ft/s)	1.81	3.33	1.08		
Max Chl Dpth (ft)	2488.14	Hydr. Depth (ft)	3.29	1.04	1.08		
Conv. Total (Cfs)	0.99	Wetted Per. (ft)	3.29	2400.42	0.00		
Length Wtd. (ft)	818.71	Shear (lb/sq ft)	0.13	60.47	1.08		
Min Ch El (ft)	1.02	Stream Power (lb/ft s)	83.00	0.00	0.00		
Alpha	0.01	Cum Volume (acre-ft)	0.00	1.39	0.01		
Frctn Loss (ft)	0.00	Cum SA (acres)	0.01	0.43	0.02		
C & E Loss (ft)	0.00						

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 5.36734*

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	7								
		-10	821	0	821	12.03	819	50.29	818.7
		72.5	818.76	83	818.76				

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	83	.039		

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

Blocked obstructions num= 2 .99 .99

Sta L	Sta R	Elev	Sta L	Elev
-10	0	82572.50368	83823.75888	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.84	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	1.77	Flow Area (sq ft)	1.77	62.60	0.00
E.G. Slope (ft/ft)	0.007387	Area (sq ft)	3.22	209.78	0.00
Q Total (Cfs)	213.00	Flow (Cfs)	4.22	60.47	0.08
Top Width (ft)	64.69	Top Width (ft)	1.81	3.35	1.08
Vel Total (ft/s)	3.31	Avg. Vel. (ft/s)	0.42	1.04	0.0
Max Chl Dpth (ft)	2478.3	Hydr. Depth (ft)	4.30	2440.9	0.0
Conv. Total (Cfs)	0.99	Conv. (Cfs)	0.99	60.47	1.08
Length Wtd. (ft)	818.70	Wetted Per. (ft)	3.29	0.08	
Min Ch El (ft)	1.01	Shear (lb/sq ft)	0.13	0.00	
Alpha	0.01	Stream Power (lb/ft s)	83.00	0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.39	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.43	0.02

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 5.34693*

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	7						
		-10	821	0	821	12.03	819
		72.5	818.75	83	818.75		

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	83	.039		

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

Blocked obstructions num= 2 .99 .99

Sta L	Sta R	Elev	Sta L	Elev
-10	0	82572.50347	83823.74555	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.83	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	1.73	Flow Area (sq ft)	1.73	62.78	0.00
E.G. Slope (ft/ft)	0.007520	Area (sq ft)	3.15	209.85	0.00
Q Total (Cfs)	213.00	Flow (Cfs)	4.17	60.47	0.00
Top Width (ft)	64.64	Top Width (ft)	1.82	3.37	1.08
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)	0.00	0.00	

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Max Ch1 Dpth (ft)	1.14	Hydr. Depth (ft)	0.42	1.03	1.08
Conv. Total (cfs)	2456.2	Conv. (cfs)	36.3	2419.9	0.0
Length Wtd. (ft)	0.99	Wetted Per. (ft)	4.25	60.47	1.09
Min Ch El (ft)	818.69	Shear (lb/sq ft)	0.19	0.48	0.00
Alpha	1.01	Stream Power (lb/ft s)	83.00	0.00	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.39	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.43	0.02

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 5.32653*

INPUT											
Description:	Station	Elevation	Data	num=	7	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	0	821	2	821	12.03	819	52.75	818.68	
	72.5	818.73		818.73							
Manning's n Values											
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	12.03	.039	83	.039				
Bank Sta: Left Right											
Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.					
12.03	72.5		.99	.99	.1	.3					
Blocked Obstructions											
Sta L	Sta R	Elev	num=	Sta L	Elev	Sta R	Elev	num=	Sta L	Elev	Sta R
-10	0	82572.50327	2	83823.7322							

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.82	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.007611	Flow Area (sq ft)	1.70	62.07	0.00
E.G. Slope (ft/ft)	213.00	Area (sq ft)	3.18	269.42	0.00
Top width (ft)	64.55	Top width (ft)	1.82	3.38	0.07
Vel Total (ft/s)	3.36	Avg Vel (ft/s)	1.03	1.09	1.09
Max Ch1 Dpth (ft)	1.14	Hydr. Depth (ft)	0.41	0.41	0.0
Conv. Total (cfs)	2441.5	Conv. (cfs)	35.3	2406.3	0.0
Length Wtd. (ft)	0.99	Wetted Per. (ft)	4.21	60.47	1.10
Min Ch El (ft)	818.68	Shear (lb/sq ft)	0.19	0.49	0.00
Alpha	1.01	Stream Power (lb/ft s)	83.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	1.39	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.43	0.02

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 5.30612*

INPUT											
Description:	Station	Elevation	Data	num=	7	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	0	821	2	821	12.03	819	53.99	818.67	
	72.5	818.72		818.72							
Manning's n Values											
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	12.03	.039	83	.039				
Bank Sta: Left Right											
Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.					
12.03	72.5		.99	.99	.1	.3					
Blocked Obstructions											
Sta L	Sta R	Elev	num=	Sta L	Elev	Sta R	Elev	num=	Sta L	Elev	Sta R
-10	0	82572.50306	2	83823.7322							

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.81	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.007777	Flow Area (sq ft)	1.65	61.68	0.00
E.G. Slope (ft/ft)	213.00	Area (sq ft)	3.01	209.99	0.00
Top width (ft)	64.55	Top width (ft)	1.82	3.40	0.07
Vel Total (ft/s)	3.36	Avg Vel (ft/s)	1.03	1.09	1.09
Max Ch1 Dpth (ft)	1.14	Hydr. Depth (ft)	0.41	0.41	0.0
Conv. Total (cfs)	2415.3	Conv. (cfs)	34.1	2381.2	0.00
Length Wtd. (ft)	0.99	Wetted Per. (ft)	4.15	60.47	1.10
Min Ch El (ft)	818.67	Shear (lb/sq ft)	0.19	0.50	0.00
Alpha	1.01	Stream Power (lb/ft s)	83.00	0.00	0.00

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Frctn Loss (ft) 0.01 Cum Vol (acre-ft) 0.00 1.39 0.01
 C & E Loss (ft) 0.00 Cum SA (acres) 0.00 0.43 0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 5.28571*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	0	821	12.03	819	55.22	818.66
72.5	818.71	83	818.71				

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039		0	.039		83	.039	
12.03			72.5					

Bank Sta: Left 12.03 Right 72.5
 Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 0 82572.50286 83823.7057

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Wetted Per. (ft)	Stream Power (lb/ft.s)	Alpha	Frctn Loss (ft)	C & E Loss (ft)	Left Ob Channel	Right Ob Channel
819.98	0.18	819.80	0.007961	213.00	64.49	3.39	2387.3	1.14	4.0	4.20	0.00	0.00	0.00	0.039	0.00
														0.99	0.99
														1.61	1.61
														61.26	61.26
														210.06	210.06
														60.47	60.47
														3.43	3.43
														1.01	1.01
														2354.4	2354.4
														60.77	60.77
														1.09	1.09
														0.00	0.00
														1.39	1.39
														0.01	0.01
														0.42	0.42

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 5.26530*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	0	821	12.03	819	56.46	818.65
72.5	818.69	83	818.69				

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039		0	.039		83	.039	
12.03			72.5					

Bank Sta: Left 12.03 Right 72.5
 Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 0 82572.50266 83823.6924

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Wetted Per. (ft)	Stream Power (lb/ft.s)	Alpha	Frctn Loss (ft)	C & E Loss (ft)	Left Ob Channel	Right Ob Channel
819.97	0.18	819.79	0.008115	213.00	64.44	3.41	2364.5	1.14	4.0	4.20	0.00	0.00	0.00	0.039	0.00
														0.99	0.99
														1.57	1.57
														60.92	60.92
														210.13	210.13
														60.47	60.47
														3.45	3.45
														1.10	1.10
														2332.7	2332.7
														60.47	60.47
														0.51	0.51
														1.39	1.39
														0.01	0.01
														0.42	0.42

CROSS SECTION

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RIVER: East Channel
 REACH: East Channel
 RS: 5.24489*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	7						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
-10	821	0	821	12.03	819	57.69	818.64	
72.5	818.68	83	818.68					

Manning's n Values

Sta	n	Val	Sta	n	Val
-10	.039	0	12.03	.039	83

Bank Sta: Left Right Lengths: Left Channel Right

Blocked observations: num= 2

Sta L	Sta R	Elev	Sta L	Elev
-10	0	82572.50245	83	82823.6792

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.78	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.008330	Flow Area (sq ft)	1.53	60.44	0.00
E.G. Slope (ft/ft)	0.21300	Area (sq ft)	1.83	210.27	0.00
Top width (ft)	64.39	Flow width (ft)	3.91	60.47	0.00
Top width (ft)	3.44	Top width (ft)	1.83	3.48	0.06
Max Chl Dpth (ft)	1.14	AVG. Vel (ft/s)	0.39	1.00	1.10
Conv. Total (cfs)	2332.5	Hvdr. Depth (ft)	30.7	2301.8	0.0
Length wtd. (ft)	0.99	wetted Per. (ft)	3.99	60.47	1.10
Min Ch El (ft)	818.64	Stream Power (lb/ft s)	83.00	0.52	0.00
Alpha	1.01	Cum Volume (acre-ft)	0.00	1.38	0.01
Frctn Loss (ft)	0.01	Cum SA (acres)	0.00	0.42	0.02
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.22449*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	7				
Sta	Elev	Sta	Elev	Sta	Elev	
72.5	818.67	83	818.67	12.03	58.93	818.63

Manning's n Values

Sta	n	Val	Sta	n	Val
-10	.039	0	12.03	.039	83

Bank Sta: Left Right Lengths: Left Channel Right

Blocked observations: num= 2

Sta L	Sta R	Elev	Sta L	Elev
-10	0	82572.50224	83	823.666

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.77	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.008589	Flow Area (sq ft)	1.48	59.92	0.00
E.G. Slope (ft/ft)	0.21300	Area (sq ft)	1.73	210.27	0.00
Top width (ft)	64.33	Flow width (ft)	3.86	63.57	0.00
Top width (ft)	1.14	Top width (ft)	0.38	0.91	0.06
Max Chl Dpth (ft)	1.14	Hvdr. Depth (ft)	29.5	2268.8	1.10
Conv. Total (cfs)	2298.2	wetted Per. (ft)	3.93	60.47	1.10
Length wtd. (ft)	0.99	Stream Power (lb/ft s)	83.00	0.53	0.00
Min Ch El (ft)	818.63	Cum Volume (acre-ft)	0.00	1.38	0.01
Alpha	1.01	Cum SA (acres)	0.00	0.42	0.02
Frctn Loss (ft)	0.01				
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 5.20408*

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INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7	821	818.65	2	821	12.03	819	60.16	818.62

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	83	.039

Bank Sta: Left 12.03 Right 72.5 Lengths: Left Channel .99 Right Channel .99 Coeff Contr. .1 Expan. .3

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R
-10	0	82572.50204	83823.6526		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Q Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (Cfs)	Length Wtd. (ft)	Min Ch El (ft)	Frictn Loss (ft)	C & E Loss (ft)	Left OB Channel	Right OB Channel
819.95	0.19	819.76	0.008824	213.00	64.27	3.50	1.14	220.94	1.14	818.62	1.01	0.00	0.039	0.000
													0.99	0.99
													1.44	0.00
													59.44	0.00
													210.34	0.00
													60.47	0.06
													3.54	1.11
													0.98	0.10
													223.97	1.11
													60.47	0.00
													0.54	0.00
													83.00	0.00
													1.38	0.01
													0.00	0.02
													0.42	0.02

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 5.18367*

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7	821	818.64	2	821	12.03	819	61.39	818.61

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	83	.039

Bank Sta: Left 12.03 Right 72.5 Lengths: Left Channel .99 Right Channel .99 Coeff Contr. .1 Expan. .3

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R
-10	0	82572.50184	83823.6394		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Q Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (Cfs)	Length Wtd. (ft)	Min Ch El (ft)	Frictn Loss (ft)	C & E Loss (ft)	Left OB Channel	Right OB Channel
819.94	0.20	819.74	0.009141	213.00	64.21	3.54	1.13	2227.8	1.13	818.61	1.01	0.00	0.039	0.000
													0.99	0.99
													1.39	0.00
													58.83	0.00
													210.41	0.00
													60.47	0.05
													3.58	1.10
													0.97	0.0
													2200.7	1.11
													60.47	0.0
													1.38	0.01
													0.00	0.02
													0.42	0.02

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 5.16326*

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7	821	818.6	2	821	12.03	819	62.63	818.6

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72.5 818.63 83 818.63

Manning's n Values num= 4
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 12.03 .039 83 .039
 Bank Sta: Left right Lengths: Left Channel Right Coeff Contr. Expan.
 12.03 7.5 .99 .99 .1 .3
 Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 Sta 0 82572.50163 83823.6262

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	819.93	0.039	0.000
Vel Head (ft)	0.20	0.99	0.99
W.S. Elev (ft)	819.73	1.34	58.17
Cr. Sl. S. (ft/ft)	0.009496	1.57	210.48
E. Total (cfs)	213.00	3.67	60.47
G. Total (cfs)	64.14	1.87	3.62
Top width (ft)	3.58	0.37	1.10
Vel Total (ft/s)	1.13	25.8	2159.9
Max Chl Dpth (ft)	2185.7	3.74	60.47
Conv. Total (cfs)	0.99	83.00	0.57
Length wtd. (ft)	818.60	0.00	1.38
Min Ch El (ft)	1.01	0.00	0.00
Alpha	0.01	0.00	0.00
Frctn Loss (ft)	0.00	0.42	0.02
C & E Loss (ft)	0.00		

CROSS SECTION

RIVER: East Channel RS: 5.14285*
 REACH: East Channel

INPUT
 Description: Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 0 821 83 818.61
 72.5 818.61
 Manning's n Values num= 4
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 12.03 .039 83 .039
 Bank Sta: Left right Lengths: Left Channel Right Coeff Contr. Expan.
 12.03 72.5 .99 .99 .1 .3
 Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 Sta 0 82572.50143 83823.6129

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	819.92	0.039	0.000
Vel Head (ft)	0.21	0.99	0.99
W.S. Elev (ft)	819.72	1.29	57.53
Cr. Sl. S. (ft/ft)	0.009861	2.44	260.29
E.G. Slope (ft/ft)	213.00	1.89	60.47
Q. Total (cfs)	63.69	0.36	3.62
Vel Total (ft/s)	3.69	0.95	1.11
Max Chl Dpth (ft)	1.13	24.6	2120.4
Conv. Total (cfs)	2145.0	3.67	60.47
Length wtd. (ft)	0.99	83.00	0.59
Min Ch El (ft)	818.59	0.00	1.11
Alpha	1.01	0.00	0.00
Frctn Loss (ft)	0.01	0.00	1.38
C & E Loss (ft)	0.00	0.42	0.02

CROSS SECTION

RIVER: East Channel RS: 5.12244*
 REACH: East Channel

INPUT
 Description: Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 0 821 83 818.6
 72.5 818.6
 Manning's n Values num= 4
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 12.03 .039 83 .039

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Bank Sta: Left 12.03 Right 72.5
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 82572.50123 83823.5996

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Left OB	Channel	Right OB
E-G. Elev (ft)	819.92	0	821	2	821	12.03	819	66.33	818.57	0.039	0.039	0.000
Vel Head (ft)	0.21									0.99	0.99	0.99
W.S. Elev (ft)	819.70									1.24	56.74	0.00
Crit W.S. (ft)	0.010332									1.24	56.74	0.00
E.G. Slope (ft/ft)	213.00									2.37	210.63	0.00
Q Total (Cfs)	64.00									3.53	60.47	0.00
Top Width (ft)	3.67									1.91	3.71	0.04
Vel Total (ft/s)	3.67									3.53	3.71	0.04
Max Chl Dpth (ft)	2095.12									2072.94	1.10	1.10
Length Wtd. (Cfs)	0.99									3.60	2072.94	1.11
Min Ch El (ft)	818.58									0.61	60.47	1.11
Alpha	1.01									83.00	0.00	0.00
Frctn Loss (ft)	0.01									0.00	1.38	0.01
C & E Loss (ft)	0.00									0.00	0.41	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 5.10204*

INPUT

Description:

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	0	7	821	2	821	12.03	819	66.33	818.57			
72.5	818.59	83	818.59										

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	12.03	.039	83	.039						

Blocked Obstructions

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
-10	821	83	818.59	.99	.99	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Left OB	Channel	Right OB
E-G. Elev (ft)	819.91	0	821	2	821	12.03	819	67.56	818.56	0.039	0.039	0.000
Vel Head (ft)	0.22									0.99	0.99	0.99
W.S. Elev (ft)	819.69									1.19	55.88	0.00
Crit W.S. (ft)	0.010881									1.19	55.88	0.00
E.G. Slope (ft/ft)	213.00									2.29	210.71	0.00
Q Total (Cfs)	63.92									3.45	60.47	0.00
Top Width (ft)	3.73									1.93	3.77	0.04
Vel Total (ft/s)	3.73									0.34	0.92	1.10
Max Chl Dpth (ft)	2042.0									21.9	2020.0	0.0
Length Wtd. (Cfs)	0.99									3.52	60.47	1.10
Min Ch El (ft)	818.57									0.65	60.47	0.00
Alpha	1.01									83.00	0.00	0.00
Frctn Loss (ft)	0.01									0.00	1.37	0.01
C & E Loss (ft)	0.00									0.00	0.41	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 5.08163*

INPUT

Description:

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	0	7	821	2	821	12.03	819	67.56	818.56			
72.5	818.57	83	818.57										

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	12.03	.039	83	.039						

Blocked Obstructions

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
-10	821	83	818.57	.99	.99	.1	.3	

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-10 0 82572-50082 83823.5731

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.90		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.23	Sta	0	Wt. n-Val.	0.039	Sta	0	0.039	0.000	Sta	0
W.S. Elev (ft)	819.67	Elev	821	Reach Len. (ft)	0.13	Elev	819	54.96	0.00	Elev	819
Crit W.S. (ft)	819.67	Sta	0	Area (sq ft)	1.13	Sta	12.03	54.96	0.00	Sta	0
E.G. Slope (ft/ft)	0.011508	Flow (cfs)	83	Top width (ft)	2.20	Elev	819	210.80	0.00	Elev	819
G-Total (cfs)	63.84	Vel Total (ft/s)	3.80	Avg. Vel. (ft/s)	1.95	Right	.99	60.47	0.04	Right	.99
Top width (ft)	63.84	Hydr. Depth (ft)	1.11	Conv. (cfs)	20.5	Expans.	.3	3.84	0.04	Expans.	.3
Vel Total (ft/s)	3.80	Wetted Per. (ft)	0.99	Stream Power (lb/ft s)	83.00	Channel	0.00	0.91	1.10	Channel	0.00
Max Chl Dpth (ft)	1.11	Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	Right OB	0.00	1965.0	0.0	Right OB	0.00
Conv. Total (cfs)	1985.5	C & E Loss (ft)	0.00					60.47	1.10		
Length wtd. (ft)	818.56							0.65	1.10		
Min Ch El (ft)	1.01							0.90	0.00		
Alpha	1.01							1.37	0.00		
Frctn Loss (ft)	0.00							0.41	0.02		
C & E Loss (ft)	0.00										

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 5.06122*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	7	Sta	821	Sta	821	Sta	821	Sta	821
Sta L	-10	821	Sta R	83	Elev L	818.56	Elev R	818.56	Channel Elev	818.55
Sta R	72.5	818.56	Sta L	83	818.56					

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.89		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.24	Sta	0	Wt. n-Val.	0.039	Sta	0	0.039	0.000	Sta	0
W.S. Elev (ft)	819.65	Elev	821	Reach Len. (ft)	0.99	Elev	819	53.88	0.00	Elev	819
Crit W.S. (ft)	819.65	Sta	0	Area (sq ft)	1.07	Sta	12.03	53.88	0.00	Sta	0
E.G. Slope (ft/ft)	0.012310	Flow (cfs)	83	Top width (ft)	1.17	Elev	819	213.88	0.00	Elev	819
G-Total (cfs)	63.74	Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)	1.98	Right	.99	60.47	0.00	Right	.99
Top width (ft)	63.74	Hydr. Depth (ft)	1.10	Conv. (cfs)	19.0	Expans.	.3	3.91	0.03	Expans.	.3
Vel Total (ft/s)	3.88	Wetted Per. (ft)	0.99	Stream Power (lb/ft s)	83.00	Channel	0.00	0.89	1.09	Channel	0.00
Max Chl Dpth (ft)	1.10	Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	Right OB	0.00	1900.7	0.0	Right OB	0.00
Conv. Total (cfs)	1919.8	C & E Loss (ft)	0.00					60.47	1.09		
Length wtd. (ft)	818.55							0.68	1.09		
Min Ch El (ft)	1.01							0.90	0.00		
Alpha	1.01							1.37	0.01		
Frctn Loss (ft)	0.00							0.41	0.02		
C & E Loss (ft)	0.00										

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 5.04081*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	7	Sta	821	Sta	821	Sta	821	Sta	821
Sta L	-10	818.55	Sta R	83	Elev L	818.55	Elev R	818.55	Channel Elev	818.54
Sta R	72.5	818.55	Sta L	83	818.55					

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.88		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.23	Sta	0	Wt. n-Val.	0.039	Sta	0	0.039	0.000	Sta	0
W.S. Elev (ft)	819.64	Elev	821	Reach Len. (ft)	0.99	Elev	819	53.88	0.00	Elev	819
Crit W.S. (ft)	819.64	Sta	0	Area (sq ft)	1.07	Sta	12.03	53.88	0.00	Sta	0
E.G. Slope (ft/ft)	0.012310	Flow (cfs)	83	Top width (ft)	1.17	Elev	819	213.88	0.00	Elev	819
G-Total (cfs)	63.74	Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)	1.98	Right	.99	60.47	0.00	Right	.99
Top width (ft)	63.74	Hydr. Depth (ft)	1.10	Conv. (cfs)	19.0	Expans.	.3	3.91	0.03	Expans.	.3
Vel Total (ft/s)	3.88	Wetted Per. (ft)	0.99	Stream Power (lb/ft s)	83.00	Channel	0.00	0.89	1.09	Channel	0.00
Max Chl Dpth (ft)	1.10	Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	Right OB	0.00	1900.7	0.0	Right OB	0.00
Conv. Total (cfs)	1919.8	C & E Loss (ft)	0.00					60.47	1.09		
Length wtd. (ft)	818.55							0.68	1.09		
Min Ch El (ft)	1.01							0.90	0.00		
Alpha	1.01							1.37	0.01		
Frctn Loss (ft)	0.00							0.41	0.02		
C & E Loss (ft)	0.00										

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Vel Head (ft)	0.25	Wt. n-Val.	0.039	0.039	0.00
W.S. Elev (ft)	819.63	Reach Len. (ft)	0.99	0.99	0.00
Crit W.S. (ft)	0.013310	Flow Area (sq ft)	1.00	52.65	
E.G. Slope (ft/ft)	0.013310	Area (sq ft)	1.00	52.65	
Q Total (cfs)	63.64	Top width (ft)	3.17	210.99	
Vel Total (ft/s)	1.00	Hydr. Vel. (ft/s)	0.31	60.47	
Max Ch Depth (ft)	1.00	Hydr. Vel. (ft/s)	0.31	60.47	
Conv. Total (cfs)	1846.2	Conv. (cfs)	17.4	1828.8	
Length Wtd. (ft)	0.99	Wetted Per. (ft)	3.23	60.47	
Min Ch El (ft)	818.54	Shear (lb/sq ft)	0.72	0.00	
Frctn Loss (ft)	1.01	Stream Power (lb/ft s)	83.00	0.00	
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.37	0.01
		Cum SA (acres)	0.00	0.41	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 5.02040*

INPUT

Description:	num=	7			
Station Elevation Data	Sta Elev Sta	0 821	Elev Sta	819 71.27	Elev
	-10 821	2	821 12.03	819 71.27	818.53
	72.5 818.53	83	818.53		
Manning's n Values	num=	4	Sta n Val	Sta n Val	
	-10 .039	0	.039	83	.039
		12.03	12.03	83	.039
Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coefr Contr.
		12.03	.99	.99	.1
Blocked obstructions	num=	2			
	-10 Sta R	Elev Sta L	Elev	Sta R	Expan.
	0 82572.50021	83823.5333			.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	819.60	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	819.48	Flow Area (sq ft)	0.92	51.08	0.00
E.G. Slope (ft/ft)	0.014739	Area (sq ft)	1.89	51.08	0.00
Q Total (cfs)	213.00	Flow (cfs)	3.03	211.11	
Top width (ft)	63.50	Top width (ft)	2.06	60.47	
Vel Total (ft/s)	4.10	AVG. Vel. (ft/s)	0.30	4.13	
Max Ch Dp (ft)	1.07	Hydr. depth (ft)	3.05	0.84	
Conv. Total (cfs)	1734.95	Conv. (cfs)	17.4	1738.9	
Length Wtd. (ft)	0.99	Wetted (lb/sq ft)	0.72	0.78	
Min Ch El (ft)	818.53	Stream Power (lb/ft s)	83.00	0.00	0.00
Alpha	1.01	Cum Volume (acre-ft)	0.00	1.37	0.01
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)	0.00	1.37	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.41	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 5

INPUT

Description:	num=	6			
Station Elevation Data	Sta Elev Sta	0 821	Elev Sta	819 72.5	Elev
	-10 821	2	821 12.03	819 72.5	818.52
	83 818.52	83	818.52		
Manning's n Values	num=	3	Sta n Val	Sta n Val	
	-10 .039	0	.039	83	.039
		4.92	4.92	83	.039
Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coefr Contr.
		12.03	4.92	4.92	.1
Blocked obstructions	num=	2			
	-10 Sta R	Elev Sta L	Elev	Sta R	Expan.
	0 825	72.5 83	823.52		.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.039	0.039	0.99
W.S. Elev (ft)	819.48	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	819.48	Flow Area (sq ft)	0.56	43.75	4.92
E.G. Slope (ft/ft)	0.025383	Area (sq ft)	0.59	43.75	0.00
Q Total (cfs)	213.00	Flow (cfs)	1.36	211.64	

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Top Width (ft)	62.89	Top Width (ft)	2.42	60.47
Vel Total (ft/s)	4.81	Avg. Vel. (ft/s)	2.32	4.84
Max Chl Dpth (ft)	0.96	Hydr. Depth (ft)	0.24	0.72
Conv. Total (Cfs)	1336.9	Wetted Per. (ft)	2.47	1328.4
Length Wtd. (ft)	4.92	Shear (lb/sq ft)	0.38	61.44
Min Ch El (ft)	818.52	Stream Power (lb/ft. s)	83.00	1.13
Alpha	0.11	Channel Bed (acre-ft)	1.39	0.00
Frictn Loss (ft)	0.11	Cum SA (acres)	0.00	0.01
C & E Loss (ft)	0.01		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: 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: East Channel
 REACH: East Channel
 RS: 4.85714*

INPUT

Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	820.39	22.11	-6.99	821	1.22	821	6.33	820.94	9.6
14.03	820.39	22.11	23.97	818.86	91.59	818.42	102	818.42	
Manning's n Values									
Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta
-10	.039	-6.99	.039	6.33	.039	25.97	.039	102	.039
Bank Sta: Left Right Lengths: Left Channel Right									
25.97	91.59	4.92	4.92	4.92					
Blocked Obstructions									
Sta	L	Sta	R	Elev	Sta	L	Elev	Sta	R
-10	0	82591.59286		102823.4214					

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.24	Reach Len. (ft)	4.92	4.92	4.92
Crit W.S. (ft)	819.33	Flow Area (sq ft)	0.50	39.06	0.00
E.G. Slope (ft/ft)	0.040417	Area (sq ft)	1.26	211.74	0.00
Q Total (Cfs)	213.00	Flow (Cfs)	2.68	65.62	0.15
Top Width (ft)	68.31	Top Width (ft)	2.49	5.42	0.82
Vel Total (ft/s)	3.38	Avg. Vel. (ft/s)	2.49	2.49	0.82
Max Chl Dpth (ft)	105.82	Hydr. Depth (ft)	6.19	1053.90	0.82
Conv. Total (Cfs)	4.92	Wetted Per (ft)	2.71	65.62	0.82
Length Wtd (ft)	4.92	Stream Power (lb/ft. s)	102.00	1.50	0.00
Min Ch El (ft)	818.42	Alpha	0.00	1.36	0.01
Frictn Loss (ft)	0.16	Cum Volume (lb/ft. s)	0.00	1.36	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.40	0.02

Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 4.71428*

INPUT

Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-5.83	821	12.66	820.89	17.19	820.81	17.19	820.81
23.37	820.33	34.36	819.34	39.92	818.71	110.69	818.32	121	818.32
Manning's n Values									
Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta
-10	.039	-5.83	.039	12.66	.039	39.92	.039	121	.039
Bank Sta: Left Right Lengths: Left Channel Right									
39.92	110.69	4.92	4.92	4.92					
Blocked Obstructions									
Sta	L	Sta	R	Elev	Sta	L	Elev	Sta	R
-10	0	825110.6857		121823.3229					

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	819.14	Reach Len. (ft)	4.92	4.92	4.92

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Crit W.S. (ft)	819.17	Flow Area (sq ft)	0.77	43.90
E.G. Slope (ft/ft)	0.030604	Area (sq ft)	0.77	43.90
Q Total (Cfs)	213.00	Flow (Cfs)	1.82	211.18
Top Width (ft)	74.38	Top Width (ft)	3.62	70.77
Vel Total (ft/s)	4.77	Avg. Vel. (ft/s)	2.36	4.81
Max Chl Dpth (ft)	0.82	Hydr. Depth (ft)	0.21	0.62
Conv. Total (Cfs)	121.96	Wetted Per. (ft)	3.64	177.52
Length Wtd. (ft)	121.96	Shear (lb/sq ft)	0.40	71.17
Min Chl El (ft)	818.32	Stream Power (lb/ft s)	121.00	0.00
Alpha	1.01	Cum Volume (acre-ft)	0.00	0.01
Frctn Loss (ft)	0.17	Cum SA (acres)	0.00	0.02
C & E Loss (ft)	0.03		0.00	0.00

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 4.57142*

INPUT

Description:	
Station Elevation Data	num= 10
Sta Elev Sta Elev Sta Elev Sta Elev	9.92 821 18.99 820.83 24.79 820.72
	-10 821 -4.66 821 53.86 818.57 129.78 818.22 140 818.22

Manning's n Values

Sta n Val Sta n Val	5 18.99 .039 53.86 .039
	-10 .039

Bank Sta: Left Right

Lengths: Left Channel Right	4.92 4.92
	2 2

Blocked obstructions

Sta L Sta R Elev Sta L Elev	825129.7786 140823.2243
	-10

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.32	Element	Channel	Right OB
W.S. Elev (ft)	0.32	Wt. n-Val.	0.039	
W.S. Elev (ft)	818.96	Reach Len. (ft)	4.92	4.92
Crit W.S. (ft)	819.02	Flow Area (sq ft)	0.75	42.95
E.G. Slope (ft/ft)	0.036054	Area (sq ft)	0.75	42.95
Q Total (Cfs)	213.00	Flow (Cfs)	1.81	211.19
Top Width (ft)	79.74	Top Width (ft)	3.82	75.92
Vel Total (ft/s)	4.87	Avg. Vel. (ft/s)	2.43	4.92
Max Chl Dpth (ft)	0.74	Hydr. Depth (ft)	0.20	0.57
Conv. Total (Cfs)	1121.8	Wetted Per. (ft)	3.84	76.66
Length Wtd. (ft)	4.92	Shear (lb/sq ft)	0.44	1.76
Min Chl El (ft)	818.22	Stream Power (lb/ft s)	144.00	0.00
Dpth	0.16	Cum Volume (acre-ft)	0.00	0.01
Frctn Loss (ft)	0.00	Cum SA (acres)	0.00	0.02
C & E Loss (ft)	0.00		0.00	0.00

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 4.42857*

INPUT

Description:	
Station Elevation Data	num= 10
Sta Elev Sta Elev Sta Elev Sta Elev	14.27 821 25.32 820.77 32.38 820.63
	-10 821 -3.5 821 67.81 818.43 148.87 818.13 159 818.13

Manning's n Values

Sta n Val Sta n Val	5 25.32 .039 67.81 .039
	-10 .039

Bank Sta: Left Right

Lengths: Left Channel Right	4.92 4.92
	2 2

Blocked obstructions

Sta L Sta R Elev Sta L Elev	825148.8714 159823.1257
	-10

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.17	Element	Channel	Right OB
W.S. Elev (ft)	0.30	Wt. n-Val.	0.039	0.000
W.S. Elev (ft)	818.87	Reach Len. (ft)	4.92	4.92
Crit W.S. (ft)	818.87	Flow Area (sq ft)	1.05	47.89
E.G. Slope (ft/ft)	0.026876	Area (sq ft)	1.05	47.89
Q Total (Cfs)	213.00	Flow (Cfs)	2.39	210.61
Top Width (ft)	85.84	Top Width (ft)	4.78	81.06
Vel Total (ft/s)	4.35	Avg. Vel. (ft/s)	2.27	4.40

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Max Ch1 Dpth (ft)	0.74	Hydr. Depth (ft)	0.22	0.59	0.74
Conv. Total (cfs)	1299.34	Conv. (cfs)	14.6	1284.7	0.0
Length Wtd. (ft)	4.92	Wetted Per. (ft)	4.80	81.06	0.74
Min Ch El (ft)	818.13	Shear (lb/sq ft)	0.37	0.99	0.00
Alpha	1.01	Stream Power (lb/ft s)	159.00	0.00	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.00	1.35	0.01
C & E Loss (ft)	0.02	Cum SA (acres)	0.00	0.37	0.02

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 4.28571*

INPUT

Description:		Station Elevation Data		num= 10	
Sta	Elev	Sta	Elev	Sta	Elev
-10	821.53	-10	821.53	31.65	820.72
51.33	820.13	71.9	819.13	81.75	818.03

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-2.33	.039	31.65	.039

Bank Sta: Left 81.75 Right 167.96
Lengths: Left Channel 4.92 Right 4.92
Coeff Contr. .1

Blocked Obstructions

Sta L	Sta R	Elev
-10	0	825167.9643
		178823.0272

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	818.68	Reach Len. (ft)	4.92	4.92	4.92
Crit W.S. (ft)	818.73	Flow Area (sq ft)	0.91	45.18	0.00
E.G. Slope (ft/ft)	0.035502	Area (sq ft)	2.61	45.18	0.00
Q Total (cfs)	203.80	Flow Wtd. (ft)	2.61	20.29	0.00
Vel Total (ft/s)	9.48	Top Width (ft)	2.42	4.67	0.19
Max Ch1 Dpth (ft)	4.62	Avg Vel (ft/s)	0.20	0.52	0.65
Conv. Total (cfs)	1130.5	Hydr. Depth (ft)	11.7	1118.7	0.0
Length Wtd. (ft)	4.92	Conv. (cfs)	4.64	86.21	0.66
Min Ch El (ft)	818.03	Wetted Per. (ft)	0.44	1.16	0.00
Alpha	1.01	Shear (lb/sq ft)	178.00	1.34	0.01
Frctn Loss (ft)	0.15	Stream Power (lb/ft s)	0.00	1.34	0.01
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.36	0.02

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 4.14285*

INPUT

Description:		Station Elevation Data		num= 10	
Sta	Elev	Sta	Elev	Sta	Elev
-10	821.53	-10	821.53	37.98	820.66
60.65	820.07	84.35	819.07	95.7	817.93

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-1.17	.039	37.98	.039

Bank Sta: Left 95.7 Right 187.06
Lengths: Left Channel 4.92 Right 4.92
Coeff Contr. .1

Blocked Obstructions

Sta L	Sta R	Elev
-10	0	825187.0571
		197822.9286

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	wt. n-Val.	0.039	0.039	0.000
W.S. Elev (ft)	818.58	Reach Len. (ft)	4.92	4.92	4.92
Crit W.S. (ft)	818.59	Flow Area (sq ft)	1.20	50.15	0.00
E.G. Slope (ft/ft)	0.027186	Area (sq ft)	2.76	50.15	0.00
Q Total (cfs)	213.00	Flow Wtd. (ft)	5.42	91.36	0.00
Vel Total (ft/s)	96.78	Top Width (ft)	2.20	4.19	0.19
Max Ch1 Dpth (ft)	4.15	Avg Vel (ft/s)	2.20	127.3	0.68
Conv. Total (cfs)	1201.8	Hydr. Depth (ft)	16.8	1273.3	0.00
Length Wtd. (ft)	4.92	Conv. (cfs)	5.44	92.01	0.93
Min Ch El (ft)	817.93	Wetted Per. (ft)	0.38	1.34	0.00
Alpha	1.01	Stream Power (lb/ft s)	197.00	1.34	0.00

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Frctn Loss (ft) 0.15 Cum Volume (acre-ft) 0.00 1.34 0.01
 C & E Loss (ft) 0.02 Cum SA (acres) 0.00 0.35 0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 4

INPUT

Description: num= 8
 Station Elev Data Sta Elev Sta Elev Sta Elev
 -10 821 0 821 27.32 821 821 69.97 820 96.8 819
 109.64 818 206.15 817.83 216 817.83

Manning's n Values num= 3
 Sta n Val Sta n Val
 -10 .039 0 .039 216 .039

Bank Sta: Left Right Lengths: Left Channel Right
 109.64 206.15 .99 .99
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 0 825 206.15 216 822.83

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.71	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.30	Wt n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	818.41	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	818.44	Flow Area (sq ft)	1.07	47.66	47.66
E.G. Slope (ft/ft)	0.034650	Area (sq ft)	1.07	210.36	210.36
Q Total (cfs)	213.00	Flow (cfs)	5.25	96.51	96.51
Top Width (ft)	101.76	Top Width (ft)	2.46	4.41	4.41
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)	0.20	0.49	0.49
Max Chl Dpth (ft)	0.58	Hydr. Depth (ft)	14.2	1130.1	1130.1
Conv. Total (cfs)	1144.3	Conv. (cfs)	3.27	9.09	9.09
Length Wtd. (ft)	0.99	Wetted Per. (ft)	0.06	1.06	1.06
Wetted Area (ft ²)	811.83	Wetted Area (ft ²)	0.06	1.06	1.06
Alpha El (ft)	1.01	Stream Power (lb/ft s)	216.00	0.00	0.00
Frctn Loss (ft)	0.15	Cum Volume (acres)	0.00	1.33	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.34	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 3.97777*

INPUT

Description: num= 17
 Station Elev Data Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 -3.38 821 -2.61 821 820.98 820.98
 10.65 820.96 27.76 820.95 70.91 819.96 98.05 818.98 111.04 818
 136.22 817.89 206.17 817.66 206.21 817.66 206.74 817.77 206.87 817.81
 215.31 817.82 217.6 817.82

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -3.38 .12 .039 111.04 .039 217.6 .039

Bank Sta: Left Right Lengths: Left Channel Right
 111.04 206.87 .99 .99
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 0 825207.7351 217.6822.8187

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.65	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.40	Wt n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	818.25	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	818.35	Flow Area (sq ft)	0.42	41.55	41.55
E.G. Slope (ft/ft)	0.053931	Area (sq ft)	0.42	210.56	210.56
Q Total (cfs)	213.00	Flow (cfs)	3.35	95.83	95.83
Top Width (ft)	100.05	Top Width (ft)	2.22	5.07	3.90
Vel Total (ft/s)	5.03	Avg. Vel. (ft/s)	0.13	0.43	0.44
Max Chl Dpth (ft)	0.59	Hydr. Depth (ft)	3.36	93.85	6.4
Conv. Total (cfs)	917.2	Conv. (cfs)	0.99	3.36	1.31
Length Wtd. (ft)	0.99	Wetted Per. (ft)	0.06	1.06	1.06
Wetted Area (ft ²)	811.06	Wetted Area (ft ²)	0.06	1.06	1.06
Alpha El (ft)	1.01	Stream Power (lb/ft s)	217.60	0.00	0.00
Frctn Loss (ft)	0.04	Cum Volume (acres)	0.00	1.33	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.34	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.95555*

INPUT Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-3.3	821	-2.52	821	.23	820.97	1.2	820.96
10.89	820.91	28.19	820.9	71.84	819.93	99.3	818.96	112.44	818
137.25	817.82	206.18	817.48	206.26	817.48	207.33	817.7	207.6	817.79
216.72	817.81	219.2	817.81						

Manning's n Values									
Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-3.3	.039	.23	.039	112.44	.039	219.2	.039

Bank Sta: Left Right									
Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.			
	112.44	207.6		.99	.1	.3			

Blocked Obstructions									
Sta L	Sta R	Elev	Sta L	Elev	Sta L	Elev	Sta L	Elev	Sta L
-10	0	825209.3202	219.2822	8074					

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.58	Element	818.58	Left OB	0.039	Channel	0.039	Right OB	0.039
W.S. Elev (ft)	818.13	Reach	818.13	0.99	0.99	0.99	0.99	0.99	0.99
Crit W.S. (ft)	818.25	Flow Area (sq ft)	0.066130	0.11	38.96	0.58	38.96	0.58	0.58
E.G. Slope (ft/ft)	0.066130	Flow (cfs)	213.00	0.17	210.41	2.42	210.41	2.42	2.42
Q Total (Cfs)	98.61	Top Width (ft)	98.61	1.73	95.16	4.20	95.16	4.20	4.20
Vel Total (ft/s)	5.37	Avgr. Vel. (ft/s)	5.37	1.55	5.40	0.33	5.40	0.33	0.33
Max Chl Dpth (ft)	0.65	Hydr. Depth (ft)	0.65	0.7	818.2	9.4	818.2	9.4	9.4
Conv. Total (Cfs)	828.3	Wetted Per. (ft)	828.3	1.74	95.20	2.05	95.20	2.05	2.05
Length Wtd. (ft)	817.48	Shear (lb/sq ft)	817.48	219.26	1.09	1.06	1.09	1.06	1.06
Min Ch El (ft)	0.01	Stream Power (lb/ft.s)	0.01	0.00	1.33	0.01	1.33	0.01	0.01
Froude	0.01	Cum Volume (acre-ft)	0.01	0.00	0.34	0.01	0.34	0.01	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.00	0.34	0.01	0.34	0.01	0.01

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.933333*

INPUT Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-3.22	821	-2.44	821	.35	820.95	1.32	820.93
11.13	820.87	28.63	820.86	72.78	819.89	100.56	818.94	113.85	818
138.29	817.76	206.2	817.31	206.32	817.31	207.92	817.64	208.32	817.77
218.13	817.8	220.8	817.8						

Manning's n Values									
Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-3.22	.039	.35	.039	113.85	.039	220.8	.039

Bank Sta: Left Right									
Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.			
	113.85	208.32		.99	.1	.3			

Blocked Obstructions									
Sta L	Sta R	Elev	Sta L	Elev	Sta L	Elev	Sta L	Elev	Sta L
-10	0	825210.9053	220.8	822.796					

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.51	Element	818.51	Left OB	0.039	Channel	0.039	Right OB	0.039
W.S. Elev (ft)	818.02	Reach	818.02	0.99	0.99	0.99	0.99	0.99	0.99
Crit W.S. (ft)	818.16	Flow Area (sq ft)	0.074223	0.00	37.54	0.64	37.54	0.64	0.64
E.G. Slope (ft/ft)	0.074223	Flow (cfs)	213.00	0.30	210.54	2.46	210.54	2.46	2.46
Q Total (Cfs)	97.35	Top Width (ft)	97.35	0.30	94.47	2.59	94.47	2.59	2.59
Vel Total (ft/s)	5.58	Avgr. Vel. (ft/s)	5.58	0.01	5.61	3.85	5.61	3.85	3.85
Max Chl Dpth (ft)	0.71	Hydr. Depth (ft)	0.71	0.01	772.8	9.0	772.8	9.0	9.0
Conv. Total (Cfs)	781.8	Wetted Per. (ft)	781.8	0.30	94.53	2.83	94.53	2.83	2.83
Length Wtd. (ft)	817.31	Shear (lb/sq ft)	817.31	220.80	1.84	1.05	1.84	1.05	1.05
Min Ch El (ft)	0.01	Stream Power (lb/ft.s)	0.01	0.00	1.39	0.01	1.39	0.01	0.01
Froude	0.01	Cum Volume (acre-ft)	0.01	0.00	0.34	0.01	0.34	0.01	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	0.00	0.34	0.01	0.34	0.01	0.01

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GROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 3.911111*

INPUT Description:		Station		Elevation Data		num=		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-3.15	821	-2.35	821	-2.35	821	47	820.93	1.45	820.91				
11.37	820.82	29.07	820.81	73.72	819.86	101.81	818.92	115.25	818						
139.32	817.69	206.21	817.13	206.37	817.13	208.51	817.58	209.05	817.76						
219.55	817.78	222.4	817.78												

Manning's n Values		num=		Sta		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	.039	-3.15	.039	47	.039	115.25	.039	222.4	.039						

Bank Sta: Left		Right		Lengths: Left		Channel		Right		Coeff		Contr.		Expan.	
num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=
2	2	209.05	.99	209.05	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99

Blocked Obstructions		num=		Sta		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	825212.4904	-10	825212.4904	222.4822	7847										

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. Head (ft)	Wt. n-Val.	Wt. n-Val.	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Ch El (ft)	Alpha	Frict Loss (ft)	C & E Loss (ft)	Channel	Left OB	Right OB
818.43	817.92	0.99	0.99													0.039	0.039	0.039
818.06	818.06	0.49	0.49													36.31	36.31	36.31
0.074434	0.074434	1.34	1.34													211.66	211.66	211.66
89.85	89.85	3.44	3.44													86.41	86.41	86.41
5.79	5.79	2.75	2.75													5.83	5.83	5.83
0.77	0.77	0.14	0.14													0.42	0.42	0.42
780.7	780.7	4.9	4.9													775.8	775.8	775.8
0.99	0.99	3.58	3.58													86.49	86.49	86.49
817.13	817.13	0.63	0.63													1.95	1.95	1.95
1.01	1.01	0.00	0.00													1.30	1.30	1.30
0.00	0.00	0.00	0.00													1.33	1.33	1.33
0.00	0.00	0.00	0.00													0.02	0.02	0.02

GROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 3.888888*

INPUT Description:		Station		Elevation Data		num=		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-3.07	821	-2.27	821	-2.27	821	59	820.92	1.58	820.89				
11.61	820.78	29.51	820.76	74.66	819.82	103.06	818.9	116.65	818						
140.36	817.63	206.23	816.96	206.43	816.96	209.1	817.52	209.77	817.74						
220.96	817.77	224	817.77												

Manning's n Values		num=		Sta		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	.039	-3.07	.039	59	.039	116.65	.039	224	.039						

Bank Sta: Left		Right		Lengths: Left		Channel		Right		Coeff		Contr.		Expan.	
num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=	num=
2	2	209.77	.99	209.77	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99

Blocked Obstructions		num=		Sta		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	825214.0755	-10	825214.0755	224.822	7734										

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. Head (ft)	Wt. n-Val.	Wt. n-Val.	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Ch El (ft)	Alpha	Frict Loss (ft)	C & E Loss (ft)	Channel	Left OB	Right OB
818.35	817.76	0.99	0.99													0.039	0.039	0.039
817.97	817.97	0.21	0.21													35.44	35.44	35.44
0.073454	0.073454	0.28	0.28													212.72	212.72	212.72
84.19	84.19	4.31	4.31													79.88	79.88	79.88
5.98	5.98	1.35	1.35													6.00	6.00	6.00
0.83	0.83	0.05	0.05													0.44	0.44	0.44
785.9	785.9	4.35	4.35													784.9	784.9	784.9
0.99	0.99	2.00	2.00													79.98	79.98	79.98
816.96	816.96	0.22	0.22													2.03	2.03	2.03
1.01	1.01	0.00	0.00													1.30	1.30	1.30
0.00	0.00	0.00	0.00													1.33	1.33	1.33
0.00	0.00	0.00	0.00													0.02	0.02	0.02

GROSS SECTION

CPNPPLOCA\1PMP

RIVER: East Channel
 REACH: East Channel
 RS: 3.866666*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Stat Elev Data	num=	17								
Sta Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	-2.99	821	-2.18	821	820.9	1.71	820.87	
	11.85	820.73	29.94	820.71	75.59	819.79	104.31	818.88	118.05	818
	141.39	817.56	206.24	816.79	206.48	816.79	209.69	817.45	210.5	817.72
	222.37	817.76	225.6	817.76						

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-2.99	.7	.039	118.05	.039	225.6	.039			

Bank Sta: Left Right Lengths: Left Channel Right

Blocked Obstructions num= 2

Sta L Sta R Elev

-10 825215.6607 225.6 822.762

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	817.86	Reach Len. (ft)		33.96	
Cr. Slope (ft/ft)	0.077298	Area (Sg ft)		33.96	
E.G. Slope (ft/ft)	0.077298	Flow (cfs)		213.00	
G-Total (Cfs)	74.41	Top width (ft)		6.27	
Top width (ft)	6.27	Avg. Vel. (ft/s)		0.46	
Vel Total (ft/s)	0.87	Hydr. Depth (ft)		766.1	
Max Chl Dpth (ft)	766.1	Conv. (cfs)		2.20	
Conv. Total (cfs)	0.99	Wetted Per. (ft)		74.51	
Length Wtd. (ft)	816.79	Shear (lb/sq ft)	225.60	0.00	0.00
Min Ch El (ft)	1.00	Stream Power (lb/ft s)		0.00	0.01
Alpha	0.07	Cum Volume (acre-ft)		1.33	0.02
Frcn Loss (ft)	0.01	Cum SA (acres)			
C & E Loss (ft)	0.01				

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	817.73	Reach Len. (ft)		32.63	
Cr. Slope (ft/ft)	0.080877	Area (Sg ft)		32.63	
E.G. Slope (ft/ft)	0.080877	Flow (cfs)		213.00	
G-Total (Cfs)	213.00	Top width (ft)		69.67	
Top width (ft)	69.67	Avg. Vel. (ft/s)		6.53	
Vel Total (ft/s)	6.53	Hydr. Depth (ft)		0.47	
Max Chl Dpth (ft)	0.92	Conv. (cfs)		749.0	
Conv. Total (cfs)	0.99	Wetted Per. (ft)		69.78	
Length Wtd. (ft)	816.61	Shear (lb/sq ft)	227.20	0.00	0.00
Min Ch El (ft)	1.00	Stream Power (lb/ft s)		0.00	0.01
Alpha	0.08	Cum Volume (acre-ft)		1.33	0.02
Frcn Loss (ft)	0.01	Cum SA (acres)			
C & E Loss (ft)	0.01				

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	817.73	Reach Len. (ft)		32.63	
Cr. Slope (ft/ft)	0.080877	Area (Sg ft)		32.63	
E.G. Slope (ft/ft)	0.080877	Flow (cfs)		213.00	
G-Total (Cfs)	213.00	Top width (ft)		69.67	
Top width (ft)	69.67	Avg. Vel. (ft/s)		6.53	
Vel Total (ft/s)	6.53	Hydr. Depth (ft)		0.47	
Max Chl Dpth (ft)	0.92	Conv. (cfs)		749.0	
Conv. Total (cfs)	0.99	Wetted Per. (ft)		69.78	
Length Wtd. (ft)	816.61	Shear (lb/sq ft)	227.20	0.00	0.00
Min Ch El (ft)	1.00	Stream Power (lb/ft s)		0.00	0.01
Alpha	0.08	Cum Volume (acre-ft)		1.33	0.02
Frcn Loss (ft)	0.01	Cum SA (acres)			
C & E Loss (ft)	0.01				

GROSS SECTION

CPNPPLOCA\1PMP

RIVER: East Channel
 REACH: East Channel
 RS: 3.822222*

INPUT
 Description: Station Elevation Data num= 17

Sta	R	Elev	Sta	R	Elev	Sta	R	Elev	Sta	R	Elev
-10		821	-2.84		821	94		820.87	1.97		820.82
12.33		820.64	30.82		820.61	77.47		819.72	106.81		818.85
143.46		817.43	206.28		816.44	206.59		816.44	210.86		817.33
225.2		817.74	228.8		817.74						211.95
											817.68

Manning's n Values num= 5

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-2.84	.039	.94	120.86	.039	228.8	.039	228.8	.039	228.8

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 120.86 211.95
 Blocked Obstructions num= 2

Sta L	Sta R	Elev
-10	Sta 0	825218.8309
	Sta L	228.8822.7393

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	817.40	Reach Len. (ft)		0.99	
CFL S.S. (ft)	0.83371	Flow Area (Sq Ft)		31.55	
E. Vel (ft/s)	0.21300	Flow (cfs)		213.00	
Top Width (ft)	65.52	Top width (ft)		65.52	
Vel Total (ft/s)	6.75	Avg. Vel. (ft/s)		6.75	
Max Chl Dpth (ft)	0.96	Hydr. Depth (ft)		0.48	
Conv. Total (cfs)	737.7	Conv. (cfs)		737.7	
Length wtd. (ft)	0.99	wetted Per. (ft)		65.63	
Min Ch El (ft)	816.44	Shear (lb/sq ft)	228.80	2.50	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		1.33	
C & E Loss (ft)	0.00	Cum SA (acres)		0.33	

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.8*

INPUT
 Description: Station Elevation Data num= 17

Sta	R	Elev	Sta	R	Elev	Sta	R	Elev	Sta	R	Elev
-10		821	-2.76		821	105		820.85	2.09		820.8
12.57		820.6	31.26		820.57	78.41		819.68	108.07		818.83
144.5		817.36	206.29		816.26	206.65		816.26	211.45		817.56
226.61		817.73	230.4		817.73						212.67
											817.66

Manning's n Values num= 5

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-2.76	.039	1.05	122.26	.039	230.4	.039	230.4	.039	230.4

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 122.26 212.67
 Blocked Obstructions num= 2

Sta L	Sta R	Elev
-10	Sta 0	825220.416
	Sta L	230.4 822.728

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	817.25	Reach Len. (ft)		0.99	
CFL S.S. (ft)	0.85649	Flow Area (Sq Ft)		30.37	
E. Vel (ft/s)	0.21300	Flow (cfs)		213.00	
Top Width (ft)	60.85	Top width (ft)		60.85	
Vel Total (ft/s)	7.01	Avg. Vel. (ft/s)		7.01	
Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.50	
Conv. Total (cfs)	727.0	Conv. (cfs)		727.0	
Length wtd. (ft)	0.99	wetted Per. (ft)		60.96	
Min Ch El (ft)	816.26	Shear (lb/sq ft)	230.40	2.67	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		1.33	
C & E Loss (ft)	0.01	Cum SA (acres)		0.33	

CROSS SECTION

CPNPPLOCA\1PMP

RIVER: East Channel
 REACH: East Channel
 RS: 3.77777*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	820.56	-1.84	820.52	1.17	820.84	2.22	820.78
12.81	820.56	31.69	820.52	79.34	819.64	109.32	818.81
145.53	817.3	206.31	816.09	206.7	816.09	212.04	817.2
228.03	817.72	232	817.72				213.4

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-2.69	.039	1.17	.039	123.66	.039

Bank Stai: Left

123.66

Blocked Obstructions

213.4

Lengths: Left Channel

2.99

Right

.99

Coeff Contr.

.1

Expans.

.3

Sta L

Sta R

Elev

232822.7167

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	817.92		
Vel Head (ft)	0.81		
W.S. Elev (ft)	817.12		
Crit W.S. (ft)	817.37		
E.G. Slope (ft/ft)	0.215901		
Flow Area (sq ft)	213.08		
Top Width (ft)	57.06		
Vel Total (ft/s)	7.20		
Max Chl Dpth (ft)	1.03		
Conv. Total (cfs)	726.2		
Length wtd. (ft)	0.99		
Min Ch El (ft)	816.09		
Alpha	1.00		
Frctn Loss (ft)	0.09		
C & E Loss (ft)	0.00		

CROSS SECTION

RIVER: East Channel

REACH: East Channel

RS: 3.75555*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.05	820.51	32.33	820.47	80.28	819.61	110.57	818.79
146.57	817.23	206.32	815.92	206.76	815.92	212.63	817.14
229.44	817.71	233.6	817.71				214.12

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-2.61	.039	1.29	.039	125.06	.039

Bank Stai: Left

125.06

Blocked Obstructions

214.12

Lengths: Left Channel

2.99

Right

.99

Coeff Contr.

.1

Expans.

.3

Sta L

Sta R

Elev

233.6822.7053

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	817.83		
Vel Head (ft)	0.85		
W.S. Elev (ft)	816.98		
Crit W.S. (ft)	817.25		
E.G. Slope (ft/ft)	0.087044		
Flow Area (sq ft)	213.01		
Top Width (ft)	53.90		
Vel Total (ft/s)	7.39		
Max Chl Dpth (ft)	1.06		
Conv. Total (cfs)	722.0		
Length wtd. (ft)	0.99		
Min Ch El (ft)	815.92		
Alpha	1.00		
Frctn Loss (ft)	0.09		
C & E Loss (ft)	0.00		

CROSS SECTION

RIVER: East Channel

REACH: East Channel

RS: 3.77777*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.81	820.56	31.69	820.52	79.34	819.64	109.32	818.81
145.53	817.3	206.31	816.09	206.7	816.09	212.04	817.2
228.03	817.72	232	817.72				213.4

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-2.69	.039	1.17	.039	123.66	.039

Bank Stai: Left

123.66

Blocked Obstructions

213.4

Lengths: Left Channel

2.99

Right

.99

Coeff Contr.

.1

Expans.

.3

Sta L

Sta R

Elev

232822.7167

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	817.92		
Vel Head (ft)	0.81		
W.S. Elev (ft)	817.12		
Crit W.S. (ft)	817.37		
E.G. Slope (ft/ft)	0.215901		
Flow Area (sq ft)	213.08		
Top Width (ft)	57.06		
Vel Total (ft/s)	7.20		
Max Chl Dpth (ft)	1.03		
Conv. Total (cfs)	726.2		
Length wtd. (ft)	0.99		
Min Ch El (ft)	816.09		
Alpha	1.00		
Frctn Loss (ft)	0.09		
C & E Loss (ft)	0.00		

CPNPPLOca]PMP

RS: 3.733333*

REACH: East Channel

INPUT

Description:

Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev
13.28	820.247	206.34	815.74	235.2	817.69
147.61	817.17	206.34	815.74	235.2	817.69

Manning's n Values

Sta	n	Sta	n	Sta	n
-10	.039	-2.53	.039	1.41	.039

Bank Sta: Left Right

Lengths:	Left Channel	Right
126.47	214.85	206.34

Blocked Obstructions

Sta L	Sta R	Elev
-10	0	825225.1713

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.89	wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	816.84	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	817.12	Flow Area (sq ft)	28.10	28.10	28.10
E.G. Slope (ft/ft)	0.087390	Area (sq ft)	278.10	278.10	278.10
Q Total (cfs)	53.70	Flow Vel (ft/s)	57.58	57.58	57.58
Top Width (ft)	7.58	AVG Vel (ft/s)	7.58	7.58	7.58
Vel Total (ft/s)	1.10	Hvdr. Depth (ft)	0.55	0.55	0.55
Max Chl Dpth (ft)	720.5	Conv. (cfs)	720.5	720.5	720.5
Conv. Total (cfs)	0.99	wetted per. (ft)	50.89	50.89	50.89
Length Wtd. (ft)	815.74	Shear (lb/sq ft)	3.01	3.01	3.01
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	0.00	0.00	0.00
Alpha	1.00	Cum Volume (acre-ft)	1.32	1.32	1.32
Frctn Loss (ft)	0.09	Cum SA (acres)	0.01	0.01	0.01
C & E Loss (ft)	0.00		0.02	0.02	0.02

CROSS SECTION

RS: 3.711111*

REACH: East Channel

INPUT

Description:

Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev
13.42	820.241	206.34	815.74	235.2	817.69
148.64	817.17	206.34	815.74	235.2	817.69

Manning's n Values

Sta	n	Sta	n	Sta	n
-10	.039	-2.46	.039	1.52	.039

Bank Sta: Left Right

Lengths:	Left Channel	Right
127.87	215.57	206.34

Blocked Obstructions

Sta L	Sta R	Elev
-10	0	825226.7364

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	816.69	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	816.99	Flow Area (sq ft)	27.41	27.41	27.41
E.G. Slope (ft/ft)	0.088886	Area (sq ft)	213.90	213.90	213.90
Q Total (cfs)	213.00	Flow Vel (ft/s)	42.72	42.72	42.72
Top Width (ft)	42.72	AVG Vel (ft/s)	7.72	7.72	7.72
Vel Total (ft/s)	1.12	Hvdr. Depth (ft)	0.57	0.57	0.57
Max Chl Dpth (ft)	714.4	Conv. (cfs)	714.4	714.4	714.4
Conv. Total (cfs)	0.99	wetted per. (ft)	48.42	48.42	48.42
Length Wtd. (ft)	815.57	Shear (lb/sq ft)	3.14	3.14	3.14
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	0.00	0.00	0.00
Alpha	1.00	Cum Volume (acre-ft)	1.32	1.32	1.32
Frctn Loss (ft)	0.09	Cum SA (acres)	0.01	0.01	0.01
C & E Loss (ft)	0.00		0.02	0.02	0.02

CROSS SECTION

RS: 3.688888*

REACH: East Channel

CPNPPLOCA1PMP

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	17	821	17	821	17	821	17	821
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	820.821	-10	821.821	-10	820.821	-10	820.821
	110	817.04	110	817.04	110	817.04	110	817.04
	140	817.04	140	817.04	140	817.04	140	817.04
	233.68	817.67	233.68	817.67	233.68	817.67	233.68	817.67

Manning's n Values

Sta	n	Val	Sta	n	Val
-10	.039	-2.38	17	.039	238.4
110	.039	-2.38	17	.039	238.4

Bank Sta: Left Right Lengths: Left Channel Right

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
129.27	216.3	216.3	129.27	216.3	216.3	216.3
129.27	216.3	216.3	129.27	216.3	216.3	216.3

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	825228.3416	238.4822.6713	-10	825228.3416	238.4822.6713	238.4822.6713

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	816.55	Reach Len. (ft)	0.99	26.76	0.99
Crit W.S. (ft)	816.86	Flow Area (sq ft)	26.76	213.00	26.76
E.G. Slope (ft/ft)	0.089646	Area (sq ft)	213.00	42.08	213.00
Q Total (cfs)	213.00	Top Width (ft)	42.08	0.58	42.08
Top Width (ft)	42.08	Max Ch Depth (ft)	0.58	0.58	0.58
Top Width (ft)	42.08	Hydr. Depth (ft)	0.58	0.58	0.58
Max Ch Depth (ft)	1.16	Conv. (cfs)	711.4	711.4	711.4
Conv. Total (cfs)	711.4	wetted per. (ft)	45.92	45.92	45.92
Length wtd. (ft)	0.99	Shear (lb/sq ft)	3.26	3.26	3.26
Min Ch El (ft)	815.39	Stream Power (lb/ft s)	238.40	238.40	238.40
Alpha	1.00	Cum Vol (acre-ft)	0.00	0.00	0.00
Frctn Loss (ft)	0.09	Cum SA (acres)	1.32	1.32	1.32
C & E Loss (ft)	0.00		0.01	0.01	0.01
			0.32	0.32	0.32

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.666666*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	17	821	17	821	17	821	17	821
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	820.821	-10	821.821	-10	820.821	-10	820.821
	150	817.37	150	817.37	150	817.37	150	817.37
	235.09	817.66	235.09	817.66	235.09	817.66	235.09	817.66

Manning's n Values

Sta	n	Val	Sta	n	Val
-10	.039	-2.3	17	.039	240
150	.039	-2.3	17	.039	240

Bank Sta: Left Right Lengths: Left Channel Right

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
130.67	217.02	217.02	130.67	217.02	217.02	217.02
130.67	217.02	217.02	130.67	217.02	217.02	217.02

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	825229.9267	240	825229.9267	240	825229.9267	240

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.03	wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	816.40	Reach Len. (ft)	0.99	26.13	0.99
Crit W.S. (ft)	816.73	Flow Area (sq ft)	26.13	213.00	26.13
E.G. Slope (ft/ft)	0.091360	Area (sq ft)	213.00	43.75	213.00
Q Total (cfs)	213.00	Top Width (ft)	43.75	0.60	43.75
Top Width (ft)	43.75	Max Ch Depth (ft)	0.60	0.60	0.60
Top Width (ft)	43.75	Hydr. Depth (ft)	0.60	0.60	0.60
Max Ch Depth (ft)	1.18	Conv. (cfs)	704.7	704.7	704.7
Conv. Total (cfs)	704.7	wetted per. (ft)	43.89	43.89	43.89
Length wtd. (ft)	0.99	Shear (lb/sq ft)	3.40	3.40	3.40
Min Ch El (ft)	815.22	Stream Power (lb/ft s)	240.00	240.00	240.00
Alpha	1.00	Cum Vol (acre-ft)	0.00	0.00	0.00
Frctn Loss (ft)	0.09	Cum SA (acres)	1.32	1.32	1.32
C & E Loss (ft)	0.00		0.01	0.01	0.01
			0.32	0.32	0.32

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.644444*

CPNPPLOCA1PMP

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Blocked Obstructions	-10	821	-1.32	821	1.88	820.74	2.99	820.64		
E.G. Slope	14.74	820.24	36.32	820.23	84.97	116.83	132.08	818.69	132.08	817.53
Q Total	132.5	816.84	206.4	817.05	207.03	815.05	215.58	816.82	217.75	817.53
Manning's n	0.039	-2.23	0.039	1.88	0.039	132.08	0.039	241.6	0.039	

Bank Sta:

Left 132.08 Right 217.75 Lengths: Left Channel Right Channel
 Blocked Obstructions Sta L Elev Sta R Elev
 -10 Sta 0 825231.5118 241.6822.6487

CROSS SECTION OUTPUT

Element	Wt. n-Val.	Reach Len.	Flow Area	Flow (cfs)	Top width	Avg. Vel.	Hyd. Depth	Conv. Coef.	Wetted Per.	Shear	Stream Power	Cum Volume	Cum SA
E.G. Elev (ft)	1.08	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Vel Head (ft)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
W.S. Elev (ft)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Crit W.S. (ft)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
E.G. Slope (ft/ft)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Q Total (cfs)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Top width (ft)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Vel Total (ft/s)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Hyd. Depth (ft)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Conv. Total (cfs)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Length Wtd. (ft)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Min Ch El (ft)	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Alpha	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
Frctn Loss	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32
C & E Loss	0.99	817.33	816.25	816.59	0.0933105	213.00	41.91	9.74	698.11	0.99	241.60	0.00	0.32

CROSS SECTION OUTPUT

Element	Wt. n-Val.	Reach Len.	Flow Area	Flow (cfs)	Top width	Avg. Vel.	Hyd. Depth	Conv. Coef.	Wetted Per.	Shear	Stream Power	Cum Volume	Cum SA
E.G. Elev (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Vel Head (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
W.S. Elev (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Crit W.S. (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
E.G. Slope (ft/ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Q Total (cfs)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Top width (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Vel Total (ft/s)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Hyd. Depth (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Conv. Total (cfs)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Length Wtd. (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Min Ch El (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Alpha	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Frctn Loss	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
C & E Loss	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.62222*

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Blocked Obstructions	-10	821	-1.24	821	1.99	820.72	3.12	820.62
E.G. Slope	14.48	820.24	34.76	820.18	85.9	819.4	118.08	818.67
Q Total	132.5	816.84	206.4	817.05	207.09	814.87	216.17	816.82
Manning's n	0.039	-2.15	0.039	1.99	0.039	133.48	0.039	243.2

Bank Sta:

Left 133.48 Right 218.47 Lengths: Left Channel Right Channel
 Blocked Obstructions Sta L Elev Sta R Elev
 -10 Sta 0 825233.0969 243.2822.6573

CROSS SECTION OUTPUT

Element	Wt. n-Val.	Reach Len.	Flow Area	Flow (cfs)	Top width	Avg. Vel.	Hyd. Depth	Conv. Coef.	Wetted Per.	Shear	Stream Power	Cum Volume	Cum SA
E.G. Elev (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Vel Head (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
W.S. Elev (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Crit W.S. (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
E.G. Slope (ft/ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Q Total (cfs)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Top width (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Vel Total (ft/s)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Hyd. Depth (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Conv. Total (cfs)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Length Wtd. (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Min Ch El (ft)	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Alpha	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
Frctn Loss	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32
C & E Loss	1.13	817.23	816.10	816.46	0.094343	213.00	40.01	8.23	693.75	0.99	243.20	0.00	0.32

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 INPUT

CPNPPLOCA\1PMP

Description: Station Elevation Data num= 17
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 .039 -2.07 .039 2.11 .039 134.88 .039 244.8 .039
 14.72 820.2 33.19 820.13 86.84 819.36 119.33 818.65 134.88 818
 153.82 816.77 206.43 814.7 207.14 814.7 216.76 816.7 219.2 817.5
 239.33 817.63 244.8 817.63

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 .039 2.11 .039 134.88 .039 244.8 .039
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 0 825 234.682 244.8 822.626

CROSS SECTION OUTPUT Profile #PF 1
 E-G. Elev (ft) 817.13 Element
 Vel Head (ft) 1.18 wt. n-Val.
 W.S. Elev (ft) 815.95 Reach Len. (ft) 0.99
 Crit W.S. (ft) 816.32 Flow Area (sq ft) 24.46
 E.G. Slope (ft/ft) 0.096054 Area (sq ft) 213.00
 Q Total (Cfs) 38.46 Top Width (ft) 38.46
 Top Width (ft) 38.46 Avg. Vel. (ft/s) 8.71
 Max Chl Dpnt (ft) 8.71 Hydr. Depth (ft) 682.3
 Length Wtd (ft) 682.3 Cum Vol (acres) 38.63
 Min Ch El (ft) 0.99 Wetted Per (ft) 3.80
 Alpha 814.70 Shear (lb/sq ft) 244.80
 Frctn Loss 1.00 Stream Power (lb/ft s) 0.00
 C & E Loss (ft) 0.09 Cum Volume (acre-ft) 1.32
 C & E Loss (ft) 0.00 Cum SA (acres) 0.32

CROSS SECTION INPUT
 RIVER: East Channel
 REACH: East Channel
 RS: 3.57777*
 INPUT
 Description: Station Elevation Data num= 17
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 .039 -2.07 .039 2.23 .039 136.28 .039 246.4 .039
 14.96 820.16 35.63 820.08 87.78 819.32 120.58 818.63 136.28 818.18
 154.85 816.71 206.45 814.52 207.2 814.52 217.35 816.64 219.92 817.48
 240.74 817.61 246.4 817.61

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 .039 2.23 .039 136.28 .039 246.4 .039
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 0 825236.2671 246.4822.6147

CROSS SECTION OUTPUT Profile #PF 1
 E-G. Elev (ft) 817.02 Element
 Vel Head (ft) 1.23 wt. n-Val.
 W.S. Elev (ft) 815.79 Reach Len. (ft) 0.99
 Crit W.S. (ft) 816.18 Flow Area (sq ft) 23.94
 E.G. Slope (ft/ft) 0.097435 Area (sq ft) 213.00
 Q Total (Cfs) 36.85 Top Width (ft) 36.85
 Top Width (ft) 36.85 Avg. Vel. (ft/s) 8.90
 Max Chl Dpnt (ft) 8.90 Hydr. Depth (ft) 682.74
 Length Wtd (ft) 682.74 Cum Vol (acres) 37.01
 Min Ch El (ft) 0.99 Wetted Per (ft) 3.94
 Alpha 814.52 Shear (lb/sq ft) 246.40
 Frctn Loss 1.00 Stream Power (lb/ft s) 0.00
 C & E Loss (ft) 0.10 Cum Volume (acre-ft) 1.32
 C & E Loss (ft) 0.01 Cum SA (acres) 0.32

CROSS SECTION INPUT
 RIVER: East Channel
 REACH: East Channel
 RS: 3.55555*
 INPUT
 Description: Station Elevation Data num= 17
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 .039 -2.07 .039 2.11 .039 134.88 .039 244.8 .039
 14.72 820.2 33.19 820.13 86.84 819.36 119.33 818.65 134.88 818
 153.82 816.77 206.43 814.7 207.14 814.7 216.76 816.7 219.2 817.5
 239.33 817.63 244.8 817.63

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 .039 2.11 .039 134.88 .039 244.8 .039
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 0 825 234.682 244.8 822.626

CROSS SECTION OUTPUT Profile #PF 1
 E-G. Elev (ft) 817.02 Element
 Vel Head (ft) 1.23 wt. n-Val.
 W.S. Elev (ft) 815.79 Reach Len. (ft) 0.99
 Crit W.S. (ft) 816.18 Flow Area (sq ft) 23.94
 E.G. Slope (ft/ft) 0.097435 Area (sq ft) 213.00
 Q Total (Cfs) 36.85 Top Width (ft) 36.85
 Top Width (ft) 36.85 Avg. Vel. (ft/s) 8.90
 Max Chl Dpnt (ft) 8.90 Hydr. Depth (ft) 682.74
 Length Wtd (ft) 682.74 Cum Vol (acres) 37.01
 Min Ch El (ft) 0.99 Wetted Per (ft) 3.94
 Alpha 814.52 Shear (lb/sq ft) 246.40
 Frctn Loss 1.00 Stream Power (lb/ft s) 0.00
 C & E Loss (ft) 0.10 Cum Volume (acre-ft) 1.32
 C & E Loss (ft) 0.01 Cum SA (acres) 0.32

CPNPPLOCA\MPM

Station Elevation Data				Manning's n Values			
Sta	Elev	Sta	num=	Sta	n Val	Sta	n Val
-10	821	-1.92	17	821	0.039	2.34	0.039
15.2	820.11	36.07		820.04			
155.89	816.64	206.47		814.35			
242.16	817.6	248		817.6			

Bank Sta: Left Right				Lengths: Left Channel Right			
Sta L	Sta R	Elev	num=	Sta L	Sta R	Elev	num=
-10	0	825237.8522	2	248822.6033			

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dp (ft)	Conv. Total (cfs)	Length Total (ft)	W. S. Elev (ft)	Alpha El (ft)	Frctn Loss	C & E Loss (ft)	Channel	Left OB	Right OB
816.92	1.28	815.64	816.04	0.099037	35.56	9.07	1.29	6068	0.06	814.35	1.00	0.00	0.00	0.039	0.99	0.99
														23.49		
														213.00		
														35.56		
														9.07		
														0.66		
														62.63		
														34.07		
														4.00		
														1.32		
														0.32		

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 3.533333*

INPUT

Station Elevation Data				Manning's n Values			
Sta	Elev	Sta	num=	Sta	n Val	Sta	n Val
-10	821	-1.84	17	821	0.039	2.46	0.039
15.44	820.07	36.51		819.99			
156.92	816.58	206.48		814.18			
243.57	817.59	249.6		817.59			

Bank Sta: Left Right				Lengths: Left Channel Right			
Sta L	Sta R	Elev	num=	Sta L	Sta R	Elev	num=
-10	0	825239.4373	2	249.6	822.592		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dp (ft)	Conv. Total (cfs)	Length Total (ft)	W. S. Elev (ft)	Alpha El (ft)	Frctn Loss	C & E Loss (ft)	Channel	Left OB	Right OB
816.82	1.32	815.49	815.91	0.100037	34.30	9.23	1.31	6734	0.06	814.18	1.00	0.00	0.00	0.039	0.99	0.99
														23.09		
														213.00		
														34.30		
														9.23		
														0.67		
														673.4		
														34.18		
														4.00		
														1.32		
														0.31		

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 3.511111*

INPUT

Station Elevation Data				Manning's n Values			
Sta	Elev	Sta	num=	Sta	n Val	Sta	n Val
-10	821	-1.84	17	821	0.039	2.46	0.039

