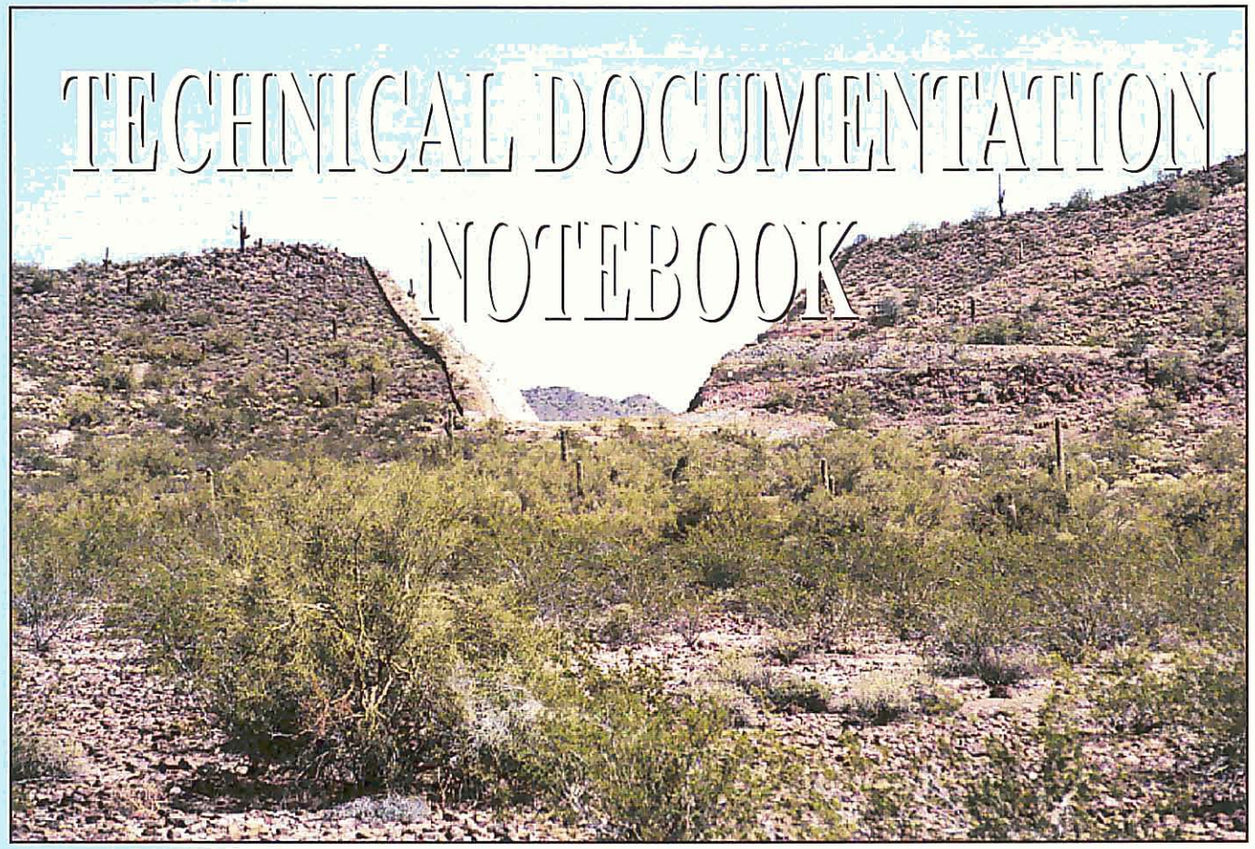
NEW RIVER DAM SPILLWAY DELINEATION STUDY



Prepared for

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY 1959

GLENDALE AZ

CITY OF PEORIA

June 2000
FCD Contract 97-04
Stantec Consulting Project Number 28900058

Prepared by

Stantec

NEW RIVER DAM SPILLWAY DELINEATION

TECHNICAL DATA NOTEBOOK

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PREPARED FOR:

FLOOD CONTROL DISTRICT
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PREPARED BY:

STANTEC CONSULTING INC.
7776 Pointe Parkway W., #290
Phoenix, Arizona 85044
(602) 438-2200

JUNE 2000

STANTEC CONSULTING Inc.
Project No. 28900058

Contract FCD 97-04

Registered Professional Engineer (Civil)
CERTIFICATE NO.
31680
PATRICK J.
ELLISON
Date Signed 6/29/00
ARIZONA U.S.A.

FLOOD CONTROL DISTRICT of MARICOPA COUNTY 1959

Stantec

Memo

Stantec

To: File

From: Patrick J. Ellison

File: 82000058

Date: 29 June 2000

Reference: Documentation of revisions to the New River Dam Spillway Inundation Study TDN, FCD 97-04

Revisions to the data presented in the March 2000 submittal of the New River Spillway Inundation TDN were required due to discrepancies detected during the HIS conversion process between the CADD file and the HEC-RAS model. The following summarizes these changes.

- The junction distance from the lower reach to the upper reach of New River.
- The junction distance from the upper reach to the principle spillway reach of New River.
- The junction distance from the lower spillway reach to the upper spillway reach of New River.
- Channel reach lengths in upper spillway, lower spillway and principle spillway reaches of New River.

Where appropriate revised summary tables and model output have been inserted into the New River Spillway Inundation TDN dated June 2000. In general, changes to the modeling results were not significant enough to be detected in the graphical output such as inundation figures and cross section plot and therefore are not updated.

STANTEC CONSULTING INC.

Patrick J. Ellison

Patrick J. Ellison, P.E.
Project Engineer

mcg document3

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Registered Professional Engineer (Civil)
CERTIFICATE NO.
31680
PATRICK J.
ELLISON
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ARIZONA U.S.A.

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1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

This report is a comprehensive document that contains the results and supporting calculations for the hydraulic analysis of New River, below the New River Dam. This report is generally structured in a Technical Data Notebook (TDN) format in accordance with Arizona Department of Water Resources (ADWR) requirements of State Standard SS1-97 and State Standard Attachment SSA1-97.

The purpose of this study is to evaluate the inundation limits for the one-third, two-thirds and full spillway discharges from New River Dam. The results of this study will be used for dam safety and flood warning purposes.

1.2 AUTHORITY FOR STUDY

Stantec Consulting was awarded the Flood Control District of Maricopa County's Middle New River Watercourse Master Plan (Contract FCD 97-04) in January of 1998. As part of the contract, a delineation of spillway flows from the crest of the emergency spillway of New River Dam to a point above the confluence of New River with Skunk Creek is to be conducted.

1.3 LOCATION

The study area is located within Maricopa County, Arizona and includes the communities of the City of Glendale and the City of Peoria. The study reach is approximately 8.5 miles long and extends from the crest of the emergency spillway to the confluence with Skunk Creek. Figure 1-1 shows the location of the study area in Maricopa County. Figure 1-2 is a vicinity map showing the study area in detail.

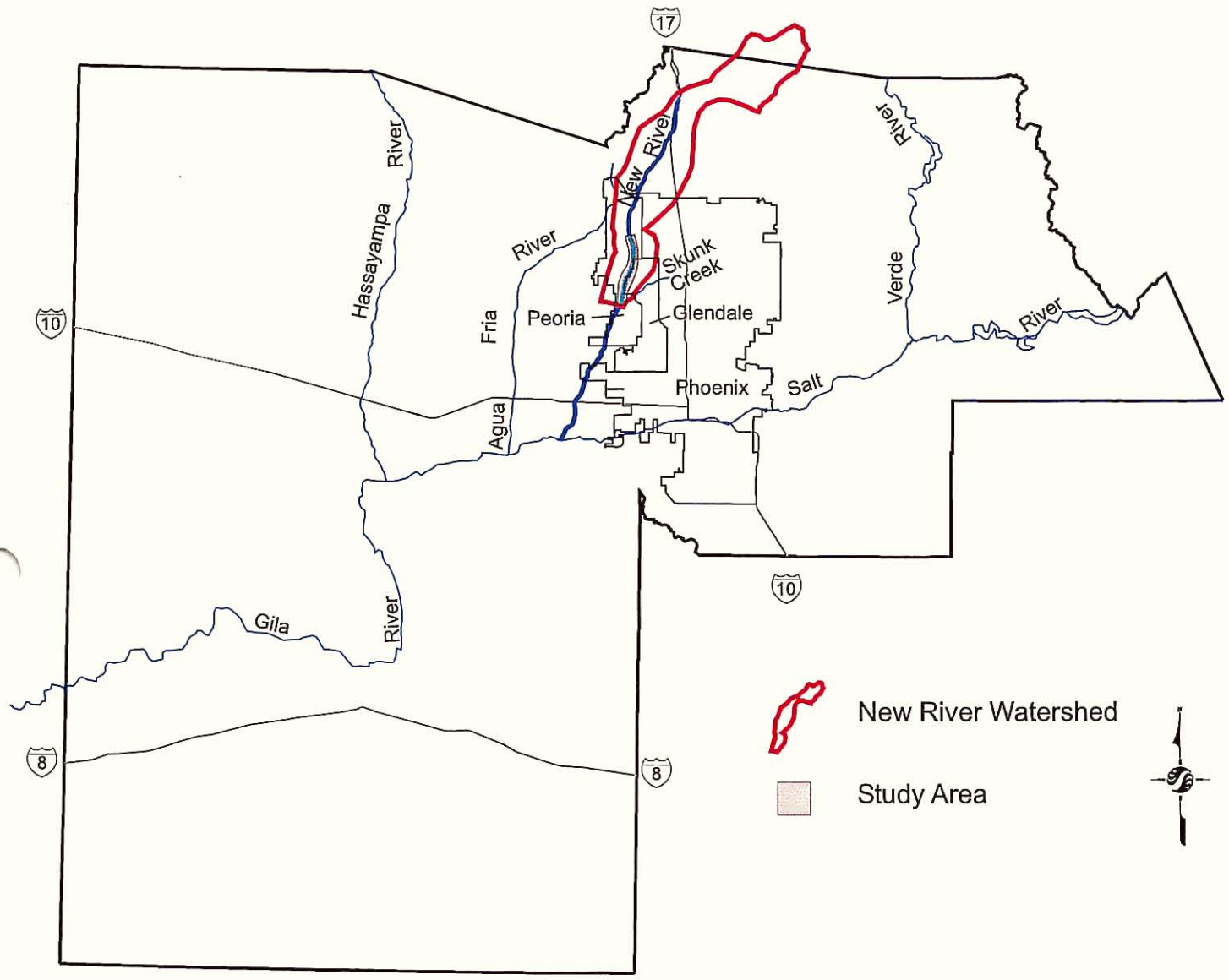

Figure No.
1-1

Title
Location Map

Date: March 2000
Project Number:28900058

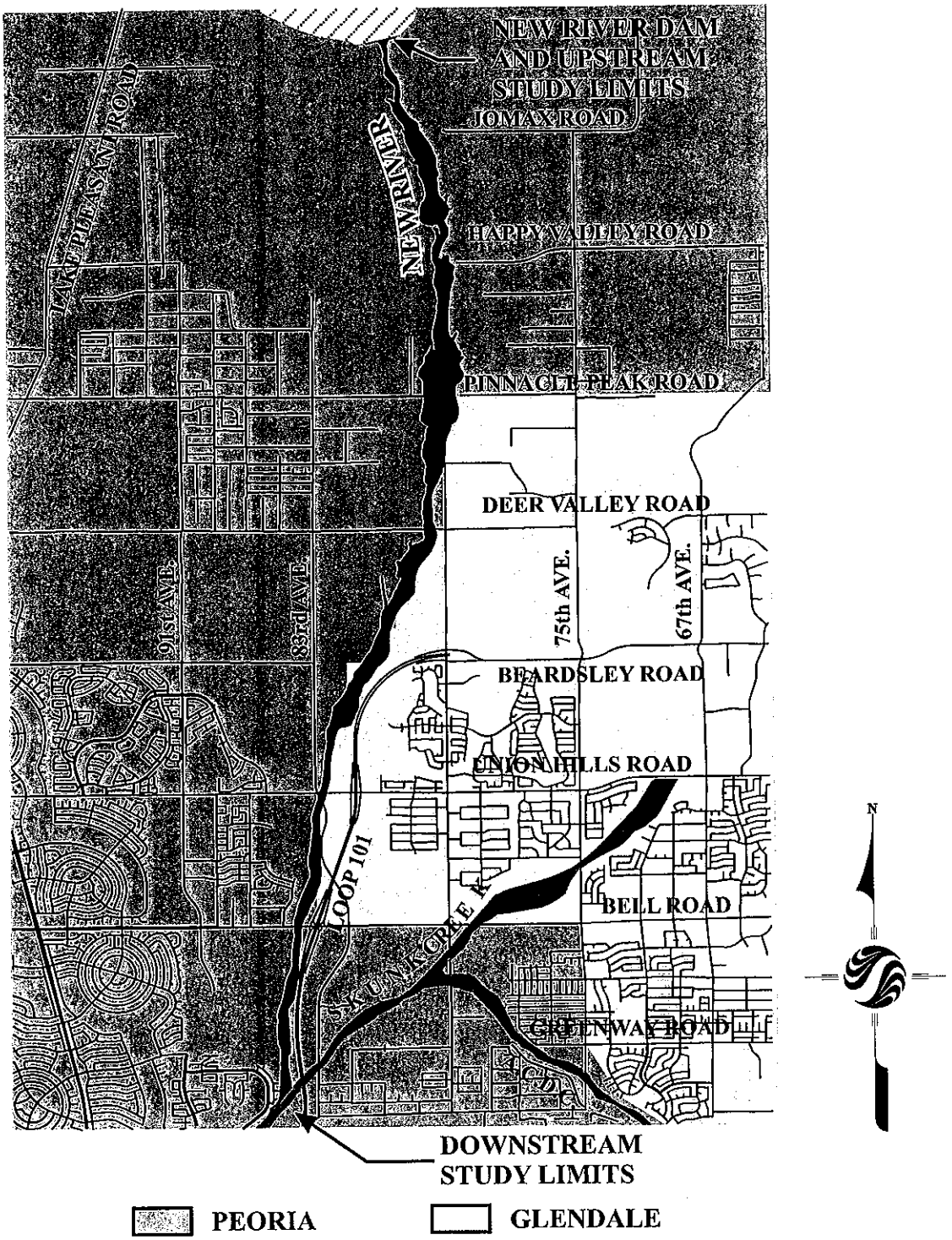

Figure No.
1-2

Title
Vicinity Map

Date: March 2000
Project Number:28900058

1.4 HYDROLOGIC/HYDRAULIC SETTING

The watershed above New River Dam encompasses approximately 164 square miles of primarily natural desert rangeland and mountains. The watershed downstream of the dam encompasses an additional 27 square miles of urbanized desert rangeland.

The watercourse can be divided generally into two reaches. The lower reach, extending from the confluence with Skunk Creek to the gravel mine at River Mile (RM) 13.680 (approximately 5 miles) has been channelized. This reach can be characterized as a trapezoidal channel with varying levels of bank protection. Two bridges cross this reach, one at Bell Road and the other at Union Hills Drive. The upper reach extends from the gravel pit to the dam. This reach can be characterized as having a braided main channel with an overbank containing numerous small channels. Included in the right overbank is a tributary of New River, locally known as Rock Springs Creek. Currently, this watercourse is intercepted by the gravel pit and completely diverted to New River. Discharges from the emergency spillway enter Rock Springs Creek primarily as a result of a flow spilt caused by a rock outcropping immediately downstream of the spillway.

2.0 DATA COLLECTION

This section describes the source and type of data collected necessary to conduct the spillway flows inundation study. The data collected can be categorized into one of the following types, survey, mapping or reference material.

2.1 SURVEY

As part of the Middle New River Watercourse Master Plan project (FCD 97-04), field surveys were conducted to establish aerial control points, to establish additional monumentation, to conduct structure surveys and to provide a listing of elevation reference markers for the study area. Information collected for the Watercourse Master Plan is also used for the spillway flows inundation study.

2.1.1 Horizontal/Vertical Control

Surveys were completed with horizontal control necessary to tie all field data to the State Plane Coordinate System 1927. Vertical control is based on the National Geodetic Vertical Datum (NGVD) 1929 per FEMA guidelines. NAD83 coordinate points and their conversions factors utilized (and how they were derived) are listed in a report entitled "Flood Control District of Maricopa County Floodplain and Topographic Mapping for Middle New River Watercourse Master Plan Study, FCD 97-04, Confluence with Skunk Creek to New River Dam, Photogammetric Control and Topographic Survey" (by Alcocer Land Surveyors).

2.1.2 Structure Surveys

Field surveys of the Bell Road and Union Hills Drive bridges were conducted to ensure that a datum correction value between "As-built" bridge plans and new topographic mapping could be determined.

2.1.3 Restoration of Section Corners

Table 2-1 lists section corners that were restored or established during the field survey.

2.1.4 Elevation Reference Markers

Table 2-2 lists elevation references markers established and or used for this study.

TABLE 2-1

ESTABLISH SECTION CORNERS

Survey Point	Coordinate			Description
	Northing	Easting	Elevation	
205	991471.038000	602231.867000	1380.402	STONE SW SEC35 T5N R1E
206	994122.865000	602243.695000	1405.743	½" P W4 SEC35 T5N R1E
207	991469.470000	604878.612000	1368.196	½" RB S4 SEC35 T5N R1E
208	991458.325000	604858.312000	1368.746	STONE N4 SEC2 T4N R1E
209	988918.391000	607611.837000	1352.829	¾" RB E4 SEC2 T4N R1E
210	986287.255000	605049.036000	1339.527	1" P S4 SEC2 T4N R1E
212	991467.281000	610246.742000	1388.290	½" P N4 SEC1 T4N R1E
213	991467.066000	607581.646000	1371.201	STONE SE SEC35 T5N R1E
214	991467.096000	607607.882000	1370.910	½" P NE SEC2 T4N R1E
215	981004.108000	607618.387000	1309.699	STONE SE SEC11 T4N R1E
216	994101.969200	607546.487700	1399.620	AL/CAP E4 SEC35 T5N R1E
218	996737.626945	607506.110477	0.000	½" RB NE SEC35 T5N R1E
219	986281.443800	607615.672300	0.000	½" RB SE SEC2 T4N R1E
220	983646.434300	607617.360500	0.000	½" RB E4 SEC11 T4N R1E
222	973052.166000	607608.974000	1269.469	COGBC E4 SEC23 T4N R1E
223	965167.065000	604945.112000	1228.089	COGBC N4 SEC35 T4N R1E
224	965165.980000	602319.849000	1228.289	MCBC NW SEC35 T4N R1E
227	986278.697897	610250.000856	0.000	1" IP S4 SEC1 T4N R1E

TABLE 2-2

ELEVATION REFERENCE MARKS

ERM #1 – Elevation 1158.237
C.O.P. Brass Cap (Flush)± East of 91ST Avenue On Desert Harbor Drive.
N=950,020.434, E=597,876.412

ERM #2 – Elevation 1167.042
C.O.P. Brass Cap in Handhole @ Centerline P.C. ± 300' North in Intersection of Acoma Drive & Desert Harbor Drive.
N=952,352.855, E=600,083.940

ERM #3 - Elevation 1176.08
Top of Brass Cap (Flush) at 86th Drive & Betty Elyse Lane.
N=955,371.460, E=600,649.882

ERM #4 – Elevation 1187.90
Top of Brass Cap (Flush) @ Intersection of 86th Avenue & Paradise Lane.
N=957,952.5087, E=600,876.5092

ERM #5 – Elevation 1202.16
C.O.G. Brass Cap in Handhole at Intersection of 83rd Avenue & Bell Road
N=959,865.3980, E=603,591.6290

ERM #6 – Elevation 1212.88
Top Brass Cap (Flush) at Intersection of 83rd Drive & 84th Avenue
N=962,778.2886, E=601,757.3035

ERM #7 – Elevation 1228.432
C.O.P. Brass Cap in Handhole at 83rd Avenue & Union Hills Road.
N=965,165.9800, E=602,319.8490

ERM #8 – Elevation1243.04
Top of 2" Iron Pipe in Handhole at Intersection of 83rd Avenue & Village Parkway.
N=967,794.0929, E=602,310.3583

ERM #9 – Elevation 1254.712
Top of ADOT Aluminum Cap Along the North Side 101 Freeway, P.O.C Sta.918+00.00
N=970,052.7038, E=604,816.5717

ERM #10 – Elevation 1269.557
C.O.G Brass Cap in Handhole at Intersection of 75th Avenue & Rose Garden Lane.
N=973,052.1660, E=607,608.9740

ERM #11 – Elevation 1282.707
MC Brass Cap in Handhole at Intersection of 75th Avenue & Deer Valley Road
N=975,699.5464, E=607,625.3702

ERM #12 – Elevation 1292.2328
Top of Brass Cap (Flush) on 75th Avenue & Centerline P.C., ± 400' South of the East Quarter Corner of Section 14, T4N, R1E, G&SRBM.
N=977,959.8072, E=607,618.8313

ERM #13 – Elevation 1308.215
Top of Brass Cap (Flush) at Center of Cul De Sac at 7431 W. Monte Lindo.
N=980,803.8653, E=607,965.9155

TABLE 2-2 (continued)

ELEVATION REFERENCE MARKS

ERM #14 – Elevation 1324.912
Set Flood Control District of Maricopa County Brass Cap in Concrete, ± 300' East of the West Quarter Corner of Section 12, T4N, R1E, G&SRBM.
N=983,629.7495, E=607,924.4658

ERM #15 - Elevation 1342.977
Chiseled 'X' on Center of Top of West End of 4'X 10' Storm Culvert ± 573' of Southwest Corner of Section, T4N, R1E, G&SRBM
N=986,334.7848, E=608,184.8756

ERM #16 – Elevation 1352.51
Set Flood Control District of Maricopa County Brass Cap in Concrete, ± 20'West of the East Quarter Corner of Section 2, T4N, R1E, G&SRBM.
N=988,916.250, E=607,591.737

ERM#17 – Elevation 1371.017
Top of AZDOT Aluminum Cap (BM517-6), Northeast Corner of Section2, T4N, R1E, G&SRBM and the Southeast Corner of Section 35, T5N, R1E, G&SRBM.
N=991,467.066, E=607,592.682

ERM #18 – Elevation 1399.62
Top of 1" Aluminum Cap (CBA), Set in concrete at the East Quarter Corner of Section 35, T5N, R1E, G&SRBM.
N=994,101.9692, E=607,546.4877

ERM #19 – Elevation1427.002
Top of ¾" Rod with 2" Copper Cap, USCE NR3, At Top of Hill ± 500' South of the West End of New River Dam.
N=994,248.6944, E=603,962.5272

2.2 MAPPING

Topographic mapping required for this project includes portions of the New River from the New River Dam to the confluence with Skunk Creek. Aerial photogrammetry was used to produce the mapping. Mapping of the project area is at a scale of 1"=400' having a contour interval of two feet. The mapped area encompasses the primary inundation corridor resulting from a full spillway discharge from the New River Dam. The mapped area is approximately 4,000 feet wide, from New River Dam to approximately Pinnacle Peak Road and 1,500 feet wide from approximately Pinnacle Peak Road to the confluence with Skunk Creek. For inundation limits that extend beyond the primary inundation corridor mapping, mapping prepared as part of the ACDC ADMS (FCD 90-19) is used.

2.3 REFERENCE MATERIAL

Reference material used in the study was obtained from the Flood Control District of Maricopa County or Stantec's reference library. The following reference material was utilized in the study:

Federal Emergency Management Agency, January 1995, Flood Insurance Study, Guidelines and Specifications for Study Contractors.

Flood Control District of Maricopa County, January 1996, Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics.

Flood Control District of Maricopa County, November 1997, Contract FCD 97-04, Middle New River Watercourse Master Plan Study.

Maricopa County Department of Transportation, July 19, 1996, Plans for the Construction of Union Hills Drive Bridge at New River.

Maricopa County Highway Department, April 10, 1989, Bell Road- New River Bridge, Maricopa County, Portions of Bridge Plans.

U.S Army Corps of Engineers, March 1981, New River Dam Spillway Overflow Analysis.

U.S. Army Corps of Engineers, Gila River Basin, Phoenix, Arizona and Vicinity (Including New River) New River Dam, Construction Drawings.

U.S. Army Corps of Engineers, November 1982, New River Dam (including New River to Skunk Creek) Design Memorandum No. 3, General Design Memorandum, Phase 2, Project Design, Part 3.

U.S. Army Corps of Engineers, April 1967, Flood-plain Information Study for Maricopa County, Arizona, Volume V New River Report.

U.S. Army Corps of Engineers, September 1998, HEC-RAS, River Analysis System, User Manual.

U.S. Geological Survey, April 1991, Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County Arizona.

U.S. Geological Survey, 1998, Method to Estimate Effects of Flow-Induced Vegetation Changes on Channel Conveyances of Streams in Central Arizona.

U.S. Geological Survey, 1984 Techniques of Water Resources Investigations of the United Stated of Geological Survey, Computation of Water-Surface Profiles in Open Channels, Book 3 Chapter 15.

3.0 HYDROLOGY

3.1 SPILLWAY DISCHARGE RATES

New River Dam as documented in the U.S. Army Corps of Engineers (COE) 1982 report entitled New River Dam Design Memorandum No. 3, General Design Memorandum Phase II, Project Design Part 3 (herein referred to as the COE report), is designed to reduce the 100-year peak inflow of 45,000 cfs to an outflow of 2,665 cfs without operation of the emergency spillway. Additionally, the probable maximum flood (PMF) inflow of 144,000 cfs is to be reduced to an outflow of 33,000 cfs with 29,850 cfs flowing over the emergency spillway. For the purposes of this study, the emergency spillway flow is assumed to be 30,000 cfs with an additional 3,000 cfs flowing through the principle outlet. The two-thirds and one-third values are based on the full discharge over the spillway, therefore the emergency spillway flows for the two-thirds and one-third PMF are 20,000 cfs and 10,000 cfs respectively. The principle outlet flow is also assumed to remain constant for all three study discharges (full, two-thirds and one-third PMF). This flow is added to the emergency spillway flow for combined discharges of 33,000 cfs, 23,000 cfs and 13,000 cfs for the full, two-thirds and one-third PMF event, respectively. No other inflows to the study reach are considered.

4.0 HYDRAULICS

4.1 METHOD DESCRIPTION

The study reach hydraulics are determined using the COE HEC-RAS (River Analysis System) computer program, Version 2.2, dated September 1998. Five reaches connected by 3 junctions are used to model the watercourse system. A schematic of the system is shown in Figure 4-1.

The model is run in a mixed flow regime. The downstream starting water surface elevation is estimated using the normal depth option with an energy slope of 0.005 feet/foot. The upstream starting water surface elevation for both the upper spillway and principle spillway reaches is estimated using the critical depth option. The steady flow analysis options of conveyance calculations at breaks in n-values, multiple critical depth calculations and computer program selection of the friction slope calculation method are used.

4.1.2 Model Description

The HEC-RAS model is organized by projects, plans, flow data and geometric data. Two projects and a total of three plans are utilized for this study.

The first project (Existing condition model) incorporates two plans, the first plan is the base condition that models the watercourse system for existing development for the full and two-thirds emergency spillway discharges. For these discharges, New River and Rock Springs Creek function as a single watercourse, with Rock Springs Creek acting as a parallel channel in the New River overbank. The second plan is the base condition for the one-third emergency spillway discharge only. For this discharge, Rock Springs Creek functions as a separate watercourse until it is intercepted at the gravel pit. The Existing Condition model utilizes Mannings "n" values based on existing (ie not adjusted for future development). The Existing condition HEC-RAS model is provided on diskette, in Appendix F.

The second project contains only one plan and models the existing condition geometry with an estimate for future condition Manning's n-values. Because of the current pace of development along the study reach, it is anticipated that within a few years the area will be fully developed. Therefore it is this plan that is used for the

for all three study discharges. The following is a summary of the New River spillway delineation model organizational structure.

File Name	File Type	Description
PMF.PRJ	Project	Future condition model (existing condition geometry with future condition Manning's n-values) used for delineation of the inundation limits.
PMF.P02	Plan	Existing condition geometry with future condition Manning's n-values for all three study discharges
PMF.G01	Geometry	Geometric data file used with PMF.P02.
PMF.F01	Steady Flow	Steady flow data file used with PMF.P02.
EXPMF.PRJ	Project	Existing condition model.
EXPMF.P01	Plan	Base condition plan with existing condition geometry and Manning's n-values for the one-third PMF flow.
EXPMF.G05	Geometry	Geometric data file used with PMF.P01.
EXPMF.F04	Steady Flow	Steady flow data file used with PMF.P01.
EXPMF.P03	Plan	Base condition plan with existing condition geometry and Manning's n-values for the full and two-thirds PMF flows.
EXPMF.G01	Geometry	Geometric data file used with PMF.P03.
EXPMF.F01	Steady Flow	Steady flow data file used with PMF.P03.

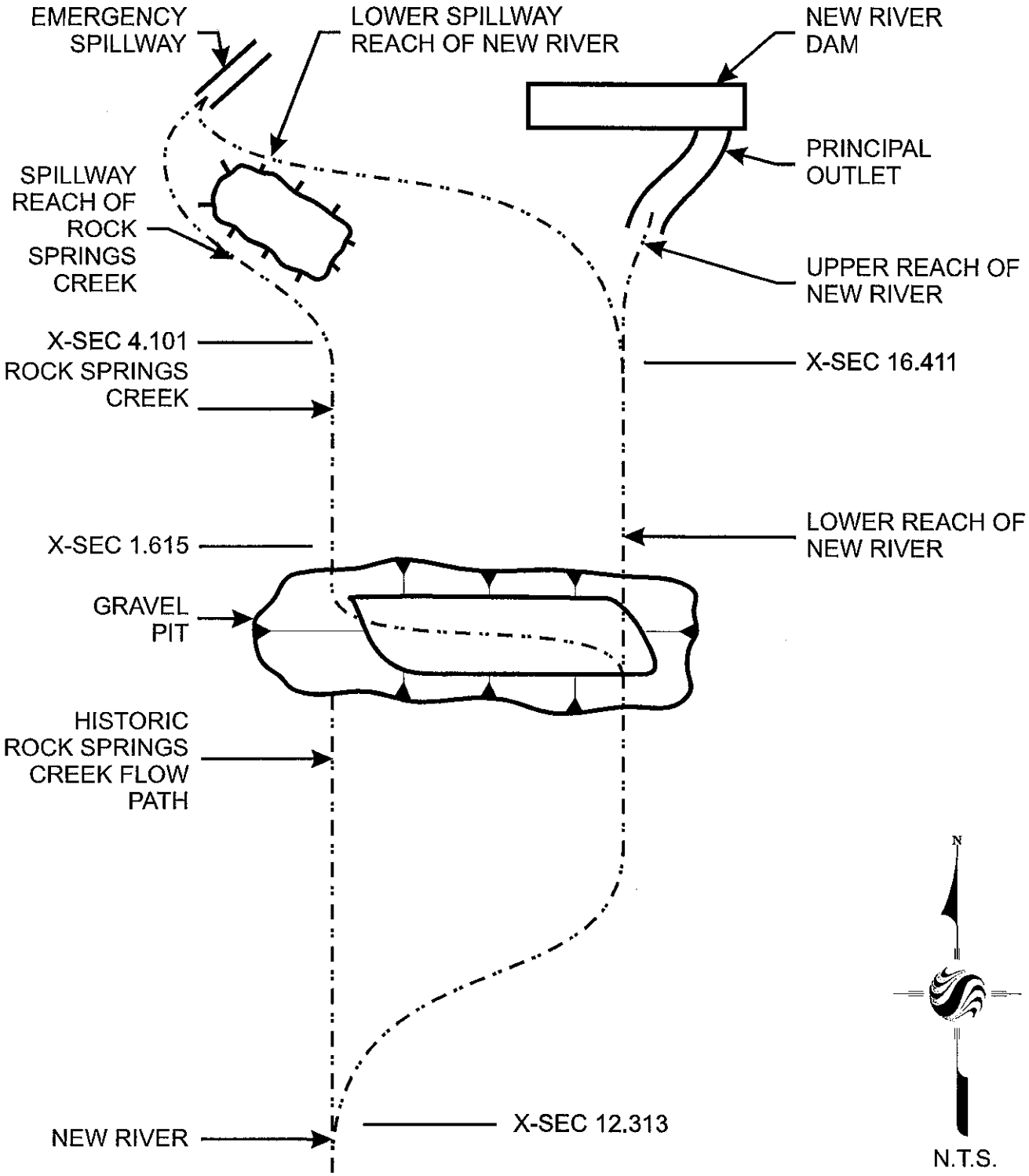

Figure No.
4.1

Title
Reach Nomenclature Used In Hydraulic Analysis

Date: March 2000
Project Number:28900058

4.2 WORK STUDY MAPS

Work Study Maps displaying topography, cultural features and inundation limits are prepared at a scale of 1" = 400 ' and a contour interval of 2 feet. Work Study maps are presented as Plates 1 through 3 for the full, two-thirds and one-third PMF flow respectively. For inundation limits that extend beyond the detailed mapping limits, USGS mapping is used. These areas are shown in Figures A-1 and A-2 of Appendix A. Legends provided on Plates explain the nomenclature used in the preparation of the maps.

4.3 PARAMETER ESTIMATION

4.3.1 Manning's n-Value

4.3.1.1 General

The segment of New River analyzed for the spillway inundation study is separated into 4 reaches, that have similar hydraulic characteristics and therefore, similar Manning's n values. Reach numbering is from downstream to upstream and is not related to numbering or naming of reaches in any other adjacent study. Figures B1 through B3 show the location and limit of each reach and the location of photographs of typical reach characteristics. The photographs and n-value calculation sheets are provided in Appendix B.

4.3.1.2 Methodology

Each reach is identified based upon field reconnaissance and ground and aerial photographs. The discerning characteristics are channel size and shape, similarities in bed material, vegetation, the presence/absence of channel obstructions and the extent of development in the overbanks.

Manning's n-values are estimated using methods accepted by the Flood Control District of Maricopa County and are outlined in, Estimated Manning's N-values for Stream Channels and Flood Plains in Maricopa County Arizona (U.S.G.S., 1991) and Method to Estimate Effects of Flow-Induced Vegetation Changes on Channel Conveyances of Streams in Central Arizona (U.S.G.S., 1998). The approach in both methods is to select an initial Manning's n-value based on bed material and then adjust this base value for channel irregularities, the effects of obstructions, vegetation,

and variations in channel cross sections. If the channel has sufficient meander to increase roughness, then the sum of the base n-value plus subsequent adjustments is multiplied by a meander value, m. The second reference cites results from a study that evaluated the effect of flow on vegetation.

4.3.1.3 Manning's n-Value Determination

The base n-value for bed material roughness is estimated from field investigations, photographs, and aerial photos. Base n-values range from 0.028 to 0.035 for the undeveloped overbank and channel areas respectively.

From field reconnaissance and photographs, adjustments are made to the base roughness value to account for vegetation, obstructions, irregularities and channel irregularities and channel cross section variations. The beds of defined channels consist of sand, cobbles and vegetation. The vegetation coverage within the bed ranges from 10% to 30 %. The undeveloped overbank areas have a base material consisting of a combination of firm soil, silt and sands, and cobbles to a lesser extent with vegetation cover ranging from 0 to 60 percent.

Applying procedures for estimating the effect of flow on vegetation changes cited in the report entitled Method to "Estimate Effects of Flow-Induced Vegetation Changes on Channel Conveyances of Streams in Central Arizona the following conclusions are inferred:

1. The average stream power (measure of energy transfer in an open channel) for the reaches downstream of the gravel pit is greater than the vegetation-susceptibility threshold, indicating that the vegetation can be expected to lay over thus decreasing the effect of vegetation on roughness values.

2. The critical shear stress (the amount of shear stress required to initiate movement of bed material) is less than the average boundary shear stress (force exerted on the bed by moving water) indicating that channel will degrade and bed material will move, for all reaches. Degradation will potentially expose the vegetation root system leading to total removal of vegetation.

3. Based on above items 1 and 2, channel n-values are not adjusted for vegetation cover.

Downstream of the gravel pit the right overbank is essentially fully developed. The Manning's n-value for the developed area is estimated using equation 6.12 from the Drainage Design Manual for Maricopa County, Volume II, Hydraulics (Flood Control District of Maricopa County, 1997). That equation is:

$$n_u = n_o\left[1.5\left(\frac{W_T}{\sum W_o}\right)+\left(1-\frac{W_T}{\sum W_o}\right)\frac{\sum L_o}{L_T}-0.5\right]$$

Where: n_u = Adjusted urban roughness coefficient.

$n_o \equiv$ Roughness coefficient for the area between the buildings in the floodplain.

$W_T \equiv$ Total width of the floodplain including buildings.

$W_o \equiv$ Clear width between buildings, measured perpendicular to flow.

$L_o \equiv$ Individual length between buildings, measured parallel to flow.

$L_T \equiv$ Total length of floodplain including buildings.

There are approximately 5 miles of developed overbank potentially located within the inundation limits. In general, the density, layout and building size throughout this area is relatively uniform. Therefore, a single, typical Manning's n-value is calculated and applied to the overbanks for Manning's n-value reaches 1 and 2. A typical roughness coefficient of 0.035 is used for the area between buildings. The average total width of the floodplain is taken as 800 feet with an average length of 350 feet. Calculation of the clear width and individual length between buildings is provided in Appendix B. The resulting Manning's n-value for the developed area is 0.11.

Upstream of the gravel pit, New River is characterized by braided flow paths and overbank areas of varying vegetation densities. Manning's n-values for cross section segments are subdivided into zones of similar physical characteristics. Vegetative cover for 6 zones are identified as follows: Zone 1, 0 to 5 percent; Zone 2, 20 to 40 percent; Zone 3, 40 to 60 percent; Zone 4, 10 to 30 percent; Zone 5, 10 to 30 percent and Zone 6, 40 to 60 percent. Further subdivision within the 6 zones on a cross section by cross section basis is performed in order to provide hydraulically uniform subdivisions within the each cross section. This additional subdivision is performed so that the conveyance calculation is not artificially low due to an underestimate of the hydraulic radius. These additional subdivisions are located based on the water

surface elevation and the cross sectional geometry. The geometry of the upstream and downstream cross section is also considered.

Manning's n-values utilized in the hydraulic evaluation of the reaches downstream of the gravel pit are summarized in Table 4.1. Table 4.2 lists the Manning's n-values for the reaches upstream of the gravel pit.

At the outfall of the emergency spillway, flow will be supercritical and velocities will be significant enough to remove vegetative cover, therefore Manning's n-values are not adjusted immediately downstream of the spillway for vegetative cover. An n-value of 0.035 is utilized for the cross sections which define the geometry of the emergency spillway (RM 0.884 through 0.796) and the principle spillway (RM 16.943 through 16.867). An n-value of 0.035 is also utilized for the main channel portion of the remaining cross sections in the upper spillway reach and for all the cross sections in the lower spillway reach. The overbank n-values for these cross sections is set to 0.06. Downstream of the flow split location in the Rock Springs Creek spillway reach, channel velocities begin to decrease. The main channel n-value for this reach is gradually increased from 0.035 to 0.06. An n-value of 0.06 is utilized for the main channel of Rock Springs Creek.

TABLE 4-1
Summary of Manning's n-values for the reaches downstream of the gravel pit

Reach	River Miles	Left (east) Overbank	Channel	Right (west) Overbank
1	8.655 – 11.664	0.060	0.035	0.110
2	11.664 – 11.949	0.085	0.035	0.060
3	11.949 – 13.918	0.060	0.035	0.110

TABLE 4-2
Summary of Manning's n-values upstream of the gravel pit

Reach	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone6
4	0.035	0.052	0.058	0.038	0.056	0.060

4.3.2 Expansion and Contraction Coefficients

Other than at the outlets of both the emergency and principle spillways, the study reach is relatively free of abrupt transitions. Therefore, gradual expansion and contraction coefficients of 0.3 and 0.1, respectively are used for the majority of the study reach. Expansion and contraction coefficients of 0.5 and 0.3, respectively are used at cross sections 0.796 through 0.715 to account for the rapid expansion of the emergency spillway discharge as it exits the spillway section and at the two bridges in the study reach. Expansion and contraction coefficients of 0.8 and 0.6, respectively are used at cross sections 16.867, 16.732 and 0.454 to account for the rapid expansion of the floodplain into a backwater area immediately downstream of the dam. Selection of expansion and contraction coefficients is based on guidance set forth in the HEC-RAS User and Hydraulic Reference Manuals (COE 1998).

4.4 CROSS SECTION DESCRIPTION

The initial lay out of cross sections used in the spillway delineation study are consistent with cross section location, spacing and identification used in the effective FEMA 100-year floodplain delineation for New River. Cross section numbering is expressed as river miles above the confluence with the Agua Fria River. Revisions to the initial layout of the cross sections are made to ensure that the following criteria is met:

1. The maximum distance between cross sections is approximately 500 feet.

2. Cross sections used for hydraulic modeling are orientated perpendicular to primary flow paths.

3. Cross section stationing is from left to right looking downstream with the thalweg set at station 10,000.

Cross section data are determined utilizing a digital terrain model (DTM) and topographic mapping. Distance between cross sections is measured along the hydraulic baseline (thalweg). Distance between bank stations of each cross section is measured along the anticipated path of the center of mass of the overbank flow. Should there be no overbank flow, distance between bank stations is measured along the top of bank. Bank stations are picked at what appeared to be a natural/improved channel bank, or at major grade break in channel side slopes. Plots of cross sections are located in Appendix E.

4.5 MODELING CONSIDERATIONS

4.5.1 Supercritical Flow

Supercritical flow conditions exist as flow exits the spillway chute and is conveyed south to Rock Springs Creek and east to New River. As the spillway flows enter the main watercourse channels, the flow conditions change to a subcritical regime. The change from supercritical to subcritical flow regimes is handled by the mixed flow regime option of HEC-RAS.

4.5.2 Bridges

There are two bridge crossings of New River located at Bell Road and Union Hills Drive. Bridge and roadway geometric data are obtained from as-built plans and field survey. Both bridges are overtopped for the full and two-thirds PMF flows. The one-third PMF flow passes under both bridge decks without impinging on the low chords.

Both bridges are modeled for low and high flow methods. The highest energy option of the energy, momentum and Yarnell equations is used for the low flow method. Pier drag and shape coefficients are selected from Tables 5.2 and 5.3 of the HEC-RAS Hydraulic Reference Manual (COE 1998) and are shown in Table 4-3. Photographs of both bridges are located in Appendix B.

TABLE 4-3
Pier drag and shape coefficients

Bridge	Drag Coefficient	Pier Shape Coefficient
Union Hills Drive	1.20	1.05
Bell Road	1.33	0.95

The high flow energy method is calculated based on the pressure and/or weir option. A submerged inlet and outlet weir coefficient of 0.8 is used for both bridges.

During an extreme event with a long duration, such as an emergency spillway release, the probability of debris flow accumulating at the bridges is very high. Debris that can be expected to accumulate at the bridges in the study area will mostly consist of vegetation. Some small structures, such as storage sheds, could also be transported

downstream to the bridges. The potential impact of the debris collecting at the bridges and reducing the conveyance capacity is of concern in regard to the inundation limits resulting from an emergency spillway release. Several clogging conditions are analyzed for each study discharge at each bridge using the floating debris option in HEC-RAS in order to estimate the potential impact of debris to the extent of the inundation limits. A description of each condition, the resulting water surface elevation and a summary of the results are provided in Appendix D. In general, because both bridges are overtopped without consideration of clogging for the full and two-thirds PMF discharges, clogging will have a negligible impact on the inundation limits. However, clogging of the bridges does have a significant impact for the one-third PMF discharge. Without clogging, the one-third PMF water surface elevation is below the low chord of both bridges. For clogging factors greater than 25 percent both bridges will be overtopped for the one-third PMF discharge. It is important to note that the inundation limits determined for this study do not reflect potential impacts due to clogging from debris.

4.5.3 Levees and Dikes

There are no Levees or Dikes in the study reach.

4.5.4 Islands

Divided flow conditions exist throughout the study reach for all three PMF discharges. For the purposes of this study, islands resulting from divided flow are not mapped.

4.5.5 Flow Splits

Several flow splits or "break-outs" occur throughout the study reach. The majority of the flow splits occur due to a lack of capacity of the cross sections to convey the study discharges in either New River or Rock Springs Creek. For a detailed discussion of the flow splits refer to section 4.7.

4.5.6 Ineffective Flow Areas

The ineffective flow area option of the HEC-RAS computer model is used to model ineffective flow areas. Ineffective flow areas occur upstream and downstream of bridges, within local depressions, at gravel pits and at detention/retention basins in

floodplain areas. The area represented by these features does not have the ability to convey flow.

4.5.7 Blocked Ineffective Flow Areas

The blocked ineffective flow area option of the HEC-RAS computer model is used to block out low areas within a cross section located outside of channel banks that were considered non-flow conveyance areas. This differs from ineffective flow area described in section 4.5.6 in that it was determined that flow would not reach the subject area of the cross-section, and the subject area was blocked-out. This option is also used to eliminate flow area in the gravel pits and retention basins up to the overtopping elevation. This assumes that the gravel pit and retention basins are already full to this elevation prior to the arrival of the flows from the spillway.

4.5.8 Grade Control Structures

There are three structures that are functioning as grade control structures along New River.

- An encased irrigation line below Bell Road that is exposed. There is approximately a 3-foot vertical drop downstream of the irrigation line.
- Downstream of Deer Valley Road there is a near vertical drop of approximately 18 feet within the New River Channel. The drop is armored with grouted rock.
- At the Happy Valley Road alignment with New River a grade control structure has been constructed over a sanitary sewer and waterline.

Photographs of these structures are located in Appendix B (see photographs 38, 42 and 43).

4.6 FLOODWAY MODELING

Floodway modeling is not conducted for spillway flows.

4.7 SPECIAL PROBLEMS AND SOLUTIONS

4.7.1 Flow Split Downstream of the Emergency Spillway

The emergency spillway is cut through a saddle in the right abutment of the dam. The alignment is such that flows are directed south toward Rock Springs Creek.

Approximately 500 feet downstream of the emergency spillway a flow split begins to occur due to a large rock outcropping. Flows that split to the east are directed toward New River in a very steep natural swale between the rock outcropping and the right abutment. The remaining portion of the total flow will continue south toward Rock Springs Creek.

In the COE Report, the percentage of the flow that splits to the east (toward New River) was estimated to be 60 percent for the full PMF discharge of 29,850 cfs. In an effort to duplicate the COE split flow estimate, several one-dimensional fix-bed analyses were conducted. Most of these analyses involved balancing the energy grade line at a single cross section, RM 0.681 of the upper spillway reach. In general, the results indicate that the majority of the flow will continue south toward Rock Springs Creek with the maximum being 80 percent. However, a consistent split for the various methods could not be achieved. The lack of consistency is probably due to the sensitivity of the techniques to the extremely high velocities, rapidly expanding flow and that the split occurs across several cross sections. The results documenting the determination of the maximum split flow percentage in Rock Springs Creek along with a discussion of the procedure is provided in Appendix C.

Since correlation of the results between the various methods or to the COE estimate could not be achieved, the maximum percentage split calculated for each branch is used. The maximum percentage of the total flow that will split to the east (toward New River) is estimated to be 60 percent by the COE. The maximum percentage of the total flow that will split to the south (toward Rock Springs Creek) is estimated to be 80 percent. Based on the uncertainties of the hydraulic conditions, these percentages are applied to all three study discharges. The resulting flows in the spillway reach of Rock Springs Creek are 24,000 cfs, 16,000 cfs and 8,000 cfs for the full, two-thirds and one-third PMF emergency spillway discharges, respectively. The resulting flows in the lower spillway reach of New River are 18,000 cfs, 12,000 cfs and 6,000 cfs for the full, two-thirds and one-third PMF emergency spillway discharges, respectively. These values are carried downstream until RM 16.411 where the New River and Rock Springs Creek watercourses function as a single system. At this point, discharge from the principle outlet are added for totals of 33,000 cfs, 23,000 cfs and 13,000 cfs for the full, two-thirds and one-third spillway discharges respectively.

4.7.2 Fully Developed Study Area

It is anticipated that the currently undeveloped tracts of land within the study reach, primarily located in Reach 4, will be fully developed within a few years. It is therefore necessary to estimate the impacts of this future condition development on the inundation limits. This is accomplished by estimating the future development Manning's n-value.

The projected land use for the undeveloped areas is obtained from the City of Peoria Comprehensive Land Use Map, April 1997. The designated zoning is low density residential, 1.5 to 4 dwelling units per acre, for the area south of Jomax Road. This is also the zoning for the existing residential developments within the study area. Therefore the developed Manning's n-value of 0.110 calculated for existing developments is applied to all future development areas with a land use classification of low density residential. North of Jomax Road the designated zoning is resort development. It is assumed that little if any resort structures will be located within the inundation limits, therefore no adjustment is made from the natural condition n-values north of Jomax Road. No attempt is made to account for any grading that may occur during construction of future development.

4.7.3 Single Hydraulic Baseline

The New River and Rock Springs Creek watercourse system within Reach 4 of the study area is a hydraulically complex system for very high flows. Neither New River nor Rock Springs Creek can convey the study discharges independently for the entire reach. In the upper portion of the reach, New River does not have sufficient capacity and flow breaks out into Rock Springs Creek. In the lower portion, the conveyance capacity of Rock Springs Creek is almost completely eliminated and flow breaks out into New River. In addition the existing overbank geometry will most likely be significantly altered for the future development. For these reasons, Rock Springs Creek is assumed to function as part of the New River overbank for all of Reach 4.

4.7.4 Flow Break-Outs

A number of flow break-outs were identified throughout the study. Flow break-outs occur at cross sections locations within the study reach that have insufficient capacity to convey the study discharges. The lack of containment occurs both in the west

overbank and the east overbank areas, however it is more prevalent in the west overbank area.

Flow break-out in the west overbank area starts approximately one mile upstream of the gravel pit and continues intermittently until just downstream of the Bell Road bridge. This flow travels south-southwest, ultimately draining back to New River downstream of the study limits.

Flow break-out in the east overbank area is located between RM 13.524 to RM 13.184 and RM 11.301 to RM 10.862. This flow travels south-southeast, ultimately draining to Skunk Creek upstream of its confluence with New River.

To account for break-out flow in the right (west) overbank, a "control line" is established along a ridgeline near the right endpoint of the cross sections. The geometry of cross sections that have insufficient conveyance are revised by either truncating or extending the cross section end to the control line. Where necessary, mapping from the ACDC ADMS (FCD 90-19) or from U.S. Geological Survey (USGS) 7.5 Minute Series Quarter Section Maps is used to supplement the mapping prepared for this analysis.

To estimate the amount of flow break-out from the New River corridor a COE HEC-2 model is developed. The revised geometry is exported from HEC-RAS to a format compatible with the HEC-2 program, version 4.6.2, June 1991 as implemented by Dodson & Associates, Inc. The HEC-2 model is run in a subcritical regime using the slope area method option with an energy slope of 0.5 percent as the starting condition. The geometry of the control line is coded into the HEC-2 model for a split flow analysis using the normal depth option of the split flow routine. The return flow option of the split flow routine is set so that flows do not return to the system.

At the direction of the Flood Control District of Maricopa County, the potential reduction of flows within New River channel and overbank areas is not to be used in the detailed New River inundation limits analysis using the HEC-RAS computer program. However, for the split flow analysis in which the HEC-2 computer program is utilized the potential for flow reduction within New River, because of split flow areas (areas downstream of flow break-out) is taken into consideration.

The HEC-2 model is run for all three study discharges. The resulting break-out flows are used to establish an approximate methods inundation limit outside (to the west) of

the control line and outside of the Loop 101 Freeway (to the east). The approximate methods inundation limit is determined using a normal depth analysis. Split flow discharges are simply added together to determine the overall approximate method discharge to be used at specific locations. Representative geometry for this analysis is taken from the ACDC ADMS or USGS mapping along a westerly extension of each cross section in the break-out reach (therefore the same cross section identification numbering system is used). A Manning's n-value of 0.110 is used for the entire cross section. This value is the same as what is used in the developed overbanks of the HEC-RAS model. The most downstream cross section at which break-out occurs is RM 10.348 for the full and two-thirds PMF and RM 10.443 for the one-third PMF.

Downstream of RM 10.517 to RM 10.348 identified flow break-out to the east initial drains to the Loop 101 Freeway. This segment of the Freeway is a dip section with the low point located near RM 10.443. The break-out flow will pond in the low point of the dip section until overtopping of the east embankment occurs. After overtopping the east embankment the break-out flow will travel south until being intercepted by Skunk Creek. Overtopping of the Freeway embankment is analyzed using the side flow weir option of the HEC-2 spilt flow routine. A weir coefficient of 3.0 is selected based on the shape of the overtopping section and the anticipated flow depths. The break-out flow is contained in the Freeway section until RM 10.443.

A review of the detail HEC-RAS model output reveals a potential for flow break-out to the east at Bell Road, however because of the reduction in discharge in the HEC-2 model the Bell Road bridge is not overtopped and the split flow option is not applicable. No break-out flows are calculated at this location

4.7.5 Model Warning and Error Messages

The model executes successfully without error messages for all three study discharges. The model does report several warning messages. The following are the most frequent warning messages reported:

- The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
- The energy loss was greater than 1.0 ft (0.3 m) between the current and previous cross section.
- The velocity head has changed by more than 0.5 ft (0.15 m).

The New River watercourse system (inclusive of Rock Springs Creek) is hydraulically complex. The system contains three grade control structures, changes from a highly supercritical regime to a subcritical regime downstream of the emergency spillway, flows through an active sand and gravel operation and transitions from a broad distributary floodplain to a channelized section. Therefore, all three of these messages are expected given the hydraulic characteristics.

A fourth warning message, which occurs several times, is that the cross section end points are extended. This message corresponds to the flow break-out locations discussed in section 4.7.4.

4.8 CALIBRATION

There are no stream gauge data or high water marks for known flows, to calibrate the hydraulic model.

4.9 HYDRAULIC ANALYSIS RESULTS

The inundation limits for each study discharge are shown on Plates 1, 2 and 3 for the full, two-thirds and one-third PMF discharge, respectively. Additionally, the inundation limits for the entire study limits are shown at reduced scale in Figures 4-2 through 4-4 for the full, two-thrids and one-third PMF discharge, respectively. At several locations throughout the study reach the cross sectional conveyance capacity is exceeded. The inundation limits for these break-out reaches are mapped by two separate lines. The first line represents the inundation limits of the HEC-RAS model and is set at the end points of the cross sections that are exceeded. The results of the HEC-RAS model reflect the full spillway discharges and do not consider potential reductions in flow due to the break-out reaches. The second line represents the inundation limits determined using an approximate method. Once break-out occurs, the approximate methods inundation limits are mapped to the downstream limits of the study. The total discharge, average depth of flow and average velocity at each cross section for the approximate methods are shown in Tables 4-4 through 4-6. For each study discharge, reaches of the approximate method inundation area are identified that have similar average depths and velocities. In general, the average depth and velocity of each reach is less than 3 feet and 2 fps, respectively. A note describing the extent of each reach along with the largest average depth and velocity for that reach is located on the corresponding sheets of each plate. It should be noted that localized flooding, particularly along roadways and at roadway intersections, may

NEW RIVER DAM

NORTH

Jomax Rd

Lake Pleasant Rd

Happy Valley Rd

Pinnacle Peak Rd

Deer Valley Rd

Beardsley Rd

Union Hills Dr

Bell Rd

I-101

DOWNSTREAM STUDY LIMITS

99th Ave

91st Ave

83rd Ave

75th Ave

67th Ave

Thunderbird Rd

NTS

Legend

- FULL PMF APPROXIMATE METHOD INUNDATION LIMITS
- FULL PMF INUNDATION LIMITS
- HYDRAULIC BASELINE
- CORPORATE LIMITS

Stantec

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Client/Project

Flood Control District of Maricopa County
New River Dam
Spillway Inundation Study

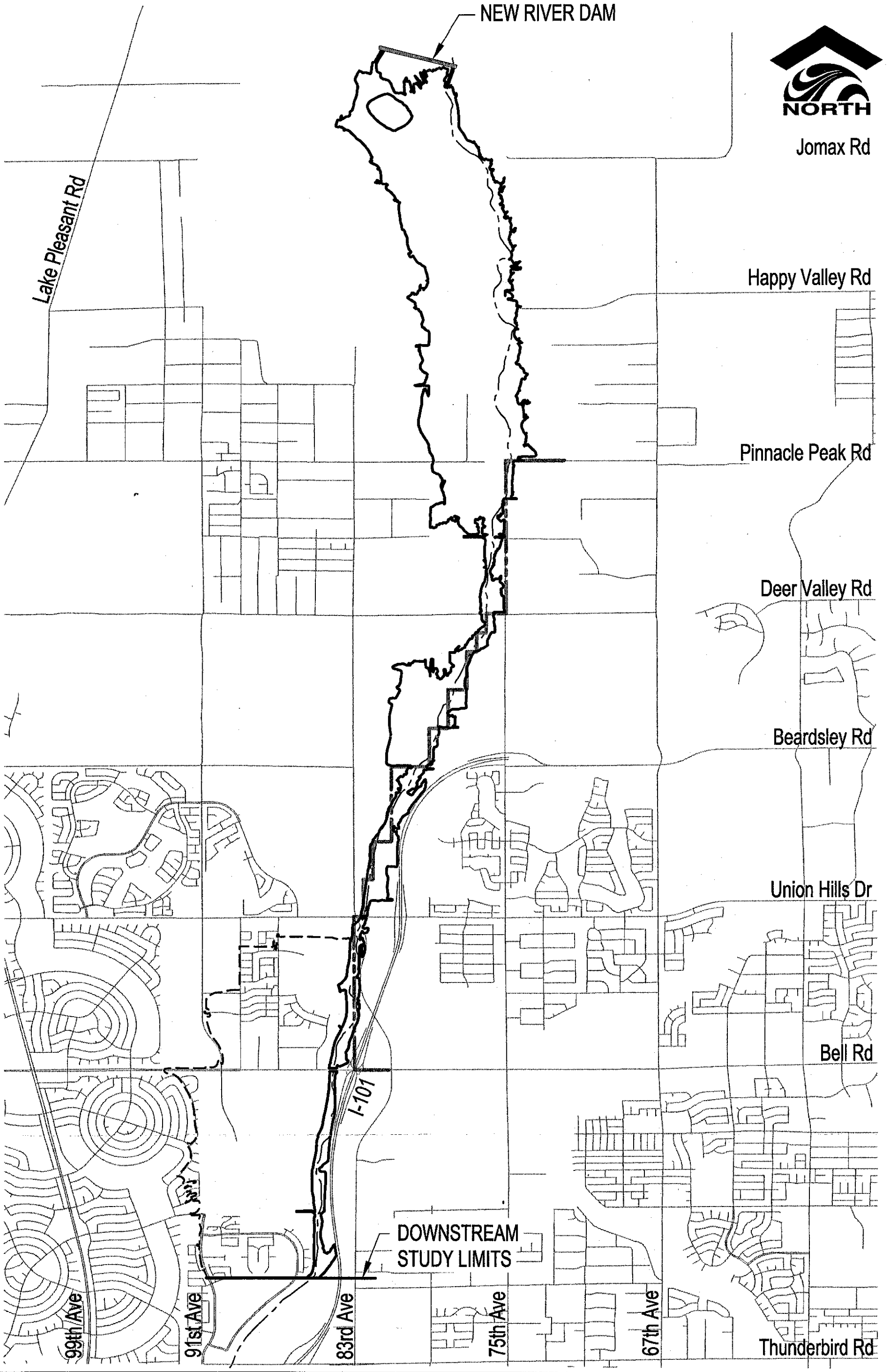
Figure No.

4-2

Title

Full PMF Inundation Limits

March, 2000 82000058



NTS

Legend

- 1/3 PMF APPROXIMATE METHOD INUNDATION LIMITS
- 1/3 PMF INUNDATION LIMITS
- HYDRAULIC BASELINE
- CORPORATE LIMITS

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Flood Control District of Maricopa County
New River Dam
Spillway Inundation Study

Figure No.
4-4

Title
1/3 PMF Inundation Limits

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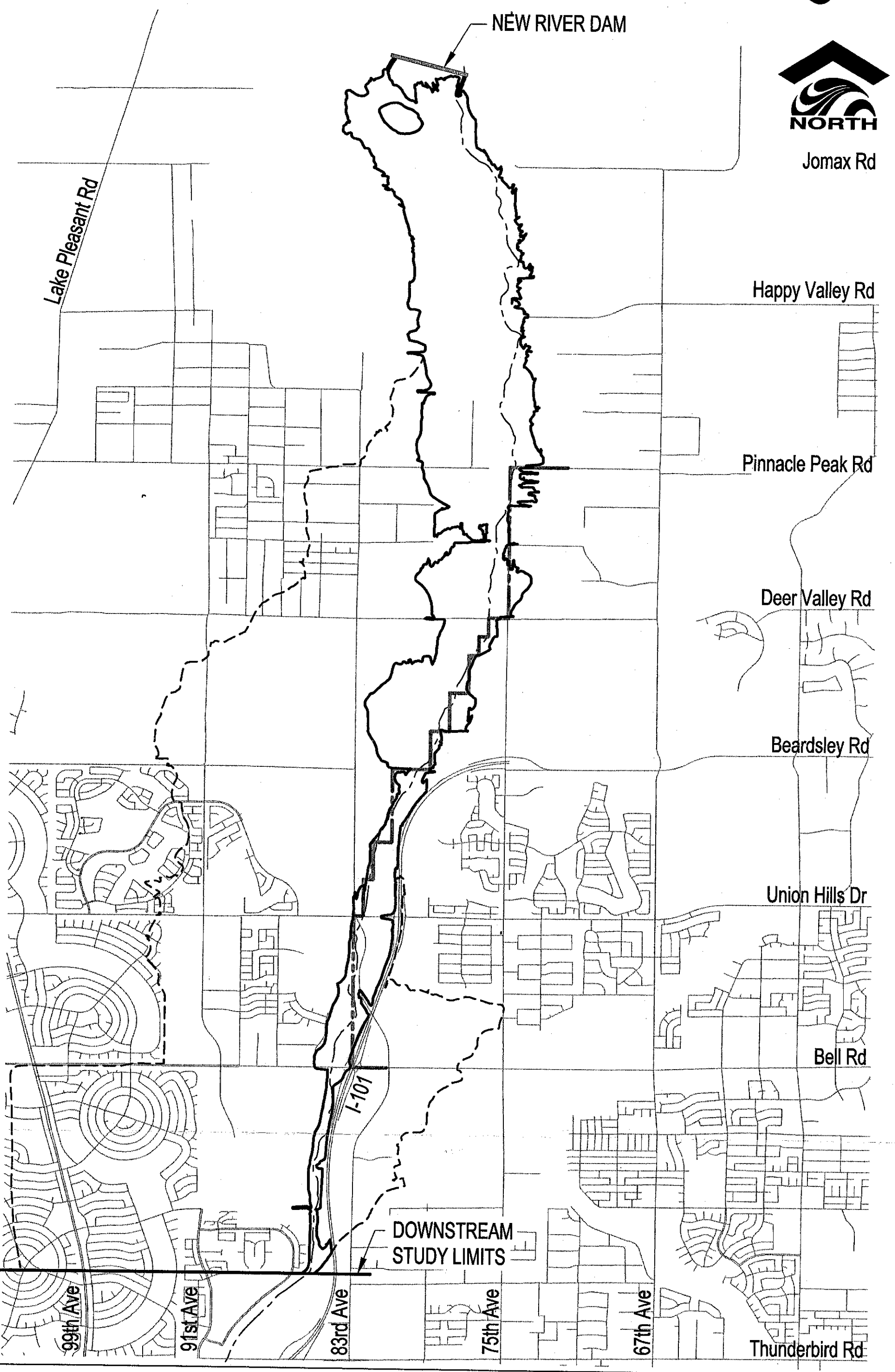
March, 2000 82000058



NTS

Legend

- 2/3 PMF APPROXIMATE METHOD INUNDATION LIMITS
- 2/3 PMF INUNDATION LIMITS
- HYDRAULIC BASELINE
- CORPORATE LIMITS

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Client/Project
Flood Control District of Maricopa County
New River Dam
Spillway Inundation Study

Figure No.
4-3

Title
2/3 PMF Inundation Limits

March, 2000 82000058

exceed the average values reported and that this information should be used primarily for emergency response planning purposes. A printout of the HEC-2 model and normal depth analyses data and results used for the determination of the break-out discharges and inundation limits are provided in Appendix A.

TABLE 4-4

Summary of approximate methods results for the full PMF

River Station	Right Overbank			Left Overbank		
	Discharge cfs	Average Velocity fps	Average Depth feet	Discharge cfs	Average Velocity fps	Average Depth feet
14.850	180	0.6	0.7	---	---	---
14.752	497	0.7	1.1	---	---	---
14.653	503	0.8	1.2	---	---	---
14.599	503	1.8	0.8	---	---	---
14.495	599	0.9	1.0	---	---	---
14.379	727	0.7	1.3	---	---	---
14.284	727	0.8	0.9	---	---	---
14.197	733	0.8	0.7	---	---	---
14.103	1480	0.8	1.5	---	---	---
14.013	1700	1.0	1.1	---	---	---
13.918	1788	0.9	1.5	---	---	---
13.818	1788	0.8	0.7	---	---	---
13.742	1788	0.8	1.6	---	---	---
13.680	1788	1.0	1.7	---	---	---
13.619	1788	0.8	0.6	---	---	---
13.524	1788	0.8	0.8	---	---	---
13.420	1934	0.8	0.7	---	---	---
13.325	2306	0.9	1.7	---	---	---
13.227	2600	1.1	1.8	---	---	---
12.896	2600	0.7	0.6	---	---	---
12.801	2600	0.8	0.6	---	---	---
12.701	2611	0.6	0.8	---	---	---
12.606	2684	1.0	1.5	---	---	---
12.511	2980	0.9	1.4	---	---	---
12.420	2986	1.0	2.0	---	---	---
12.313	2987	0.8	1.0	---	---	---
12.034	2986	0.8	1.4	---	---	---
11.949	2986	1.2	1.9	---	---	---
11.759	2986	1.2	1.7	---	---	---
11.566	2986	1.3	2.1	---	---	---
11.386	2986	0.9	2.4	---	---	---
11.243	2986	1.2	2.2	1	0.2	0.0
11.188	2987	1.0	2.5	342	3.5	1.1
11.129	2987	1.5	2.9	1231	6.6	1.2
11.030	2989	0.4	2.9	1533	6.9	2.6
10.996	N/A			1533	2.1	4.5
10.980	3293	1.7	2.2	1533	13.0	1.3
10.917	4330	1.3	2.5	2040	7.0	2.1
10.862	5057	1.6	1.7	2312	7.0	3.5
10.803	6366	1.2	2.7	2312	7.1	2.7
10.699	7362	1.4	2.4	2312	6.5	1.9
10.612	7737	1.5	2.5	2312	8.4	1.9

TABLE 4-4 (continued)

Summary of approximate methods results for the full PMF

River Station	Right Overbank			Left Overbank		
	Discharge cfs	Average Velocity ft/s	Average Depth Feet	Discharge cfs	Average Velocity ft/s	Average Depth Feet
10.517	9054	0.8	3.7	2312	8.3	2.0
10.443	9495	1.2	3.5	2312	9.2	2.2
10.348	9513	1.5	2.9	2312	0.2	5.7
10.271	N/A			2312	0.3	4.0
10.176	N/A			2312	0.9	1.9
10.096	9513	0.9	4.1	2312	0.7	1.4
9.984	N/A			3312	1.0	1.2
9.953	N/A			3312	1.0	2.1
9.889	N/A			3312	1.0	2.8
9.692	N/A			3312	1.0	3.0
9.592	9513	1.4	2.4	N/A		
9.492	N/A			3312	0.9	4.4
9.318	N/A			3312	2.5	4.7
8.731	9513	1.3	2.0	N/A		
8.548	9513	1.3	0.1	N/A		

Note

N/A: An approximate methods analysis is not performed.

TABLE 4-5

Summary of approximate methods results for the two-thirds PMF

River Station	Right Overbank			Left Overbank		
	Discharge cfs	Average Velocity ft/s	Average Depth feet	Discharge cfs	Average Velocity ft/s	Average Depth Feet
14.850	45	0.4	0.4	---	---	---
14.752	139	0.5	0.7	---	---	---
14.653	139	0.6	0.7	---	---	---
14.599	139	1.3	0.5	---	---	---
14.495	141	0.6	0.5	---	---	---
14.379	145	0.5	0.8	---	---	---
14.284	145	0.4	0.5	---	---	---
14.197	145	0.4	0.3	---	---	---
14.103	261	0.6	0.7	---	---	---
14.013	261	0.5	0.4	---	---	---
13.918	261	0.5	0.7	---	---	---
13.818	261	0.4	0.2	---	---	---
13.742	261	0.4	1.1	---	---	---
13.680	261	0.6	0.8	---	---	---
13.619	261	0.4	0.2	---	---	---
13.524	261	0.4	0.3	---	---	---
13.420	261	0.4	0.2	---	---	---
13.325	263	0.6	0.8	---	---	---
13.227	263	0.6	0.6	---	---	---
12.896	263	0.3	0.2	---	---	---
12.801	263	0.3	0.2	---	---	---
12.701	263	0.2	0.2	---	---	---
12.606	263	0.6	0.6	---	---	---
12.511	309	0.5	0.5	---	---	---
12.420	309	0.5	0.6	---	---	---
12.313	309	0.3	0.3	---	---	---
12.034	309	0.4	0.5	---	---	---
11.949	309	0.7	0.8	---	---	---
11.759	309	0.8	1.0	---	---	---
11.566	309	0.7	0.8	---	---	---
11.386	309	0.6	1.3	---	---	---
11.243	309	1.1	1.6	---	---	---
11.188	309	0.6	0.7	---	---	---
11.129	309	1.0	1.1	34	1.5	0.2
11.030	309	0.2	1.0	38	2.2	0.6
10.996	N/A			38	0.5	0.5
10.980	313	1.0	0.9	38	3.6	0.2
10.917	591	0.7	0.9	93	2.3	0.4
10.862	920	0.9	0.7	134	2.8	1.5
10.803	1,663	0.8	1.2	134	2.6	1.1
10.699	2,283	1.1	1.1	134	2.3	0.4
10.612	2,449	1.4	1.2	134	2.9	0.4

TABLE 4-5 (continued)

Summary of approximate methods results for the two-thirds PMF

River Station	Right Overbank			Left Overbank		
	Discharge cfs	Average Velocity ft/s	Average Depth Feet	Discharge cfs	Average Velocity ft/s	Average Depth Feet
10.517	3,378	0.6	2.6	134	2.8	0.6
10.443	3,696	0.9	2.6	134	3.4	0.7
10.348	3,697	1.3	2.2	134	0.1	2.2
10.271	3,697	0.4	3.5	134	0.1	1.4
10.176	3,697	1.3	1.5	134	0.5	0.7
10.096	3,697	1.0	3.5	134	0.4	0.5
9.984	3,697	0.3	4.2	937	0.7	0.6
9.953	3,697	0.3	3.9	937	0.9	0.9
9.908	3,697	1.0	1.8	N/A		
9.889	N/A			937	0.6	2.3
9.692	N/A			937	0.6	2.4
9.592	3,697	1.2	1.3	N/A		
9.492	N/A			937	0.9	2.8
9.318	N/A			937	0.7	2.6
9.289	N/A			937	1.3	3.4
9.193	N/A			937	1.6	2.6
8.731	3,697	1.0	1.2	N/A		

Note

N/A: An approximate methods analysis is not performed.

TABLE 4-6

Summary of approximate methods results for the one-third PMF

River Station	Discharge cfs	Average Velocity ft/s	Average Depth feet
10.803	42	0.6	1.0
10.699	93	0.7	0.9
10.612	93	0.8	0.8
10.517	194	0.6	1.3
10.443	253	0.5	0.5
10.348	253	0.8	1.0
10.271	253	0.2	2.4
10.176	253	0.4	0.8
10.096	253	0.6	1.0
9.984	253	0.1	2.1
9.953	253	0.1	0.9
9.908	253	0.7	1.5
9.794	253	0.5	0.4
9.592	253	0.6	0.8
9.367	253	0.4	1.4
9.318	253	0.3	1.2
9.289	253	0.3	2.8
9.129	253	0.2	2.5
8.994	253	0.2	0.5
8.936	253	0.2	2.3
8.807	253	0.2	1.6
8.655	253	0.3	1.0

In some areas, the conveyance limits between cross sections can vary rapidly resulting in a inundation/floodplain limit that is not realistic. In these areas, the inudation limit is adjusted by hand to provide a smooth transition from an upstream cross section to a cross section downstream. The hand adjusted portions of the floodplain boundary are noted on each Plate.

Total, accumulative travel time, velocities and flow depth at each cross section for each study discharge for the detailed HEC-RAS model are provided in Tables 4-7 through 4-9 and on Plates 1 through 3. The accumulative travel times start at the crest of the emergency spillway and are calculated by summing the results of average velocity for the entire cross section divided by the downstream channel reach length. The total travel time does not consider the time from the onset of emergency spillway overtopping to the study discharges. The COE estimated that the time from the onset of overtopping to the time when flows begin to significantly increase is 5 hours. The

Plates are numbered from upstream to downstream to follow the travel time tables. Maximum channel velocities and depths are also reported for each cross section and are taken directly from the model output. HEC-RAS model output and cross section plots are provided in Appendix E. The HEC-RAS model is provided on diskette in Appendix F.

TABLE 4-7

Full PMF travel time from the crest of the emergency spillway New River Dam

Reach	River Station miles	Peak Flow cfs	Water Surface Elevation feet	Travel Time Hours*	Maximum Channel Velocity fps	Maximum Channel Depth feet
Upper Spillway	0.884	30000	1472.94	0.00	21.6	16.8
Upper Spillway	0.840	30000	1462.92	0.00	28.8	13.1
Upper Spillway	0.796	30000	1456.97	0.01	29.8	12.6
Upper Spillway	0.787	30000	1451.91	0.01	33.8	8.5
Upper Spillway	0.763	30000	1436.84	0.01	36.0	8.3
Upper Spillway	0.741	30000	1425.39	0.01	34.5	5.6
Upper Spillway	0.715	30000	1417.62	0.01	25.5	5.8
Upper Spillway	0.681	30000	1411.51	0.01	12.7	11.2
Lower Spillway	0.622	18000	1407.56	0.02	11.0	5.8
Lower Spillway	0.544	18000	1397.71	0.03	16.4	9.2
Lower Spillway	0.495	18000	1391.69	0.03	15.2	7.2
Lower Spillway	0.454	18000	1388.58	0.04	12.5	7.1
Upper	16.829	21000	1384.20	0.05	4.2	9.3
Upper	16.732	21000	1381.70	0.09	5.6	8.8
Upper	16.637	21000	1378.92	0.12	5.3	8.7
Upper	16.504	21000	1374.65	0.16	8.8	7.8
Lower	16.411	33000	1371.28	0.17	6.2	8.8
Lower	16.348	33000	1369.63	0.21	4.9	8.9
Lower	16.248	33000	1368.04	0.25	7.1	9.4
Lower	16.167	33000	1365.75	0.28	7.3	7.8
Lower	16.066	33000	1362.91	0.32	7.3	8.5
Lower	15.966	33000	1360.81	0.37	6.6	9.0
Lower	15.885	33000	1358.67	0.40	8.8	10.3
Lower	15.792	33000	1355.70	0.44	8.3	10.5
Lower	15.699	33000	1354.11	0.46	5.6	9.4
Lower	15.623	33000	1353.23	0.49	4.6	13.2
Lower	15.596	33000	1350.66	0.53	6.7	12.3
Lower	15.475	33000	1346.07	0.56	8.5	11.0
Lower	15.416	33000	1344.98	0.58	9.1	11.6
Lower	15.333	33000	1343.66	0.60	8.6	10.0
Lower	15.248	33000	1341.22	0.63	9.3	10.0
Lower	15.144	33000	1338.78	0.67	7.4	9.6
Lower	15.049	33000	1337.38	0.71	4.4	10.3
Lower	14.983	33000	1334.83	0.77	7.9	10.9
Lower	14.945	33000	1333.57	0.78	7.1	9.9
Lower	14.850	33000	1330.29	0.82	8.3	9.3
Lower	14.752	33000	1327.98	0.86	6.7	8.2
Lower	14.653	33000	1325.25	0.90	7.5	8.0
Lower	14.599	33000	1322.56	0.95	6.6	7.5
Lower	14.495	33000	1320.19	0.99	5.9	8.0
Lower	14.379	33000	1317.24	1.05	7.2	9.3
Lower	14.284	33000	1314.65	1.09	6.9	9.3

* Travel time is based on the average velocity for the entire cross section.

TABLE 4-7 (continued)

Full PMF travel time from the crest of the emergency spillway New River Dam

Reach	River Station miles	Peak Flow cfs	Water Surface Elevation Feet	Travel Time Hours*	Maximum Channel Velocity fps	Maximum Channel Depth feet
Lower	14.197	33000	1312.40	1.14	7.7	10.5
Lower	14.103	33000	1309.21	1.19	10.3	9.5
Lower	14.013	33000	1307.54	1.22	8.6	11.8
Lower	13.918	33000	1303.58	1.27	13.1	13.8
Lower	13.818	33000	1296.01	1.30	5.8	10.2
Lower	13.742	33000	1295.08	1.32	6.6	9.5
Lower	13.680	33000	1294.38	1.33	6.4	9.0
Lower	13.619	33000	1293.93	1.35	6.0	10.6
Lower	13.524	33000	1291.39	1.38	11.0	9.9
Lower	13.420	33000	1289.69	1.41	8.8	12.3
Lower	13.325	33000	1287.61	1.46	10.5	10.9
Lower	13.227	33000	1285.21	1.50	9.6	10.4
Lower	13.185	33000	1282.51	1.52	12.1	7.6
Lower	13.161	33000	1281.65	1.52	13.5	7.0
Lower	13.151	33000	1267.85	1.53	29.0	5.7
Lower	13.076	33000	1275.28	1.53	7.1	12.9
Lower	12.991	33000	1274.98	1.55	5.8	12.6
Lower	12.896	33000	1273.86	1.57	8.1	11.4
Lower	12.801	33000	1272.79	1.60	7.2	12.6
Lower	12.701	33000	1271.26	1.62	7.3	11.2
Lower	12.606	33000	1268.73	1.66	8.6	9.8
Lower	12.511	33000	1265.64	1.70	11.1	10.8
Lower	12.420	33000	1263.78	1.73	9.1	9.3
Lower	12.313	33000	1261.00	1.78	9.6	10.5
Lower	12.194	33000	1255.24	1.83	13.4	7.2
Lower	12.125	33000	1253.22	1.83	8.4	8.6
Lower	12.034	33000	1251.11	1.85	9.9	9.6
Lower	11.949	33000	1250.38	1.87	6.3	11.5
Lower	11.864	33000	1245.46	1.90	16.5	9.9
Lower	11.759	33000	1242.03	1.91	12.0	10.0
Lower	11.664	33000	1238.91	1.92	11.5	10.1
Lower	11.566	33000	1237.85	1.94	7.5	9.5
Lower	11.481	33000	1237.24	1.96	6.8	12.4
Lower	11.386	33000	1236.61	1.99	6.5	13.5
Lower	11.301	33000	1235.19	2.02	9.9	13.9
Lower	11.243	33000	1234.36	2.03	10.2	15.2
Lower	11.188	33000	1233.17	2.04	10.7	14.0
Lower	11.129	33000	1232.91	2.06	8.5	13.5
Lower	11.030	33000	1232.11	2.08	8.8	12.7
Lower	10.996	33000	1231.55	2.09	9.1	12.9
Lower	10.988	Bridge				
Lower	10.980	33000	1229.63	2.11	12.8	11.0

* Travel time is based on the average velocity for the entire cross section.

TABLE 4-7 (continued)

Full PMF travel time from the crest of the emergency spillway New River Dam

Reach	River Station miles	Peak Flow cfs	Water Surface Elevation Feet	Travel Time hours*	Maximum Channel Velocity fps	Maximum Channel Depth feet
Lower	10.917	33000	1228.22	2.12	7.6	11.5
Lower	10.862	33000	1226.27	2.14	11.8	10.8
Lower	10.803	33000	1224.43	2.15	9.8	10.3
Lower	10.699	33000	1221.28	2.17	12.1	11.8
Lower	10.612	33000	1218.74	2.19	11.1	10.0
Lower	10.517	33000	1216.37	2.20	11.7	8.9
Lower	10.443	33000	1212.86	2.22	12.0	8.3
Lower	10.348	33000	1210.95	2.23	9.6	9.7
Lower	10.271	33000	1209.74	2.25	8.4	11.5
Lower	10.176	33000	1208.97	2.28	7.5	13.4
Lower	10.096	33000	1208.67	2.30	5.6	14.8
Lower	9.997	33000	1208.33	2.34	6.0	16.6
Lower	9.984	33000	1208.19	2.35	6.2	17.2
Lower	9.971	Bridge				
Lower	9.958	33000	1201.74	2.35	11.4	11.3
Lower	9.953	33000	1201.51	2.35	11.7	12.1
Lower	9.908	33000	1198.58	2.35	15.5	9.5
Lower	9.889	33000	1196.71	2.35	16.8	11.3
Lower	9.794	33000	1190.04	2.36	17.9	9.8
Lower	9.692	33000	1189.03	2.37	9.1	11.8
Lower	9.592	33000	1185.80	2.39	12.6	10.1
Lower	9.492	33000	1184.41	2.40	7.5	10.5
Lower	9.367	33000	1183.93	2.42	6.4	12.6
Lower	9.318	33000	1182.91	2.44	8.0	14.6
Lower	9.289	33000	1179.47	2.44	15.5	11.6
Lower	9.193	33000	1177.94	2.45	6.0	13.4
Lower	9.129	33000	1177.65	2.47	5.8	14.5
Lower	9.047	33000	1177.16	2.49	6.6	15.5
Lower	8.994	33000	1174.61	2.51	12.7	13.0
Lower	8.977	33000	1174.38	2.51	12.1	13.1
Lower	8.936	33000	1174.15	2.51	10.1	14.2
Lower	8.883	33000	1170.11	2.52	16.3	10.7
Lower	8.807	33000	1165.88	2.53	16.5	7.8
Lower	8.731	33000	1164.89	2.53	5.4	11.3
Lower	8.655	33000	1164.21	2.56	6.3	11.7
Lower	8.548	33000	1159.99	2.58	15.3	10.2
Spillway	4.647	24000	1400.26	0.01	15.7	9.1
Spillway	4.543	24000	1387.65	0.02	13.0	5.3
Spillway	4.448	24000	1380.18	0.03	9.6	4.4
Spillway	4.353	24000	1377.63	0.05	5.4	8.2
Spillway	4.261	24000	1375.79	0.07	5.5	8.3
Spillway	4.148	24000	1373.57	0.11	5.2	9.4
Spillway	4.101	24000	1372.55	0.12	5.7	9.4

* Travel time is based on the average velocity for the entire cross section.

TABLE 4-8

Two-thirds PMF travel time from the crest of the emergency spillway New River Dam

Reach	River Station miles	Peak Flow cfs	Water Surface Elevation feet	Travel Time Hours*	Maximum Channel Velocity fps	Maximum Channel Depth Feet
Upper Spillway	0.884	20000	1469.17	0.00	19.3	13.0
Upper Spillway	0.840	20000	1459.95	0.00	25.9	10.1
Upper Spillway	0.796	20000	1454.41	0.01	26.1	10.1
Upper Spillway	0.787	20000	1450.44	0.01	29.0	7.0
Upper Spillway	0.763	20000	1435.92	0.01	31.5	7.4
Upper Spillway	0.741	20000	1424.57	0.01	29.1	4.8
Upper Spillway	0.715	20000	1417.13	0.01	20.9	5.3
Upper Spillway	0.681	20000	1410.79	0.01	10.1	10.5
Lower Spillway	0.622	12000	1406.62	0.02	9.7	4.8
Lower Spillway	0.544	12000	1396.84	0.03	14.3	8.4
Lower Spillway	0.495	12000	1390.93	0.04	13.0	6.5
Lower Spillway	0.454	12000	1387.54	0.04	10.8	6.0
Upper	16.829	15000	1383.45	0.06	3.6	8.6
Upper	16.732	15000	1381.07	0.10	4.9	8.1
Upper	16.637	15000	1378.39	0.13	4.7	8.2
Upper	16.504	15000	1374.12	0.18	8.1	7.3
Lower	16.411	23000	1370.65	0.20	5.5	8.2
Lower	16.348	23000	1368.94	0.23	4.4	8.2
Lower	16.248	23000	1367.34	0.27	6.3	8.7
Lower	16.167	23000	1365.06	0.31	6.5	7.1
Lower	16.066	23000	1362.16	0.35	6.6	7.7
Lower	15.966	23000	1360.10	0.40	5.8	8.3
Lower	15.885	23000	1357.98	0.44	8.0	9.6
Lower	15.792	23000	1354.86	0.47	7.5	9.7
Lower	15.699	23000	1353.18	0.49	4.8	8.5
Lower	15.623	23000	1352.27	0.52	4.1	12.3
Lower	15.596	23000	1349.64	0.56	6.2	11.3
Lower	15.475	23000	1344.97	0.59	7.1	9.9
Lower	15.416	23000	1344.06	0.60	7.5	10.7
Lower	15.333	23000	1342.82	0.63	7.7	9.2
Lower	15.248	23000	1340.62	0.66	8.1	9.4
Lower	15.144	23000	1338.06	0.69	7.1	8.9
Lower	15.049	23000	1336.62	0.74	3.8	9.5
Lower	14.983	23000	1334.14	0.79	7.4	10.2
Lower	14.945	23000	1332.79	0.81	6.5	9.1
Lower	14.850	23000	1329.56	0.85	7.3	8.6
Lower	14.752	23000	1327.26	0.89	6.1	7.5
Lower	14.653	23000	1324.66	0.94	6.7	7.4
Lower	14.599	23000	1321.93	0.98	6.0	6.9
Lower	14.495	23000	1319.58	1.03	5.2	7.4
Lower	14.379	23000	1316.60	1.09	6.6	8.6

* Travel time is based on the average velocity for the entire cross section.

TABLE 4-8 (continued)

Two-thirds PMF travel time from the crest of the emergency spillway New River Dam

Reach	River Station miles	Peak Flow cfs	Water Surface Elevation Feet	Travel Time hours*	Maximum Channel Velocity fps	Maximum Channel Depth feet
Lower	14.284	23000	1313.98	1.14	6.2	8.6
Lower	14.197	23000	1311.60	1.20	7.3	9.7
Lower	14.103	23000	1308.40	1.24	9.3	8.7
Lower	14.013	23000	1307.03	1.27	7.0	11.3
Lower	13.918	23000	1300.46	1.33	18.0	10.6
Lower	13.818	23000	1294.64	1.34	5.0	8.8
Lower	13.742	23000	1293.76	1.37	5.7	8.2
Lower	13.680	23000	1293.00	1.39	5.7	7.6
Lower	13.619	23000	1292.57	1.40	5.1	9.2
Lower	13.524	23000	1290.35	1.43	10.6	8.4
Lower	13.420	23000	1289.27	1.44	7.6	11.8
Lower	13.325	23000	1286.31	1.50	11.5	9.6
Lower	13.227	23000	1283.39	1.52	11.3	8.6
Lower	13.185	23000	1281.57	1.53	10.3	6.7
Lower	13.161	23000	1281.33	1.53	10.3	6.7
Lower	13.151	23000	1274.20	1.54	6.5	12.0
Lower	13.076	23000	1273.81	1.55	5.8	11.4
Lower	12.991	23000	1273.56	1.57	4.7	11.2
Lower	12.896	23000	1272.73	1.61	6.6	10.2
Lower	12.801	23000	1271.86	1.63	6.0	11.6
Lower	12.701	23000	1270.41	1.66	6.6	10.3
Lower	12.606	23000	1267.93	1.70	7.5	9.0
Lower	12.511	23000	1264.88	1.74	9.9	10.1
Lower	12.420	23000	1262.93	1.77	8.5	8.4
Lower	12.313	23000	1259.74	1.82	9.5	9.3
Lower	12.194	23000	1254.00	1.86	12.0	6.0
Lower	12.125	23000	1251.66	1.87	7.6	7.0
Lower	12.034	23000	1249.29	1.89	9.3	7.8
Lower	11.949	23000	1247.94	1.90	6.7	9.0
Lower	11.864	23000	1243.91	1.93	14.2	8.3
Lower	11.759	23000	1240.51	1.94	10.9	8.5
Lower	11.664	23000	1238.22	1.96	9.0	9.4
Lower	11.566	23000	1237.54	1.97	5.5	9.2
Lower	11.481	23000	1235.57	2.00	9.9	10.8
Lower	11.386	23000	1235.06	2.01	5.7	12.0
Lower	11.301	23000	1233.70	2.05	8.9	12.4
Lower	11.243	23000	1232.58	2.06	10.0	13.5
Lower	11.188	23000	1231.80	2.07	9.3	12.7
Lower	11.129	23000	1231.54	2.09	7.4	12.2
Lower	11.030	23000	1230.60	2.11	8.4	11.2
Lower	10.996	23000	1230.29	2.12	7.9	11.7
Lower	10.988	Bridge				
Lower	10.980	23000	1227.31	2.12	13.0	8.7

* Travel time is based on the average velocity for the entire cross section.

TABLE 4-8 (continued)

Two-thirds PMF travel time from the crest of the emergency spillway New River Dam

Reach	River Station miles	Peak Flow Cfs	Water Surface Elevation feet	Travel Time Hours*	Maximum Channel Velocity fps	Maximum Channel Depth feet
Lower	10.917	23000	1226.70	2.13	7.2	10.0
Lower	10.862	23000	1223.85	2.15	12.8	8.4
Lower	10.803	23000	1223.18	2.15	8.5	9.1
Lower	10.699	23000	1219.13	2.18	12.2	9.7
Lower	10.612	23000	1217.35	2.19	9.5	8.6
Lower	10.517	23000	1214.93	2.20	10.5	7.5
Lower	10.443	23000	1211.60	2.22	10.4	7.0
Lower	10.348	23000	1209.67	2.24	8.3	8.5
Lower	10.271	23000	1208.60	2.26	6.9	10.3
Lower	10.176	23000	1208.05	2.28	5.9	12.5
Lower	10.096	23000	1207.83	2.32	4.3	14.0
Lower	9.997	23000	1207.63	2.36	4.5	15.9
Lower	9.984	23000	1207.56	2.37	4.6	16.6
Lower	9.971	Bridge				
Lower	9.958	23000	1199.81	2.37	9.9	9.3
Lower	9.953	23000	1199.55	2.37	10.3	10.2
Lower	9.908	23000	1196.83	2.38	13.9	7.8
Lower	9.889	23000	1193.90	2.38	16.8	8.5
Lower	9.794	23000	1189.33	2.39	13.9	9.1
Lower	9.692	23000	1187.24	2.40	7.8	10.0
Lower	9.592	23000	1184.14	2.42	11.4	8.4
Lower	9.492	23000	1182.12	2.44	7.0	8.2
Lower	9.367	23000	1181.55	2.45	5.7	10.2
Lower	9.318	23000	1180.61	2.48	7.1	12.3
Lower	9.289	23000	1177.68	2.48	14.1	9.8
Lower	9.193	23000	1175.25	2.49	5.6	10.7
Lower	9.129	23000	1174.92	2.51	5.3	11.8
Lower	9.047	23000	1174.46	2.53	5.9	12.8
Lower	8.994	23000	1172.32	2.55	11.4	10.7
Lower	8.977	23000	1172.11	2.55	10.8	10.8
Lower	8.936	23000	1171.72	2.56	9.3	11.8
Lower	8.883	23000	1168.35	2.56	14.3	8.9
Lower	8.807	23000	1164.77	2.57	13.7	6.7
Lower	8.731	23000	1162.70	2.58	4.9	9.1
Lower	8.655	23000	1162.01	2.61	5.7	9.5
Lower	8.548	23000	1158.37	2.63	13.7	8.6
Spillway	4.647	16000	1399.25	0.01	14.7	8.0
Spillway	4.543	16000	1387.09	0.02	10.6	4.7
Spillway	4.448	16000	1379.42	0.03	8.2	3.6
Spillway	4.353	16000	1376.74	0.05	4.6	7.3
Spillway	4.261	16000	1374.93	0.08	4.5	7.5
Spillway	4.148	16000	1372.79	0.12	4.5	8.6
Spillway	4.101	16000	1371.86	0.14	4.7	8.7

* Travel time is based on the average velocity for the entire cross section.

TABLE 4-9

One-third PMF travel time from the crest of the emergency spillway New River Dam

Reach	River Station miles	Peak Flow cfs	Water Surface Elevation feet	Travel Time hours*	Maximum Channel Velocity Fps	Maximum Channel Depth Feet
Upper Spillway	0.884	10000	1464.53	0.00	15.7	8.4
Upper Spillway	0.840	10000	1456.36	0.00	21.3	6.5
Upper Spillway	0.796	10000	1451.21	0.01	20.3	6.9
Upper Spillway	0.787	10000	1448.68	0.01	21.6	5.2
Upper Spillway	0.763	10000	1434.59	0.01	25.9	6.0
Upper Spillway	0.741	10000	1423.37	0.01	22.5	3.5
Upper Spillway	0.715	10000	1416.48	0.01	14.5	4.6
Upper Spillway	0.681	10000	1409.71	0.02	5.5	9.4
Lower Spillway	0.622	6000	1405.44	0.03	7.9	3.7
Lower Spillway	0.544	6000	1395.58	0.04	11.7	7.1
Lower Spillway	0.495	6000	1389.60	0.05	11.0	5.1
Lower Spillway	0.454	6000	1386.20	0.05	8.1	4.7
Upper	16.829	9000	1382.53	0.07	2.9	7.6
Upper	16.732	9000	1380.29	0.12	4.1	7.4
Upper	16.637	9000	1377.77	0.16	3.8	7.5
Upper	16.504	9000	1373.07	0.22	7.9	6.3
Lower	16.411	13000	1369.73	0.23	4.8	7.3
Lower	16.348	13000	1367.98	0.27	3.7	7.2
Lower	16.248	13000	1366.42	0.32	5.1	7.7
Lower	16.167	13000	1364.13	0.36	5.3	6.2
Lower	16.066	13000	1361.17	0.40	5.4	6.7
Lower	15.966	13000	1359.04	0.45	4.9	7.2
Lower	15.885	13000	1356.98	0.49	6.7	8.6
Lower	15.792	13000	1353.76	0.52	6.4	8.6
Lower	15.699	13000	1351.85	0.54	3.8	7.1
Lower	15.623	13000	1350.94	0.57	3.2	10.9
Lower	15.596	13000	1348.34	0.62	5.5	10.0
Lower	15.475	13000	1343.29	0.65	5.7	8.2
Lower	15.416	13000	1342.65	0.67	5.4	9.3
Lower	15.333	13000	1341.59	0.70	6.2	8.0
Lower	15.248	13000	1339.41	0.73	7.4	8.2
Lower	15.144	13000	1336.97	0.75	6.2	7.8
Lower	15.049	13000	1335.53	0.79	3.1	8.4
Lower	14.983	13000	1333.28	0.86	6.2	9.3
Lower	14.945	13000	1331.72	0.87	5.9	8.0
Lower	14.850	13000	1328.52	0.92	5.9	7.5
Lower	14.752	13000	1326.34	0.95	5.0	6.6
Lower	14.653	13000	1323.84	1.01	5.7	6.5
Lower	14.599	13000	1321.11	1.05	5.0	6.0
Lower	14.495	13000	1318.75	1.11	4.3	6.6
Lower	14.379	13000	1315.44	1.18	7.1	7.5

* Travel time is based on the average velocity for the entire cross section.

TABLE 4-9 (continued)

One-third PMF travel time from the crest of the emergency spillway New River Dam

Reach	River Station miles	Peak Flow cfs	Water Surface Elevation Feet	Travel Time hours*	Maximum Channel Velocity fps	Maximum Channel Depth feet
Lower	14.284	13000	1313.11	1.22	5.2	7.7
Lower	14.197	13000	1310.36	1.28	7.0	8.5
Lower	14.103	13000	1306.95	1.32	7.7	7.2
Lower	14.013	13000	1304.64	1.35	7.9	8.9
Lower	13.918	13000	1298.80	1.38	14.1	9.0
Lower	13.818	13000	1292.83	1.39	4.0	7.0
Lower	13.742	13000	1291.89	1.42	5.0	6.3
Lower	13.680	13000	1290.82	1.44	5.3	5.3
Lower	13.619	13000	1290.30	1.46	4.2	6.8
Lower	13.524	13000	1288.67	1.50	8.0	6.8
Lower	13.420	13000	1286.62	1.51	8.6	9.2
Lower	13.325	13000	1284.12	1.54	9.3	7.4
Lower	13.227	13000	1281.70	1.56	8.4	6.9
Lower	13.185	13000	1280.30	1.57	7.9	5.4
Lower	13.161	13000	1279.33	1.57	10.2	4.7
Lower	13.151	13000	1272.14	1.58	4.8	9.9
Lower	13.076	13000	1271.86	1.60	4.2	9.5
Lower	12.991	13000	1271.69	1.63	3.3	9.3
Lower	12.896	13000	1271.18	1.67	4.7	8.7
Lower	12.801	13000	1270.50	1.71	4.5	10.3
Lower	12.701	13000	1268.94	1.74	6.4	8.8
Lower	12.606	13000	1266.86	1.78	6.0	8.0
Lower	12.511	13000	1263.47	1.82	9.1	8.7
Lower	12.420	13000	1261.23	1.85	8.2	6.7
Lower	12.313	13000	1257.95	1.88	8.2	7.5
Lower	12.194	13000	1252.50	1.91	10.1	4.5
Lower	12.125	13000	1249.82	1.92	6.4	5.2
Lower	12.034	13000	1247.38	1.94	8.0	5.9
Lower	11.949	13000	1245.31	1.96	6.2	6.4
Lower	11.864	13000	1242.22	1.98	10.6	6.7
Lower	11.759	13000	1238.61	2.00	9.2	6.6
Lower	11.664	13000	1236.02	2.02	7.8	7.2
Lower	11.566	13000	1234.90	2.04	4.8	6.6
Lower	11.481	13000	1233.25	2.07	8.1	8.4
Lower	11.386	13000	1232.55	2.08	5.3	9.5
Lower	11.301	13000	1230.90	2.12	8.6	9.6
Lower	11.243	13000	1229.93	2.13	8.8	10.8
Lower	11.188	13000	1229.44	2.14	7.2	10.3
Lower	11.129	13000	1229.16	2.15	5.8	9.8
Lower	11.030	13000	1227.37	2.18	9.2	8.0
Lower	10.996	13000	1226.99	2.18	7.8	8.4
Lower	10.988	Bridge				
Lower	10.980	13000	1225.23	2.18	10.1	6.6

* Travel time is based on the average velocity for the entire cross section.

TABLE 4-9 (continued)

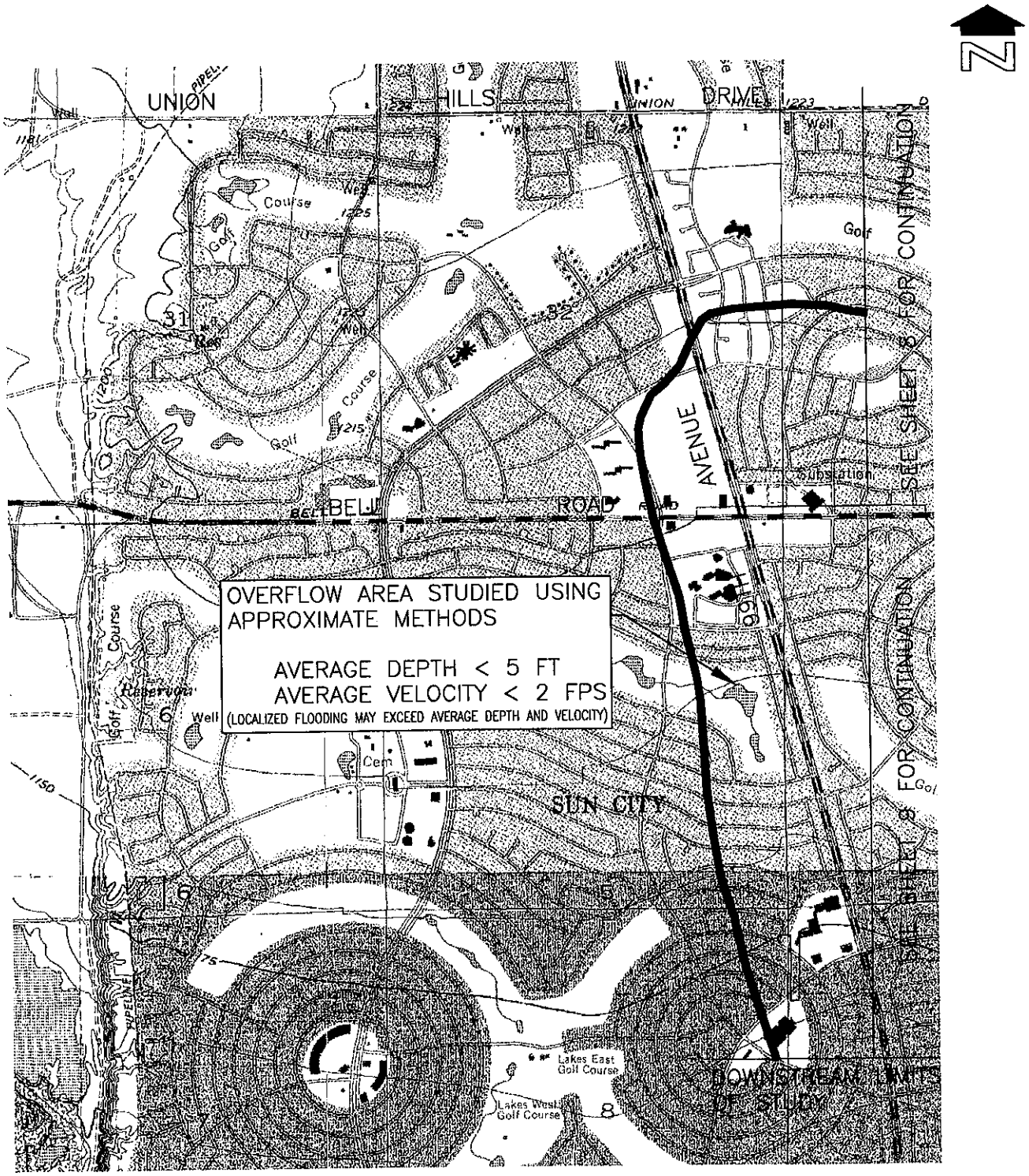
One-third PMF travel time from the crest of the emergency spillway New River Dam

Reach	River Station miles	Peak Flow cfs	Water Surface Elevation feet	Travel Time Hours*	Maximum Channel Velocity fps	Maximum Channel Depth feet
Lower	10.917	13000	1224.16	2.19	6.6	7.4
Lower	10.862	13000	1222.33	2.21	9.5	6.9
Lower	10.803	13000	1221.09	2.22	7.6	7.0
Lower	10.699	13000	1217.30	2.24	9.6	7.8
Lower	10.612	13000	1215.60	2.25	7.2	6.8
Lower	10.517	13000	1213.28	2.27	8.7	5.9
Lower	10.443	13000	1209.95	2.29	8.5	5.4
Lower	10.348	13000	1207.46	2.31	7.3	6.3
Lower	10.271	13000	1205.39	2.33	7.1	7.1
Lower	10.176	13000	1202.95	2.35	8.0	7.4
Lower	10.096	13000	1200.79	2.37	6.7	7.0
Lower	9.997	13000	1198.43	2.39	8.5	6.7
Lower	9.984	13000	1198.37	2.39	7.1	7.4
Lower	9.971	Bridge				
Lower	9.958	13000	1197.29	2.39	8.0	6.8
Lower	9.953	13000	1197.12	2.39	8.2	7.7
Lower	9.908	13000	1194.56	2.40	12.1	5.5
Lower	9.889	13000	1191.22	2.40	15.4	5.8
Lower	9.794	13000	1187.44	2.41	11.4	7.2
Lower	9.692	13000	1185.05	2.43	6.1	7.9
Lower	9.592	13000	1182.39	2.45	9.3	6.7
Lower	9.492	13000	1179.57	2.47	6.4	5.6
Lower	9.367	13000	1178.71	2.49	4.9	7.4
Lower	9.318	13000	1177.82	2.52	5.9	9.5
Lower	9.289	13000	1175.52	2.53	12.0	7.6
Lower	9.193	13000	1172.10	2.54	5.0	7.6
Lower	9.129	13000	1171.68	2.56	4.5	8.5
Lower	9.047	13000	1171.23	2.58	4.9	9.6
Lower	8.994	13000	1169.72	2.60	9.1	8.1
Lower	8.977	13000	1169.43	2.61	8.8	8.1
Lower	8.936	13000	1168.85	2.61	7.9	8.9
Lower	8.883	13000	1166.60	2.62	10.9	7.2
Lower	8.807	13000	1162.85	2.63	11.4	4.8
Lower	8.731	13000	1160.21	2.64	4.2	6.6
Lower	8.655	13000	1159.49	2.67	4.8	7.0
Lower	8.548	13000	1156.52	2.70	11.3	6.8
Spillway	4.647	8000	1397.86	0.02	12.9	6.6
Spillway	4.543	8000	1385.92	0.03	8.9	3.5
Spillway	4.448	8000	1378.44	0.05	6.2	2.6
Spillway	4.353	8000	1375.58	0.07	3.5	6.2
Spillway	4.261	8000	1373.80	0.11	3.4	6.3
Spillway	4.148	8000	1371.61	0.16	3.5	7.4
Spillway	4.101	8000	1370.84	0.18	3.4	7.6

* Travel time is based on the average velocity for the entire cross section.

APPENDIX A

APPROXIMATE METHODS SUPPORTING CALCULATIONS



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Legend

FULL APPROXIMATE METHOD INUNDATION LIMITS

Stantec

P:\28900058\acadr13\spillway\figa-1.dwg

March 24 2000, 03:52 PM

Client/Project

Flood Control District of Maricopa County
New River Dam
Spillway Inundation Study

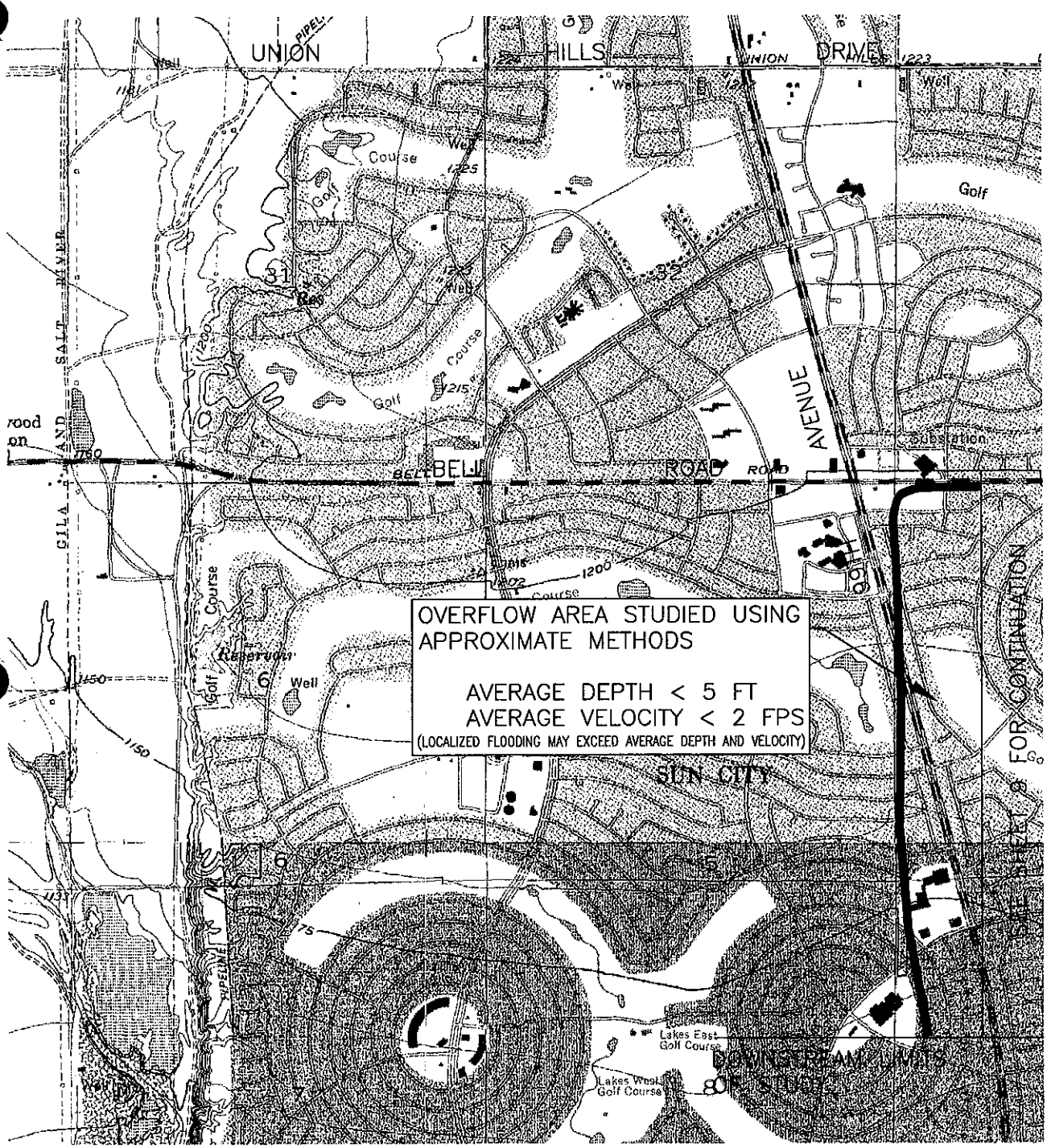
Figure No.

A-1

Title

FULL PMF INUNDATION LIMITS

March, 2000 82000058



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1"=2000'

Legend

2/3 APPROXIMATE METHOD INUNDATION LIMITS

Stantec

P:\28900058\acadr13\spillway\figa-2.dwg

March 24 2000, 03:49 PM

Client/Project

Flood Control District of Maricopa County
New River Dam
Spillway Inundation Study

Figure No.

A-2

Title

2/3 PMF
INUNDATION LIMITS

March, 2000 82000058

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 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    18OCT99    TIME   10:32:54 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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   18OCT99      10:32:54                                                    PAGE    1
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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
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THIS RUN EXECUTED 18OCT99 10:32:54

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SPLIT FLOW BEING PERFORMED

SF  SPLIT FLOW CALCULATION FOR THE FULL, 2/3rd AND 1/3rd PMF DISCHARGE

JC    THE NORMAL DEPTH OPTION IS USED FOR THE ROB AND WEIR OPTION FOR THE LEFT
JP     0                        -1

TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.958 TO RM 9.984
NS      2   9.958    9.984      -1     0.11  0.0001
NG 23060 1204.01   23480    1204

TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.984 TO RM 9.997
NS      2   9.984    9.997      -1     0.11  0.0001
NG 23480    1204   23580  1203.2

TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.997 TO RM 10.096
NS      3   9.997   10.096      -1     0.11  0.0027
NG 23580  1203.2   23900    1204   24300 1205.16

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.096 TO RM 10.176
NS      3  10.096   10.176      -1     0.11  0.0041
NG 24300 1205.16   24510    1206   24870  1207.5

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.176 TO RM 10.271
NS      2  10.176   10.271      -1     0.11  0.0003
NG 24870  1207.5   25310 1207.62

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.271 TO RM 10.348
NS      3  10.271   10.348      -1     0.11  0.0079
NG 25310 1207.62   25380    1208   25560  1209.6

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.348 TO RM 10.443
NS      3  10.348   10.443      -1     0.11  0.0037
NG 25560  1209.6   25860    1210   26010 1211.26
```

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1
   18OCT99      10:32:54                                                    PAGE    2
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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.443 TO RM 10.517
NS      2  10.443   10.517      -1     0.11  0.0014
NG 26010 1211.26   26540    1212

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.517 TO RM 10.612
NS      3  10.517   10.612      -1     0.11  0.0091
NG 26540    1212   26690    1214   26960 1215.84
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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.612 TO RM 10.699
NS      4  10.612  10.699      -1     0.11  0.0065
NG 26960 1215.84   27010    1216   27300    1218   27420 1218.83

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.699 TO RM 10.803
NS      3  10.699  10.803      -1     0.11  0.0027
NG 27420 1218.83   27940    1220   27980 1220.34

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.803 TO RM 10.862
NS      3  10.803  10.862      -1     0.11  0.0082
NG 27980 1220.34   28170    1222   28350 1223.37

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.862 TO RM 10.917
NS      3  10.862  10.917      -1     0.11  0.0045
NG 28350 1223.37   28510    1224   28630 1224.63

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.862 TO RM 10.917
WS      3  10.862  10.917      -1      3.0
WC  1000 1225.12    1160  1225.9    1230  1225.9

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.917 TO RM 10.980
NS      3  10.917   10.98      -1     0.11  0.0142
NG 28630 1224.63   28730    1226   28880 1228.17

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.917 TO RM 10.980
WS      7  10.917   10.98      -1      3.0
WC  1000  1225.9    1200    1228    1250    1230    1300    1232    1340    1234
WC  1400    1236    1415  1236.2

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.980 TO RM 10.996
NS      2   10.98  10.996      -1     0.11  0.0075
NG 28880 1228.17   29000 1229.07

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.98 TO RM 10.996
WS      2   10.98  10.996      -1      3.0
WC  1000  1236.2    1120  1236.2
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1

18OCT99 10:32:54 PAGE 3

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.996 TO RM 11.030
NS      2  10.996   11.03      -1     0.11  0.0004
NG 29000 1229.07   29190 1229.15

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.996 TO RM 11.030
WS      3  10.996  11.030      -1      3.0
WC  1000  1236.2    1010    1236    1140    1234

TN SPLIT FLOW AT RIGHT END POINT FROM RM 11.03 TO RM 11.129
NS      4   11.03  11.129      -1     0.11  0.0086
NG 29190 1229.15   19360    1230   29640    1232   29740  1233.9

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.03 TO RM 11.129
WS      3   11.03  11.129      -1      3.0
WC  1000    1234    1200    1232    1490 1231.31

TN SPLIT FLOW AT RIGHT END POINT FROM RM 11.129 TO RM 11.188
NS      2  11.129  11.188      -1     0.11  0.0038
NG 29740  1233.9   30000  1234.9

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.129 TO RM 11.188
WS      2  11.129  11.188      -1      3.0
WC  1000 1231.31    1295    1232

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.188 TO RM 11.243
WS      2  11.188  11.243      -1      3.0
WC  1000    1232    1295 1233.38

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.243 TO RM 11.301
WS      3  11.243  11.301      -1      3.0
WC  1000 1233.38    1245    1234    1260 1235.11

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.194 TO RM 12.313
NS      2  12.194  12.313      -1     0.11  0.0040
NG  6960  1260.8    7060  1261.2

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.313 TO RM 12.420
NS      3  12.313   12.42      -1     0.11  0.0035
NG  7060  1261.2    7330    1264    7570    1263
```

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.420 TO RM 12.511
NS      3   12.42  12.511      -1     0.11  0.0051
NG  7570    1263    7700    1264    7960    1265
```



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TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.511 TO RM 12.606
NS      3  12.511  12.606      -1     0.11  0.0073
NG  7960    1265    8230    1266    8410  1268.3

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.606 TO RM 12.701
NS      3  12.606  12.701      -1     0.11  0.0029
NG  8410  1268.3    9040    1270    9180  1270.5

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.701 TO RM 12.801
NS      3  12.701  12.801      -1     0.11  0.0063
NG  9180  1270.5    9480    1272    9640  1273.4

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.801 TO RM 12.896
NS      3  12.801  12.896      -1     0.11  0.0058
NG  9640  1273.4    9730    1274   10000  1275.5

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.227 TO RM 13.325
NS      2  13.227  13.325      -1     0.11  0.0061
NG  7232  1284.3    7772  1286.8

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.325 TO RM 13.42
NS      2  13.325   13.42      -1     0.11  0.0061
NG  7772  1286.8    8222  1289.0

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.42 TO RM 13.524
NS      2   13.42  13.524      -1     0.11  0.0061
NG  8222  1289.0    8692  1291.5

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.542 TO RM 13.619
NS      2  13.524  13.619      -1     0.11  0.0061
NG  8692  1291.5    9312  1294.2

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.619 TO RM 13.68
NS      2  13.619   13.68      -1     0.11  0.0061
NG  9312  1294.2    9710 1294.41

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.68 TO RM 13.742
NS      2   13.68  13.742      -1     0.11  0.0061
NG  9710 1294.41   10140 1295.14
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TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.742 TO RM 13.818
NS      4  13.742  13.818      -1     0.11  0.0061
NG 10140 1295.14   10175    1296   10425    1298   10480  1299.1

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.818 TO RM 13.918
NS      4  13.818  13.918      -1     0.11  0.0061
NG 10480  1299.1   10640    1300   10820    1320   11000 1303.58

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 13.918 TO RM 14.013
NS      4  13.918  14.013      -1     0.11   .0061
NG 11000 1303.58   11275    1304   11460    1306   11695    1307

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.013 TO 14.103
NS      3  14.013  14.103      -1     0.11   .0061
NG 11695    1307   12135    1308   12190  1308.2

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.103 TO 14.197
NS      3  14.103  14.197      -1     0.11   .0061
NG 12190  1308.2   12665    1310   12810    1312

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.197 TO 14.284
NS      3  14.197  14.284      -1     0.11   .0061
NG 12810    1312   13070    1314   13225  1317.9

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.284 TO 14.379
NS      3  14.284  14.379      -1     0.11   .0061
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NG 13225  1317.9   13365    1316   13610  1317.3

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.379 TO 14.495
NS     4  14.379  14.495      -1    0.11   .0061
NG 13610  1317.3   13745    1318   14085    1320   14095  1320.1

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.495 TO 14.599
NS     3  14.495  14.599      -1    0.11   .0061
NG 14095  1320.1   14430    1322   14720  1323.3

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.599 TO 14.653
NS     3  14.599  14.653      -1    0.11   .0061
NG 14720  1323.3   14900    1324   15180  1325.5

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TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.653 TO 14.752
NS     4  14.653  14.752      -1    0.11   .0061
NG 15180  1325.5   15395    1326   15665    1328   15685 1328.24

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.752 TO 14.850
NS     2  14.752  14.850      -1    0.11   .0061
NG 15685 1328.24   16045  1328.2

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.850 TO 14.945
NS     5  14.850  14.945      -1    0.11   .0061
NG 16045  1328.2   16170    1330   16470    1332   17120    1334   17300    1336

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T1   NEW RIVER SPILLWAY INUNDATION STUDY
T2   SPLIT FLOW ANALYSIS
T3      BY STANTEC FOR FCDMC, FCD 97-04
T4      1 OCTOBER 1999
T5
T6   UPSTREAM LIMIT OF SPLIT FLOW IS AT RM 14.945.  THREE CROSS SECTIONS
T7   UPSTREAM OF RM 14.945 ARE INCLUDED FOR MODEL STABILITY, ALL OTHER UPSTREAM
T8   CROSS SECTIONS ARE ELIMINATED FROM THIS MODEL.

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        2                           0.005

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                  -1


QT        1     33000     23000     13000
NC     0.06      0.11     0.035       0.3       0.5
X1    7.728        20      9900     10222
GR     1160      9887    1159.68   9895.29   1157.98   9899.88      1154      9900      1146   9931.12
GR   1136.5   9958.45     1135.4   9962.95   1135.91  10073.21   1136.49  10130.56    1136.5  10159.07
GR   1140.5  10176.73     1144.2  10189.17      1154     10222   1158.14  10228.35   1159.02  10276.12
GR   1158.3  10320.83     1157.5  10337.19    1155.9  10406.88   1156.63  10412.97   1155.99  10448.47

NC     0.06      0.11     0.035       0.3       0.5
X1    7.751        16    9919.35  10239.55       115       110     121.7
GR   1161.1   9892.86      1160      9895   1159.53   9915.55   1157.94   9919.35   1155.49   9944.75
GR   1140.7   9965.55    1135.3   9978.33    1135.8  10034.63   1136.03  10077.55   1136.99   10176.7
GR   1151.4   10220.4    1154.98     10225    1158.9  10239.55    1159.5  10278.43      1160  10320.22
GR   1159.2  10372.86

NC     0.06      0.11     0.035       0.3       0.5
X1     7.8        22    9857.12  10243.64       230       355    259.16
GR   1153.5      9736    1153.41   9764.38   1157.33   9780.03   1156.96   9795.93   1155.45   9805.92
GR   1158.1   9832.22    1158.52   9857.12   1150.65   9893.02   1147.75   9908.87   1142.94   9931.81
GR   1142.1   9943.11    1138.01   9965.96   1135.77   9974.38   1135.65   9977.75   1136.12  10030.71
GR   1136.9   10090.5    1137.57  10128.41   1142.89  10160.65   1157.07  10243.64   1156.78  10269.64
GR   1157.2  10311.28    1157.09  10330.96

NC     0.06      0.11     0.035       0.1       0.3
X1     7.92        23    9855.37  10258.56       615       655    631.37
GR   1160.4      9836    1160.45   9855.37   1156.67    9868.9   1155.58   9880.63   1148.19   9919.94
GR   1141.6   9962.13    1139.05   9980.61   1135.74    9991.3   1136.14   10011.4   1137.04  10036.41
GR   1136.7  10060.91    1139.35  10072.06   1138.66  10080.58   1136.53  10088.54   1136.63  10104.58
GR   1140.4  10137.77     1141.4  10148.13   1150.48  10206.92   1158.75  10253.04   1160.29  10258.56
GR   1159.6  10273.87    1160.43  10308.49   1160.02  10319.77
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NC	0.06	0.11	0.035	0.1	0.3					
X1	8.006	22	9848.52	10252.11	445	505	463.28			
GR	1158	9813	1158.06	9822.82	1159.57	9836.05	1159.66	9848.52	1157	9864.41
GR	1156.8	9872.33	1151.07	9899.09	1140.44	9978.9	1136.11	9995.88	1136.65	10014.86
GR	1138.1	10043.49	1137.68	10056.74	1139.34	10072.31	1139.08	10086.47	1137.1	10091.99
GR	1137.8	10110.36	1142.23	10145	1158.45	10236.11	1161.51	10252.11	1160.37	10268.56
GR	1161.3	10301.55	1160.84	10324.12						

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.052	22	9848.5	10251.73	225	255	236.58			
GR	1158.5	9812	1160.52	9848.5	1158.04	9858.22	1157.59	9871.97	1156.11	9879.48
GR	1145.9	9941.09	1140.15	9975.4	1136.42	9990.32	1137.44	10013.47	1139.2	10041.37
GR	1138.3	10061.51	1140.17	10069.5	1139.86	10082.68	1137.02	10092.14	1138.06	10113.77
GR	1143.3	10148.19	1148.16	10177.35	1157.36	10230.27	1161.72	10251.73	1161.26	10264.08
GR	1162.3	10301.26	1161.4	10320.82						

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.12	24	9882.49	10260.19	365	370	370.41			
GR	1162.2	9841	1162.6	9858.45	1159.87	9870.72	1159.32	9882.49	1157.08	9893.84
GR	1149.6	9934.41	1140.42	9990.41	1138	9998.97	1138.25	10012.37	1137.97	10036.29
GR	1141	10050.72	1139.87	10069.18	1141.37	10081.41	1141.36	10100.66	1138.47	10109.14
GR	1138.9	10131.16	1141.9	10138.76	1146.68	10172.82	1150.55	10195.97	1163.5	10260.19
GR	1162.9	10278.49	1162.95	10317.31	1162.26	10354.77	1162.02	10372.33		

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.22	25	9863.78	10241.56	485	565	512.82			
GR	1163.2	9844	1161.4	9853.02	1160.58	9863.78	1152.1	9903.79	1150.3	9912.99
GR	1145.8	9942.26	1144.16	9957.57	1140.67	9978.73	1138.78	9982.77	1138.87	9997.52
GR	1140.4	10022.85	1140.41	10030.36	1141.62	10059.2	1140.73	10073.77	1141.12	10098.68
GR	1142.6	10111.36	1142.7	10121.98	1154.46	10195.8	1164.55	10241.56	1164.03	10257.47
GR	1164.3	10293.89	1164.02	10325.89	1165.33	10356.69	1165.4	10382.29	1164.23	10492.32

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.33	16	9800.42	10176.69	555	545	565.26			
GR	1166.4	9780	1164.42	9787.92	1164	9800.42	1156.43	9829.07	1147.97	9874.97
GR	1144.1	9898.66	1142.94	9954.3	1140.59	10025.59	1142.53	10060.91	1148.05	10088.64
GR	1166.4	10176.69	1165.88	10193.23	1165.42	10260.92	1165.43	10341.08	1164.73	10388.98
GR	1164.6	10416.78								

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.39	30	9814.94	10190.49	310	305	308.23			
GR	1168	9792	1165.6	9802.8	1165.05	9814.94	1161.22	9828.78	1156.7	9850.73
GR	1147.2	9900.76	1142.1	9926.76	1142.01	9950.4	1141.32	9968.87	1140.92	9998.25
GR	1141.6	10028.95	1141.4	10035.16	1142.45	10058.42	1152.07	10114.24	1167.41	10190.49
GR	1166.6	10211.61	1166.65	10240.54	1166.45	10279.51	1166.87	10290.31	1165.32	10298.53
GR	1163.6	10401.7	1163.46	10431.35	1164.03	10515.87	1164.6	10577.34	1164.51	10632.74
GR	1164.5	10712.67	1164.41	10774.86	1164.4	10829.78	1164.6	10932.22	1164	10946.6

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.457	38	9788.33	10193.92	365	355	361.88			
GR	1167.7	9671	1168.03	9683.56	1168.79	9692.73	1168.66	9781.82	1168.74	9788.33
GR	1164.9	9805.47	1164.2	9818.92	1155.76	9863.11	1141.79	9935.63	1141.57	9966.53
GR	1141.1	9997.45	1141.49	10030.06	1142.73	10060.82	1147.58	10091.35	1168.4	10193.92
GR	1166.3	10250.52	1165.62	10262.83	1164.4	10335.04	1163.84	10341.2	1166.1	10367.82
GR	1166.5	10371.1	1161.57	10407.65	1161.57	10475.04	1164.6	10493.68	1164.74	10503.74
GR	1166.2	10527.6	1166.42	10556.27	1166.15	10564.7	1166.17	10598.14	1166.08	10619.41
GR	1164.8	10699.88	1165.03	10770.72	1164.81	10863.67	1165.26	10911.53	1164.44	10978.23
GR	1164.8	11020.28	1165.31	11034.69	1164.5	11083.15				

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.516	21	9847.43	10155.21	280	305	287.9			
GR	1168	9756	1168.52	9821.59	1168.6	9847.43	1159.08	9856.48	1149.31	9867.16
GR	1144	9873.77	1141.97	9877.4	1141.87	9926.46	1141.93	9990.48	1141.55	10000.75
GR	1142	10005.5	1141.81	10108.38	1141.7	10123.56	1148.62	10134.03	1160.73	10146.98
GR	1167.5	10155.21	1168	10179.14	1169.03	10219.02	1168.75	10232.17	1167.28	10280.12
GR	1167.2	10287.22								

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.538	16	9844.6	10150.55	110	105	110			
GR	1168.1	9687.9	1168.82	9769.68	1167.86	9844.6	1142.33	9873.03	1142.24	10000.15
GR	1142.5	10123.29	1167.09	10150.55	1168.15	10178.52	1169.21	10236.13	1168.37	10254.9
GR	1167.9	10288.71	1168.32	10335.75	1166.83	10377.85	1167.27	10405.15	1166.84	10425.22
GR	1168	10449.83								

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.548	18	9843.2	10155.64	48	48	48			
GR	1168	9702	1168.14	9729.4	1167.88	9753.58	1167.19	9843.2	1152.6	9858.92

GR	1152.2	9870.39	1152.6	9988.56	1149.77	10000.91	1152.74	10006.5	1152.86	10046.28
GR	1152.5	10123.07	1152.2	10136.24	1166.85	10155.64	1168.63	10213.59	1169.11	10238.52
GR	1169.1	10256.77	1168.3	10274.28	1168.3	10349.53				

NC	0.06	0.11	0.035	0.2	0.4					
X1	8.655	41	9515.14	10088.67	675	340	461.08			
GR	1178	9156	1171.38	9193.02	1170.55	9274.12	1169.63	9411.41	1169.87	9515.14
GR	1162.4	9541.69	1155.64	9563.58	1154.34	9622.61	1154.18	9653.38	1153.29	9699.82
GR	1152.5	9730.6	1153.4	9750.39	1153.56	9773.35	1154.59	9846.2	1154.35	9893.51
GR	1153.8	9920.14	1154.54	9928.3	1154.49	9961.67	1154.22	9985.13	1154.56	10014.9
GR	1154.7	10063.21	1168.79	10088.67	1169.89	10110.86	1169.64	10129.2	1171.1	10138.14
GR	1171.4	10180.45	1171.19	10207.95	1169.31	10298.21	1169.31	10317.5	1168.75	10334.85
GR	1167.7	10399.74	1167.24	10417.47	1168.43	10452.79	1168.36	10540.39	1166.14	10569.97
GR	1166.2	10589.76	1165.62	10623.68	1166.94	10637.85	1167.02	10646.38	1166.55	10717.01
GR	1166.2	10727.13								

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NC	0.06	0.11	0.035	0.1	0.3					
X1	8.731	52	9663.09	10126.93	500	395	401.71			
GR	1184	9258	1183.82	9272.84	1182.05	9280.87	1175.72	9318.95	1157.57	9353.98
GR	1157.2	9362.39	1154.97	9368.39	1155.24	9380.05	1154.77	9421.09	1154.03	9447.34
GR	1153.6	9489.72	1154.23	9509.75	1155.22	9595.22	1155.58	9629.27	1156.95	9663.09
GR	1155.6	9706.29	1155.51	9734.27	1154.92	9787.7	1154.63	9815.78	1155.91	9900.67
GR	1155.5	9994.17	1155.88	10071.25	1156.22	10104.43	1169.55	10126.93	1170.06	10150.62
GR	1169.9	10163.08	1171.74	10175.87	1171.36	10205.91	1170.95	10263.45	1169.81	10327.81
GR	1169.2	10373.84	1169.05	10406.75	1169.06	10441.92	1168.49	10449.19	1168.37	10479.66
GR	1168.8	10491.05	1169.84	10507.51	1169.35	10531.04	1169.12	10587.59	1169.35	10590.13
GR	1167.6	10606.64	1166.97	10631.25	1166.24	10673.26	1168.29	10686.54	1167.9	10767.61
GR	1167.1	10792.48	1167.94	10800.7	1167.13	10817.41	1168.07	10833.84	1168.07	10853.03
GR	1167.3	10912.88	1165.88	10950.96						

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.807	61	9793	10160.88	425	395	404.72			
GR	1178	9422	1172.82	9452.87	1172.51	9484.81	1175.79	9505.05	1175.95	9527.2
GR	1175.8	9545.44	1173.82	9565.41	1173.11	9572.28	1172.76	9612.21	1173.19	9639.55
GR	1173	9682.19	1171.58	9720.48	1172.76	9733.78	1173.1	9793	1166.57	9811.8
GR	1158.5	9831.6	1158.04	9853.68	1158.32	9890.96	1159.43	9931.82	1158.96	9958.05
GR	1158.5	9967.94	1158.11	10004.04	1159.09	10063.94	1159.38	10094.33	1169.68	10113.46
GR	1170	10141.81	1170.36	10151.5	1172.75	10160.88	1172.96	10182.52	1173.57	10200.99
GR	1173.6	10214.56	1172.75	10222.29	1173.13	10250.46	1172.75	10299.98	1172.34	10353.42
GR	1171.8	10384.63	1171.99	10434.39	1169.93	10501.15	1169.41	10511.28	1169.01	10544.56
GR	1169.4	10564.32	1168.99	10583.58	1169.88	10611.19	1170.25	10664.99	1170.62	10705.82
GR	1170.6	10714.5	1168.5	10733.13	1167.55	10775.91	1166.99	10819.7	1169.32	10835.44
GR	1169.2	10941.38	1168.29	10976.18	1168.63	10997.22	1167.83	11020.47	1168.45	11044.88
GR	1167.8	11062.57	1168.53	11135.17	1167.31	11155.8	1166.88	11186.21	1167.96	11206.55
GR	1168	11275.5								

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.883	58	9858.42	10177.57	410	400	401.1			
GR	1180	9481	1174.18	9514.66	1174.02	9540.03	1175.03	9561.4	1176.73	9582.16
GR	1176.8	9631.25	1176.58	9666.16	1175.86	9708.77	1176.62	9800.01	1176.56	9816.25
GR	1176.8	9858.42	1174.81	9862.65	1163.02	9891.37	1161.63	9916.17	1161.27	9958.77
GR	1162	9977.64	1159.44	9985.89	1159.72	10006.43	1160.42	10020.66	1160.96	10082.09
GR	1161.2	10096.55	1166.6	10109.58	1170.46	10117.93	1171.4	10159.12	1175.8	10177.57
GR	1176.1	10208.49	1175.88	10260.47	1174.83	10288.75	1175.03	10304.81	1174.81	10318.05
GR	1176.7	10340.17	1176.78	10355.85	1176.47	10400.38	1176.72	10425.11	1175.7	10506
GR	1175	10550.7	1174.22	10617.09	1173.92	10683.59	1173.31	10732.97	1173.14	10786.03
GR	1172.4	10818.11	1172.26	10836.81	1170.35	10880.96	1170.82	10901.07	1170.15	10936.8
GR	1170.4	10959.7	1170.07	10999.43	1170.72	11031.75	1170.53	11048.37	1169.57	11069.52
GR	1170	11089.04	1169.36	11104.2	1171.83	11122.29	1171.74	11172.68	1172.03	11243.31
GR	1172.4	11270.51	1172.33	11294.15	1171.24	11317.02				

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NC	0.06	0.11	0.035	0.1	0.3					
X1	8.936	52	9827.82	10181.89	285	290	289.58			
GR	1182	9511	1178.24	9530.47	1175.36	9547.23	1174.35	9570.55	1174.29	9605.1
GR	1174.6	9621.93	1174.92	9671.66	1174.94	9710.26	1174.56	9813.1	1174.58	9827.82
GR	1165.3	9853.92	1163.65	9940.49	1162.78	9978.94	1159.99	9986.26	1159.94	10010.76
GR	1161.3	10032.37	1161.81	10080.82	1162.21	10107.84	1170.86	10127.03	1172.1	10157.51
GR	1177.2	10181.89	1177.63	10216.63	1177.63	10231.99	1177.98	10271.58	1176.66	10300.91
GR	1176.9	10315.19	1176.41	10330.2	1178.12	10343.1	1177.93	10380.73	1178	10398.49
GR	1177.4	10500.52	1177.19	10589.84	1176.92	10635.09	1176.86	10680.16	1176.56	10686.65
GR	1176.9	10709.66	1176.76	10769.13	1175.37	10783.65	1175.16	10817.77	1175.07	10855.97
GR	1174.6	10874.42	1172.88	10898.18	1172.77	10958.71	1172.46	10976.21	1175.26	11002.97
GR	1175.5	11063.39	1174.63	11113.29	1174.81	11185.43	1173.34	11210.28	1173.39	11232.69
GR	1173.1	11239.9	1174.39	11266.18						

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.977	44	9866.17	10181.52	220	215	211.76			
GR	1182	9532	1177.22	9557.81	1178.28	9581.17	1175.6	9600.54	1175.58	9650.37
GR	1175.1	9680.22	1175.44	9702.75	1175.95	9780	1175.8	9839.92	1175.88	9866.17
GR	1164.3	9886.92	1163.7	9913.86	1162.66	9954.13	1162.59	9969.9	1161.61	9978.91
GR	1161.3	10001.25	1162.26	10055.85	1162.38	10089.06	1168.22	10096.25	1167.63	10112.2

GR	1172.6	10119.24	1173.57	10143.82	1177.97	10181.52	1178.26	10228.23	1178.85	10266.31
GR	1177.3	10308.85	1177.26	10359.51	1177.01	10415.34	1176.84	10486.99	1176.11	10594.64
GR	1175.8	10696.98	1175.33	10795.43	1174.74	10893.98	1174.86	10927.22	1175.44	10986.43
GR	1175.5	11069.72	1175.77	11095.45	1175.6	11175.75	1174.59	11208.07	1174.34	11232.44
GR	1176.5	11261.82	1176.22	11300.09	1176.33	11343	1175.94	11386.37		

NC	0.06	0.11	0.035	0.1	0.3					
X1	8.994	50	9890.28	10200.81	90	85	91.57			
GR	1182	9562	1177.14	9589.37	1176.06	9619.14	1175.8	9696.02	1176.77	9761.44
GR	1176.4	9772.73	1176.11	9819.77	1175.52	9881.52	1175.69	9890.28	1164.93	9930.75
GR	1162.2	9975.49	1161.65	10000.06	1162.24	10036.81	1162.57	10081.18	1162.48	10111.15
GR	1162.6	10121.44	1173.12	10132.61	1173.83	10167.33	1178.73	10200.81	1178.77	10247.03
GR	1179.1	10279.21	1179.41	10322.84	1179.12	10357.58	1178.71	10382.84	1178.78	10414.68
GR	1179	10444.28	1178.89	10472.76	1178.28	10526.98	1178.38	10597.94	1178.16	10618.06
GR	1178.3	10690.64	1178.01	10747.87	1177.64	10782.45	1177.78	10812.52	1177.48	10815.38
GR	1177.7	10847.36	1177.39	10906.26	1177.59	10930.91	1177.25	10985.95	1177.14	11025.58
GR	1177.3	11080.59	1177.65	11123.17	1177.43	11175.96	1176.94	11204.18	1174.97	11224.37
GR	1174.7	11254.77	1176.14	11275.48	1176.57	11277.96	1176.06	11321.66	1176	11343.06

NC	0.06	0.11	0.035	0.1	0.3					
X1	9.047	45	9869.58	10339.39	355	270	330.86			
GR	1182	9721	1177.81	9750.27	1177.31	9764.81	1177.64	9808.93	1177.83	9859.63
GR	1177.7	9869.58	1162.68	9940.46	1162.95	9951.34	1162.78	9973.51	1161.64	10004.34
GR	1163.6	10023.06	1163.96	10049.01	1162.36	10079.2	1162.19	10105.32	1163.12	10135.97
GR	1163.6	10143.76	1165.76	10214.97	1166.42	10265.63	1173.62	10280.5	1180.42	10339.39
GR	1175.8	10377.03	1172.99	10388.87	1173.06	10455.66	1172.71	10516.59	1173.8	10523.55
GR	1178.9	10550.09	1179.1	10587.62	1179.3	10662.01	1177.59	10694.15	1178.05	10712.99
GR	1177.8	10741.37	1179.13	10771.31	1179.2	10856.69	1179.27	10864.44	1175.63	10881.41
GR	1175.6	10895.82	1176.05	10900.87	1176.11	11034.5	1176.31	11099.88	1175.31	11109.01
GR	1176.7	11119.53	1176.22	11190.99	1176.19	11245.59	1176.31	11340.23	1176.07	11368.29

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NC	0.06	0.11	0.035	0.1	0.3					
X1	9.129	33	9830.86	10344.71	370	430	394.4			
GR	1184	9720	1179.46	9749.29	1178.16	9775.36	1179.45	9816.28	1180.07	9830.86
GR	1164	9905.36	1163.67	9923.52	1163.16	10002.15	1163.9	10050.49	1164.66	10151.43
GR	1164.6	10174.82	1167.28	10251.77	1167.47	10299.53	1175.4	10315.64	1177.56	10344.71
GR	1176.9	10351.1	1176.39	10365.01	1172.27	10383.1	1172.01	10428.34	1174.85	10445.95
GR	1176.5	10453.31	1175.81	10463.41	1176.14	10480.45	1175.85	10493.92	1178.61	10506.97
GR	1177.9	10519.63	1177.82	10568.67	1178.12	10638.34	1178.06	10659.28	1178.68	10731.58
GR	1178.9	10749.8	1179.56	10825.29	1180.37	10845.14				

NC	0.06	0.11	0.035	0.3	0.5					
X1	9.193	35	9804.33	10329.05	400	390	391.34			
GR	1185.9	9718	1182.17	9748.25	1181.04	9780.36	1182.05	9804.33	1164.92	9877.67
GR	1165.9	9930.03	1165.85	9969.01	1164.54	9989.97	1166.12	10026.06	1166.12	10045.86
GR	1165.9	10080.36	1165.91	10132.33	1168.22	10255.75	1168.23	10313.83	1176.06	10329.05
GR	1178.9	10362.99	1183.2	10405.01	1177.29	10453.1	1177.06	10455.89	1177.78	10473.29
GR	1177.3	10485.97	1179.46	10498.31	1179.67	10545.04	1180.13	10593.55	1180.53	10612.05
GR	1181	10658.42	1181.39	10737.84	1181.87	10846.55	1179.5	10858.48	1179.84	10889.38
GR	1181.5	10930.81	1181.63	10972.81	1181.59	11052.85	1181.24	11088.51	1181.77	11199.38

NC	0.06	0.11	0.035	0.3	0.5					
X1	9.289	48	9848.61	10205.1	470	455	506.29			
GR	1188	9545	1184.99	9571.72	1184.89	9601.48	1184.51	9634.6	1183.91	9668.37
GR	1183.9	9696.69	1183.42	9750.8	1183.7	9780.74	1183.51	9806.45	1183.7	9832.78
GR	1183.1	9848.61	1180.25	9871.29	1177.85	9882.7	1175.25	9902.64	1172.8	9921.4
GR	1170	9951.27	1168.92	9980.74	1167.9	9998.22	1168.8	10012.66	1170.18	10021.42
GR	1172.4	10119.4	1172.57	10136.14	1179.18	10152.77	1182.83	10183.39	1185	10205.1
GR	1179.1	10256.9	1178.79	10266.01	1179.59	10277.66	1179.77	10298.3	1181	10307.28
GR	1180.7	10352.43	1181	10427.4	1181.11	10497	1181.47	10601.19	1181.87	10641.11
GR	1182.4	10675.62	1182.7	10715.74	1181.44	10734.04	1181.72	10770.02	1181.51	10791.79
GR	1183.1	10811.81	1183.04	10838.8	1183.44	10897.24	1183.41	10928.92	1184.11	11036.72
GR	1184.2	11060.22	1184.15	11126.69	1184.22	11157.27				

NC	0.06	0.11	0.035	0.1	0.3					
X1	9.318	49	9773.17	10171.54	185	155	155.57			
X3	0					10171.54	1185			
GR	1188	9562	1184.89	9590.68	1184.94	9596.5	1184.35	9689.19	1183.97	9746.34
GR	1185.1	9773.17	1180.91	9783.01	1173.59	9803.1	1173.15	9842.04	1172.96	9874.03
GR	1170.6	9924.8	1170.96	9946.02	1170.29	9964.81	1168.35	9998	1168.6	10007.24
GR	1170	10021.97	1170.45	10065.22	1170.87	10090.47	1172.44	10117.6	1173.8	10137.29
GR	1180.6	10149.89	1181.87	10171.54	1181.03	10193.98	1176.49	10218.1	1176.55	10226.54
GR	1179.9	10249.06	1179.48	10260.6	1179.98	10291.96	1181.97	10308.64	1181.74	10341.42
GR	1181.9	10442.77	1182.4	10552.04	1182.82	10599.04	1182.9	10670.86	1182.79	10679.86
GR	1183.2	10723.08	1187.24	10735.63	1186.21	10763.87	1182.97	10774.62	1181.84	10806.59
GR	1182.3	10837.58	1181.92	10864.09	1184.14	10882.89	1184.36	10957.44	1184.38	11015.6
GR	1183	11068.72	1182.56	11128.61	1183.59	11166.27	1183.96	11248.1		

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NC	0.06	0.11	0.035	0.1	0.3		
X1	9.367	46	9718.3	10241.56	540	465	489.74

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X3       0                                                  10241.56    1184.23
GR    1190      9612    1190.86    9641.28    1191.27    9665.48    1186.83    9703.09    1186.28     9718.3
GR  1172.3   9751.14    1172.29     9793.9    1171.72    9851.94     1172.2    9901.31    1173.01    9950.67
GR  1171.9   9967.49    1171.33   10004.69    1173.18   10070.88    1174.08   10145.08    1177.93   10199.32
GR  1183.4  10212.32    1184.23   10241.56    1182.71   10251.13    1181.83   10269.29     1180.4   10280.07
GR  1180.3  10291.49    1182.17   10301.94    1182.21    10314.1    1181.53   10321.59    1181.98   10339.56
GR  1181.7  10351.69    1184.85   10370.27       1185   10391.68    1184.72   10429.12    1184.37   10516.63
GR  1184.7  10709.59    1184.68   10857.67    1185.26   10991.59    1186.18    11007.8    1184.24   11015.7
GR  1184.3  11041.56       1184   11056.78    1185.43   11087.36    1185.67   11150.97     1185.8   11192.9
GR  1185.5   11200.6    1184.22   11211.42    1184.64   11244.19    1184.35   11276.25    1187.02   11293.46
GR  1187.3  11362.92

NC     0.06      0.11      0.035       0.1       0.3
X1    9.492        27    9804.96   10312.71       430       425    463.47
GR     1192      9766    1189.11    9789.59    1188.11    9804.96    1174.71    9834.73    1175.05    9878.82
GR  1174.6   9951.83    1174.64    9961.82    1173.94   10004.75    1174.33   10057.09    1174.65   10090.43
GR  1174.9  10147.37    1176.03   10171.02    1176.23   10246.12    1178.38   10294.29    1184.43   10312.71
GR  1187.6   10340.8    1184.53   10373.45    1185.06   10451.75    1185.08   10497.41    1184.96   10520.61
GR  1185.2   10572.4    1185.39   10700.14    1185.96   10920.51    1186.65   11149.45    1186.79   11245.21
GR  1187.9  11474.04    1187.88   11492.54

NC     0.06      0.11      0.035       0.1       0.3
X1    9.592        30    9949.3   10341.98       535       580     606.9
GR  1196.3      9895    1191.42    9930.13    1190.23    9949.3    1176.49    9980.97    1175.72    9984.1
GR  1175.7  10014.25    1177.78   10022.18     1177.7   10048.25    1178.01   10070.28    1178.06   10099.28
GR  1178.5  10155.62    1179.17   10199.49    1179.47   10304.78    1179.78   10311.21    1189.15   10341.98
GR  1189.6  10408.29    1190.76   10425.13    1189.38   10465.51     1184.4    10489.8    1184.06   10561.95
GR  1187.3  10588.75     1187.7   10656.59    1187.92   10662.08    1188.33   10704.93    1189.04   11002.34
GR  1189.4  11102.56    1189.48   11233.47    1189.82   11325.77    1190.26   11465.83    1190.32      11563

NC     0.06      0.11      0.035       0.1       0.3
X1    9.692        19    9916.36   10315.6       525       520     565.23
GR     1204      9862    1201.34    9875.53    1193.92    9916.36    1191.19    9921.93    1178.95    9948.66
GR  1179.4   9982.36    1177.74    10000.4    1178.51   10017.83    1179.35   10044.65    1178.07   10062.48
GR  1177.2  10119.06     1177.9   10143.65    1177.64   10162.39    1178.01   10170.53    1177.61   10175.96
GR  1181.6  10224.11     1181.6    10273.1    1180.55   10296.81    1190.03    10315.6

NC     0.06      0.11      0.035       0.1       0.3
X1    9.794        31    9922.42   10262.3       550       555     557.04
GR     1218      9672    1211.53    9695.42    1203.4    9722.62      1204    9736.39    1203.81    9758.28
GR  1202.9   9764.97    1198.69    9802.49    1198.51    9810.78    1197.77    9889.42    1196.86    9922.42
GR     1194   9941.48    1180.98    9974.59    1180.4    9988.74    1181.05    9995.18    1180.23   10015.96
GR  1181.2  10035.05    1184.45   10105.79    1184.2   10149.12    1184.75   10184.62    1184.03   10191.73
GR  1183.6   10213.3    1192.72   10232.02    1192.96   10247.71    1195.79    10262.3    1195.24   10267.56
GR  1194.8  10290.99    1194.89   10382.07    1195.23   10488.22    1195.11   10588.25    1193.64   10642.77
GR  1194.2  10676.74
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NC     0.06      0.11      0.035       0.3       0.5
X1    9.889        35    9864.97   10129.9       485       495     501.31
GR     1228      9460    1226.05    9468.24    1200.17    9553.91    1199.68    9589.84    1198.55    9605.6
GR  1197.9   9651.04    1197.75    9732.86    1197.6    9751.05    1198.03    9819.32    1196.72    9850.18
GR  1201.4   9864.97    1197.96    9886.03    1196.38    9901.7    1195.14    9917.39    1186.28    9939.41
GR  1188.6   9959.08    1187.11    9975.57    1185.42    9997.59    1186.09    10008.22    1186.45   10086.77
GR  1186.1  10108.71    1189.86   10114.59       1198   10129.9    1198.51   10140.46    1197.67   10166.27
GR  1198.1  10184.67    1198.41   10210.58    1199.51   10270.57    1200.09   10309.73    1199.79   10399.57
GR  1199.3  10438.49    1198.66   10496.31    1200.17    10529.6    1199.82   10543.25    1200.45   10566.39

NC     0.06      0.11      0.035       0.3       0.5
X1    9.908        43    9882.4   10138.47       120        65     103.32
GR     1214      9419    1204.81    9458.13    1202.8    9469.16    1202.99    9509.07    1202.36    9533.71
GR  1202.3   9535.44    1202.95    9613.28    1198.85    9638.57    1198.71    9645.54     1199.7    9693.66
GR  1199.4   9699.65    1199.36    9717.94    1198.77    9721.18    1198.72    9737.04    1199.79    9749.36
GR  1198.3   9789.16    1196.85    9824.32    1196.22    9831.87    1194.27    9839.16    1194.07    9850.44
GR  1196.3   9869.71    1196.38     9882.4    1193.67     9900.2    1194.67    9907.13    1193.34    9915.24
GR     1190   9927.43    1189.82    9932.44    1189.13   10003.11    1189.47   10079.45    1189.05   10121.4
GR  1198.8  10138.47    1199.94   10162.78    1200.01   10172.91    1200.38   10215.44     1200.7   10241.56
GR  1201.1  10299.09       1201   10327.48    1201.13   10402.04    1201.35   10422.35    1201.06   10506.02
GR  1201.6  10527.75    1200.89   10553.27     1201.4   10573.77

NC     0.06      0.11      0.035       0.3       0.5
X1    9.953        37    9870.35   10185.91       175       215     189.16
GR  1215.3      9382    1207.02    9397.65    1204.35    9412.27    1204.42    9447.84    1204.18    9479.05
GR  1203.5   9526.25    1203.71    9571.23    1203.13    9593.86    1202.72    9654.23    1201.61    9661.22
GR  1201.2   9674.85    1201.17    9695.83    1200.73    9724.31     1199.8    9747.69    1199.65    9760.52
GR  1200.4   9812.79       1201    9835.22    1202.16    9870.35    1191.04    9895.64    1190.66   10003.13
GR  1190.8  10023.61    1190.54   10078.92    1189.68   10093.86    1189.38   10116.85    1194.58   10130.16
GR     1195  10140.25     1201.1   10156.58    1202.77   10174.21    1203.14   10185.91    1202.69   10197.07
GR     1203  10221.77    1202.91    10285.8    1202.53   10375.06    1202.91   10418.14    1202.96    10456.1
GR  1202.4  10525.75    1202.85   10591.74

NC     0.06      0.11      0.035       0.3       0.5
X1    9.958        24    9865.41   10168.4        22        28     27.43
GR  1205.9      9380    1205.03    9385.73    1205.06    9416.73    1204.76    9444.33    1204.4    9494.19
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GR   1204.6    9505.79    1204.02    9595.82    1203.88     9663.5    1204.37    9691.98    1204.43    9803.99
GR   1204.2    9841.32    1203.19    9865.41    1191.18    9895.12     1190.7   10063.77    1190.47   10088.68
GR   1190.5   10125.43    1194.07   10135.81    1194.05    10143.3    1203.03    10168.4    1204.13   10186.27
GR   1204.2   10197.69    1203.75   10206.53     1203.6   10221.59    1204.01   10267.47
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Extend x-sec by 190 to El. 1204 to split flow break point


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SB     0.90        1.6       2.68          0        240        4.7     2496.3          2    1191.15    1191.04

NC     0.06       0.11      0.035        0.3        0.5
X1    9.984         27    9864.55   10172.35        130        129     133.96
X2                               1    1200.24    1204.01
X3       10
BT       -9    9334.00     1204.9                   9589     1206.8                  1204.9    1204.01
BT          9738.64     1206.5                   9864     1206.67    1206.67    9864.01    1206.67    1200.24
BT         10177.99     1206.67    1200.24      10178     1206.67    1206.67   10409.02    1204.01
GR   1204.9     9334     1204.82    9419.99    1205.11    9434.19    1204.38    9579.64    1204.19    9673.54
GR   1204.3    9723.58   1203.67    9755.46    1203.59       9826    1203.16    9864.55     1199.3    9878.79
GR   1191.3    9896.5    1191.26    9960.11    1191.15    9998.46    1191.28   10081.52    1191.33   10115.82
GR    1191   10128.83    1194.14   10139.49    1194.07   10147.33    1195.57   10151.89       1204   10172.35
GR   1204.3   10199.25    1203.86   10218.46    1204.21   10258.03    1204.44    10309.8    1204.15   10359.68
GR    1204    10409.02      1204   10599.02

NC     0.06       0.11      0.035        0.3        0.5
X1    9.997         35    9879.59   10166.1         51        104     74.24
GR   1214.2       9340      1207    9352.35    1204.45    9371.82    1204.48    9407.13    1205.45    9446.64
GR   1204.8    9482.27    1204.52    9519.13     1204.1    9525.68    1203.58    9576.77    1203.88     9668.5
GR   1203.9    9684.88    1205.05    9714.68    1203.31    9777.46     1201.1    9815.94    1199.69     9834.4
GR   1200.6    9851.88    1200.73    9879.59    1197.27    9888.55    1191.71    9904.24    1192.29   10023.36
GR   1192.1   10055.84    1192.39   10096.68    1192.61   10102.64    1192.73   10130.11    1198.06   10144.96
GR   1198.4   10154.62    1200.72   10166.1      1201    10192.7    1201.65    10346.9    1201.81   10426.32
GR   1202.3   10522.07    1202.25   10547.88    1203.25   10577.25    1202.82   10592.47     1203.2   10614.94
```