CPNPPLOCA\PMF

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-1.76	821	-0.81	821	2.58	820.64	3.76	820.51				
15.68	820.02	36.94	819.94	90.59	819.22	124.34	818.57	140.49	818				
157.96	816.51	206.5	814	207.36	814	219.12	816.45	222.1	817.42				
244.98	817.58	251.2											

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-1.76	.039	2.58	.039	140.49	.039	251.2	.039

Bank Sta: Left 140.49 Right 222.1

Blocked Obstructions

num=	Sta L	Sta R	Elev	Left Channel	Right Channel	Coeff	Constr.	Expan.
2	140.49	222.1	.99	.99	.99	.1	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB	Channel
E.G. Elev (ft)	816.71		0.039
Vel Head (ft)	1.37		
W.S. Elev (ft)	815.33	0.99	0.99
Crit W.S. (ft)	815.76		22.64
E.G. Slope (ft/ft)	0.101729		213.00
Q Total (cfs)	33.07		33.07
Top Width (ft)	9.41		9.41
Vel Total (ft/s)	3.53		0.68
Max Chl Dpth (ft)	667.8		667.8
Conv. Total (cfs)	1.33		32.74
Length Wtd. (ft)	817.09		2.33
Wetted Per. (ft)	817.09		0.00
Alpha El (ft)	1.00		1.32
Frctn Loss (ft)	0.10	251.20	0.01
C & E Loss (ft)	0.01		0.31

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 3.48888*

INPUT

Description: Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-1.69	821	-0.72	821	2.7	820.62	3.89	820.49
15.92	819.98	37.38	819.89	91.53	819.18	125.59	818.56	141.89	818
158.99	816.44	206.51	813.83	207.42	813.83	219.7	816.38	222.82	817.41
246.39	817.57	252.8	817.57						

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-1.69	.039	2.7	.039	141.89	.039	252.8	.039

Bank Sta: Left 141.89 Right 222.82

Blocked Obstructions

num=	Sta L	Sta R	Elev	Left Channel	Right Channel	Coeff	Constr.	Expan.
2	141.89	222.82	.99	.99	.99	.1	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB	Channel
E.G. Elev (ft)	816.60		0.039
Vel Head (ft)	1.42		
W.S. Elev (ft)	815.18	0.99	0.99
Crit W.S. (ft)	815.63		22.27
E.G. Slope (ft/ft)	0.103060		213.00
Q Total (cfs)	32.04		32.04
Top Width (ft)	9.56		9.56
Vel Total (ft/s)	3.35		0.70
Max Chl Dpth (ft)	663.5		663.5
Conv. Total (cfs)	0.99		32.04
Length Wtd. (ft)	817.09		2.33
Wetted Per. (ft)	817.09		0.00
Alpha El (ft)	1.00	252.80	1.32
Frctn Loss (ft)	0.10		0.01
C & E Loss (ft)	0.00		0.31

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 3.46666*

INPUT

Description: Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-1.76	821	-0.81	821	2.58	820.64	3.76	820.51
15.68	820.02	36.94	819.94	90.59	819.22	124.34	818.57	140.49	818
157.96	816.51	206.5	814	207.36	814	219.12	816.45	222.1	817.42
244.98	817.58	251.2							

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-1.76	.039	2.58	.039	140.49	.039	251.2	.039

Bank Sta: Left 140.49 Right 222.1

Blocked Obstructions

num=	Sta L	Sta R	Elev	Left Channel	Right Channel	Coeff	Constr.	Expan.
2	140.49	222.1	.99	.99	.99	.1	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB	Channel
E.G. Elev (ft)	816.60		0.039
Vel Head (ft)	1.42		
W.S. Elev (ft)	815.18	0.99	0.99
Crit W.S. (ft)	815.63		22.27
E.G. Slope (ft/ft)	0.103060		213.00
Q Total (cfs)	32.04		32.04
Top Width (ft)	9.56		9.56
Vel Total (ft/s)	3.35		0.70
Max Chl Dpth (ft)	663.5		663.5
Conv. Total (cfs)	0.99		32.04
Length Wtd. (ft)	817.09		2.33
Wetted Per. (ft)	817.09		0.00
Alpha El (ft)	1.00	252.80	1.32
Frctn Loss (ft)	0.10		0.01
C & E Loss (ft)	0.00		0.31

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 3.46666*

INPUT

Description: Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-1.76	821	-0.81	821	2.58	820.64	3.76	820.51
15.68	820.02	36.94	819.94	90.59	819.22	124.34	818.57	140.49	818
157.96	816.51	206.5	814	207.36	814	219.12	816.45	222.1	817.42
244.98	817.58	251.2							

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-1.76	.039	2.58	.039	140.49	.039	251.2	.039

Bank Sta: Left 140.49 Right 222.1

Blocked Obstructions

num=	Sta L	Sta R	Elev	Left Channel	Right Channel	Coeff	Constr.	Expan.
2	140.49	222.1	.99	.99	.99	.1	.1	.3

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Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Channel
-10	.039	-1.61	.821	-0.64	.821	2.81	.039	143.229	.039	254.4	.039	
16.16	819.93	37.62	819.84	92.46	819.15	126.84	818.54	143.29	818			820.47
160.03	816.38	206.53	813.65	207.47	813.65	220.29	816.32	223.55	817.39			818
247.81	817.56	254.4	817.56									817.39
Manning's n Values num= 5 Sta n Val -10 .039 -1.61 .821 -0.64 .821 2.81 .039 143.229 .039 254.4 .039												
Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan. 143.29 223.55 num= 2 Blocked Obstructions 2 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99												
Sta L Sta R Elev Sta L Elev -10 825244.1927 254.4 822.558												

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel
E.G. Elev (ft)	816.49											0.039
W.S. Elev (ft)	815.47											0.99
W.S. Elev (ft)	815.02											0.99
Crit W.S. (ft)	815.48											21.89
E.G. Slope (ft/ft)	0.104242											213.00
Q Total (Cfs)	30.93											30.93
Top Width (ft)	9.73											9.73
Vel Total (ft/s)	1.37											0.71
Max Chl Dpth (ft)	659.7											659.7
Conv. Total (Cfs)	0.99											31.11
Length Wtd. (ft)	813.05											4.08
Min Ch El (ft)	0.10											1.32
Frc't Loss (ft)	0.01											0.00
C & E Loss (ft)	0.01											0.01
												0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 3.44444*

INPUT

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel
-10	144.7	224.27	17	-1.53	.821	-0.55	.821	2.93	820.59	4.15	820.44	
16.39	819.89	38.26	819.79	93.4	819.11	128.09	818.52	144.7	818			820.44
161.06	816.31	206.54	813.48	207.53	813.48	220.88	816.26	224.27	817.39			818
249.22	817.55	256	817.55									817.39
Blocked Obstructions num= 2 Lengths: Left Channel Right Coeff Contr. Expan. 144.7 224.27 num= 2 Sta L Sta R Elev Sta L Elev -10 825245.7778 256822.5467												

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Channel	
-10	.039	-1.53	.821	-0.55	.821	2.93	.039	144.7	.039	256	.039
144.7	224.27										
num= 2 Lengths: Left Channel Right Coeff Contr. Expan. 144.7 224.27 num= 2 Sta L Sta R Elev Sta L Elev -10 825245.7778 256822.5467											

CROSS SECTION OUTPUT Profile #PF 1

Element	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel
E.G. Elev (ft)	816.39											0.039
W.S. Elev (ft)	814.87											0.99
W.S. Elev (ft)	815.34											0.99
Crit W.S. (ft)	815.34											21.57
E.G. Slope (ft/ft)	0.105311											213.00
Q Total (Cfs)	30.02											30.02
Top Width (ft)	9.88											9.88
Vel Total (ft/s)	1.39											0.72
Max Chl Dpth (ft)	656.4											656.4
Conv. Total (Cfs)	0.99											30.21
Length Wtd. (ft)	813.48											4.69
Min Ch El (ft)	0.10											1.32
Frc't Loss (ft)	0.00											0.00
C & E Loss (ft)	0.00											0.01
												0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 3.42222*

INPUT

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel
-10	144.7	224.27	17	-1.46	.821	-0.47	.821	3.05	820.57	4.27	820.42	
16.39	819.89	38.26	819.79	93.4	819.11	128.09	818.52	144.7	818			820.42
161.06	816.31	206.54	813.48	207.53	813.48	220.88	816.26	224.27	817.39			818
249.22	817.55	256	817.55									817.39
Blocked Obstructions num= 2 Lengths: Left Channel Right Coeff Contr. Expan. 144.7 224.27 num= 2 Sta L Sta R Elev Sta L Elev -10 825245.7778 256822.5467												

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16.63	819.84	38.69	819.75	94.34	819.08	129.35	818.5	146.1	818
162.1	816.25	206.56	813.31	207.58	813.31	221.47	816.19	225	817.35
250.63	817.54	257.6	817.54						

Manning's n Values

Sta	n	Val	num=	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-1.46	5	.039	146.1	.039	257.6	.039	257.6			

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

Blocked Obstructions num= 2 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99

Sta L Sta R Elev Sta L Sta R Elev

-10 -10 825247.3629 257.6822.5353

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	816.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.76	Wt. n-Val.	0.99	0.039	0.99
Friction Loss (ft)	811.76	Reach Len. (ft)		21.28	
Crit W Sd (ft)	815.70	Flow Area (sq ft)		213.00	
E.G. Slope (ft/ft)	0.105979	Area (sq ft)		29.15	
Q Total (Cfs)	213.00	Flow (cfs)		10.01	
Top Width (ft)	29.15	Top Width (ft)		0.73	
Vel Total (ft/s)	10.01	Avg. Vel. (ft/s)		654.3	
Max Chl Dpth (ft)	1.41	Hydr. Depth (ft)		29.34	
Conv. Total (cfs)	654.3	Conv. (cfs)		4.80	
Length Wtd. (ft)	0.99	Wetted Per. (ft)		1.31	
Min Ch El (ft)	813.31	Shear (lb/sq ft)	257.60	0.00	
Alpha	0.00	Stream Power (lb/ft.s)		0.01	
Frict Loss (ft)	0.00	Cum Volume (acre-ft)		0.01	
C & E Loss (ft)	0.00	Cum SA (acres)		0.02	

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 3.4*

INPUT

Description:	Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	-1.38	17	821	-38	821	3.16	820.56	4.4	820.4	818
	16.87	819.8	39.13		819.7	95.28	819.04	130.6	818.48	147.5	818	
	163.13	816.18	206.58		813.13	207.64	813.13	222.06	816.13	225.72	817.33	
	252.05	817.52	259.2		817.52							

Manning's n Values

Sta	n	Val	num=	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-1.38	5	.039	147.5	.039	259.2	.039	259.2			

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

Blocked Obstructions num= 2 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99

Sta L Sta R Elev Sta L Sta R Elev

-10 -10 825 248.948 259.2 822.524

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	816.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.61	Wt. n-Val.	0.99	0.039	0.99
Friction Loss (ft)	815.06	Reach Len. (ft)		20.94	
Crit W Sd (ft)	815.10	Flow Area (sq ft)		213.00	
E.G. Slope (ft/ft)	0.107389	Area (sq ft)		28.26	
Q Total (Cfs)	213.00	Flow (cfs)		10.17	
Top Width (ft)	28.26	Top Width (ft)		0.74	
Vel Total (ft/s)	10.17	Avg. Vel. (ft/s)		650.0	
Max Chl Dpth (ft)	1.43	Hydr. Depth (ft)		28.46	
Conv. Total (cfs)	650.0	Conv. (cfs)		4.93	
Length Wtd. (ft)	0.99	Wetted Per. (ft)		1.31	
Min Ch El (ft)	813.13	Shear (lb/sq ft)	259.20	0.00	
Alpha	0.00	Stream Power (lb/ft.s)		0.01	
Frict Loss (ft)	0.01	Cum Volume (acre-ft)		0.01	
C & E Loss (ft)	0.01	Cum SA (acres)		0.02	

CROSS SECTION

RIVER: East Channel
REACH: East Channel

RS: 3.37777*

INPUT

Description:	Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	-1.3	17	821	-3	821	3.28	820.54	4.53	820.38	818
	17.11	819.76	39.57		819.65	96.21	819	131.85	818.46	148.9	818	

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164.17	816.12	206.59	812.96	207.69	812.96	222.65	816.07	226.45	817.31
253.46	817.51	260.8	817.51						
Manning's n Values									
Sta	n	Val	num=	Sta	n	Val	Sta	n	Val
-10	.039	-1.3	.039	3.28	.039	148.9	260.8	.039	
Bank Sta: Left 148.9 Right 226.45									
Lengths: Left Channel Right									
Coeff Contr. Expan.									
Blocked obstructions num= 2									
Sta L Sta R Elev									
-10	Sta 0	825250.5331	260.8822	5127					

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	816.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.65	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	814.91	Reach Len. (ft)		20.68	
C.F. Elev (ft)	814.91	Flow Area (sq ft)		20.68	
E.G. Slope (ft/ft)	0.107877	Area (sq ft)		20.68	
G-Total (cfs)	213.00	Flow (cfs)		213.00	
Top width (ft)	27.48	Top width (ft)		27.48	
Vel Total (ft/s)	10.30	Avg. Vel. (ft/s)		10.30	
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)		0.75	
Conv. Total (cfs)	648.5	Conv. (cfs)		648.5	
Length wtd. (ft)	0.99	Wetted Per. (ft)		27.68	
Min Ch El (ft)	812.96	Stream Power (lb/ft s)	260.80	0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frcn Loss (ft)	0.11	Cum Volume (acre-ft)		1.31	
C & E Loss (ft)	0.10	Cum SA (acres)		0.02	

GROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.335555*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Stat Elev Data	num=	17						
-10	821	-1.23	821	3.4	820.52	4.66	820.36	
17.35	819.71	40	819.6	97.15	818.97	133.1	818.44	150.3
165.21	816.05	206.61	812.78	207.75	812.78	223.24	816.01	227.17
254.87	817.5	262.4						817.3

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-1.23	.039	3.4	.039	150.3	262.4	.039
Bank Sta: Left 150.3 Right 227.17								
Lengths: Left Channel Right								
Coeff Contr. Expan.								
Blocked obstructions num= 2								
Sta L Sta R Elev								
-10	Sta 0	825252.1182	262.4822	5013				

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.70	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	814.74	Reach Len. (ft)		20.37	
C.F. Elev (ft)	814.74	Flow Area (sq ft)		20.37	
E.G. Slope (ft/ft)	0.109142	Area (sq ft)		20.37	
G-Total (cfs)	213.00	Flow (cfs)		213.00	
Top width (ft)	26.69	Top width (ft)		26.69	
Vel Total (ft/s)	10.46	Avg. Vel. (ft/s)		10.46	
Max Chl Dpth (ft)	1.46	Hydr. Depth (ft)		0.76	
Conv. Total (cfs)	644.7	Conv. (cfs)		644.7	
Length wtd. (ft)	0.99	Wetted Per. (ft)		26.90	
Min Ch El (ft)	812.78	Stream Power (lb/ft s)	262.40	0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frcn Loss (ft)	0.11	Cum Volume (acre-ft)		1.31	
C & E Loss (ft)	0.10	Cum SA (acres)		0.02	

GROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.333333*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Stat Elev Data	num=	17						
-10	821	-1.15	821	-12	820.51	4.79	820.33	
17.59	819.67	40.44	819.55	98.09	818.93	134.35	818.42	151.71
166.24	815.98	206.62	812.61	207.8	812.61	223.83	815.94	227.9
								817.28

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256.29	817.49	264	817.49						
Manning's n Values									
num=	5	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-1.15	.039	3.52	.039	151.71	.039	264	.039
Bank Sta: Left Right Lengths: Left Channel Right									
Coeff Contr. Expan.									
Blocked Obstructions									
num=	2	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	825253.7033	264	822.49	264	822.49	264	822.49	264	822.49

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.74	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	814.09	Reach Len. (ft)	0.99	0.039	0.99
CFL S.C. (ft)	0.04418	Flow Area (Sq Ft)	20.12	64.38	20.12
E.G. Vel (ft/s)	0.10992	Flow (cfs)	213.00	213.00	213.00
Top width (ft)	26.03	Top width (ft)	26.03	26.03	26.03
Vel Total (ft/s)	10.58	Avg. Vel. (ft/s)	10.58	10.58	10.58
Max Chl Dpth (ft)	1.48	Hydr. Depth (ft)	642.4	642.4	642.4
Conv. Total (cfs)	0.99	Conv. (cfs)	26.24	26.24	26.24
Length wtd. (ft)	812.61	wetted Per. (ft)	5.26	5.26	5.26
Min Ch El (ft)	0.11	Stream Power (lb/ft s)	1.31	1.31	1.31
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	0.31	0.31

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.311111*

INPUT

Description:	Station	Elevation	Data	num=	17
	R	Elev	Sta	Elev	Sta
	-10	821	-0.04	821	3.63
	17.83	819.62	40.58	819.5	99.03
	167.28	815.92	206.64	812.44	207.86
	257.7	817.48	265.6	817.48	265.6

Manning's n Values

num=	5	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-1.07	.039	3.63	.039	153.11	.039	265.6	.039
Bank Sta: Left Right Lengths: Left Channel Right									
Coeff Contr. Expan.									
Blocked Obstructions									
num=	2	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	825255.2885	265.6822.4787	265.6822.4787	265.6822.4787	265.6822.4787	265.6822.4787	265.6822.4787	265.6822.4787	265.6822.4787

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	815.19	Reach Len. (ft)	0.99	0.039	0.99
CFL S.C. (ft)	0.04418	Flow Area (Sq Ft)	20.12	64.38	20.12
E.G. Vel (ft/s)	0.10992	Flow (cfs)	213.00	213.00	213.00
Top width (ft)	45.58	Top width (ft)	45.58	45.58	45.58
Vel Total (ft/s)	3.31	Avg. Vel. (ft/s)	3.31	3.31	3.31
Max Chl Dpth (ft)	2.75	Hydr. Depth (ft)	3069.4	3069.4	3069.4
Conv. Total (cfs)	0.99	Conv. (cfs)	45.98	45.98	45.98
Length wtd. (ft)	812.44	wetted Per. (ft)	0.42	0.42	0.42
Min Ch El (ft)	0.00	Stream Power (lb/ft s)	1.31	1.31	1.31
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	0.31	0.31

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.288888*

INPUT

Description:	Station	Elevation	Data	num=	17
	R	Elev	Sta	Elev	Sta
	-10	821	-1	821	3.75
	18.07	819.58	41.32	819.46	99.96
				818.86	136.86
				818.38	154.51

CPNPPLOca]PMP

168.31	815.85	206.65	812.26	207.91	812.26	225.01	815.82	229.35	817.24
259.11	817.47	267.2	817.47						
Manning's n Values									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-1	.039	3.75	.039	154.51	.039	267.2	.039
Bank Sta: Left 154.51 Right 229.35									
Lengths: Left Channel Right									
Coeff Contr. .1									
Blocked Obstructions num= 2									
Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L
-10	825256.8736	267.2822	4673						

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.35	Element							
Vel Head (ft)	0.14	Wt. n-val.							
Friction Loss (ft)	813.21	Reach Len. (ft)	0.99						
E.G. Slope (ft/ft)	0.003611	Area (Sg ft)	71.01						
G-Total (Cfs)	213.00	Flow (Cfs)	213.00						
Top width (ft)	46.91	Top width (ft)	46.91						
Vel Total (ft/s)	3.00	Avg. Vel. (ft/s)	3.00						
Max Chl Dpth (ft)	2.95	Hydr. Depth (ft)	1.51						
Conv. Total (cfs)	3544.6	Conv. (cfs)	3544.6						
Length wtd. (ft)	812.26	Wetted Per. (ft)	47.35						
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	267.20						
Alpha	0.00	Shear (lb/sq ft)	0.34						
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.31						
C & E Loss (ft)	0.01	Cum SA (acres)	0.01						

GROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 3.266666*

INPUT

Description:									
Stat	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-92	821	-13	821	3.87	820.46	5.17	820.27
18.31	819.53	41.75	819.41	100.9	818.83	138.11	818.36	155.91	818
169.35	815.79	206.67	812.09	207.97	812.09	225.6	815.75	230.07	817.22
260.52	817.46	268.8	817.46						

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-92	.039	3.87	.039	155.91	.039	268.8	.039
Bank Sta: Left 155.91 Right 230.07									
Lengths: Left Channel Right									
Coeff Contr. .1									
Blocked Obstructions num= 2									
Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L
-10	825258.4587	268.8	822.456						

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.34	Element							
Vel Head (ft)	0.12	Wt. n-val.							
Friction Loss (ft)	813.22	Reach Len. (ft)	0.99						
E.G. Slope (ft/ft)	0.002831	Area (Sg ft)	77.08						
G-Total (Cfs)	213.00	Flow (Cfs)	213.00						
Top width (ft)	47.95	Top width (ft)	47.95						
Vel Total (ft/s)	2.76	Avg. Vel. (ft/s)	2.76						
Max Chl Dpth (ft)	3.13	Hydr. Depth (ft)	1.61						
Conv. Total (cfs)	4003.3	Conv. (cfs)	4003.3						
Length wtd. (ft)	812.09	Wetted Per. (ft)	48.43						
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	268.80						
Alpha	0.00	Shear (lb/sq ft)	0.00						
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.31						
C & E Loss (ft)	0.01	Cum SA (acres)	0.01						

GROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 3.244444*

INPUT

Description:									
Stat	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	821	-84	821	-22	821	3.98	820.44	5.3	820.24
18.55	819.49	42.19	819.36	101.84	818.79	139.36	818.34	157.32	818
170.38	815.72	206.69	811.91	208.02	811.91	226.19	815.69	230.8	817.2

CPNPPLOCA1PMP

261.94 817.44 270.4 817.44

Manning's n Values		num= 5	
Sta	n Val	Sta	n Val
-10	.039	270.4	.039
Bank Sta: Left Right Lengths: Left Channel Right			
157.37	23.8	157.32	.99
Blocked Obstructions			
Sta L	Sta R	Elev	Sta L
-10	0	825260.0438	270.4822.4447

CROSS SECTION OUTPUT Profile #PF 1

Element		Left OB		Channel		Right OB	
E.G. Elev (ft)	Wt. n-Val.	Sta	Elev	Sta	Elev	Sta	Elev
815.33	0.10	270.4	817.44	270.4	817.44	270.4	817.44
815.23	0.99	270.4	817.44	270.4	817.44	270.4	817.44
Reach Len. (ft)		0.99		0.99		0.99	
Flow Area (Sq Ft)		83.42		83.42		83.42	
E. G. Vel (ft/s)		213.00		213.00		213.00	
Top width (ft)		48.93		48.93		48.93	
Vel Total (ft/s)		2.55		2.55		2.55	
Max Chl Dpth (ft)		3.32		3.32		3.32	
Conv. Total (cfs)		4504.9		4504.9		4504.9	
Length wtd. (ft)		0.99		0.99		0.99	
Min Ch El (ft)		811.91		811.91		811.91	
Alpha		1.00		1.00		1.00	
Frctn Loss (ft)		0.00		0.00		0.00	
C & E Loss (ft)		0.00		0.00		0.00	

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 3.22222*

INPUT

Station Elevation Data		num= 17	
Sta	Elev	Sta	Elev
-10	821	272	817.43
18.79	819.44	102.77	818.76
171.42	815.66	206.7	811.74
263.35	817.43	272	817.43

Manning's n Values

Sta	n Val	Sta	n Val
-10	.039	272	.039
Bank Sta: Left Right Lengths: Left Channel Right			
158.77	231.32	158.72	.99
Blocked Obstructions			
Sta L	Sta R	Elev	Sta L
-10	0	825261.6289	272822.4333

CROSS SECTION OUTPUT Profile #PF 1

Element		Left OB		Channel		Right OB	
E.G. Elev (ft)	Wt. n-Val.	Sta	Elev	Sta	Elev	Sta	Elev
815.33	0.09	272	817.43	272	817.43	272	817.43
815.24	0.99	272	817.43	272	817.43	272	817.43
Reach Len. (ft)		0.99		0.99		0.99	
Flow Area (Sq Ft)		89.74		89.74		89.74	
E. G. Vel (ft/s)		213.00		213.00		213.00	
Top width (ft)		49.66		49.66		49.66	
Vel Total (ft/s)		2.39		2.39		2.39	
Max Chl Dpth (ft)		3.50		3.50		3.50	
Conv. Total (cfs)		4988.9		4988.9		4988.9	
Length wtd. (ft)		0.99		0.99		0.99	
Min Ch El (ft)		811.74		811.74		811.74	
Alpha		1.00		1.00		1.00	
Frctn Loss (ft)		0.00		0.00		0.00	
C & E Loss (ft)		0.00		0.00		0.00	

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 3.2*

INPUT

Station Elevation Data		num= 17	
Sta	Elev	Sta	Elev
-10	821	273.6	817.42
19.03	819.4	103.71	818.72
172.45	815.59	206.72	811.57
264.76	817.42	273.6	817.42

CPNPPLOca1PMP

Manning's n Values
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -.69 .039 4.22 .039 160.12 n Val Sta n Val
 num= 5
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 601.12 232.25 num= 2.99 .99 .99
 Blocked Observations Sta L Sta R Elev
 Sta L Sta R Elev Sta L Sta R Elev
 -10 825 263.214 825 263.214 273.6 822.422

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	815.24	Reach Len. (ft)			
Crit W.S. (ft)	0.001504	Flow Area (sq ft)			
E.G. Slope (ft/ft)	213.00	Area (sq ft)			
Top Width (ft)	50.38	Flow Vel. (ft/s)			
Vel Total (ft/s)	2.24	Top Width (ft)			
Max Chl Dpth (ft)	3.67	AVG. Vel. (ft/s)			
Conv. Total (cfs)	5492.1	Hvdr. Depth (ft)			
Length wtd. (ft)	0.99	Conv. (cfs)			
Min Ch El (ft)	811.57	wetted Per. (ft)			
Alpha	1.00	Stream Power (lb/ft s)	273.60		
Frctn Loss (ft)	0.00	Stream Power (lb/ft s)			
C & E Loss (ft)	0.00	Cum Volume (acre-ft)			
		Cum SA (acres)			

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.17777*

INPUT

Description: Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 19 27 819.36 43 1 819.27 104 65 818.68 143 11 818.28 161 52 820.18
 173 49 815.53 206 73 811.39 208 19 811.39 227 96 815.5 232 97 817.15
 266 18 817.41 275 2 817.41

Manning's n Values
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -.61 .039 4.34 .039 161.52 n Val Sta n Val
 num= 5
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 161.52 232.97 num= 2.99 .99 .99
 Blocked Observations Sta L Sta R Elev
 Sta L Sta R Elev Sta L Sta R Elev
 -10 825264.7991 825264.7991 275.2822.4107

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	815.25	Reach Len. (ft)			
Crit W.S. (ft)	0.001245	Flow Area (sq ft)			
E.G. Slope (ft/ft)	213.00	Area (sq ft)			
Top Width (ft)	50.99	Flow Vel. (ft/s)			
Vel Total (ft/s)	2.11	Top Width (ft)			
Max Chl Dpth (ft)	3.86	AVG. Vel. (ft/s)			
Conv. Total (cfs)	6036.0	Hvdr. Depth (ft)			
Length wtd. (ft)	0.99	Conv. (cfs)			
Min Ch El (ft)	811.39	wetted Per. (ft)			
Alpha	1.00	Stream Power (lb/ft s)	275.20		
Frctn Loss (ft)	0.00	Stream Power (lb/ft s)			
C & E Loss (ft)	0.00	Cum Volume (acre-ft)			
		Cum SA (acres)			

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.155555*

INPUT

Description: Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 19 51 819.21 43 94 819.17 105 59 818.61 144 37 818.26 162 91 820.818
 174 52 815.46 206 75 811.22 208 24 811.22 228 54 815.44 233 7 817.13
 267 39 817.4 276 8 817.4

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Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -.54 .039 4.45 .039 162.92 .039 276.8 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 162.92 233.7 2.99 .99 .99
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 825266.3842 276.8822.3994

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.31		
Vel Head (ft)	0.06		
W.S. Elev (ft)	815.25		0.99
Crit W.S. (ft)	0.001053		106.87
E.G. Slope (ft/ft)	2.33.90		51.59
Flow Area (sq ft)	51.59		51.59
Top Width (ft)	1.99		1.99
Max Chl Dpth (ft)	4.03		2.07
Conv. Total (cfs)	6564.9		6564.9
Length wtd. (ft)	0.99		52.21
Min Ch El (ft)	811.22		0.13
Alpha	1.00	276.80	0.00
Frctn Loss (ft)	0.00		0.01
C & E Loss (ft)	0.00		0.30

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.133333*

INPUT

Station Elevation Data num= 17
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 19.74 819.57 44.58 819.57 106.55 818.21 145.37 820.56 2.34 820.818
 175.56 815.39 206.77 811.04 208.3 811.04 229.13 813.38 234.42 817.11
 269 817.39 278.4 817.39

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -.46 .039 4.57 .039 164.33 .039 278.4 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 164.33 234.42 2.99 .99 .99
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 825267.9694 278.4 822.388

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.31		
Vel Head (ft)	0.06		
W.S. Elev (ft)	815.26		0.99
Crit W.S. (ft)	0.000891		112.82
E.G. Slope (ft/ft)	2.33.00		51.80
Flow Area (sq ft)	51.80		51.80
Top Width (ft)	1.89		1.89
Max Chl Dpth (ft)	4.22		2.17
Conv. Total (cfs)	7137.3		7137.3
Length wtd. (ft)	0.99		52.73
Min Ch El (ft)	811.04		0.12
Alpha	1.00	278.40	0.00
Frctn Loss (ft)	0.00		0.01
C & E Loss (ft)	0.00		0.30

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.111111*

INPUT

Station Elevation Data num= 17
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 19.74 819.57 44.58 819.57 107.73 818.21 145.69 818.53 163.73 820.818
 175.56 815.33 206.77 811.04 208.35 810.87 229.72 813.31 235.13 817.09
 270.42 817.38 280 817.38

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -.46 .039 4.57 .039 164.33 .039 278.4 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 164.33 234.42 2.99 .99 .99
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 825267.9694 278.4 822.388

CPNPPLOCA1PMP

Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -.38 .039 4.69 .039 165.73 .039 280
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 165.73 235.15 .99 .99 .99 .1 .3
 Blocked Obstructions num= 2
 Sta L Elev Sta R Elev
 -10 825269.5545 280822.3766

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB
E.G. Elev (ft)	815.31	
Vel Head (ft)	0.05	
W.S. Elev (ft)	815.26	0.99
Crit W.S. (ft)		118.38
E.G. Slope (ft/ft)	0.000767	118.38
Q Total (cfs)	213.00	213.00
Top width (ft)	52.71	51.80
Max Ch Depth (ft)	4.52	2.26
Conv. Total (cfs)	7691.2	7691.2
Length wtd. (ft)	0.99	53.16
Min Ch El (ft)	810.87	0.11
Alpha	1.00	0.00
Frctn Loss (ft)	0.00	1.29
C & E Loss (ft)	0.00	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 3.088888*

INPUT

Description: Station Elevation Data num= 17
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 45.31 821 108.4 818.54 818.52 818.52 818.52 817.07
 20.2 810.821 45.31 810.821 108.4 818.54 818.52 818.52 818.52 817.07
 177.83 815.38 20.2 810.821 208.41 810.7 230.31 813.25 235.87 817.07
 271.83 817.37 281.6 817.37

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-.31	.039	4.81	.039	167.13	.039	281.6	.039		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 167.13 235.87 .99 .99 .99 .1 .3
 Blocked Obstructions num= 2
 Sta L Elev Sta R Elev
 -10 825271.1396 281.6822.3654

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB
E.G. Elev (ft)	815.31	
Vel Head (ft)	0.05	
W.S. Elev (ft)	815.26	0.99
Crit W.S. (ft)		123.90
E.G. Slope (ft/ft)	0.000665	123.90
Q Total (cfs)	213.00	213.00
Top width (ft)	52.71	52.71
Max Ch Depth (ft)	4.52	2.26
Conv. Total (cfs)	8259.3	8259.3
Length wtd. (ft)	0.99	53.53
Min Ch El (ft)	810.70	0.10
Alpha	1.00	0.00
Frctn Loss (ft)	0.00	1.29
C & E Loss (ft)	0.00	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 3.066666*

INPUT

Description: Station Elevation Data num= 17
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 45.31 821 109.34 818.52 818.52 818.52 818.52 817.33
 20.46 819.13 45.31 819.13 109.34 818.52 818.52 818.52 818.52 817.33
 178.06 815.38 20.46 819.13 208.46 810.52 230.9 813.19 236.6 817.06
 273.24 817.35 283.2 817.35

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-.31	.039	4.81	.039	167.13	.039	281.6	.039		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 167.13 235.87 .99 .99 .99 .1 .3
 Blocked Obstructions num= 2
 Sta L Elev Sta R Elev
 -10 825271.1396 281.6822.3654

CPNPPLOCA1PMP

Bank Sta: Left 168.53 Right 236.6 Lengths: Left Channel 2 Right Channel 2
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 -10 825272.7247 283.2 822.354

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.30	Element	Left 08	Channel	Right 08
Vel Head (ft)	0.04	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	815.26	Reach Len. (ft)	0.99	0.99	0.99
E.G. Slope (ft/ft)	0.000575	Flow Area (sq ft)	129.48	129.48	129.48
Q Total (Cfs)	213.00	Area (sq ft)	213.00	213.00	213.00
Top width (ft)	52.69	Flow (cfs)	52.69	52.69	52.69
Vel Total (ft/s)	4.05	Top width (ft)	1.05	1.05	1.05
W.S. Elev (ft)	815.26	Avg. Vel. (ft/s)	8884.9	8884.9	8884.9
Conv. Total (Cfs)	0.99	Conv. (Cfs)	53.57	53.57	53.57
Length Wtd. (ft)	810.52	Wetted Per. (ft)	0.09	0.09	0.09
Min Ch El (ft)	1.00	Shear (lb/sq ft)	283.20	283.20	283.20
Frctn Loss	0.00	Stream Power (lb/ft s)	0.00	0.00	0.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	1.29	1.29	1.29
		Cum SA (acres)	0.29	0.29	0.29

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.04444*

INPUT

Description:	Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17	-10	821	-15	821	5.04	169.94	284.8	0.039	284.8	0.039	284.8	0.039
2	20.7	819.09	46.33	818.93	110.27	818.47	150.62	818.17	169.94	818.17	169.94	818.17
5	179.7	815.33	206.83	817.35	208.52	810.35	231.49	815.13	237.52	815.13	237.52	817.04
17	274.65	817.34	284.8	817.34								

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-15	.039	5.04	169.94	284.8	.039	284.8	.039	284.8	.039

Bank Sta: Left 169.94 Right 237.32

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 -10 825274.3098 284.8822.3427

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.30	Element	Left 08	Channel	Right 08
Vel Head (ft)	0.04	Wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	815.26	Reach Len. (ft)	0.99	0.99	0.99
E.G. Slope (ft/ft)	0.000503	Flow Area (sq ft)	134.82	134.82	134.82
Q Total (Cfs)	213.00	Area (sq ft)	213.00	213.00	213.00
Top width (ft)	52.65	Flow (cfs)	52.65	52.65	52.65
Vel Total (ft/s)	4.05	Top width (ft)	1.38	1.38	1.38
W.S. Elev (ft)	815.26	Avg. Vel. (ft/s)	9496.1	9496.1	9496.1
Conv. Total (Cfs)	0.99	Conv. (Cfs)	53.61	53.61	53.61
Length Wtd. (ft)	810.35	Wetted Per. (ft)	0.08	0.08	0.08
Min Ch El (ft)	1.00	Shear (lb/sq ft)	284.80	284.80	284.80
Frctn Loss	0.00	Stream Power (lb/ft s)	0.00	0.00	0.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	1.29	1.29	1.29
		Cum SA (acres)	0.29	0.29	0.29

CROSS SECTION

RIVER: East Channel
 REACH: East Channel
 RS: 3.02222*

INPUT

Description:	Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17	-10	821	-08	821	5.16	171.34	286.4	0.039	286.4	0.039	286.4	0.039
2	20.94	819.04	46.57	818.88	111.21	818.44	151.88	818.15	171.34	818.15	171.34	818.15
5	180.73	815.07	206.84	810.17	208.57	810.17	232.08	815.06	238.05	815.06	238.05	817.02
17	276.07	817.35	286.4	817.35								

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-08	.039	5.16	171.34	286.4	.039	286.4	.039	286.4	.039

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Bank Sta: Left 171.34 Right 238.05
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R
 -10 825275.8949 286.4822.3314

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	815.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	wt. n-Val.	0.99	0.039	0.99
W.S. Elev (ft)	815.27	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	0.000440	Flow Area (sq ft)	140.34	140.34	140.34
E.G. Slope (ft/ft)	213.00	Area (sq ft)	213.00	213.00	213.00
Q Total (cfs)	52.60	Flow (cfs)	52.60	52.60	52.60
Top Width (ft)	1.52	Top Width (ft)	1.52	1.52	1.52
Max Chl Dpth (ft)	1.52	Avg. Vel. (ft/s)	1015.67	1015.67	1015.67
Length Total (ft)	0.96	Hydr. Depth (ft)	53.63	53.63	53.63
Min Ch El (ft)	810.17	Wetted Per (ft)	0.00	0.00	0.00
Alpha	1.00	Stream Power (lb/ft s)	286.40	286.40	286.40
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.28	1.28	1.28
C & E Loss (ft)	0.02	Cum SA (acres)	0.02	0.29	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 3

INPUT

Description: num= 13
 Station Elevation Data num= 13
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 1.16 821 6.71 821 21.18 819 819 21.18 815 815 232.67 815 815 232.67

Manning's n Values

Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 288 .039

Bank Sta: Left 172.74 Right 238.77
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R
 -10 825 277.48 288 822.32

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	815.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	wt. n-Val.	9.35	0.039	9.35
W.S. Elev (ft)	815.01	Reach Len. (ft)	9.35	9.35	9.35
Crit W.S. (ft)	0.003358	Flow Area (sq ft)	132.39	132.39	132.39
E.G. Slope (ft/ft)	545.00	Area (sq ft)	545.00	545.00	545.00
Q Total (cfs)	50.99	Flow (cfs)	50.99	50.99	50.99
Top Width (ft)	4.12	Top Width (ft)	4.12	4.12	4.12
Max Chl Dpth (ft)	5.01	Avg. Vel. (ft/s)	940.55	940.55	940.55
Length Total (ft)	1.00	Hydr. Depth (ft)	50.59	50.59	50.59
Min Ch El (ft)	810.00	Wetted Per (ft)	0.00	0.00	0.00
Alpha	1.00	Stream Power (lb/ft s)	288.00	288.00	288.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.28	1.28	1.28
C & E Loss (ft)	0.02	Cum SA (acres)	0.02	0.29	0.02

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 2.875*

INPUT

Description: num= 21
 Station Elevation Data num= 21
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 821 -1.12 819.96 14.17 819.41 20.79 818.99 119.4 818.3 170.47 817.88 179.84 188.34 812.95 205.9 809.92 207.45 809.92 225.08 813.07 232.55 814.78 238.93 816.88 277.35 817.19 277.51 817.19 288 817.19

Manning's n Values

Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -1.12 .039 -7.2 .039 14.17 .039 20.79 .039 119.4 .039 818.3 .039 809.92 .039 207.45 .039 809.92 .039 225.08 .039 814.78 .039 238.93 .039 816.88 .039 277.35 .039 817.19 .039 288 .039

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Bank Sta: Left 170.47 Right 238.93 Lengths: Left Channel 9.35 Right 9.35
 Blocked Obstructions num= 2 Coeff Contr. .1 Expan. .3
 Sta L Sta R Elev Sta L Elev Sta R 288822.1937

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.23	0.039	815.23
Vel Head (ft)	0.20	0.039	0.20
W.S. Elev (ft)	815.03	9.35	815.03
Crit W.S. (ft)	815.03	9.35	815.03
E.G. Slope (ft/ft)	0.002306	9.35	0.002306
Q Total (Cfs)	545.00	9.35	545.00
Top Width (ft)	54.21	9.35	54.21
AVG. Vel. (ft/s)	3.59	9.35	3.59
Max Chl Dp (ft)	3.11	9.35	3.11
Conv. Area (Cfs)	1138.6	9.35	1138.6
Wing Area (Cfs)	9.35	9.35	9.35
Min Ch El (ft)	809.92	9.35	809.92
Alpha	1.00	9.35	1.00
Frctn Loss	0.02	9.35	0.02
C & E Loss	0.01	9.35	0.01

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 2.75*

INPUT

Description	Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	21				815.23	815.23	815.23	815.23	815.23	815.23
					-10	-25	-25	-25	-25	-25
					6.29	820.04	6.98	819.96	13.87	819.35
					168.2	817.75	177.92	814.58	186.72	812.53
					224.65	812.63	232.44	814.56	239.08	816.75
					288	817.07				

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-25	.039	815.23	.039	815.23	.039
168.2	.039	177.92	.039	186.72	.039	186.72	.039
224.65	.039	232.44	.039	239.08	.039	239.08	.039
288	.039						

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	0	825277.5075	288822.0675			

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.20	0.039	815.20
Vel Head (ft)	0.15	0.039	0.15
W.S. Elev (ft)	815.05	9.35	815.05
Crit W.S. (ft)	815.05	9.35	815.05
E.G. Slope (ft/ft)	0.001620	9.35	0.001620
Q Total (Cfs)	57.42	9.35	57.42
Top Width (ft)	3.16	9.35	3.16
Max Chl Dp (ft)	3.16	9.35	3.16
Conv. Area (Cfs)	1353.62	9.35	1353.62
Wing Area (Cfs)	9.35	9.35	9.35
Min Ch El (ft)	809.83	9.35	809.83
Alpha	1.00	9.35	1.00
Frctn Loss	0.01	9.35	0.01
C & E Loss	0.01	9.35	0.01

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 2.625*

INPUT

Description	Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	21				815.20	815.20	815.20	815.20	815.20	815.20
					-10	-37	-37	-37	-37	-37
					6.09	820.05	6.76	819.97	13.56	819.29
					165.92	817.62	175.99	814.37	185.11	812.11
					224.82	812.82	232.32	814.34	239.24	816.62
					288	816.94				

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-37	.039	815.20	.039	815.20	.039
168.2	.039	175.99	.039	185.11	.039	185.11	.039
224.82	.039	232.32	.039	239.24	.039	239.24	.039
288	.039						

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Bank Sta: Left Right Lengths: Left Channel Right
 165.92 239.24
 Blocked Obstructions 9.35 9.35
 Sta L Sta R Elev Sta L Elev
 -10 825277.5212 288821.9413

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB	Channel	Expan.
E-G. Elev (ft)	815.18		0.039	
Vel Head (ft)	0.12			
W.S. Elev (ft)	815.06	9.35	9.35	9.35
Crit W.S. (ft)			194.35	
E.G. Slope (ft/ft)	0.001174		545.00	
Q Total (Cfs)	545.00		60.63	
Top Width (ft)	60.63		2.80	
Vel Total (ft/s)	2.80		15909.21	
Max Ch Depth (ft)	2.80		61.71	
Ch Top Width (ft)	15909.21		0.23	
Length Wtd. (ft)	9.35		0.00	
Min Ch El (ft)	809.75		1.17	
Alpha	1.00	288.00	0.01	0.02
Frctn Loss (ft)	0.01		0.00	
C & E Loss (ft)	0.01		0.01	

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 2.5*

INPUT

Description	Station	Elevation	Data	num=	21	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation											
	-10	821	-5	821	55	821	1.89	821	1.89	820.88	
	5.88	820.07	6.55	819.98	13.26	819.23	19.63	818.97	114.51	818.17	
	163.65	817.5	174.97	814.16	183.5	811.68	203.01	809.67	203.89	809.67	
	222.8	811.6	232.21	814.12	239.4	816.3	277.45	816.81	277.61	816.82	
	288	816.82									

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-5	.039	163.65	.039	288	.039	288	.039

Bank Sta: Left Right Lengths: Left Channel Right
 163.65 239.4
 Blocked Obstructions 9.35 9.35
 Sta L Sta R Elev Sta L Elev
 -10 825 277.535 288 821.815

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB	Channel	Expan.
E-G. Elev (ft)	815.16		0.039	
Vel Head (ft)	0.10			
W.S. Elev (ft)	815.06	9.35	9.35	9.35
Crit W.S. (ft)			217.62	
E.G. Slope (ft/ft)	0.000862		545.00	
Q Total (Cfs)	545.00		63.81	
Top Width (ft)	63.81		2.30	
Vel Total (ft/s)	2.30		18563.41	
Max Ch Depth (ft)	2.30		64.96	
Ch Top Width (ft)	18563.41		0.18	
Length Wtd. (ft)	9.35		0.00	
Min Ch El (ft)	809.67		1.13	
Alpha	1.00	288.00	0.00	0.02
Frctn Loss (ft)	0.01		0.01	
C & E Loss (ft)	0.01		0.01	

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 2.375*

INPUT

Description	Station	Elevation	Data	num=	21	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation											
	-10	821	-62	821	41	821	1.74	821	1.74	820.91	
	5.67	820.09	6.33	819.98	12.95	819.17	19.24	818.96	112.88	818.13	
	161.38	817.38	172.14	813.95	181.9	811.26	202.04	809.38	202.71	809.28	
	222.8	811.6	232.09	813.9	239.53	816.38	277.49	816.69	277.65	816.69	
	288	816.69									

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-5	.039	163.65	.039	288	.039

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Bank Sta: Left 161.38 Right 239.55 Lengths: Left Channel 2 Right Channel 2
 Blocked Obstructions 9.35 9.35 Coeff Contr. .1
 Sta L Sta R Elev Sta L Elev Sta R
 -10 0 825277.3488 288821.6887

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.15	0.039	9.35
Vel Head (ft)	0.08		
W.S. Elev (ft)	815.07		
Crit W.S. (ft)	0.000643		
E.G. Slope (ft/ft)	66.98		
Q Total (Cfs)	545.00		
Top Width (ft)	66.98		
Vel Total (ft/s)	8.14		
Max Ch Depth (ft)	5.25		
Conv. Total (Cfs)	21490.16		
Length wtd. (ft)	9.35		
Min Ch El (ft)	809.58		
Alpha	1.00		
Frctn Loss	0.01		
C & E Loss (ft)	0.00		

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 2.125*

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	21						
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	821	821	1.58	820.94		
	5.46	820.11	6.11	819.99	12.65	819.12	18.85	818.85
	139.1	810.78	170.3	810.77	180.9	809.52	217.32	809.52
	228	810.56	231.98	813.68	239.71	816.25	277.52	816.56
	288	816.56						

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-.75	.28	.039	159.1	288	.039	

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.14	0.039	9.35
Vel Head (ft)	0.06		
W.S. Elev (ft)	815.08		
Crit W.S. (ft)	0.000489		
E.G. Slope (ft/ft)	545.00		
Q Total (Cfs)	70.17		
Top Width (ft)	70.17		
Vel Total (ft/s)	1.00		
Max Ch Depth (ft)	5.58		
Conv. Total (Cfs)	24644.7		
Length wtd. (ft)	9.35		
Min Ch El (ft)	809.50		
Alpha	1.00		
Frctn Loss	0.00		
C & E Loss (ft)	0.00		

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 2.125*

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	21						
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	821	821	1.43	820.97		
	5.46	820.15	6.11	819.99	12.65	819.12	18.85	818.85
	159.1	810.78	168.3	810.77	176.8	809.52	209.44	809.52
	228	810.44	231.86	813.46	239.86	816.12	277.56	816.44
	288	816.44						

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-.75	.28	.039	159.1	288	.039	

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Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-87	.039	.14	.039	156.83	.039	288	.039
Bank Sta: Left 156.83 Right 239.86 Lengths: Left Channel 9.35 Right 9.35 Coeff Contr. .1 Expan. .3									
Blocked Obstructions num= 2									
Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R
-10	0	825277.5762	825277.5762	825277.5762	825277.5762	825277.5762	825277.5762	825277.5762	825277.5762

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.13	0.039	9.35
Vel Head (ft)	0.05		
W.S. Elev (ft)	815.08		
Crit W.S. (ft)	0.000376		
E.G. Slope (ft/ft)	73.84		
Q Total (cfs)	545.00		
Top Width (ft)	73.84		
Wetted Per. (ft)	5.67		
Max Ch Depth (ft)	28108.7		
Conv. Depth (ft)	9.35		
Length Wtd. (ft)	809.41		
Min Ch El (ft)	1.00		
Alpha	0.00		
Frctn Loss (ft)	0.00		
C & E Loss (ft)	0.00		

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 2

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	13	0	821	1727	821	5.68	820	12.04	819
Blocked Obstructions	2	107.09	818	154.56	817	177.28	816.31	199.15	809.33
Manning's n Values	3	0	.039	288	.039	288	816.31	809.33	222.05
Bank Sta: Left	154.56	Right	240.02	Lengths: Left Channel	18.08	Right	18.08	Coeff Contr.	.1
Blocked Obstructions	2	107.09	818	154.56	817	177.28	816.31	199.15	809.33
Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R
-10	0	825	277.59	288	821.31	288	821.31	288	821.31

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.13	0.039	9.35
Vel Head (ft)	0.04		
W.S. Elev (ft)	815.08		
Crit W.S. (ft)	0.000293		
E.G. Slope (ft/ft)	76.55		
Q Total (cfs)	545.00		
Top Width (ft)	76.55		
Wetted Per. (ft)	1.98		
Max Ch Depth (ft)	31844.2		
Conv. Depth (ft)	18.08		
Length Wtd. (ft)	809.33		
Min Ch El (ft)	1.00		
Alpha	0.00		
Frctn Loss (ft)	0.00		
C & E Loss (ft)	0.01		

CROSS SECTION

RIVER: East Channel
REACH: East Channel
RS: 1.75*

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	16	0	820	820	95	820	4.26	819.25	9.03
Blocked Obstructions	4	80.99	817.75	115.92	817	137.16	811	143.79	809.71
Manning's n Values	4	206.23	815.98	811.6	217.33	815.5	255.64	815.98	256.8
Bank Sta: Left	154.56	Right	240.02	Lengths: Left Channel	18.08	Right	18.08	Coeff Contr.	.1
Blocked Obstructions	4	80.99	817.75	115.92	817	137.16	811	143.79	809.71
Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R
-10	0	825	277.59	288	821.31	288	821.31	288	821.31

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Bank Sta: Left 115.92 217.33
 Right 18.08 18.08 18.08
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 255.945 266.23820.2325

Lengths: Left Channel 18.08
 Right 18.08
 Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
E-G. Elev (ft)	815.12							
Vel Head (ft)	0.03							
W.S. Elev (ft)	815.09							
Crit W.S. (ft)	0.000157							
E.G. Slope (ft/ft)	93.40							
Q Total (Cfs)	1.29							
Top Width (ft)	43471.7							
Max Chl Dp (ft)	18.08							
Wetted Per (ft)	809.02							
Length Wtd (Cfs)	1.00							
Min Ch El (ft)	0.00							
Alpha	0.00							
Frctn Loss (ft)	0.00							
C & E Loss (ft)	0.00							

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 1.5*

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	16								
Sta		819		819		818.5		6.02	818
Elev		0		2.84		809.41		143.21	808.71
53.99		817.5		102.62		110.53		815.64	234.87
172.03		809.39		181.32		815		233.68	815.66
244.3		815.66							

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-5	.039	77.28	.039	244.5	.039				
0									

Bank Sta: Left 77.28 194.64
 Right 18.08 18.08 18.08
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 234.3 244.3 819.155

Lengths: Left Channel 18.08
 Right 18.08
 Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
E-G. Elev (ft)	815.11							
Vel Head (ft)	0.02							
W.S. Elev (ft)	815.10							
Crit W.S. (ft)	0.000090							
E.G. Slope (ft/ft)	115.96							
Q Total (Cfs)	1.02							
Top Width (ft)	57502.39							
Max Chl Dp (ft)	18.08							
Wetted Per (ft)	808.71							
Length Wtd (Cfs)	1.00							
Min Ch El (ft)	0.00							
Alpha	0.00							
Frctn Loss (ft)	0.00							
C & E Loss (ft)	0.00							

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 1.25*

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	16								
Sta		818		32		817.75		3.01	817.5
Elev		0		818		809.67		77.27	115.24
-2.5		817.25		38.64		814.5		211.73	815.31
147.02		809.08		157.26		809.87		171.95	814.5
222.75		815.33							

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-2.5	.039	38.64	.039	222.75	.039				
0									

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Bank Sta: Left 38.64 Right 171.95
 Lengths: Left Channel 18.08 Right 18.08
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 212.655 222.758 18.0775

Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.11	0.039	0.039
Vel Head (ft)	0.01	18.08	18.08
W.S. Elev (ft)	815.10	18.08	18.08
Crit W.S. (ft)	0.000053	654.70	8.79
E.G. Slope (ft/ft)	545.00	543.90	1.10
Q Total (cfs)	155.06	125.67	29.38
Top Width (ft)	0.82	0.83	0.12
Vel Total (ft/s)	6.70	5.21	0.30
Max Chl Dpth (ft)	745.70	743.51	19.38
Conv. Total (cfs)	18.03	127.15	29.38
Wing Area (sq ft)	808.40	0.02	0.00
Min Chl El (ft)	1.02	0.00	0.00
Alpha	0.00	0.30	0.01
Frctn Loss	0.00	0.30	0.01
C & E Loss	0.00	0.06	0.01

CROSS SECTION

RIVER: East Channel
 REACH: East Channel

RS: 1

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	7	809	87.27	808.09	133.2	809	149.26
Sta		817	33.54	201	815		
191.01	815	201	815				

Manning's n Values

Sta	n Val	Sta	n Val
0	.039	201	.039

Bank Sta: Left 0 Right 149.26 Expan. .3

Blocked Obstructions

Sta L	Sta R	Elev
191.01	201	817

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	815.11	0.039	0.039
Vel Head (ft)	0.01	18.08	18.08
W.S. Elev (ft)	815.10	18.08	18.08
Crit W.S. (ft)	809.52	789.08	25.05
E.G. Slope (ft/ft)	0.000033	541.10	3.90
Q Total (cfs)	545.00	141.29	41.75
Top Width (ft)	183.04	0.69	0.16
Vel Total (ft/s)	0.67	5.58	0.60
Max Chl Dpth (ft)	7.01	93973.8	677.7
Conv. Total (cfs)	94651.5	142.79	41.86
Length Wtd. (ft)	808.09	0.01	0.00
Min Chl El (ft)	1.04	0.00	0.00
Alpha	0.00	0.30	0.01
Frctn Loss	0.00	0.06	0.01
C & E Loss	0.00	0.06	0.01

CROSS SECTION

RIVER: Offsite
 REACH: Offsite

RS: 6

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	14	822	4	821.95	73.22	821	142
Sta		820	152	164	815	166.51	815
210.37	819	219.5	822	223.78	822.15	239.13	822.47

Manning's n Values

Sta	n Val	Sta	n Val
10	.039	142	.039
166.51	.02	210.37	.057
219.5	.039	223.78	.02

Bank Sta: Left 149 Right 219.5 Lengths: Left Channel 41.5 Right 41.5 Expan. .3

Blocked Obstructions

Sta L	Sta R	Elev
149	219.5	219.5

CPNPPLOCA1PMP

Sta L Sta R Elev
-10 827

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	821.64	Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Left OB	Right OB
Vel Head (ft)	820.54	Wt. n-Val.	822	0.08	821.97	2.9	821.48	3.89	821.47		41.50	41.50	
W.S. Elev (ft)	819.64	Flow Len. (ft)	822	129.67	820.13	140.82	819.79	143.2	819.72				
Crit W.S. (ft)	819.64	Flow Area (sq ft)	822	162.26	815.5	165.26	814.5	167.98	814.5				
E.G. Slope (ft/ft)	0.006149	Area (sq ft)	822	216.85	818.96	217.04	819.03	227.71	822.5				
Q Total (Cfs)	2421.00	Flow (cfs)	822	242.10	818.96	217.04	819.03	227.71	822.5				
Top Width (ft)	104.18	Top width (ft)	822	104.18	818.96	217.04	819.03	227.71	822.5				
Vel Total (ft/s)	8.38	Avg. Vel. (ft/s)	822	8.38	818.96	217.04	819.03	227.71	822.5				
Max Chl Dpth (ft)	5.50	Hydr. Depth (ft)	822	5.50	818.96	217.04	819.03	227.71	822.5				
Conv. Total (Cfs)	30873.6	Wetted Per. (ft)	822	30873.6	818.96	217.04	819.03	227.71	822.5				
Length Wtd. (ft)	41.50	Shear (lb/sq ft)	822	41.50	818.96	217.04	819.03	227.71	822.5				
Min Ch El (ft)	815.00	Stream Power (lb/ft s)	822	815.00	818.96	217.04	819.03	227.71	822.5				
Frctn Loss (ft)	0.75	Cum Vol (acre-ft)	822	0.75	818.96	217.04	819.03	227.71	822.5				
C & E Loss (ft)	0.12	Cum SA (acres)	822	0.12	818.96	217.04	819.03	227.71	822.5				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 5.5*

INPUT

Description:	Station	Elevation	Data	num=	23
Sta	Elev	Sta	Elev	Sta	Elev
-10	822	-08	822	08	821.97
4.11	821.47	73.88	820.72	129.67	820.13
150.26	819.5	153.26	818.5	162.26	815.5
202.38	814.5	206.57	815.58	216.85	818.96
232.16	822.61	233.33	822.33	248.12	822.91

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	0.39	-08	08	0.39	3.89	0.21	4.11	0.2
140.82	0.39	143.2	0.41	150.26	0.57	164.02	0.25	169.49
200.75	0.05	217.68	0.051	227.71	0.039	232.16	0.022	233.33
248.12	0.02							

Bank Sta: Left 150.26 Right 227.71 Lengths: Left channel 41.5 Right 41.5

Blocked Obstructions Sta L Sta R Elev num= 1

Sta L Sta R Elev
-10 827

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	821.30	Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Left OB	Right OB
Vel Head (ft)	820.56	Wt. n-Val.	822	0.74	821.00	2.9	821.00	3.89	821.00		41.50	41.50	
W.S. Elev (ft)	819.64	Flow Len. (ft)	822	129.67	820.13	140.82	819.79	143.2	819.72				
Crit W.S. (ft)	819.64	Flow Area (sq ft)	822	162.26	815.5	165.26	814.5	167.98	814.5				
E.G. Slope (ft/ft)	0.004442	Area (sq ft)	822	216.85	818.96	217.04	819.03	227.71	822.5				
Q Total (Cfs)	2421.00	Flow (cfs)	822	242.10	818.96	217.04	819.03	227.71	822.5				
Top Width (ft)	133.16	Top width (ft)	822	133.16	818.96	217.04	819.03	227.71	822.5				
Vel Total (ft/s)	6.05	Avg. Vel. (ft/s)	822	6.05	818.96	217.04	819.03	227.71	822.5				
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)	822	6.05	818.96	217.04	819.03	227.71	822.5				
Conv. Total (Cfs)	36323.4	Wetted Per. (ft)	822	36323.4	818.96	217.04	819.03	227.71	822.5				
Length Wtd. (ft)	41.50	Shear (lb/sq ft)	822	41.50	818.96	217.04	819.03	227.71	822.5				
Min Ch El (ft)	814.50	Stream Power (lb/ft s)	822	814.50	818.96	217.04	819.03	227.71	822.5				
Frctn Loss (ft)	1.07	Cum Vol (acre-ft)	822	1.07	818.96	217.04	819.03	227.71	822.5				
C & E Loss (ft)	0.15	Cum SA (acres)	822	0.15	818.96	217.04	819.03	227.71	822.5				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 5

INPUT

Description:	Station	Elevation	Data	num=	15
Sta	Elev	Sta	Elev	Sta	Elev
142	819.24	151.51	816	163.51	814
211.4	815	223.55	819	235.93	823

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
142	0.74	151.51	816	0.74	163.51	814	0.74	235.93
211.4	0.05	223.55	819	0.05	235.93	823	0.05	257.1

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Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	142	.039	151.51	.057				
166.51	.02	206.54	.057	235.93	.039	241.76	.02				
Bank Sta: Left 151.51 Right 235.93 Lengths: Left Channel 27.64 Right 27.64 Coeff Contr. .1 Expan. .3											
Blocked Obstructions num= 1											
Sta L	Sta R	Elev	num=								
-10	0	827									

CROSS SECTION OUTPUT Profile #PF 1												
E.G. Elev (ft)	821.09	Element								Left OB	Channel	Right OB
Vel Head (ft)	0.50	wt. n-Val.	0.026	821.02	3.07	821	Elev			0.040	0.040	27.64
W.S. Elev (ft)	820.58	Reach Len. (ft)	27.64	820.23	114.67	819.79	130.06	819.63		27.64	401.74	
Crit W.S. (ft)	0.002825	Flow Area (sq ft)	44.22	820.23	114.67	819.79	130.06	819.63		44.22	401.74	
E.G. Slope (ft/ft)	241.30	Area (sq ft)	93.40	819.79	163.35	814.79	164.98	814.24		44.22	401.74	
Top width (ft)	175.43	Top width (ft)	93.40	819.79	163.35	814.79	164.98	814.24		233.94	753.94	
Vel Total (ft/s)	5.43	AVG Vel (ft/s)	2.11	819.79	163.35	814.79	164.98	814.24		5.79	5.79	
Max Chl Dpth (ft)	6.58	Hvdr. Depth (ft)	0.46	819.79	163.35	814.79	164.98	814.24		5.22	5.22	
Conv. Total (cfs)	45549.6	Conv. (cfs)	1788.6	819.79	163.35	814.79	164.98	814.24		1788.6	43761.0	
Length wtd. (ft)	27.64	wetted per. (ft)	95.43	819.79	163.35	814.79	164.98	814.24		95.43	78.74	
Min Ch El (ft)	814.00	Shear (lb/sq ft)	257.10	819.79	163.35	814.79	164.98	814.24		0.08	0.90	
Alpha	1.10	Stream Power (lb/ft s)	3.96	819.79	163.35	814.79	164.98	814.24		0.00	0.00	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.26	819.79	163.35	814.79	164.98	814.24		54.45	54.45	
C & E Loss (ft)	0.04	Cum SA (acres)	0.26	819.79	163.35	814.79	164.98	814.24		0.26	0.92	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite
RS: 4.5*

INPUT

Description: Station Elevation Data num= 26											
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	827	.057	821.02	3.07	821	Elev			821	Elev
3.93	820.99	24.32	820.76	71.37	820.23	114.67	819.79	130.06	819.63		
141.24	819.29	150.7	819	162.12	815.19	163.35	814.79	164.98	814.24		
166.51	813.78	211.64	813.78	213.4	814.18	216.48	815	216.51	815		
225.68	818.01	228.65	818.98	241.04	823	247.11	823.18	248.33	823.22		
263.09	823.53										

Manning's n Values num= 16											
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
114.0	.039	141.24	.06	150.7	.039	162.12	.057	163.35	.02	164.98	.02
209.59	.055	213.45	.056	241.04	.039	247.11	.022	248.33	.02		
263.09	.02										

Bank Sta: Left 150.7 Right 241.04 Lengths: Left Channel 27.64 Right 27.64 Coeff Contr. .1 Expan. .3											
Blocked Obstructions num= 1											
Sta L	Sta R	Elev	num=								
-10	0	827									

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)												
Vel Head (ft)	0.38	Element								Left OB	Channel	Right OB
W.S. Elev (ft)	820.61	wt. n-Val.	0.032	820.61	72.46	820.61	72.46	820.61	72.46	0.040	0.040	27.64
Crit W.S. (ft)	0.001977	Flow Area (sq ft)	72.46	820.61	72.46	820.61	72.46	820.61	72.46	72.46	453.33	
E.G. Slope (ft/ft)	2421.00	Area (sq ft)	129.38	820.61	72.46	820.61	72.46	820.61	72.46	129.38	2291.62	
Top width (ft)	195.75	Flow (cfs)	112.79	820.61	72.46	820.61	72.46	820.61	72.46	112.79	82.96	
Vel Total (ft/s)	4.60	AVG Vel. (ft/s)	1.79	820.61	72.46	820.61	72.46	820.61	72.46	5.06	5.06	
Max Chl Dpth (ft)	6.83	Hvdr. Depth (ft)	0.64	820.61	72.46	820.61	72.46	820.61	72.46	0.64	5.46	
Conv. Total (cfs)	54442.9	Conv. (cfs)	2999.5	820.61	72.46	820.61	72.46	820.61	72.46	51533.4	51533.4	
Length wtd. (ft)	27.64	wetted per. (ft)	110.08	820.61	72.46	820.61	72.46	820.61	72.46	8.64	8.64	
Min Ch El (ft)	813.98	Stream Power (lb/ft s)	263.09	820.61	72.46	820.61	72.46	820.61	72.46	0.00	0.00	
Alpha	1.15	Cum Volume (acre-ft)	0.19	820.61	72.46	820.61	72.46	820.61	72.46	54.18	54.18	
Frctn Loss (ft)	0.04	Cum SA (acres)	0.19	820.61	72.46	820.61	72.46	820.61	72.46	7.50	7.50	
C & E Loss (ft)	0.03			820.61	72.46	820.61	72.46	820.61	72.46	0.87	0.87	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite
RS: 4

INPUT

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Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	23.95	820.69	70.96	820	820	820
114.05	819.45	149.9	819	161.9	815	164.9	814	166.51	813.56
116.75	813.56	218.51	814	221.58	815	230.79	818	246.14	823
253.73	823.33	269.08	823.72						

Manning's n Values									
Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	23.95	.02	114.05	.039	149.9	.057
166.51	.02	216.75	.057	246.14	.039	253.73	.02		

Bank Sta: Left Right Lengths: Left Channel Right									
Sta L	Sta R	Elev	num=	Left	Channel	Right	Coeff	Contr.	Expan.
-10	0	827	1	10.99	10.99	10.99	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.91		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.28	0.28	0.28	Wt. n-Val.	0.029	0.029	0.039	0.039	0.039	0.039	10.99
W.S. Elev (ft)	820.63	820.63	820.63	Reach Len. (ft)	102.80	102.80	507.64	507.64	507.64	507.64	10.99
Crit W.S. (ft)	0.001332	0.001332	0.001332	Flow Area (sq ft)	190.11	190.11	2230.89	2230.89	2230.89	2230.89	10.99
E.G. Slope (ft/ft)	2421.00	2421.00	2421.00	Area (sq ft)	121.81	121.81	88.96	88.96	88.96	88.96	10.99
Q Total (cfs)	210.77	210.77	210.77	Top width (ft)	1.85	1.85	5.79	5.79	5.79	5.79	10.99
Vel Total (ft/s)	7.07	7.07	7.07	Avg. Vel (ft/s)	1.85	1.85	5.79	5.79	5.79	5.79	10.99
Wetted Per. (ft)	66331.3	66331.3	66331.3	Conv. (cfs)	5208.6	5208.6	61122.6	61122.6	61122.6	61122.6	10.99
Length Wtd. (ft)	10.99	10.99	10.99	Wetted Per. (ft)	121.82	121.82	90.94	90.94	90.94	90.94	10.99
Min Ch El (ft)	813.56	813.56	813.56	Stream Power (lb/sq ft)	269.08	269.08	0.00	0.00	0.00	0.00	10.99
Alpha	1.15	1.15	1.15	Cum Volume (acre-ft)	3.87	3.87	53.88	53.88	53.88	53.88	10.99
Frctn Loss (ft)	0.01	0.01	0.01	Cum SA (acres)	0.12	0.12	0.81	0.81	0.81	0.81	10.99
C & E Loss (ft)	0.03	0.03	0.03								10.99

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 3.5*

INPUT

Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
21.43	819.82	21.7	819.82	64.94	819.5	104.158	813.84	160.11	813.87
152.15	815.23	154.01	814.74	155.69	814.25	814.87	224.35	815.13	815.13
218.65	833.47	220.44	813.9	221.34	814.14	223.56	814.87	224.35	815.13
232.92	817.92	233.41	818.08	248.52	823	256.11	823.31	271.46	823.79

Manning's n Values									
Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	138.01	.039	157.08	.024	162.52	.022	214.77	.055
248.52	.039	256.11	.02	271.46	.02				

Bank Sta: Left Right Lengths: Left Channel Right									
Sta L	Sta R	Elev	num=	Left	Channel	Right	Coeff	Contr.	Expan.
-10	0	827	1	10.99	10.99	10.99	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.87		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.19	0.19	0.19	Wt. n-Val.	0.036	0.036	0.039	0.039	0.039	0.039	10.99
W.S. Elev (ft)	820.68	820.68	820.68	Reach Len. (ft)	156.57	156.57	607.86	607.86	607.86	607.86	10.99
Crit W.S. (ft)	0.000877	0.000877	0.000877	Flow Area (sq ft)	224.79	224.79	2196.21	2196.21	2196.21	2196.21	10.99
E.G. Slope (ft/ft)	2421.00	2421.00	2421.00	Area (sq ft)	132.00	132.00	103.39	103.39	103.39	103.39	10.99
Q Total (cfs)	235.40	235.40	235.40	Top width (ft)	1.44	1.44	3.61	3.61	3.61	3.61	10.99
Vel Total (ft/s)	3.17	3.17	3.17	Avg. Vel (ft/s)	1.19	1.19	5.88	5.88	5.88	5.88	10.99
Wetted Per. (ft)	81741.6	81741.6	81741.6	Hydr. Depth (ft)	7589.7	7589.7	74152.0	74152.0	74152.0	74152.0	10.99
Length Wtd. (ft)	10.99	10.99	10.99	Conv. (cfs)	132.04	132.04	105.21	105.21	105.21	105.21	10.99
Min Ch El (ft)	813.47	813.47	813.47	Stream Power (lb/sq ft)	271.46	271.46	0.00	0.00	0.00	0.00	10.99
Alpha	1.20	1.20	1.20	Cum Volume (acre-ft)	3.83	3.83	53.74	53.74	53.74	53.74	10.99
Frctn Loss (ft)	0.01	0.01	0.01	Cum SA (acres)	0.08	0.08	0.79	0.79	0.79	0.79	10.99
C & E Loss (ft)	0.02	0.02	0.02								10.99

Note: Manning's n values were composited to a single value in the main channel.

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CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 3

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	19.15	819	126.12	819		
143.79	815	148.21	814	153.79	813.39	220.55	813.39	223.28	814
226.34	815	235.55	818	250.9	823	258.49	823.29	273.84	823.87

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	0	126.12	.057	153.79	.02	220.55	.057
230.9	.039	258.49						

Bank Sta: Left 126.12 Right 250.9

Blocked Obstructions num= 1 Lengths: Left Channel 1.98 Right 1.98 Coeff Contr. .1 Expan. .3

Sta L Sta R Elev

-10 827

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	820.71	Reach Len. (ft)	1.98	1.98	1.98
Crit W.S. (ft)	820.71	Flow Area (sq ft)	200.04	709.46	2165.30
E.G. Slope (ft/ft)	0.000585	Area (sq ft)	200.04	709.46	2165.30
Q Total (Cfs)	2421.00	Flow (cfs)	255.70	2165.30	117.26
Top Width (ft)	240.02	Top Width (ft)	122.26	117.26	3.05
Vel Total (ft/s)	2.66	Avg. Vel. (ft/s)	1.28	1.64	6.02
Max Ch Dpth (ft)	7.32	Hydr. Depth (ft)	1.64	6.02	89539.0
Conv. Total (cfs)	100112.6	Wetted Per. (ft)	10573.6	119.49	0.22
Length Wtd. (ft)	813.39	Shear (lb/sq ft)	122.41	119.49	0.22
Min Ch El (ft)	1.70	Stream Power (lb/ft s)	273.74	53.57	7.50
Frict Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.76	0.76
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	0.76	0.76

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2.91666*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	-68	822	4.91	820.17	17.17	819.25
70.37	819.08	116.88	819	133.51	814.96	137.67	813.95
204.12	813.27	208.36	813.85	213.12	814.78	227.45	817.57
237.23	819.48	244.96	820.96	245.72	821.17	246.35	821.38
251.33	823	258.89	823.29	259.25	823.31	274.18	823.88

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-68	40.23	.045	116.88	.057	121.39	.049
146.7	.02	218.63	233.8	.048	251.33	.039	258.89	.02
259.25	.02	274.18						

Bank Sta: Left 116.88 Right 251.33

Blocked Obstructions num= 1 Lengths: Left Channel 1.98 Right 1.98 Coeff Contr. .1 Expan. .3

Sta L Sta R Elev

-10 827

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.84	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.14 <td>Wt. n-Val. <td>0.043</td> <td>0.035</td> <td>0.035</td> </td></td>	0.14 <td>Wt. n-Val. <td>0.043</td> <td>0.035</td> <td>0.035</td> </td>	Wt. n-Val. <td>0.043</td> <td>0.035</td> <td>0.035</td>	0.043	0.035	0.035
W.S. Elev (ft) <td>820.71</td> <td>Reach Len. (ft) <td>1.98</td> <td>1.98</td> <td>1.98</td> </td>	820.71	Reach Len. (ft) <td>1.98</td> <td>1.98</td> <td>1.98</td>	1.98	1.98	1.98
Crit W.S. (ft) <td>820.71</td> <td>Flow Area (sq ft) <td>170.29</td> <td>731.37</td> <td>2245.14</td> </td>	820.71	Flow Area (sq ft) <td>170.29</td> <td>731.37</td> <td>2245.14</td>	170.29	731.37	2245.14
E.G. Slope (ft/ft) <td>0.000523</td> <td>Area (sq ft) <td>170.29</td> <td>731.37</td> <td>2245.14</td> </td>	0.000523	Area (sq ft) <td>170.29</td> <td>731.37</td> <td>2245.14</td>	170.29	731.37	2245.14
Q Total (Cfs)	2421.00	Flow (cfs) <td>175.86</td> <td>126.76</td> <td>3.07</td>	175.86	126.76	3.07
Top Width (ft)	240.37	Top Width (ft) <td>113.61</td> <td>126.76</td> <td>3.07</td>	113.61	126.76	3.07
Vel Total (ft/s)	2.69	Avg. Vel. (ft/s) <td>1.05</td> <td>1.05</td> <td>6.02</td>	1.05	1.05	6.02
Max Ch Dpth (ft)	7.32	Hydr. Depth (ft) <td>1.05</td> <td>6.02</td> <td>98147.1</td>	1.05	6.02	98147.1
Conv. Total (cfs)	105834.4	Wetted Per. (ft) <td>7687.9</td> <td>113.73</td> <td>128.11</td>	7687.9	113.73	128.11
Length Wtd. (ft)	813.27	Shear (lb/ft s) <td>113.73</td> <td>113.73</td> <td>0.19</td>	113.73	113.73	0.19
Min Ch El (ft)	1.72	Stream Power (lb/ft s) <td>274.18</td> <td>0.00</td> <td>0.00</td>	274.18	0.00	0.00
Frict Loss (ft)	0.00				
C & E Loss (ft)	0.00				

Frctn Loss (ft) 0.00 Cum Volume (acre-ft) 53.54
 C & E Loss (ft) 0.00 Cum SA (acres) 3.78 0.76

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
 REACH: Offsite

RS: 2.833333*

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	810.822	107.36	820.33	15.19	819.5	36.57	819.5	819.5	819.5
67	813.16	193.84	814.52	219.33	817.14	220.95	817.88	817.88	817.88
232	823.62	243.11	820.26	244.15	820.52	244.99	820.8	247.53	821.62
251.76	823	259.29	823.3	259.64	823.31	274.52	823.89		

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-1.36	.039	36.57	.044	107.64	.057	112.47	.046
139.6	.021	216.7	.054	232.97	.047	251.76	.039	259.29	.02
259.64	.02	274.52							

Bank Sta: Left Right

Lengths: Left Channel Right Coeff Contr. Expan.