Trim x-sec by 153.94 to El. 1205.16 to split flow break point

```
NC     0.06       0.11      0.035        0.1        0.3
X1   10.096         33    9718.95   10149.13        535        555    543.99
GR   1217.8       9294    1210.57    9335.91    1208.38    9371.68    1205.88    9398.45    1205.34    9406.41
GR    1205    9459.94    1205.07    9538.72    1204.73    9563.14    1202.94     9615.7    1202.75    9648.79
GR   1199.1    9677.65    1198.08    9704.94    1202.39    9718.95    1194.25     9764.7    1194.44    9773.46
GR   1195.9    9808.57    1195.57    9819.17    1194.76    9827.41    1196.68    9850.49    1196.23    9882.89
GR   1196.1    9962.59    1193.96    9980.59    1193.84      10013    1195.17   10023.31    1195.35   10061.23
GR   1196.6   10078.07    1197.65   10109.46    1203.53   10121.7     1204.41   10149.13    1204.68   10194.54
GR    1206    10267.79    1206.09   10281.64    1205.16   10387.24
```

Trim x-sec by 61 to El. 1207.5 to split flow break point

```
NC     0.06       0.11      0.035        0.1        0.3
X1   10.176         36    9720.47   10129.28        510        550    553.29
GR    1218       9320    1215.79    9342.15    1209.77    9367.97    1205.27    9382.78    1204.52    9445.62
GR   1204.1    9501.34    1207.57    9521.03    1208.61    9540.11    1209.57    9564.44     1207.2    9587.25
GR    1205     9634.9     1203.4    9667.17    1202.83    9706.95    1200.98    9713.81    1203.68    9720.47
GR   1200.4    9737.82    1200.25    9765.52    1199.95    9779.43     1198.7    9872.33    1198.38    9955.39
GR   1198.5     9960.2    1195.87    9979.28    1195.57   10010.54    1198.88   10027.61    1199.59   10058.83
GR   1199.7   10063.89    1198.79   10070.72    1200.22   10118.38    1205.57   10129.28    1204.93   10153.39
```



```
GR   1205.3   10165.28    1206.12   10227.18    1206.86    10301.4    1207.18   10426.08    1207.13   10440.36
GR   1207.5   10508.37
```

Trim x-sec by 60.91 to El. 1207.62 to split flow break point

```
NC     0.06       0.11      0.035        0.1        0.3
X1   10.271         35    9854.54   10280.99        460        455    491.26
GR   1216.1       9491    1205.79    9536.53    1205.96    9586.12    1205.36    9692.04    1205.92    9782.47
GR   1210.9    9804.37     1211.6    9818.13    1212.14     9836.6    1211.43    9854.54    1202.76    9880.46
GR    1202     9920.7    1202.76    9933.62    1201.68    9949.76    1198.26    9971.38     1198.4   10022.21
GR   1199.6   10032.36    1200.82   10053.82    1201.25   10079.66    1201.45   10127.98    1201.33   10141.27
GR   1202.1   10153.03    1202.09   10182.74    1200.36   10200.52    1199.9    10215.05    1199.52    10259.7
GR   1206.6   10280.99    1206.06   10310.32    1206.03   10388.32    1205.83   10406.86    1205.11   10415.69
GR   1205.7   10468.77     1205.9   10517.17    1207.15   10670.08     1207.5   10750.84    1207.62   10782.79
```

Trim x-sec by 60.06 to El. 1209.6 to split flow break point

```
NC     0.06       0.11      0.035        0.1        0.3
X1   10.348         36    9957.23   10382.66        510        385       523
GR    1226       9565    1212.07    9618.55    1211.15    9631.61    1210.07    9706.38    1209.95    9729.72
GR   1209.8    9835.72    1209.73    9854.32    1215.57    9874.56    1213.46    9912.21    1212.49    9923.35
```

```
GR   1212.7    9957.23     1202.3    9976.86     1202.15    10001.99     1205.11    10047.79     1204.47    10062.98
GR   1205.2   10081.57     1204.48   10097.56    1202.41    10129.49     1202.97    10146.71     1201.21    10176.03
GR   1201.4   10193.48     1204.29   10208.49    1202.45    10232.55     1202.54    10249.81     1202.58    10351.23
GR   1202.7   10361.56     1208.9    10382.66    1208.48    10417.97     1208.05    10467.24     1208.18    10511.03
GR   1207.7   10517.01     1208.11   10530.55     1207.8    10547.77     1208.43     10660.3      1208.7     10793.2
GR   1209.6   10844.58

NC     0.06       0.11      0.035       0.1         0.3
X1   10.443         38    9875.81   10314.96         475        420       494.83
X3        0                          9689.34    1229.34
GR     1214       9284     1213.4    9288.09     1213.28     9310.91     1212.49     9389.51     1213.1     9395.02
GR     1212    9414.45     1211.73   9500.08      1211.5       9525     1210.71     9547.59    1210.43     9563.81
GR   1224.2    9612.23     1227.16    9628.1      1228.5    9661.63     1229.34     9689.34    1227.87     9709.16
GR   1224.9    9720.12     1219.55   9745.53     1216.73    9757.93     1217.48     9767.19    1217.98     9795.24
GR   1210.5    9838.58     1210.53   9875.81      1207.9    9893.41     1207.09     9896.92    1206.62     9954.48
GR   1204.6    9976.71     1205.81   10020.13    1206.35   10104.56     1206.29    10145.97    1205.28    10203.45
GR   1205.3   10264.41     1211.67   10282.67    1213.65   10314.96     1212.83    10410.42    1212.69    10418.45
GR   1212.4   10484.54     1211.09    10513.7    1211.26    10541.4

NC     0.06       0.11      0.035       0.1         0.3
X1   10.517         27     9771.2   10108.57         425        480       519.3
X3        0                          9648.11    1220.64
GR   1216.7       9005     1216.66   9170.01     1216.37    9274.41     1215.89     9375.16    1215.95     9464.87
GR   1216.1    9519.11     1213.87   9534.66     1212.93    9572.86     1219.44     9615.29    1220.64     9648.11
GR   1218.3    9669.21      1211.5   9688.22     1209.61    9749.23     1218.09      9771.2    1208.22     9801.49
GR   1209.6    9818.46     1210.44    9871.9     1209.63    9927.54     1208.21     9969.81    1207.43    10018.11
GR   1208.6   10036.17     1208.26   10046.63    1207.56   10095.36     1212.41    10108.57    1211.06    10133.19
1
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GR   1211.8   10236.89       1212   10315.07
```

Trim x-sec by 47.63 to El. 1215.84 to split flow break point

```
NC     0.06       0.11      0.035       0.1         0.3
X1   10.612         27    9908.43   10249.66         490        435       504.93
GR   1219.9       9048     1218.43   9056.24     1218.8    9108.47     1218.55     9207.24    1218.42     9317.08
GR   1218.2    9406.44     1218.32   9494.41     1217.53    9630.26     1218.12      9709.1    1217.22     9798.17
GR   1216.4    9829.94     1216.39   9836.78      1221.5    9860.25     1221.45     9900.45    1220.88     9908.43
GR   1214.6    9924.93     1208.81   9941.99     1208.77    9995.58     1209.65    10031.37    1210.88    10094.63
GR   1210.3   10117.43     1210.09   10138.78    1210.14   10181.06        1210    10192.84    1209.98    10234.38
GR   1215.6   10249.66     1215.84   10352.46
```

Trim x-sec by 119.12 to El. 1218.83 to split flow break point

```
NC     0.06       0.11      0.035       0.1         0.3
X1   10.699         30    9958.52   10251.21         460        460       462.24
GR   1221.5    8934.06     1220.97   8945.19     1220.81     9012.4      1220.6     9058.23    1220.4     9149.1
GR   1220.1    9281.44     1220.09   9395.19     1219.95    9494.65        1220     9554.71    1219.97    9617.05
GR   1219.5    9667.31     1219.26   9713.93     1219.49    9781.25      1220.1     9790.75    1220.67     9831.4
GR   1221.7    9856.59     1219.62   9874.77     1223.65    9908.51      1223.8     9924.34    1223.54    9940.54
GR   1222.8    9958.52     1209.46   9985.14     1209.49   10026.34      1211.3    10059.24    1212.67    10102.3
GR   1214.7   10147.7      1213.51   10179.34    1213.36   10238.84      1218.2    10251.21    1218.83    10283.08
```

Trim x-sec by 148.95 to El. 1220.34 to split flow break point

```
NC     0.06       0.11      0.035       0.1         0.3
X1   10.803         34    9795.08   10215.45         555        555       567.3
GR   1224.1       8729       1225   8733.57     1223.73    8741.5     1223.93     8812.35    1224.06    8890.69
GR   1224.4    8985.13     1224.56   9095.68     1224.47    9205.03     1224.54     9295.79    1224.34    9386.74
GR   1223.6    9510.25     1222.79   9607.53      1227.1    9621.28     1227.58     9658.11    1228.24    9670.69
GR   1228.5     9701.4     1219.93   9748.86     1218.42    9772.23      1220.9     9795.08    1220.69    9824.49
GR   1219.8    9852.63     1220.07   9871.17     1217.91     9913.5     1217.36     9925.08    1214.56    9938.72
GR   1214.7    9987.09      1214.1   9997.56     1216.05   10008.12     1217.05    10049.49     1215.5   10074.31
GR     1215   10126.54     1215.76   10179.25    1219.99   10190.94     1220.34    10215.45
```

Trim x-sec by 83.3 to El. 1223.37 to split flow break point

```
NC     0.06       0.11      0.035       0.1         0.3
X1   10.862         38    9850.56   10118.76         265        360       313.15
GR     1224       8693     1225.12   8699.3      1224.75    8711.18     1224.71     8812.47    1224.61    8877.06
GR   1225.1    8973.17     1225.28   9052.06     1225.46    9109.55     1225.36     9197.22    1225.52    9272.18
GR   1225.6    9337.49     1225.46   9371.66     1224.37    9479.31     1224.09     9565.38    1223.33     9621.6
GR   1226.3    9635.85     1224.89   9685.37     1225.68    9696.76     1224.75     9713.74    1224.05    9738.95
GR   1222.7    9781.15     1222.82   9823.51     1222.96    9836.85     1224.34     9840.35    1228.35    9850.56
GR   1216.6    9875.49     1216.54   9892.85      1217.66    9912.5     1215.89     9934.73    1215.97     9968.6
1
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GR   1215.6    9999.37     1215.43   10003.08    1216.49      10020     1215.66    10082.87    1220.97   10097.01
GR   1223.2   10118.76     1223.26   10157.02    1223.37   10185.23
```

Trim x-sec by 85.03 to El. 1224.63 to split flow break point

```
NC      0.06       0.11      0.035       0.1       0.3
X1    10.917         29    9808.72  10200.72       265       300    292.21
GR    1225.9       8805    1225.85   8972.29   1226.22    9066.58   1226.57   9263.12   1226.02   9375.59
GR    1225.4    9461.75    1224.76   9571.45    1224.2    9661.22   1223.54    9750.8   1223.78   9767.16
GR    1226.6    9781.35    1225.99    9800.8   1223.78    9808.72   1221.71   9818.09   1220.39   9847.62
GR      1219     9875.5    1218.1     9910.7   1216.74     9945.8   1216.73   10009.7   1216.95  10046.04
GR    1217.7   10099.87    1217.95  10106.64   1222.78   10122.36   1222.53   10144.6   1223.11  10164.12
GR    1224.5   10200.72    1224.19  10214.25   1224.42    10220.1   1224.63  10299.07
```

Trim x-sec by 150.07 to El. 1228.17 to split flow break point

```
NC      0.06       0.11      0.035       0.3       0.5
X1     10.98         33    9869.32  10118.92       445       300    357.93
GR    1236.2       8902    1235.03    9009.48   1233.52    9081.57   1230.68   9197.15   1230.24   9238.17
GR    1228.2    9329.77    1228.2    9376.07   1228.17    9408.17   1227.95   9436.53    1228.3   9492.53
GR    1228.3    9514.74    1227.77   9576.16   1227.28    9654.38   1227.65   9703.17   1227.39   9725.18
GR    1227.5    9735.57    1227.16    9780.11   1227.79    9835.41   1227.57   9869.32   1219.27   9897.23
GR    1219.5    9920.15    1219.08    9980.77    1218.6   10028.89   1218.62  10081.72    1223.7  10098.8
GR    1227.9   10114.18    1228.67   10118.92   1229.28    10154.4   1229.31  10188.69   1228.99  10211.1
GR    1228.1   10266.51    1227.81   10365.25   1228.17   10374.35
```

Trim x-sec by 130.89 to El. 1229.07 to split flow break point

```
SB      1.05        1.6        2.8                186.22          8    1932.34         3   1218.61   1218.60

NC      0.06       0.11      0.035       0.3       0.5
X1    10.996         32    9873.61   10127.6       128       127    129.13
X2                            1       1228.23   1228.47
X3        10
BT       -31    9209.00    1232.3                 9227.18    1232.1              1228.47   1229.05
BT           9363.47    1230.13                   9391.57   1229.66              9284.39    1231.3
BT           9591.57    1228.47                   9691.57   1230.33              9491.57   1228.59
BT           9820.12    1233.04                   9839.42   1233.24              9800.44   1230.73
BT           9872.00    1233.52   1227.82         9880.42   1233.59              9855.82   1233.39
BT           9937.82    1233.90   1228.19         9970.62   1233.99   1227.88    9905.02   1233.75    1228.0
BT          10036.23    1233.94   1228.23        10069.03   1233.82   1228.28   10003.43      1234    1228.2
BT          10115.13    1233.53   1227.82        10126.65   1233.44   1228.11   10101.83   1233.63    1227.9
BT          10142.29     1233.3                  10167.44   1233.03    1227.8   10134.65   1233.37
BT          10233.05    1232.24                  10263.48   1231.84             10200.24   1232.64
BT          10429.91    1229.05                                                  10263.5   1229.76
GR    1236.2       8929    1235.8    8960.26   1234.2    8986.64   1232.98    9020.24   1231.82   9058.54
GR    1230.2    9146.85    1229.61   9203.88   1229.12    9235.52   1228.93    9311.85   1228.65   9380.46
GR    1227.8    9409.74    1227.61   9556.72   1227.24     9592.3   1227.13    9662.76    1227.6   9786.01
1
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GR    1227.8    9831.36    1228.24   9850.57   1228.19    9873.61   1222.31    9901.51    1219.4   9916.21
GR    1218.8   10057.67    1218.61   10088.04  1222.44    10105.1   1228.55   10127.6   1229.36  10176.84
GR      1229   10254.12    1227.94   10258.07  1226.56    10272.53  1228.84   10293.62  1228.56  10310.22
```

Trim x-sec by 253.29 to El. 1229.15 to split flow break point

```
NC      0.06       0.11      0.035       0.3       0.5
X1     11.03         32    9909.05  10139.94       200       140    167.81
GR      1234       8960    1233.58   8980.68   1230.12    9011.25   1228.86   9085.72   1228.64   9109.21
GR    1228.7    9184.36    1228.44   9234.32    1227.9    9309.21   1228.17   9393.14   1229.16   9417.45
GR    1228.3    9441.08    1229.45   9478.71   1227.99    9491.57   1227.25   9680.85   1227.22   9708.72
GR    1226.7    9781.31    1226.64   9809.22   1226.85    9838.37   1228.08   9885.45   1229.05   9909.05
GR    1223.5    9929.79    1219.37   9943.87    1219.4   10037.48   1220.02  10088.04   1227.65  10134.6
GR    1228.9   10139.94    1229.13  10166.44   1229.84    10249.08  1229.95  10323.92    1230.2  10333.76
GR    1227.8   10347.89    1229.15  10375.57

NC      0.06       0.11      0.035       0.1       0.3
X1     11.129         41    9828.29  10120.15       565       495    516.79
X3          0                                    10408.12    1232.3
GR    1231.3    9022.25    1230.94   9041.69   1230.21    9093.69   1230.27   9205.62   1229.9   9282.22
GR    1229.8    9387.83    1230.22   9469.37   1230.51    9551.22   1230.74   9578.78   1231.1   9596.83
GR    1226.8    9621.45    1226.11   9636.84   1225.42    9641.03   1225.18   9695.55   1224.4   9740.49
GR    1225.4    9765.65    1228.16   9782.42   1231.57    9796.24   1231.15   9826.13   1231.3   9828.29
GR    1220.9     9861.4    1220.68    9891.1   1221.52    9928.19   1219.44   9946.92   1219.4   10018.8
GR    1219.4   10039.39    1221.52  10068.63   1221.69   10094.84   1231.76  10120.15    1230.7  10152.71
GR      1230   10185.08    1230.46  10286.28   1231.22   10345.31   1231.87  10387.47   1232.3  10408.12
GR    1229.7   10421.68    1232.18  10458.63   1232.67   10491.38   1231.71  10524.76   1230.9  10538.53
GR    1233.9   10554.59
```

Trim x-sec by 225.12' to El. 1234.9 to split flow break point

```
NC      0.06       0.11      0.035       0.1       0.3
X1    11.188         46    9865.77  10124.74       305       300    309.44
X3          0                                    10444.15    1233.8
GR      1232       9041    1231.15   9115.33   1231.27    9134.84   1231.29   9320.71   1231.02   9420.86
```

GR	1231.5	9479.22	1232.21	9498.73	1233.89	9504.38	1235.75	9517.47	1235.25	9529.42
GR	1233.1	9541.87	1235.22	9560.31	1235.15	9577.03	1232.45	9590.29	1231.59	9626.37
GR	1224.9	9648.41	1218.92	9667.19	1218.53	9727.11	1218.51	9750.16	1218.78	9800.35
GR	1231.4	9838.94	1231.31	9859.24	1232.77	9865.77	1221.37	9904.11	1221.68	9925.94
GR	1221.6	9953.13	1219.14	9973.81	1219.24	10020.06	1221.04	10046.79	1221.96	10061.75
GR	1221.7	10083.91	1230.75	10118.07	1232.93	10124.74	1231.84	10137.65	1231.65	10222.24
GR	1231.9	10287.91	1232.2	10322.53	1233.08	10381.16	1233.47	10422.81	1233.8	10444.15
GR	1230.8	10457.76	1233.51	10494.01	1233.88	10530.59	1233	10560.22	1231.82	10572.71
GR	1234.9	10588.37								

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NC	0.06	0.11	0.035	0.1	0.3					
X1	11.243	45	9887.62	10109.22	295	335	314.34			
X3	0					10492.94	1235.87			
GR	1233.3	9054.46	1231.28	9149.54	1231.14	9247.85	1231.21	9286.87	1231.1	9356.7
GR	1231.6	9443.04	1231.72	9460.96	1231.08	9487.11	1218.35	9529.07	1218.4	9677.97
GR	1218.4	9816.78	1231.14	9861.96	1231.21	9873.99	1232.84	9882.8	1233.7	9887.62
GR	1224.7	9917.39	1222.23	9925.15	1221.1	9966.73	1219.13	9985.42	1219.2	10011.89
GR	1223.2	10043.76	1222.86	10075.46	1234.3	10109.22	1233.46	10121.84	1233.1	10165.28
GR	1233.5	10276.72	1234.48	10371.05	1235.87	10492.94	1234.1	10502.21	1232.6	10509.53
GR	1234	10539.77	1234.83	10547.78	1235.56	10581.98	1234.98	10612.73	1233.9	10625.25
GR	1236.7	10643.35	1236.46	10667.7	1236.29	10713.47	1236.03	10734.03	1235.5	10744.01
GR	1233.9	10761.9	1234.31	10780.34	1235.02	10822.13	1234.82	10909.68	1234.6	10940.42

NC	0.06	0.11	0.035	0.1	0.3					
X1	11.301	44	9883.56	10107.77	300	275	289.9			
X3	0					10521.61	1237.09			
GR	1235.1	9070.93	1234.97	9091.44	1233.7	9137.56	1232.26	9187.01	1231.8	9300.96
GR	1231.8	9306.67	1233.33	9320.68	1231.94	9329.32	1232.14	9347.02	1232.2	9379.69
GR	1231.2	9454.18	1230.68	9483.89	1223.69	9510.19	1223.69	9828.8	1231	9857.44
GR	1231.3	9872.47	1232.87	9883.56	1221.78	9921.65	1222.87	9928.94	1221.9	9951.1
GR	1222	9961.37	1221.27	10013.49	1223.83	10037.02	1223.68	10064.26	1232.5	10099.96
GR	1234.8	10107.77	1235.33	10200.7	1235.47	10255.01	1235.9	10334	1236.4	10389.16
GR	1236.2	10402.35	1236.72	10462.61	1237.09	10521.61	1233.53	10537.78	1236	10566.27
GR	1236.3	10579.08	1236.51	10611.66	1236.17	10643.13	1235.99	10658.31	1238	10672.93
GR	1237.7	10709.94	1238.3	10812.37	1238.3	10841.78	1238.02	10853.55		

NC	0.06	0.11	0.035	0.1	0.3					
X1	11.386	43	9863.67	10133.31	445	415	436.6			
X3	0					10133.31	1238.4			
GR	1238	9104	1238	9123.73	1226.67	9191.6	1225.61	9220.12	1225.95	9256.82
GR	1231	9280.43	1228.94	9287.19	1229.46	9308.14	1229.76	9394.57	1229.82	9401.11
GR	1228.9	9481.84	1229.01	9515.86	1230.04	9536.77	1230.05	9593.6	1229.96	9609.85
GR	1230.2	9689.93	1230.22	9711.91	1230.37	9789.39	1229.5	9849.51	1233.46	9863.67
GR	1226.3	9882.21	1223.19	9891.31	1226.78	9931.36	1223.57	9967.31	1223.55	9973.51
GR	1223.1	10044.54	1229.38	10065.65	1228.89	10089.95	1230.94	10109.7	1238.4	10133.31
GR	1238.1	10237.54	1238.23	10272.91	1242.54	10303.28	1241.68	10313.95	1238.11	10332.85
GR	1238	10363.13	1239.24	10432.47	1239.15	10467.83	1239.39	10532.44	1239.58	10609.1
GR	1234.8	10629.07	1238.14	10669.31	1238.2	10700.17				

NC	0.06	0.11	0.035	0.1	0.3					
X1	11.481	49	9842.07	10210.27	510	555	523.22			
X3	0			9842.07	1236.77					
GR	1240	9213	1231.3	9259.07	1230.96	9289.22	1230.07	9294.24	1228.64	9312.12
GR	1228.4	9351.41	1229.22	9380.55	1234.43	9396.73	1229.72	9405.88	1230.75	9441.1
GR	1233.7	9450.35	1229.09	9459.92	1229.38	9484.46	1228.69	9512.58	1232.91	9527.94
GR	1233.9	9533.33	1233.72	9537.96	1228.96	9551.67	1229.99	9565.36	1230.13	9626.91
GR	1231.1	9699.79	1231.84	9769.56	1232.16	9826.52	1236.77	9842.07	1234.57	9849.46
GR	1225.7	9874.37	1224.81	9910.11	1227.89	9942.3	1226.04	9982.82	1225.45	10006.7
GR	1226.5	10013.65	1227.81	10060.55	1228.66	10103.46	1234.1	10123.39	1233.97	10146.77
GR	1234	10175.5	1237.23	10194.78	1240.19	10210.27	1240.78	10240.77	1240.7	10257.84

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GR	1241.5	10321.22	1242	10371.31	1242.04	10427.88	1242.11	10499.82	1242.36	10600.96
GR	1241.8	10713.02	1241.98	10765.73	1241.28	10778.9	1241.64	10811.84		

NC	0.06	0.11	0.035	0.1	0.3					
X1	11.566	64	9523.18	10058.35	565	545	468.92			
GR	1240	9217	1241.94	9243.61	1243.12	9263.08	1235.34	9307.74	1235.06	9328.39
GR	1235.4	9341.54	1233.44	9355.88	1240.89	9368.38	1241.33	9379.99	1233.84	9408.25
GR	1233.6	9428.19	1236	9441.21	1235.92	9455.53	1235.04	9467.11	1234.83	9495.42
GR	1234.3	9509.06	1234.96	9523.18	1234.44	9543.01	1232.21	9556.13	1231.97	9565.05
GR	1229.3	9590.35	1229.37	9612.35	1228.55	9673.74	1229.76	9727.08	1228.48	9769.86
GR	1228.6	9787.53	1229.71	9842.83	1229.49	9858.42	1230	9883.62	1229.58	9913
GR	1229	9932.09	1229.69	9962.18	1228.59	9987.62	1228.32	10023.35	1234.13	10037.42
GR	1243.3	10058.35	1243.56	10068.09	1243.57	10096.08	1243.75	10156.89	1243.26	10195.96
GR	1242.7	10215.88	1242.04	10254.08	1243.29	10265.37	1242.98	10281.07	1242.85	10286.74
GR	1242.9	10380.23	1243.85	10480.6	1244.38	10567.95	1244.25	10701.36	1244.43	10785.01
GR	1244.5	10879.83	1244.41	10910.88	1245.2	10926.94	1243.14	10935.49	1243.04	10944.13
GR	1243.9	10964.63	1243.45	11006.16	1243.45	11021.48	1242.43	11034.46	1244.55	11055.81
GR	1244.1	11100.69	1243.81	11144.02	1241.95	11171.29	1241.91	11174.93		

NC	0.06	0.11	0.035	0.1	0.3		
X1	11.664	49	9662.56	10052.37	535	515	513.83

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GR   1242.1      9320    1243.88    9340.74    1245.57    9371.82    1242.97    9388.89    1239.19    9409.19
GR   1236.8    9488.2     1243.4    9510.42    1241.47    9516.13    1237.15    9531.47    1235.87    9573.54
GR   1236.2   9662.56    1232.61    9717.06     1232.3    9730.43    1231.61    9787.16    1231.67    9815.35
GR     1232   9824.67    1230.4     9884.86    1230.85    9920.74    1231.01    9952.14    1228.99    9964.99
GR   1228.8     10014    1244.86   10052.37    1245.52   10098.66    1245.38   10205.55    1244.63   10278.51
GR   1244.7  10364.72       1245   10404.73    1243.98   10464.97    1244.36   10536.07    1244.47   10559.65
GR   1245.8  10585.61    1245.26   10594.36    1245.23   10650.67    1246.12   10723.36    1246.24    10751.6
GR   1246.1  10826.22    1246.81   10911.07    1246.85   10942.04    1246.27   11022.64     1246.4    11133.1
GR   1246.6  11161.18    1246.99   11173.53    1245.08   11183.38    1246.27   11206.23    1246.02   11270.25
GR   1244.6  11284.98    1246.44   11298.78    1246.56   11315.55    1246.01   11344.37

NC    0.085      0.11     0.035       0.1       0.3
X1   11.759        65   9791.44   10130.39       485       470    501.24
GR     1246      9380    1247.47    9411.85    1237.12   9448.72    1235.12    9505.51    1234.93    9552.05
GR     1235    9596.1    1234.63    9635.78    1234.75   9656.13     1235.2    9677.71    1244.58    9698.81
GR   1242.9   9710.55    1242.88    9727.37    1236.32   9748.99    1244.09    9771.52    1244.46    9791.44
GR   1244.4   9807.81    1240.79    9819.26    1242.57   9823.36    1239.21    9829.85    1242.12    9839.37
GR   1238.8   9849.88    1241.08    9858.37    1234.17   9869.84    1234.21    9928.41    1234.19    9943.92
GR   1234.7   9960.27    1235.17    9990.31    1232.02   9997.43    1232.25   10042.04    1234.27   10059.13
GR   1234.2  10095.05    1233.97   10100.53    1246.55  10130.39    1246.85    10142.3    1247.06   10225.77
GR   1246.3  10304.48    1245.66   10383.19    1245.66  10475.98    1245.39    10562.8    1245.41   10575.61
GR   1244.8  10625.75    1243.57   10657.35    1243.55  10662.34     1243.9    10768.32    1244.38   10868.46
GR   1244.6  10915.38     1247.8   10938.13    1248.02  11050.27    1248.14    11085.38    1248.07   11275.36
GR     1248   11369.5    1248.45   11404.6    1249.21  11412.55    1249.52    11417.07    1247.86   11430.62
GR   1248.6  11447.94    1248.74   11479.92    1247.94  11515.93    1247.12    11526.98    1247.48   11541.06
GR     1245  11546.12    1244.56    11556.7    1244.78  11576.66    1244.54    11597.61    1246.56   11620.05
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NC    0.085      0.11     0.035       0.1       0.3
X1   11.864        72   9887.29   10118.56       605       665    615.28
X3        0                        9887.29      1250
GR   1247.7   9368.57    1248.19    9388.69    1249.7   9417.91     1242.2    9445.9    1241.63    9513.08
GR   1241.7   9602.35    1239.18    9617.01    1239.1   9623.31    1239.73    9660.06    1241.11    9692.74
GR   1241.1   9749.87    1241.34    9791.41    1241.2   9832.97    1240.57     9856.6    1240.43    9887.29
GR   1235.8   9896.12    1235.57    9921.44    1236.3   9925.06    1237.05    9951.56    1236.65    9960.02
GR     1237  10035.33    1236.97    10064.5    1236.3  10092.91       1240   10106.9    1240.45   10118.56
GR   1237.5  10130.48    1248.09   10155.04    1250.4  10162.06    1250.81   10181.62    1250.63    10186.5
GR   1251.8  10208.62     1253.3    10218.7      1243  10241.04    1247.08   10267.89    1246.37   10306.91
GR   1246.9  10315.52     1246.2   10361.53    1246.2  10381.98    1246.89   10411.29    1247.53   10492.53
GR   1247.4  10507.94     1247.4   10526.95    1248.3  10540.69    1248.03   10646.53    1248.14   10746.82
GR   1247.8  10807.84     1247.8   10845.75    1248.1  10951.51    1248.24   10972.51    1248.38   11053.19
GR   1248.1  11108.97    1248.26   11132.09    1248.3  11266.94     1247.8   11275.43    1251.01   11292.83
GR   1250.3   11308.4    1250.17   11399.39    1250.2  11448.86    1250.59   11553.79    1250.35   11642.08
GR   1250.3  11679.66    1250.76   11783.75    1250.9  11791.44    1251.52   11795.97    1249.79    11809.3
GR   1251.2  11825.54     1251.7   11859.76      1251  11891.49    1249.92    11905.1    1250.65   11917.77
GR   1247.5  11923.48    1247.15   11941.26

NC     0.06      0.11     0.035       0.1       0.3
X1   11.949        79   9893.21   10325.2       565       380    452.25
X3        0                        9673.75    1248.7
GR     1252      9320    1252.72    9340.38    1252.27   9354.07    1251.06    9379.51    1251.34    9388.34
GR     1250    9426.34     1249.5    9443.29    1244.15    9458.1    1243.17    9542.24    1243.06     9563.9
GR   1244.3    9584.85    1247.72    9650.51     1248.7   9673.75    1247.84    9705.69    1247.26    9738.43
GR   1245.3    9753.82    1246.42    9765.51    1245.82   9772.96    1241.28    9787.33    1242.45    9805.15
GR     1242    9836.25    1244.24    9878.93    1245.13   9893.21    1239.71    9915.65       1239    9974.92
GR   1239.1   10050.62    1239.17   10079.84     1238.9  10105.39    1241.77   10120.23    1241.04   10136.92
GR   1239.5   10188.32    1242.65   10231.21     1243.2  10256.85    1244.39   10323.37    1244.81    10325.2
GR   1244.7   10341.45       1242   10362.64    1241.81  10383.08    1247.16   10403.18    1248.88   10412.63
GR   1248.8      10428    1247.94   10442.64    1247.93  10479.36    1248.75   10497.97    1248.81   10553.94
GR   1247.9   10629.27    1249.14   10677.54    1250.23  10711.85    1249.78   10759.77    1249.64   10859.51
GR   1249.5   10896.76    1249.65   10958.52    1249.59  11017.72    1249.86   11090.31    1249.84   11248.77
GR     1250   11341.52    1249.91   11373.85    1250.17  11462.35    1250.16   11480.12    1249.37   11487.38
GR   1252.3    11500.6    1252.55   11507.16    1251.71  11515.49    1251.91   11611.62    1251.73   11753.21
GR     1252   11833.41    1252.12   11947.81    1252.13  11997.03    1252.91   12004.41    1251.76   12006.99
GR   1253.4   12010.55    1252.41   12024.24    1252.87  12041.68    1253.11   12070.93    1252.12   12110.93
GR   1252.1   12115.68    1254.23   12129.85    1251.78  12148.74    1251.95   12170.55

NC     0.06      0.11     0.035       0.1       0.3
X1   12.034        72   9719.47   10210.39       485       615    539.66
GR     1254      9213    1253.38       9220    1254.54   9235.21    1253.68    9286.76     1252.8    9376.99
GR   1252.4    9501.88    1253.86    9557.44    1253.64   9568.41    1253.36    9608.98    1252.99    9631.85
GR   1251.9    9683.23    1250.55    9719.47    1248.73    9732.1    1247.48    9744.74    1246.55    9778.46
GR   1245.1       9814    1242.62     9844.5    1241.73   9952.09    1241.47    9997.91    1242.27   10060.49
GR   1242.6   10072.37    1246.28   10086.14     1244.5  10172.6     1250.9   10186.14    1250.96   10210.39
GR   1252.2   10222.61    1252.66   10240.53    1255.52  10269.53    1255.7   10297.52    1255.55   10345.02
GR   1255.7   10414.46    1256.41    10507.8    1254.81  10543.63    1255.1   10625.84    1255.07   10669.22
GR   1255.4   10717.05    1254.99   10828.77    1254.69  10929.62    1253.8   10939.84    1253.38   10970.08
GR   1255.1   10999.45    1255.18   11091.42    1254.69  11104.05    1253.3   11111.71    1252.52   11126.93
GR   1252.3   11153.59    1253.52   11222.48    1249.43  11237.43      1250   11285.65    1250.29   11292.32
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GR   1250.4   11359.58    1250.61   11396.92    1250.61   11497.53      1251   11531.69    1256.33   11572.18
GR     1254   11589.75    1254.34   11658.39    1254.31   11710.68    1254.8    11761.3    1254.29   11791.91
GR   1256.7   11802.96    1256.42   11878.86    1256.47   11919.14    1256.8   11970.78    1256.74   12042.08
GR   1256.9   12129.06    1256.79   12181.35    1257.28   12296.42    1257.2   12330.15    1256.99    12357.2
GR   1257.9   12385.72    1257.82   12389.41
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NC	0.06	0.11	0.035	0.1	0.3					
X1	12.125	81	9743.99	10337.64	535	365	461.89			
GR	1252	9049	1255	9068.23	1254.82	9096.82	1245.2	9127.01	1245.27	9143.84
GR	1255	9178.29	1255.39	9201.81	1255.24	9247.47	1255.67	9370	1256.01	9401.46
GR	1256	9511.87	1256.65	9575.08	1258.35	9587.02	1256.14	9608.23	1255.76	9625.14
GR	1255.5	9653.92	1255.96	9685.34	1254.31	9743.99	1253.38	9748.1	1250.29	9767.48
GR	1249.9	9807.09	1249.75	9822.2	1247.19	9862.49	1246.14	9874	1245.84	9893.23
GR	1245.2	9905	1244.96	9963.33	1245.05	10011.22	1244.65	10087.24	1245.48	10126.05
GR	1245.6	10188.42	1245.07	10217.08	1246.6	10300	1254.4	10337.64	1256.2	10437.79
GR	1255.7	10453.41	1255.3	10497.61	1255.3	10528.77	1257.2	10540.16	1256.9	10657.73
GR	1256.8	10731.98	1257.11	10829.79	1256.9	10913.73	1257	10983.6	1257	11046.81
GR	1256.7	11134.07	1256.5	11191.23	1256.6	11236.54	1255.8	11305.08	1255.9	11320.86
GR	1255.2	11377.53	1254.1	11405.52	1254	11455.47	1254.6	11505.7	1253.7	11586.69
GR	1253.4	11602.34	1257	11623.01	1257.9	11651.29	1258.3	11676.1	1255	11687.04
GR	1253.6	11701.25	1253.1	11718.54	1260.6	11732.36	1261.5	11739.55	1257.3	11763.57
GR	1258.4	11774.93	1262.9	11788.09	1259.8	11812.51	1253.9	11828.47	1254.5	11884.73
GR	1255.9	11923.03	1256.3	11970.87	1256.7	12015.67	1257.3	12040.3	1252.8	12071.27
GR	1253	12117.23	1257.5	12147.77	1256.9	12178.36	1259	12188.58	1258.7	12252.96
GR	1259	12350.2								

NC	0.06	0.11	0.035	0.1	0.3					
X1	12.194	71	9831.37	10282.89	370	330	337.73			
GR	1259.5	8672	1259.01	8712.33	1258.82	8737.02	1258.43	8837.03	1258.37	8898.06
GR	1258.1	8937.03	1258.12	9037	1257.93	9137.01	1257.33	9273.14	1257.03	9374.95
GR	1256.6	9433.06	1256.69	9462.14	1257.87	9471.89	1257.34	9522.08	1257.53	9564.57
GR	1258.5	9579.29	1258.45	9627.53	1259.53	9755.43	1259.62	9831.37	1253.17	9850.32
GR	1252.2	9877.34	1249.04	9889.54	1250.11	9930.45	1250.58	9934.41	1250.13	9961.21
GR	1248	9968.74	1248.39	10040.44	1249.92	10059.15	1249.65	10108.03	1248.45	10126.99
GR	1249.8	10268	1257.6	10282.89	1258	10357.49	1257.9	10377	1256.4	10468.2
GR	1256.4	10548.46	1256.66	10625.97	1256.3	10706.62	1256.3	10779.02	1255.9	10950.21
GR	1256	10957.31	1256.02	10996.42	1255.9	11051.1	1256.3	11135.52	1256.5	11207.14
GR	1256.4	11266.14	1256.69	11320.63	1256.6	11348.71	1257.3	11367.39	1256.1	11383.45
GR	1256.3	11435.96	1257.28	11493.32	1257.2	11521.15	1256.7	11557.11	1257.3	11620.37
GR	1258.3	11654.5	1257.99	11691.53	1257.7	11705.13	1257.9	11780.58	1258.4	11867.52
GR	1259.1	12078.16	1259.6	12191.99	1258.9	12211.69	1260.7	12219	1260.1	12238.25
GR	1260.8	12248.25	1261.01	12259.89	1255.5	12283.23	1255	12320.96	1261.4	12350.3
GR	1259.9	12385.23								

EXTEND CROSS SECTION GEOMETRY 40' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

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NC	0.06	0.11	0.035	0.1	0.3					
X1	12.313	78	9877.14	10260.61	780	585	685.08			
GR	1262.2	8911	1262.73	8923.98	1261.52	9012.36	1261.02	9114.22	1260.76	9215.07
GR	1260.1	9317.71	1259.46	9418.58	1258.59	9521.44	1258.43	9656.01	1258.52	9698.04
GR	1258.2	9773.36	1258.6	9818.33	1262.47	9843.21	1262.03	9863.96	1260.51	9877.14
GR	1257.6	9914.61	1256.72	9926.12	1255.59	9959.4	1250.88	9979.52	1250.47	10015.02
GR	1252.7	10027.71	1253.88	10085.83	1254.58	10136.24	1254.35	10145.32	1250.91	10172.03
GR	1250.7	10209.29	1258.61	10237.98	1259.84	10260.61	1259.46	10325.64	1259.12	10358.25
GR	1258.4	10383.8	1258.24	10407.94	1259.28	10424.35	1258.95	10555.79	1258.64	10695.97
GR	1258.7	10714.29	1257.33	10732.29	1257.23	10762.67	1259.27	10789.42	1259.09	10866.17
GR	1259.2	10886.46	1253.03	10920.68	1255.9	10949.1	1256.4	10979.09	1256.15	11040.79
GR	1256.3	11045.95	1256.49	11097.1	1258.17	11164.64	1258.23	11221	1258.5	11277.52
GR	1258.6	11305.7	1259.4	11348.84	1259.13	11422.49	1259.99	11500.27	1257.87	11510.39
GR	1257.3	11529.67	1257.3	11550.15	1257.3	11582.66	1257.76	11627.75	1258.09	11639.64
GR	1258.3	11753.95	1259.5	11771.62	1258.49	11786.29	1258.41	11816.42	1259.06	11918.18
GR	1259.3	11973.14	1259.32	12019.77	1259.58	12086.75	1259.64	12121.34	1259.52	12222.93
GR	1260	12313.37	1259.69	12346.84	1259.5	12353.96	1260.79	12361.9	1260.49	12380.3
GR	1261.3	12392.93	1261.03	12403.57	1261.2	12443.57				

EXTEND CROSS SECTION GEOMETRY 50' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.06	0.11	0.035	0.1	0.3					
X1	12.42	83	9768.6	10079.26	600	665	578.07			
GR	1262.8	8970	1262.84	8995.74	1263.05	9031.93	1262.68	9063.82	1262.62	9138.82
GR	1262.3	9186.8	1261.52	9249.06	1262.21	9327.82	1262.01	9372.12	1261.12	9408.46
GR	1259.2	9418.1	1261.28	9432.27	1261.31	9461.13	1259.29	9471.85	1261.27	9503.62
GR	1260.7	9537.4	1261.31	9588.38	1261.24	9629.55	1260.94	9686.71	1261.8	9741.61
GR	1262.3	9768.6	1260.52	9787.66	1259.54	9809.52	1259.44	9833.82	1259.91	9864.46
GR	1259.6	9879.23	1256.26	9892.06	1255.77	9936.5	1255.38	9965.68	1254.66	9986.22
GR	1254.5	10057.78	1263.54	10079.26	1258.79	10090.34	1258.25	10116.23	1263.92	10131.13
GR	1255.8	10148.99	1256.04	10176.35	1256.15	10195.53	1255.3	10247.56	1258.02	10261.05
GR	1258.8	10270	1264.04	10294.39	1262.28	10315.54	1261.76	10330.07	1261.42	10388.05
GR	1261.4	10468.87	1259.96	10507.52	1260.05	10560.42	1260.39	10630.82	1260.37	10752.6
GR	1260.5	10875.12	1260.76	10965.9	1260.75	11105.43	1261.21	11179.53	1261.65	11240.84
GR	1261.7	11255.41	1262.72	11276.88	1262.73	11329.43	1262.53	11367.68	1260.97	11396.98
GR	1261	11429.38	1262.37	11459.64	1262.73	11532.97	1262.55	11582.61	1262.33	11603
GR	1259.9	11613.43	1259.11	11633.66	1259.14	11682.8	1260.06	11714.44	1261.73	11750.89
GR	1261.9	11804.41	1262.36	11853.81	1262.12	11888.68	1262.79	11910.74	1262.2	11996.14
GR	1262.3	12195.66	1262.44	12281.63	1262.43	12335.41	1262.58	12388.49	1262.57	12455.76
GR	1262.6	12481.27	1263.49	12489.77	1263	12539.77				

EXTEND CROSS SECTION GEOMETRY 350' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

```
NC     0.06       0.11      0.035       0.1       0.3
X1   12.511         98    9871.16  10111.39       455       435    467.59
GR   1265.3       8690    1265.72   8722.98   1265.05   8800.78   1266.47   8877.93   1266.49   8890.38
GR     1266    8981.86    1265.46   9039.65   1265.57   9069.52   1266.11   9085.08   1268.85   9115.14
GR   1264.3    9130.07    1266.04    9156.7   1265.36   9213.05    1265.1   9233.07      1265   9269.19
GR   1265.1    9306.39    1264.21   9384.01   1264.06   9435.15    1263.6   9495.38    1263.4   9500.47
1
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GR   1265.1    9523.53       1264   9531.83   1263.64   9577.67    1263.7   9644.25    1263.4   9672.29
GR   1262.5    9730.13    1263.21   9797.63   1262.26   9871.16      1261    9883.9    1259.3   9894.61
GR   1258.8    9930.98    1257.37   9939.14   1257.32   9949.45    1256.1  10006.29    1258.7  10014.97
GR   1258.4   10030.43    1258.05  10040.23   1255.26   10046.6    1254.8   10065.4    1259.6  10081.47
GR   1262.2   10098.86    1265.39  10111.39   1262.95  10128.79    1262.4  10163.12    1268.3  10179.88
GR   1258.7    10197.8    1258.52  10223.09    1261.2  10235.25    1264.3  10263.05    1264.1  10285.63
GR   1264.6   10296.97    1264.03  10330.85   1263.48  10343.82    1260.2  10356.41    1262.9  10377.48
GR     1262   10380.84    1259.42  10389.62   1258.91  10422.92    1263.9  10445.29      1264   10496.8
GR   1263.8   10540.37    1264.32  10566.77   1263.61  10579.76    1262.9  10630.51      1263  10681.68
GR   1262.8   10712.46    1261.79  10743.72   1261.65  10774.49    1263.1  10794.84    1262.9  10853.81
GR   1262.7   10983.83    1262.98   11088.3   1262.95  11205.62    1263.4  11282.68      1263  11394.61
GR   1263.6   11437.19    1262.94  11454.35   1263.19  11473.97    1263.8  11515.22    1263.2  11550.92
GR   1262.6   11567.64    1263.13  11601.02   1262.22  11632.58    1262.6  11658.99    1261.9  11682.22
GR   1261.3   11690.38    1261.87  11719.06   1261.66  11747.07      1262  11777.83      1263  11801.49
GR   1263.4   11979.14    1263.75  12063.88   1263.46  12080.25    1263.9  12124.63    1264.9  12138.43
GR   1263.9    12163.3     1264.1  12308.79      1265  12658.79
```

EXTEND CROSS SECTION GEOMETRY 500' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

```
NC     0.06       0.11      0.035       0.1       0.3
X1   12.606         84    9830.21  10454.31       555       545    582.3
GR   1271.3       8672    1271.16   8718.88   1271.27   8847.88   1270.93   8952.99   1271.04   8973.43
GR   1273.2    8993.98    1271.05   9003.15    1269.6   9028.62   1270.71   9035.21   1269.48   9039.08
GR   1269.7    9102.66    1269.56    9154.4   1269.28   9201.43   1267.51   9275.63   1266.42   9296.46
GR   1267.2    9340.88    1266.98    9427.5   1268.01   9462.39   1267.42   9495.37   1267.18   9517.89
GR   1267.3    9533.36    1271.37   9543.58   1266.42   9556.36   1266.78   9620.55   1266.81   9680.55
GR   1267.2    9725.43    1267.14   9830.21   1266.35   9892.62   1264.34   9947.62    1258.9   9982.32
GR   1258.9   10018.64    1261.67  10049.91   1262.01  10071.58    1262.7  10087.37   1261.82  10107.56
GR   1261.7   10129.45    1261.98  10144.64   1262.96  10168.55   1264.03  10184.12   1264.48  10204.94
GR     1264   10279.52    1263.65  10302.48   1265.82  10329.34   1265.93   10354.5   1266.91  10391.91
GR     1266   10408.71    1265.81  10425.58   1267.91  10454.31   1267.85  10484.03   1267.09  10546.29
GR     1266   10585.93    1265.28   10606.5   1265.49  10660.51   1265.57  10676.56   1264.85  10695.53
GR   1263.5   10715.39    1260.43   10728.8   1260.18  10748.11   1262.91  10764.66   1264.74  10771.78
GR   1265.1   10790.79    1266.85  10824.07   1266.76  10845.22   1265.75  10861.31   1265.36   10881.6
GR   1267.9   10886.82    1268.17  10951.49   1267.86  11032.15   1267.51  11194.39   1267.38  11343.08
GR   1267.3   11434.76    1267.43  11497.82   1266.03  11600.22   1268.03  11624.87   1267.32  11703.86
GR   1264.7   11721.38       1264  11755.43   1263.78  11870.61   1266.81   12034.7   1268.16   12173.4
GR   1268.3   12249.99    1268.18  12351.98   1267.86  12359.19    1268.3  12859.19
```

EXTEND CROSS SECTION GEOMETRY 260' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

```
NC     0.06       0.11      0.035       0.1       0.3
X1   12.701         83    9748.51  10441.01       495       525    505.6
GR   1270.6       8680    1270.78   8721.65   1270.39   8761.54   1269.91   8834.19   1270.27   8937.79
GR   1270.4    9012.95     1270.3   9085.93   1270.35   9213.32   1269.98   9339.72   1268.84   9353.89
GR   1268.8    9385.93    1270.11   9401.33   1269.69    9469.8   1268.52      9567   1268.6   9597.47
GR   1270.6    9611.88    1271.47   9662.32   1271.92    9720.7   1271.92   9748.51     1270      9752
GR   1266.7    9764.27     1265.6   9795.73   1265.27   9811.75   1264.93   9881.58   1266.19   9898.15
GR   1266.6    9928.36    1260.1    9962.31    1260.6  10022.85   1262.09  10057.09   1267.52  10088.04
GR   1267.6   10120.25    1268.1   10154.93   1269.79  10320.98   1269.49  10401.53    1270.4  10441.01
1
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GR   1268.1   10464.67       1268  10495.45   1268.74  10531.98    1269.9  10587.16   1270.31  10635.89
GR   1269.7   10648.51       1270  10668.19   1270.59  10704.23   1270.38  10760.22   1269.97  10796.48
GR   1268.9   10831.26     1268.6  10837.21   1268.99   10865.6   1269.75  10900.67   1268.83  10939.27
GR   1270.2   10954.64     1270.1  10961.95   1268.26  10970.14   1261.37  11007.32   1270.15  11042.66
GR   1269.7    11062.8     1269.6  11118.03   1269.62  11156.57   1269.85  11186.33   1268.13  11211.37
GR   1268.4   11240.08       1269  11255.17   1268.36   11353.4   1268.35  11380.25   1268.12  11465.73
GR   1268.2   11520.29     1267.4   11611.9   1267.11  11616.72   1267.06  11655.52   1267.77  11695.16
GR   1268.2   11751.92       1268  11802.89   1268.3  11831.52   1267.66  11854.32   1268.28  11863.24
GR     1267   11949.36       1267  12049.56   1267.08  12081.11   1267.47  12149.73   1267.44  12210.25
GR   1267.6   12247.63       1268   12274.4   1270.5   12534.4
```

EXTEND CROSS SECTION GEOMETRY 670' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

```
NC     0.06       0.11      0.035       0.1       0.3
X1   12.801         79    9884.48  10602.96       565       535    524.61
GR   1270.9       8567    1272.13   8583.83   1272.02   8614.59   1272.02   8749.74   1272.26   8884.25
GR   1272.3    8942.46    1272.53   9094.94   1272.62   9196.57   1272.47   9284.07   1272.72   9430.16
GR   1272.6    9499.01    1272.24   9573.63   1269.64   9591.81   1271.67   9618.77   1269.88   9670.91
GR     1269     9706.7     1269.1   9758.35   1269.69   9795.76   1274.94   9814.71   1275.01   9884.48
GR     1266     9902.5    1265.26   9934.52   1261.09    9956.1   1260.23  10017.58    1268.4  10059.56
GR   1267.1   10104.27    1268.17  10131.07   1265.39   10174.1   1265.92  10193.94   1267.75  10248.52
GR   1268.5   10317.64    1268.12   10351.8   1265.51  10405.16   1268.46   10445.3   1268.72  10453.44
GR   1268.3   10495.79    1266.81  10544.02   1272.07     10571   1272.57  10602.96    1272.6  10647.74
GR     1272   10710.39     1271.8  10766.01   1271.57  10784.75   1272.14  10820.84   1272.59  10864.11
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GR	1272.4	10928.04	1272.41	10937.12	1275.58	10952.31	1270.94	10963.24	1268.3	10977.39
GR	1269.2	11019.29	1272.23	11032.48	1272.37	11073.1	1272.78	11094.16	1271.18	11110.08
GR	1268	11125.36	1263.72	11140.13	1263.09	11151.97	1263.05	11177.43	1272.74	11202.48
GR	1273.1	11254.68	1273.07	11286.14	1272.83	11298.47	1271.55	11315.03	1271.34	11373.02
GR	1271.4	11424.11	1271.17	11461.44	1271.37	11487.97	1271.41	11544.6	1271.05	11573.06
GR	1271.5	11628.44	1273.32	11637.25	1273.12	11679.97	1273.22	11762.7	1271.94	11887.91
GR	1271.9	11975.26	1273.21	12022.13	1273.91	12094.51	1273.4	12764.51		

EXTEND CROSS SECTION GEOMETRY 700' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.06	0.11	0.035	0.1	0.3					
X1	12.896	87	9833.84	10320.61	540	495	508.24			
GR	1274	8717	1274.49	8749.83	1273.96	8793.27	1275.3	8802.24	1275.29	8836.46
GR	1275	8904.06	1274.68	8974.91	1275.01	9098.69	1275.18	9207.26	1274.81	9315.82
GR	1275.1	9424.38	1274.72	9576.84	1274.89	9659.07	1274.71	9701.03	1274.17	9716.95
GR	1276.1	9743.96	1276.58	9773.87	1276.83	9803.97	1277.11	9814.81	1278.41	9833.84
GR	1269.6	9869.72	1269.25	9888.88	1267.44	9898.12	1263.73	9911.88	1262.67	9944.67
GR	1262.5	10044.9	1269.15	10086.23	1264.41	10098.15	1265.88	10157.92	1265.26	10183.04
GR	1266.5	10194.89	1265.26	10222.69	1264.82	10272.81	1269.56	10303.8	1273.04	10320.61
GR	1273.5	10382.3	1272.85	10468.09	1270.9	10496.52	1270.12	10518.49	1273.41	10536.31
GR	1275.2	10549.69	1274.93	10608.72	1274.92	10654.62	1274.88	10686.1	1273.87	10715.69
GR	1274	10765.77	1275.22	10787.05	1274.33	10834.25	1276.17	10840.95	1274.01	10845.95
GR	1274.8	10865.73	1274.53	10878.01	1274.37	10925.58	1274.44	10942.62	1273.6	10963.76
GR	1274	10991.33	1274.13	11093.87	1274.27	11154.56	1274.62	11205.78	1269.64	11225.48
GR	1271.8	11254.61	1268.42	11276.61	1270.68	11290.98	1264.52	11313.73	1264.42	11321.39
GR	1269.2	11341.82	1275.3	11369.54	1275.01	11385.26	1276.4	11406.58	1273.09	11420.81

GR	1274.8	11491.04	1276.82	11509.31	1276.75	11523.8	1275.39	11596.48	1275.47	11719.14
GR	1275.7	11796.68	1276.4	11870.25	1274.78	11884.03	1274.97	11963.7	1273.32	11983.85
GR	1272.9	11998.17	1273.17	12017.52	1272.97	12029.09	1273.47	12075.31	1273.64	12209.08
GR	1274	12274.4	1275.5	12974.4						

NC	0.06	0.11	0.035	0.1	0.3					
X1	12.991	91	9734.08	10268.84	595	535	527.02			
GR	1277.8	9109	1277.4	9125.68	1277.29	9230.38	1276.96	9285.05	1276.25	9292.43
GR	1277.2	9314.01	1277.48	9346.4	1277.27	9363.64	1277.06	9433.7	1277.21	9508.5
GR	1277.5	9532.83	1277.61	9600.49	1278.19	9620.61	1278	9631.17	1273.76	9650.22
GR	1277.6	9675.18	1277.73	9718.08	1277.59	9734.08	1264.19	9760.85	1263.68	9804.76
GR	1265.1	9866.56	1265.75	9922.72	1266.02	9928.62	1265.67	9943.89	1262.37	9957.87
GR	1262.4	10166.57	1263.32	10192.9	1266.33	10211.52	1270.75	10235.94	1264.83	10250.37
GR	1268.6	10257.02	1274.41	10268.84	1274.73	10314.62	1275.2	10322.13	1274.65	10372.12
GR	1275	10423.27	1275.86	10458.4	1277.34	10469.64	1277.67	10475.62	1276.26	10485.97
GR	1276	10528.43	1275.91	10590.9	1276.32	10622.82	1275.94	10665.92	1276.29	10739.76
GR	1276.5	10783.7	1275.8	10803.83	1276.91	10858.51	1277.5	11022.81	1278.19	11081
GR	1276.7	11118.65	1276.53	11166.51	1277.52	11173.79	1275.99	11179.58	1276.13	11199.94
GR	1276.1	11227.08	1276.53	11303.67	1276.49	11322.82	1276.73	11369.44	1276.22	11404.86
GR	1276.2	11424.6	1276.51	11439.49	1276.39	11515.64	1276.13	11527.22	1275.37	11559.36
GR	1266.9	11593.09	1266.93	11597.27	1277.03	11620.09	1277.23	11633.86	1276.91	11683.68
GR	1277.5	11749.85	1277.49	11771.21	1278.4	11892.81	1279.26	11915.63	1279.24	11995.72
GR	1279.3	12027.37	1279.29	12063.73	1278.94	12145.14	1279.01	12161.49	1278.69	12214.68
GR	1278.4	12228.89	1278.67	12239.87	1277.4	12251.44	1277.94	12282.64	1277.94	12331.27
GR	1276	12348.4	1276.49	12375.66	1276.37	12416.43	1276.45	12478.51	1277.15	12569.18
GR	1278	12640.45								

NC	0.06	0.11	0.035	0.1	0.3					
X1	13.076	94	9671.6	10153.97	520	455	454.21			
GR	1280	9262	1279.43	9284.29	1279.76	9305.95	1279.75	9353.03	1280.46	9383.3
GR	1278	9395.75	1279.96	9421.73	1280.29	9461.38	1280.27	9493.93	1280.58	9557.24
GR	1280.4	9607.76	1279.35	9671.6	1271.27	9691.22	1265.52	9704.51	1263.66	9732.62
GR	1264.6	9760.43	1264.26	9804.98	1262.51	9828.51	1262.56	9834.95	1264.46	9853.67
GR	1264.3	9869.4	1264.56	9887.26	1263.8	9907.57	1263.96	9922.62	1262.75	9937.25
GR	1263.1	9949.84	1264.01	9971.55	1263.42	9983.97	1262.37	9999.25	1262.37	10016.02
GR	1264.1	10030.84	1266.15	10041.79	1263.23	10062.05	1263.91	10073.48	1269.18	10088.42
GR	1271.8	10097.3	1272.78	10130.78	1278.53	10153.97	1278.65	10196.43	1279.48	10263.57
GR	1279.9	10302.23	1289.03	10351.2	1289.66	10357.34	1288.77	10363.55	1279.06	10418.15
GR	1278.8	10482.31	1278.8	10511.62	1280.01	10548.87	1279.08	10574.5	1279.17	10655.7
GR	1278.1	10727.03	1277.92	10780.1	1279.02	10801.44	1278.31	10890.52	1277.98	10978.72
GR	1277.8	10989.61	1278.83	11090.55	1279.09	11192.51	1278.12	11294.05	1277.4	11330.55
GR	1279.2	11338.3	1278.86	11343.15	1277.51	11348.03	1278.1	11368.97	1277.89	11452.28
GR	1277	11521.72	1277.39	11595.07	1277.57	11610.08	1277.79	11623.16	1269.5	11643.76
GR	1270.1	11651.89	1277.77	11676.25	1277.45	11699.15	1278.68	11721.59	1279.13	11735.23
GR	1278.6	11741.88	1278.51	11808.21	1278.66	11914.17	1278.69	12002.75	1279.72	12076.22
GR	1279.9	12103.32	1280.03	12165.57	1279.92	12257.85	1279.82	12276.59	1279.98	12332.23
GR	1279.6	12353.9	1280.12	12381.78	1279.17	12391.07	1280.14	12469.46	1280.09	12473.91
GR	1277.9	12489.28	1278.75	12517.38	1278.43	12536.39	1280	12543.98		

NC	0.06	0.11	0.035	0.1	0.3					
X1	13.151	92	9746	10187.38	520	370	393.13			
GR	1283.4	9058	1283.94	9159.76	1283.98	9240.17	1283.04	9289.92	1282.2	9302.23
GR	1282.7	9337.98	1282.65	9380.65	1282.96	9394.79	1284.5	9403.86	1285.29	9412.45
GR	1282.2	9421.65	1281.96	9458.29	1282.57	9499.64	1282	9569.32	1281.32	9594.33
GR	1280.4	9619.08	1279.96	9652.65	1279.66	9676.17	1280	9696.02	1278.5	9723.06
GR	1278.6	9740.99	1279.07	9746	1273.37	9760.92	1270.15	9773.47	1267.9	9799.83

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GR   1265.9    9808.73    1264.66    9829.94    1263.33    9848.13    1262.93    9857.53    1263.88    9866.92
GR   1262.2    9882.66     1262.2    9958.44    1264.32    9979.64     1262.7    9988.47    1263.34   10021.52
GR   1265.2   10032.89     1266.8   10069.78    1267.62   10083.97    1267.96   10111.44    1270.32   10148.84
GR   1272.8   10175.73    1277.21   10187.38    1280.97   10192.79    1278.92   10199.57    1279.64    10224.7
GR   1280.3   10305.26    1280.29   10361.06    1283.51   10366.73    1280.58   10374.07    1280.72   10391.58
GR   1282.9   10396.83    1280.48   10403.87     1280.9   10487.48    1280.77   10531.61    1280.33   10625.65
GR   1280.7   10692.47    1281.44   10717.98    1280.34   10752.22     1279.9    10801.2    1279.73    10871.6
GR   1279.9   10895.53     1280.6   10996.09    1279.66   11071.71    1279.73   11075.74    1279.05   11128.71
GR   1279.1   11136.57    1278.89    11232.6    1278.92   11257.18    1278.87   11285.51    1280.74   11300.32
GR   1280.5   11316.52    1279.21   11324.52    1279.74    11354.5    1279.72   11383.93    1279.94   11416.27
GR   1279.7   11490.94    1279.69   11530.92    1277.47    11539.5    1273.61    11550.9    1279.32   11574.03
GR   1279.8    11587.7    1279.97   11609.34    1279.31   11638.72    1279.77   11664.46     1281.3   11685.96
GR     1281   11720.15    1280.83   11762.38    1281.08   11826.04    1280.91   11880.75    1281.17    11960.2
GR   1281.2   12105.17    1281.07   12158.86

NC     0.06       0.11     0.035       0.1       0.3
X1   13.161         50   9737.87  10244.12        55        70     51.06
GR   1284.7       8898   1284.22    8969.41   1283.76   9114.29   1283.93    9144.54   1283.52   9161.51
GR   1283.3    9249.24   1283.19    9290.04   1283.17   9327.39   1282.51    9373.82   1283.04   9393.66
GR   1283.1    9413.16   1281.11     9573.2   1280.87   9644.14   1280.81    9737.87    1279.9   9782.29
GR   1276.4    9873.96   1275.44    9907.29    1275.2   9933.89   1274.65    9965.75   1274.78   10043.5
GR   1275.2   10080.57   1276.08   10124.23   1277.03   10151.97   1280.25   10209.33   1281.51   10244.12
GR   1281.7   10266.74    1281.6   10323.36   1281.38   10368.03   1281.38      10475   1281.46   10532.18
GR   1281.4   10620.05   1281.45   10703.46   1281.53   10751.25   1281.31   10780.07   1281.27   10829.33
GR   1281.4   10885.47   1281.47   10918.04   1281.19   10988.58   1280.97   11093.76   1281.01   11246.85
GR   1281.8   11387.32   1281.65   11437.47   1280.51   11505.24      1280   11555.61   1280.49   11596.67
GR   1280.3   11663.43   1280.31   11722.35   1280.64   11839.85   1280.96   11930.31   1281.38   12128.02

NC     0.06       0.11     0.035       0.1       0.3
X1   13.185         22    9742.2  10245.97        35        32     33.56
X3        0                         9719.6   1281.83
GR     1282       9531   1281.61    9580.66   1281.67   9631.21   1281.38    9661.38   1281.83    9719.6
GR   1281.8     9742.2   1281.08     9773.4   1279.67   9812.09    1279.3    9817.12   1277.52   9857.31
GR   1276.2    9890.49   1275.33    9931.33   1274.89    9959.09   1274.89   10034.43   1274.98   10078.37
GR   1275.6   10124.98   1277.27   10167.33    1278.3   10192.55   1281.28   10227.07   1281.93   10245.97
GR   1282.3   10259.87      1282   10293.43
```

EXTEND CROSS SECTION GEOMETRY 390' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.


```
NC     0.06       0.11     0.035       0.1       0.3
X1   13.227         56   9945.65  10223.75       335       350    315.32
X3        0                         9777.54   1283.85
GR     1284       9299   1283.71    9303.82      1284   9325.43   1283.88    9360.31   1283.54   9393.86
GR   1282.9    9408.68   1283.57    9430.29   1282.78   9451.58   1282.97     9494.7   1282.15   9670.83
GR   1283.3    9692.69   1283.56    9751.23   1283.85   9777.54   1282.76    9884.39   1281.61   9936.51
GR   1282.5    9945.65   1277.72    9957.55    1275.8   9961.08   1274.89    9985.19   1274.89   10022.24
GR   1275.6   10047.48   1276.31   10060.47   1275.84     10111   1275.43   10135.64    1275.4   10150.07
GR   1278.7   10208.83      1283   10223.75    1288.9   10244.21   1284.61    10260.7   1284.39   10273.12
GR   1283.3    10382.1    1283.3   10418.01   1283.16   10577.44   1283.27   10651.09   1283.16   10746.83
GR   1283.4   10891.21    1283.3   11019.74   1283.17    11184.8   1282.99   11250.25   1282.92   11388.15
GR   1282.9   11487.05    1283.4   11521.31   1283.92   11544.11   1274.82   11566.13   1274.89   11576.35
GR     1283   11597.94    1282.7   11611.67   1282.53   11668.93   1282.35   11688.14   1282.39   11759.44
GR   1282.4   11873.09    1282.6   11895.89   1283.41   12032.49   1283.85   12237.81   1284.03   12299.29
GR   1284.3   12689.29
```

EXTEND CROSS SECTION GEOMETRY 610' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

```
NC     0.06       0.11     0.035       0.1       0.3
X1   13.325         58   9867.77  10134.99       555       545    571.01
X3        0                         9874.42      1287
GR     1286       9272   1285.55    9320.3   1285.13   9372.63   1285.11    9408.38   1285.22   9416.58
GR   1284.2    9457.31   1283.81    9486.84   1283.97    9527.3   1283.64    9544.73   1282.07   9560.67
GR   1284.2    9579.99    1284.5    9604.04   1292.51   9618.16   1301.03    9633.92   1301.23   9655.29
GR   1302.5    9722.72   1302.27    9757.72   1301.33   9807.64   1300.59    9838.03   1299.87   9853.17
GR     1291    9867.77    1282.2    9882.41   1280.59   9896.14   1277.86    9926.63    1280.4    9955.5
GR   1277.4    9977.65    1277.4   10016.57   1278.21   10045.01    1276.7   10064.07   1277.98   10082.82
GR   1278.3   10111.69    1288.1   10134.99      1287   10142.65   1289.33   10150.48   1289.91   10164.78
GR   1290.1   10170.47    1287.2   10183.27   1287.12   10195.74   1286.24   10219.94   1285.67   10474.24
GR   1285.7   10562.34      1286   10736.53   1286.08   10829.36    1285.7   10942.15   1285.63   11229.36
GR   1285.4   11329.35    1285.3   11424.41   1285.88   11473.91   1278.02   11492.57   1277.89   11506.86
GR   1283.8   11520.53    1286.4   11525.37    1285.1   11541.38   1285.32   11629.34   1285.44   11739.52
GR   1285.5   11826.82      1286   11912.41    1286.8   12522.41
```

EXTEND CROSS SECTION GEOMETRY 180' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

```
NC     0.06       0.11     0.035       0.1       0.3
X1    13.42         95   9845.86  10081.84       515       495    514.13
X3        0                         9827.24   1290.55
GR   1286.6    9556.16   1286.46    9582.05   1287.25   9613.21   1287.96    9631.08   1287.45   9655.5
GR   1288.3    9699.72   1288.27    9722.92   1288.92    9791.3   1288.27    9813.82   1290.55   9827.24
GR   1288.5    9840.39   1288.33    9845.86   1283.51   9862.12   1282.43    9880.73   1281.07   9894.26
GR   1280.6     9906.8   1280.99    9959.33   1278.03    9983.5   1277.43   10001.06    1277.8   10024.47
GR   1280.3   10036.23   1281.57   10063.88   1289.98   10081.84    1286.4   10089.78   1288.73   10113.31
```

GR	1287.3	10121.36	1287.71	10128.19	1289.33	10141.72	1293.39	10168.52	1288.58	10186.33
GR	1288.4	10237.05	1289.23	10252.26	1288.32	10276.97	1287.05	10308.19	1287.28	10345.14
GR	1287.3	10388.39	1286.94	10429.9	1286.93	10457	1286.64	10480.94	1285.68	10512.07
GR	1286.1	10543.2	1285.79	10563.93	1285.75	10631.63	1286.53	10651.86	1285.91	10673.18
GR	1284.5	10715.52	1285.11	10726.52	1286.74	10745.47	1287.01	10797.71	1286.96	10827.96

GR	1287.8	10843.39	1288.11	10915.91	1286.27	10945.44	1286.38	10983.68	1285.95	10995.12
GR	1286.2	11031.99	1286.06	11056.81	1286.71	11096.76	1287.34	11131.85	1287.33	11193.12
GR	1287.8	11212.33	1286.85	11276.48	1286.92	11336.18	1285.83	11397.94	1286.33	11420.53
GR	1284.4	11476.18	1284.06	11503.97	1284.18	11554.68	1283.65	11563.74	1281.69	11582.11
GR	1282.4	11594.34	1284.66	11609.37	1286.97	11631.71	1287.12	11647.43	1286.55	11676.33
GR	1285.9	11684.88	1286.43	11698.97	1286.44	11770.93	1284.91	11801.36	1283.03	11846.69
GR	1287.1	11928.45	1287.18	11948.35	1287.78	12019.57	1287.68	12043.31	1286.82	12067.16
GR	1287.2	12087.53	1287	12136.62	1287.55	12201.47	1287.6	12271.53	1287.99	12295.07
GR	1285.5	12353.62	1284.32	12397.71	1284.07	12461.22	1286	12488.9	1289	12668.9

EXTEND CROSS SECTION GEOMETRY 285' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.06	0.11	0.035	0.1	0.3					
X1	13.524	95	9858.03	10221.34	605	500	522.56			
X3	0			9858.03	1292.81					
GR	1291.3	9448	1290.03	9454.37	1289.55	9508.29	1291.53	9523.62	1290.64	9555.54
GR	1292	9575.63	1291.36	9598.72	1291.56	9609.69	1291.28	9650.51	1291.26	9693.45
GR	1292.1	9734.83	1291.9	9791.94	1291.2	9825	1291.61	9851.09	1292.81	9858.03
GR	1283.4	9877.26	1282.6	9891.18	1282.6	9957.87	1283.21	9972.6	1283.77	10018.98
GR	1282.6	10028.68	1282.67	10047.89	1283.8	10059.95	1283.82	10081.31	1281.99	10117.75
GR	1281.9	10137.15	1286.97	10162.05	1288.15	10165.76	1291.71	10221.34	1288.53	10236.72
GR	1288.8	10264.54	1290.67	10273.99	1290.66	10287.01	1291.16	10291.26	1290.25	10351.78
GR	1291.6	10376.49	1290.45	10419.81	1291.72	10446.96	1296.56	10472.14	1290.83	10478.74
GR	1289.7	10494.98	1289.95	10514.86	1290.94	10526.43	1290.82	10557.78	1290.31	10573.55
GR	1289.6	10581.04	1290.81	10634.38	1301.13	10651.91	1300.61	10662.52	1298.34	10667.92
GR	1296.2	10675.41	1290.87	10685.96	1290.59	10716.77	1290.41	10758.66	1290.76	10840.28
GR	1290.4	10886.63	1290.86	10904.99	1291.63	10921.81	1291.32	10957.21	1290.01	11016.88
GR	1289.7	11102.37	1289.84	11116.92	1290.17	11216.95	1290.49	11261.54	1290.4	11316.98
GR	1290.1	11325.2	1290.07	11408.44	1289.46	11445.3	1290.73	11517.06	1291.42	11566.71
GR	1286.9	11600.63	1286.12	11620.62	1292.72	11642.39	1291.34	11652.84	1290	11697.54
GR	1290.5	11737.67	1290.13	11759	1290.3	11827.51	1290.04	11892.97	1289.02	11918.09
GR	1290	11977.44	1289.64	12013.71	1289.81	12086.33	1289.56	12106.77	1289.95	12129.98
GR	1290.4	12144.25	1290.26	12182.87	1290.13	12243.57	1290.22	12264.75	1289.07	12285.59
GR	1289.6	12301.57	1289.51	12317.61	1289.98	12380.13	1290.02	12409.58	1291.5	12689.58

EXTEND CROSS SECTION GEOMETRY 385' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.06	0.11	0.035	0.1	0.3					
X1	13.619	97	9739.41	10391	565	495	505.64			
GR	1292	9562	1292.36	9629.3	1294.25	9639.88	1292.78	9661.38	1292.79	9674.83
GR	1295.2	9693.47	1294.77	9739.41	1285.43	9788.42	1283.79	9799.13	1284.12	9865.32
GR	1283.5	9935.28	1284.45	9954.22	1284.14	9967.18	1283.47	9976.42	1283.51	9995.82
GR	1285.3	10006.46	1285.13	10048.7	1284.72	10076.7	1284.43	10134.23	1285.02	10190.74
GR	1285.2	10219.99	1284.8	10294.96	1291.19	10312.09	1290.25	10317.4	1291.11	10324.25
GR	1289.7	10336.1	1289.46	10361.89	1293.88	10391	1294.38	10437.69	1294.7	10478.35
GR	1298.4	10487.8	1301.8	10495.02	1294.49	10511.79	1302.4	10532.76	1303.98	10551.6
GR	1305	10578.7	1298.27	10600.79	1299.33	10623.06	1293.68	10639.96	1293.71	10652.46
GR	1295.2	10655.91	1296.02	10672.33	1297.61	10682.32	1296.63	10687.16	1293.79	10693.85
GR	1293.7	10719.15	1300.02	10730.61	1295.94	10738.98	1299.93	10747.76	1296.25	10755.1
GR	1299.7	10762.57	1295.97	10768.85	1298.87	10777.37	1296.19	10783.38	1298.73	10790.11

GR	1294.5	10798.42	1295.37	10859.97	1294.78	10889.08	1293.58	10942.12	1293.07	11003.19
GR	1292.3	11057.05	1293.2	11123.97	1293.04	11169.9	1293.1	11234.76	1292.94	11240.22
GR	1292.9	11273.64	1293.53	11336.71	1293.84	11354.86	1293.64	11403.54	1292.96	11443.98
GR	1294.1	11504.21	1293.58	11528.18	1290.6	11539.04	1289.65	11544.35	1290.52	11565.78
GR	1290.2	11594.34	1293.62	11621.42	1293.51	11641.4	1293.91	11665.37	1293.05	11687.55
GR	1293	11730.32	1292.86	11738.32	1294.22	11807.73	1293.43	11833.85	1293.33	11878.84
GR	1293.3	11929.21	1293.65	12009.04	1293.48	12045.43	1292.81	12123.83	1292.94	12135.85
GR	1292.5	12212.03	1293.26	12253.55	1293.02	12338.41	1293.05	12364.23	1292.3	12394.05
GR	1292.7	12413.2	1295.3	12798.2						

RIGHT ENDPOINT OF CROSS SECTION IS SET TO THE SPLIT FLOW BREAK POINT

NC	0.06	0.11	0.035	0.1	0.3					
X1	13.68	79	9591.03	10317.81	320	315	331.09			
X3	0					11340.48	1294.8			
GR	1296.8	9322	1297.07	9356.46	1295.43	9385.6	1296.98	9417.8	1297.29	9479.95
GR	1297.5	9485.63	1296.86	9495.23	1293.73	9528.8	1293.03	9551.69	1289.41	9568.06
GR	1292.5	9582.07	1292.88	9591.03	1290.8	9613.38	1289.19	9648.83	1288.62	9671.63
GR	1288.2	9722.36	1287.28	9796.47	1287.06	9826.79	1286.91	9883.94	1286.4	9919.92
GR	1285.8	9939.41	1285.5	9984.53	1285.51	10023.54	1286.19	10077.15	1286.29	10123.24
GR	1286.1	10152.41	1286.44	10190.29	1287.26	10222.53	1289.88	10265.88	1291.25	10283.02
GR	1292.8	10317.81	1293.22	10368.57	1292.53	10398.99	1292.61	10434.15	1292.29	10477.35
GR	1292.5	10529.74	1292.9	10615.42	1292.93	10647.52	1293.07	10711.24	1293.39	10820.69
GR	1293.3	10865.19	1293.41	10884.17	1292.98	10938.51	1293.36	10974.42	1293.72	10989.05
GR	1293.8	11017.31	1294.16	11050.34	1294.2	11107.98	1294.37	11135.27	1294.07	11160.1
GR	1293.8	11248.44	1293.96	11275.04	1294.71	11314.65	1294.8	11340.48	1294.56	11345.46

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GR   1294.5   11413.21   1294.75      11447   1294.25   11476.07   1294.87   11499.87   1294.85   11540.28
GR     1295    11627.9   1294.75   11680.45   1295.11   11724.22   1295.04   11772.94   1295.23   11815.45
GR   1294.8   11852.94   1295.12   11880.39   1295.02   11903.62   1293.97   11973.31   1293.92   12041.77
GR   1294.6   12088.13   1294.29   12090.19   1294.62   12119.52   1294.34   12147.76   1294.19   12185.46
GR   1294.3   12223.78   1294.05   12270.24   1294.27   12373.64   1294.41   12409.48

        RIGHT ENDPOINT OF CROSS SECTION IS SET TO THE SPLIT FLOW BREAK POINT

NC                                     0.1        0.3
NH       3      0.058    9554.38      0.038   10408.16       0.11   12438.39
X1  13.742         77    9554.38   10408.16       430        400     353.72
X3       0                                    10408.16    1300.31
GR  1296.8       9354   1296.55    9370.67   1297.62    9384.46    1297.63    9483.28   1299.44    9497.01
GR  1293.9       9531    1294.1    9554.38   1289.54    9577.58    1288.87     9634.5   1287.86    9648.28
GR  1287.9     9680.8   1286.42    9700.02   1286.42   10197.76    1289.38   10241.99   1290.54   10254.48
GR  1290.3   10268.29   1292.96   10308.28   1294.41   10321.65     1297.5   10343.75   1299.51   10379.63
GR  1299.9   10399.95   1300.31   10408.16   1300.18   10436.03     1299.1   10442.12   1296.83   10459.79
GR  1295.5   10475.06   1290.69   10506.06   1288.54   10532.73    1288.71   10558.39   1289.53   10598.63
GR  1290.7   10669.55   1290.88   10723.24   1306.22   10748.29    1319.96   10770.75   1309.31    10788.5
GR  1294.4   10816.13   1290.17   10826.64   1290.04   10886.49    1292.33   10894.56   1298.41   10909.82
GR  1300.8   10922.28   1301.51   10930.63   1298.44   10944.77    1289.25   10962.63   1288.78    11011.3
GR  1288.6   11043.43   1288.17   11069.82   1289.44   11101.46    1289.48   11132.43   1295.63    11152.3
GR    1296   11197.31   1296.05   11240.82   1296.58   11285.44    1296.73   11324.28   1297.11   11365.59
GR  1296.8   11409.29   1297.49   11469.34   1296.99   11529.55    1296.97   11566.62   1296.83   11581.98
1
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GR  1297.2   11645.17   1297.52   11669.97    1296.9   11698.77    1297.04   11764.32   1296.71   11812.47
GR  1292.7   11878.03    1292.1   11914.78   1291.65   11924.59    1287.93      11975   1286.47   11988.35
GR  1285.6   12038.04   1288.36   12070.37   1289.66   12076.59    1288.46   12098.39   1288.72   12119.06
GR    1289   12153.65   1295.14   12164.88

        RIGHT ENDPOINT OF CROSS SECTION IS SET TO THE SPLIT FLOW BREAK POINT

NC                                     0.1        0.3
NH       4       0.11    9584.3      0.058    9787.1      0.038   10482.82       0.11   12562.08
X1  13.818         76    9787.1   10482.82       395        435      406.3
X3       0                                    10640.25    1299.63
GR    1298       9462   1298.87    9477.76   1298.9    9504.05    1299.46     9584.3   1299.62    9588.83
GR  1296.7     9617.74   1297.12    9659.36   1293.55    9672.91    1295.18    9696.39   1295.29    9703.75
GR  1294.1     9721.63   1292.98    9755.56   1293.68    9770.96    1293.89     9787.1   1293.17     9788.3
GR  1291.3     9805.83   1290.67    9814.79   1290.76    9825.73    1286.42    9839.58   1286.42       9912
GR  1286.4     10335.4   1286.42    10469.1   1292.32   10482.82     1289.2   10492.06   1288.71   10536.03
GR  1288.8     10549.75   1289.9   10559.35   1294.94   10586.82    1299.17   10611.56   1299.63   10640.25
GR  1289.1     10655.18   1287.8   10702.75   1287.78   10868.03    1288.22   10913.91   1288.02   10937.39
GR  1288.2     10947.65   1288.1   11003.07   1288.49   11038.22    1289.44   11066.97   1289.29   11089.19
GR  1289.6      11109.9     1289   11192.24   1290.12   11228.34    1288.42   11272.67   1289.97   11378.54
GR  1290.4     11402.76   1291.8   11423.75   1291.96   11434.18    1290.64   11448.66   1292.34   11458.94
GR  1290.6     11464.39   1290.7   11487.76   1290.54   11520.45    1290.47   11569.55   1290.23   11616.61
GR  1290.4     11645.04   1300.2   11670.09   1301.07   11676.56    1296.82   11689.63   1297.87   11700.15
GR  1298.4     11706.11   1296.1   11712.53   1289.88   11722.98    1290.55   11747.42   1289.86   11801.18
GR  1300.4     11817.69   1286.9   11848.75   1287.21   11915.57    1286.97   11946.27   1285.83    11983.1
GR  1286.4     12002.23   1286.9   12078.57   1286.18   12129.51    1286.11   12189.27   1286.61   12247.67
GR  1299.1     12281.97

    BEGIN SLPIT FLOW ANALYSIS
        RIGHT ENDPOINT OF CROSS SECTION IS SET TO THE SPLIT FLOW BREAK POINT

NC                                     0.1        0.3
NH       4       0.11    9655.73      0.058    9954.03      0.038    10161.6       0.11   11757.21
X1  13.918         79    9954.03    10161.6       535        485     642.34
X3       0                          9733.64      1305
GR  1305.6     8683.46   1305.41    8749.84   1305.02    8816.56    1304.84    8879.14   1303.86    8941.71
GR  1303.7     8993.41   1303.54    9014.23   1303.86     9037.5    1303.87    9061.74   1303.42    9090.03
GR  1303.5     9109.57   1303.77    9120.74   1303.13    9154.34    1303.67    9208.09   1303.46    9280.94
GR  1303.3     9312.08   1302.59    9339.91   1302.64    9405.03     1302.2     9486.8   1302.18    9526.39
GR  1302.5      9603.9   1301.79    9639.14   1301.87    9648.15    1303.56    9655.73   1301.78     9664.4
GR  1301.9     9683.77   1301.65    9733.64   1301.58    9831.88    1301.34    9842.81    1300.9    9903.56
GR  1300.7     9947.16   1300.59    9954.03   1293.23    9964.62     1290.6    9980.05   1289.83      10000
GR  1296.2     10015.2   1297.69   10046.59   1297.81   10067.54    1295.96   10086.38   1293.03      10106
GR  1293.3     10110.96   1298.55   10140.96   1300.33    10161.6    1302.28   10171.29   1301.61   10184.47
GR  1300.6     10197.02   1301.14    10218.8   1300.97   10268.36    1301.17   10286.03   1302.65   10331.61
GR  1301.9     10350.13   1299.88   10368.93   1299.96   10378.46    1299.34   10411.09   1300.18   10422.74
GR  1300.2     10454.95   1299.06   10497.44   1298.56   10527.52    1297.97    10534.9   1295.74   10544.18
GR  1294.1     10554.88   1292.27   10583.28   1293.15   10601.01    1292.91   10617.12    1293.4   10637.16
GR  1295.9     10647.94   1302.29   10667.67   1302.17   10674.49    1302.08    10732.2   1302.26    10778.6
GR  1302.9     10875.62   1302.24   10973.99   1302.41   11079.03    1302.37   11245.54   1302.78   11299.35
GR  1302.3     11384.66   1302.51      11477   1302.71   11522.72    1303.58   11551.62
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    EXTEND CROSS SECTION GEOMETRY 65' TO THE WEST TO SPLIT FLOW BREAK POINT.
        ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC      0.11       0.11     0.038      0.1        0.3
X1    14.013         98   9743.54  10041.42        620        723     514.07
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X3				9433.96	1307.1					
GR	1307.5	9238.48	1307.4	9289.98	1307.46	9347.91	1306.04	9364.47	1306.56	9382.02
GR	1306.2	9411.06	1307.1	9433.96	1307.01	9480.97	1306.8	9500.9	1306.83	9579.11
GR	1306.6	9597.26	1306.5	9651.6	1306.05	9743.54	1305.6	9780.56	1302.93	9784.17
GR	1302.8	9802.62	1300.1	9828.14	1299.23	9889.76	1299	9921.27	1296.71	9930.76
GR	1298.5	9947.01	1298.1	9975.11	1295.83	9987	1295.75	10006.96	1303.66	10041.42
GR	1301.7	10064.01	1302.6	10074.42	1303.94	10106.66	1302.29	10134.52	1303.71	10177.15
GR	1304.2	10254.67	1304.6	10273.37	1301.54	10286.06	1301.51	10331.62	1303.38	10385.94
GR	1303.4	10447.36	1301.8	10463.96	1301.44	10479.72	1300.59	10492.14	1302.4	10510.26
GR	1301.8	10520.18	1301	10541.35	1305.31	10553.4	1305.27	10624.76	1304	10635.71
GR	1305.5	10649.37	1302.6	10663.07	1305.64	10681.11	1305.37	10732.78	1301.43	10752.1
GR	1303.9	10776.74	1304.5	10804.42	1304.49	10864.83	1304.67	10921.65	1302.78	10959.24
GR	1305.7	10994.93	1306.06	11173.31	1306.39	11234.51	1304.71	11285.04	1305.3	11367.98
GR	1304.4	11396.44	1305.3	11471.75	1305.55	11534.1	1305.6	11577.93	1304.9	11622.94
GR	1306.0	11670.11	1305.07	11694.09	1305.73	11769.21	1305.7	11805.04	1304.8	11840.23
GR	1305.3	11900.1	1305.22	11952.64	1306	12004.17	1305.8	12016.3	1306.6	12031.53
GR	1300.9	12054	1298.13	12070.72	1303.17	12098.46	1305.7	12122.85	1306.2	12127.42
GR	1302.5	12150.81	1302.65	12183.32	1302.89	12209.11	1305.1	12238.3	1305.3	12286.44
GR	1305.0	12303.61	1305.2	12339.28	1305.04	12406.51	1305.8	12492.23	1305.7	12529.78
GR	1305.4	12592.64	1305.6	12695.05	1306.8	12723.56	1306.5	12773.04	1306.3	12827.23
GR	1306.4	12862.44	1306.7	12878.71	1307	12943.71				

EXTEND CROSS SECTION GEOMETRY 210' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.11	0.11	0.038	0.1	0.3					
X1	14.103	98	9764.43	10088.39	540	338	520.68			
X3				9400.08	1310.12					
GR	1310.3	8952.61	1310.1	9125.8	1310.4	9187.24	1310.1	9236.68	1310.1	9315.24
GR	1308.8	9333.67	1308.7	9390.43	1310.1	9400.08	1309.7	9429.81	1310	9489.07
GR	1309.8	9532.52	1308.8	9668.19	1309.1	9707.83	1309.5	9720.37	1309.4	9755.08
GR	1308.9	9764.43	1306.8	9770.45	1306.7	9786.95	1302.9	9806.67	1302.8	9818.91
GR	1303.5	9902.96	1299.8	9930.06	1301	9960.73	1299.7	9997.55	1300.6	10026.47
GR	1301.4	10067.94	1307.3	10088.39	1308.3	10209.06	1308.5	10326.25	1307.7	10400.57
GR	1307.9	10445.28	1307.3	10471.61	1307.5	10507.04	1303.2	10530.2	1303.1	10592.95
GR	1305.6	10627.85	1306.2	10653.59	1305.7	10661.82	1308.5	10680.36	1307.3	10780.11
GR	1304.9	10795.67	1306.4	10823.65	1305.4	10846.31	1306.9	10861.54	1304.3	10877.59
GR	1305.6	10905.63	1307.1	10932.9	1306.5	10964.23	1308.5	10977.08	1308.3	10985.98
GR	1307.4	11049.41	1306.8	11083.9	1307.9	11097.61	1308.0	11113.27	1306.9	11144.6
GR	1308.1	11160.37	1307.9	11239.53	1306.8	11316.25	1307.3	11364.09	1305.7	11375.23
GR	1307.8	11392.81	1308.1	11512.16	1307.3	11643.85	1307.2	11718.54	1307	11747.82
GR	1307.3	11771.98	1307.8	11874.58	1308.1	11914.5	1308.0	11968.52	1308.1	12037.18
GR	1307.6	12068.54	1304.8	12080.93	1301.6	12096.75	1303.7	12114.23	1302.9	12140.78
GR	1306.0	12159.86	1307.2	12170.5	1307.1	12211.84	1307.1	12240.96	1307.9	12257.05
GR	1307.5	12269.14	1307.5	12316.98	1306.7	12350.18	1307.1	12363.52	1307.1	12385.53
GR	1307.2	12429.52	1306.7	12478.22	1306.7	12502.41	1306.8	12560.45	1306.8	12636.6

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GR	1306.9	12680.56	1308.2	12701.58	1308.0	12762.34	1307.5	12786.76	1308	12806.62
GR	1307.5	12848.7	1307.6	12881.84	1308.2	13091.84				

EXTEND CROSS SECTION GEOMETRY 375' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.058	0.11	0.038	0.1	0.3					
X1	14.197	99	9791.44	10264.33	465	528	479.63			
GR	1312.6	9151.88	1311.98	9246.33	1311.85	9345.34	1311.29	9445.16	1311.53	9543.27
GR	1311.2	9638.59	1311.04	9745.61	1311.25	9791.44	1307.75	9805.82	1309.41	9820.01
GR	1309.3	9844.53	1308.78	9877.37	1310.09	9884.83	1309.84	9924.15	1309.62	9935.15
GR	1301.9	10001.01	1305.91	10028.16	1306.24	10041.7	1307.57	10147.14	1307.88	10192.02
GR	1306.7	10233.34	1306.6	10242.45	1310.8	10264.33	1310.54	10340.43	1310.58	10441.83
GR	1311.3	10477.47	1307.35	10490.71	1307.95	10524.03	1306.79	10553.36	1310.79	10570.57
GR	1310.4	10638.66	1311	10700.76	1307.71	10711.62	1309.41	10731.07	1308.86	10748.02
GR	1308.7	10769.66	1308.79	10825.53	1309.04	10834.98	1307.85	10852.16	1308.97	10866.22
GR	1308.2	10880.46	1308.37	10886.69	1306.28	10901.93	1306.7	10942.54	1307.57	10958.63
GR	1306.5	10972.37	1306.28	10984.49	1310.33	10999.92	1308.97	11011.88	1310.26	11032.16
GR	1310.4	11044.97	1309.97	11056.74	1307.38	11070.34	1310.82	11084.16	1310.54	11146.24
GR	1309.3	11243.47	1309.56	11283.64	1308.63	11294.27	1309.91	11331.37	1310.51	11363.1
GR	1310.9	11444.99	1310.21	11515.48	1312.53	11518.03	1309.96	11526.17	1310.39	11561.43
GR	1308.9	11644.97	1308.6	11719.67	1308.75	11740.58	1309.55	11811.92	1309.05	11857.31
GR	1309.9	11884.53	1309.56	11915.49	1309.49	11938.41	1309.9	12038.37	1309.6	12070.52
GR	1310.1	12110.85	1309.05	12124.16	1310.23	12165.15	1310.41	12169.83	1308.27	12182.91
GR	1306	12216.55	1305.34	12233.03	1308.2	12253.6	1309.28	12298.48	1309.9	12355.27
GR	1310.5	12441.76	1310.52	12457.91	1310.09	12571.84	1310.13	12666.95	1310.47	12732.21
GR	1310.9	12766.2	1311.41	12784.3	1310.87	12835.92	1310.6	12852.48	1311.3	12875.56
GR	1311.3	12934.01	1310.99	13033.33	1311.34	13102.94	1312	13477.94		

EXTEND CROSS SECTION GEOMETRY 485' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.058	0.11	0.038	0.1.	0.3					
X1	14.284	100	9580.41	10052.65	495	496	498.98			
GR	1315.0	8714.39	1314.56	8737.63	1313.7	8836.33	1313.52	8924.48	1312.85	8931.58
GR	1313.5	8940.77	1313.1	9036.33	1312.9	9152.12	1312.63	9312.2	1312.12	9324.11
GR	1312.7	9343.29	1312.7	9450.45	1312.37	9556.68	1312.53	9580.41	1308.45	9608.38
GR	1307.5	9637.64	1308.89	9659.03	1309.2	9677.62	1307.9	9689.94	1310.8	9714.36
GR	1312.1	9832.37	1309.36	9847.97	1308.37	9877.34	1306.6	9907.28	1312.79	9923.81
GR	1312.9	9960.84	1308.6	9975.83	1307	10005.31	1305.79	10016.02	1305.4	10030.96
GR	1310	10046.66	1311.3	10052.65	1311.4	10106.77	1310.98	10125.87	1308.99	10168.7
GR	1309.0	10190.02	1311.5	10230.88	1310.77	10246.59	1310.88	10272.31	1312.9	10303.3

GR	1313.1	10352.16	1310.9	10390.23	1310.53	10412.97	1311.08	10422.51	1309.94	10472.27
GR	1309.5	10480.46	1309.69	10502.3	1312.58	10526.77	1311.13	10626.65	1311.07	10681.51
GR	1309	10742.33	1309.13	10764.17	1311.81	10784.83	1310.94	10827.12	1310	10882.64
GR	1310.4	10916.41	1309.21	10925.93	1308.8	10941.61	1312.59	10957.6	1312.3	11052.02
GR	1311.9	11066.3	1310.24	11073.88	1311.65	11087.96	1311.38	11094.07	1311.9	11163.22
GR	1312.6	11215.66	1312.33	11326.87	1312.23	11392.32	1312.4	11409.15	1311.36	11415.07
GR	1311.9	11428.94	1312.35	11478.12	1312.41	11526.88	1311.6	11567.28	1312.16	11727.01
GR	1311.6	11780.41	1312	11806.07	1311.92	11823.61	1311.77	11886.21	1311.44	11921.1
GR	1308.2	11938.89	1307.9	11956.08	1310.82	11973.1	1310.92	12004.73	1312.56	12046.79
GR	1312.2	12233.8	1312.55	12275.65	1312.33	12303.3	1312.51	12378.9	1312.5	12432.74

GR	1312.2	12493.86	1312.54	12604.86	1313.26	12679.46	1312.28	12688.95	1313.2	12692.32
GR	1312.7	12730.6	1313.45	12748.47	1313.76	12833.51	1313.29	12911.33	1314.9	13396.33

EXTEND CROSS SECTION GEOMETRY 600' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.058	0.11	0.038	0.1	0.3					
X1	14.379	99	9565.28	10175.5	515	502	505.75			
GR	1317.6	9056.52	1316.78	9062.14	1317.66	9072.18	1317.45	9107.4	1317.54	9155.18
GR	1317.3	9245.43	1316.99	9284.44	1316.46	9407.47	1316.35	9507.48	1316.5	9565.28
GR	1311.7	9578.59	1312.54	9595.64	1313.79	9614.48	1313.33	9669.2	1310.93	9682.72
GR	1308.7	9690.38	1307.97	9710.37	1313.21	9718.8	1316.83	9729.29	1316.29	9807.52
GR	1316.2	9842.38	1316.27	9907.34	1316.58	9970.44	1309.18	9985.59	1312.77	10107.59
GR	1313.3	10175.5	1313.28	10202.48	1313.78	10214.19	1313.61	10242.77	1313	10266.63
GR	1314	10293.86	1314.49	10321.28	1313.34	10375.86	1312.38	10404.88	1312.27	10442.62
GR	1315	10496.85	1315.24	10508.25	1315.69	10567.01	1316.1	10605.13	1313.89	10616.59
GR	1315	10642.59	1313.64	10658.44	1313.74	10708.14	1314.33	10748.7	1312.72	10788.08
GR	1312.1	10820.11	1312.72	10840.28	1314.97	10853.23	1313.2	10890.66	1312.46	10918.74
GR	1310.9	10930.89	1310.66	10963.11	1315.13	10981.31	1315.05	11004.24	1314.82	11010.56
GR	1314.2	11107.74	1313.95	11226.69	1313.99	11307.79	1314.13	11385.61	1314.43	11407.83
GR	1315.2	11426.71	1315.85	11483.58	1314.61	11495.37	1314.4	11501.57	1315.43	11525.15
GR	1316.1	11607.86	1316.04	11707.91	1315.61	11757.98	1315.58	11780.57	1316.57	11799.09
GR	1316.2	11822.07	1315.32	11834.83	1314.65	11881.07	1316.59	11897.49	1315.91	11959.58
GR	1315.5	12037.74	1310.7	12056.34	1310.29	12072.41	1314.63	12086.41	1313.94	12105.29
GR	1314.6	12118.51	1313.75	12142.65	1314.05	12194.24	1314.08	12226.81	1313.1	12236.84
GR	1313.7	12275.67	1315.33	12284.38	1315.37	12339.38	1314.77	12391.27	1315.08	12454.47
GR	1315.3	12554.51	1314.9	12640.65	1315.32	12697.45	1315.55	12742.32	1314.27	12795.71
GR	1314.3	12829.68	1314.65	12869.91	1314.79	12954.75	1317.3	13554.75		

EXTEND CROSS SECTION GEOMETRY 500' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.058	0.11	0.38	0.1	0.3					
X1	14.495	100	9262.39	10074.78	605	523	561.68			
GR	1320.6	9014.65	1319.83	9122.94	1319	9226.2	1319.4	9262.39	1315.2	9271.03
GR	1317.5	9287.09	1314.75	9295.53	1313.9	9328.02	1315.4	9371.5	1317.4	9402.37
GR	1316.7	9476.4	1317.94	9507.27	1318	9554.76	1317.0	9581.47	1317.8	9595.83
GR	1317.8	9658.33	1316.62	9668.11	1317.7	9678.15	1316.2	9686.69	1317.8	9703.2
GR	1318.4	9750.29	1317.61	9812.03	1319.5	9837.15	1317.6	9876.26	1317.5	9931.87
GR	1312.1	9950.73	1313.6	9997.38	1313.2	10023.7	1316.6	10074.78	1316.6	10099.45
GR	1316.2	10112.66	1315.9	10145.77	1314.8	10170.62	1316.8	10196.86	1317.7	10222.87
GR	1316.2	10380.09	1317.1	10407.71	1316.7	10434.51	1315.8	10455.08	1314.6	10463.36
GR	1317.2	10482.94	1317.1	10531.26	1317.3	10550.55	1315.9	10568.94	1316.7	10593.29
GR	1313.2	10605.75	1317.1	10627.44	1315.4	10658.39	1314.5	10670.52	1315.4	10686.02
GR	1315.3	10694.44	1317.7	10703.41	1316.6	10868.79	1316.9	10966.28	1315.7	11032.99
GR	1316.5	11067.02	1317.6	11140.74	1316.4	11148.87	1316.1	11234.7	1315.8	11255.52
GR	1316.2	11278.54	1316.6	11409.22	1316.5	11478.48	1316.7	11488.62	1318.3	11529.01
GR	1318.1	11550.53	1318.4	11568.78	1317.6	11767.64	1317.7	11814.94	1318.3	11827.38
GR	1317.7	11868.81	1317.7	11912.51	1318.9	11920.52	1318.2	11975.89	1318.5	12033.38
GR	1318.3	12041.59	1316.8	12054.76	1317.7	12067.31	1317.5	12083.65	1317.8	12098.46
GR	1314.2	12115.37	1318.1	12143.51	1317.8	12175.57	1318.5	12184.76	1316.4	12196.09
GR	1318.5	12204.72	1318.0	12229.69	1318.8	12238.41	1317.0	12265.88	1318.2	12283.65

GR	1317.5	12302.77	1314.3	12335.25	1318.7	12351.47	1318.3	12398.91	1318.0	12489.11
GR	1316.3	12514.87	1317.5	12535.52	1317.7	12599.87	1317.5	12690.75	1320.1	13190.75

EXTEND CROSS SECTION GEOMETRY 200' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.058	0.11	0.038	0.1	0.3					
X1	14.599	100	9200.52	10023.39	400	607	542.23			
GR	1322.7	8668.5	1321.9	8696.94	1321.8	8710.55	1321.1	8752.41	1320.5	8820.39
GR	1320.2	8846.94	1321.1	8876.58	1320.7	8910.12	1320.5	8947.48	1319.4	8962.12
GR	1320.7	8985.25	1320.4	9001.45	1319.3	9012.69	1320.7	9024.39	1320.6	9068.4
GR	1321.0	9164.35	1321.6	9200.52	1316.4	9210.66	1316.6	9227.66	1316.9	9232.47
GR	1316.4	9266.38	1319.4	9316.21	1320.1	9366.86	1320	9399.92	1316.6	9415.95
GR	1316.6	9427.99	1317.2	9465.49	1316.6	9496.1	1318.8	9518.58	1319.6	9523.59
GR	1321.1	9669.05	1320.9	9734.52	1316.1	9766.83	1319.3	9782.48	1316.6	9865.92
GR	1317.8	9887.73	1317.8	9914.67	1317	9964.94	1317.1	9975.51	1315.4	9982.84
GR	1315.0	10016.21	1320.9	10023.39	1320.6	10037.57	1319.0	10045.79	1319.7	10061.46
GR	1320.6	10083.56	1320.3	10140.65	1321	10164.24	1320.7	10175.79	1319.5	10189.07
GR	1320.8	10201.9	1320.3	10244.93	1321.0	10259.14	1319.5	10672.23	1320.2	10767.81
GR	1320.4	10837.93	1318.8	10885.93	1318.8	10947.7	1318.6	10969.92	1319.0	10982.97
GR	1319.2	11168.42	1319.8	11257.15	1320.7	11287.9	1320.4	11355.83	1320.9	11402.99
GR	1321.7	11440.44	1321.2	11473.84	1320.2	11508.95	1321.0	11571.37	1321.0	11603.06

GR	1321.9	11614.93	1321.0	11679.61	1321	11720.64	1322.0	11758.88	1316.5	11783.24
GR	1316.9	11794.63	1319.6	11822.57	1320.1	11845.19	1321.4	11857.05	1321.8	11878.39
GR	1321.2	11943.12	1320.3	11959.64	1318.6	11973.85	1321.5	11993.06	1320.9	12005.38
GR	1320.2	12054.23	1319.9	12140.11	1321.4	12184.13	1321.4	12250.28	1321.2	12287.89
GR	1321.8	12305.68	1321.1	12328.98	1320.6	12470.47	1321.0	12500.16	1321.4	12568.59
GR	1321.8	12670.85	1321.3	12695.53	1321.6	12736.62	1322	12756.46	1323.3	12956.46

EXTEND CROSS SECTION GEOMETRY 380' TO THE WEST TO SPLIT FLOW BREAK POINT.
ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

NC	0.058	0.11	0.038	0.1	0.3					
X1	14.653	100	9514.93	10148.59	465	480	536.63			
GR	1325.6	8562.57	1326.9	8569.74	1326.6	8635.91	1326.3	8689.15	1326	8708.73
GR	1325.8	8748.88	1325.52	8767.27	1325.4	8797.99	1325.0	8836.84	1324.4	8955.25
GR	1324.3	8996.03	1323.68	9088.14	1323.5	9112.97	1324.4	9196.03	1324.0	9264.89
GR	1320.2	9284.94	1321.97	9306.41	1322.2	9352.02	1322.6	9396.53	1322.4	9411.27
GR	1322.5	9439.14	1322.34	9463.09	1322.5	9474.71	1323.4	9514.93	1323.2	9561.79
GR	1322.5	9612.22	1319.41	9621.4	1320.5	9629.48	1320.8	9681.44	1321.8	9700.04
GR	1321.3	9730.5	1321.45	9761.33	1322.7	9807.22	1322.7	9818.79	1322.7	9838.39
GR	1320.4	9897.91	1319.16	9953.86	1317.9	10001.73	1320.5	10030.22	1319.2	10059.01
GR	1321.7	10070.65	1322.81	10091.47	1323.9	10138	1324.0	10148.59	1321.5	10177.83
GR	1324.0	10208.13	1323.6	10236.25	1323.7	10305.81	1322.9	10416.54	1323.3	10439.3
GR	1323.1	10536.59	1323.45	10652.5	1323.2	10719.38	1323.1	10805.83	1323.0	10902.38
GR	1321.9	10919.5	1321.23	11001.15	1321.5	11083.34	1322.9	11113.08	1322.8	11124.74
GR	1322.8	11205.84	1322.24	11256.36	1321.7	11305.83	1321.9	11405.82	1322.4	11456.38
GR	1322.9	11555.29	1323.38	11611.12	1323.5	11641.85	1323.3	11704.27	1323.0	11725.19
GR	1322.7	11731.33	1323.86	11764	1323.3	11798.19	1323.7	11808.11	1323.9	11910.7
GR	1323.7	11939.65	1318.13	11959.79	1317.3	11990.88	1323.4	13012.22	1322.5	12047.5
GR	1323.6	12065.78	1323.94	12119.86	1323.5	12149.75	1322.7	12208.42	1321.8	12229.81
GR	1322.4	12249.86	1322.27	12278.62	1322.4	12308.27	1323.7	12331.56	1324.3	12397.36

GR	1321.3	12414.28	1321.67	12428.47	1325.5	12447.81	1323.6	12484.45	1323.4	12499.43
GR	1324.3	12515.2	1323.42	12528.3	1323.8	12614.1	1323.9	12665.64	1325.5	13046.64

RIGHT ENDPOINT OF CROSS SECTION IS SET TO THE SPLIT FLOW BREAK POINT

NC	0.058	0.11	0.038	0.1	0.3					
X1	14.752	88	9552.93	10246.24	530	565	547.53			
GR	1330	8593	1329.42	8629.02	1329.26	8725.36	1328.52	8852.44	1328.2	8885.67
GR	1327.8	8952.52	1326.77	9083.06	1325.92	9186.25	1326.66	9216.66	1326.35	9255.08
GR	1325.3	9273.58	1324.03	9278.76	1325.52	9287.25	1325.56	9304.16	1325.14	9352.83
GR	1324.7	9459.42	1325.66	9511.18	1326.04	9552.93	1325.69	9634.07	1324.65	9638.42
GR	1320.3	9649.11	1320.5	9701.1	1323.31	9734.32	1323.71	9767.06	1323.58	9825.51
GR	1324.1	9878.81	1323.18	9905.85	1321.52	9916.44	1320.26	9937.72	1320.3	9949.57
GR	1321.6	9973.25	1319.77	9999.77	1323.44	10013.34	1321.69	10056.24	1322.94	10086.46
GR	1325.2	10106.03	1324.8	10111.72	1323.86	10128.53	1325.1	10136.65	1324.43	10182.64
GR	1327.4	10198.87	1327.69	10246.24	1327.13	10302.94	1326.98	10374.41	1325.98	10513.13
GR	1326.6	10602.93	1326.37	10702.93	1326.15	10770.52	1326.15	10869.57	1325.59	10968.62
GR	1325	11102.86	1324.9	11138.88	1324.98	11202.96	1324.93	11239.92	1324.63	11302.93
GR	1324.7	11351.07	1325.61	11393.28	1325.15	11445	1324.3	11502.98	1324.82	11562.84
GR	1325.2	11661.89	1325.56	11757.54	1325.87	11819.84	1327.98	11851.27	1326.99	11924.53
GR	1327.2	12005.69	1326.81	12036.12	1326.86	12045.15	1322.68	12065.62	1321.74	12082.95
GR	1320.7	12091.54	1320.86	12109.68	1323.3	12147.53	1322.19	12176.87	1324.49	12206.72
GR	1325.2	12216.79	1324.8	12229.43	1325.11	12264.48	1325.38	12318.97	1325.67	12326.03
GR	1325.6	12376.21	1325.5	12443.51	1325.19	12465.25	1325.18	12507.2	1325.81	12559.16
GR	1326.8	12614.69	1327.47	12715.39	1328.24	12790.27				

RIGHT ENDPOINT OF CROSS SECTION IS SET TO THE SPLIT FLOW BREAK POINT

NC	0.058	0.11	0.038	0.1	0.3					
X1	14.85	95	9568.17	10218.9	545	486	536.65			
X3	0			8948.28	1331.58					
GR	1331.9	8832.84	1330.9	8893.33	1329.7	8906.63	1331.4	8923.67	1331.5	8948.28
GR	1331.5	9006.96	1330.8	9103.41	1330.8	9112.55	1330.0	9225.91	1329.7	9266.94
GR	1330.1	9316.16	1329.0	9464.08	1329.4	9529.33	1329.2	9568.17	1328.1	9589.89
GR	1325.4	9606.71	1327.3	9618.71	1325.5	9630.19	1325.6	9637.53	1325.3	9686.98
GR	1326.6	9731.72	1325.7	9755.2	1324.3	9799.87	1326	9829.96	1325.4	9872.76
GR	1322.5	9897.23	1323.7	9902.26	1324.8	9912.64	1325.5	9930.02	1323.4	10004.15
GR	1324.1	10021.33	1323.0	10040.27	1325.5	10053.96	1324	10077.19	1325.5	10093.99
GR	1326.3	10135.5	1328.2	10165.55	1328.6	10218.9	1326.5	10237.08	1328.9	10259.9
GR	1329.2	10279.26	1330.5	10285.6	1332.8	10295.94	1331.4	10302.83	1330.3	10350.9
GR	1328.2	10547.89	1328.4	10553.67	1328.8	10620.16	1328.7	10623.03	1333.4	10643.24
GR	1335.6	10656.8	1332.0	10669.54	1330.1	10678.61	1329.9	10721.07	1330.6	10761.65
GR	1329.8	10848.52	1329.6	10948.54	1329.5	11048.53	1329.0	11244.87	1329	11348.49
GR	1328.6	11450.18	1329.2	11554.65	1329.4	11582.61	1331.0	11621.12	1330.9	11634.13
GR	1330.0	11650.12	1327.7	11680.47	1327.0	11761.48	1326.9	11777.81	1328.6	11815.3
GR	1328.7	11825.88	1327.8	11832.09	1327.5	11852.9	1327.6	11890.7	1327.4	11965.62
GR	1328.7	12042.47	1329.0	12071.33	1328.9	12144.2	1329.1	12166.34	1328.4	12203.68
GR	1328.0	12206.77	1325.5	12237.7	1325.2	12247.85	1326.3	12272.21	1326.4	12282.52
GR	1327.3	12341.49	1327.2	12373.25	1327.6	12410.06	1326.3	12481.52	1325.9	12498.08
GR	1320.9	12526.62	1328.2	12578.75	1327.8	12605.71	1327.0	12665.92	1328.2	12686.7

EXTEND CROSS SECTION GEOMETRY 380' TO THE WEST TO SPLIT FLOW BREAK POINT.

ADDITIONAL GEOMETRY IS OBTAINED FROM THE ACDC ADMS MAPPING.