Blocked Obstructions num=

Sta L	Sta R	Elev	num=
-10	0	827	1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.043	0.035	
W.S. Elev (ft)	820.71	Reach Len. (ft)	1.98	1.98	1.98
Crcl S. (ft)	0.000502	Flow Area (sq ft)	143.67	763.41	
E. Total (cfs)	2421.00	Area (cfs)	139.56	2281.44	
Top width (ft)	242.07	Top width (ft)	104.99	137.08	
Vel Total (ft/s)	2.66	Avg. Vel. (ft/s)	0.97	2.98	
Max Chl Dpth (ft)	7.55	Hydr. Depth (ft)	1.37	5.58	
Conv. Total (cfs)	108054.0	Conv. (cfs)	6228.8	101825.1	
Length wtd. (ft)	1.98	wetted Per. (ft)	105.08	138.31	
Min Ch El (ft)	813.16	Shear (lb/sq ft)	274.52	0.17	
Alpha	1.19	Stream Power (lb/ft s)	3.77	53.50	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.04	0.75	
C & E Loss (ft)	0.00	Cum SA (acres)			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
 REACH: Offsite

RS: 2.73*

INPUT

Description: Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	-2.04	822	2.74	820.5	13.21	819.75
58.67	819.25	98.4	819	112.95	814.88	116.58	813.85
171.24	813.04	178.53	813.54	186.69	814.33	211.25	816.71
228.01	818.34	241.27	819.55	242.57	819.87	243.64	820.22
252.18	823	259.69	823.3	260.04	823.32	274.87	823.9

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-2.04	.039	32.97	.048	98.4	.057
132.51	.021	214.98	.052	232.14	.046	252.18	.039
260.04	.02	274.87	.02				

Bank Sta: Left Right

Lengths: Left Channel Right Coeff Contr. Expan.

Blocked Obstructions num=

Sta L	Sta R	Elev	num=
-10	0	827	1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.043	0.034	
W.S. Elev (ft)	820.72	Reach Len. (ft)	1.98	1.98	1.98
Crcl w.s. (ft)		Flow Area (sq ft)	119.84	812.20	

CPNPPLOCA\1PMP

E.G. Slope (ft/ft)	0.000444	Area (sq ft)	119.84	812.20
Q Total (cfs)	2421.00	Flow (cfs)	103.71	2317.29
Top Width (ft)	243.12	Top Width (ft)	96.35	146.77
Vel Total (ft/s)	2.60	Avg. Vel. (ft/s)	0.87	2.85
Max Chl Dpth (ft)	7.68	Hydr. Depth (ft)	1.24	5.53
Conv. Total (cfs)	114876.0	Conv. (cfs)	4921.0	109937.0
Length wtd. (ft)	813.04	Wetted Per. (ft)	9.01	146.14
Alpha	1.16	Stream Power (lb/ft.s)	274.87	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.77	53.47
C & E Loss (ft)	0.00	Cum SA (acres)	0.04	0.74

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2.666666*

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	24								
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	822	-2.71	822	1.66	11.24	820	29.26	820	
	52.81	819.33	89.17	819	102.66	106.04	813.8	110.3	812.93	
	154.81	812.93	163.61	813.38	173.47	203.15	816.28	211.63	816.91	
	252.61	817.93	239.86	823.3	260.44	275.21	823.31	246.16	820.9	

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-2.71	820	.043	89.17	.057	94.64	.041
125.41	.021	212.86	.05	231.31	.045	252.61	.039	260.09
260.44	.02	275.21						.02

Bank Sta: Left 89.17 Right 252.61 Lengths: Left Channel 1.98 Right 1.98 Coeff Contr. 1.1

Blocked obstructions num= 1

Sta	n	Elev
-10	0	827

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length wtd. (ft)	Alpha	Frctn Loss (ft)	C & E Loss (ft)	Left OB	Channel	Right OB
820.83	0.11	820.72	0.000370	2421.00	2.60	7.68	114876.0	813.04	1.16	0.00	0.00	0.043	0.033	1.98
wt. n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Top Width (ft)	Top Area (sq ft)	Avg Vel (ft/s)	Hydr. Depth (ft)	Wetted Per. (ft)	Stream Power (lb/sq ft)	Cum Volume (acre-ft)	Cum SA (acres)		0.043	0.033	1.98
0.11	820.72	98.38	2421.00	2445.28	2.60	7.68	114876.0	813.04	274.87	3.77	0.04	98.38	870.58	1.98
0.000370	2421.00	98.38	2421.00	2445.28	2.60	7.68	114876.0	813.04	274.87	3.77	0.04	98.38	870.58	1.98
2.60	7.68	114876.0	813.04	274.87	3.77	0.04	98.38	870.58	1.98			98.38	870.58	1.98
114876.0	813.04	274.87	3.77	0.04	98.38	870.58	1.98					98.38	870.58	1.98
813.04	274.87	3.77	0.04	98.38	870.58	1.98						98.38	870.58	1.98
274.87	3.77	0.04	98.38	870.58	1.98							98.38	870.58	1.98
3.77	0.04	98.38	870.58	1.98								98.38	870.58	1.98
0.04	98.38	870.58	1.98									98.38	870.58	1.98
98.38	870.58	1.98										98.38	870.58	1.98
870.58	1.98											870.58	1.98	
1.98												1.98		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2.583333*

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	24						
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	827	-3.39	827	57	820.83	926	820.25
	46.96	819.42	79.93	819	92.38	814.8	95.5	813.75
	138.38	812.81	148.69	813.23	160.25	813.89	195.05	815.85
	218.79	817.19	237.57	818.14	239.43	240.94	245.48	820.54
	253.04	823	260.49	823.31	260.84	275.55	823.92	

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-3.39	827	.043	89.17	.057	94.64	.041
118.32	.022	210.34	.05	231.31	.045	252.61	.039	260.09
260.84	.02	275.55						.02

Bank Sta: Left 79.93 Right 253.04 Lengths: Left Channel 1.98 Right 1.98 Coeff Contr. 1.1

Blocked obstructions num= 1

CPNPPLOCA1PMP

Sta L Sta R Elev
-10 827

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.83	Element		Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.043	0.043	1.98	1.98
W.S. Elev (ft)	820.75	Reach Len. (ft)	1.98	1.98		
Crit W.S. (ft)	820.75	Flow Area (sq ft)	78.98	941.25		
E.G. Slope (ft/ft)	0.000307	Area (sq ft)	78.98	941.25		
Q Total (Cfs)	2421.00	Flow (cfs)	52.93	2368.08		
Top Width (ft)	244.04	Top Width (ft)	77.90	166.14		
Vel Total (ft/s)	2.37	Avg. Vel. (ft/s)	0.67	2.52		
Max Chl Dpth (ft)	138203.7	Hydr. Depth (ft)	1.01	5.67		
Conv. Total (Cfs)	1.98	Conv. (Cfs)	3021.2	135182.5		
Length Wtd. (ft)	812.81	Wetted Per. (ft)	77.93	167.65		
Min Ch El (ft)	0.00	Shear (lb/sq ft)	0.02	0.11		
Friction Loss (ft)	0.00	Stream Power (lb/ft s)	273.75	53.30		
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.73		
		Cum SA (acres)	0.03	0.73		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2.5*

INPUT

Description:	Station	Elevation	Data	num=	24
	Sta	Elev	Sta	Elev	Sta
	-10	822	-4.07	822	820.5
	41.11	819.5	70.69	819	820.5
	121.94	812.7	133.77	813.08	813.71
	214.48	816.62	235.73	817.43	186.95
	253.47	823	260.89	823.31	239.59
					818.48
					244.79
					820.17

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-4.07	21.94	.042	70.69	76.82	.036	
111.22	.022	209.01	.047	253.47	.039	260.89	.02	
261.24	.02	275.9	.02					

Bank Sta: Left 70.69 Right 253.47

Blocked Obstructions num= 1

Sta L Sta R Elev num= 1

-10 827

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.82	Element		Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.042	0.042	0.032	1.98
W.S. Elev (ft)	820.74	Reach Len. (ft)	1.98	1.98	1.98	1.98
Crit W.S. (ft)	820.74	Flow Area (sq ft)	62.30	1023.45		
E.G. Slope (ft/ft)	0.000244	Area (sq ft)	62.30	1023.45		
Q Total (Cfs)	2421.00	Flow (cfs)	37.17	2383.83		
Top Width (ft)	243.02	Top Width (ft)	67.17	175.85		
Vel Total (ft/s)	8.23	Avg. Vel. (ft/s)	0.90	5.33		
Max Chl Dpth (ft)	154896.04	Hydr. Depth (ft)	2378.93	152518.1		
Conv. Total (Cfs)	1.98	Conv. (Cfs)	67.21	177.54		
Length Wtd. (ft)	812.70	Wetted Per. (ft)	0.01	0.09		
Min Ch El (ft)	0.00	Shear (lb/ft s)	275.90	53.34		
Friction Loss (ft)	0.00	Stream Power (lb/ft s)	3.75	0.00		
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.03	0.72		
		Cum SA (acres)	0.03	0.72		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2.41666*

INPUT

Description:	Station	Elevation	Data	num=	24
	Sta	Elev	Sta	Elev	Sta
	-10	822	-4.07	822	820.72
	35.10	810.822	61.72	811.77	19.29
	105.10	817.58	118.92	818.41	89.75
	209.57	816.05	233.88	817.81	178.81
	253.9	823	261.29	823.32	238.24
					817.26
					276.24
					823.95

CPNPPLOCA1PMP

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-4.75	18.29	.042	61.45	67.9	.033	
104.13	.022	207.09	.045	228.81	.043	253.9	.039	261.29
261.64	.02	276.24						

Bank Sta: Left Right

Lengths:	Left Channel	Right Channel	Expan.
61.45	1.98	1.98	.1
253.9	1.98	1.98	.3

Blocked obstructions

Sta	L	Sta	R	Elev	num=
-10		0	827		1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.042	0.031	1.98
W.S. Elev (ft)	820.75	Reach Len. (ft)	1.98	1.98	
Crit W.S. (ft)	820.75	Flow Area (sq ft)	48.13	111.72	
E. G. Slope (ft/ft)	0.000186	Area (sq ft)	48.13	111.72	
Q Total (cfs)	2421.00	Flow (cfs)	24.96	2396.04	
Top Width (ft)	228.69	Top Width (ft)	43.15	185.54	
Vel Total (ft/s)	2.08	Avg. Vel. (ft/s)	0.52	2.14	
Max Chl Dpth (ft)	8.17	Hydr. Depth (ft)	1.12	6.02	
Conv. Total (cfs)	177496.9	Conv. (cfs)	1830.1	175666.7	
Length wrd. (ft)	1.98	wetted Per. (ft)	43.20	187.45	
Min Ch El (ft)	812.58	Shear (lb/sq ft)	0.01	0.07	0.00
Alpha	1.06	Stream Power (lb/ft s)	276.24	0.00	7.50
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.75	53.29	
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	0.71	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2.33333*

INPUT

Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev
-10	822	-2.69	821.33	3.32	821
29.41	819.67	52.21	814.69	63.87	813.61
89.07	812.46	103.93	817.22	170.75	814.57
204.96	815.48	232.04	816.02	234.71	816.61
254.33	823	261.69	823.32	262.04	823.33
					276.58
					823.96

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
52.21	.030	14.63	63.87	.042	52.21	58.99	.03	
97.03	.023	203.17	103.93	.043	227.98	170.75	.039	261.69
262.04	.02	276.58						

Bank Sta: Left Right

Lengths:	Left Channel	Right Channel	Expan.
52.21	1.98	1.98	.1
254.33	1.98	1.98	.3

Blocked obstructions

Sta	L	Sta	R	Elev	num=
-10		0	827		1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.042	0.031	1.98
W.S. Elev (ft)	820.76	Reach Len. (ft)	1.98	1.98	
Crit W.S. (ft)	820.76	Flow Area (sq ft)	38.98	1223.71	
E. G. Slope (ft/ft)	0.000144	Area (sq ft)	38.98	1223.71	
Q Total (cfs)	2421.00	Flow (cfs)	18.22	2402.78	
Top Width (ft)	230.11	Top Width (ft)	34.88	195.23	
Vel Total (ft/s)	1.92	Avg. Vel. (ft/s)	0.47	1.96	
Max Chl Dpth (ft)	8.30	Hydr. Depth (ft)	1.12	6.27	
Conv. Total (cfs)	201936.0	Conv. (cfs)	1519.7	200416.3	
Length wrd. (ft)	1.98	wetted Per. (ft)	39.04	191.00	
Min Ch El (ft)	812.48	Stream Power (lb/ft s)	0.01	0.00	0.00
Alpha	1.04	Cum Volume (acre-ft)	276.58	0.00	7.50
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.75	53.24	
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	0.70	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2.25*

INPUT

CPNPPLOCA1PMP

Description:		Station Elevation Data		num= 24		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	-6.11	822	-3.77	821.5	1.34	821.25	10.97	821.25	10.97	821.25	10.97	821.25	10.97	821.25
23.56	819.75	42.98	819	151.26	814.65	53.33	813.36	53.94	813.36	53.94	813.36	53.94	813.36	53.94	813.36
202.64	812.35	89.02	812.62	337.38	813.58	162.64	814.74	178.44	814.74	178.44	814.74	178.44	814.74	178.44	814.74
254.76	823.32	202.09	823.32	282.43	823.32	276.92	823.32	276.92	823.32	276.92	823.32	276.92	823.32	276.92	823.32

Manning's n values		num= 12		Sta		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	.039	-6.11	.039	10.97	.041	42.98	.057	50.07	.028	50.07	.028	50.07	.028	50.07	.028
89.94	.023	203.24	.042	227.15	.041	254.76	.039	262.09	.021	262.09	.021	262.09	.021	262.09	.021
262.43	.02	276.92	.02												

Bank Sta:		Left	Right	Lengths:		Left Channel	Right	Coeff Contr.		Expan.
Sta L	Sta R	Elev	Elev	num=	num=	num=	num=	num=	num=	num=
-10	827	42.98	254.76	1	1	1.98	1.98	1.98	1.98	1.98

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	wt. n-Val.	0.041	0.030	
W.S. Elev (ft)	820.76	Reach Len. (ft)	1.98	1.98	1.98
Crit W.S. (ft)	0.000109	Flow Area (sq ft)	31.27	1340.73	1340.73
E.G. Slope (ft/ft)	231.80	Area (sq ft)	27.06	298.64	298.64
Top width (ft)	231.80	Top width (ft)	27.06	208.64	208.64
Vel Total (ft/s)	1.76	AVG Vel (ft/s)	0.41	1.80	1.80
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)	1.12	6.54	6.54
Conv. Total (cfs)	231451.7	Conv. (cfs)	1219.8	230231.9	230231.9
Length wtd. (ft)	1.98	wetted per. (ft)	28.00	207.37	207.37
Min Ch El (ft)	812.35	Shear (lb/sq ft)	0.01	0.04	0.04
Alpha	1.03	Stream Power (lb/ft s)	276.92	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.75	53.18	53.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	0.70	0.70

Note: Manning's n values were composited to a single value in the main channel.

GROSS SECTION

RIVER: Offsite
REACH: Offsite
RS: 2.16666*

Description:		Station Elevation Data		num= 24		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	827	-6.79	827	-4.86	821.67	-63	821.5	7.33	821.5	7.33	821.5	7.33	821.5	7.33	821.5
17.7	819.83	33.74	819	40.98	814.61	42.79	813.51	45.07	813.51	45.07	813.51	45.07	813.51	45.07	813.51
56.2	812.23	74.1	812.46	94.16	812.77	154.54	813.71	171.81	813.71	171.81	813.71	171.81	813.71	171.81	813.71
195.75	814.34	228.34	814.61	231.56	815.3	234.18	816.16	242.06	816.16	242.06	816.16	242.06	816.16	242.06	816.16
255.18	823	262.49	823.33	262.83	823.34	277.27	823.98								

Manning's n values		num= 12		Sta		Elev		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	.039	-6.79	.039	7.31	.04	33.74	.057	41.16	.025	41.16	.025	41.16	.025	41.16	.025
82.84	.024	201.52	.04	226.31	.041	255.18	.039	262.49	.021	262.49	.021	262.49	.021	262.49	.021
262.83	.02	277.27	.02												

Bank Sta:		Left	Right	Lengths:		Left Channel	Right	Coeff Contr.		Expan.
Sta L	Sta R	Elev	Elev	num=	num=	num=	num=	num=	num=	num=
33.74	255.18	1.98	1.98	1	1	1.98	1.98	1.98	1.98	1.98

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	wt. n-Val.	0.041	0.030	
W.S. Elev (ft)	820.77	Reach Len. (ft)	1.98	1.98	1.98
Crit W.S. (ft)	0.000084	Flow Area (sq ft)	24.46	1470.33	1470.33
E.G. Slope (ft/ft)	2421.00	Area (sq ft)	8.97	2412.03	2412.03
Top width (ft)	236.48	Flow width (ft)	21.88	214.60	214.60
Vel Total (ft/s)	1.62	AVG Vel. (ft/s)	0.37	1.64	1.64
Max Chl Dpth (ft)	8.54	Hydr. Depth (ft)	1.12	6.85	6.85
Conv. Total (cfs)	263468.9	Conv. (cfs)	975.7	262493.2	262493.2
Length wtd. (ft)	1.98	wetted per. (ft)	21.98	217.43	217.43
Min Ch El (ft)	812.23	Shear (lb/sq ft)	0.01	0.04	0.04
Alpha	1.03	Stream Power (lb/ft s)	277.27	53.18	53.18
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	0.69	0.69
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	0.69	0.69

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2.083333*

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	822	-7.47	822	-5.94	821.83	-2.61	821.75	3.66	821.75
	11.85	819.92	24.5	819	30.69	814.57	32.24	813.46	34.2	812.12
	39.76	812.12	59.18	812.31	80.94	812.55	146.44	813.28	165.17	813.49
	191.14	813.77	226.5	813.91	229.98	814.65	232.83	815.38	241.37	818.36
	255.61	823	262.89	823.33	263.23	823.35	277.61	823.99		

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-7.47	3.66	.04	24.5	0.057	32.24	.023			
75.75	.024	199.4	.038	225.48	.04	255.61	.039	262.89	.021		
263.23	.02	277.61	.02								

Bank Sta: Left 24.5 Right 255.61

Blocked Obstructions Sta L Sta R Elev num= 1.98 1.98 1.98 1.98

Coeff Contr. 1.1

Expan. 3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.040	0.029	
W.S. Elev (ft)	820.77	Reach Len. (ft)	1.98	1.98	1.98
Crit W.S. (ft)	0.000064	Flow Area (sq ft)	18.24	1610.62	1610.62
E.G. Slope (ft/ft)	2421.00	Area (sq ft)	5.75	2415.25	2415.25
Q Total (cfs)	240.75	Top width (ft)	16.47	224.28	224.28
Top width (ft)	8.49	Avg. Vel (ft/s)	0.12	1.30	1.30
Vel Head (ft)	8.49	Conv. Cfs (ft)	721.0	303022.19	303022.19
Wetted Per. (ft)	1.98	Wetted Per. (ft)	16.60	227.53	227.53
Length wtd. (ft)	1.02	Shear (lb/sq ft)	0.00	0.03	0.00
Min Ch El (ft)	812.12	Stream Power (lb/ft s)	277.61	53.05	53.05
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.75	0.68	0.68
C & E Loss (ft)	0.00	Cum SA (acres)	0.02		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Offsite
REACH: Offsite

RS: 2

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	158.59	822	186.59	822	224.66	813.32	238.26	814	23.33	812
	240.69	818	256.04	823	263.63	823.35	277.91	824		

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	0	.039	15.26	.057	23.33	.02	224.65	.039		
256.04	.039	263.63	.02								

Bank Sta: Left 15.26 Right 256.04

Blocked Obstructions Sta L Sta R Elev num= 127.7 127.7 127.7

Coeff Contr. 1.1

Expan. 3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.039	0.025	
W.S. Elev (ft)	820.78	Reach Len. (ft)	127.70	127.70	127.70
Crit W.S. (ft)	814.34	Flow Area (sq ft)	12.73	1762.99	1762.99
E.G. Slope (ft/ft)	0.000035	Area (sq ft)	3.94	237.96	237.96
Q Total (cfs)	2421.00	Top width (ft)	10.29	231.39	231.39
Top width (ft)	241.33	Avg. Vel (ft/s)	0.29	1.39	1.39
Vel Head (ft)	8.78	Conv. Cfs (ft)	11.10	7.54	7.54
Wetted Per. (ft)	8.78	Length wtd. (ft)	11.77	237.73	237.73

CPNPPLOCA]PMP

Min Ch El (ft) 812.00 Shear (lb/sq ft) 0.00 0.02
 Alpha 1.01 Stream Power (lb/ft s) 277.95 0.00
 Frctn Loss (ft) C & E Loss (ft) 3.75 52.97
 Cum Volume (acre-ft) 0.02 7.50

INLINE STRUCTURE

RIVER: Offsite
 REACH: Offsite

RS: 1.5

INPUT

Description: Distance from Upstream XS = 17.7
 Deck/Roadway Width = 10
 Weir Coefficient = 2.6
 Weir Embankment Coordinates: num = Sta ELEV Sta ELEV Sta ELEV
 -10 822 260.5 823 281.9 824 818 824 818
 245.5 818 260.5 823 281.9 824 818
 Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In] Struct:

E-G. Elev (ft) 820.81 Q Gates (cfs) 0.00
 W.S. Elev (ft) 820.78 Q Gate Group (cfs) 0.00
 Q Total (cfs) 2421.00 Gate Open Ht (ft) 818.69
 Weir (cfs) 2421.00 Gate #Open 1.00
 Weir Flow Area (sq ft) 582.74 Gate Submerg. 0.00
 Weir Sta Lft (ft) 3.58 Gate Invert (ft) 0.000
 Weir Sta Rgt (ft) 249.31 Gate Weir Coef 0.000
 Weir Max Depth (ft) 2.81
 Weir Avg Depth (ft) 2.600
 Weir Submerg. (F₁/2) 0.21
 Min El Weir Flow (ft) 818.01
 Weir Top Width (ft) 245.73

CROSS SECTION

RIVER: Offsite
 REACH: Offsite

RS: 1

INPUT

Description: num= 10
 Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 822 268.21 6 820 46.59 819 58.97 818 70.72 817
 247.44 817 268.21 818 283.53 823 291.11 823.35 305.23 824

Manning's n Values num= 2
 Sta n Val Sta n Val
 0 .059 291.11 .02

Bank Sta: Left 0 283.53 Right 291.11 Expan. .3
 Coeff Contr. .1

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.47	Element	Left 08	Right 08
Vel Head (ft)	0.78	wt. n-Val.	0.039	
W.S. Elev (ft)	818.69	Reach Len. (ft)		
Crit W.S. (ft)	818.69	Flow Area (sq ft)	340.79	
E-G. Slope (ft/ft)	0.0039407	Area (sq ft)	240.79	
Top Width (ft)	219.88	Top Width (ft)	219.88	
Vel Total (ft/s)	7.10	AVG Vel (ft/s)	1.55	
Max Chl Dpth (ft)	1.69	Hvdr. Depth (ft)	1.55	
Conv. Total (cfs)	17378.8	Conv. (cfs)	17378.8	
Length wtd. (ft)		wetted Per. (ft)	220.08	
Min Ch El (ft)	817.00	Stream Power (lb/ft s)	1.88	
Alpha	1.00	Cum Volume (acre-ft)	0.00	0.00
Frctn Loss (ft)				
C & E Loss (ft)				

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

CPNPPLOCA1PMP

RIVER: Unit 3 East
REACH: Unit 3 East

RS: 5

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	8						
Sta Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	821.38	12	821.14	18.9	821	68.9	820	204.22
224.22	822	227.22	822	237	822			

Manning's n Values	num=	3	
Sta n Val	Sta	n Val	
0	.02	12	.039

Bank Sta: Left 18.9 Right 24.22
Lengths: Left Channel 41 Right 41
Blocked Obstructions num= 1

Sta L Sta R Elev num= 41 41 41
227.22 237 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	wt. n-Val.		0.039	
W.S. Elev (ft)	820.48	Reach Len. (ft)	41.00	41.00	41.00
Crit W.S. (ft)	820.39	Flow Area (sq ft)		71.49	
E.G. Slope (ft/ft)	0.02666	Area (sq ft)		191.00	
Top width (ft)	163.98	Top width (ft)		163.98	
Top width (ft)	163.98	AVG. Vel (ft/s)		2.74	
Max Chl Dpth (ft)	0.44	HVDr. Depth (ft)		0.44	
Conv. Total (cfs)	1565.9	wetted Per. (ft)		1565.9	
Length wtd. (ft)	41.00	Stream Power (lb/sq ft)		0.43	
Min Ch El (ft)	820.00	Stream Power (lb/ft s)	237.00	0.00	0.00
Alpha	1.00	Cum Volume (acre-ft)	3.75	50.70	7.50
Frcn Loss (ft)	0.83	Cum SA (acres)		1.17	0.00
C & E Loss (ft)	0.01				

CROSS SECTION

RIVER: Unit 3 East
REACH: Unit 3 East

RS: 4

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	9						
Sta Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.93	27.9	820	820	68	815.58	196.02	819.18
204.22	820	224.22	822	227.22	822	237	822	

Manning's n Values	num=	3	
Sta n Val	Sta	n Val	
0	.02	12	.039

Bank Sta: Left 27.9 Right 24.22
Lengths: Left Channel 1.97 Right 1.97
Blocked Obstructions num= 1

Sta L Sta R Elev num= 1.97 1.97 1.97
227.22 237 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.77	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.17</td> <td>wt. n-Val.</td> <td></td> <td>0.039</td> <td></td>	0.17	wt. n-Val.		0.039	
W.S. Elev (ft) <td>819.60</td> <td>Reach Len. (ft)</td> <td>1.97</td> <td>1.97</td> <td>1.97</td>	819.60	Reach Len. (ft)	1.97	1.97	1.97
Crit W.S. (ft) <td>819.58</td> <td>Flow Area (sq ft)</td> <td></td> <td>59.10</td> <td></td>	819.58	Flow Area (sq ft)		59.10	
E.G. Slope (ft/ft) <td>0.026820</td> <td>Area (sq ft)</td> <td></td> <td>196.00</td> <td></td>	0.026820	Area (sq ft)		196.00	
Top width (ft)	152.48	Top width (ft)		152.48	
Top width (ft)	152.48	AVG. Vel (ft/s)		0.36	
Max Chl Dpth (ft)	0.42	HVDr. Depth (ft)		0.36	
Conv. Total (cfs)	1196.8	wetted Per. (ft)		1196.8	
Length wtd. (ft)	1.97	Stream Power (lb/sq ft)		152.51	
Min Ch El (ft) <td>819.18</td> <td>Stream Power (lb/ft s)</td> <td>237.00</td> <td>0.00</td> <td>0.00</td>	819.18	Stream Power (lb/ft s)	237.00	0.00	0.00
Alpha	1.00	Cum Volume (acre-ft)	3.75	50.63	7.50
Frcn Loss (ft)	0.05	Cum SA (acres)		1.02	0.00
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: Unit 3 East
REACH: Unit 3 East

RS: 3.966666*

CPNPPLOCA1PMP

INPUT

Description:		Station		Elevation Data		num=		10		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.52	11.87	820.28	17.52	820.17	27.6	819.97	68.33	819.14								
201.59	819.14	209.51	819.93	228.85	821.87	231.75	821.87	241.2	821.87								

Manning's n Values		num=		5		Sta		n Val		Sta		n Val		Expan.		
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Expan.
0	.02	11.87	.039	17.52	.039	27.6	.039	241.2	.039							

Bank Sta:		Left		Right		Coeff		Contr.		Expan.	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
27.6	228.85	1.97	228.85	1.97	228.85	1.97	228.85	1.97	228.85	1.97	228.85

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.72		Element		Left		OB		Channel		Right		OB	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.72	1.97	819.72	1.97	819.72	1.97	819.72	1.97	819.72	1.97	819.72	1.97	819.72	1.97	819.72
0	819.57	1.97	819.57	1.97	819.57	1.97	819.57	1.97	819.57	1.97	819.57	1.97	819.57	1.97	819.57
0	819.53	1.97	819.53	1.97	819.53	1.97	819.53	1.97	819.53	1.97	819.53	1.97	819.53	1.97	819.53
0	0.026490	1.97	0.026490	1.97	0.026490	1.97	0.026490	1.97	0.026490	1.97	0.026490	1.97	0.026490	1.97	0.026490
0	196.00	1.97	196.00	1.97	196.00	1.97	196.00	1.97	196.00	1.97	196.00	1.97	196.00	1.97	196.00
0	157.68	1.97	157.68	1.97	157.68	1.97	157.68	1.97	157.68	1.97	157.68	1.97	157.68	1.97	157.68
0	3.26	1.97	3.26	1.97	3.26	1.97	3.26	1.97	3.26	1.97	3.26	1.97	3.26	1.97	3.26
0	4.1	1.97	4.1	1.97	4.1	1.97	4.1	1.97	4.1	1.97	4.1	1.97	4.1	1.97	4.1
0	1204.2	1.97	1204.2	1.97	1204.2	1.97	1204.2	1.97	1204.2	1.97	1204.2	1.97	1204.2	1.97	1204.2
0	819.14	1.97	819.14	1.97	819.14	1.97	819.14	1.97	819.14	1.97	819.14	1.97	819.14	1.97	819.14
0	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00
0	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00
0	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00

CROSS SECTION

RIVER: Unit 3 East
REACH: Unit 3 East

RS: 3.933333*

INPUT

Description:		Station		Elevation Data		num=		10		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.48	11.74	820.25	17.33	820.13	27.3	819.93	67.76	819.1								
207.16	819.1	214.81	819.87	233.48	821.73	236.28	821.73	245.4	821.73								

Manning's n Values		num=		5		Sta		n Val		Sta		n Val		Expan.		
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Expan.
0	.02	11.74	.039	17.33	.039	27.3	.039	245.4	.039							

Bank Sta:		Left		Right		Coeff		Contr.		Expan.	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
27.3	233.48	1.97	233.48	1.97	233.48	1.97	233.48	1.97	233.48	1.97	233.48

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.66		Element		Left		OB		Channel		Right		OB	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.66	1.97	819.66	1.97	819.66	1.97	819.66	1.97	819.66	1.97	819.66	1.97	819.66	1.97	819.66
0	0.16	1.97	0.16	1.97	0.16	1.97	0.16	1.97	0.16	1.97	0.16	1.97	0.16	1.97	0.16
0	819.50	1.97	819.50	1.97	819.50	1.97	819.50	1.97	819.50	1.97	819.50	1.97	819.50	1.97	819.50
0	0.026088	1.97	0.026088	1.97	0.026088	1.97	0.026088	1.97	0.026088	1.97	0.026088	1.97	0.026088	1.97	0.026088
0	196.00	1.97	196.00	1.97	196.00	1.97	196.00	1.97	196.00	1.97	196.00	1.97	196.00	1.97	196.00
0	163.15	1.97	163.15	1.97	163.15	1.97	163.15	1.97	163.15	1.97	163.15	1.97	163.15	1.97	163.15
0	0.40	1.97	0.40	1.97	0.40	1.97	0.40	1.97	0.40	1.97	0.40	1.97	0.40	1.97	0.40
0	1213.5	1.97	1213.5	1.97	1213.5	1.97	1213.5	1.97	1213.5	1.97	1213.5	1.97	1213.5	1.97	1213.5
0	819.10	1.97	819.10	1.97	819.10	1.97	819.10	1.97	819.10	1.97	819.10	1.97	819.10	1.97	819.10
0	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00
0	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00	1.97	0.00

CROSS SECTION

RIVER: Unit 3 East
REACH: Unit 3 East

RS: 3.9*

INPUT

Description:		Station		Elevation Data		num=		10		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.44	11.61	820.21	17.14	820.1	27	819.9	67.18	819.06								
212.73	819.06	220.1	819.8	238.1	821.6	240.81	821.6	249.61	821.6								

Manning's n Values		num=		5		Sta		n Val		Sta		n Val		Expan.		
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Expan.
0	.02	11.61	.038	17.14	.039	27	.039	249.61	.039							

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Bank Sta: Left 27 Right 238.1 Lengths: Left Channel 1.97 Right Channel 1.97 Coeff Contr. 1.1 Expan. 1.3

CROSS SECTION OUTPUT Profile #PF 1

Element	n-Val.	Stn	Elev	Sta	Elev	Sta	Elev	Sta	Right OB	Channel	Right OB
E.G. Elev (ft)		819.61									
Vel Head (ft)		819.42									
W.S. Elev (ft)		819.43							1.97		1.97
Crit W.S. (ft)		819.43									
E.G. Slope (ft/ft)		0.025745									
Q Total (cfs)		196.00									
Top Width (ft)		168.47									
Vel Total (ft/s)		3.15									
Max Chl Dpth (ft)		0.40									
Conv. Total (cfs)		1221.5									
Length Wtd. (ft)		1.97									
Min Ch El (ft)		819.06							249.61		0.00
Alpha		0.00									0.59
Frctn Loss		0.00									7.50
C & E Loss (ft)		0.00									0.00
Stream Power (lb/ft s)									249.61		0.00
Cum Volume (acre-ft)									3.75		0.00
Cum SA (acres)									3.75		1.00

CROSS SECTION

RIVER: Unit 3 East REACH: Unit 3 East RS: 3.866666*

INPUT

Station	Elevation	Data	num=	10	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.4	11.48			820.06	26.7	819.87	66.61	819.02		
218.29	819.02	225.4			819.73	821.47	245.33	821.47	253.81		821.47

Manning's n	Val	Stn	Elev	Sta	Elev	Sta	Elev	Sta	Right OB	Channel	Right OB
0	.02	11.48			.039	26.7	.039	253.81			
26.7	242.73				1.97	1.97					

Bank Sta: Left 26.7 Right 242.73 Lengths: Left Channel 1.97 Right Channel 1.97 Coeff Contr. 1.1 Expan. 1.3

CROSS SECTION OUTPUT Profile #PF 1

Element	n-Val.	Stn	Elev	Sta	Elev	Sta	Elev	Sta	Right OB	Channel	Right OB
E.G. Elev (ft)		819.56									
Vel Head (ft)		0.15									
W.S. Elev (ft)		819.41							1.97		1.97
Crit W.S. (ft)		819.38									
E.G. Slope (ft/ft)		0.025338									
Q Total (cfs)		196.00									
Top Width (ft)		173.85									
Vel Total (ft/s)		1.13									
Max Chl Dpth (ft)		0.39									
Conv. Total (cfs)		1231.3									
Length Wtd. (ft)		1.97									
Min Ch El (ft)		819.02							253.81		0.00
Alpha		1.00									0.58
Frctn Loss		0.05									7.50
C & E Loss (ft)		0.00									0.00
Stream Power (lb/ft s)									253.81		0.00
Cum Volume (acre-ft)									3.75		0.00
Cum SA (acres)									3.75		1.00

CROSS SECTION

RIVER: Unit 3 East REACH: Unit 3 East RS: 3.833333*

INPUT

Station	Elevation	Data	num=	10	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.36	11.35			820.03	26.4	819.83	66.04	818.98		
223.86	818.98	230.7			819.67	247.36	249.86	821.33	238.01		821.33

Manning's n	Val	Stn	Elev	Sta	Elev	Sta	Elev	Sta	Right OB	Channel	Right OB
0	.02	11.35			.039	26.4	.039	258.01			
26.4	247.36				1.97	1.97					

Bank Sta: Left 26.4 Right 247.36 Lengths: Left Channel 1.97 Right Channel 1.97 Coeff Contr. 1.1 Expan. 1.3

CROSS SECTION OUTPUT Profile #PF 1

Element	n-Val.	Stn	Elev	Sta	Elev	Sta	Elev	Sta	Right OB	Channel	Right OB
E.G. Elev (ft)		819.51									
Vel Head (ft)		0.15									
W.S. Elev (ft)		819.36							1.97		1.97
Crit W.S. (ft)		819.34									
E.G. Slope (ft/ft)		0.024570									
Q Total (cfs)		196.00									
Top Width (ft)		164.77									
Vel Total (ft/s)		64.77									
Max Chl Dpth (ft)		0.40									
Conv. Total (cfs)		1231.3									
Length Wtd. (ft)		1.97									
Min Ch El (ft)		818.98							258.01		0.00
Alpha		1.00									0.58
Frctn Loss		0.05									7.50
C & E Loss (ft)		0.00									0.00
Stream Power (lb/ft s)									258.01		0.00
Cum Volume (acre-ft)									3.75		0.00
Cum SA (acres)									3.75		1.00

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Top Width (ft)	179.53	Top Width (ft)	179.53
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)	3.03
Max Chl Dpth (ft)	0.38	Hydr. Depth (ft)	0.36
Conv. Total (cfs)	1250.4	Wetted Per. (ft)	179.56
Length Wtd. (ft)	1.97	Shear (lb/sq ft)	0.35
Min Ch El (ft)	818.98	Stream Power (lb/ft s)	258.01
Alpha	0.00	Channel Area (acre-ft)	7.50
Frcn Loss (ft)	0.00	Cum SA (acres)	0.99
C & E Loss (ft)	0.00		

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.8*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.32	11.23	820.1	16.57	819.99	26.1	819.8	65.47	818.94
229.43	818.94	235.99	819.6	251.99	821.2	254.39	821.2	262.21	821.2

Manning's n Values

num=	10	num=	5
Sta	n Val	Sta	n Val
0	.02	11.23	.038
16.57	.039	26.1	.039

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

26.1	251.99	1.97	1.97	1.97	.3
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.46	Element	Channel	Right OB	
Vel Head (ft)	0.13	wt. n-Val.	0.039	1.97	
W.S. Elev (ft)	819.32	Reach Len. (ft)	1.97	1.97	
Crit W.S. (ft)		Flow Area (sq ft)	66.63		
E.G. Slope (ft/ft)	0.023299	Area (sq ft)	196.00		
Q Total (cfs)	196.00	Flow width (ft)	182.63		
Top Width (ft)	182.63	Avg. Vel. (ft/s)	1.07		
Wetted Per. (ft)	0.38	Hydr. Depth (ft)	0.36		
Max Chl Dpth (ft)	0.38	Conv. (cfs)	1284.1		
Conv. Total (cfs)	1284.1	wetted per. (ft)	185.25		
Length Wtd. (ft)	1.97	Shear (lb/sq ft)	0.52		
Min Ch El (ft)	818.94	Stream Power (lb/ft s)	262.21		
Alpha	1.00	Cum Volume (acre-ft)	50.62		
Frcn Loss (ft)	0.04	Cum SA (acres)	0.98		
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.76666*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.28	11.1	820.06	16.38	819.96	25.8	819.77
235	818.9	241.29	819.53	236.62	821.07	258.92	821.07

Manning's n Values

num=	5	num=	5
Sta	n Val	Sta	n Val
0	.02	11.1	.038
16.38	.039	25.8	.039

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

25.8	256.62	1.97	1.97	1.97	.3
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.41	Element	Channel	Right OB	
Vel Head (ft)	0.13	wt. n-Val.	0.039	1.97	
W.S. Elev (ft)	819.28	Reach Len. (ft)	1.97	1.97	
Crit W.S. (ft)		Flow Area (sq ft)	68.93		
E.G. Slope (ft/ft)	0.021690	Area (sq ft)	196.00		
Q Total (cfs)	196.00	Flow width (ft)	196.00		
Top Width (ft)	191.07	Avg. Vel. (ft/s)	2.84		
Wetted Per. (ft)	0.38	Hydr. Depth (ft)	0.36		
Max Chl Dpth (ft)	0.38	Conv. (cfs)	1330.9		
Conv. Total (cfs)	1330.9	wetted per. (ft)	191.09		
Length Wtd. (ft)	1.97	Shear (lb/sq ft)	0.49		
Min Ch El (ft)	818.90	Stream Power (lb/ft s)	266.42		
Alpha	1.00	Cum Volume (acre-ft)	50.60		
Frcn Loss (ft)	0.00	Cum SA (acres)	0.97		
C & E Loss (ft)	0.00				

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CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.733333*

INPUT

Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.25	10.97	820.03	16.19	819.92	25.5	819.73	64.33	818.87
240.57	818.87	246.58	819.47	261.25	820.93	263.45	820.93	270.62	820.93

Manning's n Values									
Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
0	.02	10.97	.037	16.19	.039	25.5	.039	270.62	.039

Bank Sta: Left Right Lengths: Left Channel Right									
Sta	Right	Lengths	Left Channel	Right	Coeff	Contr.	Expan.		
25.5	261.25	1.97	1.97	1.97	.1	.3			

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB
E.G. Elev (ft)	819.36	0.039
Vel Head (ft)	0.13	1.97
W.S. Elev (ft)	819.23	67.11
Crit W.S. (ft)	819.20	196.00
E.G. Slope (ft/ft)	0.024550	196.00
Q Total (Cfs)	196.00	196.00
Top Width (ft)	196.00	196.00
Max Chl Dpth (ft)	0.36	0.34
Conv. Total (cfs)	1250.9	1250.9
Length wtd. (ft)	1.97	196.15
Min Ch El (ft)	818.87	0.52
Alpha	1.00	0.00
Frctn Loss (ft)	0.05	50.61
C & E Loss (ft)	0.00	7.50
		0.00

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.7*

INPUT

Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.21	10.84	819.99	16	819.89	25.2	819.7	63.76	818.83
246.14	818.83	251.88	819.4	265.88	820.8	267.98	820.8	274.82	820.8

Manning's n Values									
Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
0	.02	10.84	.037	16	.039	25.2	.039	274.82	.039

Bank Sta: Left Right Lengths: Left Channel Right									
Sta	Right	Lengths	Left Channel	Right	Coeff	Contr.	Expan.		
25.2	265.88	1.97	1.97	1.97	.1	.3			

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB
E.G. Elev (ft)	819.31	0.039
Vel Head (ft)	0.13	1.97
W.S. Elev (ft)	819.18	68.01
Crit W.S. (ft)	819.15	196.00
E.G. Slope (ft/ft)	0.024376	196.00
Q Total (Cfs)	196.00	196.00
Top Width (ft)	201.65	201.65
Vel Total (ft/s)	2.88	2.88
Max Chl Dpth (ft)	0.35	0.34
Conv. Total (cfs)	1255.4	1255.4
Length wtd. (ft)	1.97	201.67
Min Ch El (ft)	818.83	0.51
Alpha	1.00	0.00
Frctn Loss (ft)	0.05	50.61
C & E Loss (ft)	0.00	7.50
		0.00

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.666666*

INPUT

Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.17	10.71	819.95	15.81	819.85	24.9	819.67	63.18	818.79

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251.7 818.79 257.17 819.33 270.5 820.67 272.5 820.67 279.02 279.02 820.67
 Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 10.71 .037 15.81 .039 24.9 .039 279.02 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 24.9 270.5 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	wt. n-Val.	1.97	0.039	1.97
W.S. Elev (ft)	819.14	Reach Len. (ft)	1.97	1.97	1.97
Crit W.S. (ft)	819.11	Flow Area (sq ft)	68.91	68.91	68.91
E.G. Slope (ft/ft)	0.024192	Area (sq ft)	196.00	196.00	196.00
Q Total (Cfs)	196.00	Flow (cfs)	207.22	207.22	207.22
Top Width (ft)	207.22	Top Width (ft)	0.33	0.33	0.33
Max Chl Dpth (ft)	0.33	Avg Vel (ft/s)	1260.2	1260.2	1260.2
Conv. Total (Cfs)	1.97	Hydr. Depth (ft)	207.22	207.22	207.22
Length wtd. (ft)	818.79	wetted per. (ft)	0.50	0.50	0.50
Min Ch El (ft)	1.00	Shear (lb/sq ft)	279.02	279.02	279.02
Frctn Loss (ft)	0.05	Stream Power (lb/ft s)	0.00	0.00	0.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	3.75	50.60	7.50
		Cum SA (acres)	0.94	0.94	0.00

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 3.633333*

INPUT

Description: num= 10
 Station Elevation Data Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 820.13 10.38 819.92 15.62 819.81 24.6 819.63 62.61 818.75 820.53
 257.27 818.75 262.47 819.27 275.13 820.53 277.03 820.53 283.23 820.53
 Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 10.58 .037 15.62 .039 24.6 .039 283.23 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 24.6 275.13 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.22	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.12 <td>wt. n-Val.</td> <td>1.97</td> <td>0.039</td> <td>1.97</td> </td>	0.12 <td>wt. n-Val.</td> <td>1.97</td> <td>0.039</td> <td>1.97</td>	wt. n-Val.	1.97	0.039	1.97
W.S. Elev (ft) <td>819.09</td> <td>Reach Len. (ft)</td> <td>1.97</td> <td>1.97</td> <td>1.97</td>	819.09	Reach Len. (ft)	1.97	1.97	1.97
Crit W.S. (ft) <td>819.06</td> <td>Flow Area (sq ft)</td> <td>69.81</td> <td>69.81</td> <td>69.81</td>	819.06	Flow Area (sq ft)	69.81	69.81	69.81
E.G. Slope (ft/ft)	0.024016	Area (sq ft)	196.00	196.00	196.00
Q Total (Cfs)	196.00	Flow (cfs)	212.88	212.88	212.88
Top Width (ft)	212.88	Top Width (ft)	2.81	2.81	2.81
Vel Total (ft/s)	2.81	Avg Vel. (ft/s)	1264.8	1264.8	1264.8
Max Chl Dpth (ft)	0.34	Hydr. Depth (ft)	212.90	212.90	212.90
Conv. Total (Cfs)	1.97	wetted per. (ft)	0.49	0.49	0.49
Length wtd. (ft)	818.75	Shear (lb/sq ft)	283.23	283.23	283.23
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	3.73	50.60	7.50
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.93	0.93	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.93	0.93	0.00

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 3.6*

INPUT

Description: num= 10
 Station Elevation Data Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 820.09 10.45 819.88 15.43 819.78 24.3 819.6 62.04 818.71 820.4
 262.84 818.71 267.76 819.22 279.76 820.4 281.56 820.4 287.43 820.4
 Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 10.45 .037 15.43 .039 24.3 .039 287.43 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 24.3 279.76 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.22	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.12 <td>wt. n-Val.</td> <td>1.97</td> <td>0.039</td> <td>1.97</td> </td>	0.12 <td>wt. n-Val.</td> <td>1.97</td> <td>0.039</td> <td>1.97</td>	wt. n-Val.	1.97	0.039	1.97
W.S. Elev (ft) <td>819.09</td> <td>Reach Len. (ft)</td> <td>1.97</td> <td>1.97</td> <td>1.97</td>	819.09	Reach Len. (ft)	1.97	1.97	1.97
Crit W.S. (ft) <td>819.06</td> <td>Flow Area (sq ft)</td> <td>69.81</td> <td>69.81</td> <td>69.81</td>	819.06	Flow Area (sq ft)	69.81	69.81	69.81
E.G. Slope (ft/ft) <td>0.024016</td> <td>Area (sq ft)</td> <td>196.00</td> <td>196.00</td> <td>196.00</td>	0.024016	Area (sq ft)	196.00	196.00	196.00
Q Total (Cfs)	196.00	Flow (cfs)	212.88	212.88	212.88
Top Width (ft)	212.88	Top Width (ft)	2.81	2.81	2.81
Vel Total (ft/s)	2.81	Avg Vel. (ft/s)	1264.8	1264.8	1264.8
Max Chl Dpth (ft)	0.34	Hydr. Depth (ft)	212.90	212.90	212.90
Conv. Total (Cfs)	1.97	wetted per. (ft)	0.49	0.49	0.49
Length wtd. (ft) <td>818.75</td> <td>Shear (lb/sq ft)</td> <td>283.23</td> <td>283.23</td> <td>283.23</td>	818.75	Shear (lb/sq ft)	283.23	283.23	283.23
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	3.73	50.60	7.50
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.93	0.93	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.93	0.93	0.00

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	819.17	0.039	
Vel Head (ft)	0.12	1.97	1.97
W.S. Elev (ft)	819.05	1.97	
Crit W.S. (ft)	819.02	70.66	
E.G. Slope (ft/ft)	0.023883	196.00	
Q Total (Cfs)	196.00	218.72	
Top Width (ft)	218.72	0.32	
Max Chl Dpth (ft)	0.34	1268.3	
Conv. Total (cfs)	1268.3	218.50	
Length wtd. (ft)	1.97	0.00	
Min Ch El (ft)	818.71	0.00	0.00
Alpha	1.00	50.60	7.50
Frctn Loss (ft)	0.05	0.92	0.00
C & E Loss (ft)	0.00		

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 3.56666*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.05	10.32	819.84	15.24	819.74	24	819.57	61.47	818.97
268.41	818.63	273.06	819.13	284.39	820.27	286.09	820.27	291.63	820.27

CROSS SECTION OUTPUT Profile #PF 1

Element	Left	Right	Channel	Right	Left	Right	Channel	Right
E.G. Elev (ft)	819.12		0.039		1.97		0.039	
Vel Head (ft)	0.11		1.97		1.97		1.97	
W.S. Elev (ft)	819.00		1.97		1.97		1.97	
Crit W.S. (ft)	819.00		71.52		71.52		71.52	
E.G. Slope (ft/ft)	0.023724		196.00		196.00		196.00	
Q Total (Cfs)	224.11		224.11		224.11		224.11	
Top Width (ft)	2.74		0.32		0.32		0.32	
Max Chl Dpth (ft)	1272.5		224.13		224.13		224.13	
Conv. Total (cfs)	818.67		0.00		0.00		0.00	
Length wtd. (ft)	0.05		50.60		50.60		50.60	
Min Ch El (ft)	0.00		3.75		3.75		3.75	
Frctn Loss (ft)	0.00		0.00		0.00		0.00	
C & E Loss (ft)	0.00		0.00		0.00		0.00	

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 3.53333*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	820.01	10.19	819.81	15.05	819.71	23.7	819.53	60.9	818.63
273.98	818.63	278.35	819.07	289.02	820.13	290.62	820.13	295.83	820.13

CROSS SECTION OUTPUT Profile #PF 1

Element	Left	Right	Channel	Right	Left	Right	Channel	Right
E.G. Elev (ft)	819.07		0.039		1.97		0.039	
Vel Head (ft)	0.11		1.97		1.97		1.97	
W.S. Elev (ft)	818.96		72.38		72.38		72.38	
Crit W.S. (ft)	818.96		196.00		196.00		196.00	
E.G. Slope (ft/ft)	0.023577		222.74		222.74		222.74	
Q Total (Cfs)	196.00		0.31		0.31		0.31	
Top Width (ft)	222.74		1276.5		1276.5		1276.5	
Max Chl Dpth (ft)	0.33		229.86		229.86		229.86	
Conv. Total (cfs)	1276.5		0.00		0.00		0.00	
Length wtd. (ft)	1.97		0.00		0.00		0.00	

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Min Ch El (ft) 818.63 Shear (lb/sq ft) 0.46
 Alpha 1.00 Stream Power (lb/ft s) 295.83
 Frctn Loss (ft) 0.05 Cum Volume (acre-ft) 3.75
 C & E Loss (ft) 0.00 Cum SA (acres) 0.90

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 3.5*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.97	10.06	819.67	23.4	819.5	60.33	818.59	820	300.04
279.55	818.59	283.65	820	295.15	820	300.04	820	300.04	820

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.02	10.06	14.86	.039	23.4	.039	300.04	300.04
0	.036	10.06	14.86	.039	23.4	.039	300.04	300.04

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

Left	Right	Left Channel	Right	Coeff Contr.	Expan.
23.4	293.65	1.97	1.97	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	1.97	0.039	1.97
W.S. Elev (ft)	818.91	Reach Len. (ft)	1.97	1.97	1.97
Crit W.S. (ft)	818.91	Flow Area (sq ft)	1.97	73.20	73.20
E.G. Slope (ft/ft)	0.023458	Area (sq ft)	1.97	73.20	73.20
Q Total (cfs)	196.00	Flow (cfs)	1.97	196.00	196.00
Top Width (ft)	235.51	Top Width (ft)	1.97	235.51	235.51
Vel Total (ft/s)	2.68	AVG. Vel. (ft/s)	1.97	2.68	2.68
Max Ch Dpth (ft)	0.32	Hydr. Depth (ft)	1.97	0.31	0.31
Conv. Total (cfs)	1279.7	Conv. (cfs)	1.97	1279.7	1279.7
Length Wtd. (ft)	818.59	Wetted Per. (ft)	1.97	235.53	235.53
Min Ch El (ft)	818.59	Shear Power (lb/ft s)	1.97	0.6	0.6
Frctn Loss (ft)	0.05	Stream Power (lb/ft s)	1.97	0.00	0.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	1.97	50.59	7.50
		Cum SA (acres)	1.97	0.00	0.00

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 3.46666*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.93	9.94	819.64	23.1	819.47	59.75	818.55
285.11	818.55	288.94	818.93	298.27	819.87	304.24	819.87

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.02	9.94	14.67	.039	23.1	.039	304.24	304.24
0	.036	9.94	14.67	.039	23.1	.039	304.24	304.24

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

Left	Right	Left Channel	Right	Coeff Contr.	Expan.
23.1	298.27	1.97	1.97	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	1.97	0.039	1.97
W.S. Elev (ft)	818.87	Reach Len. (ft)	1.97	1.97	1.97
Crit W.S. (ft)	818.87	Flow Area (sq ft)	1.97	74.02	74.02
E.G. Slope (ft/ft)	0.023332	Area (sq ft)	1.97	74.02	74.02
Q Total (cfs)	196.00	Flow (cfs)	1.97	196.00	196.00
Top Width (ft)	244.60	Top Width (ft)	1.97	244.60	244.60
Vel Total (ft/s)	0.32	AVG. Vel. (ft/s)	1.97	0.31	0.31
Max Ch Dpth (ft)	0.32	Hydr. Depth (ft)	1.97	0.31	0.31
Conv. Total (cfs)	1283.2	Conv. (cfs)	1.97	1283.2	1283.2
Length Wtd. (ft)	818.55	Wetted Per. (ft)	1.97	241.22	241.22
Min Ch El (ft)	818.55	Shear Power (lb/ft s)	1.97	0.45	0.45
Frctn Loss (ft)	0.05	Stream Power (lb/ft s)	1.97	0.00	0.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	1.97	50.59	7.50
		Cum SA (acres)	1.97	0.00	0.00

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 3.43333*

CPNPPLOCA1PMP

INPUT
Description: Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 819.89 9.51 819.77 14.48 819.56 22.8 819.43 59.18 818.71
290.68 818.51 294.24 818.87 302.9 819.73 304.2 819.73 308.44 819.73

Manning's n Values num= 5
Sta n Val Sta n Val Sta n Val Sta n Val
0 .02 9.81 .036 14.48 .039 22.8 .039 308.44 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
22.8 302.9 1.97 1.97 1.97 1.97 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. n-Val.	Element	Left OB	Right OB
818.93	0.11	Wt. n-Val.	1.97	1.97
818.82	818.82	Reach Len. (ft)	1.97	1.97
0.023161	0.023161	Flow Area (sq ft)	74.89	74.89
196.00	196.00	Area (sq ft)	196.00	196.00
246.98	246.98	Flow (cfs)	2.62	2.62
2.62	2.62	Top Width (ft)	0.30	0.30
1287.9	1287.9	AVG. Vel. (ft/s)	1287.9	1287.9
0.31	0.31	Hydr. Depth (ft)	246.99	246.99
1.97	1.97	Conv. (CFS)	0.44	0.44
818.01	818.01	wetted per. (ft)	308.44	308.44
0.05	0.05	Shear Power (lb/ft s)	3.75	3.75
0.00	0.00	Cum Volume (acre-ft)	0.00	0.00
0.00	0.00	Cum SA (acres)	0.00	0.00

CROSS SECTION

RIVER: Unit 3 East
REACH: Unit 3 East
RS: 3.4*

INPUT
Description: Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 819.85 9.68 819.66 14.29 819.57 22.5 819.4 58.61 818.47
296.25 818.47 299.53 818.8 307.53 819.6 308.73 819.6 819.6

Manning's n Values num= 5
Sta n Val Sta n Val Sta n Val Sta n Val
0 .02 9.88 .035 14.29 .039 22.5 .039 312.64 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
22.5 307.53 1.97 1.97 1.97 1.97 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. n-Val.	Element	Left OB	Right OB
818.88	0.10	Wt. n-Val.	1.97	1.97
818.78	818.78	Reach Len. (ft)	1.97	1.97
0.022887	0.022887	Flow Area (sq ft)	75.86	75.86
196.00	196.00	Area (sq ft)	175.86	175.86
246.98	246.98	Flow (cfs)	252.70	252.70
2.62	2.62	Top Width (ft)	0.30	0.30
1295.6	1295.6	AVG. Vel. (ft/s)	1295.6	1295.6
0.31	0.31	Hydr. Depth (ft)	252.75	252.75
1.97	1.97	Conv. (CFS)	0.43	0.43
818.47	818.47	wetted per. (ft)	312.64	312.64
1.00	1.00	Shear Power (lb/ft s)	0.00	0.00
0.04	0.04	Stream Power (lb/ft s)	7.50	7.50
0.00	0.00	Cum Volume (acre-ft)	0.00	0.00
0.00	0.00	Cum SA (acres)	0.00	0.00

CROSS SECTION

RIVER: Unit 3 East
REACH: Unit 3 East
RS: 3.36666*

INPUT
Description: Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 819.81 9.53 819.62 14.1 819.53 22.2 819.37 58.04 818.43
301.82 818.43 304.83 818.73 312.16 819.47 313.26 819.47 316.84 819.47

Manning's n Values num= 5
Sta n Val Sta n Val Sta n Val Sta n Val
0 .02 9.55 .035 14.1 .039 22.2 .039 316.84 .039

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Bank Sta: Left 22.2 Right 312.16 Lengths: Left Channel 1.97 Right 1.97 Coeff Contr. 1.1 Expan. 1.3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left	Right	Channel	Right
E.G. Elev (ft)	818.84		0.039	1.97
Wt. n-Val.	0.10		1.97	1.97
W.S. Elev (ft)	818.74		77.05	
Crit W.S. (ft)			196.00	
E.G. Slope (ft/ft)	0.022398		2.54	
Q Total (Cfs)	196.00		1309.6	
Top Width (ft)	258.55		258.57	
Vel Total (ft/s)	2.54		0.42	
Max Chl Dpth (ft)	0.31		0.00	
Conv. Total (Cfs)	1309.6		7.50	
Length Wtd. (ft)	1.97		0.00	
Min Ch El (ft)	818.84		50.58	
Frctn Loss	0.04		3.75	
C & E Loss (ft)	0.00		0.85	

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.333333*

INPUT

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.77	9.42	819.58	13.9	819.49	21.9	819.33
307.39	818.39	310.12	818.67	316.79	819.33	317.79	819.33

Manning's n	Val	Sta	n	Val	Sta	n	Val
0	.02	9.42	.035	13.9	21.9	.039	321.05

Bank Sta: Left 21.9 Right 316.79 Lengths: Left Channel 1.97 Right 1.97 Coeff Contr. 1.1 Expan. 1.3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left	Right	Channel	Right
E.G. Elev (ft)	818.79		0.039	1.97
Wt. n-Val.	0.10		1.97	1.97
W.S. Elev (ft)	818.69		78.39	
Crit W.S. (ft)			178.39	
E.G. Slope (ft/ft)	0.021791		2.54	
Q Total (Cfs)	196.00		1309.6	
Top Width (ft)	260.00		260.00	
Vel Total (ft/s)	2.54		0.30	
Max Chl Dpth (ft)	0.30		0.30	
Conv. Total (Cfs)	1327.8		1327.8	
Length Wtd. (ft)	1.97		264.45	
Min Ch El (ft)	818.39		0.40	
Alpha	1.00		0.00	
Frctn Loss	0.04		50.57	
C & E Loss (ft)	0.00		0.84	

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.3*

INPUT

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.73	9.29	819.55	13.71	819.46	21.6	819.3
312.96	818.35	315.42	818.6	321.42	819.2	322.32	819.2

Manning's n	Val	Sta	n	Val	Sta	n	Val
0	.02	9.29	.035	13.71	21.6	.039	325.25

Bank Sta: Left 21.6 Right 321.42 Lengths: Left Channel 1.97 Right 1.97 Coeff Contr. 1.1 Expan. 1.3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left	Right	Channel	Right
E.G. Elev (ft)	818.75		0.039	1.97
Wt. n-Val.	0.10		1.97	1.97
W.S. Elev (ft)	818.65		80.25	
Crit W.S. (ft)			196.00	
E.G. Slope (ft/ft)	0.020758		2.54	

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Q Total (cfs)	196.00	Flow (cfs)	196.00
Top Width (ft)	270.40	Top Width (ft)	270.40
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	2.44
Max Chl Dpth (ft)	0.30	Hydr. Depth (ft)	0.30
Conv. Total (CFS)	1360.4	Wetted Per. (ft)	1360.4
Length Wtd. (ft)	1.97	Shear (lb/sq ft)	270.42
Align Ch El (ft)	818.31	Stream Power (lb/ft s)	0.08
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	50.57
C & E Loss (ft)	0.00	Cum SA (acres)	3.75
			0.82

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 3.26666*

INPUT

Description:	Station	Elevation	Data	num=	10
	Sta	Elev	Sta	Elev	Sta
	0	819.69	9.16	819.51	13.52
	318.52	818.31	320.71	818.53	326.04

Manning's n Values	num=	5
	Sta	n Val
	0	.02
	9.16	.035
	13.52	.039
	21.3	.039

Bank Sta:	Left	Right
	21.3	326.04
Lengths:	Left Channel	Right
	1.97	1.97
Coeff Contr.	.1	.3
Expan.		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.71	Element	Channel	Right OB
Vel Head (ft)	0.09	wt. n-Val.	0.039	
W.S. Elev (ft)	818.62	Reach Len. (ft)	1.97	1.97
Crit W.S. (ft)	0.018834	Flow Area (sq ft)	83.38	
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	183.38	
Q Total (CFS)	196.00	Top Width (ft)	276.00	
Vel Total (ft/s)	2.36	Avg Vel (ft/s)	2.36	
Max Chl Dpth (ft)	0.31	Hydr. Depth (ft)	0.30	
Conv. Total (CFS)	1428.2	Conv. (CFS)	1428.2	
Length Wtd. (ft)	1.97	wetted per. (ft)	276.58	
Min Ch El (ft)	818.31	Shear (lb/sq ft)	0.35	
Alpha	1.00	Stream Power (lb/ft s)	0.00	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	50.56	
C & E Loss (ft)	0.00	Cum SA (acres)	3.75	
			0.81	

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 3.233333*

INPUT

Description:	Station	Elevation	Data	num=	10
	Sta	Elev	Sta	Elev	Sta
	324.09	818.96	9.03	818.47	13.33
	324.09	818.28	326.01	818.47	330.67

Manning's n Values	num=	5
	Sta	n Val
	0	.02
	9.03	.034
	13.33	.039
	21	.039

Bank Sta:	Left	Right
	21	330.67
Lengths:	Left Channel	Right
	1.97	1.97
Coeff Contr.	.1	.3
Expan.		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.67	Element	Channel	Right OB
Vel Head (ft)	0.09	wt. n-Val.	0.039	
W.S. Elev (ft)	818.57	Reach Len. (ft)	1.97	1.97
Crit W.S. (ft)	0.021429	Flow Area (sq ft)	80.84	
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	80.84	
Q Total (CFS)	196.00	Top Width (ft)	196.00	
Vel Total (ft/s)	2.42	Avg Vel. (ft/s)	2.42	
Max Chl Dpth (ft)	0.29	Hydr. Depth (ft)	0.29	
Conv. Total (CFS)	1338.9	Conv. (CFS)	1338.9	
Length Wtd. (ft)	1.97	wetted per. (ft)	282.08	
Min Ch El (ft)	818.28	Shear (lb/sq ft)	0.08	
Frctn Loss (ft)	0.04	Stream Power (lb/ft s)	0.00	
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	50.56	
		Cum SA (acres)	3.75	
			0.80	

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CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.2*

INPUT

Description:		Station Elevation Data		num= 10		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.62	8.9	819.44	13.14	819.35	20.7	819.2	55.18	818.24		
329.66	818.24	331.3	818.4	335.3	818.8	335.9	818.8	337.86	818.8		

Manning's n Values		num= 5		Sta n Val		Sta n Val		Sta n Val		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	8.9	.034	13.14	.039	20.7	.039	337.86	.039		

Bank Sta:		Left		Right		Coeff		Coeff		Expan.	
Left	Right	Left	Channel	Right	Channel	Left	Channel	Right	Channel	Left	Channel
20.7	335.3	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.62	Element		Left OB		Right OB	
Vel Head (ft)	0.09	wt. n-Val.		1.97		1.97	
W.S. Elev (ft)	818.53	Reach Len. (ft)		1.97		1.97	
Crit W.S. (ft)	0.021132	Flow Area (sq ft)		1.97		1.97	
E.G. Slope (ft/ft)	289.88	Area (sq ft)		1.97		1.97	
Q Total (cfs)	2.39	Flow Vel. (ft/s)		1.97		1.97	
Vel Total (ft/s)	0.29	Top Width (ft)		1.97		1.97	
Max Chl Dpth (ft)	1348.3	Hydr. Depth (ft)		1.97		1.97	
Conv. Total (cfs)	1.97	Conv. (cfs)		1.97		1.97	
Length Wtd. (ft)	818.24	wetted per. (ft)		1.97		1.97	
Min Ch El (ft)	1.00	Shear (lb/sq ft)		1.97		1.97	
Alpha	0.04	Stream Power (lb/ft s)		1.97		1.97	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.97		1.97	
C & E Loss (ft)	0.00	Cum SA (acres)		1.97		1.97	

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.16666*

INPUT

Description:		Station Elevation Data		num= 10		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
335.23	818.2	8.77	819.4	12.95	819.32	20.4	819.17	54.61	818.2		
		336.6	818.33	339.93	818.67	340.43	818.67	342.06	818.67		

Manning's n Values		num= 5		Sta n Val		Sta n Val		Sta n Val		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	8.77	.034	12.95	.039	20.4	.039	342.06	.039		

Bank Sta:		Left		Right		Coeff		Coeff		Expan.	
Left	Right	Left	Channel	Right	Channel	Left	Channel	Right	Channel	Left	Channel
20.4	339.93	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.58	Element		Left OB		Right OB	
Vel Head (ft)	0.09	wt. n-Val.		1.97		1.97	
W.S. Elev (ft)	818.49	Reach Len. (ft)		1.97		1.97	
Crit W.S. (ft)	0.020968	Flow Area (sq ft)		1.97		1.97	
E.G. Slope (ft/ft)	196.00	Area (sq ft)		1.97		1.97	
Q Total (cfs)	2.37	Flow Vel. (ft/s)		1.97		1.97	
Vel Total (ft/s)	0.29	Top Width (ft)		1.97		1.97	
Max Chl Dpth (ft)	1353.6	Hydr. Depth (ft)		1.97		1.97	
Conv. Total (cfs)	1.97	Conv. (cfs)		1.97		1.97	
Length Wtd. (ft)	818.24	wetted per. (ft)		1.97		1.97	
Min Ch El (ft)	1.00	Shear (lb/sq ft)		1.97		1.97	
Alpha	0.04	Stream Power (lb/ft s)		1.97		1.97	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.97		1.97	
C & E Loss (ft)	0.00	Cum SA (acres)		1.97		1.97	

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.13333*

INPUT

Description:		Station Elevation Data		num= 10		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

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0	819.54	8.65	819.36	12.76	819.28	20.1	819.13	54.04	818.16
340.8	818.16	341.89	818.27	344.56	818.53	344.96	818.53	346.26	818.53
Manning's n Values									
0	.02	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	8.65	.034	12.76	.039	20.1	.039	346.26	.039
Bank Sta: Left Right									
20.1	344.56	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.		
		1.97	1.97	1.97	.1	.3			

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	wt. n-Val.	1.97	1.97	1.97
W.S. Elev (ft)	818.44	Reach Len. (ft)			
Crit W.S. (ft)	0.021546	Flow Area (sq ft)			
E.G. Slope (ft/ft)	0.021546	Area (sq ft)			
Top Width (ft)	299.08	Flow (cfs)			
Top Width (ft/s)	2.37	Top Width (ft)			
Vel Total (ft/s)	0.28	Avg Vel (ft/s)			
Max Chl Dpth (ft)	1335.3	Hvdr. Depth (ft)			
Conv. Total (cfs)	1335.3	Conv. (cfs)			
Length wtd. (ft)	1.97	wetted per. (ft)			
Min Ch El (ft)	818.16	Shear (lb/sq ft)			
Alpha	1.00	Stream Power (lb/ft s)	346.26		0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	3.75		7.50
C & E Loss (ft)	0.00	Cum SA (acres)			0.00

CROSS SECTION

RIVER: Unit 3 East
REACH: Unit 3 East
RS: 3.1*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
346.37	818.12	347.19	818.2	349.19	818.4	349.49	818.4	350.46	818.4
Manning's n Values									
0	.02	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	8.52	.033	12.57	.039	19.8	.039	350.46	.039
Bank Sta: Left Right									
19.8	349.19	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.		
		1.97	1.97	1.97	.1	.3			

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	wt. n-Val.	1.97	1.97	1.97
W.S. Elev (ft)	818.40	Reach Len. (ft)			
Crit W.S. (ft)	0.022080	Flow Area (sq ft)			
E.G. Slope (ft/ft)	0.022080	Area (sq ft)			
Top Width (ft)	196.00	Flow (cfs)			
Top Width (ft/s)	305.19	Top Width (ft)			
Vel Total (ft/s)	2.37	Avg Vel (ft/s)			
Max Chl Dpth (ft)	1319.0	Hydr. Depth (ft)			
Conv. Total (cfs)	1319.0	Conv. (cfs)			
Length wtd. (ft)	1.00	wetted per. (ft)			
Min Ch El (ft)	818.02	Shear (lb/sq ft)			
Alpha	1.00	Stream Power (lb/ft s)	350.46		0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	3.75		7.50
C & E Loss (ft)	0.00	Cum SA (acres)			0.00

CROSS SECTION

RIVER: Unit 3 East
REACH: Unit 3 East
RS: 3.066666*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
351.93	818.08	352.48	818.13	353.81	818.27	354.01	818.27	354.67	818.27
Manning's n Values									
0	.02	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	8.39	.033	12.38	.039	19.5	.039	354.67	.039
Bank Sta: Left Right									
19.5	353.81	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.		
		1.97	1.97	1.97	.1	.3			

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	wt. n-Val.	1.97	1.97	1.97
W.S. Elev (ft)	818.00	Reach Len. (ft)			
Crit W.S. (ft)	0.021546	Flow Area (sq ft)			
E.G. Slope (ft/ft)	0.021546	Area (sq ft)			
Top Width (ft)	299.08	Flow (cfs)			
Top Width (ft/s)	2.37	Top Width (ft)			
Vel Total (ft/s)	0.28	Avg Vel (ft/s)			
Max Chl Dpth (ft)	1335.3	Hvdr. Depth (ft)			
Conv. Total (cfs)	1335.3	Conv. (cfs)			
Length wtd. (ft)	1.97	wetted per. (ft)			
Min Ch El (ft)	818.16	Shear (lb/sq ft)			
Alpha	1.00	Stream Power (lb/ft s)	346.26		0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	3.75		7.50
C & E Loss (ft)	0.00	Cum SA (acres)			0.00

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E.G. Elev (ft)	818.44	Element		Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		1.97	0.039	0.039
W.S. Elev (ft)	818.36	Reach Len. (ft)			1.97	1.97
Crit W.S. (ft)		Flow Area (sq ft)			84.13	0.07
E.G. Slope (ft/ft)	0.021287	Area (sq ft)			184.13	0.07
Top width (ft)	316.08	Top width (ft)			310.23	0.86
Flow Area (cfs)	316.08	AVG Vel (ft/s)			2.33	1.02
Vel Total (ft/s)	2.33	Hydr. Depth (ft)			0.27	0.09
Max Chl Dpth (ft)	0.28	Conv. Cfs)			1342.9	0.5
Conv. Total (cfs)	1343.4	wetted per. (ft)			310.24	0.95
Length wtd. (ft)	1.97	Shear (lb/sq ft)			0.36	0.10
Min Ch El (ft)	818.08	Stream Power (lb/ft s)		354.67	0.00	0.00
Alpha	1.00	Cum Volume (acres)		3.75	50.54	7.50
Frctn Loss (ft)	0.04	Cum SA (acres)			0.72	0.00
C & E Loss (ft)	0.00					

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3.033333*

INPUT

Description:		num=	10			
Station	Elevation	Sta	Elev	Sta	Elev	Sta
0	819.42	819.25	12.19	19.2	819.03	52.32
357.5	818.04	357.78	818.07	358.44	818.13	358.87
Manning's n Values		num=	5			
Sta	n Val	Sta	n Val	Sta	n Val	Sta
0	.02	8.26	.033	12.19	.039	19.2
Bank Sta: Left		Lengths:	Left	Channel	Right	Coeff
19.2	358.44		1.97	1.97	1.97	Contr.
						Expan.
						.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.40	Element		Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		1.97	0.039	0.039
W.S. Elev (ft)	818.32	Reach Len. (ft)			1.97	1.97
Crit W.S. (ft)		Flow Area (sq ft)			86.84	0.08
E.G. Slope (ft/ft)	0.019578	Area (sq ft)			195.89	0.11
Top width (ft)	196.00	Top width (ft)			315.47	0.43
Flow Area (cfs)	315.90	AVG Vel. (ft/s)			2.26	1.38
Vel Total (ft/s)	2.26	Hydr. Depth (ft)			0.19	0.06
Max Chl Dpth (ft)	1406.28	Conv. Cfs)			1400.28	0.62
Conv. Total (cfs)	1406.28	wetted per. (ft)			315.48	0.16
Length wtd. (ft)	1.97	Shear (lb/sq ft)			0.00	0.00
Min Ch El (ft)	818.04	Stream Power (lb/ft s)		358.87	0.00	0.00
Alpha	1.00	Cum Volume (acres)		3.75	50.54	7.50
Frctn Loss (ft)	0.05	Cum SA (acres)			0.72	0.00
C & E Loss (ft)	0.00					

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 3

INPUT

Description:		num=	5			
Station	Elevation	Sta	Elev	Sta	Elev	Sta
0	819.38	12	819.14	18.9	51.75	818
Manning's n Values		num=	2			
Sta	n Val	Sta	n Val	Sta	n Val	Sta
0	.02	12	.039			
Bank Sta: Left		Lengths:	Left	Channel	Right	Coeff
18.9	363.07		.99	.99	.99	Contr.
						Expan.
						.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.34	Element		Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.99	0.039	0.039
W.S. Elev (ft)	818.23	Reach Len. (ft)			0.99	0.99
Crit W.S. (ft)		Flow Area (sq ft)			72.51	0.07
E.G. Slope (ft/ft)	0.036309	Area (sq ft)			196.00	0.11
Top width (ft)	318.88	Top width (ft)			318.88	0.43

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Vel Total (ft/s)	2.70	Avg. Vel. (ft/s)	2.70
Max Chl Dpth (ft)	0.23	Hydr. Depth (ft)	0.23
Conv. Total (cfs)	1028.6	Wetted Per. (ft)	1028.6
Length Wtd. (ft)	0.99	Stream Power (lb/ft s)	0.52
Min Ch El (ft)	818.00	Cum Volume (acre-ft)	0.90
Alpha	1.00	Cum SA (acres)	7.50
Frcn Loss (ft)	0.04		
C & E Loss (ft)	0.00		

warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 warning: The cross-section end points had to be extended vertically for the computed water surface.
 warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.94736*