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NC    0.058      0.11     0.038       0.1       0.3
X1   14.945       100   9725.79  10445.67       585       665    529.39
GR   1333.9   9587.29   1333.31   9623.18   1332.42   9651.65    1331.5   9673.72    1332.0   9725.79
GR   1330.7   9794.09   1330.21   9807.98   1328.77   9883.08    1328.4   9903.94    1328.6   9918.25
GR   1325.5   9946.82   1325.07   9956.81   1323.89  10007.99    1330.4  10031.74    1334.2   10043.5
GR   1333.9   10065.7   1334.66  10072.41      1331  10084.07    1331.1  10096.09    1330.3  10164.76
GR   1330.2  10202.65   1329.53  10231.37    1328.7  10249.16    1330.4   10281.6    1330.1  10315.96
GR   1328.7  10347.38   1327.07  10381.91   1329.42  10429.75    1332.1  10445.67    1331.2  10483.63
GR   1330.7  10485.67    1319.8  10520.01   1318.11  10531.51    1318.3  10544.52    1315.8  10581.44
GR   1315.2  10660.99   1315.52  10686.69   1316.24  10706.93    1315.9  10724.84    1317.9  10741.81
GR   1323.7  10760.61   1324.37  10765.41   1330.05  10783.42    1334.6  10800.57    1332.0  10818.56
GR   1328.1  10831.83   1331.81  10841.34   1332.55  10917.03    1332.8  10925.17    1332.3  10970.34
GR   1331.3   11046.6    1330.9  11203.18    1330.8  11325.77    1331.4  11331.87    1331.6  11345.81
GR   1331.3  11386.71   1331.39   11426.5   1331.2  11486.72    1331.2  11527.35    1331.6  11586.72
GR   1331.9  11616.72   1331.85  11691.66    1331.5  11722.72    1331.8  11768.91    1332.4   11828.9
GR   1332.6  11872.66   1331.78  11939.95    1331.8  11985.06    1331.9  12007.44    1331.1  12043.63
GR   1329.4  12087.89   1329.87  12097.42      1330  12143.43    1330.6  12216.02    1331.4  12278.83
GR   1330.8  12407.11   1330.63  12475.38    1330.4  12505.51    1330.7  12563.37    1331.4  12586.76
GR   1330.4  12686.77   1331.16  12712.24    1330.8  12716.97    1325.7  12749.28    1323.7  12760.58
GR   1330.1  12796.26   1330.55  12833.86    1332.8  12853.91    1332.9  12886.76    1332.5  12934.44
GR   1332.3  12986.77    1332.2  13086.77    1332.2  13132.79    1333.0  13231.96    1333.1  13286.77
GR   1333.0  13331.14   1333.22  13430.32      1333  13544.23    1333.2  13619.19      1336  13969.19

NC                                     0.1       0.3
NH         3     0.058   9785.74     0.038  10620.37      0.11  13539.13
X1    14.983        98   9785.74  10620.37       190       222    216.48
X3         0                      9776.61  1334.98
GR   1335.0   9539.05   1334.72   9551.64      1334   9559.67      1335   9591.62    1334.2   9605.07
GR   1335.7   9616.15    1335.3   9623.27    1334.2   9628.41    1334.8   9646.97    1334.5   9687.43
GR   1332.9   9700.13   1336.86   9713.64    1333.2   9729.52    1334.2   9747.65    1334.9   9776.61
GR   1334.7   9785.74   1333.92   9815.49    1329.8   9841.54    1332.4   9866.89    1332.4    9877.4
GR   1332.7   9881.68   1329.37   9898.08    1324.4   9984.77    1323.9   10007.1    1331.4  10033.76
GR   1331.5  10082.56    1331.2   10100.7    1331.4  10107.14    1332.0   10146.6    1331.6  10167.15
GR   1332.7  10247.99    1333.0  10307.49    1333.2  10317.83    1331.6  10336.03    1332.5  10419.06
GR   1332.3  10464.72    1330.9  10483.97    1332.8  10528.59    1333.4  10555.31    1334.3  10565.71
GR   1334.6  10599.17    1335.0  10620.37    1334.6  10637.95    1332.1   10670.4    1330.4  10696.73
GR   1330.5  10698.59    1328.5  10731.07    1330.5  10743.84    1330.7  10749.02    1335.9  10783.37
GR   1338.1  10810.36    1339.2  10840.75    1342.6  10859.67    1333.8  10883.26    1333.4  10945.64
GR   1333.4  11047.28    1333.2   11211.6    1333.1  11247.28    1333.2  11282.59    1333.0  11412.64
GR   1332.9  11447.28    1333.3  11581.07    1333.6  11647.28    1333.6  11747.28    1333.7  11847.29
GR    1334  11879.54    1334.0  11964.25    1333.3  11984.46    1332.8  12004.45    1333.4  12024.52
GR   1332.9  12053.94    1333.0     12099    1332.5  12151.46    1333.0  12174.04    1331.4  12191.98
GR   1331.6   12277.6    1332.8  12312.87    1332.8   12392.3    1332.8   12447.3    1331.5  12524.64
GR   1331.5  12534.65    1331.7  12629.88    1332.9  12688.37    1329.0  12722.98    1332.3  12740.25
GR   1332.4  12774.17    1329.4  12785.13    1326.2  12805.92    1325.3  12820.01    1334.6  12881.89
GR   1334.2  12973.99    1333.4  13055.51    1333.5  13157.03    1334.3  13247.33    1334.3  13355.49
GR   1334.6  13447.33    1334.6  13456.14    1334.8  13539.13
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NC                                     0.1       0.3
NH         3     0.058   9850.15     0.056  10701.99      0.11  13965.36
X1    15.049       100   9850.15  10701.99       585       385    499.69
GR   1338.5   9850.15   1337.55   9869.32    1335.21   9875.91    1327.47   9895.24      1328   9911.59
GR   1329.4   9925.44   1327.09   9937.88    1328.79   9958.15    1329.26  10005.27    1329.4  10038.85
GR   1332.3  10088.54   1332.63  10145.22    1332.82  10186.65     1330.1  10215.33    1332.1  10241.83
GR   1332.2  10262.77   1333.77   10304.2    1333.59  10323.99    1334.2  10364.11    1333.9  10448.21
GR   1330.6  10469.63   1333.75  10487.95    1333.3  10658.78    1330.9  10681.71    1337.7  10701.99
GR   1334.9   10723.9    1326.0  10745.24    1331.8   10755.5    1335.7  10761.42    1333.6  10784.67
GR    1334  10792.91    1323.8   10824.4    1321.6  10830.89    1321.2  10860.78    1322.7  10887.11
GR   1325.3  10910.02    1342.8  10952.56    1346.5     10963    1342.2  10968.38    1342.2  10970.74
GR   1340.5  10981.93    1335.6  10996.42    1335.8  10999.16    1335.9  11028.51    1335.3     11040
GR   1335.3  11064.53    1335.1  11327.08    1335.1  11427.85    1334.8  11460.26    1335.0  11560.27
GR   1335.0  11660.27    1335.6  11730.16    1335.9  11760.27    1336.0  11830.93    1335.9  11860.28
GR    1336  11931.69    1335.6  11975.93    1336.1  11991.39    1336.2  12046.44    1336.3   12053.1
GR   1334.5  12072.64    1334.5  12160.28    1333.6  12261.75    1333.4  12360.22    1334.2   12460.3
GR   1334.9  12489.48    1334.1   12560.3    1334.0  12630.47    1334.2  12680.79    1334.1  12715.31
GR   1334.5  12753.19    1333.9  12760.94    1331.6  12790.83      1333  12803.15    1331.9  12849.94
GR   1329.4  12867.11    1332.6   12882.1    1330.5  12912.63      1333  12940.23    1332.1  12967.64
GR   1328.3  12985.43    1329.9  12993.57    1331.6  13007.02    1331.4   13012.8    1334.3   13038.8
GR   1332.5  13062.64    1332.8   13074.7    1334.4  13089.85    1334.3  13103.13    1333.8  13107.57
GR   1334.2  13126.16    1335.3  13222.38    1335.7  13271.57    1335.9  13320.74    1335.7  13371.57
GR   1335.9  13471.57    1336.2  13522.38    1336.4  13620.75    1336.6  13820.74    1336.5  13965.36

NC                                     0.1       0.3
NH         3     0.058      9744     0.038   10277.7      0.11  13809.88
X1    15.144        98      9744   10277.7       485       396    493.15
X3         0                      9744  1338.07
GR   1340.8   9381.11   1338.67   9390.14    1336.83   9394.39    1336.48   9437.13    1336.17   9454.45
GR   1333.4   9461.12   1334.8   9468.22    1335.38   9486.07    1333.17   9489.48    1333.59   9494.37
GR   1335.9   9504.48   1336.42   9582.28    1335.77   9595.46    1336.84   9615.39    1336.34   9644.55
GR   1335.8    9658.8   1337.14   9683.54    1337.99   9718.58    1337.15   9730.83    1338.07      9744
GR   1337.9   9764.51   1330.84   9794.51    1333.44    9802.8    1331.1   9866.24    1333.0   9901.03
GR   1334.0   9947.25   1331.77   9991.45    1329.2   10003.49    1329.5   10015.25    1331.4  10024.63
GR   1331.5  10054.33   1335.83  10090.64    1336.2   10121.97    1333.8   10233.76    1331.8  10243.14
GR   1331.7  10244.49    1343.9   10277.7    1337.3   10300.05    1336.7   10368.35    1343.9   10399.7
GR   1334.8  10433.54   1335.1  10437.08    1334.8   10453.46    1341.9   10474.77    1345.1  10504.05
GR   1346.1  10522.22   1345.5  10527.95    1346.6   10541.11    1346.8    10560.9    1346.2   10595.6
GR   1337.0   10615.2   1337.2  10645.53    1336.3   10695.46    1336.8   10772.56    1336.6  10896.68
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GR   1336.1   11050.48      1337   11372.55      1337.1   11572.61      1336.2   11641.15      1337.3   11675.76
GR   1337.2   11717.39    1336.5   11743.01      1335.9   11826.89      1336.1   11887.69      1334.8   11929.44
GR   1335.9   12059.36    1335.6   12117.05      1336.5   12140.66      1334.2   12169.03      1335.1   12189.56
GR     1334   12228.43    1335.9      12260      1335.4   12331.04      1335.1   12351.94      1333.9   12378.04
GR   1330.1   12400.13    1335.6   12429.05      1333.6   12465.01      1336.3   12478.55      1336.1   12539.85
GR   1336.5   12645.42    1334.9   12712.99      1333.9   12727.45      1335.1   12747.02      1334.9   12787.61
GR   1335.8    12799.6    1335.2   12821.77      1337.0   12849.36      1337.9   12912.99      1337.6   13008.35
GR   1337.6   13208.36    1338.3   13308.37      1338.5   13408.37      1338.6    13531.1      1338.6   13608.38
GR   1339.1   13683.89    1339.4   13733.47        1340   13809.88
1                                                                                                   PAGE   40
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1

CCHV=      .300 CEHV=      .500
*SECNO 7.728
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     7.728       8.78   1144.18        .00        .00   1146.19       2.01        .00        .00   1154.00
   21176.1         .0   21176.1         .0         .0    1861.9         .0        .0         .0   1154.00
       .00        .00     11.37        .00       .000      .035       .000       .000    1135.40   9936.35
   .005070         0.        0.         0.          0         0          3        .00     252.75  10189.11

CCHV=      .300 CEHV=      .500
*SECNO 7.751
     7.751       9.69   1144.99        .00        .00   1146.80       1.81        .55        .06   1157.94
   21176.1         .0   21176.1         .0         .0    1960.2         .0        5.3         .7   1158.90
       .00        .00     10.80        .00       .000      .035       .000       .000    1135.30   9959.52
   .004049       115.       122.       110.          4         0          0        .00     241.43  10200.95

CCHV=      .300 CEHV=      .500
*SECNO 7.800
     7.800      10.49   1146.14        .00        .00   1147.89       1.75       1.08        .02   1158.52
   21176.1         .0   21176.1         .0         .0    1992.1         .0       17.1        2.2   1157.07
       .01        .00     10.63        .00       .000      .035       .000       .000    1135.65   9916.61
   .004251       230.       259.       355.          3         0          0        .00     262.99  10179.60

CCHV=      .100 CEHV=      .300
*SECNO 7.920

3301 HV CHANGED MORE THAN HVINS

     7.920      13.02   1148.76        .00        .00   1149.99       1.23       2.05        .05   1160.45
   21176.1         .0   21176.1         .0         .0    2379.0         .0       48.8        6.1   1160.29
       .03        .00      8.90        .00       .000      .035       .000       .000    1135.74   9916.90
   .002554       615.       631.       655.          3         0          0        .00     278.89  10195.79

CCHV=      .100 CEHV=      .300
*SECNO 8.006
     8.006      13.86   1149.97        .00        .00   1151.12       1.15       1.13        .01   1159.66
   21176.1         .0   21176.1         .0         .0    2457.6         .0       74.5        9.1   1161.51
       .04        .00      8.62        .00       .000      .035       .000       .000    1136.11   9907.35
   .002316       445.       463.       505.          3         0          0        .00     281.13  10188.48

1                                                                                                   PAGE   41
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=      .100 CEHV=      .300
*SECNO 8.052
     8.052      14.14   1150.56        .00        .00   1151.65       1.09        .52        .01   1160.52
   21176.1         .0   21176.1         .0         .0    2523.3         .0       88.0       10.6   1161.72
       .05        .00      8.39        .00       .000      .035       .000       .000    1136.42   9913.01
   .002095       225.       237.       255.          2         0          0        .00     278.10  10191.11

CCHV=      .100 CEHV=      .300
*SECNO 8.120
     8.120      13.34   1151.31        .00        .00   1152.51       1.20        .83        .03   1159.32
   21176.1         .0   21176.1         .0         .0    2411.8         .0      109.0       13.0   1163.50
       .06        .00      8.78        .00       .000      .035       .000       .000    1137.97   9925.12
   .002400       365.       370.       370.          3         0          0        .00     274.64  10199.76

CCHV=      .100 CEHV=      .300
*SECNO 8.220
     8.220      13.80   1152.58        .00        .00   1153.70       1.12       1.19        .01   1160.58
   21176.1         .0   21176.1         .0         .0    2489.3         .0      137.9       16.2   1164.55
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      .08        .00       8.51        .00       .000       .035       .000       .000   1138.78   9901.52
   .002229       485.       513.       565.          3          0          0        .00    282.48  10184.00


CCHV=      .100 CEHV=      .300
*SECNO 8.330
     8.330      13.23   1153.82        .00        .00    1154.97       1.15       1.26       .01   1164.00
   21176.1         .0   21176.0         .0         .0     2456.4         .0      169.9      19.8   1166.40
       .10        .00       8.62        .00       .000       .035       .000       .000   1140.59   9843.29
   .002225       555.       565.       545.          2          0          0        .00    272.99  10116.28


CCHV=      .100 CEHV=      .300
*SECNO 8.390
     8.390      13.61   1154.53        .00        .00    1155.62       1.09        .64       .01   1165.05
   21176.1         .0   21176.1         .0         .0     2526.7         .0      187.6      21.7   1167.41
       .11        .00       8.38        .00       .000       .035       .000       .000   1140.92   9862.17
   .001943       310.       308.       305.          3          0          0        .00    264.29  10126.46


CCHV=      .100 CEHV=      .300
*SECNO 8.457
     8.457      14.18   1155.28        .00        .00    1156.28       1.00        .65       .01   1168.74
   21176.1         .0   21176.0         .0         .0     2640.2         .0      209.0      23.9   1168.40
       .12        .00       8.02        .00       .000       .035       .000       .000   1141.10   9865.60
   .001674       365.       362.       355.          3          0          0        .00    263.69  10129.29
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=      .100 CEHV=      .300
*SECNO 8.516

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.71

     8.516      14.56   1156.11        .00        .00    1156.59        .49        .26       .05   1168.60
   21176.1         .0   21176.1         .0         .0     3779.9         .0      230.2      25.7   1167.50
       .14        .00       5.60        .00       .000       .035       .000       .000   1141.55   9859.73
   .000574       280.       288.       305.          2          0          0        .00    282.31  10142.04


CCHV=      .100 CEHV=      .300
*SECNO 8.538
     8.538      13.91   1156.15        .00        .00    1156.67        .52        .07       .01   1167.86
   21176.1         .0   21176.1         .0         .0     3667.3         .0      239.7      26.5   1167.09
       .14        .00       5.77        .00       .000       .035       .000       .000   1142.24   9857.65
   .000631       110.       110.       105.          2          0          0        .00    280.77  10138.42


CCHV=      .100 CEHV=      .300
*SECNO 8.548

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     8.548       8.25   1158.02   1158.02        .00    1160.80       2.79        .08       .68   1167.19
   21176.1         .0   21176.1         .0         .0     1580.6         .0      242.5      26.8   1166.85
       .14        .00      13.40        .00       .000       .035       .000       .000   1149.77   9853.08
   .010667        48.        48.        48.         20         14          0        .00    290.86  10143.94


CCHV=      .200 CEHV=      .400
*SECNO 8.655

3301 HV CHANGED MORE THAN HVINS
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.17

     8.655       9.47   1161.97        .00        .00    1162.40        .43       1.13       .47   1169.87
   21176.1         .0   21176.1         .0         .0     4008.8         .0      272.1      31.1   1168.79
       .17        .00       5.28        .00       .000       .035       .000       .000   1152.50   9543.08
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   .001059      675.      461.      340.        3        0        0      .00    533.26  10076.35

CCHV=     .100 CEHV=     .300
*SECNO 8.731
     8.731     8.96  1162.56       .00      .00  1162.83      .26      .41      .02  1156.95
   21176.1   6865.9  14310.1        .0    2389.1   3119.8       .0    318.7     37.5  1169.55
       .20     2.87     4.59       .00     .060     .035     .000     .000  1153.60  9344.34
   .000893      500.      402.      395.        2        0        0      .00   770.80 10115.14

CCHV=     .100 CEHV=     .300
*SECNO 8.807

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     8.807     6.37  1164.41  1164.41      .00  1167.20     2.79      .87      .76  1173.10
   21176.1       .0  21176.1       .0       .0   1578.9       .0    352.2     42.5  1172.75
       .20      .00    13.41       .00     .000     .035     .000     .000  1158.04  9817.10
   .010371      425.      405.      395.       20       19        0      .00   286.57 10103.67

CCHV=     .100 CEHV=     .300
*SECNO 8.883
     8.883     8.65  1168.09       .00      .00  1171.02     2.93     3.78      .04  1176.80
   21176.1       .0  21176.0       .0       .0   1542.0       .0    366.6     44.9  1175.80
       .21      .00    13.73       .00     .000     .035     .000     .000  1159.44  9879.02
   .008595      410.      401.      400.        4        0        0      .00   233.79 10112.81

CCHV=     .100 CEHV=     .300
*SECNO 8.936
1                                                                                          PAGE   44
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.70

     8.936    11.35  1171.29       .00      .00  1172.55     1.26     1.36      .17  1174.58
   21176.1       .0  21176.1       .0       .0   2346.5       .0    379.5     46.7  1177.20
       .22      .00     9.02       .00     .000     .035     .000     .000  1159.94  9837.08
   .002960      285.      290.      290.        3        0        0      .00   300.45 10137.53

CCHV=     .100 CEHV=     .300
*SECNO 8.977
     8.977    10.38  1171.68       .00      .00  1173.38     1.70      .70      .13  1175.88
   21176.1       .0  21176.1       .0       .0   2025.0       .0    390.1     48.0  1177.97
       .23      .00    10.46       .00     .000     .035     .000     .000  1161.30  9873.69
   .003721      220.      212.      215.        3        0        0      .00   244.25 10117.94

CCHV=     .100 CEHV=     .300
*SECNO 8.994
     8.994    10.25  1171.90       .00      .00  1173.79     1.89      .35      .06  1175.69
   21176.1       .0  21176.1       .0       .0   1920.6       .0    394.3     48.5  1178.73
       .23      .00    11.03       .00     .000     .035     .000     .000  1161.65  9904.52
   .004015       90.       92.       85.        2        0        0      .00   226.80 10131.32

CCHV=     .100 CEHV=     .300
*SECNO 9.047

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.08

     9.047    12.35  1173.99       .00      .00  1174.49      .50      .56      .14  1177.70
   21176.1       .0  21117.8      58.2       .0   3698.5     139.6    416.0     51.3  1180.42
       .24      .00     5.71       .42     .000     .035     .110     .000  1161.64  9887.07
   .000931      355.      331.      270.        2        0        0      .00   536.58 10524.56

1                                                                                          PAGE   45
   18OCT99      10:32:54

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
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    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 9.129

3265 DIVIDED FLOW

     9.129     11.27   1174.43        .00        .00   1174.83        .40        .33        .01   1180.07
   21176.1        .0   21096.5      79.6        .0     4133.3      132.4      452.8       56.2   1177.56
       .27       .00      5.10       .60       .000       .035       .110       .000    1163.16   9856.98
   .000772     370.       394.      430.          2          0          0        .00     526.49  10443.38

CCHV=     .300 CEHV=     .500
*SECNO 9.193
     9.193     10.21   1174.75        .00        .00   1175.21        .46        .35        .03   1182.05
   21176.1        .0   21176.1        .0        .0     3884.5         .0      489.4       60.8   1176.06
       .29       .00      5.45       .00       .000       .035       .000       .000    1164.54   9835.57
   .001053     400.       391.      390.          3          0          0        .00     490.94  10326.51

CCHV=     .300 CEHV=     .500
*SECNO 9.289

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.289      9.36   1177.26   1177.26        .00   1180.25       2.99       1.22       1.27   1183.10
   21176.1        .0   21176.1        .0        .0     1525.5         .0      520.9       65.1   1185.00
       .30       .00     13.88       .00       .000       .035       .000       .000    1167.90   9887.21
   .010217     470.       506.      455.         20         11          0        .00     260.73  10147.94

CCHV=     .100 CEHV=     .300
*SECNO 9.318

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.59

3470 ENCROACHMENT STATIONS=          .0   10171.5  TYPE=      1  TARGET=    10171.540
1
   18OCT99      10:32:54                                                                                    PAGE   46

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

     9.318     11.89   1180.24        .00        .00   1180.97        .73        .49        .23   1185.10
   21176.1        .0   21176.1        .0        .0     3088.5         .0      529.1       66.2   1185.00
       .30       .00      6.86       .00       .000       .035       .000       .000    1168.35   9784.84
   .001526     185.       156.      155.          3          0          0        .00     364.38  10149.23

CCHV=     .100 CEHV=     .300
*SECNO 9.367

3470 ENCROACHMENT STATIONS=          .0   10241.6  TYPE=      1  TARGET=    10241.560
     9.367      9.81   1181.14        .00        .00   1181.62        .48        .62        .03   1186.28
   21176.1        .0   21176.1        .0        .0     3815.2         .0      567.9       71.0   1184.23
       .33       .00      5.55       .00       .000       .035       .000       .000    1171.33   9730.35
   .001075     540.       490.      465.          2          0          0        .00     476.61  10206.97

CCHV=     .100 CEHV=     .300
*SECNO 9.492

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68

     9.492      7.72   1181.66        .00        .00   1182.41        .75        .71        .08   1188.11
   21176.1        .0   21176.1        .0        .0     3049.1         .0      604.4       76.1   1184.43
       .35       .00      6.95       .00       .000       .035       .000       .000    1173.94   9819.30
   .002319     430.       463.      425.          2          0          0        .00     484.96  10304.26

CCHV=     .100 CEHV=     .300
*SECNO 9.592

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.592      7.56   1183.26   1183.26        .00   1185.66       2.40       2.63        .50   1190.23
   21176.1        .0   21176.0        .0        .0     1703.6         .0      637.6       81.9   1189.15
       .36       .00     12.43       .00       .000       .035       .000       .000    1175.70   9965.35
```

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   .010773      535.      607.      580.         2         8         0       .00    357.30  10322.65

CCHV=     .100 CEHV=     .300
*SECNO 9.692
1                                                                                                  PAGE   47
   18OCT99      10:32:54

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.37

     9.692      9.96   1187.16       .00       .00   1187.97       .81      2.15       .16   1193.92
   21176.1        .0   21176.0        .0        .0    2928.0        .0     667.6      86.7   1190.03
       .38       .00      7.23       .00      .000      .035      .000      .000   1177.20   9930.73
   .001926      525.      565.      520.         3         0         0       .00    379.18  10309.91

CCHV=     .100 CEHV=     .300
*SECNO 9.794

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.794      8.71   1188.94   1188.94       .00   1191.87      2.93      2.10       .63   1196.86
   21176.1        .0   21176.1        .0        .0    1541.9        .0     696.2      90.9   1195.79
       .39       .00     13.73       .00      .000      .035      .000      .000   1180.23   9954.36
   .010393      550.      557.      555.        20        15         0       .00    269.90  10224.25

CCHV=     .300 CEHV=     .500
*SECNO 9.889

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.889      8.65   1194.07   1194.07       .00   1197.60      3.53      5.05       .30   1201.40
   21176.1        .0   21176.1        .0        .0    1405.3        .0     713.1      93.6   1198.00
       .40       .00     15.07       .00      .000      .035      .000      .000   1185.42   9920.04
   .009761      485.      501.      495.         2         5         0       .00    202.47  10122.51

CCHV=     .300 CEHV=     .500
*SECNO 9.908
1                                                                                                  PAGE   48
   18OCT99      10:32:54

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.908      7.37   1196.42   1196.42       .00   1199.30      2.89      1.00       .19   1196.38
   21176.1      193.4   20982.7        .0      58.8    1531.7        .0     716.7      94.2   1198.80
       .40      3.29     13.70       .00      .060      .035      .000      .000   1189.05   9829.52
   .009518      120.      103.       65.        20        15         0       .00    304.77  10134.30

CCHV=     .300 CEHV=     .500
*SECNO 9.953

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65

     9.953      9.87   1199.25       .00       .00   1200.75      1.50      1.03       .42   1202.16
   21176.1        .0   21176.1        .0        .0    2153.1        .0     724.8      95.5   1203.14
       .41       .00      9.84       .00      .000      .035      .000      .000   1189.38   9876.98
   .003504      175.      189.      215.         4         0         0       .00    274.63  10151.61

CCHV=     .300 CEHV=     .500
*SECNO 9.958
     9.958      9.01   1199.48       .00       .00   1200.87      1.40       .09       .03   1203.19
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  21176.1        .0   21176.1        .0        .0    2233.4        .0     726.2      95.6   1203.03
     .41       .00      9.48       .00      .000      .035       .000      .000   1190.47   9874.59
 .003234       22.       27.       28.         3         0          0       .00    283.88  10158.47


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     .90      1.60      2.68       .00    240.00      4.70   2496.30      2.00   1191.15   1191.04

CCHV=     .300 CEHV=     .500
*SECNO 9.984
1
   18OCT99      10:32:54                                                                          PAGE   49

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

PRESSURE FLOW

 EGPRS     EGLWC      H3       QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                            AREA
 1201.26   1201.05     .09       0.     21176.     2496.     2304.     1200.24   1204.01       0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=     1204.90 ELREA=     1204.01

     9.984      8.91   1199.91       .00       .00   1201.26      1.36       .39       .00   1203.16
  21176.1        .0   21176.1        .0        .0    2266.1        .0     733.1      96.5   1204.00
     .41       .00      9.34       .00      .000      .035       .000      .000   1191.00   9876.54
 .003113      130.      134.      129.         3         0          0       .00    285.88  10162.42


CCHV=     .300 CEHV=     .500
*SECNO 9.997

3265 DIVIDED FLOW

     9.997      8.25   1199.96       .00       .00   1201.79      1.84       .29       .24   1200.73
  21176.1        .6   21175.5        .0       1.2    1947.7        .0     736.7      97.0   1200.72
     .42       .47     10.87       .00      .060      .035       .000      .000   1191.71   9830.78
 .005017       51.       74.      104.         2         0          0       .00    289.73  10162.37


CCHV=     .100 CEHV=     .300
*SECNO 10.096

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43

    10.096      9.04   1202.88       .00       .00   1203.74       .86      1.85       .10   1202.39
  21176.1     571.4   20604.6        .0     211.9    2734.6        .0     767.3     101.9   1204.41
     .44      2.70      7.53       .00      .060      .035       .000      .000   1193.84   9626.35
 .002457      535.      544.      555.         2         0          0       .00    493.99  10120.34


1
   18OCT99      10:32:54                                                                          PAGE   50

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=     .100 CEHV=     .300
*SECNO 10.176

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

    10.176      8.86   1204.43       .00       .00   1205.80      1.38      1.91       .15   1203.68
  21176.1     223.0   20953.1        .0     101.6    2214.8        .0     800.5     108.2   1205.57
     .45      2.20      9.46       .00      .060      .035       .000      .000   1195.57   9457.88
 .005210      510.      553.      550.         2         0          0       .00    525.83  10126.95


CCHV=     .100 CEHV=     .300
*SECNO 10.271
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```
3265 DIVIDED FLOW

    10.271      8.65   1206.91       .00       .00   1207.94      1.04      2.11       .03   1211.43
   21176.1     508.4   20418.6     249.0     302.3    2451.6     309.7     830.6     116.7   1206.60
       .47      1.68      8.33       .80      .060      .035      .110      .000   1198.26   9531.60
   .003607      460.      491.      455.         2         0         0       .00   1027.29  10640.16


CCHV=      .100 CEHV=      .300
*SECNO 10.348

3265 DIVIDED FLOW

    10.348      7.65   1208.86       .00       .00   1210.09      1.23      2.08       .06   1212.70
   21176.1        .0   21025.9     150.2        .0    2355.8     224.3     863.6     126.6   1208.90
       .49       .00      8.93       .67      .000      .035      .110      .000   1201.21   9964.49
   .004450      510.      523.      385.         3         0         0       .00    833.82  10802.13


CCHV=      .100 CEHV=      .300
*SECNO 10.443
1                                                                                                          PAGE   51
   18OCT99      10:32:54

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     9689.3   10541.4  TYPE=      1  TARGET=    -9689.340
 ELENCL=   1229.34  ELENCR= 100000.00
    10.443      6.65   1211.25       .00       .00   1212.89      1.63      2.68       .12   1210.53
   21194.2      47.2   21146.5        .5      29.1    2059.4       2.4     889.9     133.7   1213.65
       .50      1.62     10.27       .21      .060      .035      .110      .000   1204.60   9834.22
   .006735      475.      495.      420.         3         0         0       .00    477.19  10540.05


CCHV=      .100 CEHV=      .300
*SECNO 10.517

3265 DIVIDED FLOW

3280 CROSS SECTION      10.52 EXTENDED      2.70 FEET

3470 ENCROACHMENT STATIONS=     9648.1   10315.1  TYPE=      1  TARGET=    -9648.110
 ELENCL=   1220.64  ELENCR= 100000.00
    10.517      7.27   1214.70       .00       .00   1216.17      1.46      3.26       .02   1218.09
   21635.3    1401.3   18850.4    1383.6     300.9    1829.2     631.4     918.2     140.0   1212.41
       .51      4.66     10.31      2.19      .060      .035      .110      .000   1207.43   9679.27
   .005981      425.      519.      480.         3         0         0       .00    616.63  10315.07


CCHV=      .100 CEHV=      .300
*SECNO 10.612

3265 DIVIDED FLOW

3280 CROSS SECTION      10.61 EXTENDED      1.28 FEET

    10.612      8.36   1217.13       .00       .00   1218.64      1.51      2.46       .01   1220.88
   22951.9      15.6   22780.6     155.7      16.4    2303.3     144.3     947.8     146.0   1215.60
       .53       .95      9.89      1.08      .060      .035      .110      .000   1208.77   9801.91
   .004130      490.      505.      435.         2         0         0       .00    472.40  10352.46


CCHV=      .100 CEHV=      .300
1                                                                                                          PAGE   52
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 10.699
3280 CROSS SECTION      10.70 EXTENDED      .13 FEET

3301 HV CHANGED MORE THAN HVINS

    10.699      9.51   1218.97       .00       .00   1221.50      2.53      2.56       .31   1222.80
   23326.4        .0   23316.5       9.9        .0    1825.0      14.3     970.6     150.2   1218.20
       .54       .00     12.78       .69      .000      .035      .110      .000   1209.46   9966.18
   .007734      460.      462.      460.         3         0         0       .00    316.90  10283.08
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CCHV=     .100 CEHV=     .300
*SECNO 10.803

3265 DIVIDED FLOW

3280 CROSS SECTION     10.80 EXTENDED      3.07 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.48

    10.803      9.31   1223.41       .00       .00   1224.60      1.19      2.96       .13   1220.90
   24322.3     801.3   23521.0        .0     242.0    2647.9        .0    1001.4     155.9   1220.34
       .56      3.31      8.88       .00      .060      .035      .000      .000   1214.10   9532.99
   .003816      555.      567.      555.         2         0         0       .00    562.38  10215.45


CCHV=     .100 CEHV=     .300
*SECNO 10.862

3265 DIVIDED FLOW

3280 CROSS SECTION     10.86 EXTENDED       .69 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1
   18OCT99      10:32:54                                                                                PAGE   53

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


    10.862      8.63   1224.06   1224.06       .00   1227.05      3.00      1.70       .54   1228.35
   25632.7     261.1   25316.9      54.7     121.5    1811.7      52.5    1018.7     159.5   1223.30
       .56      2.15     13.97      1.04      .060      .035      .110      .000   1215.43   8693.00
   .008221      265.      313.      360.         3        11         0       .00    483.98  10185.23


CCHV=     .100 CEHV=     .300
*SECNO 10.917
3280 CROSS SECTION     10.92 EXTENDED      2.88 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.32

    10.917      10.78   1227.51       .00       .00   1228.18       .67       .90       .23   1223.78
   26631.9    3287.7   23010.2     334.0    1925.3    3259.2     297.0    1043.2     165.8   1224.50
       .58      1.71      7.06      1.12      .060      .035      .110      .000   1216.73   8805.00
   .001648      265.      292.      300.         3         0         0       .00   1494.07  10299.07


CCHV=     .300 CEHV=     .500
*SECNO 10.980

3265 DIVIDED FLOW

3280 CROSS SECTION     10.98 EXTENDED       .47 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    10.980      10.04   1228.64   1228.64       .00   1231.18      2.54      1.02       .93   1227.57
   28174.3     837.1   27276.1      61.1     466.7    2099.4      82.8    1078.7     177.3   1228.67
       .58      1.79     12.99       .74      .060      .035      .110      .000   1218.60   9309.97
   .005544      445.      358.      300.         4         8         0       .00    950.28  10374.35


1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 SPECIAL BRIDGE

 SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
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    1.05      1.60      2.80       .00    186.22      8.00   1932.34      3.00   1218.61   1218.60

CCHV=     .300 CEHV=     .500
*SECNO 10.996
3280 CROSS SECTION     11.00 EXTENDED      1.68 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.67

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC       H3      QWEIR      QPR      BAREA  TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                            AREA
  1233.98   1231.77      .59     6501.   21738.     1932.     1992.   1228.23   1228.47       726.


   10.996     12.14  1230.75       .00       .00  1231.79      1.04       .61       .00  1228.19
  28332.6    4312.8  23323.0    696.8    1927.0    2606.5     668.0    1090.3     180.6  1228.55
      .59      2.24     8.95      1.04      .060      .035      .110      .000   1218.61  9116.63
  .002014      128.     129.      127.         3         0         2       .00   1319.05 10435.68


CCHV=     .300 CEHV=     .500
*SECNO 11.030
3280 CROSS SECTION     11.03 EXTENDED      2.07 FEET

   11.030     11.85  1231.22       .00       .00  1232.17       .96       .36       .02  1229.05
  28478.7    7325.5  20754.1    399.1    2856.3    2290.8     420.7    1112.5     186.2  1228.90
      .60      2.56     9.06       .95      .060      .035      .110      .000   1219.37  9001.49
  .002161      200.     168.      140.         2         0         0       .00   1374.08 10375.57


CCHV=     .100 CEHV=     .300
*SECNO 11.129

3265 DIVIDED FLOW
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   18OCT99      10:32:54

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=          .0   10408.1  TYPE=      1  TARGET=    10408.120
   11.129      12.98  1232.38       .00       .00  1233.04       .65       .84       .03  1231.30
  28782.4    5642.2  22825.2    315.0    2517.5    3167.6     460.3    1184.7     203.9  1231.76
      .62      2.24     7.21       .68      .060      .035      .110      .000   1219.40  9022.25
  .001219      565.     517.      495.         3         0         0       .00   1466.05 10539.38


CCHV=     .100 CEHV=     .300
*SECNO 11.188

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .0   10444.2  TYPE=      1  TARGET=    10444.150
   11.188      14.42  1232.93       .00       .00  1233.41       .48       .35       .02  1232.77
  29671.4   12005.1  17561.4    104.9    3318.0    2669.5     229.9    1228.2     213.3  1232.93
      .63      3.62     6.58       .46      .060      .035      .110      .000   1218.51  9041.00
  .001089      305.     309.      300.         2         0         0       .00   1242.88 10370.79


CCHV=     .100 CEHV=     .300
*SECNO 11.243

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .0   10492.9  TYPE=      1  TARGET=    10492.940
   11.243      15.09  1233.44       .00       .00  1233.68       .24       .25       .02  1233.70
  30012.7   19178.3  10831.9       2.5    5976.5    2206.8      23.9    1278.3     221.9  1234.30
      .66      3.21     4.91       .10      .060      .035      .110      .000   1218.35  9054.46
  .000625      295.     314.      335.         2         0         0       .00   1188.10 10261.66


CCHV=     .100 CEHV=     .300
*SECNO 11.301

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65


3470 ENCROACHMENT STATIONS=          .0   10521.6  TYPE=      1  TARGET=    10521.610
   11.301      12.26  1233.53       .00       .00  1234.03       .50       .27       .08  1232.87
  30013.3   15597.4  14415.9        .0    4048.1    2025.5        .0    1327.0     229.2  1234.80
      .67      3.85     7.12       .00      .060      .035      .000      .000   1221.27  9143.24
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   .001482      300.      290.      275.         3         0         0       .00    960.23  10103.47

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
*SECNO 11.386

3470 ENCROACHMENT STATIONS=          .0   10133.3  TYPE=      1  TARGET=    10133.310
   11.386     11.09   1234.19       .00       .00   1234.94       .75       .83       .08   1233.46
  30013.3   12205.8   17807.5        .0    3382.4    2088.2        .0    1385.5     239.0   1238.40
      .69      3.61      8.53       .00      .060      .035      .000      .000   1223.10   9146.55
  .002508      445.      437.      415.         3         0         0       .00    973.44  10119.99

CCHV=     .100 CEHV=     .300
*SECNO 11.481

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9842.1   10811.8  TYPE=      1  TARGET=    -9842.070
 ELENCL=   1236.77  ELENCR= 100000.00
   11.481     10.06   1234.87   1234.87       .00   1238.04      3.17      2.30       .73   1236.77
  30013.3        .0   30013.3        .0        .0    2100.4        .0    1430.5     246.7   1240.19
      .70       .00     14.29       .00      .000      .035      .000      .000   1224.81   9848.44
  .009795      510.      523.      555.         3        12         0       .00    332.27  10180.71

CCHV=     .100 CEHV=     .300
*SECNO 11.566

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.06

   11.566     10.58   1238.90       .00       .00   1239.43       .53      1.12       .26   1234.96
  30013.3    1500.9   28512.4        .0     768.2    4775.8        .0    1472.5     252.7   1243.30
      .72      1.95      5.97       .00      .060      .035      .000      .000   1228.32   9287.32
  .001048      565.      469.      545.         2         0         0       .00    736.86  10048.30

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
*SECNO 11.664

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .52

   11.664     10.34   1239.14       .00       .00   1240.66      1.52       .94       .30   1236.20
  30013.3    1420.9   28592.4        .0     494.8    2824.8        .0    1525.1     260.7   1244.86
      .74      2.87     10.12       .00      .060      .035      .000      .000   1228.80   9410.69
  .003897      535.      514.      515.         2         0         0       .00    599.73  10038.71

CCHV=     .100 CEHV=     .300
*SECNO 11.759

3265 DIVIDED FLOW

   11.759      9.45   1241.47       .00       .00   1243.20      1.73      2.48       .06   1244.46
  30013.3    7326.7   22686.6        .0    1593.9    1914.5        .0    1564.0     267.4   1246.55
      .75      4.60     11.85       .00      .085      .035      .000      .000   1232.02   9433.21
  .006537      485.      501.      470.         3         0         0       .00    583.01  10118.34

CCHV=     .100 CEHV=     .300
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*SECNO 11.864

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9887.3   11941.3  TYPE=      1  TARGET=    -9887.290
 ELENCL=   1250.00  ELENCR= 100000.00
   11.864      9.31   1244.88   1244.88       .00   1248.85      3.97      4.79       .67   1240.43
  30013.3        .0   29510.2     503.1        .0    1830.3     149.1    1602.6     273.5   1240.45
      .76       .00     16.12      3.37      .000      .035      .110      .000   1235.57   9887.29
  .009470      605.      615.      665.         2         5         0       .00    276.77  10253.42
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   18OCT99      10:32:54

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=      .100 CEHV=      .300
*SECNO 11.949

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.76


3470 ENCROACHMENT STATIONS=     9673.8   12170.5  TYPE=      1  TARGET=    -9673.750
 ELENCL=   1248.70  ELENCR= 100000.00
   11.949     10.94   1249.84       .00       .00   1250.42       .57      1.22       .34   1245.13
  30013.3    3327.5   25632.0    1053.8    1343.6    3933.2     948.5    1646.0     283.3   1244.81
      .78      2.48      6.52      1.11      .060      .035      .110      .000   1238.90   9431.69
  .001243      565.      452.      380.         3         0         0       .00   1624.36  11489.51


CCHV=      .100 CEHV=      .300
*SECNO 12.034

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .50

   12.034      8.83   1250.30       .00       .00   1251.92      1.62      1.19       .31   1250.55
  30013.3        .0   29993.2      20.1        .0    2939.4      31.0    1703.0     297.0   1250.96
      .80       .00     10.20       .65      .000      .035      .110      .000   1241.47   9721.17
  .004953      485.      540.      615.         3         0         0       .00    530.91  11301.43


CCHV=      .100 CEHV=      .300
*SECNO 12.125

3265 DIVIDED FLOW
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   18OCT99      10:32:54

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3280 CROSS SECTION      12.13 EXTENDED        .78 FEET


3301 HV CHANGED MORE THAN HVINS

   12.125      8.13   1252.78       .00       .00   1253.70       .92      1.71       .07   1254.31
  30013.3    1241.1   28772.2        .0     319.0    3687.7        .0    1740.2     303.3   1254.40
      .82      3.89      7.80       .00      .060      .035      .000      .000   1244.65   9049.00
  .002860      535.      462.      365.         2         0         0       .00    650.19  10329.83


CCHV=      .100 CEHV=      .300
*SECNO 12.194

3301 HV CHANGED MORE THAN HVINS
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3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   12.194      6.83   1254.83   1254.83       .00   1257.53      2.70      1.68       .54   1259.62
  30013.3        .0   30013.3        .0        .0    2275.3        .0    1764.7     307.5   1257.60
      .82       .00     13.19       .00      .000      .035      .000      .000   1248.00   9845.45
  .010614      370.      338.      330.        20         9         0       .00    432.15  10277.60


CCHV=     .100 CEHV=     .300
*SECNO 12.313

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.75

   12.313     10.21   1260.68       .00       .00   1261.50       .83      3.79       .19   1260.51
  30013.3    2136.8   21236.2    6640.3     958.4    2469.2    4444.5    1840.1     333.3   1259.84
      .85      2.23      8.60      1.49      .060      .035      .110      .000   1250.47   9228.74
  .003452      750.      685.      585.         2         0         0       .00   3102.36  12383.14


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  18OCT99      10:32:54                                                                          PAGE   60

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     .100 CEHV=     .300
*SECNO 12.420

3265 DIVIDED FLOW

3280 CROSS SECTION     12.42 EXTENDED       .32 FEET

   12.420      8.63   1263.13       .00       .00   1264.04       .92      2.51       .03   1262.30
  30013.4    2850.9   17814.3    9348.2    1107.0    1813.1    4693.4    1952.5     382.1   1263.54
      .88      2.58      9.83      1.99      .060      .035      .110      .000   1254.50   8970.00
  .005125      600.      578.      665.         3         0         0       .00   3507.84  12539.77


CCHV=     .100 CEHV=     .300
*SECNO 12.511

3265 DIVIDED FLOW

3280 CROSS SECTION     12.51 EXTENDED       .28 FEET

   12.511     10.48   1265.28   1265.25       .00   1266.41      1.13      2.31       .06   1262.26
  30020.2    2547.4   18131.6    9341.2     976.0    1670.5    5282.1    2031.9     417.5   1265.39
      .89      2.61     10.85      1.77      .060      .035      .110      .000   1254.80   8773.59
  .004983      455.      468.      435.         8        12         0       .00   3482.74  12658.79


CCHV=     .100 CEHV=     .300
*SECNO 12.606

3265 DIVIDED FLOW

3280 CROSS SECTION     12.61 EXTENDED       .16 FEET

   12.606      9.56   1268.46       .00       .00   1269.17       .71      2.72       .04   1267.14
  30315.8    1632.6   22126.4    6556.8     772.7    2824.9    3639.4    2128.9     462.4   1267.91
      .92      2.11      7.83      1.80      .060      .035      .110      .000   1258.90   9235.76
  .004554      555.      582.      545.         3         0         0       .00   3608.61  12859.19


CCHV=     .100 CEHV=     .300
*SECNO 12.701
1
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3265 DIVIDED FLOW

3280 CROSS SECTION     12.70 EXTENDED       .33 FEET

   12.701     10.73   1270.83       .00       .00   1271.36       .54      2.17       .02   1271.92
  30388.8    1325.2   20647.9    8415.7     783.6    2935.2    4930.3    2222.8     505.8   1270.40
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     .95      1.69      7.03      1.71      .060      .035      .110      .000   1260.10   8680.00
  .004001     495.      506.      525.         3         0         0       .00   3728.86  12534.40

CCHV=     .100 CEHV=     .300
*SECNO 12.801

3265 DIVIDED FLOW

3280 CROSS SECTION      12.80 EXTENDED      1.50 FEET

   12.801     12.17   1272.40       .00       .00   1273.03       .63      1.64       .03   1275.01
 30399.6    1406.6   26880.0    2113.0     689.6    3998.7    1296.4    2312.3     543.2   1272.57
     .97      2.04      6.72      1.63      .060      .035      .110      .000   1260.23   8567.00
  .002484     565.      525.      535.         3         0         0       .00   2292.86  11993.27

CCHV=     .100 CEHV=     .300
*SECNO 12.896

3265 DIVIDED FLOW

   12.896     10.88   1273.38       .00       .00   1274.31       .93      1.19       .09   1278.41
 30399.6        .0   29158.2    1241.4        .0    3695.9     790.5    2373.4     561.8   1273.04
     .99       .00      7.89      1.57      .000      .035      .110      .000   1262.50   9854.33
  .002206     540.      508.      495.         2         0         0       .00    897.00  12066.98

CCHV=     .100 CEHV=     .300
*SECNO 12.991

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66
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   18OCT99      10:32:54

    SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL     OLOSS   L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL    TWA     R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN    ELMIN   SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR  TOPWID  ENDST

   12.991     12.16   1274.53       .00       .00   1275.01       .48       .66       .04   1277.59
 30399.6       1.2   30188.3    210.1       3.3    5394.4     214.0    2434.5     571.0   1274.41
    1.01       .37      5.60       .98      .060      .035      .110      .000   1262.37   9646.76
  .000799     595.      527.      535.         2         0         0       .00     605.98  11614.44

CCHV=     .100 CEHV=     .300
*SECNO 13.076

3265 DIVIDED FLOW

   13.076     12.44   1274.81       .00       .00   1275.54       .74       .46       .08   1279.35
 30399.6        .0   30280.9    118.7        .0    4391.4     110.9    2487.3     576.7   1278.53
    1.03       .00      6.90      1.07      .000      .035      .110      .000   1262.37   9682.63
  .001305     520.      454.      455.         2         0         0       .00     492.61  11666.84

CCHV=     .100 CEHV=     .300
*SECNO 13.151

3265 DIVIDED FLOW

   13.151     13.07   1275.27       .00       .00   1276.16       .90       .57       .05   1279.07
 30399.6        .0   30395.1      4.5        .0    4000.8       9.7    2525.7     580.9   1277.21
    1.05       .00      7.60       .47      .000      .035      .110      .000   1262.20   9755.95
  .001630     520.      393.      370.         2         0         0       .00     437.94  11557.63

CCHV=     .100 CEHV=     .300
*SECNO 13.161
3280 CROSS SECTION      13.16 EXTENDED      .93 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   13.161      7.66   1282.31   1282.31       .00   1283.71      1.40       .15       .15   1280.81
 30399.6     641.9   26935.6    2822.1     289.0    2674.7    2239.4    2531.6     583.1   1281.51
    1.05      2.22     10.07      1.26      .060      .035      .110      .000   1274.65   9476.80
  .006117       55.       51.       70.        20        14         0       .00    2651.21  12128.02
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   18OCT99      10:32:54

    SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL     OLOSS   L-BANK ELEV
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    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=      .100 CEHV=      .300
*SECNO 13.185

3265 DIVIDED FLOW

3280 CROSS SECTION     13.19 EXTENDED       .11 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9719.6   10293.4  TYPE=      1  TARGET=    -9719.600
 ELENCL=   1281.83  ELENCR= 100000.00
   13.185      7.22   1282.11   1282.11       .00   1284.40      2.29       .25       .27   1281.80
  30399.6      57.5   30341.7        .3      56.3    2496.2       1.4    2534.5     584.4   1281.93
     1.05      1.02     12.15       .23      .060      .035      .110      .000   1274.89   9531.00
  .009709       35.       34.       32.         4         8         0       .00    734.78  10293.43


CCHV=      .100 CEHV=      .300
*SECNO 13.227

3265 DIVIDED FLOW

3280 CROSS SECTION     13.23 EXTENDED       .64 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.76


3470 ENCROACHMENT STATIONS=     9777.5   12689.3  TYPE=      1  TARGET=    -9777.540
 ELENCL=   1283.85  ELENCR= 100000.00
   13.227     10.12   1284.94   1284.67       .00   1286.14      1.20      1.63       .11   1282.50
  30399.6    1550.1   23739.4    5110.2     859.0    2390.0    4151.1    2572.4     600.4   1283.00
     1.06      1.80      9.93      1.23      .060      .035      .110      .000   1274.82   9299.00
  .003141      335.      315.      350.         6        14         0       .00   3361.32  12689.29


1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=      .100 CEHV=      .300
*SECNO 13.325

3265 DIVIDED FLOW

3280 CROSS SECTION     13.32 EXTENDED       .71 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9874.4   12522.4  TYPE=      1  TARGET=    -9874.420
 ELENCL=   1287.00  ELENCR= 100000.00
   13.325     10.81   1287.51   1287.51       .00   1289.11      1.60      2.03       .12   1291.00
  30693.7     170.2   24913.6    5609.9     168.7    2215.1    4027.8    2660.3     640.1   1288.10
     1.08      1.01     11.25      1.39      .060      .035      .110      .000   1276.70   9272.00
  .004115      555.      571.      545.         3         8         0       .00   2939.07  12522.41


CCHV=      .100 CEHV=      .300
*SECNO 13.420

3265 DIVIDED FLOW

3280 CROSS SECTION     13.42 EXTENDED      1.02 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43


3470 ENCROACHMENT STATIONS=     9827.2   12668.9  TYPE=      1  TARGET=    -9827.240
 ELENCL=   1290.55  ELENCR= 100000.00
   13.420     12.59   1290.02       .00       .00   1290.64       .62      1.44       .10   1288.33
  31066.1      20.5   17630.2   13415.4      16.2    2126.5    8889.2    2760.4     672.9   1289.98
     1.10      1.26      8.29      1.51      .060      .035      .110      .000   1277.43   9830.63
```

```
   .002070      515.      514.      495.         4         0         0       .00   2803.56  12668.90

CCHV=     .100 CEHV=     .300
*SECNO 13.524
1                                                                                                  PAGE   65
   18OCT99      10:32:54

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9858.0   12689.6  TYPE=      1  TARGET=    -9858.030
 ELENCL=   1292.81  ELENCR= 100000.00
   13.524      9.49   1291.39   1291.39       .00   1293.08      1.69      1.58       .32   1292.81
  31212.0        .0   27909.8    3302.2        .0    2529.1    2730.8    2855.1     704.4   1291.71
     1.12       .00     11.04      1.21      .000      .035      .110      .000   1281.90   9860.93
   .004988      605.      523.      500.         5        16         0       .00   2651.86  12668.61


CCHV=     .100 CEHV=     .300
*SECNO 13.619

3265 DIVIDED FLOW

3280 CROSS SECTION     13.62 EXTENDED      1.75 FEET


3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.06

   13.619     10.29   1293.76       .00       .00   1294.28       .52      1.08       .12   1294.77
  31212.0     139.1   30506.9     566.0     134.7    5220.0    1112.6    2922.8     732.8   1293.88
     1.14      1.03      5.84       .51      .060      .035      .110      .000   1283.47   9562.00
   .001174     565.      506.      495.         2         0         0       .00   2303.38  12568.94


CCHV=     .100 CEHV=     .300
*SECNO 13.680

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        .0   11340.5  TYPE=      1  TARGET=    11340.480
1                                                                                                  PAGE   66
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


   13.680      8.67   1294.17       .00       .00   1294.77       .60       .47       .03   1292.88
  31212.0     236.7   30418.6     556.7     125.4    4817.2     859.8    2969.0     747.4   1292.80
     1.16      1.89      6.31       .65      .060      .035      .110      .000   1285.50   9524.13
   .001778     320.      331.      315.         2         0         0       .00   1667.85  11285.90


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 13.742

3470 ENCROACHMENT STATIONS=        .0   10408.2  TYPE=      1  TARGET=    10408.160
   13.742      9.27   1294.87       .00       .00   1295.34       .47       .56       .01   1294.10
  31212.0      19.7   31192.3        .0      23.3    5644.7        .0    3016.2     758.0   1300.31
     1.18       .84      5.53       .00      .058      .038      .000      .000   1285.60   9525.02
   .001406     430.      354.      400.         2         0         0       .00    799.95  10324.97


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 13.818

3470 ENCROACHMENT STATIONS=        .0   10640.3  TYPE=      1  TARGET=    10640.250
   13.818      9.60   1295.43       .00       .00   1295.82       .38       .46       .01   1293.89
  31212.0     182.8   30284.5     744.8     169.8    6007.9     561.6    3074.2     766.0   1292.32
     1.20      1.08      5.04      1.33      .058      .038      .110      .000   1285.83   9665.76
   .000942     395.      406.      435.         2         0         0       .00    923.95  10589.71
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CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO 13.918

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9733.6   11551.6  TYPE=      1  TARGET=    -9733.640
 ELENCL=   1305.00  ELENCR= 100000.00
    13.918      13.27   1303.10   1303.10       .00   1305.00      1.91      1.28       .46   1300.59
   31212.0    1388.1   21006.0    8817.8     400.9    1579.4    2655.6    3151.6     783.0   1300.33
      1.22      3.46     13.30      3.32      .058      .038      .110      .000   1289.83   9733.64
   .007962      535.      642.      485.        20        11         0       .00   1801.98  11535.62
```



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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=      .100 CEHV=      .300
*SECNO 14.013
3280 CROSS SECTION     14.01 EXTENDED       .37 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55

3470 ENCROACHMENT STATIONS=     9434.0   12943.7  TYPE=      1  TARGET=    -9433.960
 ELENCL=   1307.10  ELENCR= 100000.00
    14.013      11.62   1307.37       .00       .00   1308.03       .66      2.90       .12   1306.05
   31300.1     159.7   18184.7   12955.8     244.7    2160.1    7616.1    3263.5     825.8   1303.66
      1.24       .65      8.42      1.70      .110      .038      .110      .000   1295.75   9352.09
   .003339      620.      514.      723.         3         0         0       .00   3591.62  12943.71

CCHV=      .100 CEHV=      .300
*SECNO 14.103

3265 DIVIDED FLOW

3280 CROSS SECTION     14.10 EXTENDED       .75 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9400.1   13091.8  TYPE=      1  TARGET=    -9400.080
 ELENCL=   1310.12  ELENCR= 100000.00
    14.103       9.25   1308.95   1308.91       .00   1310.15      1.19      1.96       .16   1308.90
   31520.4         .5   22220.7    9299.1       3.0    2141.9    5196.0    3340.4     855.1   1307.30
      1.26        .18     10.37      1.79      .110      .038      .110      .000   1299.70   9647.82
   .005714      540.      521.      338.         6        14         0       .00   3368.56  13091.84

CCHV=      .100 CEHV=      .300
*SECNO 14.197

3265 DIVIDED FLOW
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3280 CROSS SECTION     14.20 EXTENDED       .30 FEET

3301 HV CHANGED MORE THAN HVINS

    14.197      10.40   1312.30       .00       .00   1312.82       .53      2.61       .07   1311.25
   32266.9     791.0   17509.6   13966.3     471.7    2265.9    7388.8    3443.5     900.6   1310.80
      1.29      1.68      7.73      1.89      .058      .038      .110      .000   1301.90   9198.30
   .004858      465.      480.      528.         2         0         0       .00   4278.64  13477.94

CCHV=      .100 CEHV=      .300
*SECNO 14.284
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  14.284      9.16   1314.56       .00       .00   1314.93       .37      2.10       .02   1312.53
 32272.7    2772.6   15673.9   13826.2    1269.3    2305.4    8124.9    3567.9     950.9   1311.30
    1.32      2.18      6.80      1.70      .058      .038      .110      .000   1305.40   8737.60
 .003686      495.      499.      496.         3         0         0       .00   4556.46  13294.06

CCHV=     .100 CEHV=     .300
*SECNO 14.379

3265 DIVIDED FLOW

  14.379      9.09   1317.06       .00       .00   1317.48       .42      2.54       .01   1316.50
 32272.7     213.7   14663.8   17395.3     145.7    2003.8    7671.3    3692.3    1001.7   1313.30
    1.35      1.47      7.32      2.27      .058      .038      .110      .000   1307.97   9060.19
 .007258      515.      506.      502.         1         0         0       .00   4228.46  13498.37

CCHV=     .100 CEHV=     .300
*SECNO 14.495
3280 CROSS SECTION     14.49 EXTENDED      .87 FEET

  14.495      8.86   1320.96       .00       .00   1321.06       .09      3.54       .03   1319.40
 32401.1     752.6    2829.6   28818.9     306.4    3509.0   11202.7    3844.3    1053.3   1316.60
    1.41      2.46       .81      2.57      .058      .380      .110      .000   1312.10   9014.65
 .006075      605.      562.      523.         2         0         0       .00   4176.10  13190.75

CCHV=     .100 CEHV=     .300
*SECNO 14.599
1                                                                                          PAGE   69
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3280 CROSS SECTION     14.60 EXTENDED      .29 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54

  14.599      7.99   1322.99       .00       .00   1323.29       .30      2.17       .06   1321.60
 32497.5    2580.3   20310.9    9606.3    1145.5    3736.2    7092.8    4023.5    1108.9   1320.90
    1.45      2.25      5.44      1.35      .058      .038      .110      .000   1315.00   8668.50
 .002591      400.      542.      607.         3         0         0       .00   4240.73  12909.23

CCHV=     .100 CEHV=     .300
*SECNO 14.653

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .58

  14.653      7.62   1324.92       .00       .00   1325.53       .61      2.14       .09   1323.40
 32497.5    3458.8   18123.3   10915.4     951.8    2251.3    5198.6    4139.3    1155.3   1324.00
    1.48      3.63      8.05      2.10      .058      .038      .110      .000   1317.30   8852.62
 .007835      465.      537.      480.         2         0         0       .00   4041.80  12908.54

CCHV=     .100 CEHV=     .300
*SECNO 14.752

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.46

  14.752      8.21   1327.98       .00       .00   1328.39       .42      2.85       .02   1326.04
 32503.4    3175.1   19969.7    9358.6    1180.3    3109.4    5737.2    4256.9    1205.6   1327.69
    1.51      2.69      6.42      1.63      .058      .038      .110      .000   1319.77   8923.36
 .003664      530.      548.      565.         2         0         0       .00   3840.60  12764.45

CCHV=     .100 CEHV=     .300
*SECNO 14.850
1                                                                                          PAGE   70
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3265 DIVIDED FLOW

3280 CROSS SECTION     14.85 EXTENDED      1.94 FEET
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3470 ENCROACHMENT STATIONS=     8948.3   12686.7  TYPE=      1  TARGET=    -8948.280
 ELENCL=   1331.58  ELENCR= 100000.00
   14.850      9.24   1330.14       .00       .00   1330.96       .83      2.45       .12   1329.20
  32820.3     317.1   24526.1    7977.1     205.1    2935.3    4011.8    4357.2    1246.5   1328.60
     1.53      1.55      8.36      1.99      .058      .038      .110      .000   1320.90   9206.57
  .006144      545.      537.      486.         3         0         0       .00   3223.91  12686.70


CCHV=     .100 CEHV=     .300
*SECNO 14.945

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

   14.945     17.72   1332.92       .00       .00   1333.09       .18      2.07       .06   1332.00
  33000.0     108.2   11417.0   21474.8      85.5    2551.8    8284.5    4486.3    1295.5   1332.10
     1.58      1.27      4.47      2.59      .058      .038      .110      .000   1315.20   9635.88
  .002260      585.      529.      665.         4         0         0       .00   3528.80  13221.17


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 14.983

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1                                                                                          PAGE   71
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     9776.6   13539.1  TYPE=      1  TARGET=    -9776.610
 ELENCL=   1334.98  ELENCR= 100000.00
   14.983     10.25   1334.15   1334.15       .00   1335.30      1.15      1.03       .29   1334.70
  33000.0        .0   23235.9    9764.1        .0    2307.7    3387.5    4528.4    1312.4   1335.00
     1.59       .00     10.07      2.88      .000      .038      .110      .000   1323.90   9806.61
  .015066      190.      216.      222.        20        14         0       .00   3133.99  13230.71


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 15.049

3265 DIVIDED FLOW

3280 CROSS SECTION     15.05 EXTENDED       .88 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.60

   15.049     16.18   1337.38       .00       .00   1337.51       .13      2.11       .10   1338.50
  33000.0        .0   16262.0   16738.0        .0    4332.8    9508.0    4623.4    1346.2   1337.70
     1.64       .00      3.75      1.76      .000      .056      .110      .000   1321.20   9869.81
  .002228      585.      500.      385.         4         0         0       .00   4040.29  13965.36


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 15.144

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .62


3470 ENCROACHMENT STATIONS=     9744.0   13809.9  TYPE=      1  TARGET=    -9744.000
1                                                                                          PAGE   72
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  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

ELENCL=   1338.07  ELENCR= 100000.00
   15.144      9.28   1338.48       .00        .00   1339.22        .75       1.53        .18   1338.07
  33000.0     152.4   21487.3   11360.3      143.2    2533.8     5998.4     4733.6     1383.6   1343.90
     1.66      1.06      8.48      1.89       .058      .038       .110       .000    1329.20   9391.50
  .005729      485.      493.      396.          4         0          0        .00    3781.31  13397.26
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TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.958 TO RM 9.984

  TOTAL    AVG      MAX      AVG      TOF      TOP
  AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
     .0      .00      .00      .00   420.0       .0

   ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER      NITER     DSWS      USWS      DSSNO     USSNO
   .00        .00        .00       .00       .00        .00         12  1199.475  1199.907     9.958     9.984

TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.984 TO RM 9.997

  TOTAL    AVG      MAX      AVG      TOF      TOP
  AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
     .0      .00      .00      .00   100.0       .0

   ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER      NITER     DSWS      USWS      DSSNO     USSNO
   .00        .00        .00       .00       .00        .00         12  1199.907  1199.957     9.984     9.997

TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.997 TO RM 10.096

  TOTAL    AVG      MAX      AVG      TOF      TOP
  AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
     .0      .00      .00      .00   720.0       .0

   ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER      NITER     DSWS      USWS      DSSNO     USSNO
   .00        .00        .00       .00       .00        .00         12  1199.957  1202.879     9.997    10.096

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.096 TO RM 10.176

  TOTAL    AVG      MAX      AVG      TOF      TOP
  AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
     .0      .00      .00      .00   570.0       .0

   ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER      NITER     DSWS      USWS      DSSNO     USSNO
   .00        .00        .00       .00       .00        .00         12  1202.879  1204.427    10.096    10.176
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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.176 TO RM 10.271

  TOTAL    AVG      MAX      AVG      TOF      TOP
  AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
     .0      .00      .00      .00   440.0       .0

   ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER      NITER     DSWS      USWS      DSSNO     USSNO
   .00        .00        .00       .00       .00        .00         12  1204.427  1206.905    10.176    10.271

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.271 TO RM 10.348

  TOTAL    AVG      MAX      AVG      TOF      TOP
  AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
     .0      .00      .00      .00   250.0       .0

   ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER      NITER     DSWS      USWS      DSSNO     USSNO
   .00        .00        .00       .00       .00        .00         12  1206.905  1208.857    10.271    10.348

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.348 TO RM 10.443

  TOTAL    AVG      MAX      AVG      TOF      TOP
  AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
    59.2      .31      .45      .23   450.0   261.0

   ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER      NITER     DSWS      USWS      DSSNO     USSNO
  18.11     18.08        .17     18.11     18.08        .17         12  1208.857  1211.252    10.348    10.443

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.443 TO RM 10.517

  TOTAL    AVG      MAX      AVG      TOF      TOP
```

AREA	VELOCITY	DEPTH	DEPTH	WIDTH	WIDTH
714.0	.62	2.70	1.35	530.0	528.4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
441.14	441.09	.01	459.26	459.17	.02	12	1211.252	1214.702	10.443	10.517

1

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.517 TO RM 10.612

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
706.7	1.86	2.70	1.68	420.0	420.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1316.63	1316.83	.02	1775.88	1776.00	.01	12	1214.702	1217.132	10.517	10.612

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.612 TO RM 10.699

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
367.3	1.02	1.33	.80	460.0	460.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
374.43	374.73	.08	2150.31	2150.73	.02	12	1217.132	1218.969	10.612	10.699

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.699 TO RM 10.803

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
963.8	1.03	3.09	1.72	560.0	560.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
995.91	995.91	.00	3146.23	3146.64	.01	12	1218.969	1223.411	10.699	10.803

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.803 TO RM 10.862

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
675.8	1.94	3.07	1.83	370.0	370.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1310.45	1308.90	.12	4456.68	4455.54	.03	12	1223.411	1224.056	10.803	10.862

1

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.862 TO RM 10.917

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
511.8	1.42	2.88	1.83	280.0	280.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
727.64	727.13	.07	5184.32	5182.67	.03	12	1224.056	1227.510	10.862	10.917

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.862 TO RM 10.917

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
271.54	271.61	.02	5455.86	5454.28	.03	12	1224.056	1227.510	10.862	10.917

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.917 TO RM 10.980

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
424.5	2.44	2.88	1.70	250.0	250.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1036.02	1037.21	.11	6491.88	6491.49	.01	12	1227.510	1228.641	10.917	10.980

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.917 TO RM 10.980

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
506.41	507.21	.16	6998.30	6998.70	.01	12	1227.510	1228.641	10.917	10.980

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.980 TO RM 10.996

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
129.0	1.23	1.68	1.07	120.0	120.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
158.28	158.36	.05	7156.58	7157.06	.01	12	1228.641	1230.749	10.980	10.996

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.98 TO RM 10.996

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	7156.58	7157.06	.01	12	1228.641	1230.749	10.980	10.996

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.996 TO RM 11.030

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
355.9	.41	2.07	1.87	190.0	190.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
146.05	146.09	.03	7302.63	7303.16	.01	12	1230.749	1231.217	10.996	11.030

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.996 TO RM 11.030

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	7302.63	7303.16	.01	12	1230.749	1231.217	10.996	11.030

TN SPLIT FLOW AT RIGHT END POINT FROM RM 11.03 TO RM 11.129

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
8.6	.24	.17	.09	550.0	99.5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
2.09	2.09	.10	7304.73	7305.25	.01	12	1231.217	1232.385	11.030	11.129

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.03 TO RM 11.129

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
301.58	301.56	.01	7606.30	7606.81	.01	12	1231.217	1232.385	11.030	11.129

TN SPLIT FLOW AT RIGHT END POINT FROM RM 11.129 TO RM 11.188

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	260.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	7606.30	7606.81	.01	12	1232.385	1232.931	11.129	11.188

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.129 TO RM 11.188

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
889.07	889.35	.03	8495.38	8496.17	.01	12	1232.385	1232.931	11.129	11.188

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.188 TO RM 11.243

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
341.28	341.37	.03	8836.66	8837.53	.01	12	1232.931	1233.444	11.188	11.243

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.243 TO RM 11.301

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.58	.58	.14	8837.24	8838.11	.01	12	1233.444	1233.534	11.243	11.301

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.194 TO RM 12.313

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	100.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	8837.24	8838.11	.01	12	1254.828	1260.679	12.194	12.313

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.313 TO RM 12.420

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.9	.13	.13	.06	510.0	14.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.11	.11	.36	8837.35	8838.22	.01	12	1260.679	1263.126	12.313	12.420

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.420 TO RM 12.511

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
27.6	.25	.28	.12	390.0	226.4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
6.83	6.83	.00	8844.18	8845.06	.01	12	1263.126	1265.284	12.420	12.511

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.511 TO RM 12.606

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
320.6	.92	1.19	.71	450.0	450.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
295.54	295.50	.01	9139.72	9140.56	.01	12	1265.284	1268.461	12.511	12.606

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.606 TO RM 12.701

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
225.7	.32	.40	.29	770.0	770.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
72.99	72.94	.07	9212.71	9213.50	.01	12	1268.461	1270.825	12.606	12.701

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.701 TO RM 12.801

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
33.8	.32	.33	.16	460.0	207.6

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
10.82	10.80	.20	9223.53	9224.30	.01	12	1270.825	1272.404	12.701	12.801

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.801 TO RM 12.896

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	360.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	9223.53	9224.30	.01	12	1272.404	1273.381	12.801	12.896

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.227 TO RM 13.325

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
363.1	.81	.71	.67	540.0	540.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
294.10	294.09	.00	9517.63	9518.39	.01	12	1284.938	1287.507	13.227	13.325

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.325 TO RM 13.42

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
388.9	.96	1.02	.86	450.0	450.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
372.41	372.30	.03	9890.03	9890.69	.01	12	1287.507	1290.021	13.325	13.420

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.42 TO RM 13.524

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
216.5	.67	1.02	.51	470.0	424.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
145.90	145.94	.03	10035.93	10036.63	.01	12	1290.021	1291.389	13.420	13.524

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.542 TO RM 13.619

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	620.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	10035.93	10036.63	.01	12	1291.389	1293.757	13.524	13.619

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.619 TO RM 13.68

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	398.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	10035.93	10036.63	.01	12	1293.757	1294.170	13.619	13.680

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.68 TO RM 13.742

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	430.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	10035.93	10036.63	.01	12	1294.170	1294.871	13.680	13.742

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.742 TO RM 13.818

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	340.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	10035.93	10036.63	.01	12	1294.871	1295.434	13.742	13.818

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.818 TO RM 13.918

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	520.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	10035.93	10036.63	.01	12	1295.434	1303.098	13.818	13.918

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.918 TO RM 14.013

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
169.7	.52	.79	.32	695.0	534.7

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
88.15	88.15	.00	10124.09	10124.79	.01	12	1303.098	1307.369	13.918	14.013

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.013 TO 14.103

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
293.9	.75	.78	.59	495.0	495.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
220.29	220.29	.00	10344.38	10345.08	.01	12	1307.369	1308.952	14.013	14.103

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.103 TO 14.197

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
669.3	1.12	1.51	1.08	620.0	620.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
746.51	746.51	.00	11090.89	11091.59	.01	12	1308.952	1312.295	14.103	14.197

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.197 TO 14.284

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
19.5	.29	.30	.15	415.0	132.2

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
5.76	5.76	.01	11096.65	11097.35	.01	12	1312.295	1314.560	14.197	14.284

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.284 TO 14.379

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	385.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	11096.65	11097.35	.01	12	1314.560	1317.063	14.284	14.379

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.379 TO 14.495

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
188.2	.68	.88	.47	485.0	402.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
128.41	128.42	.01	11225.06	11225.77	.01	12	1317.063	1320.965	14.379	14.495

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.495 TO 14.599

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
154.6	.62	.86	.41	625.0	376.8

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
96.36	96.37	.01	11321.41	11322.14	.01	12	1320.965	1322.993	14.495	14.599

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.599 TO 14.653

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	460.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	11321.41	11322.14	.01	12	1322.993	1324.919	14.599	14.653

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.653 TO 14.752

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
24.5	.24	.22	.11	505.0	222.3

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
5.95	5.95	.02	11327.37	11328.09	.01	12	1324.919	1327.977	14.653	14.752

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.752 TO 14.850

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
306.9	1.03	1.94	.97	360.0	316.9

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
316.89	316.91	.00	11644.26	11645.00	.01	12	1327.977	1330.137	14.752	14.850

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.850 TO 14.945

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
166.1	1.08	1.94	.76	1255.0	217.9

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
179.69	179.70	.01	11823.95	11824.70	.01	12	1330.137	1332.917	14.850	14.945

T1 NEW RIVER SPILLWAY INUNDATION STUDY
T2 SPLIT FLOW ANALYSIS
T3 BY STANTEC FOR FCDMC, FCD 97-04

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3			0.005				1371.28	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=      .300 CEHV=      .500
*SECNO 7.728
3840 SECTION NOT HIGH ENOUGH  1371.280  1205.990  1135.400  1210.000      .000         0
3840 SECTION NOT HIGH ENOUGH  1371.280  1255.990  1135.400  1260.000      .000         0
3840 SECTION NOT HIGH ENOUGH  1371.280  1305.990  1135.400  1310.000      .000         0
3840 SECTION NOT HIGH ENOUGH  1371.280  1355.990  1135.400  1360.000      .000         0
     7.728       8.35   1143.75   1142.29   1371.28   1145.61      1.86       .00       .00   1154.00
   19170.1         .0   19170.1       .0        .0    1753.8        .0        .0        .0   1154.00
       .00        .00     10.93       .00      .000      .035      .000      .000   1135.40   9937.59
   .004997         0.        0.        0.         0        26        11       .00    250.07  10187.66

CCHV=      .300 CEHV=      .500
*SECNO 7.751
     7.751       9.24   1144.54       .00       .00   1146.20      1.66       .54       .06   1157.94
   19170.1         .0   19170.1       .0        .0    1853.5        .0       5.0        .7   1158.90
       .00        .00     10.34       .00      .000      .035      .000      .000   1135.30   9960.15
   .003952       115.      122.      110.         4         0         0       .00    239.46  10199.60

CCHV=      .300 CEHV=      .500
*SECNO 7.800
     7.800       9.97   1145.62       .00       .00   1147.27      1.65      1.06       .00   1158.52
   19170.1         .0   19170.1       .0        .0    1859.7        .0      16.1       2.2   1157.07
       .01        .00     10.31       .00      .000      .035      .000      .000   1135.65   9919.03
   .004260       230.      259.      355.         2         0         0       .00    257.59  10176.62

CCHV=      .100 CEHV=      .300
*SECNO 7.920
     7.920      12.47   1148.21       .00       .00   1149.36      1.15      2.04       .05   1160.45
   19170.1         .0   19170.0       .0        .0    2226.3        .0      45.7       6.0   1160.29
       .03        .00      8.61       .00      .000      .035      .000      .000   1135.74   9919.85
   .002530       615.      631.      655.         3         0         0       .00    272.36  10192.21

CCHV=      .100 CEHV=      .300
*SECNO 8.006
     8.006      13.29   1149.40       .00       .00   1150.48      1.08      1.11       .01   1159.66
   19170.1         .0   19170.1       .0        .0    2298.8        .0      69.8       8.9   1161.51
       .05        .00      8.34       .00      .000      .035      .000      .000   1136.11   9911.65
   .002287       445.      463.      505.         3         0         0       .00    273.62  10185.26
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=      .100 CEHV=      .300
*SECNO 8.052
     8.052      13.56   1149.98       .00       .00   1151.00      1.02       .51       .01   1160.52
   19170.1         .0   19170.1       .0        .0    2364.6        .0      82.4      10.4   1161.72
       .05        .00      8.11       .00      .000      .035      .000      .000   1136.42   9916.50
   .002062       225.      237.      255.         2         0         0       .00    271.29  10187.79

CCHV=      .100 CEHV=      .300
*SECNO 8.120
     8.120      12.76   1150.73       .00       .00   1151.85      1.12       .82       .03   1159.32
   19170.1         .0   19170.1       .0        .0    2252.2        .0     102.1      12.7   1163.50
       .07        .00      8.51       .00      .000      .035      .000      .000   1137.97   9928.30
   .002398       365.      370.      370.         3         0         0       .00    268.54  10196.84

CCHV=      .100 CEHV=      .300
*SECNO 8.220
     8.220      13.21   1151.99       .00       .00   1153.04      1.06      1.18       .01   1160.58
   19170.1         .0   19170.1       .0        .0    2323.3        .0     129.0      15.9   1164.55
       .08        .00      8.25       .00      .000      .035      .000      .000   1138.78   9904.37
   .002228       485.      513.      565.         3         0         0       .00    275.89  10180.27

CCHV=      .100 CEHV=      .300
*SECNO 8.330
     8.330      12.63   1153.22       .00       .00   1154.31      1.08      1.26       .01   1164.00
   19170.1         .0   19170.1       .0        .0    2296.5        .0     159.0      19.4   1166.40
       .10        .00      8.35       .00      .000      .035      .000      .000   1140.59   9846.50
   .002214       555.      565.      545.         2         0         0       .00    266.94  10113.44

CCHV=      .100 CEHV=      .300
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*SECNO 8.390
     8.390      13.01   1153.93       .00       .00   1154.95      1.02       .63       .01   1165.05
   19170.1         .0   19170.0        .0        .0    2367.7        .0     175.5      21.3   1167.41
       .11        .00      8.10       .00      .000      .035      .000      .000   1140.92   9865.37
   .001914       310.      308.      305.         2         0         0       .00    258.06  10123.43

CCHV=     .100 CEHV=     .300
*SECNO 8.457
     8.457      13.57   1154.67       .00       .00   1155.60       .93       .64       .01   1168.74
   19170.1         .0   19170.1        .0        .0    2477.8        .0     195.6      23.4   1168.40
       .13        .00      7.74       .00      .000      .035      .000      .000   1141.10   9868.83
   .001641       365.      362.      355.         2         0         0       .00    257.38  10126.22
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 8.516

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73

     8.516      13.91   1155.46       .00       .00   1155.90       .44       .25       .05   1168.60
   19170.1         .0   19170.1        .0        .0    3597.1        .0     215.7      25.2   1167.50
       .14        .00      5.33       .00      .000      .035      .000      .000   1141.55   9860.44
   .000550       280.      288.      305.         2         0         0       .00    280.90  10141.34

CCHV=     .100 CEHV=     .300
*SECNO 8.538
     8.538      13.26   1155.50       .00       .00   1155.97       .47       .06       .01   1167.86
   19170.1         .0   19170.1        .0        .0    3485.3        .0     224.6      25.9   1167.09
       .15        .00      5.50       .00      .000      .035      .000      .000   1142.24   9858.37
   .000608       110.      110.      105.         2         0         0       .00    279.33  10137.70

CCHV=     .100 CEHV=     .300
*SECNO 8.548

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     8.548       7.89   1157.66   1157.66       .00   1160.28      2.62       .08       .64   1167.19
   19170.1         .0   19170.0        .0        .0    1477.1        .0     227.3      26.2   1166.85
       .15        .00     12.98       .00      .000      .035      .000      .000   1149.77   9853.47
   .010901        48.       48.       48.        20        14         0       .00    290.00  10143.47

CCHV=     .200 CEHV=     .400
*SECNO 8.655

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.17

     8.655       8.97   1161.47       .00       .00   1161.87       .41      1.16       .44   1169.87
   19170.1         .0   19170.1        .0        .0    3740.6        .0     255.0      30.6   1168.79
       .17        .00      5.12       .00      .000      .035      .000      .000   1152.50   9544.71
   .001085       675.      461.      340.         3         0         0       .00    530.72  10075.44
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 8.731
     8.731       8.46   1162.06       .00       .00   1162.31       .25       .42       .02   1156.95
   19170.1    6263.9   12906.2        .0    2229.1    2892.8        .0     298.3      36.9   1169.55
       .20       2.81      4.46       .00      .060      .035      .000      .000   1153.60   9345.31
   .000931       500.      402.      395.         2         0         0       .00    768.98  10114.29

CCHV=     .100 CEHV=     .300
*SECNO 8.807

3301 HV CHANGED MORE THAN HVINS
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3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     8.807      6.01   1164.05   1164.05       .00   1166.67      2.62       .90       .71   1173.10
   19170.1        .0   19170.1       .0        .0    1474.7        .0     329.5      41.9   1172.75
       .21       .00     13.00       .00      .000      .035      .000      .000   1158.04   9818.00
   .010587      425.      405.      395.        20        19         0       .00    285.00  10102.99


CCHV=      .100 CEHV=      .300
*SECNO 8.883
     8.883      8.32   1167.76       .00       .00   1170.43      2.66      3.75       .01   1176.80
   19170.1        .0   19170.1       .0        .0    1463.6        .0     343.0      44.3   1175.80
       .22       .00     13.10       .00      .000      .035      .000      .000   1159.44   9879.84
   .008304      410.      401.      400.         4         0         0       .00    232.24  10112.08


CCHV=      .100 CEHV=      .300
*SECNO 8.936

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68

     8.936      10.77   1170.71       .00       .00   1171.91      1.20      1.34       .15   1174.58
   19170.1        .0   19170.1       .0        .0    2177.0        .0     355.1      46.0   1177.20
       .23       .00      8.81       .00      .000      .035      .000      .000   1159.94   9838.71
   .002944      285.      290.      290.         3         0         0       .00    287.99  10126.69
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=      .100 CEHV=      .300
*SECNO 8.977
     8.977      9.84   1171.14       .00       .00   1172.73      1.59       .70       .12   1175.88
   19170.1        .0   19170.1       .0        .0    1893.2        .0     365.0      47.3   1177.97
       .23       .00     10.13       .00      .000      .035      .000      .000   1161.30   9874.66
   .003775      220.      212.      215.         3         0         0       .00    242.51  10117.17


CCHV=      .100 CEHV=      .300
*SECNO 8.994
     8.994      9.73   1171.38       .00       .00   1173.14      1.76       .36       .05   1175.69
   19170.1        .0   19170.1       .0        .0    1803.1        .0     368.9      47.8   1178.73
       .24       .00     10.63       .00      .000      .035      .000      .000   1161.65   9906.48
   .003996       90.       92.       85.         2         0         0       .00    224.29  10130.77


CCHV=      .100 CEHV=      .300
*SECNO 9.047

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.06

     9.047      11.71   1173.35       .00       .00   1173.83       .48       .57       .13   1177.70
   19170.1        .0   19157.9      12.2        .0    3450.0      53.1     389.0      50.5   1180.42
       .25       .00      5.55       .23      .000      .035      .110      .000   1161.64   9890.05
   .000944      355.      331.      270.         2         0         0       .00    523.35  10520.75


CCHV=      .100 CEHV=      .300
*SECNO 9.129

3265 DIVIDED FLOW

     9.129      10.64   1173.80       .00       .00   1174.18       .38       .34       .01   1180.07
   19170.1        .0   19124.6      45.4        .0    3846.0      90.4     422.8      55.3   1177.56
       .28       .00      4.97       .50      .000      .035      .110      .000   1163.16   9859.91
   .000797      370.      394.      430.         2         0         0       .00    515.58  10439.46
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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CCHV=      .300 CEHV=      .500
*SECNO 9.193
     9.193       9.59   1174.13       .00       .00   1174.58       .44       .37       .03   1182.05
   19170.1         .0   19170.1        .0        .0    3582.1        .0     456.5      59.8   1176.06
       .30        .00      5.35       .00      .000      .035      .000      .000   1164.54   9838.22
   .001119       400.      391.      390.         3         0         0       .00    487.09  10325.31


CCHV=      .300 CEHV=      .500
*SECNO 9.289

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.289       8.95   1176.85   1176.85       .00   1179.68      2.84      1.29      1.20   1183.10
   19170.1         .0   19170.1        .0        .0    1418.6        .0     485.6      64.1   1185.00
       .31        .00     13.51       .00      .000      .035      .000      .000   1167.90   9890.38
   .010435       470.      506.      455.        20        11         0       .00    256.52  10146.90


CCHV=      .100 CEHV=      .300
*SECNO 9.318

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.61


3470 ENCROACHMENT STATIONS=          .0   10171.5  TYPE=       1  TARGET=    10171.540
     9.318      11.37   1179.72       .00       .00   1180.40       .68       .50       .22   1185.10
   19170.1         .0   19170.1        .0        .0    2897.8        .0     493.3      65.2   1185.00
       .31        .00      6.62       .00      .000      .035      .000      .000   1168.35   9786.28
   .001532       185.      156.      155.         3         0         0       .00    361.97  10148.25


CCHV=      .100 CEHV=      .300
*SECNO 9.367

3470 ENCROACHMENT STATIONS=          .0   10241.6  TYPE=       1  TARGET=    10241.560
     9.367       9.27   1180.60       .00       .00   1181.05       .45       .63       .02   1186.28
   19170.1         .0   19170.1        .0        .0    3557.1        .0     529.6      69.9   1184.23
       .34        .00      5.39       .00      .000      .035      .000      .000   1171.33   9731.63
   .001104       540.      490.      465.         2         0         0       .00    474.05  10205.68
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=      .100 CEHV=      .300
*SECNO 9.492

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66

     9.492       7.21   1181.15       .00       .00   1181.87       .73       .74       .08   1188.11
   19170.1         .0   19170.1        .0        .0    2801.7        .0     563.4      75.0   1184.43
       .36        .00      6.84       .00      .000      .035      .000      .000   1173.94   9820.44
   .002500       430.      463.      425.         2         0         0       .00    482.27  10302.71


CCHV=      .100 CEHV=      .300
*SECNO 9.592

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.592       7.24   1182.94   1182.94       .00   1185.20      2.26      2.79       .46   1190.23
   19170.1         .0   19170.0        .0        .0    1587.3        .0     594.0      80.8   1189.15
       .37        .00     12.08       .00      .000      .035      .000      .000   1175.70   9966.11
   .011093       535.      607.      580.         2         5         0       .00    355.48  10321.58


CCHV=      .100 CEHV=      .300
*SECNO 9.692

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.43

     9.692       9.55   1186.75       .00       .00   1187.49       .74      2.14       .15   1193.92
   19170.1         .0   19170.1        .0        .0    2771.6        .0     622.3      85.6   1190.03
       .39        .00      6.92       .00      .000      .035      .000      .000   1177.20   9931.63
   .001883       525.      565.      520.         3         0         0       .00    377.46  10309.09
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CCHV=      .100 CEHV=      .300
*SECNO 9.794

3301 HV CHANGED MORE THAN HVINS

1                                                                                                                    PAGE    93
   18OCT99       10:32:54

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      9.794       8.32    1188.55    1188.55        .00    1191.31       2.75       2.08        .60    1196.86
    19170.1         .0    19170.0        .0         .0     1439.3         .0      649.2       89.7    1195.79
        .40        .00      13.32        .00       .000       .035       .000       .000    1180.23    9955.33
    .010615       550.       557.       555.         20         15          0        .00     268.14   10223.47

CCHV=      .300 CEHV=      .500
*SECNO 9.889

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      9.889       8.16    1193.58    1193.58        .00    1196.93       3.35       5.18        .30    1201.40
    19170.1         .0    19170.1        .0         .0     1305.1         .0      665.0       92.4    1198.00
        .41        .00      14.69        .00       .000       .035       .000       .000    1185.42    9921.28
    .010078       485.       501.       495.          2          5          0        .00     200.30   10121.58

CCHV=      .300 CEHV=      .500
*SECNO 9.908

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      9.908       6.94    1195.99    1195.99        .00    1198.75       2.75       1.03        .18    1196.38
    19170.1      125.2    19044.9         .0       42.1     1426.0         .0      668.3       93.0    1198.80
        .42       2.97      13.36        .00       .060       .035       .000       .000    1189.05    9832.72
    .009775       120.       103.        65.         20         11          0        .00     282.96   10133.56

CCHV=      .300 CEHV=      .500
*SECNO 9.953
1                                                                                                                    PAGE    94
   18OCT99       10:32:54

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68

      9.953       9.42    1198.80        .00        .00    1200.18       1.38       1.03        .41    1202.16
    19170.1         .0    19170.1        .0         .0     2031.4         .0      675.9       94.2    1203.14
        .42        .00       9.44        .00       .000       .035       .000       .000    1189.38    9877.99
    .003446       175.       189.       215.          4          0          0        .00     272.43   10150.42

CCHV=      .300 CEHV=      .500
*SECNO 9.958
      9.958       8.54    1199.01        .00        .00    1200.30       1.29        .09        .03    1203.19
    19170.1         .0    19170.1        .0         .0     2101.9         .0      677.2       94.4    1203.03
        .42        .00       9.12        .00       .000       .035       .000       .000    1190.47    9875.75
    .003205        22.        27.        28.          3          0          0        .00     281.42   10157.17

SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90       1.60       2.68        .00     240.00       4.70    2496.30       2.00    1191.15    1191.04

CCHV=      .300 CEHV=      .500
*SECNO 9.984
```

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
1200.48	1200.47	.08	0.	19170.	2496.	2304.	1200.24	1204.01	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1204.90 ELREA= 1204.01

9.984	8.10	1199.10	.00	.00	1200.48	1.37	.17	.00	1203.16
19170.1	.0	19170.1	.0	.0	2038.2	.0	683.5	95.2	1204.00
.43	.00	9.41	.00	.000	.035	.000	.000	1191.00	9879.22
.003550	130.	134.	129.	3	0	0	.00	281.25	10160.47

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .300 CEHV= .500
*SECNO 9.997

3301 HV CHANGED MORE THAN HVINS

9.997	7.46	1199.17	.00	.00	1201.08	1.92	.34	.27	1200.73
19170.1	.0	19170.1	.0	.0	1725.5	.0	686.8	95.7	1200.72
.43	.00	11.11	.00	.000	.035	.000	.000	1191.71	9883.64
.005976	51.	74.	104.	3	0	0	.00	274.77	10158.41

CCHV= .100 CEHV= .300
*SECNO 10.096

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.53

10.096	8.57	1202.41	.00	.00	1203.23	.82	2.04	.11	1202.39
19170.1	456.6	18713.5	.0	177.9	2545.6	.0	714.5	100.3	1204.41
.45	2.57	7.35	.00	.060	.035	.000	.000	1193.84	9651.50
.002564	535.	544.	555.	3	0	0	.00	467.87	10119.36

CCHV= .100 CEHV= .300
*SECNO 10.176

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .69

10.176	8.48	1204.05	.00	.00	1205.37	1.31	1.99	.15	1203.68
19170.1	141.6	19028.4	.0	68.0	2063.5	.0	745.2	106.3	1205.57
.47	2.08	9.22	.00	.060	.035	.000	.000	1195.57	9653.96
.005425	510.	563.	550.	2	0	0	.00	472.23	10126.19

CCHV= .100 CEHV= .300
*SECNO 10.271

3265 DIVIDED FLOW

10.271	8.31	1206.57	.00	.00	1207.57	1.00	2.17	.03	1211.43
19170.1	298.9	18738.5	132.6	217.5	2313.7	196.5	772.4	114.2	1206.60
.48	1.37	8.10	.67	.060	.035	.110	.000	1198.26	9533.08
.003670	460.	491.	455.	2	0	0	.00	980.78	10599.25

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .100 CEHV= .300
*SECNO 10.348

3265 DIVIDED FLOW

10.348	7.35	1208.56	.00	.00	1209.70	1.13	2.09	.04	1212.70
19170.1	.0	19111.8	58.2	.0	2233.3	112.4	802.4	123.4	1208.90
.50	.00	8.56	.52	.000	.035	.110	.000	1201.21	9965.04
.004370	510.	523.	385.	3	0	0	.00	731.10	10725.64

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CCHV=     .100 CEHV=     .300
*SECNO 10.443

3470 ENCROACHMENT STATIONS=     9689.3   10541.4  TYPE=      1  TARGET=    -9689.340
 ELENCL=   1229.34  ELENCR= 100000.00
    10.443      6.35   1210.95       .00       .00   1212.47      1.52      2.66       .11   1210.53
   19171.1      19.4   19151.7        .0      16.8    1937.1        .0     826.7     129.8   1213.65
       .51      1.15      9.89       .00      .060      .035      .000      .000   1204.60   9835.97
   .006754      475.      495.      420.         3         0         0       .00    444.63  10280.61


CCHV=     .100 CEHV=     .300
*SECNO 10.517

3265 DIVIDED FLOW

3280 CROSS SECTION     10.52 EXTENDED      2.38 FEET


3470 ENCROACHMENT STATIONS=     9648.1   10315.1  TYPE=      1  TARGET=    -9648.110
 ELENCL=   1220.64  ELENCR= 100000.00
    10.517      6.95   1214.38       .00       .00   1215.75      1.37      3.27       .01   1218.09
   19488.4    1217.2   17118.8    1152.4     274.7    1724.9     565.5     853.1     135.9   1212.41
       .53      4.43      9.92      2.04      .060      .035      .110      .000   1207.43   9680.16
   .005974      425.      519.      480.         3         0         0       .00    613.93  10315.07


CCHV=     .100 CEHV=     .300
*SECNO 10.612

3265 DIVIDED FLOW
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3280 CROSS SECTION     10.61 EXTENDED      .95 FEET

    10.612      8.03   1216.80       .00       .00   1218.12      1.33      2.37       .00   1220.88
   20417.5       4.0   20317.2      96.3       6.1    2193.9     110.3     880.7     141.9   1215.60
       .55       .66      9.26       .87      .060      .035      .110      .000   1208.77   9814.71
   .003850      490.      505.      435.         3         0         0       .00    457.21  10352.46


CCHV=     .100 CEHV=     .300
*SECNO 10.699

3301 HV CHANGED MORE THAN HVINS

    10.699      9.10   1218.56       .00       .00   1220.81      2.25      2.41       .28   1222.80
   20584.2        .0   20583.0       1.2        .0    1709.3       3.2     902.1     145.9   1218.20
       .56       .00     12.04       .37      .000      .035      .110      .000   1209.46   9966.99
   .007465      460.      462.      460.         3         0         0       .00    302.26  10269.25


CCHV=     .100 CEHV=     .300
*SECNO 10.803

3265 DIVIDED FLOW

3280 CROSS SECTION     10.80 EXTENDED      2.49 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.40

    10.803      8.74   1222.84       .00       .00   1223.95      1.11      3.02       .11   1220.90
   21203.5     610.0   20593.4        .0     181.5    2405.6        .0     930.0     151.0   1220.34
       .57      3.36      8.56       .00      .060      .035      .000      .000   1214.10   9602.22
   .004020      555.      567.      555.         2         0         0       .00    488.12  10215.45


CCHV=     .100 CEHV=     .300
*SECNO 10.862

3265 DIVIDED FLOW
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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3280 CROSS SECTION 10.86 EXTENDED .11 FEET

3301 HV CHANGED MORE THAN HVINS

10.862	8.05	1223.48	1223.21	.00	1226.15	2.67	1.74	.47	1228.35
21946.3	79.6	21860.2	6.5	49.5	1663.7	14.5	945.4	154.2	1223.20
.58	1.61	13.14	.45	.060	.035	.110	.000	1215.43	9610.23
.008087	265.	313.	360.	6	12	0	.00	417.97	10185.23

CCHV= .100 CEHV= .300
*SECNO 10.917
3280 CROSS SECTION 10.92 EXTENDED 2.01 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.10

10.917	9.91	1226.64	.00	.00	1227.35	.71	1.00	.20	1223.78
22316.1	1564.3	20547.1	204.7	1051.3	2917.8	211.3	964.9	160.3	1224.50
.59	1.49	7.04	.97	.060	.035	.110	.000	1216.73	8805.00
.001900	265.	292.	300.	3	0	0	.00	1494.07	10299.07

CCHV= .300 CEHV= .500
*SECNO 10.980

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .49

10.980	8.17	1226.77	.00	.00	1229.72	2.95	1.25	1.12	1227.57
22648.9	.0	22648.9	.0	.0	1643.0	.0	989.8	168.4	1228.67
.60	.00	13.78	.00	.000	.035	.000	.000	1218.60	9872.01
.008121	445.	358.	300.	3	0	0	.00	238.03	10110.04

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1225.02 , NOT 1226.77 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	2.80	.00	186.22	8.00	1932.34	3.00	1218.61	1218.60

CCHV= .300 CEHV= .500
*SECNO 10.996
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
1230.18	1230.07	.00	921.	21666.	1932.	1992.	1228.23	1228.47	457.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1228.47 ELREA= 1229.05

10.996	8.37	1226.98	.00	.00	1229.89	2.91	.17	.00	1228.19
22648.9	.0	22648.9	.0	.0	1654.5	.0	994.6	169.1	1228.55
.60	.00	13.69	.00	.000	.035	.000	.000	1218.61	9879.38
.008109	128.	139.	127.	4	0	2	.00	242.42	10121.80

CCHV= .300 CEHV= .500
*SECNO 11.030

3265 DIVIDED FLOW

3280 CROSS SECTION 11.03 EXTENDED .94 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.77

11.030	10.72	1230.09	.00	.00	1231.16	1.08	.72	.55	1229.05
22653.4	4001.3	18551.2	100.8	1828.7	2028.0	152.8	1006.2	172.4	1228.90
.61	2.19	9.15	.66	.060	.035	.110	.000	1219.37	9013.24
.002592	200.	168.	140.	9	0	0	.00	1357.19	10375.57

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .100 CEHV= .300
*SECNO 11.129

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.53

3470 ENCROACHMENT STATIONS= .0 10408.1 TYPE= 1 TARGET= 10408.120

11.129	12.11	1231.51	.00	.00	1232.07	.56	.85	.05	1231.30
22657.2	3602.8	18951.3	103.1	1809.3	2911.2	218.4	1061.2	189.2	1231.76
.63	1.99	6.51	.47	.060	.035	.110	.000	1219.40	9022.25
.001110	565.	517.	495.	3	0	0	.00	1328.27	10363.83

CCHV= .100 CEHV= .300
*SECNO 11.188

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 10444.2 TYPE= 1 TARGET= 10444.150

11.188	13.51	1232.02	.00	.00	1232.39	.37	.30	.02	1232.77
22691.4	8986.4	13698.5	6.6	2660.2	2437.9	40.6	1096.7	197.8	1232.93
.65	3.38	5.62	.16	.060	.035	.110	.000	1218.51	9041.00
.000871	305.	309.	300.	3	0	0	.00	1126.78	10301.92

CCHV= .100 CEHV= .300
*SECNO 11.243

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 10492.9 TYPE= 1 TARGET= 10492.940

11.243	14.08	1232.43	.00	.00	1232.60	.17	.19	.02	1233.70
22691.5	14496.0	8195.4	.0	5150.6	1987.9	.0	1139.3	205.1	1234.30
.68	2.81	4.12	.00	.060	.035	.000	.000	1218.35	9095.51
.000487	295.	314.	335.	2	0	0	.00	996.93	10103.70

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .100 CEHV= .300
*SECNO 11.301

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .62

3470 ENCROACHMENT STATIONS= .0 10521.6 TYPE= 1 TARGET= 10521.610

11.301	11.23	1232.50	.00	.00	1232.89	.39	.22	.06	1232.87
22691.5	11523.2	11168.2	.0	3303.9	1799.3	.0	1181.0	211.6	1234.80
.70	3.49	6.21	.00	.060	.035	.000	.000	1221.27	9178.89
.001281	300.	290.	275.	3	0	0	.00	904.31	10099.95

CCHV= .100 CEHV= .300
*SECNO 11.386

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .70

3470 ENCROACHMENT STATIONS= .0 10133.3 TYPE= 1 TARGET= 10133.310

11.386	9.97	1233.07	.00	.00	1233.76	.70	.78	.09	1233.46
22691.5	8208.3	14483.2	.0	2579.8	1802.1	.0	1229.1	221.1	1238.40

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      .72       3.18       8.04        .00       .060       .035       .000       .000   1223.10   9153.29
  .002644       445.       437.       415.          3          0          0        .00    960.71  10116.43

CCHV=      .100 CEHV=      .300
*SECNO 11.481

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .57

3470 ENCROACHMENT STATIONS=     9842.1   10811.8  TYPE=      1  TARGET=    -9842.070
 ELENCL=   1236.77  ELENCR= 100000.00
1                                                                                                   PAGE  102
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

   11.481       9.37    1234.18        .00        .00    1236.46       2.28       2.22        .48    1236.77
  22691.5         .0    22691.5         .0         .0     1871.6         .0     1266.3      228.7    1240.19
      .73        .00      12.12        .00       .000       .035       .000       .000    1224.81    9850.56
  .008014       510.       523.       555.          3          0          0        .00     326.00   10176.56

CCHV=      .100 CEHV=      .300
*SECNO 11.566

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   2.62

   11.566       9.00    1237.32        .00        .00    1237.79        .47       1.15        .18    1234.96
  22691.5      688.1    22003.4         .0      447.9     3949.6         .0     1300.5      234.6    1243.30
      .75       1.54       5.57        .00       .060       .035       .000       .000    1228.32    9296.38
  .001164       565.       469.       545.          2          0          0        .00     715.59   10044.70

CCHV=      .100 CEHV=      .300
*SECNO 11.664

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .50

   11.664       8.91    1237.71        .00        .00    1239.15       1.44       1.07        .29    1236.20
  22691.5      469.8    22221.6         .0      215.6     2288.4         .0     1341.4      242.0    1244.86
      .77       2.18       9.71        .00       .060       .035       .000       .000    1228.80    9458.05
  .004688       535.       514.       515.          2          0          0        .00     539.04   10035.29

CCHV=      .100 CEHV=      .300
*SECNO 11.759
1                                                                                                   PAGE  103
   18OCT99       10:32:54

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3265 DIVIDED FLOW

   11.759       8.37    1240.39        .00        .00    1241.87       1.48       2.71        .01    1244.46
  22691.5     5186.2    17505.3         .0     1285.7     1607.5         .0     1372.2      248.2    1246.55
      .78       4.03      10.89        .00       .085       .035       .000       .000    1232.02    9437.07
  .006340       485.       501.       470.          3          0          0        .00     550.85   10115.77

CCHV=      .100 CEHV=      .300
*SECNO 11.864

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS
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3470 ENCROACHMENT STATIONS=     9887.3   11941.3  TYPE=      1  TARGET=    -9887.290
 ELENCL=   1250.00  ELENCR= 100000.00
   11.864      8.26   1243.83   1243.61       .00   1246.87      3.04      4.54       .47   1240.43
  22691.5       .0   22365.3     326.2        .0   1586.7     107.3    1404.5     254.0   1240.45
      .79       .00     14.10      3.04      .000      .035      .110      .000   1235.57   9887.29
 .008704      605.      615.      665.         4         8         0       .00    265.12  10246.49

CCHV=     .100 CEHV=     .300
*SECNO 11.949

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.29

3470 ENCROACHMENT STATIONS=     9673.8   12170.5  TYPE=      1  TARGET=    -9673.750
 ELENCL=   1248.70  ELENCR= 100000.00
   11.949      9.09   1247.99       .00       .00   1248.58       .59      1.46       .25   1245.13
  22691.5    1931.1   20232.0     528.4     687.2    3133.0     350.2    1435.4     259.4   1244.81
      .81      2.81      6.46      1.51      .060      .035      .110      .000   1238.90   9700.12
 .001653      565.      452.      380.         3         0         0       .00    757.48  10632.77
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 12.034

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  .51

   12.034      7.42   1248.89       .00       .00   1250.41      1.52      1.55       .28   1250.55
  22691.5       .0   22691.5        .0        .0    2293.3        .0    1475.3     266.9   1250.96
      .83       .00      9.89       .00      .000      .035      .000      .000   1241.47   9730.97
 .006241      488.      540.      615.         3         0         0       .00    450.92  10181.89

CCHV=     .100 CEHV=     .300
*SECNO 12.125

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.44

   12.125      7.01   1251.66       .00       .00   1252.43       .77      1.95       .07   1254.31
  22691.5     903.5   21788.0        .0     245.6    3044.1        .0    1505.1     272.6   1254.40
      .85      3.68      7.16       .00      .060      .035      .000      .000   1244.65   9106.75
 .003018      535.      462.      365.         2         0         0       .00    625.17  10324.39

CCHV=     .100 CEHV=     .300
*SECNO 12.194

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   12.194      5.92   1253.92   1253.92       .00   1256.17      2.25      1.77       .44   1259.62
  22691.5        .0   22691.5        .0        .0    1886.1        .0    1529.3     276.7   1257.60
      .86       .00     12.03       .00      .000      .035      .000      .000   1248.00   9848.11
 .011174      370.      338.      330.        20        15         0       .00    427.76  10275.87
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 12.313
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3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.63

12.313	9.25	1259.72	1259.20	.00	1260.69	.97	4.39	.13	1260.51
22691.5	805.1	18408.6	3477.7	456.7	2107.3	2457.5	1577.1	300.1	1259.84
.88	1.76	8.74	1.42	.060	.035	.110	.000	1250.47	9377.99
.004210	750.	685.	585.	5	14	0	.00	2782.62	12355.30

CCHV= .100 CEHV= .300
*SECNO 12.420

3265 DIVIDED FLOW

12.420	8.07	1262.57	.00	.00	1263.40	.84	2.70	.01	1262.30
22691.5	1503.3	14752.8	6435.4	698.9	1641.3	3393.2	1654.6	342.7	1263.54
.91	2.15	8.99	1.90	.060	.035	.110	.000	1254.50	9146.64
.004868	600.	578.	665.	3	0	0	.00	2997.95	12384.21

CCHV= .100 CEHV= .300
*SECNO 12.511

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

12.511	9.93	1264.73	1264.73	.00	1265.79	1.06	2.17	.07	1262.26
22691.5	1386.2	15332.0	5973.3	641.4	1538.8	3901.4	1715.1	374.1	1265.39
.92	2.16	9.96	1.53	.060	.035	.110	.000	1254.80	9128.65
.004627	455.	468.	435.	4	13	0	.00	3186.09	12554.78

CCHV= .100 CEHV= .300
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12.606

3265 DIVIDED FLOW

12.606	8.96	1267.86	.00	.00	1268.49	.64	2.66	.04	1267.14
22737.6	664.0	17606.2	4467.4	426.8	2441.7	2383.7	1787.8	411.0	1267.91
.95	1.56	7.21	1.87	.060	.035	.110	.000	1258.90	9261.50
.004879	555.	582.	545.	2	0	0	.00	2642.30	12141.24

CCHV= .100 CEHV= .300
*SECNO 12.701

3265 DIVIDED FLOW

12.701	10.15	1270.25	.00	.00	1270.73	.48	2.22	.02	1271.92
22737.6	481.2	16447.6	5808.8	303.6	2537.6	3743.6	1857.8	445.3	1270.40
.98	1.59	6.48	1.55	.060	.035	.110	.000	1260.10	8782.95
.004063	495.	506.	525.	3	0	0	.00	3161.54	12508.25

CCHV= .100 CEHV= .300
*SECNO 12.801

3265 DIVIDED FLOW

3280 CROSS SECTION 12.80 EXTENDED .84 FEET

12.801	11.51	1271.74	.00	.00	1272.22	.48	1.49	.00	1275.01
22737.6	758.0	20558.7	1420.9	416.0	3542.7	835.5	1927.2	473.6	1272.57
1.01	1.82	5.80	1.70	.060	.035	.110	.000	1260.23	8567.00
.002075	565.	525.	535.	3	0	0	.00	1421.47	11629.59

CCHV= .100 CEHV= .300
*SECNO 12.896

3265 DIVIDED FLOW

12.896	10.08	1272.58	.00	.00	1273.24	.65	.97	.05	1278.41
22737.6	.0	21953.8	783.7	.0	3326.1	571.5	1977.8	485.7	1273.04
1.03	.00	6.60	1.37	.000	.035	.110	.000	1262.50	9857.57
.001749	540.	508.	495.	3	0	0	.00	664.03	11357.19

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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
*SECNO 12.991

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65

  12.991     11.08   1273.45       .00       .00   1273.79       .34       .52       .03   1277.59
 22737.6        .0   22607.5     130.0        .0    4828.0     161.0    2031.7     493.2   1274.41
    1.06       .00      4.68       .81      .000      .035      .110      .000   1262.37   9742.34
 .000641      595.      527.      535.         2         0         0       .00    569.58  11612.01

CCHV=     .100 CEHV=     .300
*SECNO 13.076

3265 DIVIDED FLOW

  13.076     11.32   1273.69       .00       .00   1274.22       .53       .37       .06   1279.35
 22737.6        .0   22674.8      62.7        .0    3886.8      74.0    2078.3     498.7   1278.53
    1.08       .00      5.83       .85      .000      .035      .110      .000   1262.37   9685.33
 .001075      520.      454.      455.         2         0         0       .00    479.10  11663.30

CCHV=     .100 CEHV=     .300
*SECNO 13.151

3265 DIVIDED FLOW

  13.151     11.88   1274.08       .00       .00   1274.74       .66       .48       .04   1279.07
 22737.6        .0   22737.4        .1        .0    3499.2        .8    2112.0     502.7   1277.21
    1.10       .00      6.50       .19      .000      .035      .110      .000   1262.20   9759.05
 .001396      520.      393.      370.         2         0         0       .00    423.41  11552.83

CCHV=     .100 CEHV=     .300
*SECNO 13.161

3265 DIVIDED FLOW
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  13.161      6.70   1281.35   1281.35       .00   1282.89      1.54       .14       .27   1280.81
 22737.6      98.0   22121.7     517.8      76.1    2191.1     539.6    2115.8     504.3   1281.51
    1.10      1.29     10.10       .96      .060      .035      .110      .000   1274.65   9553.68
 .007930       55.       51.       70.        20        11         0       .00   1796.80  12115.15

CCHV=     .100 CEHV=     .300
*SECNO 13.185

3470 ENCROACHMENT STATIONS=     9719.6   10293.4  TYPE=      1  TARGET=    -9719.600
 ELENCL=   1281.83  ELENCR= 100000.00
  13.185      6.66   1281.55       .00       .00   1283.18      1.64       .26       .03   1281.80
 22737.6        .0   22737.6        .0        .0    2212.9        .0    2117.7     505.1   1281.93
    1.10       .00     10.28       .00      .000      .035      .000      .000   1274.89   9753.23
 .007672       35.       34.       32.         2         0         0       .00    481.55  10234.79

CCHV=     .100 CEHV=     .300
*SECNO 13.227

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     9777.5   12689.3  TYPE=      1  TARGET=    -9777.540
 ELENCL=   1283.85  ELENCR= 100000.00
  13.227      8.58   1283.40   1281.95       .00   1285.14      1.74      1.92       .03   1282.50
 22737.6     166.7   21391.9    1179.0      95.3    1961.5     853.0    2136.6     514.9   1283.00
    1.11      1.75     10.91      1.38      .060      .035      .110      .000   1274.82   9822.00
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   .004928      335.      315.      350.        6         8         0       .00   2029.89  12030.21

CCHV=     .100 CEHV=     .300
*SECNO 13.325

3265 DIVIDED FLOW
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     9874.4   12522.4  TYPE=      1  TARGET=    -9874.420
 ELENCL=   1287.00  ELENCR= 100000.00
   13.325      9.45   1286.15   1284.79       .00   1288.07      1.91      2.88       .05   1291.00
  22737.6        .0   21367.7    1369.8        .0    1866.5    1044.3    2174.2     540.4   1288.10
     1.12       .00     11.45      1.31      .000      .035      .110      .000   1276.70   9875.83
  .005191      555.      571.      545.         4        11         0       .00   2020.38  12028.47


CCHV=     .100 CEHV=     .300
*SECNO 13.420

3265 DIVIDED FLOW

3280 CROSS SECTION     13.42 EXTENDED       .15 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65


3470 ENCROACHMENT STATIONS=     9827.2   12668.9  TYPE=      1  TARGET=    -9827.240
 ELENCL=   1290.85  ELENCR= 100000.00
   13.420     11.72   1289.15       .00       .00   1289.71       .56      1.51       .14   1288.33
  22738.8       4.3   14358.0    8376.6       5.4    1922.3    6677.6    2240.5     567.8   1289.98
     1.15       .79      7.47      1.25      .060      .035      .110      .000   1277.43   9836.20
  .001901      515.      514.      495.         4         0         0       .00   2781.62  12668.90


CCHV=     .100 CEHV=     .300
*SECNO 13.524

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     9858.0   12689.6  TYPE=      1  TARGET=    -9858.030
 ELENCL=   1292.81  ELENCR= 100000.00
   13.524      7.94   1289.84   1288.94       .00   1291.76      1.92      1.64       .41   1292.81
  22739.4        .0   22416.8     322.6        .0    1999.4     245.4    2303.7     588.7   1291.71
     1.16       .00     11.21      1.31      .000      .035      .110      .000   1281.90   9864.10
  .006324      605.      523.      500.         8        14         0       .00    834.29  12361.39


CCHV=     .100 CEHV=     .300
*SECNO 13.619

3265 DIVIDED FLOW

3280 CROSS SECTION     13.62 EXTENDED       .59 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.46

   13.619      9.12   1292.59       .00       .00   1292.98       .39      1.07       .15   1294.77
  22739.4      12.1   22610.9     116.3      27.7    4478.2     171.0    2343.9     598.6   1293.88
     1.19       .44      5.05       .68      .060      .035      .110      .000   1283.47   9562.00
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.001044      565.      506.      495.        3         0         0       .00    869.46  12407.93

CCHV=     .100 CEHV=     .300
*SECNO 13.680

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .0   11340.5  TYPE=      1  TARGET=    11340.480
   13.680      7.47   1292.97       .00       .00   1293.47       .51       .46       .03   1292.88
  22739.4      93.8   22613.5      32.1      59.3    3946.7      97.2    2377.2     605.9   1292.80
     1.21      1.58      5.73       .33      .060      .035      .110      .000   1285.50   9551.97
 .001909      320.      331.      315.         3         0         0       .00   1071.12  10664.70

CCHV=     .100 CEHV=     .300
1                                                                                          PAGE  111
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 13.742

3470 ENCROACHMENT STATIONS=          .0   10408.2  TYPE=      1  TARGET=    10408.160
   13.742      8.09   1293.69       .00       .00   1294.04       .36       .56       .01   1294.10
  22739.4        .0   22739.4        .0        .0   4737.3        .0    2413.2     613.5   1300.31
     1.23       .00      4.80       .00      .000      .038      .000      .000   1285.60   9556.47
 .001312      430.      354.      400.         2         0         0       .00    758.53  10315.00

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 13.818

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .0   10640.3  TYPE=      1  TARGET=    10640.250
   13.818      8.36   1294.19       .00       .00   1294.48       .28       .42       .01   1293.89
  22739.4      25.5   22236.8     477.1      45.9   5144.5      433.4    2461.7     621.1   1292.32
     1.25       .96      4.32      1.10      .058      .038      .110      .000   1285.83   9670.47
 .000852      395.      406.      435.         2         0         0       .00    874.22  10582.75

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 13.918

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9733.6   11551.6  TYPE=      1  TARGET=    -9733.640
 ELENCL=   1305.00  ELENCR= 100000.00
   13.918     11.27   1301.10   1301.10       .00   1303.60      2.51      1.36       .67   1300.59
  22739.4      24.8   16828.5    5886.1      18.7    1163.8    1152.0    2517.4     631.4   1300.33
     1.27      1.33     14.46      5.11      .058      .038      .110      .000   1289.83   9876.47
 .014141      535.      642.      485.        20        11         0       .00    669.42  10663.98

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 14.013

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.10

3470 ENCROACHMENT STATIONS=     9434.0   12943.7  TYPE=      1  TARGET=    -9433.960
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ELENCL=   1307.10  ELENCR= 100000.00
   14.013      10.84   1306.59       .00       .00   1307.19       .60      3.39       .19   1306.05
  22739.4       10.7   14734.8    7993.9      31.7    1929.1    5386.6    2590.3     662.3   1303.66
     1.30        .34      7.64      1.48      .110      .038      .110      .000   1295.75    9600.64
  .003196       620.      514.      723.         2         0         0       .00   3233.24   12872.95


CCHV=     .100 CEHV=     .300
*SECNO 14.103

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9400.1   13091.8  TYPE=      1  TARGET=    -9400.080
 ELENCL=   1310.12  ELENCR= 100000.00
   14.103       8.48   1308.18   1307.63       .00   1309.29      1.12      1.95       .16   1308.90
  22739.4         .0   17976.7    4762.7        .0    1890.9    2902.5    2645.4     688.5   1307.30
     1.31        .00      9.51      1.64      .000      .038      .110      .000   1299.70    9766.51
  .005615       540.      521.      338.         6        15         0       .00   3095.17   13082.44


CCHV=     .100 CEHV=     .300
*SECNO 14.197

3265 DIVIDED FLOW
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

   14.197       9.65   1311.55       .00       .00   1312.06       .51      2.71       .06   1311.25
  22855.6       88.9   13881.0    8885.7     102.0    1913.5    5053.4    2715.2     729.7   1310.80
     1.34        .87      7.25      1.76      .058      .038      .110      .000   1301.90    9398.81
  .005364       465.      480.      528.         2         0         0       .00   3819.31   13222.30


CCHV=     .100 CEHV=     .300
*SECNO 14.284
   14.284       8.53   1313.93       .00       .00   1314.26       .33      2.18       .02   1312.53
  22855.6     1264.4   12347.2    9244.0     758.0    2006.0    6130.3    2806.2     775.9   1311.30
     1.38       1.67      6.16      1.51      .058      .038      .110      .000   1305.40    8810.33
  .003637       495.      499.      496.         3         0         0       .00   4292.73   13103.06


CCHV=     .100 CEHV=     .300
*SECNO 14.379

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .70

   14.379       8.42   1316.39       .00       .00   1316.84       .45      2.54       .03   1316.50
  22855.6         .2   11680.7   11174.7       1.1    1610.6    5489.4    2898.6     822.1   1313.30
     1.41        .16      7.25      2.04      .058      .038      .110      .000   1307.97    9470.85
  .007445       515.      506.      502.         2         0         0       .00   3685.40   13337.27


CCHV=     .100 CEHV=     .300
*SECNO 14.495
3280 CROSS SECTION     14.49 EXTENDED       .21 FEET

   14.495       8.21   1320.31       .00       .00   1320.38       .07      3.51       .04   1319.40
  22859.3      263.4    2097.9   20498.0     148.6    2972.1    9143.4    3017.0     869.8   1316.60
     1.48       1.77       .71      2.24      .058      .380      .110      .000   1312.10    9055.56
  .005808       605.      562.      523.         3         0         0       .00   4135.19   13190.75


CCHV=     .100 CEHV=     .300
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 14.599

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.50
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  14.599      7.32   1322.32       .00       .00   1322.57       .26      2.14       .06   1321.60
 22861.4    1423.0   15458.6    5979.8     784.1    3173.0    5153.6    3159.2     924.4   1320.90
    1.52      1.81      4.87      1.16      .058      .038      .110      .000   1315.00   8682.41
 .002587      400.      542.      607.         2         0         0       .00   4121.52  12803.93

CCHV=     .100 CEHV=     .300
*SECNO 14.653

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55

  14.653      7.02   1324.32       .00       .00   1324.87       .55      2.21       .09   1323.40
 22861.4    2062.3   13860.0    6939.1     593.1    1873.2    3606.9    3245.9     968.5   1324.00
    1.55      3.48      7.40      1.92      .058      .038      .110      .000   1317.30   8986.52
 .006458      465.      537.      480.         2         0         0       .00   3731.03  12766.45

CCHV=     .100 CEHV=     .300
*SECNO 14.752

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.59

  14.752      7.54   1327.31       .00       .00   1327.68       .37      2.79       .02   1326.04
 22861.4    1732.8   15423.8    5704.8     790.5    2655.7    4098.0    3332.7    1014.9   1327.69
    1.58      2.19      5.81      1.39      .058      .038      .110      .000   1319.77   9015.45
 .003362      530.      548.      565.         3         0         0       .00   3527.74  12690.36

CCHV=     .100 CEHV=     .300
*SECNO 14.850

3265 DIVIDED FLOW
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3280 CROSS SECTION      14.85 EXTENDED      1.21 FEET

3470 ENCROACHMENT STATIONS=     8948.3   12686.7  TYPE=      1  TARGET=    -8948.280
 ELENCL=   1331.58  ELENCR= 100000.00
  14.850      8.51   1329.41       .00       .00   1330.10       .69      2.33       .10   1329.20
 22955.0      20.1   18247.8    4687.1      29.9    2464.9    2547.7    3406.5    1050.2   1328.60
    1.60       .67      7.40      1.84      .058      .038      .110      .000   1320.90   9408.45
 .006088      545.      537.      486.         3         0         0       .00   2593.28  12686.70

CCHV=     .100 CEHV=     .300
*SECNO 14.945

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73

  14.945     16.75   1331.95       .00       .00   1332.09       .14      1.93       .05   1332.00
 23000.0       5.4    6671.6   16323.0      12.8    1896.3    5922.0    3497.9    1089.2   1332.10
    1.66       .43      3.52      2.76      .058      .038      .110      .000   1315.20   9663.01
 .002036      585.      529.      665.         3         0         0       .00   2810.03  12846.30

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 14.983

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9776.6   13539.1  TYPE=      1  TARGET=    -9776.610
 ELENCL=   1334.98  ELENCR= 100000.00
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 14.983      9.44    1333.34    1333.34        .00    1334.52       1.18       1.04        .31    1334.70
23000.0        .0    16944.5     6055.5         .0     1704.7     1715.6     3526.3     1101.9    1335.00
   1.67       .00       9.94       3.53       .000       .038       .110       .000    1323.90    9819.14
.021070      190.       216.       222.         20         14          0        .00    2226.14   12873.52


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 15.049

3265 DIVIDED FLOW

3280 CROSS SECTION     15.05 EXTENDED       .11 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.30

 15.049     15.41    1336.61        .00        .00    1336.71        .10       2.08        .11    1338.50
23000.0        .0    11649.6    11350.4         .0     3693.3     7036.5     3596.0     1131.6    1337.70
   1.72       .00       3.15       1.61       .000       .056       .110       .000    1321.20    9871.98
.001933      585.       500.       385.          4          0          0        .00    4025.63   13965.36


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 15.144

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55


3470 ENCROACHMENT STATIONS=     9744.0   13809.9  TYPE=      1  TARGET=    -9744.000
 ELENCL=   1338.07  ELENCR= 100000.00
 15.144      8.41    1337.61        .00        .00    1338.37        .76       1.46        .20    1338.07
23000.0        .0    16954.2     6045.8         .0     2094.8     3612.0     3677.1     1165.4    1343.90
   1.74       .00       8.09       1.67       .000       .038       .110       .000    1329.20    9765.72
.006312      485.       493.       396.          4          0          0        .00    3092.93   13210.50


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 TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.958 TO RM 9.984

 TOTAL    AVG      MAX      AVG      TOP      TOP
 AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
    .0      .00      .00      .00   420.0       .0

  ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER     NITER     DSWS      USWS      DSSNO     USSNO
   .00        .00        .00       .00       .00        .00        11  1199.010  1199.102      9.958     9.984


 TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.984 TO RM 9.997

 TOTAL    AVG      MAX      AVG      TOP      TOP
 AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
    .0      .00      .00      .00   100.0       .0

  ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER     NITER     DSWS      USWS      DSSNO     USSNO
   .00        .00        .00       .00       .00        .00        11  1199.102  1199.166      9.984     9.997


 TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.997 TO RM 10.096

 TOTAL    AVG      MAX      AVG      TOP      TOP
 AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
    .0      .00      .00      .00   720.0       .0

  ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER     NITER     DSWS      USWS      DSSNO     USSNO
   .00        .00        .00       .00       .00        .00        11  1199.166  1202.407      9.997    10.096


 TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.096 TO RM 10.176

 TOTAL    AVG      MAX      AVG      TOP      TOP
 AREA   VELOCITY DEPTH    DEPTH    WIDTH    WIDTH
    .0      .00      .00      .00   570.0       .0
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ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	11	1202.407	1204.055	10.096	10.176

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.176 TO RM 10.271

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	440.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	11	1204.055	1206.571	10.176	10.271

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.271 TO RM 10.348

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	250.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	11	1206.571	1208.562	10.271	10.348

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.348 TO RM 10.443

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
6.8	.15	.15	.08	450.0	88.5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1.01	1.01	.16	1.01	1.01	.16	11	1208.562	1210.950	10.348	10.443

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.443 TO RM 10.517

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
558.7	.57	2.38	1.19	530.0	469.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
317.34	317.39	.02	318.35	318.40	.02	11	1210.950	1214.383	10.443	10.517

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.517 TO RM 10.612

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
569.0	1.63	2.38	1.35	420.0	420.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
929.10	929.13	.00	1247.44	1247.53	.01	11	1214.383	1216.796	10.517	10.612

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.612 TO RM 10.699

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
208.0	.80	.99	.56	460.0	372.8

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
166.72	166.70	.01	1414.17	1414.23	.00	11	1216.796	1218.562	10.612	10.699

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.699 TO RM 10.803

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
695.7	.89	2.53	1.36	560.0	510.2

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
619.26	619.36	.02	2033.43	2033.59	.01	11	1218.562	1222.837	10.699	10.803

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.803 TO RM 10.862

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
463.6	1.60	2.50	1.25	370.0	370.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
742.81	742.87	.01	2776.24	2776.46	.01	11	1222.837	1223.483	10.803	10.862

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.862 TO RM 10.917

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
309.3	1.06	2.01	1.10	280.0	280.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
329.18	329.21	.01	3105.41	3105.67	.01	11	1223.483	1226.636	10.862	10.917

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.862 TO RM 10.917

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
40.67	40.68	.02	3146.08	3146.34	.01	11	1223.483	1226.636	10.862	10.917

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.917 TO RM 10.980

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
151.7	1.83	2.01	1.02	250.0	149.4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
278.00	278.01	.00	3424.08	3424.36	.01	11	1226.636	1226.768	10.917	10.980

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.917 TO RM 10.980

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
54.75	54.77	.03	3478.83	3479.12	.01	11	1226.636	1226.768	10.917	10.980

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.980 TO RM 10.996

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	120.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3478.83	3479.12	.01	11	1226.768	1226.982	10.980	10.996

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.98 TO RM 10.996

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3478.83	3479.12	.01	11	1226.768	1226.982	10.980	10.996

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.996 TO RM 11.030

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
27.5	.16	.94	.47	190.0	58.8

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
4.47	4.48	.10	3483.31	3483.60	.01	11	1226.982	1230.086	10.996	11.030

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.996 TO RM 11.030

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3483.31	3483.60	.01	11	1226.982	1230.086	10.996	11.030

TN SPLIT FLOW AT RIGHT END POINT FROM RM 11.03 TO RM 11.129

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	550.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3483.31	3483.60	.01	11	1230.086	1231.506	11.030	11.129

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.03 TO RM 11.129

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
3.85	3.85	.09	3487.16	3487.45	.01	11	1230.086	1231.506	11.030	11.129

TN SPLIT FLOW AT RIGHT END POINT FROM RM 11.129 TO RM 11.188

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	260.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3487.16	3487.45	.01	11	1231.506	1232.021	11.129	11.188

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.129 TO RM 11.188

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
34.23	34.29	.16	3521.39	3521.74	.01	11	1231.506	1232.021	11.129	11.188

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.188 TO RM 11.243

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.02	.02	.19	3521.41	3521.77	.01	11	1232.021	1232.427	11.188	11.243

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.243 TO RM 11.301

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3521.41	3521.77	.01	11	1232.427	1232.496	11.243	11.301

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.194 TO RM 12.313

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	100.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3521.41	3521.77	.01	11	1253.923	1259.718	12.194	12.313

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.313 TO RM 12.420

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	510.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3521.41	3521.77	.01	11	1259.718	1262.567	12.313	12.420

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.420 TO RM 12.511

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	390.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3521.41	3521.77	.01	11	1262.567	1264.733	12.420	12.511

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.511 TO RM 12.606

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
88.5	.52	.61	.30	450.0	291.4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
46.10	46.11	.01	3567.52	3567.87	.01	11	1264.733	1267.857	12.511	12.606

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.606 TO RM 12.701

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	770.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3567.52	3567.87	.01	11	1267.857	1270.246	12.606	12.701

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.701 TO RM 12.801

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	460.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3567.52	3567.87	.01	11	1270.246	1271.741	12.701	12.801

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.801 TO RM 12.896

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	360.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3567.52	3567.87	.01	11	1271.741	1272.583	12.801	12.896

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.227 TO RM 13.325

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	540.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3567.52	3567.87	.01	11	1283.396	1286.154	13.227	13.325

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.325 TO RM 13.42

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
6.6	.19	.15	.08	450.0	86.1

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1.25	1.25	.05	3568.77	3569.12	.01	11	1286.154	1289.153	13.325	13.420

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.42 TO RM 13.524

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
3.0	.19	.15	.08	470.0	39.6

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.58	.57	.09	3569.34	3569.70	.01	11	1289.153	1289.839	13.420	13.524

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.542 TO RM 13.619

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	620.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3569.34	3569.70	.01	11	1289.839	1292.590	13.524	13.619

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.619 TO RM 13.68

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	398.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3569.34	3569.70	.01	11	1292.590	1292.968	13.619	13.680

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.68 TO RM 13.742

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	430.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3569.34	3569.70	.01	11	1292.968	1293.687	13.680	13.742

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.742 TO RM 13.818

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	340.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3569.34	3569.70	.01	11	1293.687	1294.193	13.742	13.818

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.818 TO RM 13.918

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	520.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3569.34	3569.70	.01	11	1294.193	1301.096	13.818	13.918

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.918 TO RM 14.013

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	695.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3569.34	3569.70	.01	11	1301.096	1306.589	13.918	14.013

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.013 TO 14.103

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	495.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3569.34	3569.70	.01	11	1306.589	1308.176	14.013	14.103

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.103 TO 14.197

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
209.7	.55	.76	.38	620.0	551.4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
116.18	116.18	.00	3685.52	3685.88	.01	11	1308.176	1311.550	14.103	14.197

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.197 TO 14.284

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	415.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3685.52	3685.88	.01	11	1311.550	1313.926	14.197	14.284

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.284 TO 14.379

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	385.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3685.52	3685.88	.01	11	1313.926	1316.388	14.284	14.379

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.379 TO 14.495

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
14.0	.27	.23	.12	485.0	113.5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
3.74	3.76	.68	3689.26	3689.64	.01	11	1316.388	1320.309	14.379	14.495

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.495 TO 14.599

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
8.9	.23	.21	.10	625.0	85.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
2.06	2.08	.75	3691.32	3691.72	.01	11	1320.309	1322.317	14.495	14.599

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.599 TO 14.653

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	460.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3691.32	3691.72	.01	11	1322.317	1324.323	14.599	14.653

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.653 TO 14.752

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	505.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	3691.32	3691.72	.01	11	1324.323	1327.311	14.653	14.752

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TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.752 TO 14.850

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
  123.8     .76    1.21     .61   360.0   204.0

   ASQ      QCOMP     ERRAC     TASQ      TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
   93.61    93.63       .03   3784.93   3785.35     .01        11   1327.311  1329.414   14.752    14.850


TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.850 TO 14.945

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
   59.5     .76    1.21     .61  1255.0    98.1

   ASQ      QCOMP     ERRAC     TASQ      TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
   45.02    45.03       .00   3829.95   3830.37     .01        11   1329.414  1331.949   14.850    14.945

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T1   NEW RIVER SPILLWAY INUNDATION STUDY
T2   SPLIT FLOW ANALYSIS
T3      BY STANTEC FOR FCDMC, FCD 97-04

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0        4                           0.005                                   1371.28

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15                   -1


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO 7.728
3840 SECTION NOT HIGH ENOUGH  1371.280  1205.990  1135.400  1210.000      .000        0
3840 SECTION NOT HIGH ENOUGH  1371.280  1255.990  1135.400  1260.000      .000        0
3840 SECTION NOT HIGH ENOUGH  1371.280  1305.990  1135.400  1310.000      .000        0
3840 SECTION NOT HIGH ENOUGH  1371.280  1355.990  1135.400  1360.000      .000        0
     7.728      6.70   1142.10   1140.84   1371.28   1143.49      1.38       .00       .00   1154.00
   12747.0        .0   12747.0        .0        .0    1350.4        .0        .0        .0   1154.00
       .00       .00      9.44       .00      .000      .035      .000      .000   1135.40   9942.33
   .004982        0.        0.        0.         0        30        11       .00    239.79  10182.12


CCHV=     .300 CEHV=     .500
*SECNO 7.751
     7.751      7.59   1142.89       .00       .00   1144.07      1.18       .52       .06   1157.94
   12747.0        .0   12747.0        .0        .0    1463.1        .0       3.9        .7   1158.90
       .00       .00      8.71       .00      .000      .035      .000      .000   1135.30   9962.47
   .003673      115.      122.      110.         3         0         0       .00    232.11  10194.58


CCHV=     .300 CEHV=     .500
*SECNO 7.800
     7.800      8.21   1143.86       .00       .00   1145.11      1.24      1.01       .03   1158.52
   12747.0        .0   12747.0        .0        .0    1425.4        .0      12.5       2.1   1157.07
       .01       .00      8.94       .00      .000      .035      .000      .000   1135.65   9927.37
   .004132      230.      259.      355.         2         0         0       .00    239.01  10166.39


CCHV=     .100 CEHV=     .300
*SECNO 7.920
     7.920     10.48   1146.22       .00       .00   1147.08       .86      1.94       .04   1160.45
   12747.0        .0   12747.0        .0        .0    1709.5        .0      35.2       5.6   1160.29
       .04       .00      7.46       .00      .000      .035      .000      .000   1135.74   9932.57
   .002364      615.      631.      655.         3         0         0       .00    246.75  10179.32


CCHV=     .100 CEHV=     .300
*SECNO 8.006
     8.006     11.20   1147.31       .00       .00   1148.13       .82      1.04       .00   1159.66
   12747.0        .0   12747.0        .0        .0    1756.4        .0      53.7       8.2   1161.51
       .05       .00      7.26       .00      .000      .035      .000      .000   1136.11   9927.31
   .002153      445.      463.      505.         3         0         0       .00    246.23  10173.54
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 8.052
     8.052      11.43   1147.85        .00        .00    1148.62        .77        .48        .01    1160.52
   12747.0         .0   12747.0        .0         .0     1815.2         .0       63.4        9.5    1161.72
       .06        .00      7.02        .00       .000       .035       .000       .000    1136.42    9929.31
   .001933       225.      237.       255.          2          0          0        .00     246.19   10175.50

CCHV=     .100 CEHV=     .300
*SECNO 8.120
     8.120      10.60   1148.57        .00        .00    1149.44        .87        .79        .03    1159.32
   12747.0         .0   12747.0        .0         .0     1699.0         .0       78.3       11.6    1163.50
       .08        .00      7.50        .00       .000       .035       .000       .000    1137.97    9940.71
   .002379       365.      370.       370.          3          0          0        .00     243.40   10184.11

CCHV=     .100 CEHV=     .300
*SECNO 8.220
     8.220      11.02   1149.80        .00        .00    1150.63        .83       1.18        .00    1160.58
   12747.0         .0   12747.0        .0         .0     1748.1         .0       98.6       14.5    1164.55
       .10        .00      7.29        .00       .000       .035       .000       .000    1138.78    9916.23
   .002231       485.      513.       565.          3          0          0        .00     250.33   10166.56

CCHV=     .100 CEHV=     .300
*SECNO 8.330
     8.330      10.46   1151.05        .00        .00    1151.88        .83       1.25        .00    1164.00
   12747.0         .0   12747.0        .0         .0     1741.2         .0      121.2       17.7    1166.40
       .12        .00      7.32        .00       .000       .035       .000       .000    1140.59    9858.28
   .002191       555.      565.       545.          2          0          0        .00     244.75   10103.02

CCHV=     .100 CEHV=     .300
*SECNO 8.390
     8.390      10.82   1151.74        .00        .00    1152.49        .75        .60        .01    1165.05
   12747.0         .0   12747.0        .0         .0     1829.7         .0      133.9       19.4    1167.41
       .13        .00      6.97        .00       .000       .035       .000       .000    1140.92    9876.85
   .001767       310.      308.       305.          2          0          0        .00     235.48   10112.33

CCHV=     .100 CEHV=     .300
*SECNO 8.457
     8.457      11.30   1152.40        .00        .00    1153.09        .68        .59        .01    1168.74
   12747.0         .0   12747.0        .0         .0     1922.2         .0      149.5       21.4    1168.40
       .14        .00      6.63        .00       .000       .035       .000       .000    1141.10    9880.56
   .001492       365.      362.       355.          2          0          0        .00     234.53   10115.09
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 8.516

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79

     8.516      11.50   1153.05        .00        .00    1153.35        .29        .22        .04    1168.60
   12747.0         .0   12747.0        .0         .0     2927.6         .0      165.5       23.1    1167.50
       .16        .00      4.35        .00       .000       .035       .000       .000    1141.55    9863.07
   .000467       280.      288.       305.          2          0          0        .00     275.70   10138.77

CCHV=     .100 CEHV=     .300
*SECNO 8.538
     8.538      10.85   1153.09        .00        .00    1153.41        .32        .05        .01    1167.86
   12747.0         .0   12747.0        .0         .0     2818.7         .0      172.7       23.8    1167.09
       .17        .00      4.52        .00       .000       .035       .000       .000    1142.24    9861.05
   .000527       110.      110.       105.          2          0          0        .00     273.97   10135.02

CCHV=     .100 CEHV=     .300
*SECNO 8.548

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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    8.548      6.65   1156.42   1156.42       .00   1158.43      2.01       .07       .51   1167.19
  12747.0        .0   12747.0       .0        .0    1119.4        .0     174.9      24.1   1166.85
      .17       .00     11.39       .00      .000      .035      .000      .000   1149.77   9854.80
  .011934       48.       48.       48.        20        14         0       .00    287.03  10141.83


CCHV=     .200 CEHV=     .400
*SECNO 8.655

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.16

    8.655      7.23   1159.73       .00       .00   1160.04       .32      1.27       .34   1169.87
  12747.0        .0   12747.0        .0        .0    2825.9        .0     195.8      28.4   1168.79
      .20       .00      4.51       .00      .000      .035      .000      .000   1152.50   9550.34
  .001193      675.      461.      340.         3         0         0       .00    521.95  10072.30


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     .100 CEHV=     .300
*SECNO 8.731
    8.731      6.74   1160.34       .00       .00   1160.54       .20       .48       .01   1156.95
  12747.0    4330.7    8416.3        .0    1684.8    2118.4        .0     228.3      34.6   1169.55
      .23      2.57      3.97       .00      .060      .035      .000      .000   1153.60   9348.63
  .001108      500.      402.      395.         2         0         0       .00    762.75  10111.38


CCHV=     .100 CEHV=     .300
*SECNO 8.807

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    8.807      4.73   1162.77   1162.77       .00   1164.80      2.03      1.05       .55   1173.10
  12747.0        .0   12747.0        .0        .0    1116.1        .0     251.5      39.6   1172.75
      .24       .00     11.42       .00      .000      .035      .000      .000   1158.04   9821.11
  .011517      425.      405.      395.        20        19         0       .00    279.52  10100.63


CCHV=     .100 CEHV=     .300
*SECNO 8.883
    8.883      7.15   1166.59       .00       .00   1168.36      1.76      3.53       .03   1176.80
  12747.0        .0   12747.0        .0        .0    1197.1        .0     262.2      41.9   1175.80
      .25       .00     10.65       .00      .000      .035      .000      .000   1159.44   9882.66
  .006939      410.      401.      400.         3         0         0       .00    226.90  10109.57


CCHV=     .100 CEHV=     .300
*SECNO 8.936

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47

    8.936      8.87   1168.81       .00       .00   1169.75       .94      1.31       .08   1174.58
  12747.0        .0   12747.0        .0        .0    1639.7        .0     271.6      43.6   1177.20
      .26       .00      7.77       .00      .000      .035      .000      .000   1159.94   9844.04
  .003192      285.      290.      290.         3         0         0       .00    278.44  10122.49


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     .100 CEHV=     .300
*SECNO 8.977
    8.977      8.08   1169.38       .00       .00   1170.55      1.17       .73       .07   1175.88
  12747.0        .0   12747.0        .0        .0    1471.3        .0     279.1      44.8   1177.97
      .27       .00      8.66       .00      .000      .035      .000      .000   1161.30   9877.82
  .003730      220.      212.      215.         2         0         0       .00    236.87  10114.68


CCHV=     .100 CEHV=     .300
*SECNO 8.994
    8.994      8.02   1169.67       .00       .00   1170.91      1.24       .34       .02   1175.69
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  12747.0        .0   12747.0        .0        .0    1425.5        .0     282.2      45.3   1178.73
      .27       .00      8.94       .00      .000      .035       .000      .000   1161.65   9912.93
  .003662       90.       92.       85.         2         0          0       .00    216.01  10128.94


CCHV=     .100 CEHV=     .300
*SECNO 9.047

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.92

    9.047       9.56   1171.20       .00       .00   1171.56       .37       .57       .09   1177.70
  12747.0         .0   12747.0        .0        .0    2620.9        .0     297.6      47.5   1180.42
      .29       .00      4.86       .00      .000      .035       .000      .000   1161.64   9900.28
  .000990      355.      331.      270.         2         0          0       .00    375.21  10275.49


CCHV=     .100 CEHV=     .300
*SECNO 9.129
    9.129       8.48   1171.64       .00       .00   1171.94       .30       .37       .01   1180.07
  12747.0         .0   12747.0        .0        .0    2882.0        .0     322.5      51.2   1177.56
      .32       .00      4.42       .00      .000      .035       .000      .000   1163.16   9869.95
  .000885      370.      394.      430.         2         0          0       .00    438.05  10308.00


CCHV=     .300 CEHV=     .500
*SECNO 9.193
    9.193       7.49   1172.03       .00       .00   1172.41       .38       .44       .04   1182.05
  12747.0         .0   12747.0        .0        .0    2571.4        .0     347.0      55.3   1176.06
      .34       .00      4.96       .00      .000      .035       .000      .000   1164.54   9847.22
  .001437      400.      391.      390.         3         0          0       .00    474.00  10321.22
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=     .300 CEHV=     .500
*SECNO 9.289

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    9.289       7.52   1175.42   1175.42       .00   1177.65      2.23      1.58       .92   1183.10
  12747.0         .0   12747.0        .0        .0    1063.6        .0     368.1      59.5   1185.00
      .35       .00     11.99       .00      .000      .035       .000      .000   1167.90   9901.30
  .011134      470.      506.      455.        20         5          0       .00    242.02  10143.32


CCHV=     .100 CEHV=     .300
*SECNO 9.318

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.66


3470 ENCROACHMENT STATIONS=          .0   10171.5  TYPE=      1  TARGET=    10171.540
    9.318       9.49   1177.84       .00       .00   1178.34       .51       .52       .17   1185.10
  12747.0         .0   12747.0        .0        .0    2224.9        .0     374.0      60.5   1185.00
      .36       .00      5.73       .00      .000      .035       .000      .000   1168.35   9791.45
  .001578      185.      156.      155.         3         0          0       .00    353.32  10144.77


CCHV=     .100 CEHV=     .300
*SECNO 9.367

3470 ENCROACHMENT STATIONS=          .0   10241.6  TYPE=      1  TARGET=    10241.560
    9.367       7.36   1178.69       .00       .00   1179.05       .36       .69       .02   1186.28
  12747.0         .0   12747.0        .0        .0    2657.7        .0     401.4      65.1   1184.23
      .39       .00      4.80       .00      .000      .035       .000      .000   1171.33   9736.13
  .001255      540.      490.      465.         3         0          0       .00    465.00  10201.13


CCHV=     .100 CEHV=     .300
*SECNO 9.492
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60

     9.492      5.45   1179.39       .00       .00   1180.05       .66       .91       .09   1188.11
   12747.0        .0   12747.0        .0        .0    1961.9        .0     426.0      70.1   1184.43
       .41       .00      6.50       .00      .000      .035      .000      .000   1173.94   9824.34
   .003526      430.      463.      425.         2         0         0       .00    473.01  10297.35

CCHV=     .100 CEHV=     .300
*SECNO 9.592

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61

     9.592      6.41   1182.11       .00       .00   1183.62      1.51      3.31       .26   1190.23
   12747.0        .0   12747.0        .0        .0    1293.1        .0     448.7      75.9   1189.15
       .42       .00      9.86       .00      .000      .035      .000      .000   1175.70   9968.03
   .009535      535.      607.      580.         3         0         0       .00    350.82  10318.85

CCHV=     .100 CEHV=     .300
*SECNO 9.692

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.30

     9.692      7.96   1185.16       .00       .00   1185.70       .53      1.98       .10   1193.92
   12747.0        .0   12747.0        .0        .0    2179.8        .0     471.2      80.6   1190.03
       .45       .00      5.85       .00      .000      .035      .000      .000   1177.20   9935.09
   .001806      525.      565.      520.         3         0         0       .00    370.87  10305.96

CCHV=     .100 CEHV=     .300
*SECNO 9.794

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.794      6.99   1187.22   1187.22       .00   1189.36      2.14      2.07       .48   1196.86
   12747.0        .0   12747.0        .0        .0    1086.1        .0     492.1      84.6   1195.79
       .46       .00     11.74       .00      .000      .035      .000      .000   1180.23   9958.72
   .011606      550.      557.      555.        20        15         0       .00    262.02  10220.74

CCHV=     .300 CEHV=     .500
*SECNO 9.889
     9.889      6.82   1192.24       .00       .00   1194.57      2.32      5.11       .09   1201.40
   12747.0        .0   12747.0        .0        .0    1042.4        .0     504.3      87.2   1198.00
       .47       .00     12.23       .00      .000      .035      .000      .000   1185.42   9924.59
   .009034      485.      501.      495.         2         0         0       .00    194.49  10119.07

CCHV=     .300 CEHV=     .500
*SECNO 9.908

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.908      5.43   1194.48   1194.48       .00   1196.73      2.25      1.02       .02   1196.38
   12747.0        4.7   12742.3        .0       4.3    1058.7        .0     506.8      87.8   1198.80
       .48      1.10     12.04       .00      .060      .035      .000      .000   1189.05   9838.39
   .010836      120.      103.       65.        20        15         0       .00    249.04  10130.90

CCHV=     .300 CEHV=     .500
*SECNO 9.953

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.80

     9.953      7.76   1197.14       .00       .00   1198.14      1.00      1.04       .37   1202.16
   12747.0        .0   12747.0        .0        .0    1585.6        .0     512.6      88.9   1203.14
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      .48        .00       8.04       .00       .000       .035       .000       .000   1189.38   9881.77
  .003332       175.       189.      215.          4          0          0        .00    264.20  10145.97
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .300 CEHV=     .500
*SECNO 9.958
     9.958       6.82   1197.29        .00        .00   1198.25        .95        .09        .01   1203.19
  12747.0          .0   12747.0         .0         .0    1626.4         .0      513.6       89.0   1203.03
      .48        .00      7.84        .00       .000      .035       .000       .000    1190.47   9879.99
  .003182        22.       27.        28.          3         0          0        .00     272.38  10152.37


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     .90       1.60       2.68        .00    240.00       4.70    2496.30       2.00    1191.15    1191.04

CCHV=     .300 CEHV=     .500
*SECNO 9.984
CLASS A LOW FLOW

3420 BRIDGE W.S.=    1197.29 BRIDGE VELOCITY=       8.31     CALCULATED CHANNEL AREA=       1520.

 EGPRS      EGLWC      H3         QWEIR      QLOW       BAREA      TRAPEZOID AREA      ELLC       ELTRD      WEIRLN
      .00   1198.40       .06         0.    12747.      2496.       2304.     1200.24    1204.01         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1204.90 ELREA=      1204.01

     9.984       6.35   1197.35        .00        .00   1198.40       1.05        .15        .00   1203.16
  12747.0          .0   12747.0         .0         .0    1551.6         .0      518.5       89.9   1204.00
      .49        .00      8.22        .00       .000      .035       .000       .000    1191.00   9883.11
  .003735       130.      134.       129.          0         0          0        .00     273.11  10156.21


CCHV=     .300 CEHV=     .500
*SECNO 9.997

3301 HV CHANGED MORE THAN HVINS

     9.997       5.75   1197.46        .00        .00   1199.01       1.56        .36        .25   1200.73
  12747.0          .0   12747.0         .0         .0    1272.6         .0      520.9       90.3   1200.72
      .49        .00     10.02        .00       .000      .035       .000       .000    1191.71   9888.06
  .006594         51.       74.       104.          3         0          0        .00     255.22  10143.28
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 10.096

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49

    10.096       6.91   1200.75        .00        .00   1201.43        .68       2.32        .09   1202.39
  12747.0        163.9   12583.1         .0       81.1    1890.6         .0      541.1       94.6   1204.41
      .51        2.02      6.66        .00       .060      .035       .000       .000    1193.84   9664.64
  .002989        535.      544.       555.          3         0          0        .00     436.67  10115.90


CCHV=     .100 CEHV=     .300
*SECNO 10.176

3265 DIVIDED FLOW


3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  .70

    10.176       7.21   1202.78        .00        .00   1203.83       1.04       2.29        .11   1203.68
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   12747.0      17.5   12729.5        .0      10.0    1551.2        .0     563.5     100.0   1205.57
       .53      1.75      8.21       .00      .060      .035      .000      .000   1195.57   9707.12
   .006127      510.      553.      550.         2         0         0       .00    409.52  10123.60

CCHV=     .100 CEHV=     .300
*SECNO 10.271

3265 DIVIDED FLOW

    10.271      7.12   1205.38       .00       .00   1206.14       .76      2.28       .03   1211.43
   12747.0        .0   12746.2        .8        .1    1827.6       3.7     582.6     104.8   1206.60
       .55       .01      6.97       .21      .060      .035      .110      .000   1198.26   9688.46
   .003638      460.      491.      455.         2         0         0       .00    439.17  10440.01
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 10.348
    10.348      6.18   1207.39       .00       .00   1208.22       .82      2.06       .02   1212.70
   12747.0        .0   12747.0        .0        .0    1750.8        .0     604.1     109.8   1208.90
       .57       .00      7.28       .00      .000      .035      .000      .000   1201.21   9967.24
   .004283      510.      523.      385.         3         0         0       .00    410.30  10377.54

CCHV=     .100 CEHV=     .300
*SECNO 10.443

3470 ENCROACHMENT STATIONS=     9689.3   10541.4  TYPE=      1  TARGET=    -9689.340
 ELENCL=   1229.34  ELENCR= 100000.00
    10.443      5.24   1209.84       .00       .00   1210.97      1.13      2.66       .09   1210.53
   12747.0        .0   12747.0        .0        .0    1491.1        .0     622.6     114.4   1213.65
       .59       .00      8.55       .00      .000      .035      .000      .000   1204.60   9880.43
   .006969      475.      495.      420.         3         0         0       .00    397.00  10277.42

CCHV=     .100 CEHV=     .300
*SECNO 10.517

3265 DIVIDED FLOW

3280 CROSS SECTION     10.52 EXTENDED      1.27 FEET

3470 ENCROACHMENT STATIONS=     9648.1   10315.1  TYPE=      1  TARGET=    -9648.110
 ELENCL=   1220.64  ELENCR= 100000.00
    10.517      5.83   1213.26       .00       .00   1214.31      1.04      3.32       .01   1218.09
   12805.7     670.9   11647.5     487.3     187.3    1363.8     335.5     642.3     120.2   1212.41
       .61      3.58      8.54      1.45      .060      .035      .110      .000   1207.43   9683.27
   .005963      425.      519.      480.         2         0         0       .00    604.51  10315.07

CCHV=     .100 CEHV=     .300
*SECNO 10.612

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42

    10.612      6.81   1215.58       .00       .00   1216.39       .80      2.06       .02   1220.88
   12907.3        .0   12907.3        .0        .0    1796.4        .0     663.4     125.4   1215.60
       .63       .00      7.19       .00      .000      .035      .000      .000   1208.77   9922.34
   .002984      490.      505.      435.         3         0         0       .00    327.27  10249.62
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 10.699

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65

    10.699      7.64   1217.10       .00       .00   1218.64      1.53      2.03       .22   1222.80
   12907.3        .0   12907.3        .0        .0    1299.9        .0     679.8     128.6   1218.20
       .64       .00      9.93       .00      .000      .035      .000      .000   1209.46   9969.89
   .007102      460.      462.      460.         3         0         0       .00    278.52  10248.41
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CCHV=     .100 CEHV=     .300
*SECNO 10.803
3280 CROSS SECTION     10.80 EXTENDED       .81 FEET

3301 HV CHANGED MORE THAN HVINS

   10.803      7.05   1221.15       .00       .00   1222.02       .86      3.31       .07   1220.90
  12958.5     207.7   12750.8        .0      84.4    1698.1        .0     699.9     133.5   1220.34
      .66      2.46      7.51       .00      .060      .035      .000      .000   1214.10   9742.10
 .004896      555.      567.      555.         2         0         0       .00    473.35  10215.45


CCHV=     .100 CEHV=     .300
*SECNO 10.862

3301 HV CHANGED MORE THAN HVINS

   10.862      6.92   1222.35       .00       .00   1223.73      1.39      1.56       .16   1228.35
  12998.9        .0   12998.9        .0        .0    1376.0        .0     711.2     136.1   1223.20
      .67       .00      9.45       .00      .000      .035      .000      .000   1215.43   9863.29
 .005084      265.      313.      360.         2         0         0       .00    247.17  10110.46


CCHV=     .100 CEHV=     .300
*SECNO 10.917

3265 DIVIDED FLOW
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

   10.917      7.47   1224.20       .00       .00   1224.87       .68      1.07       .07   1223.78
  12998.9      26.6   12972.3        .0      39.4    1965.1        .0     722.5     138.5   1224.50
      .68       .67      6.60       .01      .060      .035      .000      .000   1216.73   9660.79
 .002753      265.      292.      300.         2         0         0       .00    495.06  10214.57


CCHV=     .300 CEHV=     .500
*SECNO 10.980

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .67

   10.980      6.52   1225.12       .00       .00   1226.77      1.66      1.41       .49   1227.57
  12998.9        .0   12998.9        .0        .0    1258.9        .0     735.9     141.6   1228.67
      .69       .00     10.33       .00      .000      .035      .000      .000   1218.60   9877.57
 .006068      445.      358.      300.         3         0         0       .00    226.41  10103.98


SPECIAL BRIDGE

SB   XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     1.05       1.60       2.80        .00     186.22       8.00    1932.34      3.00    1218.61    1218.60

CCHV=     .300 CEHV=     .500
*SECNO 10.996
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1224.83 BRIDGE VELOCITY=      10.60     CALCULATED CHANNEL AREA=      1225.