INPUT

Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.36	8.49	819.18	12.43	819.1	19.58	818.95	21.41	818.95
22.02	819.76	8.49	819.18	12.43	817.82	59.55	817.76	354.69	817.76
353.01	817.79	358.83	817.84	363.07	817.89				

Manning's n Values	num=	5	Sta	n Val	Sta	n Val	Sta	n Val	
			0	.02	8.49	.033	12.43	.039	19.58
Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.	
	19.58	363.07		.99	.99	.04	.3		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.24	Element	Left	Right	Channel
Vel Head (ft)	0.34	Wt n-Val.	0.99	0.99	0.99
W.S. Elev (ft)	817.90	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	818.00	Flow Area (sq ft)	41.79	41.79	41.79
E.G. Slope (ft/ft)	0.228456	Area (sq ft)	196.00	196.00	196.00
Q Total (cfs)	196.00	Flow (cfs)	307.88	307.88	307.88
Top Width (ft)	307.88	Top Width (ft)	4.69	4.69	4.69
Vel Total (ft/s)	4.69	Avg. Vel. (ft/s)	0.14	0.14	0.14
Max Chl Dpth (ft)	410.1	Hydr. Depth (ft)	410.1	410.1	410.1
Conv. Total (cfs)	196.00	Wetted Per. (ft)	307.88	307.88	307.88
Length Wtd. (ft)	0.99	Stream Power (lb/ft s)	0.04	0.04	0.04
Min Ch El (ft)	817.79	Stream Power (lb/ft s)	363.07	363.07	363.07
Alpha	1.00	Cum Volume (acre-ft)	3.75	3.75	3.75
Frcn Loss (ft)	0.07	Cum Volume (acre-ft)	0.02	0.02	0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.70	0.70	0.70

warning: The cross-section end points had to be extended vertically for the computed water surface.
 warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.89473*

INPUT

Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.34	8.78	819.15	12.86	819.06	20.26	818.89	22.42	818.75
23.06	819.63	43.56	818.1	63.07	817.61	67.35	817.53	346.32	817.53
346.95	817.58	354.38	817.68	363.07	817.79				

Manning's n Values	num=	5	Sta	n Val	Sta	n Val	Sta	n Val	
			0	.02	8.78	.034	12.86	.04	20.26
Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.	
	20.26	363.07		.99	.99	.041	.3		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.02	Element	Left	Right	Channel
Vel Head (ft)	0.34	Wt n-Val.	0.99	0.99	0.99
W.S. Elev (ft)	817.68	Reach Len. (ft)	0.99	0.99	0.99
Crit W.S. (ft)	817.78	Flow Area (sq ft)	41.85	41.85	41.85
E.G. Slope (ft/ft)	0.222115	Area (sq ft)	196.00	196.00	196.00

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Q Total (cfs)	196.00	Flow (cfs)	196.00
Top Width (ft)	291.49	Top Width (ft)	291.49
Vel Total (ft/s)	4.68	Avg Vel. (ft/s)	4.68
Max Chl Dpth (ft)	0.15	Hydr. Depth (ft)	0.14
Conv. Total (cfs)	415.9	Wetted Per. (ft)	291.49
Length Wtd. (ft)	0.99	Wetted Area (sq ft)	1.00
Min Ch El (ft)	811.05	Shear Power (lb/ft s)	363.07
Frctn Loss (ft)	1.00	Stream Power (lb/ft s)	3.75
C & E Loss (ft)	0.22	Cum Volume (acres)	0.00
	0.00	Cum SA (acres)	0.69

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 2.84210*

INPUT

Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.32	9.07	819.11	13.29	819.02	20.94	818.84	23.42	818.65
24.39	818.47	50.08	817.92	73.21	817.4	817.14	817.29	337.94	817.29
338.89	817.37	350.34	817.53	363.07	817.68				

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
0	.02	9.07	.034	13.29	.04	20.94	.042	363.07	.042
Lengths: Left Channel Right									
20.94 363.07 .99 .99									
Coeff Contr. Expan. .1 .3									

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.92	Element	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.99	0.99
W.S. Elev (ft)	817.90	Reach Len. (ft)	176.74	
Crit W.S. (ft)	817.54	Flow Area (sq ft)	196.00	
E.G. Slope (ft/ft)	0.19200	Flow Area (sq ft)	312.15	
Top Width (ft)	312.15	Top Width (ft)	1.11	
Vel Total (ft/s)	1.11	Avg Vel (ft/s)	0.57	
Max Chl Dpth (ft)	0.61	Hydr. Depth (ft)	4277.5	
Conv. Total (cfs)	4277.5	Conv. (cfs)	312.39	
Length Wtd. (ft)	0.99	Wetted Per. (ft)	0.07	
Min Ch El (ft)	817.29	Shear (lb/sq ft)	50.53	
Alpha	1.00	Stream Power (lb/ft s)	0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	363.07	
C & E Loss (ft)	0.00	Cum SA (acres)	3.75	
			0.68	

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 2.78947*

INPUT

Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.3	9.37	819.08	13.72	818.98	21.61	818.79	24.43	818.54
25.52	818.32	54.58	817.73	80.75	817.19	82.94	817.05	329.56	817.05
330.83	817.16	346.1	817.37	363.07	817.58				

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
0	.02	9.37	.034	13.72	.04	21.61	.043	363.07	.043
Lengths: Left Channel Right									
21.61 363.07 .99 .99									
Coeff Contr. Expan. .1 .3									

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.92	Element	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.99	0.99
W.S. Elev (ft)	817.91	Reach Len. (ft)	243.45	
Crit W.S. (ft)	817.54	Flow Area (sq ft)	196.00	
E.G. Slope (ft/ft)	0.1960774	Flow Area (sq ft)	317.17	
Top Width (ft)	317.17	Top Width (ft)	0.81	
Vel Total (ft/s)	0.81	Avg Vel. (ft/s)	0.81	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)	0.77	

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Conv. Total (cfs)	7047.3	Conv. (cfs)	7047.3
Length wtd. (ft)	0.99	wetted Per. (ft)	317.51
Min Ch El (ft)	817.05	Shear (lb/sq ft)	0.04
Alpha	1.00	Stream Power (lb/ft.s)	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.68

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 2.73684*

INPUT

Description:

Station	Sta	Elev	num=	13
Elevation Data	Sta	Elev	Sta	Elev
	0	819.28	9.66	819.05
	26.65	818.16	59.09	817.55
	322.76	816.95	341.85	817.21
			363.07	817.47

Manning's n Values

num=	5		
Sta	n Val	Sta	n Val
0	.02	9.66	.035
		14.15	.041
		22.29	.044

Bank Sta:	Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
	22.29	363.07	.99	.99	.99	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element	Channel	Right	OB
Vel Head (ft)	0.01	wt. n-Val.	0.044	0.044	
W.S. Elev (ft)	817.91	Reach Len. (ft)	0.99	0.99	
Crit W.S. (ft)		Flow Area (sq ft)	305.07	305.07	
E.G. Slope (ft/ft)	0.000391	Area (sq ft)	196.00	196.00	
Q Total (cfs)	323.03	Top width (ft)	323.03	323.03	
Top width (ft)	1.09	Avg. Vel. (ft/s)	0.94	0.94	
Max Ch Depth (ft)	1.09	Hydr. Depth (ft)	9907.4	9907.4	
Conv. Total (cfs)	9907.4	Conv. (cfs)	323.49	323.49	
Length wtd. (ft)	0.99	wetted per. (ft)	0.02	0.02	
Min Ch El (ft)	816.82	Shear (lb/sq ft)	0.00	0.00	
Alpha	1.00	Stream Power (lb/ft.s)	363.07	363.07	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.75	3.75	
C & E Loss (ft)	0.00	Cum SA (acres)	0.67	0.67	

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 2.68421*

INPUT

Description:

Station	Sta	Elev	num=	13
Elevation Data	Sta	Elev	Sta	Elev
	27.78	818.00	9.59	818.9
	314.7	816.74	63.59	817.37
			95.84	816.79
			363.07	817.37

Manning's n Values

num=	5		
Sta	n Val	Sta	n Val
0	.02	9.96	.035
		14.58	.041
		22.97	.045

Bank Sta:	Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
	22.97	363.07	.99	.99	.99	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element	Channel	Right	OB
Vel Head (ft)	0.00	wt. n-Val.	0.045	0.045	
W.S. Elev (ft)	817.91	Reach Len. (ft)	0.99	0.99	
Crit W.S. (ft)		Flow Area (sq ft)	366.94	366.94	
E.G. Slope (ft/ft)	0.000227	Area (sq ft)	196.00	196.00	
Q Total (cfs)	329.66	Top width (ft)	329.66	329.66	
Top width (ft)	0.53	Avg. Vel. (ft/s)	0.53	0.53	
Max Ch Depth (ft)	0.53	Hydr. Depth (ft)	12906.11	12906.11	
Conv. Total (cfs)	12906.11	Conv. (cfs)	330.2	330.2	
Length wtd. (ft)	0.99	wetted per. (ft)	0.00	0.00	
Min Ch El (ft)	816.58	Stream Power (lb/ft.s)	363.07	363.07	
Alpha	1.00	Cum Volume (acre-ft)	7.50	7.50	
Frctn Loss (ft)	0.00	Cum SA (acres)	50.51	50.51	

C & E Loss (ft) 0.00 Cum SA (acres) 0.66

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.63157*

INPUT		Description		Station Elevation Data		num= 13		Elev Sta		Elev Sta		Elev Sta	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.24	10.25	818.98	15.02	818.86	23.65	818.63	27.44	818.23				
28.92	817.85	86.1	817.19	103.38	816.55	106.34	816.34	304.43	816.34				
306.64	816.33	333.37	816.89	363.07	817.26								

Manning's n Values		num= 5		Sta		n Val		Sta		n Val		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	10.25	.035	15.02	.041	23.65	.046	363.07	.046						

Bank Sta:		Left		Right		Channel		Right		Channel		Right		Expan.	
Sta	Left	Right	Lengths:	Left	Right	Channel	Right	Channel	Right	Channel	Right	Channel	Right	Expan.	Contr.
	23.65	363.07	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element		Left OB	0.99	Channel	0.047	Right OB	0.99
Vel Head (ft)	0.00	Wt. n-Val.		Left OB	0.99	Channel	0.047	Right OB	0.99
W.S. Elev (ft)	817.91	Reach Len. (ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Crit W.S. (ft)	817.91	Flow Area (sq ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
E.G. Slope (ft/ft)	0.000146	Area (sq ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Q Total (cfs)	196.00	Flow (cfs)		Left OB	0.99	Channel	0.047	Right OB	0.99
Top Width (ft)	334.38	Top Width (ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Vel Total (ft/s)	0.46	AVG. Vel. (ft/s)		Left OB	0.99	Channel	0.047	Right OB	0.99
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Conv. Total (cfs)	16240.4	Wetted Per. (ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Length Wtd. (ft)	0.99	Shear (lb/sq ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Min Ch El (ft)	816.34	Stream Power (lb/ft s)		Left OB	0.99	Channel	0.047	Right OB	0.99
Frict Loss (ft)	0.00	Cum Volume (acre-ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
C & E Loss (ft)	0.00	Cum SA (acres)		Left OB	0.99	Channel	0.047	Right OB	0.99

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.57894*

INPUT		Description		Station Elevation Data		num= 13		Elev Sta		Elev Sta		Elev Sta	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.22	10.55	818.94	15.45	818.81	24.33	818.58	28.45	818.13				
30.05	817.7	72.61	817	110.93	816.34	114.13	816.11	296.06	816.11				
298.58	816.32	329.12	816.74	363.07	817.16								

Manning's n Values		num= 5		Sta		n Val		Sta		n Val		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	10.55	.036	15.45	.042	24.33	.047	363.07	.047						

Bank Sta:		Left		Right		Channel		Right		Channel		Right		Expan.	
Sta	Left	Right	Lengths:	Left	Right	Channel	Right	Channel	Right	Channel	Right	Channel	Right	Expan.	Contr.
	24.33	363.07	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element		Left OB	0.99	Channel	0.047	Right OB	0.99
Vel Head (ft)	0.00	Wt. n-Val.		Left OB	0.99	Channel	0.047	Right OB	0.99
W.S. Elev (ft)	817.91	Reach Len. (ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Crit W.S. (ft)	817.91	Flow Area (sq ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
E.G. Slope (ft/ft)	0.000101	Area (sq ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Q Total (cfs)	196.00	Flow (cfs)		Left OB	0.99	Channel	0.047	Right OB	0.99
Top Width (ft)	333.80	Top Width (ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Vel Total (ft/s)	0.41	AVG. Vel. (ft/s)		Left OB	0.99	Channel	0.047	Right OB	0.99
Max Chl Dpth (ft)	1.80	Hydr. Depth (ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Conv. Total (cfs)	19532.0	Wetted Per. (ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Length Wtd. (ft)	0.99	Shear (lb/sq ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
Min Ch El (ft)	816.11	Stream Power (lb/ft s)		Left OB	0.99	Channel	0.047	Right OB	0.99
Frict Loss (ft)	0.00	Cum Volume (acre-ft)		Left OB	0.99	Channel	0.047	Right OB	0.99
C & E Loss (ft)	0.00	Cum SA (acres)		Left OB	0.99	Channel	0.047	Right OB	0.99

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CPNPPLOCA1PMP

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.52631*

INPUT

Description: Station Elevation Data num= 13
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 819.2 10.84 818.91 15.88 818.77 25.01 818.53 29.45 818.03
 31.18 817.55 77.11 816.82 118.47 816.12 121.93 815.87 287.68 815.87
 290.52 816.11 324.88 816.58 363.07 817.05

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 10.84 .036 15.88 .042 25.01 .048 363.07 .048
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 25.01 363.07 .99 .99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left 08	Right 08
E.G. Elev (ft)	817.91	
Vel Head (ft)	0.00	
W.S. Elev (ft)	817.91	0.99
Crit W.S. (ft)		
E.G. Slope (ft/ft)	0.000073	
Q Total (cfs)	339.10	
Top Width (ft)	339.10	
Vel Total (ft/s)	0.36	
Max Chl Dpth (ft)	2.04	
Conv. Total (cfs)	22956.3	
Length wtd. (ft)	0.99	
Min Ch El (ft)	815.87	
Alpha	1.00	
Frctn Loss (ft)	0.00	
C & E Loss (ft)	0.00	

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.47368*

INPUT

Description: Station Elevation Data num= 13
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 819.18 11.33 818.88 16.31 818.73 25.68 818.47 30.46 817.93
 32.31 817.39 81.62 816.64 126.02 815.91 129.73 815.63 279.3 815.63
 282.46 815.89 320.64 816.42 363.07 816.95

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 11.33 .036 16.31 .042 25.68 .048 363.07 .048
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 25.68 363.07 .99 .99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left 08	Right 08
E.G. Elev (ft)	817.91	
Vel Head (ft)	0.00	
W.S. Elev (ft)	817.91	0.99
Crit W.S. (ft)		
E.G. Slope (ft/ft)	0.000053	
Q Total (cfs)	196.00	
Top Width (ft)	332.54	
Vel Total (ft/s)	0.33	
Max Chl Dpth (ft)	2.04	
Conv. Total (cfs)	26874.6	
Length wtd. (ft)	0.99	
Min Ch El (ft)	815.63	
Alpha	1.00	
Frctn Loss (ft)	0.00	
C & E Loss (ft)	0.00	

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.42105*

CPNPPLOCA1PMP

INPUT
 Description: num= 13
 Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 819.16 11.43 818.84 16.74 818.69 26.36 818.42 31.46 817.82
 33.4 817.28 90.24 816.46 133.09 815.37 137.53 815.39 270.92 815.59
 274.4 815.68 316.4 816.26 363.07 816.84

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 11.43 .036 16.74 .043 26.36 .049 363.07 .049

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 26.36 363.07 .99 .99

CROSS SECTION OUTPUT Profile #PF 1
 E.G. Elev (ft) 817.91 Element Left OB Channel Right OB
 Vel Head (ft) 0.00 Wt. n-Val. 0.049 0.99 0.99
 W.S. Elev (ft) 817.91 Reach Len. (ft) 0.99 642.48
 Crit W.S. (ft) 0.000042 Flow Area (sq ft) 196.00
 E.G. Slope (ft/ft) 0.000042 Area (sq ft) 196.00
 Q Total (cfs) 332.38 Top Width (ft) 332.38
 Vel Total (ft/s) 0.31 Avg. Vel. (ft/s) 0.31
 Max Chl Dpth (ft) 2.52 Hydr. Depth (ft) 1.93
 Conv. Total (cfs) 30159.9 Wetted Per. (ft) 30159.9
 Length Wtd. (ft) 815.39 Stream Power (lb/ft s) 333.52
 Min Ch El (ft) 1.00 Stream Power (lb/ft s) 363.07
 Alpha 1.00 Cum Volume (acre-ft) 0.00
 Frctn Loss (ft) 0.00 Cum SA (acres) 50.45
 C & E Loss (ft) 0.00 3.75 0.62

warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION
 RIVER: Unit 3 East RS: 2.36842*
 REACH: Unit 3 East
 INPUT
 Description: num= 13
 Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 819.14 11.72 818.81 17.17 818.65 27.04 818.37 32.47 817.72
 34.58 817.08 90.63 816.28 141.1 815.49 145.32 815.16 262.55 815.16
 266.34 815.47 312.15 816.11 363.07 816.74

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 11.72 .037 17.17 .043 27.04 .05 363.07 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 27.04 363.07 .99 .99

CROSS SECTION OUTPUT Profile #PF 1
 E.G. Elev (ft) 817.91 Element Left OB Channel Right OB
 Vel Head (ft) 0.00 Wt. n-Val. 0.049 0.99 0.99
 W.S. Elev (ft) 817.91 Reach Len. (ft) 0.99 688.55
 Crit W.S. (ft) 0.000035 Flow Area (sq ft) 196.00
 E.G. Slope (ft/ft) 0.000035 Area (sq ft) 196.00
 Q Total (cfs) 332.20 Top Width (ft) 332.20
 Vel Total (ft/s) 0.28 Avg. Vel. (ft/s) 0.28
 Max Chl Dpth (ft) 2.75 Hydr. Depth (ft) 2.07
 Conv. Total (cfs) 33176.9 Wetted Per. (ft) 33176.9
 Length Wtd. (ft) 815.16 Stream Power (lb/ft s) 333.52
 Min Ch El (ft) 1.00 Stream Power (lb/ft s) 363.07
 Alpha 1.00 Cum Volume (acre-ft) 50.44
 Frctn Loss (ft) 0.00 Cum SA (acres) 7.50
 C & E Loss (ft) 0.00 3.75 0.62

warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION
 RIVER: Unit 3 East RS: 2.31578*
 REACH: Unit 3 East
 INPUT
 Description: num= 13
 Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

CPNPPLOCA1PMP

0 819.12 12.02 818.77 17.6 818.61 27.72 818.32 33.47 817.62
 35.71 816.93 95.14 816.09 148.65 815.27 153.12 814.92 254.17 814.92
 258.28 815.26 307.91 815.95 363.07 816.63

Manning's n Values

Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 12.02 .037 17.6 .043 27.72 .051 33.47 .051
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 27.72 363.07 .99 .99 .99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.99	0.051	0.99
W.S. Elev (ft)	817.91	Reach Len. (ft)	0.99	734.72	0.99
Crit W.S. (ft)	0.000020	Flow Area (sq ft)		106.00	
E.G. Slope (ft/ft)	196.00	Area (sq ft)		331.99	
Top width (ft)	331.99	Flow width (ft)		0.27	
Vel Total (ft/s)	0.27	AVG. Vel. (ft/s)		2.21	
Max Chl Dpth (ft)	2.99	Hvdr. Depth (ft)		36247.8	
Conv. Total (cfs)	36247.8	Conv. (cfs)		333.44	
Length wtd. (ft)	0.99	wetted Per. (ft)		0.00	
Min Ch El (ft)	814.92	Shear (lb/sq ft)	363.07	50.42	0.00
Alpha	1.00	Stream Power (lb/ft s)	3.75	7.50	0.61
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)			
C & E Loss (ft)	0.00	Cum SA (acres)			

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.26315*

INPUT

Description:	num=	13
Sta Elev	Sta Elev	Sta Elev
0 819.1	12.31	18.03
36.84	816.77	99.64
250.22	815.05	303.67
		815.19
		156.06
		160.92
		814.68
		245.79
		814.68

Manning's n Values

Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 12.31 .037 18.03 .044 28.4 .052 363.07 .052
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 28.4 363.07 .99 .99 .99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.99	0.052	0.99
W.S. Elev (ft)	817.91	Reach Len. (ft)	0.99	777.61	0.99
Crit W.S. (ft)	0.000025	Flow Area (sq ft)		196.00	
E.G. Slope (ft/ft)	196.00	Area (sq ft)		331.94	
Top width (ft)	331.94	Flow width (ft)		2.22	
Vel Total (ft/s)	0.27	AVG. Vel. (ft/s)		2.21	
Max Chl Dpth (ft)	3.73	Hvdr. Depth (ft)		39078.9	
Conv. Total (cfs)	39078.9	Conv. (cfs)		333.41	
Length wtd. (ft)	0.99	wetted Per. (ft)		0.00	
Min Ch El (ft)	814.68	Shear (lb/sq ft)	363.07	50.40	0.00
Alpha	1.00	Stream Power (lb/ft s)	3.75	7.50	0.60
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)			
C & E Loss (ft)	0.00	Cum SA (acres)			

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.21052*

INPUT

Description:	num=	13
Sta Elev	Sta Elev	Sta Elev
0 816.93	12.15	18.03
37.97	816.02	104.15
242.15	814.84	295.42
		815.63
		363.07
		816.42
		168.72
		814.45
		237.42
		814.45

Manning's n Values

Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 0 .02 12.15 .037 18.03 .044 20.0 .052 35.48 .052
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 20.0 35.48 .99 .99 .99 .1 .3

CPNPPLOCA1PMP

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	12.6	.038	18.46	.044	29.08	.053	363.07	.053
Bank Sta.: Left Right Lengths: Left Channel Right Coeff Contr. Expan.									
29.08 363.07 .99 .99 .1 .3									

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.99	0.053	0.99
W.S. Elev (ft)	817.91	Reach Len. (ft)		817.12	
Crit W.S. (ft)		Flow Area (sq ft)		196.00	
E.G. Slope (ft/ft)	0.000022	Area (sq ft)		331.60	
Q Total (cfs)	331.60	Top Width (ft)		0.24	
Top Width (ft)	0.24	Avg. Vel. (ft/s)		4162.46	
Vel Total (ft/s)	0.24	Hydr. Depth (ft)		333.32	
Max Chl Dpth (ft)	4162.46	Conv. (cfs)		0.00	
Length Total (ft)	4162.46	Shear (lb/ft)		0.00	
Wing Area (sq ft)	814.45	Stream Power (lb/ft s)	363.07	0.00	0.00
Min Ch El (ft)	1.00	Cum Volume (acre-ft)	3.75	50.39	7.50
Frctn Loss (ft)	0.00	Cum SA (acres)		0.59	
C & E Loss (ft)	0.00				

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.15789*

INPUT

Description:	Station	Elevation	Data	num=	13
Sta	Elev	Sta	Elev	Sta	Elev
0	819.06	12.9	18.89	818.49	29.75
39.1	816.46	108.95	171.28	814.64	176.52
234.09	814.63	293.18	815.47	363.07	816.32

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	12.9	.038	18.89	.044	29.75	.054
Bank Sta.: Left Right Lengths: Left Channel Right Coeff Contr. Expan.							
29.75 363.07 .99 .99 .1 .3							

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.99	0.053	0.99
W.S. Elev (ft)	817.91	Reach Len. (ft)		855.02	
Crit W.S. (ft)		Flow Area (sq ft)		196.00	
E.G. Slope (ft/ft)	0.000020	Area (sq ft)		331.35	
Q Total (cfs)	331.35	Top Width (ft)		0.23	
Top Width (ft)	0.23	Avg. Vel. (ft/s)		2.58	
Vel Total (ft/s)	3.70	Hydr. Depth (ft)		44101.3	
Max Chl Dpth (ft)	0.99	Conv. (cfs)		333.17	
Length Total (ft)	814.21	Wetted Per. (ft)		0.00	
Wing Area (sq ft)	1.00	Shear (lb/ft)		0.00	
Min Ch El (ft)	0.00	Stream Power (lb/ft s)	363.07	50.37	7.50
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	3.75	0.59	
C & E Loss (ft)	0.00	Cum SA (acres)			

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.10526*

INPUT

Description:	Station	Elevation	Data	num=	13
Sta	Elev	Sta	Elev	Sta	Elev
0	819.04	13.19	818.64	19.32	818.45
40.24	816.31	113.16	815.36	178.82	814.42
226.03	814.42	290.94	815.32	363.07	816.21

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.02	13.19	.038	19.32	.045	30.43	.055
Bank Sta.: Left Right Lengths: Left Channel Right Coeff Contr. Expan.							
30.43 363.07 .99 .99 .1 .3							

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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element		Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.055	
W.S. Elev (ft)	817.91	Reach Len. (ft)		0.99	0.99
Cr. Sl. Sp. (ft/ft)	0.0000018	Flow Area (sq ft)		890.69	
E. G. Slope (ft/ft)	0.0000018	Flow (cfs)		196.00	
G. Total (cfs)	331.08	Top width (ft)		331.08	
Top width (ft)	0.22	Avg. Vel. (ft/s)		0.22	
Vel Total (ft/s)	3.94	Hydr. Depth (ft)		46364.9	
Max Chl Dpth (ft)	0.99	Conv. (cfs)		333.03	
Conv. Total (cfs)	813.97	Wetted Per. (ft)		0.00	
Length wrd. (ft)	1.00	Shear (lb/sq ft)		0.00	
Min Ch El (ft)	0.00	Stream Power (lb/ft s)		363.07	7.50
Alpha	0.00	Cum Volume (acre-ft)		50.35	
Frctn Loss	0.00	Cum SA (acres)		0.38	
C & E Loss (ft)					

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2.05263*

INPUT

Description:					
Station	Elev	Sta	Elev	Sta	Elev
0	819.02	13.49	19.75	818.41	31.11
41.37	816.15	117.66	815.18	186.37	814.21
217.97	814.21	286.69	815.16	363.07	816.11

Manning's n Values					
Sta	n	Val	Sta	n	Val
0	.02	13.49	.039	19.75	.045
31.11	363.07			31.11	.056
Bank Sta:	Left	Right	Lengths:	Left Channel	Right
	31.11	363.07		.99	.99
				Coeff	Contr.
				.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element		Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.056	
W.S. Elev (ft)	817.91	Reach Len. (ft)		0.99	0.99
Cr. Sl. Sp. (ft/ft)	0.000016	Flow Area (sq ft)		923.28	
E. G. Slope (ft/ft)	0.000016	Flow (cfs)		336.80	
Q. Total (cfs)	336.80	Top width (ft)		336.80	
Top width (ft)	0.21	Avg. Vel. (ft/s)		0.21	
Vel Total (ft/s)	4.17	Hydr. Depth (ft)		48355.5	
Max Chl Dpth (ft)	0.99	Conv. (cfs)		332.95	
Conv. Total (cfs)	813.74	Wetted Per. (ft)		0.00	
Length wrd. (ft)	1.00	Shear (lb/sq ft)		0.00	
Min Ch El (ft)	0.00	Stream Power (lb/ft s)		363.07	7.50
Alpha	0.00	Cum Volume (acre-ft)		50.33	
Frctn Loss	0.00	Cum SA (acres)		0.57	
C & E Loss (ft)					

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East
 RS: 2

INPUT

Description:					
Station	Elev	Sta	Elev	Sta	Elev
0	819.02	13.49	19.75	818.41	31.11
122.17	815.15	117.66	815.18	186.37	814.21
282.45	815.16	286.69	815.16	363.07	816.11

Manning's n Values					
Sta	n	Val	Sta	n	Val
0	.02	13.49	.039	19.75	.045
31.79	363.07			31.79	.057
Bank Sta:	Left	Right	Lengths:	Left Channel	Right
	31.79	363.07		70.85	70.85
				Coeff	Contr.
				.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.91	Element		Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.057	

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W.S. Elev (ft)	817.91	Reach Len. (ft)	70.85	70.85
Crit W.S. (ft)	814.69	Flow Area (sq ft)	953.67	953.67
E.G. Slope (ft/ft)	0.000015	Area (sq ft)	953.67	953.67
Q Total (cfs)	196.00	Flow (cfs)	196.00	196.00
Top Width (ft)	330.60	Top Width (ft)	330.60	330.60
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)	0.21	0.21
Max Ch Depth (ft)	50157.41	Avg. Depth (ft)	50157.88	50157.88
Length Wd. (ft)	70.85	Wetted Per (ft)	332.80	332.80
Min Ch El (ft)	813.50	Stream Power (lb/ft s)	0.00	0.00
Alpha	1.00	Cum Volume (acre-ft)	50.31	50.31
Frctn Loss (ft)		Cum SA (acres)	3.75	3.75
C & E Loss (ft)			0.56	0.56

INLINE STRUCTURE

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 1.5

INPUT

Description:
 Distance from Upstream XS = 15.85
 Deck/Roadway Width = 24
 Weir Coefficient = 2.6
 Weir Embankment Coordinates = Sta Elev num = 6
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 363.07 819 50 818 817.5 353.88 817.5 353.88 823

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	817.91	Q Gates (cfs)	0.00
W.S. Elev (ft)	817.91	Q Gate Group	815.10
Q Total (cfs)	196.00	Gate Open Ht (ft)	0.00
Weir (cfs)	196.00	Gate #Open	1.00
Weir Flow Area (sq ft)	119.10	Gate Area (sq ft)	0.00
Weir Sta Lft (ft)	54.41	Gate Submerg	0.00
Weir Sta Rgt (ft)	353.88	Gate Invert (ft)	0.00
Weir Max Depth (ft)	0.41	Gate Weir Coef	0.000
Weir Avg Depth (ft)	0.40	Q Breach (cfs)	
Weir Coef (FTAL/2)	2.600	Breach Avg Velocity (ft/s)	
Weir Submerg	0.98	Breach Flow Area (sq ft)	
Min El (ft)	817.50		
Wp Top Width (ft)	299.47		

CROSS SECTION

RIVER: Unit 3 East
 REACH: Unit 3 East

RS: 1

INPUT

Description:
 Station Elev num= 4
 Sta Elev Sta Elev Sta Elev Sta Elev
 0 818 25.49 810 333.65 810 378.15 816

Manning's n Values num= 1

Bank Sta: Left Right Coeff Contr. Expan.
 0 378.15 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.10	Element	Channel	Right 08
Vel Head (ft)	0.00	Wt. n-Val.	0.039	
W.S. Elev (ft)	815.10	Reach Len. (ft)	1709.50	
Crit W.S. (ft)	810.23	Flow Area (sq ft)	1709.50	
E.G. Slope (ft/ft)	0.000001	Area (sq ft)	196.00	
Q Total (cfs)	196.00	Flow (cfs)	362.23	
Top Width (ft)	362.23	Top Width (ft)	362.23	
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.11	
Max Ch Depth (ft)	182875.2	Avg. Depth (ft)	182875.2	
Length Wd. (ft)	810.00	Wetted Per (ft)	363.36	
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	0.00	
Alpha			0.00	

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Cum Volume (acre-ft)
Cum SA (acres)

Frctn Loss (ft)
C & E Loss (ft)

CROSS SECTION

RIVER: Unit 3 North
REACH: Unit 3 North

RS: 8

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	12						
Sta		819.3	3.92	819.3	7.92	819.23	20.16
Elev		0	819.3	0	819.3	819.23	819
W.S. Elev (ft)		31.92	818.37	38.92	817	817	822
Crit W.S. (ft)		112.95	822	122	94.51	817	109.95

Manning's n Values	num=	Sta	n Val	Sta	n Val	Sta	n Val
Sta		-10	.039	7.92	.02	31.92	.039
n Val		0	.039	7.92	.02	31.92	.039

Bank Sta: Left 38.92 Right 109.95
Lengths: Left Channel 38.08 Right 38.08
Blocked obstructions num= 2
Sta L Sta R Elev Sta L Elev

-10 0 825 112.95 122 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Element	Left OB	Right OB
Vel Head (ft)	820.14	0.026	38.08
W.S. Elev (ft)	0.01	0.039	38.08
Crit W.S. (ft)	820.14	38.08	38.08
Q Total (cfs)	817.71	50.00	184.75
Top Width (ft)	0.000087	50.00	130.82
Vel Total (ft/s)	164.00	33.18	65.28
Max Chl Dpth (ft)	104.20	0.66	0.71
Conv. Total (CFS)	0.70	352.28	2.83
Length Wtd. (ft)	3.14	33.76	65.88
Alpha El (ft)	1758.3	39.70	65.88
Frctn Loss (ft)	817.00	0.01	0.02
C & E Loss (ft)	1.00	122.00	0.00
	0.00	3.75	49.02
	0.00	0.50	0.88

CROSS SECTION

RIVER: Unit 3 North
REACH: Unit 3 North

RS: 7

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	14						
Sta		-10	819.3	3.9	819.3	7.9	819.23
Elev		31.9	818.37	38.9	818	48.51	817
W.S. Elev (ft)		94.51	817	109.95	822	112.95	822
Crit W.S. (ft)		822	112.95	822	122	93.44	816.64

Manning's n Values	num=	Sta	n Val	Sta	n Val	Sta	n Val
Sta		-10	.039	7.9	.02	31.9	.039
n Val		0	.039	7.9	.02	31.9	.039

Bank Sta: Left 38.9 Right 109.95
Lengths: Left Channel 58.25 Right 58.25
Blocked obstructions num= 2
Sta L Sta R Elev Sta L Elev

-10 0 825 112.95 122 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Element	Left OB	Right OB
Vel Head (ft)	820.14	0.026	58.25
W.S. Elev (ft)	0.01	0.039	58.25
Crit W.S. (ft)	820.13	58.25	58.25
Q Total (cfs)	0.000070	49.89	200.24
Top Width (ft)	164.00	29.71	134.29
Vel Total (ft/s)	104.19	38.90	65.29
Max Chl Dpth (ft)	0.66	0.60	0.67
Conv. Total (CFS)	3.49	3541.3	16004.0
Length Wtd. (ft)	19545.3	39.76	65.91
Alpha El (ft)	38.25	122.00	0.01
Frctn Loss (ft)	816.04	122.00	0.00
C & E Loss (ft)	1.00	3.70	7.50
	0.00	0.47	0.82

GROSS SECTION

RIVER: Unit 3 North
REACH: Unit 3 North

RS: 6

INPUT

Station	Elev	Sta	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819.3	0	14	819.3	3.89	7.89	819.3	7.89	819.3	20.13	819
31.89	818.37	38.89		818	48.52	817	59.31	816.1	816.1	91.82	816.1
94.52	817	109.95		822	112.95	822					

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	0	7.89	.02	31.89	.039	122	.039			

Bank Sta: Left 38.89 Right 109.95

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Right	Channel	Left	Right	Coeff	Constr.	Expand.
-10	825	112.95	122	825	134.06	134.06	.1	.3	.3

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. Head (ft)	Wt. Vel (ft/s)	Crit Vel (ft/s)	E.G. Slope (ft/ft)	O. Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Ch El (ft)	Alpha	Fricn Loss (ft)	C & E Loss (ft)	Element	Wt. n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Top Width (ft)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Conv. (cfs)	Wetted Per. (ft)	Shear (lb/sq ft)	Stream Power (lb/ft. s)	Cum Volume (acre-ft)	Cum Sk (acres)	Left OB	Channel	Right OB
820.14	0.01	0.01	0.01	820.14	0.000055	164.00	0.61	4.03	22203.2	134.06	134.06	1.01	1.01	0.00	820.14	0.01	134.06	49.76	219.83	49.76	38.89	0.52	3.37	3527.9	39.75	66.02	122.60	48.52	0.42	134.06	134.06	

GROSS SECTION

RIVER: Unit 3 North
REACH: Unit 3 North

RS: 5

INPUT

Station	Elev	Sta	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819.3	0	16	819.3	7.84	33.16	819.3	7.84	819.3	20.09	819
33.16	818.45	43.7		818	58.6	817	63.92	816	69.51	815	
79.51	815	85.02		816	97.42	820	115.42	821.66	119.73	822	

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	0	7.84	.02	33.16	.039	115.42	.02			

Bank Sta: Left 43.7 Right 85.02

Blocked Obstructions num= 1

Sta L	Sta R	Elev	Right	Channel	Left	Right	Coeff	Constr.	Expand.
-10	825	112.95	122	825	134.06	134.06	.1	.3	.3

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. Head (ft)	Wt. Vel (ft/s)	Crit Vel (ft/s)	E.G. Slope (ft/ft)	O. Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Ch El (ft)	Alpha	Fricn Loss (ft)	C & E Loss (ft)	Element	Wt. n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Top Width (ft)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Conv. (cfs)	Wetted Per. (ft)	Shear (lb/sq ft)	Stream Power (lb/ft. s)	Cum Volume (acre-ft)	Cum Sk (acres)	Left OB	Channel	Right OB
820.13	0.01	0.01	0.01	820.13	0.000066	164.00	0.67	5.12	20151.2	134.06	134.06	1.02	1.02	0.00	820.13	0.01	134.06	57.16	187.15	57.16	32.16	0.56	1.31	3951.3	44.55	80.00	128.73	47.50	0.29	134.06	134.06	

INLINE STRUCTURE

CPNPPLOCA1PMP

RIVER: Unit 3 North
 REACH: Unit 3 North RS: 4.5

INPUT
 Description: 17
 Deck/Roadway Width = 24
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	819.3	3.83	819.3	20.08	819	45.13	819
103.93	821	128.78	821.6			74.53	820

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	820.13	Q Gates (cfs)	0.00
W.S. Elev (ft)	820.12	Q Gate Group (cfs)	0.00
Q Total (cfs)	164.00	Gate Open Ht (ft)	819.68
Weir Flow Area (sq ft)	66.05	Gate #open	1.00
Weir Sta Rgt (ft)	78.31	Gate Area (sq ft)	0.00
Weir Sta Lft (ft)	1.13	Gate Invert (ft)	0.00
Weir Max Depth (ft)	0.84	Gate Weir Coef	0.000
Weir Avg Depth (ft)	2.600	Q Breach (cfs)	
Weir Coef (ft ^{1/2})	0.50	Breach Avg Velocity (ft/s)	
Weir Submerg	819.01	Breach Flow Area (sq ft)	
Min El Weir Flow (ft)	78.31		
Wt Top Width (ft)			

CROSS SECTION

RIVER: Unit 3 North
 REACH: Unit 3 North RS: 4

INPUT
 Description: 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819.3	60.82	819.3	7.82	819.23	20.07	819
33.33	818.695	88.72	818	71.46	817.46	814.5	814.5
79.33	821	128.78	821.02	819	107.58	820	115.41
127.73	821						820.39

Manning's n values num= 9

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	0	7.82	.02	33.13	.039	60.82	.057
71.46	.02	77.46	88.12	.039	115.41			

Bank Sta: Left 60.82 Right 88.12 Lengths: Left Channel 35.13 Right 35.13
 Blocked obstructions num= 1

Sta L	Sta R	Elev	num	Coeff	Contr.	Expan.
-10	0	825	1	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.69	Element	Left OB	Channel
Vel Head (ft)	0.01	wt. n-Val.	0.032	0.050
W.S. Elev (ft)	819.68	Reach Len. (ft)	35.13	35.13
Crit W.S. (ft)		Flow Area (sq ft)	57.91	103.48
E.G. Slope (ft/ft)	0.000236	Area (sq ft)	43.31	103.48
Q Total (cfs)	164.00	Flow (cfs)	60.72	17.85
Vel Wtdl (ft/s)	100.91	Top width (ft)	1.07	0.58
Max Chl Dpth (ft)	5.18	Avg Vel (ft/s)	0.95	0.98
Conv. Total (cfs)	10672.8	Hydr. Depth (ft)	2818.7	641.2
Length wtd. (ft)	35.13	Conv. (cfs)	61.21	17.58
Min Ch El (ft)	814.50	wetted per. (ft)	0.01	0.05
Alpha	1.12	Shear (lb/sq ft)	128.73	0.00
Frctn Loss (ft)	0.01	Stream Power (lb/ft s)	3.47	7.50
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.22	0.49
		Cum SA (acres)		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

Appendix C

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CPNPPLOCA1PMP

RIVER: Unit 3 North
REACH: Unit 3 North

RS: 3.5*

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
810	819.21	819	819.02	819	819.32	819	819.29	819	819.29
811	818.47	818	815.59	818	815.59	818	815.59	818	815.59
812	814.28	817	814.65	817	814.65	817	814.65	817	814.65
813	819.49	816	819.86	816	819.86	816	819.86	816	819.86
814	820.32								

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
810	.039	819	.039	819	.039	819	.039
811	.054	818	.056	818	.056	818	.056
812	.02						

Bank Sta: Left 57.67 Right 91.32 Lengths: Left Channel 35.13 Right Channel 35.13

Blocked obstructions num= 1

Sta L Sta R Elev

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.68	Element	Wt	n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Top Width (ft)	Top Vel. (ft/s)	Hydr. Depth (ft)	Conv. (Cfs)	Wetted Per. (ft)	Stream Power (lb/ft s)	Cum Volume (acre-ft)	Cum SA (acres)
Ve Head	819.68	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
W.S. Elev	819.67	0.000160	0.000160	0.000160	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00
Crit W.S. (ft)	819.67	0.000160	0.000160	0.000160	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00
E.G. Slope (ft/ft)	0.000160	0.000160	0.000160	0.000160	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00
Q Total (cfs)	112.29	112.29	112.29	112.29	112.29	112.29	112.29	112.29	112.29	112.29	112.29	112.29	112.29	112.29	112.29
Top Width (ft)	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Vel Total (ft/s)	5.39	5.39	5.39	5.39	5.39	5.39	5.39	5.39	5.39	5.39	5.39	5.39	5.39	5.39	5.39
Max Chl Dpth (ft)	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5	12965.5
Length Total (ft)	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33
Wetted Per. (ft)	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33	833.33
Alpha El (ft)	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Frctn Loss (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C & E Loss (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 North
REACH: Unit 3 North

RS: 3

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
819	819.32	818	815.51	818	815.51	818	815.51
820	819.49	817	814.65	817	814.65	817	814.65
821	819.86	816	819.86	816	819.86	816	819.86
822	820.32						

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
819	.039	818	.039	818	.039	818	.039
820	.02						

Bank Sta: Left 54.51 Right 94.51 Lengths: Left Channel 18.2 Right Channel 18.2

Blocked obstructions num= 1

Sta L Sta R Elev

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.68	Element	Wt	n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Top Width (ft)	Top Vel. (ft/s)	Hydr. Depth (ft)	Conv. (Cfs)	Wetted Per. (ft)	Stream Power (lb/ft s)	Cum Volume (acre-ft)	Cum SA (acres)
Ve Head	819.68	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
W.S. Elev	819.67	0.000101	0.000101	0.000101	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
Crit W.S. (ft)	819.67	0.000101	0.000101	0.000101	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
E.G. Slope (ft/ft)	0.000101	0.000101	0.000101	0.000101	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
Q Total (cfs)	128.73	128.73	128.73	128.73	128.73	128.73	128.73	128.73	128.73	128.73	128.73	128.73	128.73	128.73	128.73
Top Width (ft)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Vel Total (ft/s)	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62	1632.62
Max Chl Dpth (ft)	182.25	182.25	182.25	182.25	182.25	182.25	182.25	182.25	182.25	182.25	182.25	182.25	182.25	182.25	182.25
Length Total (ft)	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05
Wetted Per. (ft)	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05	814.05
Alpha El (ft)	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Frctn Loss (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C & E Loss (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C & E Loss (ft) 0.00 Cum SA (acres) 0.13 0.44 0.07 CPNPPLOCA\PM

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 North
 REACH: Unit 3 North

RS: 2

Description		Station Elevation Data		num= 16	
Sta	Elev	Sta	Elev	Sta	Elev
-10	819.13	73.0	819.13	10.16	819.13
63.69	819.13	73.0	819.13	10.16	819.13
82.64	819.13	73.0	819.13	10.16	819.13
134.84	819.22	87.37	815	97.21	815

Manning's n values		num= 9	
Sta	n Val	Sta	n Val
-10	.039	10.16	.02
77.56	.02	83.56	.057
		97.21	.039
		122.84	.02

Bank Sta: Left Right Lengths: Left Channel Right

Blocked obstructions num= 1

Sta	Sta	Elev	num
-10	0	825	1
137.8	137.8	137.8	1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	0.025	0.052	0.035
W.S. Elev (ft)	819.67	Reach Len. (ft)	137.80	137.80	137.80
Crit W.S. (ft)	815.49	Flow Area (sq ft)	57.55	145.04	36.84
E.G. Slope (ft/ft)	0.000108	Area (sq ft)	37.55	145.04	36.84
Q Total (cfs)	194.80	Top width (ft)	23.65	131.55	39.60
Top width (ft)	194.80	Hyd. V1 (ft/s)	6.62	3.72	3.72
Vel Total (ft/s)	0.68	Avg V1 (ft/s)	0.62	0.72	0.45
Max Chl Dpth (ft)	6.17	Hvdr. Depth (ft)	0.90	4.33	0.98
Conv. Total (cfs)	15799.7	Conv. (cfs)	3434.3	10756.6	1608.8
Length wtd. (ft)	137.80	wetted per. (ft)	64.07	34.98	38.10
Min Ch El (ft)	813.50	Shear (lb/sq ft)	0.01	0.03	0.01
Alpha	1.08	Stream Power (lb/ft s)	134.84	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	3.36	47.50	7.45
C & E Loss (ft)		Cum SA (acres)	0.10	0.42	0.06

INLINE STRUCTURE

RIVER: Unit 3 North
 REACH: Unit 3 North

RS: 1.5

INPUT

Description:
 Distance from upstream XS = 19.04
 Deck/Roadway width = 36.16
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num= 3
 Sta Elev Sta Elev num= Sta Elev

0	819.3	61.47	819	170.17	819
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Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	819.68	Q Gates (cfs)	0	Gate Group (cfs)	0.00
W.S. Elev (ft)	819.67	Q Total (cfs)	164.00	Gate Open Ht (ft)	817.92
Q Total (cfs)	164.00	Gate #Open	164.00	Gate Area (sq ft)	1.00
Weir Flow Area (sq ft)	80.69	Gate Submerg	0.00	Gate Invert (ft)	0.00
Weir Sta Lft (ft)	134.84	Gate Weir Coef	0.68	Q Breach (cfs)	0.000
Weir Sta Rgt (ft)	0.68	Breach Avg Velocity (ft/s)	0.00	Breach Flow Area (sq ft)	
Weir Max depth (ft)	0.68				
Weir Avg depth (ft)	0.68				
Weir Subm (ft/L/2)	2.00				
Weir Subm	0.00				
Min El Weir Flow (ft)	819.01				
W Top width (ft)	134.84				

CPNPPLOCA\1PMP

CROSS SECTION

RIVER: Unit 3 North
 REACH: Unit 3 North
 RS: 1

INPUT
 Description:
 Station Elevation Data num= 5
 Sta Elev Sta Elev Sta Elev Sta Elev
 0 814 218.56 813 224.68 813 228.76 814 234.88 816

Manning's n Values num= 2
 Sta n Val Sta n Val
 0 .02 228.76 .057

Bank Sta: Left Right Coeff Contr. Expan.
 0 234.88 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	817.92	0.022	
Vel Head (ft)	0.00		
W.S. Elev (ft)	817.92		
Crit W.S. (ft)	813.64	1032.05	
E.G. Slope (ft/ft)	0.000001	164.00	
Q Total (cfs)	164.00	234.88	
Top width (ft)	234.88	4.39	
Max Ch Depth (ft)	4.92	186066.6	
Conv. Total (cfs)	186066.6	241.16	
Length wtd. (ft)		241.16	
Min Ch El (ft)	813.00	0.00	0.00
Alpha	1.00		
Frctn Loss (ft)			
C & E Loss (ft)			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast
 RS: 11

INPUT
 Description:
 Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 58.53 819.69 64.44 820 821 821 821 821 821 821

Manning's n Values num= 3
 Sta n Val Sta n Val
 -10 .039 0 .039 90 .039

Bank Sta: Left Right Lengths: Left Channel Right
 52.64 64.44 4.92 4.92

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 0 827 80.48 90 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB	Expan.
E.G. Elev (ft)	822.79	0.039		
Vel Head (ft)	0.09			
W.S. Elev (ft)	822.70	4.92		
Crit W.S. (ft)	821.52	93.67		
E.G. Slope (ft/ft)	0.001435	33.67		
Q Total (cfs)	371.00	196.68		
Top width (ft)	80.48	52.64		
Max Ch Depth (ft)	3.00	1.78		
Conv. Total (cfs)	9793.0	5191.7		
Length wtd. (ft)	4.92	11.82		
Min Ch El (ft)	819.69	0.16	0.16	
Alpha	1.06			
Frctn Loss (ft)	0.01	45.92		
C & E Loss (ft)	0.00	3.36		

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast
 RS: 10.9090*

CPNPPLOCA1PMP

INPUT

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.27	-2.15	18	822.27	-1.29	822.27	2.28	822.26	2.94	822.25	2.94	822.25	2.94
13.12	821.69	21.93	18	821.22	27.47	821.02	37.83	820.64	50.78	820.39	50.78	820.39	50.78
34.4	821.80	81.91	18	819.86	91.91	821.00	79.37	820.35	80.43	821.00	80.43	821.00	80.43
81.56	821.00	82.43	18	821.00	82.43	821.00	82.43	821.00	82.43	821.00	82.43	821.00	82.43

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-2.15	5	.039	54.4	5	.039	91.91	5	.039	91.91

Bank Sta:

Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
54.4	66.45		4.92	4.92		.1	.3

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev
-10	0827.272782.35091	91.91	825	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.78	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.10	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	822.68	Reach Len. (ft)	4.92	4.92	4.92
Crit W.S. (ft)	0.001692	Flow Area (sq ft)	85.70	34.31	33.62
E.G. Slope (ft/ft)	0.001692	Area (sq ft)	182.02	107.91	81.07
Q Total (Cfs)	82.35	Flow (Cfs)	54.40	12.05	15.90
Top width (ft)	3.01	Top width (ft)	1.52	2.85	2.11
Vel Total (ft/s)	3.01	Avg. Vel (ft/s)	1.52	3.85	2.11
Wd Ch El (ft)	9018.5	Conv. Cfs	4424.8	2623.0	1970.7
Length Wtd. (ft)	4.92	Wetted Per. (ft)	54.87	12.07	17.61
Min Ch El (ft)	819.66	Shear (lb/sq ft)	0.17	0.30	0.20
Alpha	1.09	Stream Power (lb/ft s)	91.91	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	3.35	45.92	7.45
C & E Loss (ft)	0.00	Cum SA (acres)	1.13	0.57	0.05

CROSS SECTION

RIVER: Unit 3 Southeast
REACH: Unit 3 Southeast

RS: 10.8181*

INPUT

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.55	-1.93	18	822.55	-1.05	822.55	.56	822.53	3.3	822.49	3.3	822.49	3.3
13.75	821.92	22.51	18	821.44	28.15	821.22	39.14	820.78	52.44	820.27	52.44	820.27	52.44
36.17	820.82	81.92	18	819.82	91.82	821.00	81.32	820.34	82.39	821.00	82.39	821.00	82.39
83.51	821.00	84.37	18	821.00	84.37	821.00	84.37	821.00	84.37	821.00	84.37	821.00	84.37

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-1.93	5	.039	56.17	5	.039	93.82	5	.039	93.82

Bank Sta:

Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
56.17	68.46		4.92	4.92		.1	.3

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev
-10	0827.545584.22182	93.82	825	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.76	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.12	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	822.65	Reach Len. (ft)	4.92	4.92	4.92
Crit W.S. (ft)	0.002067	Flow Area (sq ft)	76.50	34.86	32.80
E.G. Slope (ft/ft)	0.002067	Area (sq ft)	163.60	34.86	32.80
Q Total (Cfs)	84.22	Flow (Cfs)	56.17	12.29	15.76
Top width (ft)	3.07	Top width (ft)	1.34	3.87	2.64
Vel Total (ft/s)	3.07	Avg. Vel (ft/s)	1.34	3.87	2.64
Wd Ch El (ft)	8160.3	Conv. Cfs	3598.9	2658.4	1903.9
Length Wtd. (ft)	4.92	Wetted Per. (ft)	56.34	12.31	17.44
Min Ch El (ft)	819.62	Shear (lb/sq ft)	0.18	0.37	0.24
Alpha	1.14	Stream Power (lb/ft s)	93.82	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	3.34	45.92	7.44
C & E Loss (ft)	0.00	Cum SA (acres)	1.13	0.57	0.05

CROSS SECTION

RIVER: Unit 3 Southeast
REACH: Unit 3 Southeast

RS: 10.7272*

INPUT

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
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CPNPPLOCA1PMP

Description: Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.82	-1.72	822.82	-0.82	822.82	.84	822.79	3.65	822.74
14.39	822.15	23.38	821.66	29.52	821.42	40.45	820.91	54.1	820.35
37.93	820	64.52	819.59	70.77	820	83.28	820.94	84.34	821
85.46	821	86.32	821						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-1.72	.039	.84	.039	57.93	.039
70.47	.039	4.92	.039	95.73	.039		

Bank Sta: Left Right Lengths: Left Channel Right

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
57.93	70.47	4.92	4.92	4.92	4.92	4.92
0827.818286.09273	95.73	825				

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	822.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	822.61	Reach Len. (ft)	4.92	4.92	4.92
Crit W.S. (ft)	0.002407	Flow Area (sq ft)	67.19	35.35	32.04
E.G. Slope (ft/ft)	371.00	Area (sq ft)	148.90	131.69	90.41
Q Total (Cfs)	80.15	Top width (ft)	51.99	12.54	15.62
Top width (ft)	2.76	Avg. Vel. (ft/s)	2.22	3.73	2.82
Max Chl Dpnt (ft)	756.102	Hydr. Depth (ft)	303.29	268.86	184.05
Length Wtd (ft)	4.92	Wetted Per (ft)	52.06	12.57	17.29
Min Ch El (ft)	819.59	Shear (lb/sq ft)	0.19	0.42	0.28
Alpha	1.16	Stream Power (lb/ft s)	95.73	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	3.33	45.91	7.44
C & E Loss (ft)	0.00	Cum SA (acres)	1.12	0.57	0.05

CROSS SECTION

RTVER: Unit 3 Southeast REACH: Unit 3 Southeast RS: 10.6363*

INPUT

Description: Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	823.09	-1.5	823.09	-0.58	823.09	1.13	823.05
15.02	822.38	24.74	821.87	30.55	821.61	41.76	821.05
59.69	820	66.12	819.55	72.48	820	85.24	820.95
87.41	821	88.27	821	97.64	821		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-1.5	.039	1.13	.039	59.69	.039
72.48	.039	4.92	.039	97.64	.039		

Bank Sta: Left Right Lengths: Left Channel Right

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
59.69	72.48	4.92	4.92	4.92	4.92	4.92
0828.090987.96364	97.64	825				

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	822.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	822.58	Reach Len. (ft)	4.92	4.92	4.92
Crit W.S. (ft)	0.002791	Flow Area (sq ft)	58.72	35.82	31.12
E.G. Slope (ft/ft)	371.00	Area (sq ft)	134.56	143.03	93.41
Q Total (Cfs)	76.53	Top width (ft)	48.26	12.79	15.48
Top width (ft)	2.95	Avg. Vel. (ft/s)	2.29	3.99	3.00
Max Chl Dpnt (ft)	702.103	Hydr. Depth (ft)	254.22	277.80	172.01
Length Wtd (ft)	4.91	Wetted Per (ft)	48.3	12.82	17.10
Min Ch El (ft)	819.55	Shear (lb/sq ft)	0.21	0.49	0.32
Alpha	1.18	Stream Power (lb/ft s)	97.64	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	3.33	45.91	7.44
C & E Loss (ft)	0.00	Cum SA (acres)	1.11	0.56	0.05

CROSS SECTION

RTVER: Unit 3 Southeast REACH: Unit 3 Southeast RS: 10.5454*

INPUT

Description: Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
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CPNPPLOCA1PMP

Station Elevation Data			
Sta	Elev	Sta	Elev
-10	823.36	-1.29	823.36
15.65	822.61	25.11	822.09
61.45	820.68	81.01	819.52
89.36	821.90	90.21	821.99

Manning's n Values			
Sta	n Val	Sta	n Val
-10	.039	-1.29	.039
61.45	.039	74.49	.039
81.01	.039	819.52	.039
89.36	.039	90.21	.039

Bank Sta: Left Right			
Lengths	Left	Channel	Right
61.45	74.49	4.92	4.92

Blocked Obstructions			
Sta L	Sta R	Elev	Sta L
-10	0828.363689	83455	99.55

CROSS SECTION OUTPUT Profile #PF 1			
E.G. Elev (ft)	822.72	Element	822.72
Vel Head (ft)	0.19	Wt. n-Val.	0.039
W.S. Elev (ft)	822.53	Reach Len. (ft)	4.92
Crit W.S. (ft)	822.53	Flow Area (sq ft)	36.14
E.G. Slope (ft/ft)	0.003250	Area (sq ft)	50.70
Q Total (cfs)	371.00	Flow (cfs)	120.18
Top Width (ft)	72.76	Top Width (ft)	44.38
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	2.37
Max Chl Dprip (ft)	3.01	Hydr. Depth (ft)	1.814
Conv. Total (cfs)	6507.98	Conv. (cfs)	2108.42
Length Total (ft)	819.52	Shear (lb/ft)	44.49
Witch El (ft)	819.52	Stream Power (lb/ft s)	0.25
Alpha	1.20	Cum Volume (acre-ft)	99.55
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	3.32
C & E Loss (ft)	0.00	Cum SA (acres)	1.11

CROSS SECTION			
Left	Channel	Right	Channel
0.039	0.039	0.039	0.039
4.92	4.92	4.92	4.92
36.14	36.14	36.14	36.14
50.70	50.70	50.70	50.70
120.18	120.18	120.18	120.18
44.38	44.38	44.38	44.38
2.37	2.37	2.37	2.37
1.814	1.814	1.814	1.814
2108.42	2108.42	2108.42	2108.42
44.49	44.49	44.49	44.49
0.25	0.25	0.25	0.25
99.55	99.55	99.55	99.55
3.32	3.32	3.32	3.32
45.90	45.90	45.90	45.90
7.43	7.43	7.43	7.43
0.00	0.00	0.00	0.00
1.11	1.11	1.11	1.11

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 10.4545*

INPUT			
Station Elevation Data			
Sta	Elev	Sta	Elev
-10	823.64	-1.07	823.64
16.29	822.84	25.98	822.31
63.22	820.69	91.48	820.69
91.31	821.92	92.16	821.92

Manning's n Values			
Sta	n Val	Sta	n Val
-10	.039	-1.07	.039
63.22	.039	76.49	.039
81.48	.039	820.69	.039
91.31	.039	92.16	.039

Bank Sta: Left Right			
Lengths	Left	Channel	Right
63.22	76.49	4.92	4.92

Blocked Obstructions			
Sta L	Sta R	Elev	Sta L
-10	0828.636491	70545	101.45

CROSS SECTION OUTPUT Profile #PF 1			
E.G. Elev (ft)	822.70	Element	822.70
Vel Head (ft)	0.22	Wt. n-Val.	0.039
W.S. Elev (ft)	822.48	Reach Len. (ft)	4.92
Crit W.S. (ft)	822.48	Flow Area (sq ft)	43.46
E.G. Slope (ft/ft)	0.003760	Area (sq ft)	36.39
Q Total (cfs)	371.00	Flow (cfs)	106.44
Top Width (ft)	68.88	Top Width (ft)	40.40
Vel Total (ft/s)	3.41	Avg. Vel. (ft/s)	2.45
Max Chl Dprip (ft)	3.00	Hydr. Depth (ft)	1.08
Conv. Total (cfs)	6030.3	Conv. (cfs)	1735.8
Length Total (ft)	819.48	Shear (lb/ft)	40.29
Witch El (ft)	819.48	Stream Power (lb/ft s)	0.25
Alpha	1.22	Cum Volume (acre-ft)	101.45
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	3.32
C & E Loss (ft)	0.00	Cum SA (acres)	1.10

CROSS SECTION			
Left	Channel	Right	Channel
0.039	0.039	0.039	0.039
4.92	4.92	4.92	4.92
43.46	43.46	43.46	43.46
36.39	36.39	36.39	36.39
106.44	106.44	106.44	106.44
40.40	40.40	40.40	40.40
2.45	2.45	2.45	2.45
1.08	1.08	1.08	1.08
1735.8	1735.8	1735.8	1735.8
40.29	40.29	40.29	40.29
0.25	0.25	0.25	0.25
101.45	101.45	101.45	101.45
3.32	3.32	3.32	3.32
45.90	45.90	45.90	45.90
7.43	7.43	7.43	7.43
0.00	0.00	0.00	0.00
1.10	1.10	1.10	1.10

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 10.3636*

INPUT			
Station Elevation Data			
Sta	Elev	Sta	Elev
-10	823.31	4.36	823.23
15.65	821.81	43.07	821.19
61.45	820.81	87.2	820.51
89.36	821.90	88.25	821.90

Manning's n Values			
Sta	n Val	Sta	n Val
-10	.039	61.45	.039
61.45	.039	74.49	.039
81.01	.039	819.52	.039
89.36	.039	90.21	.039

Bank Sta: Left Right			
Lengths	Left	Channel	Right
61.45	74.49	4.92	4.92

Blocked Obstructions			
Sta L	Sta R	Elev	Sta L
-10	0828.363689	83455	99.55

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Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	823.91	-86	823.91	1.97	823.91	1.97	823.84	5.07	823.72
16.92	823.07	26.84	822.53	33.63	822.21	45.68	821.46	60.76	820.68
64.98	820	71.8	819.45	78.5	820	91.12	820.97	92.16	821
93.26	821	94.1	821	103.36	821				

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-86	.039	1.97	.039	64.98	.039	103.36	.039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 64.98 78.5 4.92 4.92 4.92 .1 .3
 Blocked obstructions num= 2

Sta L Sta R Elev Sta L Sta R Elev
 -10 0828.909193.57636 103.36 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.68	Element	Left Ob	Right Ob
Vel Head (ft)	0.25	Wt n-Val.	0.039	0.039
W.S. Elev (ft)	822.43	Reach Len. (ft)	4.92	4.92
Crit W.S. (ft)		Flow Area (sq ft)	36.89	36.52
E.G. Slope (ft/ft)	0.004331	Area (sq ft)	36.89	28.02
Q Total (cfs)	371.00	Flow (cfs)	93.91	177.24
Top Width (ft)	64.54	Top Width (ft)	35.94	13.52
Vel Total (ft/s)	3.66	Avg. Vel. (ft/s)	2.55	4.85
Max Chl Dpth (ft)	2.98	Hydr. Depth (ft)	1.03	1.86
Conv. Total (cfs)	5537.7	Conv. (cfs)	1427.1	2693.4
Length Wd. (ft)	819.42	Wetted Per. (ft)	30.33	13.79
Alpha El (ft)	1.72	Stream Power (lb/ft s)	103.36	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	3.31	45.90
C & E Loss (ft)	0.00	Cum SA (acres)	1.10	0.56

CROSS SECTION

RIVER: Unit 3 Southeast REACH: Unit 3 Southeast RS: 10.2727*

INPUT

Description: Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	824.18	-64	824.18	.38	824.18	2.25	824.1	5.42	823.97
17.55	823.31	27.71	822.75	34.65	822.41	46.99	821.59	62.42	820.76
66.74	820	73.7	819.41	80.51	820	93.07	820.98	94.11	821
95.21	821	96.05	821	105.27	821				

Blocked obstructions num= 2

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 66.74 80.51 4.92 4.92 4.92 .1 .3
 Sta L Sta R Elev Sta L Sta R Elev

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-64	.039	2.25	.039	66.74	.039	105.27	.039

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.66	Element	Left Ob	Right Ob
Vel Head (ft)	0.29	Wt n-Val.	0.039	0.039
W.S. Elev (ft)	822.37	Reach Len. (ft)	4.92	4.92
Crit W.S. (ft)		Flow Area (sq ft)	31.61	36.70
E.G. Slope (ft/ft)	0.004877	Area (sq ft)	31.61	26.88
Q Total (cfs)	371.00	Flow (cfs)	84.13	187.23
Top Width (ft)	60.20	Top Width (ft)	31.49	14.94
Vel Total (ft/s)	3.90	Avg. Vel. (ft/s)	2.66	3.71
Max Chl Dpth (ft)	2.96	Hydr. Depth (ft)	1.00	1.80
Conv. Total (cfs)	5312.6	Conv. (cfs)	1204.7	2681.0
Length Wd. (ft)	819.42	Wetted Per. (ft)	31.90	13.82
Alpha El (ft)	1.72	Stream Power (lb/ft s)	105.27	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	3.31	45.89
C & E Loss (ft)	0.00	Cum SA (acres)	1.10	0.56

CROSS SECTION

RIVER: Unit 3 Southeast REACH: Unit 3 Southeast RS: 10.1818*

INPUT

Description: Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	823.91	-86	823.91	1.97	823.91	1.97	823.84	5.07	823.72
16.92	823.07	26.84	822.53	33.63	822.21	45.68	821.46	60.76	820.68
64.98	820	71.8	819.45	78.5	820	91.12	820.97	92.16	821
93.26	821	94.1	821	103.36	821				

Blocked obstructions num= 2

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 64.98 78.5 4.92 4.92 4.92 .1 .3
 Sta L Sta R Elev Sta L Sta R Elev

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-10	824.45	-0.43	824.45	.61	824.45	2.53	824.37	5.78	824.21
18.18	823.54	28.58	822.97	35.68	822.6	48.3	821.73	64.08	820.84
68.5	820	75.6	819.38	82.52	820	95.03	820.99	96.07	821
97.16	821	98	821	107.18	821				

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039		-43	.039		68.5	.039	107.18	.039		

Bank Sta: Left 68.5 Right 82.52
 Lengths: Left Channel 4.92 Right 4.92
 Coeff Contr. .1
 Expan. .3

Blocked obstructions num= 2
 Sta L Sta R Elev
 -10 0829.454597.31818 107.18 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.63	Element	Left Ob	Channel	Right Ob
W.S. Elev (ft)	822.33	Wt n-Val.	0.039	0.039	0.039
Crit W.S. (ft)	822.29	Reach (ft)	4.92	4.92	4.92
E.G. Slope (ft/ft)	0.005749	Flow Area (sq ft)	26.44	36.47	25.43
Q Total (Cfs)	371.00	Area (sq ft)	26.44	36.47	25.43
Vel Total (ft/s)	57.16	Flow (cfs)	72.70	198.77	99.53
Max Chl Dpth (ft)	4.20	Top Width (ft)	28.34	14.02	14.80
Length Wtd. (ft)	2.91	AVG. Vel. (ft/s)	2.75	5.45	3.91
Conv. Total (CFS)	4892.9	Hydr. Depth (ft)	0.93	2.60	1.72
Min Ch El (ft)	4.92	Wetted Per. (ft)	938.8	2621.4	1312.7
Frict Loss (ft)	0.02	Shear (lb/sq ft)	28.47	14.07	16.15
C & E Loss (ft)	0.01	Stream Power (ft/ft s)	107.13	0.05	0.07
		Cum Volume (acre-ft)	3.30	45.89	7.42
		Cum SA (acres)	1.09	0.56	0.04

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 10.0909*

INPUT Description: Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	824.73	-21	824.73	.85	824.73	2.81	824.63
18.82	823.77	29.44	823.19	36.7	822.8	49.61	821.86
70.27	820	77.49	819.34	84.53	820	96.99	820.99
99.11	821	99.94	821	109.09	821		

Blocked obstructions num= 2
 Sta L Sta R Elev
 -10 0829.727399.18909 109.09 825

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039		-21	.039		70.27	.039	109.09	.039		

Bank Sta: Left 70.27 Right 84.53
 Lengths: Left Channel 4.92 Right 4.92
 Coeff Contr. .1
 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.59	Element	Left Ob	Channel	Right Ob
W.S. Elev (ft)	822.20	Wt n-Val.	0.039	0.039	0.039
Crit W.S. (ft)	821.85	Reach (ft)	4.92	4.92	4.92
E.G. Slope (ft/ft)	0.006843	Flow Area (sq ft)	21.74	36.08	23.89
Q Total (Cfs)	371.00	Area (sq ft)	21.74	36.08	23.89
Vel Total (ft/s)	54.25	Flow (cfs)	61.65	210.56	98.79
Max Chl Dpth (ft)	4.54	Top Width (ft)	25.33	14.26	14.66
Length Wtd. (ft)	2.86	AVG. Vel. (ft/s)	2.84	5.84	4.14
Conv. Total (CFS)	4484.8	Hydr. Depth (ft)	0.86	2.53	1.63
Min Ch El (ft)	4.92	Wetted Per. (ft)	745.3	2545.3	1194.2
Frict Loss (ft)	0.02	Shear (lb/sq ft)	25.46	14.32	15.90
C & E Loss (ft)	0.03	Stream Power (ft/ft s)	103.30	1.08	0.64
		Cum Volume (acre-ft)	3.30	45.88	7.42
		Cum SA (acres)	1.09	0.56	0.04

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 10

INPUT Description: Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	825	0	825	1.09	825	19.45	824

Blocked obstructions num= 0
 Sta L Sta R Elev
 -10 825 0 825

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039		0	.039		19.45	.039	37.73	.039		

Bank Sta: Left 0 Right 1.09
 Lengths: Left Channel 4.92 Right 4.92
 Coeff Contr. .1
 Expan. .3

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50.92	822	67.41	821	72.03	820	79.39	819.31	86.54	820
98.95	821	101.06	821	111	821				
Manning's n Values									
	Sta	n	Val	num=	3				
	-10	.039	0	.039	111				
Bank Sta: Left Right Lengths: Left Channel Right									
	Sta	n	Val	num=	2				
	-10	.039	0	.039	111				
Blocked Obstructions									
	Sta	L	Sta	R	Elev	Sta	L	Elev	Sta
	-10	830	101.06	111	825				

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	821.86	Reach Len. (ft)	12.31	12.31	12.31
Crit W.S. (ft)	821.86	Flow Area (sq ft)	17.34	31.94	18.63
E.G. Slope (ft/ft)	0.013359	Area (sq ft)	12.31	31.94	18.63
Q Total (cfs)	371.00	Flow (cfs)	40.74	237.18	93.08
Top width (ft)	47.76	Top width (ft)	18.73	14.51	14.52
Vel Total (ft/s)	5.90	AVG. Vel. (ft/s)	3.31	7.43	5.00
Max Chl Dpth (ft)	2.55	Hydr. Depth (ft)	0.66	2.20	1.28
Conv. Total (cfs)	3210.8	Conv. (cfs)	352.6	2052.6	805.6
Length wtd. (ft)	9.54	Wetted Per. (ft)	18.87	14.58	15.42
Min Ch El (ft)	819.31	Shear (lb/sq ft)	0.54	1.83	1.01
Alpha	1.23	Stream Power (lb/ft s)	111.00	0.00	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	3.30	45.58	7.42
C & E Loss (ft)	0.02	Cum SA (acres)	1.09	0.55	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.

GROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast

RS: 9.85714*

INPUT

Station	Elevation	Data	num=	22
Sta	Elev	Sta	Elev	Sta
-10	824.57	-3.99	824.57	-2.41
7.88	824.2	23.12	823.52	43.67
93.33	819.31	96.87	819.31	820.86
114.64	821	123.86	821	101.19

Manning's n Values

Sta	n	Val	Sta	n	Val
-10	.039	-3.99	821	.039	123.86
123.86	.039				

Bank Sta: Left	Right	Lengths: Left Channel	Right
822.52	101.06	9.54	9.54
Blocked Obstructions			
Sta	L	Sta	R
-10	829.2857113	6329	123.86

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	822.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	wt. n-Val.	0.036	0.039	0.039
W.S. Elev (ft)	821.28	Reach Len. (ft)	9.54	9.54	9.54
Crit W.S. (ft)	821.57	Flow Area (sq ft)	8.83	32.99	8.43
E.G. Slope (ft/ft)	0.025842	Area (sq ft)	49.76	32.99	39.15
Q Total (cfs)	371.00	Flow (cfs)	17.26	231.59	14.64
Top width (ft)	47.38	Top width (ft)	17.26	18.84	14.64
Vel Total (ft/s)	7.38	AVG. Vel. (ft/s)	4.50	11.74	4.68
Max Chl Dpth (ft)	2.13	Hydr. Depth (ft)	0.50	1.74	0.68
Conv. Total (cfs)	2307.9	Conv. (cfs)	250.5	1813.9	243.5
Length wtd. (ft)	9.54	Wetted Per. (ft)	17.78	19.03	12.76
Min Ch El (ft)	819.15	Shear (lb/sq ft)	0.80	2.80	1.07
Alpha	1.21	Stream Power (lb/ft s)	123.86	0.00	0.00
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	3.30	45.87	7.41
C & E Loss (ft)	0.04	Cum SA (acres)	1.08	0.55	0.03

Note: Program found supercritical flow starting at this cross section.

GROSS SECTION

CPNPPLOCA\1PMP

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast
 RS: 9.71428*

INPUT

Description: Station Elevation Data
 Sta Elev num= 22
 -10 821.14 3.53 821.14 2.49 821.14 3.88 821.01
 9.86 823.67 26.79 823.03 49.62 822.17 53.94 821.96 55.96 821.58
 66.1 821.13 76.35 820.76 83.24 820.56 86.69 820.42 92.46 819.67
 107.66 818.99 111.23 819.44 115.83 820.29 119.35 820.52 126.43 821
 128.23 821 136.71 821

Manning's n Values num= 6
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -3.33 .039 2.49 .039 76.35 .034 92.46 .039
 136.71 .039

Bank Sta: Left 92.46 Right 115.83 Lengths: Left Channel 9.54 Right 9.54 Coeff Contr. .1 .3
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev

-10 0828.5714126.2057 136.71 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		Element		Left OB		Channel		Right OB	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	0.039	822.03	1.08	0.034	0.039	0.039	0.039	0.039	0.039
		Vel Head (ft)	Wt. n-Val.	Reach Len. (ft)					
		821.71	821.71	9.24	3.74	3.74	3.74	3.74	3.74
		821.71	821.71	Area (sq ft)					
		0.030758	0.030758	9.22	35.71	35.71	35.71	35.71	35.71
		0.371000	0.371000	Flow (cfs)					
		54.43	54.43	45.15	315.53	315.53	315.53	315.53	315.53
		7.70	7.70	Top width (ft)					
		1.96	1.96	4.89	21.26	21.26	21.26	21.26	21.26
		2115.4	2115.4	Avg. Vel. (ft/s)					
		818.99	818.99	Hydr. Depth (ft)					
		1.17	1.17	0.43	0.43	0.43	0.43	0.43	0.43
		0.021	0.021	Wetted Per. (ft)					
		0.727	0.727	257.3	1799.1	1799.1	1799.1	1799.1	1799.1
		0.00	0.00	Stream Power (lb/sq ft)					
		136.71	136.71	2.92	23.49	23.49	23.49	23.49	23.49
		0.00	0.00	Cum Volume (acre-ft)					
		1.08	1.08	43.86	43.86	43.86	43.86	43.86	43.86
		0.00	0.00	Cum SA (acres)					
		1.07	1.07	0.55	0.55	0.55	0.55	0.55	0.55

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast
 RS: 9.57142*

INPUT

Description: Station Elevation Data
 Sta Elev num= 22
 -10 823.71 -2.66 823.71 -2.73 823.71 3.74 823.56 5.23 823.51
 11.84 823.14 30.45 822.55 55.56 821.76 60.32 821.56 62.53 821.07
 73.68 820.7 84.96 820.4 92.53 820.26 96.34 820.13 102.68 819.5
 121.8 818.83 125.59 819.35 130.48 820.43 133.7 820.62 140.17 821
 141.81 821 149.57 821

Manning's n Values num= 6
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -2.66 .039 3.74 .038 84.96 .031 102.68 .039
 149.57 .039

Bank Sta: Left 102.68 Right 130.48 Lengths: Left Channel 9.54 Right 9.54 Coeff Contr. .1 .3
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev

-10 0827.8571138.7786 149.57 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		Element		Left OB		Channel		Right OB	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	0.039	821.70	1.08	0.034	0.039	0.039	0.039	0.039	0.039
		Vel Head (ft)	Wt. n-Val.	Reach Len. (ft)					
		820.60	820.60	9.21	3.74	3.74	3.74	3.74	3.74
		820.95	820.95	Area (sq ft)					
		0.037399	0.037399	9.21	36.51	36.51	36.51	36.51	36.51
		0.371000	0.371000	Flow (cfs)					
		55.69	55.69	49.27	321.41	321.41	321.41	321.41	321.41
		8.07	8.07	Top width (ft)					
		1.77	1.77	4.89	25.08	25.08	25.08	25.08	25.08
		1918.4	1918.4	Avg. Vel. (ft/s)					
		818.83	818.83	Hydr. Depth (ft)					
		1.17	1.17	0.37	0.37	0.37	0.37	0.37	0.37
		0.00	0.00	Wetted Per. (ft)					
		0.727	0.727	254.8	1662.0	1662.0	1662.0	1662.0	1662.0
		0.00	0.00	Stream Power (lb/sq ft)					
		143.26	143.26	3.05	27.97	27.97	27.97	27.97	27.97
		0.00	0.00	Cum Volume (acre-ft)					
		1.07	1.07	45.80	45.80	45.80	45.80	45.80	45.80
		0.00	0.00	Cum SA (acres)					
		1.07	1.07	0.54	0.54	0.54	0.54	0.54	0.54

CROSS SECTION

RIVER: Unit 3 Southeast REACH: Unit 3 Southeast RS: 9.42857*

INPUT Description: Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	823.29	-2	823.29	11	823.29	4.98	823.01
13.82	822.6	34.12	822.07	61.51	821.34	66.69	821.17
81.27	820.26	93.57	820.03	101.83	819.95	105.98	819.84
135.93	818.67	139.95	819.26	145.13	820.57	148.04	820.71
155.4	821	162.43	821				821

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-2	.039	11	.039	4.98	.039
162.43	.039						

Bank Sta: Left 112.9 Right 145.13 Lengths: Left Channel 9.54 Right 9.54 Coeff Contr. .1 Expan. .3
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 0827.1429151.3514 162.43 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	821.31	Element	Left OB	Right OB
Vel Head (ft)	1.03	Wt n-Val.	0.029	0.039
W.S. Elev (ft)	820.28	Reach Len. (ft)	9.54	9.54
Crit W.S. (ft)	820.60	Flow Area (sq ft)	10.35	36.71
E.G. Slope (ft/ft)	0.040417	Area (sq ft)	10.35	36.71
Q Total (cfs)	371.00	Flow (cfs)	57.98	313.02
Top Width (ft)	63.38	Top Width (ft)	32.31	31.07
Vel Total (ft/s)	7.88	Avg. Vel. (ft/s)	5.60	8.53
Max Chl Dpth (ft)	1.61	Hydr. Depth (ft)	0.32	1.18
Conv. Total (cfs)	1845.4	Hydr. Depth (ft)	288.4	1537.0
Length Wd. (ft)	818.24	Wetted Per. (ft)	32.44	31.65
Wetted El (ft)	818.24	Stream Power (lb/ft s)	162.43	0.00
Alpha El (ft)	1.07	Cum Volume (acre-ft)	3.29	7.41
Frctn Loss (ft)	0.37	Cum SA (acres)	1.07	0.53
C & E Loss (ft)	0.02			

CROSS SECTION

RIVER: Unit 3 Southeast REACH: Unit 3 Southeast RS: 9.28571*

INPUT Description: Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.86	-1.33	822.86	.95	822.86	6.23	822.52
15.8	822.07	37.79	821.58	67.45	820.93	73.07	820.03
88.86	819.83	102.18	819.66	111.13	819.65	115.62	819.54
150.07	818.51	154.31	819.17	159.78	820.71	162.39	820.81
168.98	821	175.29	821				821

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-1.33	.039	6.23	.038	102.18	.025
175.29	.039						

Bank Sta: Left 123.12 Right 159.78 Lengths: Left Channel 9.54 Right 9.54 Coeff Contr. .1 Expan. .3
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 0826.4286163.9243 175.29 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.89	Element	Left OB	Right OB
Vel Head (ft) <td>0.91 <td>Wt n-Val.</td> <td>0.027</td> <td>0.039</td> </td>	0.91 <td>Wt n-Val.</td> <td>0.027</td> <td>0.039</td>	Wt n-Val.	0.027	0.039
W.S. Elev (ft) <td>819.98</td> <td>Reach Len. (ft)</td> <td>9.54</td> <td>9.54</td>	819.98	Reach Len. (ft)	9.54	9.54
Crit W.S. (ft) <td>820.25</td> <td>Flow Area (sq ft)</td> <td>13.13</td> <td>36.77</td>	820.25	Flow Area (sq ft)	13.13	36.77
E.G. Slope (ft/ft) <td>0.040791</td> <td>Area (sq ft)</td> <td>13.13</td> <td>36.77</td>	0.040791	Area (sq ft)	13.13	36.77
Q Total (cfs)	371.00	Flow (cfs)	74.17	296.83
Top Width (ft) <td>78.03</td> <td>Top Width (ft)</td> <td>43.97</td> <td>34.06</td>	78.03	Top Width (ft)	43.97	34.06
Vel Total (ft/s) <td>7.44</td> <td>Avg. Vel. (ft/s)</td> <td>5.65</td> <td>8.07</td>	7.44	Avg. Vel. (ft/s)	5.65	8.07
Max Chl Dpth (ft) <td>1.61</td> <td>Hydr. Depth (ft)</td> <td>0.30</td> <td>1.18</td>	1.61	Hydr. Depth (ft)	0.30	1.18
Conv. Total (cfs) <td>1845.4</td> <td>Hydr. Depth (ft)</td> <td>367.3</td> <td>146.09</td>	1845.4	Hydr. Depth (ft)	367.3	146.09
Length Wd. (ft) <td>818.24</td> <td>Wetted Per. (ft)</td> <td>43.93</td> <td>34.23</td>	818.24	Wetted Per. (ft)	43.93	34.23
Wetted El (ft) <td>818.24</td> <td>Stream Power (lb/ft s)</td> <td>175.29</td> <td>2.74</td>	818.24	Stream Power (lb/ft s)	175.29	2.74
Alpha El (ft) <td>1.06</td> <td>Stream Power (lb/ft s)</td> <td>0.76</td> <td>0.00</td>	1.06	Stream Power (lb/ft s)	0.76	0.00
Frctn Loss (ft) <td>0.39</td> <td>Cum Volume (acre-ft)</td> <td>3.29</td> <td>7.41</td>	0.39	Cum Volume (acre-ft)	3.29	7.41
C & E Loss (ft) <td>0.02</td> <td></td> <td></td> <td></td>	0.02			

C & E Loss (ft) 0.04 Cum SA (acres) 1.06 0.53 0.03

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast

RS: 9.14285*

INPUT		Description		Station Elevation Data		num= 22	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822.43	-67	822.43	1.79	822.43	7.47	822.12
17.78	821.53	41.46	821.1	73.4	820.51	79.44	820.39
96.45	819.39	110.79	819.29	120.42	819.34	125.26	819.25
164.42	818.35	168.67	819.09	174.42	820.86	176.73	820.9
182.57	821	188.14	821				821

Manning's n Values		num= 6	
Sta	n Val	Sta	n Val
-10	.039	7.47	.038
188.14	.039	110.79	.023
		133.33	.039

Bank Sta: Left 133.33 Right 174.42 Lengths: Left 9.54 Channel Right 9.54
 Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	0825.7145176	4971	188.14	825		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.45	Element	0.027	Left OB	0.039	Channel		Right OB	
Vel Head (ft)	0.77	Wt. n-Val.	9.54	9.54	9.54	9.54	9.54	9.54	9.54
W.S. Elev (ft)	819.68	Reach Len. (ft)	18.08	35.97	35.97	35.97	35.97	35.97	35.97
Crit W.S. (ft)	819.89	Flow Area (sq ft)	102.17	268.83	268.83	268.83	268.83	268.83	268.83
E.G. Slope (ft/ft)	0.040580	Area (sq ft)	51.60	37.26	37.26	37.26	37.26	37.26	37.26
Q Total (cfs)	371.00	Top width (ft)	3.95	6.97	6.97	6.97	6.97	6.97	6.97
Top width (ft)	88.86	Avg. Vel. (ft/s)	507.3	1334.5	1334.5	1334.5	1334.5	1334.5	1334.5
Vel Total (ft/s)	9.36	Conv. Tech (ft)	51.65	37.42	37.42	37.42	37.42	37.42	37.42
Max Chl Depth (ft)	1841.7	Wetted Per. (ft)	0.89	2.43	2.43	2.43	2.43	2.43	2.43
Conv. Tech (cfs)	1841.7	Stream Power (lb/ft s)	188.14	0.00	0.00	0.00	0.00	0.00	0.00
Length Wtd. (ft)	9.54	Cum Volume (acre-ft)	3.28	45.83	45.83	45.83	45.83	45.83	45.83
Min Ch El (ft)	818.35	Cum SA (acres)	1.05	0.52	0.52	0.52	0.52	0.52	0.52
Alpha	1.05								
Frctn Loss (ft)	0.39								
C & E Loss (ft)	0.04								

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast

RS: 9

INPUT		Description		Station Elevation Data		num= 14	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	822	2.63	822	19.76	820
88.84	819	119.4	818.92	129.72	819.04	143.55	818.83
183.03	819	189.07	821	191.08	821	201	821

Manning's n Values		num= 5	
Sta	n Val	Sta	n Val
-10	.039	119.4	.02
143.55	.039	143.55	.039
189.07	.039	201	.039

Bank Sta: Left 143.55 Right 189.07 Lengths: Left 8.57 Channel Right 8.57
 Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	0	825	189.07	201	825	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.02	Element	0.027	Left OB	0.039	Channel		Right OB	
Vel Head (ft)	0.64	Wt. n-Val.	8.57	8.57	8.57	8.57	8.57	8.57	8.57
W.S. Elev (ft)	819.39	Reach Len. (ft)	23.66	34.40	34.40	34.40	34.40	34.40	34.40
Crit W.S. (ft)	819.55	Flow Area (sq ft)	141.73	229.27	229.27	229.27	229.27	229.27	229.27
E.G. Slope (ft/ft)	0.038395	Area (sq ft)	55.87	40.64	40.64	40.64	40.64	40.64	40.64
Q Total (cfs)	371.00	Top width (ft)	6.39	11.07	11.07	11.07	11.07	11.07	11.07
Top width (ft)	96.52	Avg. Vel. (ft/s)	752.42	1170.85	1170.85	1170.85	1170.85	1170.85	1170.85
Vel Total (ft/s)	6.39	Hydr. Depth (ft)	51.91	40.71	40.71	40.71	40.71	40.71	40.71
Max Chl Depth (ft)	1802.20	Conv. Tech (cfs)	201.00	0.00	0.00	0.00	0.00	0.00	0.00
Conv. Tech (cfs)	1802.20	Length Wtd. (ft)	8.57	21.01	21.01	21.01	21.01	21.01	21.01
Length Wtd. (ft)	88.57	Stream Power (lb/ft s)	1.01	0.00	0.00	0.00	0.00	0.00	0.00
Min Ch El (ft)	818.19	Cum Volume (acre-ft)	3.28	45.83	45.83	45.83	45.83	45.83	45.83
Alpha	1.01								
Frctn Loss (ft)	0.38								

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast

RS: 8.85714*

INPUT Description: Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	-01	822	2.62	821.96	3.33	821.96
19.74	821.03	24.28	820.94	820	85.77	820	88.77
97.83	818.55	101.48	818.51	110.26	818.52	113.27	818.66
119.31	818.67	129.62	818.81	131.37	818.8	143.44	818.09
180.11	818.82	183.81	819.97	188.93	821	200.86	821

Manning's n Values num= 10

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-01	.039	85.77	.03	101.48	.022
105.51	.027	113.27	.024	119.31	.02	143.44	.039

Bank Sta: Left 143.44 Right 188.93 Lengths: Left Channel 8.57 Right Channel 8.57

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	0	825189.2143	200.86	825		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.92	Element	Left OB	Right OB	Channel
Vel Head (ft)	0.20	Wt. n-Val.	0.023	0.039	0.039
W.S. Elev (ft)	819.72	Reach Len. (ft)	8.57	8.57	8.57
Crit W.S. (ft)	819.36	Flow Area (sq ft)	57.97	51.14	51.14
E.G. Slope (ft/ft)	0.003834	Area (sq ft)	57.97	51.14	51.14
Q Total (cfs)	371.00	Flow (cfs)	231.79	139.21	139.21
Top width (ft)	97.97	Top width (ft)	56.83	41.74	41.74
Vel Total (ft/s)	3.40	AVG. Vel (ft/s)	4.00	3.33	3.33
Max Chl Dpth (ft)	5991.64	Conv. Cfs (cfs)	1.72	1.72	1.72
Length Wtd. (ft)	8.57	Wetted Per. (ft)	3743.3	2248.21	2248.21
Min Ch El (ft)	818.09	Shear (lb/sq ft)	56.97	41.27	41.27
Alpha	1.10	Stream Power (lb/ft s)	200.86	0.30	0.30
Frctn Loss	0.02	Cum Volume (acre-ft)	3.27	45.82	45.82
C & E Loss (ft)	0.02	Cum SA (acres)	1.02	0.50	0.50

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast

RS: 8.71428*

INPUT Description: Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	24.28	820.94	820	85.77	820	88.77
97.75	818.13	101.4	818.03	110.18	818.1	113.16	818.38
119.22	818.42	129.52	818.59	131.27	818.58	143.33	817.99
177.19	818.65	184.69	819.64	188.79	821	200.71	821

Manning's n Values num= 10

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-01	.039	85.7	.034	101.4	.022
105.43	.032	113.19	.026	119.22	.02	143.33	.039

Bank Sta: Left 143.33 Right 188.79 Lengths: Left Channel 8.57 Right Channel 8.57

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	0	825189.3586	200.71	825		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.88	Element	Left OB	Right OB	Channel
Vel Head (ft) <td>0.15</td> <td>Wt. n-Val. <td>0.025</td> <td>0.039</td> <td>0.039</td> </td>	0.15	Wt. n-Val. <td>0.025</td> <td>0.039</td> <td>0.039</td>	0.025	0.039	0.039
W.S. Elev (ft) <td>819.73</td> <td>Reach Len. (ft) <td>8.57</td> <td>8.57</td> <td>8.57</td> </td>	819.73	Reach Len. (ft) <td>8.57</td> <td>8.57</td> <td>8.57</td>	8.57	8.57	8.57
Crit W.S. (ft) <td>819.37</td> <td>Flow Area (sq ft) <td>73.95</td> <td>54.75</td> <td>54.75</td> </td>	819.37	Flow Area (sq ft) <td>73.95</td> <td>54.75</td> <td>54.75</td>	73.95	54.75	54.75
E.G. Slope (ft/ft) <td>0.002255</td> <td>Area (sq ft) <td>73.95</td> <td>54.75</td> <td>54.75</td> </td>	0.002255	Area (sq ft) <td>73.95</td> <td>54.75</td> <td>54.75</td>	73.95	54.75	54.75
Q Total (cfs) <td>371.00</td> <td>Flow (cfs) <td>252.33</td> <td>118.68</td> <td>118.68</td> </td>	371.00	Flow (cfs) <td>252.33</td> <td>118.68</td> <td>118.68</td>	252.33	118.68	118.68
Top width (ft) <td>98.47</td> <td>Top width (ft) <td>56.83</td> <td>41.64</td> <td>41.64</td> </td>	98.47	Top width (ft) <td>56.83</td> <td>41.64</td> <td>41.64</td>	56.83	41.64	41.64
Vel Total (ft/s) <td>2.88</td> <td>AVG. Vel. (ft/s) <td>3.41</td> <td>2.17</td> <td>2.17</td> </td>	2.88	AVG. Vel. (ft/s) <td>3.41</td> <td>2.17</td> <td>2.17</td>	3.41	2.17	2.17
Max Chl Dpth (ft) <td>1.74</td> <td>Hydr. Depth (ft) <td>1.30</td> <td>1.31</td> <td>1.31</td> </td>	1.74	Hydr. Depth (ft) <td>1.30</td> <td>1.31</td> <td>1.31</td>	1.30	1.31	1.31

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Conv. Total (cfs)	7812.8	Conv. (cfs)	5313.5	2499.3
Length wtd. (ft)	8.57	wetted Per. (ft)	57.01	41.75
Min Ch El (ft)	817.99	Shear (lb/sq ft)	0.18	0.18
Alpha	1.13	Stream Power (lb/ft.s)	200.71	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	3.26	45.81
C & E Loss (ft)	0.01	Cum SA (acres)	1.01	0.49

CROSS SECTION

RIVER: Unit 3 Southeast
REACH: Unit 3 Southeast RS: 8.57142*

INPUT

Description:		Station		Elevation		Data		num= 25	
Sta	R	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
-10		822	-03	822	03	822	33	821.98	
19.7		821.09	24.23	820.96	85.62	820	85.63	820	88.73
97.68		817.7	101.33	817.59	105.35	817.58	110.09	817.68	113.1
119.13		818.17	129.42	818.36	131.17	818.36	143.22	818.26	163.1
174.27		818.47	183.56	819.31	188.65	821	190.65	821	200.57

Manning's n Values		num= 10		Sta		n Val		Sta		n Val	
-10		0.039	-02	0.039	03	0.039	85.63	0.039	101.33	0.022	
105.35		0.037	113.1	0.029	119.13	0.02	143.22	0.039	200.57	0.039	

Bank Sta: Left	143.22	Right	188.65
Lengths: Left Channel	8.57	Right	8.57
Blocked Obstructions	num= 2	Coeff Contr.	.1
Sta L	Sta R	Elev	Elev
-10	Sta 0	825189.5029	200.57
		825	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		Element		Left OB		Channel		Right OB	
Vel Head (ft)	819.85	Wt. n-Val.	0.11	0.026	0.039	821.98	8.57		
Frch Len. (ft)	819.74	Reach Len. (ft)	8.57	8.57	58.82				
E.G. Slope (ft/ft)	0.001436	Area (sq ft)	89.91	58.83					
Q Total (cfs)	371.00	Flow (cfs)	264.26	106.74					
Top Width (ft)	98.46	Top Width (ft)	56.82	41.64					
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	2.94	1.81					
Max Ch Dpth (ft)	2.16	Hydr. Depth (ft)	1.58	1.41					
Conv. Total (cfs)	9788.9	Conv. (cfs)	6972.7	2816.3					
Length wtd. (ft)	8.57	wetted Per. (ft)	57.07	41.77					
Min Ch El (ft)	817.89	Stream (lb/sq ft)	0.14	0.13					
Alpha	1.14	Stream Power (lb/ft.s)	200.57	0.00					
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	3.24	45.80					
C & E Loss (ft)	0.01	Cum SA (acres)	1.00	0.49					

CROSS SECTION

RIVER: Unit 3 Southeast
REACH: Unit 3 Southeast RS: 8.42857*

INPUT

Description:		Station		Elevation		Data		num= 25	
Sta	R	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
-10		822	-03	822	02	822	33	821.98	
19.68		821.12	24.2	820.97	85.55	820	85.56	820	88.56
97.6		817.28	101.25	817.13	105.27	817.12	110.01	817.26	113.01
119.03		817.92	129.32	818.13	131.07	818.15	143.12	818.07	158.03
171.35		818.3	182.44	818.98	188.5	821	190.51	821	200.43

Manning's n Values		num= 10		Sta		n Val		Sta		n Val	
-10		0.039	-03	0.039	02	0.039	85.56	0.043	101.25	0.021	
105.27		0.042	113.01	0.031	119.03	0.02	143.12	0.039	200.43	0.039	

Bank Sta: Left	143.12	Right	188.5
Lengths: Left Channel	8.57	Right	8.57
Blocked Obstructions	num= 2	Coeff Contr.	.1
Sta L	Sta R	Elev	Elev
-10	Sta 0	825189.6471	200.43
		825	

E.G. Elev (ft)		Element		Left OB		Channel		Right OB	
Vel Head (ft)	819.84	Wt. n-Val.	0.11	0.027	0.039	821.98	8.57		
Frch Len. (ft)	819.75	Reach Len. (ft)	8.57	8.57					
E.G. Slope (ft/ft)	0.000959	Area (sq ft)	105.60	62.90					
Q Total (cfs)	371.00	Flow (cfs)	273.54	97.46					

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Top Width (ft)	98.44	Top Width (ft)	56.81	41.63
Vel Total (ft/s)	2.20	Avg. Vel. (ft/s)	2.59	1.55
Max Chl Dpth (ft)	2.63	Hydr. Depth (ft)	1.86	1.51
Conv. Total (cfs)	11981.9	8834.4	3147.5	
Length Wtd. (ft)	8.57	Wetted Per. (ft)	57.16	41.79
Min Chl El (ft)	817.80	Shear (lb/sq ft)	209.11	0.09
Alpha	0.05	Stream Power (lb/ft. s)	3.72	0.00
F Loss	0.01	Stream Power (acre-ft)	45.78	7.41
C & E Loss (ft)	0.01	Cum SA (acres)	0.99	0.48

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 8.28571*

INPUT		Description:		Station Elevation Data		Manning's n Values	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	-04	822	01	822	25	822
19.65	821.15	24.18	820.98	85.48	820	85.5	820
97.52	816.85	101.17	816.67	105.18	816.67	109.92	816.67
118.94	817.67	129.23	817.91	130.97	817.93	143.01	817.88
168.43	818.12	181.32	818.66	188.36	821	190.36	821

Bank Sta: Left	143.01	Right	188.36	Lengths: Left	8.57	Channel	8.57	Right	8.57
Blocked Obstructions	0	0	0	Coeff	0.039	Contr.	0.039	200.29	200.29
Sta L	Sta R	Elev	Elev	Left	0.028	Right	0.028	8.57	8.57
-10	0	825189.7914	200.29	825189.7914	200.29	825189.7914	200.29	825189.7914	200.29

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.82	Element	0.028	Left	0.028	Right	0.028
Vel Head (ft)	0.07	Wt. n-Val.	0.039	0.029	0.039	0.029	0.039
W.S. Elev (ft)	819.76	Reach Len. (ft)	8.57	8.57	8.57	8.57	8.57
Crit W.S. (ft)	0.000679	Flow Area (sq ft)	121.20	67.51	67.51	67.51	67.51
E.G. Slope (ft/ft)	371.00	Area (sq ft)	278.73	92.27	92.27	92.27	92.27
Q Total (cfs)	98.38	Top Width (ft)	56.78	41.61	41.61	41.61	41.61
Top Width (ft)	1.97	Avg. Vel. (ft/s)	2.30	1.37	1.37	1.37	1.37
Vel Total (ft/s)	3.09	Hydr. Depth (ft)	10694.9	3540.6	3540.6	3540.6	3540.6
Max Chl Dpth (ft)	14235.5	Wetted Per. (ft)	57.25	41.00	41.00	41.00	41.00
Length Wtd. (ft)	819.77	Stream Power (lb/ft. s)	200.29	0.00	0.00	0.00	0.00
Alpha	1.15	Stream Power (acre-ft)	45.77	7.41	7.41	7.41	7.41
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.98	0.47	0.47	0.47	0.47
C & E Loss (ft)	0.00	Cum SA (acres)	0.98	0.47	0.47	0.47	0.47

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 8.14285*

INPUT		Description:		Station Elevation Data		Manning's n Values	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	-04	822	01	822	25	822
19.63	821.19	24.15	820.99	85.41	820	85.43	820
97.45	816.43	101.09	816.21	105.1	816.21	109.84	816.21
118.85	817.42	129.13	817.68	130.87	817.72	142.9	817.69
165.51	817.95	180.19	818.33	188.22	821	190.22	821

Bank Sta: Left	142.9	Right	188.22	Lengths: Left	8.57	Channel	8.57	Right	8.57
Blocked Obstructions	0	0	0	Coeff	0.039	Contr.	0.039	200.14	200.14
Sta L	Sta R	Elev	Elev	Left	0.052	Right	0.052	8.57	8.57
-10	0	825189.9357	200.14	825189.9357	200.14	825189.9357	200.14	825189.9357	200.14

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.82	Element	0.029	Left	0.029	Right	0.029
Vel Head (ft)	0.06	Wt. n-Val.	0.039	0.029	0.039	0.029	0.039
W.S. Elev (ft)	819.76	Reach Len. (ft)	8.57	8.57	8.57	8.57	8.57

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Crit W.S. (ft)		Flow Area (sq ft)	136.62	72.36
E.G. Slope (ft/ft)	0.000488	Area (sq ft)	136.62	72.36
Q Total (Cfs)	371.00	Flow (Cfs)	283.21	87.79
Top Width (ft)	98.34	Top Width (ft)	56.75	41.59
Vel Total (ft/s)	1.78	Avg. Vel. (ft/s)	2.07	1.21
Max Chl Dpth (ft)	1673.55	Hydr. Depth (ft)	1282.74	397.74
Conv. Total (Cfs)	1673.55	Wetted Pw (ft)	57.51	41.88
Length Wd (Cfs)	817.60	Shear (lb/sq ft)	0.07	0.05
Min Ch El (ft)	817.60	Stream Power (lb/ft s)	200.14	0.00
Alpha	1.15	Cum Volume (acre-ft)	3.18	45.76
Frctn Loss (ft)	0.00	Cum SA (acres)	0.97	0.03
C & E Loss (ft)	0.00			

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast

RS: 8

INPUT

Description:				
Station Elevation Data	num=	17		
Sta Elev Sta	Elev	Sta	Elev	Sta
-10 822 0	822	3.27	822	24.13
97.37 816 101.01	815.75	105.02	815.75	109.75
118.76 817.17 130.77	817.5	142.79	817.5	179.07
190.08 821 200				

Manning's n Values	num=	9		
Sta n Val Sta	n Val	Sta	n Val	Sta
-10 .039 0	.039	85.36	.02	101.01
112.75 .039 118.76	.02	142.79	.039	200

Bank Sta: Left	Right	Lengths: Left	Channel	Right
142.79	188.08	12.19	12.19	12.19
Blocked Obstructions				
Sta L	Sta R	Sta L	Elev	Sta R
-10	0	825	190.08	200

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	wt. n-Val.	0.030	0.039	12.19
W.S. Elev (ft)	819.76	Reach Len. (ft)	12.19	12.19	12.19
Crit W.S. (ft)		Flow Area (sq ft)	152.13	77.69	77.69
E.G. Slope (ft/ft)	0.000367	Area (sq ft)	285.40	85.60	85.60
Q Total (Cfs)	371.00	Flow (Cfs)	56.72	41.57	41.57
Top Width (ft)	98.29	Top Width (ft)	1.88	1.10	1.10
Vel Total (ft/s)	1.61	Avg. Vel. (ft/s)	14963.68	4470.87	4470.87
Max Chl Dpth (ft)	1973.01	Hydr. Depth (ft)	57.51	41.88	41.88
Conv. Total (Cfs)	1973.01	Wetted Pw (ft)	200.00	0.00	0.00
Length Wd (Cfs)	112.19	Stream Power (lb/ft s)	3.15	45.74	7.41
Min Ch El (ft)	817.50	Cum Volume (acre-ft)	0.96	0.45	0.03
Alpha	1.15	Cum SA (acres)			
Frctn Loss (ft)	0.00				
C & E Loss (ft)	0.00				

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast

RS: 7

INPUT

Description:				
Station Elevation Data	num=	18		
Sta Elev Sta	Elev	Sta	Elev	Sta
-10 822 0	822	103.11	820	155.31
167.35 819 176.36	816	180	815.66	184
191.74 817 197.74	817.17	209.76	817.5	221.77
267.07 821 269.07	821	279	821	258.06

Manning's n Values	num=	9		
Sta n Val Sta	n Val	Sta	n Val	Sta
-10 .039 0	.039	167.35	.02	180
191.74 .039 197.74	.02	221.77	.039	279

Bank Sta: Left	Right	Lengths: Left	Channel	Right
221.77	267.07	35.05	35.05	35.05
Blocked Obstructions				
Sta L	Sta R	Sta L	Elev	Sta R
-10	0	825	269.07	279

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	wt. n-Val.	0.030	0.039	12.19

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W.S. Elev (ft)	819.76	Reach Len. (ft)	35.05
Crit W.S. (ft)	0.000356	Flow Area (sq ft)	155.25
E.G. Slope (ft/ft)	371.00	Area (sq ft)	77.57
Q Total (cfs)	105.14	Flow (cfs)	155.25
Top Width (ft)	1.59	Avg. Vel. (ft/s)	84.15
Vel Total (ft/s)	19656.19	Conv. Depth (ft)	41.57
Wak. Ch. Depth (ft)	35.05	Wetted Per.	1.85
Length Wtd. (cfs)	817.50	Stream Power (lb/ft s)	4458.74
Min Ch El (ft)	1.14	Cum Vol (acres)	41.86
Alpha	0.01	Cum SA (acres)	0.04
Frctn Loss (ft)	0.01		0.00
C & E Loss (ft)	0.01		7.41
			0.44

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 6

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	822	0	822	13.01	821	163.18	818
	173.35	817	176.36	816	815.4	184	815.4	188.73
	191.74	817	197.74	817.17	209.76	817.5	221.77	818
	267.08	821	269.08	821	279	821	279	818

Manning's n Values	num=	9	Sta	n Val	Sta	n Val	Sta	n Val
	-10	.039	0	.039	173.35	.057	180	.057
	191.74	.039	197.74	.02	221.77	.039	279	.039

Bank Sta: Left 221.77 Right 267.08 Lengths: Left Channel 97.41 Right 97.41

Blocked Obstructions Sta L Sta R Elev Sta L Elev Sta R Elev

-10	0	825	269.08	279	825
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.79	Element	Left OB
Vel Head (ft)	0.02	Wt. n-Val.	0.031
W.S. Elev (ft)	819.77	Reach Len. (ft)	97.41
Crit W.S. (ft)	0.000244	Flow Area (sq ft)	244.74
Q Total (cfs)	188.58	Area (sq ft)	244.74
Top Width (ft)	1.52	Flow (cfs)	300.98
Vel Total (ft/s)	1.32	Top Width (ft)	146.97
Wak. Ch. Depth (ft)	1.32	Avg. Vel (ft/s)	1.23
Length Wtd. (cfs)	23755.8	Conv. Depth (ft)	1.80
Min Ch El (ft)	97.41	Wetted Per.	19272.64
Alpha	1.04	Shear (lb/sq ft)	147.46
Frctn Loss (ft)	0.02	Stream Power (lb/ft s)	279.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	2.94
		Cum SA (acres)	0.86

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 5

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	822	0	822	13.06	821	163.7	818
	172.99	817	179.42	815	814.62	184.6	814.62	185.31
	192.36	817	198.36	817.17	210.44	817.5	222.49	817
	263.91	817	267.92	818	269.92	819	280	819

Manning's n Values	num=	9	Sta	n Val	Sta	n Val	Sta	n Val
	-10	.039	0	.039	172.99	.057	180.58	.057
	192.36	.039	198.38	.02	222.49	.039	280	.039

Bank Sta: Left 227.51 Right 263.91 Lengths: Left Channel 9.32 Right 9.32

Blocked Obstructions Sta L Sta R Elev Sta L Elev Sta R Elev

-10	0	825	269.98	280	825
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.77	Element	Left OB
		Wt. n-Val.	0.031
		Reach Len. (ft)	97.41
		Flow Area (sq ft)	244.74
		Area (sq ft)	244.74
		Flow (cfs)	300.98
		Top Width (ft)	146.97
		Avg. Vel (ft/s)	1.23
		Conv. Depth (ft)	1.80
		Wetted Per.	147.46
		Stream Power (lb/ft s)	279.00
		Cum Volume (acre-ft)	2.94
		Cum SA (acres)	0.86

Vel Head (ft)	0.02	0.031	0.039
W.S. Elev (ft)	819.75	822	822
Crit W.S. (ft)	0.000152	266.26	100.16
E.G. Slope (ft/ft)	194.23	151.76	36.40
Q Total (cfs)	9.18	1.72	1.95
Top width (ft)	30132.2	22032.4	606.5
Wetted Per. (ft)	817.00	152.59	7.18
Length wtd. (ft)	1.02	280.00	0.02
Alpha	0.00	2.37	0.00
Frctn Loss	0.00	0.52	0.00
C & E Loss (ft)			0.32

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CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast
 RS: 4.666666*

INPUT		Description:	
Station	Elevation	Data	
Sta	Elev	Sta	Elev
-10	822	0	822
13.05	821	163.52	818
18.6	815.02	193.38	817.13
227.42	817	232.1	814.67
267.19	818	274.37	819.49
296	819.67		

Manning's n Values		num=	
Sta	n Val	Sta	n Val
-10	.039	0	.039
180.51	.02	184.52	.057
227.42	.045	240.44	.033

Bank Sta:	Left	227.42	Right	267.19
Lengths:	Left Channel	9.32	Right	9.32
Blocked obstructions		2		2
Sta L	Sta R	Elev	Sta L	Elev
-10	825	286.01	296	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.76	Element	
Vel Head (ft)	0.01	Wt. n-val.	0.031
Frctn Loss	0.00	Reach Len. (ft)	9.32
E.G. Slope (ft/ft)	819.75	Area (sq ft)	267.52
Q Total (cfs)	0.000082	Flow (cfs)	186.47
Top width (ft)	371.00	Top width (ft)	200.90
Vel Total (ft/s)	210.42	Avg. Vel. (ft/s)	151.83
Max Chl Dpth (ft)	0.79	Hydr. Depth (ft)	0.75
Conv. Total (cfs)	41094.6	Wetted Per. (ft)	22253.1
Length wtd. (ft)	814.64	Stream Power (lb/ft s)	152.69
Alpha	1.06	Shear (lb/sq ft)	0.01
Frctn Loss	0.00	Cum Volume (acre-ft)	2.32
C & E Loss (ft)	0.00	Cum SA (acres)	0.49

Channel	
Left OB	0.041
Right OB	0.045
	13.72
	13.74
	18.82
	0.24
	4.69
	364.6
	41.11
	19.08
	0.00
	7.39
	0.02

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast
 RS: 4.333333*

INPUT		Description:	
Station	Elevation	Data	
Sta	Elev	Sta	Elev
-10	822	0	822
13.04	821	163.58	818
178.68	815.06	179.27	814.49
185.49	815.03	192.2	817.17
227.32	817	236.69	812.29
270.46	819	280.82	819.97
312	820.33		

Manning's n Values		num=	
Sta	n Val	Sta	n Val
-10	.039	0	.039
180.43	.02	184.45	.057
227.32	.051	241.45	.026

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Bank Sta: Left 227.32 Right 270.46 Lengths: Left Channel 9.32 Right 9.32 Expans. .3
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 825 302.04 312 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	wt. n-Val.	0.031	0.047	0.051
W.S. Elev (ft)	819.76	Reach Len. (ft)	9.32	9.32	9.32
Crit W.S. (ft)	0.000060	Flow Area (sq ft)	268.47	254.77	5.30
E.G. Slope (ft/ft)	371.00	Flow Area (sq ft)	268.47	254.77	5.30
Q Total (cfs)	207.90	Top Width (ft)	151.82	43.14	12.94
Top Width (ft)	0.70	AVG. Vel. (ft/s)	0.64	0.77	0.12
Max Chl Dpth (ft)	480.47	Hydr. Depth (ft)	224.77	5.91	0.41
Conv. Total (cfs)	812.26	Conv. (cfs)	157.71	45.82	19.06
Min Ch El (ft)	1.04	Shear (lb/sq ft)	312.00	0.00	0.00
Alpha	0.00	Stream Power (lb/ft s)	2.26	45.38	7.39
Frctn Loss (ft)	0.00	Cum Volume (acres)	0.46	0.30	0.02
C & E Loss (ft)					

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 Southeast RS: 4

INPUT

Station	Elevation	Data	num=	22	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	3.01	822	3.01	822	13.04	821	163.51	818	
172.31	817	180.36	817.42	184.37	815.72	185.41	815		815	
242.38	810	817.19	817.75	752.72	817.15	773.74	817		817	
318.07	821	328	809.93	233.74	810	273.74	820		820	

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	172.31	.057	180.36	.02	184.37	.057	
192.12	.039	198.14	.02	222.22	.039	227.23	.057	
252.47	.057	273.74	.039	328				

Bank Sta: Left 227.23 Right 273.74 Lengths: Left Channel 9.31 Right 9.31 Expans. .3

Blocked Obstructions num= 3
 Sta L Sta R Elev Sta L Elev Sta R Elev
 -10 825 318.07 328 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	wt. n-Val.	0.031	0.051	0.051
W.S. Elev (ft)	819.73	Reach Len. (ft)	59.51	59.51	59.51
Crit W.S. (ft)	0.000201	Flow Area (sq ft)	266.07	304.39	304.39
E.G. Slope (ft/ft)	371.00	Flow Area (sq ft)	266.07	304.39	304.39
Q Total (cfs)	196.69	Top Width (ft)	150.69	45.98	45.98
Top Width (ft)	1.29	AVG. Vel. (ft/s)	1.18	1.39	0.41
Max Chl Dpth (ft)	9.80	Hydr. Depth (ft)	1.77	6.62	0.41
Conv. Total (cfs)	51936.8	Conv. (cfs)	22217.7	29719.2	29719.2
Length wtd. (ft)	59.51	wetted Per. (ft)	151.61	49.93	49.93
Min Ch El (ft)	809.93	Shear (lb/sq ft)	328.00	0.08	0.08
Alpha	1.02	Stream Power (lb/ft s)	2.20	45.32	7.39
Frctn Loss (ft)	0.00	Cum Volume (acres)	0.42	0.29	0.02
C & E Loss (ft)					

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 Southeast RS: 3

INPUT

Station	Elevation	Data	num=	22	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	1.52	822	1.52	822	11.53	821	49.94	820	
95.46	819	116.87	818	124.7	817	133.72	814	137.74	814	
145.49	817	151.51	817.17	163.55	817.5	175.58	817.15	180.6	817	

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194.64 810 197.59 809.75 207.6 809.75 210.8 810 230.8 820
 232.8 821 821

Manning's n Values
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 124.57 .039 133.72 .02 137.74 .057
 141.48 .052 151.5 0 175.58 .039 180.6 .057 197.59 .02
 207.6 .057 243

Bank Sta: Left Right Lengths: Left Channel Right
 180.6 230.8 49.34 49.34
 Blocked obstructions num= 2
 Sta L Sta R Elev
 -10 825 225.71 243 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. n-Val.	Element	Left OB	Channel	Right OB
819.75	0.03	Wt. n-Val.	0.03	0.05	
819.72	49.34	Reach (ft)	49.34	49.34	49.34
0.000170	236.09	Flow Area (sq ft)	236.09	337.16	
163.16	284.39	Area (sq ft)	284.39	452.61	
1.29	118.05	Top width (ft)	1.20	1.34	
9.97	2.00	Avg. Vel. (ft/s)	2.00	2.47	
56594.4	21838.3	Hydr. Depth (ft)	21838.3	34756.0	
49.34	119.21	Conv. (Cfs)	119.21	50.81	
801.05	0.07	Wetted Per. (ft)	0.07	0.07	0.00
0.01	243.02	Shear Power (lb/ft s)	243.02	0.00	7.39
0.01	1.86	Stream Power (lb/ft s)	1.86	44.88	0.02
0.00	0.24	Cum Volume (acre-ft)	0.24	0.23	
		Cum SA (acres)			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 2

INPUT

Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev
-10	822	0	26	3.01	822	32.53	819	54.27	818
65.76	817	68.76	816	71.11	815.39	75.11	815.39	78.03	816
82.86	817	88.87	817	100.89	817.5	115.49	817	119.88	816.71
130.46	816	143.87	810	144.76	809.6	150.98	809.6	151.87	810
167.11	821	171.89	818	177.31	820	205.84	821	213.05	821

Manning's n Values
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 65.76 .057 71.11 .02 75.11 .057
 88.87 .02 119.88 .039 130.46 .057 144.76 .057 167.11 .039 223

Bank Sta: Left Right Lengths: Left Channel Right
 130.46 167.11 95.65 95.65
 Blocked obstructions num= 2
 Sta L Sta R Elev
 -10 825 213.05 223 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. n-Val.	Element	Left OB	Channel	Right OB
819.74	0.03	Wt. n-Val.	0.030	0.052	
819.71	49.34	Reach Len. (ft)	49.34	95.65	95.65
0.000214	245.79	Flow Area (sq ft)	245.79	265.06	
131.40	334.68	Area (sq ft)	334.68	452.61	
1.40	101.39	Top width (ft)	1.40	1.48	
9.97	2.34	Avg. Vel. (ft/s)	2.34	2.73	
50415.6	22900.8	Hydr. Depth (ft)	22900.8	34756.0	
95.65	105.45	Conv. (Cfs)	105.45	39.63	
809.60	223.00	Wetted Per. (ft)	223.00	0.00	0.00
1.02	1.58	Shear Power (lb/ft s)	1.58	44.54	7.38
	0.12	Stream Power (lb/ft s)	0.12	4.54	0.01
		Cum Volume (acre-ft)		0.19	
		Cum SA (acres)			

INLINE STRUCTURE

RIVER: Unit 3 Southeast
 REACH: Unit 3 Southeast RS: 1.5

CPNPPLOCA1PMP

INPUT

Description: Distance from Upstream XS = 27.56
 Deck/Roadway width = 21.92
 Weir Coefficient = 2.6
 Embankment Coordinates: num = Sta Elev Sta Elev Sta Elev
 Sta Elev 825 100.89 825 100.89 817.5 112.89 817.2 234.13 817.2
 Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In] Struct:

E.G. Elev (ft)	819.74	Q Gates (cfs)	
W.S. Elev (ft)	819.71	Q Gate Group (cfs)	0.00
Q Total (cfs)	737.00	Gate Open Ht (ft)	815.10
Q Weir (cfs)	737.00	Gate #Open	1.00
Weir Flow Area (sq ft)	181.04	Gate Area (sq ft)	0.00
Weir Sta Lft (ft)	100.89	Gate Submerg	0.00
Weir Sta Rgt (ft)	176.60	Gate Invert (ft)	0.000
Weir Max Depth (ft)	2.54	Gate Weir Coef	
Weir Avg Depth (ft)	2.39	Q Breach (cfs)	
Weir Top (ft)	2.00	Breach Avg Velocity (ft/s)	
Weir Slope (FT/L/2)	0.00	Breach Flow Area (sq ft)	
Min El Weir Flow (ft)	817.21		
W Top width (ft)	75.71		

CROSS SECTION

RIVER: Unit 3 Southeast RS: 1
 REACH: Unit 3 Southeast

INPUT

Description:	num=	7	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	7	816	27.47	810	54.3	806	63.25	806
Sta Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0 817 4.37	816 155.8	817							
98.67	810	155.8							

Manning's n Values num= 1
 Sta n Val
 0 .039

Bank Sta: Left 0 Right 155.8 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	815.12	Element	Left OB	Right OB
Vel Head (ft)	0.02	wt. n-Val.	0.039	
W.S. Elev (ft)	815.10	Reach Len. (ft)		
Crit W.S. (ft)	809.02	Flow Area (sq ft)	679.63	
E.G. Slope (ft/ft)	0.000093	Area (sq ft)	679.63	
Q Total (cfs)	737.00	Flow Area (sq ft)	137.00	
Top width (ft)	131.08	Top width (ft)	131.08	
Top width (ft/s)	9.10	Hydr. Depth (ft)	5.13	
Max Chl Dpth (ft)	76460.0	Conv. (cfs)	76460.0	
Conv. Total (cfs)	76460.0	wetted per. (ft)	133.94	
Length wtd. (ft)	806.00	Shear (lb/sq ft)	133.94	
Min Ch El (ft)	1.00	Stream Power (lb/ft s)	0.03	
Frctn Loss		Cum Volume (acre-ft)	0.00	
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION

RIVER: Unit 3 UHS RS: 109
 REACH: U3 UHS Branch

INPUT

Description:	num=	6	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	6	819	13.72	819	43.72	819
Sta Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
-10 819	0	819	13.72	819	43.72	819	58.25
68	819						

Manning's n Values num= 3 Sta n Val
 -10 .039 0 .039 68 .039

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Bank Sta: Left Right Lengths: Left Channel Right
 0 58.25
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 825 58.25 68 825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.79	Element	Left 08	Channel	Right 08
Vel Head (ft)	0.22	Wt. n-Val.	5.00	0.039	5.00
W.S. Elev (ft)	819.57	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)	819.52	Flow Area (sq ft)	33.17	33.17	33.17
E.G. Slope (ft/ft)	0.021260	Area (sq ft)	125.00	125.00	125.00
Q Total (cfs)	58.25	Flow (cfs)	58.25	58.25	58.25
Top Width (ft)	3.77	Top Width (ft)	3.77	3.77	3.77
Max Chl Dpth (ft)	857.3	Avg. Vel. (ft/s)	857.3	857.3	857.3
Length Total (ft)	5.00	Hydr. Depth (ft)	59.39	59.39	59.39
Min Chl El (ft)	819.00	Wetted Per (ft)	0.74	0.74	0.74
Alpha	1.00	Shear (lb/sq ft)	68.00	68.00	68.00
Frctn Loss (ft)	0.10	Stream Power (lb/ft s)	0.13	0.13	0.13
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.00

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Branch RS: 108.944*

INPUT

Description: Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819 -2.36 819 -19 819 -52 818.89 13.99 818.89
 43.45 818.89 57.72 818.89 58.05 819 60.7 819

Manning's n Values

Sta n Val	Sta n Val	Sta n Val	Sta n Val
-10 .039	-2.36 .19	.039 .68	.039 .68

Bank Sta: Left Right Lengths: Left Channel Right
 .19 58.05
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 -10 825 58.25 68 825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.68	Element	Left 08	Channel	Right 08
Vel Head (ft)	0.22	Wt. n-Val.	5.00	0.039	5.00
W.S. Elev (ft)	819.46	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)	819.41	Flow Area (sq ft)	0.09	33.21	0.09
E.G. Slope (ft/ft)	0.020400	Area (sq ft)	0.13	124.74	0.14
Q Total (cfs)	58.25	Flow (cfs)	57.86	57.86	57.86
Top Width (ft)	3.74	Top Width (ft)	1.43	3.76	1.47
Max Chl Dpth (ft)	875.2	Avg. Vel. (ft/s)	0.46	0.57	0.46
Length Total (ft)	813.00	Hydr. Depth (ft)	0.9	873.3	1.0
Min Chl El (ft)	813.00	Wetted Per (ft)	0.95	37.70	0.96
Alpha	1.00	Shear (lb/sq ft)	68.00	68.00	68.00
Frctn Loss (ft)	0.10	Stream Power (lb/ft s)	0.13	0.13	0.13
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.00	0.00

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Branch RS: 108.888*

INPUT

Description: Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819 -2.22 819 -37 819 -1.04 818.78 14.27 818.78
 43.18 818.78 57.19 818.78 57.86 819 60.55 819

Manning's n Values

Sta n Val	Sta n Val	Sta n Val	Sta n Val
-10 .039	-2.22 .37	.039 .68	.039 .68

Bank Sta: Left Right Lengths: Left Channel Right
 .37 57.86
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev

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-10 0 825 58.25 68 825
 CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.58		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.21	Sta	819.58	Wt. n-Val.	0.039	Sta	819.58	Channel	0.039	Sta	819.58
W.S. Elev (ft)	819.57	Elev	819.57	Reach Len. (ft)	0.10	Elev	819.57	Left OB	0.10	Elev	819.57
Crit W.S. (ft)	819.57	Sta	819.57	Flow Area (sq ft)	33.77	Sta	819.57	Channel	33.77	Sta	819.57
E.G. Slope (ft/ft)	0.019062	Elev	819.57	Area (sq ft)	0.14	Elev	819.57	Left OB	0.14	Elev	819.57
Q-Total (cfs)	125.00	Flow	819.57	Top width (ft)	0.23	Flow	819.57	Channel	0.23	Flow	819.57
Top width (ft)	58.25	Top width	819.57	Avg. Vel. (ft/s)	1.71	Top width	819.57	Left OB	1.71	Top width	819.57
Vel Total (ft/s)	3.67	Hydr. Depth (ft)	819.57	Conv. (cfs)	1.7	Hydr. Depth (ft)	819.57	Channel	1.7	Hydr. Depth (ft)	819.57
Max Chl Dpth (ft)	0.59	Wetted Per. (ft)	819.57	Stream Power (lb/ft s)	68.00	Wetted Per. (ft)	819.57	Left OB	68.00	Wetted Per. (ft)	819.57
Conv. Total (cfs)	905.4	Stream Power (lb/ft s)	819.57	Cum Volume (acre-ft)	0.13	Stream Power (lb/ft s)	819.57	Channel	0.13	Stream Power (lb/ft s)	819.57
Length Wtd. (ft)	5.00	Cum SA (acres)	819.57		0.00	Cum SA (acres)	819.57	Left OB	0.00	Cum SA (acres)	819.57
Min Ch El (ft)	818.78		819.57		0.00		819.57	Channel	0.00		819.57
Alpha	1.01		819.57		0.00		819.57	Left OB	0.00		819.57
Frcn Loss (ft)	0.09		819.57		0.00		819.57	Channel	0.00		819.57
C & E Loss (ft)	0.01		819.57		0.00		819.57	Left OB	0.00		819.57

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Branch RS: 108.833*

Description:		num= 10		Elev		Sta		Elev		Sta	
Station	Sta	Elev	819.56	Sta	819.56	Sta	819.56	Sta	819.56	Sta	819.56
Sta L	-10	Elev	819.56	Sta R	819.56	Sta L	819.56	Sta R	819.56	Sta L	819.56
Sta R	0	Elev	819.56	Sta L	819.56	Sta R	819.56	Sta L	819.56	Sta R	819.56
Sta L	0	Elev	819.56	Sta R	819.56	Sta L	819.56	Sta R	819.56	Sta L	819.56
Sta R	0	Elev	819.56	Sta L	819.56	Sta R	819.56	Sta L	819.56	Sta R	819.56

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.49		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.19	Sta	819.49	Wt. n-Val.	0.039	Sta	819.49	Channel	0.039	Sta	819.49
W.S. Elev (ft)	819.30	Elev	819.30	Reach Len. (ft)	5.00	Elev	819.30	Left OB	5.00	Elev	819.30
Crit W.S. (ft)	819.30	Sta	819.30	Flow Area (sq ft)	0.17	Sta	819.30	Channel	0.17	Sta	819.30
E.G. Slope (ft/ft)	0.016020	Elev	819.30	Area (sq ft)	0.37	Elev	819.30	Left OB	0.37	Elev	819.30
Q-Total (cfs)	125.00	Flow	819.30	Top width (ft)	0.56	Flow	819.30	Channel	0.56	Flow	819.30
Top width (ft)	58.25	Top width	819.30	Avg. Vel. (ft/s)	1.62	Top width	819.30	Left OB	1.62	Top width	819.30
Vel Total (ft/s)	3.49	Hydr. Depth (ft)	819.30	Conv. (cfs)	2.1	Hydr. Depth (ft)	819.30	Channel	2.1	Hydr. Depth (ft)	819.30
Max Chl Dpth (ft)	0.63	Wetted Per. (ft)	819.30	Stream Power (lb/ft s)	68.00	Wetted Per. (ft)	819.30	Left OB	68.00	Wetted Per. (ft)	819.30
Conv. Total (cfs)	987.6	Stream Power (lb/ft s)	819.30	Cum Volume (acre-ft)	0.13	Stream Power (lb/ft s)	819.30	Channel	0.13	Stream Power (lb/ft s)	819.30
Length Wtd. (ft)	5.00	Cum SA (acres)	819.30		0.00	Cum SA (acres)	819.30	Left OB	0.00	Cum SA (acres)	819.30
Min Ch El (ft)	818.67		819.30		0.00		819.30	Channel	0.00		819.30
Alpha	1.01		819.30		0.00		819.30	Left OB	0.00		819.30
Frcn Loss (ft)	0.07		819.30		0.00		819.30	Channel	0.00		819.30
C & E Loss (ft)	0.01		819.30		0.00		819.30	Left OB	0.00		819.30

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Branch RS: 108.777*

Description:		num= 10		Elev		Sta		Elev		Sta	
Station	Sta	Elev	818.56	Sta	818.56	Sta	818.56	Sta	818.56	Sta	818.56
Sta L	-10	Elev	818.56	Sta R	818.56	Sta L	818.56	Sta R	818.56	Sta L	818.56
Sta R	0	Elev	818.56	Sta L	818.56	Sta R	818.56	Sta L	818.56	Sta R	818.56
Sta L	0	Elev	818.56	Sta R	818.56	Sta L	818.56	Sta R	818.56	Sta L	818.56
Sta R	0	Elev	818.56	Sta L	818.56	Sta R	818.56	Sta L	818.56	Sta R	818.56

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.41		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.21	Sta	819.41	Wt. n-Val.	0.039	Sta	819.41	Channel	0.039	Sta	819.41
W.S. Elev (ft)	819.20	Elev	819.20	Reach Len. (ft)	5.00	Elev	819.20	Left OB	5.00	Elev	819.20
Crit W.S. (ft)	819.20	Sta	819.20	Flow Area (sq ft)	0.17	Sta	819.20	Channel	0.17	Sta	819.20
E.G. Slope (ft/ft)	0.016020	Elev	819.20	Area (sq ft)	0.37	Elev	819.20	Left OB	0.37	Elev	819.20
Q-Total (cfs)	125.00	Flow	819.20	Top width (ft)	0.56	Flow	819.20	Channel	0.56	Flow	819.20
Top width (ft)	58.25	Top width	819.20	Avg. Vel. (ft/s)	1.62	Top width	819.20	Left OB	1.62	Top width	819.20
Vel Total (ft/s)	3.49	Hydr. Depth (ft)	819.20	Conv. (cfs)	2.1	Hydr. Depth (ft)	819.20	Channel	2.1	Hydr. Depth (ft)	819.20
Max Chl Dpth (ft)	0.63	Wetted Per. (ft)	819.20	Stream Power (lb/ft s)	68.00	Wetted Per. (ft)	819.20	Left OB	68.00	Wetted Per. (ft)	819.20
Conv. Total (cfs)	987.6	Stream Power (lb/ft s)	819.20	Cum Volume (acre-ft)	0.13	Stream Power (lb/ft s)	819.20	Channel	0.13	Stream Power (lb/ft s)	819.20
Length Wtd. (ft)	5.00	Cum SA (acres)	819.20		0.00	Cum SA (acres)	819.20	Left OB	0.00	Cum SA (acres)	819.20
Min Ch El (ft)	818.67		819.20		0.00		819.20	Channel	0.00		819.20
Alpha	1.01		819.20		0.00		819.20	Left OB	0.00		819.20
Frcn Loss (ft)	0.07		819.20		0.00		819.20	Channel	0.00		819.20
C & E Loss (ft)	0.01		819.20		0.00		819.20	Left OB	0.00		819.20

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Vel Head (ft)	0.16	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	819.25	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)	0.012247	Flow Area (sq ft)	0.18	38.38	0.19
E.G. Slope (ft/ft)	125.00	Area (sq ft)	0.25	38.38	0.27
Q Total (cfs)	58.25	Top Width (ft)	1.74	124.48	0.78
Vel Pot (ft/s)	0.63	Hyd. Vel (ft/s)	0.27	59.73	0.28
Max Ch Depth (ft)	1129.5	Conv. (cfs)	2.23	0.28	0.28
Conv Total (cfs)	5.00	Wetted Per. (ft)	0.99	1124.9	2.4
Length Wtd. (ft)	818.56	Shear (lb/sq ft)	0.14	56.87	1.03
Min Ch El (ft)	1.01	Stream Power (lb/ft s)	68.00	0.76	0.14
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.13	0.76	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.09	0.02

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Branch
 RS: 108.722*

INPUT

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	-1.8	819	2.6	818.44	15.08	818.44
42.37	818.44	55.59	818.44	57.27	819	60.12	819

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-1.8	.039	68	.039
.92	.039	57.27	.039	5	.039

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

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev
-10	0	825	58.25	68
825	68	825	5	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.35	Element	Left Ob	Right Ob
Vel Head (ft)	0.13	Wt. n-Val.	0.039	0.039
W.S. Elev (ft)	819.22	Reach Len. (ft)	5.00	5.00
Crit W.S. (ft)	0.008318	Flow Area (sq ft)	0.20	43.01
E.G. Slope (ft/ft)	125.00	Area (sq ft)	0.22	43.01
Q Total (cfs)	58.25	Flow (cfs)	0.92	56.35
Top Width (ft)	2.88	Top Width (ft)	1.10	2.90
Vel Total (ft/s)	137.06	Avg. Vel. (ft/s)	0.22	0.76
Max Ch Depth (ft)	137.06	Hydr. Depth (ft)	1.74	1.76
Conv Total (cfs)	5.00	Conv. (cfs)	0.09	0.09
Length Wtd. (ft)	818.44	Wetted Per. (ft)	0.14	56.87
Min Ch El (ft)	1.01	Stream Power (lb/ft s)	68.00	0.76
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.13	0.76
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	0.08

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Branch
 RS: 108.666*

INPUT

Station	Elev	Sta	Elev	Sta	Elev
-10	819	-1.67	819	3.12	818.33
42.1	818.33	55.06	818.33	57.07	819

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	-1.67	.039	68	.039
1.11	.039	57.07	.039	5	.039

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

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Elev
-10	0	825	58.25	68
825	68	825	5	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.31	Element	Left Ob	Right Ob
Vel Head (ft)	0.13	Wt. n-Val.	0.039	0.039
W.S. Elev (ft)	819.20	Reach Len. (ft)	5.00	5.00
Crit W.S. (ft)	0.005976	Flow Area (sq ft)	0.22	47.38
E.G. Slope (ft/ft)	125.00	Area (sq ft)	0.22	47.38
Q Total (cfs)	58.25	Flow (cfs)	0.20	124.58

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Top Width (ft)	58.25	Top Width (ft)	1.11	55.96
Vel Total (ft/s)	2.61	Avg. Vel. (ft/s)	0.90	2.63
Max Chl Dpth (ft)	0.87	Hydr. Depth (ft)	0.20	0.85
Conv. Total (cfs)	1617.0	Wetted Per. (ft)	2.6	1611.6
Length Wtd. (ft)	5.00	Shear (lb/sq ft)	1.31	56.18
Min Ch El (ft)	818.33	Stream Power (lb/ft.s)	0.06	0.06
Alpha	0.01	Min Vel (acre-ft)	68.13	0.70
F Loss (ft)	0.01	Cum SA (acres)	0.00	0.00
C & E Loss (ft)	0.01			

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Branch RS: 108.611*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev
-10	819	-1.53	819	3.64	818.22
41.83	818.22	54.52	818.22	56.88	819

Manning's n Values

num=	4	num=	4
Sta	n Val	Sta	n Val
-10	.039	-1.53	.039
1.29	.039	1.29	.039
68	.039	68	.039

Bank Sta: Left

Lengths:	Left	Channel	Right
1.29	5	5	5

Blocked obstructions

Sta L	Sta R	Elev
-10	825	58.25
68	825	68

Cross Section Output Profile #PF 1

E.G. Elev (ft)	819.28	Element	Left OB	0.039	Channel	Right OB	0.039
Vel Head (ft)	0.09	Wt. n-Val.	0.039	5.00	5.00	5.00	5.00
W.S. Elev (ft)	819.19	Reach Len. (ft)	0.4	51.98	0.26	51.98	0.26
Cr L S. (ft)	0.004356	Flow Area (sq ft)	0.18	124.62	0.76	124.62	0.76
E. Total (cfs)	125.00	Area (cfs)	1.29	55.59	1.37	55.59	1.37
Top Width (ft)	58.25	Top Width (ft)	1.29	2.40	0.94	2.40	0.94
Vel Total (ft/s)	2.38	Avg. Vel. (ft/s)	0.19	1888.2	3.0	1888.2	3.0
Max Chl Dpth (ft)	0.97	Hydr. Depth (ft)	1.48	55.84	1.56	55.84	1.56
Conv. Total (cfs)	1893.9	Conv. (cfs)	68.00	0.00	0.00	0.00	0.00
Length Wtd. (ft)	5.00	Shear (lb/sq ft)	0.13	0.74	0.02	0.74	0.02
Min Ch El (ft)	818.22	Stream Power (lb/ft.s)	0.00	0.00	0.00	0.00	0.00
Alpha	1.01	Cum Volume (acre-ft)	0.00	0.00	0.00	0.00	0.00
Frcn Loss (ft)	0.00	Cum SA (acres)	0.00	0.00	0.00	0.00	0.00
C & E Loss (ft)	0.00						

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Branch RS: 108.555*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev
-10	819	-1.48	819	4.16	818.11
41.56	818.11	53.99	818.11	56.68	819

Manning's n Values

num=	4	num=	4
Sta	n Val	Sta	n Val
-10	.039	-1.39	.039
1.48	.039	1.48	.039
68	.039	68	.039

Bank Sta: Left

Lengths:	Left	Channel	Right
1.48	5	5	5

Blocked obstructions

Sta L	Sta R	Elev
-10	825	58.25
68	825	68

Cross Section Output Profile #PF 1

E.G. Elev (ft)	819.25	Element	Left OB	0.039	Channel	Right OB	0.039
Vel Head (ft)	0.08	Wt. n-Val.	0.039	5.00	5.00	5.00	5.00
W.S. Elev (ft)	819.18	Reach Len. (ft)	0.27	56.63	0.28	56.63	0.28
Cr L S. (ft)	0.003249	Flow Area (sq ft)	0.16	124.95	0.16	124.95	0.16
E. Total (cfs)	123.00	Area (cfs)	1.66	52.70	1.64	52.70	1.64
Top Width (ft)	52.75	Top Width (ft)	1.66	2.70	1.64	2.70	1.64
Max Chl Dpth (ft)	1.07	Hydr. Depth (ft)	0.18	1.03	0.18	1.03	0.18
Conv. Total (cfs)	2193.1	Conv. (cfs)	3.0	2187.0	3.2	2187.0	3.2
Length Wtd. (ft)	5.00	wetted per. (ft)	1.66	55.49	1.75	55.49	1.75

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Min Ch El (ft)	818.11	Shear (lb/sq ft)	0.03	0.21	0.03
Alpha	1.01	Stream Power (lb/ft s)	68.00	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.13	0.73	0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.06	0.00

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Branch
 RS: 108.5*

INPUT

Description: Station Elevation Data

num=	10
Sta Elev	Sta Elev
-10	819
41.29	818

Manning's n Values

num=	4
Sta n Val	Sta n Val
-10	.039
	1.66
	.039

Bank Sta: Left Right Lengths: Left Channel Right

num=	2
Sta L Sta R	Sta L Sta R
-10	825
	825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.24	Element	Left Ob	Right Ob
Vel Head (ft)	0.06	Wt. n-Val.	0.039	0.039
W.S. Elev (ft)	819.17	Reach Len. (ft)	5.00	5.00
Crit W.S. (ft)		Flow Area (sq ft)	0.29	0.30
E.G. Slope (ft/ft)	0.002479	Area (sq ft)	61.27	61.27
Q Total (cfs)	125.00	Flow (cfs)	124.67	0.17
Top Width (ft)	58.25	Top width (ft)	1.66	1.76
Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)	0.55	0.55
Max Chl Dpth (ft)	1.17	Hydr. Depth (ft)	0.17	0.17
Length Wd. (ft)	251.07	Conv. Area (sq ft)	3.17	3.17
Min Ch El (ft)	818.00	Wetted Per (ft)	1.83	1.94
Alpha	1.01	Stream Power (lb/ft s)	68.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.13	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.05

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Branch
 RS: 108.444*

INPUT

Description: Station Elevation Data

num=	10
Sta Elev	Sta Elev
-10	819
41.02	817.89

Manning's n Values

num=	4
Sta n Val	Sta n Val
-10	.039
	1.85
	.039

Bank Sta: Left Right Lengths: Left Channel Right

num=	2
Sta L Sta R	Sta L Sta R
-10	825
	825

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.22	Element	Left Ob	Right Ob
Vel Head (ft)	0.06	Wt. n-Val.	0.039	0.039
W.S. Elev (ft)	819.17	Reach Len. (ft)	5.00	5.00
Crit W.S. (ft)		Flow Area (sq ft)	0.31	0.33
E.G. Slope (ft/ft)	0.001935	Area (sq ft)	65.83	65.83
Q Total (cfs)	125.00	Flow (cfs)	124.69	0.16
Top Width (ft)	58.25	Top width (ft)	1.85	1.96
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)	0.48	0.48
Max Chl Dpth (ft)	1.28	Hydr. Depth (ft)	0.17	0.17
Length Wd. (ft)	2841.4	Conv. Area (sq ft)	3.4	3.6
Min Ch El (ft)	817.00	Stream Power (lb/ft s)	2.02	2.13
Alpha	1.01	Cum Volume (acre-ft)	68.00	0.00
Frctn Loss (ft)	0.01	Cum SA (acres)	0.13	0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.05

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CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Branch
 RS: 108.388*

INPUT Description: Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	-97	819	2.03	819	5.73	817.78
40.75	817.78	52.4	817.78	56.09	819	59.26	819

Manning's n Values num= 4

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-97	.039	2.03	.039	68	.039

Bank Sta: Left 2.03 Right 56.09 Lengths: Left Channel Right 5
 Blocked Obstructions num= 2 5

Sta L	Sta R	Elev	Right	Coeff	Contr.	Expan.
-10	0	825	58.25	68	825	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	wt. n-val.	0.039	0.039	0.039
W.S. Elev (ft)	819.16	Reach Len. (ft)	3.30	3.30	3.30
Crit W.S. (ft)		Flow Area (sq ft)	0.33	70.30	0.33
E.G. Slope (ft/ft)		Area (sq ft)	0.33	124.71	0.33
G-Total (cfs)	0.001542	Flow (cfs)	0.14	54.06	0.15
Top width (ft)	58.25	Top width (ft)	2.03	1.77	2.16
Vel Total (ft/s)	1.76	Avg. Vel. (ft/s)	0.43	1.30	0.43
Max Chl Dpth (ft)	1.38	Hydr. Depth (ft)	0.16	3.6	0.16
Conv. Total (cfs)	3183.4	Conv. (cfs)	2.19	3176.0	3.8
Length wtd. (ft)	5.00	wetted Per. (ft)	68.00	54.45	2.32
Min Ch El (ft)	817.78	Stream (lb/sq ft)	0.01	0.12	0.01
Alpha	1.01	Frctn Loss	0.13	0.70	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.71	0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.13	0.04

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Branch
 RS: 108.333*

INPUT Description: Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	-83	819	2.22	819	6.25	817.67
40.48	817.67	51.86	817.67	55.9	819	59.11	819

Manning's n Values num= 4

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-83	.039	2.22	.039	68	.039

Bank Sta: Left 2.22 Right 55.9 Lengths: Left Channel Right 5
 Blocked Obstructions num= 2 5

Sta L	Sta R	Elev	Right	Coeff	Contr.	Expan.
-10	0	825	58.25	68	825	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	wt. n-val.	0.039	0.039	0.039
W.S. Elev (ft)	819.16	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)		Flow Area (sq ft)	0.36	74.66	0.38
E.G. Slope (ft/ft)	0.001751	Area (sq ft)	0.36	124.95	0.38
Top width (ft)	58.25	Top width (ft)	2.22	53.62	2.35
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)	0.38	1.67	0.38
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)	0.16	1.39	0.16
Conv. Total (cfs)	3533.7	Conv. (cfs)	3.8	3525.8	4.1
Length wtd. (ft)	5.00	wetted Per. (ft)	2.38	54.11	2.51
Min Ch El (ft)	817.67	Stream (lb/sq ft)	0.01	0.11	0.01
Alpha	1.01	Frctn Loss	0.13	0.70	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.13	0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.13	0.04

CROSS SECTION

RIVER: Unit 3 UHS

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REACH: U3 UHS Branch RS: 108.277*

INPUT
 Description: Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev
 40.22 817.56 51.93 819.819 817.56 55.7 819 58.97 819 17.26 817.56 819
 Manning's n values num= 4
 Sta n Val Sta n Val Sta n Val
 -10 .039 -.69 .039 2.4 .039 68 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 2.4 55.7 2 5 5
 Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 0 825 58.25 68 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.20	Element	0.039	Channel	0.039
Vel Head (ft)	0.04	Wt. n-Val.	5.00		5.00
W.S. Elev (ft)	819.16	Reach Len. (ft)	0.38		0.40
Crit W.S. (ft)	0.001032	Flow Area (sq ft)	0.13		0.14
E.G. Slope (ft/ft)	125.00	Area (sq ft)	2.40		2.55
Q Total (cfs)	58.25	Top width (ft)	0.34		0.34
Vel Total (ft/s)	1.57	AVG. Vel. (ft/s)	0.34		0.34
Vel Head (ft)	1.57	Hydr. Depth (ft)	4.9		4.9
Conv. Total (cfs)	3890.7	Conv. (cfs)	2.56		2.71
Length Wtd. (ft)	5.00	Wetted Per. (ft)	68.00		68.00
Min Ch El (ft)	817.56	Shear (lb/sq ft)	0.09		0.01
Alpha	1.01	Stream Power (lb/ft s)	0.13		0.02
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00		0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.00		0.00

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Branch RS: 108.222*

INPUT
 Description: Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev
 39.95 817.44 50.8 817.44 55.5 819 58.83 819 17.54 817.44 819
 Manning's n values num= 4
 Sta n Val Sta n Val Sta n Val
 -10 .039 -.56 .039 2.59 .039 68 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 2.59 55.5 2 5 5
 Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 0 825 58.25 68 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.19	Element	0.039	Channel	0.039
Vel Head (ft)	0.03	Wt. n-Val.	5.00		5.00
W.S. Elev (ft)	819.16	Reach Len. (ft)	0.41		0.43
Crit W.S. (ft)	0.000848	Flow Area (sq ft)	0.13		0.13
E.G. Slope (ft/ft)	125.00	Area (sq ft)	2.59		2.75
Q Total (cfs)	58.25	Top width (ft)	0.31		0.31
Vel Total (ft/s)	1.48	AVG. Vel. (ft/s)	0.16		0.16
Vel Head (ft)	1.72	Hydr. Depth (ft)	4.3		4.6
Conv. Total (cfs)	4295.6	Conv. (cfs)	2.7		2.7
Length Wtd. (ft)	817.44	Wetted Per. (ft)	68.00		68.00
Min Ch El (ft)	817.44	Stream Power (lb/ft s)	0.01		0.01
Alpha	1.01	Stream Power (lb/ft s)	0.13		0.02
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00		0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.00		0.00

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Branch RS: 108.166*

INPUT
 Description: Station Elevation Data num= 10

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Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	-42	819	2.77	819	7.81	817.33	17.81	817.33
39.68	817.33	50.27	817.33	55.31	819	58.68	819		

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-42	.039	2.77	.039	68	.039

Bank Sta: Left 2.77 Right 55.31 Lengths: Left Channel 2 Right 5 Coeff Contr. .1 Expan. .3

Blocked Obstructions num= 2 Sta L Sta R Elev 68 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	819.03	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	819.15	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)		Flow Area (sq ft)	0.43	87.46	0.46
E.G. Slope (ft/ft)	0.000720	Area (sq ft)	0.43	124.75	0.46
Total (cfs)	125.00	Flow (cfs)	0.12	52.54	0.13
Top Width (ft)	58.25	Top Width (ft)	2.77	2.94	2.94
Vel Total (ft/s)	1.41	AVG. Vel. (ft/s)	0.28	1.43	0.28
Max Chl Dpth (ft)	1.82	Hydr. Depth (ft)	0.15	1.66	0.15
Conv. Total (cfs)	4658.1	Conv. (cfs)	4.5	4648.7	4.8
Length Wtd. (ft)	5.00	Wetted Per. (ft)	2.92	53.08	3.09
Min Ch El (ft)	817.33	Shear (lb/sq ft)	0.01	0.07	0.01
Alpha	0.01	Stream Power (lb/ft-s)	68.13	0.69	0.01
Frcn Loss (ft)	0.00	Cum Volume (acre-ft)	0.13	0.69	0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.02	0.00

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Branch RS: 108.111*

INPUT

Station	Elevation	Data	num=	10	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	-28	819	2.96	819	8.33	817.22	18.08	817.22	
39.41	817.22	49.73	817.22	55.11	819	58.54	819			

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-28	.039	2.96	.039	68	.039

Bank Sta: Left 2.96 Right 55.11 Lengths: Left Channel 2 Right 5 Coeff Contr. .1 Expan. .3

Blocked Obstructions num= 2 Sta L Sta R Elev 68 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	819.03	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	819.15	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)		Flow Area (sq ft)	0.43	91.26	0.48
E.G. Slope (ft/ft)	0.000620	Area (sq ft)	0.12	124.75	0.13
Total (cfs)	125.00	Flow (cfs)	0.12	52.11	0.13
Top Width (ft)	58.25	Top Width (ft)	2.96	3.14	3.14
Vel Total (ft/s)	1.36	AVG. Vel. (ft/s)	0.26	1.37	0.26
Max Chl Dpth (ft)	1.93	Hydr. Depth (ft)	0.15	1.75	0.15
Conv. Total (cfs)	5022.1	Conv. (cfs)	4.8	5012.2	5.1
Length Wtd. (ft)	5.00	Wetted Per. (ft)	3.11	52.72	3.29
Min Ch El (ft)	817.22	Shear (lb/sq ft)	0.01	0.07	0.01
Alpha	0.01	Stream Power (lb/ft-s)	68.00	0.67	0.00
Frcn Loss (ft)	0.00	Cum Volume (acre-ft)	0.13	0.67	0.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.01	0.00

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Branch RS: 108.055*

INPUT

Station	Elevation	Data	num=	10	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	-14	819	3.14	819	8.85	817.11	18.33	817.11	
39.14	817.11	49.2	817.11	54.92	819	58.39	819			

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	-14	.039	3.14	.039	68	.039

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Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 -14 .039 3.14 .039 68 .039
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 3.14 34.92 2.5 5 5 5 1.1 .3
 Blocked obstructions Sta L Elev Sta R Elev
 -10 825 825 68 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Right OB
E.G. Elev (ft)	819.18								0.039	0.039
Vel Head (ft)	0.03								5.00	5.00
W.S. Elev (ft)	819.15								94.93	0.51
Crit W.S. (ft)									124.76	0.32
E.G. Slope (ft/ft)	0.000539								31.36	0.23
Q Total (Cfs)	125.00								1.81	0.15
Top Width (ft)	58.25								5376.1	5.3
Conv. Total (Cfs)	5386.4								52.39	3.48
Length wtd. (ft)	5.00								0.06	0.00
Min Ch El (ft)	817.11								0.00	0.00
Alpha	1.02								0.13	0.02
Frctn Loss (ft)	0.00								0.66	0.00
C & E Loss (ft)	0.00								0.01	0.00

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Branch RS: 108

INPUT

Description: Station Elevation Data num= 8
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819 0 819 3.33 819 9.37 817 48.67 817
 54.72 819 58.25 819

Manning's n Values

num= 3 Sta n Val Sta n Val
 -10 .039 0 .039 68 .039

Bank Sta: Left Right Coeff Contr. Expan.