 EGPRS      EGLWC      H3         QWEIR      QLOW       BAREA      TRAPEZOID AREA      ELLC       ELTRD      WEIRLN
      .00   1227.05       .40        0.      12999.      1932.      1992.      1228.23    1228.47        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1228.47 ELREA=      1229.05

   10.996      6.91   1225.52       .00       .00   1227.05      1.53       .28       .00   1228.19
  12998.9        .0   12998.9        .0        .0    1310.9        .0     739.8     142.3   1228.55
      .69       .00      9.92       .00      .000      .035      .000      .000   1218.61   9886.28
 .005408      128.      129.      127.         0         0         0       .00    230.16  10116.44
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
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    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=      .300 CEHV=      .500
*SECNO 11.030
    11.030      6.98   1226.35       .00       .00   1228.19      1.84       .99       .16   1229.05
   12998.9        .0   12998.9        .0        .0   1194.8        .0     744.6     143.1   1228.90
       .70       .00     10.88       .00      .000      .035      .000      .000   1219.37   9919.13
   .006425      200.      168.      140.         2         0         0       .00    207.55  10126.68

CCHV=      .100 CEHV=      .300
*SECNO 11.129

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.49

3470 ENCROACHMENT STATIONS=          .0   10408.1  TYPE=       1  TARGET=    10408.120
    11.129      9.61   1229.01       .00       .00   1229.43       .42      1.09       .14   1231.30
   12998.9    1135.7   11863.2        .0     600.6    2199.8        .0     768.6     147.1   1231.76
       .73      1.89      5.39       .00      .060      .035      .000      .000   1219.40   9608.81
   .001035      565.      517.      495.         3         0         0       .00    454.68  10113.23

CCHV=      .100 CEHV=      .300
*SECNO 11.188

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .0   10444.2  TYPE=       1  TARGET=    10444.150
    11.188     10.97   1229.48       .00       .00   1229.70       .22       .25       .02   1232.77
   12998.9    5254.2    7744.7        .0    1793.4    1815.5        .0     791.3     150.3   1232.93
       .75      2.93      4.27       .00      .060      .035      .000      .000   1218.51   9633.31
   .000676      305.      309.      300.         2         0         0       .00    436.24  10113.29

CCHV=      .100 CEHV=      .300
*SECNO 11.243
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .0   10492.9  TYPE=       1  TARGET=    10492.940
    11.243     11.41   1229.76       .00       .00   1229.86       .10       .15       .01   1233.70
   12998.9    8550.9    4448.1        .0    3714.3    1444.3        .0     821.7     153.8   1234.30
       .78      2.30      3.08       .00      .060      .035      .000      .000   1218.35   9491.47
   .000371      295.      314.      335.         2         0         0       .00    560.73  10095.81

CCHV=      .100 CEHV=      .300
*SECNO 11.301

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .52

3470 ENCROACHMENT STATIONS=          .0   10521.6  TYPE=       1  TARGET=    10521.610
    11.301      8.54   1229.81       .00       .00   1230.11       .30       .19       .06   1232.87
   12998.9    6267.4    6731.5        .0    2093.7    1248.4        .0     850.6     157.6   1234.80
       .80      2.99      5.39       .00      .060      .035      .000      .000   1221.27   9487.16
   .001376      300.      290.      275.         3         0         0       .00    560.62  10089.07

CCHV=      .100 CEHV=      .300
*SECNO 11.386

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47
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3470 ENCROACHMENT STATIONS=          .0   10133.3  TYPE=      1  TARGET=    10133.310
   11.386      7.19   1230.29   1229.75       .00   1231.50      1.21       1.12       .27   1233.46
  12998.9    2213.4   10785.5        .0     655.3    1127.9        .0      876.6     164.8   1238.40
      .82      3.38      9.56       .00      .060      .035      .000       .000    1223.10   9169.89
 .006236      445.      437.      415.         8        12         0        .00    864.14  10103.48
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 11.481

3470 ENCROACHMENT STATIONS=     9842.1   10811.8  TYPE=      1  TARGET=    -9842.070
 ELENCL=   1236.77  ELENCR= 100000.00
   11.481      8.13   1232.94       .00        .00   1234.06      1.12       2.55       .01   1236.77
  12998.9        .0   12998.9        .0         .0    1528.2        .0      896.4     171.5   1240.19
      .83       .00      8.51       .00       .000      .035      .000       .000    1224.81   9854.05
 .003924      510.      523.      555.          3         0         0        .00    265.07  10119.12

CCHV=     .100 CEHV=     .300
*SECNO 11.566

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.63

   11.566      6.51   1234.83       .00        .00   1235.20       .37       1.06       .08   1234.96
  12998.9      35.1   12963.8        .0       43.2    2657.4        .0      919.2     176.1   1243.30
      .86       .81      4.88       .00       .060      .035      .000       .000    1228.32   9345.73
 .001471      565.      469.      545.          3         0         0        .00    578.43  10039.01

CCHV=     .100 CEHV=     .300
*SECNO 11.664

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .50

   11.664      6.84   1235.64       .00        .00   1236.77      1.13       1.34       .23   1236.20
  12998.9        .0   12998.9        .0         .0    1526.7        .0      944.1     181.7   1244.86
      .88       .00      8.51       .00       .000      .035      .000       .000    1228.80   9670.93
 .005882      535.      514.      515.          2         0         0        .00    359.44  10030.36
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  18OCT99      10:32:54

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 11.759

3265 DIVIDED FLOW

   11.759      6.65   1238.67       .00        .00   1239.72      1.05       2.95       .01   1244.46
  12998.9    2518.6   10480.3        .0      826.6    1160.9        .0      964.2     186.6   1246.55
      .89      3.05      9.03       .00       .085      .035      .000       .000    1232.02   9443.19
 .005909      485.      501.      470.          2         0         0        .00    506.21  10111.69

CCHV=     .100 CEHV=     .300
*SECNO 11.864

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9887.3   11941.3  TYPE=      1  TARGET=    -9887.290
 ELENCL=   1250.00  ELENCR= 100000.00
   11.864      6.60   1242.17       .00        .00   1243.92      1.76       3.99       .21   1240.43
  12998.9        .0   12858.2     140.7         .0    1202.9      63.3      987.1     192.0   1240.45
      .91       .00     10.69      2.22       .000      .035      .110       .000    1235.57   9887.29
 .007175      605.      615.      665.          2         0         0        .00    254.02  10141.31

CCHV=     .100 CEHV=     .300
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*SECNO 11.949

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65


3470 ENCROACHMENT STATIONS=     9673.8   12170.5  TYPE=      1  TARGET=    -9673.750
 ELENCL=   1248.70  ELENCR= 100000.00
    11.949      6.47   1245.37       .00       .00   1245.90       .53      1.86       .12   1245.13
   12998.9     720.8   12090.0     188.2     292.5    2001.0     147.4    1006.6     196.6   1244.81
       .93      2.46      6.04      1.28      .060      .035      .110      .000   1238.90   9753.28
   .002632      565.      452.      380.         2         0         0       .00    623.33  10396.45


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     .100 CEHV=     .300
*SECNO 12.034

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61

    12.034      5.69   1247.16       .00       .00   1248.28      1.12      2.20       .18   1250.55
   12998.9        .0   12998.9        .0        .0    1531.7        .0    1031.1     203.0   1250.96
       .95       .00      8.49       .00      .000      .035      .000      .000   1241.47   9756.29
   .007190      485.      540.      615.         3         0         0       .00    421.94  10178.23


CCHV=     .100 CEHV=     .300
*SECNO 12.125

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52

    12.125      5.23   1249.88       .00       .00   1250.44       .55      2.10       .06   1254.31
   12998.9     472.7   12526.2        .0     150.6    2070.6        .0    1051.1     208.3   1254.40
       .97      3.14      6.05       .00      .060      .035      .000      .000   1244.65   9112.29
   .003120      535.      462.      365.         2         0         0       .00    555.63  10315.87


CCHV=     .100 CEHV=     .300
*SECNO 12.194

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    12.194      4.47   1252.47   1252.47       .00   1254.08      1.61      1.88       .32   1259.62
   12998.9        .0   12998.9        .0        .0    1275.8        .0    1064.7     212.0   1257.60
       .98       .00     10.19       .00      .000      .035      .000      .000   1248.00   9869.82
   .012462      370.      338.      330.        20        15         0       .00    403.27  10273.10


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     .100 CEHV=     .300
*SECNO 12.313

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65
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   12.313      7.58   1258.05       .00       .00   1258.98       .93      4.83       .07   1260.51
  12998.9        .0   12211.1    787.9        .0    1529.1     585.3    1090.7     220.7    1259.84
     1.01       .00      7.99     1.35      .000      .035      .110      .000   1250.47    9908.84
  .004563      750.      685.     585.         4         0         0       .00    773.11   11638.13


CCHV=     .100 CEHV=     .300
*SECNO 12.420

3265 DIVIDED FLOW

   12.420      6.66   1261.16   1260.34       .00   1262.01       .85      3.02       .01   1262.30
  12998.9     123.7   10116.7    2758.6      82.4    1218.1    1399.4    1124.7     237.6    1263.54
     1.03      1.50      8.31     1.97      .060      .035      .110      .000   1254.50    9406.60
  .005768      600.      578.     665.         4        15         0       .00   1532.18   11738.57


CCHV=     .100 CEHV=     .300
*SECNO 12.511

3265 DIVIDED FLOW

   12.511      8.64   1263.44   1262.66       .00   1264.51      1.06      2.44       .07   1262.26
  12998.9     154.5   11082.4    1762.0     122.6    1238.2    1330.5    1152.6     255.4    1265.39
     1.05      1.26      8.95     1.32      .060      .035      .110      .000   1254.80    9499.10
  .004847      455.      468.     435.         5        12         0       .00   1988.54   11992.17


CCHV=     .100 CEHV=     .300
*SECNO 12.606
1                                                                                          PAGE  149
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

   12.606      7.86   1266.76       .00       .00   1267.24       .48      2.67       .06   1267.14
  12998.9       8.1   10767.2    2223.6      15.7    1784.3    1297.1    1190.1     276.7    1267.91
     1.08       .52      6.03     1.71      .060      .035      .110      .000   1258.90    9289.77
  .004434      555.      582.     545.         2         0         0       .00   1355.67   12032.53


CCHV=     .100 CEHV=     .300
*SECNO 12.701

3265 DIVIDED FLOW

   12.701      8.77   1268.87       .00       .00   1269.43       .56      2.17       .02   1271.92
  12998.9      10.1   11197.8    1791.0      16.7    1737.2    1506.2    1227.6     296.0    1270.40
     1.10       .60      6.45     1.19      .060      .035      .110      .000   1260.10    9353.48
  .004104      495.      506.     525.         3         0         0       .00   1891.20   12365.22


CCHV=     .100 CEHV=     .300
*SECNO 12.801

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.56

   12.801     10.27   1270.50       .00       .00   1270.78       .28      1.32       .03   1275.01
  12998.9     189.9   11964.6    844.4     168.1    2706.8     518.1    1268.0     313.6    1272.57
     1.14      1.13      4.42     1.63      .060      .035      .110      .000   1260.23    9585.81
  .001692      565.      525.     535.         3         0         0       .00    975.24   11196.68


CCHV=     .100 CEHV=     .300
*SECNO 12.896

3265 DIVIDED FLOW

   12.896      8.66   1271.16       .00       .00   1271.50       .34       .70       .02   1278.41
  12998.9        .0   12678.2    320.7        .0    2680.3     315.6    1305.2     322.8    1273.04
     1.17       .00      4.73     1.02      .000      .035      .110      .000   1262.50    9863.36
  .001153      540.      508.     495.         3         0         0       .00    598.14   11350.74


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
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    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=      .100 CEHV=      .300
*SECNO 12.991

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

    12.991      9.32   1271.69       .00        .00   1271.86       .17       .34       .02   1277.59
   12998.9        .0   12949.4      49.6         .0    3908.7      91.2    1347.5     329.7   1274.41
      1.21       .00      3.31       .54       .000      .035      .110      .000   1262.37   9745.87
   .000417      595.      527.      535.          2         0         0       .00    551.45  11608.02


CCHV=      .100 CEHV=      .300
*SECNO 13.076

3265 DIVIDED FLOW

    13.076      9.48   1271.85       .00        .00   1272.13       .27       .24       .03   1279.35
   12998.9        .0   12985.4      13.5         .0    3084.3      28.5    1384.6     334.8   1278.53
      1.24       .00      4.21       .47       .000      .035      .110      .000   1262.37   9689.80
   .000673      520.      454.      455.          2         0         0       .00    428.89  11657.46


CCHV=      .100 CEHV=      .300
*SECNO 13.151
    13.151      9.92   1272.12       .00        .00   1272.48       .36       .32       .03   1279.07
   12998.9        .0   12998.9        .0         .0    2686.0        .0    1410.8     338.6   1277.21
      1.26       .00      4.84       .00       .000      .035      .000      .000   1262.20   9765.80
   .001039      520.      393.      370.          2         0         0       .00    402.54  10168.34


CCHV=      .100 CEHV=      .300
*SECNO 13.161

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    13.161      4.65   1279.30   1279.30       .00   1280.94      1.63       .13       .38   1280.81
   12998.9        .0   12998.9        .0         .0    1267.0        .0    1413.1     339.1   1281.51
      1.27       .00     10.26       .00       .000      .035      .000      .000   1274.65   9797.95
   .012330       55.       51.       70.         20        14         0       .00    394.49  10192.44
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=      .100 CEHV=      .300
*SECNO 13.185

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.51


3470 ENCROACHMENT STATIONS=      9719.6   10293.4  TYPE=      1  TARGET=    -9719.600
 ELENCL=   1281.83  ELENCR= 100000.00
    13.185      5.43   1280.32       .00        .00   1281.27       .95       .26       .07   1281.80
   12998.9        .0   12998.9        .0         .0    1663.4        .0    1414.2     339.4   1281.93
      1.27       .00      7.81       .00       .000      .035      .000      .000   1274.89   9794.33
   .005438       35.       34.       32.          4         0         0       .00    421.59  10215.92


CCHV=      .100 CEHV=      .300
*SECNO 13.227

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      9777.5   12689.3  TYPE=      1  TARGET=    -9777.540
 ELENCL=   1283.85  ELENCR= 100000.00
    13.227      6.90   1281.72       .00        .00   1282.77      1.06      1.47       .03   1282.50
   12998.9        .1   12558.9     440.0         .3    1498.0     189.7    1426.4     342.1   1283.00
      1.28       .18      8.38      2.32       .060      .035      .110      .000   1274.82   9931.67
   .004039      335.      315.      350.          3         0         0       .00    322.71  11594.52


CCHV=      .100 CEHV=      .300
*SECNO 13.325

3265 DIVIDED FLOW
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3470 ENCROACHMENT STATIONS=     9874.4   12522.4  TYPE=      1  TARGET=    -9874.420
 ELENCL=   1287.00  ELENCR= 100000.00
   13.325       7.40   1284.10       .00       .00   1285.39      1.29      2.55       .07   1291.00
  12998.9        .0   12546.6     452.3        .0    1353.2     176.4    1447.4     346.1   1288.10
     1.29       .00      9.27      2.56      .000      .035      .110      .000   1276.70   9879.25
  .004980      555.      571.      545.         2         0         0       .00    289.20  11521.09
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 13.420

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     9827.2   12668.9  TYPE=      1  TARGET=    -9827.240
 ELENCL=   1290.55  ELENCR= 100000.00
   13.420       9.21   1286.64       .00       .00   1287.58       .95      2.15       .03   1288.33
  12998.9        .0   11258.2    1740.7        .0    1344.4    1409.9    1472.4     355.6   1289.98
     1.31       .00      8.37      1.23      .000      .035      .110      .000   1277.43   9851.58
  .003594      515.      514.      495.         3         0         0       .00   1365.38  12527.06

CCHV=     .100 CEHV=     .300
*SECNO 13.524

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     9858.0   12689.6  TYPE=      1  TARGET=    -9858.030
 ELENCL=   1292.81  ELENCR= 100000.00
   13.524       6.67   1288.57       .00       .00   1289.58      1.01      1.98       .02   1292.81
  12998.9        .0   12924.1      74.9        .0    1599.0      61.9    1498.5     365.6   1291.71
     1.33       .00      8.08      1.21      .000      .035      .110      .000   1281.90   9866.68
  .004028      605.      523.      500.         3         0         0       .00    351.28  11628.72

CCHV=     .100 CEHV=     .300
*SECNO 13.619

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.93

   13.619       6.86   1290.33       .00       .00   1290.60       .28       .95       .07   1294.77
  12998.9        .0   12997.4       1.5        .0    3085.4       7.6    1526.0     371.2   1293.88
     1.37       .00      4.21       .20      .000      .035      .110      .000   1283.47   9762.74
  .001076      565.      506.      495.         2         0         0       .00    617.16  11595.32
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   18OCT99      10:32:54

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 13.680

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61

3470 ENCROACHMENT STATIONS=          .0   11340.5  TYPE=      1  TARGET=   11340.480
   13.680       5.25   1290.75       .00       .00   1291.20       .45       .55       .05   1292.88
  12998.9        8.2   12990.7        .0       8.2    2406.4        .0    1547.0     376.1   1292.80
     1.38       1.01      5.40       .00      .060      .035      .000      .000   1285.50   9561.99
  .002896      320.      331.      315.         3         0         0       .00    674.50  10276.79

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 13.742
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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42

3470 ENCROACHMENT STATIONS=          .0   10408.2  TYPE=       1  TARGET=    10408.160
    13.742      6.07   1291.67       .00        .00   1291.92       .25       .70       .02   1294.10
   12998.9        .0   12998.9        .0         .0    3236.0        .0    1569.9     381.8   1300.31
      1.41       .00      4.02       .00       .000      .038      .000      .000   1285.60   9566.77
   .001429      430.      354.      400.          2         0         0       .00    722.03  10288.80

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 13.818

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .0   10640.3  TYPE=       1  TARGET=    10640.250
    13.818      6.34   1292.17       .00        .00   1292.35       .18       .42       .01   1293.89
   12998.9        .0   12808.1     190.8         .0    3746.6     242.8    1603.7     388.8   1292.32
      1.44       .00      3.42       .79       .000      .038      .110      .000   1285.83   9797.63
   .000796      395.      406.      435.          2         0         0       .00    773.35  10571.75

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 13.918

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9733.6   11551.6  TYPE=       1  TARGET=    -9733.640
 ELENCL=   1305.00  ELENCR= 100000.00
    13.918      9.04   1298.87   1298.87       .00   1301.01      2.15      1.37       .59   1300.59
   12998.9        .0    9515.8    3483.2         .0     715.8     606.4    1641.3     396.5   1300.33
      1.46       .00     13.29      5.74       .000      .038      .110      .000   1289.83   9956.51
   .020024      535.      642.      485.        20        14         0       .00    336.22  10657.10

CCHV=     .100 CEHV=     .300
*SECNO 14.013

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.24

3470 ENCROACHMENT STATIONS=     9434.0   12943.7  TYPE=       1  TARGET=    -9433.960
 ELENCL=   1307.10  ELENCR= 100000.00
    14.013      8.95   1304.70       .00        .00   1305.44       .74      4.29       .14   1306.05
   12998.9        .0   10686.7    2312.3         .0    1407.4    1565.7    1671.9     408.7   1303.66
      1.48       .00      7.59      1.48       .000      .038      .110      .000   1295.75   9781.78
   .004004      620.      514.      723.          2         0         0       .00   1256.43  12233.03

CCHV=     .100 CEHV=     .300
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 14.103

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     9400.1   13091.8  TYPE=       1  TARGET=    -9400.080
 ELENCL=   1310.12  ELENCR= 100000.00
    14.103      7.16   1306.86       .00        .00   1307.68       .82      2.22       .02   1308.90
   12998.9        .0   11400.1    1598.8         .0    1472.0     879.2    1698.6     418.6   1307.30
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     1.50        .00       7.74       1.82       .000       .038       .110       .000   1299.70   9770.27
  .005085       540.       521.       338.          3          0          0        .00    984.41  12664.24


CCHV=      .100 CEHV=      .300
*SECNO 14.197

3265 DIVIDED FLOW

    14.197       8.37   1310.27        .00        .00    1310.84        .57       3.13       .03   1311.25
   12998.9         .0    9276.6     3722.3         .0     1310.7     1967.7     1731.1     437.0   1310.80
      1.52        .00       7.08       1.89       .000       .038       .110       .000   1301.90   9795.47
   .008291       465.       480.       528.          3          0          0        .00   2136.90  12693.76


CCHV=      .100 CEHV=      .300
*SECNO 14.284

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58

    14.284       7.69   1313.09        .00        .00    1313.36        .26       2.48       .03   1312.53
   12998.9      176.3    8214.4     4608.2      203.1     1613.1     3771.2     1781.7     470.2   1311.30
      1.56        .87       5.09       1.22       .058       .038       .110       .000   1305.40   8928.99
   .003329       495.       499.       496.          3          0          0        .00   3677.88  12740.00


CCHV=      .100 CEHV=      .300
*SECNO 14.379

3265 DIVIDED FLOW
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    SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
    Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
    TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
    SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67

    14.379       7.30   1315.27        .00        .00    1315.86        .59       2.41       .10   1316.50
   12998.9         .0    8794.0     4204.9         .0     1186.9     2468.3     1835.1     505.8   1313.30
      1.59        .00       7.41       1.70       .000       .038       .110       .000   1307.97   9568.69
   .007396       515.       506.       502.          2          0          0        .00   2482.99  13069.57


CCHV=      .100 CEHV=      .300
*SECNO 14.495

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    14.495       7.28   1319.38        .00        .00    1319.42        .05       3.51       .05   1319.40
   12998.9         9.7    1287.4    11701.8       15.2     2214.2     6285.9     1909.7     544.5   1316.60
      1.67        .64        .58       1.86       .058       .380       .110       .000   1312.10   9179.44
   .005794       605.       562.       523.          2          0          0        .00   3865.61  13051.49


CCHV=      .100 CEHV=      .300
*SECNO 14.599

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49

    14.599       6.41   1321.41        .00        .00    1321.62        .20       2.15       .05   1321.60
   12998.9      408.8    9982.2     2608.0      342.2     2437.1     2773.6     2003.4     594.4   1320.90
      1.72       1.19       4.10        .94       .058       .038       .110       .000   1315.00   8733.62
   .002598       400.       542.       607.          3          0          0        .00   3660.82  12711.18


CCHV=      .100 CEHV=      .300
*SECNO 14.653

3265 DIVIDED FLOW
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    SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
    Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
    TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
    SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST
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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53

    14.653      6.23   1323.53       .00       .00   1323.99       .46      2.30       .08   1323.40
   12998.9     927.7    8852.8    3218.4     306.0    1377.5    1765.1    2055.4     630.5   1324.00
      1.75      3.03      6.43      1.82      .058      .038      .110      .000   1317.30   9108.93
   .009085      465.      537.      480.         2         0         0       .00   2734.29  12552.97


CCHV=     .100 CEHV=     .300
*SECNO 14.752

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73

    14.752      6.65   1326.42       .00       .00   1326.69       .27      2.68       .02   1326.04
   12998.9     584.0    9831.2    2583.7     368.3    2085.7    2262.8    2107.4     666.2   1327.69
      1.79      1.59      4.71      1.14      .058      .038      .110      .000   1319.77   9125.92
   .003025      530.      548.      565.         3         0         0       .00   2842.77  12593.20


CCHV=     .100 CEHV=     .300
*SECNO 14.850

3265 DIVIDED FLOW

3280 CROSS SECTION     14.85 EXTENDED       .19 FEET


3470 ENCROACHMENT STATIONS=     8948.3   12686.7  TYPE=      1  TARGET=    -8948.280
 ELENCL=   1331.58  ELENCR= 100000.00
    14.850      7.49   1328.39       .00       .00   1328.89       .49      2.13       .07   1329.20
   12999.7        .0   11008.2    1991.5        .0    1810.1    1217.8    2153.1     691.3   1328.60
      1.82       .00      6.08      1.64      .000      .038      .110      .000   1320.90   9584.10
   .005655      545.      537.      486.         3         0         0       .00   1484.04  12686.70


CCHV=     .100 CEHV=     .300
*SECNO 14.945
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.93

    14.945     15.18   1330.38       .00       .00   1330.49       .11      1.57       .04   1332.00
   13000.0        .0    2213.4   10786.6        .0     952.5    3914.0    2209.1     708.9   1332.10
      1.88       .00      2.32      2.76      .000      .038      .110      .000   1315.20   9803.14
   .001515      585.      529.      665.         4         0         0       .00   1055.09  12819.72


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 14.983

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9776.6   13539.1  TYPE=      1  TARGET=    -9776.610
 ELENCL=   1334.98  ELENCR= 100000.00
    14.983      8.60   1332.50   1332.50       .00   1333.39       .89       .82       .23   1334.70
   13000.0        .0    9666.8    3333.2        .0    1137.1     915.0    2226.6     714.6   1335.00
      1.89       .00      8.50      3.64      .000      .038      .110      .000   1323.90   9824.46
   .020287      190.      216.      222.        20        11         0       .00   1201.60  12867.93


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 15.049

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.37

15.049	14.14	1335.34	.00	.00	1335.41	.07	1.94	.08	1338.50
13000.0	.0	6484.3	6515.7	.0	2650.5	3856.7	2269.4	734.4	1337.70
1.95	.00	2.45	1.69	.000	.056	.110	.000	1321.20	9875.55
.001787	585.	500.	385.	4	0	0	.00	2853.10	13227.23

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 15.144

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .47

3470 ENCROACHMENT STATIONS= 9744.0 13809.9 TYPE= 1 TARGET= -9744.000
ELENCL= 1338.07 ELENCR= 100000.00

15.144	7.20	1336.40	1336.11	.00	1337.13	.73	1.52	.20	1338.07
13000.0	.0	11101.5	1898.5	.0	1502.2	1176.7	2315.7	757.1	1343.90
1.97	.00	7.39	1.61	.000	.038	.110	.000	1329.20	9770.85
.008007	485.	493.	396.	9	9	0	.00	1818.72	12840.27

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.958 TO RM 9.984

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	420.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	5	1197.292	1197.351	9.958	9.984

TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.984 TO RM 9.997

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	100.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	5	1197.351	1197.457	9.984	9.997

TN SPLIT FLOW AT RIGHT END POINT FROM RM 9.997 TO RM 10.096

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	720.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	5	1197.457	1200.746	9.997	10.096

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.096 TO RM 10.176

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	570.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	5	1200.746	1202.782	10.096	10.176

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.176 TO RM 10.271

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	440.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO

```
     .00       .00       .00       .00       .00       .00         5  1202.782  1205.380    10.176    10.271

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.271 TO RM 10.348

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
    .0     .00     .00     .00   250.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
    .00       .00       .00       .00       .00       .00         5  1205.380  1207.394    10.271    10.348

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.348 TO RM 10.443

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
    .0     .00     .00     .00   450.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
    .00       .00       .00       .00       .00       .00         5  1207.394  1209.840    10.348    10.443

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.443 TO RM 10.517

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
  157.6     .37    1.26     .63   530.0   249.5

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
   58.65     58.63       .03     58.65     58.63       .03         5  1209.840  1213.263    10.443    10.517

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.517 TO RM 10.612

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
  105.0     .97    1.26     .47   420.0   221.8

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
  101.66    101.64       .03    160.31    160.27       .03         5  1213.263  1215.585    10.517    10.612

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.612 TO RM 10.699

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
    .0     .00     .00     .00   460.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
    .00       .00       .00    160.31    160.27       .03         5  1215.585  1217.105    10.612    10.699

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.699 TO RM 10.803

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
  108.7     .47     .87     .51   560.0   213.7

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
   51.15     51.14       .02    211.46    211.41       .03         5  1217.105  1221.154    10.699    10.803

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.803 TO RM 10.862

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
   60.2     .67     .81     .41   370.0   147.8

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
   40.46     40.44       .04    251.92    251.85       .03         5  1221.154  1222.349    10.803    10.862

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.862 TO RM 10.917

  TOTAL    AVG     MAX     AVG     TOP     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
    .0     .00     .00     .00   280.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
    .00       .00       .00    251.92    251.85       .03         5  1222.349  1224.198    10.862    10.917

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.862 TO RM 10.917

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
    .00       .00       .00    251.92    251.85       .03         5  1222.349  1224.198    10.862    10.917
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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.917 TO RM 10.980

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	250.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1224.198	1225.115	10.917	10.980

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.917 TO RM 10.980

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1224.198	1225.115	10.917	10.980

TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.980 TO RM 10.996

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	120.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1225.115	1225.520	10.980	10.996

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.98 TO RM 10.996

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1225.115	1225.520	10.980	10.996

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 10.996 TO RM 11.030

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	190.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1225.520	1226.352	10.996	11.030

TW SPLIT FLOW AT LEFT END POINT FROM RM 10.996 TO RM 11.030

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1225.520	1226.352	10.996	11.030

TN SPLIT FLOW AT RIGHT END POINT FROM RM 11.03 TO RM 11.129

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	550.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1226.352	1229.009	11.030	11.129

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.03 TO RM 11.129

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1226.352	1229.009	11.030	11.129

TN SPLIT FLOW AT RIGHT END POINT FROM RM 11.129 TO RM 11.188

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	260.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1229.009	1229.478	11.129	11.188

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.129 TO RM 11.188

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1229.009	1229.478	11.129	11.188

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TW SPLIT FLOW AT LEFT END POINT FROM RM 11.188 TO RM 11.243

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1229.478	1229.757	11.188	11.243

TW SPLIT FLOW AT LEFT END POINT FROM RM 11.243 TO RM 11.301

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1229.757	1229.810	11.243	11.301

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.194 TO RM 12.313

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	100.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1252.470	1258.050	12.194	12.313

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.313 TO RM 12.420

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	510.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1258.050	1261.160	12.313	12.420

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.420 TO RM 12.511

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	390.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1261.160	1263.445	12.420	12.511

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.511 TO RM 12.606

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	450.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1263.445	1266.763	12.511	12.606

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.606 TO RM 12.701

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	770.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1266.763	1268.874	12.606	12.701

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.701 TO RM 12.801

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	460.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1268.874	1270.498	12.701	12.801

TN SPLIT FLOW AT RIGHT END POINT FROM RM 12.801 TO RM 12.896

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	360.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1270.498	1271.162	12.801	12.896

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TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.227 TO RM 13.325

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
.0	.00	.00	.00	540.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1281.717	1284.102	13.227	13.325

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.325 TO RM 13.42

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	450.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1284.102	1286.637	13.325	13.420

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.42 TO RM 13.524

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	470.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1286.637	1288.573	13.420	13.524

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.542 TO RM 13.619

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	620.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1288.573	1290.326	13.524	13.619

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.619 TO RM 13.68

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	398.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1290.326	1290.752	13.619	13.680

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.68 TO RM 13.742

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	430.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1290.752	1291.672	13.680	13.742

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.742 TO RM 13.818

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	340.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1291.672	1292.175	13.742	13.818

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.818 TO RM 13.918

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	520.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1292.175	1298.868	13.818	13.918

TN SPLIT FLOW AT RIGHT END POINT FROM RM 13.918 TO RM 14.013

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	695.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	251.92	251.85	.03	5	1298.868	1304.700	13.918	14.013

TN SPLIT FLOW AT RIGHT END POINT FROM RM 14.013 TO 14.103

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
.0	.00	.00	.00	495.0	.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO

```
      .00       .00       .00    251.92    251.85       .03         5  1304.700  1306.861    14.013    14.103

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.103 TO 14.197

  TOTAL    AVG     MAX     AVG     TOF     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
     .0     .00     .00     .00   620.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
     .00       .00       .00    251.92    251.85       .03         5  1306.861  1310.269    14.103    14.197

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.197 TO 14.284

  TOTAL    AVG     MAX     AVG     TOF     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
     .0     .00     .00     .00   415.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
     .00       .00       .00    251.92    251.85       .03         5  1310.269  1313.093    14.197    14.284

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TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.284 TO 14.379

  TOTAL    AVG     MAX     AVG     TOF     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
     .0     .00     .00     .00   385.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
     .00       .00       .00    251.92    251.85       .03         5  1313.093  1315.270    14.284    14.379

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.379 TO 14.495

  TOTAL    AVG     MAX     AVG     TOF     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
     .0     .00     .00     .00   485.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
     .00       .00       .00    251.92    251.85       .03         5  1315.270  1319.376    14.379    14.495

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.495 TO 14.599

  TOTAL    AVG     MAX     AVG     TOF     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
     .0     .00     .00     .00   625.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
     .00       .00       .00    251.92    251.85       .03         5  1319.376  1321.413    14.495    14.599

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.599 TO 14.653

  TOTAL    AVG     MAX     AVG     TOF     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
     .0     .00     .00     .00   460.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
     .00       .00       .00    251.92    251.85       .03         5  1321.413  1323.529    14.599    14.653

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TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.653 TO 14.752

  TOTAL    AVG     MAX     AVG     TOF     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
     .0     .00     .00     .00   505.0      .0

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
     .00       .00       .00    251.92    251.85       .03         5  1323.529  1326.420    14.653    14.752

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.752 TO 14.850

  TOTAL    AVG     MAX     AVG     TOF     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
    3.3     .22     .19     .10   360.0    34.5

   ASQ      QCOMP     ERRAC     TASQ       TCQ      TABER     NITER     DSWS      USWS     DSSNO     USSNO
     .74       .74       .00    252.66    252.59       .03         5  1326.420  1328.393    14.752    14.850

TN  SPLIT FLOW AT RIGHT END POINT FROM RM 14.850 TO 14.945

  TOTAL    AVG     MAX     AVG     TOF     TOP
  AREA   VELOCITY DEPTH   DEPTH   WIDTH   WIDTH
```

1.5	.22	.19	.10	1255.0	15.1						
ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO	
.32	.32	.08	252.98	252.91	.03	5	1328.393	1330.380	14.850	14.945	

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THIS RUN EXECUTED 18OCT99 10:33:17

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BY STANTEC FOR FCDMC, FC

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
7.728	.00	.00	.00	1135.40	21176.05	1144.18	.00	1146.19	50.70	11.37	1861.87	2974.01
7.728	.00	.00	.00	1135.40	19170.05	1143.75	1142.29	1145.61	49.97	10.93	1753.84	2712.00
7.728	.00	.00	.00	1135.40	12747.02	1142.10	1140.84	1143.49	49.82	9.44	1350.35	1805.96
7.751	121.70	.00	.00	1135.30	21176.05	1144.99	.00	1146.80	40.49	10.80	1960.22	3327.84
7.751	121.70	.00	.00	1135.30	19170.05	1144.54	.00	1146.20	39.52	10.34	1853.53	3049.59
7.751	121.70	.00	.00	1135.30	12747.02	1142.89	.00	1144.07	36.73	8.71	1463.10	2103.29
7.800	259.16	.00	.00	1135.65	21176.05	1146.14	.00	1147.89	42.51	10.63	1992.05	3247.93
7.800	259.16	.00	.00	1135.65	19170.05	1145.62	.00	1147.27	42.60	10.31	1859.68	2937.06
7.800	259.16	.00	.00	1135.65	12747.02	1143.86	.00	1145.11	41.32	8.94	1425.43	1983.10
7.920	631.37	.00	.00	1135.74	21176.05	1148.76	.00	1149.99	25.54	8.90	2378.97	4189.92
7.920	631.37	.00	.00	1135.74	19170.05	1148.21	.00	1149.36	25.30	8.61	2226.25	3811.34
7.920	631.37	.00	.00	1135.74	12747.02	1146.22	.00	1147.08	23.64	7.46	1709.54	2621.71
8.006	463.28	.00	.00	1136.11	21176.05	1149.97	.00	1151.12	23.16	8.62	2457.57	4400.64
8.006	463.28	.00	.00	1136.11	19170.05	1149.40	.00	1150.48	22.87	8.34	2298.81	4009.01
8.006	463.28	.00	.00	1136.11	12747.02	1147.31	.00	1148.13	21.53	7.26	1756.41	2746.98
8.052	236.58	.00	.00	1136.42	21176.05	1150.56	.00	1151.65	20.95	8.39	2523.34	4626.77
8.052	236.58	.00	.00	1136.42	19170.05	1149.98	.00	1151.00	20.62	8.11	2364.60	4221.33
8.052	236.58	.00	.00	1136.42	12747.02	1147.85	.00	1148.62	19.33	7.02	1815.21	2899.10
8.120	370.41	.00	.00	1137.97	21176.05	1151.31	.00	1152.51	24.00	8.78	2411.78	4322.49
8.120	370.41	.00	.00	1137.97	19170.05	1150.73	.00	1151.85	23.98	8.51	2252.22	3914.95
8.120	370.41	.00	.00	1137.97	12747.02	1148.57	.00	1149.44	23.79	7.50	1698.99	2613.49
8.220	512.82	.00	.00	1138.78	21176.05	1152.58	.00	1153.70	22.29	8.51	2489.35	4484.90
8.220	512.82	.00	.00	1138.78	19170.05	1151.99	.00	1153.04	22.28	8.25	2323.30	4061.33
8.220	512.82	.00	.00	1138.78	12747.02	1149.80	.00	1150.63	22.31	7.29	1748.12	2698.50

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	8.330	565.26	.00	.00	1140.59	21176.05	1153.82	.00	1154.97	22.25	8.62	2456.35	4489.12
	8.330	565.26	.00	.00	1140.59	19170.05	1153.22	.00	1154.31	22.14	8.35	2296.52	4074.06
	8.330	565.26	.00	.00	1140.59	12747.02	1151.05	.00	1151.88	21.91	7.32	1741.21	2723.28
	8.390	308.23	.00	.00	1140.92	21176.05	1154.53	.00	1155.62	19.43	8.38	2526.65	4804.66
	8.390	308.23	.00	.00	1140.92	19170.05	1153.93	.00	1154.95	19.14	8.10	2367.72	4381.42
	8.390	308.23	.00	.00	1140.92	12747.02	1151.74	.00	1152.49	17.67	6.97	1829.71	3032.65
	8.457	361.88	.00	.00	1141.10	21176.05	1155.28	.00	1156.28	16.74	8.02	2640.22	5175.49
	8.457	361.88	.00	.00	1141.10	19170.05	1154.67	.00	1155.60	16.41	7.74	2477.83	4732.41
	8.457	361.88	.00	.00	1141.10	12747.02	1152.40	.00	1153.09	14.92	6.63	1922.24	3300.03
*	8.516	287.90	.00	.00	1141.55	21176.05	1156.11	.00	1156.59	5.74	5.60	3779.93	8840.32
*	8.516	287.90	.00	.00	1141.55	19170.05	1155.46	.00	1155.90	5.50	5.33	3597.08	8174.84
*	8.516	287.90	.00	.00	1141.55	12747.02	1153.05	.00	1153.35	4.67	4.35	2927.56	5895.94
	8.538	110.00	.00	.00	1142.24	21176.05	1156.15	.00	1156.67	6.31	5.77	3667.34	8427.00
	8.538	110.00	.00	.00	1142.24	19170.05	1155.50	.00	1155.97	6.08	5.50	3485.31	7776.07
	8.538	110.00	.00	.00	1142.24	12747.02	1153.09	.00	1153.41	5.27	4.52	2818.74	5551.54
*	8.548	48.00	.00	.00	1149.77	21176.05	1158.02	1158.02	1160.80	106.67	13.40	1580.64	2050.34
*	8.548	48.00	.00	.00	1149.77	19170.05	1157.66	1157.66	1160.28	109.01	12.98	1477.12	1836.07
*	8.548	48.00	.00	.00	1149.77	12747.02	1156.42	1156.42	1158.43	119.34	11.39	1119.43	1166.87
*	8.655	461.08	.00	.00	1152.50	21176.05	1161.97	.00	1162.40	10.59	5.28	4008.80	6508.06
*	8.655	461.08	.00	.00	1152.50	19170.05	1161.47	.00	1161.87	10.85	5.12	3740.60	5818.57
*	8.655	461.08	.00	.00	1152.50	12747.02	1159.73	.00	1160.04	11.93	4.51	2825.87	3689.96

	8.731	401.71	.00	.00	1153.60	21176.05	1162.56	.00	1162.83	8.93	4.59	5508.86	7086.93
	8.731	401.71	.00	.00	1153.60	19170.05	1162.06	.00	1162.31	9.31	4.46	5121.94	6281.11
	8.731	401.71	.00	.00	1153.60	12747.02	1160.34	.00	1160.54	11.08	3.97	3803.18	3829.44
*	8.807	404.72	.00	.00	1158.04	21176.05	1164.41	1164.41	1167.20	103.71	13.41	1578.92	2079.36
*	8.807	404.72	.00	.00	1158.04	19170.05	1164.05	1164.05	1166.67	105.87	13.00	1474.68	1863.10
*	8.807	404.72	.00	.00	1158.04	12747.02	1162.77	1162.77	1164.80	115.17	11.42	1116.10	1187.77
	8.883	401.10	.00	.00	1159.44	21176.05	1168.09	.00	1171.02	85.95	13.73	1542.04	2284.12
	8.883	401.10	.00	.00	1159.44	19170.05	1167.76	.00	1170.43	83.04	13.10	1463.56	2103.70
	8.883	401.10	.00	.00	1159.44	12747.02	1166.59	.00	1168.36	69.39	10.65	1197.08	1530.27
*	8.936	289.58	.00	.00	1159.94	21176.05	1171.29	.00	1172.55	29.60	9.02	2346.55	3891.99
*	8.936	289.58	.00	.00	1159.94	19170.05	1170.71	.00	1171.91	29.44	8.81	2177.00	3533.06
*	8.936	289.58	.00	.00	1159.94	12747.02	1168.81	.00	1169.75	31.92	7.77	1639.65	2256.16
	8.977	211.76	.00	.00	1161.30	21176.05	1171.68	.00	1173.38	37.21	10.46	2025.02	3471.40
	8.977	211.76	.00	.00	1161.30	19170.05	1171.14	.00	1172.73	37.75	10.13	1893.23	3120.19
	8.977	211.76	.00	.00	1161.30	12747.02	1169.38	.00	1170.55	37.30	8.66	1471.29	2087.22
	8.994	91.57	.00	.00	1161.65	21176.05	1171.90	.00	1173.79	40.15	11.03	1920.64	3342.15
	8.994	91.57	.00	.00	1161.65	19170.05	1171.38	.00	1173.14	39.96	10.63	1803.14	3032.75
	8.994	91.57	.00	.00	1161.65	12747.02	1169.67	.00	1170.91	36.62	8.94	1425.48	2106.58

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	9.047	330.86	.00	.00	1161.64	21176.05	1173.99	.00	1174.49	9.31	5.71	3838.12	6939.87
*	9.047	330.86	.00	.00	1161.64	19170.05	1173.35	.00	1173.83	9.44	5.55	3503.15	6239.34
*	9.047	330.86	.00	.00	1161.64	12747.02	1171.20	.00	1171.56	9.90	4.86	2620.89	4050.44
	9.129	394.40	.00	.00	1163.16	21176.05	1174.43	.00	1174.83	7.72	5.10	4265.71	7619.57
	9.129	394.40	.00	.00	1163.16	19170.05	1173.80	.00	1174.18	7.97	4.97	3936.38	6791.66
	9.129	394.40	.00	.00	1163.16	12747.02	1171.64	.00	1171.94	8.85	4.42	2881.97	4284.44
	9.193	391.34	.00	.00	1164.54	21176.05	1174.75	.00	1175.21	10.53	5.45	3884.54	6524.35
	9.193	391.34	.00	.00	1164.54	19170.05	1174.13	.00	1174.58	11.19	5.35	3582.13	5731.51
	9.193	391.34	.00	.00	1164.54	12747.02	1172.03	.00	1172.41	14.37	4.96	2571.42	3362.18
*	9.289	506.29	.00	.00	1167.90	21176.05	1177.26	1177.26	1180.25	102.17	13.88	1525.52	2095.00
*	9.289	506.29	.00	.00	1167.90	19170.05	1176.85	1176.85	1179.68	104.35	13.51	1418.59	1876.66
*	9.289	506.29	.00	.00	1167.90	12747.02	1175.42	1175.42	1177.65	111.34	11.99	1063.56	1208.04
*	9.318	155.57	.00	.00	1168.35	21176.05	1180.24	.00	1180.97	15.26	6.86	3088.55	5421.03
*	9.318	155.57	.00	.00	1168.35	19170.05	1179.72	.00	1180.40	15.32	6.62	2897.83	4898.15
*	9.318	155.57	.00	.00	1168.35	12747.02	1177.84	.00	1178.34	15.78	5.73	2224.93	3209.02
	9.367	489.74	.00	.00	1171.33	21176.05	1181.14	.00	1181.62	10.75	5.55	3815.24	6458.30
	9.367	489.74	.00	.00	1171.33	19170.05	1180.60	.00	1181.05	11.04	5.39	3557.15	5769.07
	9.367	489.74	.00	.00	1171.33	12747.02	1178.69	.00	1179.05	12.55	4.80	2657.71	3598.70
*	9.492	463.47	.00	.00	1173.94	21176.05	1181.66	.00	1182.41	23.19	6.95	3049.07	4397.42
*	9.492	463.47	.00	.00	1173.94	19170.05	1181.15	.00	1181.87	25.00	6.84	2801.71	3834.22
*	9.492	463.47	.00	.00	1173.94	12747.02	1179.39	.00	1180.05	35.26	6.50	1961.88	2146.57
*	9.592	606.90	.00	.00	1175.70	21176.05	1183.26	1183.26	1185.66	107.73	12.43	1703.56	2040.26
*	9.592	606.90	.00	.00	1175.70	19170.05	1182.94	1182.94	1185.20	110.93	12.08	1587.31	1820.09
*	9.592	606.90	.00	.00	1175.70	12747.02	1182.11	.00	1183.62	95.35	9.86	1293.10	1305.39
*	9.692	565.23	.00	.00	1177.20	21176.05	1187.16	.00	1187.97	19.26	7.23	2928.01	4825.30
*	9.692	565.23	.00	.00	1177.20	19170.05	1186.75	.00	1187.49	18.83	6.92	2771.64	4418.20
*	9.692	565.23	.00	.00	1177.20	12747.02	1185.16	.00	1185.70	18.06	5.85	2179.84	2999.15
*	9.794	557.04	.00	.00	1180.23	21176.05	1188.94	1188.94	1191.87	103.93	13.73	1541.94	2077.22
*	9.794	557.04	.00	.00	1180.23	19170.05	1188.55	1188.55	1191.31	106.15	13.32	1439.32	1860.66
*	9.794	557.04	.00	.00	1180.23	12747.02	1187.22	1187.22	1189.36	116.06	11.74	1086.06	1183.20
*	9.889	501.31	.00	.00	1185.42	21176.05	1194.07	1194.07	1197.60	97.61	15.07	1405.34	2143.42
*	9.889	501.31	.00	.00	1185.42	19170.05	1193.58	1193.58	1196.93	100.78	14.69	1305.14	1909.59
	9.889	501.31	.00	.00	1185.42	12747.02	1192.24	.00	1194.57	90.34	12.23	1042.39	1341.10
*	9.908	103.32	.00	.00	1189.05	21176.05	1196.42	1196.42	1199.30	95.18	13.70	1590.49	2170.60
*	9.908	103.32	.00	.00	1189.05	19170.05	1195.99	1195.99	1198.75	97.75	13.36	1468.08	1938.98
*	9.908	103.32	.00	.00	1189.05	12747.02	1194.48	1194.48	1196.73	108.36	12.04	1062.93	1224.52
*	9.953	189.16	.00	.00	1189.38	21176.05	1199.25	.00	1200.75	35.04	9.84	2153.12	3577.54
*	9.953	189.16	.00	.00	1189.38	19170.05	1198.80	.00	1200.18	34.46	9.44	2031.45	3265.60
*	9.953	189.16	.00	.00	1189.38	12747.02	1197.14	.00	1198.14	33.32	8.04	1585.61	2208.42

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
9.958	27.43	.00	.00	1190.47	21176.05	1199.48	.00	1200.87	32.34	9.48	2233.38	3723.61
9.958	27.43	.00	.00	1190.47	19170.05	1199.01	.00	1200.30	32.05	9.12	2101.88	3386.09
9.958	27.43	.00	.00	1190.47	12747.02	1197.29	.00	1198.25	31.82	7.84	1626.40	2259.88
9.984	133.96	1204.01	1200.24	1191.00	21176.05	1199.91	.00	1201.26	31.13	9.34	2266.15	3795.62
9.984	133.96	1204.01	1200.24	1191.00	19170.05	1199.10	.00	1200.48	35.50	9.41	2038.16	3217.30
9.984	133.96	1204.01	1200.24	1191.00	12747.02	1197.35	.00	1198.40	37.35	8.22	1551.64	2085.71

	9.997	74.24	.00	.00	1191.71	21176.05	1199.96	.00	1201.79	50.17	10.87	1948.96	2989.81
	9.997	74.24	.00	.00	1191.71	19170.05	1199.17	.00	1201.08	59.76	11.11	1725.55	2479.87
	9.997	74.24	.00	.00	1191.71	12747.02	1197.46	.00	1199.01	65.94	10.02	1272.64	1569.72
*	10.096	543.99	.00	.00	1193.84	21176.05	1202.88	.00	1203.74	24.57	7.53	2946.47	4271.71
*	10.096	543.99	.00	.00	1193.84	19170.05	1202.41	.00	1203.23	25.64	7.35	2723.47	3785.68
*	10.096	543.99	.00	.00	1193.84	12747.02	1200.75	.00	1201.43	29.89	6.66	1971.67	2331.53
*	10.176	553.29	.00	.00	1195.57	21176.05	1204.43	.00	1205.80	52.10	9.46	2316.39	2933.82
*	10.176	553.29	.00	.00	1195.57	19170.05	1204.05	.00	1205.37	54.25	9.22	2131.49	2602.80
*	10.176	553.29	.00	.00	1195.57	12747.02	1202.78	.00	1203.83	61.27	8.21	1561.27	1628.53
	10.271	491.26	.00	.00	1198.26	21176.05	1206.91	.00	1207.94	36.07	8.33	3063.64	3526.15
	10.271	491.26	.00	.00	1198.26	19170.05	1206.57	.00	1207.57	36.70	8.10	2727.69	3164.22
	10.271	491.26	.00	.00	1198.26	12747.02	1205.38	.00	1206.14	36.38	6.97	1831.36	2113.40
	10.348	523.00	.00	.00	1201.21	21176.05	1208.86	.00	1210.09	44.50	8.93	2580.02	3174.34
	10.348	523.00	.00	.00	1201.21	19170.05	1208.56	.00	1209.70	43.70	8.56	2345.63	2899.89
	10.348	523.00	.00	.00	1201.21	12747.02	1207.39	.00	1208.22	42.83	7.28	1750.84	1947.68
	10.443	494.83	.00	.00	1204.60	21194.16	1211.25	.00	1212.89	67.35	10.27	2090.84	2582.58
	10.443	494.83	.00	.00	1204.60	19171.06	1210.95	.00	1212.47	67.54	9.89	1953.85	2332.69
	10.443	494.83	.00	.00	1204.60	12747.02	1209.84	.00	1210.97	69.69	8.55	1491.12	1526.90
	10.517	519.30	.00	.00	1207.43	21635.31	1214.70	.00	1216.17	59.81	10.31	2761.53	2797.44
	10.517	519.30	.00	.00	1207.43	19488.40	1214.38	.00	1215.75	59.74	9.92	2564.98	2521.35
	10.517	519.30	.00	.00	1207.43	12805.67	1213.26	.00	1214.31	59.63	8.54	1886.67	1658.37
	10.612	504.93	.00	.00	1208.77	22951.94	1217.13	.00	1218.64	41.30	9.89	2463.98	3571.31
	10.612	504.93	.00	.00	1208.77	20417.49	1216.80	.00	1218.12	38.50	9.26	2310.34	3290.77
*	10.612	504.93	.00	.00	1208.77	12907.33	1215.58	.00	1216.39	29.84	7.19	1796.42	2363.05
	10.699	462.24	.00	.00	1209.46	23326.37	1218.97	.00	1221.50	77.34	12.78	1839.23	2652.49
	10.699	462.24	.00	.00	1209.46	20584.22	1218.56	.00	1220.81	74.65	12.04	1712.51	2382.38
*	10.699	462.24	.00	.00	1209.46	12907.33	1217.10	.00	1218.64	71.02	9.93	1299.86	1531.62
*	10.803	567.30	.00	.00	1214.10	24322.28	1223.41	.00	1224.60	38.16	8.88	2889.86	3937.51
*	10.803	567.30	.00	.00	1214.10	21203.48	1222.84	.00	1223.95	40.20	8.56	2587.10	3344.09
	10.803	567.30	.00	.00	1214.10	12958.48	1221.15	.00	1222.02	48.96	7.51	1782.43	1852.03
*	10.862	313.15	.00	.00	1215.43	25632.73	1224.06	1224.06	1227.05	82.21	13.97	1985.75	2827.04
	10.862	313.15	.00	.00	1215.43	21946.29	1223.48	1223.21	1226.15	80.87	13.14	1727.65	2440.41
	10.862	313.15	.00	.00	1215.43	12998.94	1222.35	.00	1223.73	50.84	9.45	1376.01	1823.09

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	10.917	292.21	.00	.00	1216.73	26631.91	1227.51	.00	1228.18	16.48	7.06	5481.43	6560.99
*	10.917	292.21	.00	.00	1216.73	22316.13	1226.64	.00	1227.35	19.00	7.04	4180.50	5120.10
	10.917	292.21	.00	.00	1216.73	12998.94	1224.20	.00	1224.87	27.53	6.60	2004.52	2477.36
*	10.980	357.93	.00	.00	1218.60	28174.35	1228.64	1228.64	1231.18	55.44	12.99	2648.90	3784.02
*	10.980	357.93	.00	.00	1218.60	22648.88	1226.77	.00	1229.72	81.21	13.78	1643.01	2513.26
*	10.980	357.93	.00	.00	1218.60	12998.94	1225.12	.00	1226.77	60.68	10.33	1258.85	1668.76
*	10.996	129.13	1228.47	1228.23	1218.61	28332.63	1230.75	.00	1231.79	20.14	8.95	5201.42	6313.49
*	10.996	129.13	1228.47	1228.23	1218.61	22648.88	1226.98	.00	1229.89	81.09	13.69	1654.52	2515.22
	10.996	129.13	1228.47	1228.23	1218.61	12998.94	1225.52	.00	1227.05	54.08	9.92	1310.87	1767.63
	11.030	167.81	.00	.00	1219.37	28478.69	1231.22	.00	1232.17	21.61	9.06	5567.88	6125.98
*	11.030	167.81	.00	.00	1219.37	22653.36	1230.09	.00	1231.16	25.92	9.15	4009.46	4449.30
	11.030	167.81	.00	.00	1219.37	12998.94	1226.35	.00	1228.19	64.25	10.88	1194.77	1621.70
	11.129	516.79	.00	.00	1219.40	28782.36	1232.38	.00	1233.04	12.19	7.21	6145.33	8243.58
*	11.129	516.79	.00	.00	1219.40	22657.21	1231.51	.00	1232.07	11.10	6.51	4938.88	6800.58
*	11.129	516.79	.00	.00	1219.40	12998.94	1229.01	.00	1229.43	10.35	5.39	2800.41	4040.05
	11.188	309.44	.00	.00	1218.51	29671.43	1232.93	.00	1233.41	10.89	6.58	6217.51	8992.31
	11.188	309.44	.00	.00	1218.51	22691.44	1232.02	.00	1232.39	8.71	5.62	5138.66	7686.91
	11.188	309.44	.00	.00	1218.51	12998.94	1229.48	.00	1229.70	6.76	4.27	3608.91	5000.97
	11.243	314.34	.00	.00	1218.35	30012.71	1233.44	.00	1233.68	6.25	4.91	8207.24	12001.76
	11.243	314.34	.00	.00	1218.35	22691.46	1232.43	.00	1232.60	4.87	4.12	7138.43	10284.08
	11.243	314.34	.00	.00	1218.35	12998.94	1229.76	.00	1229.86	3.71	3.08	5158.61	6745.34
*	11.301	289.90	.00	.00	1221.27	30013.29	1233.53	.00	1234.03	14.82	7.12	6073.67	7795.88
*	11.301	289.90	.00	.00	1221.27	22691.46	1232.50	.00	1232.89	12.81	6.21	5103.17	6340.49
*	11.301	289.90	.00	.00	1221.27	12998.94	1229.81	.00	1230.11	13.76	5.39	3342.16	3503.75
	11.386	436.60	.00	.00	1223.10	30013.29	1234.19	.00	1234.94	25.08	8.53	5470.67	5993.42
*	11.386	436.60	.00	.00	1223.10	22691.46	1233.07	.00	1233.76	26.44	8.04	4381.94	4412.91
*	11.386	436.60	.00	.00	1223.10	12998.94	1230.29	1229.75	1231.50	62.36	9.56	1783.19	1646.09
*	11.481	523.22	.00	.00	1224.81	30013.29	1234.87	1234.87	1238.04	97.95	14.29	2100.39	3032.58
*	11.481	523.22	.00	.00	1224.81	22691.46	1234.18	.00	1236.46	80.14	12.12	1871.57	2534.79
	11.481	523.22	.00	.00	1224.81	12998.94	1232.94	.00	1234.06	39.24	8.51	1528.17	2075.07
*	11.566	468.92	.00	.00	1228.32	30013.29	1238.90	.00	1239.43	10.48	5.97	5543.97	9269.75
*	11.566	468.92	.00	.00	1228.32	22691.46	1237.32	.00	1237.79	11.64	5.57	4397.45	6650.25
*	11.566	468.92	.00	.00	1228.32	12998.94	1234.83	.00	1235.20	14.71	4.88	2700.61	3389.30

*	11.664	513.83	.00	.00	1228.80	30013.29	1239.14	.00	1240.66	38.97	10.12	3319.57	4807.61
*	11.664	513.83	.00	.00	1228.80	22691.46	1237.71	.00	1239.15	46.88	9.71	2503.93	3314.18
*	11.664	513.83	.00	.00	1228.80	12998.94	1235.64	.00	1236.77	58.82	8.51	1526.72	1694.90
	11.759	501.24	.00	.00	1232.02	30013.29	1241.47	.00	1243.20	65.37	11.85	3508.47	3712.02
	11.759	501.24	.00	.00	1232.02	22691.46	1240.39	.00	1241.87	63.40	10.89	2893.17	2849.75
	11.759	501.24	.00	.00	1232.02	12998.94	1238.67	.00	1239.72	59.09	9.03	1987.44	1691.10

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	11.864	615.28	.00	.00	1235.57	30013.29	1244.88	1244.88	1248.85	94.70	16.12	1979.37	3084.13
	11.864	615.28	.00	.00	1235.57	22691.46	1243.83	1243.61	1246.87	87.04	14.10	1694.04	2432.24
	11.864	615.28	.00	.00	1235.57	12998.94	1242.17	.00	1243.92	71.75	10.69	1266.22	1534.65
*	11.949	452.25	.00	.00	1238.90	30013.29	1249.84	.00	1250.42	12.43	6.52	6225.33	8511.44
*	11.949	452.25	.00	.00	1238.90	22691.46	1247.99	.00	1248.58	16.53	6.46	4170.45	5580.41
*	11.949	452.25	.00	.00	1238.90	12998.94	1245.37	.00	1245.90	26.32	6.04	2440.94	2533.93
*	12.034	539.66	.00	.00	1241.47	30013.29	1250.30	.00	1251.92	49.53	10.20	2970.38	4264.53
*	12.034	539.66	.00	.00	1241.47	22691.46	1248.89	.00	1250.41	62.41	9.89	2293.29	2872.37
*	12.034	539.66	.00	.00	1241.47	12998.94	1247.16	.00	1248.28	71.90	8.49	1531.67	1533.05
	12.125	461.89	.00	.00	1244.65	30013.29	1252.78	.00	1253.70	28.60	7.80	4006.72	5612.27
*	12.125	461.89	.00	.00	1244.65	22691.46	1251.66	.00	1252.43	30.18	7.16	3289.73	4130.79
*	12.125	461.89	.00	.00	1244.65	12998.94	1249.88	.00	1250.44	31.20	6.05	2221.26	2327.29
*	12.194	337.73	.00	.00	1248.00	30013.29	1254.83	1254.83	1257.53	106.14	13.19	2275.35	2913.22
*	12.194	337.73	.00	.00	1248.00	22691.46	1253.92	1253.92	1256.17	111.74	12.03	1886.12	2146.66
*	12.194	337.73	.00	.00	1248.00	12998.94	1252.47	1252.47	1254.08	124.62	10.19	1275.80	1164.45
*	12.313	685.08	.00	.00	1250.47	30013.29	1260.68	.00	1261.50	34.52	8.60	7872.08	5108.46
*	12.313	685.08	.00	.00	1250.47	22691.46	1259.72	1259.20	1260.69	42.10	8.74	5021.48	3497.16
*	12.313	685.08	.00	.00	1250.47	12998.94	1258.05	.00	1258.98	45.63	7.99	2114.44	1924.34
	12.420	578.07	.00	.00	1254.50	30013.40	1263.13	.00	1264.04	51.25	9.83	7613.47	4192.53
	12.420	578.07	.00	.00	1254.50	22691.46	1262.57	.00	1263.40	48.68	8.99	5733.39	3252.25
	12.420	578.07	.00	.00	1254.50	12998.94	1261.16	1260.34	1262.01	57.68	8.31	2699.97	1711.51
	12.511	467.59	.00	.00	1254.80	30020.23	1265.28	1265.25	1266.41	49.83	10.85	7928.64	4252.85
*	12.511	467.59	.00	.00	1254.80	22691.46	1264.73	1264.73	1265.79	46.27	9.96	6081.56	3335.90
	12.511	467.59	.00	.00	1254.80	12998.94	1263.44	1262.66	1264.51	48.47	8.95	2691.25	1867.17
	12.606	582.30	.00	.00	1258.90	30315.77	1268.46	.00	1269.17	45.54	7.83	7236.91	4492.33
	12.606	582.30	.00	.00	1258.90	22737.57	1267.86	.00	1268.49	46.79	7.21	5252.23	3324.12
	12.606	582.30	.00	.00	1258.90	12998.94	1266.76	.00	1267.24	44.34	6.03	3097.09	1952.16
	12.701	505.60	.00	.00	1260.10	30388.76	1270.83	.00	1271.36	40.01	7.03	8649.07	4804.44
	12.701	505.60	.00	.00	1260.10	22737.57	1270.25	.00	1270.73	40.63	6.48	6584.77	3567.34
	12.701	505.60	.00	.00	1260.10	12998.94	1268.87	.00	1269.43	41.04	6.45	3260.12	2028.98
	12.801	524.61	.00	.00	1260.23	30399.58	1272.40	.00	1273.03	24.84	6.72	5984.66	6099.95
	12.801	524.61	.00	.00	1260.23	22737.57	1271.74	.00	1272.22	20.75	5.80	4794.22	4991.54
*	12.801	524.61	.00	.00	1260.23	12998.94	1270.50	.00	1270.78	16.92	4.42	3393.05	3159.76
	12.896	508.24	.00	.00	1262.50	30399.58	1273.38	.00	1274.31	22.06	7.89	4486.35	6472.38
	12.896	508.24	.00	.00	1262.50	22737.57	1272.58	.00	1273.24	17.49	6.60	3897.55	5436.97
	12.896	508.24	.00	.00	1262.50	12998.94	1271.16	.00	1271.50	11.53	4.73	2995.85	3827.54
*	12.991	527.02	.00	.00	1262.37	30399.58	1274.53	.00	1275.01	7.99	5.60	5611.62	10755.86
*	12.991	527.02	.00	.00	1262.37	22737.57	1273.45	.00	1273.79	6.41	4.68	4988.93	8980.37
*	12.991	527.02	.00	.00	1262.37	12998.94	1271.69	.00	1271.86	4.17	3.31	3999.96	6367.05

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
13.076	454.21	.00	.00	1262.37	30399.58	1274.81	.00	1275.54	13.05	6.90	4502.35	8415.83
13.076	454.21	.00	.00	1262.37	22737.57	1273.69	.00	1274.22	10.75	5.83	3960.81	6934.75
13.076	454.21	.00	.00	1262.37	12998.94	1271.85	.00	1272.13	6.73	4.21	3112.73	5010.01
13.151	393.13	.00	.00	1262.20	30399.58	1275.27	.00	1276.16	16.30	7.60	4010.45	7530.74
13.151	393.13	.00	.00	1262.20	22737.57	1274.08	.00	1274.74	13.96	6.50	3500.03	6086.36
13.151	393.13	.00	.00	1262.20	12998.94	1272.12	.00	1272.48	10.39	4.84	2686.01	4032.71
* 13.161	51.06	.00	.00	1274.65	30399.58	1282.31	1282.31	1283.71	61.17	10.07	5203.02	3886.72
* 13.161	51.06	.00	.00	1274.65	22737.57	1281.35	1281.35	1282.89	79.30	10.10	2806.80	2553.30
* 13.161	51.06	.00	.00	1274.65	12998.94	1279.30	1279.30	1280.94	123.30	10.26	1266.98	1170.67
* 13.185	33.56	.00	.00	1274.89	30399.58	1282.11	1282.11	1284.40	97.09	12.15	2553.94	3085.12
13.185	33.56	.00	.00	1274.89	22737.57	1281.55	.00	1283.18	76.72	10.28	2212.86	2595.84
* 13.185	33.56	.00	.00	1274.89	12998.94	1280.32	.00	1281.27	54.38	7.81	1663.37	1762.73
* 13.227	315.32	.00	.00	1274.82	30399.58	1284.94	1284.67	1286.14	31.41	9.93	7400.13	5424.28
13.227	315.32	.00	.00	1274.82	22737.57	1283.40	1281.95	1285.14	49.28	10.91	2909.79	3239.02
13.227	315.32	.00	.00	1274.82	12998.94	1281.72	.00	1282.77	40.39	8.38	1688.00	2045.37
* 13.325	571.01	.00	.00	1276.70	30693.68	1287.51	1287.51	1289.11	41.15	11.25	6411.68	4784.95
13.325	571.01	.00	.00	1276.70	22737.57	1286.15	1284.79	1288.07	51.91	11.45	2910.81	3155.81
13.325	571.01	.00	.00	1276.70	12998.94	1284.10	.00	1285.39	49.80	9.27	1529.53	1842.04

*	13.420	514.13	.00	.00	1277.43	31066.08	1290.02	.00	1290.64	20.70	8.29	11031.95	6828.85
*	13.420	514.13	.00	.00	1277.43	22738.82	1289.15	.00	1289.71	19.01	7.47	8605.27	5215.43
	13.420	514.13	.00	.00	1277.43	12998.94	1286.64	.00	1287.58	35.94	8.37	2754.33	2168.40
*	13.524	522.56	.00	.00	1281.90	31211.98	1291.39	1291.39	1293.08	49.88	11.04	5259.94	4419.39
*	13.524	522.56	.00	.00	1281.90	22739.39	1289.84	1288.94	1291.76	63.24	11.21	2244.80	2859.34
	13.524	522.56	.00	.00	1281.90	12998.94	1288.57	.00	1289.58	40.28	8.08	1660.89	2048.14
*	13.619	505.64	.00	.00	1283.47	31211.98	1293.76	.00	1294.28	11.74	5.84	6467.34	9110.53
*	13.619	505.64	.00	.00	1283.47	22739.39	1292.59	.00	1292.98	10.44	5.05	4676.93	7037.68
*	13.619	505.64	.00	.00	1283.47	12998.94	1290.33	.00	1290.60	10.76	4.21	3093.00	3962.32
	13.680	331.09	.00	.00	1285.50	31211.98	1294.17	.00	1294.77	17.78	6.31	5802.42	7402.96
	13.680	331.09	.00	.00	1285.50	22739.39	1292.97	.00	1293.47	19.09	5.73	4103.21	5204.29
*	13.680	331.09	.00	.00	1285.50	12998.94	1290.75	.00	1291.20	28.96	5.40	2414.50	2415.65
	13.742	353.72	.00	.00	1285.60	31211.98	1294.87	.00	1295.34	14.06	5.53	5668.00	8324.95
	13.742	353.72	.00	.00	1285.60	22739.39	1293.69	.00	1294.04	13.12	4.80	4737.27	6278.57
*	13.742	353.72	.00	.00	1285.60	12998.94	1291.67	.00	1291.92	14.29	4.02	3235.98	3438.41
	13.818	406.30	.00	.00	1285.83	31211.98	1295.43	.00	1295.82	9.42	5.04	6739.26	10170.97
	13.818	406.30	.00	.00	1285.83	22739.39	1294.19	.00	1294.48	8.52	4.32	5623.71	7792.37
	13.818	406.30	.00	.00	1285.83	12998.94	1292.17	.00	1292.35	7.96	3.42	3989.41	4608.27
*	13.918	642.34	.00	.00	1289.83	31211.98	1303.10	1303.10	1305.00	79.62	13.30	4635.90	3497.89
*	13.918	642.34	.00	.00	1289.83	22739.39	1301.10	1301.10	1303.60	141.41	14.46	2334.55	1912.23
*	13.918	642.34	.00	.00	1289.83	12998.94	1298.87	1298.87	1301.01	200.24	13.29	1322.16	918.61

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	14.013	514.07	.00	.00	1295.75	31300.13	1307.37	.00	1308.03	33.39	8.42	10020.84	5416.96
*	14.013	514.07	.00	.00	1295.75	22739.39	1306.59	.00	1307.19	31.96	7.64	7347.43	4022.47
*	14.013	514.07	.00	.00	1295.75	12998.94	1304.70	.00	1305.44	40.04	7.59	2973.14	2054.25
	14.103	520.68	.00	.00	1299.70	31520.43	1308.95	1308.91	1310.15	57.14	10.37	7340.95	4169.73
	14.103	520.68	.00	.00	1299.70	22739.39	1308.18	1307.63	1309.29	56.15	9.51	4793.44	3034.57
	14.103	520.68	.00	.00	1299.70	12998.94	1306.86	.00	1307.68	50.85	7.74	2351.22	1822.90
	14.197	479.63	.00	.00	1301.90	32266.94	1312.30	.00	1312.82	48.58	7.73	10126.38	4629.45
	14.197	479.63	.00	.00	1301.90	22855.57	1311.55	.00	1312.06	53.64	7.25	7068.84	3120.73
	14.197	479.63	.00	.00	1301.90	12998.94	1310.27	.00	1310.84	82.91	7.08	3278.37	1427.61
	14.284	498.98	.00	.00	1305.40	32272.70	1314.56	.00	1314.93	36.86	6.80	11699.59	5315.49
	14.284	498.98	.00	.00	1305.40	22855.57	1313.93	.00	1314.26	36.37	6.16	8894.24	3789.74
*	14.284	498.98	.00	.00	1305.40	12998.94	1313.09	.00	1313.36	33.29	5.09	5587.39	2252.78
	14.379	505.75	.00	.00	1307.97	32272.70	1317.06	.00	1317.48	72.58	7.32	9820.77	3788.22
*	14.379	505.75	.00	.00	1307.97	22855.57	1316.39	.00	1316.84	74.45	7.25	7101.00	2648.89
*	14.379	505.75	.00	.00	1307.97	12998.94	1315.27	.00	1315.86	73.96	7.41	3655.24	1511.55
	14.496	561.68	.00	.00	1312.10	32401.11	1320.96	.00	1321.06	60.75	.81	15018.08	4157.03
	14.495	561.68	.00	.00	1312.10	22859.31	1320.31	.00	1320.38	58.08	.71	12264.09	2999.41
	14.495	561.68	.00	.00	1312.10	12998.94	1319.38	.00	1319.42	57.94	.58	8515.29	1707.66
*	14.599	542.23	.00	.00	1315.00	32497.46	1322.99	.00	1323.29	25.91	5.44	11974.50	6384.41
*	14.599	542.23	.00	.00	1315.00	22861.37	1322.32	.00	1322.57	25.87	4.87	9110.70	4494.30
*	14.599	542.23	.00	.00	1315.00	12998.94	1321.41	.00	1321.62	25.98	4.10	5552.95	2550.17
*	14.653	536.63	.00	.00	1317.30	32497.46	1324.92	.00	1325.53	78.35	8.05	8401.69	3671.40
*	14.653	536.63	.00	.00	1317.30	22861.37	1324.32	.00	1324.87	84.58	7.40	6073.28	2485.86
*	14.653	536.63	.00	.00	1317.30	12998.94	1323.53	.00	1323.99	90.85	6.43	3448.52	1363.78
*	14.752	547.53	.00	.00	1319.77	32503.42	1327.98	.00	1328.39	36.64	6.42	10026.92	5369.90
*	14.752	547.53	.00	.00	1319.77	22861.37	1327.31	.00	1327.68	33.62	5.81	7544.11	3942.72
*	14.752	547.53	.00	.00	1319.77	12998.94	1326.42	.00	1326.69	30.25	4.71	4716.79	2363.25
	14.850	536.65	.00	.00	1320.90	32820.31	1330.14	.00	1330.96	61.44	8.36	7152.16	4187.03
	14.850	536.65	.00	.00	1320.90	22954.97	1329.41	.00	1330.10	60.88	7.40	5042.47	2942.06
	14.850	536.65	.00	.00	1320.90	12999.68	1328.39	.00	1328.89	56.55	6.08	3027.89	1728.63
*	14.945	529.39	.00	.00	1315.20	33000.00	1332.92	.00	1333.09	22.60	4.47	10921.85	6940.91
*	14.945	529.39	.00	.00	1315.20	23000.00	1331.95	.00	1332.09	20.36	3.52	7831.02	5097.39
*	14.945	529.39	.00	.00	1315.20	13000.00	1330.38	.00	1330.49	15.15	2.32	4866.50	3340.22
*	14.983	216.48	.00	.00	1323.90	33000.00	1334.15	1334.15	1335.30	150.66	10.07	5695.26	2688.57
*	14.983	216.48	.00	.00	1323.90	23000.00	1333.34	1333.34	1334.52	210.70	9.94	3420.35	1584.52
*	14.983	216.48	.00	.00	1323.90	13000.00	1332.50	1332.50	1333.39	202.87	8.50	2052.04	912.71
*	15.049	499.69	.00	.00	1321.20	33000.00	1337.38	.00	1337.51	22.28	3.75	13840.71	6990.52
*	15.049	499.69	.00	.00	1321.20	23000.00	1336.61	.00	1336.71	19.33	3.15	10729.84	5231.73
*	15.049	499.69	.00	.00	1321.20	13000.00	1335.34	.00	1335.41	17.87	2.45	6507.22	3075.26

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	15.144	493.15	.00	.00	1329.20	33000.00	1338.48	.00	1339.22	57.29	8.48	8675.30	4359.95
*	15.144	493.15	.00	.00	1329.20	23000.00	1337.61	.00	1338.37	63.12	8.09	5706.82	2895.05

*	15.144	493.15	.00	.00	1329.20	13000.00	1336.40	1336.11	1337.13	80.07	7.39	2678.93	1452.82

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BY STANTEC FOR FCDMC, FC

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIPWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	7.728	21176.05	1144.18	.00	.00	.00	252.75	.00
	7.728	19170.05	1143.75	-.43	.00	-227.53	250.07	.00
	7.728	12747.02	1142.10	-1.65	.00	-229.18	239.79	.00
	7.751	21176.05	1144.99	.00	.81	.00	241.43	121.70
	7.751	19170.05	1144.54	-.44	.79	.00	239.46	121.70
	7.751	12747.02	1142.89	-1.65	.78	.00	232.11	121.70
	7.800	21176.05	1146.14	.00	1.15	.00	262.99	259.16
	7.800	19170.05	1145.62	-.52	1.08	.00	257.59	259.16
	7.800	12747.02	1143.86	-1.75	.98	.00	239.01	259.16
	7.920	21176.05	1148.76	.00	2.62	.00	278.89	631.37
	7.920	19170.05	1148.21	-.55	2.59	.00	272.36	631.37
	7.920	12747.02	1146.22	-1.99	2.35	.00	246.75	631.37
	8.006	21176.05	1149.97	.00	1.21	.00	281.13	463.28
	8.006	19170.05	1149.40	-.57	1.19	.00	273.62	463.28
	8.006	12747.02	1147.31	-2.09	1.09	.00	246.23	463.28
	8.052	21176.05	1150.56	.00	.59	.00	278.10	236.58
	8.052	19170.05	1149.98	-.58	.58	.00	271.29	236.58
	8.052	12747.02	1147.85	-2.13	.54	.00	246.19	236.58
	8.120	21176.05	1151.31	.00	.76	.00	274.64	370.41
	8.120	19170.05	1150.73	-.59	.75	.00	268.54	370.41
	8.120	12747.02	1148.57	-2.16	.72	.00	243.40	370.41
	8.220	21176.05	1152.58	.00	1.27	.00	282.48	512.82
	8.220	19170.05	1151.99	-.59	1.26	.00	275.89	512.82
	8.220	12747.02	1149.80	-2.18	1.23	.00	250.33	512.82
	8.330	21176.05	1153.82	.00	1.24	.00	272.99	565.26
	8.330	19170.05	1153.22	-.59	1.24	.00	266.94	565.26
	8.330	12747.02	1151.05	-2.18	1.25	.00	244.75	565.26
	8.390	21176.05	1154.53	.00	.71	.00	264.29	308.23
	8.390	19170.05	1153.93	-.60	.70	.00	258.06	308.23
	8.390	12747.02	1151.74	-2.19	.69	.00	235.48	308.23
	8.457	21176.05	1155.28	.00	.75	.00	263.69	361.88
	8.457	19170.05	1154.67	-.61	.74	.00	257.38	361.88
	8.457	12747.02	1152.40	-2.26	.66	.00	234.53	361.88
*	8.516	21176.05	1156.11	.00	.83	.00	282.31	287.90
*	8.516	19170.05	1155.46	-.65	.79	.00	280.90	287.90
*	8.516	12747.02	1153.05	-2.41	.65	.00	275.70	287.90

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8.538	21176.05	1156.15	.00	.04	.00	280.77	110.00
	8.538	19170.05	1155.50	-.65	.04	.00	279.33	110.00
	8.538	12747.02	1153.09	-2.41	.04	.00	273.97	110.00
*	8.548	21176.05	1158.02	.00	1.87	.00	290.86	48.00
*	8.548	19170.05	1157.66	-.36	2.16	.00	290.00	48.00
*	8.548	12747.02	1156.42	-1.24	3.33	.00	287.03	48.00
*	8.655	21176.05	1161.97	.00	3.95	.00	533.26	461.08
*	8.655	19170.05	1161.47	-.50	3.81	.00	530.72	461.08
*	8.655	12747.02	1159.73	-1.74	3.31	.00	521.95	461.08
	8.731	21176.05	1162.56	.00	.59	.00	770.80	401.71
	8.731	19170.05	1162.06	-.50	.60	.00	768.98	401.71
	8.731	12747.02	1160.34	-1.72	.61	.00	762.75	401.71
*	8.807	21176.05	1164.41	.00	1.85	.00	286.57	404.72
*	8.807	19170.05	1164.05	-.36	1.98	.00	285.00	404.72
*	8.807	12747.02	1162.77	-1.27	2.43	.00	279.52	404.72
	8.883	21176.05	1168.09	.00	3.68	.00	233.79	401.10
	8.883	19170.05	1167.76	-.33	3.72	.00	232.24	401.10
	8.883	12747.02	1166.59	-1.17	3.82	.00	226.90	401.10
*	8.936	21176.05	1171.29	.00	3.19	.00	300.45	289.58
*	8.936	19170.05	1170.71	-.58	2.95	.00	287.99	289.58
*	8.936	12747.02	1168.81	-1.90	2.22	.00	278.44	289.58

	8.977	21176.05	1171.68	.00	.40	.00	244.25	211.76
	8.977	19170.05	1171.14	-.54	.43	.00	242.51	211.76
	8.977	12747.02	1169.38	-1.76	.57	.00	236.87	211.76
	8.994	21176.05	1171.90	.00	.22	.00	226.80	91.57
	8.994	19170.05	1171.38	-.52	.24	.00	224.29	91.57
	8.994	12747.02	1169.67	-1.71	.29	.00	216.01	91.57
*	9.047	21176.05	1173.99	.00	2.08	.00	536.58	330.86
*	9.047	19170.05	1173.35	-.63	1.97	.00	523.35	330.86
*	9.047	12747.02	1171.20	-2.16	1.53	.00	375.21	330.86
	9.129	21176.05	1174.43	.00	.45	.00	526.49	394.40
	9.129	19170.05	1173.80	-.63	.45	.00	515.58	394.40
	9.129	12747.02	1171.64	-2.16	.44	.00	438.05	394.40
	9.193	21176.05	1174.75	.00	.32	.00	490.94	391.34
	9.193	19170.05	1174.13	-.62	.34	.00	487.09	391.34
	9.193	12747.02	1172.03	-2.10	.40	.00	474.00	391.34
*	9.289	21176.05	1177.26	.00	2.51	.00	260.73	506.29
*	9.289	19170.05	1176.85	-.41	2.71	.00	256.52	506.29
*	9.289	12747.02	1175.42	-1.42	3.39	.00	242.02	506.29

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	9.318	21176.05	1180.24	.00	2.98	.00	364.38	155.57
*	9.318	19170.05	1179.72	-.53	2.87	.00	361.97	155.57
*	9.318	12747.02	1177.84	-1.88	2.41	.00	353.32	155.57
	9.367	21176.05	1181.14	.00	.90	.00	476.61	489.74
	9.367	19170.05	1180.60	-.54	.88	.00	474.05	489.74
	9.367	12747.02	1178.69	-1.91	.85	.00	465.00	489.74
*	9.492	21176.05	1181.66	.00	.52	.00	484.96	463.47
*	9.492	19170.05	1181.15	-.51	.55	.00	482.27	463.47
*	9.492	12747.02	1179.39	-1.75	.70	.00	473.01	463.47
*	9.592	21176.05	1183.26	.00	1.61	.00	357.30	606.90
*	9.592	19170.05	1182.94	-.33	1.79	.00	355.48	606.90
*	9.592	12747.02	1182.11	-.83	2.71	.00	350.82	606.90
*	9.692	21176.05	1187.16	.00	3.90	.00	379.18	565.23
*	9.692	19170.05	1186.75	-.41	3.81	.00	377.46	565.23
*	9.692	12747.02	1185.16	-1.58	3.06	.00	370.87	565.23
*	9.794	21176.05	1188.94	.00	1.77	.00	269.90	557.04
*	9.794	19170.05	1188.55	-.38	1.81	.00	268.14	557.04
*	9.794	12747.02	1187.22	-1.33	2.06	.00	262.02	557.04
*	9.889	21176.05	1194.07	.00	5.14	.00	202.47	501.31
*	9.889	19170.05	1193.58	-.50	5.02	.00	200.30	501.31
	9.889	12747.02	1192.24	-1.33	5.02	.00	194.49	501.31
*	9.908	21176.05	1196.42	.00	2.34	.00	304.77	103.32
*	9.908	19170.05	1195.99	-.42	2.42	.00	282.96	103.32
*	9.908	12747.02	1194.48	-1.52	2.23	.00	249.04	103.32
*	9.953	21176.05	1199.25	.00	2.83	.00	274.63	189.16
*	9.953	19170.05	1198.80	-.44	2.81	.00	272.43	189.16
*	9.953	12747.02	1197.14	-1.66	2.66	.00	264.20	189.16
	9.958	21176.05	1199.48	.00	.23	.00	283.88	27.43
	9.958	19170.05	1199.01	-.47	.21	.00	281.42	27.43
	9.958	12747.02	1197.29	-1.72	.15	.00	272.38	27.43
	9.984	21176.05	1199.91	.00	.43	.00	285.88	133.96
	9.984	19170.05	1199.10	-.81	.09	.00	281.25	133.96
	9.984	12747.02	1197.35	-1.75	.06	.00	273.11	133.96
	9.997	21176.05	1199.96	.00	.05	.00	289.73	74.24
	9.997	19170.05	1199.17	-.79	.06	.00	274.77	74.24
	9.997	12747.02	1197.46	-1.71	.11	.00	255.22	74.24
*	10.096	21176.05	1202.88	.00	2.92	.00	493.99	543.99
*	10.096	19170.05	1202.41	-.47	3.24	.00	467.87	543.99
*	10.096	12747.02	1200.75	-1.66	3.29	.00	436.67	543.99

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	10.176	21176.05	1204.43	.00	1.55	.00	525.83	553.29
*	10.176	19170.05	1204.05	-.37	1.65	.00	472.23	553.29
*	10.176	12747.02	1202.78	-1.27	2.04	.00	409.52	553.29
	10.271	21176.05	1206.91	.00	2.48	.00	1027.29	491.26
	10.271	19170.05	1206.57	-.33	2.52	.00	980.78	491.26
	10.271	12747.02	1205.38	-1.19	2.60	.00	439.17	491.26

	10.348	21176.05	1208.86	.00	1.95	.00	833.82	523.00
	10.348	19170.05	1208.56	-.30	1.99	.00	731.10	523.00
	10.348	12747.02	1207.39	-1.17	2.01	.00	410.30	523.00
	10.443	21194.16	1211.25	.00	2.40	.00	477.19	494.83
	10.443	19171.06	1210.95	-.30	2.39	.00	444.63	494.83
	10.443	12747.02	1209.84	-1.11	2.45	.00	397.00	494.83
	10.517	21635.31	1214.70	.00	3.45	.00	616.63	519.30
	10.517	19488.40	1214.38	-.32	3.43	.00	613.93	519.30
	10.517	12805.67	1213.26	-1.12	3.42	.00	604.51	519.30
	10.612	22951.94	1217.13	.00	2.43	.00	472.40	504.93
	10.612	20417.49	1216.80	-.34	2.41	.00	457.21	504.93
*	10.612	12907.33	1215.58	-1.21	2.32	.00	327.27	504.93
	10.699	23326.37	1218.97	.00	1.84	.00	316.90	462.24
	10.699	20584.22	1218.56	-.41	1.77	.00	302.26	462.24
*	10.699	12907.33	1217.10	-1.46	1.52	.00	278.52	462.24
*	10.803	24322.28	1223.41	.00	4.44	.00	562.38	567.30
*	10.803	21203.48	1222.84	-.57	4.28	.00	488.12	567.30
	10.803	12958.48	1221.15	-1.68	4.05	.00	473.35	567.30
*	10.862	25632.73	1224.06	.00	.65	.00	483.98	313.15
	10.862	21946.29	1223.48	-.57	.65	.00	417.97	313.15
	10.862	12998.94	1222.35	-1.13	1.19	.00	247.17	313.15
*	10.917	26631.91	1227.51	.00	3.45	.00	1494.07	292.21
*	10.917	22316.13	1226.64	-.87	3.15	.00	1494.07	292.21
	10.917	12998.94	1224.20	-2.44	1.85	.00	495.06	292.21
*	10.980	28174.35	1228.64	.00	1.13	.00	950.28	357.93
*	10.980	22648.88	1226.77	-1.87	.13	.00	238.03	357.93
*	10.980	12998.94	1225.12	-1.65	.92	.00	226.41	357.93
*	10.996	28332.63	1230.75	.00	2.11	.00	1319.05	129.13
*	10.996	22648.88	1226.98	-3.77	.21	.00	242.42	129.13
	10.996	12998.94	1225.52	-1.46	.40	.00	230.16	129.13
	11.030	28478.69	1231.22	.00	.47	.00	1374.08	167.81
*	11.030	22653.36	1230.09	-1.13	3.10	.00	1357.19	167.81
	11.030	12998.94	1226.35	-3.73	.83	.00	207.55	167.81

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	11.129	28782.36	1232.38	.00	1.17	.00	1466.05	516.79
*	11.129	22657.21	1231.51	-.88	1.42	.00	1328.27	516.79
*	11.129	12998.94	1229.01	-2.50	2.66	.00	454.68	516.79
	11.188	29671.43	1232.93	.00	.55	.00	1242.88	309.44
	11.188	22691.44	1232.02	-.91	.52	.00	1126.78	309.44
	11.188	12998.94	1229.48	-2.54	.47	.00	436.24	309.44
	11.243	30012.71	1233.44	.00	.51	.00	1188.10	314.34
	11.243	22691.46	1232.43	-1.02	.41	.00	996.93	314.34
	11.243	12998.94	1229.76	-2.67	.28	.00	560.73	314.34
*	11.301	30013.29	1233.53	.00	.09	.00	960.23	289.90
*	11.301	22691.46	1232.50	-1.04	.07	.00	904.31	289.90
*	11.301	12998.94	1229.81	-2.69	.05	.00	560.62	289.90
	11.386	30013.29	1234.19	.00	.66	.00	973.44	436.60
*	11.386	22691.46	1233.07	-1.13	.57	.00	960.71	436.60
*	11.386	12998.94	1230.29	-2.77	.48	.00	864.14	436.60
*	11.481	30013.29	1234.87	.00	.68	.00	332.27	523.22
*	11.481	22691.46	1234.18	-.70	1.11	.00	326.00	523.22
	11.481	12998.94	1232.94	-1.24	2.64	.00	265.07	523.22
*	11.566	30013.29	1238.90	.00	4.03	.00	736.86	468.92
*	11.566	22691.46	1237.32	-1.58	3.14	.00	715.59	468.92
*	11.566	12998.94	1234.83	-2.49	1.89	.00	578.43	468.92
*	11.664	30013.29	1239.14	.00	.24	.00	599.73	513.83
*	11.664	22691.46	1237.71	-1.43	.39	.00	539.04	513.83
*	11.664	12998.94	1235.64	-2.07	.81	.00	359.44	513.83
	11.759	30013.29	1241.47	.00	2.33	.00	583.01	501.24
	11.759	22691.46	1240.39	-1.09	2.68	.00	550.85	501.24
	11.759	12998.94	1238.67	-1.72	3.03	.00	506.21	501.24
*	11.864	30013.29	1244.88	.00	3.41	.00	276.77	615.28
	11.864	22691.46	1243.83	-1.05	3.44	.00	265.12	615.28
	11.864	12998.94	1242.17	-1.66	3.50	.00	254.02	615.28
*	11.949	30013.29	1249.84	.00	4.96	.00	1624.36	452.25
*	11.949	22691.46	1247.99	-1.85	4.16	.00	757.48	452.25
*	11.949	12998.94	1245.37	-2.62	3.20	.00	623.33	452.25

*	12.034	30013.29	1250.30	.00	.46	.00	530.91	539.66
*	12.034	22691.46	1248.89	-1.41	.90	.00	450.92	539.66
*	12.034	12998.94	1247.16	-1.73	1.79	.00	421.94	539.66
	12.125	30013.29	1252.78	.00	2.48	.00	650.19	461.89
*	12.125	22691.46	1251.66	-1.12	2.77	.00	625.17	461.89
*	12.125	12998.94	1249.88	-1.77	2.72	.00	555.63	461.89

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	12.194	30013.29	1254.83	.00	2.05	.00	432.15	337.73
*	12.194	22691.46	1253.92	-.91	2.26	.00	427.76	337.73
*	12.194	12998.94	1252.47	-1.45	2.59	.00	403.27	337.73
*	12.313	30013.29	1260.68	.00	5.85	.00	3102.36	685.08
*	12.313	22691.46	1259.72	-.96	5.80	.00	2782.62	685.08
*	12.313	12998.94	1258.05	-1.67	5.58	.00	773.11	685.08
	12.420	30013.40	1263.13	.00	2.45	.00	3507.84	578.07
	12.420	22691.46	1262.57	-.56	2.85	.00	2997.95	578.07
	12.420	12998.94	1261.16	-1.41	3.11	.00	1532.18	578.07
	12.511	30020.23	1265.28	.00	2.16	.00	3482.74	467.59
*	12.511	22691.46	1264.73	-.55	2.17	.00	3186.09	467.59
	12.511	12998.94	1263.44	-1.29	2.28	.00	1988.54	467.59
	12.606	30315.77	1268.46	.00	3.18	.00	3608.61	582.30
	12.606	22737.57	1267.86	-.60	3.12	.00	2642.30	582.30
	12.606	12998.94	1266.76	-1.09	3.32	.00	1355.67	582.30
	12.701	30388.76	1270.83	.00	2.36	.00	3728.86	505.60
	12.701	22737.57	1270.25	-.58	2.39	.00	3161.54	505.60
	12.701	12998.94	1268.87	-1.37	2.11	.00	1891.20	505.60
	12.801	30399.58	1272.40	.00	1.58	.00	2292.86	524.61
	12.801	22737.57	1271.74	-.66	1.49	.00	1421.47	524.61
*	12.801	12998.94	1270.50	-1.24	1.62	.00	975.24	524.61
	12.896	30399.58	1273.38	.00	.98	.00	897.00	508.24
	12.896	22737.57	1272.58	-.80	.84	.00	664.03	508.24
	12.896	12998.94	1271.16	-1.42	.66	.00	598.14	508.24
*	12.991	30399.58	1274.53	.00	1.15	.00	605.98	527.02
*	12.991	22737.57	1273.45	-1.07	.87	.00	569.58	527.02
*	12.991	12998.94	1271.69	-1.76	.53	.00	551.45	527.02
	13.076	30399.58	1274.81	.00	.28	.00	492.61	454.21
	13.076	22737.57	1273.69	-1.11	.24	.00	479.10	454.21
	13.076	12998.94	1271.85	-1.84	.16	.00	428.89	454.21
	13.151	30399.58	1275.27	.00	.46	.00	437.94	393.13
	13.151	22737.57	1274.08	-1.18	.39	.00	423.41	393.13
	13.151	12998.94	1272.12	-1.97	.26	.00	402.54	393.13
*	13.161	30399.58	1282.31	.00	7.04	.00	2651.21	51.06
*	13.161	22737.57	1281.35	-.96	7.27	.00	1796.80	51.06
*	13.161	12998.94	1279.30	-2.05	7.18	.00	394.49	51.06
*	13.185	30399.58	1282.11	.00	-.19	.00	734.78	33.56
	13.185	22737.57	1281.55	-.57	.19	.00	481.55	33.56
*	13.185	12998.94	1280.32	-1.22	1.02	.00	421.59	33.56

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	13.227	30399.58	1284.94	.00	2.82	.00	3361.32	315.32
	13.227	22737.57	1283.40	-1.54	1.85	.00	2029.89	315.32
	13.227	12998.94	1281.72	-1.68	1.40	.00	322.71	315.32
*	13.325	30693.68	1287.51	.00	2.57	.00	2939.07	571.01
	13.325	22737.57	1286.15	-1.35	2.76	.00	2020.38	571.01
	13.325	12998.94	1284.10	-2.05	2.39	.00	289.20	571.01
*	13.420	31066.08	1290.02	.00	2.51	.00	2803.56	514.13
*	13.420	22738.82	1289.15	-.87	3.00	.00	2781.62	514.13
	13.420	12998.94	1286.64	-2.52	2.53	.00	1365.38	514.13
*	13.524	31211.98	1291.39	.00	1.37	.00	2651.86	522.56
*	13.524	22739.39	1289.84	-1.55	.69	.00	834.29	522.56
	13.524	12998.94	1288.57	-1.27	1.94	.00	351.28	522.56
*	13.619	31211.98	1293.76	.00	2.37	.00	2303.38	505.64
*	13.619	22739.39	1292.59	-1.17	2.75	.00	869.46	505.64
*	13.619	12998.94	1290.33	-2.26	1.75	.00	617.16	505.64
	13.680	31211.98	1294.17	.00	.41	.00	1667.85	331.09
	13.680	22739.39	1292.97	-1.20	.38	.00	1071.12	331.09
*	13.680	12998.94	1290.75	-2.22	.43	.00	674.50	331.09

	13.742	31211.98	1294.87	.00	.70	.00	799.95	353.72
	13.742	22739.39	1293.69	-1.18	.72	.00	758.53	353.72
*	13.742	12998.94	1291.67	-2.02	.92	.00	722.03	353.72
	13.818	31211.98	1295.43	.00	.56	.00	923.95	406.30
	13.818	22739.39	1294.19	-1.24	.51	.00	874.22	406.30
	13.818	12998.94	1292.17	-2.02	.50	.00	773.35	406.30
*	13.918	31211.98	1303.10	.00	7.66	.00	1801.98	642.34
*	13.918	22739.39	1301.10	-2.00	6.90	.00	669.42	642.34
*	13.918	12998.94	1298.87	-2.23	6.69	.00	336.22	642.34
*	14.013	31300.13	1307.37	.00	4.27	.00	3591.62	514.07
*	14.013	22739.39	1306.59	-.78	5.49	.00	3233.24	514.07
*	14.013	12998.94	1304.70	-1.89	5.83	.00	1256.43	514.07
	14.103	31520.43	1308.95	.00	1.58	.00	3368.56	520.68
	14.103	22739.39	1308.18	-.78	1.59	.00	3095.17	520.68
	14.103	12998.94	1306.86	-1.31	2.16	.00	984.41	520.68
	14.197	32266.94	1312.30	.00	3.34	.00	4278.64	479.63
	14.197	22855.57	1311.55	-.75	3.37	.00	3819.31	479.63
	14.197	12998.94	1310.27	-1.28	3.41	.00	2136.90	479.63
	14.284	32272.70	1314.56	.00	2.26	.00	4556.46	498.98
	14.284	22855.57	1313.93	-.63	2.38	.00	4292.73	498.98
*	14.284	12998.94	1313.09	-.83	2.82	.00	3677.88	498.98

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	14.379	32272.70	1317.06	.00	2.50	.00	4228.46	505.75
*	14.379	22855.57	1316.39	-.67	2.46	.00	3685.40	505.75
*	14.379	12998.94	1315.27	-1.12	2.18	.00	2482.99	505.75
	14.495	32401.11	1320.96	.00	3.90	.00	4176.10	561.68
	14.495	22859.31	1320.31	-.66	3.92	.00	4135.19	561.68
	14.495	12998.94	1319.38	-.93	4.11	.00	3865.61	561.68
*	14.599	32497.46	1322.99	.00	2.03	.00	4240.73	542.23
*	14.599	22861.37	1322.32	-.68	2.01	.00	4121.52	542.23
*	14.599	12998.94	1321.41	-.90	2.04	.00	3660.82	542.23
*	14.653	32497.46	1324.92	.00	1.93	.00	4041.80	536.63
*	14.653	22861.37	1324.32	-.60	2.01	.00	3731.03	536.63
*	14.653	12998.94	1323.53	-.79	2.12	.00	2734.29	536.63
*	14.752	32503.42	1327.98	.00	3.06	.00	3840.60	547.53
*	14.752	22861.37	1327.31	-.67	2.99	.00	3527.74	547.53
*	14.752	12998.94	1326.42	-.89	2.89	.00	2842.77	547.53
	14.850	32820.31	1330.14	.00	2.16	.00	3223.91	536.65
	14.850	22954.97	1329.41	-.72	2.10	.00	2593.28	536.65
	14.850	12999.68	1328.39	-1.02	1.97	.00	1484.04	536.65
*	14.945	33000.00	1332.92	.00	2.78	.00	3528.80	529.39
*	14.945	23000.00	1331.95	-.97	2.53	.00	2810.03	529.39
*	14.945	13000.00	1330.38	-1.57	1.99	.00	1055.09	529.39
*	14.983	33000.00	1334.15	.00	1.24	.00	3133.99	216.48
*	14.983	23000.00	1333.34	-.81	1.39	.00	2226.14	216.48
*	14.983	13000.00	1332.50	-.84	2.12	.00	1201.60	216.48
*	15.049	33000.00	1337.38	.00	3.23	.00	4040.29	499.69
*	15.049	23000.00	1336.61	-.77	3.27	.00	4025.63	499.69
*	15.049	13000.00	1335.34	-1.27	2.84	.00	2853.10	499.69
*	15.144	33000.00	1338.48	.00	1.10	.00	3781.31	493.15
*	15.144	23000.00	1337.61	-.87	1.00	.00	3092.93	493.15
*	15.144	13000.00	1336.40	-1.21	1.06	.00	1818.72	493.15

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SUMMARY OF ERRORS AND SPECIAL NOTES

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APPENDIX A

FULL PMF

Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.850
Flow Element	Irregular Channel
Method	Manning's Formul
Solve For	Channel Depth

Input Data		
Slope	0.005000	ft/ft
Discharge	179.70	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,328.70	ft
Elevation Range	1,328.00 to 1,330.00	
Flow Area	306.8	ft²
Wetted Perimeter	638.95	ft
Top Width	638.44	ft
Actual Depth	0.70	ft
Critical Elevation	1,328.28	ft
Critical Slope	0.318114	ft/ft
Velocity	0.59	ft/s
Velocity Head	0.01	ft
Specific Energy	1,328.71	ft
Froude Number	0.15	
Flow Type	Subcritical	

Calculation Messages:
Water elevation exceeds lowest end station by 0.50436044 ft.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	22+15	0.110

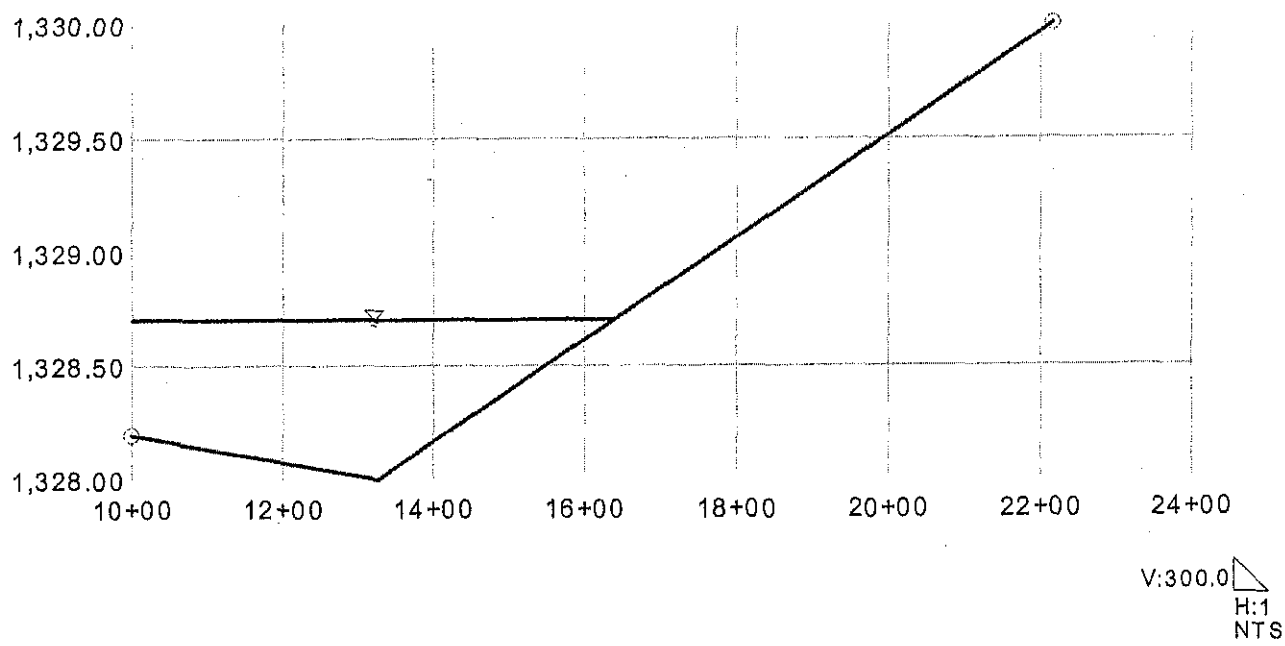
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,328.20
13+25	1,328.00
22+15	1,330.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.850
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005000	ft/ft
Water Surface Elevation	1,328.70	ft
Elevation Range	1,328.00 to 1,330.00	
Discharge	179.70	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.752
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	496.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,328.09	ft
Elevation Range	1,327.00 to 1,330.00	
Flow Area	688.4	ft²
Wetted Perimeter	1,217.44	ft
Top Width	1,217.44	ft
Actual Depth	1.09	ft
Critical Elevation	1,327.54	ft
Critical Slope	0.272938	ft/ft
Velocity	0.72	ft/s
Velocity Head	0.01	ft
Specific Energy	1,328.10	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	27+60	0.110

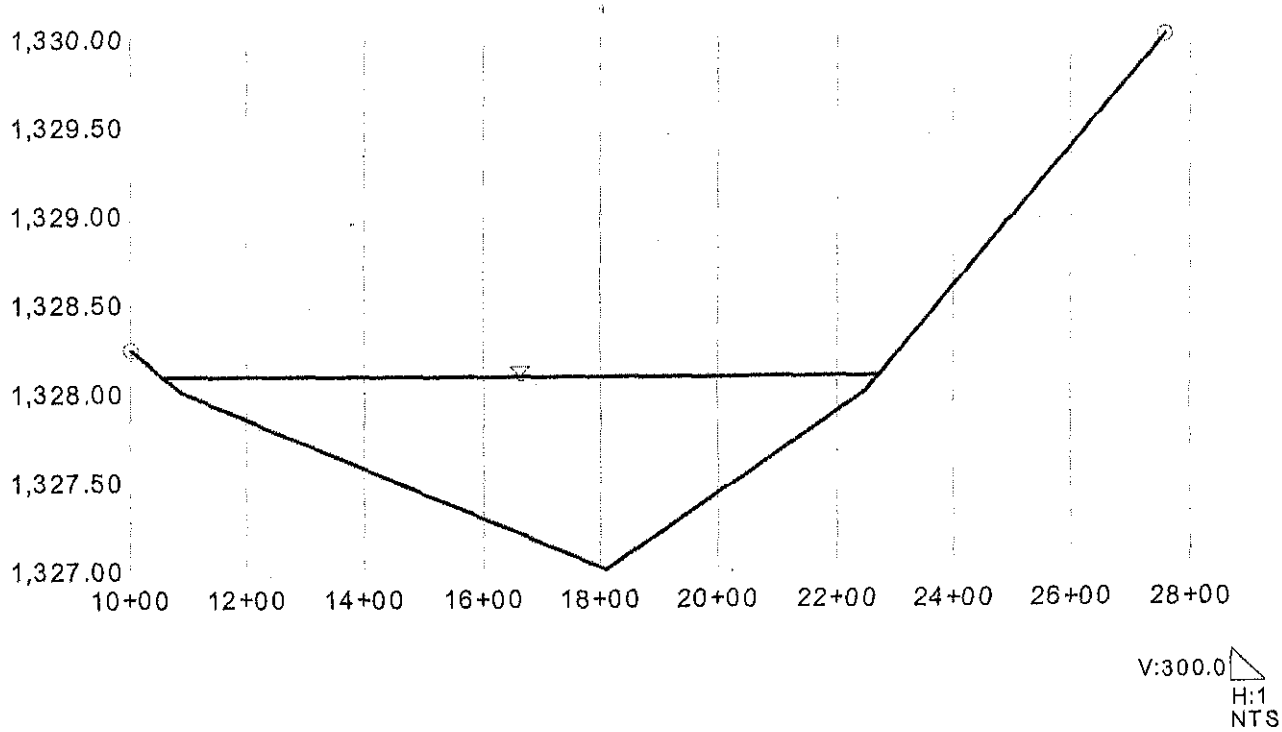
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,328.24
10+90	1,328.00
18+10	1,327.00
22+50	1,328.00
27+60	1,330.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.752
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,328.09	ft
Elevation Range	1,327.00 to 1,330.00	
Discharge	496.61	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.653
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005000	ft/ft
Discharge	502.56	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,325.24	ft
Elevation Range	1,324.00 to 1,329.50	
Flow Area	646.4	ft²
Wetted Perimeter	880.30	ft
Top Width	880.29	ft
Actual Depth	1.24	ft
Critical Elevation	1,324.49	ft
Critical Slope	0.253155	ft/ft
Velocity	0.78	ft/s
Velocity Head	0.01	ft
Specific Energy	1,325.25	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	29+70	0.110

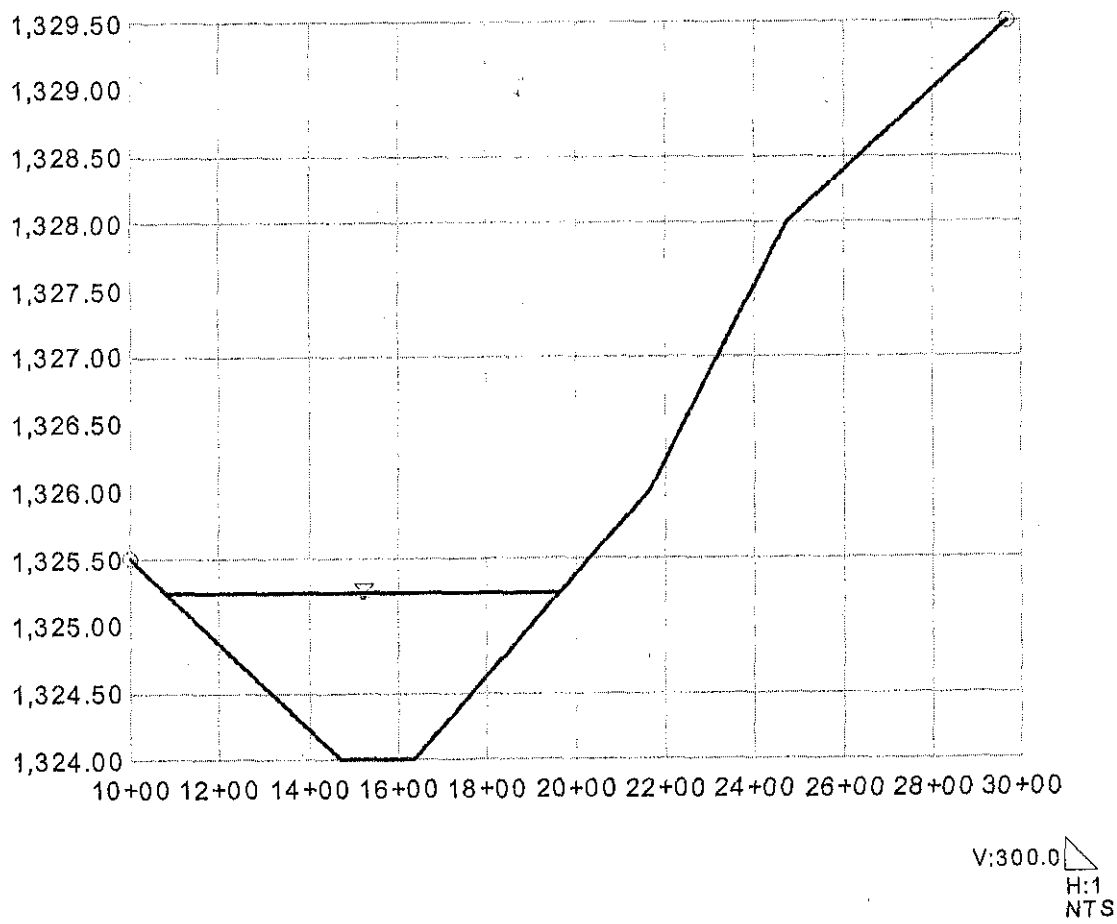
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,325.50
14+70	1,324.00
16+35	1,324.00
21+65	1,326.00
24+70	1,328.00
29+70	1,329.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.653
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005000	ft/ft
Water Surface Elevation	1,325.24	ft
Elevation Range	1,324.00 to 1,329.50	
Discharge	502.56	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.599
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.060000	ft/ft
Discharge	502.56	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,321.99	ft
Elevation Range	1,321.20 to 1,326.50	
Flow Area	282.3	ft²
Wetted Perimeter	715.31	ft
Top Width	715.30	ft
Actual Depth	0.79	ft
Critical Elevation	1,321.80	ft
Critical Slope	0.263682	ft/ft
Velocity	1.78	ft/s
Velocity Head	0.05	ft
Specific Energy	1,322.04	ft
Froude Number	0.50	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	29+30	0.110

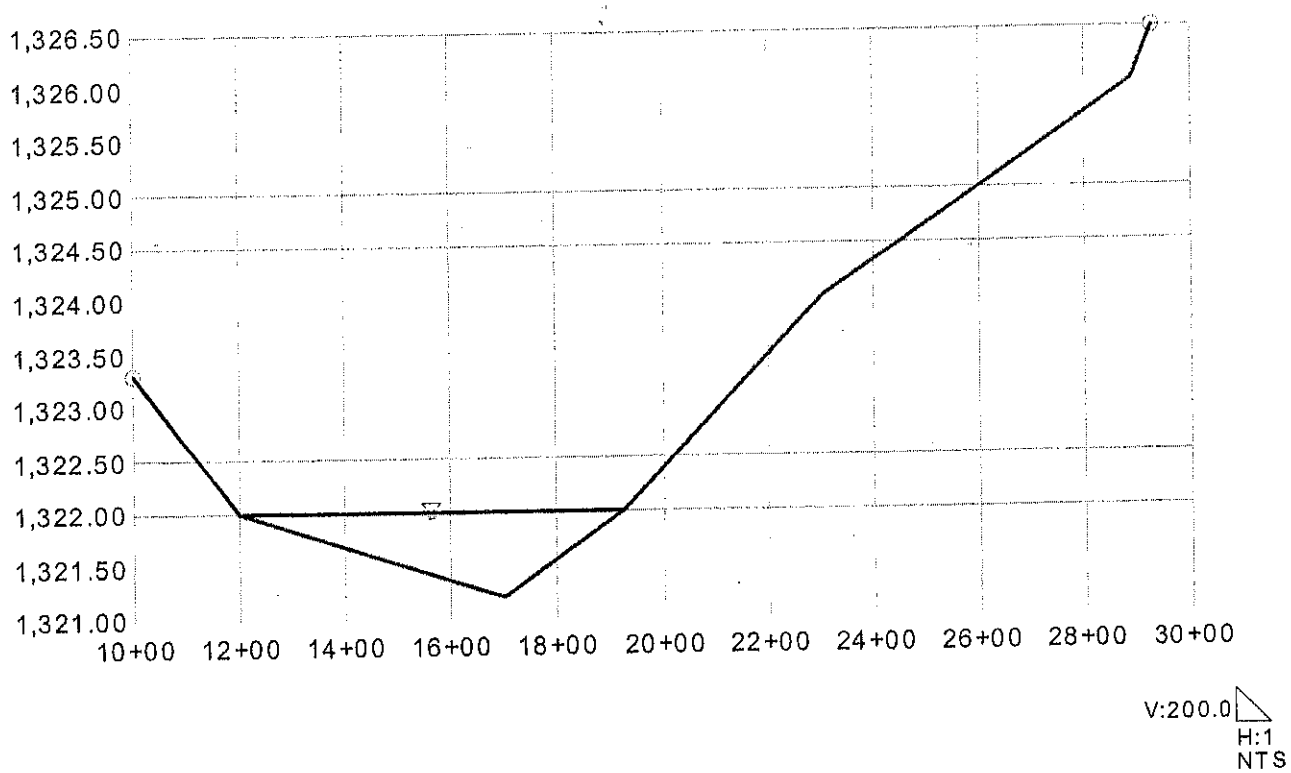
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,323.30
12+00	1,322.00
17+00	1,321.20
19+25	1,322.00
23+05	1,324.00
28+90	1,326.00
29+30	1,326.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.599
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.060000	ft/ft
Water Surface Elevation	1,321.99	ft
Elevation Range	1,321.20 to 1,326.50	
Discharge	502.56	cfs



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Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.495
Flow Element	Irregular Channel
Method	Manning's Formul
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	598.93	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,319.03	ft
Elevation Range	1,318.00 to 1,321.50	
Flow Area	690.2	ft²
Wetted Perimeter	925.35	ft
Top Width	925.35	ft
Actual Depth	1.03	ft
Critical Elevation	1,318.37	ft
Critical Slope	0.259577	ft/ft
Velocity	0.87	ft/s
Velocity Head	0.01	ft
Specific Energy	1,319.04	ft
Froude Number	0.18	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	29+45	0.110

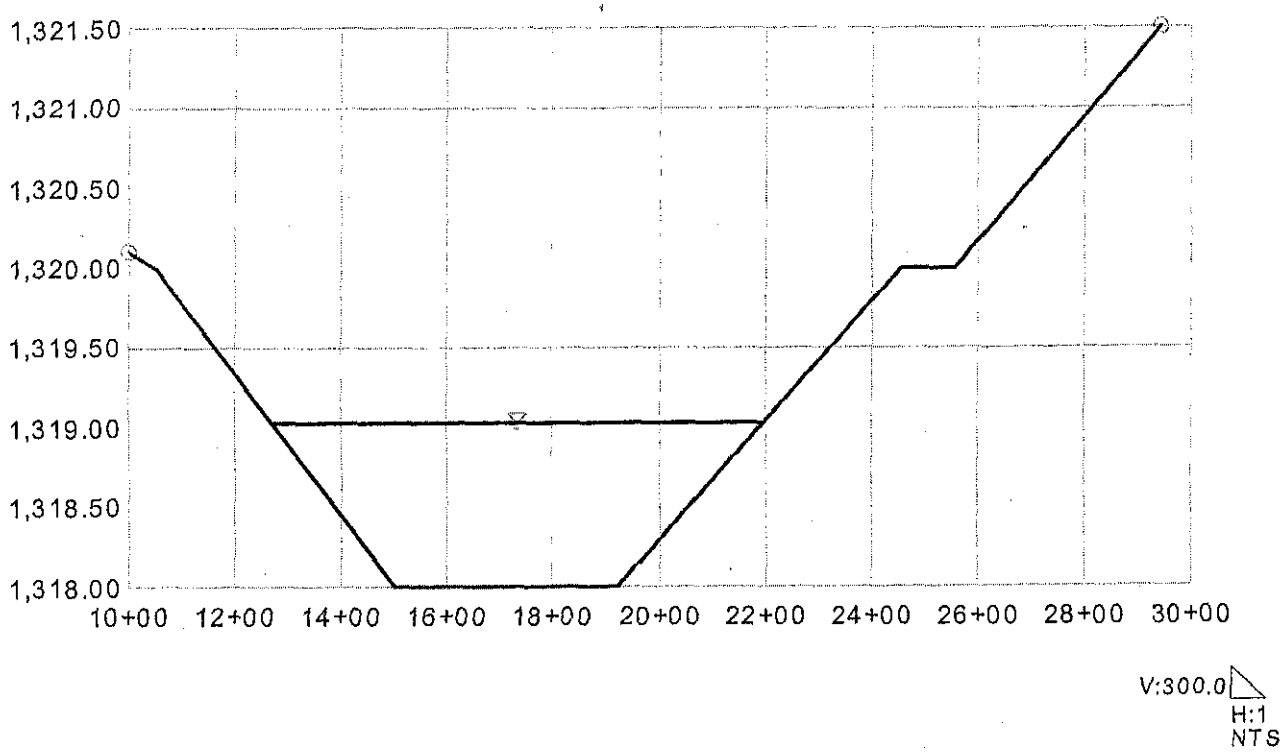
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,320.10
10+50	1,320.00
15+00	1,318.00
19+20	1,318.00
24+55	1,320.00
25+55	1,320.00
29+45	1,321.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.495
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	*0.006100*	*ft/ft*
Water Surface Elevation	1,319.03	ft
Elevation Range	1,318.00 to 1,321.50	
Discharge	598.93	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.379
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005500	ft/ft
Discharge	727.35	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,316.30	ft
Elevation Range	1,315.00 to 1,317.30	
Flow Area	994.2	ft²
Wetted Perimeter	1,593.13	ft
Top Width	1,593.12	ft
Actual Depth	1.30	ft
Critical Elevation	1,315.67	ft
Critical Slope	0.253591	ft/ft
Velocity	0.73	ft/s
Velocity Head	0.01	ft
Specific Energy	1,316.31	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	29+25	0.110

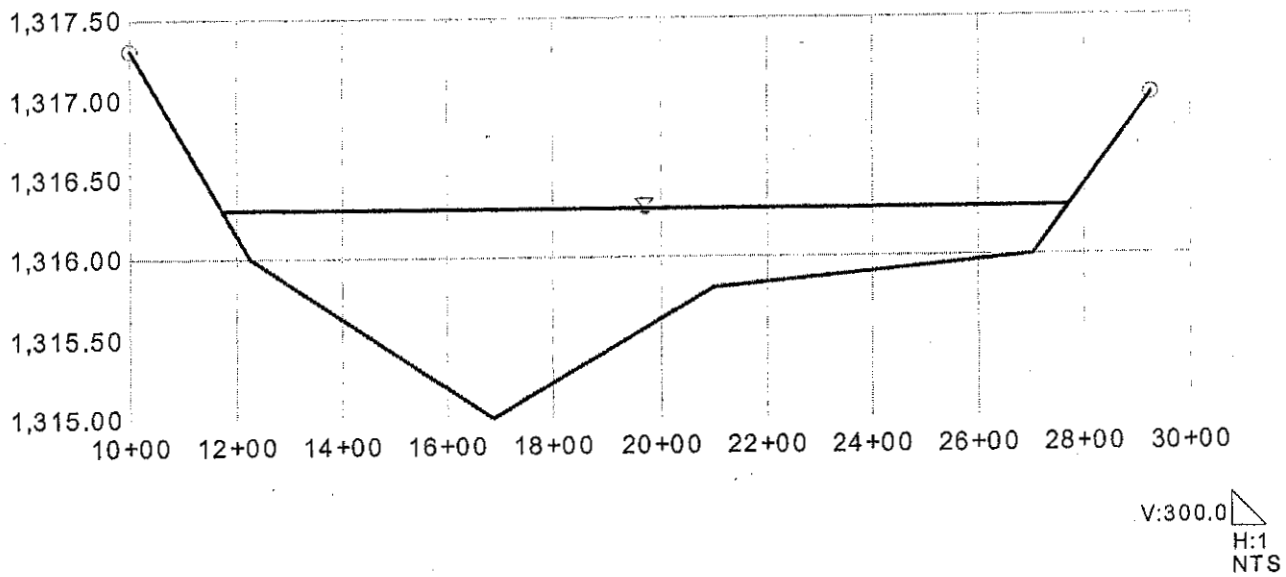
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,317.30
12+25	1,316.00
16+85	1,315.00
21+00	1,315.80
27+00	1,316.00
29+25	1,317.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.379
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005500	ft/ft
Water Surface Elevation	1,316.30	ft
Elevation Range	1,315.00 to 1,317.30	
Discharge	727.35	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.284
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005500	ft/ft
Discharge	727.35	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,313.43	ft
Elevation Range	1,312.50 to 1,316.00	
Flow Area	946.6	ft²
Wetted Perimeter	1,409.31	ft
Top Width	1,409.30	ft
Actual Depth	0.93	ft
Critical Elevation	1,312.89	ft
Critical Slope	0.285629	ft/ft
Velocity	0.77	ft/s
Velocity Head	0.01	ft
Specific Energy	1,313.44	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	34+20	0.110

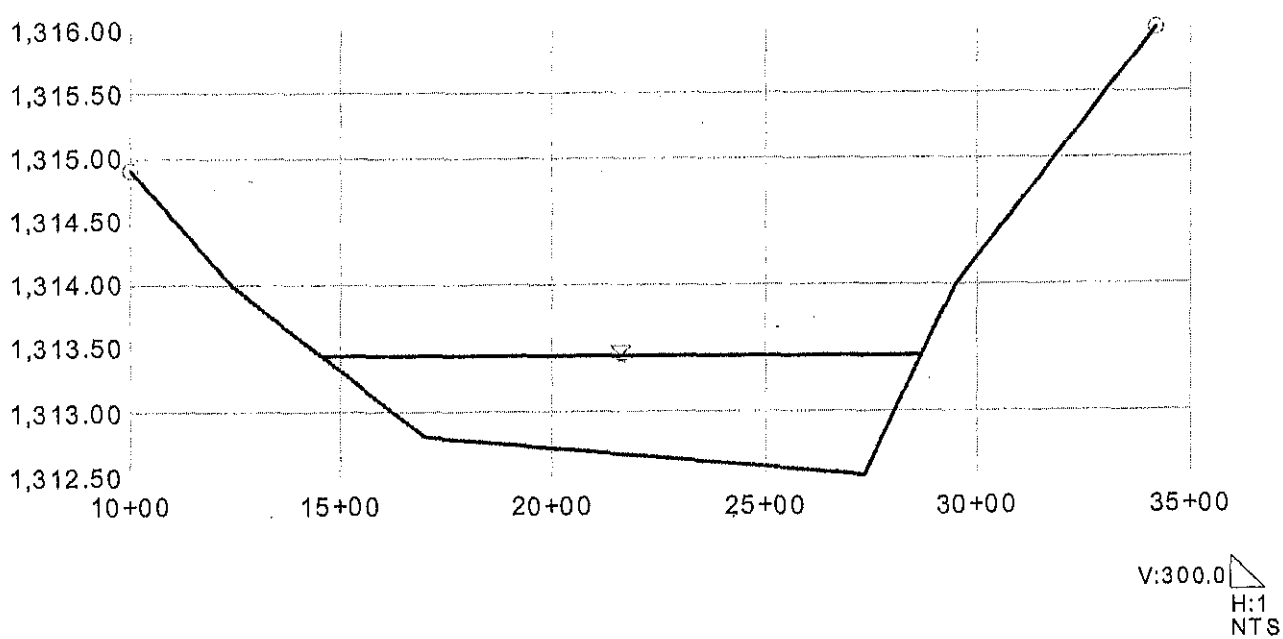
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,314.90
12+40	1,314.00
17+00	1,312.80
27+30	1,312.50
29+50	1,314.00
34+20	1,316.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.284
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005500	ft/ft
Water Surface Elevation	1,313.43	ft
Elevation Range	1,312.50 to 1,316.00	
Discharge	727.35	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.197
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005500	ft/ft
Discharge	733.11	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,310.71	ft
Elevation Range	1,310.00 to 1,312.00	
Flow Area	980.5	ft²
Wetted Perimeter	1,520.60	ft
Top Width	1,520.58	ft
Actual Depth	0.71	ft
Critical Elevation	1,310.22	ft
Critical Slope	0.295822	ft/ft
Velocity	0.75	ft/s
Velocity Head	0.01	ft
Specific Energy	1,310.72	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	38+40	0.110

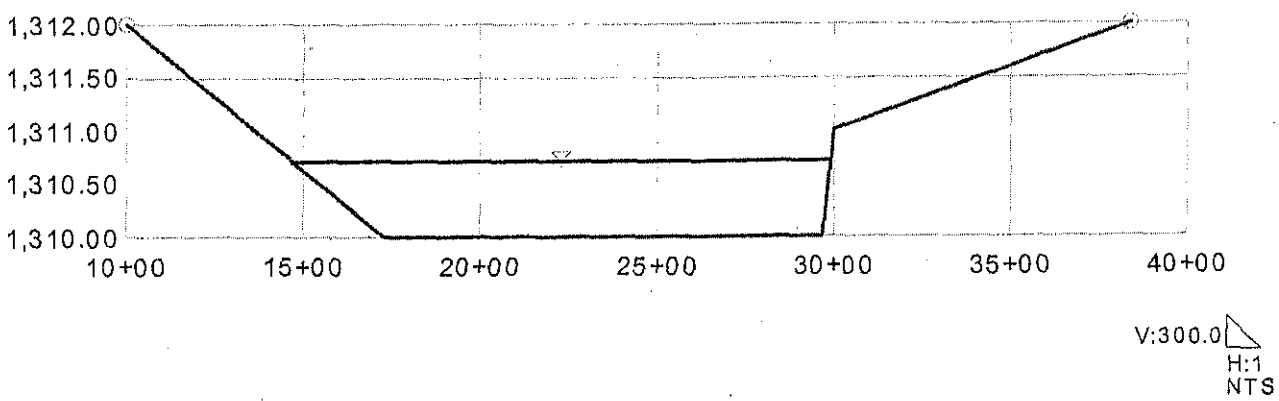
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,312.00
17+30	1,310.00
29+70	1,310.00
30+00	1,311.00
38+40	1,312.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.197
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005500	ft/ft
Water Surface Elevation	1,310.71	ft
Elevation Range	1,310.00 to 1,312.00	
Discharge	733.11	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.103
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006000	ft/ft
Discharge	1,479.62	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,308.30	ft
Elevation Range	1,306.80 to 1,312.80	
Flow Area	1,901.1	ft²
Wetted Perimeter	2,963.46	ft
Top Width	2,963.39	ft
Actual Depth	1.50	ft
Critical Elevation	1,307.44	ft
Critical Slope	0.238413	ft/ft
Velocity	0.78	ft/s
Velocity Head	0.01	ft
Specific Energy	1,308.31	ft
Froude Number	0.17	
Flow Type	Subcritical	

Calculation Messages:
Water elevation exceeds lowest end station by 0.54290197e-1 ft.

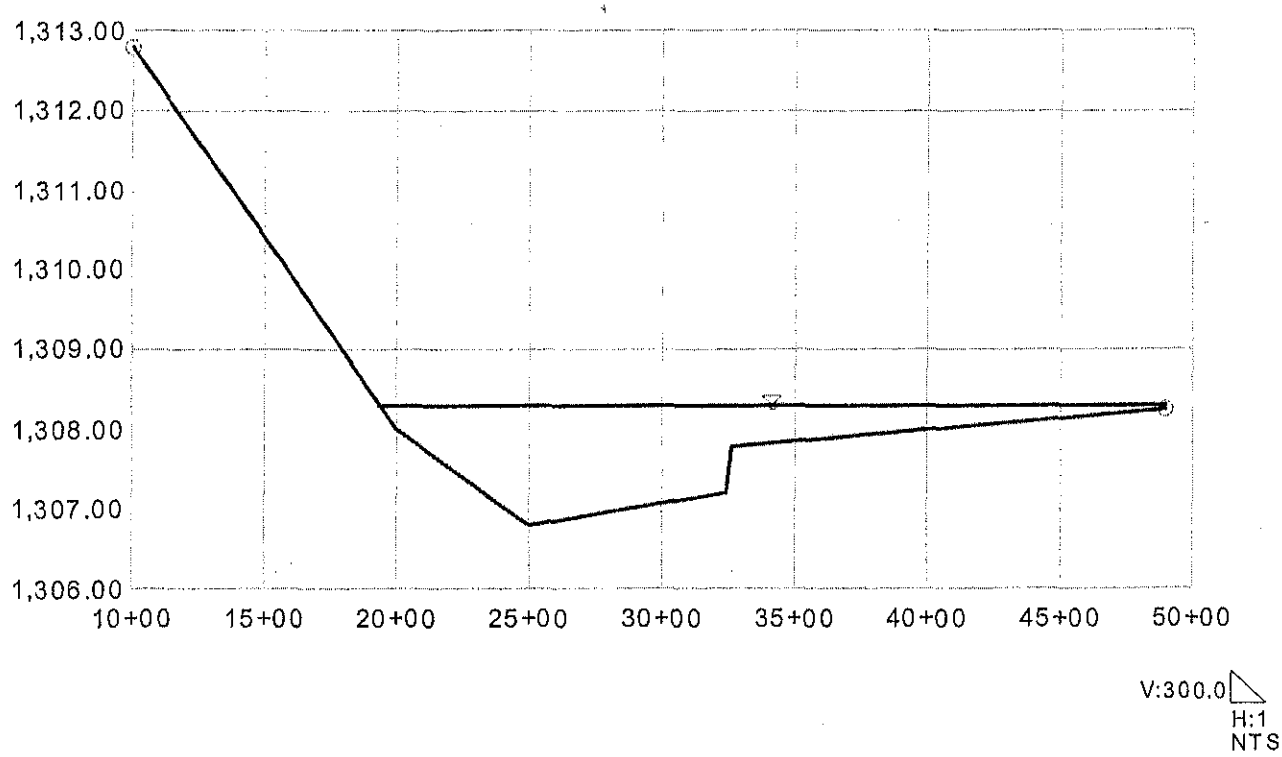
Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	49+00	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,312.80
20+00	1,308.00
25+00	1,306.80
32+40	1,307.20
32+60	1,307.80
49+00	1,308.25

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	*14.103*
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006000	ft/ft
Water Surface Elevation	*1,308.30*	*ft*
Elevation Range	1,306.80 to 1,312.80	
Discharge	1,479.62	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.013
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006000	ft/ft
Discharge	1,699.91	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,305.06	ft
Elevation Range	1,304.00 to 1,307.00	
Flow Area	1,797.6	ft²
Wetted Perimeter	2,092.27	ft
Top Width	2,092.27	ft
Actual Depth	1.06	ft
Critical Elevation	1,304.35	ft
Critical Slope	0.255302	ft/ft
Velocity	0.95	ft/s
Velocity Head	0.01	ft
Specific Energy	1,305.07	ft
Froude Number	0.18	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	60+00	0.110

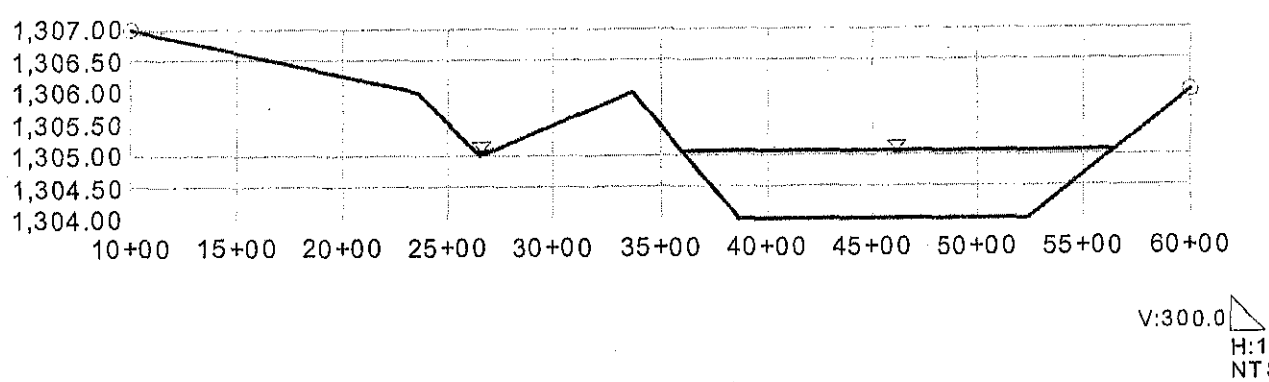
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,307.00
23+50	1,306.00
26+50	1,305.00
33+70	1,306.00
38+70	1,304.00
52+30	1,304.00
60+00	1,306.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.013
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006000	ft/ft
Water Surface Elevation	1,305.06	ft
Elevation Range	1,304.00 to 1,307.00	
Discharge	1,699.91	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.918
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	1,788.06	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,301.49	ft
Elevation Range	1,300.00 to 1,303.58	
Flow Area	2,054.7	ft²
Wetted Perimeter	2,742.68	ft
Top Width	2,742.68	ft
Actual Depth	1.49	ft
Critical Elevation	1,300.73	ft
Critical Slope	0.243461	ft/ft
Velocity	0.87	ft/s
Velocity Head	0.01	ft
Specific Energy	1,301.50	ft
Froude Number	0.18	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	61+50	0.110

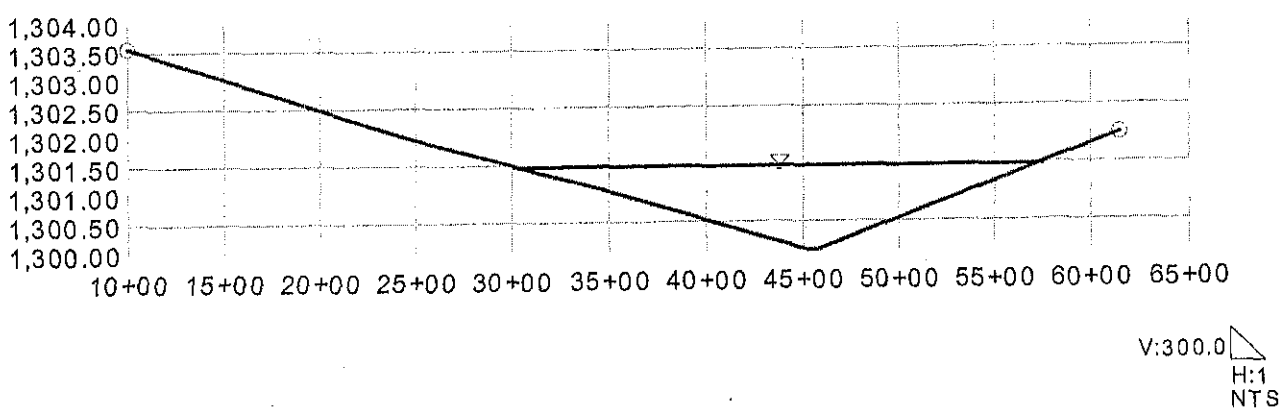
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,303.58
24+50	1,302.00
35+40	1,301.00
45+20	1,300.00
45+70	1,300.00
61+50	1,302.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.918
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,301.49	ft
Elevation Range	1,300.00 to 1,303.58	
Discharge	1,788.06	cfs



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Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.818
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	1,788.06	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,298.68	ft
Elevation Range	1,298.00 to 1,300.00	
Flow Area	2,340.3	ft²
Wetted Perimeter	3,797.76	ft
Top Width	3,797.76	ft
Actual Depth	0.68	ft
Critical Elevation	1,298.21	ft
Critical Slope	0.297689	ft/ft
Velocity	0.76	ft/s
Velocity Head	0.01	ft
Specific Energy	1,298.69	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	76+30	0.110

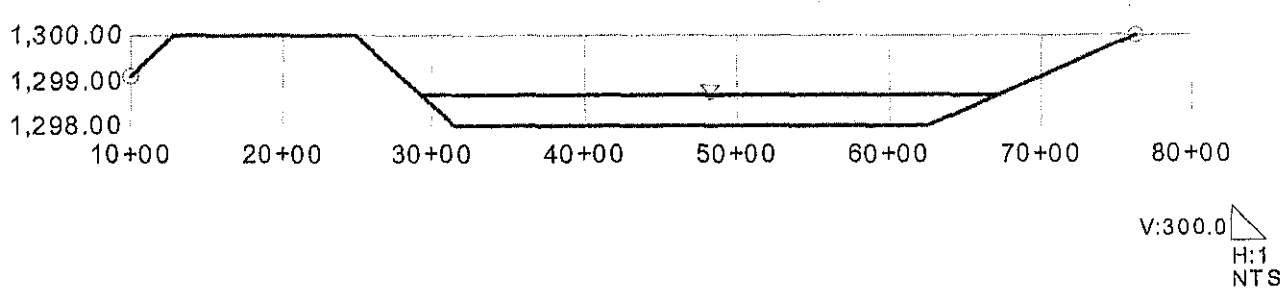
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,299.10
12+80	1,300.00
24+90	1,300.00
31+50	1,298.00
62+60	1,298.00
76+30	1,300.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.818
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,298.68	ft
Elevation Range	1,298.00 to 1,300.00	
Discharge	1,788.06	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.742
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	1,788.06	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,296.73	ft
Elevation Range	1,295.14 to 1,298.00	
Flow Area	2,312.5	ft²
Wetted Perimeter	3,685.73	ft
Top Width	3,684.12	ft
Actual Depth	1.59	ft
Critical Elevation	1,296.24	ft
Critical Slope	0.290089	ft/ft
Velocity	0.77	ft/s
Velocity Head	0.01	ft
Specific Energy	1,296.74	ft
Froude Number	0.17	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.
Water elevation exceeds lowest end station by 1.59207468 ft.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	76+20	0.110

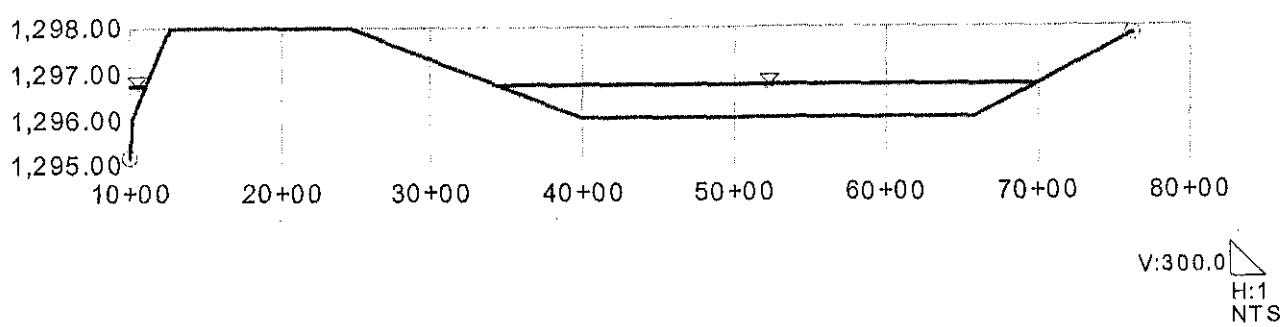
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,295.14
10+20	1,296.00
12+70	1,298.00
24+60	1,298.00
40+00	1,296.00
65+90	1,296.00
76+20	1,297.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.742
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,296.73	ft
Elevation Range	1,295.14 to 1,298.00	
Discharge	1,788.06	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.680
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	1,788.06	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,293.68	ft
Elevation Range	1,292.00 to 1,296.00	
Flow Area	1,880.9	ft²
Wetted Perimeter	2,198.96	ft
Top Width	2,198.95	ft
Actual Depth	1.68	ft
Critical Elevation	1,292.83	ft
Critical Slope	0.233283	ft/ft
Velocity	0.95	ft/s
Velocity Head	0.01	ft
Specific Energy	1,293.69	ft
Froude Number	0.18	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	74+10	0.110

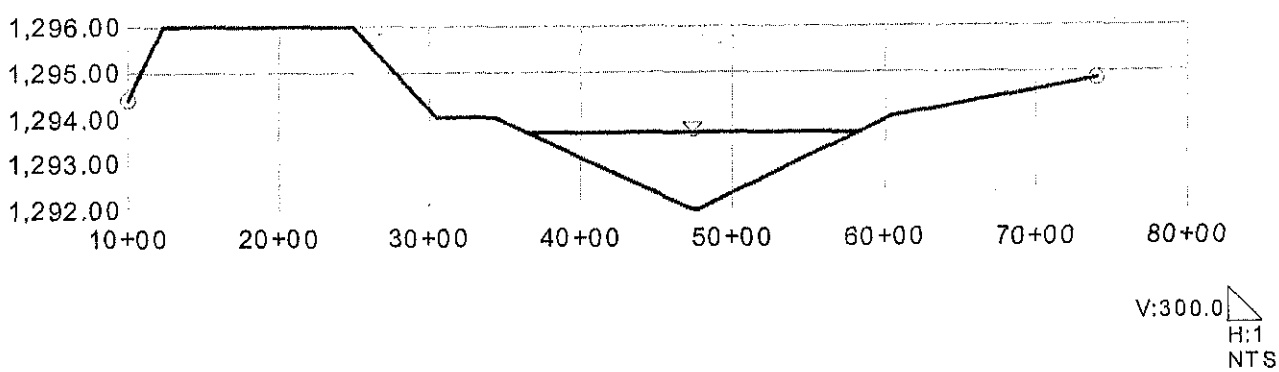
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,294.41
12+30	1,296.00
24+90	1,296.00
30+40	1,294.00
34+30	1,294.00
47+30	1,292.00
47+70	1,292.00
60+40	1,294.00
74+10	1,294.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.680
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,293.68	ft
Elevation Range	1,292.00 to 1,296.00	
Discharge	1,788.06	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.619
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	1,788.06	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,292.64	ft
Elevation Range	1,292.00 to 1,296.00	
Flow Area	2,392.7	ft²
Wetted Perimeter	4,013.53	ft
Top Width	4,013.53	ft
Actual Depth	0.64	ft
Critical Elevation	1,292.20	ft
Critical Slope	0.303681	ft/ft
Velocity	0.75	ft/s
Velocity Head	0.01	ft
Specific Energy	1,292.65	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	70+40	0.110

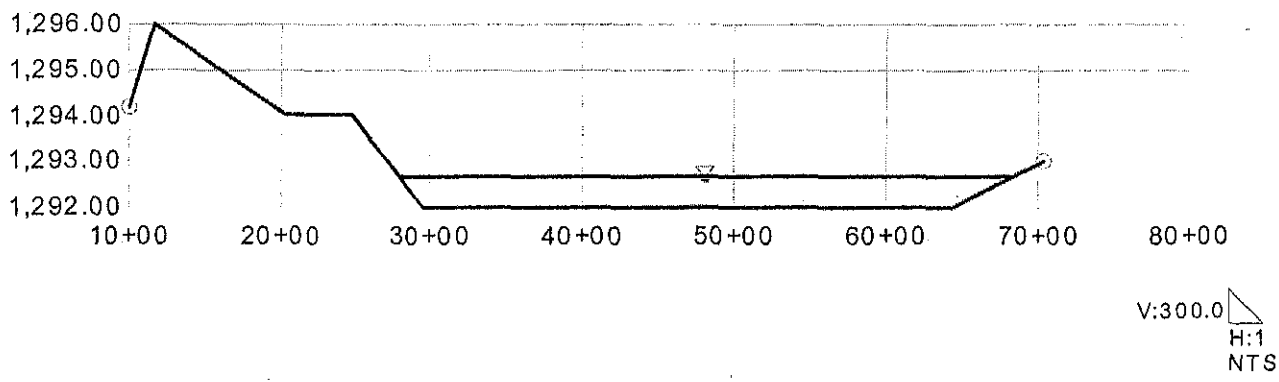
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,294.20
11+70	1,296.00
20+30	1,294.00
24+80	1,294.00
29+60	1,292.00
64+30	1,292.00
70+40	1,293.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.619
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,292.64	ft
Elevation Range	1,292.00 to 1,296.00	
Discharge	1,788.06	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.524
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	1,788.06	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,288.77	ft
Elevation Range	1,288.00 to 1,292.00	
Flow Area	2,210.1	ft²
Wetted Perimeter	3,291.33	ft
Top Width	3,291.33	ft
Actual Depth	0.77	ft
Critical Elevation	1,288.25	ft
Critical Slope	0.284859	ft/ft
Velocity	0.81	ft/s
Velocity Head	0.01	ft
Specific Energy	1,288.78	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	69+50	0.110

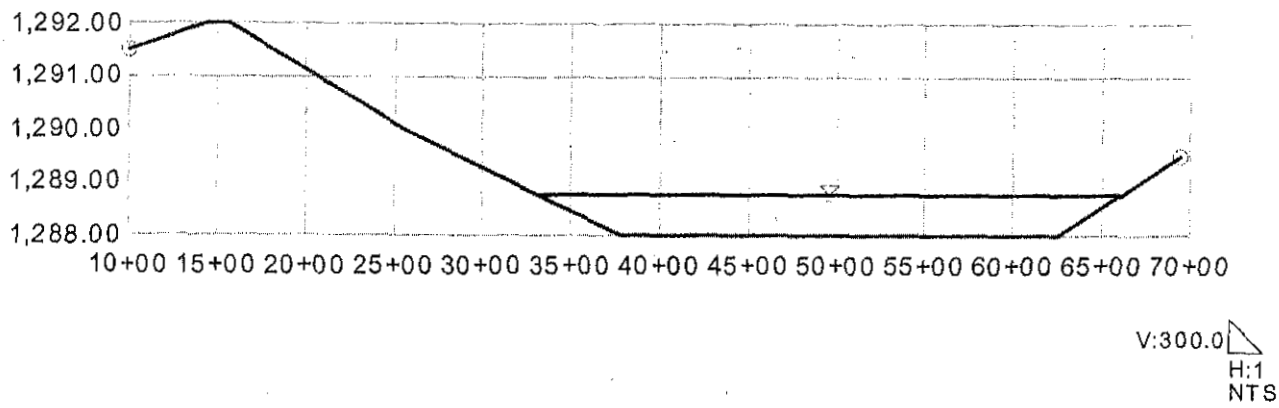
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,291.50
14+40	1,292.00
15+70	1,292.00
25+60	1,290.00
37+90	1,288.00
62+50	1,288.00
69+50	1,289.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.524
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,288.77	ft
Elevation Range	1,288.00 to 1,292.00	
Discharge	1,788.06	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.420
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	1,934.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,286.73	ft
Elevation Range	1,286.00 to 1,289.00	
Flow Area	2,429.5	ft²
Wetted Perimeter	3,706.76	ft
Top Width	3,706.75	ft
Actual Depth	0.73	ft
Critical Elevation	1,286.24	ft
Critical Slope	0.289308	ft/ft
Velocity	0.80	ft/s
Velocity Head	0.01	ft
Specific Energy	1,286.74	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	74+40	0.110

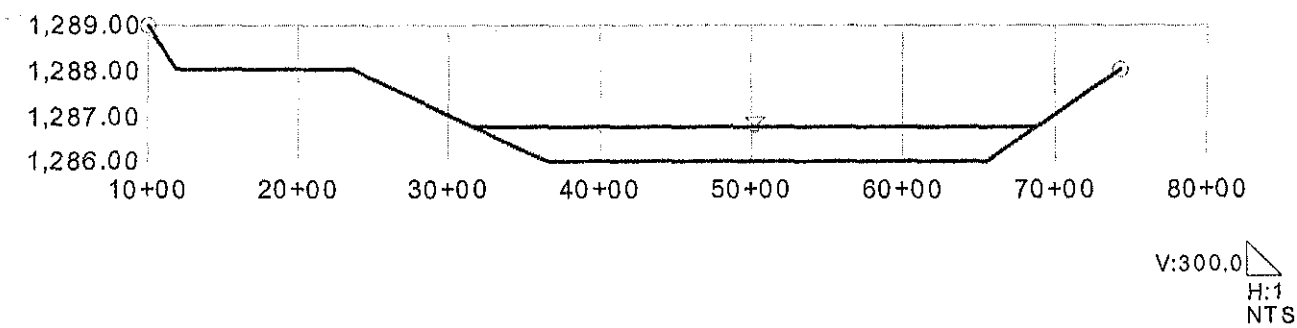
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,289.00
11+90	1,288.00
23+60	1,288.00
36+40	1,286.00
65+50	1,286.00
74+40	1,288.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.420
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,286.73	ft
Elevation Range	1,286.00 to 1,289.00	
Discharge	1,934.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.325
Flow Element	Irregular Channel
Method	Manning's Formul
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	2,306.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,283.69	ft
Elevation Range	1,282.00 to 1,286.30	
Flow Area	2,444.6	ft²
Wetted Perimeter	2,891.44	ft
Top Width	2,891.43	ft
Actual Depth	1.69	ft
Critical Elevation	1,282.85	ft
Critical Slope	0.234220	ft/ft
Velocity	0.94	ft/s
Velocity Head	0.01	ft
Specific Energy	1,283.70	ft
Froude Number	0.18	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	64+50	0.110

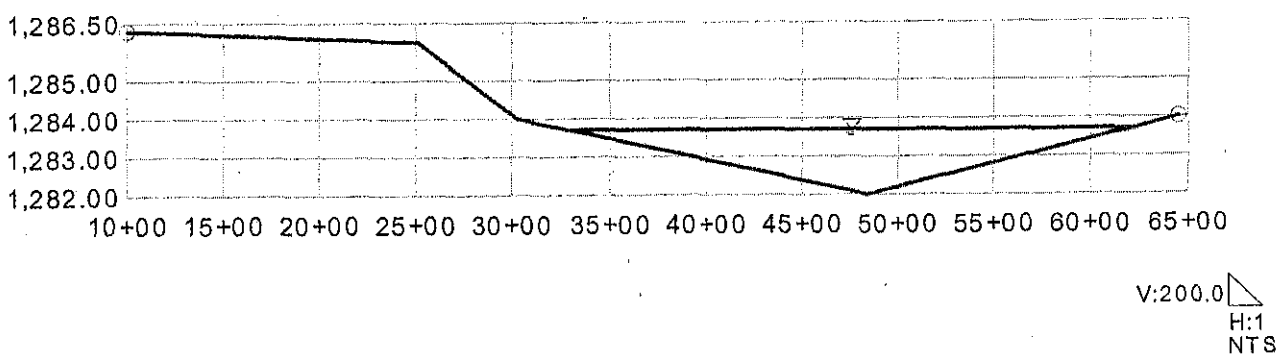
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,286.30
25+10	1,286.00
30+30	1,284.00
48+40	1,282.00
64+50	1,284.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.325
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,283.69	ft
Elevation Range	1,282.00 to 1,286.30	
Discharge	2,306.00	cfs



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37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.227
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	2,600.39	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,281.77	ft
Elevation Range	1,280.00 to 1,284.30	
Flow Area	2,414.7	ft²
Wetted Perimeter	2,341.65	ft
Top Width	2,341.65	ft
Actual Depth	1.77	ft
Critical Elevation	1,280.78	ft
Critical Slope	0.220413	ft/ft
Velocity	1.08	ft/s
Velocity Head	0.02	ft
Specific Energy	1,281.79	ft
Froude Number	0.19	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	56+00	0.110

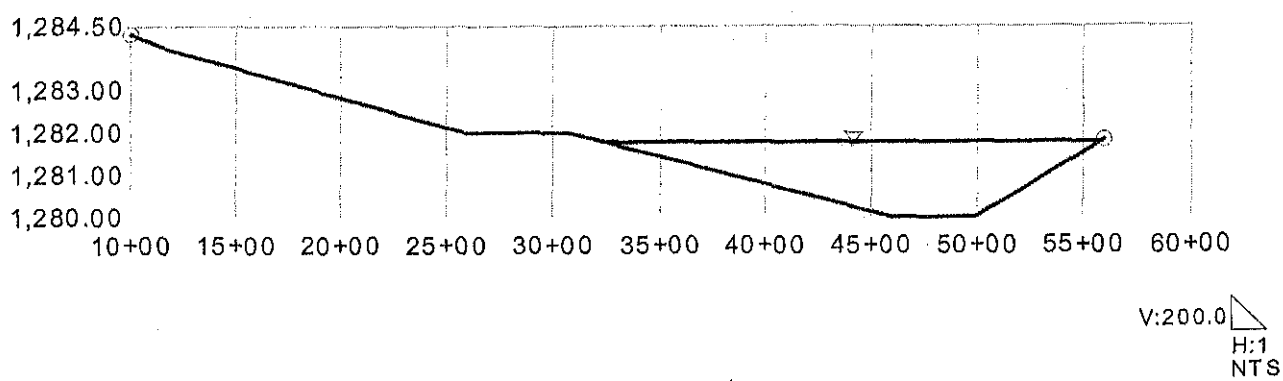
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,284.30
11+60	1,284.00
25+90	1,282.00
30+70	1,282.00
46+00	1,280.00
49+90	1,280.00
56+00	1,281.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.227
Flow Element	*Irregular Channel*
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,281.77	ft
Elevation Range	1,280.00 to 1,284.30	
Discharge	2,600.39	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.896
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005800	ft/ft
Discharge	2,600.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,272.64	ft
Elevation Range	1,272.00 to 1,276.00	
Flow Area	3,490.7	ft²
Wetted Perimeter	5,666.22	ft
Top Width	5,666.21	ft
Actual Depth	0.64	ft
Critical Elevation	1,272.20	ft
Critical Slope	0.303960	ft/ft
Velocity	0.74	ft/s
Velocity Head	0.01	ft
Specific Energy	1,272.65	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	88+30	0.110

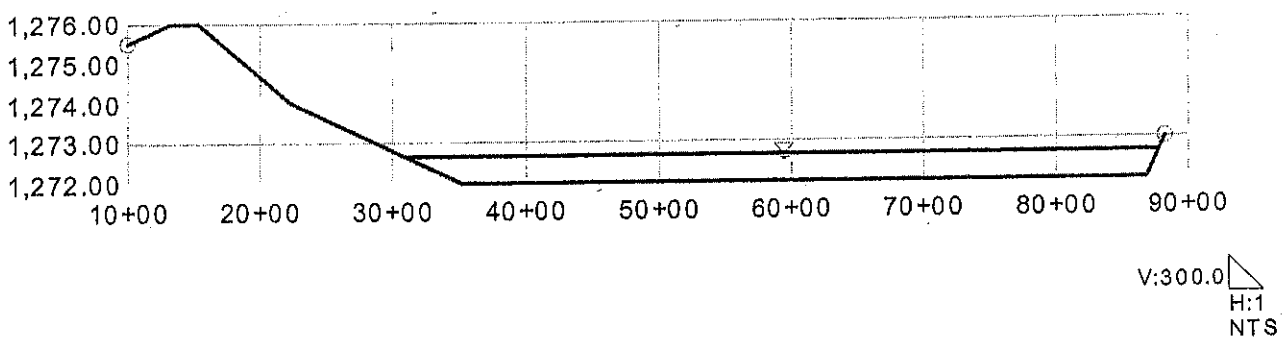
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,275.50
13+30	1,276.00
15+40	1,276.00
22+40	1,274.00
35+30	1,272.00
86+90	1,272.00
88+30	1,273.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.896
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005800	ft/ft
Water Surface Elevation	1,272.64	ft
Elevation Range	1,272.00 to 1,276.00	
Discharge	2,600.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.801
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006300	ft/ft
Discharge	2,600.39	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,270.62	ft
Elevation Range	1,270.00 to 1,273.40	
Flow Area	3,457.4	ft²
Wetted Perimeter	5,884.92	ft
Top Width	5,884.92	ft
Actual Depth	0.62	ft
Critical Elevation	1,270.19	ft
Critical Slope	0.306320	ft/ft
Velocity	0.75	ft/s
Velocity Head	0.01	ft
Specific Energy	1,270.63	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	93+70	0.110

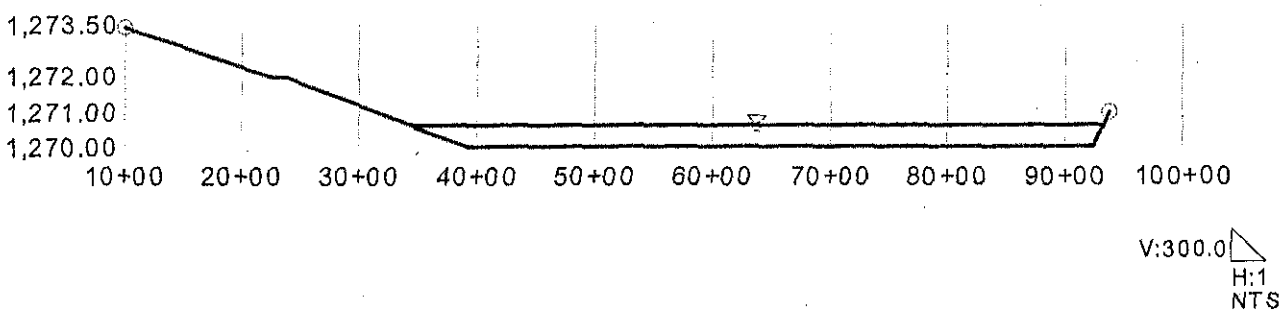
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,273.40
22+60	1,272.00
23+70	1,272.00
39+10	1,270.00
92+40	1,270.00
93+70	1,271.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.801
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006300	ft/ft
Water Surface Elevation	1,270.62	ft
Elevation Range	1,270.00 to 1,273.40	
Discharge	2,600.39	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.701
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.002900	ft/ft
Discharge	2,611.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,268.75	ft
Elevation Range	1,268.00 to 1,270.50	
Flow Area	4,536.6	ft²
Wetted Perimeter	6,446.51	ft
Top Width	6,446.51	ft
Actual Depth	0.75	ft
Critical Elevation	1,268.19	ft
Critical Slope	0.310284	ft/ft
Velocity	0.58	ft/s
Velocity Head	0.01	ft
Specific Energy	1,268.75	ft
Froude Number	0.12	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	102+70	0.110

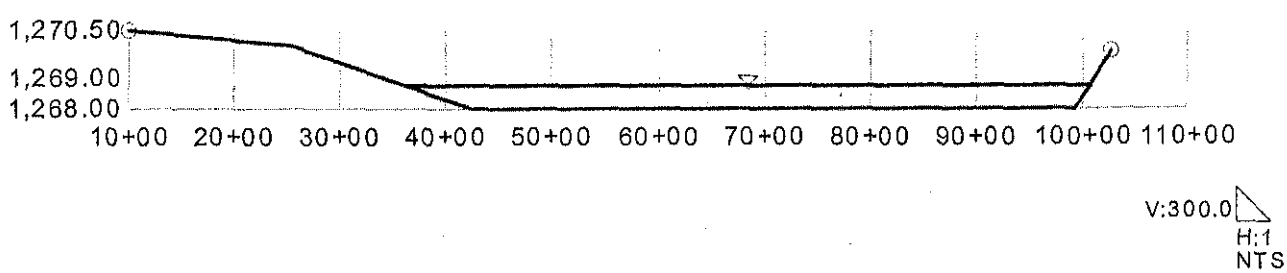
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,270.50
25+50	1,270.00
42+60	1,268.00
99+20	1,268.00
102+70	1,269.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.701
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.002900	ft/ft
Water Surface Elevation	1,268.75	ft
Elevation Range	1,268.00 to 1,270.50	
Discharge	2,611.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.606
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.007300	ft/ft
Discharge	2,684.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,263.51	ft
Elevation Range	1,262.00 to 1,268.30	
Flow Area	2,704.4	ft²
Wetted Perimeter	3,391.58	ft
Top Width	3,391.57	ft
Actual Depth	1.51	ft
Critical Elevation	1,262.75	ft
Critical Slope	0.236562	ft/ft
Velocity	0.99	ft/s
Velocity Head	0.02	ft
Specific Energy	1,263.53	ft
Froude Number	0.20	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	92+10	0.110

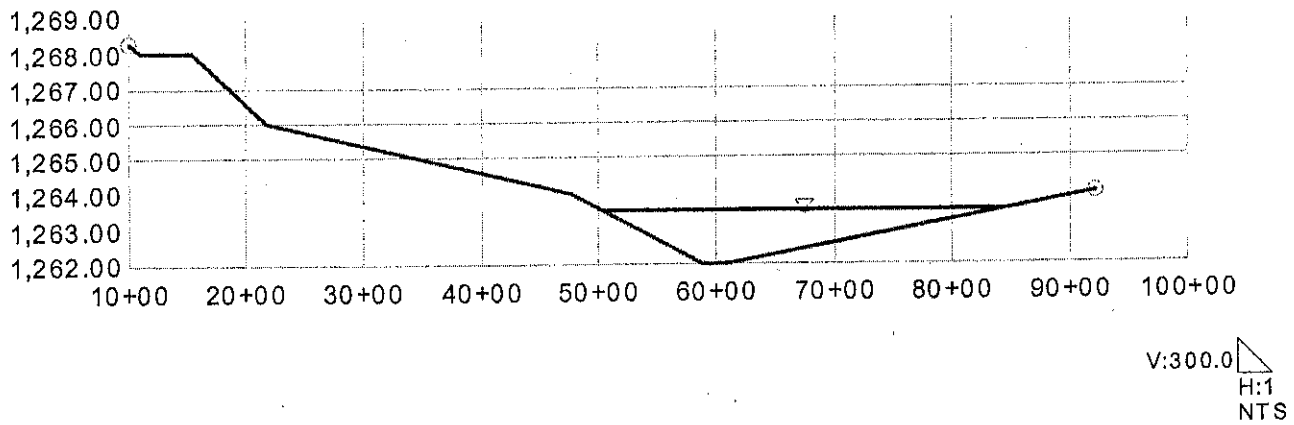
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,268.30
11+00	1,268.00
15+50	1,268.00
21+80	1,266.00
47+80	1,264.00
58+90	1,262.00
60+80	1,262.00
92+10	1,264.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.606
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.007300	ft/ft
Water Surface Elevation	1,263.51	ft
Elevation Range	1,262.00 to 1,268.30	
Discharge	2,684.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.511
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005100	ft/ft
Discharge	2,979.63	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,261.43	ft
Elevation Range	1,260.00 to 1,266.00	
Flow Area	3,271.8	ft²
Wetted Perimeter	3,567.08	ft
Top Width	3,567.08	ft
Actual Depth	1.43	ft
Critical Elevation	1,260.55	ft
Critical Slope	0.236854	ft/ft
Velocity	0.91	ft/s
Velocity Head	0.01	ft
Specific Energy	1,261.45	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	88+60	0.110

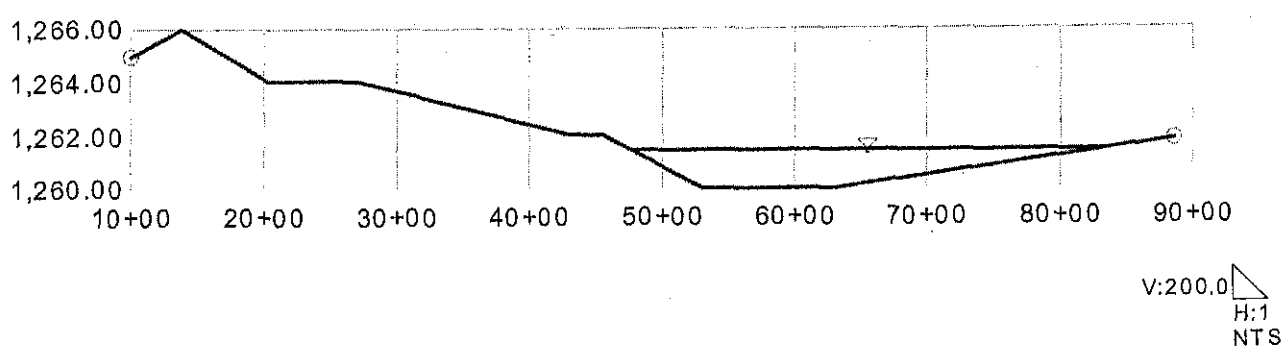
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,265.00
14+00	1,266.00
20+30	1,264.00
27+20	1,264.00
43+10	1,262.00