3.33 54.72 num= .1
 Blocked obstructions Sta L Sta R Elev Sta L Elev
 -10 825 825 68 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Channel	Right OB
E.G. Elev (ft)	819.18								0.039	0.039
Vel Head (ft)	0.02								136.09	136.09
W.S. Elev (ft)	819.15								98.44	0.53
Crit W.S. (ft)									124.76	0.12
E.G. Slope (ft/ft)	0.000473								51.39	3.53
Q Total (Cfs)	125.00								1.27	0.23
Top Width (ft)	58.25								573.92	0.15
Vel Total (ft/s)	1.26								52.03	3.68
Max Chl Dpth (ft)	574.15								68.00	0.00
Conv. Total (Cfs)	136.00								0.00	0.00
Length wtd. (ft)	137.00								0.13	0.02
Min Ch El (ft)	817.00								0.64	0.00
Alpha	1.02								0.00	0.00
Frctn Loss (ft)	0.31								0.13	0.02
C & E Loss (ft)	0.03								0.00	0.00

CROSS SECTION

RIVER: Unit 3 UHS REACH: U3 UHS Upper RS: 12

INPUT

Description: Station Elevation Data num= 11
 Sta Elev Sta Elev Sta Elev Sta Elev
 168.02 818 217.39 817 244.97 817 282.61 819
 298

Manning's n Values

num= 3 Sta n Val Sta n Val
 0 .02 12 .039 298 .039

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

0 822.9 12 822.9 105.14 821 148.52 820 160.89 819
 298

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Blocked Obstructions num= 2 217.39 244.97 36.67 36.67 36.67 1.1 .3
 Sta L Sta R Elev Sta L Elev Sta R Elev
 0 148.52 825 288.61 298 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.37	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.71	Wt n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	819.66	Reach Len. (ft)	36.67	36.67	36.67
Crit W.S. (ft)	819.47	Flow Area (sq ft)	111.49	73.33	66.39
E.G. Slope (ft/ft)	0.011459	Area (sq ft)	111.49	73.33	66.39
Q Total (cfs)	1652.00	Flow (cfs)	723.69	573.99	354.32
Top Width (ft)	126.50	Top Width (ft)	55.28	27.58	43.64
Vel Total (ft/s)	6.58	Avg. Vel. (ft/s)	6.49	7.83	5.34
Max Chl Dpth (ft)	2.66	Hydr. Depth (ft)	2.02	2.66	1.52
Conv. Total (cfs)	1532.6	Conv. (cfs)	6760.5	5392.1	3310.0
Length Wdr. (ft)	819.07	Wetted Perim. (ft)	51.22	21.98	41.05
Wch Vel (ft)	819.07	Stream Power (lb/ft s)	298.00	1.00	0.00
Alpha El (ft)	1.00	Cum Volume (acre-ft)	0.93	3.24	0.97
Frctn Loss (ft)	0.31	Cum SA (acres)	0.38	0.89	0.44
C & E Loss (ft)	0.07				

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: 03 UHS Upper
 RS: 11.5*

INPUT

Description:	Station	Elevation	Data	num=	18	Sta	Elev	Sta	Elev	Sta	Elev
	-5	821.95	2.29	821.95	23.22	821.6	56.97	821.03	58.89	820.91	
	166.39	816.71	180.18	816.71	203.32	817	219.02	818.57	226.86	818.86	
	230.78	819	235.15	819	242	819					

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
242	.03	232.2	.03	56.97	.039	127.1	.039

Bank Sta: Left 127.1 Right 203.32 Lengths: Left Channel 36.67 Right 36.67
 Blocked Obstructions num= 2 36.67 36.67 36.67 1.1 .3
 Sta L Sta R Elev Sta L Elev Sta R Elev

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.99	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.48	Wt n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	819.50	Reach Len. (ft)	36.67	36.67	36.67
Crit W.S. (ft)	819.31	Flow Area (sq ft)	68.07	203.89	37.62
E.G. Slope (ft/ft)	0.006674	Area (sq ft)	68.07	203.89	37.62
Q Total (cfs)	1652.00	Flow (cfs)	299.76	1222.93	129.31
Top Width (ft)	148.33	Top Width (ft)	40.28	76.22	31.83
Vel Total (ft/s)	5.34	Avg. Vel. (ft/s)	4.40	6.00	3.44
Max Chl Dpth (ft)	2022.79	Hydr. Depth (ft)	1.69	2.68	1.18
Conv. Total (cfs)	36.71	Conv. (cfs)	3669.3	14989.7	1582.9
Length Wdr. (ft)	819.07	Wetted Perim. (ft)	40.70	7.21	36.44
Wch Vel (ft)	819.07	Stream Power (lb/ft s)	242.00	1.00	0.00
Alpha El (ft)	1.09	Cum Volume (acre-ft)	0.85	3.12	0.93
Frctn Loss (ft)	0.17	Cum SA (acres)	0.34	0.84	0.41
C & E Loss (ft)	0.06				

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: 03 UHS Upper
 RS: 11

INPUT

Description:	Station	Elevation	Data	num=	10	Sta	Elev	Sta	Elev	Sta	Elev
	-10	821	0	821	11.96	821	23.37	818	36.81	817	
	115.39	816.42	161.68	817	171.55	819	176.48	819	186	819	

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.02	0	.02	11.96	.039	186	.039

Bank Sta: Left 36.81 Right 161.68 Lengths: Left Channel 36.67 Right 61.29
 Blocked Obstructions num= 2 36.67 36.67 36.67 1.1 .3
 Sta L Sta R Elev Sta L Elev Sta R Elev

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Sta L Sta R Elev Sta L Sta R Elev
-10 825 176.48 186 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 819.76 Element
W. Head (ft) 819.22 Rch n-Val.
W.S. Elev (ft) 819.47 Rch n-Val. (ft)
Crit W.S. (ft) 304.27 Flow Area (sq ft)
E.G. Slope (ft/ft) 0.003470 Area (sq ft)
Q Total (Cfs) 1652.00 Flow (cfs)
Top Width (ft) 158.69 Top Width (ft)
Vel Total (ft/s) 4.22 Avg. Vel. (ft/s)
Max Chl Dpth (ft) 3.05 Hydr. Depth (ft)
Conv. Total (Cfs) 28046.1 Wetted Per. (ft)
Length Wtd. (ft) 816.29 Shear (lb/sq ft)
Min Ch El (ft) 158.22 Stream Power (lb/ft.s)
Alpha 1.07 Cum Volume (acre-ft)
Friction Loss (ft) 0.07 Cum SA (acres)
C & E Loss (ft) 0.01

Left OB Channel Right OB
61.29 61.29
61.29 61.29
61.29 61.29
16.78 16.78
16.78 16.78
39.76 39.76
14.80 14.80
2.37 2.37
1.13 1.13
675.1 675.1
15.47 15.47
0.24 0.24
0.90 0.90
0.84 0.84
0.39 0.39

CROSS SECTION

RIVER: Unit 3 UHS
REACH: U3 UHS Upper
RS: 10.5*

INPUT

Description:

Station Elevation Data num= 16
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-10 819 -1.24 819 -51 819 1.65 818.99 15.58 818.83
28.87 817.18 44.52 816.5 94.4 816.05 99.4 816.05 135.49 816.5
158.22 817.76 169.57 817.89 179.44 818 183.31 819 185.24
191.5 819

Manning's n Values

num= 8
Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
-10 .03 94.23 .03 1.06 .03 15.58 .036 44.52 .03
78.29 .03

Blocked obstructions

num= 2
Sta L Sta R Elev Sta L Sta R Elev
-10 823.5 181.84 191.5 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 819.52 Element
W. Head (ft) 819.07 Rch n-Val.
W.S. Elev (ft) 819.31 Rch n-Val. (ft)
Crit W.S. (ft) 304.27 Flow Area (sq ft)
E.G. Slope (ft/ft) 0.002354 Area (sq ft)
Q Total (Cfs) 1652.00 Flow (cfs)
Top Width (ft) 181.84 Top Width (ft)
Vel Total (ft/s) 3.92 Avg. Vel. (ft/s)
Max Chl Dpth (ft) 3.26 Hydr. Depth (ft)
Conv. Total (Cfs) 34047.8 Wetted Per. (ft)
Length Wtd. (ft) 816.05 Shear (lb/sq ft)
Min Ch El (ft) 158.22 Stream Power (lb/ft.s)
Alpha 1.11 Cum Volume (acre-ft)
Friction Loss (ft) 0.03 Cum SA (acres)
C & E Loss (ft) 0.03

Left OB Channel Right OB
61.29 61.29
61.29 61.29
61.96 61.96
276.95 276.95
181.17 1250.98
219.85 219.85
46.35 46.35
2.68 2.68
1.39 1.39
4531.1 4531.1
47.15 47.15
0.26 0.26
0.84 0.84
0.84 0.84
0.35 0.35

CROSS SECTION

RIVER: Unit 3 UHS
REACH: U3 UHS Upper
RS: 10

INPUT

Description:

Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-10 817 0 817 2 817 52.23 816 73.41 815.68
83.41 815.68 109.29 816 178.11 817 184.17 184.17
197 819

Manning's n Values

num= 5
Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
-10 .039 73.41 .02 83.41 .039 197 .039
83.41 .039

Blocked obstructions

num= 2
Sta L Sta R Elev Sta L Sta R Elev
-10 109.29 185.53 185.53

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-10 0 822 187.2 197 825

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.44		Element	
Vel Head (ft)	0.16	Wt. n-Val.		Left OB	184.039
W.S. Elev (ft)	819.28	Reach Len. (ft)		Channel	184.033
Cr. Sl. Elev (ft)		Area (sq ft)		Left OB	197.70
E.G. Slope (ft/ft)	0.001350	Flow (cfs)		Channel	197.70
G-Total (cfs)	1652.00	Top width (ft)		Left OB	199.67
Top width (ft)	187.20	Avg. Vel. (ft/s)		Channel	203.05
Vel Total (ft/s)	3.05	Hydr. Depth (ft)		Left OB	2.61
Max Chl Dpth (ft)	3.60	Wetted Per. (ft)		Channel	2.56
Conv. Total (cfs)	44966.4	Stream Power (lb/ft s)		Left OB	10487.2
Length Wtd. (ft)	185.53	Cum Volume (acre-ft)		Channel	54.52
Min Ch El (ft)	815.68	Cum SA (acres)		Left OB	197.00
Alpha	1.10			Channel	0.29
Frcn Loss (ft)	0.29			Left OB	0.00
C & E Loss (ft)	0.01			Channel	2.52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	817	0	817	24.62	816	66.08	815.24
164	819	144.8	817	150.86	819	153.89	819

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	817	0	817	24.62	816	66.08	815.24
164	819	144.8	817	150.86	819	153.89	819

GROSS SECTION

RIVER: Unit 3 UHS
REACH: U3 UHS Upper

RS: 9

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	11	-10	817	0	817	24.62	816
		164	819	144.8	817	150.86	819

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	66.08	.02	76.08	.039

Blocked obstructions

Sta L	Sta R	Elev	Sta L	Sta R	Elev
-10	0	822	153.89	164	825

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		819.13		Element	
Vel Head (ft)	0.23	Wt. n-Val.		Left OB	0.039
W.S. Elev (ft)	818.90	Reach Len. (ft)		Channel	0.035
Cr. Sl. Elev (ft)		Area (sq ft)		Left OB	74.27
E.G. Slope (ft/ft)	0.001985	Flow (cfs)		Channel	323.02
G-Total (cfs)	1652.00	Top width (ft)		Left OB	60.44
Top width (ft)	150.56	Avg. Vel. (ft/s)		Channel	163.21
Vel Total (ft/s)	3.74	Hydr. Depth (ft)		Left OB	28.65
Max Chl Dpth (ft)	3.66	Wetted Per. (ft)		Channel	2.70
Conv. Total (cfs)	38045.5	Stream Power (lb/ft s)		Left OB	3758.7
Length Wtd. (ft)	185.53	Cum Volume (acre-ft)		Channel	30553.4
Min Ch El (ft)	815.24	Cum SA (acres)		Left OB	97.30
Alpha	1.07			Channel	0.39
Frcn Loss (ft)	0.15			Left OB	0.00
C & E Loss (ft)	0.00			Channel	1.01

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	817	0	817	20.17	816	63.11	815.02
151	819	131.47	817	140.56	819	151	819

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	817	0	817	20.17	816	63.11	815.02
151	819	131.47	817	140.56	819	151	819

GROSS SECTION

RIVER: Unit 3 UHS
REACH: U3 UHS Upper

RS: 8

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	10	-10	817	0	817	20.17	816
		73.15	815.02	126.97	816	131.47	817

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	63.15	.02	73.15	.039

Blocked obstructions

Sta L	Sta R	Elev	Sta L	Sta R	Elev
-10	0	822	140.56	151	825

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		20.17		Element	
Vel Head (ft)	126.97	Wt. n-Val.		Left OB	0.039
W.S. Elev (ft)		Reach Len. (ft)		Channel	0.035
Cr. Sl. Elev (ft)		Area (sq ft)		Left OB	74.27
E.G. Slope (ft/ft)		Flow (cfs)		Channel	323.02
G-Total (cfs)		Top width (ft)		Left OB	60.44
Top width (ft)		Avg. Vel. (ft/s)		Channel	163.21
Vel Total (ft/s)		Hydr. Depth (ft)		Left OB	28.65
Max Chl Dpth (ft)		Wetted Per. (ft)		Channel	2.70
Conv. Total (cfs)		Stream Power (lb/ft s)		Left OB	3758.7
Length Wtd. (ft)		Cum Volume (acre-ft)		Channel	30553.4
Min Ch El (ft)		Cum SA (acres)		Left OB	97.30
Alpha				Channel	0.39
Frcn Loss (ft)				Left OB	0.00
C & E Loss (ft)				Channel	1.01

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E.G. Elev (ft) 818.98
 Vel Head (ft) 0.27
 W.S. Elev (ft) 818.71
 Crit W.S. (ft) 0.002163
 E.G. Slope (ft/ft) 1632.00
 Q Total (cfs) 134.02
 Top width (ft) 3.69
 Max Chl Depth (ft) 3.69
 Conv. Total (cfs) 35517.6
 Length wtd. (ft) 815.02
 Min Ch El (ft) 1.06
 Frctn Loss (ft) 0.14
 C & E Loss (ft) 0.00

Element
 wt. n-Val.
 Reach Len. (ft)
 Flow Area (sq ft)
 Area (sq ft)
 Flow (cfs)
 Top width (ft)
 Max Vel (ft/s)
 Hydr. Depth (ft)
 Conv. (cfs)
 Wctted Per. (ft)
 Shear (lb/sq ft)
 Stream Power (lb/ft s)
 Cum SA (acres)

Left OB
 0.039
 57.69
 43.53
 121.94
 21.80
 2.16
 2.16
 2621.8
 21.91
 106.82
 151.00
 0.09

Channel
 0.035
 57.69
 346.43
 1494.75
 106.30
 3.24
 3.24
 32136.8
 106.82
 0.00
 0.44

Right OB
 0.039
 57.69
 16.56
 35.30
 12.19
 1.33
 1.33
 759.0
 0.44
 0.00
 0.02

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower

RS: 7

INPUT

Description: num= 10
 Station Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 817 42.16 816 84.82 815 86.32 814.85 96.32 814.85
 97.31 815 143.34 816 132.63 819 135.66 819 166

Manning's n Values num= 4
 Sta n Val Sta n Val Sta n Val Sta n Val

0 .039 86.32 .02 96.32 .039 166 .039

Bank Sta: Left Right Lengths: Left Channel Right
 42.16 143.54 129.73 129.73 129.73

Blocked Obstructions num= 1
 Sta L Sta R Elev
 155.66 166 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 818.84
 Vel Head (ft) 0.32
 W.S. Elev (ft) 818.52
 Crit W.S. (ft) 0.002716
 E.G. Slope (ft/ft) 1777.00
 Q Total (cfs) 151.17
 Top width (ft) 4.35
 Max Chl Depth (ft) 3409.67
 Conv. Total (cfs) 3297.9
 Length wtd. (ft) 814.85
 Min Ch El (ft) 1.08
 Frctn Loss (ft) 0.33
 C & E Loss (ft) 0.01

Element
 wt. n-Val.
 Reach Len. (ft)
 Flow Area (sq ft)
 Area (sq ft)
 Flow (cfs)
 Top width (ft)
 Max Vel (ft/s)
 Hydr. Depth (ft)
 Conv. (cfs)
 Wctted Per. (ft)
 Shear (lb/sq ft)
 Stream Power (lb/ft s)
 Cum SA (acres)

Left OB
 0.039
 129.73
 85.12
 263.66
 42.16
 3.10
 3.10
 5058.02
 43.69
 101.42
 166.00
 1.58
 0.57

Channel
 0.035
 129.73
 314.00
 314.00
 1491.83
 101.38
 4.75
 2.24
 41.29
 8.04
 0.00
 0.20
 7.38
 0.82

Right OB
 0.039
 129.73
 9.61
 9.61
 21.51
 7.63
 2.24
 4.75
 2862.10
 101.42
 43.40
 0.82

Warning: The cross-section end points had to be extended vertically for the computed water surface.

LATERAL STRUCTURE

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower

RS: 6.9

INPUT

Description: = Left overbank
 Lateral structure position = 2
 Distance from Upstream XS = 2
 Deck/Roadway width = 2
 Weir Coefficient = Water Surface
 Weir Flow Reference = 2
 Weir Embankment Coordinates num= 2
 Sta Elev Sta Elev
 0 817 502.24 817

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US. (ft) 818.84 Weir Sta US (ft) 0.00
 W.S. (ft) 818.54 Weir Sta US (ft) 502.24
 DS (ft) 817.82 Weir Sta DS (ft) 817.00
 W.S. DS (ft) 817.89 Weir Sta DS (ft) 502.24
 O US (cfs) 1777.00 Weir Max Depth (ft) 1.52
 Q Leaving Total (cfs) 1479.62 Weir Avg Depth (ft) 1.08

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Q 05 (cfs) 458.73 Weir Flow Area (sq ft) 541.76
 Perc Q Leaving 83.41 Weir Coef (ft^{1/2}) 2.600
 Q Weir (cfs) 1479.62 Weir Submerg 0.00
 Q Gates (cfs) 0.00 Gate Group (cfs)
 Q CIV (cfs) 0.00 Gate Open Ht (ft)
 Q Lat RC (cfs) 0.00 Gate #open
 Q Breach (cfs) Gate Area (sq ft)
 Breach Avg Velocity (ft/s) Gate Submerg (ft)
 Breach Flow Area (sq ft) Gate Invert (ft)
 Gate Weir Coef

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower

RS: 6

INPUT

Description: num= 10
 Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 817 25.69 816 67.18 815 72.52 814.45 82.52 814.45
 86.02 815 111.52 816 120.61 819 123.64 819 134 819

Manning's n Values num= 4
 Sta n Val Sta n Val Sta n Val
 0 .039 72.52 .02 82.52 .039 134 .039

Bank Sta: Left 25.69 111.52 Right 130.06
 Lengths: Left Channel 130.06 Right Channel 130.06
 Blocked obstructions num= 1 Coeff Contr. .1 Expan. .3

Sta L Sta R Elev num= 1
 123.64 134 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-val.	0.039	0.033	0.039
W.S. Elev (ft)	818.21	Reach Len. (ft)	130.06	130.06	130.06
E.G. Slope (ft/ft)	0.002359	Area (sq ft)	43.94	249.97	7.40
G-Total (cfs)	1235.13	Flow (cfs)	112.71	1108.28	14.14
Top width (ft)	118.22	Top width (ft)	25.69	85.83	6.70
Vel Total (ft/s)	4.10	Avg. Vel. (ft/s)	2.57	4.43	1.91
Max Ch Dpth (ft)	3.76	Hydr. Depth (ft)	1.71	2.91	1.11
Conv. Total (cfs)	25428.5	Conv. (cfs)	2320.4	22816.8	291.2
Length wtd. (ft)	130.06	Wetted Per. (ft)	26.92	85.93	7.05
Min Ch El (ft)	814.45	Stream (lb/sq ft)	0.24	0.43	0.15
Alpha	1.09	Stream Power (lb/ft s)	134.00	42.56	0.00
Frcn Loss (ft)	0.29	Cum Volume (acre-ft)	1.39	42.56	7.36
C & E Loss (ft)	0.01	Cum SA (acres)	0.47	0.55	0.20

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower

RS: 5

INPUT

Description: num= 10
 Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 817 9.26 816 49.59 815 58.75 814.06 68.75 814.06
 74.76 815 79.59 816 88.68 819 91.71 819 102 819

Manning's n Values num= 4
 Sta n Val Sta n Val Sta n Val
 0 .039 58.75 .02 68.75 .057 102 .057

Bank Sta: Left 9.26 79.59 Right 130.06
 Lengths: Left Channel 26.74 Right Channel 26.74
 Blocked obstructions num= 1 Coeff Contr. .1 Expan. .3

Sta L Sta R Elev num= 1
 91.71 102 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-val.	0.039	0.033	0.039
W.S. Elev (ft)	817.95	Reach Len. (ft)	26.74	26.74	26.74
E.G. Slope (ft/ft)	0.002021	Area (sq ft)	13.39	201.11	5.73
G-Total (cfs)	855.38	Flow (cfs)	27.38	821.63	5.37
Top width (ft)	85.48	Top width (ft)	9.26	70.33	5.89
Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)	2.05	4.09	1.11

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Max Ch1 Dpth (ft)	3.89	Hydr. Depth (ft)	1.45	2.86	0.97
Conv. Total (cfs)	19025.2	Wetted Per. (ft)	608.9	18274.5	141.8
Length Wtd. (ft)	26.74	Shear (lb/sq ft)	10.26	70.57	6.21
Min Ch El (ft)	814.06	Stream Power (lb/ft s)	0.16	0.36	0.12
Frctn Loss (ft)	1.07	Cum Volume (acre-ft)	102.00	0.00	0.00
C & E Loss (ft)	0.05	Cum SA (acres)	1.31	41.89	7.34
	0.03		0.42	0.31	0.19

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 3 UHS
REACH: U3 UHS Lower

RS: 4

INPUT

Description:

Station	Elevation	Data	num=	12	Sta	Elev	Sta	Elev	Sta	Elev
0	817	2.01	816	60.57	815	64.58	814	67.58	813.97	819
77.68	813.97	80.68	814	92.75	817	97.86	818	101.49	819	
105.13	819	115								

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	
0	.039	60.57	6	.057	67.58	.02	77.68	.057	92.75
113	.039								

Bank Sta: Left 60.57 Right 108.2 Lengths: Left Channel 108.2 Right 108.2 Coeff Contr. .1 Expan. .3

Blocked Obstructions

Sta L	Sta R	Elev	num=	1
105.13	115	825		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.11	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.35	Wt. n-Val.	108.20	108.77	108.20
Frctn Loss (ft)	817.96	Flow Len. (ft)	147.22	107.83	2.37
W.S. Elev (ft)		Area (sq ft)	450.15	338.06	2.47
E.G. Slope (ft/ft)	0.002024	Flow (cfs)	60.57	32.18	4.92
O. Total (cfs)	790.68	Top Width (ft)	3.06	3.14	1.04
Top Width (ft)	97.67	Avg. Vel. (ft/s)	2.43	3.35	0.48
Vel Total (ft/s)	3.07	Hydr. Depth (ft)	10006.9	7515.3	54.9
Max Ch1 Dpth (ft)	3.99	Wetted Per. (ft)	61.78	32.67	5.02
Conv. Total (cfs)	17577.0	Shear (lb/sq ft)	113.20	41.70	7.30
Length Wtd. (ft)	108.20	Stream Power (lb/ft s)	113.20	41.70	7.30
Min Ch El (ft)	813.97	Cum Volume (acre-ft)	0.40	0.28	0.18
Alpha	1.01	Cum SA (acres)			
Frctn Loss (ft)	0.03				
C & E Loss (ft)	0.03				

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 UHS
REACH: U3 UHS Lower

RS: 3

INPUT

Description:

Station	Elevation	Data	num=	13	Sta	Elev	Sta	Elev
0	817	2.01	816	69.3	815	73.3	814	76.59
92.06	813.49	95.06	814	103.06	816	110.42	817	148.45
186.89	819	190.52	819					

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	
0	.039	69.3	6	.057	76.59	.02	92.06	.057	103.06
201	.039								

Bank Sta: Left 69.3 Right 103.06 Lengths: Left Channel 107.52 Right 107.52 Coeff Contr. .1 Expan. .3

Blocked Obstructions

Sta L	Sta R	Elev	num=	1
190.52	201	825		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	817.97	Element	Left Ob	Channel	Right Ob
Vel Head (ft)	0.05	Wt. n-Val.	107.52	107.52	107.52
Frctn Loss (ft)	817.92	Reach Len. (ft)	165.69	131.83	26.54
W.S. Elev (ft)		Flow Area (sq ft)			
Crit W.S. (ft)					

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E.G. slope (ft/ft) 0.000527 Area (sq ft) 165.69 131.83 26.54
 Q Total (cfs) 534.08 Flow (cfs) 256.37 260.72 16.99
 Top Width (ft) 145.41 Top Width (ft) 69.30 33.76 42.35
 Vel Total (ft/s) 1.65 Avg. Vel. (ft/s) 1.55 1.98 0.64
 Max Chl Dpth (ft) 4.43 Hydr. depth (ft) 11263.7 11353.0 739.8
 Conv. Total (cfs) 23259.5 Wetted Perim (ft) 40.43 40.43 0.00
 Length Wd. (ft) 813.26 Stream Power (lb/ft.s) 201.00 0.00 0.00
 Max Chl Vel (ft) 1.13 Stream Power (lb/ft.s) 0.87 41.50 7.30
 Alpha 1.04 Cum Volume (acres) 0.24 0.20 0.12
 Frctn Loss (ft) 0.00
 C & E Loss (ft) 0.00

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 3 UHS RS: 2
 REACH: U3 UHS Lower

INPUT

Description: Station Elevation Data num= 12
 Sta Elev Sta Elev Sta Elev Sta Elev
 0 817 0 816.5 52.44 816 81.49 815 85.59 814
 95.23 813 105.23 813 113.5 814 121.62 816 132.2 817
 163.63 818 184.37 818.64

Manning's n values num= 6
 Sta n Val Sta n Val Sta n Val Sta n Val
 0 .039 81.49 .057 95.23 .02 105.23 .057 121.62 .039
 184.37 .02

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 81.49 121.62 55.08 55.08 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 817.92 Element Left 08 Right 08
 Vel Head (ft) 0.04 Wt n-Val. 0.039 0.035
 W.S. Elev (ft) 817.89 Reach Len. (ft) 55.08 55.08
 Crit W.S. (ft) 815.35 Flow Area (sq ft) 155.14 164.75 27.02
 E.G. Slope (ft/ft) 0.000276 Area (sq ft) 149.21 296.00 13.51
 Q Total (cfs) 458.73 Flow (cfs) 81.49 40.13 38.44
 Top Width (ft) 160.06 Top Width (ft) 1.96 1.80 0.50
 Vel Total (ft/s) 1.32 Avg. Vel. (ft/s) 1.90 1.70 0.70
 Max Chl Dpth (ft) 4.89 Hydr. depth (ft) 8977.0 17808.1 812.9
 Conv. Total (cfs) 27596.0 Conv. (cfs) 82.00 40.00 38.00
 Length Wd. (ft) 813.08 Wetted Perim. (ft) 40.43 40.43 0.00
 Max Chl Vel (ft) 1.37 Stream Power (lb/ft.s) 184.57 0.00 0.00
 Frctn Loss (ft) 0.00 Stream Power (lb/ft.s) 0.47 41.13 7.23
 C & E Loss (ft) 0.00 Cum Volume (acres) 0.05 0.11 0.02

INLINE STRUCTURE

RIVER: Unit 3 UHS RS: 1.5
 REACH: U3 UHS Lower

INPUT

Description: Distance from Upstream XS = 13
 Deck/Roadway Width = 8.6
 Weir Coefficient = 2.6
 Weir Embankment Coordinates num = 5
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 817 0 816.5 136.43 817 147.01 818 189.28 818.64
 Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = .98
 Maximum allowable water depth for weir flow =
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft) 817.92 Q Gates (cfs) 0.00
 W.S. Elev (ft) 817.89 Q Gate Group (cfs) 813.10
 Q Total (cfs) 458.73 Gate Open Ht (ft) 813.10
 Weir Flow (cfs) 164.16 Gate Area (sq ft) 1.00
 Weir Sta Left (ft) 0.00 Gate Submerg 0.00
 Weir Sta Rgt (ft) 146.20 Gate Invert (ft) 0.00
 Weir Max Depth (ft) 1.42 Gate Weir Coef 0.000

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Weir Avg Depth (ft) 1.12
 Weir Coef (ft^{1/2}) 2.600
 Weir Submerg 0.00
 Min El Weir Flow (ft) 816.51
 W Top Wtd (ft) 146.20

Q Breach (cfs)
 Breach Avg Velocity (ft/s)
 Breach Flow Area (sq ft)

CROSS SECTION

RIVER: Unit 3 UHS
 REACH: U3 UHS Lower RS: 1

INPUT

Description: Station Elevation Data num= 4
 Sta Elev Sta Elev Sta Elev Sta Elev
 0 815 32.06 805 99.26 805 140.73 818
 Manning's n Values num= 1
 Sta n Val
 0 .057

Bank Sta: Left Right Coeff Contr. Expan.
 0 140.73 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (Cfs)	Length Wtd. (ft)	Min Ch El (ft)	Frict Loss (ft)	C & E Loss (ft)	Element Wt. n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (Cfs)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Conv. (Cfs)	Wetted Per. (ft)	Shear Power (lb/ft s)	Cum Volume (acre-ft)	Cum SA (acres)	Channel	Left OB	Right OB
815.10	0.00	815.10	806.11	0.000021	458.73	131.48	0.46	10.10	100048.8	100048.8	7.64	134.65	0.00	0.01	0.00	1004.93	458.73	131.48	0.46	7.64	100048.8	134.65	0.00	0.00	0.057	140.73	0.00	

CROSS SECTION

RIVER: Unit 4 North
 REACH: Unit 4 North RS: 6

INPUT

Description: Station Elevation Data num= 11
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819 0 819 2.05 819 8.26 818.8 32.26 818.02
 32.94 818 43.7 818 97.95 818 109.95 822 112.95 822

Manning's n Values num= 5
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .059 0 825 112.95 122 825

Bank Sta: Left Right Lengths: Left Channel Right
 32.94 818 43.7 818 97.95 818 109.95 822 112.95 822

Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 825 112.95 122 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Wt. Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (Cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (Cfs)	Length Wtd. (ft)	Min Ch El (ft)	Frict Loss (ft)	C & E Loss (ft)	Element Wt. n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (Cfs)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Conv. (Cfs)	Wetted Per. (ft)	Shear Power (lb/ft s)	Cum Volume (acre-ft)	Cum SA (acres)	Channel	Left OB	Right OB
820.12	0.01	820.12	818.40	0.000100	135.00	104.28	0.69	2.11	13500.3	43.08	1.13	0.00	0.00	0.01	0.00	143.80	143.80	51.99	0.92	2.02	13500.3	43.08	0.00	0.00	0.039	122	0.00	

CROSS SECTION

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RIVER: Unit 4 North
REACH: Unit 4 North

RS: 5

INPUT

Description:	Sta	Elev	num=	Sta	Elev	num=	Sta	Elev	num=	Sta	Elev	num=
Station Elevation Data	-10	819.12	0	819.12	4.24	14	819.12	8.24	5	819.05	10.94	819
	32.24	818.24	38.9	818	48.51	817	49.07	816.95	94.37	816.95	816.95	816.95
	94.51	817	109.95	822	112.95	822	122	822				

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	0	819.12	.02	32.24	819.05	.039	122	816.95	.039	816.95

Bank Sta: Left Right

Lengths:	Left Channel	Right	Expan.
38.9	109.95	58.25	.3

Blocked Obstructions

Sta L	Sta R	Elev	num=	Sta L	Sta R	Elev	num=
-10	825	112.95	122	825	122	825	122

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.11	Element	Left OB	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.025	0.039
W.S. Elev (ft)	820.11	Reach Len. (ft)	38.25	58.25
Crit W.S. (ft)	820.11	Flow Area (sq ft)	56.16	183.77
E. G. Slope (ft/ft)	0.0000054	Area (cfs)	32.00	102.96
Top width (ft)	135.00	Top width (ft)	38.90	65.21
Vel Total (ft/s)	104.11	Avg. Vel. (ft/s)	0.57	0.56
Max Chl Dpth (ft)	3.16	Hydr. Depth (ft)	1.44	2.84
Conv. Total (cfs)	18455.8	Conv. (cfs)	4375.9	14079.9
Length wtd. (ft)	58.25	wetted Per. (ft)	39.91	65.76
Min Ch El (ft)	816.95	Shear (lb/sq ft)	0.00	0.01
Alpha	1.00	Stream Power (lb/ft s)	122.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.42	40.26
C & E Loss (ft)	0.00	Cum SA (acres)	0.33	0.37

CROSS SECTION

RIVER: Unit 4 North
REACH: Unit 4 North

RS: 4

INPUT

Description:	Sta	Elev	num=	Sta	Elev	num=	Sta	Elev	num=	Sta	Elev	num=
Station Elevation Data	-10	819.3	0	819.3	4.23	14	819.3	8.23	5	819.23	20.37	819
	32.23	818.36	38.89	818	48.52	817	55.6	816.41	92.74	816.41	816.41	816.41
	94.52	817	109.95	822	112.95	822	122	822				

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	0	819.3	.02	32.23	819.23	.039	122	816.41	.039	816.41

Bank Sta: Left Right

Lengths:	Left Channel	Right	Expan.
38.89	109.95	100	.3

Blocked Obstructions

Sta L	Sta R	Elev	num=	Sta L	Sta R	Elev	num=
-10	825	112.95	122	825	122	825	122

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.11	Element	Left OB	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.025	0.039
W.S. Elev (ft)	820.11	Reach Len. (ft)	100.00	100.00
Crit W.S. (ft)	820.11	Flow Area (sq ft)	48.55	207.39
E. G. Slope (ft/ft)	0.000004	Area (cfs)	79.35	117.39
Top width (ft)	135.00	Top width (ft)	38.89	65.22
Vel Total (ft/s)	104.11	Avg. Vel. (ft/s)	0.46	0.54
Max Chl Dpth (ft)	3.70	Hydr. Depth (ft)	1.25	3.18
Conv. Total (cfs)	20377.7	Conv. (cfs)	3404.4	16973.2
Length wtd. (ft)	100.00	wetted Per. (ft)	39.73	65.88
Min Ch El (ft)	816.41	Shear (lb/sq ft)	0.00	0.01
Alpha	1.01	Stream Power (lb/ft s)	122.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.35	40.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.28	0.28

CROSS SECTION

RIVER: Unit 4 North

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REACH: Unit 4 North RS: 3

INPUT
Description:
Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
32.7	818.32	38.86	813	60.52	810	60.52	810
91.88	816	109.95	822	112.95	822	112.95	822

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	8.2	.02	32.2	.039

Bank Sta: Left 38.86 Right 109.95
Lengths: Left Channel 70.85 Right 70.85
Blocked Obstructions num= 2
Sta L Sta R Elev Sta L Elev Sta R Elev

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	0	825	112.95	112	825	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	wt. n-Val.	0.025	0.039	0.039
W.S. Elev (ft)	820.10	Reach Len. (ft)	70.85	70.85	70.85
Crit W.S. (ft)	0.000031	Flow Area (sq ft)	48.39	234.31	234.31
E.G. Slope (ft/ft)	0.000031	Area (sq ft)	48.39	234.31	234.31
Q Total (Cfs)	135.00	Flow (cfs)	18.96	116.04	116.04
Top width (ft)	100.24	Top width (ft)	30.96	63.58	63.58
W.S. Depth (ft)	4.58	Avg. Vel. (ft/s)	1.21	3.58	3.58
Max Ch Depth (ft)	4.58	Hvfr. Depth (ft)	1.21	3.58	3.58
Conv. Total (cfs)	24119.9	Conv. (cfs)	3388.3	20731.6	20731.6
Length wtd. (ft)	70.85	wetted per. (ft)	39.69	66.21	66.21
Min Ch El (ft)	815.52	Shear (lb/sq ft)	0.00	0.01	0.01
Alpha	1.02	Stream Power (lb/ft s)	122.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.24	39.49	7.23
C & E Loss (ft)	0.00	Cum SA (acres)	0.19	0.13	0.02

CROSS SECTION

REACH: Unit 4 North RS: 2

INPUT
Description:
Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819.3	66.0	819.3	4.17	819.3	20.36	819
51.39	818.32	66.0	818	85.07	813	85.07	813
96.13	816	109.31	820	115.61	821	117.66	821.36

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-10	.039	0	.039	8.17	.02	51.59	.039

Bank Sta: Left 66.3 Right 115.61
Lengths: Left Channel 58 Right 58
Blocked Obstructions num= 1
Sta L Sta R Elev Sta L Elev Sta R Elev

Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev
-10	0	825	117.66	117	825	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	wt. n-Val.	0.025	0.039	0.039
W.S. Elev (ft)	820.10	Reach Len. (ft)	58.00	58.00	58.00
Crit W.S. (ft)	816.53	Flow Area (sq ft)	92.12	149.56	149.56
E.G. Slope (ft/ft)	0.000047	Area (sq ft)	92.12	149.56	149.56
Q Total (Cfs)	135.00	Flow (cfs)	47.78	87.22	87.22
Top width (ft)	110.11	Top width (ft)	66.30	43.81	43.81
W.S. Depth (ft)	9.56	Avg. Vel. (ft/s)	0.32	3.58	3.58
Max Ch Depth (ft)	9.56	Hvfr. Depth (ft)	0.32	3.58	3.58
Conv. Total (cfs)	19677.0	Conv. (cfs)	6963.9	12713.7	12713.7
Length wtd. (ft)	58.00	wetted per. (ft)	67.11	44.88	44.88
Min Ch El (ft)	815.00	Stream Power (lb/ft s)	130.37	0.00	0.00
Alpha	1.01	Cum Volume (acre-ft)	0.12	39.18	7.23
Frctn Loss (ft)	0.00	Cum SA (acres)	0.10	0.10	0.02
C & E Loss (ft)	0.00				

INLINE STRUCTURE

REACH: Unit 4 North RS: 1.5

INPUT

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Description: Distance from Upstream XS = 14.88
 Deck/Roadway Width = 24.57
 Weir Coefficient = 2.6
 Weir Embankment Coordinates = 6
 Sta Elev Sta Elev num = Sta Elev Sta Elev Sta Elev
 0 819.3 4.16 819.3 20.36 819 50.13 819 102.73 820
 129.23 820.3

Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	820.10	Q Gates (cfs)	
W.S. Elev (ft)	820.10	Q Gate Group	0.00
Q Total (cfs)	135.00	Gate Open Ht (ft)	820.07
Q Weir (cfs)	135.00	Gate #Open	
Weir Flow Area (sq ft)	83.66	Gate Area (sq ft)	1.00
Weir Sta Lft (ft)	0.00	Gate Submerg	0.00
Weir Sta Rgt (ft)	108.23	Gate Invert (ft)	0.00
Weir Max Depth (ft)	1.10	Gate Weir Coef	0.000
Weir Avg Depth (ft)	0.77	Q Breach (cfs)	
Weir Coef (FTAL/2)	2.600	Breach Avg Velocity (ft/s)	
Weir Submerg	819.00	Breach Flow Area (sq ft)	
Weir Top Width (ft)	108.23		

CROSS SECTION

RIVER: Unit 4 North
 REACH: Unit 4 North
 RS: 1

INPUT Description: Station Elevation Data num= 18
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819.3 0 819.3 4.15 819.3 8.15 819.23 20.36 819
 42.03 818.39 55.62 818 90.79 817 95.12 815 96.64 814.3
 103.88 814.3 105.29 815 109.33 817 128.83 818 135.87 820
 141.87 820.17 153.87 820.5 248.64 822.9

Manning's n Values num= 9
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 103.88 .039 8.33 .02 42.03 .039 90.79 .057
 96.64 .039 109.33 .039 109.33 .039 141.87 .02

Bank Sta: Left Right Coeff Contr. Expan.
 90.79 109.33
 Blocked obstructions num= 1
 Sta L Sta R Elev
 -10 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.07	Element	Left Ob	Right Ob
W.S. Elev (ft)	820.07	Reach n-Val.	0.033	Channel
Crit W.S. (ft)	816.13	Flow Area (sq ft)	163.74	91.72
E.G. Slope (ft/ft)	0.000036	Area (sq ft)	69.47	57.73
Q Total (cfs)	135.00	Flow (cfs)	90.79	20.74
Top Width (ft)	138.34	Top Width (ft)	18.54	29.01
Vel Total (ft/s)	0.43	Avg. Vel. (ft/s)	0.42	0.36
Max Chl Dpth (ft)	5.77	Hydr. Depth (ft)	1.80	1.99
Conv. Total (cfs)	22500.8	Conv. (cfs)	11578.4	3456.1
Length Wtd. (ft)		Wetted Per. (ft)	91.59	29.32
Min Ch El (ft)	814.30	Shear (lb/sq ft)	0.00	0.01
Alpha	1.00	Stream Power (lb/ft s)	0.00	0.00
F Loss		Cum Wtd Area (acre-ft)	248.64	0.00
C & E Loss (ft)		Cum SA (acres)		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UMS
 REACH: 04 UMS Upper
 RS: 10

INPUT Description: Station Elevation Data num= 11

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Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	0	819	27.51	810	28.06	809.83				
48.06	809.83	48.57	810	81.57	821	92.06	822	131.54	822.9		
143.54	822.9										

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n	Sta	n	Sta	n
-10	.057	0	.057	28.06	.02	48.06	.057	81.57	.057		
131.54	.02										

Bank Sta: Left 51 Right 2 Lengths: Left Channel 54.68 Right 54.68
 Blocked Obstructions num= 2 Sta L Sta R Elev 54.68 54.68

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wd. (ft)	Wetted Per. (ft)	Stream Power (lb/ft s)	Frctn Loss (ft)	C & E Loss (ft)	Left OB	Channel	Right OB
819.41	819.41	819.21	0.001338	1607.00	76.21	3.55	9.38	43928.1	809.88	0.72	143.54	0.10	0.60	0.057	0.049	54.68
														0.11	54.68	54.68
														0.03	1606.97	
														0.51	75.70	
														0.27	3.55	
														0.21	5.97	
														0.8	43927.3	
														0.72	76.41	
														0.08	0.00	0.00
														143.54	4.77	2.31
														0.10	0.60	0.65
														0.15	0.60	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS Upper
 REACH: U4 UHS Upper RS: 9

INPUT

Description: Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	818	0	818	3.12	818	27.12	810
48.08	809.69	48.98	810	81.98	821	92.06	821

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
-10	.039	0	.039	3.12	.057	28.08	.02
81.98	.039	103	.039				

Bank Sta: Left 3.12 Right 9.23 Lengths: Left Channel 9.23 Right 9.23
 Blocked Obstructions num= 2 Sta L Sta R Elev 9.23 9.23

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wd. (ft)	Wetted Per. (ft)	Stream Power (lb/ft s)	Frctn Loss (ft)	C & E Loss (ft)	Left OB	Channel	Right OB
819.34	819.34	819.15	0.001230	1607.00	76.42	3.50	9.46	45817.4	809.63	0.72	103.00	0.10	0.60	0.039	0.049	9.23
														0.11	9.23	9.23
														0.03	455.52	
														0.52	455.52	
														0.21	1602.74	
														1.15	73.30	
														0.72	3.52	
														121.4	45996.0	
														0.72	76.42	
														103.00	0.00	0.00
														0.09	4.20	2.31
														0.14	0.50	0.65

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS Upper
 REACH: U4 UHS Upper RS: 8.875*

INPUT

Description: Station Elevation Data											
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17	818.12	-3.71	818.12	1.8	818.05	5.48	818.05	5.48	818.05	5.48	818.05
29.11	810.12	29.53	809.98	30.49	809.67	50.49	809.67	51.34	809.67	51.34	809.96
33.38	810.64	82.52	820.25	98.42	820.34	105.34	820.38	112.67	820.5	116	820.5
113.23	820.5										
Manning's n Values											
num=	Sta	n Val	num=	Sta	n Val	num=	Sta	n Val	num=	Sta	n Val
10	-10	.039	10	-10	.039	10	-10	.039	10	-10	.039
	36.97	.032		49.23	.055		61.77	.051		82.22	.039
Bank Sta: Left 5.48 Right 82.22 Lengths: Left Channel 9.23 Right Channel 9.23 Coeff Contr. 1.1 Expan. 3											
Blocked Obstructions											
Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R	Elev	
-10	0	825105.1662	2	824.625	116	824.625					
CROSS SECTION OUTPUT Profile #PF 1											
E.G. Elev (ft)	819.33	Element			Left OB	Channel			Right OB		
Vel Head (ft)	0.19	wt. n-Val.	0.040	0.049	0.040	0.049			0.040	0.049	
W.S. Elev (ft)	819.14	Reach Len. (ft)	9.23	9.23	9.23	9.23			9.23	9.23	
Crit W.S. (ft)		Flow Area (sq ft)	6.03	456.37	6.03	456.37			6.03	456.37	
E.G. Slope (ft/ft)	0.001211	Area (sq ft)	7.66	1599.34	7.66	1599.34			7.66	1599.34	
Q Total (cfs)	1607.00	Flow (cfs)	5.48	73.40	5.48	73.40			5.48	73.40	
Top width (ft)	78.88	Top width (ft)	1.77	3.20	1.77	3.20			1.77	3.20	
Vel Total (ft/s)	9.49	Avg. Vel (ft/s)	20.1	45957.5	20.1	45957.5			20.1	45957.5	
Wetted Per. (ft)	46177.16	Conv. (cfs)	6.54	76.29	6.54	76.29			6.54	76.29	
Length Wtd. (ft)	9.23	Wetted Per. (ft)	0.07	0.45	0.07	0.45			0.07	0.45	
Min Ch El (ft)	809.67	Shear (lb/sq ft)	116.00	0.00	116.00	0.00			116.00	0.00	
Alpha	1.01	Stream Power (lb/ft s)	0.09	4.11	0.09	4.11			0.09	4.11	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.14	0.49	0.14	0.49			0.14	0.49	
C & E Loss (ft)	0.00	Cum SA (acres)									

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Upper

RS: 8.75*

Description: Station Elevation Data											
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17	818.12	2.91	818.25	3.59	818.25	52.84	818.25	52.84	818.25	52.84	818.25
31.42	810.12	31.94	808.76	32.91	808.52	809.51	809.51	809.51	809.51	809.51	809.96
55.59	810.55	82.46	819.5	104.78	819.68	114.31	819.75	124.42	820	129	820
125.19	820										
Manning's n Values											
num=	Sta	n Val	num=	Sta	n Val	num=	Sta	n Val	num=	Sta	n Val
10	-10	.039	10	-10	.039	10	-10	.039	10	-10	.039
	38.46	.03		50.38	.052		62.57	.052		82.46	.039
Bank Sta: Left 7.84 Right 82.46 Lengths: Left Channel 9.23 Right Channel 9.23 Coeff Contr. 1.1 Expan. 3											
Blocked Obstructions											
Sta L	Sta R	Elev	Sta L	Elev	Sta R	Elev	Sta L	Elev	Sta R	Elev	
-10	0	825118.2725	129	824.25	129	824.25					
CROSS SECTION OUTPUT Profile #PF 1											
E.G. Elev (ft)	819.32	Element			Left OB	Channel			Right OB		
Vel Head (ft)	0.19	wt. n-Val.	0.041	0.048	0.041	0.048			0.041	0.048	
W.S. Elev (ft)	819.13	Reach Len. (ft)	9.23	9.23	9.23	9.23			9.23	9.23	
Crit W.S. (ft)		Flow Area (sq ft)	8.11	457.10	8.11	457.10			8.11	457.10	
E.G. Slope (ft/ft)	0.001184	Area (sq ft)	8.78	1837.70	8.78	1837.70			8.78	1837.70	
Q Total (cfs)	1607.00	Flow (cfs)	7.84	73.56	7.84	73.56			7.84	73.56	
Top width (ft)	81.34	Top width (ft)	1.21	3.49	1.21	3.49			1.21	3.49	
Vel Total (ft/s)	9.45	Avg. Vel (ft/s)	1.03	6.22	1.03	6.22			1.03	6.22	
Wetted Per. (ft)	3.45	Hvdr. Depth (ft)	284.1	46418.0	284.1	46418.0			284.1	46418.0	
Length Wtd. (ft)	46702.1	Conv. (cfs)	8.78	76.39	8.78	76.39			8.78	76.39	
Min Ch El (ft)	809.65	Stream Power (lb/ft s)	129.00	0.00	129.00	0.00			129.00	0.00	
Alpha	1.02	Cum Volume (acre-ft)	0.09	4.01	0.09	4.01			0.09	4.01	
Frctn Loss (ft)	0.00	Cum SA (acres)	0.14	0.47	0.14	0.47			0.14	0.47	
C & E Loss (ft)	0.00										

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper
 RS: 8.625*

INPUT

Description	Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	818.38	-3.69	17	818.38	5.39	818.55	10.19	818			
	33.93	810.09	34.35		809.95	35.32	809.63	55.32	809.63	56.05	809.88	819.5
	57.81	810.45	82.7		818.75	111.13	819.01	123.29	819.12	136.16	819.5	
	137.14	819.5	142		819.5							

Manning's n	Val	Sta	num=	Sta	Val	Sta	num=	Sta	Val	Sta	num=	Sta	Val
	-10	0.039	-3.69	0.039	5.39	0.043	10.19	0.057	33.14	0.023			
	39.95	0.029	51.53	0.05	63.37	0.053	82.7	0.039	142	0.039			

Bank Sta: Left Right Lengths: Left Channel Right
 Blocked obstructions num= 2.23 9.23 9.23
 Sta L Sta R Elev num= 2.23 9.23 9.23
 Sta L Sta R Elev num= 142 823.875

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-val.	0.041	0.048	0.039
W.S. Elev (ft)	819.12	Reach Len. (ft)	9.73	458.72	7.25
E.G. Slope (ft/ft)	0.001145	Area (sq ft)	9.73	458.07	7.39
Q Total (cfs)	1607.00	Flow (cfs)	11.15	1592.78	3.08
Top Width (ft)	123.02	Top Width (ft)	10.19	72.51	40.32
Vel Total (ft/s)	3.38	Avg. Vel. (ft/s)	1.14	3.48	0.42
Max Chl Dpth (ft)	9.49	Hydr. Depth (ft)	0.96	6.32	0.18
Conv. Total (cfs)	47497.3	Wetted Per. (ft)	329.4	47076.9	90.9
Length Wtd. (ft)	9.23	Wetted Per. (ft)	10.99	75.35	40.32
Min Ch El (ft)	809.63	Stream Power (lb/ft s)	142.00	0.43	0.01
Alpha	1.05	Cum Volume (acre-ft)	0.09	3.91	2.31
Frctn Loss (ft)	0.01	Cum SA (acres)	0.14	0.46	0.64
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper
 RS: 8.5*

INPUT

Description	Station	Elevation	Data	num=	Sta	Elev	Sta	Elev	Sta	Elev
	-10	818.5	-2.95	17	818.5	7.19	818.2	12.55	818	
	36.34	810.07	36.77		809.93	37.74	809.61	57.74	809.61	58.4
	60.03	810.36	82.93		818	117.49	818.35	132.26	818.5	147.91
	149.09	819	155		819					

Manning's n	Val	Sta	num=	Sta	Val	Sta	num=	Sta	Val	Sta	num=	Sta	Val
	-10	0.027	52.68	0.048	64.18	0.054	82.93	0.039	155	0.039			

Bank Sta: Left Right Lengths: Left Channel Right
 Blocked obstructions num= 9.23 9.23 9.23
 Sta L Sta R Elev num= 9.23 9.23 9.23
 Sta L Sta R Elev num= 155 823.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.29	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.17</td> <td>Wt. n-val. <td>0.048</td> <td>0.048</td> <td>0.039</td> </td>	0.17	Wt. n-val. <td>0.048</td> <td>0.048</td> <td>0.039</td>	0.048	0.048	0.039
W.S. Elev (ft) <td>819.12</td> <td>Reach Len. (ft) <td>9.23</td> <td>458.06</td> <td>9.23</td> </td>	819.12	Reach Len. (ft) <td>9.23</td> <td>458.06</td> <td>9.23</td>	9.23	458.06	9.23
Crit W.S. (ft) <td>0.001026</td> <td>Area (sq ft) <td>11.09</td> <td>1546.15</td> <td>47.99</td> </td>	0.001026	Area (sq ft) <td>11.09</td> <td>1546.15</td> <td>47.99</td>	11.09	1546.15	47.99
E.G. Slope (ft/ft) <td>1607.00</td> <td>Flow (cfs) <td>11.35</td> <td>1546.15</td> <td>49.50</td> </td>	1607.00	Flow (cfs) <td>11.35</td> <td>1546.15</td> <td>49.50</td>	11.35	1546.15	49.50
Q Total (cfs) <td>144.49</td> <td>Top Width (ft) <td>12.55</td> <td>70.38</td> <td>61.56</td> </td>	144.49	Top Width (ft) <td>12.55</td> <td>70.38</td> <td>61.56</td>	12.55	70.38	61.56
Top Width (ft) <td>3.11</td> <td>Avg. Vel. (ft/s) <td>1.02</td> <td>3.38</td> <td>1.03</td> </td>	3.11	Avg. Vel. (ft/s) <td>1.02</td> <td>3.38</td> <td>1.03</td>	1.02	3.38	1.03
Vel Total (ft/s) <td>9.51</td> <td>Hydr. Depth (ft) <td>0.88</td> <td>6.51</td> <td>0.78</td> </td>	9.51	Hydr. Depth (ft) <td>0.88</td> <td>6.51</td> <td>0.78</td>	0.88	6.51	0.78
Max Chl Dpth (ft) <td>50159.9</td> <td>Wetted Per. (ft) <td>354.4</td> <td>48260.5</td> <td>1545.0</td> </td>	50159.9	Wetted Per. (ft) <td>354.4</td> <td>48260.5</td> <td>1545.0</td>	354.4	48260.5	1545.0
Conv. Total (cfs) <td>9.23</td> <td>Wetted Per. (ft) <td>13.21</td> <td>73.10</td> <td>61.79</td> </td>	9.23	Wetted Per. (ft) <td>13.21</td> <td>73.10</td> <td>61.79</td>	13.21	73.10	61.79
Length Wtd. (ft) <td>809.23</td> <td>Stream Power (lb/ft s) <td>155.00</td> <td>0.40</td> <td>0.05</td> </td>	809.23	Stream Power (lb/ft s) <td>155.00</td> <td>0.40</td> <td>0.05</td>	155.00	0.40	0.05
Min Ch El (ft) <td>1.01</td> <td>Cum Volume (acre-ft) <td>0.09</td> <td>3.81</td> <td>2.31</td> </td>	1.01	Cum Volume (acre-ft) <td>0.09</td> <td>3.81</td> <td>2.31</td>	0.09	3.81	2.31
Frctn Loss (ft) <td>0.01</td> <td>Cum SA (acres) <td>0.14</td> <td>0.44</td> <td>0.63</td> </td>	0.01	Cum SA (acres) <td>0.14</td> <td>0.44</td> <td>0.63</td>	0.14	0.44	0.63
C & E Loss (ft) <td>0.00</td> <td></td> <td></td> <td></td> <td></td>	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper

RS: 8.375*

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	17								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
-10	818.62	-2.21	818.62	8.98	818.25	14.91	818	14.91	818	818
38.75	810.05	39.18	809.91	40.15	809.59	60.15	809.59	60.76	809.79	818.5
62.24	810.27	83.17	817.25	123.85	817.69	141.23	817.88	159.65	818.5	
161.05	818.5	168	818.5							

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	.025	53.83	.045	64.98	14.91	.057	36.51	0.025		
42.93	.025	53.83	.045	64.98	83.17	.039	168	.039			

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

14.91 83.17 9.23 9.23 9.23

Blocked Obstructions

Sta L Sta R Elev Sta L Elev Sta R Elev

-10 Sta 0 825157.5912 168 823.125

CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	819.27	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.14</td> <td>wt. n-Val. <td>0.043</td> <td>0.047</td> <td>0.039</td> </td>	0.14	wt. n-Val. <td>0.043</td> <td>0.047</td> <td>0.039</td>	0.043	0.047	0.039
W.S. Elev (ft) <td>819.13</td> <td>Reach Len. (ft) <td>9.23</td> <td>9.23</td> <td>9.23</td> </td>	819.13	Reach Len. (ft) <td>9.23</td> <td>9.23</td> <td>9.23</td>	9.23	9.23	9.23
Crit W.S. (ft) <td>0.000845</td> <td>Flow Area (sq ft) <td>12.15</td> <td>457.04</td> <td>106.72</td> </td>	0.000845	Flow Area (sq ft) <td>12.15</td> <td>457.04</td> <td>106.72</td>	12.15	457.04	106.72
E.G. Slope (ft/ft) <td>1607.00</td> <td>Area (sq ft) <td>12.15</td> <td>457.04</td> <td>106.72</td> </td>	1607.00	Area (sq ft) <td>12.15</td> <td>457.04</td> <td>106.72</td>	12.15	457.04	106.72
Q Total (cfs) <td>157.59</td> <td>Top width (ft) <td>14.91</td> <td>68.26</td> <td>74.42</td> </td>	157.59	Top width (ft) <td>14.91</td> <td>68.26</td> <td>74.42</td>	14.91	68.26	74.42
Top width (ft) <td>2.79</td> <td>AVG. Vel. (ft/s) <td>0.89</td> <td>3.17</td> <td>1.40</td> </td>	2.79	AVG. Vel. (ft/s) <td>0.89</td> <td>3.17</td> <td>1.40</td>	0.89	3.17	1.40
Vel total (ft/s) <td>2.79</td> <td>Hydr. Depth (ft) <td>370.81</td> <td>49765.70</td> <td>5138.43</td> </td>	2.79	Hydr. Depth (ft) <td>370.81</td> <td>49765.70</td> <td>5138.43</td>	370.81	49765.70	5138.43
Max Chl Dpth (ft) <td>55278.134</td> <td>Wetted Per (ft) <td>15.43</td> <td>70.82</td> <td>75.11</td> </td>	55278.134	Wetted Per (ft) <td>15.43</td> <td>70.82</td> <td>75.11</td>	15.43	70.82	75.11
Length Total (ft) <td>9.23</td> <td>Shear (lb/sq ft) <td>0.04</td> <td>0.34</td> <td>0.07</td> </td>	9.23	Shear (lb/sq ft) <td>0.04</td> <td>0.34</td> <td>0.07</td>	0.04	0.34	0.07
Min Ch El (ft) <td>809.59</td> <td>Stream Power (lb/ft s) <td>168.00</td> <td>0.00</td> <td>0.00</td> </td>	809.59	Stream Power (lb/ft s) <td>168.00</td> <td>0.00</td> <td>0.00</td>	168.00	0.00	0.00
Alpha <td>1.18</td> <td>Cum Volume (acre-ft) <td>0.08</td> <td>3.72</td> <td>2.29</td> </td>	1.18	Cum Volume (acre-ft) <td>0.08</td> <td>3.72</td> <td>2.29</td>	0.08	3.72	2.29
Frctn Loss (ft) <td>0.01</td> <td>Cum SA (acres) <td>0.13</td> <td>0.43</td> <td>0.62</td> </td>	0.01	Cum SA (acres) <td>0.13</td> <td>0.43</td> <td>0.62</td>	0.13	0.43	0.62
C & E Loss (ft) <td>0.01</td> <td></td> <td></td> <td></td> <td></td>	0.01				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper

RS: 8.25*

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	17								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
-10	818.75	-1.47	818.75	10.78	818.53	17.26	818	17.26	818	818
41.16	810.04	41.39	809.89	42.26	809.57	62.56	809.57	63.12	809.73	818
64.16	810.08	83.1	817.06	130.21	817.03	150.2	817.25	171.59	818	
173	818	181	818							

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	.043	10.78	.048	17.26	38.2	.026	181	.039		
44.41	.023	54.98	.043	65.78	83.41	.039	181	.039			

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

17.26 83.41 9.23 9.23 9.23

Blocked Obstructions

Sta L Sta R Elev Sta L Elev Sta R Elev

-10 Sta 0 825170.6975 181 822.75

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.25	Element	Left OB	Channel	Right OB
Vel Head (ft) <td>0.11</td> <td>wt. n-Val. <td>0.044</td> <td>0.047</td> <td>0.039</td> </td>	0.11	wt. n-Val. <td>0.044</td> <td>0.047</td> <td>0.039</td>	0.044	0.047	0.039
W.S. Elev (ft) <td>819.14</td> <td>Reach Len. (ft) <td>9.23</td> <td>9.23</td> <td>9.23</td> </td>	819.14	Reach Len. (ft) <td>9.23</td> <td>9.23</td> <td>9.23</td>	9.23	9.23	9.23
Crit W.S. (ft) <td>0.000667</td> <td>Flow Area (sq ft) <td>12.86</td> <td>454.59</td> <td>182.74</td> </td>	0.000667	Flow Area (sq ft) <td>12.86</td> <td>454.59</td> <td>182.74</td>	12.86	454.59	182.74
E.G. Slope (ft/ft) <td>1607.00</td> <td>Area (sq ft) <td>12.86</td> <td>454.59</td> <td>182.74</td> </td>	1607.00	Area (sq ft) <td>12.86</td> <td>454.59</td> <td>182.74</td>	12.86	454.59	182.74
Q Total (cfs) <td>172.47</td> <td>Top width (ft) <td>19.49</td> <td>1305.91</td> <td>281.60</td> </td>	172.47	Top width (ft) <td>19.49</td> <td>1305.91</td> <td>281.60</td>	19.49	1305.91	281.60
Top width (ft) <td>9.47</td> <td>AVG. Vel. (ft/s) <td>17.70</td> <td>62.82</td> <td>81.60</td> </td>	9.47	AVG. Vel. (ft/s) <td>17.70</td> <td>62.82</td> <td>81.60</td>	17.70	62.82	81.60
Vel total (ft/s) <td>9.47</td> <td>Hydr. Depth (ft) <td>0.75</td> <td>6.87</td> <td>2.09</td> </td>	9.47	Hydr. Depth (ft) <td>0.75</td> <td>6.87</td> <td>2.09</td>	0.75	6.87	2.09
Max Chl Dpth (ft) <td>9.57</td> <td>Wetted Per (ft) <td>367.4</td> <td>50570.5</td> <td>11292.2</td> </td>	9.57	Wetted Per (ft) <td>367.4</td> <td>50570.5</td> <td>11292.2</td>	367.4	50570.5	11292.2
Length Total (ft) <td>9.23</td> <td>Conv. (cfs) <td>17.67</td> <td>68.64</td> <td>88.47</td> </td>	9.23	Conv. (cfs) <td>17.67</td> <td>68.64</td> <td>88.47</td>	17.67	68.64	88.47
Min Ch El (ft) <td>809.59</td> <td></td> <td></td> <td></td> <td></td>	809.59				
Alpha <td>1.18</td> <td></td> <td></td> <td></td> <td></td>	1.18				
Frctn Loss (ft) <td>0.01</td> <td></td> <td></td> <td></td> <td></td>	0.01				
C & E Loss (ft) <td>0.01</td> <td></td> <td></td> <td></td> <td></td>	0.01				

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Min Ch El (ft)	809.57	Shear (lb/sq ft)	0.03	0.28
Alpha	1.17	Stream Power (lb/ft s)	181.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.08	3.62
C & E Loss (ft)	0.01	Cum SA (acres)	0.13	0.41

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper
 RS: 8.125*

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	17	818.88	2.04	818.88	12.58	818.88	19.62	818.88
Wt. n-Val.	0.08		0.08		0.08		0.08	
Frctn Loss (ft)	0.01		0.01		0.01		0.01	
C & E Loss (ft)	0.01		0.01		0.01		0.01	

Manning's n Values	num=	Sta	n	Val	Sta	n	Val	Sta	n	Val
Blocked obstructions	10	818.88	0.08	0.08	818.88	0.08	0.08	818.88	0.08	0.08
Lengths: Left Channel										
Right Channel										
Coeff Contr.										
Expan.										

Blocked obstructions	Sta L	Sta R	Elev
10	825183.8038	194.822.375	9.23

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.045	0.047	0.039
Frctn Loss (ft)	0.01	Reach Len. (ft)	9.23	9.23	9.23
C & E Loss (ft)	0.01	Flow Area (sq ft)	13.21	450.38	273.91
Total (Cfs)	1607.00	Area (cfs)	17.98	1141.40	457.63
Top width (ft)	183.80	Top width (ft)	19.62	64.03	100.15
Max Ch Dpth (ft)	2.17	AVG. Vel. (ft/s)	0.60	2.53	1.66
Conv. Total (cfs)	71745.2	Hydr. Depth (ft)	0.67	7.03	2.75
Length wtd. (ft)	9.23	Conv. (cfs)	356.1	50958.2	20430.9
Alpha	1.13	Stream Power (lb/ft s)	194.00	66.40	101.83
Frctn Loss (ft)	0.00	Shear (lb/sq ft)	0.02	0.21	0.08
C & E Loss (ft)	0.01	Cum Volume (acre-ft)	0.08	3.52	2.21
		Cum SA (acres)	0.13	0.40	0.58

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper
 RS: 8

INPUT

Description:	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	13	819.53	3	819.53	21.98	819.53	19.62	819.53
Wt. n-Val.	0.08		0.08		0.08		0.08	
Frctn Loss (ft)	0.01		0.01		0.01		0.01	
C & E Loss (ft)	0.01		0.01		0.01		0.01	

Manning's n Values	num=	Sta	n	Val	Sta	n	Val	Sta	n	Val
Blocked obstructions	6	819.53	0.08	0.08	819.53	0.08	0.08	819.53	0.08	0.08
Lengths: Left Channel										
Right Channel										
Coeff Contr.										
Expan.										

Blocked obstructions	Sta L	Sta R	Elev
6	825183.8038	194.822.375	9.23

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.047	0.047	0.039
Frctn Loss (ft)	0.01	Reach Len. (ft)	9.23	9.23	9.23
C & E Loss (ft)	0.01	Flow Area (sq ft)	13.21	444.24	384.91
Total (Cfs)	1607.00	Area (cfs)	16.82	972.82	627.36
Top width (ft)	196.91	Top width (ft)	21.98	61.91	113.02

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Vel Total (ft/s) 1.91
 Max Chl Dpth (ft) 9.64
 Conv. Total (cfs) 83951.1
 Length Wtd. (ft) 186.33
 Min Ch El (ft) 809.53
 Alpha 1.06
 Frictn Loss (ft) 0.07
 C & E Loss (ft) 0.00

Avg. Vel. (ft/s) 0.52
 Hydr. Depth (ft) 7.18
 Conv. (cfs) 356.2
 Wetted Per. (ft) 22.18
 Shear (lb/sq ft) 0.01
 Stream Power (lb/ft s) 207.00
 Cum Volume (acre-ft) 0.15
 Cum SA (acres) 0.12

2.19
 7.18
 50821.1
 64.17
 0.16
 9.00
 3.33
 0.38

1.63
 3.41
 32773.7
 115.21
 0.08
 0.00
 2.14
 0.38

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper

RS: 7

INPUT

Station Elevation Data num= 13
 Sta Elev Sta Elev Sta Elev Sta Elev
 -10 819 0 819 3 819 19.8 810
 46.67 809.06 66.67 809.06 69.54 810 84.54 816
 160.21 817 162.25 817

Manning's n Values num= 6
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 .039 19.8 .057 46.67 .02
 84.54 .039

Bank Sta: Left 19.8 Right 84.54
 Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Elev
 -10 0 825 162.25 172 822

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.16	Element	Left OB	Channel	Right OB
W.S. Elev (ft)	819.08	Wt n Val	0.039	0.046	0.039
Crit W.S. (ft)	819.08	Reach	76.00	76.00	76.00
E.G. Slope (ft/ft)	0.000427	Flow Area (sq ft)	9.97	475.80	267.54
Q Total (cfs)	1607.00	Area (sq ft)	4.95	1130.72	471.33
Top Width (ft)	162.25	Flow (cfs)	19.80	64.74	77.71
Vel Total (ft/s)	2.13	Avg. Vel. (ft/s)	0.50	2.38	1.76
Max Chl Dpth (ft)	10.02	Hydr. Depth (ft)	239.7	7.35	3.44
Conv. Total (cfs)	77811.4	Wetted Per. (ft)	19.91	67.15	28221.8
Length Wtd. (ft)	76.00	Shear (lb/sq ft)	0.09	0.19	79.86
Min Ch El (ft)	809.06	Stream Power (lb/ft s)	179.01	0.10	0.09
Frictn Loss (ft)	0.07	Cum Volume (acre-ft)	0.03	1.40	0.75
C & E Loss (ft)	0.02	Cum SA (acres)	0.03	0.11	0.15

Note: Manning's n values were composited to a single value in the main channel.

LATERAL STRUCTURE

RIVER: Unit 4 UHS
 REACH: U4 UHS Upper

RS: 6.9

INPUT

Description: = Right overbank
 Lateral structure position = Right overbank
 Distance from Upstream XS = 2
 Deck/Roadway width = 2.6
 Weir Coefficient = Water Surface
 Weir Flow Reference = Water Surface
 Weir Embankment Coordinates num = 2
 Sta Elev num = 2
 0 817
 817

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US. (ft)	819.16	Weir Sta us (ft)	0.00
W.S. US. (ft)	819.08	Weir Sta ds (ft)	76.00
E.G. DS (ft)	819.12	Min El Weir Flow (ft)	817.00
W.S. DS (ft)	809.00	Weir Top Width (ft)	76.00
Q US (cfs)	1596.19	Weir Max Depth (ft)	2.09
Q DS (cfs)	1004.78	Weir Flow Area (sq ft)	158.69
Perc Q Leaving	37.47	Weir Coef (ft ^{1/2})	2.600
Q Weir (cfs)	596.19	Weir Submerg	0.00

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Q Gates (cfs) 0.00 Q Gate Group (cfs)
 Q Culv (cfs) Gate Open Ht (ft)
 Q Lat RC (cfs) Gate #Open
 Q Breach (cfs) Gate Area (sq ft)
 Breach Avg Velocity (ft/s) Gate Submerg
 Breach Flow Area (sq ft) Gate Invert (ft)
 Gate Weir Coef

CROSS SECTION

RIVER: Unit 4 UHS RS: 6
 REACH: U4 UHS Upper

INPUT

Description:	Station	Elevation	Data	num=	10	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	819	0	819	18.91	818	45.91	809	46.38	816	177.73	816	177.73	816
	66.38	808.87	66.79	809	84.8	815	175.7							

Manning's n Values num= 6
 Sta n Val Sta n Val Sta n Val Sta n Val
 -10 .039 0 18.91 .057 46.38 .02 66.38 .057
 84.8 .039

Bank Sta: Left 18.91 Right 84.8 Expan.

Blocked Obstructions num= 1

Sta L Sta R Elev num= 1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.039	0.048	0.039
W.S. Elev (ft)	819.10	Reach Len. (ft)	58.25	58.25	58.25
Crit W.S. (ft)	0.000135	Flow Area (sq ft)	11.28	492.39	333.21
E.G. Slope (ft/ft)	1004.75	Area (sq ft)	11.58	662.39	338.71
Flow Area (sq ft)	1177.73	Top Width (ft)	18.91	65.89	92.93
Top Width (ft)	1.20	AVG. Vel (ft/s)	0.31	1.35	1.01
Vel Total (ft/s)	10.23	Hvdr. Depth (ft)	0.60	7.47	3.59
Max Chl Dpth (ft)	58.25	Conv. (cfs)	303.3	57072.7	29097.6
Conv. Total (cfs)	808.87	wetted Per. (ft)	19.03	68.36	96.03
Length wtd. (ft)	1.07	Shear (lb/sq ft)	0.00	0.06	0.03
Min Ch El (ft)	0.02	Stream Power (lb/ft.s)	177.73	0.00	0.00
Alpha	1.07	Cum Volume (acre-ft)	0.01	0.62	0.22
Frctn Loss (ft)	0.02	Cum SA (acres)			
C & E Loss (ft)	0.01				

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Unit 4 UHS RS: 107
 REACH: U4 UHS Branch

INPUT

Description:	Station	Elevation	Data	num=	6	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	-10	819	0	819	13.72	819	43.72	819	58.25	819	58.25	819
	68	819										

Manning's n Values num= 3
 Sta n Val Sta n Val
 -10 .039 0 13.72 .039 68 .039

Bank Sta: Left 58.25 Right 118.9

Blocked Obstructions num= 1

Sta L Sta R Elev num= 1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.039	0.039	0.039
W.S. Elev (ft)	819.80	Reach Len. (ft)	118.90	118.90	118.90
Crit W.S. (ft)	0.000135	Flow Area (sq ft)	46.48	46.48	46.48
E.G. Slope (ft/ft)	135.00	Area (sq ft)	135.00	135.00	135.00
Flow Area (sq ft)	58.25	Top Width (ft)	58.25	58.25	58.25
Top Width (ft)	2.90	AVG. Vel (ft/s)	2.90	2.90	2.90
Vel Total (ft/s)	0.80	Hvdr. Depth (ft)	0.80	0.80	0.80
Max Chl Dpth (ft)					

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Conv. Total (cfs)	1496.4	Conv. (cfs)	1496.4
Length wtd. (ft)	118.90	wetted Per. (ft)	59.85
Min Ch El (ft)	819.00	Shear (lb/sq ft)	0.39
Alpha	1.00	Stream Power (lb/ft.s)	0.00
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	0.62
C & E Loss (ft)	0.01	Cum SA (acres)	0.16

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Branch RS: 106

INPUT

Description: Station Elevation Data num= 6
Sta Elev Sta Elev Sta Elev
-10 819 0 819 48.55 818.02 818.02 819

Manning's n values num= 3
Sta n Val Sta n Val
-10 .039 0 .039 68 .039

Bank Sta: Left Right Coeff Contr. Expan.