45+60	1,262.00
53+10	1,260.00
63+10	1,260.00
88+60	1,261.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.511
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005100	ft/ft
Water Surface Elevation	1,261.43	ft
Elevation Range	1,260.00 to 1,266.00	
Discharge	2,979.63	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.420
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003500	ft/ft
Discharge	2,986.46	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,259.98	ft
Elevation Range	1,258.00 to 1,264.00	
Flow Area	3,044.5	ft²
Wetted Perimeter	2,238.78	ft
Top Width	2,238.77	ft
Actual Depth	1.98	ft
Critical Elevation	1,258.67	ft
Critical Slope	0.215688	ft/ft
Velocity	0.98	ft/s
Velocity Head	0.01	ft
Specific Energy	1,260.00	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	68+00	0.110

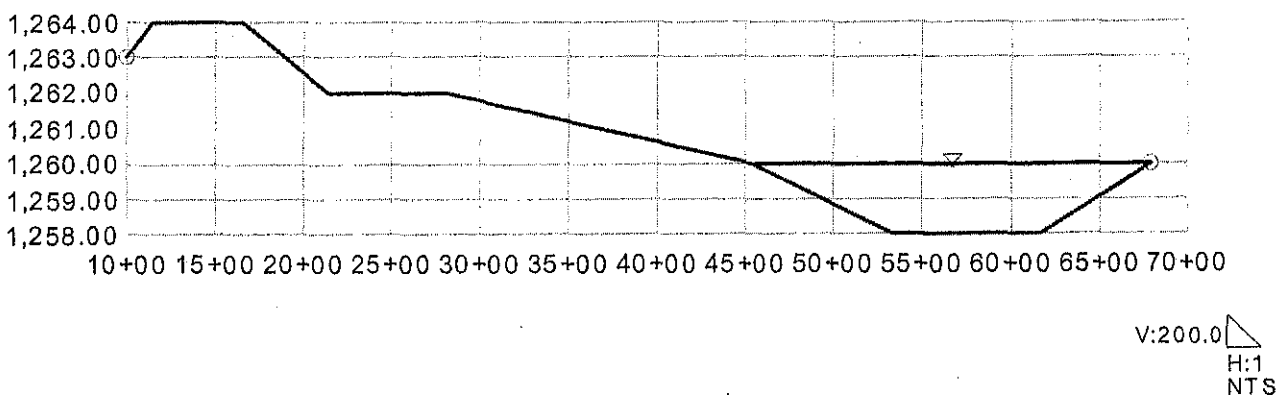
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,263.00
11+40	1,264.00
16+60	1,264.00
21+40	1,262.00
28+20	1,262.00
45+50	1,260.00
53+40	1,258.00
61+70	1,258.00
68+00	1,260.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.420
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003500	ft/ft
Water Surface Elevation	1,259.98	ft
Elevation Range	1,258.00 to 1,264.00	
Discharge	2,986.46	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.313
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004000	ft/ft
Discharge	2,987.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,256.96	ft
Elevation Range	1,256.00 to 1,261.20	
Flow Area	3,937.7	ft²
Wetted Perimeter	4,706.54	ft
Top Width	4,706.54	ft
Actual Depth	0.96	ft
Critical Elevation	1,256.28	ft
Critical Slope	0.274117	ft/ft
Velocity	0.76	ft/s
Velocity Head	0.01	ft
Specific Energy	1,256.97	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	94+60	0.110

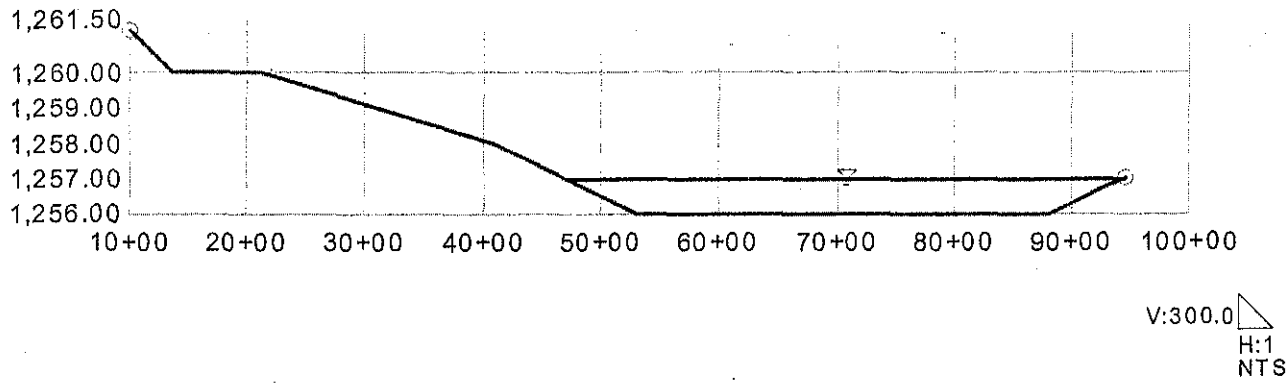
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,261.20
13+60	1,260.00
21+10	1,260.00
40+90	1,258.00
53+20	1,256.00
88+00	1,256.00
94+60	1,257.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.313
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004000	ft/ft
Water Surface Elevation	1,256.96	ft
Elevation Range	1,256.00 to 1,261.20	
Discharge	2,987.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.034
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.003400	ft/ft
Discharge	2,986.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,252.69	ft
Elevation Range	1,251.30 to 1,257.82	
Flow Area	3,812.2	ft²
Wetted Perimeter	3,844.20	ft
Top Width	3,844.01	ft
Actual Depth	1.39	ft
Critical Elevation	1,251.82	ft
Critical Slope	0.248731	ft/ft
Velocity	0.78	ft/s
Velocity Head	0.01	ft
Specific Energy	1,252.70	ft
Froude Number	0.14	
Flow Type	Subcritical	

Calculation Messages:
Water elevation exceeds lowest end station by 0.18626084 ft.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	84+20	0.110

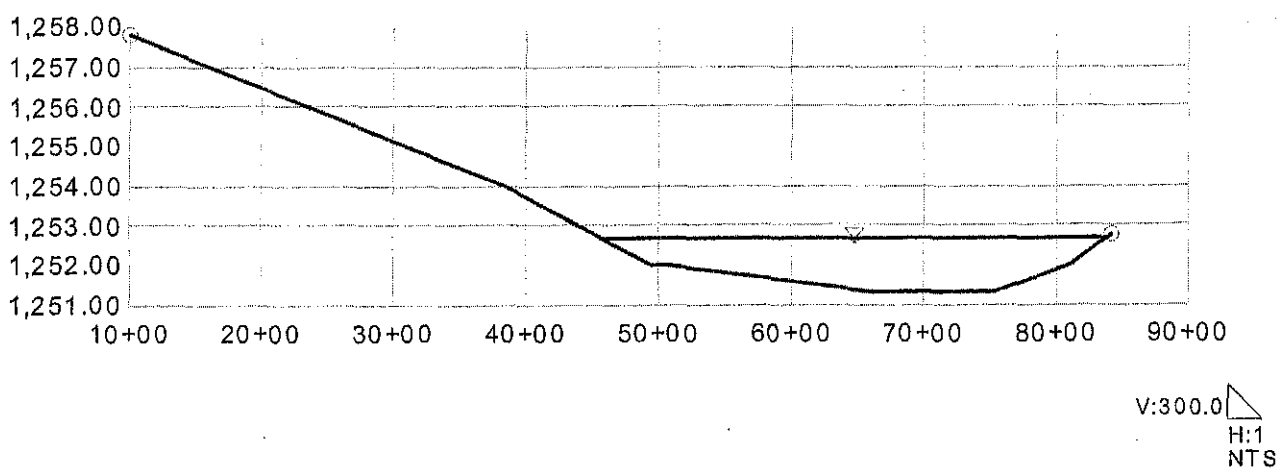
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,257.82
23+50	1,256.00
38+60	1,254.00
49+50	1,252.00
50+80	1,252.00
66+10	1,251.30
75+40	1,251.30
81+00	1,252.00
84+20	1,252.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.034
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003400	ft/ft
Water Surface Elevation	1,252.69	ft
Elevation Range	1,251.30 to 1,257.82	
Discharge	2,986.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.949
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.008300	ft/ft
Discharge	2,986.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,246.31	ft
Elevation Range	1,244.40 to 1,251.95	
Flow Area	2,428.4	ft²
Wetted Perimeter	2,431.42	ft
Top Width	2,431.41	ft
Actual Depth	1.91	ft
Critical Elevation	1,245.43	ft
Critical Slope	0.219587	ft/ft
Velocity	1.23	ft/s
Velocity Head	0.02	ft
Specific Energy	1,246.34	ft
Froude Number	0.22	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	76+30	0.110

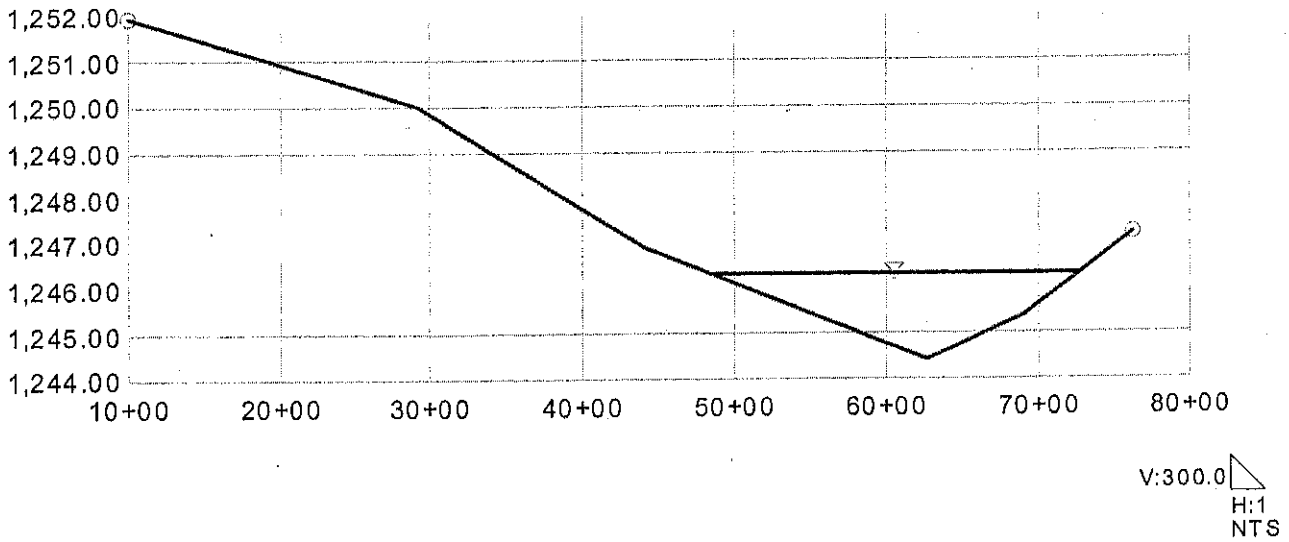
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,251.95
29+20	1,250.00
44+00	1,246.90
62+70	1,244.40
69+00	1,245.40
76+30	1,247.20

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.949
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.008300	ft/ft
Water Surface Elevation	1,246.31	ft
Elevation Range	1,244.40 to 1,251.95	
Discharge	2,986.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.759
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006500	ft/ft
Discharge	2,986.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,241.67	ft
Elevation Range	1,240.00 to 1,244.00	
Flow Area	2,589.6	ft²
Wetted Perimeter	2,376.93	ft
Top Width	2,376.40	ft
Actual Depth	1.67	ft
Critical Elevation	1,240.68	ft
Critical Slope	0.219362	ft/ft
Velocity	1.15	ft/s
Velocity Head	0.02	ft
Specific Energy	1,241.69	ft
Froude Number	0.19	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
60+20	96+00	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
60+20	1,244.00
60+50	1,240.00
61+60	1,240.00
65+00	1,242.00
65+50	1,242.00
71+80	1,240.00
72+20	1,242.00
75+00	1,242.00
75+20	1,240.00
77+80	1,240.00

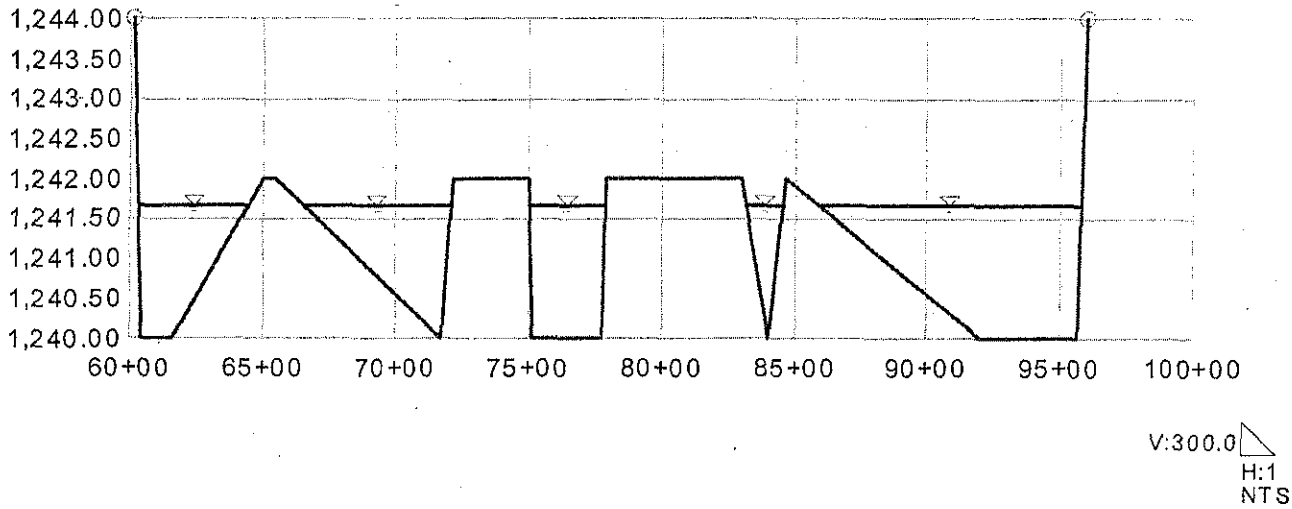
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
77+90	1,242.00
83+00	1,242.00
84+00	1,240.00
84+70	1,242.00
92+00	1,240.00
95+60	1,240.00
96+00	1,244.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.759
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006500	ft/ft
Water Surface Elevation	1,241.67	ft
Elevation Range	1,240.00 to 1,244.00	
Discharge	2,986.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.566
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004500	ft/ft
Discharge	2,986.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,232.05	ft
Elevation Range	1,230.00 to 1,241.91	
Flow Area	2,253.0	ft²
Wetted Perimeter	1,273.74	ft
Top Width	1,273.72	ft
Actual Depth	2.05	ft
Critical Elevation	1,230.67	ft
Critical Slope	0.205033	ft/ft
Velocity	1.33	ft/s
Velocity Head	0.03	ft
Specific Energy	1,232.08	ft
Froude Number	0.18	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	95+60	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,241.91
17+10	1,240.00
24+40	1,240.00
25+10	1,238.00
43+50	1,238.00
46+20	1,240.00
46+50	1,238.00
52+00	1,236.00
53+20	1,236.00
57+10	1,234.00
60+80	1,234.00
66+80	1,236.00
74+50	1,236.00
75+30	1,234.00

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37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

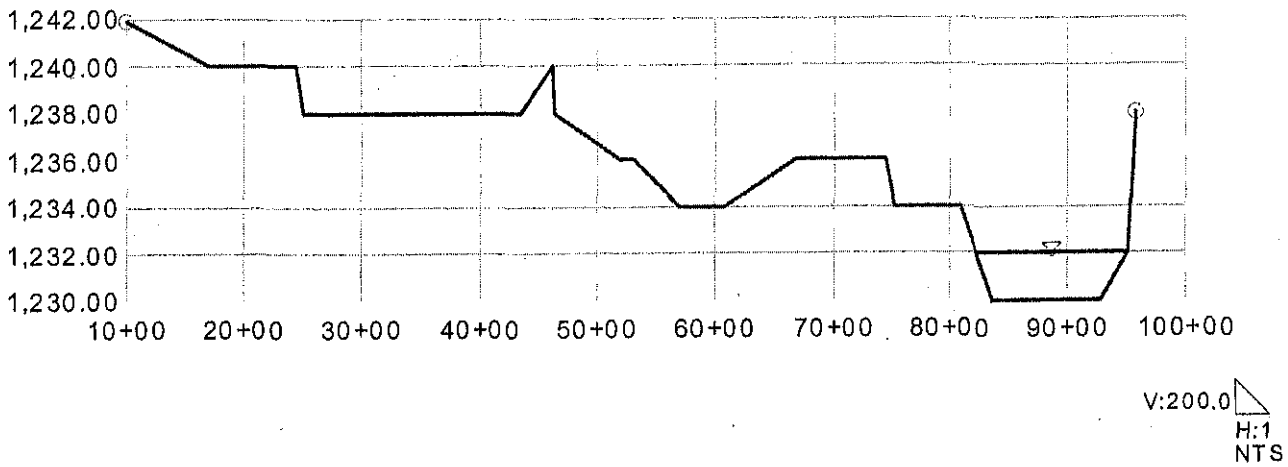
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
81+00	1,234.00
83+60	1,230.00
92+80	1,230.00
95+00	1,232.00
95+60	1,238.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.566
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004500	ft/ft
Water Surface Elevation	1,232.05	ft
Elevation Range	1,230.00 to 1,241.91	
Discharge	2,986.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.386
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003500	ft/ft
Discharge	2,986.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,230.35	ft
Elevation Range	1,228.00 to 1,238.20	
Flow Area	3,379.4	ft²
Wetted Perimeter	2,906.78	ft
Top Width	2,906.76	ft
Actual Depth	2.35	ft
Critical Elevation	1,229.09	ft
Critical Slope	0.215746	ft/ft
Velocity	0.88	ft/s
Velocity Head	0.01	ft
Specific Energy	1,230.37	ft
Froude Number	0.14	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	103+50	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,238.20
18+00	1,236.00
24+60	1,236.00
30+00	1,234.00
30+20	1,232.00
31+70	1,234.00
32+40	1,238.00
33+20	1,237.50
46+20	1,238.00
48+40	1,236.00

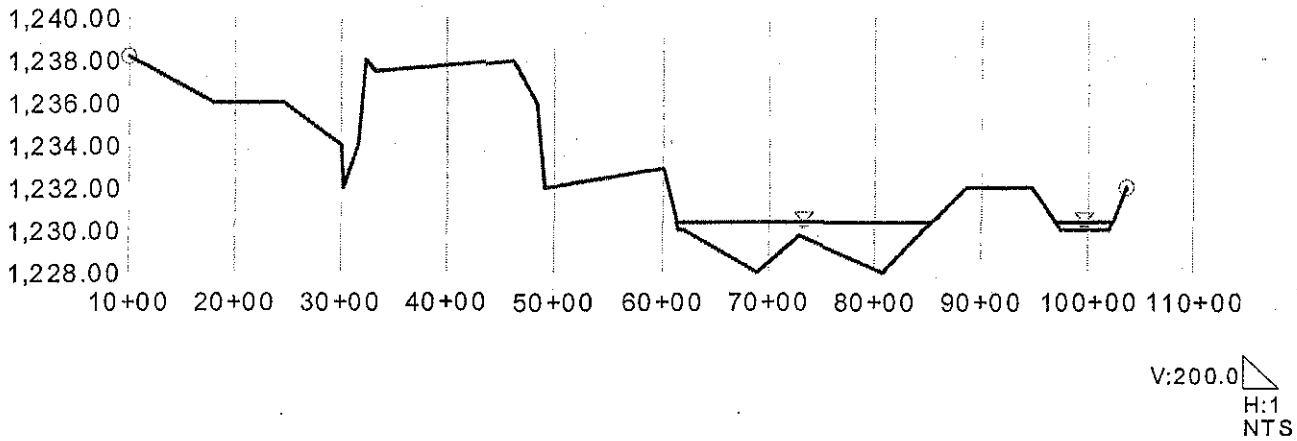
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
49+00	1,232.00
60+00	1,232.90
61+60	1,230.00
62+00	1,230.00
69+00	1,228.00
73+00	1,229.80
80+80	1,228.00
84+60	1,230.00
88+50	1,232.00
94+70	1,232.00
97+50	1,230.00
101+90	1,230.00
103+50	1,232.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.386
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003500	ft/ft
Water Surface Elevation	1,230.35	ft
Elevation Range	1,228.00 to 1,238.20	
Discharge	2,986.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.243
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006200	ft/ft
Discharge	2,986.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,226.23	ft
Elevation Range	1,224.00 to 1,234.60	
Flow Area	2,607.0	ft²
Wetted Perimeter	2,332.91	ft
Top Width	2,332.61	ft
Actual Depth	2.23	ft
Critical Elevation	1,224.72	ft
Critical Slope	0.202139	ft/ft
Velocity	1.15	ft/s
Velocity Head	0.02	ft
Specific Energy	1,226.25	ft
Froude Number	0.19	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	100+50	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,234.60
13+80	1,234.00
27+20	1,232.00
27+80	1,230.00
30+40	1,234.00
42+90	1,234.00
43+50	1,232.00
49+90	1,232.00
55+70	1,230.00
58+00	1,230.00

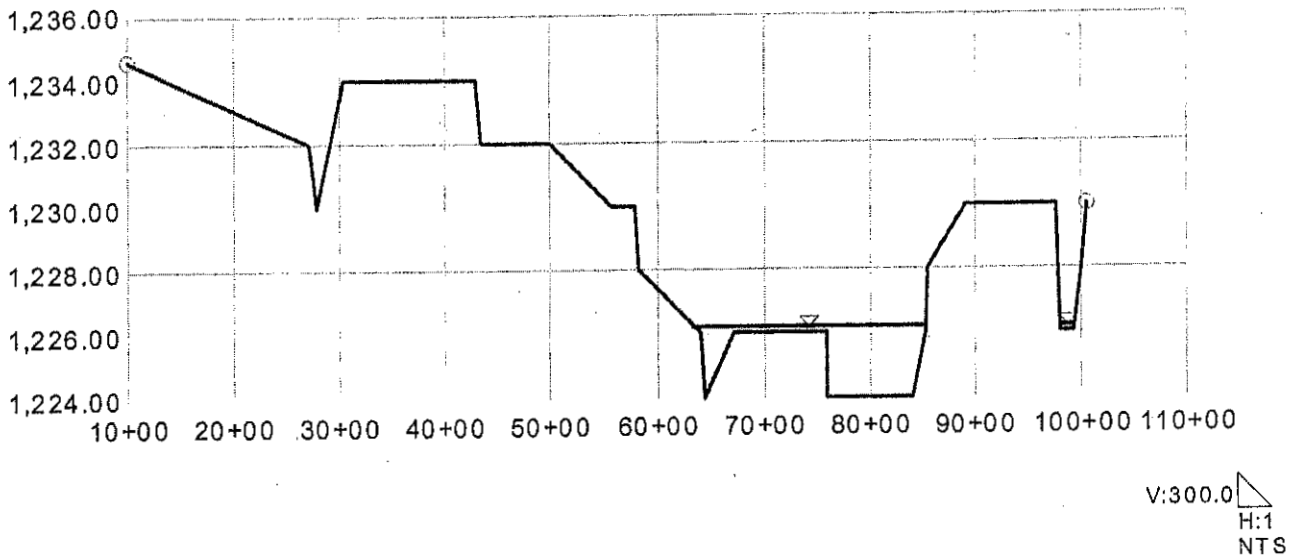
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
58+20	1,228.00
64+00	1,226.00
64+40	1,224.00
67+20	1,226.00
75+80	1,226.00
75+90	1,224.00
84+00	1,224.00
85+20	1,226.00
85+50	1,228.00
89+00	1,230.00
97+60	1,230.00
97+90	1,226.00
99+20	1,226.00
100+00	1,228.00
100+50	1,230.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.243
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006200	ft/ft
Water Surface Elevation	1,226.23	ft
Elevation Range	1,224.00 to 1,234.60	
Discharge	2,986.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.188
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.003800	ft/ft
Discharge	2,987.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,224.49	ft
Elevation Range	1,222.00 to 1,234.90	
Flow Area	2,970.5	ft²
Wetted Perimeter	2,238.60	ft
Top Width	2,238.29	ft
Actual Depth	2.49	ft
Critical Elevation	1,222.79	ft
Critical Slope	0.199168	ft/ft
Velocity	1.01	ft/s
Velocity Head	0.02	ft
Specific Energy	1,224.50	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	101+80	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,234.90
21+50	1,232.00
22+00	1,230.00
30+00	1,231.40
34+40	1,232.00
37+20	1,234.00
42+20	1,232.00
54+40	1,232.00
58+60	1,230.00
58+80	1,228.00
59+00	1,226.00
67+00	1,224.00
70+20	1,222.00
71+10	1,222.00

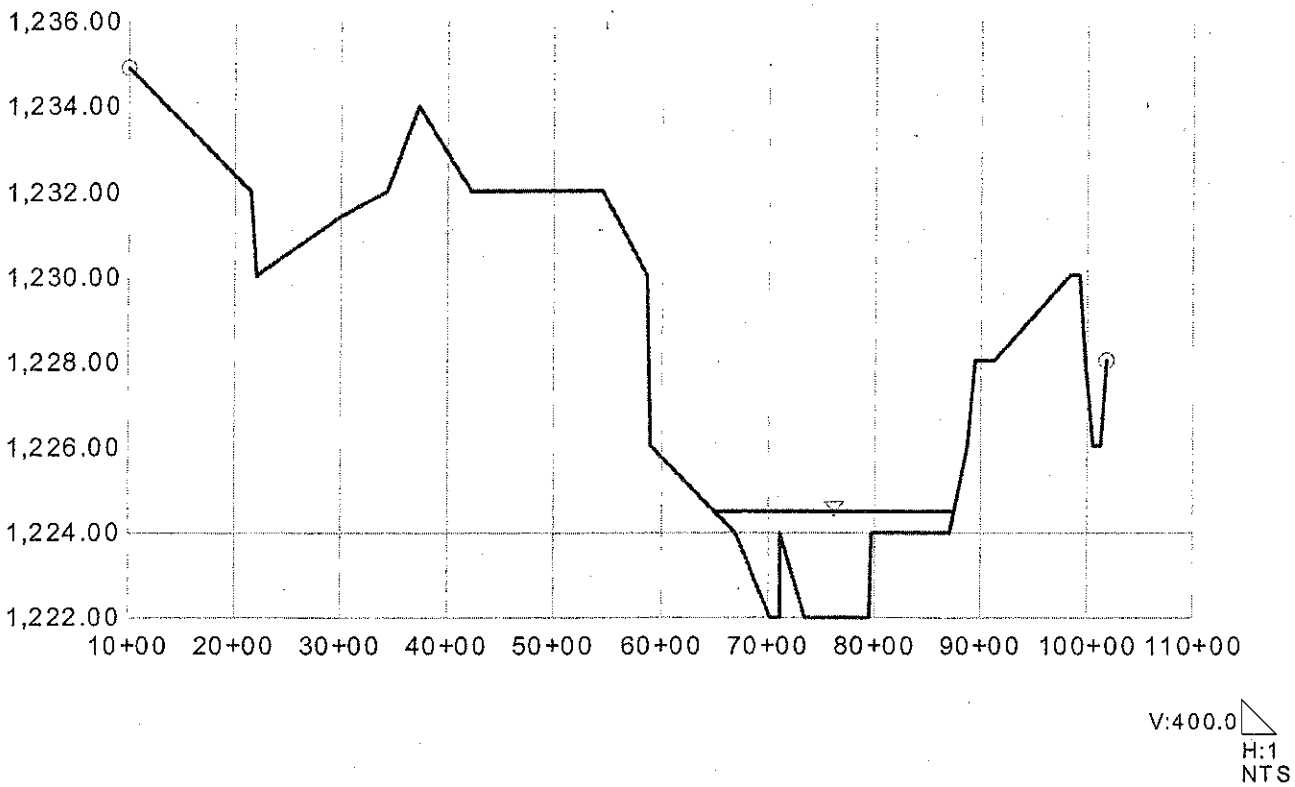
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
71+20	1,224.00
73+50	1,222.00
79+40	1,222.00
79+60	1,224.00
87+00	1,224.00
88+80	1,226.00
89+40	1,228.00
91+30	1,228.00
98+40	1,230.00
99+30	1,230.00
99+80	1,228.00
100+40	1,226.00
101+30	1,226.00
101+80	1,228.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.188
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003800	ft/ft
Water Surface Elevation	1,224.49	ft
Elevation Range	1,222.00 to 1,234.90	
Discharge	2,987.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.129
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.008600	ft/ft
Discharge	2,987.00	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,222.86	ft
Elevation Range	1,220.00 to 1,233.90	
Flow Area	1,950.2	ft²
Wetted Perimeter	1,442.52	ft
Top Width	1,442.50	ft
Actual Depth	2.86	ft
Critical Elevation	1,221.52	ft
Critical Slope	0.183203	ft/ft
Velocity	1.53	ft/s
Velocity Head	0.04	ft
Specific Energy	1,222.89	ft
Froude Number	0.23	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	102+50	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,233.90
20+50	1,232.00
25+50	1,232.00
27+60	1,230.00
29+20	1,230.00
33+50	1,232.00
34+00	1,230.00
34+80	1,230.00
36+50	1,232.00
42+10	1,232.00
42+40	1,230.00
45+90	1,230.00
46+90	1,232.00
50+90	1,232.00

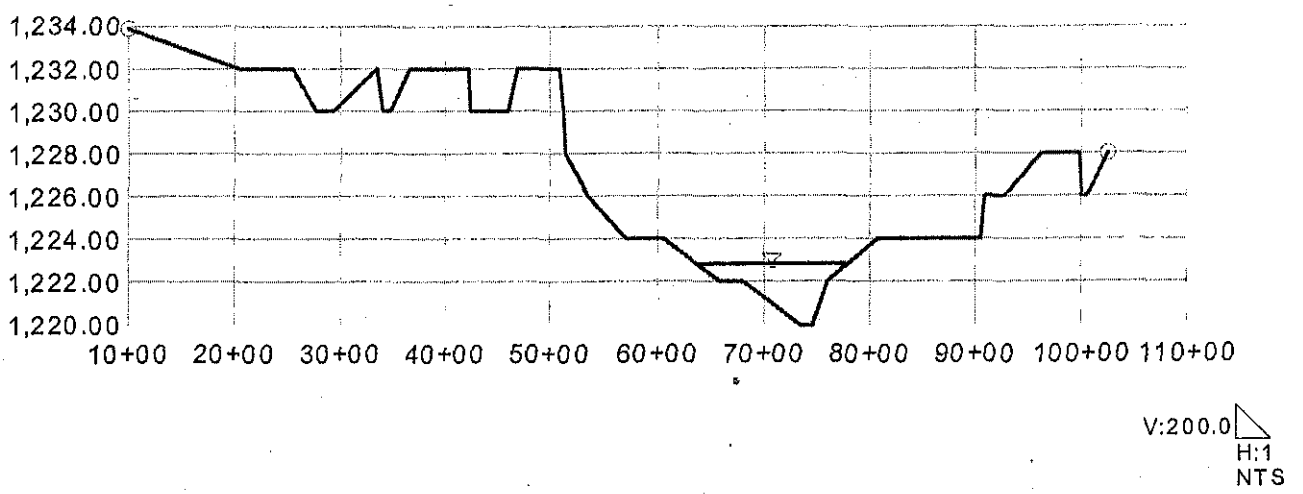
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
51+20	1,230.00
51+40	1,228.00
53+50	1,226.00
57+10	1,224.00
60+60	1,224.00
65+90	1,222.00
68+10	1,222.00
73+50	1,220.00
74+60	1,220.00
76+00	1,222.00
80+80	1,224.00
90+50	1,224.00
90+80	1,226.00
92+70	1,226.00
96+20	1,228.00
99+70	1,228.00
99+90	1,226.00
100+40	1,226.00
102+50	1,228.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.129
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	*0.008600*	*ft/ft*
Water Surface Elevation	1,222.86	ft
Elevation Range	1,220.00 to 1,233.90	
Discharge	2,987.00	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.030
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000400	ft/ft
Discharge	2,988.66	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,222.85	ft
Elevation Range	1,220.00 to 1,230.00	
Flow Area	7,794.8	ft²
Wetted Perimeter	4,610.54	ft
Top Width	4,610.31	ft
Actual Depth	2.85	ft
Critical Elevation	1,220.53	ft
Critical Slope	0.227628	ft/ft
Velocity	0.38	ft/s
Velocity Head	2.28e-3	ft
Specific Energy	1,222.85	ft
Froude Number	0.05	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	102+20	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,229.15
26+40	1,228.00
35+00	1,230.00
45+50	1,230.00
47+50	1,228.00
47+60	1,226.00
49+30	1,224.00
56+50	1,222.00
60+60	1,222.00
64+90	1,220.00
74+40	1,220.00
83+20	1,222.00
94+30	1,222.00
94+40	1,220.00

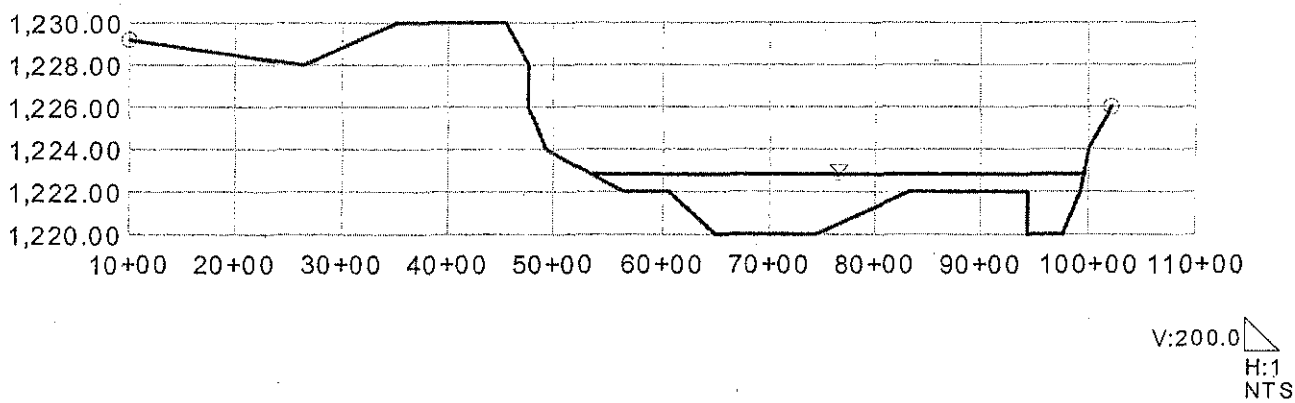
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
97+60	1,220.00
99+30	1,222.00
99+90	1,224.00
102+20	1,226.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.030
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000400	ft/ft
Water Surface Elevation	1,222.85	ft
Elevation Range	1,220.00 to 1,230.00	
Discharge	2,988.66	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.980
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.014200	ft/ft
Discharge	3,293.11	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,220.22	ft
Elevation Range	1,218.00 to 1,228.17	
Flow Area	1,925.0	ft²
Wetted Perimeter	1,756.95	ft
Top Width	1,756.95	ft
Actual Depth	2.22	ft
Critical Elevation	1,219.35	ft
Critical Slope	0.201159	ft/ft
Velocity	1.71	ft/s
Velocity Head	0.05	ft
Specific Energy	1,220.27	ft
Froude Number	0.29	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	103+80	0.110

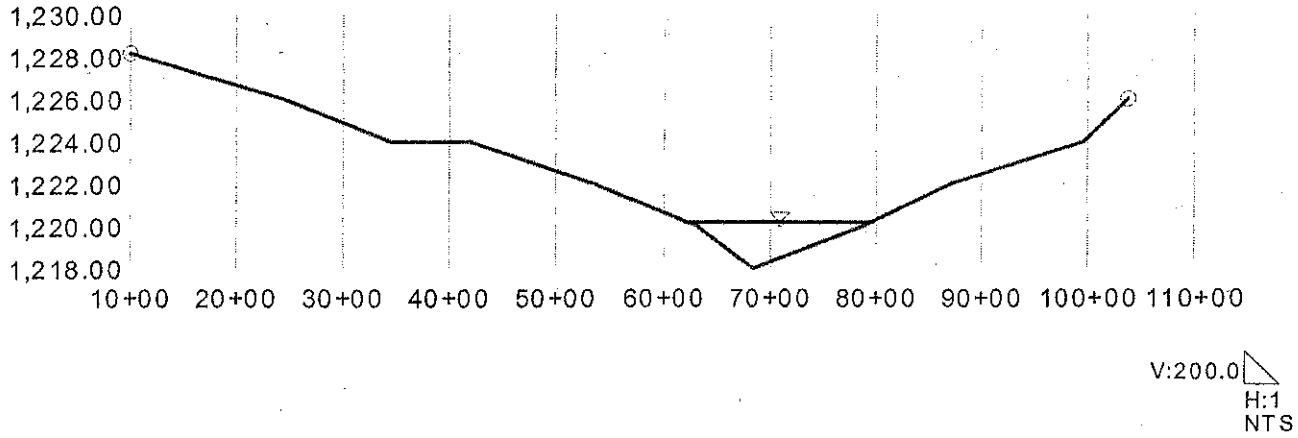
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,228.17
24+60	1,226.00
34+60	1,224.00
42+00	1,224.00
53+50	1,222.00
63+20	1,220.00
68+40	1,218.00
78+80	1,220.00
87+00	1,222.00
99+60	1,224.00
103+80	1,226.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.980
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.014200	ft/ft
Water Surface Elevation	1,220.22	ft
Elevation Range	1,218.00 to 1,228.17	
Discharge	3,293.11	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.917
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.004500	ft/ft
Discharge	4,330.32	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,218.53	ft
Elevation Range	1,216.00 to 1,224.63	
Flow Area	3,407.4	ft²
Wetted Perimeter	2,051.52	ft
Top Width	2,051.51	ft
Actual Depth	2.53	ft
Critical Elevation	1,216.95	ft
Critical Slope	0.193555	ft/ft
Velocity	1.27	ft/s
Velocity Head	0.03	ft
Specific Energy	1,218.55	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	98+30	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,224.63
11+50	1,224.00
24+10	1,224.00
32+00	1,222.00
49+60	1,222.00
57+80	1,220.00
60+00	1,220.00
61+40	1,218.00
63+30	1,218.00
70+00	1,216.00
76+80	1,216.00
80+20	1,218.00
85+30	1,220.00
88+40	1,220.00

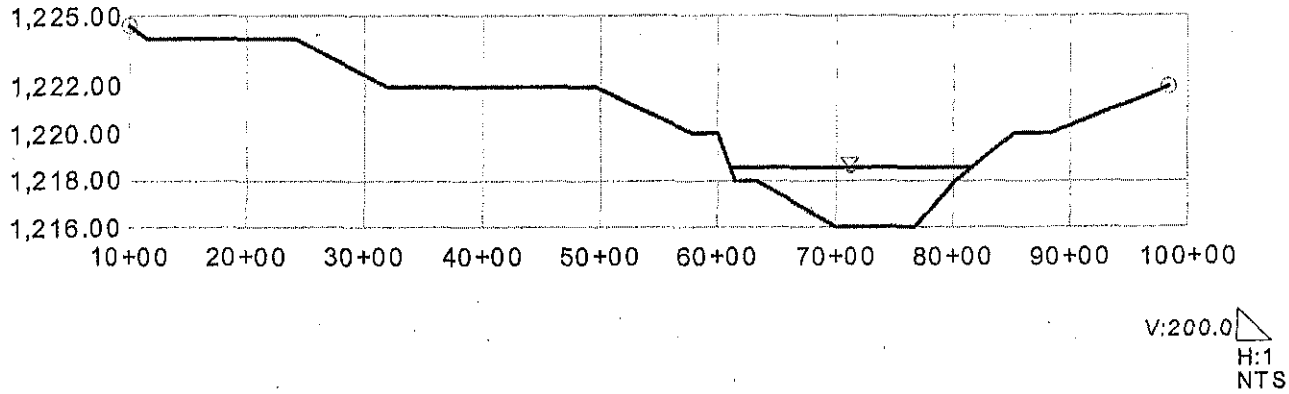
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
98+30	1,222.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.917
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004500	ft/ft
Water Surface Elevation	1,218.53	ft
Elevation Range	1,216.00 to 1,224.63	
Discharge	4,330.32	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.862
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.008200	ft/ft
Discharge	5,057.45	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,217.74	ft
Elevation Range	1,216.00 to 1,224.00	
Flow Area	3,248.0	ft²
Wetted Perimeter	2,261.54	ft
Top Width	2,261.33	ft
Actual Depth	1.74	ft
Critical Elevation	1,216.69	ft
Critical Slope	0.205858	ft/ft
Velocity	1.56	ft/s
Velocity Head	0.04	ft
Specific Energy	1,217.77	ft
Froude Number	0.23	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	90+40	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,223.37
11+50	1,222.00
14+00	1,224.00
22+10	1,224.00
34+00	1,222.00
41+00	1,220.00
47+00	1,220.00
47+20	1,218.00
47+70	1,218.00
47+80	1,220.00

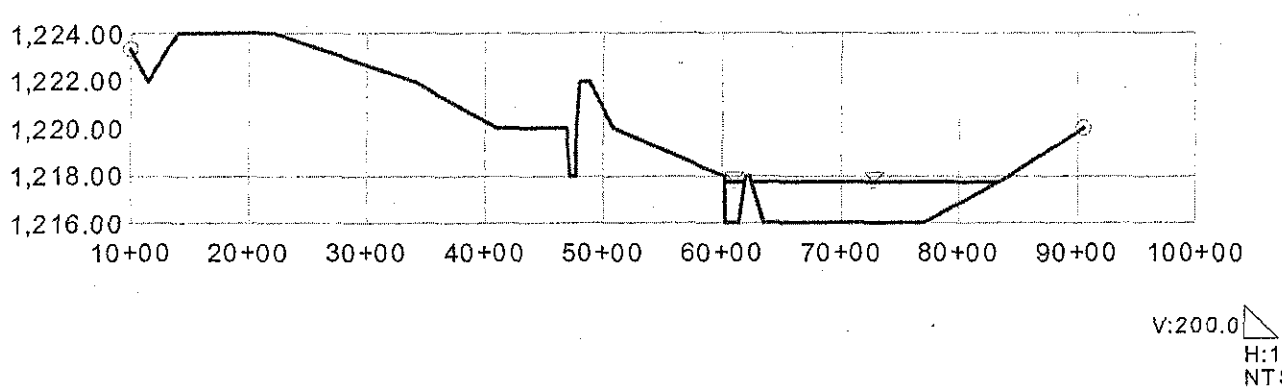
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
48+10	1,222.00
48+90	1,222.00
50+90	1,220.00
60+10	1,218.00
60+20	1,216.00
61+30	1,216.00
61+90	1,218.00
62+20	1,218.00
63+40	1,216.00
77+10	1,216.00
84+20	1,218.00
90+40	1,220.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.862
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.008200	ft/ft
Water Surface Elevation	1,217.74	ft
Elevation Range	1,216.00 to 1,224.00	
Discharge	5,057.45	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.002700	ft/ft
Discharge	6,366.35	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,216.73	ft
Elevation Range	1,214.00 to 1,222.00	
Flow Area	5,540.0	ft²
Wetted Perimeter	2,644.59	ft
Top Width	2,644.44	ft
Actual Depth	2.73	ft
Critical Elevation	1,214.76	ft
Critical Slope	0.195935	ft/ft
Velocity	1.15	ft/s
Velocity Head	0.02	ft
Specific Energy	1,216.75	ft
Froude Number	0.14	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	91+00	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,220.34
12+40	1,220.00
14+00	1,222.00
14+90	1,222.00
29+60	1,220.00
38+90	1,220.00
47+50	1,218.00
47+60	1,216.00
48+20	1,216.00
48+40	1,218.00

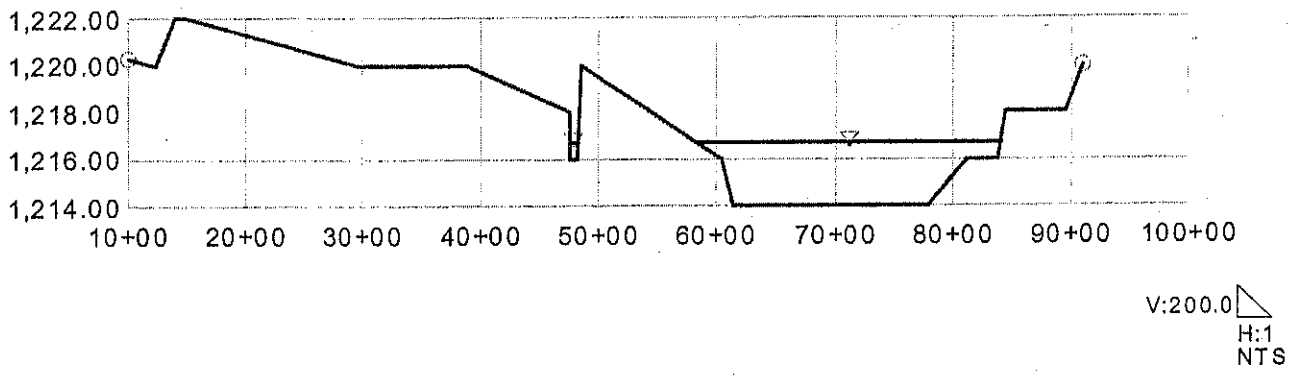
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
48+60	1,220.00
54+50	1,218.00
60+50	1,216.00
61+50	1,214.00
77+90	1,214.00
81+20	1,216.00
83+80	1,216.00
84+50	1,218.00
89+50	1,218.00
91+00	1,220.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.002700	ft/ft
Water Surface Elevation	1,216.73	ft
Elevation Range	1,214.00 to 1,222.00	
Discharge	6,366.35	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006500	ft/ft
Discharge	7,362.26	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,214.35	ft
Elevation Range	1,212.00 to 1,218.83	
Flow Area	5,292.2	ft²
Wetted Perimeter	3,665.82	ft
Top Width	3,665.73	ft
Actual Depth	2.35	ft
Critical Elevation	1,212.79	ft
Critical Slope	0.193676	ft/ft
Velocity	1.39	ft/s
Velocity Head	0.03	ft
Specific Energy	1,214.38	ft
Froude Number	0.20	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	95+40	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,218.83
13+50	1,218.00
32+50	1,218.00
33+90	1,216.00
35+90	1,216.00
40+90	1,214.00
42+40	1,216.00
43+80	1,216.00
47+60	1,214.00
47+80	1,214.00

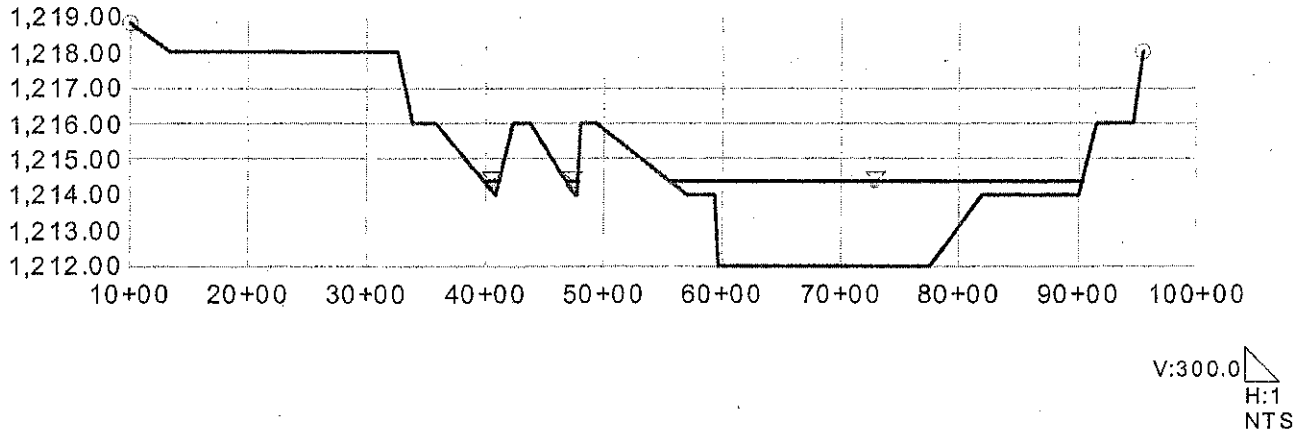
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
48+10	1,216.00
49+40	1,216.00
57+00	1,214.00
59+30	1,214.00
59+60	1,212.00
77+50	1,212.00
82+00	1,214.00
90+00	1,214.00
91+40	1,216.00
94+60	1,216.00
95+40	1,218.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006500	ft/ft
Water Surface Elevation	1,214.35	ft
Elevation Range	1,212.00 to 1,218.83	
Discharge	7,362.26	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.009100	ft/ft
Discharge	7,736.99	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,212.48	ft
Elevation Range	1,210.00 to 1,216.00	
Flow Area	5,189.0	ft²
Wetted Perimeter	4,169.02	ft
Top Width	4,168.77	ft
Actual Depth	2.48	ft
Critical Elevation	1,210.97	ft
Critical Slope	0.182641	ft/ft
Velocity	1.49	ft/s
Velocity Head	0.03	ft
Specific Energy	1,212.51	ft
Froude Number	0.24	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	87+70	0.110

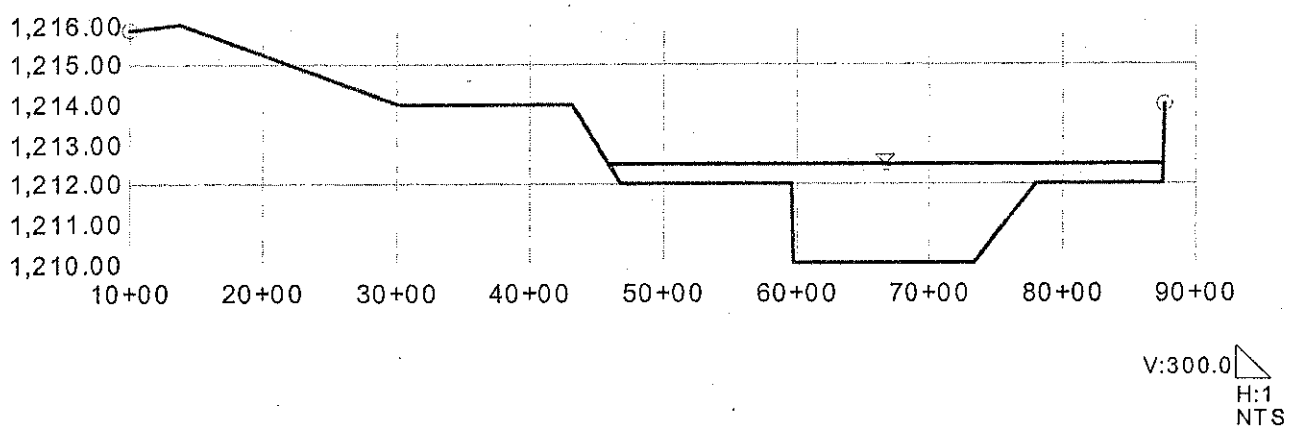
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,215.84
13+80	1,216.00
30+20	1,214.00
43+20	1,214.00
46+80	1,212.00
57+20	1,212.00
59+60	1,212.00
59+70	1,210.00
73+40	1,210.00
78+00	1,212.00
87+60	1,212.00
87+70	1,214.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.009100	ft/ft
Water Surface Elevation	1,212.48	ft
Elevation Range	1,210.00 to 1,216.00	
Discharge	7,736.99	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.001400	ft/ft
Discharge	9,053.82	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,211.66	ft
Elevation Range	1,208.00 to 1,214.00	
Flow Area	11,066.4	ft²
Wetted Perimeter	5,373.67	ft
Top Width	5,373.53	ft
Actual Depth	3.66	ft
Critical Elevation	1,209.14	ft
Critical Slope	0.172647	ft/ft
Velocity	0.82	ft/s
Velocity Head	0.01	ft
Specific Energy	1,211.67	ft
Froude Number	0.10	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	*End Station*	*Mannings Coefficient*
10+00	98+00	0.110

Natural Channel Points	
Station (ft)	*Elevation (ft)*
10+00	1,212.00
12+80	1,214.00
31+30	1,214.00
42+00	1,212.00
43+00	1,210.00
45+30	1,210.00
45+50	1,212.00
46+00	1,212.00
53+50	1,210.00
57+60	1,210.00

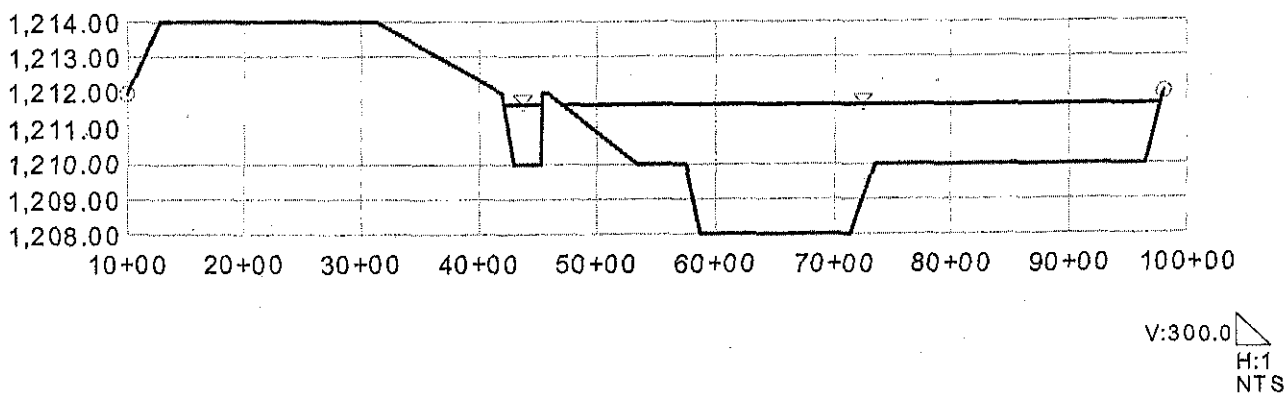
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
58+70	1,208.00
71+40	1,208.00
73+50	1,210.00
96+30	1,210.00
98+00	1,212.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.001400	ft/ft
Water Surface Elevation	1,211.66	ft
Elevation Range	1,208.00 to 1,214.00	
Discharge	9,053.82	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.003700	ft/ft
Discharge	9,494.91	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,209.46	ft
Elevation Range	1,206.00 to 1,212.00	
Flow Area	7,919.8	ft²
Wetted Perimeter	4,493.76	ft
Top Width	4,493.22	ft
Actual Depth	3.46	ft
Critical Elevation	1,207.87	ft
Critical Slope	0.173244	ft/ft
Velocity	1.20	ft/s
Velocity Head	0.02	ft
Specific Energy	1,209.48	ft
Froude Number	0.16	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	97+20	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,211.26
25+00	1,212.00
29+00	1,212.00
30+40	1,210.00
39+40	1,210.00
40+00	1,208.00
55+60	1,208.00
56+00	1,210.00
56+30	1,210.00
56+60	1,208.00

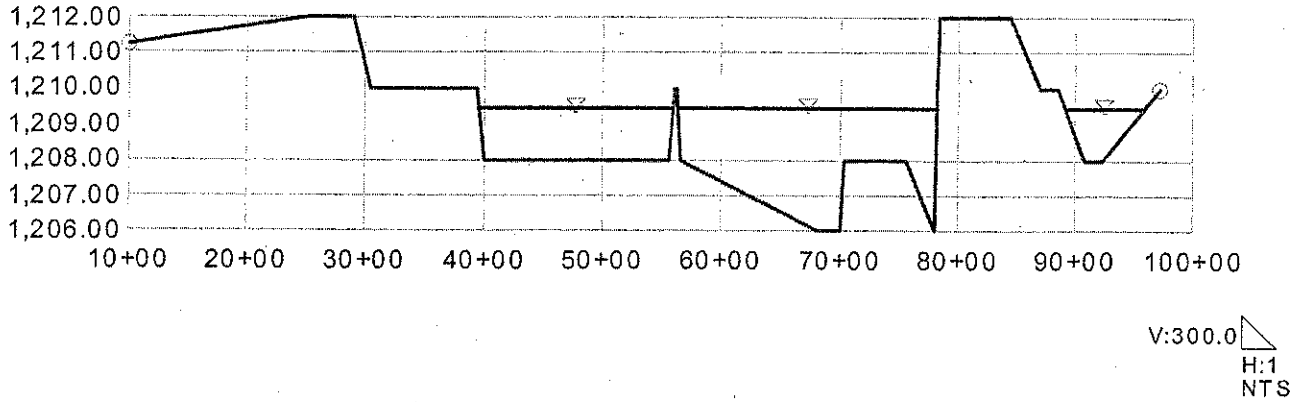
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
68+10	1,206.00
70+10	1,206.00
70+40	1,208.00
75+60	1,208.00
78+10	1,206.00
78+30	1,210.00
78+40	1,212.00
84+50	1,212.00
87+00	1,210.00
88+50	1,210.00
90+80	1,208.00
92+20	1,208.00
97+20	1,210.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003700	ft/ft
Water Surface Elevation	1,209.46	ft
Elevation Range	1,206.00 to 1,212.00	
Discharge	9,494.91	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.007900	ft/ft
Discharge	9,512.99	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,206.85	ft
Elevation Range	1,204.00 to 1,210.00	
Flow Area	6,200.1	ft²
Wetted Perimeter	4,291.88	ft
Top Width	4,291.28	ft
Actual Depth	2.85	ft
Critical Elevation	1,205.23	ft
Critical Slope	0.174070	ft/ft
Velocity	1.53	ft/s
Velocity Head	0.04	ft
Specific Energy	1,206.89	ft
Froude Number	0.23	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	98+00	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,209.60
12+90	1,210.00
28+60	1,210.00
29+50	1,208.00
35+40	1,208.00
42+00	1,206.00
54+10	1,206.00
57+90	1,204.00
68+60	1,204.00
68+70	1,208.00

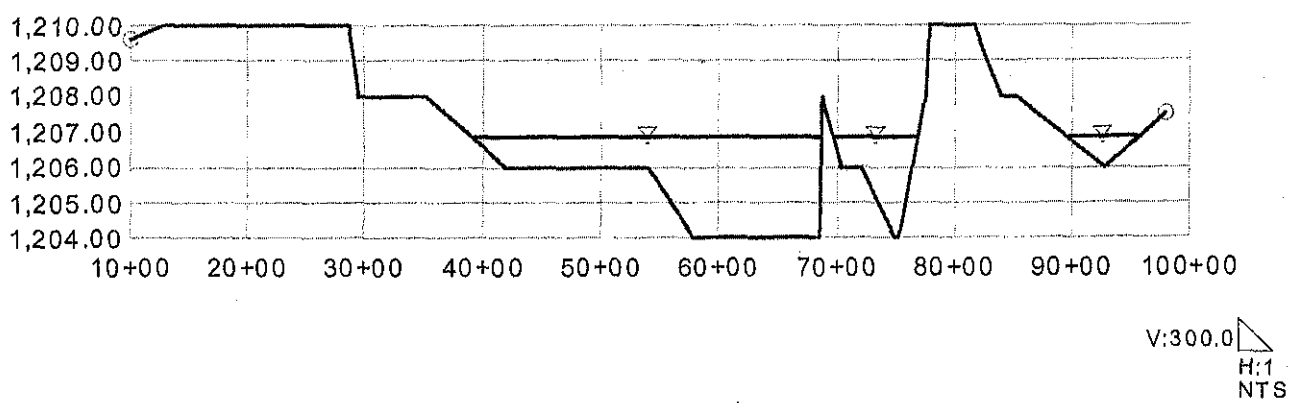
Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
70+40	1,206.00
72+20	1,206.00
75+00	1,204.00
75+30	1,204.00
76+50	1,206.00
77+50	1,208.00
77+90	1,210.00
81+70	1,210.00
83+90	1,208.00
85+20	1,208.00
92+70	1,206.00
98+00	1,207.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.007900	ft/ft
Water Surface Elevation	1,206.85	ft
Elevation Range	1,204.00 to 1,210.00	
Discharge	9,512.99	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.002700	ft/ft
Discharge	9,512.99	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,205.05	ft
Elevation Range	1,201.00 to 1,210.00	
Flow Area	10,478.4	ft²
Wetted Perimeter	7,123.50	ft
Top Width	7,123.49	ft
Actual Depth	4.05	ft
Critical Elevation	1,202.92	ft
Critical Slope	0.178796	ft/ft
Velocity	0.91	ft/s
Velocity Head	0.01	ft
Specific Energy	1,205.07	ft
Froude Number	0.13	
Flow Type	*Subcritical*	

Calculation Messages:
Flow is divided.

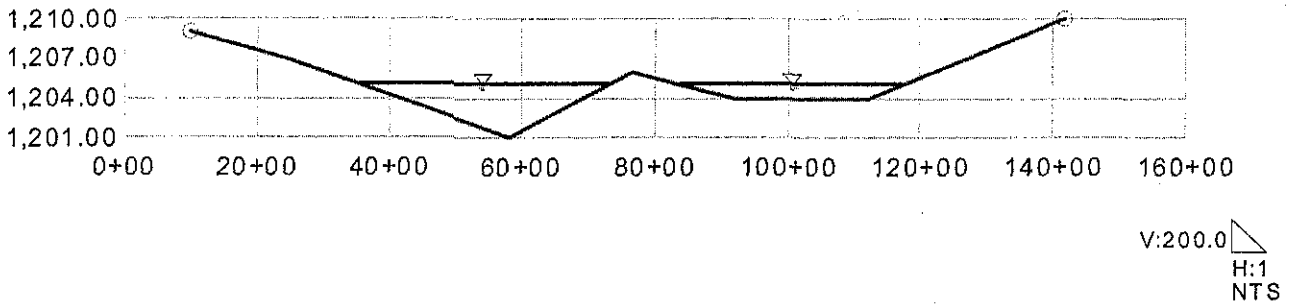
Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	141+80	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,209.00
24+50	1,207.00
58+40	1,201.00
76+70	1,206.00
92+10	1,204.00
112+30	1,204.00
141+80	1,210.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	*Manning's Formula*
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.002700	ft/ft
Water Surface Elevation	1,205.05	ft
Elevation Range	1,201.00 to 1,210.00	
Discharge	9,512.99	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.592
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	9,512.99	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,192.40	ft
Elevation Range	1,190.00 to 1,197.00	
Flow Area	6,786.5	ft²
Wetted Perimeter	4,431.32	ft
Top Width	4,431.31	ft
Actual Depth	2.40	ft
Critical Elevation	1,190.85	ft
Critical Slope	0.193278	ft/ft
Velocity	1.40	ft/s
Velocity Head	0.03	ft
Specific Energy	1,192.43	ft
Froude Number	0.20	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	137+20	0.110

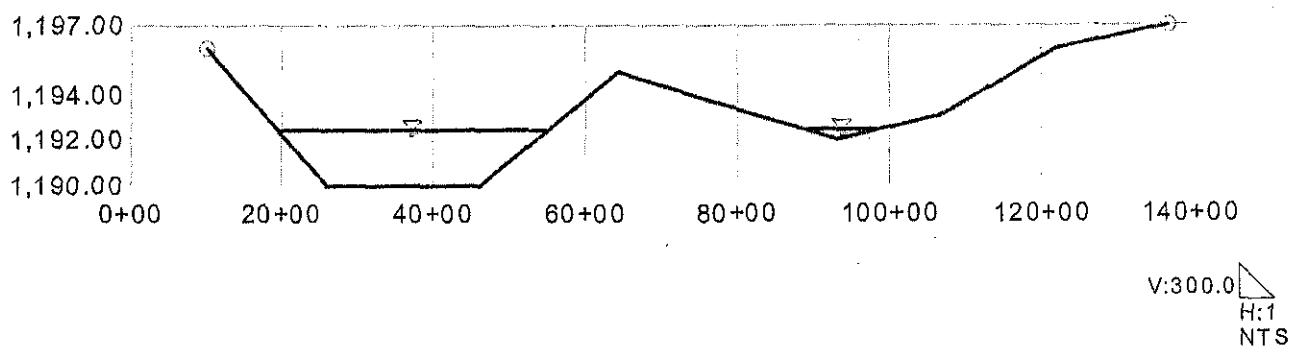
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,196.00
26+00	1,190.00
46+00	1,190.00
64+20	1,195.00
93+00	1,192.00
106+60	1,193.00
122+10	1,196.00
137+20	1,197.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.592
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,192.40	ft
Elevation Range	1,190.00 to 1,197.00	
Discharge	9,512.99	cfs



Approximate Methods for the Full PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	8.731
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	9,512.99	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,171.99	ft
Elevation Range	1,170.00 to 1,175.00	
Flow Area	7,202.3	ft²
Wetted Perimeter	5,141.59	ft
Top Width	5,141.58	ft
Actual Depth	1.99	ft
Critical Elevation	1,170.78	ft
Critical Slope	0.204746	ft/ft
Velocity	1.32	ft/s
Velocity Head	0.03	ft
Specific Energy	1,172.02	ft
Froude Number	0.20	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	113+00	0.110

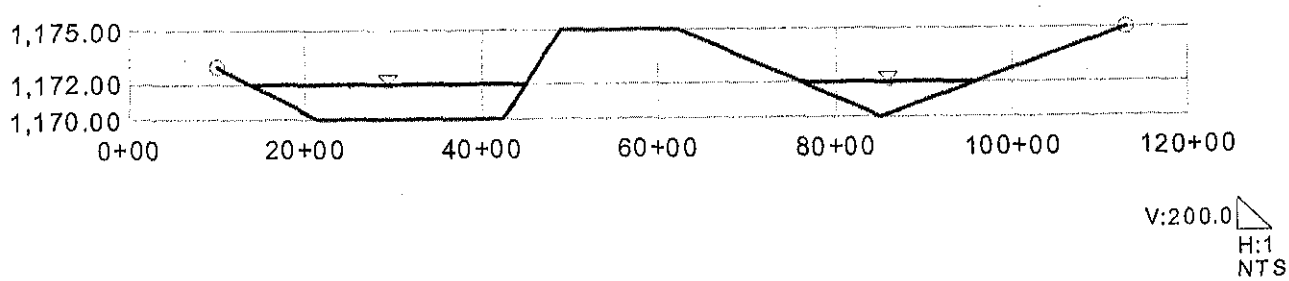
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,173.00
21+70	1,170.00
42+60	1,170.00
49+00	1,175.00
62+30	1,175.00
85+00	1,170.00
113+00	1,175.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	8.731
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,171.99	ft
Elevation Range	1,170.00 to 1,175.00	
Discharge	9,512.99	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.243
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004700	ft/ft
Discharge	0.58	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.024	
Water Surface Elevation	1,230.01	ft
Elevation Range	1,230.00 to 1,233.38	
Flow Area	2.7	ft²
Wetted Perimeter	250.31	ft
Top Width	250.31	ft
Actual Depth	0.01	ft
Critical Elevation	1,230.01	ft
Critical Slope	0.046043	ft/ft
Velocity	0.21	ft/s
Velocity Head	7.0e-4	ft
Specific Energy	1,230.01	ft
Froude Number	0.36	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+50	0.035
10+50	11+25	0.015
11+25	11+70	0.035
11+70	12+50	0.015
12+50	13+40	0.035

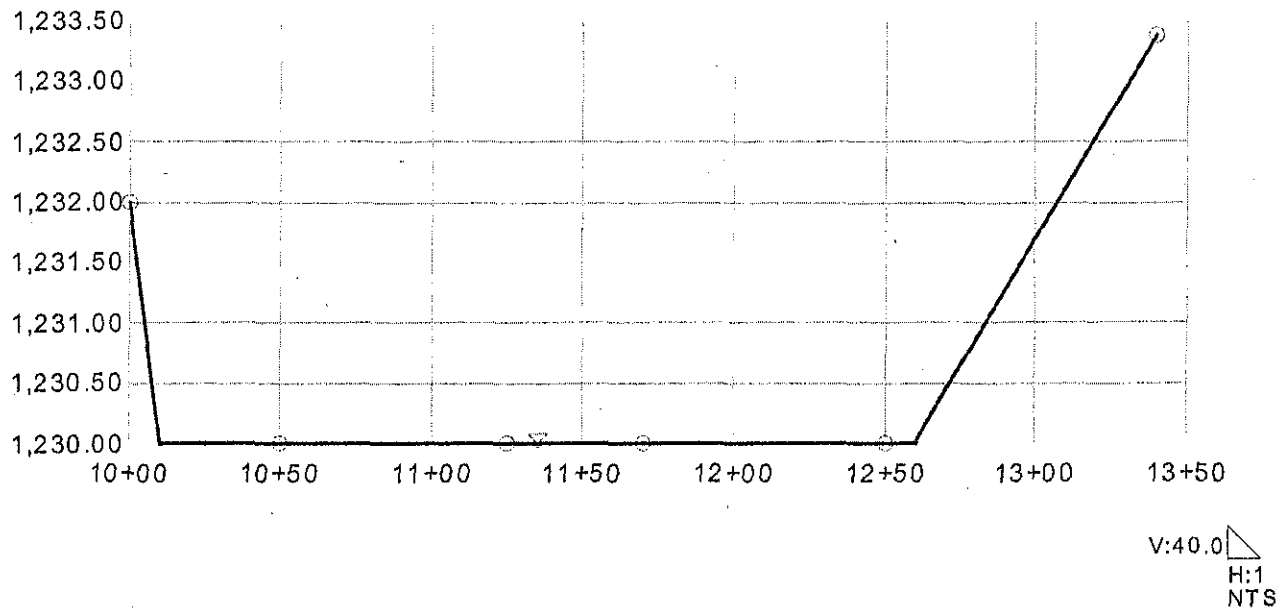
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,232.00
10+10	1,230.00
10+50	1,230.00
11+25	1,230.00
11+70	1,230.00
12+50	1,230.00
12+60	1,230.00
13+40	1,233.38

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.243
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.024	
Slope	0.004700	ft/ft
Water Surface Elevation	1,230.01	ft
Elevation Range	1,230.00 to 1,233.38	
Discharge	0.58	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.188
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004100	ft/ft
Discharge	341.95	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.023	
Water Surface Elevation	1,225.14	ft
Elevation Range	1,224.00 to 1,232.00	
Flow Area	96.5	ft²
Wetted Perimeter	118.71	ft
Top Width	118.67	ft
Actual Depth	1.14	ft
Critical Elevation	1,224.93	ft
Critical Slope	0.009045	ft/ft
Velocity	3.54	ft/s
Velocity Head	0.20	ft
Specific Energy	1,225.34	ft
Froude Number	0.69	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+30	0.035
10+30	11+20	0.015
11+20	11+70	0.035
11+70	12+30	0.015
12+30	13+05	0.035

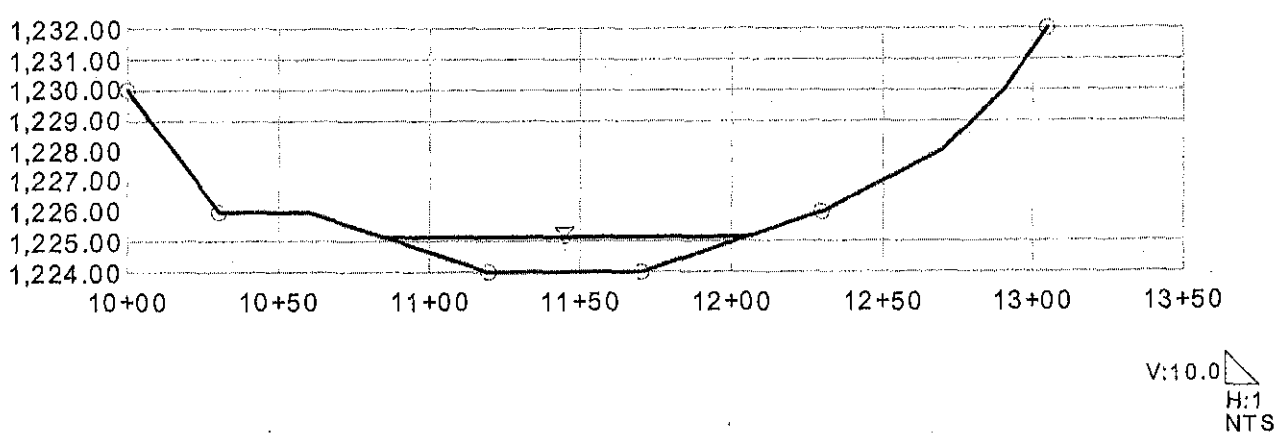
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,230.00
10+15	1,228.00
10+30	1,226.00
10+60	1,226.00
11+20	1,224.00
11+70	1,224.00
12+30	1,226.00
12+70	1,228.00
12+90	1,230.00
13+05	1,232.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.188
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.023	
Slope	0.004100	ft/ft
Water Surface Elevation	1,225.14	ft
Elevation Range	1,224.00 to 1,232.00	
Discharge	341.95	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.129
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005500	ft/ft
Discharge	1,231.30	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.018	
Water Surface Elevation	1,221.18	ft
Elevation Range	1,220.00 to 1,231.31	
Flow Area	186.0	ft²
Wetted Perimeter	164.96	ft
Top Width	164.77	ft
Actual Depth	1.18	ft
Critical Elevation	1,221.26	ft
Critical Slope	0.004466	ft/ft
Velocity	6.62	ft/s
Velocity Head	0.68	ft
Specific Energy	1,221.86	ft
Froude Number	1.10	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+60	0.035
10+60	11+95	0.015
11+95	12+40	0.035
12+40	13+70	0.015
13+70	13+75	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,228.00
10+60	1,227.00
10+95	1,226.00
11+10	1,224.00
11+20	1,222.00
11+30	1,220.00
11+95	1,220.00
12+40	1,220.00
12+80	1,220.00
12+95	1,222.00

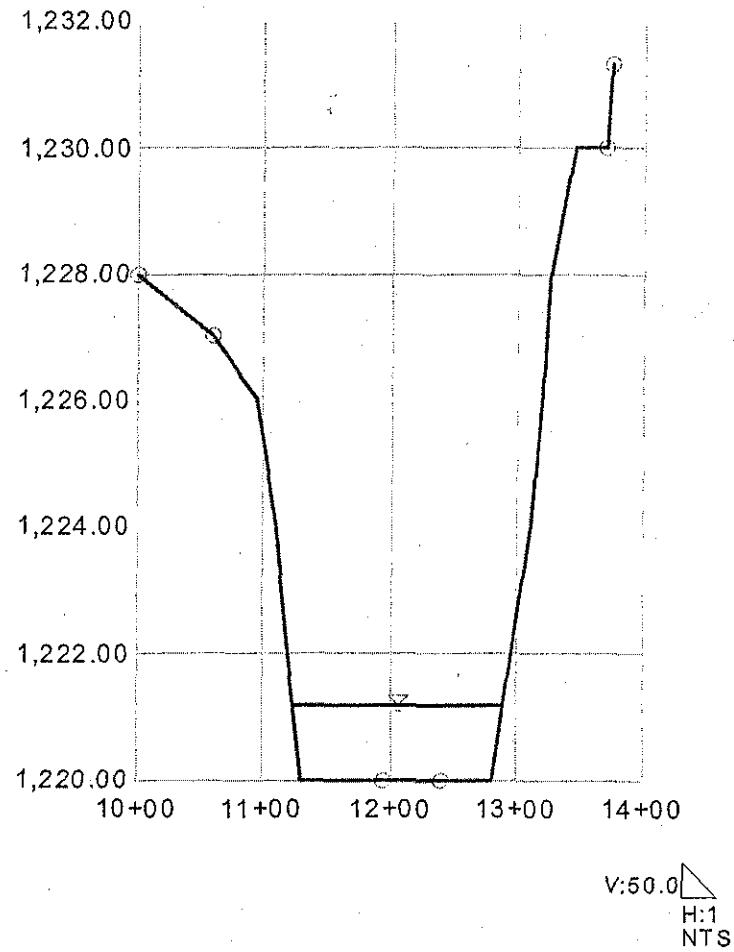
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
13+10	1,224.00
13+20	1,226.00
13+25	1,228.00
13+45	1,230.00
13+70	1,230.00
13+75	1,231.31

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.129
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.018	
Slope	0.005500	ft/ft
Water Surface Elevation	1,221.18	ft
Elevation Range	1,220.00 to 1,231.31	
Discharge	1,231.30	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.030
Flow Element	Irregular Channel
Method	Manning's Formul
Solve For	Channel Depth

Input Data		
Slope	0.004500	ft/ft
Discharge	1,532.86	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.019	
Water Surface Elevation	1,115.58	ft
Elevation Range	1,113.00 to 1,234.00	
Flow Area	223.0	ft²
Wetted Perimeter	144.22	ft
Top Width	144.09	ft
Actual Depth	2.58	ft
Critical Elevation	1,115.54	ft
Critical Slope	0.004761	ft/ft
Velocity	6.87	ft/s
Velocity Head	0.73	ft
Specific Energy	1,116.31	ft
Froude Number	0.97	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+45	0.035
10+45	12+00	0.015
12+00	12+45	0.035
12+45	13+80	0.015
13+80	14+05	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,230.00
10+10	1,228.00
10+20	1,228.00
10+45	1,228.00
10+55	1,228.00
10+65	1,230.00
10+75	1,228.00
10+90	1,226.00
11+00	1,224.00
11+10	1,222.00

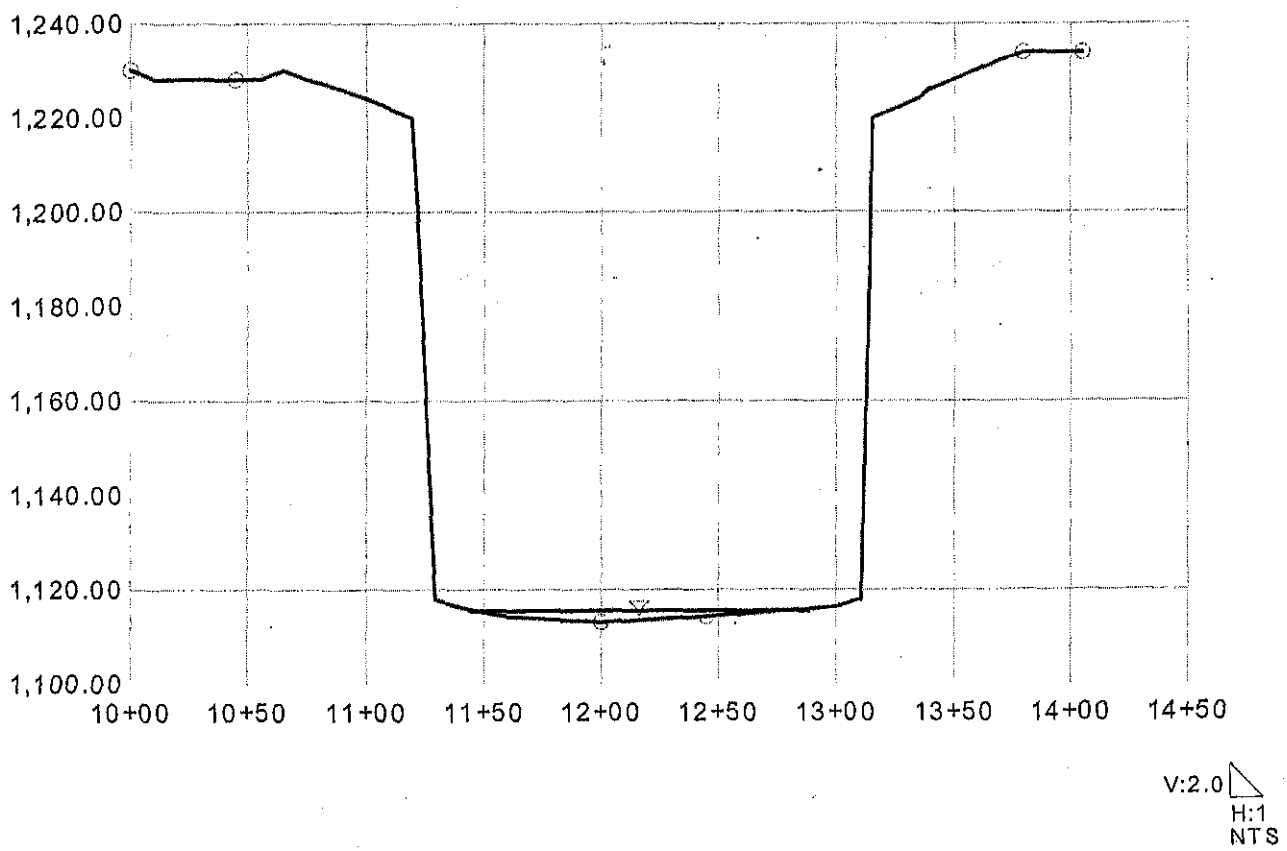
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
11+20	1,220.00
11+30	1,118.00
11+40	1,116.00
11+50	1,115.00
11+60	1,114.00
12+00	1,113.00
12+45	1,114.00
13+00	1,116.00
13+10	1,118.00
13+15	1,220.00
13+25	1,222.00
13+35	1,224.00
13+40	1,226.00
13+50	1,228.00
13+60	1,230.00
13+70	1,232.00
13+80	1,234.00
14+05	1,234.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.030
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.019	
Slope	0.004500	ft/ft
Water Surface Elevation	1,115.58	ft
Elevation Range	1,113.00 to 1,234.00	
Discharge	1,532.86	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.996
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000100	ft/ft
Discharge	1,532.86	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.018	
Water Surface Elevation	1,218.54	ft
Elevation Range	1,214.00 to 1,280.00	
Flow Area	722.2	ft²
Wetted Perimeter	174.19	ft
Top Width	172.69	ft
Actual Depth	4.54	ft
Critical Elevation	1,215.52	ft
Critical Slope	0.004220	ft/ft
Velocity	2.12	ft/s
Velocity Head	0.07	ft
Specific Energy	1,218.61	ft
Froude Number	0.18	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	12+40	0.110
12+40	12+90	0.035
12+90	14+50	0.015
14+50	14+95	0.035
14+95	16+55	0.015
16+55	16+75	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,230.00
11+10	1,228.00
12+00	1,226.00
12+40	1,225.00
12+70	1,224.00
12+90	1,224.00
13+30	1,226.00
13+40	1,280.00
13+45	1,230.00

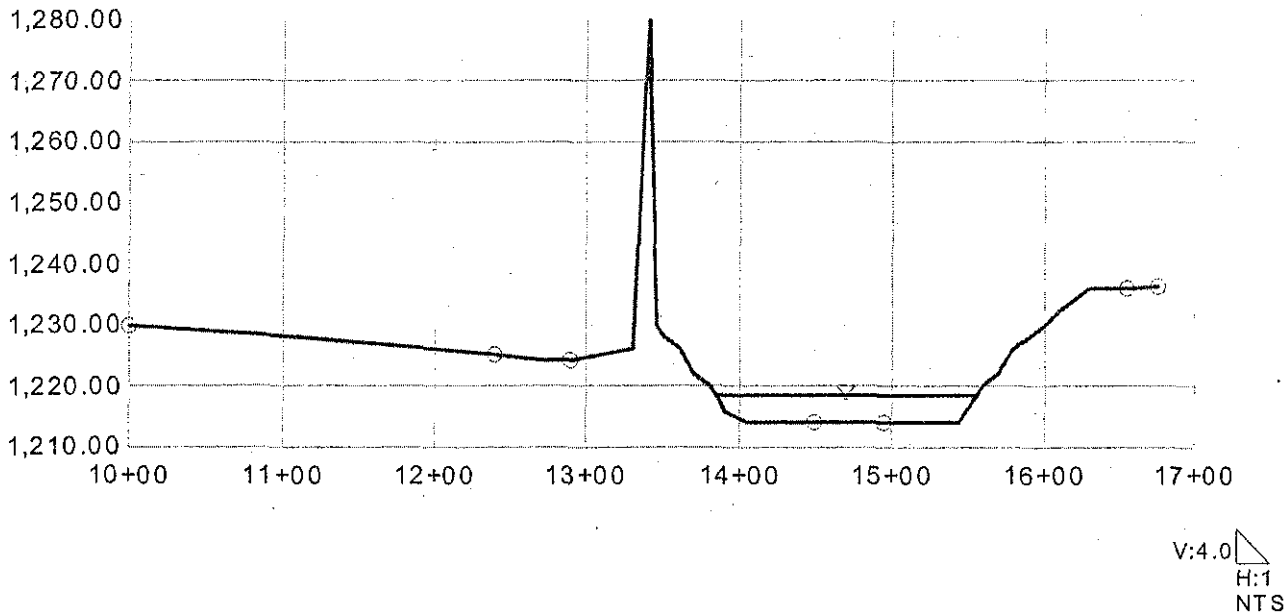
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
13+50	1,228.00
13+60	1,226.00
13+65	1,224.00
13+70	1,222.00
13+80	1,220.00
13+85	1,218.00
13+90	1,216.00
14+05	1,214.00
14+50	1,214.00
14+95	1,214.00
15+45	1,214.00
15+50	1,216.00
15+55	1,218.00
15+60	1,220.00
15+70	1,222.00
15+75	1,224.00
15+80	1,226.00
15+90	1,228.00
16+00	1,230.00
16+10	1,232.00
16+20	1,234.00
16+30	1,236.00
16+55	1,236.00
16+75	1,236.20

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.996
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.018	
Slope	*0.000100*	ft/ft
Water Surface Elevation	1,218.54	ft
Elevation Range	1,214.00 to 1,280.00	
Discharge	1,532.86	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.980
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.025100	ft/ft
Discharge	1,532.86	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.018	
Water Surface Elevation	1,213.31	ft
Elevation Range	1,212.00 to 1,236.20	
Flow Area	117.5	ft²
Wetted Perimeter	114.26	ft
Top Width	114.19	ft
Actual Depth	1.31	ft
Critical Elevation	1,214.09	ft
Critical Slope	0.004269	ft/ft
Velocity	13.04	ft/s
Velocity Head	2.64	ft
Specific Energy	1,215.96	ft
Froude Number	2.27	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	11+40	0.015
11+40	11+90	0.035
11+90	13+00	0.015
13+00	13+35	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,230.00
10+08	1,228.00
10+10	1,226.00
10+12	1,224.00
10+15	1,222.00
10+20	1,220.00
10+30	1,218.00
10+40	1,216.00
10+50	1,214.00
10+95	1,212.00
11+40	1,212.00

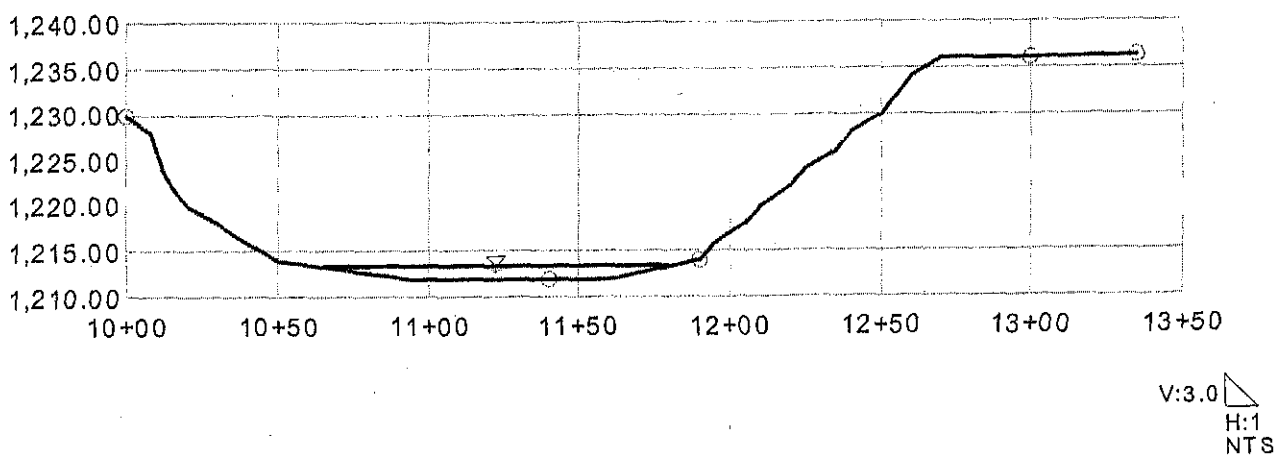
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
11+60	1,212.00
11+90	1,214.00
11+95	1,216.00
12+05	1,218.00
12+10	1,220.00
12+20	1,222.00
12+25	1,224.00
12+35	1,226.00
12+40	1,228.00
12+50	1,230.00
12+55	1,232.00
12+60	1,234.00
12+70	1,236.00
13+00	1,236.00
13+35	1,236.20

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.980
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.018	
Slope	0.025100	ft/ft
Water Surface Elevation	1,213.31	ft
Elevation Range	1,212.00 to 1,236.20	
Discharge	1,532.86	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.917
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003400	ft/ft
Discharge	2,040.07	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.018	
Water Surface Elevation	1,214.11	ft
Elevation Range	1,212.00 to 1,226.00	
Flow Area	293.1	ft²
Wetted Perimeter	166.81	ft
Top Width	166.64	ft
Actual Depth	2.11	ft
Critical Elevation	1,214.02	ft
Critical Slope	0.004033	ft/ft
Velocity	6.96	ft/s
Velocity Head	0.75	ft
Specific Energy	1,214.86	ft
Froude Number	0.93	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	11+10	0.015
11+10	11+50	0.035
11+50	13+10	0.015
13+10	13+90	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,226.00
10+10	1,224.00
10+20	1,222.00
10+25	1,220.00
10+35	1,218.00
10+45	1,216.00
10+60	1,214.00
10+95	1,212.00
11+10	1,212.00
11+50	1,212.00
12+05	1,212.00

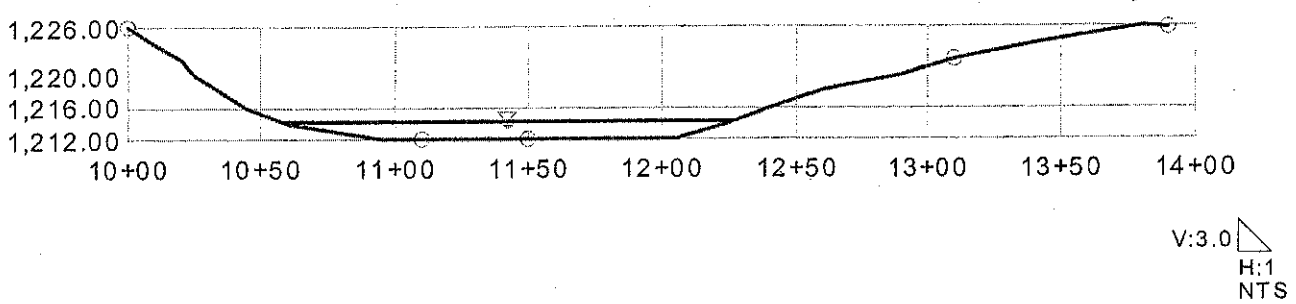
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+25	1,214.00
12+40	1,216.00
12+60	1,218.00
12+90	1,220.00
13+10	1,222.00
13+40	1,224.00
13+80	1,226.00
13+90	1,225.90

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.917
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.018	
Slope	0.003400	ft/ft
Water Surface Elevation	1,214.11	ft
Elevation Range	1,212.00 to 1,226.00	
Discharge	2,040.07	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.862
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004100	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.019	
Water Surface Elevation	1,213.51	ft
Elevation Range	1,210.00 to 1,225.12	
Flow Area	329.9	ft²
Wetted Perimeter	191.99	ft
Top Width	191.77	ft
Actual Depth	3.51	ft
Critical Elevation	1,213.44	ft
Critical Slope	0.004666	ft/ft
Velocity	7.01	ft/s
Velocity Head	0.76	ft
Specific Energy	1,214.28	ft
Froude Number	0.94	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+50	0.035
10+50	11+60	0.015
11+60	12+00	0.035
12+00	13+35	0.015
13+35	14+00	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,224.00
10+50	1,222.00
10+65	1,220.00
10+75	1,218.00
10+90	1,216.00
11+00	1,214.00
11+40	1,212.00
11+60	1,211.00
11+70	1,210.00
11+80	1,210.00

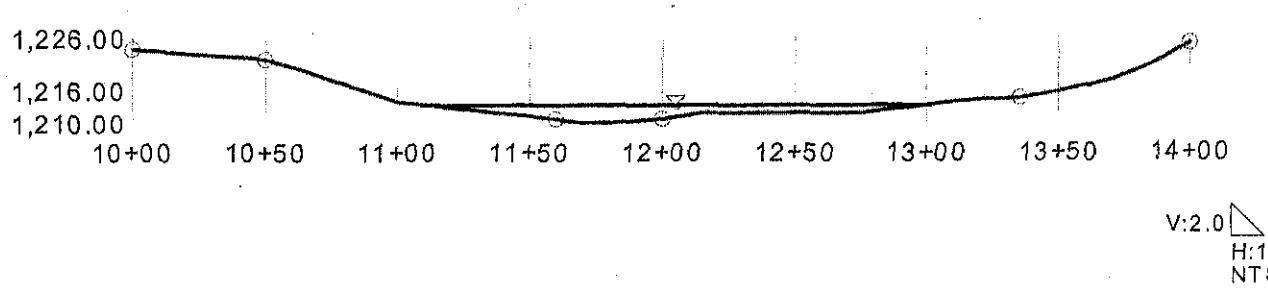
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+00	1,211.00
12+15	1,212.00
12+75	1,212.00
13+10	1,214.00
13+35	1,215.00
13+50	1,216.00
13+70	1,218.00
13+80	1,220.00
13+90	1,222.00
14+00	1,225.12

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.862
Flow Element	Irregular Channel
Method	Manning's Formul
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.019	
Slope	0.004100	ft/ft
Water Surface Elevation	1,213.51	ft
Elevation Range	1,210.00 to 1,225.12	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.004500	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.019	
Water Surface Elevation	1,212.69	ft
Elevation Range	1,210.00 to 1,224.10	
Flow Area	325.4	ft²
Wetted Perimeter	212.46	ft
Top Width	212.24	ft
Actual Depth	2.69	ft
Critical Elevation	1,212.70	ft
Critical Slope	0.004390	ft/ft
Velocity	7.10	ft/s
Velocity Head	0.78	ft
Specific Energy	1,213.47	ft
Froude Number	1.01	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+50	0.035
10+50	11+45	0.015
11+45	11+90	0.035
11+90	13+20	0.015
13+20	13+65	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,222.00
10+10	1,220.00
10+50	1,218.00
10+70	1,216.00
10+80	1,214.00
11+25	1,212.00
11+45	1,211.00
11+60	1,210.00
11+70	1,210.00
11+90	1,210.50

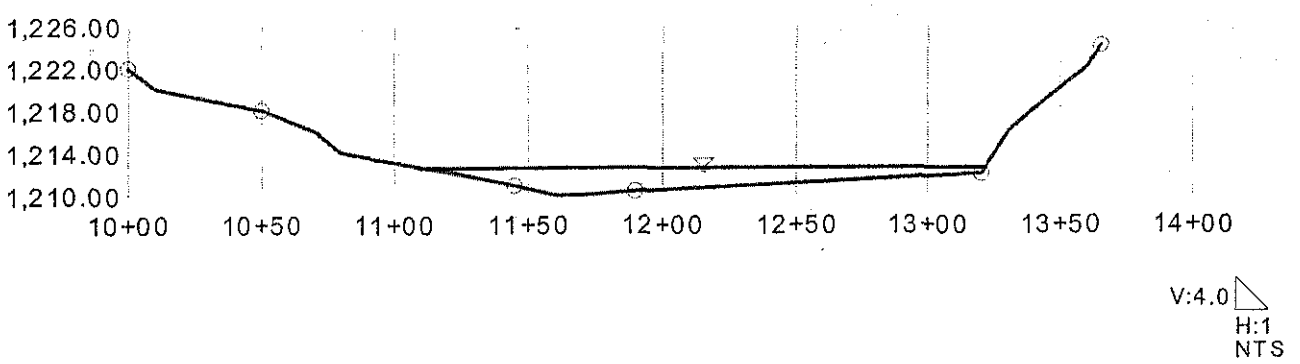
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
13+20	1,212.00
13+25	1,214.00
13+30	1,216.00
13+40	1,218.00
13+50	1,220.00
13+60	1,222.00
13+65	1,224.10

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.019	
Slope	0.004500	ft/ft
Water Surface Elevation	1,212.69	ft
Elevation Range	1,210.00 to 1,224.10	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003300	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.018	
Water Surface Elevation	1,211.92	ft
Elevation Range	1,210.00 to 1,221.50	
Flow Area	353.2	ft²
Wetted Perimeter	213.64	ft
Top Width	213.24	ft
Actual Depth	1.92	ft
Critical Elevation	1,211.80	ft
Critical Slope	0.004195	ft/ft
Velocity	6.54	ft/s
Velocity Head	0.67	ft
Specific Energy	1,212.59	ft
Froude Number	0.90	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+40	0.035
10+40	11+10	0.015
11+10	11+60	0.035
11+60	12+30	0.015
12+30	12+95	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,218.00
10+10	1,216.00
10+20	1,214.00
10+30	1,212.00
10+40	1,211.50
10+90	1,210.00
11+10	1,210.00
11+60	1,210.00
12+30	1,210.00
12+40	1,210.00

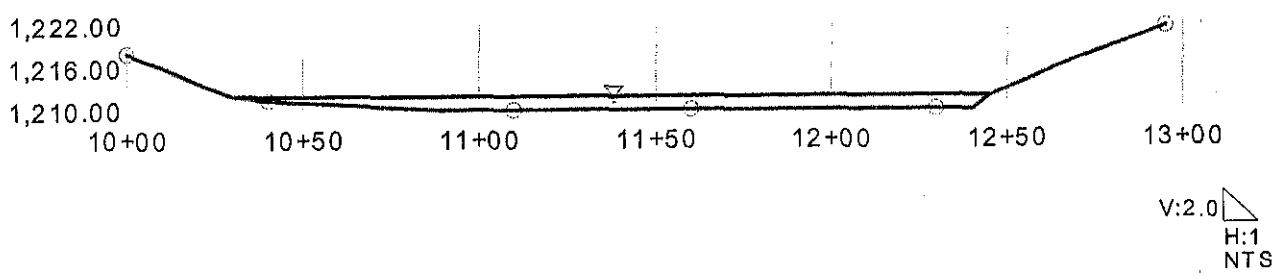
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+45	1,212.00
12+55	1,214.00
12+65	1,216.00
12+75	1,218.00
12+95	1,221.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.018	
Slope	0.003300	ft/ft
Water Surface Elevation	1,211.92	ft
Elevation Range	1,210.00 to 1,221.50	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.005900	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.018	
Water Surface Elevation	1,209.87	ft
Elevation Range	1,208.00 to 1,218.00	
Flow Area	276.3	ft^2
Wetted Perimeter	176.22	ft
Top Width	176.00	ft
Actual Depth	1.87	ft
Critical Elevation	1,210.07	ft
Critical Slope	0.004153	ft/ft
Velocity	8.37	ft/s
Velocity Head	1.09	ft
Specific Energy	1,210.95	ft
Froude Number	1.18	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+50	0.035
10+50	11+00	0.015
11+00	11+50	0.035
11+50	12+20	0.015
12+20	12+70	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,218.00
10+10	1,216.00
10+20	1,214.00
10+35	1,212.00
10+45	1,210.00
10+50	1,210.00
11+00	1,208.00
11+50	1,208.00
12+20	1,208.00
12+30	1,210.00

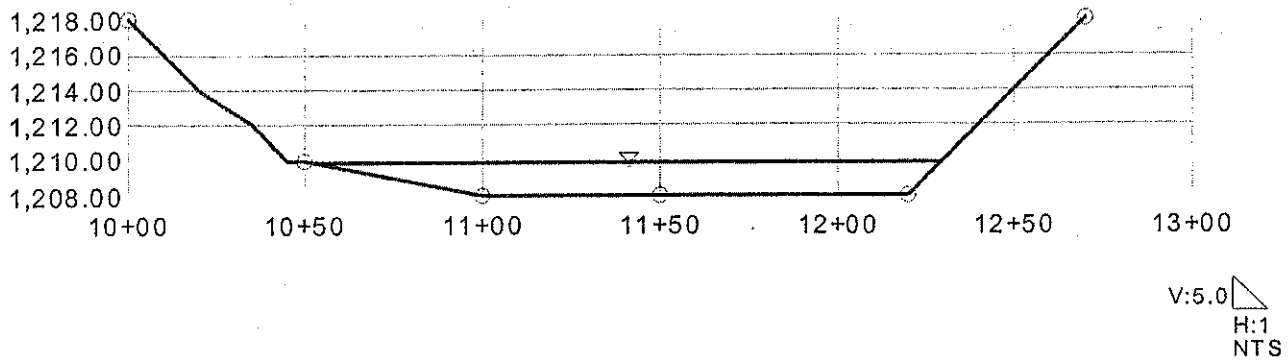
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+40	1,212.00
12+50	1,214.00
12+60	1,216.00
12+70	1,218.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.018	
Slope	0.005900	ft/ft
Water Surface Elevation	1,209.87	ft
Elevation Range	1,208.00 to 1,218.00	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006700	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.019	
Water Surface Elevation	1,208.95	ft
Elevation Range	1,207.00 to 1,216.00	
Flow Area	280.0	ft²
Wetted Perimeter	187.09	ft
Top Width	186.92	ft
Actual Depth	1.95	ft
Critical Elevation	1,209.14	ft
Critical Slope	0.004574	ft/ft
Velocity	8.25	ft/s
Velocity Head	1.06	ft
Specific Energy	1,210.01	ft
Froude Number	1.19	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+40	0.035
10+40	10+95	0.015
10+95	11+45	0.035
11+45	12+05	0.015
12+05	12+45	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,214.00
10+10	1,212.00
10+20	1,210.00
10+30	1,208.00
10+40	1,208.00
10+95	1,207.00
11+45	1,207.00
12+05	1,208.00
12+20	1,210.00
12+30	1,212.00

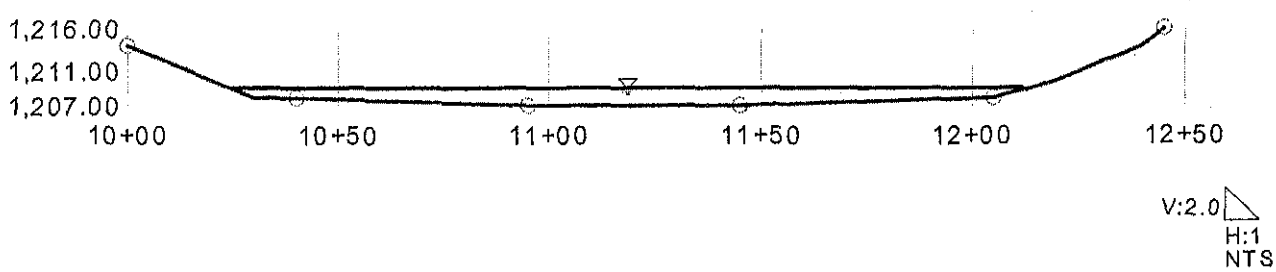
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+40	1,214.00
12+45	1,216.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.019	
Slope	0.006700	ft/ft
Water Surface Elevation	1,208.95	ft
Elevation Range	1,207.00 to 1,216.00	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.010000	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.019	
Water Surface Elevation	1,208.21	ft
Elevation Range	1,206.00 to 1,212.00	
Flow Area	251.3	ft²
Wetted Perimeter	192.71	ft
Top Width	192.62	ft
Actual Depth	2.21	ft
Critical Elevation	1,208.56	ft
Critical Slope	0.004612	ft/ft
Velocity	9.20	ft/s
Velocity Head	1.32	ft
Specific Energy	1,209.52	ft
Froude Number	1.42	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+25	0.035
10+25	10+90	0.015
10+90	11+40	0.035
11+40	11+90	0.015
11+90	12+30	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,210.00
10+10	1,208.00
10+25	1,208.00
10+90	1,206.50
11+00	1,206.00
11+35	1,206.00
11+40	1,206.00
11+90	1,207.50
12+00	1,208.00
12+15	1,210.00

Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+30	1,212.00

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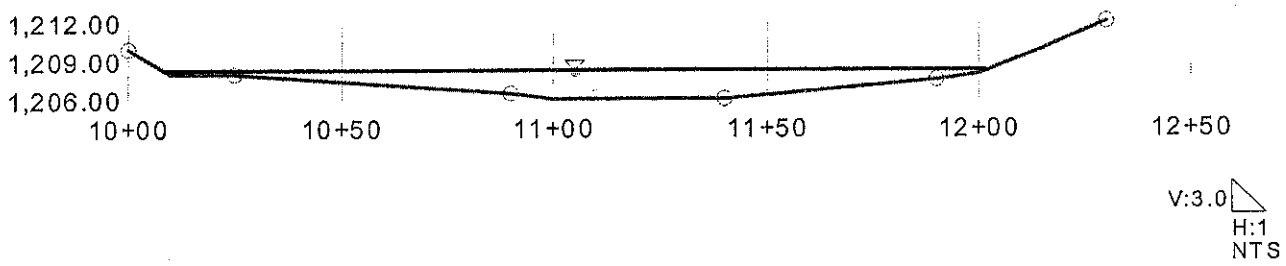
Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.019	
Slope	0.010000	ft/ft
Water Surface Elevation	1,208.21	ft
Elevation Range	1,206.00 to 1,212.00	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.000010	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.062	
Water Surface Elevation	1,213.73	ft
Elevation Range	1,208.00 to 1,216.00	
Flow Area	15,064.9	ft²
Wetted Perimeter	5,188.46	ft
Top Width	5,187.82	ft
Actual Depth	5.73	ft
Critical Elevation	1,209.59	ft
Critical Slope	0.059468	ft/ft
Velocity	0.15	ft/s
Velocity Head	3.66e-4	ft
Specific Energy	1,213.73	ft
Froude Number	0.02	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
80+80	130+00	0.110
130+00	131+95	0.015
131+95	132+40	0.035
132+40	133+20	0.015

Natural Channel Points

Station (ft)	Elevation (ft)
80+80	1,214.00
83+90	1,212.00
87+00	1,210.00
100+70	1,210.00
104+50	1,211.80
114+20	1,211.50
123+30	1,212.00
130+00	1,208.00
131+20	1,210.00
131+95	1,208.00
132+05	1,208.00

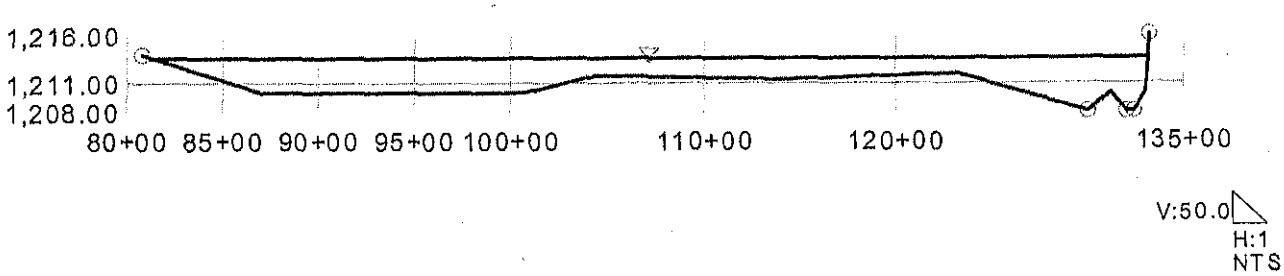
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
132+30	1,208.00
132+40	1,208.00
132+95	1,210.00
133+05	1,212.00
133+10	1,214.00
133+20	1,216.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.062	
Slope	*0.000010*	*ft/ft*
Water Surface Elevation	1,213.73	ft
Elevation Range	1,208.00 to 1,216.00	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.271
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000100	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,210.04	ft
Elevation Range	1,206.00 to 1,214.00	
Flow Area	9,258.7	ft²
Wetted Perimeter	3,684.60	ft
Top Width	3,684.55	ft
Actual Depth	4.04	ft
Critical Elevation	1,206.96	ft
Critical Slope	0.221180	ft/ft
Velocity	0.25	ft/s
Velocity Head	9.69e-4	ft
Specific Energy	1,210.04	ft
Froude Number	0.03	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	51+00	0.110

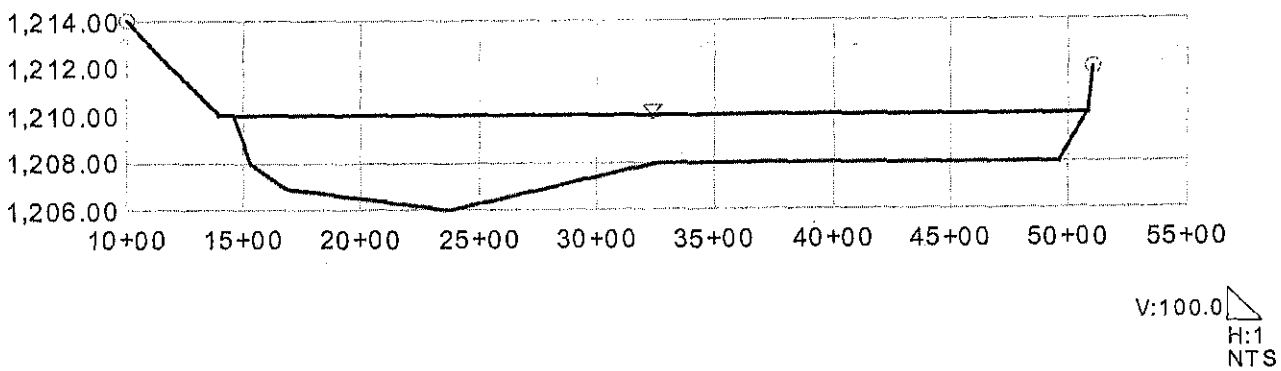
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,214.00
12+00	1,212.00
14+00	1,210.00
14+60	1,210.00
15+30	1,208.00
16+80	1,206.90
23+60	1,206.00
23+90	1,206.00
32+50	1,208.00
49+60	1,208.00
50+80	1,210.00
51+00	1,212.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.271
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000100	ft/ft
Water Surface Elevation	1,210.04	ft
Elevation Range	1,206.00 to 1,214.00	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.176
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004700	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,205.94	ft
Elevation Range	1,204.00 to 1,212.00	
Flow Area	2,533.8	ft²
Wetted Perimeter	2,591.40	ft
Top Width	2,591.35	ft
Actual Depth	1.94	ft
Critical Elevation	1,204.93	ft
Critical Slope	0.226324	ft/ft
Velocity	0.91	ft/s
Velocity Head	0.01	ft
Specific Energy	1,205.95	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	49+20	0.110

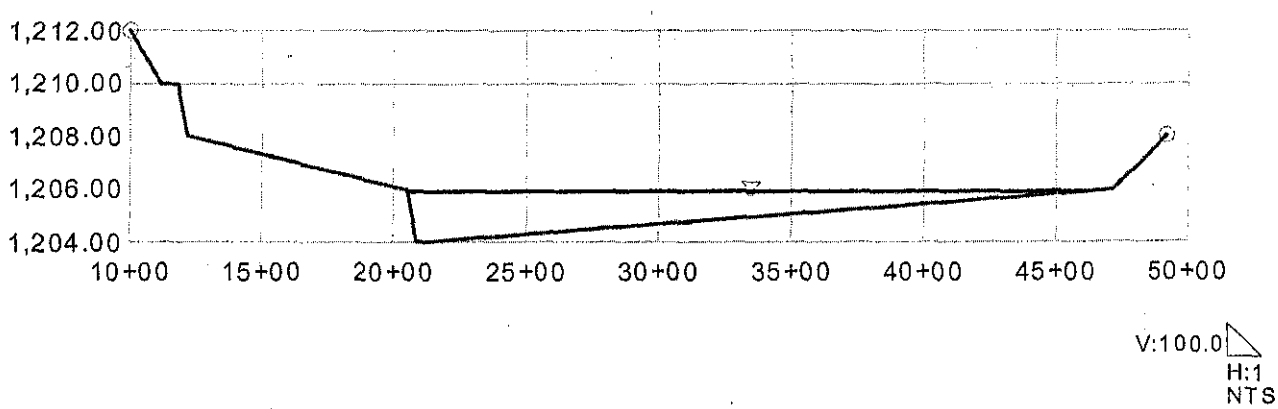
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,212.00
11+20	1,210.00
11+80	1,210.00
12+20	1,208.00
20+50	1,206.00
20+90	1,204.00
21+10	1,204.00
47+20	1,206.00
49+20	1,208.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.176
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004700	ft/ft
Water Surface Elevation	1,205.94	ft
Elevation Range	1,204.00 to 1,212.00	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004200	ft/ft
Discharge	2,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,204.42	ft
Elevation Range	1,203.00 to 1,210.00	
Flow Area	3,110.5	ft²
Wetted Perimeter	3,976.61	ft
Top Width	3,976.54	ft
Actual Depth	1.42	ft
Critical Elevation	1,203.69	ft
Critical Slope	0.251226	ft/ft
Velocity	0.74	ft/s
Velocity Head	0.01	ft
Specific Energy	1,204.43	ft
Froude Number	0.15	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	60+10	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,210.00
11+30	1,208.00
15+10	1,206.00
19+60	1,204.00
22+60	1,203.00
48+60	1,204.00
49+30	1,206.00
49+40	1,206.00
49+60	1,204.00
59+20	1,204.00

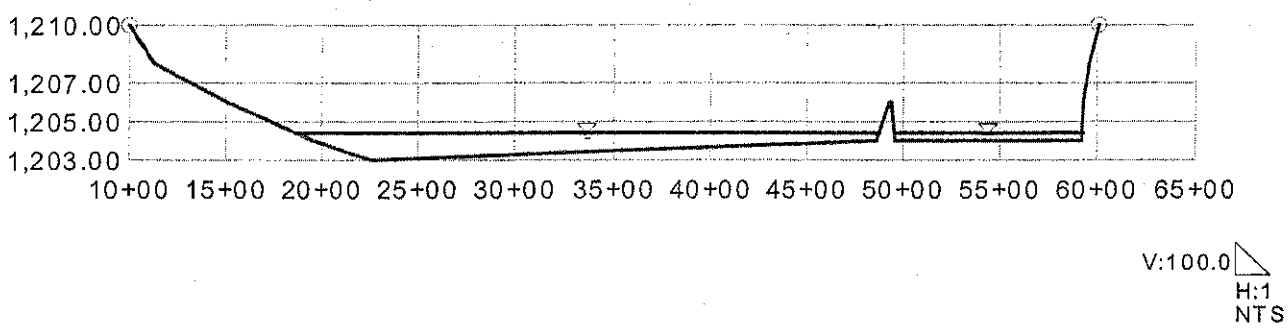
Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
59+30	1,206.00
59+60	1,208.00
60+10	1,210.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004200	ft/ft
Water Surface Elevation	1,204.42	ft
Elevation Range	1,203.00 to 1,210.00	
Discharge	2,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.984
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	3,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,203.17	ft
Elevation Range	1,202.00 to 1,208.00	
Flow Area	3,281.6	ft²
Wetted Perimeter	3,507.78	ft
Top Width	3,507.78	ft
Actual Depth	1.17	ft
Critical Elevation	1,202.41	ft
Critical Slope	0.245815	ft/ft
Velocity	1.01	ft/s
Velocity Head	0.02	ft
Specific Energy	1,203.18	ft
Froude Number	0.18	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	58+00	0.110

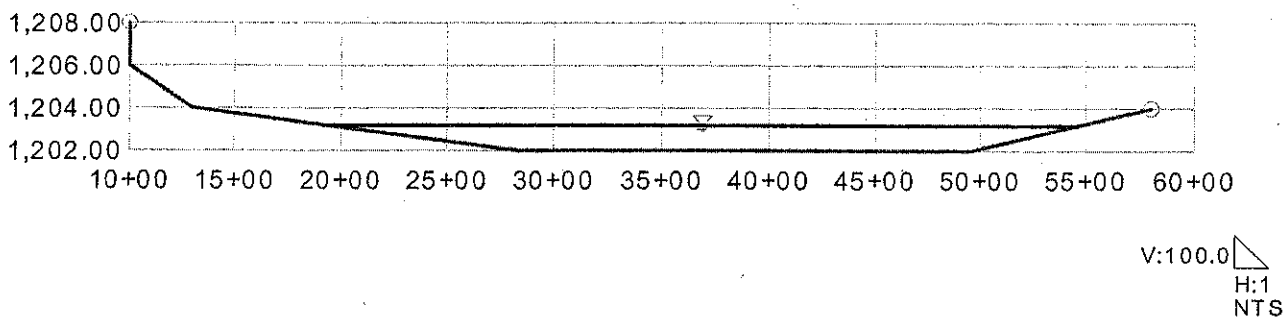
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,208.00
10+05	1,206.00
13+00	1,204.00
28+30	1,202.00
49+50	1,202.00
58+00	1,204.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.984
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,203.17	ft
Elevation Range	1,202.00 to 1,208.00	
Discharge	3,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.953
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006700	ft/ft
Discharge	3,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,202.12	ft
Elevation Range	1,200.00 to 1,206.00	
Flow Area	3,281.1	ft²
Wetted Perimeter	3,762.02	ft
Top Width	3,761.75	ft
Actual Depth	2.12	ft
Critical Elevation	1,200.66	ft
Critical Slope	0.209998	ft/ft
Velocity	1.01	ft/s
Velocity Head	0.02	ft
Specific Energy	1,202.13	ft
Froude Number	0.19	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	59+00	0.110

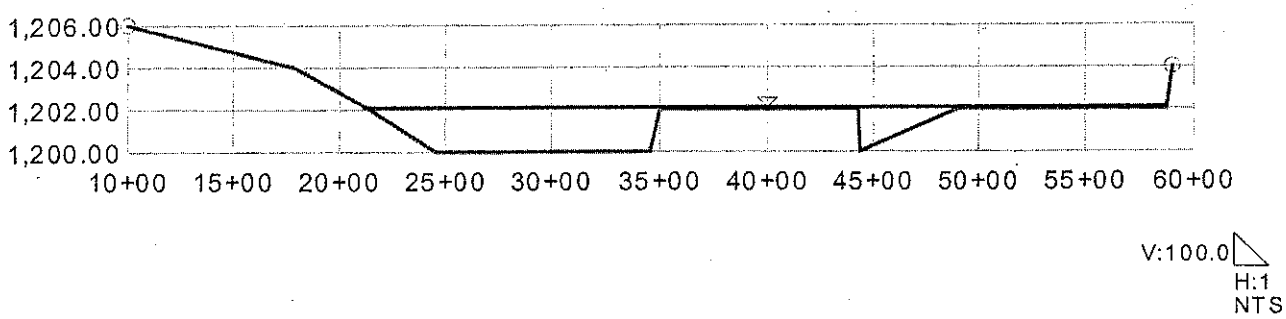
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,206.00
17+90	1,204.00
21+40	1,202.00
24+50	1,200.00
34+60	1,200.00
35+00	1,202.00
44+30	1,202.00
44+40	1,200.00
49+00	1,202.00
58+80	1,202.00
59+00	1,204.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.953
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006700	ft/ft
Water Surface Elevation	1,202.12	ft
Elevation Range	1,200.00 to 1,206.00	
Discharge	3,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.889
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006500	ft/ft
Discharge	3,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,200.77	ft
Elevation Range	1,198.00 to 1,204.00	
Flow Area	3,314.9	ft²
Wetted Perimeter	3,772.92	ft
Top Width	3,772.84	ft
Actual Depth	2.77	ft
Critical Elevation	1,200.17	ft
Critical Slope	0.266032	ft/ft
Velocity	1.00	ft/s
Velocity Head	0.02	ft
Specific Energy	1,200.78	ft
Froude Number	0.19	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	55+00	0.110

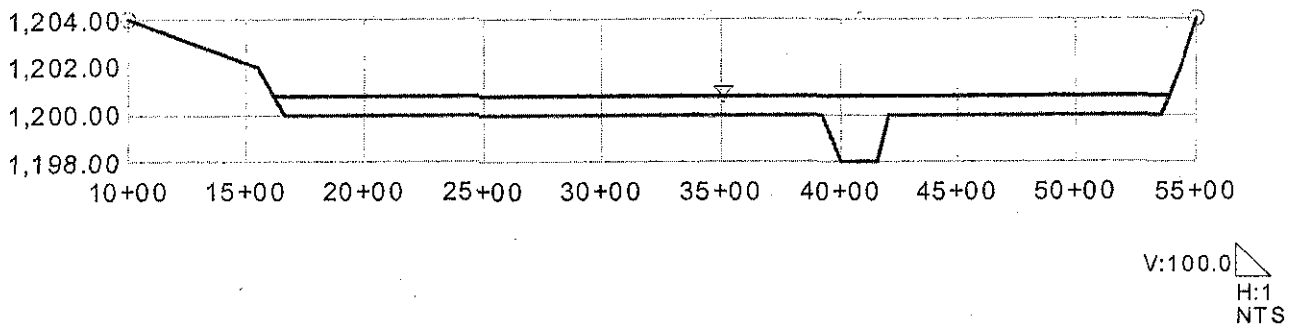
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,204.00
15+50	1,202.00
16+60	1,200.00
39+20	1,200.00
40+00	1,198.00
41+60	1,198.00
42+10	1,200.00
43+00	1,200.00
53+60	1,200.00
54+40	1,202.00
55+00	1,204.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.889
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006500	ft/ft
Water Surface Elevation	1,200.77	ft
Elevation Range	1,198.00 to 1,204.00	
Discharge	3,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.692
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004300	ft/ft
Discharge	3,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,195.01	ft
Elevation Range	1,192.00 to 1,202.00	
Flow Area	3,489.3	ft²
Wetted Perimeter	3,146.15	ft
Top Width	3,145.99	ft
Actual Depth	3.01	ft
Critical Elevation	1,194.20	ft
Critical Slope	0.253612	ft/ft
Velocity	0.95	ft/s
Velocity Head	0.01	ft
Specific Energy	1,195.02	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	53+00	0.110

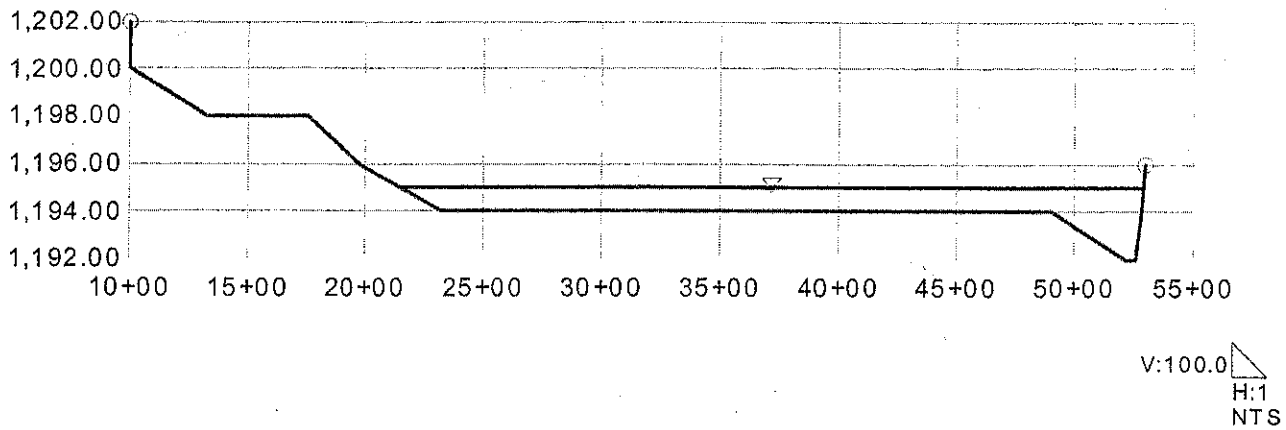
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,202.00
10+02	1,200.00
13+30	1,198.00
17+50	1,198.00
19+70	1,196.00
23+20	1,194.00
49+00	1,194.00
52+20	1,192.00
52+60	1,192.00
52+80	1,194.00
53+00	1,196.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.692
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004300	ft/ft
Water Surface Elevation	1,195.01	ft
Elevation Range	1,192.00 to 1,202.00	
Discharge	3,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.492
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.003900	ft/ft
Discharge	3,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,190.43	ft
Elevation Range	1,186.00 to 1,192.00	
Flow Area	3,556.2	ft²
Wetted Perimeter	3,066.21	ft
Top Width	3,065.89	ft
Actual Depth	4.43	ft
Critical Elevation	1,188.41	ft
Critical Slope	0.196620	ft/ft
Velocity	0.93	ft/s
Velocity Head	0.01	ft
Specific Energy	1,190.44	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	44+20	0.110

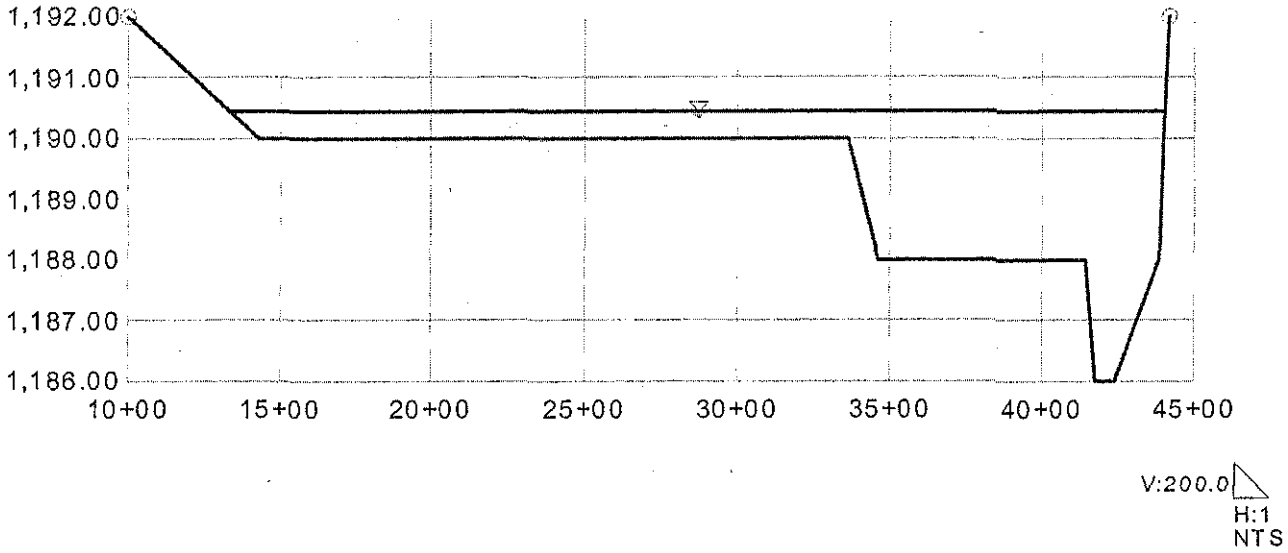
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,192.00
14+30	1,190.00
33+60	1,190.00
34+60	1,188.00
41+50	1,188.00
41+80	1,186.00
42+40	1,186.00
43+90	1,188.00
44+00	1,190.00
44+20	1,192.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.492
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003900	ft/ft
Water Surface Elevation	1,190.43	ft
Elevation Range	1,186.00 to 1,192.00	
Discharge	3,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.318
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004700	ft/ft
Discharge	3,311.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,174.68	ft
Elevation Range	1,170.00 to 1,190.00	
Flow Area	1,318.6	ft²
Wetted Perimeter	295.27	ft
Top Width	293.40	ft
Actual Depth	4.68	ft
Critical Elevation	1,171.66	ft
Critical Slope	0.150029	ft/ft
Velocity	2.51	ft/s
Velocity Head	0.10	ft
Specific Energy	1,174.78	ft
Froude Number	0.21	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	43+70	0.110

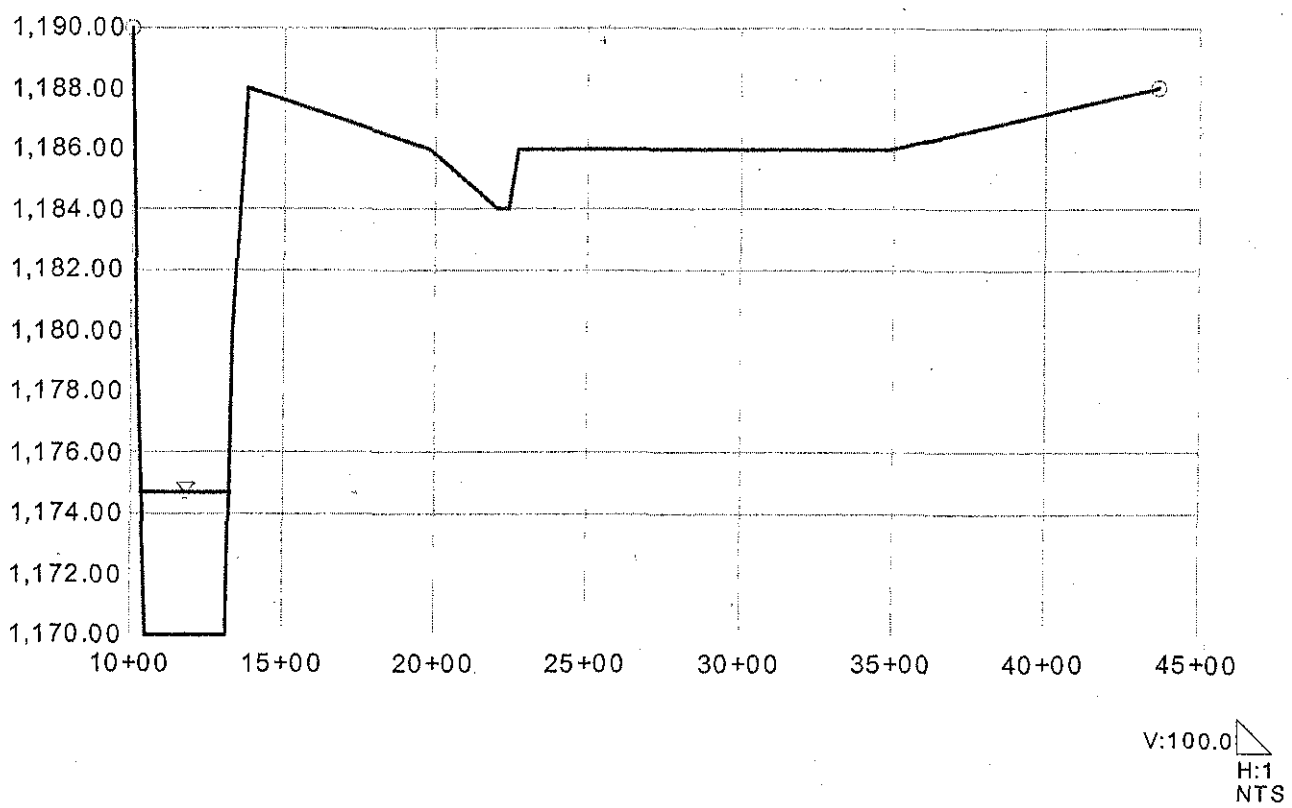
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,190.00
10+20	1,180.00
10+50	1,170.00
13+20	1,170.00
13+40	1,180.00
13+80	1,188.00
19+80	1,186.00
22+00	1,184.00
22+40	1,184.00
22+70	1,186.00
34+90	1,186.00
43+70	1,188.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.318
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004700	ft/ft
Water Surface Elevation	1,174.68	ft
Elevation Range	1,170.00 to 1,190.00	
Discharge	3,311.68	cfs



Approximate Methods for the Full PMF - Left Overbank
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Bell Road
Flow Element	Trapezoidal Channe
Method	Manning's Formula
Solve For	Discharge

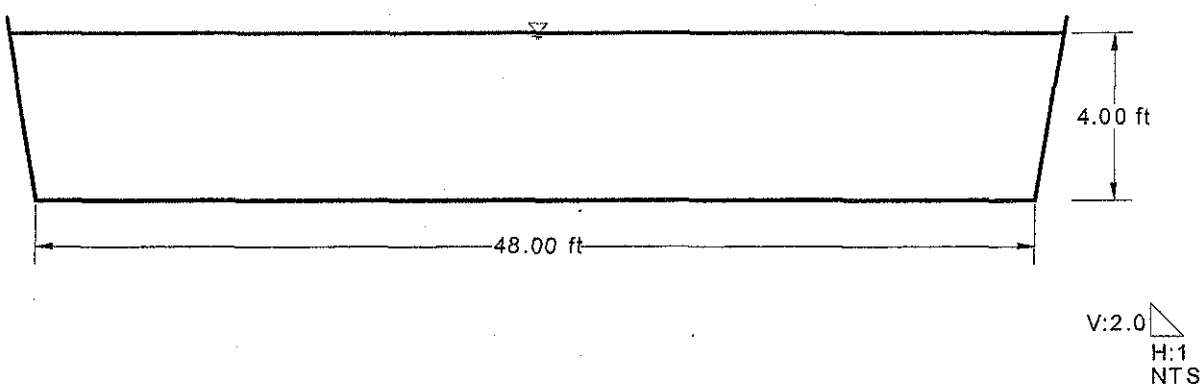
Input Data		
Mannings Coefficient	0.020	
Slope	0.000870	ft/ft
Depth	4.00	ft
Left Side Slope	3.00	V : H
Right Side Slope	3.00	V : H
Bottom Width	48.00	ft

Results		
Discharge	996.26	cfs
Flow Area	197.3	ft^2
Wetted Perimeter	56.43	ft
Top Width	50.67	ft
Critical Depth	2.36	ft
Critical Slope	0.004808	ft/ft
Velocity	5.05	ft/s
Velocity Head	0.40	ft
Specific Energy	4.40	ft
Froude Number	0.45	
Flow Type	Subcritical	

Cross Section
Cross Section for Trapezoidal Channel

Project Description	
Worksheet	Bell Road
Flow Element	Trapezoidal Channe
Method	Manning's Formula
Solve For	Discharge

Section Data		
Mannings Coefficient	0.020	
Slope	0.000870	ft/ft
Depth	4.00	ft
Left Side Slope	3.00	V : H
Right Side Slope	3.00	V : H
Bottom Width	48.00	ft
Discharge	996.26	cfs



APPENDIX A

2/3RDS PMF

Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.850
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005000	ft/ft
Discharge	45.03	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,328.37	ft
Elevation Range	1,328.00 to 1,330.00	
Flow Area	120.4	ft²
Wetted Perimeter	491.85	ft
Top Width	491.68	ft
Actual Depth	0.37	ft
Critical Elevation	1,328.16	ft
Critical Slope	0.406066	ft/ft
Velocity	0.37	ft/s
Velocity Head	2.17e-3	ft
Specific Energy	1,328.38	ft
Froude Number	0.13	
Flow Type	Subcritical	

Calculation Messages:
Water elevation exceeds lowest end station by 0.17455063 ft.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	22+15	0.110

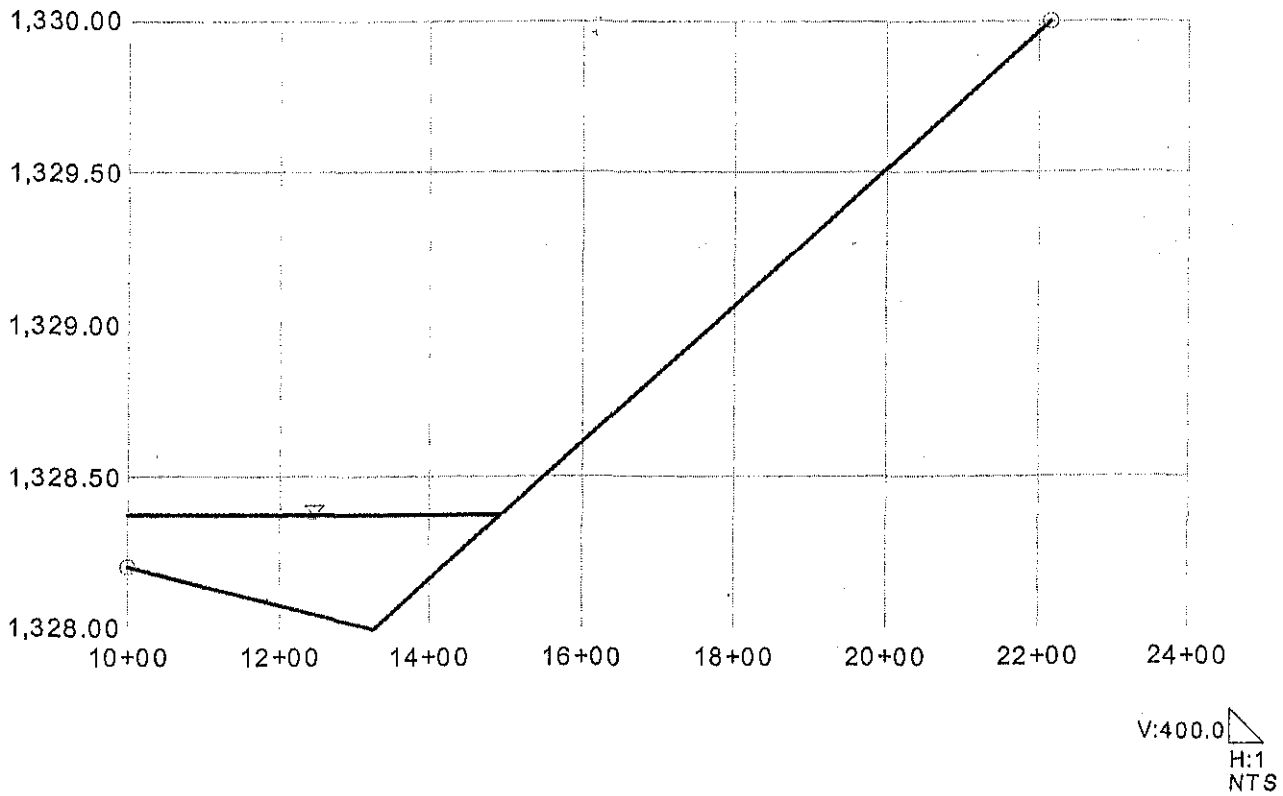
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,328.20
13+25	1,328.00
22+15	1,330.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.850
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005000	ft/ft
Water Surface Elevation	1,328.37	*ft*
Elevation Range	1,328.00 to 1,330.00	
Discharge	45.03	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.752
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	138.66	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,327.68	ft
Elevation Range	1,327.00 to 1,330.00	
Flow Area	269.4	ft²
Wetted Perimeter	790.56	ft
Top Width	790.56	ft
Actual Depth	0.68	ft
Critical Elevation	1,327.32	ft
Critical Slope	0.323543	ft/ft
Velocity	0.51	ft/s
Velocity Head	4.12e-3	ft
Specific Energy	1,327.69	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	27+60	0.110

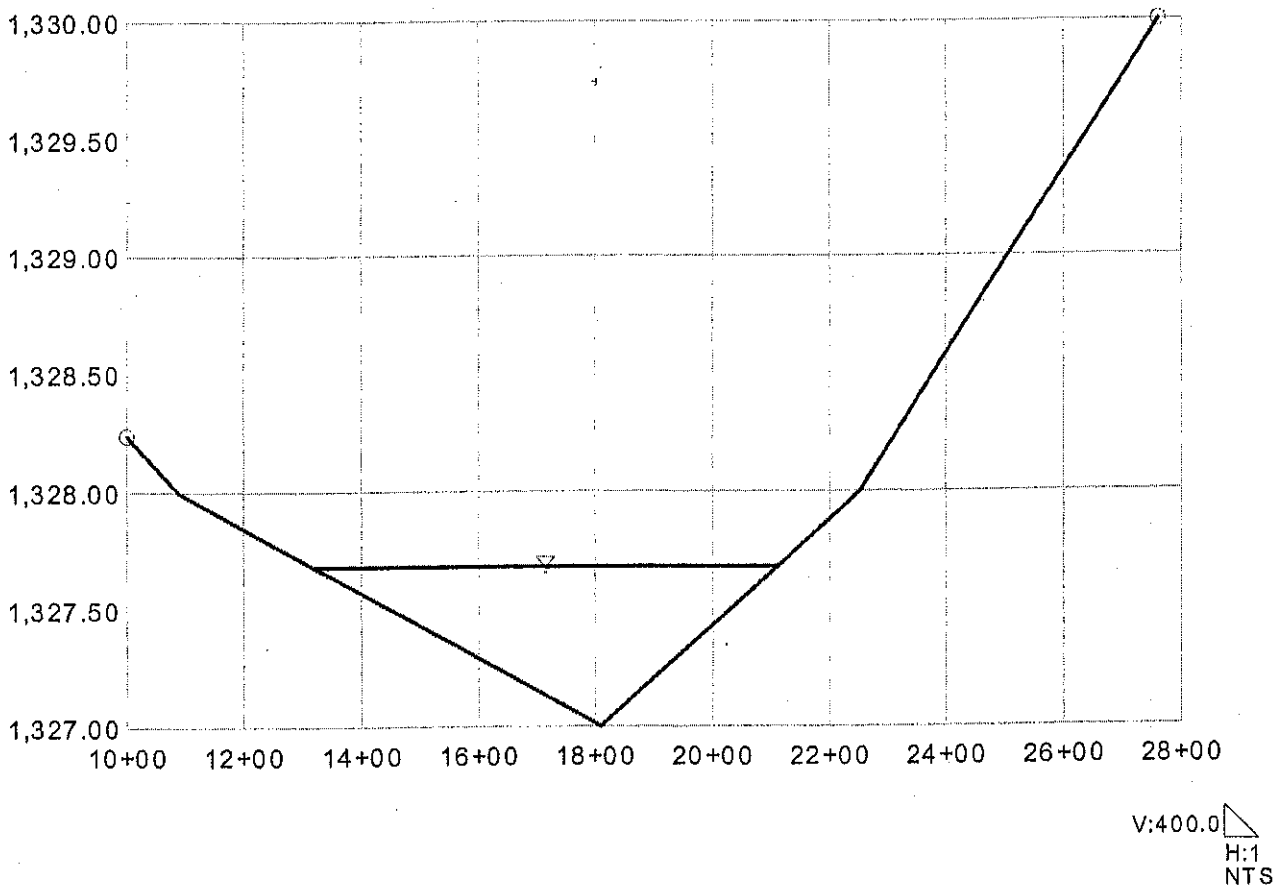
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,328.24
10+90	1,328.00
18+10	1,327.00
22+50	1,328.00
27+60	1,330.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.752
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,327.68	ft
Elevation Range	1,327.00 to 1,330.00	
Discharge	138.66	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.653
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005000	ft/ft
Discharge	138.66	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,324.69	ft
Elevation Range	1,324.00 to 1,329.50	
Flow Area	249.5	ft²
Wetted Perimeter	561.93	ft
Top Width	561.93	ft
Actual Depth	0.69	ft
Critical Elevation	1,324.24	ft
Critical Slope	0.308858	ft/ft
Velocity	0.56	ft/s
Velocity Head	4.8e-3	ft
Specific Energy	1,324.69	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	29+70	0.110

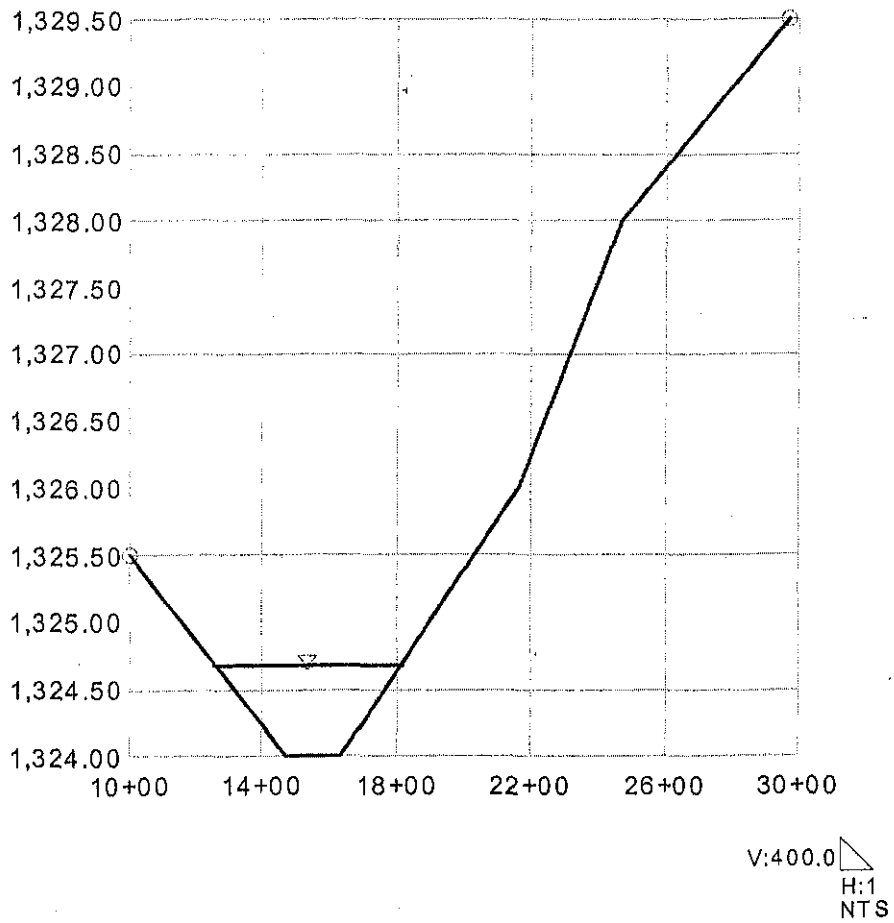
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,325.50
14+70	1,324.00
16+35	1,324.00
21+65	1,326.00
24+70	1,328.00
29+70	1,329.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.653
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005000	ft/ft
Water Surface Elevation	1,324.69	ft
Elevation Range	1,324.00 to 1,329.50	
Discharge	138.66	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.599
Flow Element	Irregular Channel
Method	Manning's Formul
Solve For	Channel Depth

Input Data		
Slope	0.060000	ft/ft
Discharge	138.66	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,321.69	ft
Elevation Range	1,321.20 to 1,326.50	
Flow Area	107.5	ft²
Wetted Perimeter	441.34	ft
Top Width	441.34	ft
Actual Depth	0.49	ft
Critical Elevation	1,321.56	ft
Critical Slope	0.313073	ft/ft
Velocity	1.29	ft/s
Velocity Head	0.03	ft
Specific Energy	1,321.71	ft
Froude Number	0.46	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	29+30	0.110

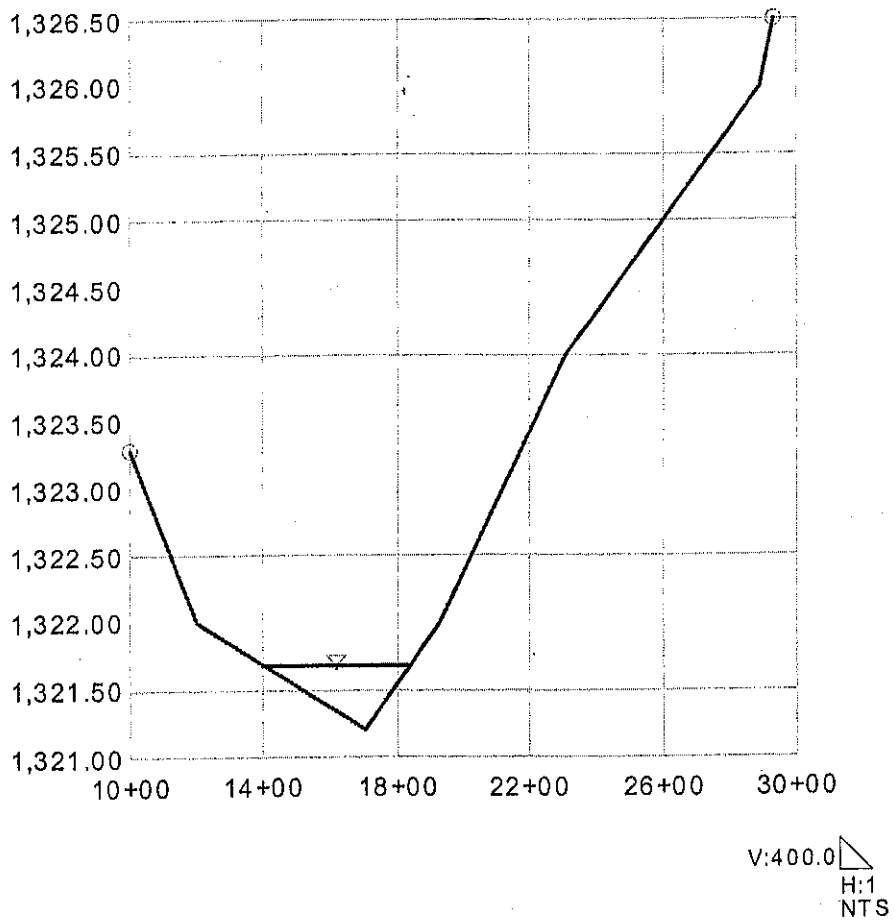
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,323.30
12+00	1,322.00
17+00	1,321.20
19+25	1,322.00
23+05	1,324.00
28+90	1,326.00
29+30	1,326.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.599
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.060000	ft/ft
Water Surface Elevation	1,321.69	ft
Elevation Range	1,321.20 to 1,326.50	
Discharge	138.66	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.495
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	140.74	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,318.47	ft
Elevation Range	1,318.00 to 1,321.50	
Flow Area	251.5	ft²
Wetted Perimeter	651.28	ft
Top Width	651.28	ft
Actual Depth	0.47	ft
Critical Elevation	1,318.15	ft
Critical Slope	0.342526	ft/ft
Velocity	0.56	ft/s
Velocity Head	4.87e-3	ft
Specific Energy	1,318.47	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	29+45	0.110

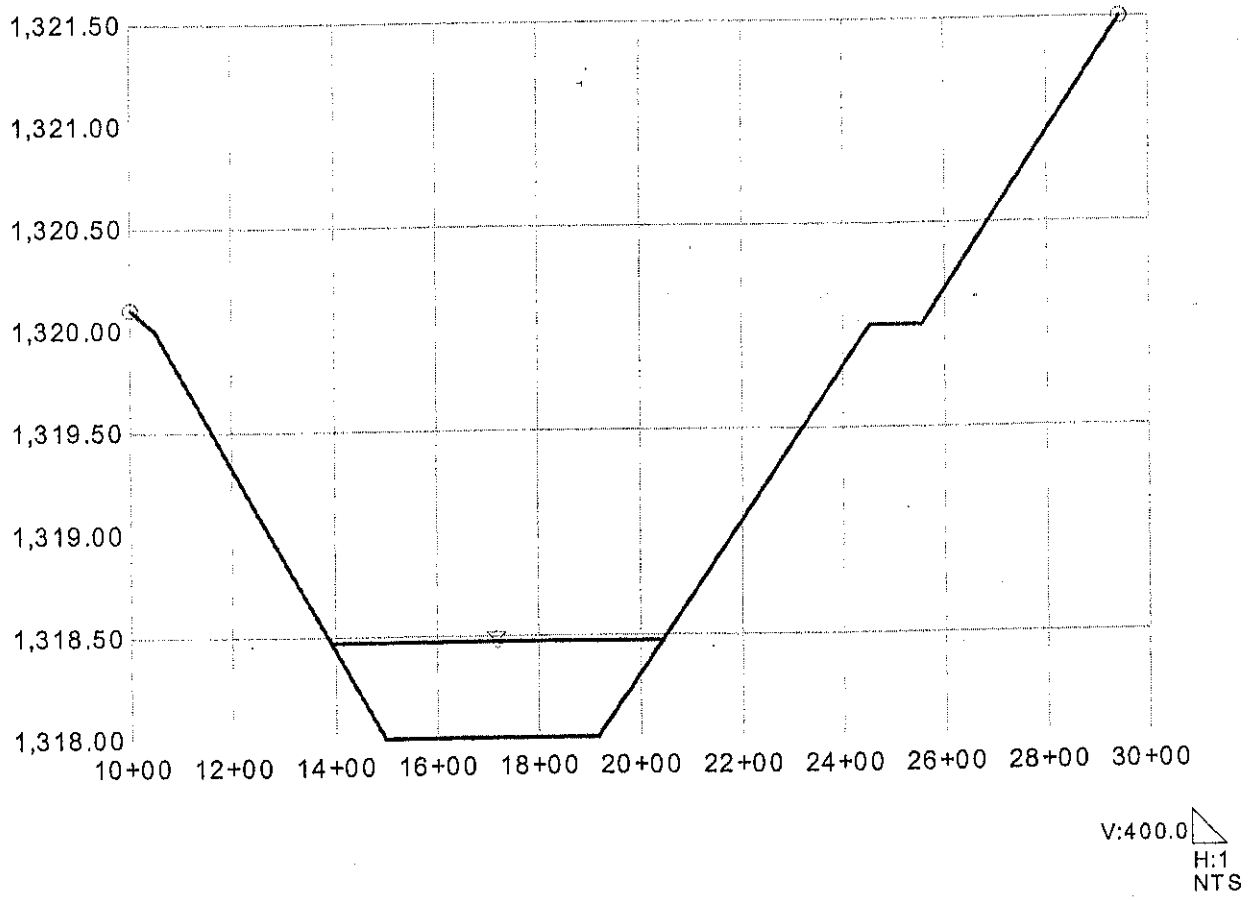
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,320.10
10+50	1,320.00
15+00	1,318.00
19+20	1,318.00
24+55	1,320.00
25+55	1,320.00
29+45	1,321.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.495
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,318.47	ft
Elevation Range	1,318.00 to 1,321.50	
Discharge	140.74	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.379
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005500	ft/ft
Discharge	144.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,315.75	ft
Elevation Range	1,315.00 to 1,317.30	
Flow Area	276.8	ft²
Wetted Perimeter	736.16	ft
Top Width	736.16	ft
Actual Depth	0.75	ft
Critical Elevation	1,315.35	ft
Critical Slope	0.314572	ft/ft
Velocity	0.52	ft/s
Velocity Head	4.23e-3	ft
Specific Energy	1,315.76	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	29+25	0.110

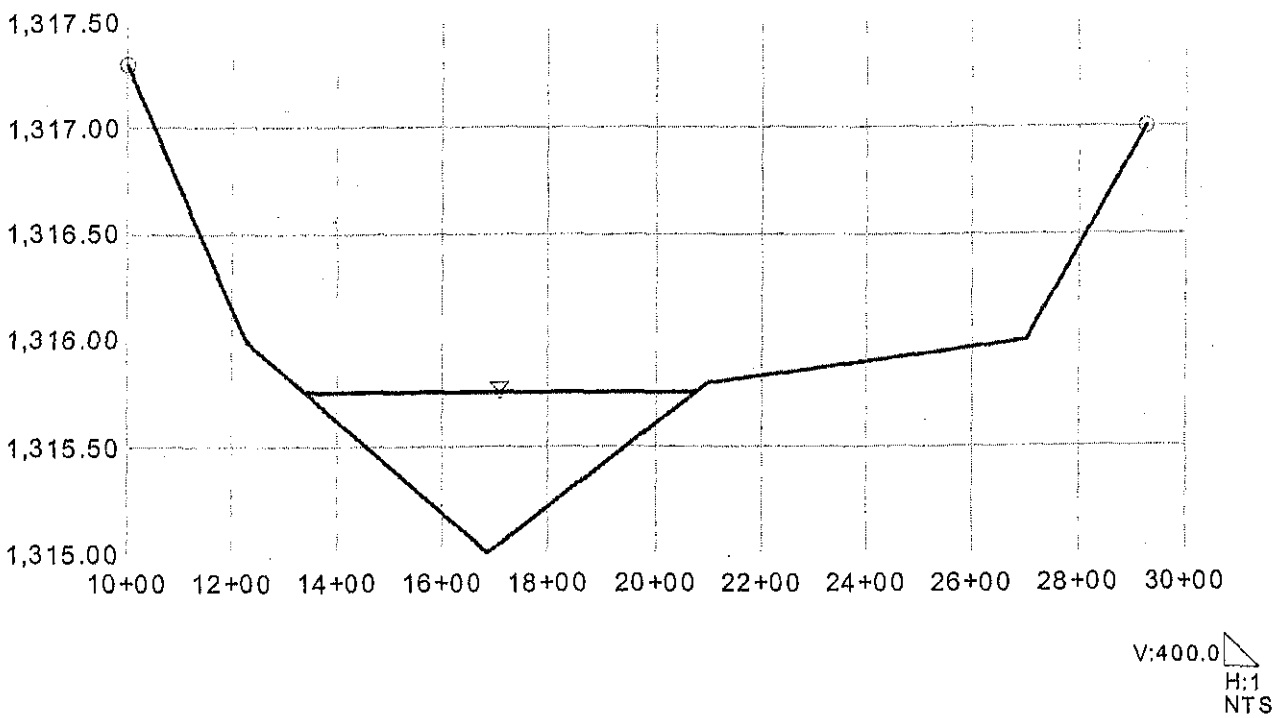
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,317.30
12+25	1,316.00
16+85	1,315.00
21+00	1,315.80
27+00	1,316.00
29+25	1,317.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.379
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005500	ft/ft
Water Surface Elevation	1,315.75	ft
Elevation Range	1,315.00 to 1,317.30	
Discharge	144.50	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.284
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005500	ft/ft
Discharge	144.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,312.95	ft
Elevation Range	1,312.50 to 1,316.00	
Flow Area	331.5	ft²
Wetted Perimeter	1,155.04	ft
Top Width	1,155.03	ft
Actual Depth	0.45	ft
Critical Elevation	1,312.71	ft
Critical Slope	0.373947	ft/ft
Velocity	0.44	ft/s
Velocity Head	2.95e-3	ft
Specific Energy	1,312.96	ft
Froude Number	0.14	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	34+20	0.110

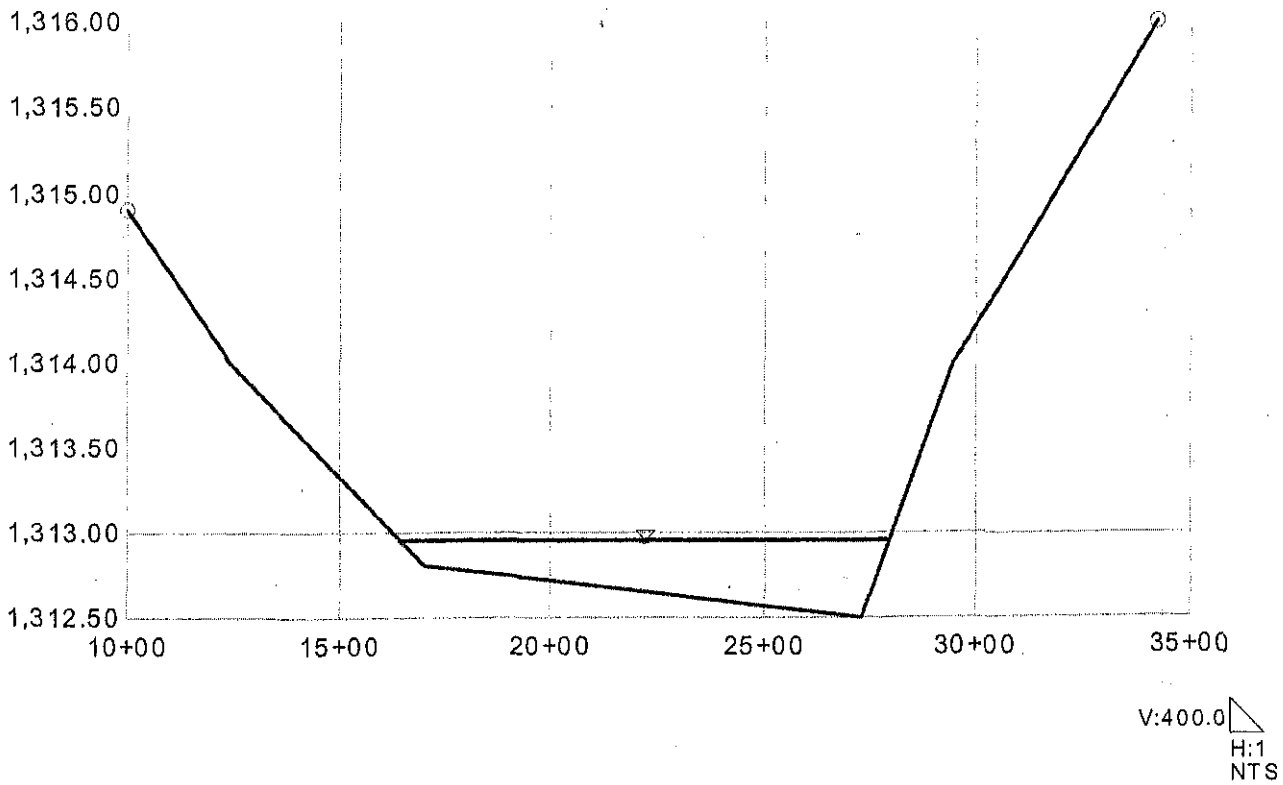
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,314.90
12+40	1,314.00
17+00	1,312.80
27+30	1,312.50
29+50	1,314.00
34+20	1,316.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.284
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005500	ft/ft
Water Surface Elevation	1,312.95	ft
Elevation Range	1,312.50 to 1,316.00	
Discharge	144.50	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.197
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005500	ft/ft
Discharge	144.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,310.27	ft
Elevation Range	1,310.00 to 1,312.00	
Flow Area	352.6	ft²
Wetted Perimeter	1,347.65	ft
Top Width	1,347.65	ft
Actual Depth	0.27	ft
Critical Elevation	1,310.07	ft
Critical Slope	0.420255	ft/ft
Velocity	0.41	ft/s
Velocity Head	2.61e-3	ft
Specific Energy	1,310.28	ft
Froude Number	0.14	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	38+40	0.110

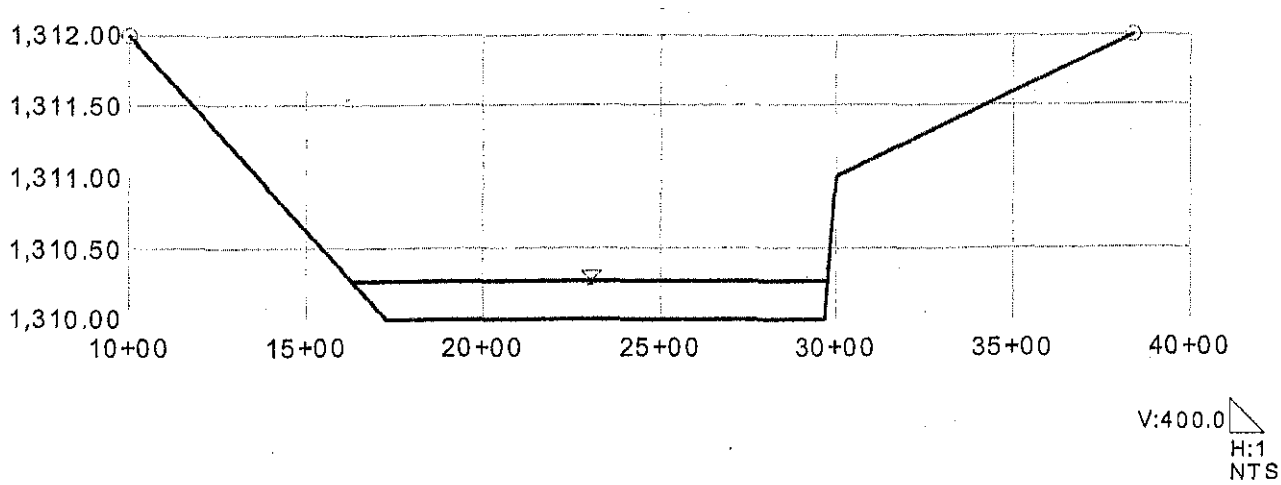
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,312.00
17+30	1,310.00
29+70	1,310.00
30+00	1,311.00
38+40	1,312.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.197
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005500	ft/ft
Water Surface Elevation	1,310.27	ft
Elevation Range	1,310.00 to 1,312.00	
Discharge	144.50	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.103
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006000	ft/ft
Discharge	260.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,307.47	ft
Elevation Range	1,306.80 to 1,312.80	
Flow Area	439.0	ft²
Wetted Perimeter	1,026.60	ft
Top Width	1,026.60	ft
Actual Depth	0.67	ft
Critical Elevation	1,307.12	ft
Critical Slope	0.325214	ft/ft
Velocity	0.59	ft/s
Velocity Head	0.01	ft
Specific Energy	1,307.47	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	49+00	0.110

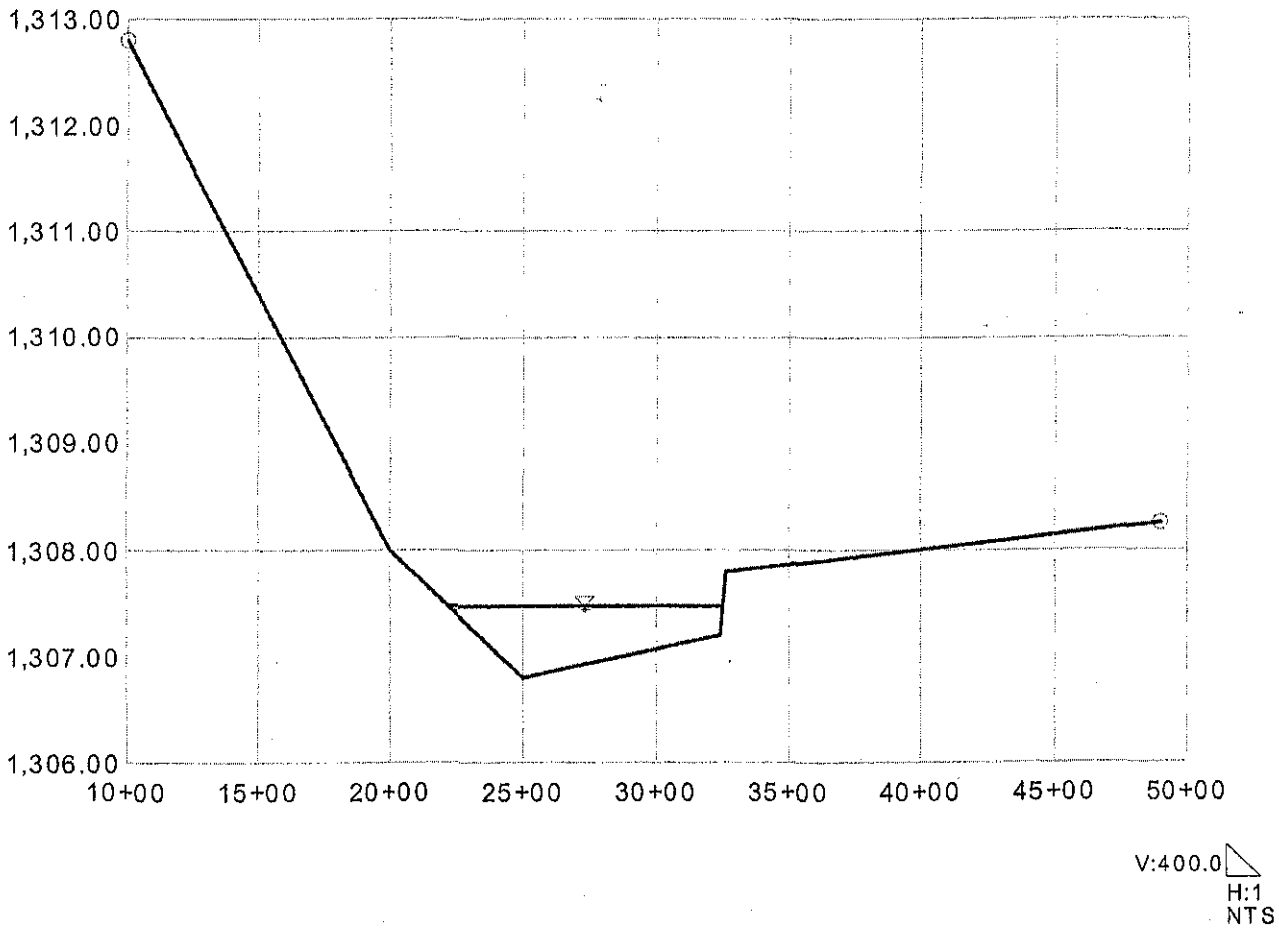
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,312.80
20+00	1,308.00
25+00	1,306.80
32+40	1,307.20
32+60	1,307.80
49+00	1,308.25

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.103
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006000	ft/ft
Water Surface Elevation	1,307.47	ft
Elevation Range	1,306.80 to 1,312.80	
Discharge	260.68	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	14.013
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006000	ft/ft
Discharge	260.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,304.35	ft
Elevation Range	1,304.00 to 1,307.00	
Flow Area	522.3	ft²
Wetted Perimeter	1,585.21	ft
Top Width	1,585.21	ft
Actual Depth	0.35	ft
Critical Elevation	1,304.10	ft
Critical Slope	0.378260	ft/ft
Velocity	0.50	ft/s
Velocity Head	3.87e-3	ft
Specific Energy	1,304.36	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	60+00	0.110

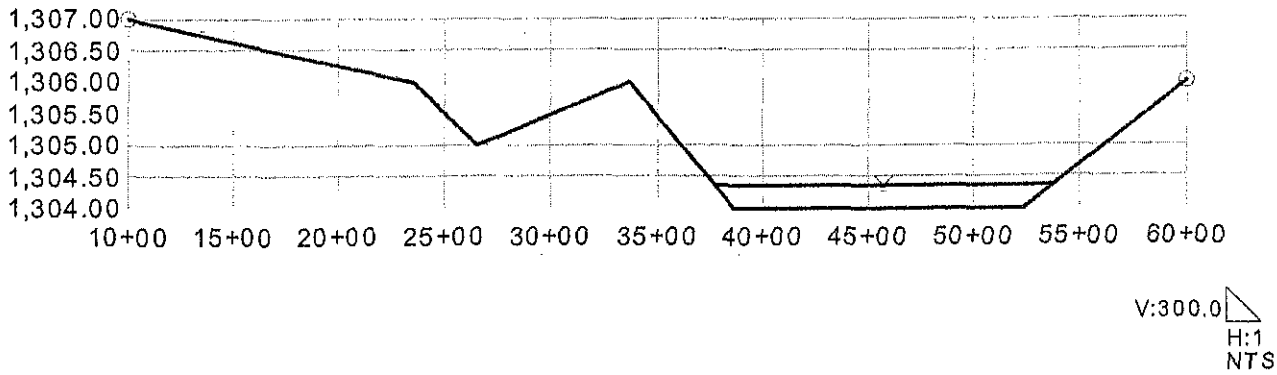
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,307.00
23+50	1,306.00
26+50	1,305.00
33+70	1,306.00
38+70	1,304.00
52+30	1,304.00
60+00	1,306.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	14.013
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006000	ft/ft
Water Surface Elevation	1,304.35	ft
Elevation Range	1,304.00 to 1,307.00	
Discharge	260.68	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.918
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	260.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,300.71	ft
Elevation Range	1,300.00 to 1,303.58	
Flow Area	480.9	ft^2
Wetted Perimeter	1,305.69	ft
Top Width	1,305.69	ft
Actual Depth	0.71	ft
Critical Elevation	1,300.32	ft
Critical Slope	0.314938	ft/ft
Velocity	0.54	ft/s
Velocity Head	4.57e-3	ft
Specific Energy	1,300.71	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	61+50	0.110

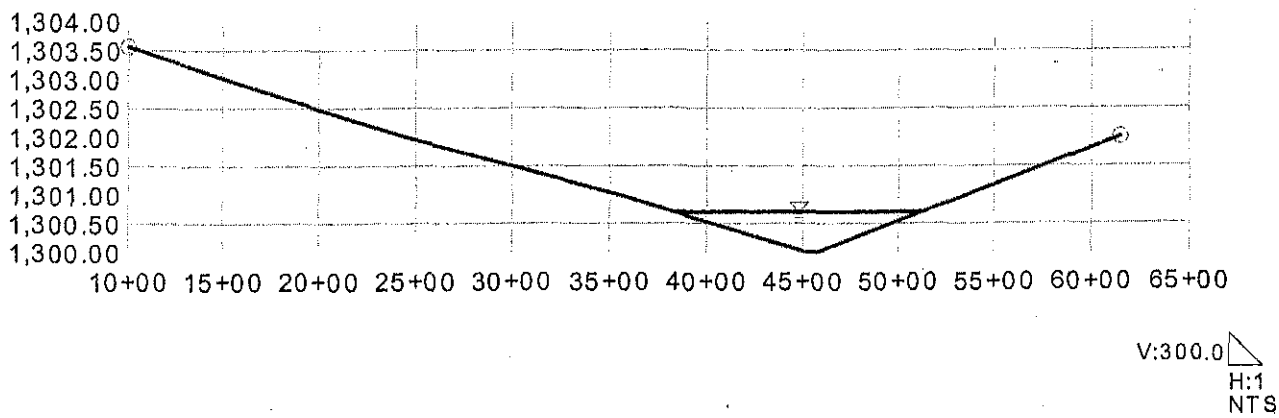
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,303.58
24+50	1,302.00
35+40	1,301.00
45+20	1,300.00
45+70	1,300.00
61+50	1,302.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.918
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,300.71	ft
Elevation Range	1,300.00 to 1,303.58	
Discharge	260.68	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.818
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	260.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,298.22	ft
Elevation Range	1,298.00 to 1,300.00	
Flow Area	699.4	ft²
Wetted Perimeter	3,330.44	ft
Top Width	3,330.44	ft
Actual Depth	0.22	ft
Critical Elevation	1,298.06	ft
Critical Slope	0.451768	ft/ft
Velocity	0.37	ft/s
Velocity Head	2.16e-3	ft
Specific Energy	1,298.22	ft
Froude Number	0.14	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	76+30	0.110

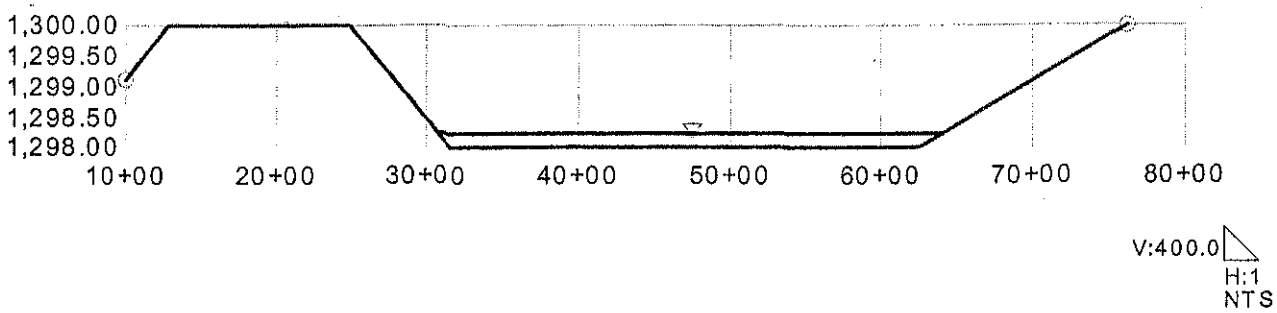
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,299.10
12+80	1,300.00
24+90	1,300.00
31+50	1,298.00
62+60	1,298.00
76+30	1,300.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.818
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,298.22	ft
Elevation Range	1,298.00 to 1,300.00	
Discharge	260.68	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.742
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	260.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,296.24	ft
Elevation Range	1,295.14 to 1,298.00	
Flow Area	667.0	ft²
Wetted Perimeter	2,958.16	ft
Top Width	2,957.04	ft
Actual Depth	1.10	ft
Critical Elevation	1,296.06	ft
Critical Slope	0.436271	ft/ft
Velocity	0.39	ft/s
Velocity Head	2.37e-3	ft
Specific Energy	1,296.24	ft
Froude Number	0.15	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.
Water elevation exceeds lowest end station by 1.09652779 ft.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	76+20	0.110

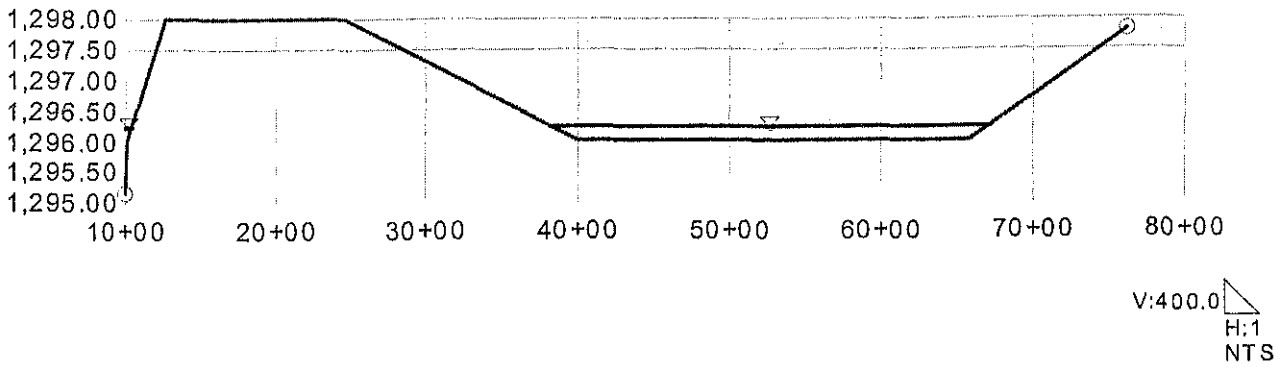
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,295.14
10+20	1,296.00
12+70	1,298.00
24+60	1,298.00
40+00	1,296.00
65+90	1,296.00
76+20	1,297.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.742
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,296.24	ft
Elevation Range	1,295.14 to 1,298.00	
Discharge	260.68	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.680
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	260.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,292.80	ft
Elevation Range	1,292.00 to 1,296.00	
Flow Area	443.9	ft²
Wetted Perimeter	1,068.82	ft
Top Width	1,068.82	ft
Actual Depth	0.80	ft
Critical Elevation	1,292.37	ft
Critical Slope	0.301760	ft/ft
Velocity	0.59	ft/s
Velocity Head	0.01	ft
Specific Energy	1,292.81	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	74+10	0.110

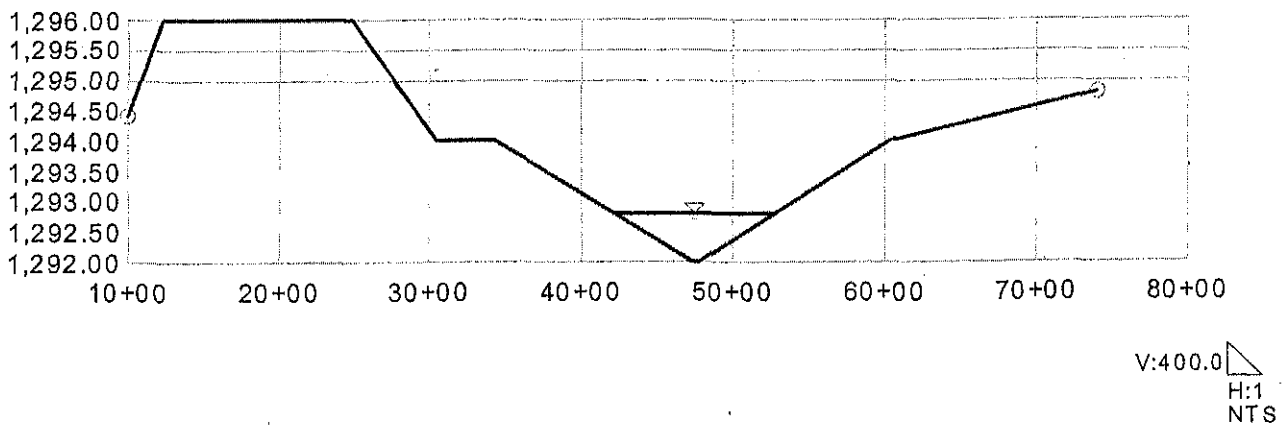
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,294.41
12+30	1,296.00
24+90	1,296.00
30+40	1,294.00
34+30	1,294.00
47+30	1,292.00
47+70	1,292.00
60+40	1,294.00
74+10	1,294.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.680
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,292.80	ft
Elevation Range	1,292.00 to 1,296.00	
Discharge	260.68	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.619
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	260.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,292.20	ft
Elevation Range	1,292.00 to 1,296.00	
Flow Area	724.9	ft²
Wetted Perimeter	3,643.25	ft
Top Width	3,643.25	ft
Actual Depth	0.20	ft
Critical Elevation	1,292.06	ft
Critical Slope	0.462300	ft/ft
Velocity	0.36	ft/s
Velocity Head	2.01e-3	ft
Specific Energy	1,292.21	ft
Froude Number	0.14	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	70+40	0.110

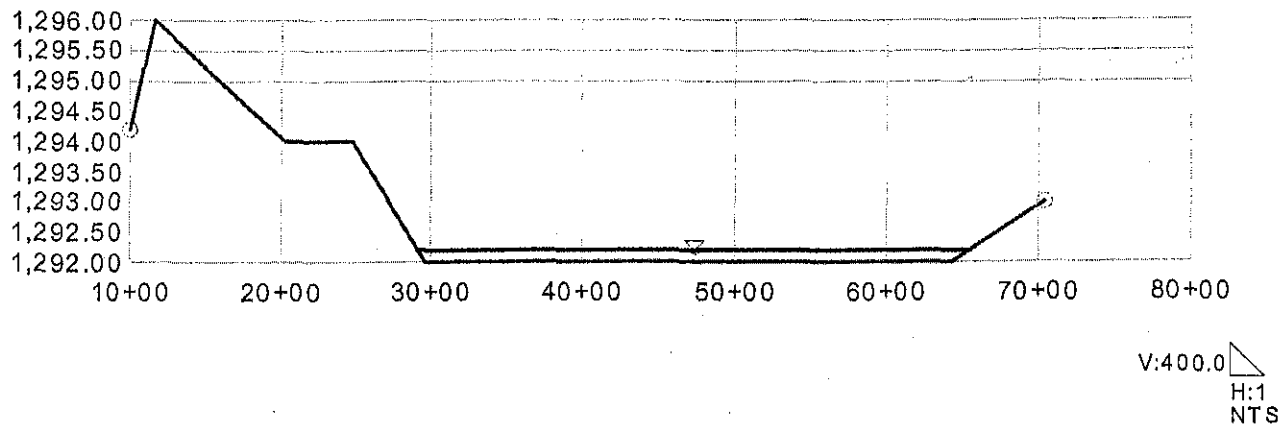
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,294.20
11+70	1,296.00
20+30	1,294.00
24+80	1,294.00
29+60	1,292.00
64+30	1,292.00
70+40	1,293.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.619
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,292.20	ft
Elevation Range	1,292.00 to 1,296.00	
Discharge	260.68	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.524