Blocked obstructions num= 1
Sta L Sta R Elev Sta L Elev
-10 0 825 58.25 68 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.22	Element	Channel	Right OB
Vel Head (ft)	0.09	wt. n-Val.	0.039	85.65
W.S. Elev (ft)	819.13	Reach Len. (ft)	85.65	85.65
Crit W.S. (ft)	0.004405	Flow Area (sq ft)	55.42	55.42
E.G. Slope (ft/ft)	135.00	Area (sq ft)	135.00	135.00
Q Total (cfs)	58.25	Flow width (ft)	32.25	32.25
Top width (ft)	1.11	Avg. Vel. (ft/s)	0.91	0.91
Max Ch Depth (ft)	1.11	Hydr. Depth (ft)	2034.0	2034.0
Conv. Total (cfs)	2034.0	Conv. (cfs)	58.62	58.62
Length wtd. (ft)	85.65	wetted per. (ft)	0.26	0.26
Min Ch El (ft)	818.02	Shear (lb/sq ft)	0.00	0.00
Alpha	1.00	Stream Power (lb/ft.s)	0.00	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.48	0.48
C & E Loss (ft)	0.00	Cum SA (acres)	0.16	0.16

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Lower RS: 5

INPUT

Description: Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev
-10 819 0 819 18.23 818 28.23 817 816

Manning's n values num= 2
Sta n Val Sta n Val
-10 .039 0 .039

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

Blocked obstructions num= 1
Sta L Sta R Elev Sta L Elev
-10 0 825 42.62 42.62 42.62 816

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.09	Element	Channel	Right OB
Vel Head (ft)	0.11	wt. n-Val.	0.039	42.62
W.S. Elev (ft)	818.98	Reach Len. (ft)	42.62	42.62
Crit W.S. (ft)	0.001386	Flow Area (sq ft)	431.38	431.38
E.G. Slope (ft/ft)	1139.78	Area (sq ft)	1139.78	1139.78
Q Total (cfs)	166.61	Flow width (ft)	166.61	166.61
Top width (ft)	2.64	Avg. Vel. (ft/s)	2.64	2.64
Max Ch Depth (ft)	2.64	Hydr. Depth (ft)	3061.59	3061.59
Conv. Total (cfs)	3061.59	Conv. (cfs)	169.77	169.77
Length wtd. (ft)	42.62	wetted per. (ft)	0.22	0.22
Min Ch El (ft)	816.00	Shear (lb/sq ft)	0.00	0.00
Alpha	1.00	Stream Power (lb/ft.s)	0.00	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.12	0.12
C & E Loss (ft)	0.00	Cum SA (acres)	0.12	0.12

C & E Loss (ft) 0.01 Cum SA (acres) 0.01 2.27

Warning: The cross-section end points had to be extended vertically for the computed water surface.

LATERAL STRUCTURE

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower

RS: 4.9

INPUT

Description: = Right overbank

Lateral structure position = 2

Distance from Upstream XS = 2.45

Deck/Roadway Width = 2

Weir Coefficient = Water Surface

Weir Flow Reference = Elev num = 2

Weir Embankment Coordinates = Elev num = 2

Sta Elev 817 170.5 817

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US (ft)	819.09	Weir Sta US (ft)	0.00
W.S. Elev (ft)	818.95	Weir Sta DS (ft)	170.50
E.S. DS (ft)	818.95	Weir Top Flow (ft)	170.50
W.S. DS (ft)	818.95	Weir Top Width (ft)	1.98
Q US (cfs)	1139.78	Weir Max Depth (ft)	1.95
Q Leaving Total (cfs)	1134.46	Weir Avg Depth (ft)	331.95
Q DS (cfs)	7.57	Weir Flow Area (sq ft)	2.450
Perc Q Leaving	99.34	Weir Coef (ft ^{1/2})	0.00
Q Weir (cfs)	1134.46	Weir Submerg	
Q Gates (cfs)		Q Gate Group (cfs)	
Q Culv (cfs)		Gate Open Ht (ft)	
Q Lat RC (cfs)	0.00	Gate #Open	
Q Breach (cfs)		Gate Area (sq ft)	
Breach Avg Velocity (ft/s)		Gate Submerg	
Breach Flow Area (sq ft)		Gate Invert (ft)	
		Gate Weir Coef	

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower

RS: 4.75*

INPUT

Description:

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	-1.73	819	7.09	818.58	11.89	818.21
29.32	817.67	44.98	816.84	64.13	816	157.44	816

Manning's n Values num= 4

Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-1.73	.039	.75	.039	158.97	.039	

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

Blocked Obstructions num= 1

Sta L	Sta R	Elev	num
-10	0	825	1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	819.03	Element	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.039	
W.S. Elev (ft)	818.95	Reach Len. (ft)	372.62	42.62
E.G. Slope (ft/ft)	0.001136	Flow Area (sq ft)	376.07	
G. Total (cfs)	852.06	Flow (cfs)	852.06	
Top Width (ft)	157.47	Top Width (ft)	157.47	
Vel Total (ft/s)	2.27	Avg. Vel. (ft/s)	2.27	
Max Chl Dpth (ft)	2.95	Hydr. Depth (ft)	2.39	
Conv. Total (cfs)	25278.6	Conv. (cfs)	25278.6	
Length wtd. (ft)	42.62	wetted Per. (ft)	160.49	
Min Ch El (ft)	816.00	Stream Power (lb/ft s)	0.17	0.00
Alpha	1.00	Cum Volume (acre-ft)	0.12	38.60
Frctn Loss	0.04	Cum SA (acres)	0.01	7.23
C & E Loss (ft)	0.01			2.11

Warning: The cross-section end points had to be extended vertically for the computed water surface.

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CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Lower
RS: 4.5*

INPUT DESCRIPTION:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	-1.15	819	10.14	818.39	16.67	817.81		
40.4	817.33	61.74	816.68	87.81	816	150.02	816	151.04	816

Manning's n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-1.15	.039	1.5	.039	151.04	.039			

Bank Sta:	Left	Right	Lengths:	Left Channel	Right Channel	Coeff	Contr.	Expan.
	151.04	143.11	42.62	42.62	42.62	.1	.3	.3

Blocked Obstructions	Sta L	Sta R	Elev	num=
	-10	0	825	1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.98	Element	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.039	42.62
W.S. Elev (ft)	818.94	Reach Len. (ft)	42.62	42.62
CRT S.S. (ft)	0.000696	Flow Area (sq ft)	32.62	
G. Total (cfs)	569.48	Flow (cfs)	334.36	
Top width (ft)	148.62	Top width (ft)	569.48	
Vel Total (ft/s)	1.70	AVG. Vel. (ft/s)	148.62	
Max Chl Dpth (ft)	2.93	Hydr. Depth (ft)	1.70	
Conv. Total (cfs)	21583.5	Conv. (cfs)	2.25	
Length wtd. (ft)	42.62	wetted Per. (ft)	21583.5	
Min Ch El (ft)	816.00	Shear (lb/sq ft)	151.62	
Alpha	1.00	Stream Power (lb/ft s)	0.10	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	151.62	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	38.25	7.23
			1.96	

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Lower
RS: 4.25*

INPUT DESCRIPTION:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10	819	-1.58	819	13.18	818.19	21.45	817.4		
51.49	817	78.49	816.52	111.5	816	142.6	816	143.11	816

Manning's n	Val	Sta	n	Val	Sta	n	Val	Sta	n	Val
-10	.039	-1.58	.039	2.25	.039	143.11	.039			

Bank Sta:	Left	Right	Lengths:	Left Channel	Right Channel	Coeff	Contr.	Expan.
	143.11	143.11	42.62	42.62	42.62	.1	.3	.3

Blocked Obstructions	Sta L	Sta R	Elev	num=
	-10	0	825	1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.95	Element	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.039	42.62
W.S. Elev (ft)	818.94	Reach Len. (ft)	42.62	42.62
CRT S.S. (ft)	0.000223	Flow Area (sq ft)	42.62	
G. Total (cfs)	288.42	Flow (cfs)	303.51	
Top width (ft)	140.02	Top width (ft)	288.42	
Vel Total (ft/s)	0.94	AVG. Vel. (ft/s)	140.02	
Max Chl Dpth (ft)	2.94	Hydr. Depth (ft)	0.94	
Conv. Total (cfs)	19305.3	Conv. (cfs)	2.18	
Length wtd. (ft)	42.62	wetted Per. (ft)	19305.3	
Min Ch El (ft)	816.00	Shear (lb/sq ft)	143.04	0.00
Alpha	1.00	Stream Power (lb/ft s)	0.12	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	37.94	7.23
C & E Loss (ft)	0.00	Cum SA (acres)	1.82	

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

CPNPPLOCA1PMP

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower RS: 4

INPUT
 Description: num= 6
 Station Elev Sta ELEV Sta ELEV Sta ELEV Sta ELEV Sta ELEV
 -10 819 0 819 3 819 16.23 818 26.23 817
 135.18 816

Manning's n Values num= 2
 Station Val Sta n Val
 -10 .039 0 .039

Bank Sta: Left Right Lengths: Left Channel Right Channel
 91.85 91.85 91.85
 Blocked Obstructions num= 1
 Station Elev num= 1
 -10 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	91.85	91.85	91.85
Vel Head (ft)	0.00	0.039	0.00
W.S. Elev (ft)	818.95	818.95	818.95
Crit W.S. (ft)	0.000000	286.74	286.74
E.G. Slope (ft/ft)	0.000000	286.74	286.74
Flow Area (sq ft)	0.000000	131.45	131.45
Top Width (ft)	0.03	131.45	0.03
Vel Total (ft/s)	2.95	2.18	2.18
Max Chl Dpth (ft)	18097.8	18097.8	18097.8
Conv. Total (cfs)	91.85	134.49	134.49
Length wtd. (ft)	816.00	0.00	0.00
Min Ch El (ft)	1.00	0.00	0.00
Alpha	0.00	0.12	0.00
Frcn Loss (ft)	0.00	37.65	7.23
C & E Loss (ft)	0.00	1.69	1.69

Warning: The cross-section end points had to be extended vertically for the computed water surface.

LATERAL STRUCTURE

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower RS: 3.9

INPUT
 Description: num= 2
 Distance From Upstream XS = 2
 Deck/Roadway Width = .04
 Weir Coefficient = Water Surface
 Weir Flow Reference num = 2
 Weir Embankment Coordinates num = 2
 Station Elev Sta Elev
 0 817 91.85 817

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US. (ft)	818.95	Weir Sta US (ft)	0.00
W.S. US. (ft)	818.95	Weir Sta DS (ft)	91.85
E.G. DS (ft)	818.95	Min El Weir Flow (ft)	817.00
W.S. DS (ft)	818.95	W.R. Top width (ft)	91.85
Q US (cfs)	7.57	Weir Max Depth (ft)	1.95
Q Leaving Total (cfs)	9.97	Weir Avg Depth (ft)	1.95
Q DS (cfs)	1.74	Weir Flow Area (sq ft)	178.65
Perc Q Leaving (Cfs)	129.20	Weir Soper (ft ³ /s ²)	0.040
Q Wetes (Cfs)	9.97	Q Gate Open (cfs)	0.00
Q Culv (cfs)	0.00	Gate Open Ht (ft)	0.00
Q Lat RC (cfs)	0.00	Gate #Open	0.00
Q Breach (cfs)	0.00	Gate Area (sq ft)	0.00
Breach Avg Velocity (ft/s)	0.00	Gate Submerg	0.00
Breach Flow Area (sq ft)	0.00	Gate Invert (ft)	0.00
		Gate Weir Coef	0.00

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower RS: 3

CPNPPLOCA1PMP

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	8								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
-10	819	0	819	1.58	819	8.52	818	12.49	817	
32.21	816	116.06	816	118.1	816					

Manning's n Values

Sta	n Val	Sta	n Val
-10	.039	0	.039

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

0	118.1	9.6	9.6	.1	.3
---	-------	-----	-----	----	----

Blocked Obstructions

Sta	L	Sta	R	Elev
-10	0	0	825	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Q Total (cfs)	Top Width (ft)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Ch El (ft)	Alpha	Frctn Loss	C & E Loss (ft)	Element	wt. n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Top Width (ft)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Wetted Per. (ft)	Shear (lb/sq ft)	Stream Power (lb/ft s)	Cum Volume (acres-ft)	Cum SA (acres)	Channel	Left OB	Right OB
818.95	0.00	818.95	818.95	0.000000	1.74	0.01	2235.7	9.6	816.00	1.00	0.00	0.00	818.95	0.00	9.60	310.00	310.00	116.14	0.01	2.67	2235.7	116.14	0.00	0.00	0.039	9.60	9.60		

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Lower

RS: 2.92857*

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	9						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
-9.29	818.79	0	818.79	1.98	818.78	10.7	817.82	15.69
40.45	815.86	118.32	815.86	120.21	815.86	131.38	816	

Manning's n Values

Sta	n Val	Sta	n Val
-9.29	.039	0	.039

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

0	131.38	9.6	9.6	.1	.3
---	--------	-----	-----	----	----

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	Q Total (cfs)	Top Width (ft)	Max Chl Dpth (ft)	Conv. Total (cfs)	Length Wtd. (ft)	Min Ch El (ft)	Alpha	Frctn Loss	C & E Loss (ft)	Element	wt. n-Val.	Reach Len. (ft)	Flow Area (sq ft)	Area (sq ft)	Flow (cfs)	Top Width (ft)	Avg. Vel. (ft/s)	Hydr. Depth (ft)	Wetted Per. (ft)	Shear (lb/sq ft)	Stream Power (lb/ft s)	Cum Volume (acres-ft)	Cum SA (acres)	Channel	Left OB	Right OB
818.95	0.00	818.95	818.95	0.000000	1.74	0.00	140.67	9.6	816.00	1.00	0.00	0.00	818.95	0.039	9.60	357.55	357.55	131.38	0.00	2.72	26143.2	134.49	0.00	0.00	0.039	9.60	9.60		

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Lower

RS: 2.85714*

INPUT

Description	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	9						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta

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-8.57 818.57 0 818.57 2.39 818.56 12.88 817.64 18.88 816.75
 48.7 815.71 120.57 815.71 122.32 815.71 144.67 816

Manning's n Values
 Sta n Val Sta n Val
 -8.57 .039 0 .039 144.67 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 0 144.67 9.6 9.6 9.6 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	818.95		
Vel Head (ft)	0.00	0.039	9.60
W.S. Elev (ft)	818.95	9.60	9.60
Crit W.S. (ft)	0.000000	3.21	408.45
E.G. Slope (ft/ft)	0.000000	3.21	408.45
Top width (ft)	153.74	8.57	1.74
Flow Area (sq ft)	0.00	0.00	0.00
Top width (ft/s)	0.00	0.00	0.00
Max Chl Dpth (ft)	3.23	0.38	2.82
Conv. Total (cfs)	30717.0	61.9	30655.1
Length wtd. (ft)	9.60	8.95	147.74
Min Ch El (ft)	815.71	0.00	0.00
Alpha	1.01	144.67	0.00
Frctn Loss	0.00	0.12	36.86
C & E Loss (ft)	0.00	0.01	1.37

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower
 RS: 2.78571*

INPUT

Description: Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev
 -7.86 818.36 0 818.36 2.79 818.34 15.06 817.46 22.08 816.62
 56.94 815.57 122.83 815.57 124.43 815.57 157.96 816

Manning's n Values
 Sta n Val Sta n Val
 -7.86 .039 0 .039 157.96 .039

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 0 157.96 9.6 9.6 9.6 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	818.95		
Vel Head (ft)	0.00	0.039	9.60
W.S. Elev (ft)	818.95	9.60	9.60
Crit W.S. (ft)	0.000000	4.60	460.94
E.G. Slope (ft/ft)	0.000000	4.60	460.94
Q Total (cfs)	1.74	0.01	1.74
Top width (ft)	165.82	7.86	157.96
Vel Total (ft/s)	0.00	0.00	0.00
Max Chl Dpth (ft)	3552.38	16.59	3546.92
Conv. Total (cfs)	9.60	16.48	161.01
Length wtd. (ft)	815.57	8.48	0.00
Min Ch El (ft)	815.57	0.00	0.00
Alpha	1.01	157.96	0.00
Frctn Loss	0.00	0.12	36.77
C & E Loss (ft)	0.00	0.01	1.34

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower
 RS: 2.71428*

INPUT

Description: Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev
 -7.14 818.14 0 818.14 3.2 818.11 17.24 817.28 25.28 816.49
 65.19 815.43 125.08 815.43 126.54 815.43 171.24

Manning's n Values
 Sta n Val Sta n Val
 -7.14 .039 0 .039 171.24 .039

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Bank Sta: Left 0 Right 171.24 Lengths: Left Channel 9.6 Right 9.6 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 818.95
 Vel Head (ft) 0.039
 W.S. Elev (ft) 818.95
 Crit W.S. (ft) 515.90
 E.G. Slope (ft/ft) 0.0000000
 Q Total (cfs) 1.74
 Top Width (ft) 178.38
 Vel Total (ft/s) 0.00
 Max Chl Dpth (ft) 3.52
 Conv. Total (cfs) 40701.7
 Length Wtd. (ft) 9.60
 Min Ch El (ft) 815.43
 Alpha 0.01
 Frctn Loss (ft) 0.00
 C & E Loss (ft) 0.00

Element n-Val. (ft) 9.6
 Reach (ft) 9.60
 Flow Area (sq ft) 515.90
 Area (sq ft) 515.90
 Flow (cfs) 1.73
 Top Width (ft) 171.24
 Avg. Vel. (ft/s) 0.00
 Hydr. Depth (ft) 0.80
 Conv. (cfs) 40525.2
 Wetted Per. (ft) 174.27
 Shear (lb/sq ft) 7.94
 Stream Power (lb/ft s) 0.00
 Cum Volume (acre-ft) 171.14
 Cum SA (acres) 36.60
 Channel Left OB 0.01
 Channel Right OB 1.30

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower
 RS: 2.64285*

INPUT

Description: Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev
 -6.43 817.93 0 817.93 3.6 817.89 19.42 817.1 28.48 816.37
 73.44 815.29 127.34 815.29 128.65 815.29 184.53 816

Manning's n Values num= 3
 Sta n Val Sta n Val
 -6.43 .039 0 .039 184.53 .039

Bank Sta: Left 0 Right 184.53 Lengths: Left Channel 9.6 Right 9.6 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 818.95
 Vel Head (ft) 0.00
 W.S. Elev (ft) 818.95
 Crit W.S. (ft) 0.0000000
 E.G. Slope (ft/ft) 1.74
 Top Width (ft) 190.96
 Vel Total (ft/s) 0.00
 Max Chl Dpth (ft) 3.66
 Conv. Total (cfs) 46187.6
 Length Wtd. (ft) 9.60
 Min Ch El (ft) 815.29
 Alpha 1.01
 Frctn Loss (ft) 0.00
 C & E Loss (ft) 0.00

Element n-Val. (ft) 9.6
 Reach Len. (ft) 9.60
 Flow Area (sq ft) 6.53
 Area (sq ft) 572.94
 Flow (cfs) 0.03
 Top Width (ft) 6.43
 Avg. Vel (ft/s) 1.02
 Hydr. Depth (ft) 3.10
 Conv. (cfs) 227.8
 Wetted Per. (ft) 7.45
 Shear (lb/sq ft) 184.53
 Stream Power (lb/ft s) 0.12
 Cum Volume (acre-ft) 0.01
 Channel Left OB 0.039
 Channel Right OB 9.60

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower
 RS: 2.57142*

INPUT

Description: Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev
 -5.71 817.71 0 817.71 4.01 817.67 21.61 816.92 31.67 816.24
 81.68 815.14 129.59 815.14 130.76 815.14 197.81 816

Manning's n Values num= 3
 Sta n Val Sta n Val
 -5.71 .039 0 .039 197.81 .039

Bank Sta: Left 0 Right 197.81 Lengths: Left Channel 9.6 Right 9.6 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 818.95
 Vel Head (ft) 0.00

Element n-Val. (ft) 9.6
 Channel Left OB 0.039
 Channel Right OB 0.039

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W.S. Elev (ft)	818.95	Reach Len. (ft)	9.60	9.60
Crit W.S. (ft)	0.000000	Flow Area (sq ft)	7.05	633.69
E.G. Slope (ft/ft)	1.74	Area (sq ft)	7.05	633.69
Q Total (cfs)	203.52	Top width (ft)	0.01	1.73
Vel Total (ft/s)	0.00	AVG. Vel. (ft/s)	0.00	9.00
Max Chl Dpth (ft)	52215.89	Hydr. Depth (ft)	271.23	51943.28
E.G. Slope (ft/ft)	9.60	Wetted Per. (ft)	6.94	200.81
Length Wtd. (ft)	815.14	Stream Power (lb/ft s)	0.00	0.00
Min Ch El (ft)	1.01	Cum Volume (acre-ft)	0.12	36.41
Alpha	0.00	Cum SA (acres)	0.01	1.22
Frctn Loss (ft)	0.00			
C & E Loss (ft)	0.00			

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower

RS: 2.5*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
89.93	815	131.85	815	132.87	815	211.1	816.11

Manning's n Values

Sta	n	Val	Sta	n	Val
-5	.039	0	211.1	.039	0

Bank Sta: Left 0 211.1 Right 211.1 Lengths: Left Channel 9.6 Right 9.6 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.95	Element	Left OB	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.039	0.039
W.S. Elev (ft)	818.95	Reach Len. (ft)	9.60	9.60
Crit W.S. (ft)	0.000000	Flow Area (sq ft)	7.23	695.81
E.G. Slope (ft/ft)	1.74	Area (sq ft)	7.23	695.81
Q Total (cfs)	216.10	Flow (cfs)	0.01	211.10
Vel Total (ft/s)	0.00	AVG. Vel. (ft/s)	1.45	0.00
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)	297.1	58167.8
Conv. Total (cfs)	58464.8	Wetted Per. (ft)	6.45	214.09
Length Wtd. (ft)	815.00	Shear (lb/sq ft)	211.00	0.00
Min Ch El (ft)	0.01	Stream Power (lb/ft s)	0.11	36.26
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	0.00

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower

RS: 2.42857*

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev
-4.29	817.29	0	817.29	4.82	817.23
98.17	814.86	134.11	814.86	134.98	814.86

Manning's n Values

Sta	n	Val	Sta	n	Val
-4.29	.039	0	224.38	.039	0

Bank Sta: Left 0 224.38 Right 224.38 Lengths: Left Channel 9.6 Right 9.6 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.95	Element	Left OB	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.039	0.039
W.S. Elev (ft)	818.95	Reach Len. (ft)	9.60	9.60
Crit W.S. (ft)	0.000000	Flow Area (sq ft)	7.10	760.12
E.G. Slope (ft/ft)	1.74	Area (sq ft)	0.01	760.12
Q Total (cfs)	228.67	Flow (cfs)	4.29	224.38
Vel Total (ft/s)	0.00	AVG. Vel. (ft/s)	0.00	0.00
Max Chl Dpth (ft)	4.09	Hydr. Depth (ft)	1.66	3.39

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Conv. Total (cfs)	65055.7	Conv. (cfs)	304.5	64751.2
Length wtd. (ft)	9.60	wetted Per. (ft)	5.95	227.37
Min Ch El (ft)	814.86	Shear (lb/sq ft)	0.00	0.00
Alpha	1.01	Stream Power (lb/ft s)	224.38	36.10
Frctn Loss (ft)	0.00	Cum Volume (acres-ft)	0.12	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	1.13

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Lower
RS: 2.35714*

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	9	817.07	5.22	817.01	28.15	816.37	815.86
		-3.57	817.07				
		106.42	814.71	136.36	814.71	237.67	816

Manning's n values	num=	Sta	n Val	Sta	n Val
	3	817.07	0.039	237.67	0.039
		-3.57	0.039		
		106.42	0.039	136.36	0.039

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	0	237.67		9.6	9.6		1.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.039	0.039	9.60
W.S. Elev (ft)	818.95	Reach Len. (ft)	9.60	9.60	9.60
Crit W.S. (ft)	818.95	Flow Area (sq ft)	6.69	828.21	828.21
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	6.69	828.21	828.21
Q Total (cfs)	1.74	Flow (cfs)	0.01	237.67	1.73
Top Width (ft)	241.24	Top Width (ft)	3.57	237.67	3.57
Vel Total (ft/s)	0.00	Avg. Vel (ft/s)	1.88	3.40	3.40
Max Ch Dpth (ft)	4.38	Hydr. Depth (ft)	2.09	3.58	3.58
Conv. Total (cfs)	72221.4	Conv. (cfs)	292.9	71928.7	240.65
Length wtd. (ft)	9.60	Wetted Per. (ft)	5.45	240.65	0.00
Min Ch El (ft)	814.71	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.00	Stream Power (lb/ft s)	237.67	35.92	7.23
Frctn Loss (ft)	0.00	Cum Volume (acres-ft)	0.11	35.92	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	1.08	0.00

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
REACH: U4 UHS Lower
RS: 2.28571*

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	9	816.86	5.02	816.9	30.33	816.19	813.73
		-2.86	816.86				
		114.06	814.57	138.02	814.57	250.95	816

Manning's n values	num=	Sta	n Val	Sta	n Val
	3	816.86	0.039	250.95	0.039
		-2.86	0.039		
		114.06	0.039	138.02	0.039

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	0	250.95		9.6	9.6		1.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.039	0.039	9.60
W.S. Elev (ft)	818.95	Reach Len. (ft)	9.60	9.60	9.60
Crit W.S. (ft)	818.95	Flow Area (sq ft)	5.96	897.53	897.53
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	5.96	897.53	897.53
Q Total (cfs)	1.74	Flow (cfs)	0.01	250.95	1.74
Top Width (ft)	253.81	Top Width (ft)	2.86	250.95	2.86
Vel Total (ft/s)	0.00	Avg. Vel (ft/s)	2.09	3.58	3.58
Max Ch Dpth (ft)	4.38	Hydr. Depth (ft)	2.09	3.58	3.58
Conv. Total (cfs)	79606.3	Conv. (cfs)	237.4	79346.9	253.93
Length wtd. (ft)	9.60	Wetted Per. (ft)	4.95	253.93	0.00
Min Ch El (ft)	814.57	Shear (lb/sq ft)	250.95	35.73	0.00
Alpha	1.00	Stream Power (lb/ft s)	250.95	35.73	7.23
Frctn Loss (ft)	0.00	Cum Volume (acres-ft)	0.11	35.73	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	1.02	0.00

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower
 RS: 2.21428*

INPUT

Description: Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev
 -2.14 816.64 0 816.64 6.03 816.57 32.51 816.01 47.66 815.6
 122.91 814.43 140.87 814.43 141.31 814.43 814.43 264.24

Manning's n Values num= 3
 Sta n Val Sta n Val
 -2.14 .039 0 .039 264.24 .039

Bank Sta: Left 0 264.24 Right 9.6
 Lengths: Left Channel 9.6 Right 9.6
 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB	Channel
E.G. Elev (ft)	818.95	818.95	0.039
Vel Head (ft)	0.00	0.00	9.60
W.S. Elev (ft)	818.95	818.95	9.60
Flow Area (sq ft)	0.0000000	0.0000000	969.33
Top Width (ft)	266.38	266.38	969.33
Top Width (ft)	0.00	0.00	1.74
Max Chl Dpth (ft)	4.52	4.52	264.24
Conv. Total (cfs)	87392.6	87392.6	0.00
Length wtd. (ft)	9.60	9.60	2.30
Min Ch El (ft)	814.43	814.43	87191.1
Alpha	1.00	1.00	267.22
Frctn Loss (ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	0.00	35.53
			0.57

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS
 REACH: U4 UHS Lower
 RS: 2.14285*

INPUT

Description: Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev
 -1.43 816.43 0 816.43 6.43 816.34 34.69 815.83 50.86 815.48
 131.15 814.29 143.13 814.29 143.42 814.29 277.52

Manning's n Values num= 3
 Sta n Val Sta n Val
 -1.43 .039 0 .039 277.52 .039

Bank Sta: Left 0 277.52 Right 9.6
 Lengths: Left Channel 9.6 Right 9.6
 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Right OB	Channel
E.G. Elev (ft)	818.95	818.95	0.039
Vel Head (ft)	0.00	0.00	9.60
W.S. Elev (ft)	818.95	818.95	9.60
Flow Area (sq ft)	0.0000000	0.0000000	1043.16
Top Width (ft)	278.35	278.35	1043.16
Top Width (ft)	1.74	1.74	277.52
Max Chl Dpth (ft)	4.60	4.60	1.43
Conv. Total (cfs)	95533.3	95533.3	2.57
Length wtd. (ft)	9.60	9.60	3.70
Min Ch El (ft)	814.29	814.29	128.8
Alpha	1.00	1.00	280.49
Frctn Loss (ft)	0.00	0.00	0.00
C & E Loss (ft)	0.00	0.00	35.31
			0.91

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Unit 4 UHS

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RS: 2.07142*

REACH: U4 UHS Lower

INPUT

Description:

Station Elevation Data
 Sta Elev Sta Elev Sta Elev
 1 816.71 6 816.12 36 815.09
 139.4 814.14 143.38 814.14 145.53 814.14 230.81

Manning's n Values

num= 3
 Sta n Val Sta n Val
 0 .039 290.81 .039

Bank Sta: Left Right
 0 290.81

Lengths: Left Channel Right
 9.6 9.6

Coeff Contr. Expan.
 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.95	Element		Left OB		Right OB	
Vel Head (ft)	0.00	Wt. n-Val.	0.039	0.039	0.039	0.039	0.039
W.S. Elev (ft)	818.95	Reach Len. (ft)	9.60	9.60	9.60	9.60	9.60
Crit W.S. (ft)	0.000000	Flow Area (sq ft)	1.94	1120.98	1120.98	1120.98	1120.98
E.G. Slope (ft/ft)	1.74	Area (sq ft)	0.00	0.00	1.74	290.81	290.81
Q Total (cfs)	291.52	Top Width (ft)	0.00	0.00	0.00	0.00	0.00
Top Width (ft)	0.00	Avg. Vel. (ft/s)	2.73	30.5	104289.8	3.85	3.85
Max Chl Dpth (ft)	4.80	Hydr. Depth (ft)	3.44	3.44	104289.8	293.08	293.08
Vel Total (ft/s)	104340.3	Conv. (cfs)	0.00	0.00	0.00	0.00	0.00
Conv. Total (cfs)	814.14	Wetted Per. (ft)	290.81	290.81	35.07	35.07	35.07
Length wtd. (ft)	1.00	Stream Power (lb/ft s)	0.11	0.11	0.11	0.11	0.11
Wetted Area (ft ²)	0.01	Cum Volume (acre-ft)	0.00	0.00	0.00	0.00	0.00
Alpha	0.01	Cum SA (acres)	0.00	0.00	0.00	0.00	0.00
Frctn Loss (ft)	0.01						
C & E Loss (ft)	0.01						

warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

REACH: U4 UHS Lower

RS: 2

INPUT

Description:

Station Elevation Data
 Sta Elev Sta Elev
 0 816 147.64 814 304.09 816

Manning's n Values

num= 1
 Sta n Val
 0 .039

Bank Sta: Left Right
 0 304.09

Lengths: Left Channel Right
 112 112

Coeff Contr. Expan.
 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	818.94	Element		Left OB		Right OB	
Vel Head (ft)	0.05	Wt. n-Val.	0.039	0.039	0.039	0.039	0.039
W.S. Elev (ft)	818.89	Reach Len. (ft)	112.00	112.00	112.00	112.00	112.00
Crit W.S. (ft)	0.000000	Flow Area (sq ft)	1182.38	1182.38	1182.38	1182.38	1182.38
E.G. Slope (ft/ft)	0.00377	Area (sq ft)	2137.00	2137.00	2137.00	2137.00	2137.00
Q Total (cfs)	304.09	Top Width (ft)	1.81	304.09	304.09	304.09	304.09
Top Width (ft)	1.81	Avg. Vel. (ft/s)	4.89	109997.4	3.89	3.89	3.89
Max Chl Dpth (ft)	4.89	Hydr. Depth (ft)	109997.4	109997.4	109997.4	109997.4	109997.4
Conv. Total (cfs)	812.00	Conv. (cfs)	309.89	309.89	309.89	309.89	309.89
Length wtd. (ft)	1.00	Wetted Per. (ft)	304.09	304.09	304.09	304.09	304.09
Min Chl El (ft)	1.00	Stream Power (lb/ft s)	0.11	0.11	0.11	0.11	0.11
Alpha	1.00	Cum Volume (acre-ft)	0.00	0.00	0.00	0.00	0.00
Frctn Loss (ft)	1.00	Cum SA (acres)	0.00	0.00	0.00	0.00	0.00
C & E Loss (ft)	1.00						

INLINE STRUCTURE

REACH: U4 UHS Lower

RS: 1.5

INPUT

Description:
 Distance from Upstream XS = 49
 Weir/Roadway width = 12
 Weir Coeff. = 2.6
 Weir Embankment Coordinates num = 2
 Sta Elev Sta Elev
 0 817 341.29 817

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Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	818.94	Q Gates (cfs)							
W.S. Elev (ft)	818.89	Q Gate Group							0.00
Q Total (cfs)	2137.00	Gate Open Ht (ft)							816.00
Q Weir (cfs)	2137.00	Gate #Open							1.00
Weir Flow Area (sq ft)	589.62	Gate Area (sq ft)							0.00
Weir Sta Lft (ft)	0.00	Gate Submerg							0.00
Weir Sta Rgt (ft)	304.09	Gate Invert (ft)							0.000
Weir Max Depth (ft)	1.94	Gate Weir Coef							
Weir Coef (ft ^{1/2})	1.94								
Weir Submerg	2.600	Q Breach (cfs)							
Min El Weir Flow (ft)	0.00	Breach Avg Velocity (ft/s)							
Wr Top width (ft)	817.01	Breach Flow Area (sq ft)							
	304.09								

CROSS SECTION

RIVER: Unit 4 UHS Lower RS: 1
 REACH: U4 UHS Lower

INPUT

Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	817	20.03	817	800	76.24	800	290.38	800	
321.74	810								

Manning's n Values num= 1

Sta n Val

0 .039

Bank Sta: Left 0 Right 321.74 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	816.00	Element							
Vel Head (ft)	0.00	Wt. n-Val.							0.039
W.S. Elev (ft)	816.00	Reach Len. (ft)							4670.56
Cr L S. (ft)	0.00064	Flow Area (sq ft)							4670.56
E. Total (ft/ft)	2137.00	Area (cfs)							2137.00
Top width (ft)	301.71	Top width (ft)							301.71
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)							0.46
Max Chl Dpth (ft)	16.00	Hydr. Depth (ft)							15.48
Conv. Total (cfs)	1051284.0	Conv. (cfs)							1051284.0
Length wtd. (ft)		wetted Per. (ft)							325.27
Min Ch El (ft)	800.00	Shear (lb/sq ft)							0.00
Alpha	1.00	Stream Power (lb/ft s)							0.00
Frctn Loss (ft)		Cum Volume (acre-ft)							
C & E Loss (ft)		Cum SA (acres)							

CROSS SECTION

RIVER: west Channel RS: 24
 REACH: west Channel

INPUT

Description:									
Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
64.91	811.81	67.74	812	79.74	818.32	818.32	98.66	819	
122.41	820	144.81	822	150.26					

Manning's n Values num= 6

Sta n Val

0 .057

Bank Sta: Left 0 Right 79.74 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	816.00	Element							
Vel Head (ft)	0.00	Wt. n-Val.							0.039
W.S. Elev (ft)	816.00	Reach Len. (ft)							4670.56
Cr L S. (ft)	0.00064	Flow Area (sq ft)							4670.56
E. Total (ft/ft)	2137.00	Area (cfs)							2137.00
Top width (ft)	301.71	Top width (ft)							301.71
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)							0.46
Max Chl Dpth (ft)	16.00	Hydr. Depth (ft)							15.48
Conv. Total (cfs)	1051284.0	Conv. (cfs)							1051284.0
Length wtd. (ft)		wetted Per. (ft)							325.27
Min Ch El (ft)	800.00	Shear (lb/sq ft)							0.00
Alpha	1.00	Stream Power (lb/ft s)							0.00
Frctn Loss (ft)		Cum Volume (acre-ft)							
C & E Loss (ft)		Cum SA (acres)							

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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	821.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	66.39	0.041	0.023
W.S. Elev (ft)	820.98	Reach Len. (ft)		66.39	66.39
Crit W.S. (ft)	813.49	Flow Area (sq ft)		512.28	87.67
E.G. Slope (ft/ft)	0.497003	Area (sq ft)		443.68	53.07
Flow (cfs)	122.92	Top width (ft)		69.22	53.70
Top width (ft)	122.92	AVG. Vel. (ft/s)		7.40	0.61
Vel Total (ft/s)	9.17	Hydr. Depth (ft)		67892.0	1.63
Max Chl Dpth (ft)	0.83	Conv. (cfs)		72.78	53.79
Conv. Total (cfs)	76005.5	wetted Per. (ft)		0.02	0.00
Length wtd. (ft)	66.39	Stream Power (lb/sq ft)	160.00	0.00	0.00
Min Ch El (ft)	811.81	Shear (lb/sq ft)	0.11	30.21	7.23
Alpha	1.03	Cum Volume (acre-ft)	0.15	3.88	4.72
Frctn Loss (ft)	0.00	Cum SA (acres)			
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 23

Description:	num=	13	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0	825	10	820	26	812	27.16	811.94	61.84	811.94
64.48	812	76.48	818	82.48	818.2	106.48	819	137.89	820
199.55	822	227.55	822.9	237	822.9				

Manning's n Values	num=	6	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	27.16	.02	61.84	.057	76.48	.039	82.48
237	.02							

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
Blocked Obstructions	0	76.48	24.9	24.9	24.9		.1	.3
Sta L	Sta R	Elev	num=					
227.55	237	825	1					

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	24.90	0.041	0.022
W.S. Elev (ft)	820.98	Reach Len. (ft)		4.70	4.70
Crit W.S. (ft)	813.49	Flow Area (sq ft)		500.32	135.93
E.G. Slope (ft/ft)	0.000041	Area (sq ft)		500.32	135.93
Flow (cfs)	497.00	Top width (ft)		418.49	78.51
Top width (ft)	160.15	AVG. Vel. (ft/s)		0.84	0.58
Vel Total (ft/s)	0.78	Hydr. Depth (ft)		7.31	1.48
Max Chl Dpth (ft)	9.04	Conv. (cfs)		65446.4	12277.9
Conv. Total (cfs)	77724.3	wetted Per. (ft)		71.98	91.75
Length wtd. (ft)	24.90	Stream Power (lb/sq ft)	237.00	0.02	0.00
Min Ch El (ft)	811.94	Shear (lb/sq ft)	0.11	23.44	7.06
Alpha	1.05	Cum Volume (acre-ft)	0.15	3.78	4.61
Frctn Loss (ft)	0.00	Cum SA (acres)			
C & E Loss (ft)	0.00				

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 22

Description:	num=	17	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0	825	10	820	26	812	27.23	811.98	61.63	811.98
64.2	812	76.2	818	82.2	818.2	106.2	819	109.32	819.26
118.27	820	121.27	821	184.17	821	211.98	822	221.77	822
227.27	822	237	822						

Manning's n Values	num=	7	Sta	n Val	Sta	n Val	Sta	n Val
0	.039	27.23	.036	61.63	.057	76.2	.039	82.2
109.32	.039							

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
Blocked Obstructions	0	76.2	149.29	149.29	149.29		.1	.3

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Blocked obstructions
Sta L Sta R Elev num=
122.42 211.98 825 227.27 237 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt n-Val.	149.29	0.042	0.024
W.S. Elev (ft)	820.98	Reach Len. (ft)		149.29	149.29
Crit W.S. (ft)		Flow Area (sq ft)		496.18	93.70
E.G. Slope (ft/ft)	0.000044	Area (sq ft)		496.18	93.70
Q Total (cfs)	497.00	Flow (cfs)		429.98	67.02
Top Width (ft)	113.17	Top Width (ft)		68.16	45.01
Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)		0.87	0.72
Max Chl Dpth (ft)	9.00	Hydr. Depth (ft)		7.28	2.08
Conv. Total (cfs)	74679.5	Conv. (cfs)		64608.5	10071.0
Length Wtd. (ft)	149.29	Wetted Per. (ft)		71.70	45.23
Min Chl El (ft)	811.06	Stream Pw/Sp (ft)	237.00	0.02	0.01
Frctn Loss (ft)	0.01	Stream Power (lb/ft s)	0.11	0.00	7.00
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.11	29.16	7.00
		Cum SA (acres)	0.11	3.74	4.57

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
REACH: West Channel RS: 21

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	13						
		0	825	10	820	27.68	812.28
		74.48	818	80.48	818.2	104.48	819
		120.7	822	225.55	822	116.55	820
							119.55
							821

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
0	.057	27.68	.02	60.33	.057	74.48	.039
74.48	.039	80.48	.039	818.2	.057	820	.039
820	.039	822	.039	822	.039	822	.039

Bank Sta: Left Right Lengths: Left Channel Right

Blocked obstructions	num=	Sta L	Elev	Sta R	Elev	Expn.
	2	201.74	201.74	201.74	201.74	.1
		120.7	210.26	825	225.55	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt n-Val.	201.74	0.042	0.024
W.S. Elev (ft)	820.97	Reach Len. (ft)		201.74	201.74
Crit W.S. (ft)		Flow Area (sq ft)		459.41	93.31
E.G. Slope (ft/ft)	0.000055	Area (sq ft)		459.41	93.31
Q Total (cfs)	497.00	Flow (cfs)		425.32	71.68
Top Width (ft)	111.41	Top Width (ft)		66.42	44.98
Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)		0.93	0.77
Max Chl Dpth (ft)	8.69	Hydr. Depth (ft)		6.92	2.07
Conv. Total (cfs)	67216.9	Conv. (cfs)		57524.6	9692.3
Length Wtd. (ft)	201.74	Wetted Per. (ft)		68.51	45.20
Min Chl El (ft)	812.28	Stream Pw/Sp (ft)	235.00	0.00	0.00
Frctn Loss (ft)	1.01	Stream Power (lb/ft s)	0.11	27.52	6.68
C & E Loss (ft)	0.00	Cum Volume (acre-ft)	0.11	3.51	4.42
		Cum SA (acres)	0.11	3.51	4.42

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
REACH: West Channel RS: 20

INPUT

Description:	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	15						
		0	825	10	820	28.29	812.69
		72.46	818	78.16	818.2	102.16	819.24
		203.23	820	222.19	820	225.2	821
							240.23
							821.46

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
0	.057	28.29	.02	58.57	.057	72.46	.039
72.46	.039	78.16	.039	818.2	.057	820	.039
820	.039	820	.039	820	.039	820	.039

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Bank Sta: Left	0	Right	72.16	Lengths: Left Channel	166.53	Right	166.53	Expan.	.3
Blocked obstructions	num= 1								
Sta L	Sta R	Elev							
123.04	203.07	825							

CROSS SECTION OUTPUT Profile #PF 1									
E-G. Elev (ft)	820.97	Element							
Vel Head (ft)	0.01	wt. n-Val.							
W.S. Elev (ft)	820.96	Reach Len. (ft)							
Crit W.S. (ft)	Flow Area (sq ft)								
E-G. Slope (ft/ft)	0.000066	Area (sq ft)							
Q Total (cfs)	497.00	Flow (cfs)							
Top Width (ft)	136.96	Top width (ft)							
Max Chl Dpth (ft)	0.91	Avg. Vel. (ft/s)							
Length Wtd (ft)	6134.21	Hydr. Depth (ft)							
Min Ch El (ft)	812.69	Wetted Per (ft)							
Alpha	1.03	Stream Power (lb/ft s)							
Frctn Loss (ft)	0.01	Cum Volume (accre-ft)							
C & E Loss (ft)	0.00	Cum SA (acres)							

Warning: Divided flow computed for this cross-section.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 19

INPUT									
Description: Station Elevation Data num= 8									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
70.44	815	70.44	820	81.38	812.98	81.38	812.98	60.44	813
Manning's n values num= 5									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	28.74	.02	57.28	.057	70.44	.039	76.44	.02

Bank Sta: Left	0	Right	230.48	Lengths: Left Channel	230.48	Right	230.48	Expan.	.3
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CROSS SECTION OUTPUT Profile #PF 1

E-G. Elev (ft)	820.96	Element							
Vel Head (ft)	0.02	wt. n-Val.							
W.S. Elev (ft)	820.94	Reach Len. (ft)							
Crit W.S. (ft)	Flow Area (sq ft)								
E-G. Slope (ft/ft)	0.000088	Area (sq ft)							
Q Total (cfs)	497.00	Flow (cfs)							
Top Width (ft)	92.32	Top width (ft)							
Max Chl Dpth (ft)	1.07	Avg. Vel. (ft/s)							
Conv. Total (cfs)	53125.6	Hydr. Depth (ft)							
Length Wtd. (ft)	230.48	Wetted Per. (ft)							
Min Ch El (ft)	811.98	Stream Power (lb/ft s)							
Frctn Loss (ft)	0.02	Cum Volume (accre-ft)							
C & E Loss (ft)	0.00	Cum SA (acres)							

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 18

INPUT									
Description: Station Elevation Data num= 9									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
63.8	815	69.8	818	75.8	818.2	99.8	813.5	56.8	813.5
Manning's n values num= 5									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	28.94	.02	56.8	.057	69.8	.039	75.8	.02

Bank Sta: Left	0	Right	230.48	Lengths: Left Channel	230.48	Right	230.48	Expan.	.3
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.1 .3

32.96 32.96 32.96

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.94		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.02	Sta	820.94	Wt. n-Val.	32.96	Sta	820.94	Reach Len. (ft)	32.96	Sta	820.94
W.S. Elev (ft)	820.92	Elev	820.92	Flow Len. (ft)	32.96	Elev	820.92	Area (sq ft)	374.46	Elev	820.92
Crit W.S. (ft)	820.92	Sta	820.92	Area (sq ft)	374.46	Sta	820.92	Flow (cfs)	374.46	Sta	820.92
E.G. Slope (ft/ft)	0.000098	Flow	815	Top width (ft)	416.16	Flow	815	Avg. Vel. (ft/s)	61.64	Flow	815
0 - Total (cfs)	497.00	Top width	91.64	Hydr. Depth (ft)	1.11	Top width	91.64	Wetted Per. (ft)	42007.4	Top width	91.64
Vel Total (ft/s)	1.11	Hydr. Depth	7.42	Stream Power (lb/ft s)	99.80	Hydr. Depth	7.42	Cum Volume (acre-ft)	0.11	Hydr. Depth	7.42
Max Chl Dpth (ft)	7.42	Stream Power	99.80	Cum SA (acres)	0.11	Stream Power	99.80		2.64	Stream Power	99.80
Conv. Total (cfs)	50167.9	Cum Volume	0.11		0.11	Cum Volume	0.11			Cum Volume	0.11
Length wtd. (ft)	32.96		0.01		0.01		0.01				0.01
Min Ch El (ft)	813.50		0.01		0.01		0.01				0.01
Alpha	1.00		0.01		0.01		0.01				0.01
Frcn Loss (ft)	0.01		0.01		0.01		0.01				0.01
C & E Loss (ft)	0.01		0.01		0.01		0.01				0.01

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Manning's n values were composited to a single value in the main channel.

GROSS SECTION

RIVER: West Channel
REACH: West Channel

RS: 17

INPUT

Description:	num=	9	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	9	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	815	26.8	814	56.8	814	814	
63.8	815	69.8	818	75.8	818.2	99.8	819			

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	26.8	.02	56.8	.057	75.8	.02
69.8		142.47		142.47		142.47	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 69.8 142.47 142.47 .1 .3

GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.93		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.07	Sta	820.93	Wt. n-Val.	142.47	Sta	820.93	Reach Len. (ft)	142.47	Sta	820.93
W.S. Elev (ft)	820.86	Elev	820.86	Flow Len. (ft)	142.47	Elev	820.86	Area (sq ft)	353.80	Elev	820.86
Crit W.S. (ft)	820.86	Sta	820.86	Area (sq ft)	353.80	Sta	820.86	Flow (cfs)	233.90	Sta	820.86
E.G. Slope (ft/ft)	0.000362	Flow	900.00	Top width (ft)	61.51	Flow	900.00	Avg. Vel. (ft/s)	30.00	Flow	900.00
0 - Total (cfs)	900.00	Top width	91.51	Hydr. Depth (ft)	2.12	Top width	91.51	Wetted Per. (ft)	39458.4	Top width	91.51
Vel Total (ft/s)	2.12	Hydr. Depth	6.86	Stream Power (lb/ft s)	99.80	Hydr. Depth	6.86	Cum Volume (acre-ft)	0.11	Hydr. Depth	6.86
Max Chl Dpth (ft)	6.86	Stream Power	99.80	Cum SA (acres)	0.11	Stream Power	99.80		2.59	Stream Power	99.80
Conv. Total (cfs)	47276.1	Cum Volume	0.11		0.11	Cum Volume	0.11			Cum Volume	0.11
Length wtd. (ft)	142.47		0.05		0.05		0.05				0.05
Min Ch El (ft)	814.00		0.05		0.05		0.05				0.05
Alpha	1.00		0.05		0.05		0.05				0.05
Frcn Loss (ft)	0.05		0.05		0.05		0.05				0.05
C & E Loss (ft)	0.05		0.05		0.05		0.05				0.05

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Manning's n values were composited to a single value in the main channel.

GROSS SECTION

RIVER: West Channel
REACH: West Channel

RS: 16

INPUT

Description:	num=	15	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	15	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	815	24.96	814	26.8	813.04	813.04	
56.8	813.04	58.64	814	63.8	69.8	818.2	75.8	818.2	818.2	
99.8	819	112.47	820	134.87	822	139.13	822	149	822	

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.057	26.8	.02	56.8	.057	69.8	.02
149		149		149		149	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 69.8 149 149 .1 .3

Blocked Obstructions num=

Sta L	Sta R	Elev
66.4	66.4	66.4
1		

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139.13 149 825
 CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.88		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.06			Wt. n-val.	(ft)	66.40		0.042		0.023	
W.S. Elev (ft)	820.82			Reach Len.	(ft)			383.90		90.00	
Crit W.S. (ft)	0.000282			Area	(sq ft)			383.98		90.06	
E.G. Slope (ft/ft)	0.000282			Flow	(cfs)			753.60		146.40	
Q Total (Cfs)	0.000282			Top width	(ft)			61.44		51.85	
Top width (ft)	113.29			Avg. Vel.	(ft/s)			6.25		1.74	
Vel Total (ft/s)	1.90			Hydr. Depth	(ft)			44896.8		8722.1	
Max Chl Dpth (ft)	7.78			Wetted Per.	(ft)			64.19		0.03	
Conv. Total (cfs)	53618.9			Stream Power	(lb/ft s)	149.00		0.11		0.00	
Length wtd. (ft)	66.40			Cum Volume	(acre-ft)	0.11		2.33		3.10	
Min Ch El (ft)	813.04			Cum SA	(acres)	0.11		2.33		3.04	
Alpha	1.01										
Frcn Loss (ft)	0.03										
C & E Loss (ft)	0.00										

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 15

INPUT Description:		Station Elevation Data		num= 15		Elev		Sta		Elev		Sta	
Sta	0	825	10	820	20	815	26.48	813	26.8	812.84	813	26.8	812.84
Sta	56.8	812.84	57.12	813	63.8	815	69.8	818	75.8	818.2	818	75.8	818.2
Sta	99.8	819	130.87	820	192.87	822	220.87	822.9	230	822.9	822.9	230	822.9

Manning's n Values		num= 6		Sta		n Val		Sta		n Val	
Sta	0	.057	26.8	.02	56.8	.057	69.8	.039	75.8	.02	82.9
Sta	230	.02	230	.02	230	.02	230	.02	230	.02	230

Bank Sta:		Left		Right		Lengths:		Left Channel		Right		Coeff Contr.		Expand.	
Sta L	0	69.8	0	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9
Sta R	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		820.85		Element		Left OB		Channel		Right OB	
Vel Head (ft)	0.06			Wt. n-val.	(ft)	24.90		0.042		0.022	
W.S. Elev (ft)	820.74			Reach Len.	(ft)			24.96		24.96	
Crit W.S. (ft)	0.000516			Area	(sq ft)			389.26		114.45	
E.G. Slope (ft/ft)	0.000516			Flow	(cfs)			1046.44		220.56	
Q Total (Cfs)	0.000516			Top width	(ft)			61.29		84.10	
Top width (ft)	145.38			Avg. Vel.	(ft/s)			2.69		1.93	
Vel Total (ft/s)	2.52			Hydr. Depth	(ft)			46058.6		9707.7	
Max Chl Dpth (ft)	7.90			Wetted Per.	(ft)			64.02		84.14	
Conv. Total (cfs)	55766.2			Stream Power	(lb/ft s)	230.00		0.20		0.04	
Length wtd. (ft)	24.90			Cum Volume	(acre-ft)	0.11		19.84		4.94	
Min Ch El (ft)	812.84			Cum SA	(acres)	0.11		2.30		3.53	
Alpha	1.01										
Frcn Loss (ft)	0.03										
C & E Loss (ft)	0.00										

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 14

INPUT Description:		Station Elevation Data		num= 19		Elev		Sta		Elev		Sta	
Sta	0	825	10	820	20	815	26.33	813	26.8	812.76	813	26.8	812.76
Sta	56.8	812.76	57.27	813	63.8	815	69.8	818	75.8	818.2	818	75.8	818.2
Sta	99.8	819	102.92	819.26	111.87	820	114.87	821	177.44	821	177.44	821	177.44
Sta	205.58	822	215.37	822	220.87	822	231	822	231	822	231	822	822

Manning's n Values		num= 7		Sta		n Val		Sta		n Val	
Sta	0	.057	26.8	.02	56.8	.057	69.8	.039	75.8	.02	82.9
Sta	102.92	.039	102.92	.039	102.92	.039	102.92	.039	102.92	.039	102.92

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Bank Sta: Left 0 Right 69.8 Lengths: Left Channel 149.29 Right 149.29
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 116.02 205.58 825 220.87 231 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.83	0.042	820.83
Vel Head (ft)	0.11	0.042	0.11
W.S. Elev (ft)	820.72	149.29	820.72
Crit W.S. (ft)	390.54	390.54	82.03
E.G. Slope (ft/ft)	0.000540	1075.96	191.04
Q Total (cfs)	1267.00	61.24	44.23
Top Width (ft)	105.46	2.76	2.33
Top Width (ft/s)	2.68	6.38	1.85
Max Chl Dpth (ft)	5452.96	4631.06	8222.47
Conv. Total (cfs)	149.29	64.40	84.89
Min Ch El (ft)	812.76	0.21	44.06
Alpha	1.01	0.00	0.00
Frctn Loss (ft)	0.08	231.00	0.00
C & E Loss (ft)	0.00	0.11	4.88
		0.15	2.26

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 13

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	18						
Sta	0	825	10	820	20	815	25.43
Elev	56.8	812.31	58.17	813	63.8	815	69.8
Blocked Obstructions	2	99.8	111.87	820	114.87	822	205.58
Sta L	215.37	822.5	220.87	822.5	230	822.5	822
Sta R							
Elev							

Manning's n values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.057	26.8	02	56.8	.057	69.8	.039	75.8
99.8	.039	230	.039					

Bank Sta: Left 0 Right 69.8 Lengths: Left Channel 149.29 Right 149.29
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Elev Sta R Elev
 116.02 205.58 825 220.87 231 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.75	0.042	820.75
Vel Head (ft)	0.11	0.042	0.11
W.S. Elev (ft)	820.64	201.75	820.64
Crit W.S. (ft)	401.99	401.99	78.67
E.G. Slope (ft/ft)	0.000512	1097.35	169.65
Q Total (cfs)	1267.00	61.24	44.00
Top Width (ft)	105.06	2.76	2.33
Top Width (ft/s)	2.68	6.38	1.85
Max Chl Dpth (ft)	5452.96	4631.06	8222.47
Conv. Total (cfs)	149.29	64.40	84.89
Min Ch El (ft)	812.76	0.21	44.06
Alpha	1.01	0.00	0.00
Frctn Loss (ft)	0.08	230.00	0.00
C & E Loss (ft)	0.00	0.11	4.61
		0.15	2.05

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 12

INPUT

Description	num=	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	16						
Sta	56.8	811.97	57.38	812	63.8	815	69.8
Elev	99.8	819	104.8	819.24	120.8	820	200.87
Blocked Obstructions	2	237.87	819.93	820	200.87	820	200.87
Sta L							
Sta R							
Elev							

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Manning's n values num= 7
 Sta n Val Sta n Val Sta n Val Sta n Val
 0 .057 26.8 .02 56.8 .057 69.8 .039 75.8 .02
 104.8 .039 227.87 .02

Bank Sta: Left right Lengths: Left Channel Right Channel
 0 69.8 246.39 246.39 246.39
 Blocked Obstructions num= 1
 Sta L Sta R Elev 825

120.68 200.71
 CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.65	0.042	0.025
Vel Head (ft)	0.10	246.39	246.39
W.S. Elev (ft)	820.56		246.39
Flow Len. (ft)			109.87
Crit W.S. (ft)	0.000438		180.57
E.G. Slope (ft/ft)	1267.00		88.04
Area (sq ft)	148.95	60.91	2.59
Top width (ft)	2.39	6.89	1.25
Vel (ft/s)	8.85	51917.8	8625.0
Max Chl Dpth (ft)	246.39	64.42	89.83
Conv. Total (cfs)	811.71	0.18	0.03
Length wtd. (ft)	1.07	237.87	0.00
Min Ch El (ft)	0.09	0.11	16.36
Alpha	0.01	0.15	1.77
Frctn Loss (ft)			3.04
C & E Loss (ft)			

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 11

INPUT Description: Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	20	815	28	811
72	818	78.59	818.35	90.74	819	102.59	818.37
114.48	816	118.59	816	121.59	816	130.59	819
207.15	819	218.44	819.44	231.35	819.76		

Manning's n values num= 11
 Sta n Val Sta n Val Sta n Val Sta n Val
 0 .057 102.59 .039 109.59 .057 114.48 .02 118.59 .037 130.59 .039
 218.44 .02
 Bank Sta: Left right Lengths: Left Channel Right Channel
 0 72 63.04 63.04 63.04
 Expans. .1

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	820.55	63.04	63.04
Vel Head (ft)	0.06		63.04
W.S. Elev (ft)	820.49		63.04
Flow Len. (ft)			458.50
Crit W.S. (ft)	0.000317		290.34
E.G. Slope (ft/ft)	1402.00		458.50
Area (sq ft)	222.33	1029.56	372.44
Top width (ft)	1.87	62.98	159.35
Vel (ft/s)	9.49	2.25	1.28
Max Chl Dpth (ft)	78724.6	57811.6	1.82
Conv. Total (cfs)	63.04	66.87	20913.0
Length wtd. (ft)	1.18	0.14	161.02
Min Ch El (ft)	0.03	231.35	0.04
Alpha	0.01	0.15	1.77
Frctn Loss (ft)			3.04
C & E Loss (ft)			

Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel
 RS: 10

INPUT Description: Station Elevation Data num= 14

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Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	20	815	28	811	28.4	810.81
58.4	810.81	58.8	811	72.8	818	79.39	818.35	91.39	819
150.92	819	355.01	822	416.23	822.9	426	822.9		

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
0	.057	6	.057	72.8	.039	79.39	.02
426	.02						

Bank Sta: Left 0 Right 72.8 Lengths: Left Channel 36.14 Right 36.14
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 416.23 426 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.043	0.023
W.S. Elev (ft)	820.37	Reach Len. (ft)	36.14	36.14	36.14
Crit W.S. (ft)		Flow Area (sq ft)		464.31	180.10
E.G. Slope (ft/ft)	0.000672	Area (sq ft)		464.31	180.10
Q Total (cfs)	234.82	Flow (cfs)		1515.74	344.26
Top Width (ft)	2.89	Top Width (ft)		63.54	171.28
Vel Total (ft/s)	2.89	Avg. Vel. (ft/s)		3.26	1.91
Max Chl Dpth (ft)	71758.9	Hydr. Depth (ft)		7.31	1.05
Conv. Total (cfs)	836.84	Conv. (cfs)		58477.3	13281.5
Length Wtd. (ft)	836.84	Wetted Perim. (ft)		67.29	171.28
Min Ch El (ft)	1.11	Stream Power (lb/ft s)	426.00	0.00	0.00
Alpha	0.03	Stream Power (lb/ft s)	0.11	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.15	13.20	2.70
C & E Loss (ft)	0.00	Cum SA (acres)	0.15	1.33	2.10

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RTVER: West Channel
 REACH: West Channel

RS: 9

INPUT

Description:	Station	Elevation	Data	num=	22
Sta	Elev	Sta	Elev	Sta	Elev
0	825	10	820	20	815
58.63	810.7	59.26	811	73.26	818
103.86	818.33	109.96	818	120.01	818
178.93	821	220.72	822	304.09	822
416.7	822	427	822	304.09	822

Manning's n Values

Sta	n	Sta	n	Sta	n	Sta	n
0	.057	7	.057	73.26	.039	79.86	.02
103.86	.039						

Bank Sta: Left 0 Right 73.26 Lengths: Left Channel 55 Right 55

Blocked Obstructions

Sta L	Sta R	Elev	Sta L	Sta R	Elev
26.7	318.7	825	355.85	363.85	825
416.7	427	825	375.78	413.77	825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.043	0.028
W.S. Elev (ft)	820.30	Reach Len. (ft)	55.00	55.00	55.00
Crit W.S. (ft)		Flow Area (sq ft)		467.71	98.21
E.G. Slope (ft/ft)	0.000801	Area (sq ft)		467.71	98.21
Q Total (cfs)	1860.00	Flow (cfs)		1666.35	372.85
Top Width (ft)	133.26	Top Width (ft)		63.56	171.28
Vel Total (ft/s)	9.60	Avg. Vel. (ft/s)		7.32	1.91
Max Chl Dpth (ft)	65719.8	Hydr. Depth (ft)		7.32	1.45
Conv. Total (cfs)	55.00	Conv. (cfs)		58870.3	6849.5
Length Wtd. (ft)	55.00	Wetted Per. (ft)		67.85	68.13
Min Ch El (ft)	1.09	Stream Power (lb/ft s)	427.00	0.00	0.00
Alpha	0.04	Stream Power (lb/ft s)	0.11	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.15	12.82	2.58
C & E Loss (ft)	0.00	Cum SA (acres)	0.15	1.27	2.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

CPNPPLOCA\1PMP

RIVER: West Channel
REACH: West Channel

RS: 8

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
820	820	70	815	78	811	28.96	810.54		
825	811	73.96	818	80.56	820	179.25	821		
830	818	822	822	417.4	822	427	822		

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.057	28.98	.02	58.98	.057	73.96	.039	80.56
104.56	.039	.427						

Blocked Obstructions

Left	Right	Lengths	Left Channel	Right	Channel	Expan.
0	0	0	60.26	60.26		.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	60.26	0.043	0.028
W.S. Elev (ft)	820.26	Reach Len. (ft)		60.26	60.26
Cr. Sl. (ft/ft)	0.000777	Flow Area (sq ft)		476.66	94.40
G. Total (cfs)	1860.00	Flow (cfs)		1677.03	182.97
Top Width (ft)	129.48	Top Width (ft)		64.48	64.99
Vel Total (ft/s)	3.26	Avg. Vel. (ft/s)		3.52	1.94
Max Chl Dpth (ft)	9.72	Hydr. Depth (ft)		7.39	1.45
Conv. Total (cfs)	66706.2	Conv. (cfs)		60144.3	6561.9
Length wrd. (ft)	60.26	Wetted Per. (ft)		68.53	65.52
Min Ch El (ft)	810.54	Shear (lb/sq ft)		0.34	0.07
Alpha	1.09	Stream Power (lb/ft s)		427.00	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		0.11	12.22
C & E Loss (ft)	0.01	Cum SA (acres)		0.15	1.19

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
REACH: West Channel

RS: 7

INPUT

Description:

Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
825	810	20	815	28	811	29.36	810.36
830	818	811	818	81.33	818	93.33	819
835	813	811	813	81.33	817	123.84	818
840	819	820	820	305.33	821	336.33	822

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.039	29.36	.057	74.72	.039	81.33	.02	
105.33	.039	.349						

Blocked Obstructions

Left	Right	Lengths	Left Channel	Right	Channel	Expan.
0	0	0	98.26	98.26		.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	98.26	0.043	0.030
W.S. Elev (ft)	820.23	Reach Len. (ft)		98.26	98.26
Cr. Sl. (ft/ft)	0.000710	Flow Area (sq ft)		487.45	141.87
E.G. Slope (ft/ft)	1860.00	Flow (cfs)		1644.25	215.75
Q Total (cfs)	183.31	Top Width (ft)		65.18	118.13
Top Width (ft)	2.96	Avg. Vel. (ft/s)		3.37	1.52
Max Chl Dpth (ft)	9.87	Hydr. Depth (ft)		7.48	1.20
Conv. Total (cfs)	69824.1	Conv. (cfs)		61725.0	8099.1
Length wrd. (ft)	98.26	Wetted Per. (ft)		69.30	118.68
Min Ch El (ft)	810.18	Shear (lb/sq ft)		0.31	0.05
Alpha	1.06	Stream Power (lb/ft s)		349.00	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		0.11	11.55
C & E Loss (ft)	0.01	Cum SA (acres)		0.15	1.10

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 6

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	22						
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	0	825	10.03	820	20.05	813	32.08	811
	34.19	810.06	64.19	810.06	66.18	811	80.18	818
	98.79	819	110.79	818.33	116.79	818	120.79	815
	128.39	815	131.39	816	140.72	818	183.47	822
	236.79	822	267					

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.057	34.19	.02	64.19	.057	80.18	.039	86.79
110.79	.039	267	.039					

Bank Sta: Left 0 Right 80.18 Lengths: Left Channel 175.56 Right 175.56
 Blocked Obstructions num= 1

Sta L	Sta R	Elev	num=	Coeff	Contr.	Expan.
236.79	267	825	1	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Wd Chl Depth (ft)	Conv. Total (cfs)	Length (ft)	Min Ch El (ft)	Alpha	Frctn Loss	C & E Loss (ft)	Left OB	Channel	Right OB
820.32	0.11	820.20	0.000520	0.000520	1860.00	181.02	17.49	81591.7	81591.7	175.56	810.06	1.16	0.07	0.01	175.56	175.56	175.56
															0.044	0.044	0.034
															175.56	175.56	175.56
															209.43	209.43	209.43
															318.54	318.54	318.54
															70.56	70.56	70.56
															1.02	1.02	1.02
															13973.1	13973.1	13973.1
															111.57	111.57	111.57
															0.06	0.06	0.06
															267.00	267.00	267.00
															0.11	0.11	0.11
															0.15	0.15	0.15

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 5

INPUT

Description:	Station	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Station Elevation Data	num=	19						
	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
	76.41	809.825	77.10	820	80.01	815	35.91	808.23
	124.23	817.33	132.33	817	135.66	816	140.08	818
	180.41	821	205.41	822	208.41	822	218	822

Manning's n Values

Sta	n	Val	Sta	n	Val	Sta	n	Val
0	.057	36.35	.02	76.51	.057	91.61	.039	100.23
124.23	.039	218	.039					

Bank Sta: Left 0 Right 91.61 Lengths: Left Channel 164.09 Right 164.09
 Blocked Obstructions num= 1

Sta L	Sta R	Elev	num=	Coeff	Contr.	Expan.
208.41	218	825	1	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Slope (ft/ft)	Q Total (cfs)	Top Width (ft)	Vel Total (ft/s)	Wd Chl Depth (ft)	Conv. Total (cfs)	Length (ft)	Min Ch El (ft)	Alpha	Frctn Loss	C & E Loss (ft)	Left OB	Channel	Right OB
820.24	0.09	820.15	0.000320	0.000320	2063.10	162.10	12.32	81591.7	81591.7	164.09	810.06	1.16	0.07	0.01	164.09	164.09	164.09
															0.042	0.042	0.031
															164.09	164.09	164.09
															685.71	685.71	685.71
															986.87	986.87	986.87
															171.01	171.01	171.01
															81.01	81.01	81.01
															2.54	2.54	2.54
															8.37	8.37	8.37
															97358.9	97358.9	97358.9

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Conv. Total (cfs)	123855.0	Conv. (cfs)	5029.1	98097.9	20728.0
Length wtd. (ft)	2.04	wetted Per. (ft)	41.43	108.80	108.80
Min Ch El (ft)	809.00	Stream Power (lb/ft s)	334.00	0.00	0.00
Alpha	1.08	Cum Volume (acre-ft)	0.02	4.54	0.07
Frctn Loss (ft)	0.00	Cum SA (acres)	0.11	0.27	0.73
C & E Loss (ft)	0.00				

GROSS SECTION

RIVER: West Channel
REACH: West Channel

RS: 2.666666*

INPUT

Description:

Station	Elevation	Data	num=	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
Sta R	826.00	26	26	826.00	21.84	815.00	21.84	815.00	21.84	815.00	21.84	815.00	21.84
Sta L	826.00	26	26	826.00	21.84	815.00	21.84	815.00	21.84	815.00	21.84	815.00	21.84
Sta R	826.00	26	26	826.00	21.84	815.00	21.84	815.00	21.84	815.00	21.84	815.00	21.84
Sta L	826.00	26	26	826.00	21.84	815.00	21.84	815.00	21.84	815.00	21.84	815.00	21.84

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.039	11.55	.051	21.84	.056	60.88	.02

Bank Sta: Left Right

Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	2.04	2.04	2.04	.1	.3

Blocked obstructions

num=	1
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Sta L Sta R Elev

335.9067	345.67	825
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GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	Wt. n-Val.	Element	Left OB	Channel	Right OB
820.17	0.06	0.06	820.17	0.039	0.039	0.039
820.11	0.06	0.06	820.11	0.039	0.039	0.039
0.000153	0.000153	0.000153	0.000153	0.000153	0.000153	0.000153
2137.00	2137.00	2137.00	2137.00	2137.00	2137.00	2137.00
290.82	290.82	290.82	290.82	290.82	290.82	290.82
1.63	1.63	1.63	1.63	1.63	1.63	1.63
11.11	11.11	11.11	11.11	11.11	11.11	11.11
172659.7	172659.7	172659.7	172659.7	172659.7	172659.7	172659.7
809.00	809.00	809.00	809.00	809.00	809.00	809.00
1.43	1.43	1.43	1.43	1.43	1.43	1.43
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01

GROSS SECTION

RIVER: West Channel
REACH: West Channel

RS: 2.333333*

INPUT

Description:

Station	Elevation	Data	num=	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
Sta R	825.84	26	26	825.84	21.79	815.00	21.79	815.00	21.79	815.00	21.79	815.00	21.79
Sta L	825.84	26	26	825.84	21.79	815.00	21.79	815.00	21.79	815.00	21.79	815.00	21.79
Sta R	825.84	26	26	825.84	21.79	815.00	21.79	815.00	21.79	815.00	21.79	815.00	21.79
Sta L	825.84	26	26	825.84	21.79	815.00	21.79	815.00	21.79	815.00	21.79	815.00	21.79

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.039	11.52	.034	21.79	.034	60.73	.02

Bank Sta: Left Right

Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	2.04	2.04	2.04	.1	.3

Blocked obstructions

num=	1
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Sta L Sta R Elev

347.4333	357.33	825
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GROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	Vel Head (ft)	Wt. n-Val.	Element	Left OB	Channel	Right OB
820.16	0.06	0.06	820.16	0.039	0.039	0.039
820.12	0.06	0.06	820.12	0.039	0.039	0.039
0.000115	0.000115	0.000115	0.000115	0.000115	0.000115	0.000115
2137.00	2137.00	2137.00	2137.00	2137.00	2137.00	2137.00
1.63	1.63	1.63	1.63	1.63	1.63	1.63
11.11	11.11	11.11	11.11	11.11	11.11	11.11
143682.8	143682.8	143682.8	143682.8	143682.8	143682.8	143682.8
809.00	809.00	809.00	809.00	809.00	809.00	809.00
1.43	1.43	1.43	1.43	1.43	1.43	1.43
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01

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Top Width (ft) 318.21 Top Width (ft) 48.34 86.84 183.04
 Vel Total (ft/s) 1.38 Avg. Vel. (ft/s) 0.59 1.83 0.89
 Max Ch Dpth (ft) 11.12 Hydr. Depth (ft) 2.48 9.76 3.19
 Conv. Total (cfs) 199178.4 6621.4 144308.0 48249.0
 Length Wtd. (ft) 2.04 Wetted Per. (ft) 48.61 89.69 183.43
 Min Ch El (ft) 809.00 Shear (lb/sq ft) 350.92 0.07 0.02
 Alpha 0.06 Stream Power (lb/ft.s) 4.40 0.00
 C & E Loss (ft) 0.01 Cum SA (acres) 0.11 4.40 0.00
 C & E Loss (ft) 0.01 Cum SA (acres) 0.11 0.26 0.72

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 2

Station	Elevation	Data	num=	20	Sta	Elev	Sta	Elev	Sta	Elev
0	825.64	0	820.64	11.49	820	60.57	815	78.59	809	809
131.45	809	147.57	817	156.21	817	21	169.6	817.5	190.26	817.13
197.3	817	206.07	814	240.75	814	308.65	816	329.29	817	817
333.45	818	354.96	821	357.96	822	358.96	822	369	822	822

Manning's n Values num= 6
 Sta n Val Sta n Val Sta n Val
 0 .057 11.49 .057 147.57 .059 156.21 .02 190.26 .039
 369

Bank Sta: Left Right Lengths: Left Channel Right
 60.57 147.57 175.41 175.41
 Blocked obstructions num= 1
 Sta L Sta R Elev
 358.96 369 825

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	820.16	Element	Left Ob	Channel	Right Ob
W.S. Elev (ft)	820.14	Wet n-Val.	0.057	0.057	0.036
Crit W.S. (ft)	812.48	Reach (ft)	175.41	175.41	175.41
E.G. Slope (ft/ft)	0.000117	Flow Area (sq ft)	129.55	850.30	847.91
Q Total (cfs)	2137.00	Area (sq ft)	69.29	850.30	847.91
Vel Total (ft/s)	339.72	Flow (cfs)	51.52	87.00	201.20
Max Ch Dpth (ft)	11.14	Avg. Vel. (ft/s)	0.53	1.26	1.18
Conv. Total (cfs)	197855.0	Hydr. Depth (ft)	2.51	9.77	4.21
Length Wtd. (ft)	175.41	Wetted Per. (ft)	6415.2	99174.7	92265.1
Min Ch El (ft)	809.00	Shear (lb/sq ft)	51.78	89.85	202.03
Flood Loss (ft)	1.06	Stream Power (lb/ft.s)	0.02	0.07	0.03
C & E Loss (ft)		Cum Volume (acre-ft)	369.00	4.42	0.00
		Cum SA (acres)	0.10	0.26	0.71

INLINE STRUCTURE

RIVER: West Channel
 REACH: West Channel

RS: 1.5

Distance from Upstream XS =	109.58	Deck/Roadway Width	Weir Coefficient	Weir Embankment Coordinates	num =	6	Sta	Elev	Sta	Elev	Sta	Elev
0	817.5	133.94	817.5	170.3	817.5	220.3	817.8	220.3	825	825	825	825
369	825											

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Max allowable submergence for weir flow = .98
 Elevation at which weir flow begins = Broad Crested
 Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 In1 Struct:

E.G. Elev (ft)	820.16	Q Gates (cfs)	0.00
W.S. Elev (ft)	820.14	Q Gate open Ht (ft)	818.89
Q Total (cfs)	2137.00	Gate open Area (sq ft)	1.00
Weir Flow Area (sq ft)	517.20	Gate Submerg	0.00
Weir Sta Left (ft)	178.64	Gate Invert (ft)	0.00
Weir Sta Rgt (ft)	220.30	Gate Weir Coef	0.000
Weir Max Depth (ft)	2.66		

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Weir Avg Depth (ft) 2.44
 Weir Coef (ft^{1/2}) 2.600
 Weir Submerg 0.49
 Min El Weir Flow (ft) 817.51
 W Top Wtdh (ft) 211.66

Q Breach (cfs)
 Breach Avg Velocity (ft/s)
 Breach Flow Area (sq ft)

CROSS SECTION

RIVER: West Channel
 REACH: West Channel

RS: 1

INPUT
 Description: Station Elevation Data
 Sta Elev Sta Elev Sta Elev Sta Elev
 0 816 42.14 816 136.64 817 187.77 818