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	260.68	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,288.25	ft
Elevation Range	1,288.00 to 1,292.00	
Flow Area	645.8	ft²
Wetted Perimeter	2,729.24	ft
Top Width	2,729.24	ft
Actual Depth	0.25	ft
Critical Elevation	1,288.07	ft
Critical Slope	0.429879	ft/ft
Velocity	0.40	ft/s
Velocity Head	2.53e-3	ft
Specific Energy	1,288.25	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	69+50	0.110

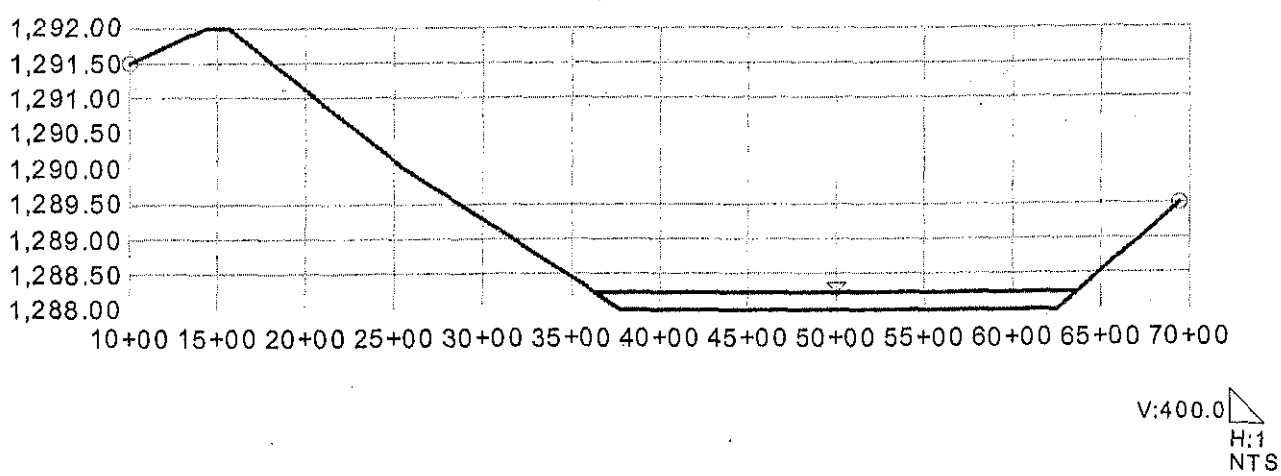
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,291.50
14+40	1,292.00
15+70	1,292.00
25+60	1,290.00
37+90	1,288.00
62+50	1,288.00
69+50	1,289.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.524
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,288.25	ft
Elevation Range	1,288.00 to 1,292.00	
Discharge	260.68	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.420
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	261.25	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,286.23	ft
Elevation Range	1,286.00 to 1,289.00	
Flow Area	685.3	ft²
Wetted Perimeter	3,155.19	ft
Top Width	3,155.19	ft
Actual Depth	0.23	ft
Critical Elevation	1,286.06	ft
Critical Slope	0.445299	ft/ft
Velocity	0.38	ft/s
Velocity Head	2.26e-3	ft
Specific Energy	1,286.23	ft
Froude Number	0.14	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	74+40	0.110

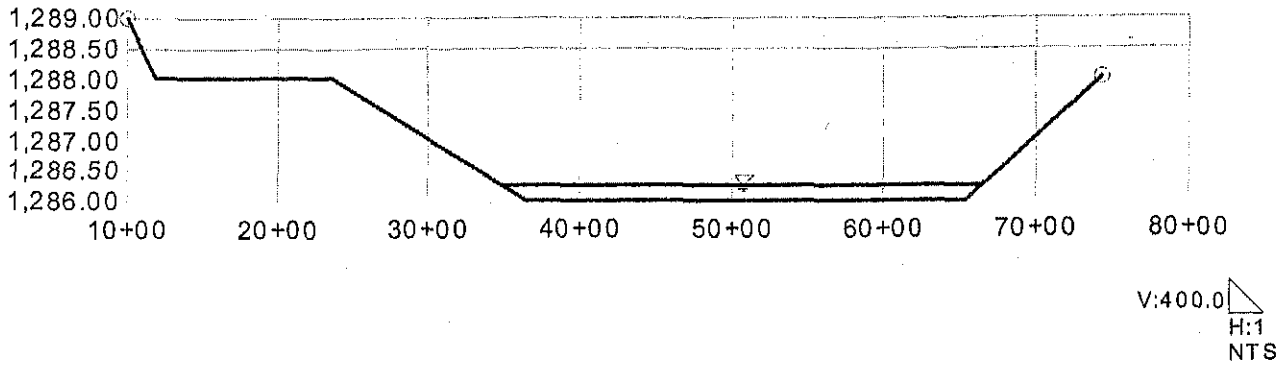
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,289.00
11+90	1,288.00
23+60	1,288.00
36+40	1,286.00
65+50	1,286.00
74+40	1,288.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.420
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,286.23	ft
Elevation Range	1,286.00 to 1,289.00	
Discharge	261.25	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.325
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	262.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,282.75	ft
Elevation Range	1,282.00 to 1,286.30	
Flow Area	479.1	ft²
Wetted Perimeter	1,280.01	ft
Top Width	1,280.01	ft
Actual Depth	0.75	ft
Critical Elevation	1,282.36	ft
Critical Slope	0.312930	ft/ft
Velocity	0.55	ft/s
Velocity Head	4.67e-3	ft
Specific Energy	1,282.75	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	64+50	0.110

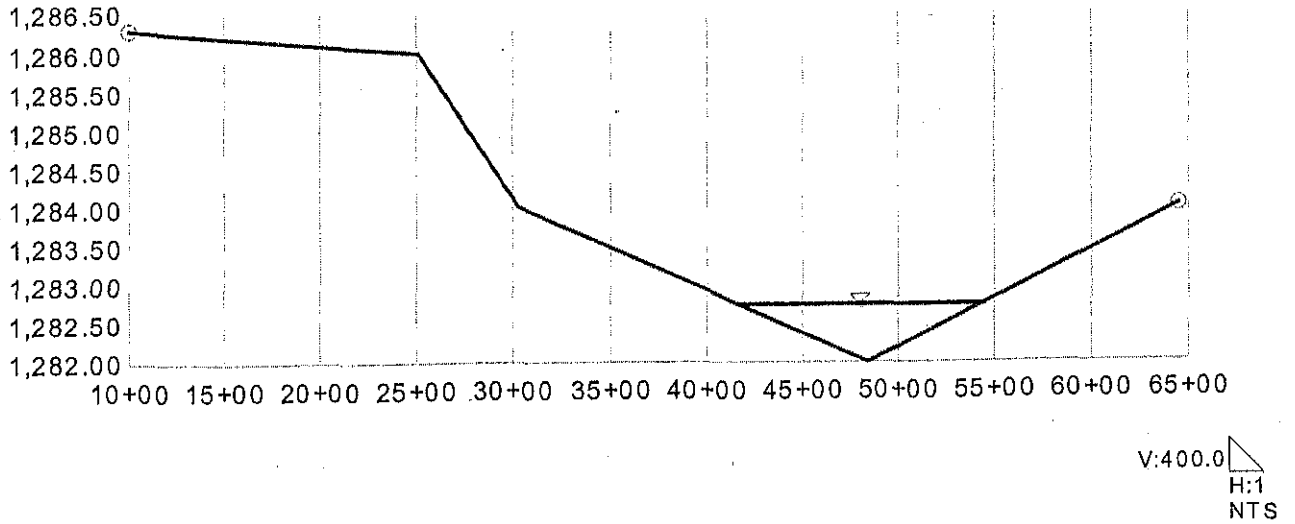
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,286.30
25+10	1,286.00
30+30	1,284.00
48+40	1,282.00
64+50	1,284.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.325
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	*Channel Depth*

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,282.75	ft
Elevation Range	1,282.00 to 1,286.30	
Discharge	262.50	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	13.227
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	262.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,280.61	ft
Elevation Range	1,280.00 to 1,284.30	
Flow Area	445.2	ft²
Wetted Perimeter	1,065.32	ft
Top Width	1,065.32	ft
Actual Depth	0.61	ft
Critical Elevation	1,280.22	ft
Critical Slope	0.314904	ft/ft
Velocity	0.59	ft/s
Velocity Head	0.01	ft
Specific Energy	1,280.62	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	56+00	0.110

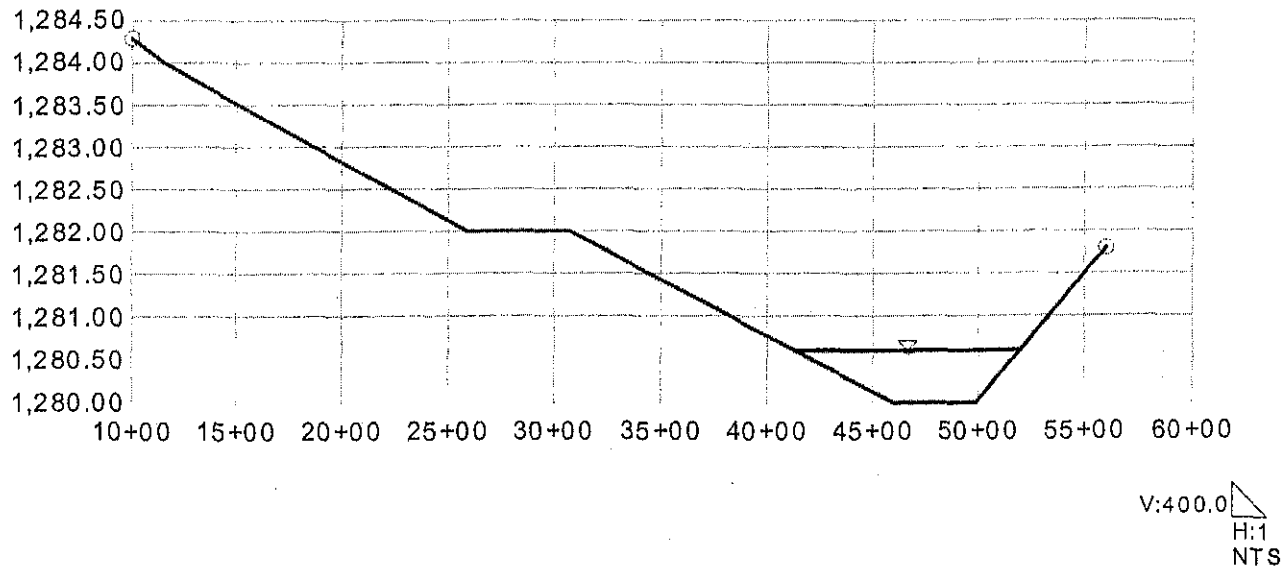
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,284.30
11+60	1,284.00
25+90	1,282.00
30+70	1,282.00
46+00	1,280.00
49+90	1,280.00
56+00	1,281.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	13.227
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,280.61	ft
Elevation Range	1,280.00 to 1,284.30	
Discharge	262.50	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.896
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.005800	ft/ft
Discharge	262.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,272.16	ft
Elevation Range	1,272.00 to 1,276.00	
Flow Area	857.9	ft²
Wetted Perimeter	5,288.90	ft
Top Width	5,288.90	ft
Actual Depth	0.16	ft
Critical Elevation	1,272.04	ft
Critical Slope	0.503369	ft/ft
Velocity	0.31	ft/s
Velocity Head	1.45e-3	ft
Specific Energy	1,272.17	ft
Froude Number	0.13	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	88+30	0.110

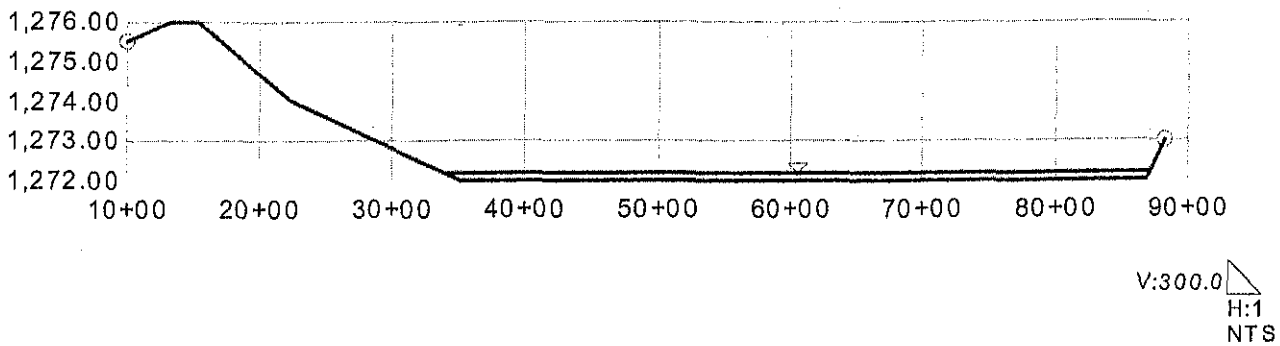
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,275.50
13+30	1,276.00
15+40	1,276.00
22+40	1,274.00
35+30	1,272.00
86+90	1,272.00
88+30	1,273.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.896
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.005800	ft/ft
Water Surface Elevation	1,272.16	ft
Elevation Range	1,272.00 to 1,276.00	
Discharge	262.50	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.801
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006300	ft/ft
Discharge	262.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,270.16	ft
Elevation Range	1,270.00 to 1,273.40	
Flow Area	848.3	ft²
Wetted Perimeter	5,471.37	ft
Top Width	5,471.37	ft
Actual Depth	0.16	ft
Critical Elevation	1,270.04	ft
Critical Slope	0.507084	ft/ft
Velocity	0.31	ft/s
Velocity Head	1.49e-3	ft
Specific Energy	1,270.16	ft
Froude Number	0.14	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	93+70	0.110

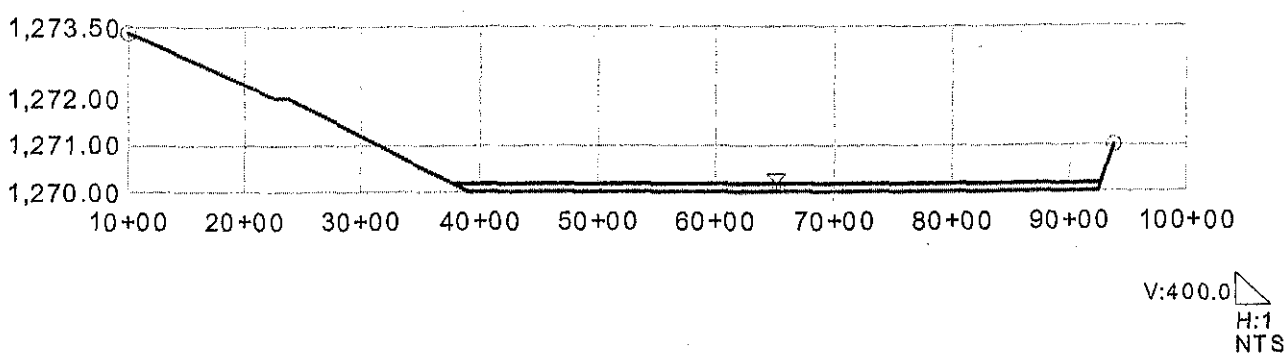
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,273.40
22+60	1,272.00
23+70	1,272.00
39+10	1,270.00
92+40	1,270.00
93+70	1,271.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.801
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006300	ft/ft
Water Surface Elevation	1,270.16	ft
Elevation Range	1,270.00 to 1,273.40	
Discharge	262.50	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.701
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.002900	ft/ft
Discharge	262.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,268.19	ft
Elevation Range	1,268.00 to 1,270.50	
Flow Area	1,100.4	ft²
Wetted Perimeter	5,860.49	ft
Top Width	5,860.49	ft
Actual Depth	0.19	ft
Critical Elevation	1,268.04	ft
Critical Slope	0.513946	ft/ft
Velocity	0.24	ft/s
Velocity Head	8.84e-4	ft
Specific Energy	1,268.19	ft
Froude Number	0.10	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	102+70	0.110

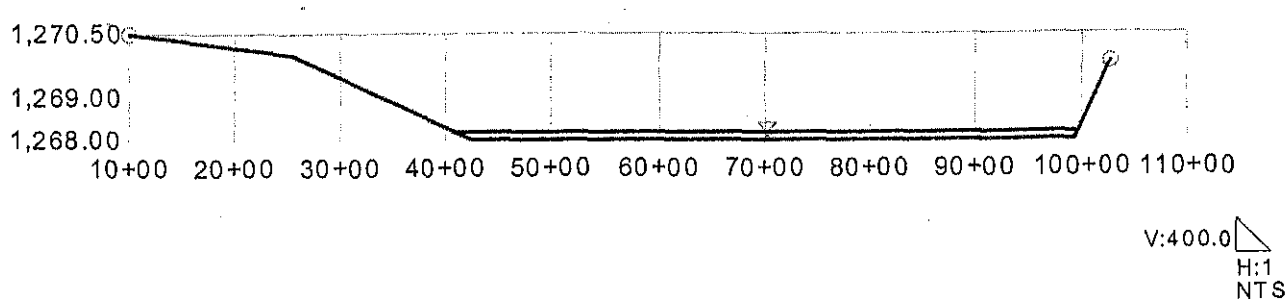
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,270.50
25+50	1,270.00
42+60	1,268.00
99+20	1,268.00
102+70	1,269.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.701
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.002900	ft/ft
Water Surface Elevation	1,268.19	ft
Elevation Range	1,268.00 to 1,270.50	
Discharge	262.50	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.606
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.007300	ft/ft
Discharge	262.50	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,262.59	ft
Elevation Range	1,262.00 to 1,268.30	
Flow Area	474.7	ft²
Wetted Perimeter	1,431.38	ft
Top Width	1,431.38	ft
Actual Depth	0.59	ft
Critical Elevation	1,262.25	ft
Critical Slope	0.325089	ft/ft
Velocity	0.55	ft/s
Velocity Head	4.75e-3	ft
Specific Energy	1,262.59	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	92+10	0.110

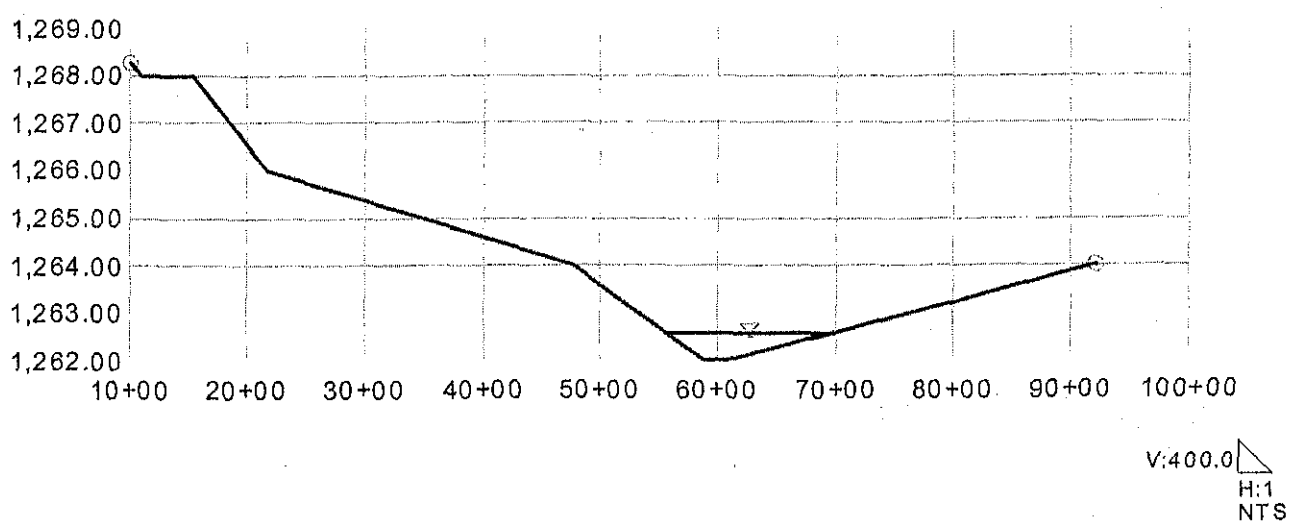
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,268.30
11+00	1,268.00
15+50	1,268.00
21+80	1,266.00
47+80	1,264.00
58+90	1,262.00
60+80	1,262.00
92+10	1,264.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.606
Flow Element	*Irregular Channel*
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.007300	ft/ft
Water Surface Elevation	1,262.59	ft
Elevation Range	1,262.00 to 1,268.30	
Discharge	262.50	cfs



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Stantech Consulting Inc
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.511
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005100	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,260.46	ft
Elevation Range	1,260.00 to 1,266.00	
Flow Area	640.6	ft²
Wetted Perimeter	1,815.36	ft
Top Width	1,815.36	ft
Actual Depth	0.46	ft
Critical Elevation	1,260.14	ft
Critical Slope	0.353613	ft/ft
Velocity	0.48	ft/s
Velocity Head	3.61e-3	ft
Specific Energy	1,260.46	ft
Froude Number	0.14	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	88+60	0.110

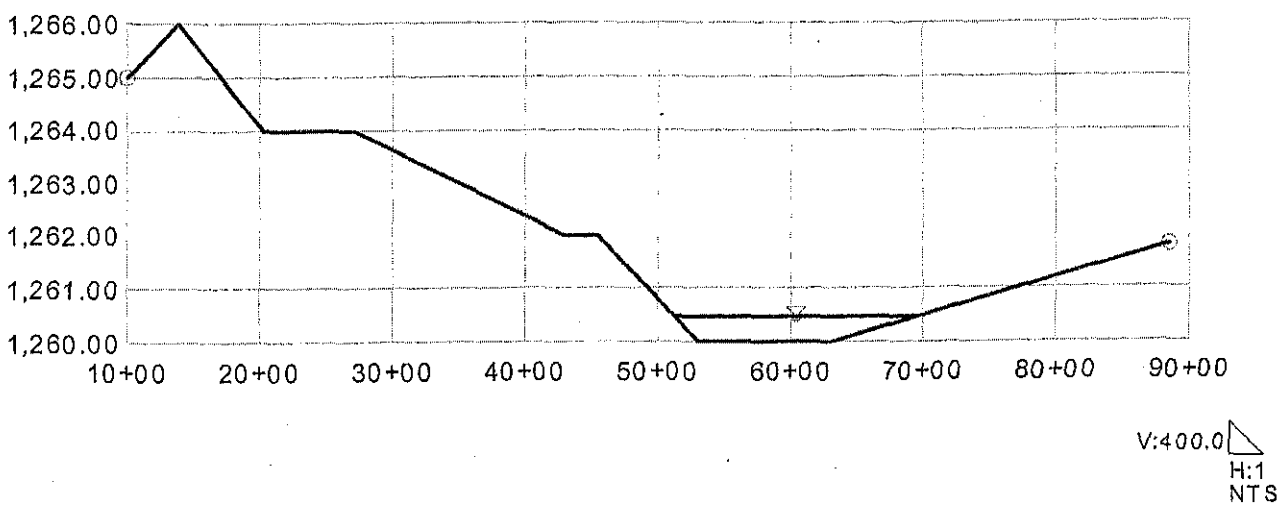
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,265.00
14+00	1,266.00
20+30	1,264.00
27+20	1,264.00
43+10	1,262.00
45+60	1,262.00
53+10	1,260.00
63+10	1,260.00
88+60	1,261.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.511
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	*Channel Depth*

Section Data		
Mannings Coefficient	0.110	
Slope	0.005100	ft/ft
Water Surface Elevation	1,260.46	ft
Elevation Range	*1,260.00 to 1,266.00*	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.420
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003500	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,258.59	ft
Elevation Range	1,258.00 to 1,264.00	
Flow Area	618.1	ft^2
Wetted Perimeter	1,251.64	ft
Top Width	1,251.64	ft
Actual Depth	0.59	ft
Critical Elevation	1,258.16	ft
Critical Slope	0.332348	ft/ft
Velocity	0.50	ft/s
Velocity Head	3.87e-3	ft
Specific Energy	1,258.60	ft
Froude Number	0.13	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	68+00	0.110

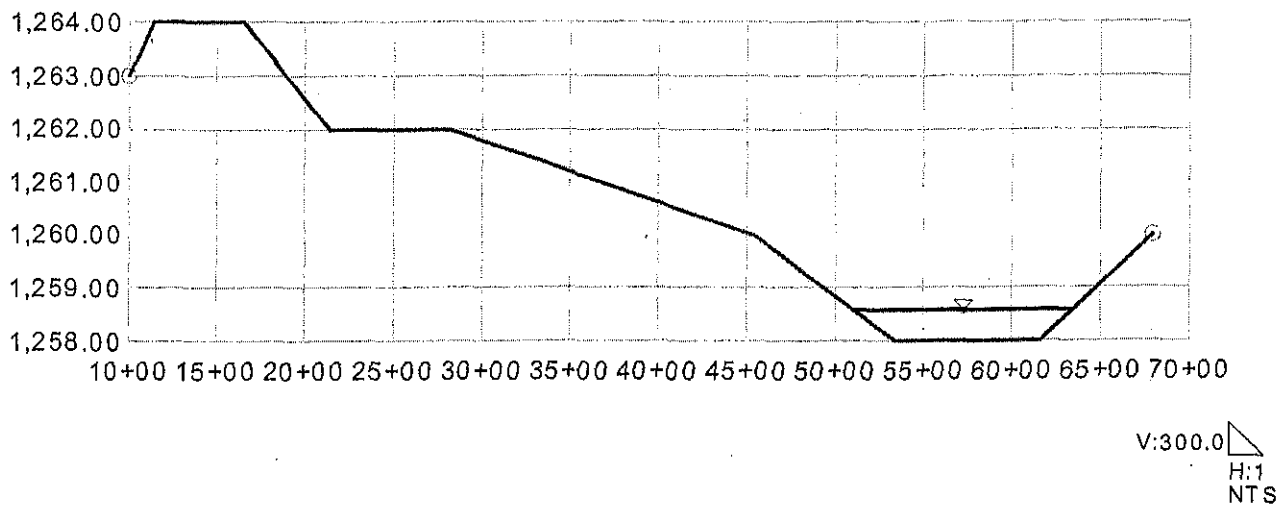
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,263.00
11+40	1,264.00
16+60	1,264.00
21+40	1,262.00
28+20	1,262.00
45+50	1,260.00
53+40	1,258.00
61+70	1,258.00
68+00	1,260.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.420
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003500	ft/ft
Water Surface Elevation	1,258.59	ft
Elevation Range	1,258.00 to 1,264.00	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.313
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004000	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,256.25	ft
Elevation Range	1,256.00 to 1,261.20	
Flow Area	926.4	ft²
Wetted Perimeter	3,804.29	ft
Top Width	3,804.29	ft
Actual Depth	0.25	ft
Critical Elevation	1,256.06	ft
Critical Slope	0.446470	ft/ft
Velocity	0.33	ft/s
Velocity Head	1.72e-3	ft
Specific Energy	1,256.26	ft
Froude Number	0.12	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	94+60	0.110

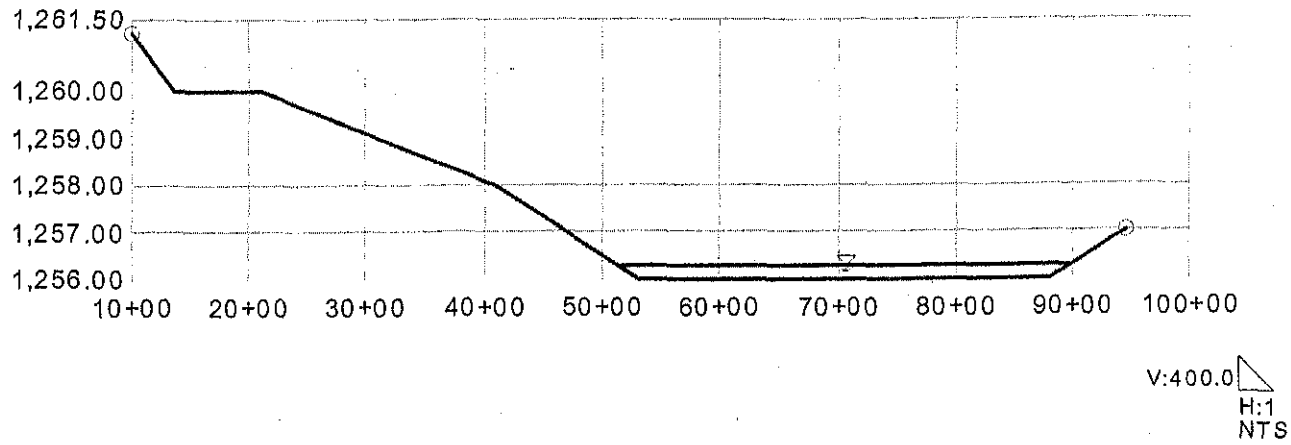
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,261.20
13+60	1,260.00
21+10	1,260.00
40+90	1,258.00
53+20	1,256.00
88+00	1,256.00
94+60	1,257.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.313
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004000	ft/ft
Water Surface Elevation	1,256.25	ft
Elevation Range	1,256.00 to 1,261.20	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	12.034
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003400	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,251.79	ft
Elevation Range	1,251.30 to 1,257.82	
Flow Area	806.8	ft²
Wetted Perimeter	2,383.79	ft
Top Width	2,383.79	ft
Actual Depth	0.49	ft
Critical Elevation	1,251.44	ft
Critical Slope	0.359692	ft/ft
Velocity	0.38	ft/s
Velocity Head	2.27e-3	ft
Specific Energy	1,251.79	ft
Froude Number	0.12	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	84+20	0.110

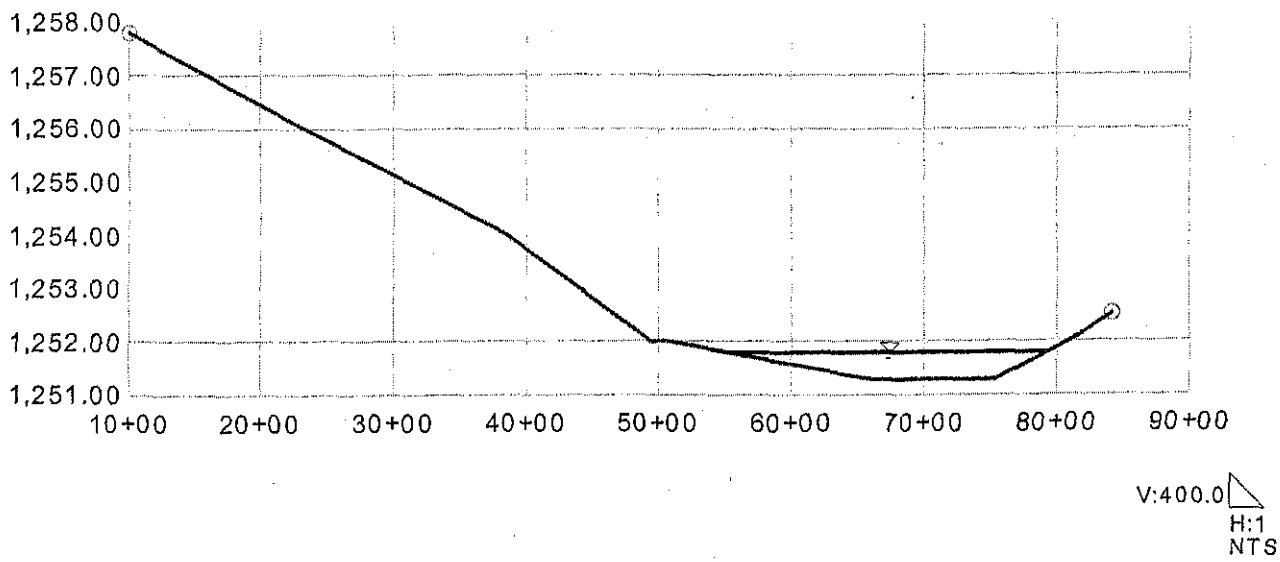
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,257.82
23+50	1,256.00
38+60	1,254.00
49+50	1,252.00
50+80	1,252.00
66+10	1,251.30
75+40	1,251.30
81+00	1,252.00
84+20	1,252.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	12.034
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003400	ft/ft
Water Surface Elevation	1,251.79	ft
Elevation Range	1,251.30 to 1,257.82	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.949
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.008300	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,245.21	ft
Elevation Range	1,244.40 to 1,251.95	
Flow Area	456.6	ft²
Wetted Perimeter	1,121.76	ft
Top Width	1,121.76	ft
Actual Depth	0.81	ft
Critical Elevation	1,244.82	ft
Critical Slope	0.297567	ft/ft
Velocity	0.68	ft/s
Velocity Head	0.01	ft
Specific Energy	1,245.22	ft
Froude Number	0.19	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	76+30	0.110

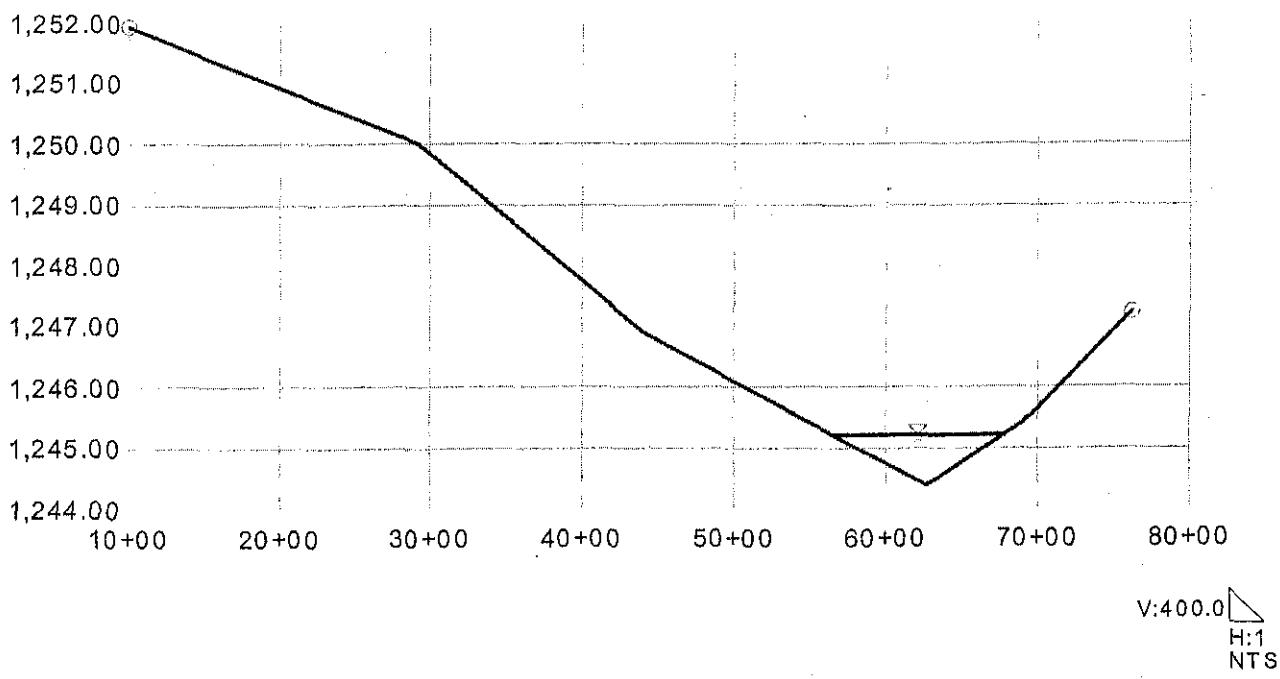
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,251.95
29+20	1,250.00
44+00	1,246.90
62+70	1,244.40
69+00	1,245.40
76+30	1,247.20

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.949
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.008300	ft/ft
Water Surface Elevation	1,245.21	ft
Elevation Range	1,244.40 to 1,251.95	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.759
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006500	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,241.04	ft
Elevation Range	1,240.00 to 1,244.00	
Flow Area	393.7	ft²
Wetted Perimeter	644.82	ft
Top Width	644.72	ft
Actual Depth	1.04	ft
Critical Elevation	1,240.45	ft
Critical Slope	0.264750	ft/ft
Velocity	0.78	ft/s
Velocity Head	0.01	ft
Specific Energy	1,241.05	ft
Froude Number	0.18	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
60+20	75+00	0.110

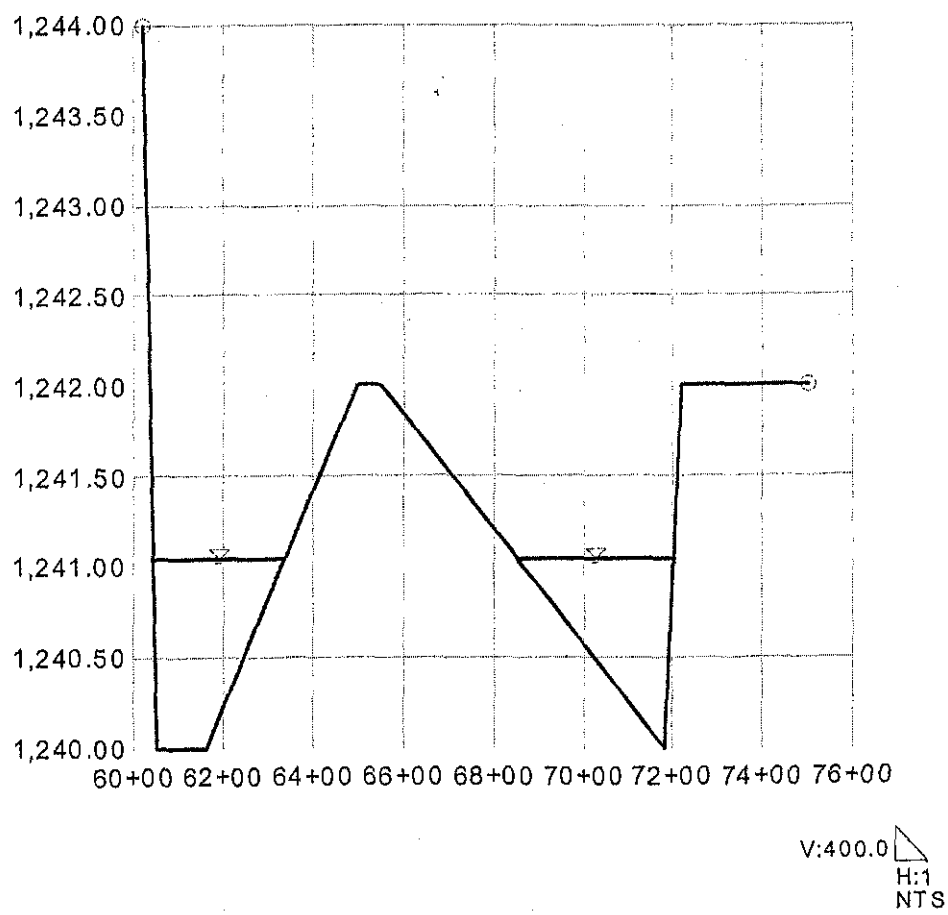
Natural Channel Points

Station (ft)	Elevation (ft)
60+20	1,244.00
60+50	1,240.00
61+60	1,240.00
65+00	1,242.00
65+50	1,242.00
71+80	1,240.00
72+20	1,242.00
75+00	1,242.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.759
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006500	ft/ft
Water Surface Elevation	1,241.04	ft
Elevation Range	1,240.00 to 1,244.00	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.566
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004500	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,234.83	ft
Elevation Range	1,234.00 to 1,241.91	
Flow Area	474.1	ft²
Wetted Perimeter	778.62	ft
Top Width	778.61	ft
Actual Depth	0.83	ft
Critical Elevation	1,234.26	ft
Critical Slope	0.288615	ft/ft
Velocity	0.65	ft/s
Velocity Head	0.01	ft
Specific Energy	1,234.83	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	74+50	0.110

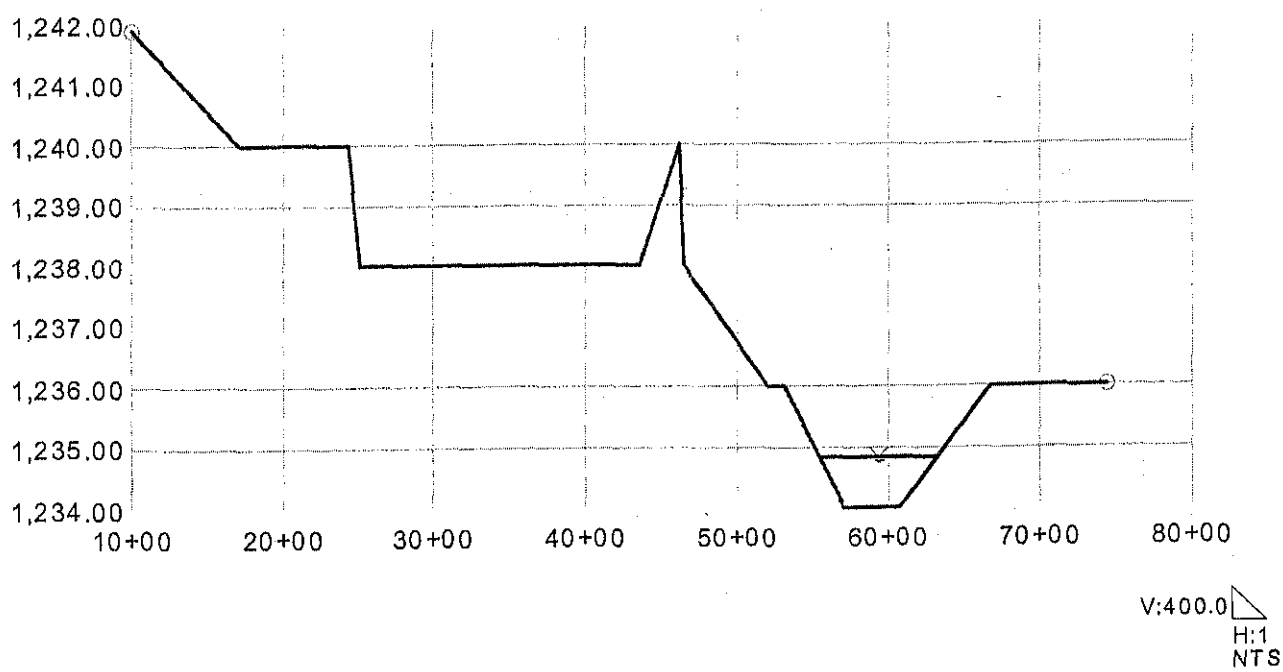
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,241.91
17+10	1,240.00
24+40	1,240.00
25+10	1,238.00
43+50	1,238.00
46+20	1,240.00
46+50	1,238.00
52+00	1,236.00
53+20	1,236.00
57+10	1,234.00
60+80	1,234.00
66+80	1,236.00
74+50	1,236.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.566
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004500	ft/ft
Water Surface Elevation	1,234.83	ft
Elevation Range	1,234.00 to 1,241.91	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.386
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003500	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,229.33	ft
Elevation Range	1,228.00 to 1,238.20	
Flow Area	506.7	ft²
Wetted Perimeter	761.49	ft
Top Width	761.49	ft
Actual Depth	1.33	ft
Critical Elevation	1,228.59	ft
Critical Slope	0.264664	ft/ft
Velocity	0.61	ft/s
Velocity Head	0.01	ft
Specific Energy	1,229.34	ft
Froude Number	0.13	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	73+00	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,238.20
18+00	1,236.00
24+60	1,236.00
30+00	1,234.00
30+20	1,232.00
31+70	1,234.00
32+40	1,238.00
33+20	1,237.50
46+20	1,238.00
48+40	1,236.00
49+00	1,232.00
60+00	1,232.90
61+60	1,230.00
62+00	1,230.00

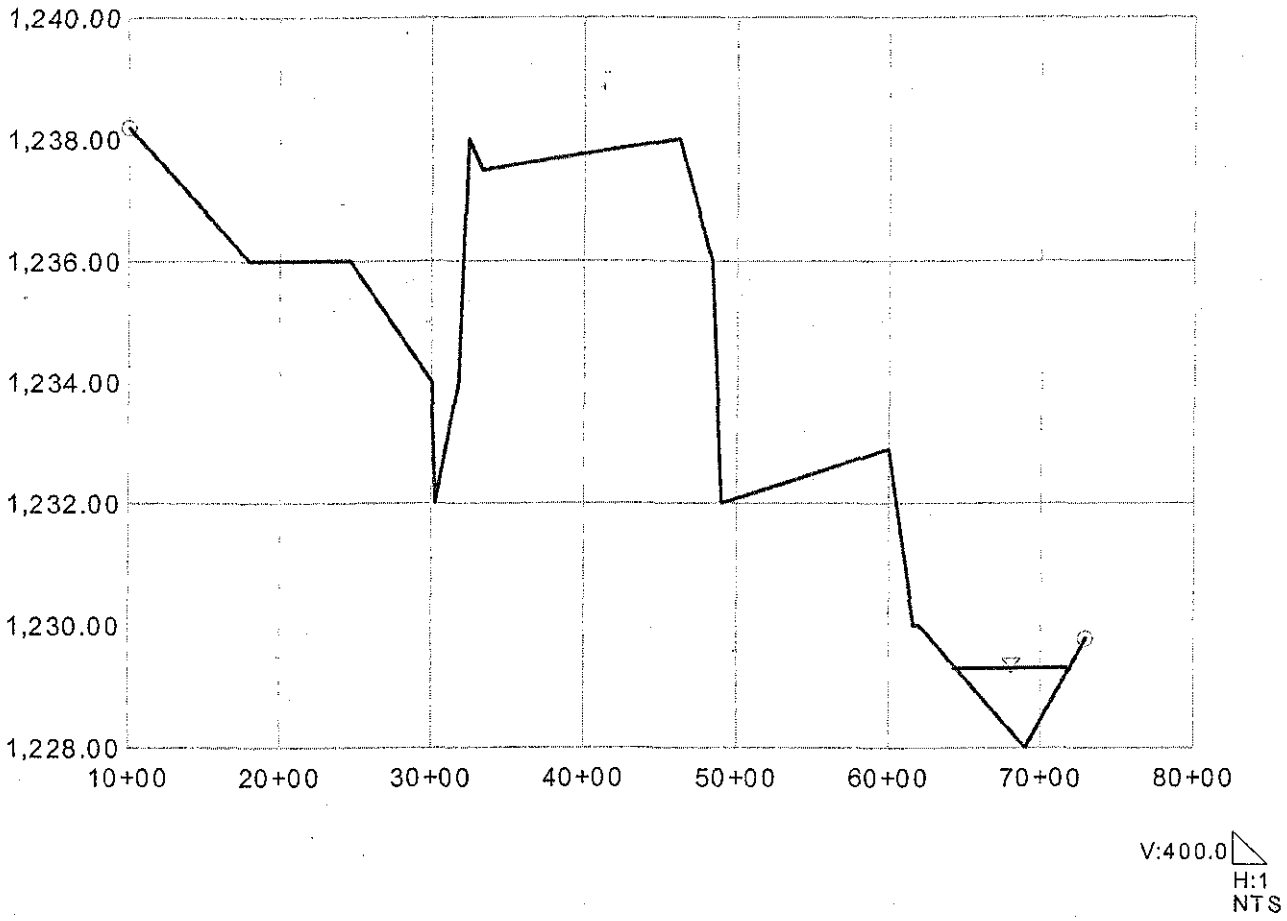
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
69+00	1,228.00
73+00	1,229.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.386
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003500	ft/ft
Water Surface Elevation	1,229.33	ft
Elevation Range	1,228.00 to 1,238.20	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.243
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006200	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,225.64	ft
Elevation Range	1,224.00 to 1,234.60	
Flow Area	284.3	ft²
Wetted Perimeter	275.68	ft
Top Width	275.62	ft
Actual Depth	1.64	ft
Critical Elevation	1,224.68	ft
Critical Slope	0.222741	ft/ft
Velocity	1.09	ft/s
Velocity Head	0.02	ft
Specific Energy	1,225.66	ft
Froude Number	0.19	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	75+80	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,234.60
13+80	1,234.00
27+20	1,232.00
27+80	1,230.00
30+40	1,234.00
42+90	1,234.00
43+50	1,232.00
49+90	1,232.00
55+70	1,230.00
58+00	1,230.00
58+20	1,228.00
64+00	1,226.00
64+30	1,224.00
65+00	1,224.00

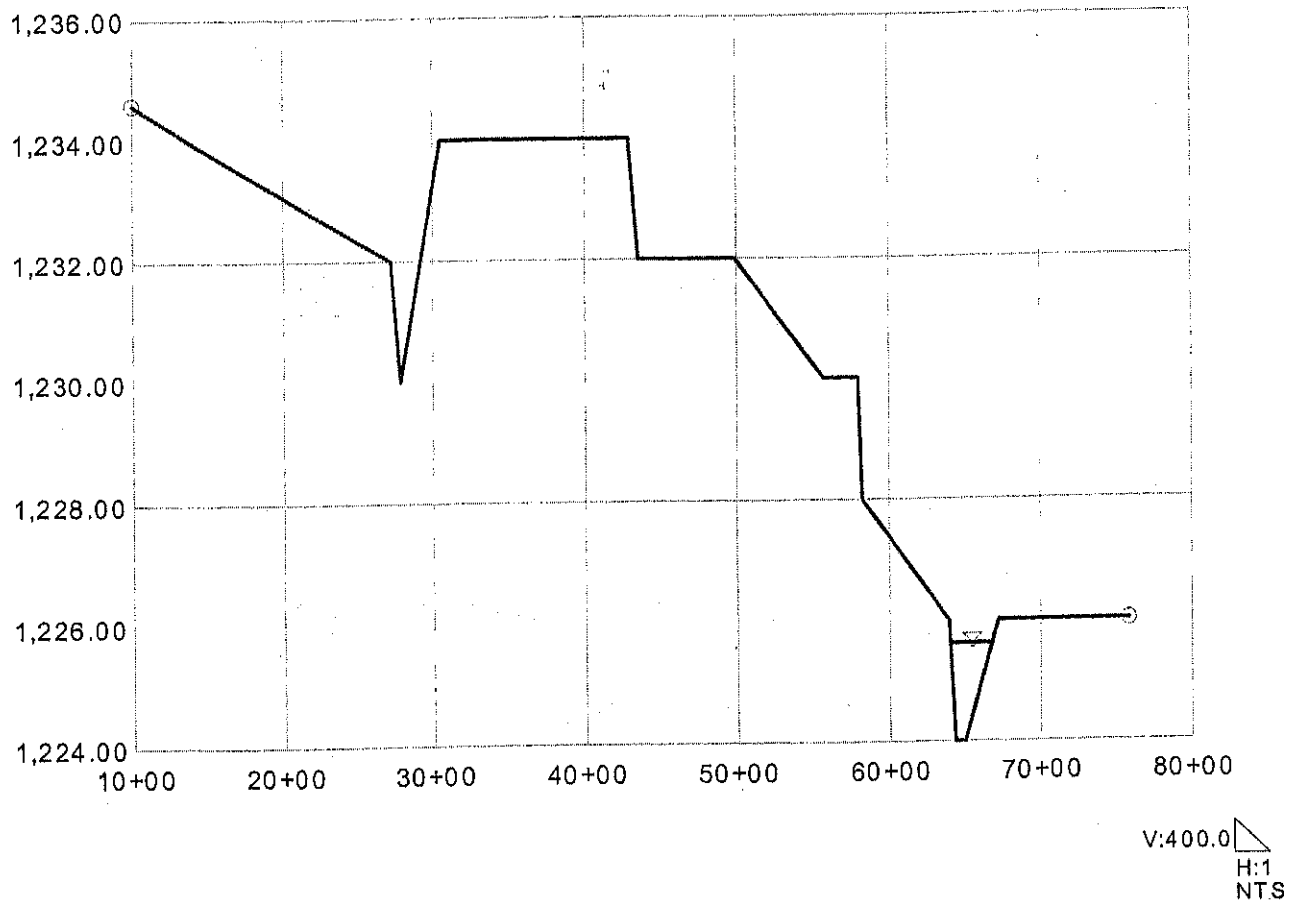
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
67+20	1,226.00
75+80	1,226.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.243
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006200	ft/ft
Water Surface Elevation	1,225.64	ft
Elevation Range	1,224.00 to 1,234.60	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.188
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.003800	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,222.67	ft
Elevation Range	1,222.00 to 1,234.90	
Flow Area	522.6	ft²
Wetted Perimeter	875.03	ft
Top Width	874.93	ft
Actual Depth	0.67	ft
Critical Elevation	1,222.18	ft
Critical Slope	0.314278	ft/ft
Velocity	0.59	ft/s
Velocity Head	0.01	ft
Specific Energy	1,222.68	ft
Froude Number	0.13	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	101+80	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,234.90
21+50	1,232.00
22+00	1,230.00
30+00	1,231.40
34+40	1,232.00
37+20	1,234.00
42+20	1,232.00
54+40	1,232.00
58+60	1,230.00
58+80	1,228.00

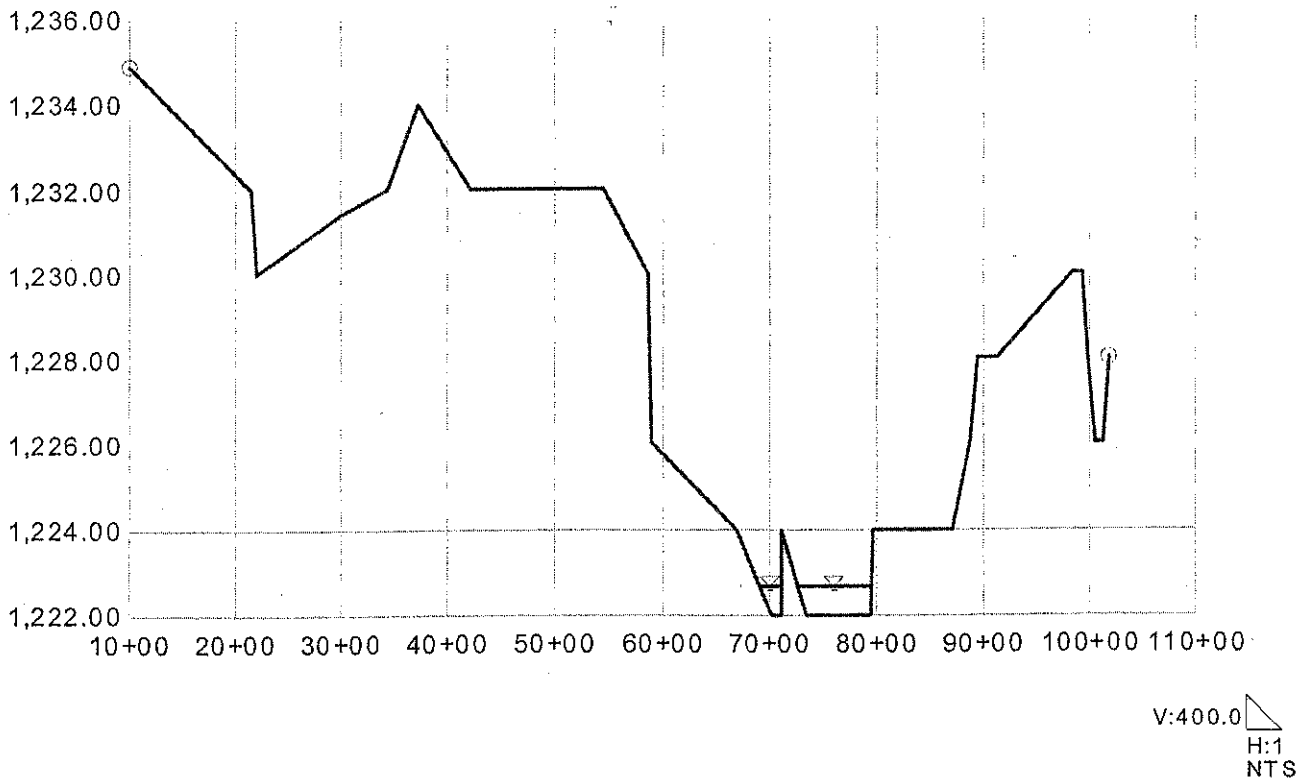
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
59+00	1,226.00
67+00	1,224.00
70+20	1,222.00
71+10	1,222.00
71+20	1,224.00
73+50	1,222.00
79+40	1,222.00
79+60	1,224.00
87+00	1,224.00
88+80	1,226.00
89+40	1,228.00
91+30	1,228.00
98+40	1,230.00
99+30	1,230.00
99+80	1,228.00
100+40	1,226.00
101+30	1,226.00
101+80	1,228.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.188
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003800	ft/ft
Water Surface Elevation	1,222.67	ft
Elevation Range	1,222.00 to 1,234.90	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.129
Flow Element	Irregular Channel
Method	Manning's Formul
Solve For	Channel Depth

Input Data		
Slope	0.008600	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,221.09	ft
Elevation Range	1,220.00 to 1,233.90	
Flow Area	321.8	ft²
Wetted Perimeter	480.59	ft
Top Width	480.58	ft
Actual Depth	1.09	ft
Critical Elevation	1,220.49	ft
Critical Slope	0.252731	ft/ft
Velocity	0.96	ft/s
Velocity Head	0.01	ft
Specific Energy	1,221.10	ft
Froude Number	0.21	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	102+50	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,233.90
20+50	1,232.00
25+50	1,232.00
27+60	1,230.00
29+20	1,230.00
33+50	1,232.00
34+00	1,230.00
34+80	1,230.00
36+50	1,232.00
42+10	1,232.00
42+40	1,230.00
45+90	1,230.00
46+90	1,232.00
50+90	1,232.00

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37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

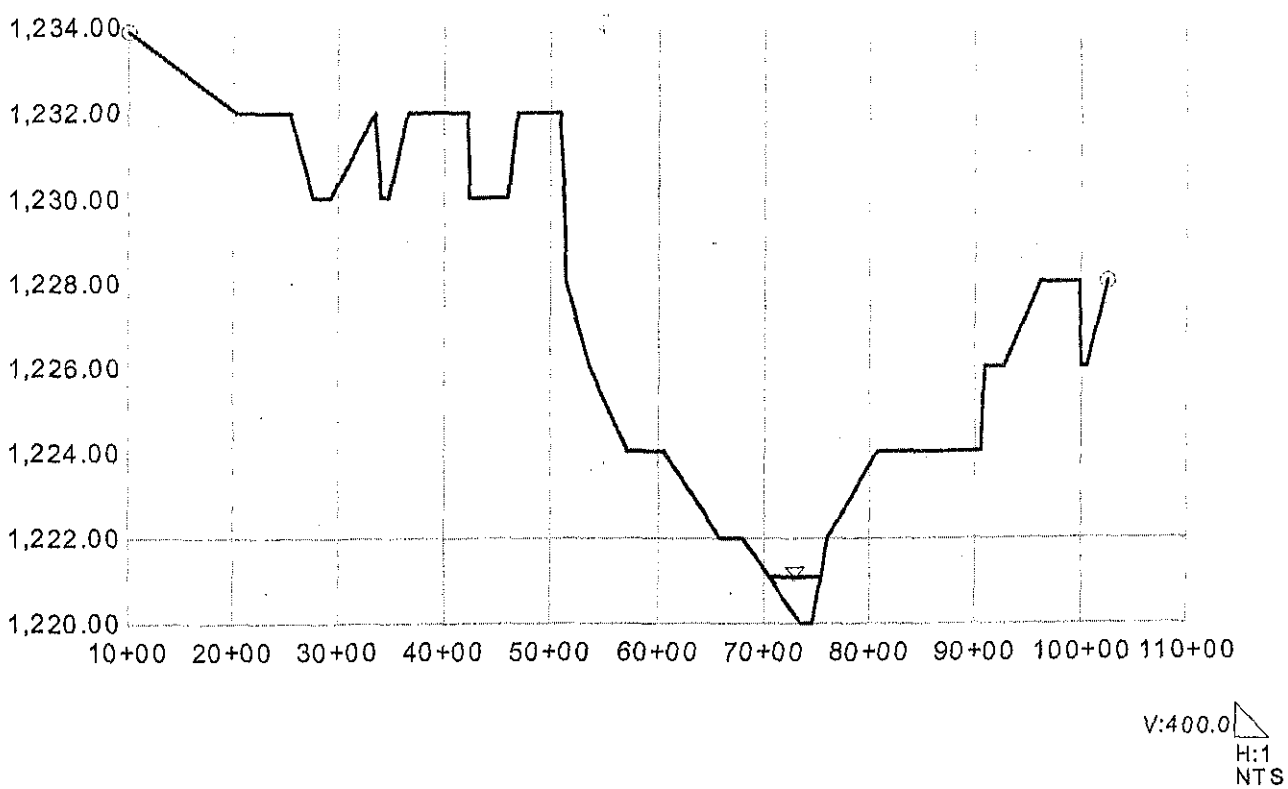
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
51+20	1,230.00
51+40	1,228.00
53+50	1,226.00
57+10	1,224.00
60+60	1,224.00
65+90	1,222.00
68+10	1,222.00
73+50	1,220.00
74+60	1,220.00
76+00	1,222.00
80+80	1,224.00
90+50	1,224.00
90+80	1,226.00
92+70	1,226.00
96+20	1,228.00
99+70	1,228.00
99+90	1,226.00
100+40	1,226.00
102+50	1,228.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.129
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.008600	ft/ft
Water Surface Elevation	1,221.09	ft
Elevation Range	1,220.00 to 1,233.90	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.030
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.000400	ft/ft
Discharge	308.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,221.02	ft
Elevation Range	1,220.00 to 1,230.00	
Flow Area	1,313.5	ft²
Wetted Perimeter	1,619.63	ft
Top Width	1,619.63	ft
Actual Depth	1.02	ft
Critical Elevation	1,220.15	ft
Critical Slope	0.340075	ft/ft
Velocity	0.23	ft/s
Velocity Head	8.58e-4	ft
Specific Energy	1,221.02	ft
Froude Number	0.05	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	94+30	0.110

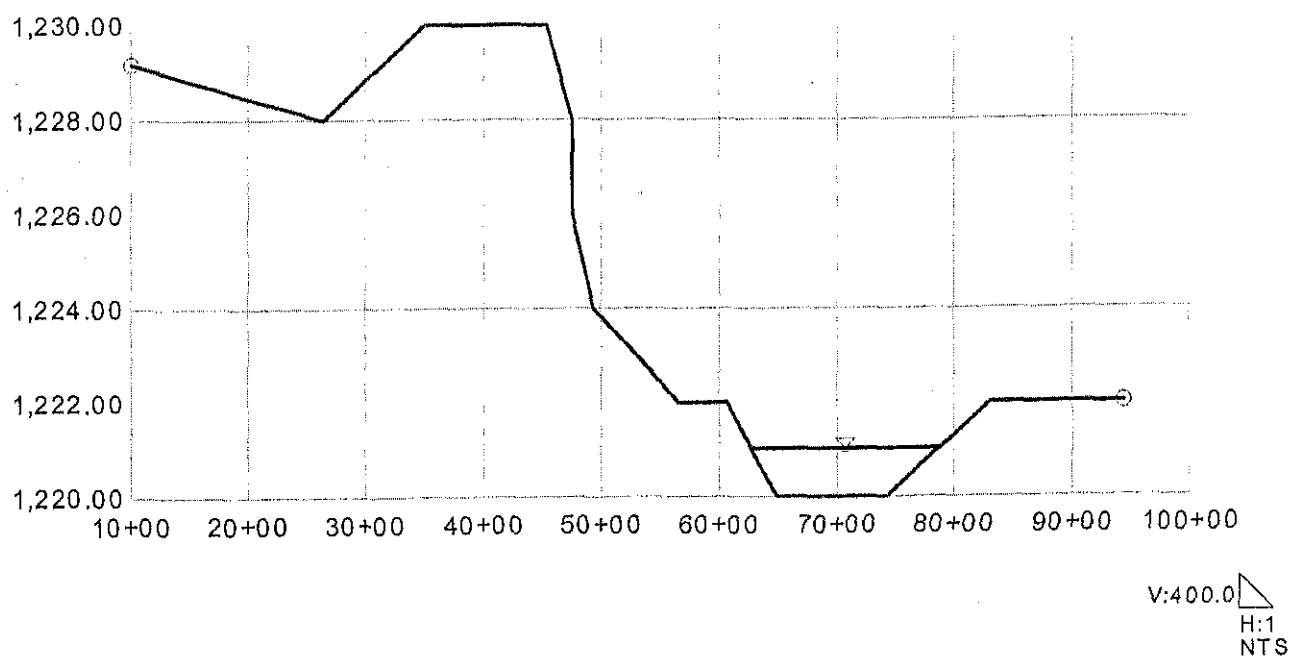
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,229.15
26+40	1,228.00
35+00	1,230.00
45+50	1,230.00
47+50	1,228.00
47+60	1,226.00
49+30	1,224.00
56+50	1,222.00
60+60	1,222.00
64+90	1,220.00
74+40	1,220.00
83+20	1,222.00
94+30	1,222.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.030
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000400	ft/ft
Water Surface Elevation	1,221.02	ft
Elevation Range	1,220.00 to 1,230.00	
Discharge	308.61	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.980
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.014200	ft/ft
Discharge	313.09	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,218.92	ft
Elevation Range	1,218.00 to 1,228.17	
Flow Area	327.3	ft²
Wetted Perimeter	714.58	ft
Top Width	714.58	ft
Actual Depth	0.92	ft
Critical Elevation	1,218.53	ft
Critical Slope	0.275293	ft/ft
Velocity	0.96	ft/s
Velocity Head	0.01	ft
Specific Energy	1,218.93	ft
Froude Number	0.25	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	103+80	0.110

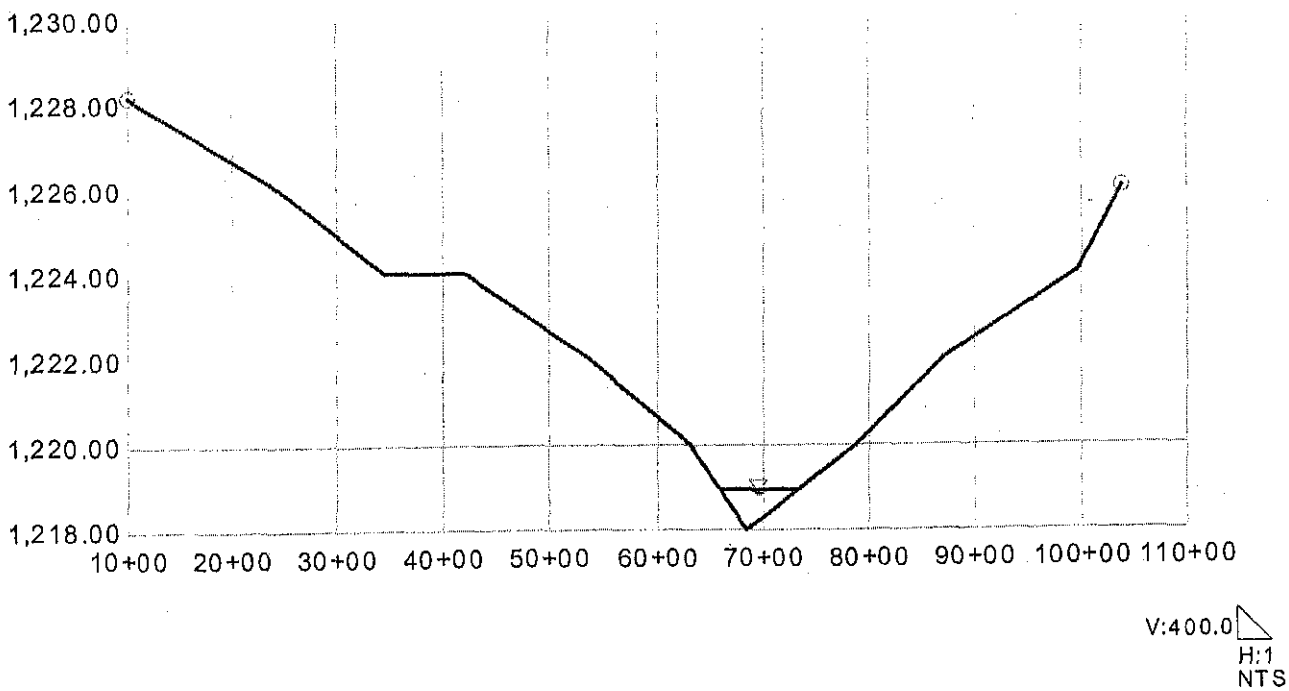
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,228.17
24+60	1,226.00
34+60	1,224.00
42+00	1,224.00
53+50	1,222.00
63+20	1,220.00
68+40	1,218.00
78+80	1,220.00
87+00	1,222.00
99+60	1,224.00
103+80	1,226.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.980
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.014200	ft/ft
Water Surface Elevation	1,218.92	ft
Elevation Range	1,218.00 to 1,228.17	
Discharge	313.09	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.917
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.004500	ft/ft
Discharge	591.10	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,216.90	ft
Elevation Range	1,216.00 to 1,224.63	
Flow Area	813.6	ft²
Wetted Perimeter	1,133.19	ft
Top Width	1,133.18	ft
Actual Depth	0.90	ft
Critical Elevation	1,216.28	ft
Critical Slope	0.278832	ft/ft
Velocity	0.73	ft/s
Velocity Head	0.01	ft
Specific Energy	1,216.91	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	98+30	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,224.63
11+50	1,224.00
24+10	1,224.00
32+00	1,222.00
49+60	1,222.00
57+80	1,220.00
60+00	1,220.00
61+40	1,218.00
63+30	1,218.00
70+00	1,216.00
76+80	1,216.00
80+20	1,218.00
85+30	1,220.00
88+40	1,220.00

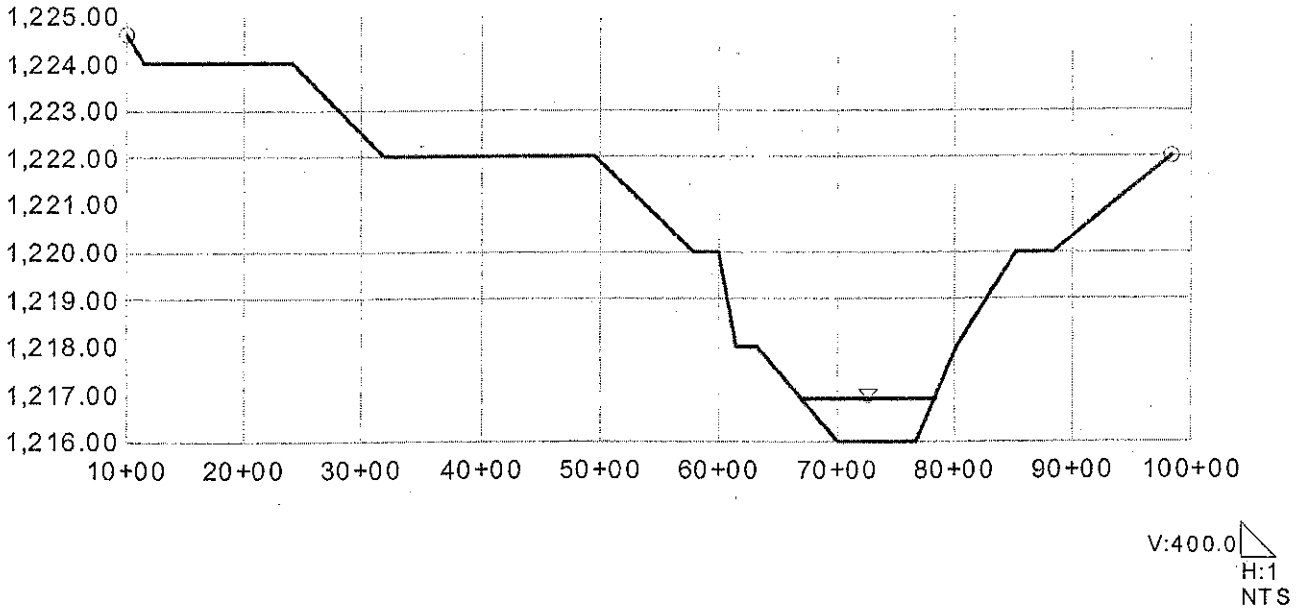
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
98+30	1,222.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.917
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004500	ft/ft
Water Surface Elevation	1,216.90	ft
Elevation Range	1,216.00 to 1,224.63	
Discharge	591.10	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.862
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.008200	ft/ft
Discharge	920.31	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,216.65	ft
Elevation Range	1,216.00 to 1,224.00	
Flow Area	1,060.2	ft²
Wetted Perimeter	1,773.37	ft
Top Width	1,773.29	ft
Actual Depth	0.65	ft
Critical Elevation	1,216.23	ft
Critical Slope	0.292482	ft/ft
Velocity	0.87	ft/s
Velocity Head	0.01	ft
Specific Energy	1,216.66	ft
Froude Number	0.20	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	90+40	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,223.37
11+50	1,222.00
14+00	1,224.00
22+10	1,224.00
34+00	1,222.00
41+00	1,220.00
47+00	1,220.00
47+20	1,218.00
47+70	1,218.00
47+80	1,220.00

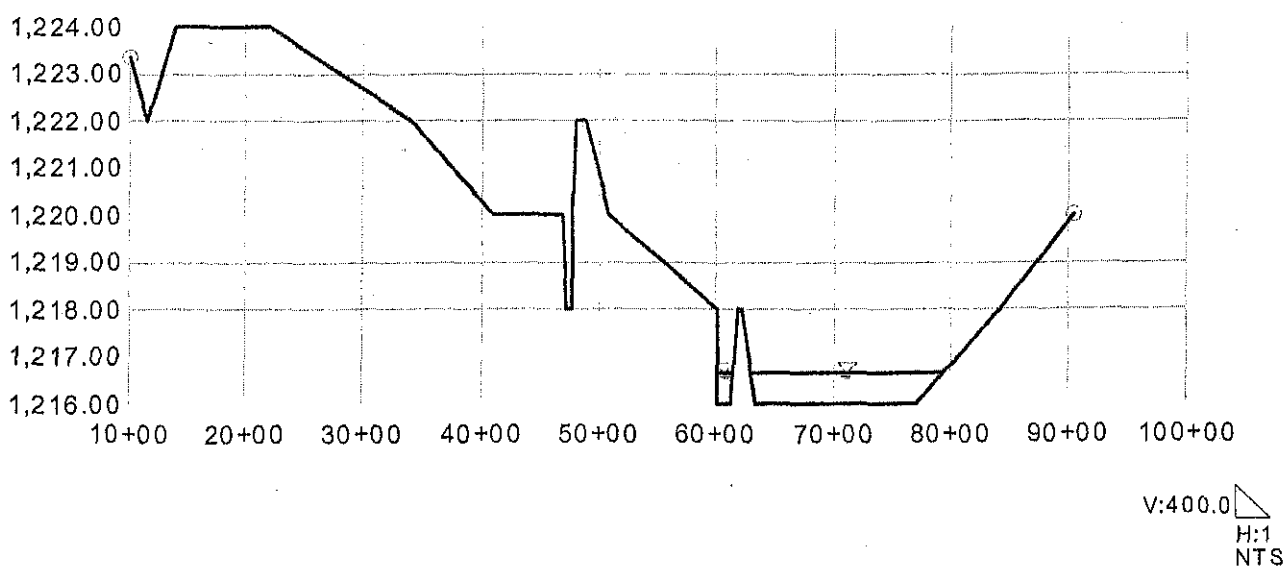
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
48+10	1,222.00
48+90	1,222.00
50+90	1,220.00
60+10	1,218.00
60+20	1,216.00
61+30	1,216.00
61+90	1,218.00
62+20	1,218.00
63+40	1,216.00
77+10	1,216.00
84+20	1,218.00
90+40	1,220.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.862
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.008200	ft/ft
Water Surface Elevation	1,216.65	ft
Elevation Range	1,216.00 to 1,224.00	
Discharge	920.31	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.002700	ft/ft
Discharge	1,663.18	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,215.23	ft
Elevation Range	1,214.00 to 1,222.00	
Flow Area	2,170.7	ft²
Wetted Perimeter	1,903.44	ft
Top Width	1,903.42	ft
Actual Depth	1.23	ft
Critical Elevation	1,214.32	ft
Critical Slope	0.260829	ft/ft
Velocity	0.77	ft/s
Velocity Head	0.01	ft
Specific Energy	1,215.23	ft
Froude Number	0.13	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	91+00	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,220.34
12+40	1,220.00
14+00	1,222.00
14+90	1,222.00
29+60	1,220.00
38+90	1,220.00
47+50	1,218.00
47+60	1,216.00
48+20	1,216.00
48+40	1,218.00
48+60	1,220.00
54+50	1,218.00
60+50	1,216.00
61+50	1,214.00

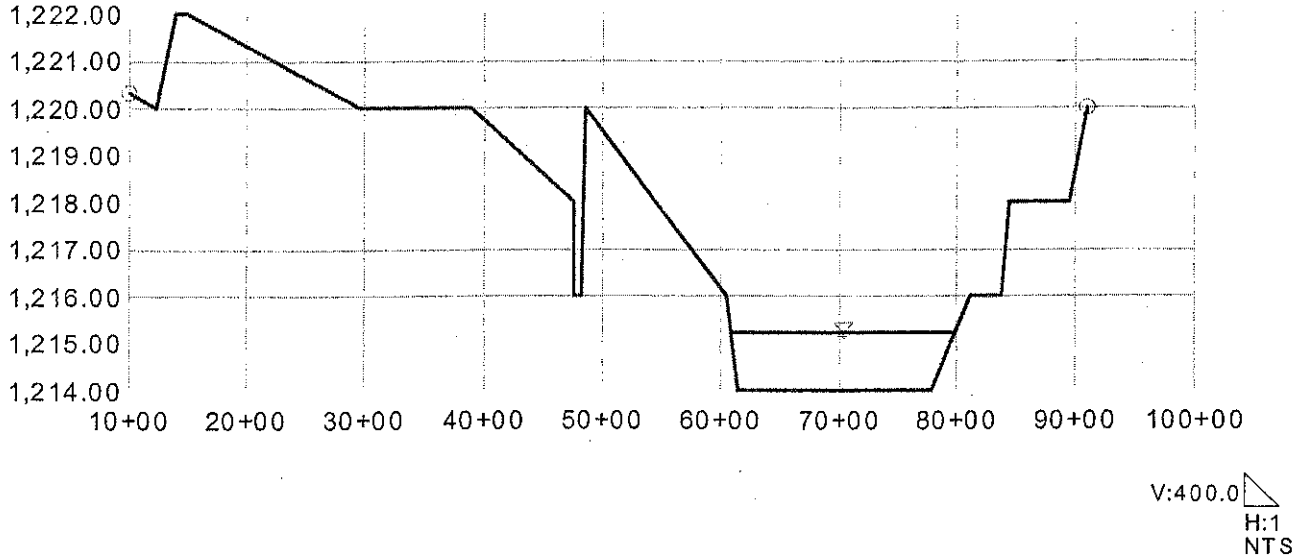
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
77+90	1,214.00
81+20	1,216.00
83+80	1,216.00
84+50	1,218.00
89+50	1,218.00
91+00	1,220.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.002700	ft/ft
Water Surface Elevation	1,215.23	ft
Elevation Range	1,214.00 to 1,222.00	
Discharge	1,663.18	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006500	ft/ft
Discharge	2,282.54	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,213.08	ft
Elevation Range	1,212.00 to 1,218.83	
Flow Area	2,077.3	ft²
Wetted Perimeter	2,049.72	ft
Top Width	2,049.68	ft
Actual Depth	1.08	ft
Critical Elevation	1,212.37	ft
Critical Slope	0.248300	ft/ft
Velocity	1.10	ft/s
Velocity Head	0.02	ft
Specific Energy	1,213.10	ft
Froude Number	0.19	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	95+40	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,218.83
13+50	1,218.00
32+50	1,218.00
33+90	1,216.00
35+90	1,216.00
40+90	1,214.00
42+40	1,216.00
43+80	1,216.00
47+60	1,214.00
47+80	1,214.00
48+10	1,216.00
49+40	1,216.00
57+00	1,214.00
59+30	1,214.00

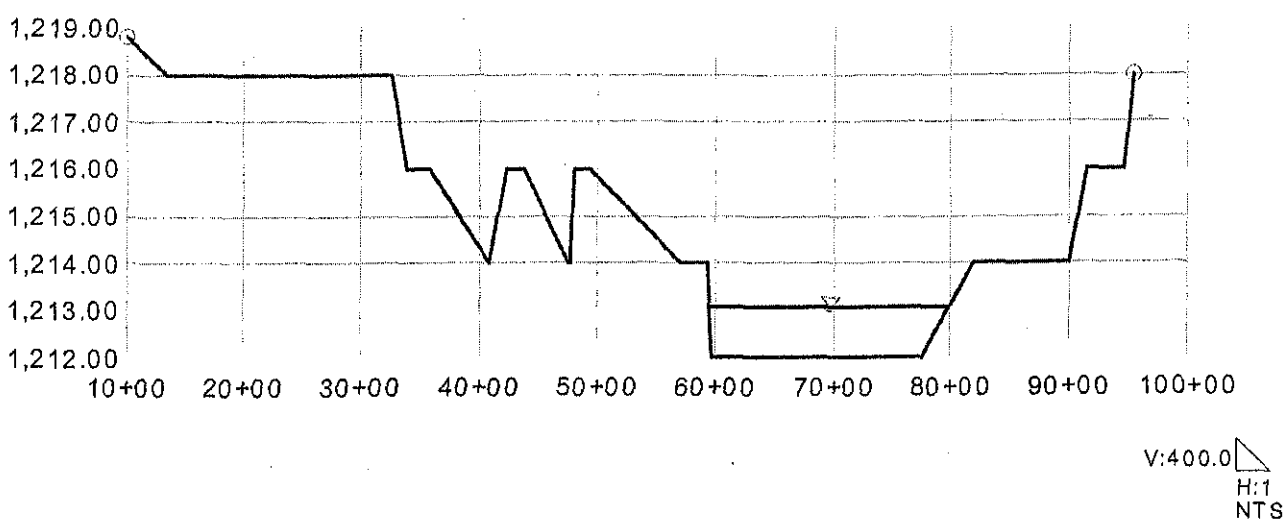
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
59+60	1,212.00
77+50	1,212.00
82+00	1,214.00
90+00	1,214.00
91+40	1,216.00
94+60	1,216.00
95+40	1,218.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006500	ft/ft
Water Surface Elevation	1,213.08	ft
Elevation Range	1,212.00 to 1,218.83	
Discharge	2,282.54	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.009100	ft/ft
Discharge	2,449.24	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,211.19	ft
Elevation Range	1,210.00 to 1,216.00	
Flow Area	1,796.0	ft²
Wetted Perimeter	1,649.67	ft
Top Width	1,649.55	ft
Actual Depth	1.19	ft
Critical Elevation	1,210.46	ft
Critical Slope	0.231757	ft/ft
Velocity	1.36	ft/s
Velocity Head	0.03	ft
Specific Energy	1,211.22	ft
Froude Number	0.23	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	87+70	0.110

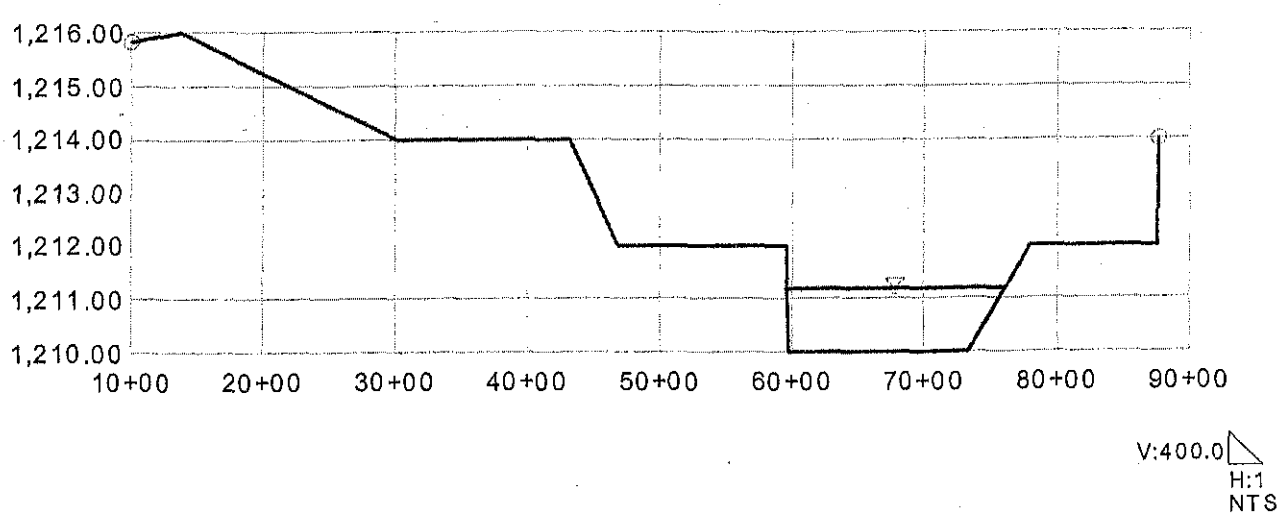
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,215.84
13+80	1,216.00
30+20	1,214.00
43+20	1,214.00
46+80	1,212.00
57+20	1,212.00
59+60	1,212.00
59+70	1,210.00
73+40	1,210.00
78+00	1,212.00
87+60	1,212.00
87+70	1,214.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.009100	ft/ft
Water Surface Elevation	1,211.19	ft
Elevation Range	1,210.00 to 1,216.00	
Discharge	2,449.24	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.001400	ft/ft
Discharge	3,378.37	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,210.64	ft
Elevation Range	1,208.00 to 1,214.00	
Flow Area	5,877.0	ft²
Wetted Perimeter	4,845.46	ft
Top Width	4,845.39	ft
Actual Depth	2.64	ft
Critical Elevation	1,208.60	ft
Critical Slope	0.212016	ft/ft
Velocity	0.57	ft/s
Velocity Head	0.01	ft
Specific Energy	1,210.65	ft
Froude Number	0.09	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	98+00	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,212.00
12+80	1,214.00
31+30	1,214.00
42+00	1,212.00
43+00	1,210.00
45+30	1,210.00
45+50	1,212.00
46+00	1,212.00
53+50	1,210.00
57+60	1,210.00

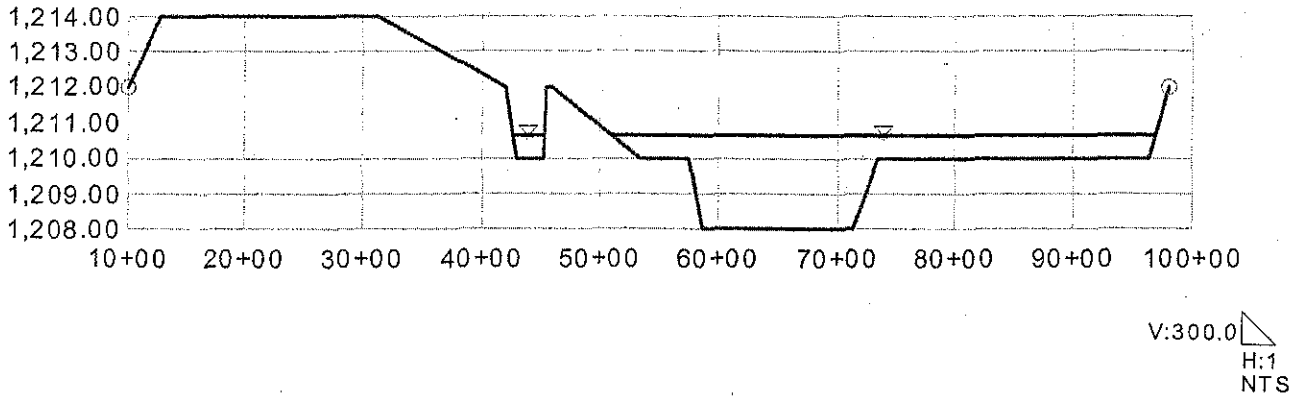
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
58+70	1,208.00
71+40	1,208.00
73+50	1,210.00
96+30	1,210.00
98+00	1,212.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.001400	ft/ft
Water Surface Elevation	1,210.64	ft
Elevation Range	1,208.00 to 1,214.00	
Discharge	3,378.37	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.003700	ft/ft
Discharge	*3,695.76*	*cfs*

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,208.63	ft
Elevation Range	1,206.00 to 1,212.00	
Flow Area	4,348.3	ft^2
Wetted Perimeter	4,133.41	ft
Top Width	4,133.02	ft
Actual Depth	2.63	ft
Critical Elevation	1,207.21	ft
Critical Slope	0.196955	ft/ft
Velocity	0.85	ft/s
Velocity Head	0.01	ft
Specific Energy	1,208.64	ft
Froude Number	0.15	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	97+20	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,211.26
25+00	1,212.00
29+00	1,212.00
30+40	1,210.00
39+40	1,210.00
40+00	1,208.00
55+60	1,208.00
56+00	1,210.00
56+30	1,210.00
56+60	1,208.00

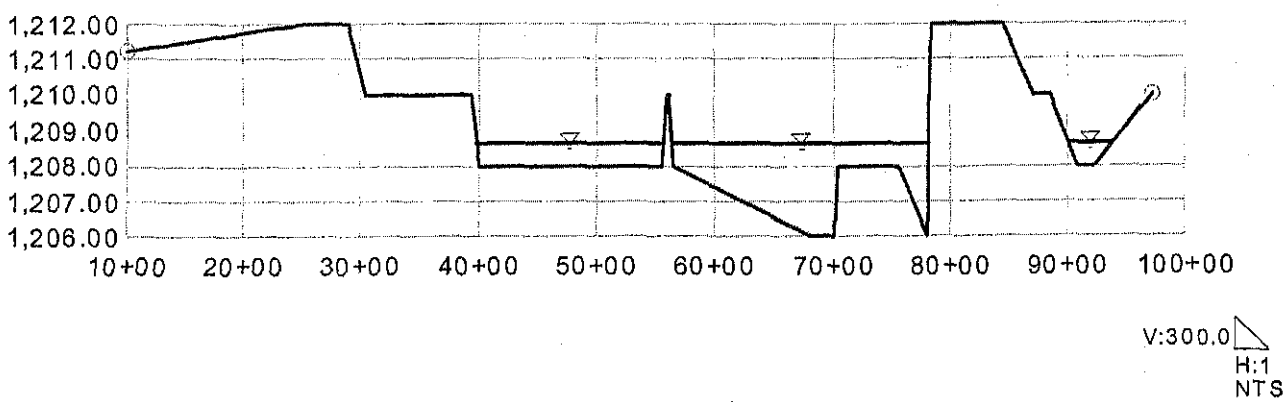
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
68+10	1,206.00
70+10	1,206.00
70+40	1,208.00
75+60	1,208.00
78+10	1,206.00
78+30	1,210.00
78+40	1,212.00
84+50	1,212.00
87+00	1,210.00
88+50	1,210.00
90+80	1,208.00
92+20	1,208.00
97+20	1,210.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003700	ft/ft
Water Surface Elevation	1,208.63	ft
Elevation Range	1,206.00 to 1,212.00	
Discharge	3,695.76	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.007900	ft/ft
Discharge	3,696.77	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,206.15	ft
Elevation Range	1,204.00 to 1,210.00	
Flow Area	2,928.0	ft²
Wetted Perimeter	2,715.23	ft
Top Width	2,714.81	ft
Actual Depth	2.15	ft
Critical Elevation	1,204.70	ft
Critical Slope	0.202169	ft/ft
Velocity	1.26	ft/s
Velocity Head	0.02	ft
Specific Energy	1,206.17	ft
Froude Number	0.21	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	68+70	0.110

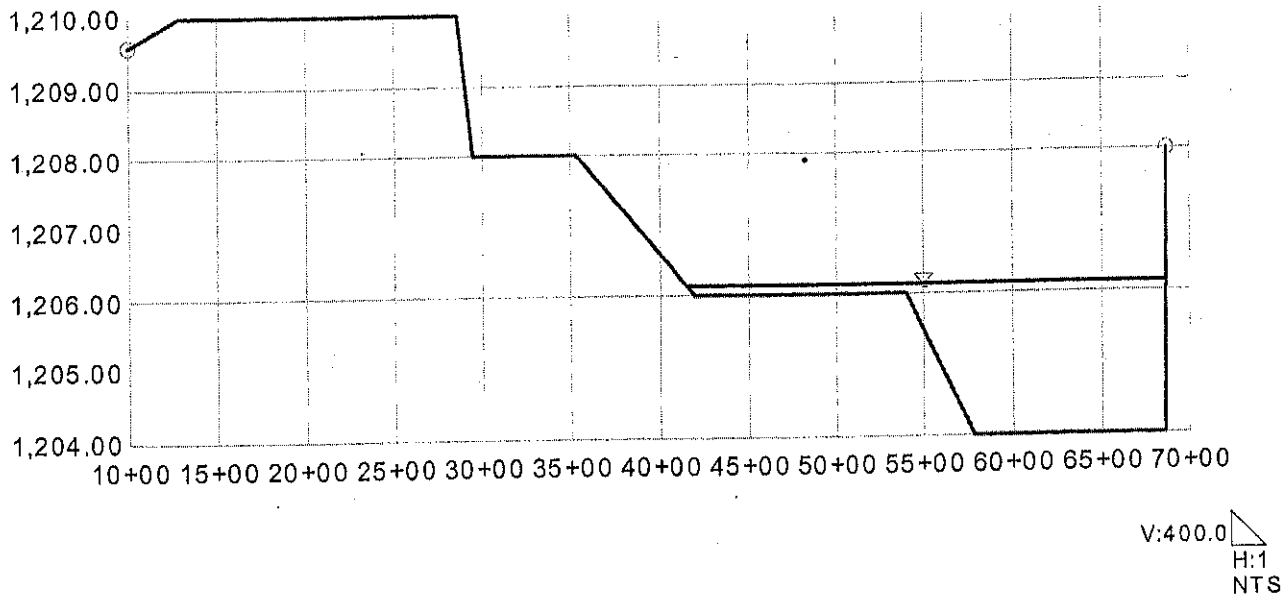
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,209.60
12+90	1,210.00
28+60	1,210.00
29+50	1,208.00
35+40	1,208.00
42+00	1,206.00
54+10	1,206.00
57+90	1,204.00
68+60	1,204.00
68+70	1,208.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.007900	ft/ft
Water Surface Elevation	1,206.15	ft
Elevation Range	1,204.00 to 1,210.00	
Discharge	3,696.77	cfs



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Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.271
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000300	ft/ft
Discharge	3,696.77	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,207.54	ft
Elevation Range	1,204.00 to 1,210.00	
Flow Area	9,135.7	ft²
Wetted Perimeter	4,016.71	ft
Top Width	4,016.32	ft
Actual Depth	3.54	ft
Critical Elevation	1,204.60	ft
Critical Slope	0.210648	ft/ft
Velocity	0.40	ft/s
Velocity Head	2.54e-3	ft
Specific Energy	1,207.55	ft
Froude Number	0.05	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	68+60	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,207.62
12+00	1,208.00
20+50	1,210.00
22+50	1,210.00
25+20	1,208.00
27+40	1,208.00
27+80	1,206.00
40+20	1,206.00
41+10	1,204.00
41+60	1,204.00
42+00	1,206.00
53+60	1,206.00
53+80	1,204.00
67+30	1,204.00

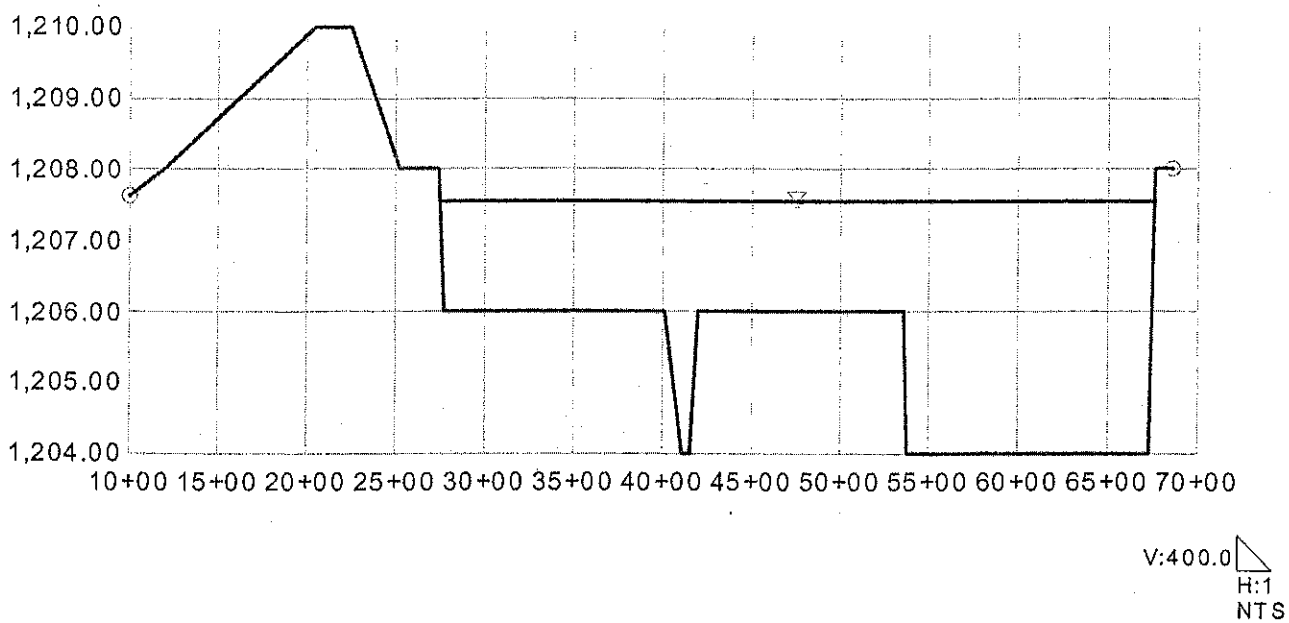
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
67+70	1,208.00
68+60	1,208.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.271
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000300	ft/ft
Water Surface Elevation	1,207.54	ft
Elevation Range	1,204.00 to 1,210.00	
Discharge	3,696.77	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.176
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.007900	ft/ft
Discharge	3,696.77	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,203.53	ft
Elevation Range	1,202.00 to 1,207.50	
Flow Area	2,769.3	ft²
Wetted Perimeter	2,362.11	ft
Top Width	2,362.07	ft
Actual Depth	1.53	ft
Critical Elevation	1,202.68	ft
Critical Slope	0.224830	ft/ft
Velocity	1.33	ft/s
Velocity Head	0.03	ft
Specific Energy	1,203.56	ft
Froude Number	0.22	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	66+90	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,207.50
18+00	1,206.00
27+00	1,204.00
27+20	1,204.00
28+60	1,206.00
38+50	1,206.00
39+40	1,204.00
40+30	1,202.00
41+50	1,202.00
46+20	1,202.60

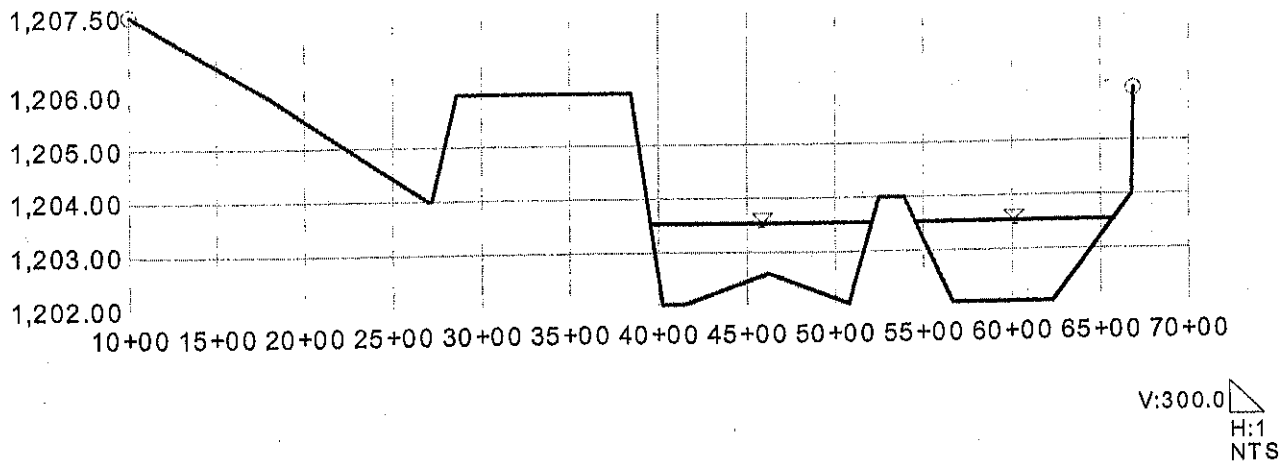
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
50+80	1,202.00
52+50	1,204.00
54+00	1,204.00
56+70	1,202.00
62+30	1,202.00
66+80	1,204.00
66+90	1,206.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.176
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.007900	ft/ft
Water Surface Elevation	1,203.53	ft
Elevation Range	1,202.00 to 1,207.50	
Discharge	3,696.77	cfs



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Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.002700	ft/ft
Discharge	3,696.77	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,201.49	ft
Elevation Range	1,198.00 to 1,205.16	
Flow Area	3,880.8	ft²
Wetted Perimeter	2,454.62	ft
Top Width	2,454.47	ft
Actual Depth	3.49	ft
Critical Elevation	1,199.47	ft
Critical Slope	0.176669	ft/ft
Velocity	0.95	ft/s
Velocity Head	0.01	ft
Specific Energy	1,201.50	ft
Froude Number	0.13	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	65+70	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,205.16
21+00	1,204.00
27+40	1,204.00
34+30	1,202.00
35+60	1,202.00
39+20	1,200.00
41+70	1,200.00
46+50	1,202.00
47+10	1,202.00
47+40	1,200.00

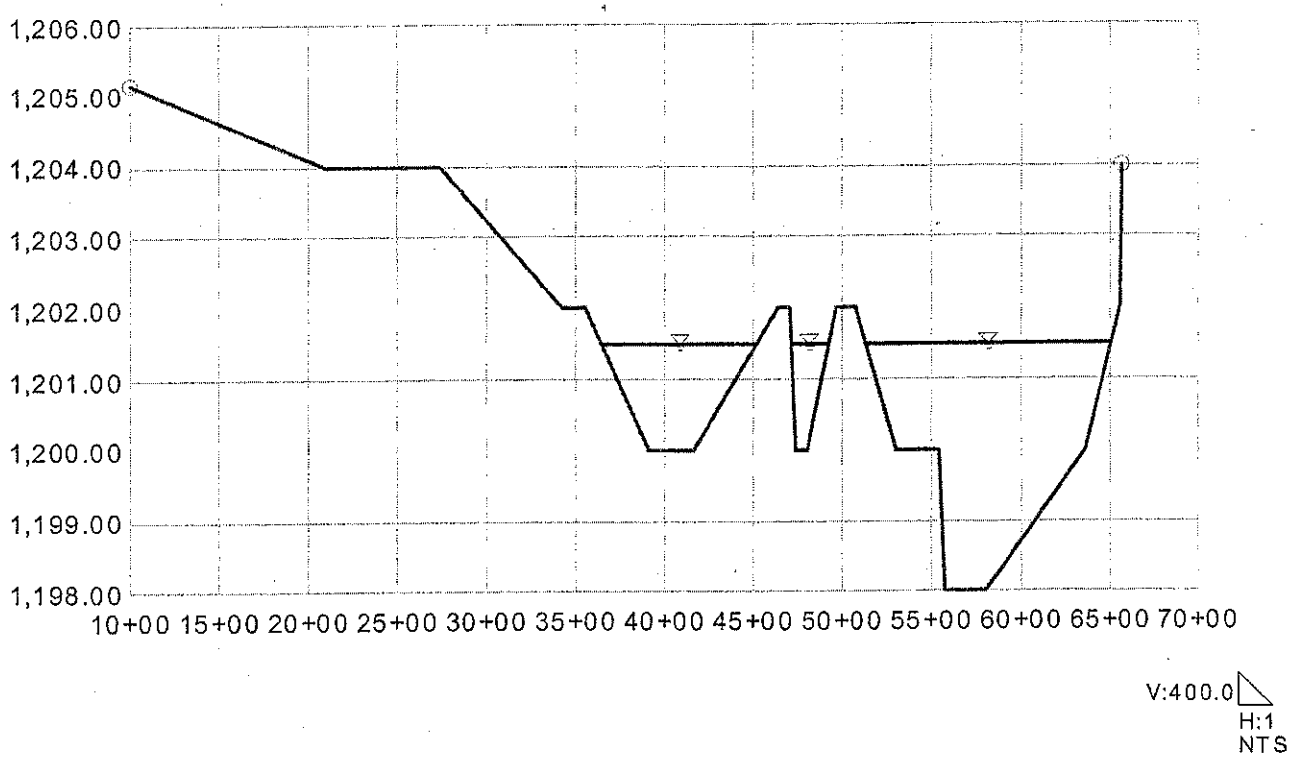
Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
48+10	1,200.00
49+70	1,202.00
50+80	1,202.00
53+10	1,200.00
55+50	1,200.00
55+80	1,198.00
58+10	1,198.00
63+60	1,200.00
65+60	1,202.00
65+70	1,204.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.002700	ft/ft
Water Surface Elevation	1,201.49	ft
Elevation Range	1,198.00 to 1,205.16	
Discharge	3,696.77	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.984
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000100	ft/ft
Discharge	3,696.77	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,201.20	ft
Elevation Range	1,196.00 to 1,204.00	
Flow Area	14,225.3	ft²
Wetted Perimeter	5,331.22	ft
Top Width	5,331.00	ft
Actual Depth	5.20	ft
Critical Elevation	1,197.35	ft
Critical Slope	0.196992	ft/ft
Velocity	0.26	ft/s
Velocity Head	1.05e-3	ft
Specific Energy	1,201.20	ft
Froude Number	0.03	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	72+00	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,204.00
13+60	1,202.00
17+00	1,200.00
28+30	1,200.00
34+20	1,198.00
42+80	1,197.40
47+20	1,198.00
53+50	1,196.00
56+60	1,196.50
62+60	1,198.00
62+70	1,200.00
72+00	1,202.00

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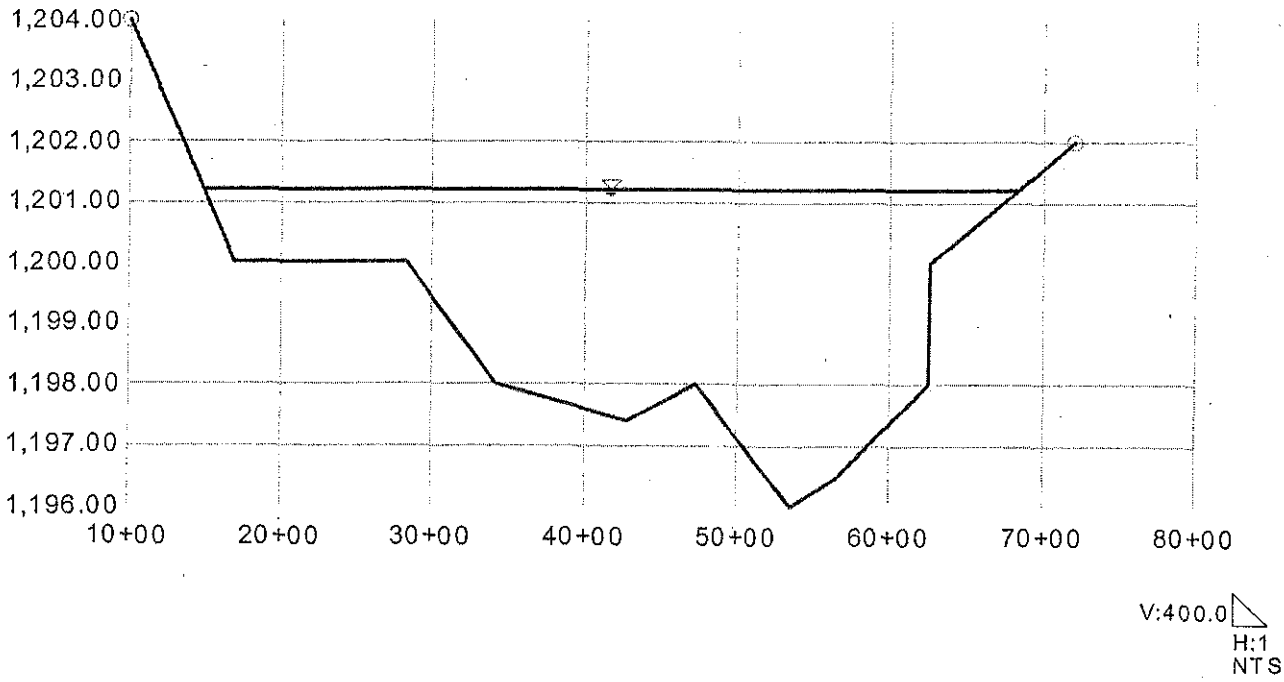
Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.984
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000100	ft/ft
Water Surface Elevation	1,201.20	ft
Elevation Range	1,196.00 to 1,204.00	
Discharge	3,696.77	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.953
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000100	ft/ft
Discharge	3,696.77	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,199.92	ft
Elevation Range	1,196.00 to 1,202.00	
Flow Area	13,617.8	ft²
Wetted Perimeter	4,780.10	ft
Top Width	4,780.07	ft
Actual Depth	3.92	ft
Critical Elevation	1,196.47	ft
Critical Slope	0.233053	ft/ft
Velocity	0.27	ft/s
Velocity Head	1.15e-3	ft
Specific Energy	1,199.92	ft
Froude Number	0.03	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	76+20	0.110

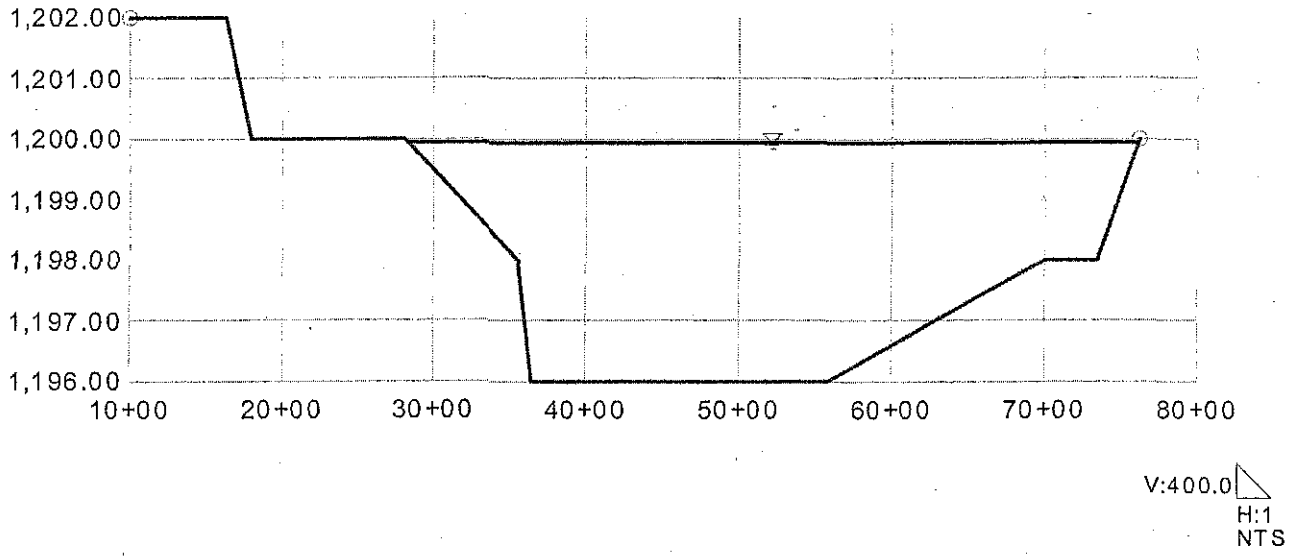
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,202.00
16+40	1,202.00
18+00	1,200.00
28+00	1,200.00
35+50	1,198.00
36+40	1,196.00
55+70	1,196.00
70+00	1,198.00
73+40	1,198.00
76+20	1,200.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.953
Flow Element	*Irregular Channel*
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000100	ft/ft
Water Surface Elevation	1,199.92	ft
Elevation Range	1,196.00 to 1,202.00	
Discharge	*3,696.77*	*cfs*



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.908
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.009100	ft/ft
Discharge	3,696.77	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,198.28	ft
Elevation Range	1,196.50 to 1,203.00	
Flow Area	3,570.0	ft²
Wetted Perimeter	4,955.88	ft
Top Width	4,955.88	ft
Actual Depth	1.78	ft
Critical Elevation	1,197.43	ft
Critical Slope	0.227270	ft/ft
Velocity	1.04	ft/s
Velocity Head	0.02	ft
Specific Energy	1,198.29	ft
Froude Number	0.22	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

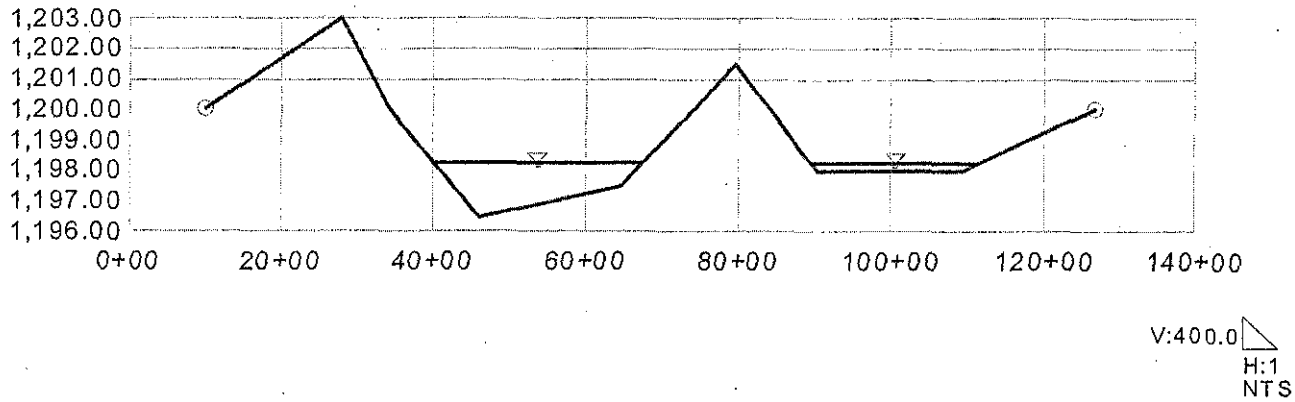
Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	126+80	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,200.00
27+70	1,203.00
34+20	1,200.00
46+00	1,196.50
64+50	1,197.50
79+50	1,201.50
90+50	1,198.00
109+40	1,198.00
126+80	1,200.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.908
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.009100	ft/ft
Water Surface Elevation	1,198.28	ft
Elevation Range	1,196.50 to 1,203.00	
Discharge	3,696.77	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.592
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	3,696.77	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,191.33	ft
Elevation Range	1,190.00 to 1,197.00	
Flow Area	3,221.3	ft²
Wetted Perimeter	2,839.57	ft
Top Width	2,839.57	ft
Actual Depth	1.33	ft
Critical Elevation	1,190.46	ft
Critical Slope	0.233150	ft/ft
Velocity	1.15	ft/s
Velocity Head	0.02	ft
Specific Energy	1,191.35	ft
Froude Number	0.19	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	137+20	0.110

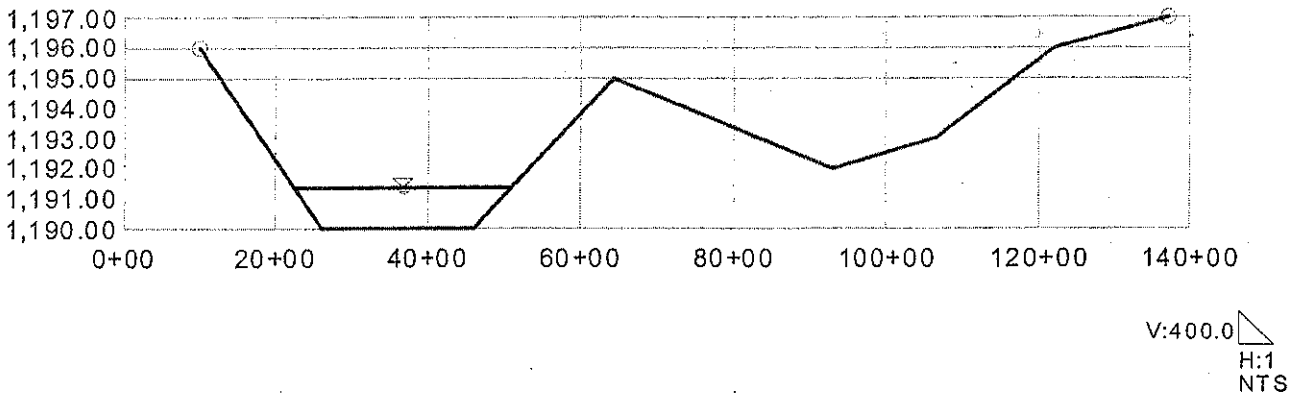
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,196.00
26+00	1,190.00
46+00	1,190.00
64+20	1,195.00
93+00	1,192.00
106+60	1,193.00
122+10	1,196.00
137+20	1,197.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.592
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,191.33	ft
Elevation Range	1,190.00 to 1,197.00	
Discharge	3,696.77	cfs



Approximate Methods for the 2/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	8.731
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	3,696.77	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,171.22	ft
Elevation Range	1,170.00 to 1,175.00	
Flow Area	3,677.6	ft²
Wetted Perimeter	3,954.27	ft
Top Width	3,954.26	ft
Actual Depth	1.22	ft
Critical Elevation	1,170.43	ft
Critical Slope	0.242924	ft/ft
Velocity	1.01	ft/s
Velocity Head	0.02	ft
Specific Energy	1,171.23	ft
Froude Number	0.18	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	113+00	0.110

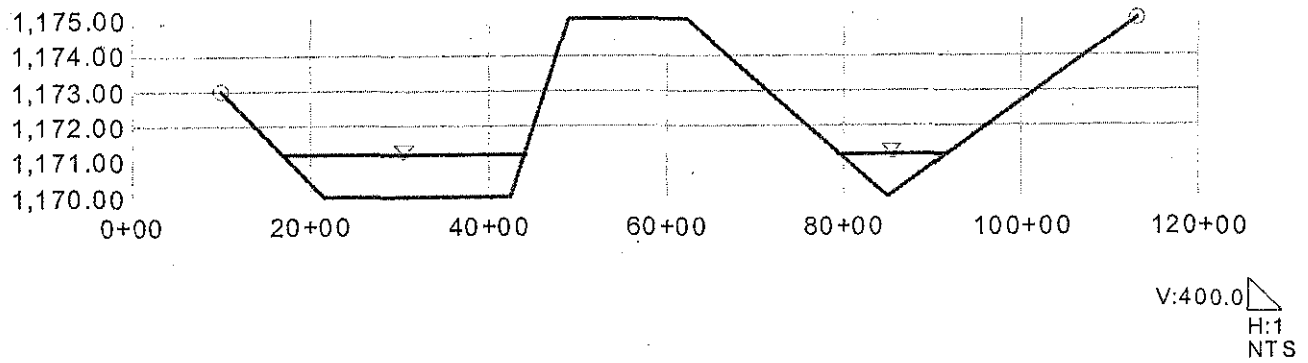
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,173.00
21+70	1,170.00
42+60	1,170.00
49+00	1,175.00
62+30	1,175.00
85+00	1,170.00
113+00	1,175.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	8.731
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,171.22	ft
Elevation Range	1,170.00 to 1,175.00	
Discharge	3,696.77	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.129
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005500	ft/ft
Discharge	34.31	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.022	
Water Surface Elevation	1,220.16	ft
Elevation Range	1,220.00 to 1,231.31	
Flow Area	23.6	ft²
Wetted Perimeter	151.98	ft
Top Width	151.95	ft
Actual Depth	0.16	ft
Critical Elevation	1,220.12	ft
Critical Slope	0.014246	ft/ft
Velocity	1.46	ft/s
Velocity Head	0.03	ft
Specific Energy	1,220.19	ft
Froude Number	0.65	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+60	0.035
10+60	11+95	0.015
11+95	12+40	0.035
12+40	13+70	0.015
13+70	13+75	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,228.00
10+60	1,227.00
10+95	1,226.00
11+10	1,224.00
11+20	1,222.00
11+30	1,220.00
11+95	1,220.00
12+40	1,220.00
12+80	1,220.00
12+95	1,222.00

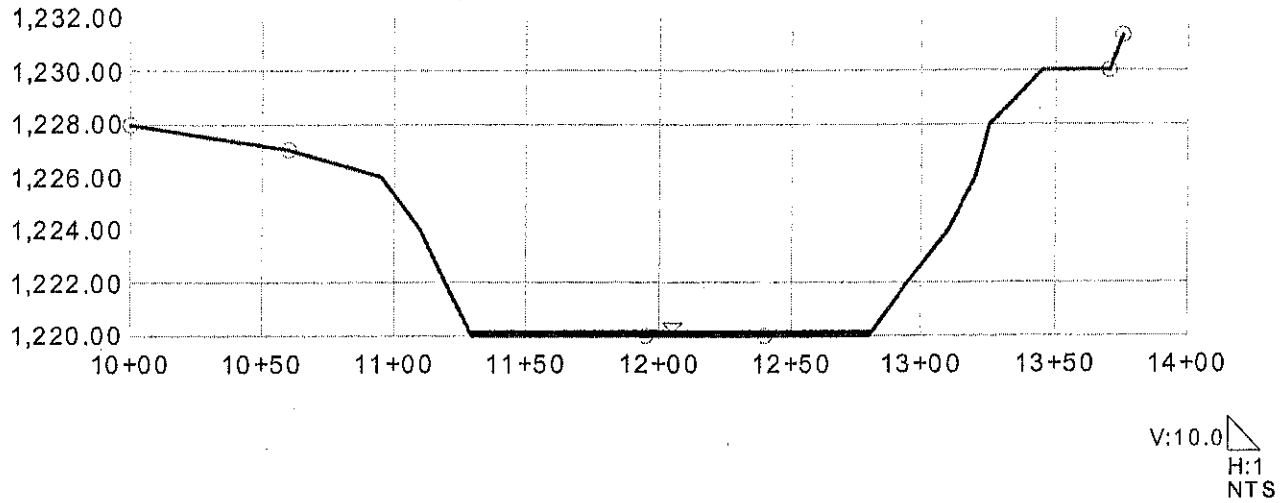
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
13+10	1,224.00
13+20	1,226.00
13+25	1,228.00
13+45	1,230.00
13+70	1,230.00
13+75	1,231.31

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.129
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.022	
Slope	0.005500	ft/ft
Water Surface Elevation	1,220.16	ft
Elevation Range	1,220.00 to 1,231.31	
Discharge	34.31	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	11.030
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.004500	ft/ft
Discharge	38.16	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.022	
Water Surface Elevation	1,113.64	ft
Elevation Range	1,113.00 to 1,234.00	
Flow Area	17.6	ft²
Wetted Perimeter	54.64	ft
Top Width	54.63	ft
Actual Depth	0.64	ft
Critical Elevation	1,113.55	ft
Critical Slope	0.010371	ft/ft
Velocity	2.17	ft/s
Velocity Head	0.07	ft
Specific Energy	1,113.72	ft
Froude Number	0.68	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+45	0.035
10+45	12+00	0.015
12+00	12+45	0.035
12+45	13+80	0.015
13+80	14+05	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,230.00
10+10	1,228.00
10+20	1,228.00
10+45	1,228.00
10+55	1,228.00
10+65	1,230.00
10+75	1,228.00
10+90	1,226.00
11+00	1,224.00
11+10	1,222.00

Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
11+20	1,220.00
11+30	1,118.00
11+40	1,116.00
11+50	1,115.00
11+60	1,114.00
12+00	1,113.00
12+45	1,114.00
13+00	1,116.00
13+10	1,118.00
13+15	1,220.00
13+25	1,222.00
13+35	1,224.00
13+40	1,226.00
13+50	1,228.00
13+60	1,230.00
13+70	1,232.00
13+80	1,234.00
14+05	1,234.00

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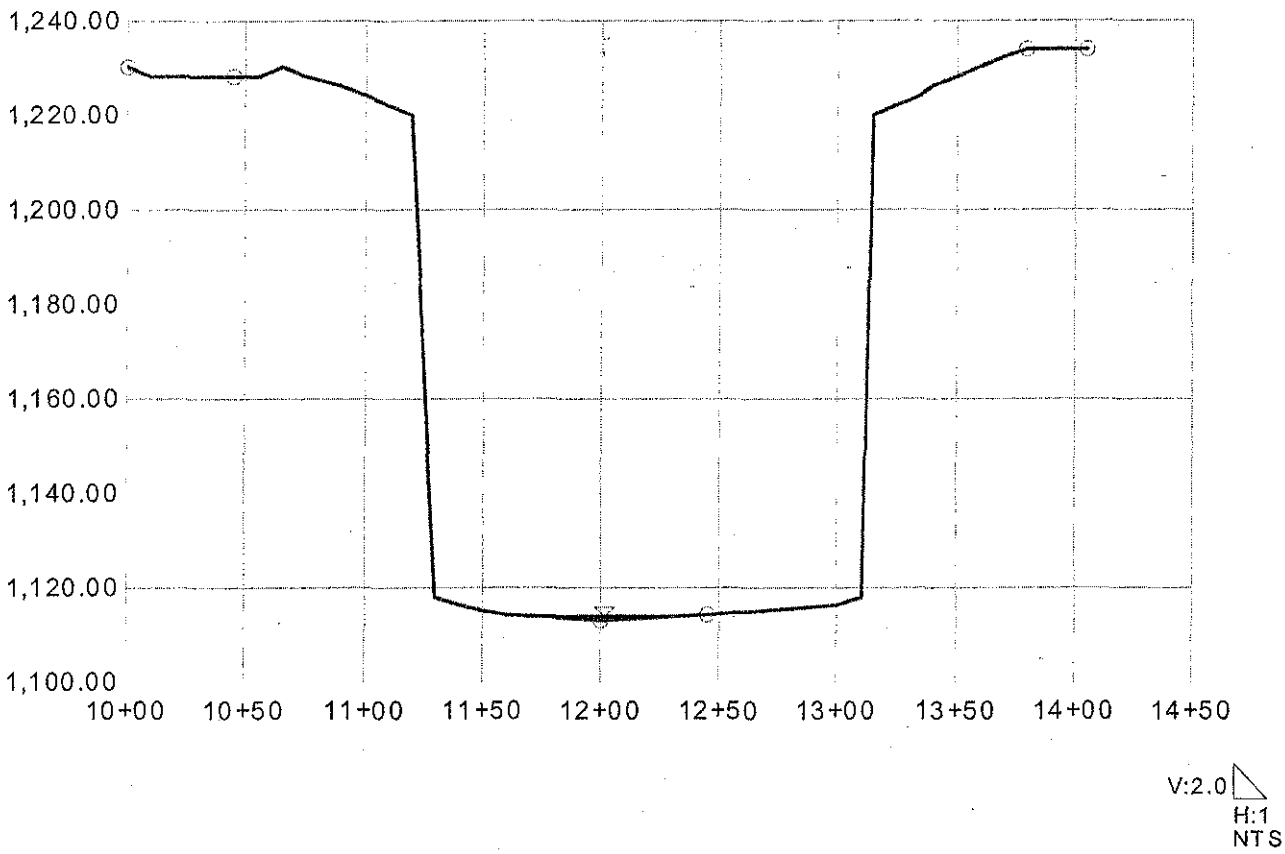
Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	11.030
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	*Channel Depth*

Section Data		
Mannings Coefficient	0.022	
Slope	0.004500	ft/ft
Water Surface Elevation	1,113.64	ft
Elevation Range	1,113.00 to 1,234.00	
Discharge	38.16	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.996
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000100	ft/ft
Discharge	38.16	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.018	
Water Surface Elevation	1,214.52	ft
Elevation Range	1,214.00 to 1,280.00	
Flow Area	73.9	ft²
Wetted Perimeter	145.32	ft
Top Width	145.19	ft
Actual Depth	0.52	ft
Critical Elevation	1,214.13	ft
Critical Slope	0.009653	ft/ft
Velocity	0.52	ft/s
Velocity Head	4.14e-3	ft
Specific Energy	1,214.52	ft
Froude Number	0.13	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	12+40	0.110
12+40	12+90	0.035
12+90	14+50	0.015
14+50	14+95	0.035
14+95	16+55	0.015
16+55	16+75	0.035

Natural Channel Points

Station (ft)	*Elevation (ft)*
10+00	1,230.00
11+10	1,228.00
12+00	1,226.00
12+40	1,225.00
12+70	1,224.00
12+90	1,224.00
13+30	1,226.00
13+40	1,280.00
13+45	1,230.00

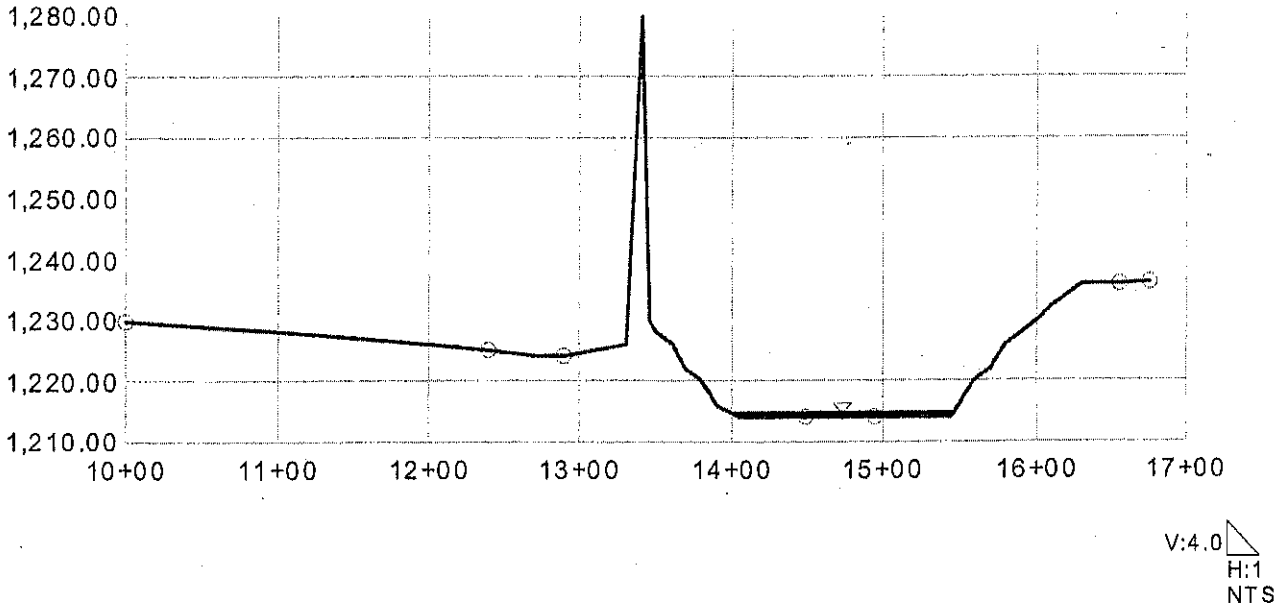
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
13+50	1,228.00
13+60	1,226.00
13+65	1,224.00
13+70	1,222.00
13+80	1,220.00
13+85	1,218.00
13+90	1,216.00
14+05	1,214.00
14+50	1,214.00
14+95	1,214.00
15+45	1,214.00
15+50	1,216.00
15+55	1,218.00
15+60	1,220.00
15+70	1,222.00
15+75	1,224.00
15+80	1,226.00
15+90	1,228.00
16+00	1,230.00
16+10	1,232.00
16+20	1,234.00
16+30	1,236.00
16+55	1,236.00
16+75	1,236.20

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.996
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.018	
Slope	0.000100	ft/ft
Water Surface Elevation	1,214.52	ft
Elevation Range	1,214.00 to 1,280.00	
Discharge	38.16	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.980
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.025100	ft/ft
Discharge	38.16	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.018	
Water Surface Elevation	1,212.15	ft
Elevation Range	1,212.00 to 1,236.20	
Flow Area	10.5	ft²
Wetted Perimeter	70.82	ft
Top Width	70.81	ft
Actual Depth	0.15	ft
Critical Elevation	1,212.22	ft
Critical Slope	0.008220	ft/ft
Velocity	3.63	ft/s
Velocity Head	0.20	ft
Specific Energy	1,212.36	ft
Froude Number	1.66	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	11+40	0.015
11+40	11+90	0.035
11+90	13+00	0.015
13+00	13+35	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,230.00
10+08	1,228.00
10+10	1,226.00
10+12	1,224.00
10+15	1,222.00
10+20	1,220.00
10+30	1,218.00
10+40	1,216.00
10+50	1,214.00
10+95	1,212.00
11+40	1,212.00

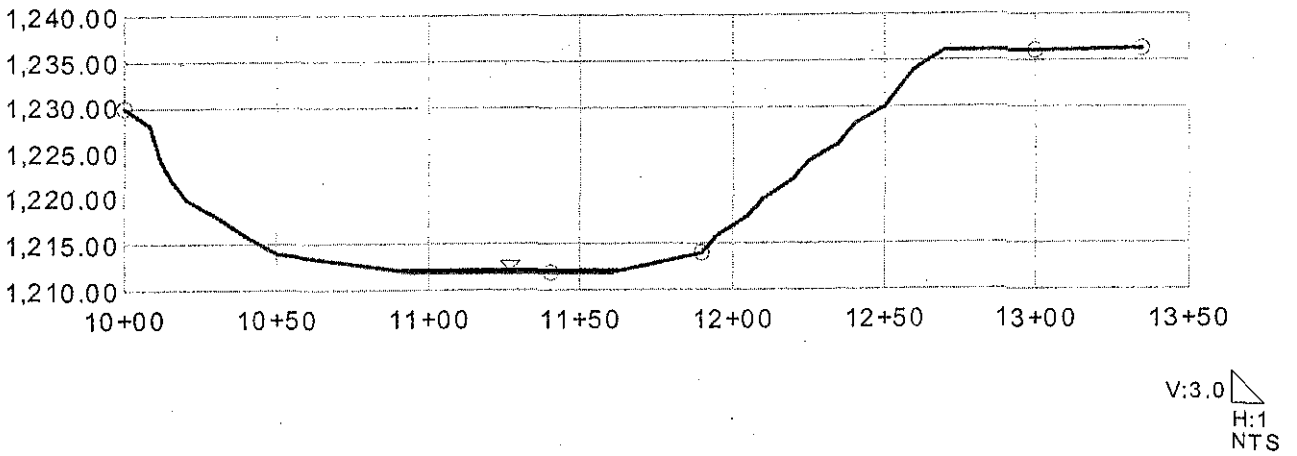
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
11+60	1,212.00
11+90	1,214.00
11+95	1,216.00
12+05	1,218.00
12+10	1,220.00
12+20	1,222.00
12+25	1,224.00
12+35	1,226.00
12+40	1,228.00
12+50	1,230.00
12+55	1,232.00
12+60	1,234.00
12+70	1,236.00
13+00	1,236.00
13+35	1,236.20

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.980
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.018	
Slope	0.025100	ft/ft
Water Surface Elevation	1,212.15	ft
Elevation Range	1,212.00 to 1,236.20	
Discharge	38.16	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.917
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003400	ft/ft
Discharge	92.93	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.019	
Water Surface Elevation	1,212.36	ft
Elevation Range	1,212.00 to 1,226.00	
Flow Area	41.2	ft²
Wetted Perimeter	119.88	ft
Top Width	119.85	ft
Actual Depth	0.36	ft
Critical Elevation	1,212.28	ft
Critical Slope	0.008000	ft/ft
Velocity	2.26	ft/s
Velocity Head	0.08	ft
Specific Energy	1,212.44	ft
Froude Number	0.68	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	11+10	0.015
11+10	11+50	0.035
11+50	13+10	0.015
13+10	13+90	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,226.00
10+10	1,224.00
10+20	1,222.00
10+25	1,220.00
10+35	1,218.00
10+45	1,216.00
10+60	1,214.00
10+95	1,212.00
11+10	1,212.00
11+50	1,212.00
12+05	1,212.00

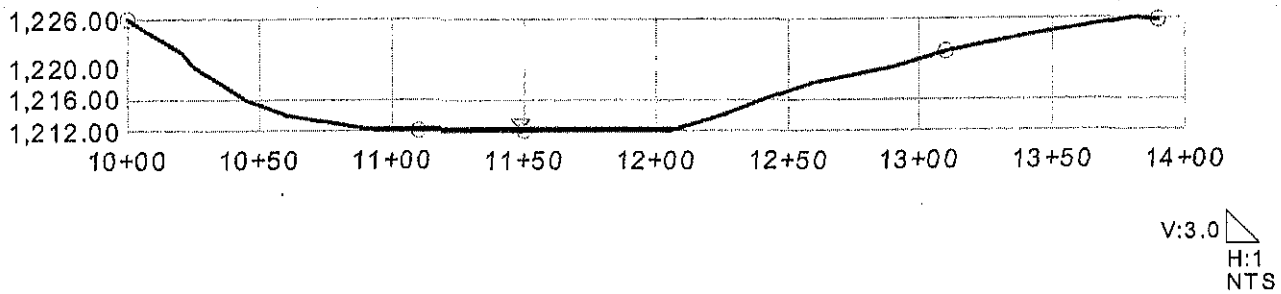
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+25	1,214.00
12+40	1,216.00
12+60	1,218.00
12+90	1,220.00
13+10	1,222.00
13+40	1,224.00
13+80	1,226.00
13+90	1,225.90

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.917
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.019	
Slope	0.003400	ft/ft
Water Surface Elevation	1,212.36	ft
Elevation Range	1,212.00 to 1,226.00	
Discharge	92.93	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.862
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004100	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.030	
Water Surface Elevation	1,211.46	ft
Elevation Range	1,210.00 to 1,225.12	
Flow Area	47.2	ft²
Wetted Perimeter	56.26	ft
Top Width	56.16	ft
Actual Depth	1.46	ft
Critical Elevation	1,211.09	ft
Critical Slope	0.014937	ft/ft
Velocity	2.83	ft/s
Velocity Head	0.12	ft
Specific Energy	1,211.59	ft
Froude Number	0.54	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+50	0.035
10+50	11+60	0.015
11+60	12+00	0.035
12+00	13+35	0.015
13+35	14+00	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,224.00
10+50	1,222.00
10+65	1,220.00
10+75	1,218.00
10+90	1,216.00
11+00	1,214.00
11+40	1,212.00
11+60	1,211.00
11+70	1,210.00
11+80	1,210.00

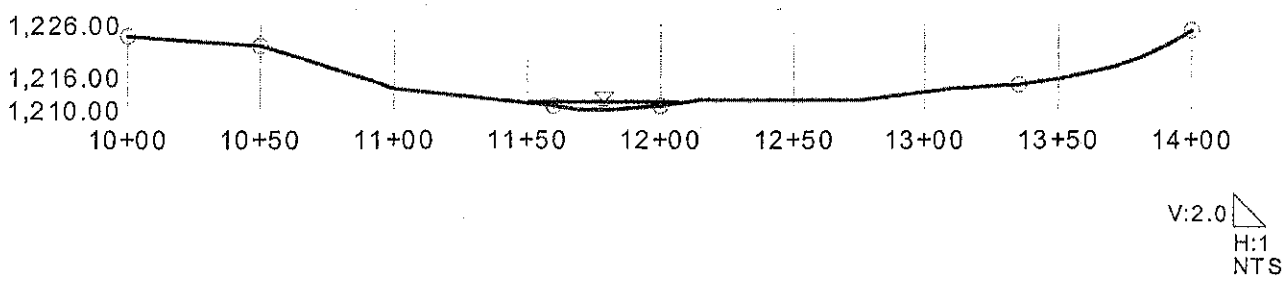
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+00	1,211.00
12+15	1,212.00
12+75	1,212.00
13+10	1,214.00
13+35	1,215.00
13+50	1,216.00
13+70	1,218.00
13+80	1,220.00
13+90	1,222.00
14+00	1,225.12

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.862
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.030	
Slope	0.004100	ft/ft
Water Surface Elevation	1,211.46	ft
Elevation Range	1,210.00 to 1,225.12	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004500	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.025	
Water Surface Elevation	1,211.09	ft
Elevation Range	1,210.00 to 1,224.10	
Flow Area	51.4	ft²
Wetted Perimeter	97.58	ft
Top Width	97.54	ft
Actual Depth	1.09	ft
Critical Elevation	1,210.90	ft
Critical Slope	0.011877	ft/ft
Velocity	2.60	ft/s
Velocity Head	0.11	ft
Specific Energy	1,211.19	ft
Froude Number	0.63	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+50	0.035
10+50	11+45	0.015
11+45	11+90	0.035
11+90	13+20	0.015
13+20	13+65	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,222.00
10+10	1,220.00
10+50	1,218.00
10+70	1,216.00
10+80	1,214.00
11+25	1,212.00
11+45	1,211.00
11+60	1,210.00
11+70	1,210.00
11+90	1,210.50

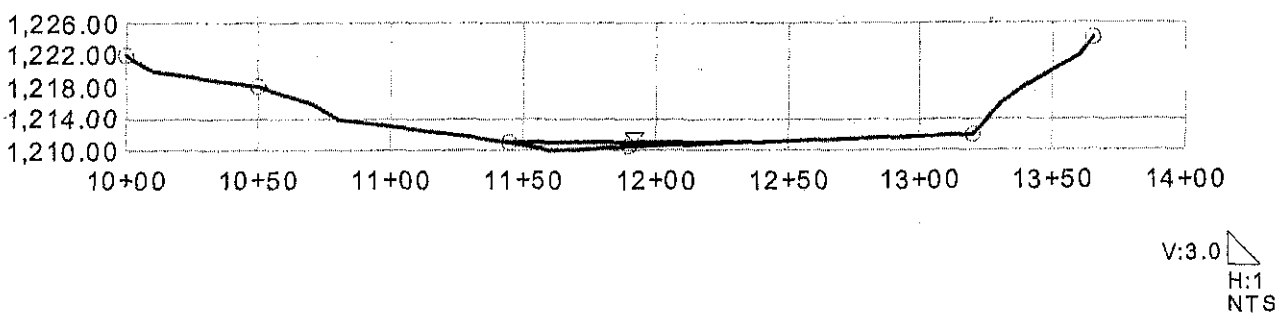
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
13+20	1,212.00
13+25	1,214.00
13+30	1,216.00
13+40	1,218.00
13+50	1,220.00
13+60	1,222.00
13+65	1,224.10

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.025	
Slope	0.004500	ft/ft
Water Surface Elevation	1,211.09	ft
Elevation Range	1,210.00 to 1,224.10	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003300	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.019	
Water Surface Elevation	1,210.38	ft
Elevation Range	1,210.00 to 1,221.50	
Flow Area	59.3	ft²
Wetted Perimeter	163.64	ft
Top Width	163.56	ft
Actual Depth	0.38	ft
Critical Elevation	1,210.29	ft
Critical Slope	0.008297	ft/ft
Velocity	2.25	ft/s
Velocity Head	0.08	ft
Specific Energy	1,210.46	ft
Froude Number	0.66	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+40	0.035
10+40	11+10	0.015
11+10	11+60	0.035
11+60	12+30	0.015
12+30	12+95	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,218.00
10+10	1,216.00
10+20	1,214.00
10+30	1,212.00
10+40	1,211.50
10+90	1,210.00
11+10	1,210.00
11+60	1,210.00
12+30	1,210.00
12+40	1,210.00

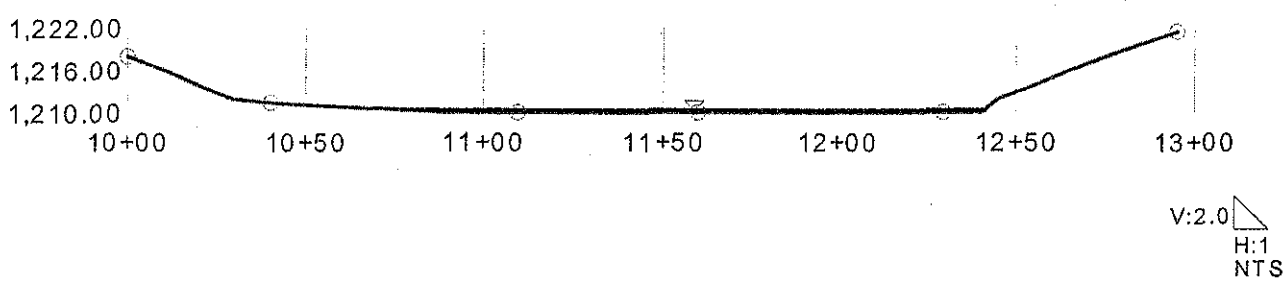
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+45	1,212.00
12+55	1,214.00
12+65	1,216.00
12+75	1,218.00
12+95	1,221.50

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.019	
Slope	0.003300	ft/ft
Water Surface Elevation	1,210.38	ft
Elevation Range	1,210.00 to 1,221.50	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.005900	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.019	
Water Surface Elevation	1,208.36	ft
Elevation Range	1,208.00 to 1,218.00	
Flow Area	45.7	ft²
Wetted Perimeter	130.97	ft
Top Width	130.93	ft
Actual Depth	0.36	ft
Critical Elevation	1,208.33	ft
Critical Slope	0.007974	ft/ft
Velocity	2.92	ft/s
Velocity Head	0.13	ft
Specific Energy	1,208.50	ft
Froude Number	0.87	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+50	0.035
10+50	11+00	0.015
11+00	11+50	0.035
11+50	12+20	0.015
12+20	12+70	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,218.00
10+10	1,216.00
10+20	1,214.00
10+35	1,212.00
10+45	1,210.00
10+50	1,210.00
11+00	1,208.00
11+50	1,208.00
12+20	1,208.00
12+30	1,210.00

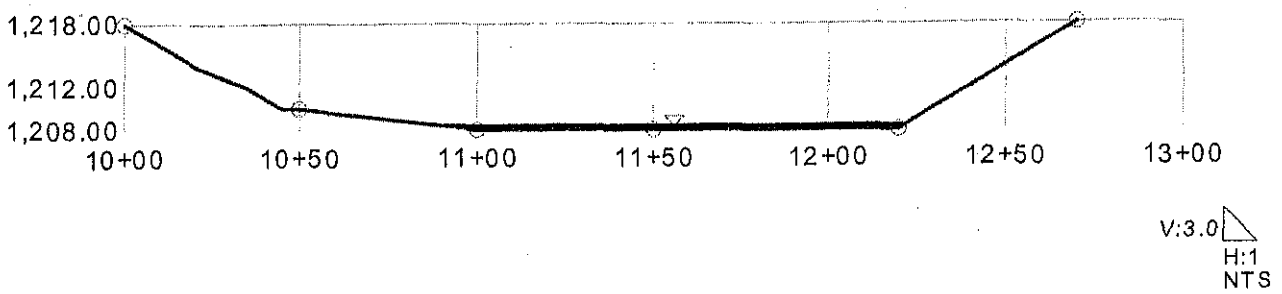
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+40	1,212.00
12+50	1,214.00
12+60	1,216.00
12+70	1,218.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	*Irregular Channel*
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.019	
Slope	0.005900	ft/ft
Water Surface Elevation	1,208.36	ft
Elevation Range	1,208.00 to 1,218.00	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006700	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.024	
Water Surface Elevation	1,207.57	ft
Elevation Range	1,207.00 to 1,216.00	
Flow Area	47.2	ft²
Wetted Perimeter	115.54	ft
Top Width	115.53	ft
Actual Depth	0.57	ft
Critical Elevation	1,207.50	ft
Critical Slope	0.011390	ft/ft
Velocity	2.83	ft/s
Velocity Head	0.12	ft
Specific Energy	1,207.69	ft
Froude Number	0.78	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+40	0.035
10+40	10+95	0.015
10+95	11+45	0.035
11+45	12+05	0.015
12+05	12+45	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,214.00
10+10	1,212.00
10+20	1,210.00
10+30	1,208.00
10+40	1,208.00
10+95	1,207.00
11+45	1,207.00
12+05	1,208.00
12+20	1,210.00
12+30	1,212.00

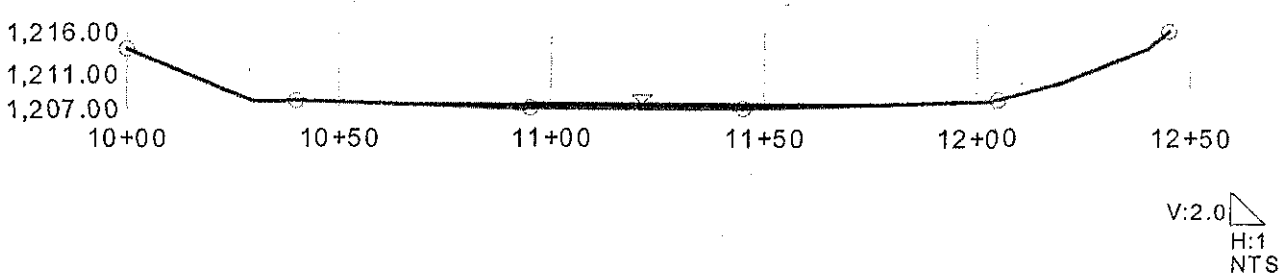
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+40	1,214.00
12+45	1,216.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.024	
Slope	0.006700	ft/ft
Water Surface Elevation	1,207.57	ft
Elevation Range	1,207.00 to 1,216.00	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.010000	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.027	
Water Surface Elevation	1,206.67	ft
Elevation Range	1,206.00 to 1,212.00	
Flow Area	39.3	ft²
Wetted Perimeter	79.91	ft
Top Width	79.88	ft
Actual Depth	0.67	ft
Critical Elevation	1,206.61	ft
Critical Slope	0.013995	ft/ft
Velocity	3.40	ft/s
Velocity Head	0.18	ft
Specific Energy	1,206.85	ft
Froude Number	0.85	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	10+25	0.035
10+25	10+90	0.015
10+90	11+40	0.035
11+40	11+90	0.015
11+90	12+30	0.035

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,210.00
10+10	1,208.00
10+25	1,208.00
10+90	1,206.50
11+00	1,206.00
11+35	1,206.00
11+40	1,206.00
11+90	1,207.50
12+00	1,208.00
12+15	1,210.00

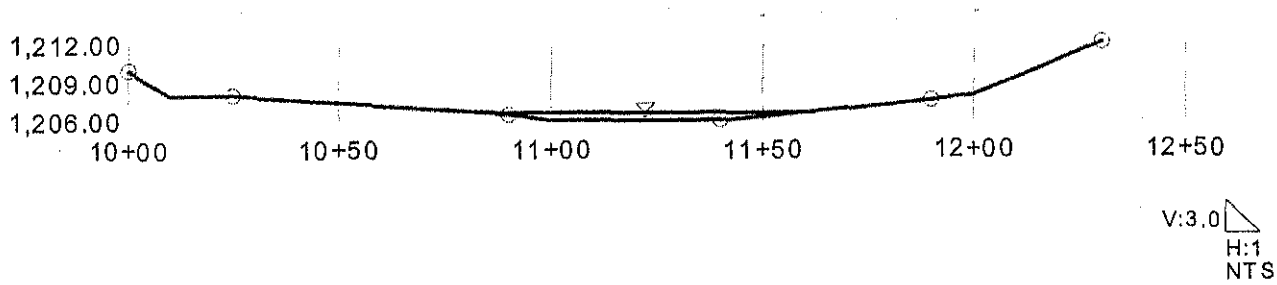
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
12+30	1,212.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.027	
Slope	0.010000	ft/ft
Water Surface Elevation	1,206.67	ft
Elevation Range	1,206.00 to 1,212.00	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000010	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.021	
Water Surface Elevation	1,210.15	ft
Elevation Range	1,208.00 to 1,216.00	
Flow Area	990.8	ft²
Wetted Perimeter	2,083.43	ft
Top Width	2,083.32	ft
Actual Depth	2.15	ft
Critical Elevation	1,208.42	ft
Critical Slope	0.010181	ft/ft
Velocity	0.13	ft/s
Velocity Head	2.83e-4	ft
Specific Energy	1,210.15	ft
Froude Number	0.03	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
80+80	130+00	0.110
130+00	131+95	0.015
131+95	132+40	0.035
132+40	133+20	0.015

Natural Channel Points

Station (ft)	Elevation (ft)
80+80	1,214.00
83+90	1,212.00
87+00	1,210.00
100+70	1,210.00
104+50	1,211.80
114+20	1,211.50
123+30	1,212.00

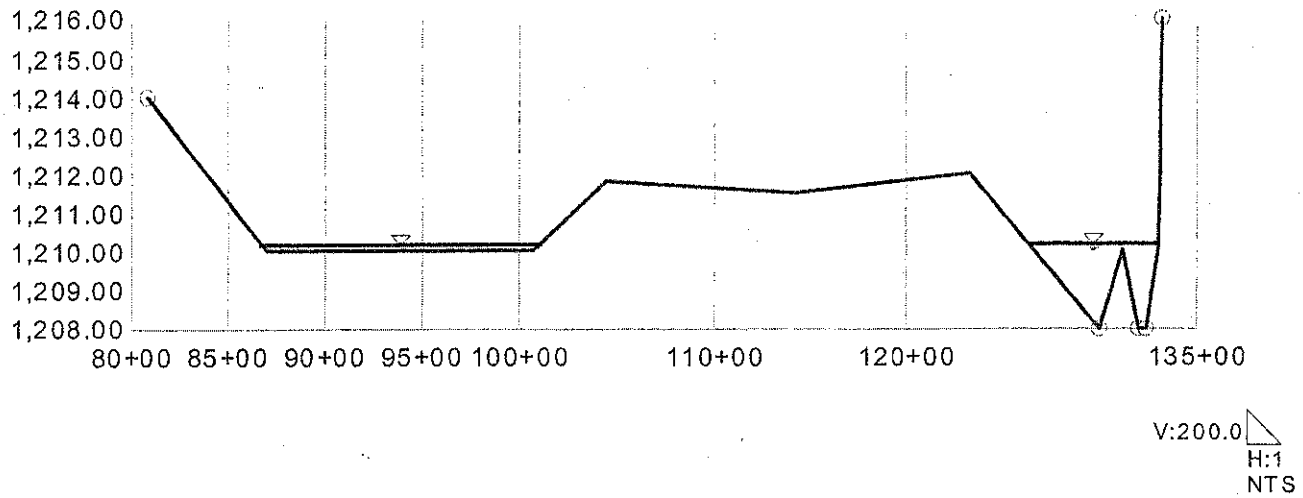
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
130+00	1,208.00
131+20	1,210.00
131+95	1,208.00
132+05	1,208.00
132+30	1,208.00
132+40	1,208.00
132+95	1,210.00
133+05	1,212.00
133+10	1,214.00
133+20	1,216.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.021	
Slope	0.000010	ft/ft
Water Surface Elevation	1,210.15	ft
Elevation Range	1,208.00 to 1,216.00	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.271
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000100	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,207.40	ft
Elevation Range	1,206.00 to 1,214.00	
Flow Area	1,130.7	ft²
Wetted Perimeter	1,381.92	ft
Top Width	1,381.91	ft
Actual Depth	1.40	ft
Critical Elevation	1,206.29	ft
Critical Slope	0.326376	ft/ft
Velocity	0.12	ft/s
Velocity Head	2.17e-4	ft
Specific Energy	1,207.40	ft
Froude Number	0.02	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	51+00	0.110

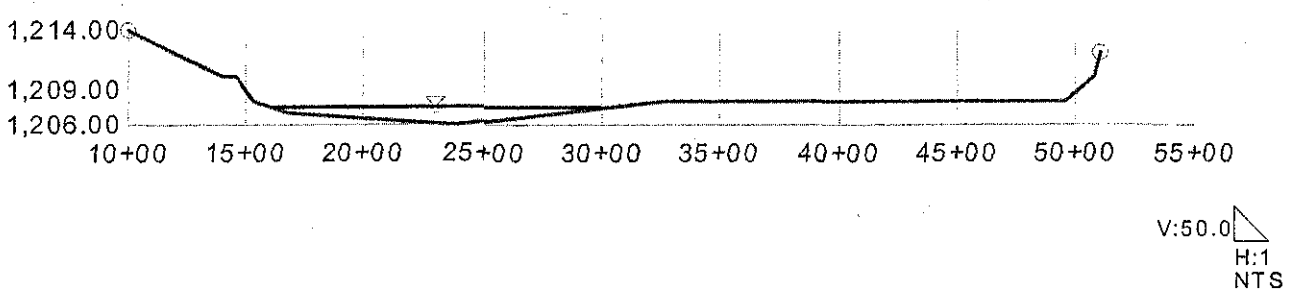
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,214.00
12+00	1,212.00
14+00	1,210.00
14+60	1,210.00
15+30	1,208.00
16+80	1,206.90
23+60	1,206.00
23+90	1,206.00
32+50	1,208.00
49+60	1,208.00
50+80	1,210.00
51+00	1,212.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.271
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000100	ft/ft
Water Surface Elevation	1,207.40	ft
Elevation Range	1,206.00 to 1,214.00	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.176
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004700	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,204.66	ft
Elevation Range	1,204.00 to 1,212.00	
Flow Area	298.7	ft²
Wetted Perimeter	889.96	ft
Top Width	889.95	ft
Actual Depth	0.66	ft
Critical Elevation	1,204.29	ft
Critical Slope	0.331085	ft/ft
Velocity	0.45	ft/s
Velocity Head	3.11e-3	ft
Specific Energy	1,204.66	ft
Froude Number	0.14	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	49+20	0.110

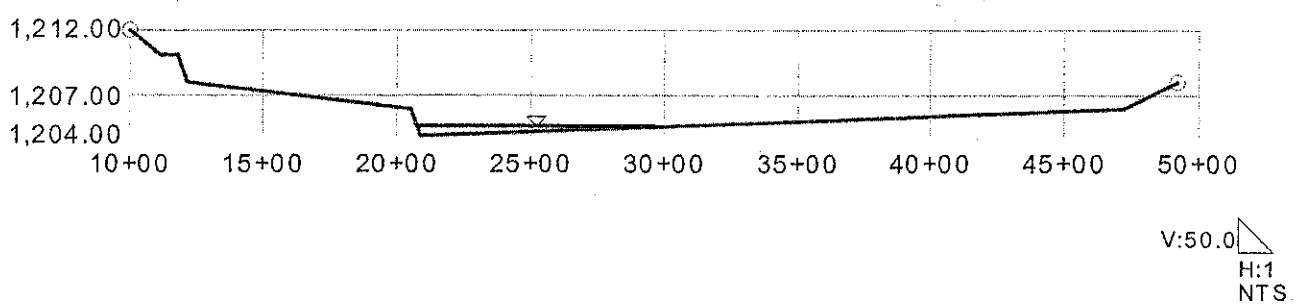
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,212.00
11+20	1,210.00
11+80	1,210.00
12+20	1,208.00
20+50	1,206.00
20+90	1,204.00
21+10	1,204.00
47+20	1,206.00
49+20	1,208.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.176
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004700	ft/ft
Water Surface Elevation	1,204.66	ft
Elevation Range	1,204.00 to 1,212.00	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004200	ft/ft
Discharge	133.61	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,203.51	ft
Elevation Range	1,203.00 to 1,210.00	
Flow Area	378.9	ft²
Wetted Perimeter	1,482.51	ft
Top Width	1,482.51	ft
Actual Depth	0.51	ft
Critical Elevation	1,203.22	ft
Critical Slope	0.367399	ft/ft
Velocity	0.35	ft/s
Velocity Head	1.93e-3	ft
Specific Energy	1,203.51	ft
Froude Number	0.12	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	60+10	0.110

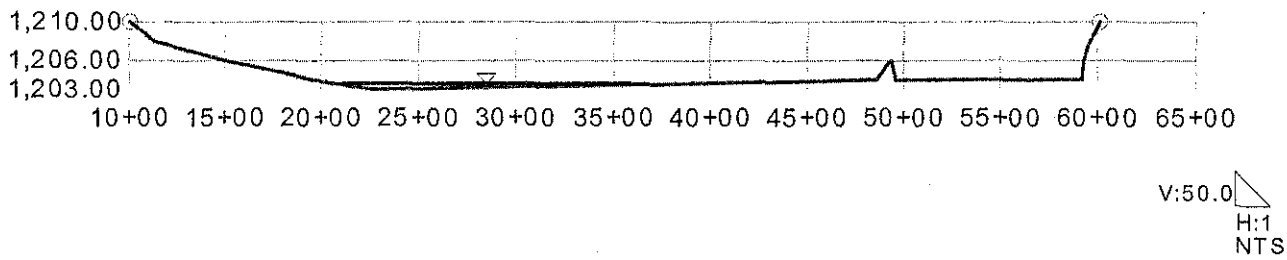
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,210.00
11+30	1,208.00
15+10	1,206.00
19+60	1,204.00
22+60	1,203.00
48+60	1,204.00
49+30	1,206.00
49+40	1,206.00
49+60	1,204.00
59+20	1,204.00
59+30	1,206.00
59+60	1,208.00
60+10	1,210.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004200	ft/ft
Water Surface Elevation	1,203.51	ft
Elevation Range	1,203.00 to 1,210.00	
Discharge	133.61	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.984
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	936.63	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,202.57	ft
Elevation Range	1,202.00 to 1,208.00	
Flow Area	1,405.5	ft²
Wetted Perimeter	2,799.92	ft
Top Width	2,799.92	ft
Actual Depth	0.57	ft
Critical Elevation	1,202.18	ft
Critical Slope	0.317611	ft/ft
Velocity	0.67	ft/s
Velocity Head	0.01	ft
Specific Energy	1,202.58	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	58+00	0.110

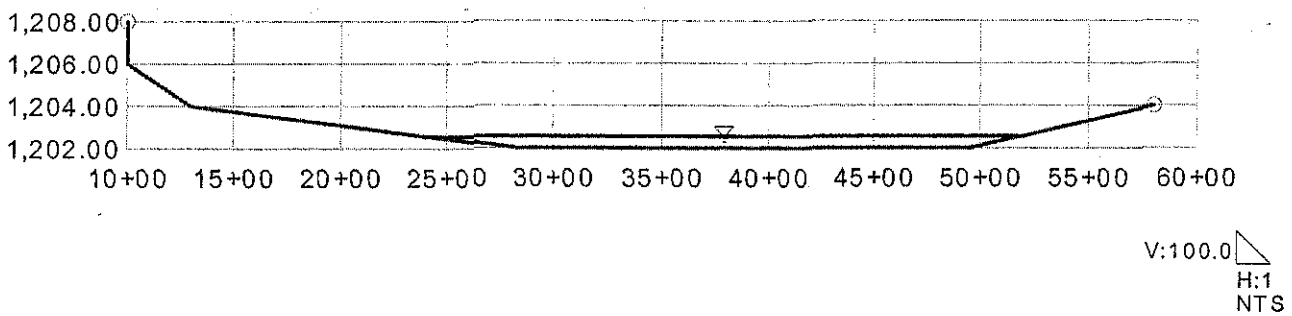
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,208.00
10+05	1,206.00
13+00	1,204.00
28+30	1,202.00
49+50	1,202.00
58+00	1,204.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.984
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,202.57	ft
Elevation Range	1,202.00 to 1,208.00	
Discharge	936.63	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.953
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006700	ft/ft
Discharge	936.63	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,200.86	ft
Elevation Range	1,200.00 to 1,206.00	
Flow Area	1,024.9	ft²
Wetted Perimeter	1,364.13	ft
Top Width	1,364.02	ft
Actual Depth	0.86	ft
Critical Elevation	1,200.29	ft
Critical Slope	0.270360	ft/ft
Velocity	0.91	ft/s
Velocity Head	0.01	ft
Specific Energy	1,200.88	ft
Froude Number	0.19	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	59+00	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,206.00
17+90	1,204.00
21+40	1,202.00
24+50	1,200.00
34+60	1,200.00
35+00	1,202.00
44+30	1,202.00
44+40	1,200.00
49+00	1,202.00
58+80	1,202.00

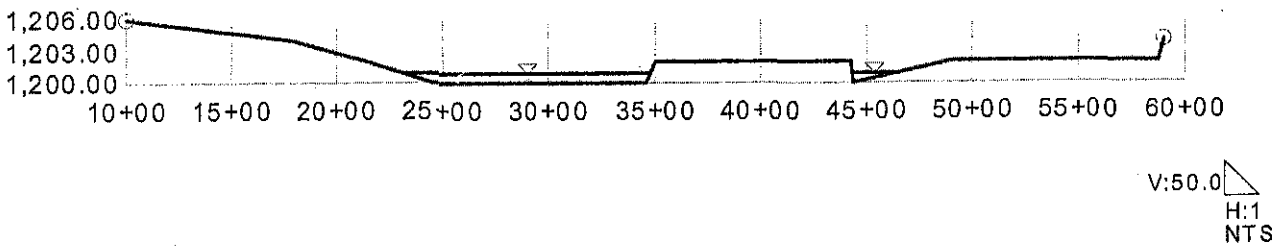
Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
59+00	1,204.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.953
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006700	ft/ft
Water Surface Elevation	1,200.86	ft
Elevation Range	1,200.00 to 1,206.00	
Discharge	936.63	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.889
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.006500	ft/ft
Discharge	936.63	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,200.30	ft
Elevation Range	1,198.00 to 1,204.00	
Flow Area	1,546.3	ft²
Wetted Perimeter	3,728.11	ft
Top Width	3,728.04	ft
Actual Depth	2.30	ft
Critical Elevation	1,198.95	ft
Critical Slope	0.188345	ft/ft
Velocity	0.61	ft/s
Velocity Head	0.01	ft
Specific Energy	1,200.30	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	55+00	0.110

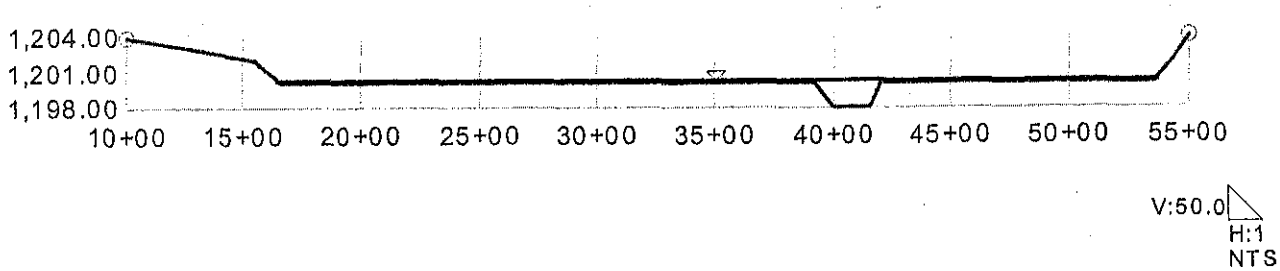
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,204.00
15+50	1,202.00
16+60	1,200.00
39+20	1,200.00
40+00	1,198.00
41+60	1,198.00
42+10	1,200.00
43+00	1,200.00
53+60	1,200.00
54+40	1,202.00
55+00	1,204.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.889
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006500	ft/ft
Water Surface Elevation	1,200.30	ft
Elevation Range	1,198.00 to 1,204.00	
Discharge	936.63	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.692
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.004300	ft/ft
Discharge	936.63	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,194.40	ft
Elevation Range	1,192.00 to 1,202.00	
Flow Area	1,611.9	ft²
Wetted Perimeter	3,033.70	ft
Top Width	3,033.58	ft
Actual Depth	2.40	ft
Critical Elevation	1,193.28	ft
Critical Slope	0.194840	ft/ft
Velocity	0.58	ft/s
Velocity Head	0.01	ft
Specific Energy	1,194.40	ft
Froude Number	0.14	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	53+00	0.110

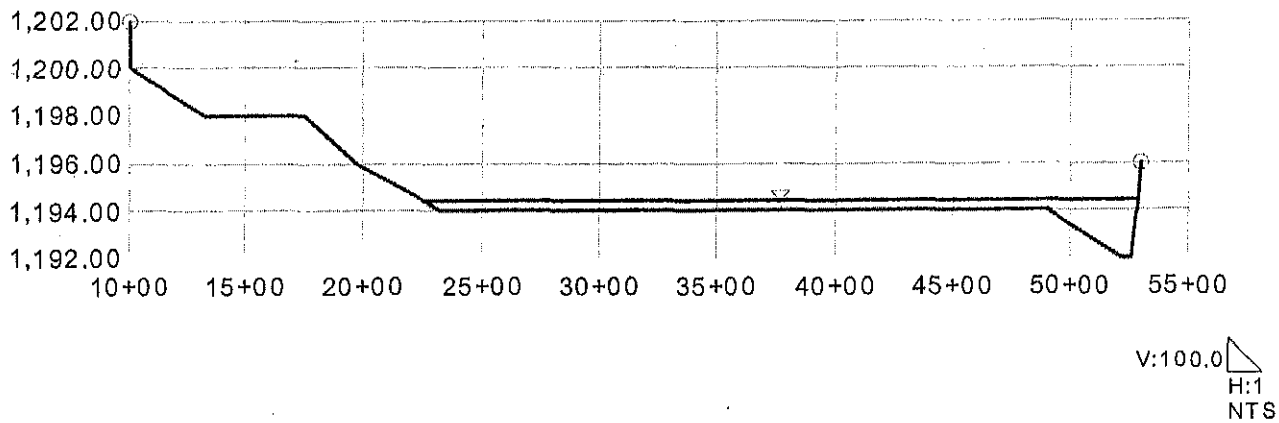
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,202.00
10+02	1,200.00
13+30	1,198.00
17+50	1,198.00
19+70	1,196.00
23+20	1,194.00
49+00	1,194.00
52+20	1,192.00
52+60	1,192.00
52+80	1,194.00
53+00	1,196.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.692
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004300	ft/ft
Water Surface Elevation	1,194.40	ft
Elevation Range	1,192.00 to 1,202.00	
Discharge	936.63	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.492
Flow Element	*Irregular Channel*
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.003900	ft/ft
Discharge	936.63	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,188.79	ft
Elevation Range	1,186.00 to 1,192.00	
Flow Area	1,053.5	ft²
Wetted Perimeter	973.71	ft
Top Width	973.54	ft
Actual Depth	2.79	ft
Critical Elevation	1,187.40	ft
Critical Slope	0.181070	ft/ft
Velocity	0.89	ft/s
Velocity Head	0.01	ft
Specific Energy	1,188.80	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	44+20	0.110

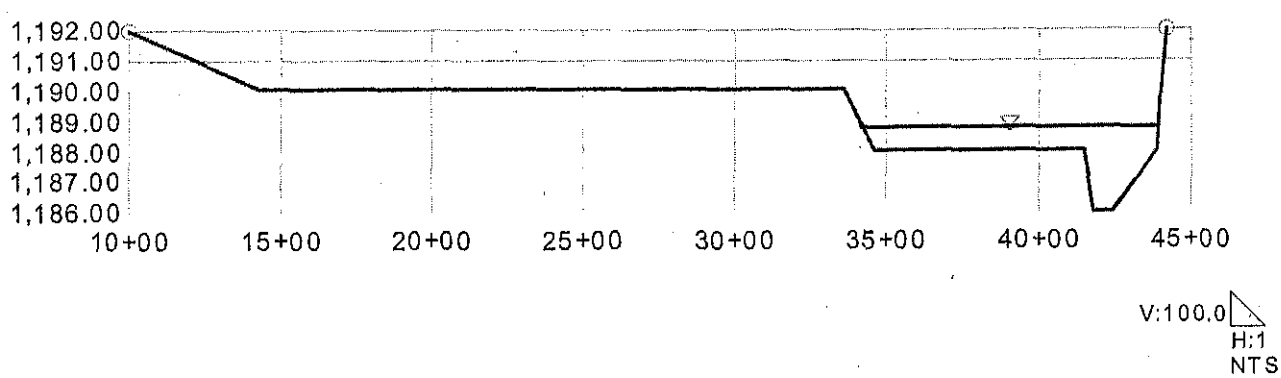
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,192.00
14+30	1,190.00
33+60	1,190.00
34+60	1,188.00
41+50	1,188.00
41+80	1,186.00
42+40	1,186.00
43+90	1,188.00
44+00	1,190.00
44+20	1,192.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.492
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003900	ft/ft
Water Surface Elevation	1,188.79	ft
Elevation Range	1,186.00 to 1,192.00	
Discharge	*936.63*	*cfs*



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.318
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004700	ft/ft
Discharge	936.63	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,186.57	ft
Elevation Range	1,184.00 to 1,188.00	
Flow Area	1,310.1	ft²
Wetted Perimeter	1,931.58	ft
Top Width	1,931.50	ft
Actual Depth	2.57	ft
Critical Elevation	1,185.41	ft
Critical Slope	0.187274	ft/ft
Velocity	0.71	ft/s
Velocity Head	0.01	ft
Specific Energy	1,186.58	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
13+80	43+70	0.110

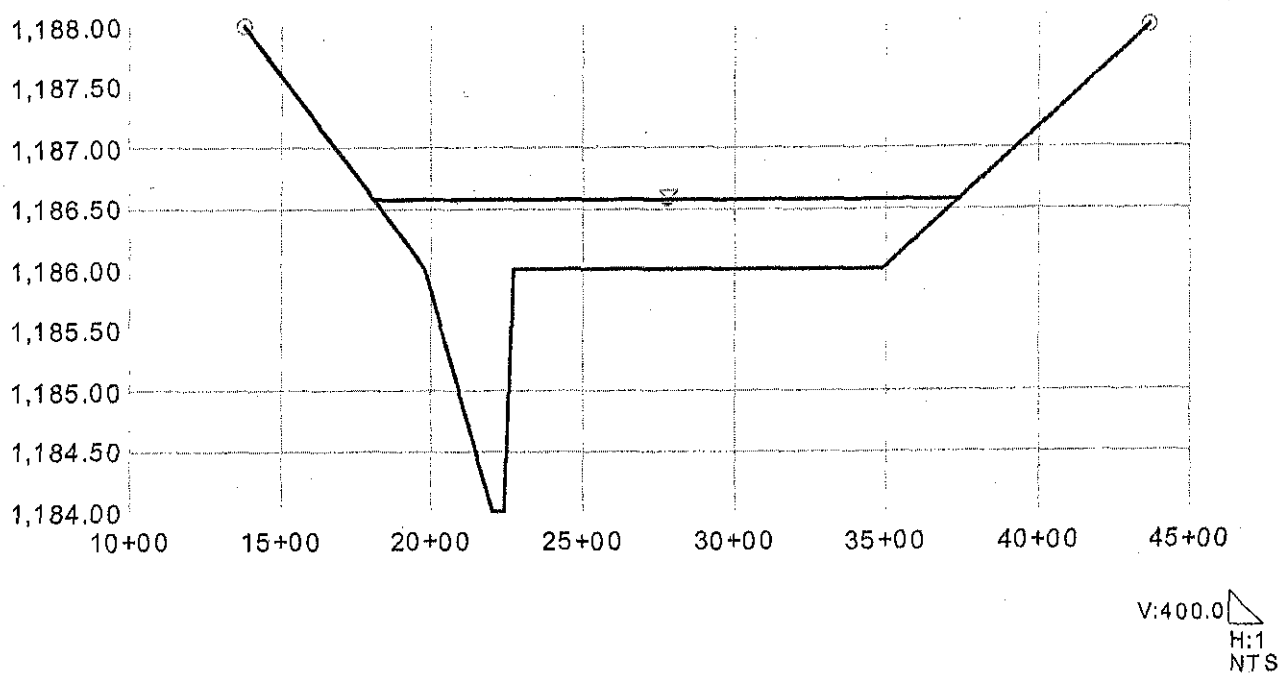
Natural Channel Points

Station (ft)	Elevation (ft)
13+80	1,188.00
19+80	1,186.00
22+00	1,184.00
22+40	1,184.00
22+70	1,186.00
34+90	1,186.00
43+70	1,188.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.318
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004700	ft/ft
Water Surface Elevation	1,186.57	ft
Elevation Range	1,184.00 to 1,188.00	
Discharge	936.63	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.289
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.013300	ft/ft
Discharge	936.81	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,185.35	ft
Elevation Range	1,182.00 to 1,186.00	
Flow Area	707.5	ft²
Wetted Perimeter	903.02	ft
Top Width	902.74	ft
Actual Depth	3.35	ft
Critical Elevation	1,184.66	ft
Critical Slope	0.222723	ft/ft
Velocity	1.32	ft/s
Velocity Head	0.03	ft
Specific Energy	1,185.37	ft
Froude Number	0.26	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	33+60	0.110

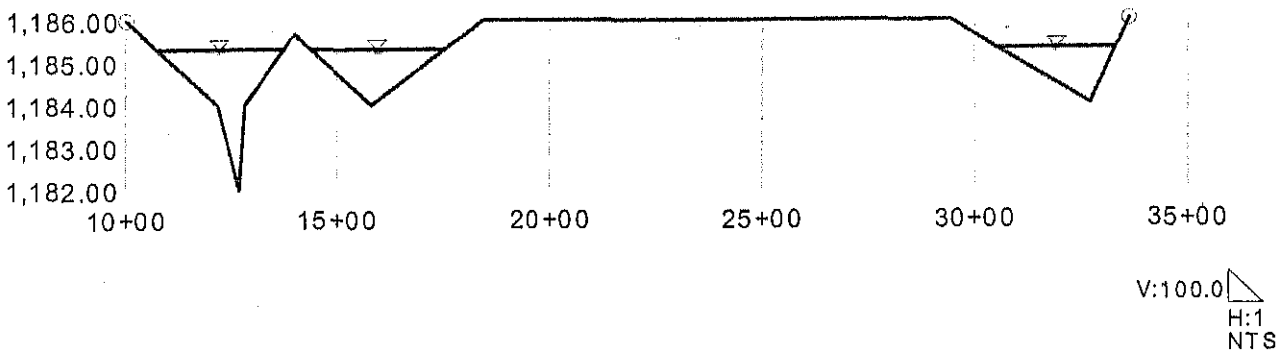
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,186.00
12+20	1,184.00
12+70	1,182.00
12+80	1,184.00
14+00	1,185.70
15+80	1,184.00
18+40	1,186.00
29+40	1,186.00
32+70	1,184.00
33+60	1,186.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.289
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.013300	ft/ft
Water Surface Elevation	1,185.35	ft
Elevation Range	1,182.00 to 1,186.00	
Discharge	936.81	cfs



WorksheetApproximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.193
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.004500	ft/ft
Discharge	936.81	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,170.57	ft
Elevation Range	1,168.00 to 1,186.00	
Flow Area	579.5	ft²
Wetted Perimeter	243.22	ft
Top Width	242.53	ft
Actual Depth	2.57	ft
Critical Elevation	1,168.83	ft
Critical Slope	0.188436	ft/ft
Velocity	1.62	ft/s
Velocity Head	0.04	ft
Specific Energy	1,170.61	ft
Froude Number	0.18	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	36+30	0.110

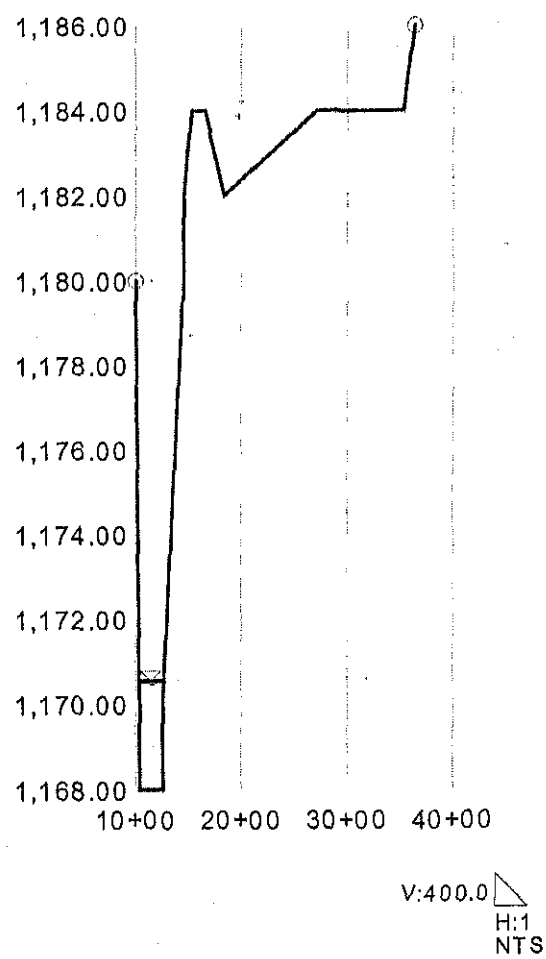
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,180.00
10+30	1,170.00
10+35	1,168.00
12+50	1,168.00
12+60	1,170.00
14+50	1,180.00
14+60	1,182.00
15+30	1,184.00
16+50	1,184.00
18+40	1,182.00
27+10	1,184.00
35+30	1,184.00
36+30	1,186.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.193
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.004500	ft/ft
Water Surface Elevation	1,170.57	ft
Elevation Range	1,168.00 to 1,186.00	
Discharge	936.81	cfs



Approximate Methods for the 2/3 PMF - Left Overbank
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Bell Road
Flow Element	Trapezoidal Channe
Method	Manning's Formula
Solve For	Discharge

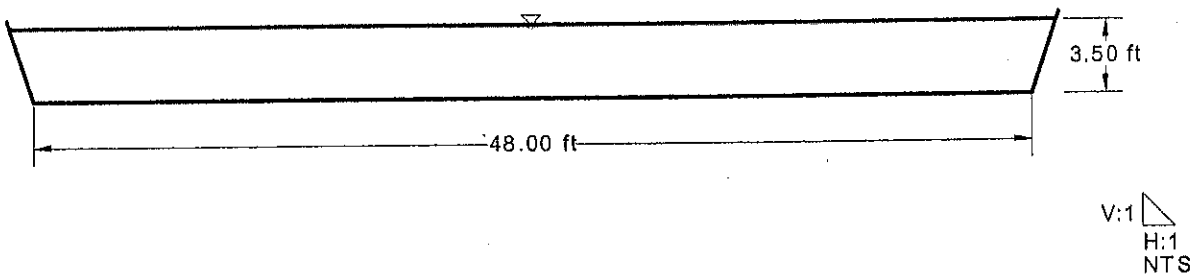
Input Data		
Mannings Coefficient	0.020	
Slope	0.000870	ft/ft
Depth	3.50	ft
Left Side Slope	3.00	V : H
Right Side Slope	3.00	V : H
Bottom Width	48.00	ft

Results		
Discharge	803.02	cfs
Flow Area	172.1	ft²
Wetted Perimeter	55.38	ft
Top Width	50.33	ft
Critical Depth	2.05	ft
Critical Slope	0.004983	ft/ft
Velocity	4.67	ft/s
Velocity Head	0.34	ft
Specific Energy	3.84	ft
Froude Number	0.44	
Flow Type	Subcritical	

Cross Section
Cross Section for Trapezoidal Channel

Project Description	
Worksheet	Bell Road
Flow Element	Trapezoidal Channe
Method	Manning's Formula
Solve For	Discharge

Section Data		
Mannings Coefficient	0.020	
Slope	0.000870	ft/ft
Depth	3.50	ft
Left Side Slope	3.00	V : H
Right Side Slope	3.00	V : H
Bottom Width	48.00	ft
Discharge	803.02	cfs



APPENDIX A

1/3rd PMF

Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.002700	ft/ft
Discharge	41.52	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,216.97	ft
Elevation Range	1,216.00 to 1,222.00	
Flow Area	64.9	ft²
Wetted Perimeter	74.62	ft
Top Width	74.48	ft
Actual Depth	0.97	ft
Critical Elevation	1,216.24	ft
Critical Slope	0.285341	ft/ft
Velocity	0.64	ft/s
Velocity Head	0.01	ft
Specific Energy	1,216.97	ft
Froude Number	0.12	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	48+60	0.110

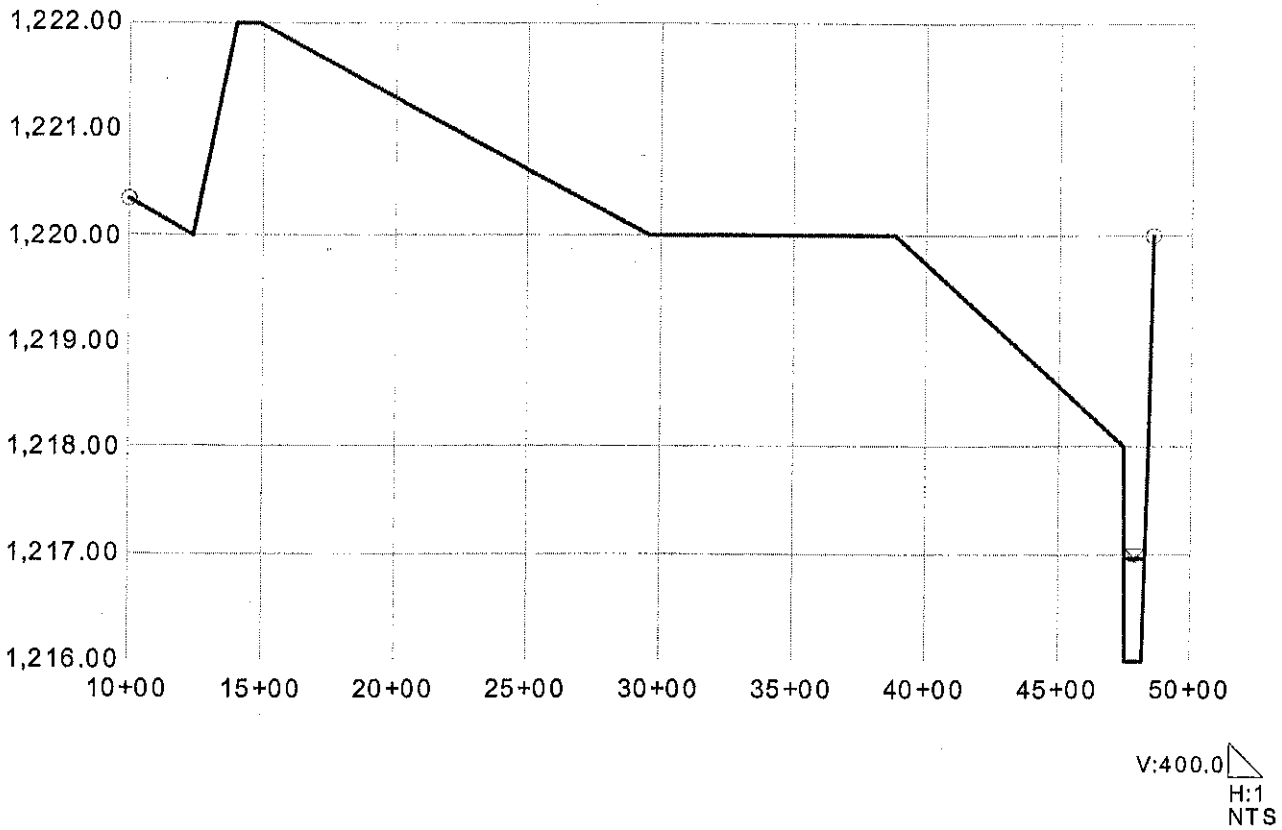
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,220.34
12+40	1,220.00
14+00	1,222.00
14+90	1,222.00
29+60	1,220.00
38+90	1,220.00
47+50	1,218.00
47+60	1,216.00
48+20	1,216.00
48+40	1,218.00
48+60	1,220.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.803
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.002700	ft/ft
Water Surface Elevation	1,216.97	ft
Elevation Range	1,216.00 to 1,222.00	
Discharge	41.52	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006500	ft/ft
Discharge	92.67	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,214.93	ft
Elevation Range	1,214.00 to 1,218.83	
Flow Area	141.5	ft²
Wetted Perimeter	303.24	ft
Top Width	303.23	ft
Actual Depth	0.93	ft
Critical Elevation	1,214.46	ft
Critical Slope	0.288145	ft/ft
Velocity	0.66	ft/s
Velocity Head	0.01	ft
Specific Energy	1,214.94	ft
Froude Number	0.17	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	43+80	0.110

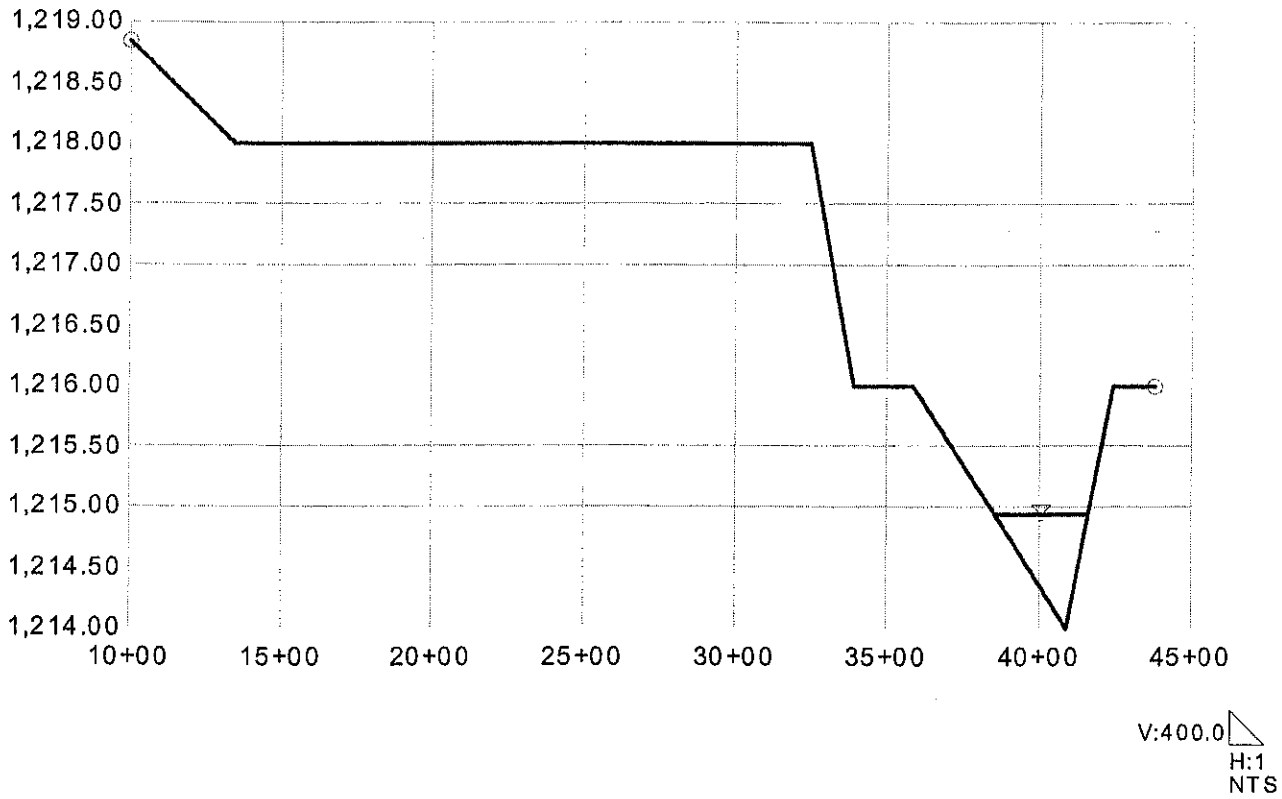
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,218.83