Manning's n Values
 Sta n Val Sta n Val Sta n Val
 0 .039 203 .039

Bank Sta: Left Right Coeff Contr. Expan.
 0 42.14 .1 .3

Blocked Obstructions
 Sta L Elev Sta R Elev
 192.77 203 825

CROSS SECTION OUTPUT Profile #PF 1

Element	Left OB	Channel	Right OB
E.G. Elev (ft)	819.30	0.039	0.039
Vel Head (ft)	0.41		
Reach Len. (ft)	818.89		
W.S. Elev (ft)	818.31		
Crit W.S. (ft)	0.006188		
E.G. Slope (ft/ft)	2137.00		
Q Total (cfs)	192.77		
Top width (ft)	2.85		
Vel Vel (ft/s)	2.82		
Wdth Chn (ft)	2.82		
Conv. Vel (ft/s)	9007.81		
Conv. Vel (ft)	45.03		
Length Wtd. (ft)	18159.7		
Min Ch El (ft)	151.54		
Alpha	1.04		
Frctn Loss	203.00		
C & E Loss (ft)	0.00		

SUMMARY OF MANNING'S N VALUES

River:Center North

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11
Center N Upper	13	.02	.039	.039	.039	.039	.039	.035	.043	.039		
Center N Upper	12.8333*	.02	.037	.039	.039	.039	.039	.031	.046	.039		
Center N Upper	12.6666*	.02	.035	.039	.039	.039	.039	.028	.05	.039		
Center N Upper	12.5	.02	.034	.039	.039	.039	.039	.024	.053	.039		
Center N Upper	12.3333*	.02	.039	.039	.039	.039	.039	.027	.057	.039		
Center N Upper	12.1666*	.02	.039	.039	.039	.039	.039	.022	.06	.039		
Center N Upper	11.75*	.02	.039	.039	.039	.039	.039	.02	.064	.039		
Center N Upper	11.5*	.02	.039	.039	.039	.039	.039	.02	.066	.039		
Center N Upper	11.25*	.02	.039	.039	.039	.039	.039	.02	.068	.039		
Center N Upper	11	.02	.039	.039	.039	.039	.039	.02	.07	.039		
Center N Upper	10.8*	.02	.026	.037	.04	.043	.043	.02	.072	.039		
Center N Upper	10.6*	.02	.025	.038	.042	.046	.046	.02	.074	.039		
Center N Upper	10.4*	.02	.023	.038	.043	.047	.047	.02	.076	.039		
Center N Upper	10.2*	.02	.022	.039	.045	.049	.049	.02	.078	.039		
Center N Upper	9.975*	.02	.02	.039	.043	.047	.047	.02	.08	.039		
Center N Upper	9.925*	.02	.021	.039	.043	.047	.047	.02	.081	.039		
Center N Upper	9.875*	.02	.023	.04	.043	.047	.047	.02	.082	.039		
Center N Upper	9.8*	.02	.024	.041	.043	.047	.047	.02	.083	.039		
Center N Upper	9.85*	.025	.025	.042	.044	.048	.048	.02	.084	.039		
Center N Upper	9.825*	.026	.026	.042	.044	.048	.048	.02	.085	.039		
Center N Upper	9.8*	.027	.027	.042	.044	.048	.048	.02	.086	.039		
Center N Upper	9.775*	.028	.028	.043	.045	.049	.049	.02	.087	.039		
Center N Upper	9.75*	.029	.029	.043	.045	.049	.049	.02	.088	.039		
Center N Upper	9.725*	.03	.03	.044	.046	.05	.05	.02	.089	.039		
Center N Upper	9.7*	.031	.031	.044	.046	.05	.05	.02	.09	.039		
Center N Upper	9.675*	.032	.032	.045	.047	.051	.051	.02	.091	.039		
Center N Upper	9.65*	.033	.033	.045	.047	.051	.051	.02	.092	.039		
Center N Upper	9.625*	.034	.034	.046	.048	.052	.052	.02	.093	.039		
Center N Upper	9.6*	.035	.035	.046	.048	.052	.052	.02	.094	.039		

U4 UHS Lower 1.5 In1 struct
 U4 UHS Lower 1 .039

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River: West Channel]

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11
West Channel]	24	.057	.02	.057	.039	.02	.02	.02				
West Channel]	23	.057	.02	.057	.039	.02	.02	.02				
West Channel]	22	.057	.02	.057	.039	.02	.02	.039				
West Channel]	21	.057	.02	.057	.039	.02	.02	.039				
West Channel]	20	.057	.02	.057	.039	.02	.02	.02				
West Channel]	19	.057	.02	.057	.039	.02	.02	.02				
West Channel]	18	.057	.02	.057	.039	.02	.02	.02				
West Channel]	17	.057	.02	.057	.039	.02	.02	.02				
West Channel]	16	.057	.02	.057	.039	.02	.02	.02				
West Channel]	14	.057	.02	.057	.039	.02	.02	.036				
West Channel]	13	.057	.02	.057	.039	.02	.02	.039				
West Channel]	12	.057	.02	.057	.039	.02	.02	.02	.057			.02
West Channel]	11	.057	.02	.057	.039	.02	.02	.02	.02	.057		
West Channel]	10	.057	.02	.057	.039	.02	.02	.02	.02	.039		
West Channel]	9	.057	.02	.057	.039	.02	.02	.02	.02	.039		
West Channel]	8	.057	.02	.057	.039	.02	.02	.02	.02	.039		
West Channel]	7	.057	.02	.057	.039	.02	.02	.02	.02	.039		
West Channel]	6	.057	.02	.057	.039	.02	.02	.02	.02	.039		
West Channel]	5	.057	.02	.057	.039	.02	.02	.02	.02	.039		
West Channel]	4	.039	.057	.039	.02	.02	.02	.02	.02	.039		
West Channel]	3	.039	.051	.039	.02	.02	.02	.02	.02	.039		
West Channel]	2	.039	.054	.039	.02	.02	.02	.02	.02	.039		
West Channel]	1	.039	.057	.039	.02	.02	.02	.02	.02	.039		
In1 struct		.039										

SUMMARY OF REACH LENGTHS

River: Center North

Reach	River Sta.	Left	Channel]	Right
Center N Upper	13	9.17	9.17	9.17
Center N Upper	12.8333*	9.17	9.17	9.17
Center N Upper	12.6666*	9.17	9.17	9.17
Center N Upper	12.5*	9.17	9.17	9.17
Center N Upper	12.3333*	9.17	9.17	9.17
Center N Upper	12.1666*	9.17	9.17	9.17
Center N Upper	11.75*	19.19	19.19	19.19
Center N Upper	11.5*	19.19	19.19	19.19
Center N Upper	11.25*	19.19	19.19	19.19
Center N Upper	11	8.89	8.89	8.89
Center N Upper	10.8*	8.89	8.89	8.89
Center N Upper	10.6*	8.89	8.89	8.89
Center N Upper	10.4*	8.89	8.89	8.89
Center N Upper	10.2*	8.89	8.89	8.89
Center N Upper	10	.99	.99	.99
Center N Upper	9.975*	.99	.99	.99
Center N Upper	9.95*	.99	.99	.99
Center N Upper	9.925*	.99	.99	.99
Center N Upper	9.9*	.99	.99	.99
Center N Upper	9.875*	.99	.99	.99
Center N Upper	9.85*	.99	.99	.99
Center N Upper	9.825*	.99	.99	.99
Center N Upper	9.8*	.99	.99	.99
Center N Upper	9.775*	.99	.99	.99
Center N Upper	9.75*	.99	.99	.99
Center N Upper	9.725*	.99	.99	.99
Center N Upper	9.7*	.99	.99	.99
Center N Upper	9.675*	.99	.99	.99
Center N Upper	9.65*	.99	.99	.99
Center N Upper	9.625*	.99	.99	.99
Center N Upper	9.6*	.99	.99	.99
Center N Upper	9.575*	.99	.99	.99
Center N Upper	9.55*	.99	.99	.99
Center N Upper	9.525*	.99	.99	.99
Center N Upper	9.5*	.99	.99	.99
Center N Upper	9.475*	.99	.99	.99
Center N Upper	9.45*	.99	.99	.99
Center N Upper	9.425*	.99	.99	.99
Center N Upper	9.4*	.99	.99	.99
Center N Upper	9.375*	.99	.99	.99
Center N Upper	9.35*	.99	.99	.99
Center N Upper	9.325*	.99	.99	.99
Center N Upper	9.3*	.99	.99	.99

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River Sta.	Left	Channel	Right
Center N Upper	.99	.99	.99
Center N Upper	9.27500*	.99	.99
Center N Upper	9.25*	.99	.99
Center N Upper	9.225*	.99	.99
Center N Upper	9.2*	.99	.99
Center N Upper	9.175*	.99	.99
Center N Upper	9.15000*	.99	.99
Center N Upper	9.15*	.99	.99
Center N Upper	9.1*	.99	.99
Center N Upper	9.07500*	.99	.99
Center N Upper	9.05*	.99	.99
Center N Upper	9.02500*	.99	.99
Center N Upper	8	176.29	176.29
Center N Upper	9	63.59	63.59
Center N Upper	6	63.02	63.02
Center N Upper	7	47.67	47.67
Center N Upper	5.83333*	47.67	47.67
Center N Upper	2.66666*	47.67	47.67
Center N Upper	5.33333*	47.67	47.67
Center N Upper	5.16666*	47.67	47.67
Center N Upper	108	9.44	9.44
Center N Branch	107.833*	9.44	9.44
Center N Branch	107.666*	9.44	9.44
Center N Branch	107.5*	9.44	9.44
Center N Branch	107.333*	9.44	9.44
Center N Branch	107.166*	9.44	9.44
Center N Branch	107	176.5	176.5
Center N Branch	106	31.83	31.83
Center N Branch	105.5*	31.83	31.83
Center N Lower	4	43.55	43.55
Center N Lower	3.5*	43.55	43.55
Center N Lower	3	119.07	119.07
Center N Lower	2.5	In1 Struct	119.07
Center N Lower	2	69.2	69.2
Center N Lower	1	69.2	69.2

River: Center South

Reach	River Sta.	Left	Channel	Right
Center South	8	4.77	4.77	4.77
Center South	7.91666*	4.77	4.77	4.77
Center South	7.83333*	4.77	4.77	4.77
Center South	7.75*	4.77	4.77	4.77
Center South	7.66666*	4.77	4.77	4.77
Center South	7.58333*	4.77	4.77	4.77
Center South	7.5*	4.77	4.77	4.77
Center South	7.41666*	4.77	4.77	4.77
Center South	7.33333*	4.77	4.77	4.77
Center South	7.25*	4.77	4.77	4.77
Center South	7.16666*	4.77	4.77	4.77
Center South	7.08333*	4.77	4.77	4.77
Center South	7	57	57	57
Center South	6	39.1	39.1	39.1
Center South	5	8.43	8.43	8.43
Center South	4.8*	8.43	8.43	8.43
Center South	4.6*	8.43	8.43	8.43
Center South	4.4*	8.43	8.43	8.43
Center South	4.2*	8.43	8.43	8.43
Center South	4	39.51	39.51	39.51
Center South	3	21.31	21.31	21.31
Center South	2	60.83	60.83	60.83
Center South	1.5	In1 Struct	60.83	60.83
Center South	1	60.83	60.83	60.83

River: East Channel

Reach	River Sta.	Left	Channel	Right
East Channel	7	37.94	37.94	37.94
East Channel	6.75*	37.94	37.94	37.94
East Channel	6.5*	37.94	37.94	37.94
East Channel	6.25*	37.94	37.94	37.94
East Channel	6	.99	.99	.99
East Channel	5.97959*	.99	.99	.99
East Channel	5.95918*	.99	.99	.99
East Channel	5.93877*	.99	.99	.99
East Channel	5.91836*	.99	.99	.99
East Channel	5.89795*	.99	.99	.99
East Channel	5.87753*	.99	.99	.99
East Channel	5.85711*	.99	.99	.99
East Channel	5.83673*	.99	.99	.99
East Channel	5.81632*	.99	.99	.99
East Channel	5.79591*	.99	.99	.99
East Channel	5.77551*	.99	.99	.99

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East Channel]	.99	.99	.99
East Channel]	5.75510*	.99	.99
East Channel]	5.73469*	.99	.99
East Channel]	5.71428*	.99	.99
East Channel]	5.69387*	.99	.99
East Channel]	5.67347*	.99	.99
East Channel]	5.65306*	.99	.99
East Channel]	5.63265*	.99	.99
East Channel]	5.61224*	.99	.99
East Channel]	5.59183*	.99	.99
East Channel]	5.57142*	.99	.99
East Channel]	5.55102*	.99	.99
East Channel]	5.53061*	.99	.99
East Channel]	5.51020*	.99	.99
East Channel]	5.48979*	.99	.99
East Channel]	5.46938*	.99	.99
East Channel]	5.44898*	.99	.99
East Channel]	5.42857*	.99	.99
East Channel]	5.40816*	.99	.99
East Channel]	5.38775*	.99	.99
East Channel]	5.36734*	.99	.99
East Channel]	5.34693*	.99	.99
East Channel]	5.32653*	.99	.99
East Channel]	5.30612*	.99	.99
East Channel]	5.28571*	.99	.99
East Channel]	5.26530*	.99	.99
East Channel]	5.24489*	.99	.99
East Channel]	5.22449*	.99	.99
East Channel]	5.20408*	.99	.99
East Channel]	5.18367*	.99	.99
East Channel]	5.16326*	.99	.99
East Channel]	5.14285*	.99	.99
East Channel]	5.12244*	.99	.99
East Channel]	5.10204*	.99	.99
East Channel]	5.08163*	.99	.99
East Channel]	5.06122*	.99	.99
East Channel]	5.04081*	.99	.99
East Channel]	5.02040*	.99	.99
East Channel]	4.99999*	.99	.99
East Channel]	4.97958*	.99	.99
East Channel]	4.95917*	.99	.99
East Channel]	4.93876*	.99	.99
East Channel]	4.91835*	.99	.99
East Channel]	4.89794*	.99	.99
East Channel]	4.87753*	.99	.99
East Channel]	4.85712*	.99	.99
East Channel]	4.83671*	.99	.99
East Channel]	4.81630*	.99	.99
East Channel]	4.79589*	.99	.99
East Channel]	4.77548*	.99	.99
East Channel]	4.75507*	.99	.99
East Channel]	4.73466*	.99	.99
East Channel]	4.71425*	.99	.99
East Channel]	4.69384*	.99	.99
East Channel]	4.67343*	.99	.99
East Channel]	4.65302*	.99	.99
East Channel]	4.63261*	.99	.99
East Channel]	4.61220*	.99	.99
East Channel]	4.59179*	.99	.99
East Channel]	4.57138*	.99	.99
East Channel]	4.55097*	.99	.99
East Channel]	4.53056*	.99	.99
East Channel]	4.51015*	.99	.99
East Channel]	4.48974*	.99	.99
East Channel]	4.46933*	.99	.99
East Channel]	4.44892*	.99	.99
East Channel]	4.42851*	.99	.99
East Channel]	4.40810*	.99	.99
East Channel]	4.38769*	.99	.99
East Channel]	4.36728*	.99	.99
East Channel]	4.34687*	.99	.99
East Channel]	4.32646*	.99	.99
East Channel]	4.30605*	.99	.99
East Channel]	4.28564*	.99	.99
East Channel]	4.26523*	.99	.99
East Channel]	4.24482*	.99	.99
East Channel]	4.22441*	.99	.99
East Channel]	4.20400*	.99	.99
East Channel]	4.18359*	.99	.99
East Channel]	4.16318*	.99	.99
East Channel]	4.14277*	.99	.99
East Channel]	4.12236*	.99	.99
East Channel]	4.10195*	.99	.99
East Channel]	4.08154*	.99	.99
East Channel]	4.06113*	.99	.99
East Channel]	4.04072*	.99	.99
East Channel]	4.02031*	.99	.99
East Channel]	4.00000*	.99	.99
East Channel]	3.97959*	.99	.99
East Channel]	3.95918*	.99	.99
East Channel]	3.93877*	.99	.99
East Channel]	3.91836*	.99	.99
East Channel]	3.89795*	.99	.99
East Channel]	3.87754*	.99	.99
East Channel]	3.85713*	.99	.99
East Channel]	3.83672*	.99	.99
East Channel]	3.81631*	.99	.99
East Channel]	3.79590*	.99	.99
East Channel]	3.77549*	.99	.99
East Channel]	3.75508*	.99	.99
East Channel]	3.73467*	.99	.99
East Channel]	3.71426*	.99	.99
East Channel]	3.69385*	.99	.99
East Channel]	3.67344*	.99	.99
East Channel]	3.65303*	.99	.99
East Channel]	3.63262*	.99	.99
East Channel]	3.61221*	.99	.99
East Channel]	3.59180*	.99	.99
East Channel]	3.57139*	.99	.99
East Channel]	3.55098*	.99	.99
East Channel]	3.53057*	.99	.99
East Channel]	3.51016*	.99	.99
East Channel]	3.48975*	.99	.99
East Channel]	3.46934*	.99	.99
East Channel]	3.44893*	.99	.99
East Channel]	3.42852*	.99	.99
East Channel]	3.40811*	.99	.99
East Channel]	3.38770*	.99	.99
East Channel]	3.36729*	.99	.99
East Channel]	3.34688*	.99	.99
East Channel]	3.32647*	.99	.99
East Channel]	3.30606*	.99	.99
East Channel]	3.28565*	.99	.99
East Channel]	3.26524*	.99	.99
East Channel]	3.24483*	.99	.99
East Channel]	3.22442*	.99	.99
East Channel]	3.20401*	.99	.99
East Channel]	3.18360*	.99	.99
East Channel]	3.16319*	.99	.99
East Channel]	3.14278*	.99	.99
East Channel]	3.12237*	.99	.99
East Channel]	3.10196*	.99	.99
East Channel]	3.08155*	.99	.99
East Channel]	3.06114*	.99	.99
East Channel]	3.04073*	.99	.99
East Channel]	3.02032*	.99	.99
East Channel]	3.00000*	.99	.99

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Unit 3 East	2.36842*	.99	.99	.99
Unit 3 East	2.31578*	.99	.99	.99
Unit 3 East	2.26315*	.99	.99	.99
Unit 3 East	2.21052*	.99	.99	.99
Unit 3 East	2.15789*	.99	.99	.99
Unit 3 East	2.10526*	.99	.99	.99
Unit 3 East	2.05263*	.99	.99	.99
Unit 3 East	70.85	70.85	70.85	70.85
Unit 3 East	In1 Struct			
Unit 3 East	1.5			
Unit 3 East	1			

River: Unit 3 North

Reach	River Sta.	Left	Channel	Right
Unit 3 North	8	38.08	38.08	38.08
Unit 3 North	7	38.08	38.08	38.08
Unit 3 North	6	134.66	134.66	134.66
Unit 3 North	5	134.66	134.66	134.66
Unit 3 North	4.5	In1 Struct		
Unit 3 North	4	35.13	35.13	35.13
Unit 3 North	3.5*	35.13	35.13	35.13
Unit 3 North	3	18.2	18.2	18.2
Unit 3 North	2	137.8	137.8	137.8
Unit 3 North	1.5	In1 Struct		
Unit 3 North	1			

River: Unit 3 Southeast

Reach	River Sta.	Left	Channel	Right
Unit 3 Southeast	11	4.92	4.92	4.92
Unit 3 Southeast	10.9090*	4.92	4.92	4.92
Unit 3 Southeast	10.8181*	4.92	4.92	4.92
Unit 3 Southeast	10.7272*	4.92	4.92	4.92
Unit 3 Southeast	10.6363*	4.92	4.92	4.92
Unit 3 Southeast	10.5454*	4.92	4.92	4.92
Unit 3 Southeast	10.4545*	4.92	4.92	4.92
Unit 3 Southeast	10.3636*	4.92	4.92	4.92
Unit 3 Southeast	10.2727*	4.92	4.92	4.92
Unit 3 Southeast	10.1818*	4.92	4.92	4.92
Unit 3 Southeast	10.0909*	4.92	4.92	4.92
Unit 3 Southeast	10	9.54	9.54	9.54
Unit 3 Southeast	9.85714*	9.54	9.54	9.54
Unit 3 Southeast	9.71428*	9.54	9.54	9.54
Unit 3 Southeast	9.57142*	9.54	9.54	9.54
Unit 3 Southeast	9.42857*	9.54	9.54	9.54
Unit 3 Southeast	9.28571*	9.54	9.54	9.54
Unit 3 Southeast	9.14285*	8.57	8.57	8.57
Unit 3 Southeast	8.85714*	8.57	8.57	8.57
Unit 3 Southeast	8.71428*	8.57	8.57	8.57
Unit 3 Southeast	8.57142*	8.57	8.57	8.57
Unit 3 Southeast	8.42857*	8.57	8.57	8.57
Unit 3 Southeast	8.28571*	8.57	8.57	8.57
Unit 3 Southeast	8.14285*	8.57	8.57	8.57
Unit 3 Southeast	8	12.19	12.19	12.19
Unit 3 Southeast	7	35.05	35.05	35.05
Unit 3 Southeast	6	97.41	97.41	97.41
Unit 3 Southeast	5	0.32	0.32	0.32
Unit 3 Southeast	4.66666*	0.32	0.32	0.32
Unit 3 Southeast	4.33333*	0.32	0.32	0.32
Unit 3 Southeast	4	59.51	59.51	59.51
Unit 3 Southeast	3	49.34	49.34	49.34
Unit 3 Southeast	2	95.65	95.65	95.65
Unit 3 Southeast	1.5	In1 Struct		
Unit 3 Southeast	1			

River: Unit 3 UHS

Reach	River Sta.	Left	Channel	Right
U3 UHS Branch	109.944*	5	5	5
U3 UHS Branch	108.888*	5	5	5
U3 UHS Branch	108.833*	5	5	5
U3 UHS Branch	108.777*	5	5	5
U3 UHS Branch	108.722*	5	5	5
U3 UHS Branch	108.666*	5	5	5
U3 UHS Branch	108.611*	5	5	5
U3 UHS Branch	108.555*	5	5	5
U3 UHS Branch	108.444*	5	5	5
U3 UHS Branch	108.388*	5	5	5
U3 UHS Branch	108.333*	5	5	5
U3 UHS Branch	108.277*	5	5	5

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U3 UHS Branch	108.222*	5	5	5
U3 UHS Branch	108.166*	5	5	5
U3 UHS Branch	108.111*	5	5	5
U3 UHS Branch	108.055*	5	5	5
U3 UHS Upper	36.67	36.67	36.67	36.67
U3 UHS Upper	61.29	61.29	61.29	61.29
U3 UHS Upper	61.29	61.29	61.29	61.29
U3 UHS Upper	185.53	185.53	185.53	185.53
U3 UHS Upper	74.27	74.27	74.27	74.27
U3 UHS Lower	129.73	129.73	129.73	129.73
U3 UHS Lower	130.06	130.06	130.06	130.06
U3 UHS Lower	26.74	26.74	26.74	26.74
U3 UHS Lower	108.2	108.2	108.2	108.2
U3 UHS Lower	107.58	107.58	107.58	107.58
U3 UHS Lower	55.06	55.06	55.06	55.06
U3 UHS Lower	In1 Struct			

River: Unit 4 North

Reach	River Sta.	Left	Channel	Right
Unit 4 North	6	43.08	43.08	43.08
Unit 4 North	4	58.10	58.10	58.10
Unit 4 North	3	70.85	70.85	70.85
Unit 4 North	2	In1 Struct		
Unit 4 North	1.5			
Unit 4 North	1			

River: Unit 4 UHS

Reach	River Sta.	Left	Channel	Right
U4 UHS Upper	10	54.68	54.68	54.68
U4 UHS Upper	8.875*	9.23	9.23	9.23
U4 UHS Upper	8.75*	9.23	9.23	9.23
U4 UHS Upper	8.625*	9.23	9.23	9.23
U4 UHS Upper	8.5*	9.23	9.23	9.23
U4 UHS Upper	8.375*	9.23	9.23	9.23
U4 UHS Upper	8.25*	9.23	9.23	9.23
U4 UHS Upper	8.125*	9.23	9.23	9.23
U4 UHS Upper	7	186.33	186.33	186.33
U4 UHS Upper	6.9	Lat Struct		
U4 UHS Upper	6			
U4 UHS Branch	107	118.9	118.9	118.9
U4 UHS Lower	5	42.62	42.62	42.62
U4 UHS Lower	4.9	Lat Struct		
U4 UHS Lower	4.75*	42.62	42.62	42.62
U4 UHS Lower	4.5*	42.62	42.62	42.62
U4 UHS Lower	4.25*	42.62	42.62	42.62
U4 UHS Lower	4	91.85	91.85	91.85
U4 UHS Lower	3.9	Lat Struct		
U4 UHS Lower	3	92857*	9.6	9.6
U4 UHS Lower	2.85714*	9.6	9.6	9.6
U4 UHS Lower	2.78571*	9.6	9.6	9.6
U4 UHS Lower	2.71428*	9.6	9.6	9.6
U4 UHS Lower	2.64285*	9.6	9.6	9.6
U4 UHS Lower	2.57142*	9.6	9.6	9.6
U4 UHS Lower	2.5*	9.6	9.6	9.6
U4 UHS Lower	2.42857*	9.6	9.6	9.6
U4 UHS Lower	2.35714*	9.6	9.6	9.6
U4 UHS Lower	2.28571*	9.6	9.6	9.6
U4 UHS Lower	2.14285*	9.6	9.6	9.6
U4 UHS Lower	2.07142*	9.6	9.6	9.6
U4 UHS Lower	1.5	112	112	112
U4 UHS Lower	1	In1 Struct		

River: West Channel

Reach	River Sta.	Left	Channel	Right
West Channel	24	66.39	66.39	66.39
West Channel	23	24.9	24.9	24.9
West Channel	22	149.29	149.29	149.29
West Channel	21	201.74	201.74	201.74

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West Channel]	20	166.53	166.53	166.53	166.53
West Channel]	19	230.48	230.48	230.48	230.48
West Channel]	18	32.96	32.96	32.96	32.96
West Channel]	17	142.47	142.47	142.47	142.47
West Channel]	16	66.4	66.4	66.4	66.4
West Channel]	15	142.47	142.47	142.47	142.47
West Channel]	14	201.75	201.75	201.75	201.75
West Channel]	13	246.39	246.39	246.39	246.39
West Channel]	12	63.04	63.04	63.04	63.04
West Channel]	11	36.14	36.14	36.14	36.14
West Channel]	9	55	55	55	55
West Channel]	8	60.26	60.26	60.26	60.26
West Channel]	7	98.26	98.26	98.26	98.26
West Channel]	6	175.56	175.56	175.56	175.56
West Channel]	5	164.09	164.09	164.09	164.09
West Channel]	4	29.39	29.39	29.39	29.39
West Channel]	3	2.04	2.04	2.04	2.04
West Channel]	2	2.04	2.04	2.04	2.04
West Channel]	2.33333*	175.41	175.41	175.41	175.41
West Channel]	1.5	Inl Struct			
West Channel]	1				

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Center-North

Reach	River Sta.	Contr.	Expan.
Center N Upper	13	.1	.3
Center N Upper	12.8333*	.1	.3
Center N Upper	12.6666*	.1	.3
Center N Upper	12.5*	.1	.3
Center N Upper	12.3333*	.1	.3
Center N Upper	12.1666*	.1	.3
Center N Upper	12.75*	.1	.3
Center N Upper	11.5*	.1	.3
Center N Upper	11.25*	.1	.3
Center N Upper	11.3	.1	.3
Center N Upper	10.8*	.1	.3
Center N Upper	10.6*	.1	.3
Center N Upper	10.4*	.1	.3
Center N Upper	10.2*	.1	.3
Center N Upper	10.1	.1	.3
Center N Upper	9.75*	.1	.3
Center N Upper	9.5*	.1	.3
Center N Upper	9.25*	.1	.3
Center N Upper	9.875*	.1	.3
Center N Upper	9.85*	.1	.3
Center N Upper	9.825*	.1	.3
Center N Upper	9.8*	.1	.3
Center N Upper	9.775*	.1	.3
Center N Upper	9.75*	.1	.3
Center N Upper	9.725*	.1	.3
Center N Upper	9.7*	.1	.3
Center N Upper	9.675*	.1	.3
Center N Upper	9.65*	.1	.3
Center N Upper	9.625*	.1	.3
Center N Upper	9.6*	.1	.3
Center N Upper	9.575*	.1	.3
Center N Upper	9.55*	.1	.3
Center N Upper	9.525*	.1	.3
Center N Upper	9.5*	.1	.3
Center N Upper	9.475*	.1	.3
Center N Upper	9.45*	.1	.3
Center N Upper	9.425*	.1	.3
Center N Upper	9.4*	.1	.3
Center N Upper	9.375*	.1	.3
Center N Upper	9.35*	.1	.3
Center N Upper	9.325*	.1	.3
Center N Upper	9.3*	.1	.3
Center N Upper	9.275*	.1	.3
Center N Upper	9.25*	.1	.3
Center N Upper	9.225*	.1	.3
Center N Upper	9.2*	.1	.3
Center N Upper	9.175*	.1	.3
Center N Upper	9.15*	.1	.3
Center N Upper	9.125*	.1	.3
Center N Upper	9.1*	.1	.3
Center N Upper	9.075*	.1	.3
Center N Upper	9.05*	.1	.3
Center N Upper	9.025*	.1	.3
Center N Upper	9	.1	.3

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Center	River Sta.	Contr.	Expan.
Center N Upper	8	.1	.3
Center N Upper	7	.1	.3
Center N Upper	6	.1	.3
Center N Upper	5.83333*	.1	.3
Center N Upper	5.66666*	.1	.3
Center N Upper	5.5	.1	.3
Center N Upper	5.3333*	.1	.3
Center N Upper	5.16666*	.1	.3
Center N Upper	5	.1	.3
Center N Branch	108	.1	.3
Center N Branch	107.833*	.1	.3
Center N Branch	107.666*	.1	.3
Center N Branch	107.5*	.1	.3
Center N Branch	107.333*	.1	.3
Center N Branch	107.166*	.1	.3
Center N Branch	107	.1	.3
Center N Branch	106	.1	.3
Center N Branch	105.5*	.1	.3
Center N Branch	105	.1	.3
Center N Lower	4	.1	.3
Center N Lower	3.5*	.1	.3
Center N Lower	3	.1	.3
Center N Lower	2.5	Inl struct	.3
Center N Lower	2	.1	.3
Center N Lower	1	.1	.3

River: Center South

Reach	River Sta.	Contr.	Expan.
Center South	8	.1	.3
Center South	7.91666*	.1	.3
Center South	7.83333*	.1	.3
Center South	7.75*	.1	.3
Center South	7.66666*	.1	.3
Center South	7.58333*	.1	.3
Center South	7.5	.1	.3
Center South	7.41666*	.1	.3
Center South	7.3333*	.1	.3
Center South	7.25	.1	.3
Center South	7.16666*	.1	.3
Center South	7.08333*	.1	.3
Center South	7	.1	.3
Center South	6	.1	.3
Center South	5	.1	.3
Center South	4.8*	.1	.3
Center South	4.6*	.1	.3
Center South	4.4*	.1	.3
Center South	4.2*	.1	.3
Center South	4	.1	.3
Center South	3	.1	.3
Center South	2	.1	.3
Center South	1.5	Inl Struct	.3
Center South	1	.1	.3

River: East Channel

Reach	River Sta.	Contr.	Expan.
East Channel]	7	.1	.3
East Channel]	6.75*	.1	.3
East Channel]	6.5*	.1	.3
East Channel]	6.25*	.1	.3
East Channel]	6	.1	.3
East Channel]	5.97959*	.1	.3
East Channel]	5.95918*	.1	.3
East Channel]	5.93877*	.1	.3
East Channel]	5.91836*	.1	.3
East Channel]	5.89795*	.1	.3
East Channel]	5.87755*	.1	.3
East Channel]	5.85715*	.1	.3
East Channel]	5.83674*	.1	.3
East Channel]	5.81632*	.1	.3
East Channel]	5.79591*	.1	.3
East Channel]	5.77551*	.1	.3
East Channel]	5.75510*	.1	.3
East Channel]	5.73469*	.1	.3
East Channel]	5.71428*	.1	.3
East Channel]	5.69387*	.1	.3
East Channel]	5.67347*	.1	.3
East Channel]	5.65306*	.1	.3
East Channel]	5.63265*	.1	.3
East Channel]	5.61224*	.1	.3
East Channel]	5.59183*	.1	.3
East Channel]	5.57142*	.1	.3
East Channel]	5.55102*	.1	.3
East Channel]	5.53061*	.1	.3

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East Channel	5.51020*	.1	.3
East Channel	5.48979*	.1	.3
East Channel	5.46938*	.1	.3
East Channel	5.44898*	.1	.3
East Channel	5.42857*	.1	.3
East Channel	5.40816*	.1	.3
East Channel	5.38774*	.1	.3
East Channel	5.36733*	.1	.3
East Channel	5.34693*	.1	.3
East Channel	5.32653*	.1	.3
East Channel	5.30612*	.1	.3
East Channel	5.28571*	.1	.3
East Channel	5.26530*	.1	.3
East Channel	5.24489*	.1	.3
East Channel	5.22449*	.1	.3
East Channel	5.20408*	.1	.3
East Channel	5.18367*	.1	.3
East Channel	5.16326*	.1	.3
East Channel	5.14285*	.1	.3
East Channel	5.12244*	.1	.3
East Channel	5.10204*	.1	.3
East Channel	5.08163*	.1	.3
East Channel	5.06122*	.1	.3
East Channel	5.04081*	.1	.3
East Channel	5.02040*	.1	.3
East Channel	5	.1	.3
East Channel	4.85714*	.1	.3
East Channel	4.71428*	.1	.3
East Channel	4.57142*	.1	.3
East Channel	4.42857*	.1	.3
East Channel	4.28571*	.1	.3
East Channel	4.14285*	.1	.3
East Channel	4	.1	.3
East Channel	3.97777*	.1	.3
East Channel	3.95555*	.1	.3
East Channel	3.93333*	.1	.3
East Channel	3.91111*	.1	.3
East Channel	3.88888*	.1	.3
East Channel	3.86666*	.1	.3
East Channel	3.84444*	.1	.3
East Channel	3.82222*	.1	.3
East Channel	3.8	.1	.3
East Channel	3.77777*	.1	.3
East Channel	3.75555*	.1	.3
East Channel	3.73333*	.1	.3
East Channel	3.71111*	.1	.3
East Channel	3.68888*	.1	.3
East Channel	3.66666*	.1	.3
East Channel	3.64444*	.1	.3
East Channel	3.62222*	.1	.3
East Channel	3.6	.1	.3
East Channel	3.57777*	.1	.3
East Channel	3.55555*	.1	.3
East Channel	3.53333*	.1	.3
East Channel	3.51111*	.1	.3
East Channel	3.48888*	.1	.3
East Channel	3.46666*	.1	.3
East Channel	3.44444*	.1	.3
East Channel	3.42222*	.1	.3
East Channel	3.4	.1	.3
East Channel	3.37777*	.1	.3
East Channel	3.35555*	.1	.3
East Channel	3.33333*	.1	.3
East Channel	3.31111*	.1	.3
East Channel	3.28888*	.1	.3
East Channel	3.26666*	.1	.3
East Channel	3.24444*	.1	.3
East Channel	3.22222*	.1	.3
East Channel	3.2	.1	.3
East Channel	3.17777*	.1	.3
East Channel	3.15555*	.1	.3
East Channel	3.13333*	.1	.3
East Channel	3.11111*	.1	.3
East Channel	3.08888*	.1	.3
East Channel	3.06666*	.1	.3
East Channel	3.04444*	.1	.3
East Channel	3.02222*	.1	.3
East Channel	3	.1	.3
East Channel	2.875*	.1	.3
East Channel	2.75*	.1	.3
East Channel	2.625*	.1	.3
East Channel	2.5*	.1	.3
East Channel	2.375*	.1	.3
East Channel	2.25*	.1	.3
East Channel	2.125*	.1	.3
East Channel	2	.1	.3
East Channel	1.75*	.1	.3
East Channel	1.5*	.1	.3
East Channel	1.25*	.1	.3

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East Channel]	1	.1	.3
River: Offsite			
Reach	River Sta.	Contr.	Expan.
Offsite	6	.1	.3
Offsite	5.5*	.1	.3
Offsite	4.5*	.1	.3
Offsite	4	.1	.3
Offsite	3.5*	.1	.3
Offsite	3	.1	.3
Offsite	2.91666*	.1	.3
Offsite	2.83333*	.1	.3
Offsite	2.72666*	.1	.3
Offsite	2.66666*	.1	.3
Offsite	2.58333*	.1	.3
Offsite	2.5*	.1	.3
Offsite	2.41666*	.1	.3
Offsite	2.33333*	.1	.3
Offsite	2.25*	.1	.3
Offsite	2.16666*	.1	.3
Offsite	2.08333*	.1	.3
Offsite	1.5	In] struct	.3
Offsite	1	.1	.3

River: Unit 3 East

Reach	River Sta.	Contr.	Expan.
Unit 3 East	5	.1	.3
Unit 3 East	4	.1	.3
Unit 3 East	3.96666*	.1	.3
Unit 3 East	3.93333*	.1	.3
Unit 3 East	3.86666*	.1	.3
Unit 3 East	3.83333*	.1	.3
Unit 3 East	3.76666*	.1	.3
Unit 3 East	3.73333*	.1	.3
Unit 3 East	3.7*	.1	.3
Unit 3 East	3.66666*	.1	.3
Unit 3 East	3.63333*	.1	.3
Unit 3 East	3.6*	.1	.3
Unit 3 East	3.56666*	.1	.3
Unit 3 East	3.53333*	.1	.3
Unit 3 East	3.46666*	.1	.3
Unit 3 East	3.43333*	.1	.3
Unit 3 East	3.4*	.1	.3
Unit 3 East	3.36666*	.1	.3
Unit 3 East	3.33333*	.1	.3
Unit 3 East	3.3*	.1	.3
Unit 3 East	3.26666*	.1	.3
Unit 3 East	3.23333*	.1	.3
Unit 3 East	3.2*	.1	.3
Unit 3 East	3.16666*	.1	.3
Unit 3 East	3.13333*	.1	.3
Unit 3 East	3.06666*	.1	.3
Unit 3 East	3.03333*	.1	.3
Unit 3 East	3	.1	.3
Unit 3 East	2.94736*	.1	.3
Unit 3 East	2.89473*	.1	.3
Unit 3 East	2.84210*	.1	.3
Unit 3 East	2.78947*	.1	.3
Unit 3 East	2.73684*	.1	.3
Unit 3 East	2.68421*	.1	.3
Unit 3 East	2.63158*	.1	.3
Unit 3 East	2.57895*	.1	.3
Unit 3 East	2.52632*	.1	.3
Unit 3 East	2.47368*	.1	.3
Unit 3 East	2.42105*	.1	.3
Unit 3 East	2.36842*	.1	.3
Unit 3 East	2.31578*	.1	.3
Unit 3 East	2.26315*	.1	.3
Unit 3 East	2.21052*	.1	.3
Unit 3 East	2.15789*	.1	.3
Unit 3 East	2.10526*	.1	.3
Unit 3 East	2.05263*	.1	.3
Unit 3 East	1.5	In] struct	.3
Unit 3 East	1	.1	.3

River: Unit 3 North

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Reach	River Sta.	Contr.	Expan.
Unit 3 North	8	.1	.3
Unit 3 North	7	.1	.3
Unit 3 North	6	.1	.3
Unit 3 North	5	.1	.3
Unit 3 North	4	Inl	.3
Unit 3 North	4.5	Struct	.3
Unit 3 North	3.5*	.1	.3
Unit 3 North	3	.1	.3
Unit 3 North	2	.1	.3
Unit 3 North	1.5	Inl struct	.3
Unit 3 North	1	.1	.3

River: Unit 3 Southeast

Reach	River Sta.	Contr.	Expan.
Unit 3 Southeast	11	.1	.3
Unit 3 Southeast	10.9090*	.1	.3
Unit 3 Southeast	10.8181*	.1	.3
Unit 3 Southeast	10.7272*	.1	.3
Unit 3 Southeast	10.6363*	.1	.3
Unit 3 Southeast	10.5454*	.1	.3
Unit 3 Southeast	10.4545*	.1	.3
Unit 3 Southeast	10.3636*	.1	.3
Unit 3 Southeast	10.2727*	.1	.3
Unit 3 Southeast	10.1818*	.1	.3
Unit 3 Southeast	10.0909*	.1	.3
Unit 3 Southeast	10	.1	.3
Unit 3 Southeast	9.85714*	.1	.3
Unit 3 Southeast	9.71428*	.1	.3
Unit 3 Southeast	9.57142*	.1	.3
Unit 3 Southeast	9.42857*	.1	.3
Unit 3 Southeast	9.28571*	.1	.3
Unit 3 Southeast	9.14285*	.1	.3
Unit 3 Southeast	8.85714*	.1	.3
Unit 3 Southeast	8.71428*	.1	.3
Unit 3 Southeast	8.57142*	.1	.3
Unit 3 Southeast	8.42857*	.1	.3
Unit 3 Southeast	8.28571*	.1	.3
Unit 3 Southeast	8.14285*	.1	.3
Unit 3 Southeast	8	.1	.3
Unit 3 Southeast	7	.1	.3
Unit 3 Southeast	6	.1	.3
Unit 3 Southeast	5.66666*	.1	.3
Unit 3 Southeast	4.99999*	.1	.3
Unit 3 Southeast	4	.1	.3
Unit 3 Southeast	3	.1	.3
Unit 3 Southeast	2	.1	.3
Unit 3 Southeast	1.5	Inl struct	.3
Unit 3 Southeast	1	.1	.3

River: Unit 3 UHS

Reach	River Sta.	Contr.	Expan.
U3 UHS Branch	109	.1	.3
U3 UHS Branch	108.944*	.1	.3
U3 UHS Branch	108.888*	.1	.3
U3 UHS Branch	108.833*	.1	.3
U3 UHS Branch	108.777*	.1	.3
U3 UHS Branch	108.722*	.1	.3
U3 UHS Branch	108.666*	.1	.3
U3 UHS Branch	108.611*	.1	.3
U3 UHS Branch	108.555*	.1	.3
U3 UHS Branch	108.5*	.1	.3
U3 UHS Branch	108.444*	.1	.3
U3 UHS Branch	108.388*	.1	.3
U3 UHS Branch	108.333*	.1	.3
U3 UHS Branch	108.277*	.1	.3
U3 UHS Branch	108.222*	.1	.3
U3 UHS Branch	108.166*	.1	.3
U3 UHS Branch	108.111*	.1	.3
U3 UHS Branch	108.055*	.1	.3
U3 UHS Branch	108	.1	.3
U3 UHS Upper	12	.1	.3
U3 UHS Upper	11.5*	.1	.3
U3 UHS Upper	11	.1	.3
U3 UHS Upper	10.5*	.1	.3
U3 UHS Upper	10	.1	.3
U3 UHS Upper	9	.1	.3
U3 UHS Upper	8	.1	.3

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U3 UHS Lower	7	6.9	.1	.3
U3 UHS Lower	6		Lat struct	
U3 UHS Lower	5		.1	.3
U3 UHS Lower	4		.1	.3
U3 UHS Lower	3		.1	.3
U3 UHS Lower	2		.1	.3
U3 UHS Lower	1.5		Inl struct	
U3 UHS Lower	1		.1	.3

River: Unit 4 North

Reach	River Sta.	Contr.	Expan.
Unit 4 North	6	.1	.3
Unit 4 North	4	.1	.3
Unit 4 North	3	.1	.3
Unit 4 North	2	.1	.3
Unit 4 North	1.5	Inl struct	
Unit 4 North	1	.1	.3

River: Unit 4 UHS

Reach	River Sta.	Contr.	Expan.
U4 UHS Upper	10	.1	.3
U4 UHS Upper	9	.1	.3
U4 UHS Upper	8.875*	.1	.3
U4 UHS Upper	8.75*	.1	.3
U4 UHS Upper	8.625*	.1	.3
U4 UHS Upper	8.5*	.1	.3
U4 UHS Upper	8.375*	.1	.3
U4 UHS Upper	8.25*	.1	.3
U4 UHS Upper	8.125*	.1	.3
U4 UHS Upper	8	.1	.3
U4 UHS Upper	6.9	.1	.3
U4 UHS Upper	6	.1	.3
U4 UHS Branch	107	.1	.3
U4 UHS Branch	106	.1	.3
U4 UHS Lower	5	.1	.3
U4 UHS Lower	4.9	.1	.3
U4 UHS Lower	4.75*	.1	.3
U4 UHS Lower	4.5*	.1	.3
U4 UHS Lower	4.25*	.1	.3
U4 UHS Lower	4	.1	.3
U4 UHS Lower	3.9	.1	.3
U4 UHS Lower	3	.1	.3
U4 UHS Lower	2.92857*	.1	.3
U4 UHS Lower	2.85714*	.1	.3
U4 UHS Lower	2.78571*	.1	.3
U4 UHS Lower	2.71428*	.1	.3
U4 UHS Lower	2.64285*	.1	.3
U4 UHS Lower	2.57142*	.1	.3
U4 UHS Lower	2.5*	.1	.3
U4 UHS Lower	2.42857*	.1	.3
U4 UHS Lower	2.35714*	.1	.3
U4 UHS Lower	2.28571*	.1	.3
U4 UHS Lower	2.21428*	.1	.3
U4 UHS Lower	2.14285*	.1	.3
U4 UHS Lower	2.07142*	.1	.3
U4 UHS Lower	2	.1	.3
U4 UHS Lower	1.5	Inl struct	
U4 UHS Lower	1	.1	.3

River: west Channel

Reach	River Sta.	Contr.	Expan.
West Channel	24	.1	.3
West Channel	23	.1	.3
West Channel	22	.1	.3
West Channel	21	.1	.3
West Channel	20	.1	.3
West Channel	19	.1	.3
West Channel	18	.1	.3
West Channel	17	.1	.3
West Channel	16	.1	.3
West Channel	15	.1	.3
West Channel	14	.1	.3
West Channel	13	.1	.3
West Channel	12	.1	.3
West Channel	11	.1	.3
West Channel	10	.1	.3
West Channel	9	.1	.3

East Channel	820.24	820.07	0.01	0.00	6.30	206.70	65.83
East Channel	820.23	820.06	0.17	0.00	6.14	206.86	65.79
East Channel	820.22	820.05	0.17	0.00	6.00	207.00	65.75
East Channel	820.21	820.04	0.17	0.00	5.82	207.18	65.72
East Channel	820.20	820.03	0.17	0.00	5.69	207.31	65.68
East Channel	820.19	820.02	0.17	0.00	5.56	207.44	65.64
East Channel	820.18	820.01	0.17	0.00	5.43	207.57	65.61
East Channel	820.17	820.00	0.17	0.00	5.28	207.72	65.53
East Channel	820.16	819.99	0.16	0.00	5.16	207.84	65.50
East Channel	820.15	819.98	0.16	0.00	4.92	208.08	65.46
East Channel	820.14	819.97	0.16	0.00	4.81	208.19	65.42
East Channel	820.13	819.96	0.16	0.00	4.69	208.31	65.39
East Channel	820.12	819.95	0.16	0.00	4.59	208.41	65.35
East Channel	820.11	819.94	0.16	0.00	4.49	208.51	65.31
East Channel	820.10	819.93	0.16	0.00	4.38	208.62	65.28
East Channel	820.09	819.92	0.16	0.00	4.29	208.71	65.24
East Channel	820.08	819.91	0.16	0.00	4.10	208.80	65.16
East Channel	820.07	819.90	0.16	0.00	4.00	208.90	65.12
East Channel	820.06	819.89	0.16	0.00	3.95	209.07	65.08
East Channel	820.05	819.88	0.17	0.00	3.84	209.16	65.04
East Channel	820.04	819.87	0.17	0.00	3.76	209.24	65.00
East Channel	820.03	819.86	0.17	0.00	3.67	209.33	65.00
East Channel	820.02	819.85	0.17	0.00	3.59	209.41	64.91
East Channel	820.01	819.84	0.17	0.00	3.51	209.49	64.87
East Channel	820.00	819.83	0.17	0.00	3.44	209.56	64.83
East Channel	819.99	819.82	0.17	0.00	3.37	209.63	64.78
East Channel	819.98	819.81	0.17	0.00	3.29	209.74	64.74
East Channel	819.97	819.80	0.17	0.00	3.21	209.84	64.69
East Channel	819.96	819.79	0.18	0.00	3.11	209.95	64.64
East Channel	819.95	819.78	0.18	0.00	3.08	209.99	64.60
East Channel	819.94	819.77	0.18	0.00	3.01	209.99	64.55
East Channel	819.93	819.76	0.18	0.00	2.94	210.06	64.49
East Channel	819.92	819.75	0.18	0.00	2.87	210.13	64.44
East Channel	819.91	819.74	0.19	0.00	2.80	210.20	64.39
East Channel	819.90	819.73	0.19	0.00	2.73	210.27	64.33
East Channel	819.89	819.72	0.19	0.00	2.66	210.34	64.27
East Channel	819.88	819.71	0.20	0.00	2.59	210.41	64.21
East Channel	819.87	819.70	0.20	0.00	2.52	210.48	64.14
East Channel	819.86	819.69	0.21	0.00	2.42	210.56	64.08
East Channel	819.85	819.68	0.21	0.00	2.37	210.63	64.00
East Channel	819.84	819.67	0.21	0.00	2.29	210.71	63.92
East Channel	819.83	819.66	0.22	0.00	2.20	210.80	63.84
East Channel	819.82	819.65	0.23	0.00	2.11	210.89	63.74
East Channel	819.81	819.64	0.25	0.00	2.01	210.99	63.64
East Channel	819.80	819.63	0.26	0.00	1.89	211.11	63.50
East Channel	819.79	819.62	0.30	0.01	1.82	211.24	63.31
East Channel	819.78	819.61	0.35	0.16	1.76	211.41	63.11
East Channel	819.77	819.60	0.40	0.17	1.74	211.64	62.89
East Channel	819.76	819.59	0.45	0.16	1.72	211.92	62.64
East Channel	819.75	819.58	0.50	0.16	1.82	212.26	62.31
East Channel	819.74	819.57	0.55	0.16	1.91	212.74	61.89
East Channel	819.73	819.56	0.60	0.16	2.00	213.33	61.41
East Channel	819.72	819.55	0.65	0.16	2.09	214.03	60.84
East Channel	819.71	819.54	0.70	0.16	2.18	214.84	60.17
East Channel	819.70	819.53	0.75	0.16	2.27	215.76	59.41
East Channel	819.69	819.52	0.80	0.16	2.36	216.79	58.51
East Channel	819.68	819.51	0.85	0.16	2.45	217.94	57.51
East Channel	819.67	819.50	0.90	0.16	2.54	219.21	56.41
East Channel	819.66	819.49	0.95	0.16	2.63	220.60	55.21
East Channel	819.65	819.48	1.00	0.16	2.72	222.11	54.01
East Channel	819.64	819.47	1.05	0.16	2.81	223.74	52.81
East Channel	819.63	819.46	1.10	0.16	2.90	225.49	51.61
East Channel	819.62	819.45	1.15	0.16	2.99	227.36	50.41
East Channel	819.61	819.44	1.20	0.16	3.08	229.36	49.21
East Channel	819.60	819.43	1.25	0.16	3.17	231.49	48.01
East Channel	819.59	819.42	1.30	0.16	3.26	233.76	46.81
East Channel	819.58	819.41	1.35	0.16	3.35	236.17	45.61
East Channel	819.57	819.40	1.40	0.16	3.44	238.72	44.41
East Channel	819.56	819.39	1.45	0.16	3.53	241.41	43.21
East Channel	819.55	819.38	1.50	0.16	3.62	244.24	42.01
East Channel	819.54	819.37	1.55	0.16	3.71	247.21	40.81
East Channel	819.53	819.36	1.60	0.16	3.80	250.32	39.61
East Channel	819.52	819.35	1.65	0.16	3.89	253.57	38.41
East Channel	819.51	819.34	1.70	0.16	3.98	256.96	37.21
East Channel	819.50	819.33	1.75	0.16	4.07	260.49	36.01
East Channel	819.49	819.32	1.80	0.16	4.16	264.16	34.81
East Channel	819.48	819.31	1.85	0.16	4.25	267.97	33.61
East Channel	819.47	819.30	1.90	0.16	4.34	271.92	32.41
East Channel	819.46	819.29	1.95	0.16	4.43	276.01	31.21
East Channel	819.45	819.28	2.00	0.16	4.52	280.24	30.01
East Channel	819.44	819.27	2.05	0.16	4.61	284.61	28.81
East Channel	819.43	819.26	2.10	0.16	4.70	289.12	27.61
East Channel	819.42	819.25	2.15	0.16	4.79	293.77	26.41
East Channel	819.41	819.24	2.20	0.16	4.88	298.56	25.21
East Channel	819.40	819.23	2.25	0.16	4.97	303.49	24.01
East Channel	819.39	819.22	2.30	0.16	5.06	308.56	22.81
East Channel	819.38	819.21	2.35	0.16	5.15	313.77	21.61
East Channel	819.37	819.20	2.40	0.16	5.24	319.12	20.41
East Channel	819.36	819.19	2.45	0.16	5.33	324.61	19.21
East Channel	819.35	819.18	2.50	0.16	5.42	330.24	18.01
East Channel	819.34	819.17	2.55	0.16	5.51	336.01	16.81
East Channel	819.33	819.16	2.60	0.16	5.60	341.92	15.61
East Channel	819.32	819.15	2.65	0.16	5.69	347.97	14.41
East Channel	819.31	819.14	2.70	0.16	5.78	354.16	13.21
East Channel	819.30	819.13	2.75	0.16	5.87	360.49	12.01
East Channel	819.29	819.12	2.80	0.16	5.96	366.96	10.81
East Channel	819.28	819.11	2.85	0.16	6.05	373.57	9.61
East Channel	819.27	819.10	2.90	0.16	6.14	380.32	8.41
East Channel	819.26	819.09	2.95	0.16	6.23	387.21	7.21
East Channel	819.25	819.08	3.00	0.16	6.32	394.24	6.01
East Channel	819.24	819.07	3.05	0.16	6.41	401.41	4.81
East Channel	819.23	819.06	3.10	0.16	6.50	408.72	3.61
East Channel	819.22	819.05	3.15	0.16	6.59	416.17	2.41
East Channel	819.21	819.04	3.20	0.16	6.68	423.76	1.21
East Channel	819.20	819.03	3.25	0.16	6.77	431.49	0.00
East Channel	819.19	819.02	3.30	0.16	6.86	439.36	0.00
East Channel	819.18	819.01	3.35	0.16	6.95	447.37	0.00
East Channel	819.17	819.00	3.40	0.16	7.04	455.52	0.00
East Channel	819.16	818.99	3.45	0.16	7.13	463.81	0.00
East Channel	819.15	818.98	3.50	0.16	7.22	472.24	0.00
East Channel	819.14	818.97	3.55	0.16	7.31	480.81	0.00
East Channel	819.13	818.96	3.60	0.16	7.40	489.52	0.00
East Channel	819.12	818.95	3.65	0.16	7.49	498.37	0.00
East Channel	819.11	818.94	3.70	0.16	7.58	507.36	0.00
East Channel	819.10	818.93	3.75	0.16	7.67	516.49	0.00
East Channel	819.09	818.92	3.80	0.16	7.76	525.76	0.00
East Channel	819.08	818.91	3.85	0.16	7.85	535.17	0.00
East Channel	819.07	818.90	3.90	0.16	7.94	544.72	0.00
East Channel	819.06	818.89	3.95	0.16	8.03	554.41	0.00
East Channel	819.05	818.88	4.00	0.16	8.12	564.24	0.00
East Channel	819.04	818.87	4.05	0.16	8.21	574.21	0.00
East Channel	819.03	818.86	4.10	0.16	8.30	584.32	0.00
East Channel	819.02	818.85	4.15	0.16	8.39	594.57	0.00
East Channel	819.01	818.84	4.20	0.16	8.48	604.96	0.00
East Channel	819.00	818.83	4.25	0.16	8.57	615.49	0.00
East Channel	818.99	818.82	4.30	0.16	8.66	626.16	0.00
East Channel	818.98	818.81	4.35	0.16	8.75	636.97	0.00
East Channel	818.97	818.80	4.40	0.16	8.84	647.92	0.00
East Channel	818.96	818.79	4.45	0.16	8.93	658.91	0.00
East Channel	818.95	818.78	4.50	0.16	9.02	670.04	0.00
East Channel	818.94	818.77	4.55	0.16	9.11	681.31	0.00
East Channel	818.93	818.76	4.60	0.16	9.20	692.72	0.00
East Channel	818.92	818.75	4.65	0.16	9.29	704.27	0.00
East Channel	818.91	818.74	4.70	0.16			

River	Reach	River Sta	Profile	E.g. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Center North	Center N Upper	9.325*	PF 1	820.40	820.34	CNPPFLoca1PMP	0.00	0.00	0.00	425.75	16.23	118.70
Center North	Center N Upper	9.3*	PF 1	820.40	820.34		0.00	0.00	0.00	425.90	16.08	116.71
Center North	Center N Upper	9.27500*	PF 1	820.40	820.33		0.00	0.00	0.00	426.26	15.72	115.11
Center North	Center N Upper	9.25*	PF 1	820.40	820.33		0.00	0.00	0.00	426.59	15.39	113.08
Center North	Center N Upper	9.225*	PF 1	820.39	820.33		0.00	0.00	0.00	426.87	15.11	111.11
Center North	Center N Upper	9.17*	PF 1	820.39	820.32		0.00	0.00	0.00	427.50	14.76	109.14
Center North	Center N Upper	9.15000*	PF 1	820.39	820.32		0.00	0.00	0.00	427.82	14.51	107.60
Center North	Center N Upper	9.125*	PF 1	820.39	820.32		0.00	0.00	0.00	428.14	14.31	106.04
Center North	Center N Upper	9.1*	PF 1	820.39	820.31		0.00	0.00	0.00	428.70	14.03	103.64
Center North	Center N Upper	9.07500*	PF 1	820.39	820.31		0.00	0.00	0.00	428.36	13.77	101.70
Center North	Center N Upper	9.05*	PF 1	820.39	820.31		0.00	0.00	0.00	428.64	13.62	100.13
Center North	Center N Upper	9.02500*	PF 1	820.39	820.30		0.00	0.00	0.00	428.98	13.00	96.29
Center North	Center N Upper	9.0*	PF 1	820.39	820.30		0.00	0.00	0.00	428.58	12.22	94.81
Center North	Center N Upper	8	PF 1	820.25	820.30		0.00	0.00	0.00	415.76	26.22	53.54
Center North	Center N Upper	7	PF 1	820.21	820.14		0.00	0.00	0.00	441.96	0.07	53.06
Center North	Center N Upper	6	PF 1	820.17	820.11		0.00	0.00	0.00	431.72	106.98	90.71
Center North	Center N Upper	5.82262*	PF 1	820.12	820.08		0.00	0.00	0.00	437.01	84.06	169.93
Center North	Center N Upper	5.6666*	PF 1	820.12	820.08		0.00	0.00	0.00	435.69	81.01	168.70
Center North	Center N Upper	5.5*	PF 1	820.12	820.08		0.00	0.00	0.00	430.91	107.04	260.16
Center North	Center N Upper	5.33333*	PF 1	820.12	820.09		0.00	0.00	0.00	381.97	156.03	300.72
Center North	Center N Upper	5.16666*	PF 1	820.11	820.09		0.00	0.00	0.00	332.54	205.46	341.01
Center North	Center N Upper	5	PF 1	820.10	820.10		0.00	0.00	0.00	188.21	349.79	382.62
Center North	Center N Branch	108	PF 1	820.15	820.14		0.00	0.00	112.20	144.80	0.00	166.78
Center North	Center N Branch	107.833*	PF 1	820.15	820.14		0.00	0.00	85.27	171.73	0.00	149.12
Center North	Center N Branch	107.666*	PF 1	820.15	820.14		0.00	0.00	57.76	199.24	0.00	130.86
Center North	Center N Branch	107.5*	PF 1	820.15	820.14		0.00	0.00	36.20	220.80	0.00	105.49
Center North	Center N Branch	107.333*	PF 1	820.14	820.13		0.00	0.00	19.48	237.52	0.00	84.42
Center North	Center N Branch	107.166*	PF 1	820.14	820.13		0.00	0.00	9.03	258.56	0.00	58.97
Center North	Center N Branch	107	PF 1	820.14	820.13		0.00	0.00	3.40	268.56	0.00	56.54
Center North	Center N Branch	106	PF 1	820.12	820.10		0.00	0.00	1.54	255.46	0.00	54.14
Center North	Center N Branch	105.5*	PF 1	820.11	820.10		0.00	0.00	17.72	239.28	0.00	97.40
Center North	Center N Branch	105	PF 1	820.11	820.10		0.00	0.00	70.49	186.51	0.00	177.67
Center North	Center N Lower	4	PF 1	820.09	820.08		0.00	0.00	120.28	392.92	519.80	435.98
Center North	Center N Lower	3.5*	PF 1	820.09	820.07		0.00	0.00	68.86	544.20	419.94	537.36
Center North	Center N Lower	3	PF 1	820.08	820.07		0.00	0.00	23.60	503.03	641.37	563.49
Center North	Center N Lower	2.5	PF 1	In1 Struct	819.68		0.00	0.00	0.18	887.37	280.45	390.59
Center North	Center N Lower	2	PF 1	819.70	819.66		0.04	0.00	0.07	892.68	275.25	204.06

Profile Output Table - Four XS Inline structure

West Channel	West Channel	2.33333*	PF 1	820.16	820.12		0.00	0.01	71.04	1548.29	517.67	318.21
West Channel	West Channel	2	PF 1	In1 Struct	820.14		0.00	0.00	69.29	1071.17	996.54	339.72
West Channel	West Channel	1.5	PF 1	819.30	818.89	0.41	0.00	0.00	0.00	708.52	1428.48	192.77
Unit 4 UHS	U4 UHS Lower	2.07142*	PF 1	818.95	818.95	0.00	0.00	0.01	0.00	1.74	291.52	291.52
Unit 4 UHS	U4 UHS Lower	1.5	PF 1	818.94	818.89	0.05	0.00	0.00	0.00	2137.00	304.09	304.09
Unit 4 UHS	U4 UHS Lower	1	PF 1	In1 Struct	816.00	0.00	0.00	0.00	0.00	2137.00	304.09	304.09
Unit 4 North	Unit 4 North	3	PF 1	820.11	820.10	0.00	0.00	0.00	18.96	116.04	104.24	104.24
Unit 4 North	Unit 4 North	2	PF 1	820.10	820.10	0.00	0.00	0.00	47.78	87.22	110.11	110.11
Unit 4 North	Unit 4 North	1.5	PF 1	In1 Struct	820.07	0.00	0.00	0.00	69.47	44.80	20.74	138.34
Unit 3 UHS	U3 UHS Lower	3	PF 1	817.97	817.82	0.05	0.04	0.00	256.37	260.72	16.99	145.41
Unit 3 UHS	U3 UHS Lower	2	PF 1	817.97	817.89	0.04	0.00	0.00	149.21	296.00	13.51	160.06
Unit 3 UHS	U3 UHS Lower	1.5	PF 1	815.10	815.10	0.00	0.00	0.00	0.00	458.73	131.48	131.48
Unit 3 Southeast	Unit 3 Southeast	3	PF 1	819.75	819.72	0.03	0.01	0.00	284.39	452.61	163.16	163.16
Unit 3 Southeast	Unit 3 Southeast	2	PF 1	819.74	819.71	0.03	0.00	0.00	334.78	391.74	150.95	150.95
Unit 3 Southeast	Unit 3 Southeast	1.5	PF 1	In1 Struct	815.12	0.02	0.00	0.00	0.00	737.00	132.46	132.46
Unit 3 North	Unit 3 North	6	PF 1	820.14	820.13	0.01	0.01	0.00	26.06	137.94	104.48	104.48
Unit 3 North	Unit 3 North	4.5	PF 1	820.13	820.12	0.01	0.00	0.00	32.16	131.84	0.00	98.74
Unit 3 North	Unit 3 North	4	PF 1	819.60	819.68	0.01	0.01	0.00	43.31	110.84	9.85	105.61
Unit 3 North	Unit 3 North	3.5*	PF 1	819.68	819.67	0.01	0.00	0.00	26.78	124.03	8.10	112.29
Unit 3 North	Unit 3 North	3	PF 1	819.68	819.67	0.01	0.00	0.00	26.78	128.39	8.83	128.73
Unit 3 North	Unit 3 North	2	PF 1	819.68	819.67	0.01	0.00	0.00	35.65	111.65	16.70	134.84
Unit 3 North	Unit 3 North	1.5	PF 1	In1 Struct	817.92	0.00	0.00	0.00	0.00	164.00	234.88	234.88
Unit 3 East	Unit 3 East	2.05263*	PF 1	817.91	817.91	0.00	0.00	0.00	0.00	196.00	330.88	330.88
Unit 3 East	Unit 3 East	2	PF 1	817.91	817.91	0.00	0.00	0.00	0.00	196.00	330.60	330.60
Unit 3 East	Unit 3 East	1.5	PF 1	In1 Struct	815.10	0.00	0.00	0.00	0.00	196.00	362.23	362.23
Offsite	Offsite	2.08333*	PF 1	820.81	820.77	0.03	0.00	0.00	5.75	2415.25	240.75	240.75
Offsite	Offsite	1.5	PF 1	820.81	820.78	0.03	0.00	0.00	3.04	2417.96	245.55	245.55

Offsite	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Q Total (cfs)	Q Weir (cfs)	Q Gates (cfs)	Wt Top Wtd (ft)	Weir Max Depth (ft)	Weir Avg Depth (ft)	Min El Weir Flow (ft)	E.G. US. W.S. (ft)
Offsite	1	PF 1	819.47	818.69	0.78	0.00	0.00	0.00	84.74	2421.00	219.88	
Center South	3	PF 1	820.97	820.97	0.00	0.00	0.00	0.00	213.24	234.10	5.16	409.58
Center South	2	PF 1	820.97	820.97	0.01	0.01	0.01	0.01	213.24	539.84	67.92	490.41
Center South	1.5	In1 Struct	820.86	820.86	0.00	0.00	0.00	0.00	0.00	821.00	490.41	
Center North	3.5*	PF 1	820.09	820.07	0.02	0.02	0.00	0.00	68.86	544.20	419.94	537.36
Center North	2	PF 1	820.08	820.07	0.01	0.01	0.01	0.01	23.60	503.03	641.37	563.49
Center North	2.5	In1 Struct	819.73	819.68	0.04	0.04	0.02	0.02	0.18	887.37	280.45	390.59
Center North	1	PF 1	819.70	819.66	0.04	0.04	0.04	0.04	0.07	892.68	275.25	204.06

Profile Output Table - InLine Structure

River	Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Q Total (cfs)	Q Weir (cfs)	Q Gates (cfs)	Wt Top Wtd (ft)	Weir Max Depth (ft)	Weir Avg Depth (ft)	Min El Weir Flow (ft)	E.G. US. W.S. (ft)
West Channel		1.5	PF 1	820.16	820.14	2137.00	2137.00	2137.00	76.00	2.10	2.09	817.00	819.16
Unit 4 UHS Lower		1.5	PF 1	818.94	818.89	2137.00	2137.00	2137.00	170.50	1.98	1.95	817.00	819.09
Unit 4 North		1.5	PF 1	820.10	820.10	135.00	135.00	135.00	91.85	1.95	1.95	817.00	818.95
Unit 3 UHS Lower		1.5	PF 1	817.92	817.89	458.73	458.73	458.73	502.24	1.52	1.08	817.00	818.84
Unit 3 Southeast		1.5	PF 1	819.74	819.71	737.00	737.00	737.00					
Unit 3 North		4.5	PF 1	820.13	820.12	164.00	164.00	164.00					
Unit 3 North		1.5	PF 1	819.68	819.67	196.00	196.00	196.00					
Unit 3 East		1.5	PF 1	817.91	817.91	196.00	196.00	196.00					
Offsite		1.5	PF 1	820.81	820.78	2421.00	2421.00	2421.00					
Center South		1.5	PF 1	820.87	820.87	821.00	821.00	821.00					
Center North		2.3	PF 1	820.06	820.07	1168.00	1168.00	1168.00					

Profile Output Table - Lateral Structures

River	Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Q US (cfs)	Q Leaving Total (cfs)	Q DS (cfs)	Q Weir (cfs)	Q Gates (cfs)	Wt Top Wtd (ft)	Weir Max Depth (ft)	Weir Avg Depth (ft)	Min El Weir Flow (ft)	E.G. US. W.S. (ft)
Unit 4 UHS UHS Upper		6.9	PF 1	1607.00	596.19	1004.78	596.19	596.19	596.19	0.00	76.00	2.10	2.09	817.00	819.16
Unit 4 UHS Lower		4.9	PF 1	1139.78	1134.46	7.57	1134.46	1134.46	1134.46	0.00	170.50	1.98	1.95	817.00	819.09
Unit 4 UHS Lower		3.9	PF 1	7.57	9.97	1.74	9.97	1.74	9.97	0.00	91.85	1.95	1.95	817.00	818.95
Unit 3 UHS UHS Lower		6.9	PF 1	1777.00	1479.62	458.73	1479.62	458.73	1479.62	0.00	502.24	1.52	1.08	817.00	818.84

Profile Output Table - Junctions

River	Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Q US (cfs)	Q Leaving Total (cfs)	Q DS (cfs)	Q Weir (cfs)	Q Gates (cfs)	Wt Top Wtd (ft)	Weir Max Depth (ft)	Weir Avg Depth (ft)	Min El Weir Flow (ft)	E.G. US. W.S. (ft)
Center North	Center N Upper	5	PF 1	820.10	820.10	538.00	538.00	538.00	538.00	0.00	76.00	2.10	2.09	817.00	819.16
Center North	Center N Branch	105	PF 1	820.10	820.11	257.00	257.00	257.00	257.00	0.00	170.50	1.98	1.95	817.00	819.09
Junction:	Center N Junct		PF 1	820.08	820.09	1033.00	1033.00	1033.00	1033.00	0.00	91.85	1.95	1.95	817.00	818.95
Center North	Center N Lower	4	PF 1	820.08	820.09	1033.00	1033.00	1033.00	1033.00	0.00	502.24	1.52	1.08	817.00	818.84
Unit 4 UHS Upper		6	PF 1	819.10	819.12	1004.78	1004.78	1004.78	1004.78	0.00	76.00	2.10	2.09	817.00	819.16
Unit 4 UHS Branch		106	PF 1	819.13	819.22	135.00	135.00	135.00	135.00	0.00	170.50	1.98	1.95	817.00	819.09
Junction:	U4 UHS Junct		PF 1	819.13	819.22	135.00	135.00	135.00	135.00	0.00	91.85	1.95	1.95	817.00	818.95
Unit 4 UHS Lower		5	PF 1	818.98	819.09	1139.78	1139.78	1139.78	1139.78	0.00	502.24	1.52	1.08	817.00	818.84
Unit 3 UHS Upper		8	PF 1	818.71	818.98	1652.00	1652.00	1652.00	1652.00	0.00	76.00	2.10	2.09	817.00	819.16
Unit 3 UHS Branch		108	PF 1	819.15	819.18	125.00	125.00	125.00	125.00	0.00	170.50	1.98	1.95	817.00	819.09
Junction:	U3 UHS Junct		PF 1	819.15	819.18	125.00	125.00	125.00	125.00	0.00	91.85	1.95	1.95	817.00	818.95
Unit 3 UHS Lower		7	PF 1	818.52	818.84	1777.00	1777.00	1777.00	1777.00	0.00	502.24	1.52	1.08	817.00	818.84

ERRORS WARNINGS AND NOTES

Errors warnings and notes for Plan : PMP
 River: Center North Reach: Center N Upper RS: 10.8* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Upper RS: 10.6* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Upper RS: 10.4* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Upper RS: 10.2* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Upper RS: 10 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Upper RS: 9.975* Profile: PF 1

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River: Center North Reach: Center N Upper RS: 5.5* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Upper RS: 5.33333* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Upper RS: 5.16666* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Upper RS: 5 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 108 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 107.833* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 107.666* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 107.5* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 107.333* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 107.166* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 107 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 106 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 105.5* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Branch RS: 105 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Lower RS: 4 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Lower RS: 3.5* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: Divided flow computed for this cross-section.
 River: Center North Reach: Center N Lower RS: 2 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: Divided flow computed for this cross-section.
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center North Reach: Center N Lower RS: 1 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: Divided flow computed for this cross-section.
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Center South Reach: Center South RS: 6 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Center South Reach: Center South RS: 5 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: Divided flow computed for this cross-section.
 River: Center South Reach: Center South RS: 4.8* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: Divided flow computed for this cross-section.
 River: Center South Reach: Center South RS: 4.6* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Center South Reach: Center South RS: 4.4* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: Divided flow computed for this cross-section.
 River: Center South Reach: Center South RS: 4.2* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: Divided flow computed for this cross-section.
 River: Center South Reach: Center South RS: 4 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Center South Reach: Center South RS: 3 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: Divided flow computed for this cross-section.
 River: Center South Reach: Center South RS: 3 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: East Channel Reach: East Channel RS: 5 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 Warning: For the energy equation could not be balanced within the specified number of iterations. The program used critical depth during the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 River: East Channel Reach: East Channel RS: 4.85714* Profile: PF 1
 Note: Program found supercritical flow starting at this cross section.
 River: East Channel Reach: East Channel RS: 3.31111* Profile: PF 1
 Note: Hydraulic Jump has occurred between this cross section and the previous upstream section.
 River: East Channel Reach: East Channel RS: 3 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 5.5* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 5 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 4.5* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 4 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 3.5* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 3 Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.91666* Profile: PF 1
 Note: Manning' s n values were composited to a single value in the main channel.

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River: Offsite Reach: Offsite RS: 2.83333* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.75* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.66666* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.58333* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.5* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.41666* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.33333* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.25* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.16666* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 2.08333* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Offsite Reach: Offsite RS: 1* Profile: PF 1
 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. Profile: PF 1
 River: Unit 3 East Reach: Unit 3 East RS: 3.06666* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 3.03333* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 3* Profile: PF 1
 Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth during the cross-section end points had to be extended vertically for the computed water surface.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 River: Unit 3 East Reach: Unit 3 East RS: 2.94736* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
 River: Unit 3 East Reach: Unit 3 East RS: 2.84210* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: This may indicate the need for additional cross sections.
 Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
 River: Unit 3 East Reach: Unit 3 East RS: 2.78947* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.73684* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.68421* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.63157* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.58333* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.52631* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.47368* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.42105* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.36842* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.31578* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.26315* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.21052* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.15789* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.10526* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 East Reach: Unit 3 East RS: 2.05263* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 River: Unit 3 North Reach: Unit 3 North RS: 3* Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: Unit 3 North Reach: Unit 3 North RS: 3* Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.
 River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 10* Profile: PF 1
 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 water surface continued on with the calculations. The water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 River: Unit 3 Southeast Reach: Unit 3 Southeast RS: 9.85714* Profile: PF 1

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Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 22 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 21 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 20 Profile: PF 1
 Warning: Divided Flow computed for this cross-section.
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 19 Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 18 Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 17 Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 16 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 15 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 14 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 13 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 12 Profile: PF 1
 Warning: Divided Flow computed for this cross-section.
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 11 Profile: PF 1
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 10 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 9 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 8 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 7 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 6 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.
 River: West Channel Reach: West Channel RS: 5 Profile: PF 1
 Note: Manning's n values were composited to a single value in the main channel.