13+50	1,218.00
32+50	1,218.00
33+90	1,216.00
35+90	1,216.00
40+90	1,214.00
42+40	1,216.00
43+80	1,216.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.699
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006500	ft/ft
Water Surface Elevation	1,214.93	ft
Elevation Range	1,214.00 to 1,218.83	
Discharge	92.67	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.009100	ft/ft
Discharge	92.67	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,212.79	ft
Elevation Range	1,212.00 to 1,216.00	
Flow Area	114.3	ft²
Wetted Perimeter	228.81	ft
Top Width	228.80	ft
Actual Depth	0.79	ft
Critical Elevation	1,212.34	ft
Critical Slope	0.280857	ft/ft
Velocity	0.81	ft/s
Velocity Head	0.01	ft
Specific Energy	1,212.80	ft
Froude Number	0.20	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	48+00	0.110

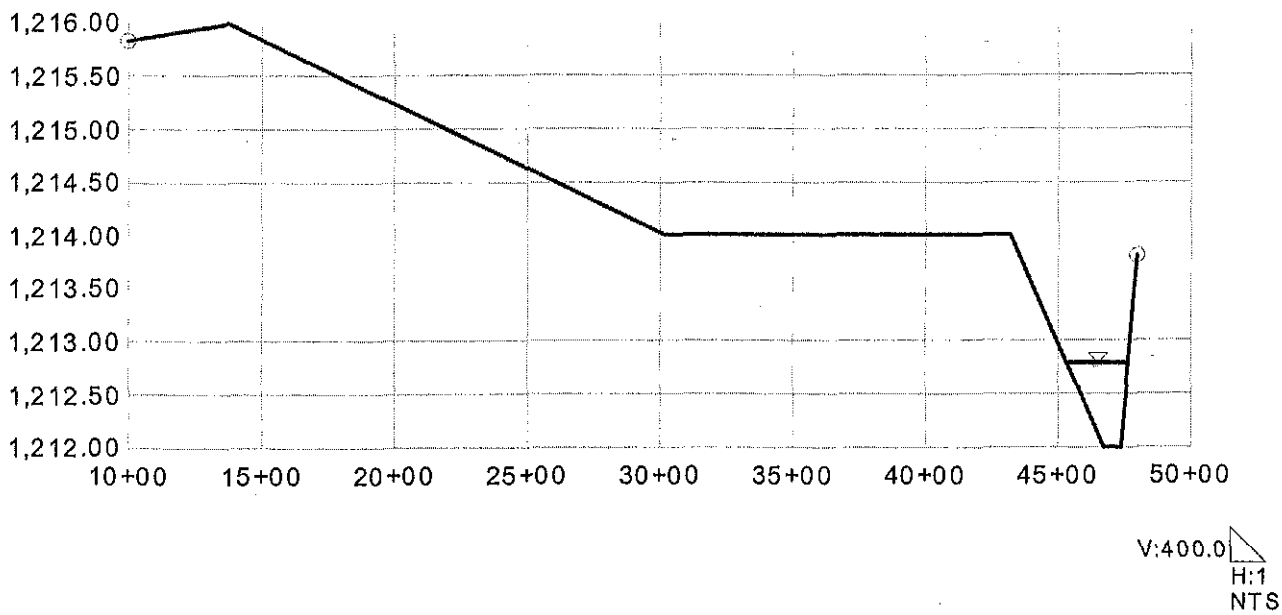
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,215.84
13+80	1,216.00
30+20	1,214.00
43+20	1,214.00
46+80	1,212.00
47+40	1,212.00
48+00	1,213.80

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.612
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.009100	ft/ft
Water Surface Elevation	1,212.79	ft
Elevation Range	1,212.00 to 1,216.00	
Discharge	92.67	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.001400	ft/ft
Discharge	194.33	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,211.31	ft
Elevation Range	1,210.00 to 1,214.00	
Flow Area	352.1	ft²
Wetted Perimeter	308.54	ft
Top Width	308.46	ft
Actual Depth	1.31	ft
Critical Elevation	1,210.28	ft
Critical Slope	0.273429	ft/ft
Velocity	0.55	ft/s
Velocity Head	4.73e-3	ft
Specific Energy	1,211.31	ft
Froude Number	0.09	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	46+00	0.110

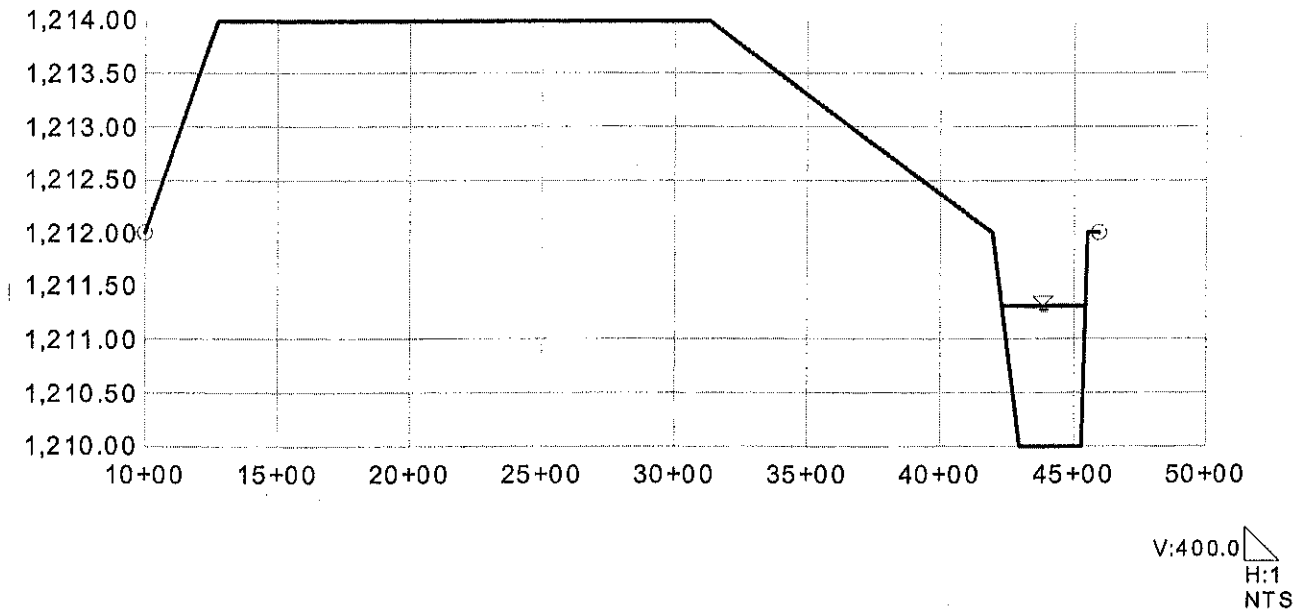
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,212.00
12+80	1,214.00
31+30	1,214.00
42+00	1,212.00
43+00	1,210.00
45+30	1,210.00
45+50	1,212.00
46+00	1,212.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.517
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.001400	ft/ft
Water Surface Elevation	1,211.31	ft
Elevation Range	1,210.00 to 1,214.00	
Discharge	194.33	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.003700	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,208.47	ft
Elevation Range	1,208.00 to 1,212.00	
Flow Area	544.1	ft²
Wetted Perimeter	1,278.09	ft
Top Width	1,278.06	ft
Actual Depth	0.47	ft
Critical Elevation	1,208.12	ft
Critical Slope	0.358506	ft/ft
Velocity	0.46	ft/s
Velocity Head	3.36e-3	ft
Specific Energy	1,208.48	ft
Froude Number	0.13	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

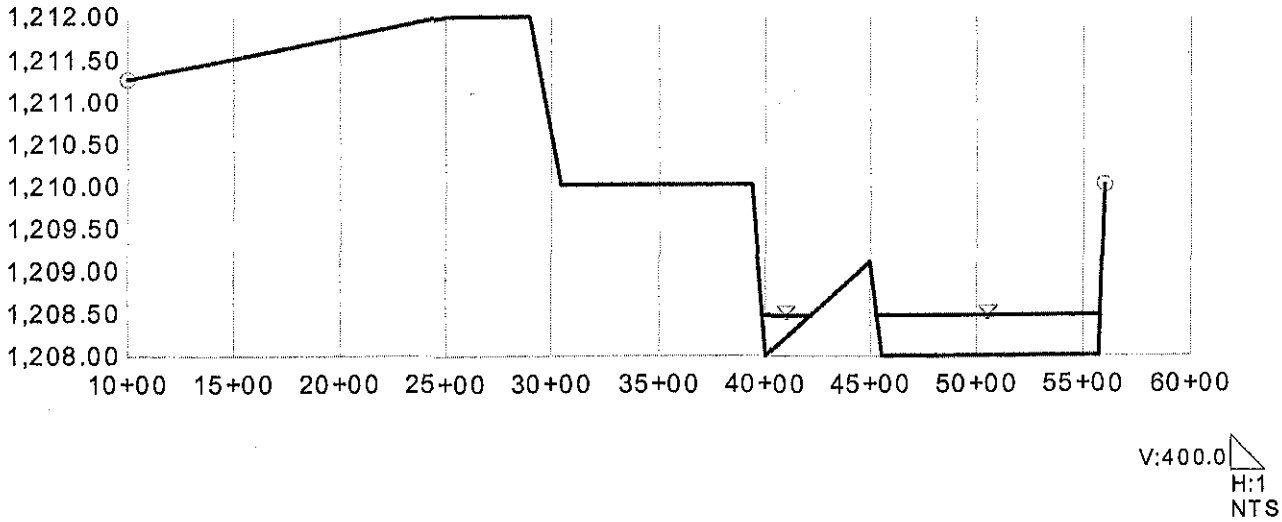
Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	56+00	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,211.26
25+00	1,212.00
29+00	1,212.00
30+40	1,210.00
39+40	1,210.00
40+00	1,208.00
45+00	1,209.10
45+50	1,208.00
55+70	1,208.00
56+00	1,210.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.443
Flow Element	*Irregular Channel*
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.003700	ft/ft
Water Surface Elevation	1,208.47	ft
Elevation Range	1,208.00 to 1,212.00	
Discharge	252.98	*cfs*



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.007900	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,205.04	ft
Elevation Range	1,204.00 to 1,210.00	
Flow Area	326.2	ft²
Wetted Perimeter	628.26	ft
Top Width	628.23	ft
Actual Depth	1.04	ft
Critical Elevation	1,204.53	ft
Critical Slope	0.273813	ft/ft
Velocity	0.78	ft/s
Velocity Head	0.01	ft
Specific Energy	1,205.05	ft
Froude Number	0.19	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	54+10	0.110

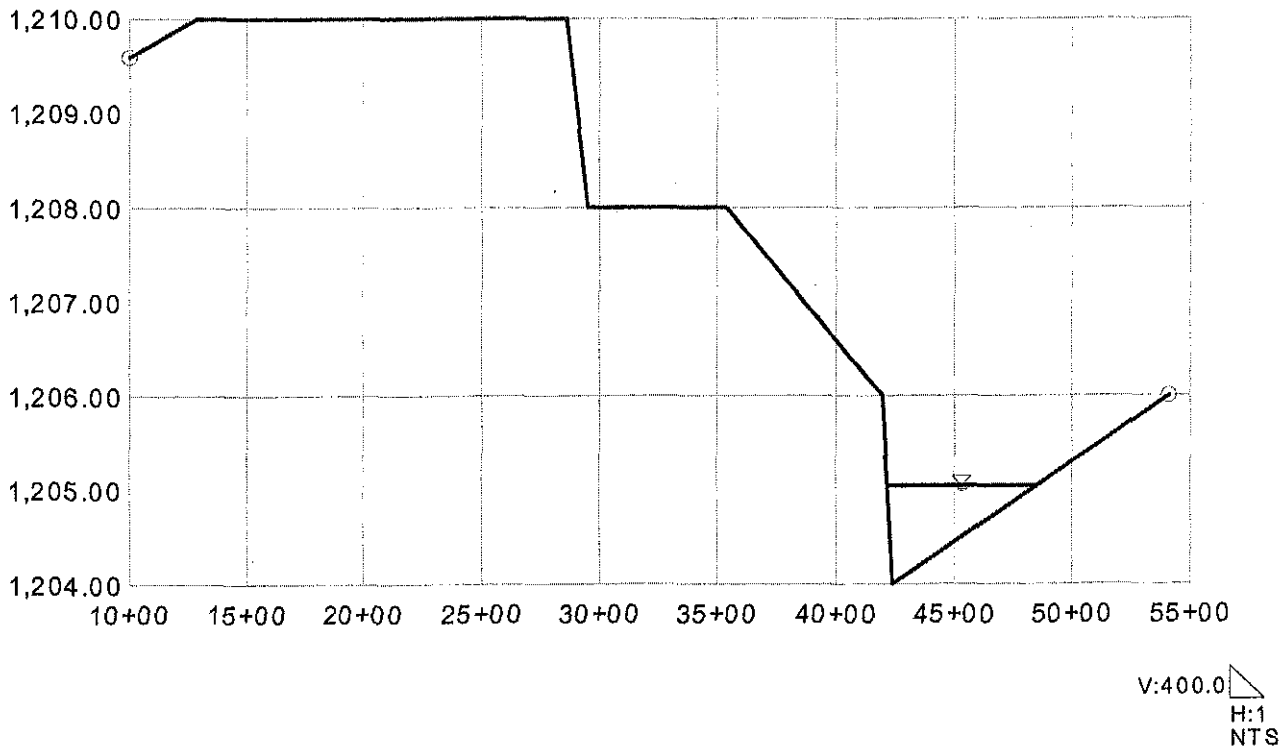
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,209.60
12+90	1,210.00
28+60	1,210.00
29+50	1,208.00
35+40	1,208.00
42+00	1,206.00
42+40	1,204.00
54+10	1,206.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.348
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.007900	ft/ft
Water Surface Elevation	1,205.04	ft
Elevation Range	1,204.00 to 1,210.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.271
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000300	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,206.37	ft
Elevation Range	1,204.00 to 1,210.00	
Flow Area	1,489.0	ft²
Wetted Perimeter	2,406.20	ft
Top Width	2,406.10	ft
Actual Depth	2.37	ft
Critical Elevation	1,204.95	ft
Critical Slope	0.204739	ft/ft
Velocity	0.17	ft/s
Velocity Head	4.49e-4	ft
Specific Energy	1,206.38	ft
Froude Number	0.04	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	53+00	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,207.62
12+00	1,208.00
20+50	1,210.00
22+50	1,210.00
25+20	1,208.00
27+40	1,208.00
27+80	1,206.00
40+20	1,206.00
41+10	1,204.00
41+40	1,204.00

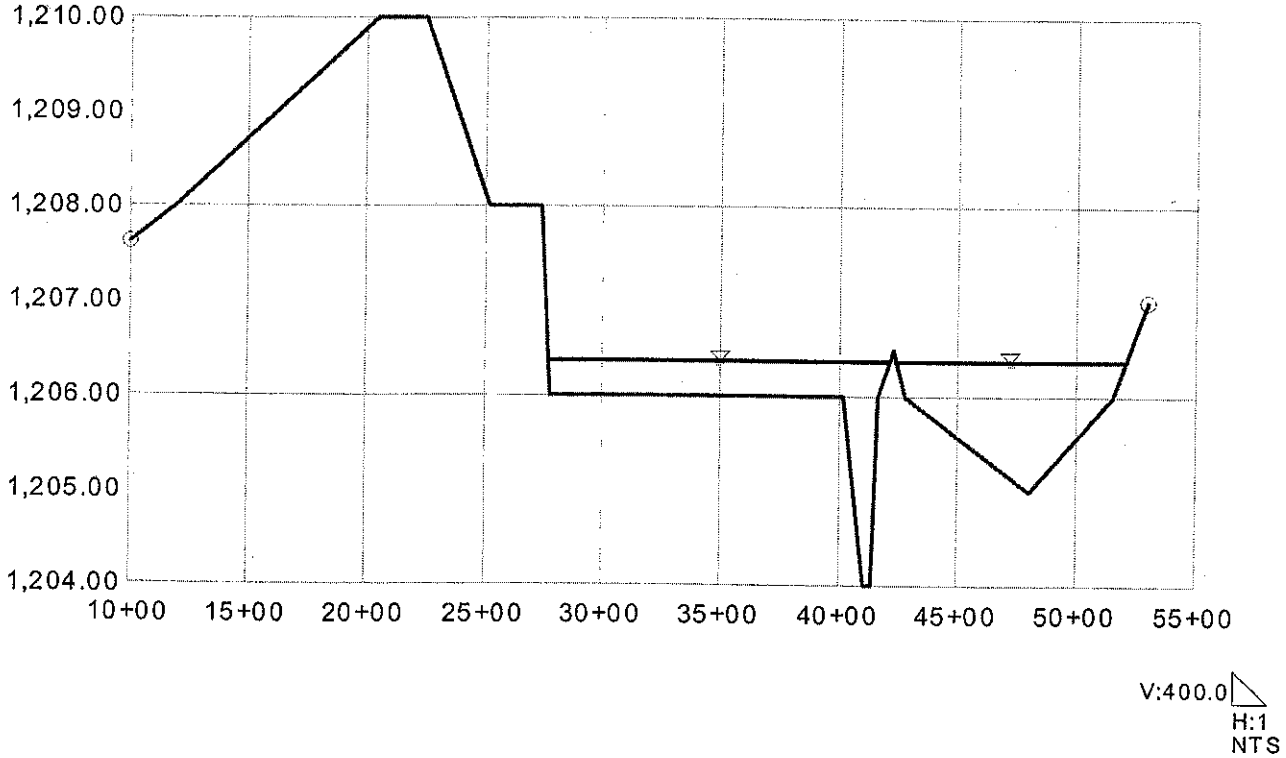
Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
41+70	1,206.00
42+30	1,206.50
42+80	1,206.00
48+00	1,205.00
51+50	1,206.00
53+00	1,207.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.271
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000300	ft/ft
Water Surface Elevation	1,206.37	ft
Elevation Range	1,204.00 to 1,210.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.176
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.002700	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,202.77	ft
Elevation Range	1,202.00 to 1,207.50	
Flow Area	573.4	ft²
Wetted Perimeter	1,150.72	ft
Top Width	1,150.71	ft
Actual Depth	0.77	ft
Critical Elevation	1,202.29	ft
Critical Slope	0.315387	ft/ft
Velocity	0.44	ft/s
Velocity Head	3.02e-3	ft
Specific Energy	1,202.78	ft
Froude Number	0.11	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	54+00	0.110

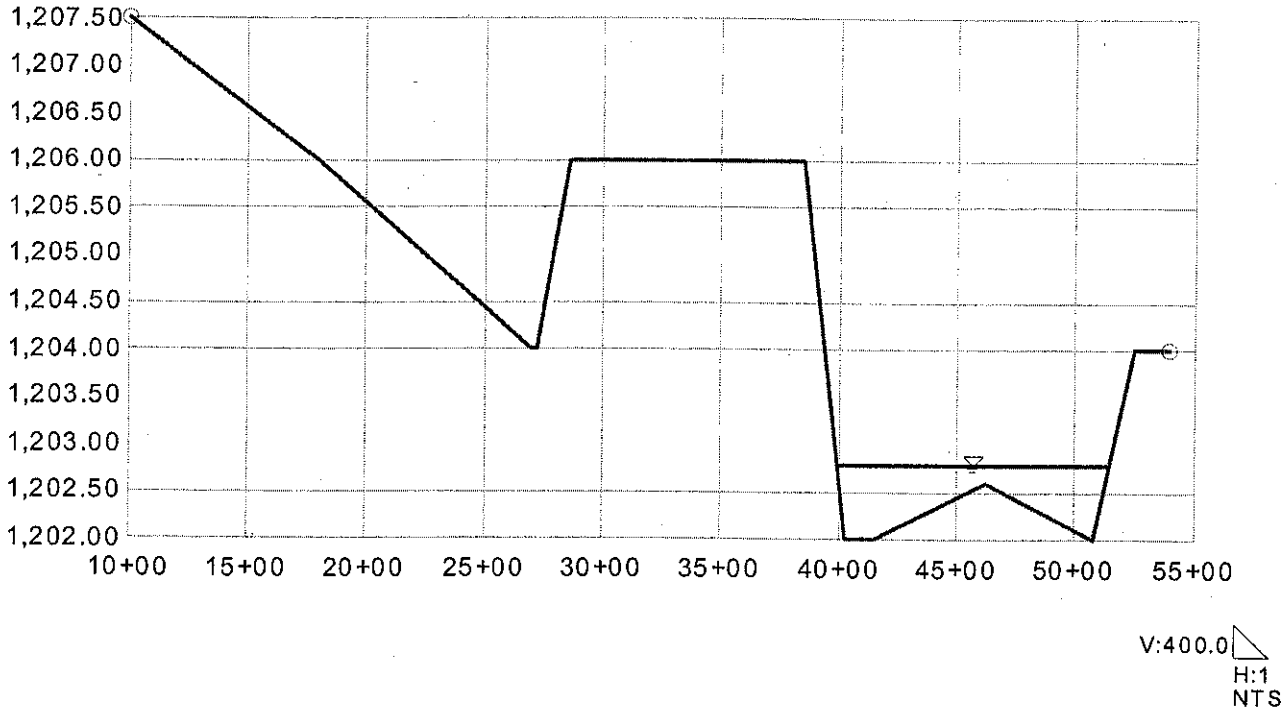
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,207.50
18+00	1,206.00
27+00	1,204.00
27+20	1,204.00
28+60	1,206.00
38+50	1,206.00
39+40	1,204.00
40+30	1,202.00
41+50	1,202.00
46+20	1,202.60
50+80	1,202.00
52+50	1,204.00
54+00	1,204.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.176
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.002700	ft/ft
Water Surface Elevation	1,202.77	ft
Elevation Range	1,202.00 to 1,207.50	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.002700	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,201.02	ft
Elevation Range	1,200.00 to 1,205.16	
Flow Area	451.6	ft²
Wetted Perimeter	633.41	ft
Top Width	633.40	ft
Actual Depth	1.02	ft
Critical Elevation	1,200.29	ft
Critical Slope	0.280443	ft/ft
Velocity	0.56	ft/s
Velocity Head	4.88e-3	ft
Specific Energy	1,201.03	ft
Froude Number	0.12	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	47+10	0.110

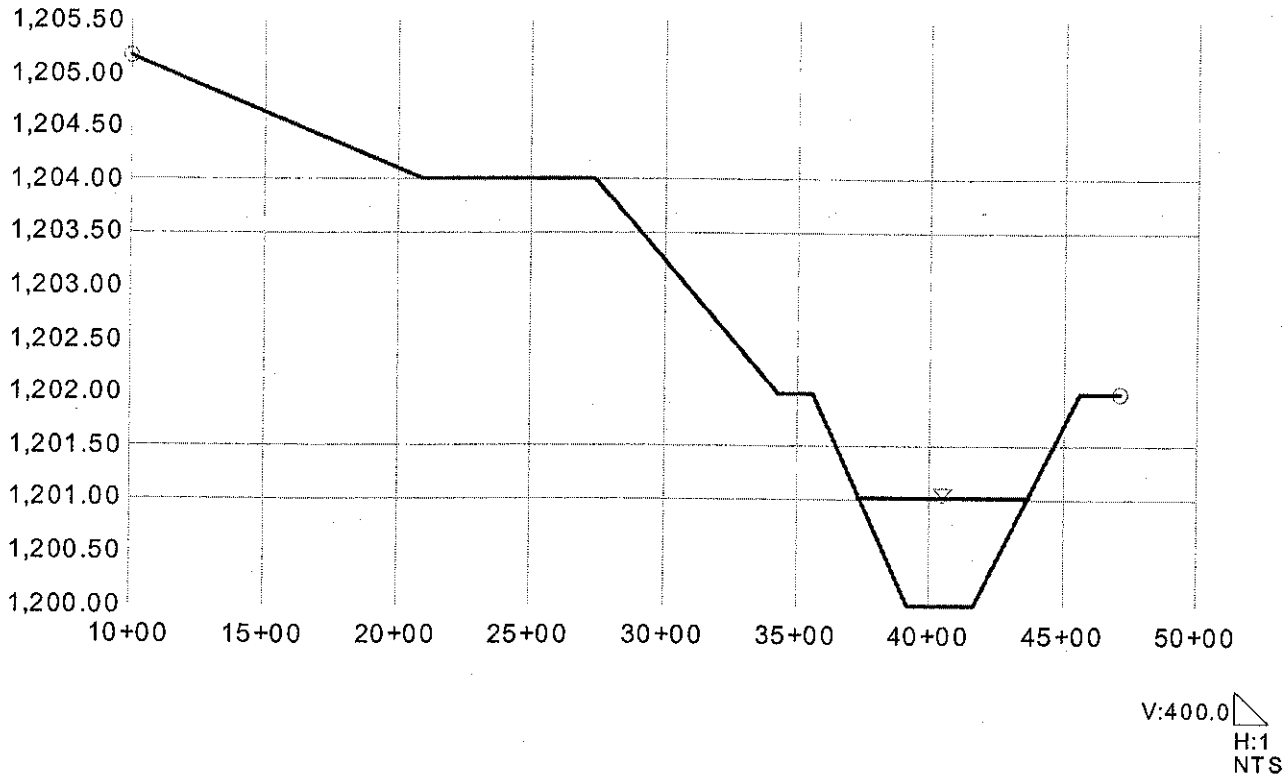
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,205.16
21+00	1,204.00
27+40	1,204.00
34+30	1,202.00
35+60	1,202.00
39+20	1,200.00
41+70	1,200.00
45+60	1,202.00
47+10	1,202.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	10.096
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.002700	ft/ft
Water Surface Elevation	1,201.02	ft
Elevation Range	1,200.00 to 1,205.16	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.984
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.000100	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,198.07	ft
Elevation Range	1,196.00 to 1,204.00	
Flow Area	2,218.9	ft²
Wetted Perimeter	2,861.74	ft
Top Width	2,861.72	ft
Actual Depth	2.07	ft
Critical Elevation	1,196.45	ft
Critical Slope	0.290155	ft/ft
Velocity	0.11	ft/s
Velocity Head	2.02e-4	ft
Specific Energy	1,198.07	ft
Froude Number	0.02	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	62+70	0.110

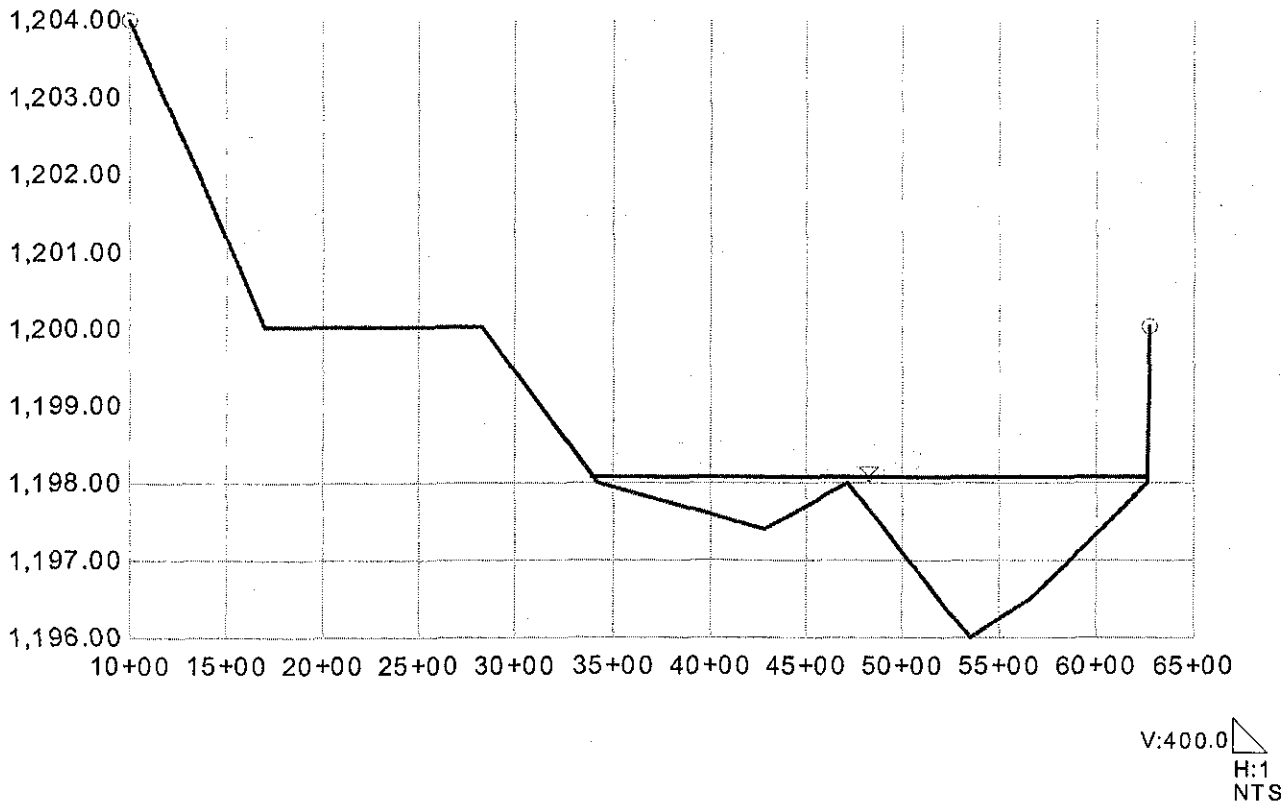
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,204.00
13+60	1,202.00
17+00	1,200.00
28+30	1,200.00
34+20	1,198.00
42+80	1,197.40
47+20	1,198.00
53+50	1,196.00
56+60	1,196.50
62+60	1,198.00
62+70	1,200.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.984
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000100	ft/ft
Water Surface Elevation	1,198.07	ft
Elevation Range	1,196.00 to 1,204.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.953
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.000100	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,196.94	ft
Elevation Range	1,196.00 to 1,202.00	
Flow Area	2,149.9	ft²
Wetted Perimeter	2,644.40	ft
Top Width	2,644.38	ft
Actual Depth	0.94	ft
Critical Elevation	1,196.08	ft
Critical Slope	0.410133	ft/ft
Velocity	0.12	ft/s
Velocity Head	2.15e-4	ft
Specific Energy	1,196.94	ft
Froude Number	0.02	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	76+20	0.110

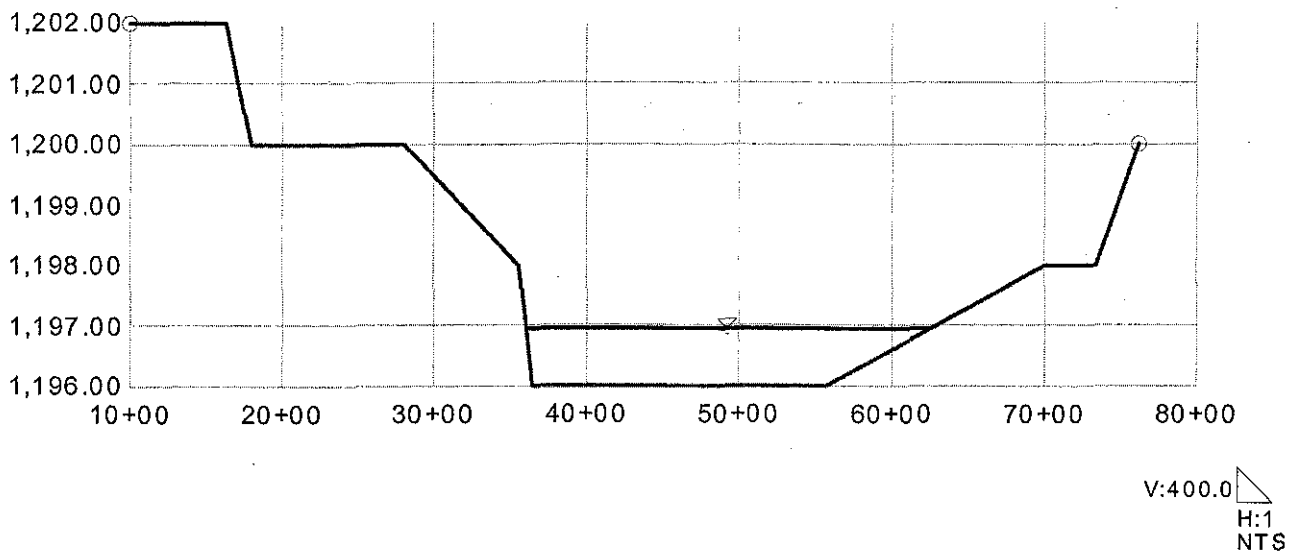
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,202.00
16+40	1,202.00
18+00	1,200.00
28+00	1,200.00
35+50	1,198.00
36+40	1,196.00
55+70	1,196.00
70+00	1,198.00
73+40	1,198.00
76+20	1,200.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.953
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000100	ft/ft
Water Surface Elevation	1,196.94	ft
Elevation Range	1,196.00 to 1,202.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.908
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,195.53	ft
Elevation Range	1,194.00 to 1,200.00	
Flow Area	387.5	ft²
Wetted Perimeter	796.24	ft
Top Width	796.07	ft
Actual Depth	1.53	ft
Critical Elevation	1,194.57	ft
Critical Slope	0.226908	ft/ft
Velocity	0.65	ft/s
Velocity Head	0.01	ft
Specific Energy	1,195.54	ft
Froude Number	0.16	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	61+70	0.110

Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,200.00
23+70	1,198.60
27+20	1,198.00
28+60	1,198.00
36+30	1,196.00
39+70	1,195.00
46+40	1,196.00
54+80	1,196.00
54+90	1,194.00
55+80	1,194.00

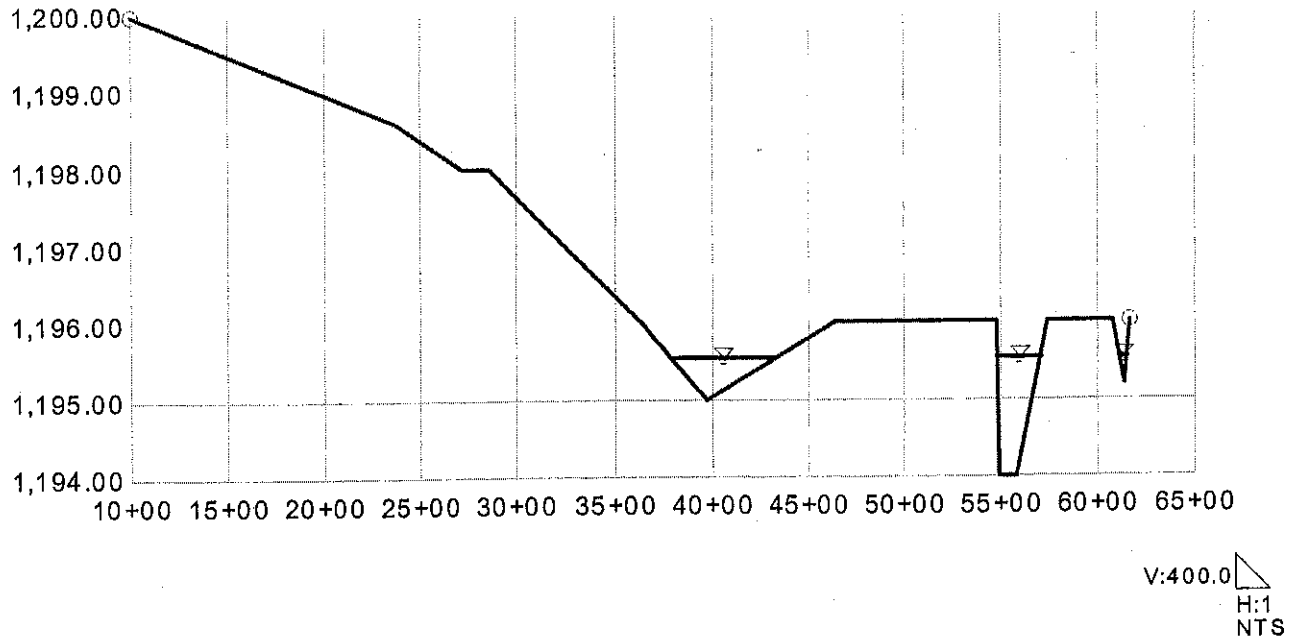
Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
57+40	1,196.00
60+80	1,196.00
61+40	1,195.20
61+70	1,196.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.908
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,195.53	ft
Elevation Range	1,194.00 to 1,200.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.794
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,192.35	ft
Elevation Range	1,192.00 to 1,196.60	
Flow Area	506.6	ft²
Wetted Perimeter	1,555.73	ft
Top Width	1,555.73	ft
Actual Depth	0.35	ft
Critical Elevation	1,192.10	ft
Critical Slope	0.379863	ft/ft
Velocity	0.50	ft/s
Velocity Head	3.88e-3	ft
Specific Energy	1,192.35	ft
Froude Number	0.15	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	58+10	0.110

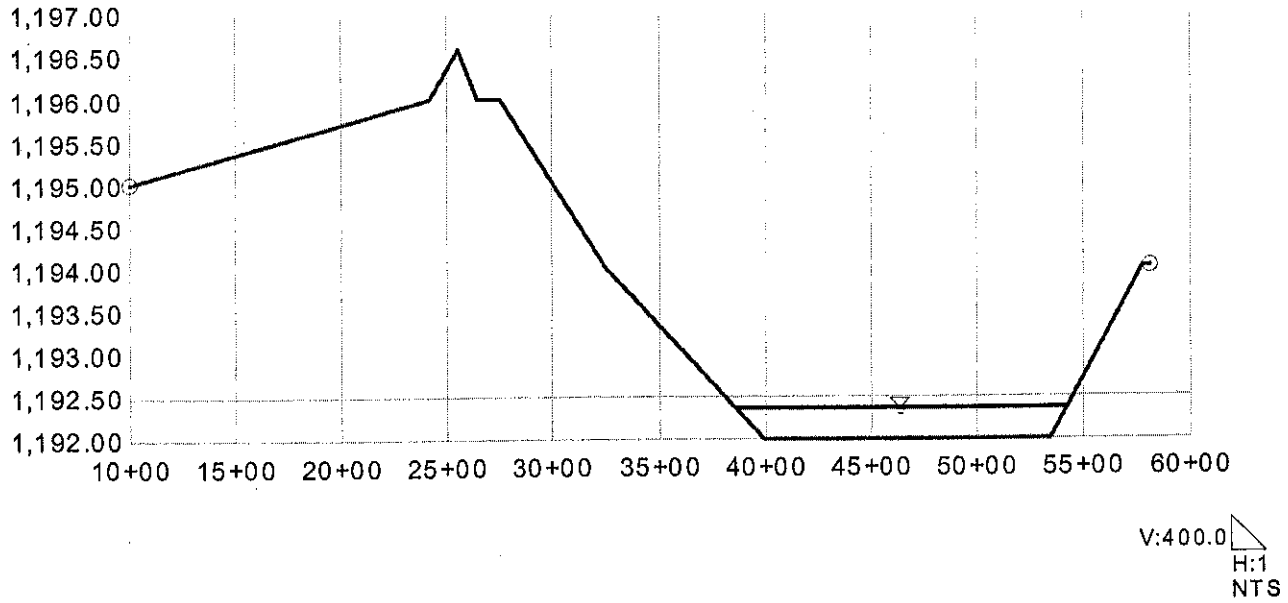
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,195.00
24+20	1,196.00
25+50	1,196.60
26+40	1,196.00
27+50	1,196.00
32+50	1,194.00
39+90	1,192.00
53+40	1,192.00
57+80	1,194.00
58+10	1,194.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.794
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,192.35	ft
Elevation Range	1,192.00 to 1,196.60	
Discharge	252.98	cfs



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Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.592
Flow Element	Irregular Channel
Method	Manning's Formul
Solve For	Channel Depth

Input Data		
Slope	0.006100	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,188.76	ft
Elevation Range	1,188.00 to 1,192.00	
Flow Area	456.2	ft²
Wetted Perimeter	1,197.04	ft
Top Width	1,197.04	ft
Actual Depth	0.76	ft
Critical Elevation	1,188.36	ft
Critical Slope	0.310929	ft/ft
Velocity	0.55	ft/s
Velocity Head	4.78e-3	ft
Specific Energy	1,188.77	ft
Froude Number	0.16	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
25+90	52+20	0.110

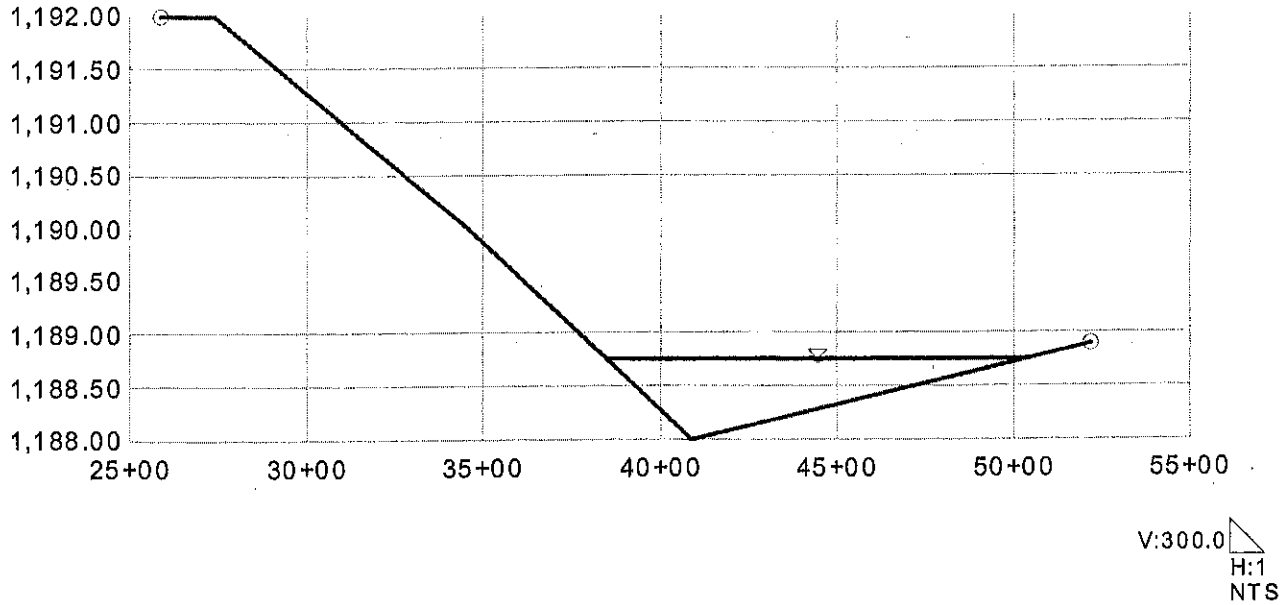
Natural Channel Points

Station (ft)	Elevation (ft)
25+90	1,192.00
27+40	1,192.00
34+60	1,190.00
40+90	1,188.00
52+20	1,188.90

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.592
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.006100	ft/ft
Water Surface Elevation	1,188.76	ft
Elevation Range	1,188.00 to 1,192.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.367
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000610	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,183.42	ft
Elevation Range	1,182.00 to 1,188.00	
Flow Area	652.4	ft²
Wetted Perimeter	520.64	ft
Top Width	520.49	ft
Actual Depth	1.42	ft
Critical Elevation	1,182.23	ft
Critical Slope	0.290169	ft/ft
Velocity	0.39	ft/s
Velocity Head	2.34e-3	ft
Specific Energy	1,183.42	ft
Froude Number	0.06	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	58+00	0.110

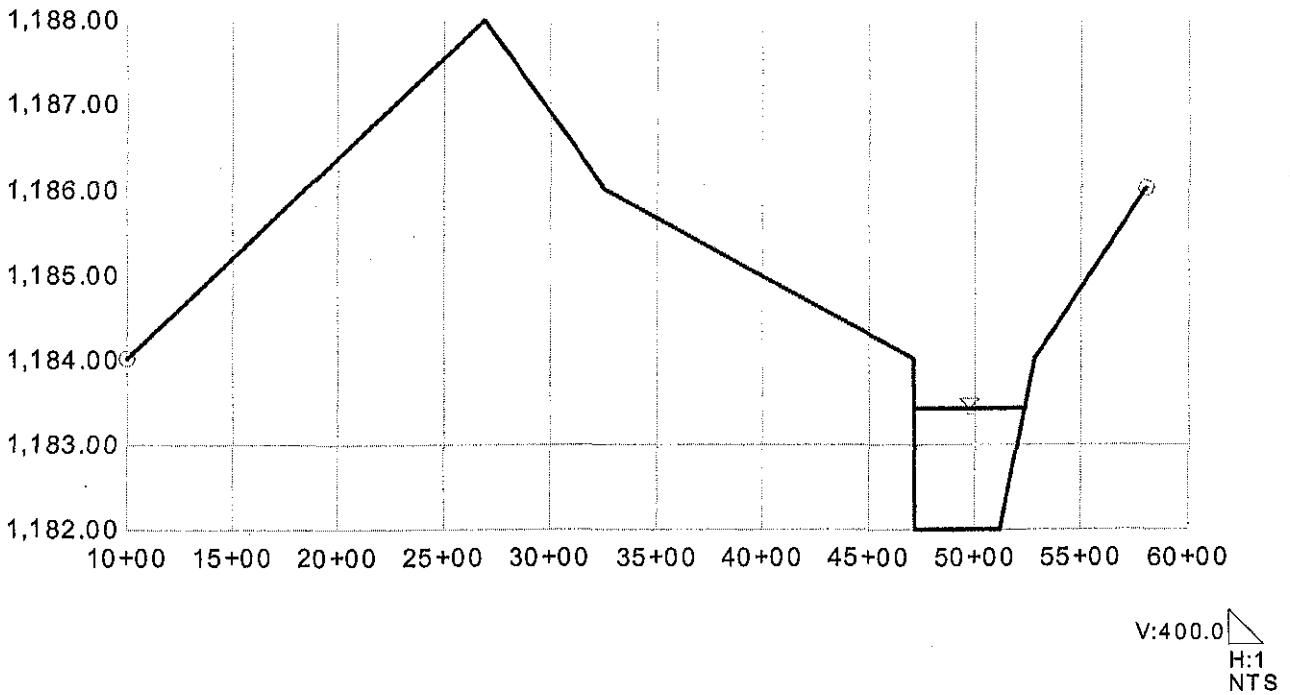
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,184.00
26+90	1,188.00
32+50	1,186.00
47+10	1,184.00
47+20	1,182.00
51+20	1,182.00
52+80	1,184.00
58+00	1,186.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.367
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000610	ft/ft
Water Surface Elevation	1,183.42	ft
Elevation Range	1,182.00 to 1,188.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.318
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000610	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,181.16	ft
Elevation Range	1,180.00 to 1,184.00	
Flow Area	957.0	ft²
Wetted Perimeter	1,356.96	ft
Top Width	1,356.96	ft
Actual Depth	1.16	ft
Critical Elevation	1,180.25	ft
Critical Slope	0.304979	ft/ft
Velocity	0.26	ft/s
Velocity Head	1.09e-3	ft
Specific Energy	1,181.16	ft
Froude Number	0.06	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	47+80	0.110

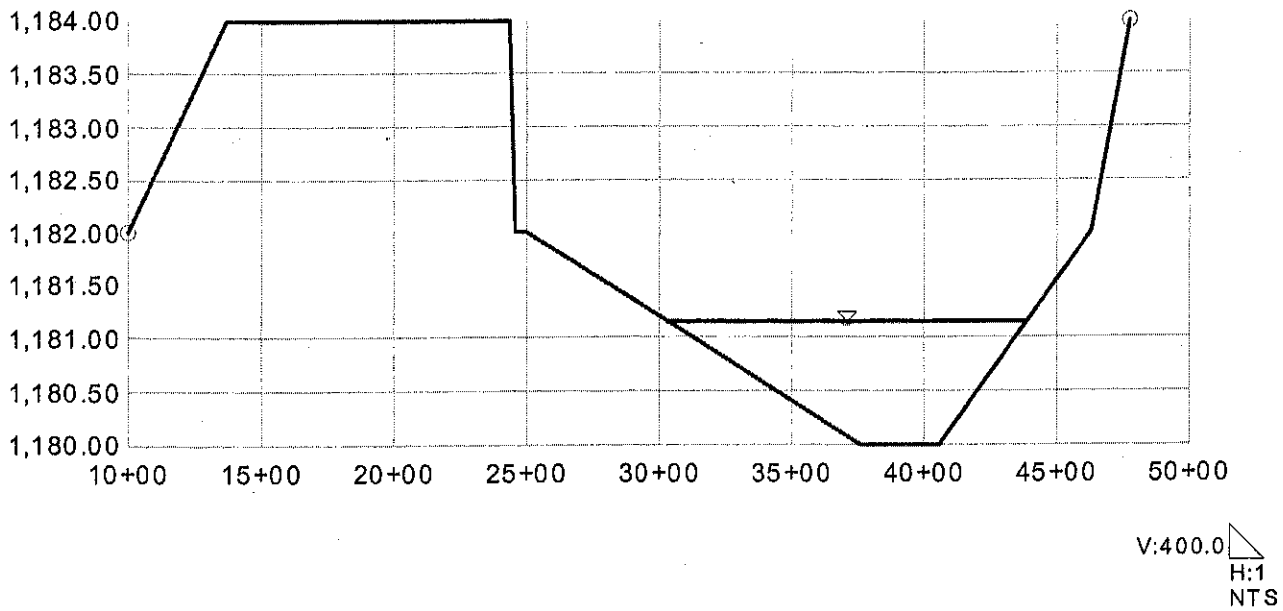
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,182.00
13+70	1,184.00
24+40	1,184.00
24+60	1,182.00
25+00	1,182.00
37+60	1,180.00
40+60	1,180.00
46+30	1,182.00
47+80	1,184.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.318
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000610	ft/ft
Water Surface Elevation	1,181.16	ft
Elevation Range	1,180.00 to 1,184.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.289
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.000610	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,180.80	ft
Elevation Range	1,178.00 to 1,182.00	
Flow Area	981.8	ft²
Wetted Perimeter	1,446.35	ft
Top Width	1,445.95	ft
Actual Depth	2.80	ft
Critical Elevation	1,179.96	ft
Critical Slope	0.163835	ft/ft
Velocity	0.26	ft/s
Velocity Head	1.03e-3	ft
Specific Energy	1,180.80	ft
Froude Number	0.06	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	48+00	0.110

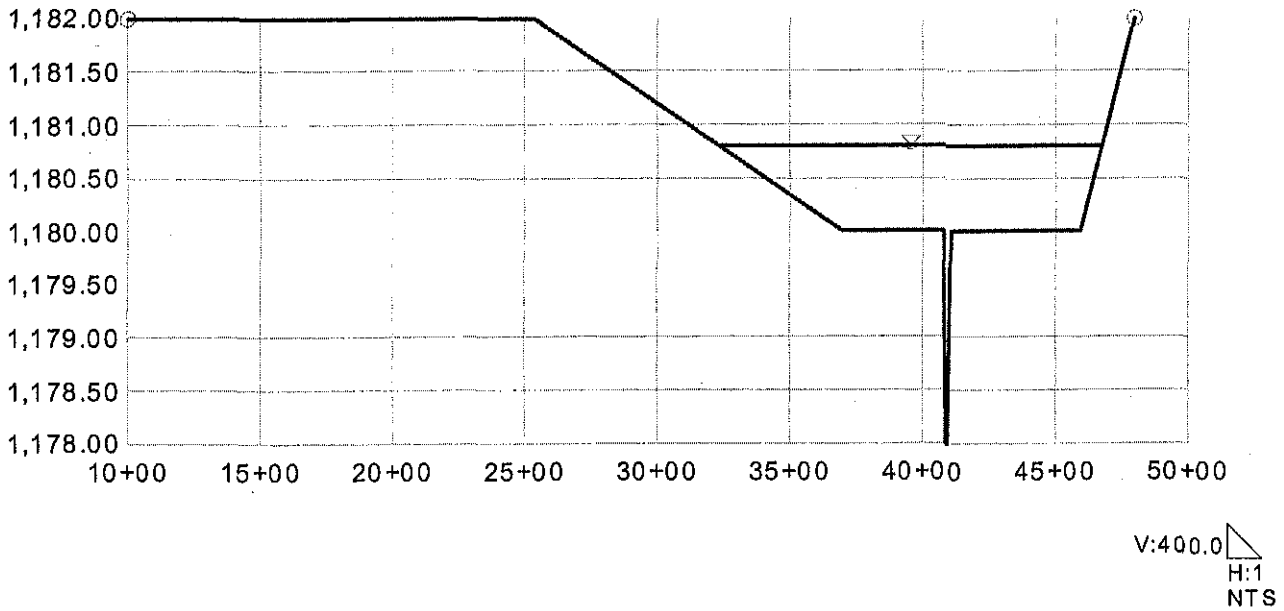
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,182.00
25+40	1,182.00
37+00	1,180.00
40+80	1,180.00
40+90	1,178.00
41+00	1,178.00
41+10	1,180.00
46+00	1,180.00
48+00	1,182.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.289
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000610	ft/ft
Water Surface Elevation	1,180.80	ft
Elevation Range	1,178.00 to 1,182.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	9.129
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000610	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,178.52	ft
Elevation Range	1,176.00 to 1,182.00	
Flow Area	1,211.2	ft²
Wetted Perimeter	2,445.29	ft
Top Width	2,444.88	ft
Actual Depth	2.52	ft
Critical Elevation	1,178.07	ft
Critical Slope	0.417028	ft/ft
Velocity	0.21	ft/s
Velocity Head	6.78e-4	ft
Specific Energy	1,178.52	ft
Froude Number	0.05	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	54+70	0.110

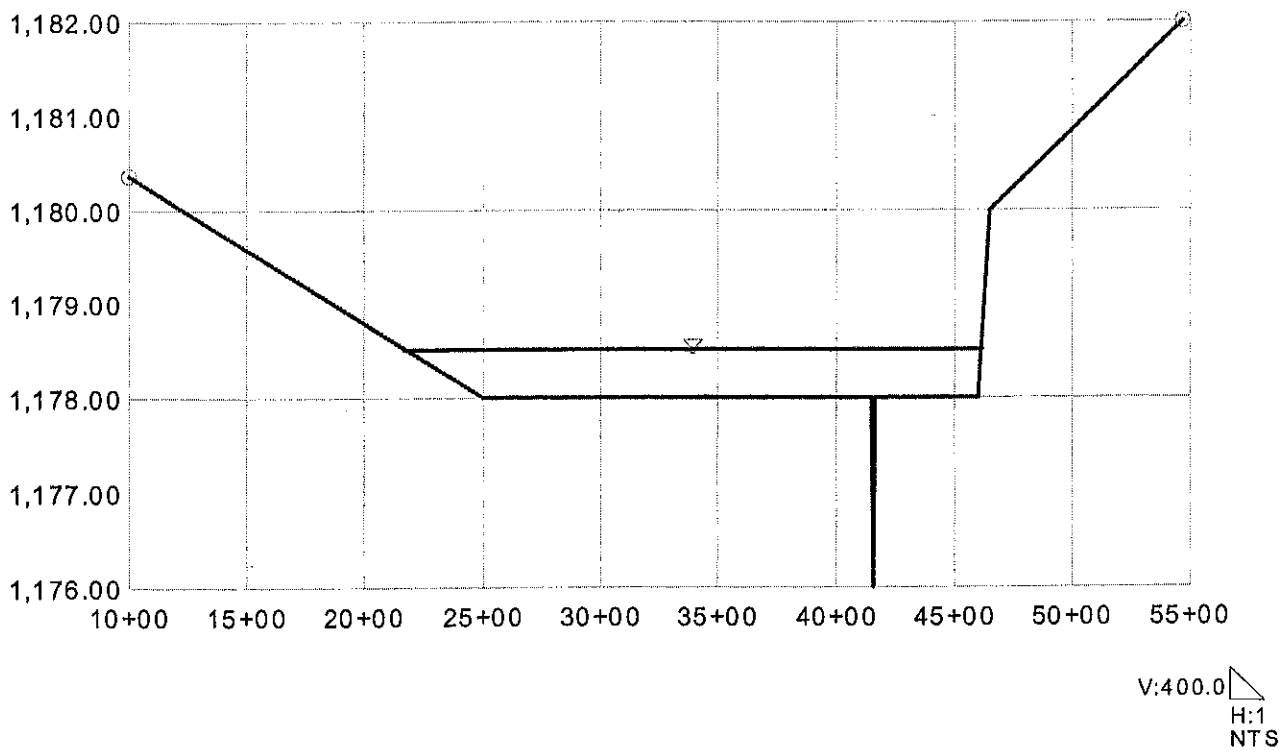
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,180.37
25+00	1,178.00
41+50	1,178.00
41+60	1,176.00
41+70	1,178.00
46+00	1,178.00
46+50	1,180.00
54+70	1,182.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	9.129
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000610	ft/ft
Water Surface Elevation	1,178.52	ft
Elevation Range	1,176.00 to 1,182.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	8.994
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000610	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,176.47	ft
Elevation Range	1,176.00 to 1,178.00	
Flow Area	1,296.8	ft²
Wetted Perimeter	2,900.57	ft
Top Width	2,900.57	ft
Actual Depth	0.47	ft
Critical Elevation	1,176.07	ft
Critical Slope	0.438923	ft/ft
Velocity	0.20	ft/s
Velocity Head	5.91e-4	ft
Specific Energy	1,176.47	ft
Froude Number	0.05	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
9+35	44+00	0.110

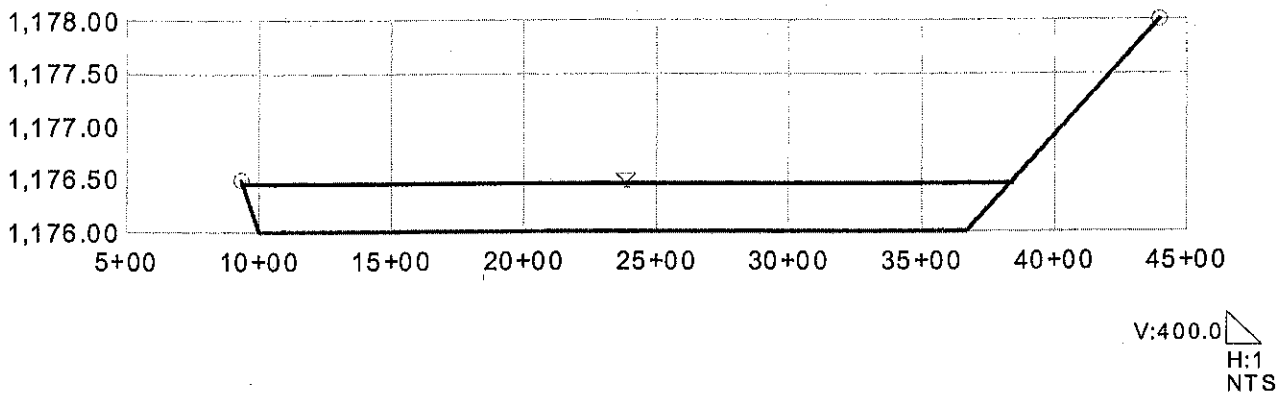
Natural Channel Points

Station (ft)	Elevation (ft)
9+35	1,176.50
10+00	1,176.00
36+70	1,176.00
44+00	1,178.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	8.994
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000610	ft/ft
Water Surface Elevation	1,176.47	ft
Elevation Range	1,176.00 to 1,178.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	8.936
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000610	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,176.28	ft
Elevation Range	1,174.00 to 1,178.00	
Flow Area	1,258.9	ft²
Wetted Perimeter	2,693.29	ft
Top Width	2,693.19	ft
Actual Depth	2.28	ft
Critical Elevation	1,174.50	ft
Critical Slope	0.243911	ft/ft
Velocity	0.20	ft/s
Velocity Head	6.28e-4	ft
Specific Energy	1,176.28	ft
Froude Number	0.05	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
10+00	50+70	0.110

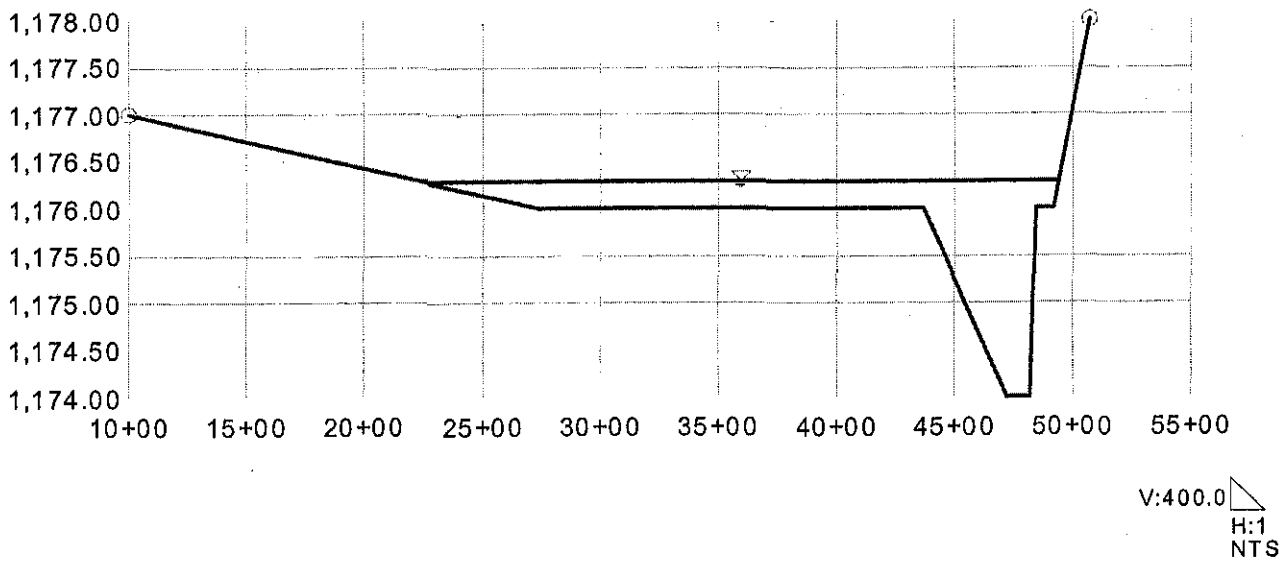
Natural Channel Points

Station (ft)	Elevation (ft)
10+00	1,177.00
27+40	1,176.00
43+70	1,176.00
47+20	1,174.00
48+20	1,174.00
48+40	1,176.00
49+20	1,176.00
50+70	1,178.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	8.936
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000610	ft/ft
Water Surface Elevation	1,176.28	ft
Elevation Range	1,174.00 to 1,178.00	
Discharge	*252.98*	*cfs*



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	8.807
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	0.000610	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,168.61	ft
Elevation Range	1,166.99 to 1,174.00	
Flow Area	1,083.7	ft²
Wetted Perimeter	1,851.48	ft
Top Width	1,851.27	ft
Actual Depth	1.62	ft
Critical Elevation	1,168.05	ft
Critical Slope	0.385556	ft/ft
Velocity	0.23	ft/s
Velocity Head	8.47e-4	ft
Specific Energy	1,168.62	ft
Froude Number	0.05	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	54+80	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,173.60
12+20	1,172.00
13+69	1,170.00
14+91	1,170.62
15+19	1,168.50
16+05	1,166.99
16+21	1,169.32
17+62	1,168.29
18+06	1,167.83
18+48	1,167.80

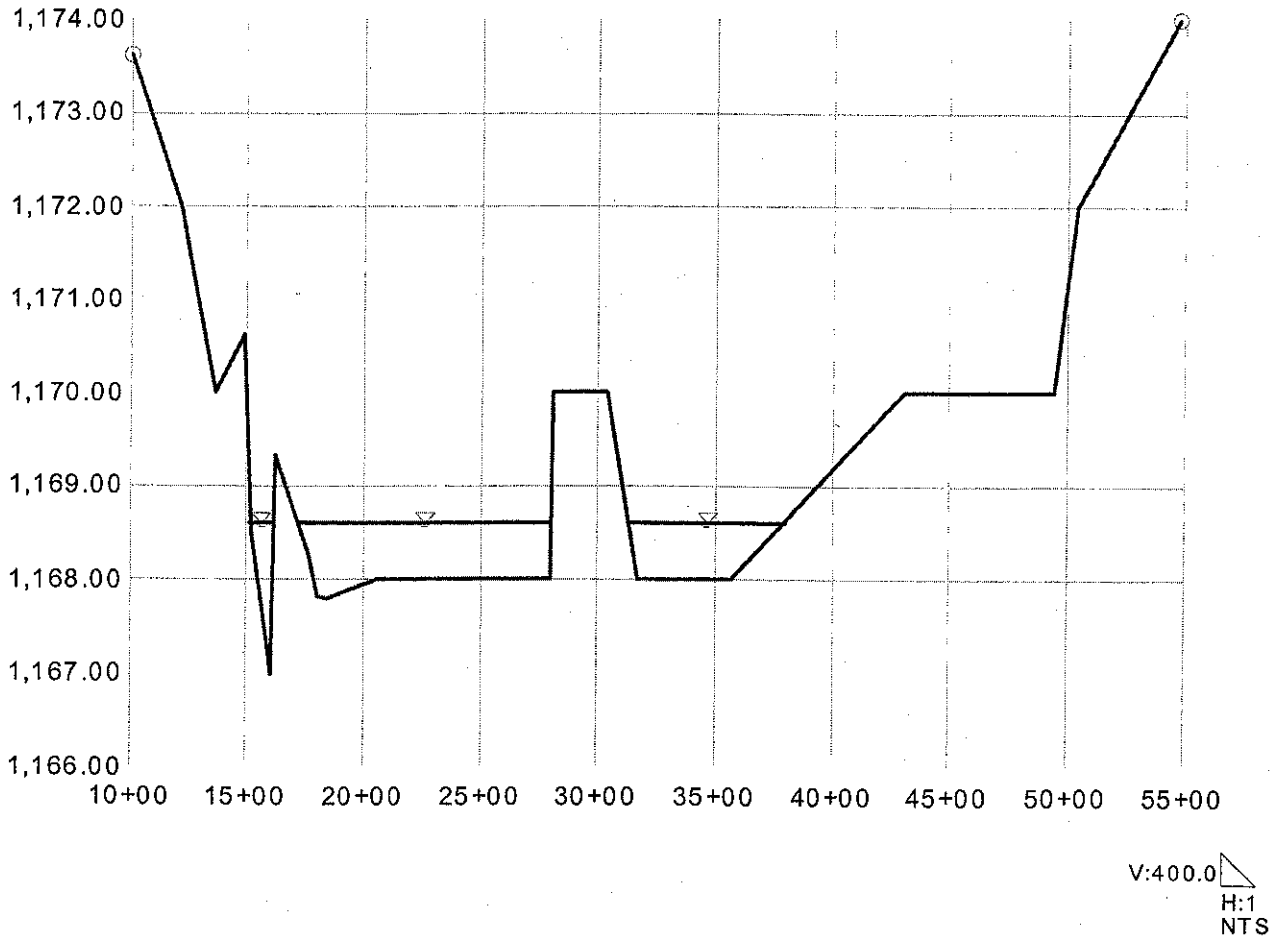
Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
20+61	1,168.00
28+00	1,168.00
28+10	1,170.00
30+40	1,170.00
31+70	1,168.00
35+70	1,168.00
43+10	1,170.00
49+40	1,170.00
50+40	1,172.00
54+80	1,174.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	8.807
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000610	ft/ft
Water Surface Elevation	1,168.61	ft
Elevation Range	1,166.99 to 1,174.00	
Discharge	252.98	cfs



Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Project Description	
Worksheet	8.655
Flow Element	Irregular Channel
Method	Manning's Formul:
Solve For	Channel Depth

Input Data		
Slope	0.000610	ft/ft
Discharge	252.98	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Metho	Improved Lotter's Method
Closed Channel Weighting Meth	Horton's Method

Results		
Mannings Coefficient	0.110	
Water Surface Elevation	1,158.48	ft
Elevation Range	1,157.50 to 1,171.40	
Flow Area	769.2	ft²
Wetted Perimeter	785.88	ft
Top Width	784.37	ft
Actual Depth	0.98	ft
Critical Elevation	1,157.65	ft
Critical Slope	0.333211	ft/ft
Velocity	0.33	ft/s
Velocity Head	1.68e-3	ft
Specific Energy	1,158.49	ft
Froude Number	0.06	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
10+00	51+20	0.110

Natural Channel Points	
Station (ft)	Elevation (ft)
10+00	1,168.79
10+92	1,171.40
13+29	1,167.24
13+64	1,168.43
14+81	1,166.14
15+58	1,167.02
16+38	1,166.20
26+40	1,166.00
26+70	1,162.00
26+75	1,157.50

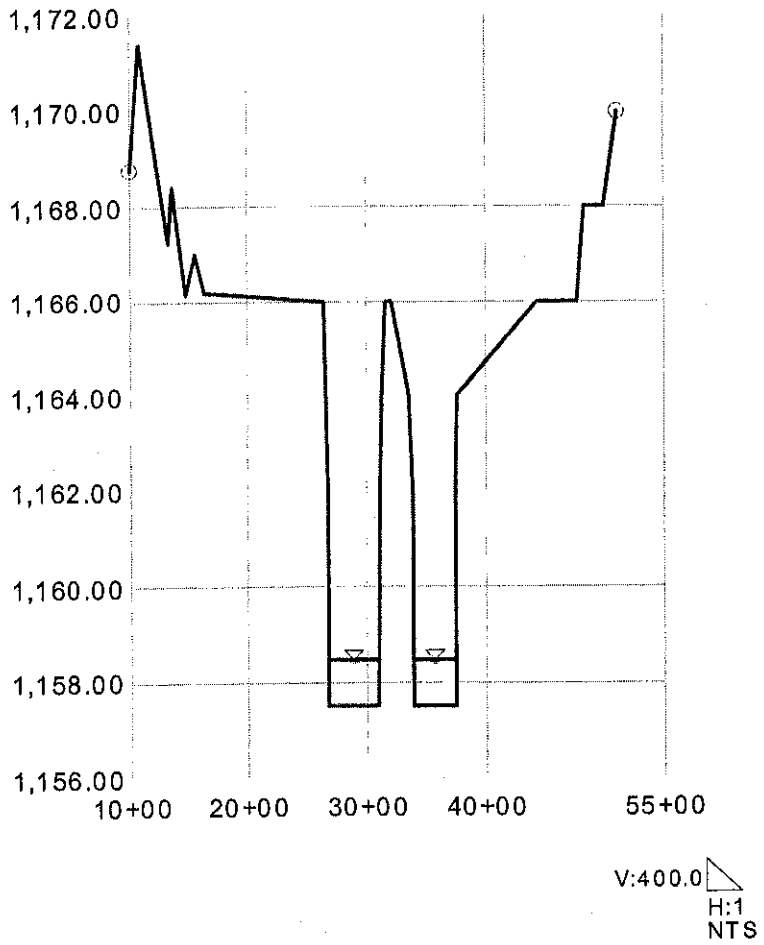
Approximate Methods for the 1/3 PMF - Right Overbank
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
31+00	1,157.50
31+05	1,162.00
31+20	1,164.00
31+60	1,166.00
32+00	1,166.00
33+60	1,164.00
33+80	1,162.00
33+85	1,157.50
37+40	1,157.50
37+45	1,162.00
37+60	1,164.00
44+40	1,166.00
47+80	1,166.00
48+40	1,168.00
50+10	1,168.00
51+20	1,170.00

Cross Section
Cross Section for Irregular Channel

Project Description	
Worksheet	8.655
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.110	
Slope	0.000610	ft/ft
Water Surface Elevation	1,158.48	ft
Elevation Range	1,157.50 to 1,171.40	
Discharge	252.98	cfs

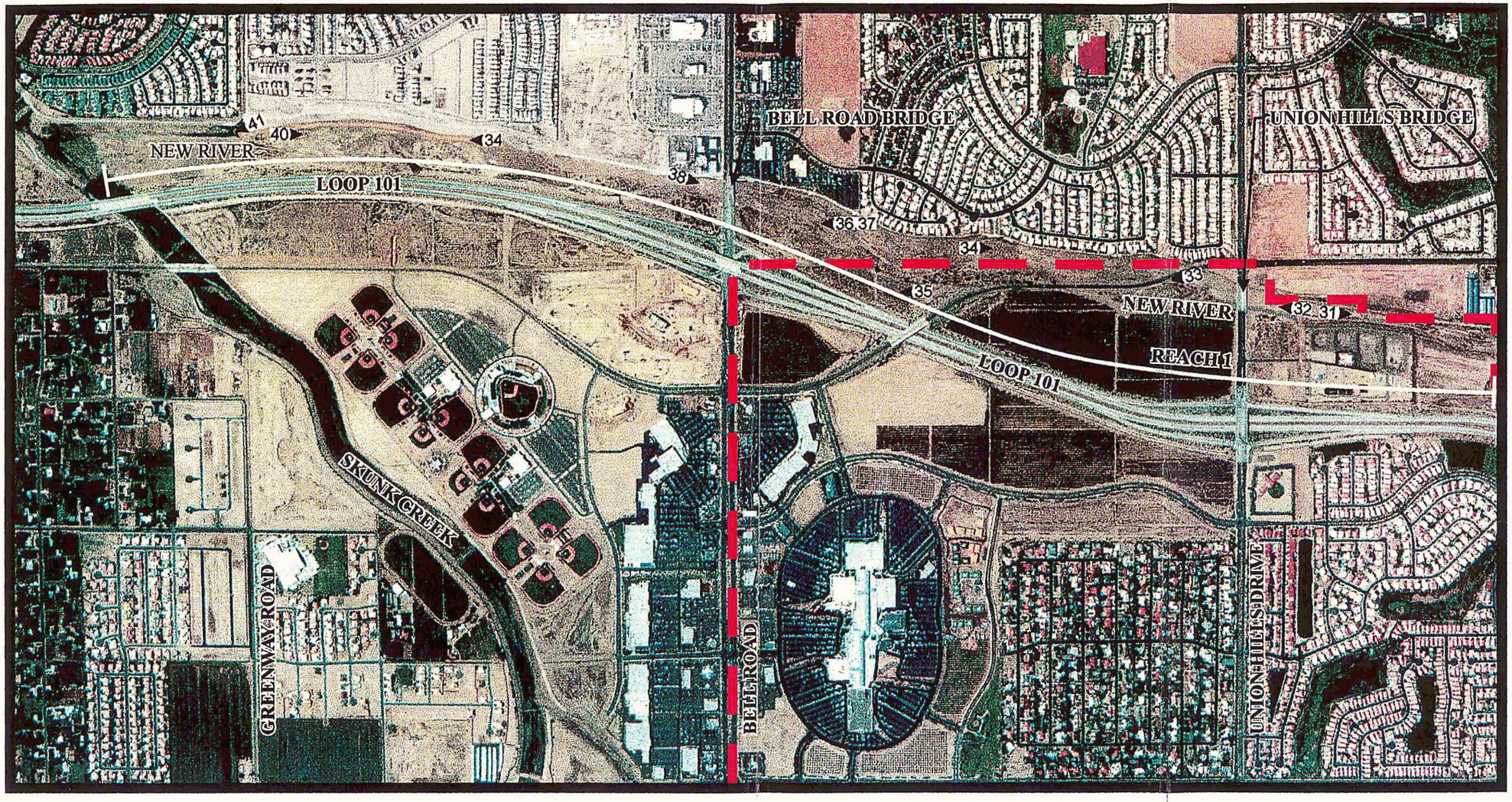


APPENDIX B

MANNING'S N-VALUE CALCULATIONS AND PHOTOGRAPHS

APPENDIX B

MANNING'S N-VALUE REACH LIMITS AND PHOTOGRAPH LOCATIONS



Legend

CITY OF PEORIA/GLENDALE BOUNDARY

◀01 PHOTOGRAPH VIEW DIRECTION AND LOCATION

Stantec

P:\28900058\GRAPHICS\11117A.CDR

Client/Project

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NEW RIVER SPILLWAY DELINEATION FLOWS AND MANNINGS "n" VALUE PHOTO LOCATIONS

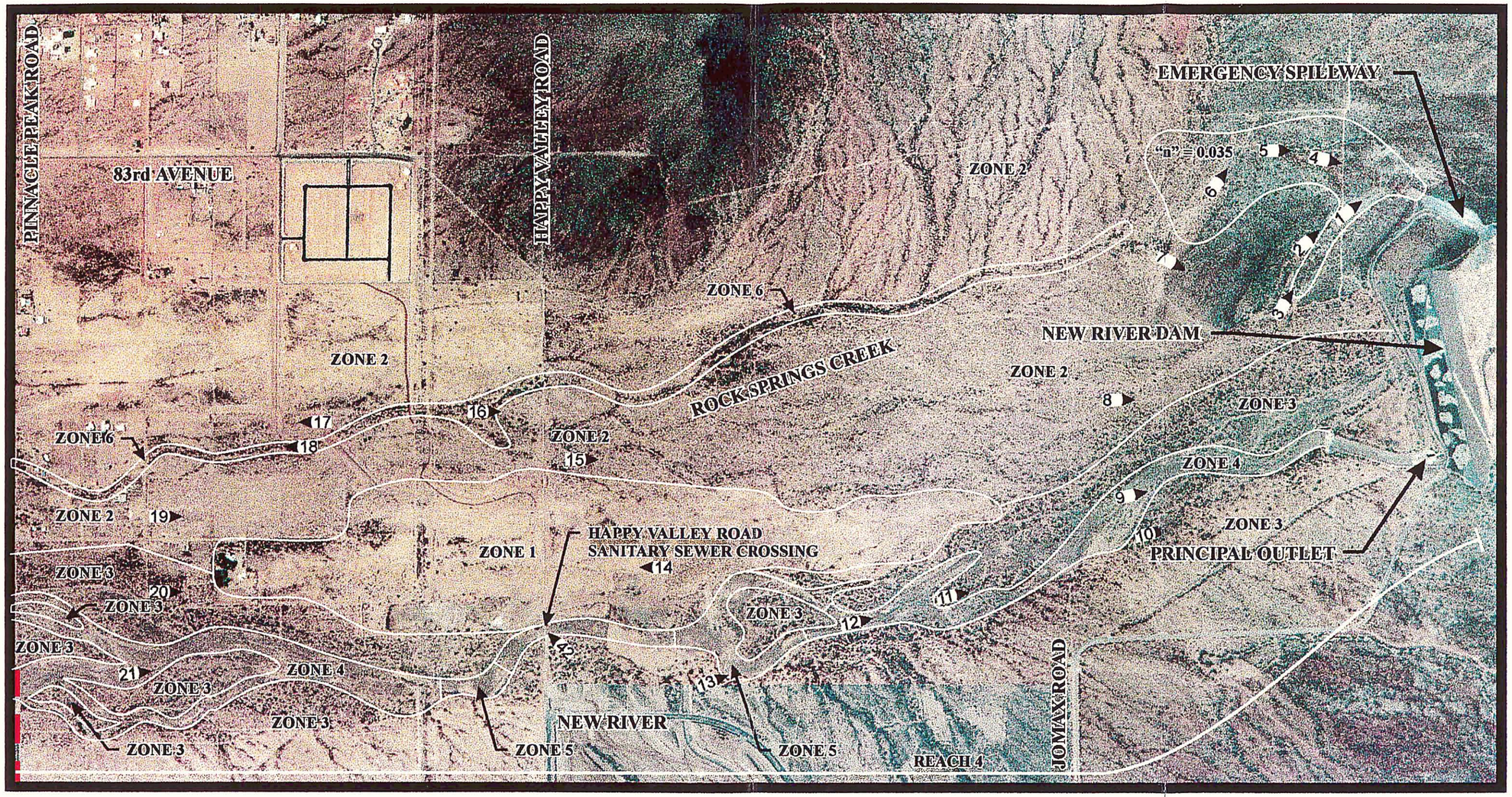
Figure No.

B1

Title

Aerial Photo 1

Date: February 01, 1999
Project Number: 28900058



Legend

CITY OF PEORIA/GLENDALE BOUNDARY

◀01 PHOTOGRAPH VIEW DIRECTION AND LOCATION

Stantec

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Client/Project

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NEW RIVER SPILLWAY DELINEATION FLOWS AND MANNINGS "n" VALUE PHOTO LOCATIONS

Figure No.

B3

Title

Aerial Photo 3

Date: February 25, 1999
Project Number: 28900058

APPENDIX B

MANNING'S N-VALUE CALCULATION SHEETS

Table B-1
Determination of Manning's Roughness Coefficients by FCDMC Method

Project: New River Dam Spillway Delineation
Steam: New River
Reach Description: X-SEC 8.655 THROUGH X-SEC 11.644

By: PJE Date: 9/28/98
Checked By: Date:

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032	0.028		0.028
	Coarse Sand		0.026 - 0.035			
	Fine Gravel		0.024			
	Gravel		0.028 - 0.035		0.035	
	Coarse Gravel		0.028			
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000	0.000	0.000
	Minor		0.001 - 0.005			
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050	0.032		0.032
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.060	0.035	0.060
Photograph No.:				35	31,32,33,34,36,37,38,40	39,41

Table B-1
Determination of Manning's n Value by FCDMC Method

Project: New River Dam Spillway Delineation
Steam: New River
Reach Description: X-SEC 11.644 THROUGH X-SEC 11.949

By: PJE Date: 9/28/98
Checked By: Date:

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032	0.028		0.028
	Coarse Sand		0.026 - 0.035			
	Fine Gravel		0.024			
	Gravel		0.028 - 0.035			
	Coarse Gravel		0.028			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000	0.000	0.000
	Minor		0.001 - 0.005			
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030	0.025		
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050	0.032		0.032
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.085	0.035	0.060
Photograph No.:					30	

Table B-1
Determination of Manning's n Value by FCDMC Method

Project: New River Dam Spillway Delineation
Steam: New River
Reach Description: X-SEC 11.949 THROUGH X-SEC 13.918

By: PJE Date: 9/28/98
Checked By: Date:

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032	0.028		0.028
	Coarse Sand		0.026 - 0.035			
	Fine Gravel		0.024			
	Gravel		0.028 - 0.035		0.035	
	Coarse Gravel		0.028			
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000	0.000	0.000
	Minor		0.001 - 0.005			
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050	0.032		0.032
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.060	0.035	0.060
Photograph No.:				28	27,30	29

Table B-1
Determination of Manning's n Value by FCDMC Method

Project: New River Dam Spillway Delineation
Steam: New River
Reach Description: X-SEC 13.918 TO DAM

By: PJE Date:
Checked By: Date:

Channel Conditions		Manning's n Adjustment		ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Channel Bed Material	Concrete	n_0	0.012 - 0.018						
	Rock Cut		0.025						
	Firm Soil		0.025 - 0.032	0.030	0.028	0.028			
	Coarse Sand		0.026 - 0.035					0.035	
	Fine Gravel		0.024						
	Gravel		0.028 - 0.035						0.035
	Coarse Gravel		0.028						
	Cobble		0.030 - 0.050				0.035		
	Boulder		0.040 - 0.070						
Degree of Irregularity	Smooth	n_1	0.000						
	Minor		0.001 - 0.005						
	Moderate		0.006 - 0.010					0.008	
	Severe		0.011 - 0.020						
Effects of Obstructions	Negligable	n_2	0.000 - 0.004						
	Minor		0.005 - 0.015						
	Appreciable		0.020 - 0.030						
	Severe		0.040 - 0.060						
Vegetation	Small	n_3	0.002 - 0.010	0.005					
	Medium		0.010 - 0.025						
	Large		0.025 - 0.050		0.025	0.030			0.025
	Very Large		0.050 - 0.100						
Variations in Channel Cross Section	Gradual	n_4	0.000						
	Alternating (occasionally)		0.001 - 0.005				0.003		
	Alternating (frequently)		0.010 - 0.015						
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000	1.000		1.000
	Appreciable		1.15						
	Severe		1.30					1.300	
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.035	0.053	0.058	0.038	0.056	0.060
Photograph No.:				14	7,15,17, 19,25	8,10,11, 20,22	9,12,21, 23,26		16,18, 24

Table B-2

New River Dam Spillway Delineation Study
Estimation of the Effects of Flow on Vegetation

Assumptions:
1) Use average hydraulic properities for each reach.
2) Hydraulic properioties are based on one-third PMF discharges.
3) Use proceedures cited in "Method to Estimate Effects of Flow-Induced Vegetation Changes on Channel Conveyances of Streams in Central Arizona.

Reach	Reach Length	Average Channel Velocity	Average Hydraulic Radius	Average W.S. Slope	Average Invert Slope	d_{50}	SP	t_o	SP2	t_c	SP-SP2	t_o/t_c
	feet	fps	feet	ft/ft	ft/ft	feet	ft-lb/s/ft^2	lb/ft^2	ft-lb/s/ft^2	lb/ft^2	ft-lb/s/ft^2	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	16,357	7.7	4.95	0.0070	0.0074	0.26	16.69	2.29	5.91	0.0033	10.78	694
2	1,569	8.3	4.31	0.0057	0.0060	0.26	12.71	1.61	5.91	0.0033	6.80	486
3	10,282	6.6	4.49	0.0091	0.0146	0.26	16.84	4.09	5.69	0.0033	11.15	1238
4	14,301	5.8	3.42	0.0052	0.0092	0.26	6.43	1.96	7.27	0.0033	-0.83	595

Notes:
(1) Reach identification.
(2) Reach length.
(3) Average channel velocity for reach.
(4) Average hydraulic radius for reach.
(5) Average water surface evelavation for reach.
(6) Average invert slope for reach.
(7) Estimated d_{50} bed material grain size for reach.
(8) Stream Power = SP= 62.4 RS_wV R=(4), Sw = (5) and V = (3)
(9) Shear Stress = t_o =62.4RS_o R=(4), So = (6)
(10) Vegetation- susceptibility threshold = SP2= $2.054K_v^{0.231}$ Kv = Vegetation- susceptibility Index
(11) Critical Shear Stress = t_c = 0.0127 d_{50}
(12) If positive value vegetation will bend over at peak flows.
(13) Ratio of shear stress to critical shear stress

Table B-3
Urban Roughness Coefficient

Project:	New Rive Dam Spillway Delineation	Calculated by:	PJE
Client:	FCDMC	Check by:	MCG
Stantec Project Number:	28900058	Date:	3/26/99

$n_u = n_o(1.5(W_T/W_o)+(1-W_T/W_o)L_o/L_t-0.5)$ Eq. 6.12 , Drainage Design Manual for Maricopa County, Hydraulics

L_o = Individual length between buildings measured parallel to flow, ft L_o = L1+L2+L3...+Ln
L_T = Total length of the floodplain, including buildings, ft
W_o = Clear width between buildings, measured perpendicular to flow, ft W_o = W1+W2+W3...+Wn
W_T = Total width of the floodplain, including buildings, ft
n_o = initial roughness coefficient
n_u = adjusted urban roughness coefficient

Assume: Width of buildings = 50'
Length of opening between buildings = 100
Determine nu for two rows of building and apply to entire subdivision.
Assume that fences have no effect on roughness
Row of buildings perpendicular to flow.

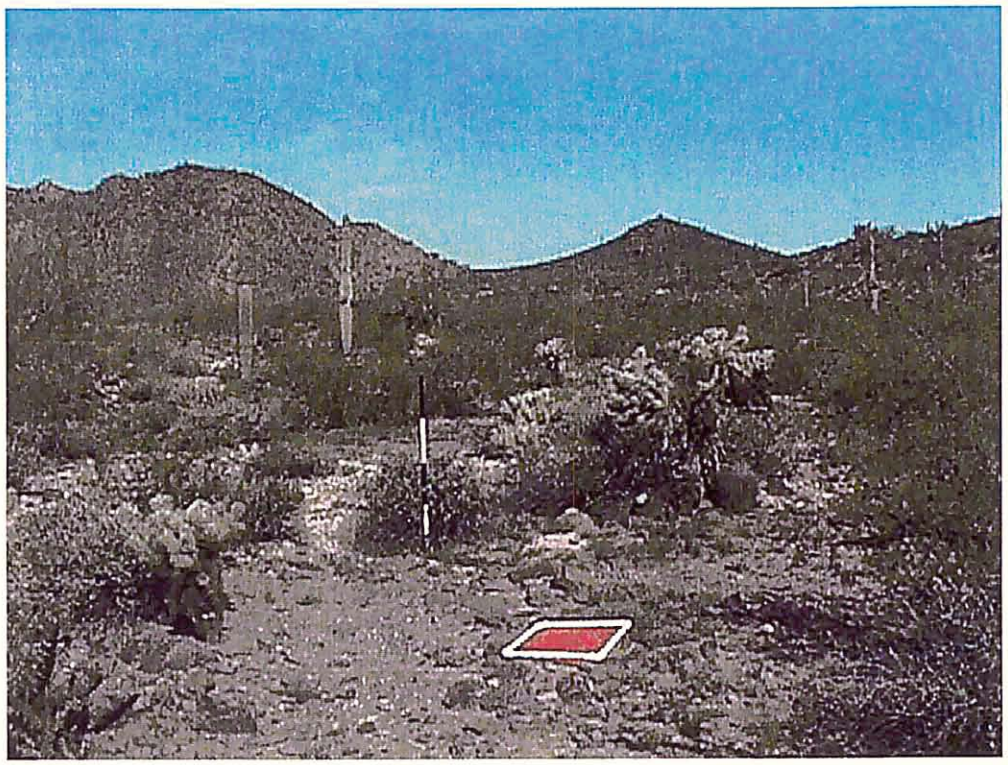
W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W_O	W_T	L1	L2	L3	L_O	L_T
10	20	20	20	20	20	20	20	20	20	20	20	10	240	800	50	100	50	200	350

n_o	W_T/W_o	L_o/L_T	n_u
0.04	3.33	0.57	**0.11**

APPENDIX B

PHOTOGRAPHS

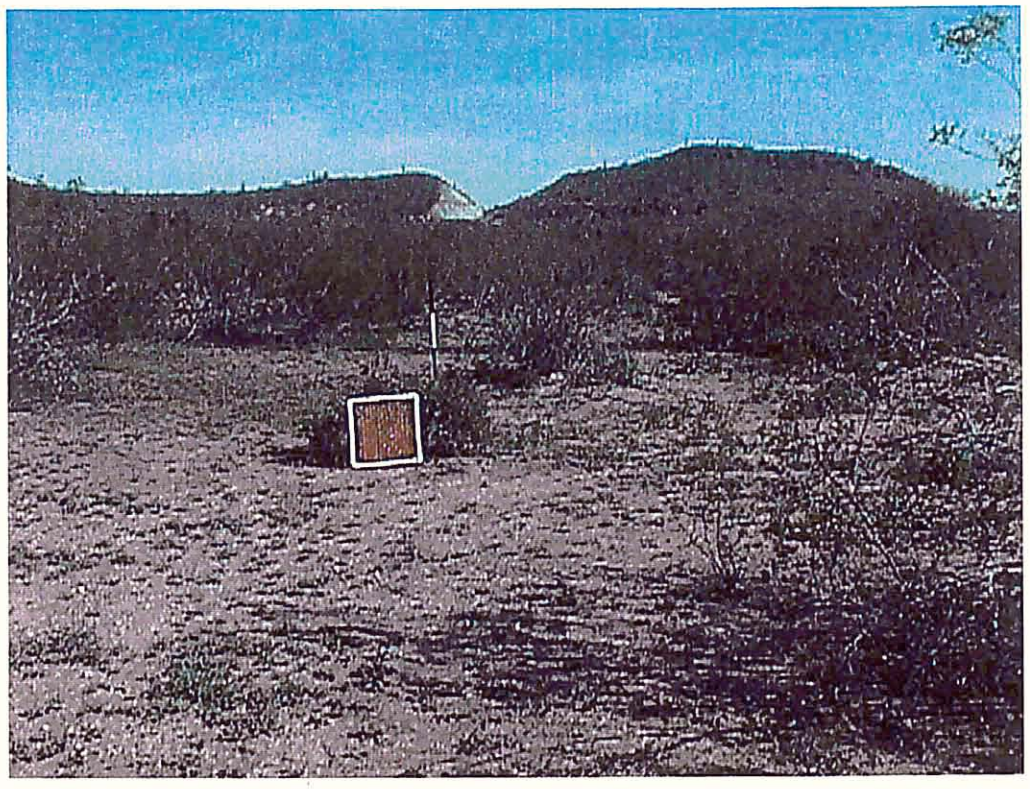
Photograph 1
East flow path downstream of emergency spillway



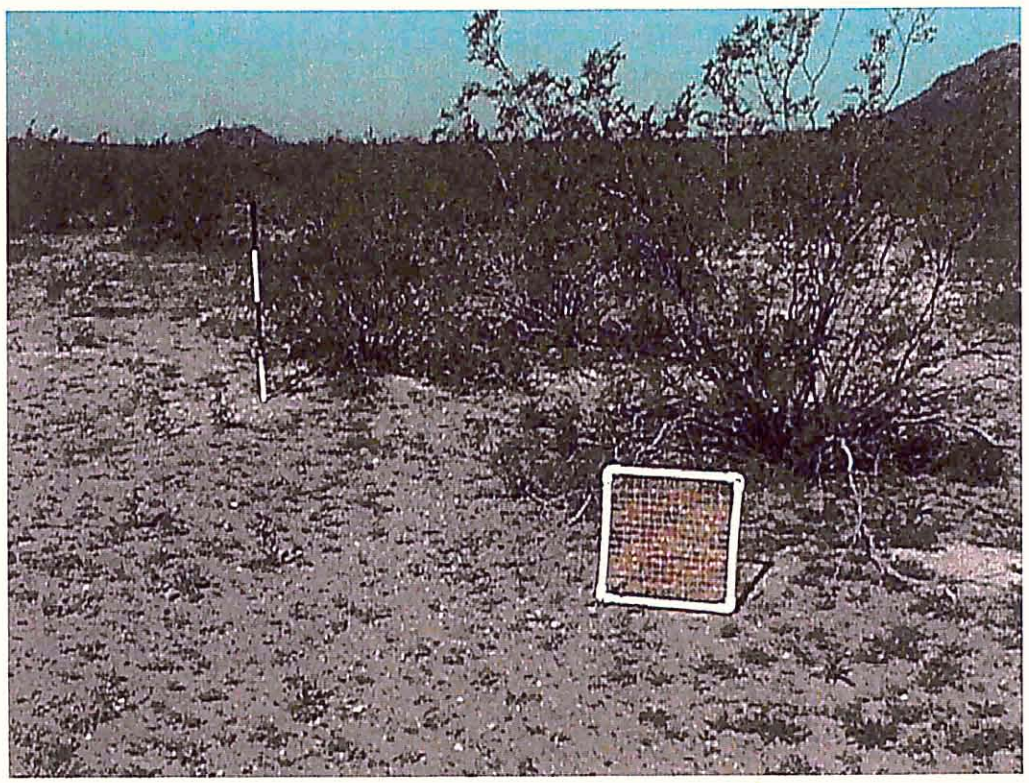
Photograph 2
East flow path downstream of emergency spillway

Photograph 3
East flow path downstream of emergency spillway at confluence with New River west overbank area.

Photograph 4
South flow path downstream of emergency spillway



Photograph 5
South flow path downstream of emergency spillway at confluence with Rock Springs Creek



Photograph 6
Vegetation cover, Rock Springs Creek

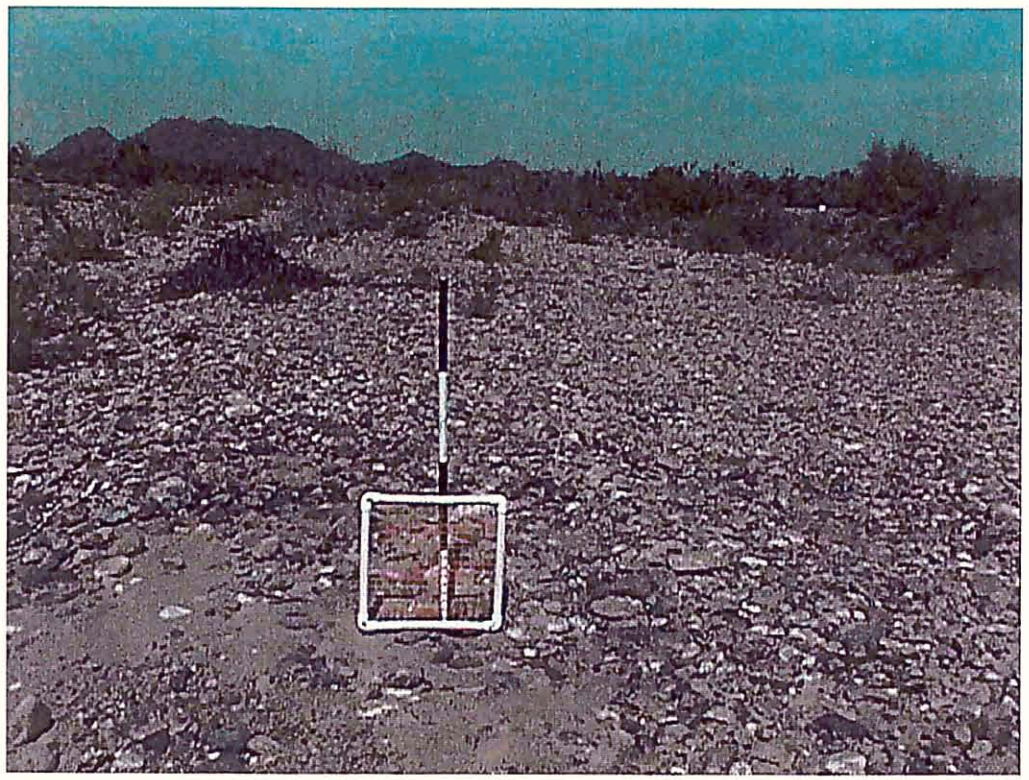
Photograph 7
Vegetation Cover within a Mannings "n" value Zone 2 classification

Photograph 8
Vegetation cover within a Mannings "n" value Zone 3 classification

Photograph 9
Vegetation cover within a Mannings "n" value Zone 4 (New River Channel) classification

Photograph 10
Vegetation cover within a Mannings "n" value Zone 3 classification

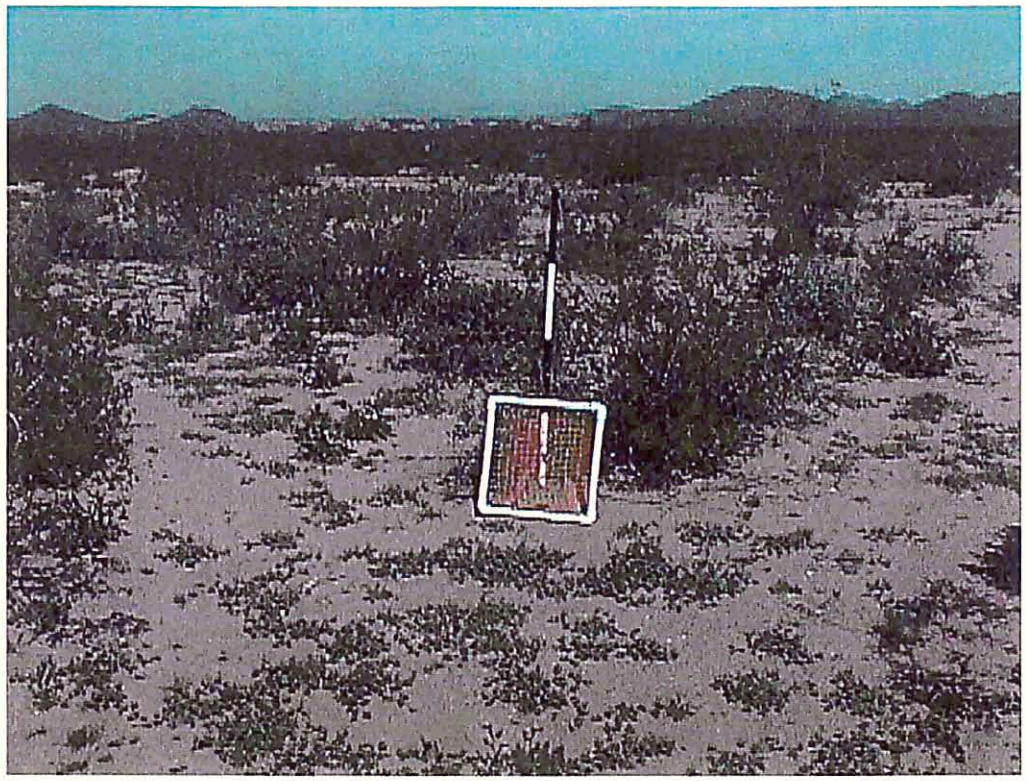
Photograph 11
Vegetation cover within a Mannings "n" value Zone 3 classification



Photograph 12
Vegetation cover within a Mannings "n" value Zone 4 classification

Photograph 13
Looking upstream on left bank of New River

Photograph 14
Vegetation cover within a Mannings "n" value Zone 1 classification

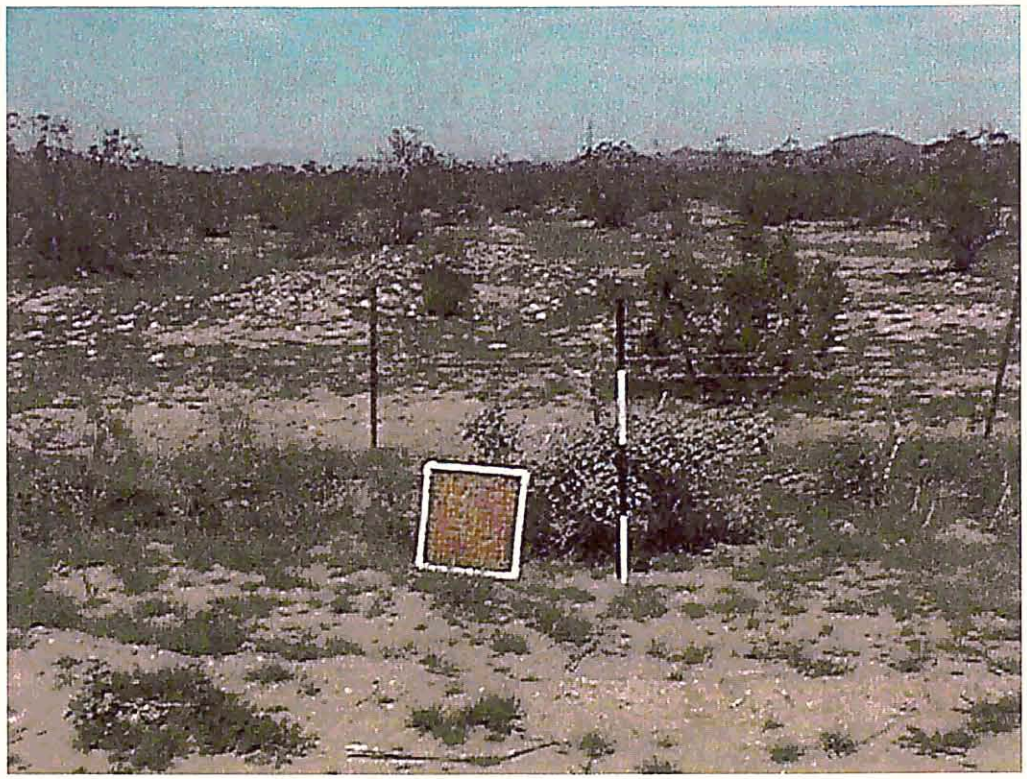


Photograph 15
Vegetation cover within a Mannings "n" value Zone 2 classification

Photograph 16
Vegetative cover within Rock Springs Creek (Mannings "n" value Zone 6)

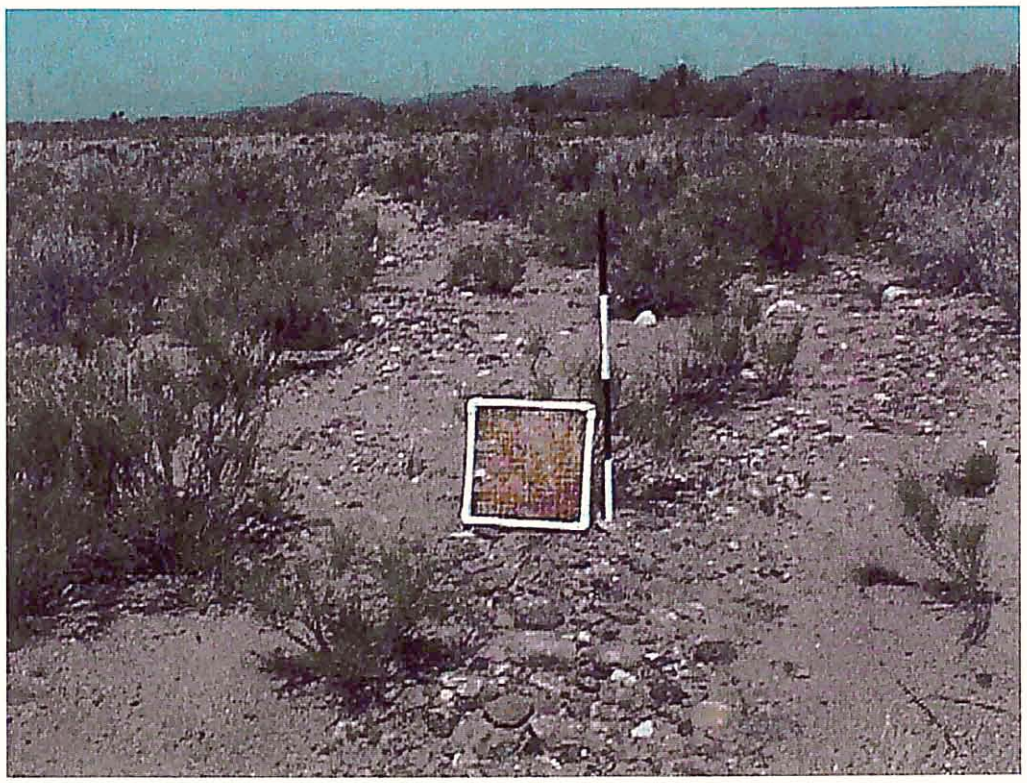
Photograph 17
Vegetative cover within a Mannings "n" value Zone 2 classification

Photograph 18
Vegetative cover within a Mannings "n" value Zone 6 (Rock Springs Creek Channel)



Photograph 19
Vegetative cover within a Mannings "n" value Zone 2 classification

Photograph 20
Vegetative cover within a Mannings "n" value Zone 3

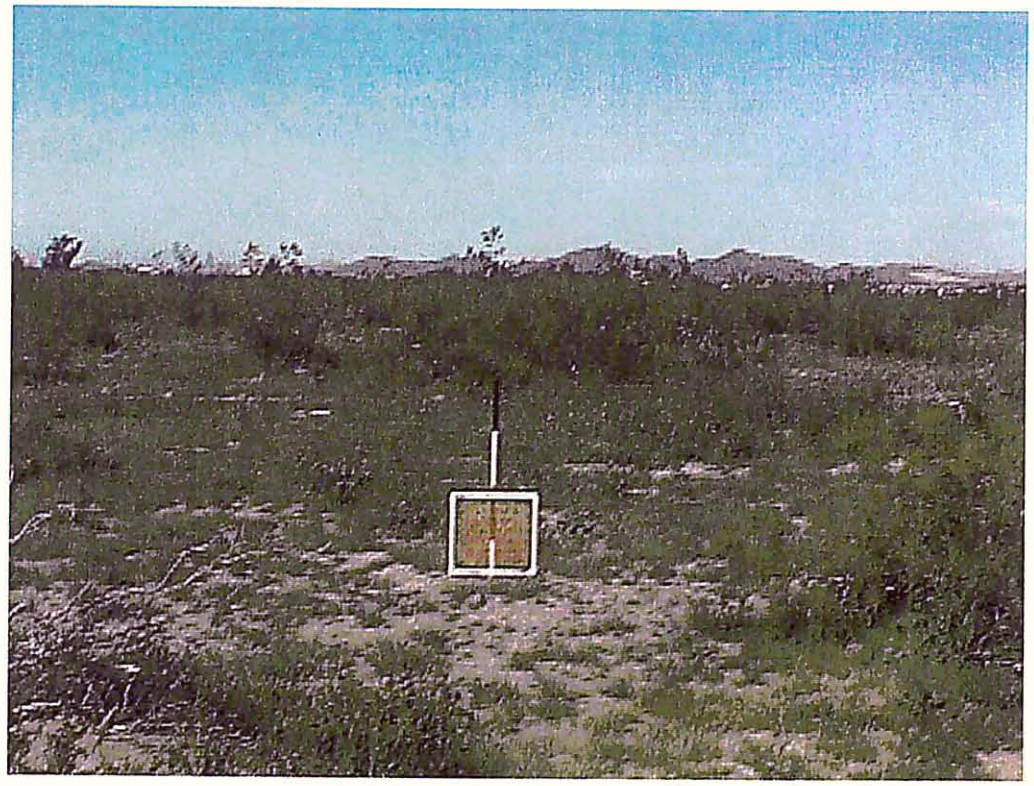


Photograph 21
Vegetative cover within a Mannings "n" value Zone 4

Photograph 22
Vegetative cover within a Mannings "n" value Zone 3

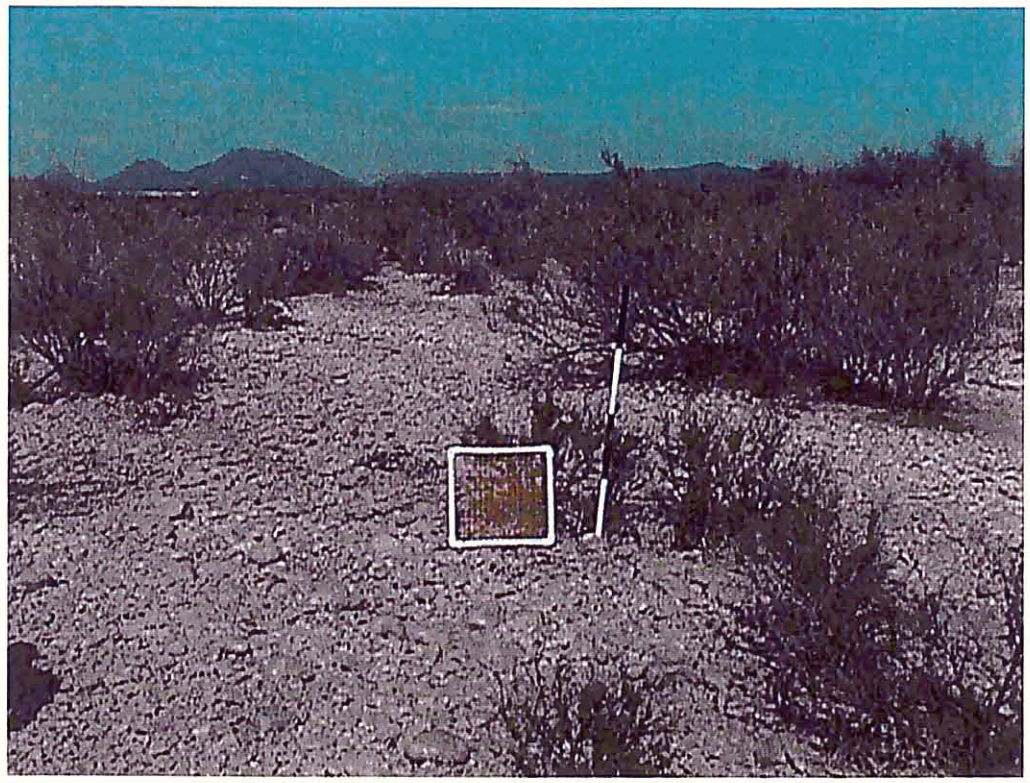
Photograph 23
Vegetative cover within a Mannings "n" value Zone 4 (New River Channel)

Photograph 24
Vegetative cover within a Mannings "n" value Zone 6 (Rock Springs Creek Channel)



Photograph 25
Vegetative cover within a Mannings "n" value Zone 2

Photograph 26
Vegetative cover within a Mannings "n" value Zone 4



Photograph 27
Vegetative cover New River Channel

Photograph 28
Vegetative cover New River left overbank

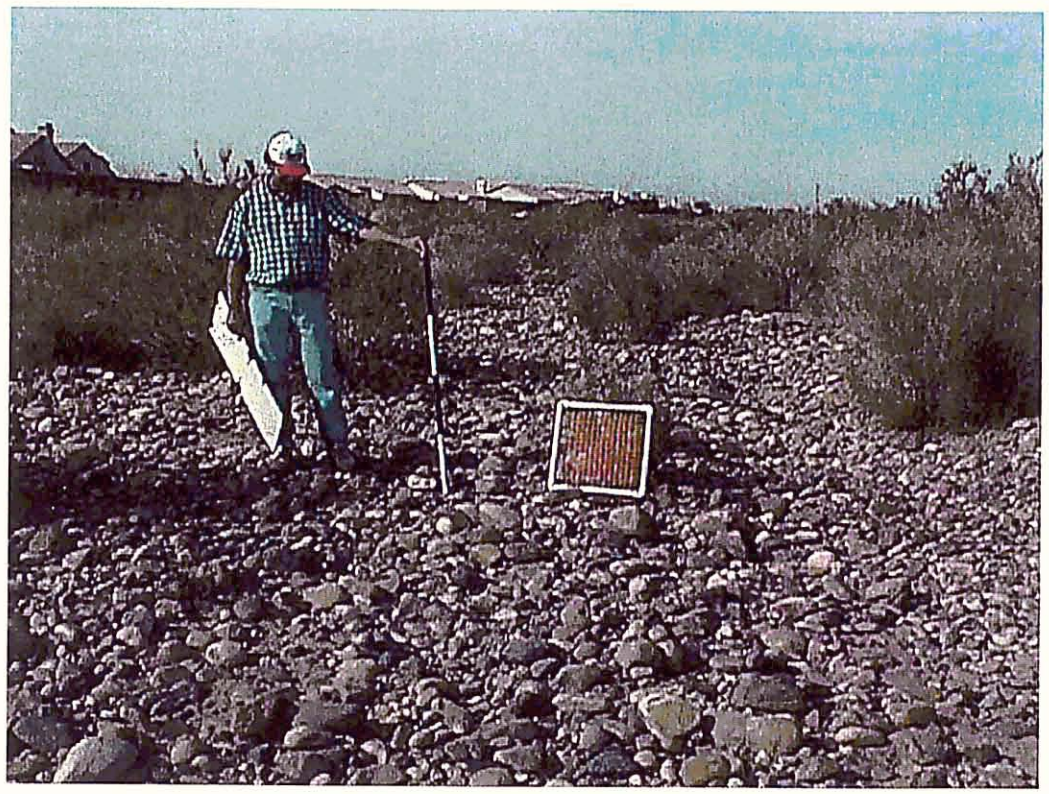
Photograph 29
Vegetative cover New River right over bank

Photograph 30
Vegetative cover New River Channel

Photograph 31
Vegetative cover New River Channel

Photograph 32
Vegetative cover New River Channel upstream of Union Hills Bridge

Photograph 33
Vegetative cover New River Channel downstream of Union Hills Bridge

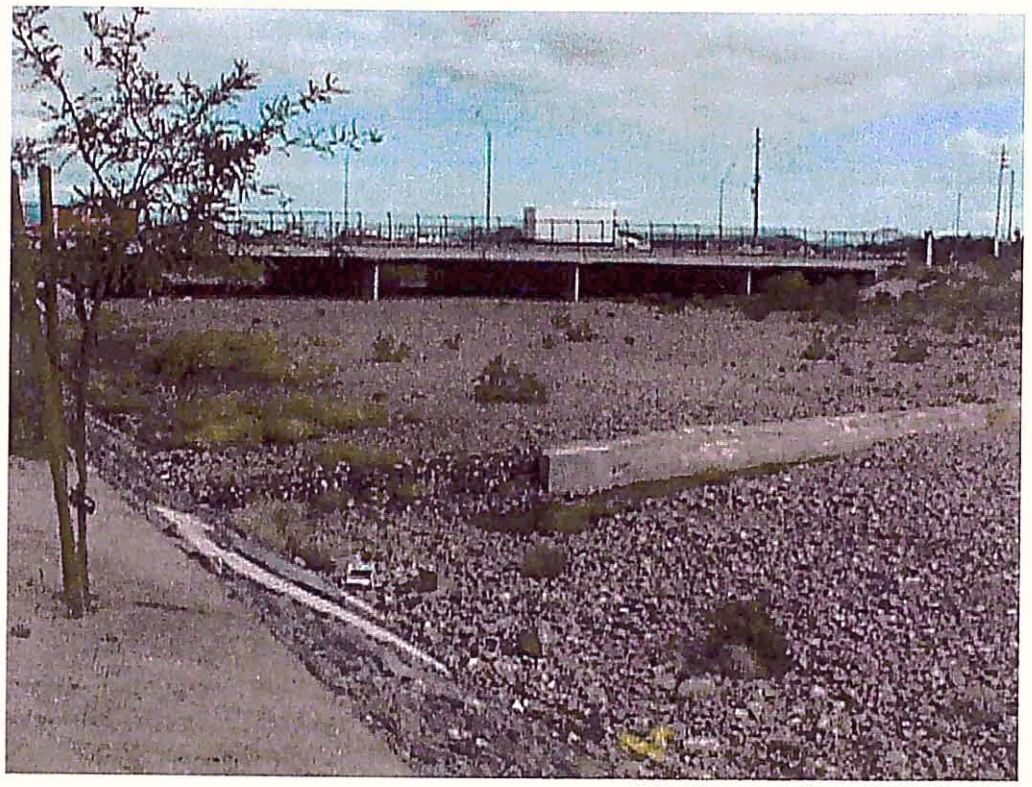


Photograph 34
Vegetative cover New River Channel

Photograph 35
Vegetative cover New River Left Overbank

Photograph 36
Bell Road Bridge at New River

Photograph 37
Vegetative cover New River Channel downstream of Bell Road



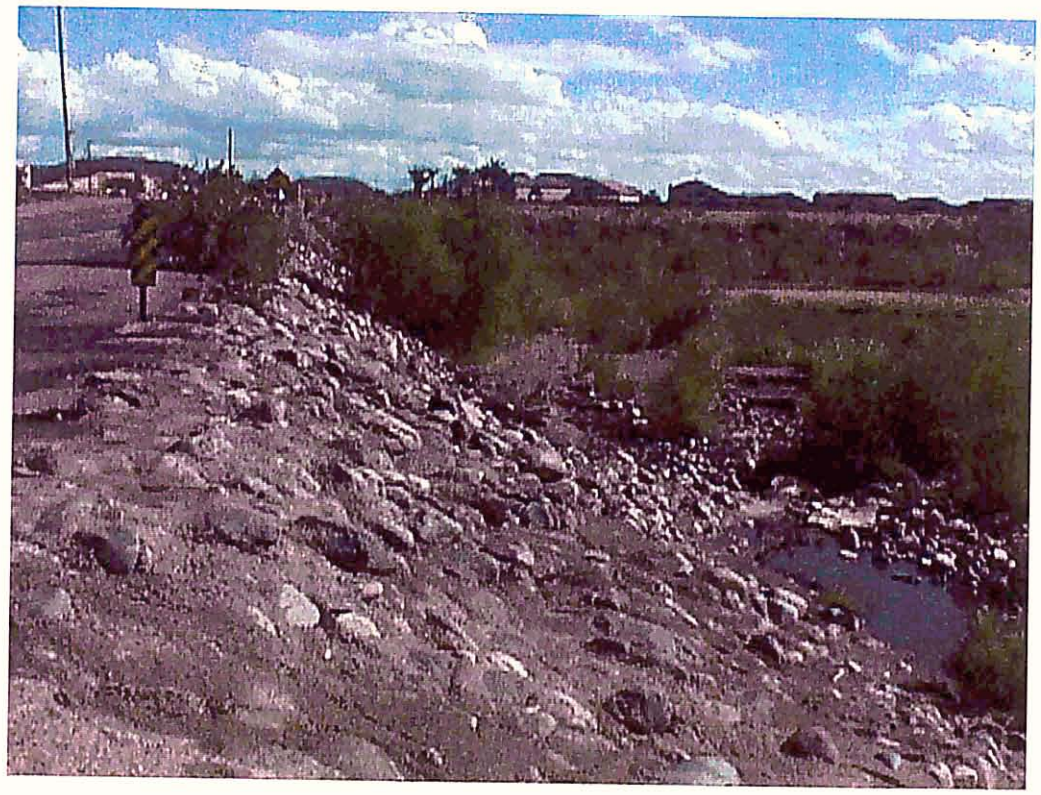
Photograph 38
Encased irrigation line downstream of Bell Road Bridge

Photograph 39
Vegetative cover New River Channel

Photograph 40
Vegetative cover New River Channel

Photograph 41
Vegetative cover New River Channel

Photograph 42
Armoring over sanitary sewer line, New River at Happy Valley Road



Photograph 43
Drop Structure at Deer Valley Road

APPENDIX C

EMERGENCY SPILLWAY SPLIT FLOW CALCULATIONS

Stantec

Project: NEW RIVER WMP Project Number: 82000058

Notes: SPILLWAY INUNDATION STUDY SPLIT FLOW ANALYSIS (APPENDIX C) Scale:

Computed By: Date: Checked By: Date:

THE CRITICAL CROSS SECTION FOR THE SPLIT FLOW ANALYSIS IS 0.681 OF THE LOWER SPILLWAY REACH OF NEW RIVER. FOR THIS ANALYSIS CROSS SECTION 0.681 IS DIVIDED INTO TWO SECTIONS. THE EASTERN SECTION REPRESENTS THE PORTION OF THE TOTAL CROSS SECTION THAT WILL CONVEY FLOW TO NEW RIVER. THE WESTERN SECTION REPRESENTS THE PORTION OF THE TOTAL CROSS SECTION THAT WILL CONVEY FLOW TO ROCK SPRINGS CREEK. THE WESTERN PORTION IS ADDED AS A CROSS SECTION (RM 4.7) TO THE SPILLWAY REACH OF "ROCK CREEK".

THE MODEL IS RUN WITH MULTIPLE PROFILES. TWENTY PROFILES ARE USED THAT REPRESENT DIFFERENT PERCENTAGES OF THE TOTAL EMERGENCY SPILLWAY FLOW FOR BOTH THE FULL AND 2/3 PMF DISCHARGES (10 PROFILES FOR EACH SPILLWAY DISCHARGE). THE CORRECT COMBINATION OF FLOWS THAT TOTAL THE FULL AND 2/3 SPILLWAY FLOWS MUST PRODUCE SIMILAR ENERGY GRADE LINE ELEVATIONS AT RM 4.7 AND RM 0.681. THIS COMBINATION IS HIGH LIGHTED ON THE SUMMARY OUTPUT TABLES.

BECAUSE OF THE LIMITATIONS OF THE MODEL, THIS METHOD DOES NOT APPLY TO THE 1/3 SPILLWAY DISCHARGE. HOWEVER, BASED ON THE VELOCITY OF THE FLOW AS IT EXITS THE SPILLWAY IT IS REASONABLE TO ASSUME THAT THE SAME CONDITIONS WILL EXIST.

HEC-RAS Plan: Future

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Rock Creek	Spillway	4.7	24500.00	1400.30	1409.88	1411.07	1413.69	0.051789	16.78	1768.56	915.58	1.95
Rock Creek	Spillway	4.7	24300.00	1400.30	1409.87	1411.06	1413.67	0.051870	16.75	1757.06	914.11	1.95
Rock Creek	Spillway	4.7	24200.00	1400.30	1409.86	1411.05	1413.66	0.051905	16.73	1751.37	913.39	1.95
Rock Creek	Spillway	4.7	24100.00	1400.30	1409.85	1411.01	1413.64	0.051921	16.71	1745.91	912.69	1.95
Rock Creek	Spillway	4.7	24000.00	1400.30	1409.85	1411.01	1413.63	0.051936	16.70	1740.45	911.99	1.95
Rock Creek	Spillway	4.7	23500.00	1400.30	1409.82	1410.98	1413.57	0.052204	16.62	1710.79	908.19	1.95
Rock Creek	Spillway	4.7	23000.00	1400.30	1409.78	1410.93	1413.51	0.052494	16.55	1680.81	904.33	1.95
Rock Creek	Spillway	4.7	22500.00	1400.30	1409.75	1410.90	1413.45	0.052806	16.48	1650.52	900.42	1.96
Rock Creek	Spillway	4.7	22000.00	1400.30	1409.71	1410.85	1413.40	0.053230	16.42	1618.94	896.32	1.96
Rock Creek	Spillway	4.7	21500.00	1400.30	1409.66	1410.80	1413.31	0.054023	16.36	1574.07	880.90	1.97
Rock Creek	Spillway	4.7	16000.00	1400.30	1409.37	1410.29	1412.18	0.047310	14.26	1329.15	805.71	1.81
Rock Creek	Spillway	4.7	15800.00	1400.30	1409.35	1410.27	1412.15	0.047517	14.23	1314.91	802.73	1.81
Rock Creek	Spillway	4.7	15600.00	1400.30	1409.34	1410.25	1412.12	0.047662	14.19	1301.32	799.87	1.81
Rock Creek	Spillway	4.7	15400.00	1400.30	1409.32	1410.23	1412.08	0.047842	14.15	1287.38	796.92	1.82
Rock Creek	Spillway	4.7	15300.00	1400.30	1409.31	1410.22	1412.07	0.047964	14.13	1280.09	795.38	1.82
Rock Creek	Spillway	4.7	15200.00	1400.30	1409.30	1410.20	1412.06	0.048066	14.11	1273.01	793.88	1.82
Rock Creek	Spillway	4.7	15100.00	1400.30	1409.29	1410.18	1412.04	0.048268	14.10	1264.98	792.17	1.82
Rock Creek	Spillway	4.7	15000.00	1400.30	1409.28	1410.18	1412.03	0.048347	14.08	1258.12	790.71	1.82
Rock Creek	Spillway	4.7	14800.00	1400.30	1409.26	1410.17	1412.00	0.048554	14.04	1243.95	787.68	1.82
Rock Creek	Spillway	4.7	14600.00	1400.30	1409.24	1410.15	1411.97	0.048797	14.01	1229.46	784.57	1.82
Rock Creek	Spillway	4.647	24500.00	1391.22	1400.76	1401.55	1403.75	0.020282	13.89	1763.46	805.01	1.31
Rock Creek	Spillway	4.647	24300.00	1391.22	1400.73	1401.54	1403.72	0.020354	13.88	1750.17	801.19	1.31
Rock Creek	Spillway	4.647	24200.00	1391.22	1400.73	1401.54	1403.70	0.020161	13.82	1751.03	801.44	1.31
Rock Creek	Spillway	4.647	24100.00	1391.22	1400.72	1401.52	1403.68	0.020166	13.81	1745.39	799.81	1.31
Rock Creek	Spillway	4.647	24000.00	1391.22	1400.71	1401.49	1403.67	0.020166	13.79	1739.87	798.21	1.31
Rock Creek	Spillway	4.647	23500.00	1391.22	1400.66	1401.44	1403.58	0.020123	13.71	1713.72	790.62	1.30
Rock Creek	Spillway	4.647	23000.00	1391.22	1400.61	1401.37	1403.49	0.020022	13.62	1689.21	783.33	1.30
Rock Creek	Spillway	4.647	22500.00	1391.22	1400.54	1401.31	1403.41	0.020177	13.58	1656.41	772.92	1.30
Rock Creek	Spillway	4.647	22000.00	1391.22	1400.49	1401.23	1403.32	0.020133	13.50	1629.74	764.38	1.30
Rock Creek	Spillway	4.647	21500.00	1391.22	1400.44	1401.16	1403.22	0.019883	13.36	1609.17	757.74	1.29
Rock Creek	Spillway	4.647	16000.00	1391.22	1399.56	1400.33	1402.26	0.023059	13.17	1214.87	601.05	1.36
Rock Creek	Spillway	4.647	15800.00	1391.22	1399.54	1400.31	1402.21	0.023032	13.13	1203.81	595.23	1.35
Rock Creek	Spillway	4.647	15600.00	1391.22	1399.51	1400.25	1402.17	0.022960	13.07	1193.60	589.83	1.35
Rock Creek	Spillway	4.647	15400.00	1391.22	1399.48	1400.23	1402.12	0.023002	13.04	1181.10	583.18	1.35
Rock Creek	Spillway	4.647	15300.00	1391.22	1399.47	1400.22	1402.10	0.022977	13.01	1175.72	580.34	1.35
Rock Creek	Spillway	4.647	15200.00	1391.22	1399.46	1400.21	1402.07	0.022891	12.97	1171.54	578.71	1.35
Rock Creek	Spillway	4.647	15100.00	1391.22	1399.45	1400.18	1402.05	0.022795	12.93	1167.72	577.34	1.34
Rock Creek	Spillway	4.647	15000.00	1391.22	1399.44	1400.18	1402.02	0.022757	12.90	1162.82	575.58	1.34
Rock Creek	Spillway	4.647	14800.00	1391.22	1399.41	1400.14	1401.98	0.022807	12.86	1150.57	570.89	1.34
Rock Creek	Spillway	4.647	14600.00	1391.22	1399.38	1400.11	1401.93	0.022762	12.81	1139.56	566.01	1.34

HEC-RAS Plan: Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Rock Creek	Spillway	4.543	24500.00	1382.38	1387.45	1388.34	1390.54	0.027315	14.13	1775.34	965.25	1.47
Rock Creek	Spillway	4.543	24300.00	1382.38	1387.44	1388.34	1390.51	0.027187	14.06	1767.71	962.58	1.47
Rock Creek	Spillway	4.543	24200.00	1382.38	1387.43	1388.31	1390.50	0.027448	14.08	1756.21	958.53	1.47
Rock Creek	Spillway	4.543	24100.00	1382.38	1387.42	1388.30	1390.48	0.027423	14.06	1751.48	956.85	1.47
Rock Creek	Spillway	4.543	24000.00	1382.38	1387.42	1388.31	1390.46	0.027320	14.02	1748.55	955.82	1.47
Rock Creek	Spillway	4.543	23500.00	1382.38	1387.37	1388.24	1390.40	0.027783	13.97	1711.39	942.57	1.48
Rock Creek	Spillway	4.543	23000.00	1382.38	1387.33	1388.21	1390.32	0.027932	13.88	1681.69	931.83	1.48
Rock Creek	Spillway	4.543	22500.00	1382.38	1387.30	1388.16	1390.23	0.027913	13.76	1655.72	922.32	1.47
Rock Creek	Spillway	4.543	22000.00	1382.38	1387.26	1388.13	1390.15	0.028044	13.65	1626.62	911.55	1.47
Rock Creek	Spillway	4.543	21500.00	1382.38	1387.22	1388.05	1390.06	0.028067	13.53	1599.84	901.51	1.47
Rock Creek	Spillway	4.543	16000.00	1382.38	1386.83	1387.45	1388.99	0.024324	11.79	1357.11	686.31	1.35
Rock Creek	Spillway	4.543	15800.00	1382.38	1386.81	1387.41	1388.96	0.024306	11.76	1343.56	680.49	1.35
Rock Creek	Spillway	4.543	15600.00	1382.38	1386.79	1387.38	1388.92	0.024309	11.73	1329.49	674.41	1.35
Rock Creek	Spillway	4.543	15400.00	1382.38	1386.76	1387.35	1388.89	0.024229	11.69	1317.22	669.06	1.34
Rock Creek	Spillway	4.543	15300.00	1382.38	1386.74	1387.35	1388.88	0.024458	11.72	1305.09	663.75	1.35
Rock Creek	Spillway	4.543	15200.00	1382.38	1386.73	1387.34	1388.86	0.024522	11.72	1296.63	660.02	1.35
Rock Creek	Spillway	4.543	15100.00	1382.38	1386.71	1387.31	1388.85	0.024589	11.72	1288.13	656.26	1.35
Rock Creek	Spillway	4.543	15000.00	1382.38	1386.70	1387.32	1388.83	0.024617	11.71	1280.48	652.86	1.35
Rock Creek	Spillway	4.543	14800.00	1382.38	1386.67	1387.29	1388.79	0.024542	11.67	1267.92	647.25	1.35
Rock Creek	Spillway	4.543	14600.00	1382.38	1386.65	1387.24	1388.75	0.024533	11.64	1253.86	640.92	1.35
Rock Creek	Spillway	4.448	24500.00	1375.83	1380.23	1380.13	1381.62	0.008911	9.62	2820.29	1360.19	0.88
Rock Creek	Spillway	4.448	24300.00	1375.83	1380.21	1380.10	1381.60	0.008918	9.60	2801.83	1356.54	0.88
Rock Creek	Spillway	4.448	24200.00	1375.83	1380.20	1380.08	1381.59	0.008923	9.58	2792.49	1354.69	0.88
Rock Creek	Spillway	4.448	24100.00	1375.83	1380.19	1380.07	1381.57	0.008927	9.57	2783.14	1351.77	0.88
Rock Creek	Spillway	4.448	24000.00	1375.83	1380.18	1380.05	1381.56	0.008930	9.56	2773.93	1348.57	0.88
Rock Creek	Spillway	4.448	23500.00	1375.83	1380.14	1379.99	1381.50	0.008947	9.49	2727.57	1339.27	0.88
Rock Creek	Spillway	4.448	23000.00	1375.83	1380.09	1379.97	1381.43	0.008950	9.41	2680.07	1332.35	0.88
Rock Creek	Spillway	4.448	22500.00	1375.83	1380.06	1379.75	1381.37	0.008905	9.32	2639.92	1322.14	0.87
Rock Creek	Spillway	4.448	22000.00	1375.83	1380.01	1379.79	1381.31	0.008910	9.24	2593.79	1310.31	0.87
Rock Creek	Spillway	4.448	21500.00	1375.83	1379.97	1379.76	1381.24	0.008912	9.17	2547.92	1300.71	0.87
Rock Creek	Spillway	4.448	16000.00	1375.83	1379.42	1379.16	1380.45	0.008902	8.17	2045.31	975.09	0.84
Rock Creek	Spillway	4.448	15800.00	1375.83	1379.40	1379.13	1380.42	0.008903	8.14	2027.75	966.47	0.84
Rock Creek	Spillway	4.448	15600.00	1375.83	1379.38	1379.11	1380.39	0.008906	8.10	2009.94	957.70	0.84
Rock Creek	Spillway	4.448	15400.00	1375.83	1379.36	1379.08	1380.35	0.008907	8.06	1992.29	948.98	0.84
Rock Creek	Spillway	4.448	15300.00	1375.83	1379.35	1379.05	1380.34	0.008910	8.04	1983.24	944.50	0.84
Rock Creek	Spillway	4.448	15200.00	1375.83	1379.34	1379.06	1380.32	0.008911	8.02	1974.30	940.06	0.84
Rock Creek	Spillway	4.448	15100.00	1375.83	1379.32	1379.04	1380.31	0.008913	8.00	1965.28	935.58	0.84
Rock Creek	Spillway	4.448	15000.00	1375.83	1379.31	1379.03	1380.29	0.008915	7.98	1956.27	931.10	0.84
Rock Creek	Spillway	4.448	14800.00	1375.83	1379.29	1379.02	1380.26	0.008921	7.94	1938.11	918.01	0.84
Rock Creek	Spillway	4.448	14600.00	1375.83	1379.27	1379.00	1380.23	0.008930	7.90	1919.72	898.19	0.84

HEC-RAS Plan: Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Rock Creek	Spillway	4.148	24500.00	1364.22	1373.61	1372.05	1374.02	0.003733	5.33	5244.15	1683.24	0.45
Rock Creek	Spillway	4.148	24300.00	1364.22	1373.60	1372.04	1374.00	0.003725	5.31	5216.84	1680.80	0.45
Rock Creek	Spillway	4.148	24200.00	1364.22	1373.59	1372.02	1373.99	0.003720	5.30	5203.30	1679.58	0.45
Rock Creek	Spillway	4.148	24100.00	1364.22	1373.58	1372.02	1373.98	0.003713	5.29	5191.42	1678.51	0.45
Rock Creek	Spillway	4.148	24000.00	1364.22	1373.57	1372.02	1373.97	0.003711	5.28	5176.67	1677.19	0.45
Rock Creek	Spillway	4.148	23500.00	1364.22	1373.53	1371.98	1373.93	0.003689	5.23	5108.00	1671.00	0.45
Rock Creek	Spillway	4.148	23000.00	1364.22	1373.49	1371.93	1373.88	0.003661	5.18	5042.03	1665.04	0.45
Rock Creek	Spillway	4.148	22500.00	1364.22	1373.45	1371.91	1373.83	0.003634	5.12	4974.68	1658.60	0.44
Rock Creek	Spillway	4.148	22000.00	1364.22	1373.41	1371.87	1373.78	0.003605	5.07	4907.60	1652.03	0.44
Rock Creek	Spillway	4.148	21500.00	1364.22	1373.37	1371.83	1373.74	0.003574	5.01	4840.58	1645.44	0.44
Rock Creek	Spillway	4.148	16000.00	1364.22	1372.73	1371.36	1373.04	0.003696	4.55	3825.72	1506.41	0.43
Rock Creek	Spillway	4.148	15800.00	1364.22	1372.71	1371.34	1373.02	0.003682	4.52	3795.15	1492.77	0.43
Rock Creek	Spillway	4.148	15600.00	1364.22	1372.69	1371.32	1372.99	0.003669	4.50	3764.32	1478.81	0.43
Rock Creek	Spillway	4.148	15400.00	1364.22	1372.67	1371.26	1372.97	0.003654	4.47	3734.13	1464.94	0.43
Rock Creek	Spillway	4.148	15300.00	1364.22	1372.66	1371.29	1372.96	0.003647	4.45	3718.79	1457.84	0.43
Rock Creek	Spillway	4.148	15200.00	1364.22	1372.65	1371.27	1372.94	0.003640	4.44	3703.88	1450.90	0.43
Rock Creek	Spillway	4.148	15100.00	1364.22	1372.64	1371.26	1372.93	0.003632	4.43	3688.86	1443.88	0.43
Rock Creek	Spillway	4.148	15000.00	1364.22	1372.63	1371.25	1372.92	0.003624	4.41	3673.91	1437.19	0.43
Rock Creek	Spillway	4.148	14800.00	1364.22	1372.61	1371.21	1372.90	0.003608	4.39	3644.01	1428.09	0.43
Rock Creek	Spillway	4.148	14600.00	1364.22	1372.59	1371.21	1372.87	0.003592	4.36	3614.29	1418.99	0.42
Rock Creek	Spillway	4.101	24500.00	1363.20	1372.56	1371.14	1373.03	0.004076	5.82	5038.81	1591.38	0.48
Rock Creek	Spillway	4.101	24300.00	1363.20	1372.56	1371.13	1373.02	0.004027	5.78	5030.85	1590.97	0.48
Rock Creek	Spillway	4.101	24200.00	1363.20	1372.55	1371.12	1373.01	0.004003	5.76	5026.77	1590.76	0.47
Rock Creek	Spillway	4.101	24100.00	1363.20	1372.55	1371.09	1373.01	0.003979	5.74	5022.50	1590.54	0.47
Rock Creek	Spillway	4.101	24000.00	1363.20	1372.55	1371.09	1373.00	0.003955	5.73	5018.23	1590.32	0.47
Rock Creek	Spillway	4.101	23500.00	1363.20	1372.54	1371.04	1372.97	0.003836	5.63	4996.88	1589.22	0.46
Rock Creek	Spillway	4.101	23000.00	1363.20	1372.52	1370.97	1372.95	0.003719	5.53	4974.77	1588.08	0.46
Rock Creek	Spillway	4.101	22500.00	1363.20	1372.51	1370.92	1372.92	0.003604	5.43	4951.91	1586.90	0.45
Rock Creek	Spillway	4.101	22000.00	1363.20	1372.49	1370.88	1372.89	0.003491	5.33	4928.48	1585.69	0.44
Rock Creek	Spillway	4.101	21500.00	1363.20	1372.48	1370.86	1372.86	0.003378	5.24	4904.29	1584.43	0.43
Rock Creek	Spillway	4.101	16000.00	1363.20	1371.81	1370.36	1372.14	0.003473	4.77	3874.39	1467.10	0.43
Rock Creek	Spillway	4.101	15800.00	1363.20	1371.80	1370.33	1372.13	0.003416	4.73	3861.85	1466.42	0.42
Rock Creek	Spillway	4.101	15600.00	1363.20	1371.79	1370.30	1372.11	0.003360	4.68	3848.97	1465.72	0.42
Rock Creek	Spillway	4.101	15400.00	1363.20	1371.79	1370.29	1372.10	0.003304	4.63	3836.09	1465.02	0.42
Rock Creek	Spillway	4.101	15300.00	1363.20	1371.78	1370.28	1372.09	0.003276	4.61	3829.29	1464.65	0.42
Rock Creek	Spillway	4.101	15200.00	1363.20	1371.78	1370.27	1372.08	0.003248	4.59	3822.86	1464.30	0.41
Rock Creek	Spillway	4.101	15100.00	1363.20	1371.77	1370.25	1372.07	0.003220	4.57	3816.42	1463.95	0.41
Rock Creek	Spillway	4.101	15000.00	1363.20	1371.77	1370.24	1372.07	0.003192	4.54	3809.63	1463.58	0.41
Rock Creek	Spillway	4.101	14800.00	1363.20	1371.76	1370.22	1372.05	0.003137	4.50	3796.06	1462.84	0.41
Rock Creek	Spillway	4.101	14600.00	1363.20	1371.75	1370.20	1372.04	0.003082	4.45	3782.49	1462.07	0.40

HEC-RAS Plan: Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	30000.00	1444.35	1456.32	1461.41	1471.93	0.020660	31.79	958.70	107.15	1.74
New River	Upper Spillway	0.796	19000.00	1444.35	1453.45	1457.41	1465.47	0.022572	27.82	682.91	87.05	1.75
New River	Upper Spillway	0.796	19000.00	1444.35	1453.45	1457.41	1465.47	0.022572	27.82	682.91	87.05	1.75
New River	Upper Spillway	0.796	19000.00	1444.35	1453.45	1457.41	1465.47	0.022572	27.82	682.91	87.05	1.75
New River	Upper Spillway	0.796	19000.00	1444.35	1453.45	1457.41	1465.47	0.022572	27.82	682.91	87.05	1.75
New River	Upper Spillway	0.796	19000.00	1444.35	1453.45	1457.41	1465.47	0.022572	27.82	682.91	87.05	1.75
New River	Upper Spillway	0.796	19000.00	1444.35	1453.45	1457.41	1465.47	0.022572	27.82	682.91	87.05	1.75
New River	Upper Spillway	0.796	19000.00	1444.35	1453.45	1457.41	1465.47	0.022572	27.82	682.91	87.05	1.75
New River	Upper Spillway	0.796	19000.00	1444.35	1453.45	1457.41	1465.47	0.022572	27.82	682.91	87.05	1.75
New River	Upper Spillway	0.787	30000.00	1443.43	1451.62	1456.56	1469.52	0.051725	35.42	1017.56	199.81	2.34
New River	Upper Spillway	0.787	30000.00	1443.43	1451.62	1456.56	1469.52	0.051725	35.42	1017.56	199.81	2.34
New River	Upper Spillway	0.787	30000.00	1443.43	1451.62	1456.56	1469.52	0.051725	35.42	1017.56	199.81	2.34
New River	Upper Spillway	0.787	30000.00	1443.43	1451.62	1456.56	1469.52	0.051725	35.42	1017.56	199.81	2.34
New River	Upper Spillway	0.787	30000.00	1443.43	1451.62	1456.56	1469.52	0.051725	35.42	1017.56	199.81	2.34
New River	Upper Spillway	0.787	30000.00	1443.43	1451.62	1456.56	1469.52	0.051725	35.42	1017.56	199.81	2.34
New River	Upper Spillway	0.787	30000.00	1443.43	1451.62	1456.56	1469.52	0.051725	35.42	1017.56	199.81	2.34
New River	Upper Spillway	0.787	30000.00	1443.43	1451.62	1456.56	1469.52	0.051725	35.42	1017.56	199.81	2.34
New River	Upper Spillway	0.787	30000.00	1443.43	1451.62	1456.56	1469.52	0.051725	35.42	1017.56	199.81	2.34
New River	Upper Spillway	0.787	19000.00	1443.43	1449.99	1453.87	1463.24	0.052956	30.08	716.47	166.82	2.27
New River	Upper Spillway	0.787	19000.00	1443.43	1449.99	1453.87	1463.24	0.052956	30.08	716.47	166.82	2.27
New River	Upper Spillway	0.787	19000.00	1443.43	1449.99	1453.87	1463.24	0.052956	30.08	716.47	166.82	2.27
New River	Upper Spillway	0.787	19000.00	1443.43	1449.99	1453.87	1463.24	0.052956	30.08	716.47	166.82	2.27
New River	Upper Spillway	0.787	19000.00	1443.43	1449.99	1453.87	1463.24	0.052956	30.08	716.47	166.82	2.27
New River	Upper Spillway	0.787	19000.00	1443.43	1449.99	1453.87	1463.24	0.052956	30.08	716.47	166.82	2.27
New River	Upper Spillway	0.787	19000.00	1443.43	1449.99	1453.87	1463.24	0.052956	30.08	716.47	166.82	2.27
New River	Upper Spillway	0.787	19000.00	1443.43	1449.99	1453.87	1463.24	0.052956	30.08	716.47	166.82	2.27
New River	Upper Spillway	0.787	19000.00	1443.43	1449.99	1453.87	1463.24	0.052956	30.08	716.47	166.82	2.27

Appendix C.

HEC-RAS Pl... Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	30000.00	1413.64	1417.61	1419.58	1426.90	0.081037	25.55	1414.43	819.14	2.57
New River	Upper Spillway	0.715	19000.00	1413.64	1417.09	1418.53	1423.12	0.065397	20.27	1087.67	759.52	2.24
New River	Upper Spillway	0.715	19000.00	1413.64	1417.09	1418.53	1423.12	0.065397	20.27	1087.67	759.52	2.24
New River	Upper Spillway	0.715	19000.00	1413.64	1417.09	1418.53	1423.12	0.065397	20.27	1087.67	759.52	2.24
New River	Upper Spillway	0.715	19000.00	1413.64	1417.09	1418.53	1423.12	0.065397	20.27	1087.67	759.52	2.24
New River	Upper Spillway	0.715	19000.00	1413.64	1417.09	1418.53	1423.12	0.065397	20.27	1087.67	759.52	2.24
New River	Upper Spillway	0.715	19000.00	1413.64	1417.09	1418.53	1423.12	0.065397	20.27	1087.67	759.52	2.24
New River	Upper Spillway	0.715	19000.00	1413.64	1417.09	1418.53	1423.12	0.065397	20.27	1087.67	759.52	2.24
New River	Upper Spillway	0.715	19000.00	1413.64	1417.09	1418.53	1423.12	0.065397	20.27	1087.67	759.52	2.24
New River	Upper Spillway	0.715	19000.00	1413.64	1417.09	1418.53	1423.12	0.065397	20.27	1087.67	759.52	2.24
New River	Lower Spillway	0.681	5500.00	1408.63	1411.25	1411.94	1413.51	0.037874	12.07	455.62	257.83	1.60
New River	Lower Spillway	0.681	5700.00	1408.63	1411.31	1412.01	1413.57	0.036690	12.08	471.91	260.53	1.58
New River	Lower Spillway	0.681	5800.00	1408.63	1411.33	1412.04	1413.61	0.036451	12.12	478.61	261.63	1.58
New River	Lower Spillway	0.681	5900.00	1408.63	1411.36	1412.08	1413.65	0.036160	12.15	485.55	262.77	1.58
New River	Lower Spillway	0.681	6000.00	1408.63	1411.39	1412.12	1413.69	0.035927	12.19	492.24	263.86	1.57
New River	Lower Spillway	0.681	6500.00	1408.63	1411.51	1412.25	1413.89	0.034807	12.37	525.62	269.25	1.56
New River	Lower Spillway	0.681	7000.00	1408.63	1411.63	1412.39	1414.08	0.033945	12.55	557.84	274.35	1.55
New River	Lower Spillway	0.681	7500.00	1408.63	1411.76	1412.50	1414.24	0.032711	12.66	592.50	279.73	1.53
New River	Lower Spillway	0.681	8000.00	1408.63	1411.87	1412.63	1414.41	0.031720	12.78	626.13	284.85	1.52
New River	Lower Spillway	0.681	8500.00	1408.63	1412.01	1412.75	1414.55	0.030436	12.81	663.78	291.78	1.50
New River	Lower Spillway	0.681	3000.00	1408.63	1410.66	1411.08	1412.11	0.036070	9.67	310.17	235.94	1.49
New River	Lower Spillway	0.681	3200.00	1408.63	1410.72	1411.16	1412.22	0.035302	9.83	325.64	238.02	1.48
New River	Lower Spillway	0.681	3400.00	1408.63	1410.78	1411.24	1412.33	0.034647	9.98	340.76	240.03	1.48
New River	Lower Spillway	0.681	3600.00	1408.63	1410.85	1411.32	1412.43	0.033963	10.11	356.00	242.12	1.47
New River	Lower Spillway	0.681	3700.00	1408.63	1410.88	1411.35	1412.49	0.033601	10.17	363.76	243.29	1.47
New River	Lower Spillway	0.681	3800.00	1408.63	1410.91	1411.38	1412.54	0.033266	10.23	371.44	244.44	1.46
New River	Lower Spillway	0.681	3900.00	1408.63	1410.94	1411.43	1412.59	0.032980	10.29	378.95	245.55	1.46
New River	Lower Spillway	0.681	4000.00	1408.63	1410.97	1411.46	1412.63	0.032638	10.34	386.67	246.70	1.46
New River	Lower Spillway	0.681	4200.00	1408.63	1411.03	1411.53	1412.73	0.031980	10.45	402.07	248.96	1.45
New River	Lower Spillway	0.681	4400.00	1408.63	1411.10	1411.59	1412.82	0.031376	10.54	417.42	251.37	1.44

Attachment C.

Pg. 9 of 11

HEC-RAS Pl... Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Lower Spillway	0.495	5500.00	1384.45	1389.36	1389.90	1391.30	0.024982	11.17	492.43	229.05	1.34
New River	Lower Spillway	0.495	5700.00	1384.45	1389.54	1389.95	1391.31	0.021588	10.67	533.99	238.28	1.26
New River	Lower Spillway	0.495	5800.00	1384.45	1389.50	1390.01	1391.40	0.023390	11.05	525.04	236.33	1.31
New River	Lower Spillway	0.495	5900.00	1384.45	1389.62	1390.04	1391.39	0.021189	10.69	551.73	242.11	1.25
New River	Lower Spillway	0.495	6000.00	1384.45	1389.64	1390.08	1391.44	0.021215	10.74	558.43	243.55	1.25
New River	Lower Spillway	0.495	6500.00	1384.45	1389.76	1390.25	1391.67	0.021850	11.09	586.29	249.41	1.27
New River	Lower Spillway	0.495	7000.00	1384.45	1389.86	1390.42	1391.89	0.022447	11.41	613.41	254.99	1.30
New River	Lower Spillway	0.495	7500.00	1384.45	1389.96	1390.56	1392.11	0.023278	11.77	637.23	259.88	1.32
New River	Lower Spillway	0.495	8000.00	1384.45	1390.06	1390.69	1392.31	0.023842	12.04	664.45	266.65	1.34
New River	Lower Spillway	0.495	8500.00	1384.45	1390.16	1390.87	1392.51	0.024347	12.29	691.40	273.19	1.36
New River	Lower Spillway	0.495	3000.00	1384.45	1388.63	1388.85	1389.85	0.019885	8.84	339.33	188.86	1.16
New River	Lower Spillway	0.495	3200.00	1384.45	1388.71	1388.96	1389.98	0.020227	9.04	354.12	193.17	1.18
New River	Lower Spillway	0.495	3400.00	1384.45	1388.66	1389.07	1390.17	0.024583	9.87	344.31	190.32	1.29
New River	Lower Spillway	0.495	3600.00	1384.45	1388.75	1389.14	1390.29	0.024309	9.97	361.16	195.20	1.29
New River	Lower Spillway	0.495	3700.00	1384.45	1388.84	1389.20	1390.32	0.022645	9.77	378.85	200.19	1.25
New River	Lower Spillway	0.495	3800.00	1384.45	1388.93	1389.24	1390.34	0.020890	9.53	398.64	205.64	1.21
New River	Lower Spillway	0.495	3900.00	1384.45	1389.00	1389.29	1390.39	0.020230	9.48	411.57	209.12	1.19
New River	Lower Spillway	0.495	4000.00	1384.45	1389.03	1389.33	1390.45	0.020392	9.56	418.29	210.90	1.20
New River	Lower Spillway	0.495	4200.00	1384.45	1389.09	1389.40	1390.56	0.020728	9.74	431.40	214.35	1.21
New River	Lower Spillway	0.495	4400.00	1384.45	1389.14	1389.49	1390.68	0.021307	9.95	442.25	217.15	1.23
New River	Lower Spillway	0.454	5500.00	1381.50	1386.07	1385.76	1387.02	0.009228	7.82	703.09	263.99	0.84
New River	Lower Spillway	0.454	5700.00	1381.50	1386.12	1385.81	1387.10	0.009299	7.94	717.98	265.21	0.85
New River	Lower Spillway	0.454	5800.00	1381.50	1386.15	1385.84	1387.14	0.009335	8.00	725.34	265.81	0.85
New River	Lower Spillway	0.454	5900.00	1381.50	1386.18	1385.87	1387.18	0.009369	8.05	732.68	266.41	0.86
New River	Lower Spillway	0.454	6000.00	1381.50	1386.20	1385.91	1387.22	0.009400	8.11	740.04	267.01	0.86
New River	Lower Spillway	0.454	6500.00	1381.50	1386.34	1386.06	1387.43	0.009564	8.38	775.76	269.89	0.87
New River	Lower Spillway	0.454	7000.00	1381.50	1386.46	1386.21	1387.62	0.009721	8.64	810.40	272.66	0.88
New River	Lower Spillway	0.454	7500.00	1381.50	1386.59	1386.34	1387.81	0.009867	8.88	844.18	275.34	0.89
New River	Lower Spillway	0.454	8000.00	1381.50	1386.71	1386.49	1388.00	0.009959	9.11	878.49	278.03	0.90
New River	Lower Spillway	0.454	8500.00	1381.50	1386.41	1386.62	1388.18	0.015116	10.68	796.24	271.53	1.10
New River	Lower Spillway	0.454	3000.00	1381.50	1385.23	1384.86	1385.81	0.008058	6.09	492.28	242.88	0.75
New River	Lower Spillway	0.454	3200.00	1381.50	1385.31	1384.94	1385.92	0.008163	6.26	511.42	244.89	0.76
New River	Lower Spillway	0.454	3400.00	1381.50	1385.39	1385.02	1386.03	0.008269	6.42	530.00	246.83	0.77
New River	Lower Spillway	0.454	3600.00	1381.50	1385.46	1385.10	1386.13	0.008375	6.57	548.06	248.71	0.78
New River	Lower Spillway	0.454	3700.00	1381.50	1385.50	1385.13	1386.18	0.008423	6.64	557.00	249.63	0.78
New River	Lower Spillway	0.454	3800.00	1381.50	1385.53	1385.17	1386.23	0.008477	6.72	565.73	250.53	0.79
New River	Lower Spillway	0.454	3900.00	1381.50	1385.57	1385.20	1386.28	0.008526	6.79	574.43	251.42	0.79
New River	Lower Spillway	0.454	4000.00	1381.50	1385.60	1385.25	1386.33	0.008576	6.86	583.01	252.30	0.80
New River	Lower Spillway	0.454	4200.00	1381.50	1385.67	1385.31	1386.43	0.008666	7.00	600.10	254.03	0.80
New River	Lower Spillway	0.454	4400.00	1381.50	1385.73	1385.38	1386.52	0.008829	7.15	615.12	255.55	0.81

APPENDIX D

BRIDGE DEBRIS AND BLOCKAGE ANALYSIS

Stantec

Project: NEW RIVER WMP | Project Number: 820 000 58

Notes: FLOATING PIER DEBRIS | Scale:

Page 1 of 3 Page(s)

Computed By: MCG | Date: 10 12 99 | Checked By: | Date:

UNION HILLS ROAD BRIDGE

- FULL PMF (Q = 33,000 cfs) OVERTOPS BRIDGE, WSEL = 1231.55
- 2/3 PMF (Q = 23,000 cfs) OVERTOPS BRIDGE, WSEL = 1230.27
- 1/3 PMF (Q = 13,000 cfs) DOES NOT OVERTOP, WSEL = 1226.97

- BRIDGE PIER CONFIGURATION
  - No. OF PIERS: 4
  - PIER WIDTH: 3'
  - PIER ℄ SPACING: 48.5'

- DEBRIS IS ASSUMMED TO CONSIST MOSTLY OF VEGETATION (LARGE SHRUBS AND SMALL TREES). ADDITIONAL DEBRIS MAY INCLUDE SMALL STORAGE SHEDS AND EQUIPMENT.

- CASES
  1. ASSUME DEBRIS WILL PLUG ≈ 25% OF FLOW AREA AT A HEIGHT OF 5'
     - DEBRIS WIDTH = 12'
  2. ASSUME DEBRIS WILL PLUG ≈ 50% OF FLOW AREA AT A HEIGHT OF 5'
     - DEBRIS WIDTH = 24'
  3. ASSUME DEBRIS WILL PLUG ≈ 75% OF FLOW AREA AT A HEIGHT OF 5'
     - DEBRIS WIDTH = 36'
  4. ASSUME DEBRIS WILL PLUG 100% OF FLOW AREA AT A HEIGHT OF 5'
     - DEBRIS WIDTH = 48.5'
  5. ASSUME DEBRIS WILL PLUG 25% OF FLOW AREA TO THE FULL FLOW DEPTH
  6. ASSUME DEBRIS WILL PLUG 50% OF FLOW AREA TO THE FULL FLOW DEPTH
  7. ASSUME DEBRIS WILL PLUG 75% OF FLOW AREA TO THE FULL FLOW DEPTH
  8. ASSUME THE ENTIRE FLOW AREA IS PLUGGED

Stantec

Project: Project Number:

Notes: Scale:

Page 2 of 3 Page(s)

Computed By: Date: Checked By: Date:

WATER SURFACE ELEVATION
AT RM 10.796

CASE	FULL PMF	2/3 PMF	1/3 PMF
1	1231.87	1230.67	1227.08
2	1232.29	1231.17	1229.63 *
3	1232.69	1231.66	1230.12
4	1233.49	1232.52	1231.10
5	1232.13	1231.00	1229.48 *
6	1232.86	1231.84	1230.36
7	1233.52	1232.59	1231.20
8	1234.50	1233.65	1232.46

- FOR THE FULL AND 2/3 PMF CONDITIONS AT THE BRIDGE, FULL BLOCKAGE OF THE BRIDGE FLOW AREA RESULTS IN APPROXIMATELY A 3' INCREASE IN WSEL FOR BOTH FLOWS. BASED ON THE MOMENTUM OF FLOW OVER THE BRIDGE AND THE SURROUNDING GEOMETRY, EVEN A TOTAL BLOCKAGE OF THE BRIDGE WILL NOT SIGNIFICANTLY IMPACT THE FULL AND 2/3 PMF INUNDATION LIMITS.

- FOR THE 1/3 PMF, ONLY A SMALL AMOUNT OF DEBRIS IS NECESSARY FOR OVERTOPPING TO OCCUR. FULL BLOCKAGE RESULTS IN A 5.5' INCREASE IN WSEL.

BELL ROAD BRIDGE

- FULL PMF (Q = 33,000 CFS) OVERTOPS BRIDGE, WSEL = 1208.17
- 2/3 PMF (Q = 23,000 CFS) OVERTOPS BRIDGE, WSEL = 1207.56
- 1/3 PMF (Q = 13,000 CFS) DOES NOT OVERTOP, WSEL = 1198.37

- BRIDGE PIER CONFIGURATION
  - NO. OF PIERS: 4
  - PIER WIDTH: 1.17'
  - PIER ℄ SPACING: 60'

- ASSUME TYPE OF DEBRIS IS SIMILAR TO WHAT IS EXPECTED AT UNION HILLS ROAD BRIDGE

- ASSUME THE SAME CASES AS FOR UNION HILLS ROAD BRIDGE

Stantec

Project: Project Number:

Notes: Scale:

Page 3 of 3 Page(s)

Computed By: Date: Checked By: Date:

WATER SURFACE ELEVATION
AT RM 9.984

CASE	FULL PMF	2/3 PMF	1/3 PMF
1	1208.42	1207.71	1198.84
2	1208.70	1207.92	1206.92 *
3	1208.92	1208.09	1207.17
4	1209.31	1208.41	1207.46
5	1208.63	1207.86	1199.30
6	1209.24	1208.34	1207.42 *
7	1209.90	1208.93	1207.83
8	1210.89	1209.91	1208.75

- AS WITH THE UNION HILLS ROAD BRIDGE FULL CLOGGING OF THE BRIDGE WILL HAVE MINIMAL IMPACT (LESS THAN 3' IN WSEL INCREASE) TO THE INUNDATION LIMITS FOR THE FULL AND 2/3 PMF.

- ONLY A MINOR AMOUNT OF CLOGGING IS REQUIRED TO CAUSE OVERTOPPING FOR THE 1/3 PMF. THE MAXIMUM WSEL INCREASE, 100% CLOGGED, IS APPROXIMATELY 10'.

APPENDIX E

HEC-RAS MODEL OUTPUT AND CROSS SECTION PLOTS

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

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

PROJECT DATA
Project Title: New R. Spillway Delineation
Project File : pmf.prj
Run Date and Time: 6/29/00 12:50:23 PM

Project in English units

Project Description:
Middle New River Watercourse Master Plan - Spillway Innundation Study
For New River above Thunderbird Road
by Stantec Consulting Inc. for the Flood Control District of Maricopa County
FCD # 97-04

Original: 14 October 1998
Revised: 29 June 2000

Project: New R. Spillway Delineation
File: pmf.prj

This
plan models the existing condition geometry with an estimate for the future condition development Manning n-values. This plan is used for the delineation of the spillway inundation limits.

Plan: Future condition development — File: pmf.p02
Geometry: Developed overbanks — File: pmf.g01
Flow: PMF spillway discharges — File: pmf.f01

PLAN DATA

Plan Title: Future condition development
Plan File : c:\tf\pmf.p02

Geometry Title: Developed overbanks
Geometry File : c:\tf\pmf.g01

Flow Title : PMF spillway discharges
Flow File : c:\tf\pmf.f01

Plan Description:
All three PMF discharges are modeled for the existing conditon cross-sectional geometry with assumptions for future condition development n-values

Plan Summary Information:

Number of:	Cross Sections =	141	Mulitple Openings =	0
	Culverts =	0	Inline Weirs =	0
	Bridges =	3		

Computational Information

Water surface calculation tolerance =	0.01
Critical depth calculaton tolerance =	0.01
Maximum number of interations =	40
Maximum difference tolerance =	0.3
Flow tolerance factor =	0.001

Computation Options

Critical depth computed at all cross sections	
Conveyance Calculation Method:	At breaks in n values only
Friction Slope Method:	Program Selects Appropriate method
Computational Flow Regime:	Mixed Flow

FLOW DATA

Flow Title: PMF spillway discharges
Flow File : c:\tf\pmf.f01

Flow Data (cfs)

River	Reach	RS	1/3 flow	2/3 flow	full capacity
New River	Principle	16.943	3000	3000	3000
New River	Upper Spillway	0.884	10000	20000	30000

New River	Lower Spillway	0.622	6000	12000	18000
New River	Upper	16.829	9000	15000	21000
New River	Lower	16.411	13000	23000	33000
Rock Creek	Spillway	4.647	8000	16000	24000

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
New River	Principle	1/3 flow	Critical	
New River	Principle	2/3 flow	Critical	
New River	Principle	full capacity	Critical	
New River	Upper Spillway	1/3 flow	Critical	
New River	Upper Spillway	2/3 flow	Critical	
New River	Upper Spillway	full capacity	Critical	
New River	Lower	1/3 flow		Normal S = .005
New River	Lower	2/3 flow		Normal S = .005
New River	Lower	full capacity		Normal S = .005

GEOMETRY DATA

Geometry Title: Developed overbanks
Geometry File : c:\tf\pmf.g01

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
New River	Principle		north
New River	Upper Spillway		Spillway
New River	Lower Spillway	Spillway	north
New River	Upper	north	South
New River	Lower	South	
Rock Creek	Spillway	Spillway	South

JUNCTION INFORMATION

Name: South
Description:
Energy computation Method

Length across Junction

River	Reach	Tributary River	Reach	Length	Angle
Rock Creek	Spillway	to New River	Lower	300	
New River	Upper	to New River	Lower	481.4	

Name: Spillway
Description: Split flow just downstream of the emergency spillway. Flow that continues in the left branch is routed toward New River. Flow that splits to the right enters Rock Creek
Energy computation Method

Length across Junction

River	Reach	Tributary River	Reach	Length	Angle
New River	Upper Spillway	to Rock Creek	Spillway	282.6	
New River	Upper Spillway	to New River	Lower Spillway	315.3	

Name: north
Description:
Energy computation Method

Length across Junction

River	Reach	Tributary River	Reach	Length	Angle
New River	Lower Spillway	to New River	Upper	628.3	
New River	Principle	to New River	Upper	251.4	

CROSS SECTION RIVER: New River
REACH: Principle RS: 16.943

INPUT
Description: Upstream limit of principle reach of New River.
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9960	1390	9990	1380	10000	1378.6	10010	1380	10040	1390

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9960	.035	9960	.035	10040	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9960	10040	250.5	250.5	250.5	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1388.82	Element			
Vel Head (ft)	1.21	Wt. n-Val.		0.035	
W.S. Elev (ft)	1387.61	Reach Len. (ft)	250.50	250.50	250.50
Crit W.S. (ft)	1386.18	Flow Area (sq ft)		339.80	
E.G. Slope (ft/ft)	0.005093	Area (sq ft)		339.80	
Q Total (cfs)	3000.00	Flow (cfs)		3000.00	

Top Width (ft)	65.65	Top Width (ft)		65.65	
Vel Total (ft/s)	8.83	Avg. Vel. (ft/s)		8.83	
Max Chl Dpth (ft)	9.01	Hydr. Depth (ft)		5.18	
Conv. Total (cfs)	42037.4	Conv. (cfs)		42037.4	
Length Wtd. (ft)	250.50	Wetted Per. (ft)		68.31	
Min Ch El (ft)	1378.60	Shear (lb/sq ft)		1.58	
Alpha	1.00	Stream Power (lb/ft s)		13.96	
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)	0.11	25.27	0.00
C & E Loss (ft)	0.12	Cum SA (acres)	0.22	5.53	0.01

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

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1388.80	Wt. n-Val.		0.035	
Vel Head (ft)	1.23	Reach Len. (ft)	250.50	250.50	250.50
W.S. Elev (ft)	1387.58	Flow Area (sq ft)		337.65	
Crit W.S. (ft)	1386.18	Area (sq ft)		337.65	
E.G. Slope (ft/ft)	0.005181	Flow (cfs)		3000.00	
Q Total (cfs)	3000.00	Top Width (ft)		65.45	
Top Width (ft)	65.45	Avg. Vel. (ft/s)		8.88	
Vel Total (ft/s)	8.88	Hydr. Depth (ft)		5.16	
Max Chl Dpth (ft)	8.98	Conv. (cfs)		41680.3	
Conv. Total (cfs)	41680.3	Wetted Per. (ft)		68.10	
Length Wtd. (ft)	250.50	Shear (lb/sq ft)		1.60	
Min Ch El (ft)	1378.60	Stream Power (lb/ft s)		14.25	
Alpha	1.00	Cum Volume (acre-ft)	0.61	32.16	0.02
Frctn Loss (ft)	1.03	Cum SA (acres)	0.52	5.53	0.02
C & E Loss (ft)	0.12				

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

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1388.82	Wt. n-Val.		0.035	
Vel Head (ft)	1.21	Reach Len. (ft)	250.50	250.50	250.50
W.S. Elev (ft)	1387.60	Flow Area (sq ft)		339.58	
Crit W.S. (ft)	1386.18	Area (sq ft)		339.58	
E.G. Slope (ft/ft)	0.005102	Flow (cfs)		3000.00	
Q Total (cfs)	3000.00	Top Width (ft)		65.63	
Top Width (ft)	65.63	Avg. Vel. (ft/s)		8.83	
Vel Total (ft/s)	8.83	Hydr. Depth (ft)		5.17	
Max Chl Dpth (ft)	9.00	Conv. (cfs)		42001.5	
Conv. Total (cfs)	42001.5	Wetted Per. (ft)		68.29	
Length Wtd. (ft)	250.50	Shear (lb/sq ft)		1.58	
Min Ch El (ft)	1378.60	Stream Power (lb/ft s)		13.99	
Alpha	1.00	Cum Volume (acre-ft)	1.35	37.80	0.04
Frctn Loss (ft)	1.01	Cum SA (acres)	0.75	5.53	0.03
C & E Loss (ft)	0.12				

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9960.00	9986.67	362.79	63.32	20.55	12.09	3.25	5.73
9986.67	10013.33	2274.43	213.17	27.22	75.81	7.99	10.67
10013.33	RB 10040.00	362.78	63.32	20.55	12.09	3.25	5.73

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9960.00	9986.67	360.96	62.68	20.44	12.03	3.23	5.76
9986.67	10013.33	2278.07	212.30	27.22	75.94	7.96	10.73
10013.33	RB 10040.00	360.96	62.68	20.44	12.03	3.23	5.76

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9960.00	9986.67	362.60	63.25	20.53	12.09	3.25	5.73
9986.67	10013.33	2274.79	213.08	27.22	75.83	7.99	10.68
10013.33	RB 10040.00	362.60	63.25	20.53	12.09	3.25	5.73

Warning: The energy loss was 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: New River

REACH: Principle RS: 16.905

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9954	1390	9990	1378	10000	1377.6	10010	1378	10046	1390

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9954	.035	9954	.035	10046	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9954	10046	250.6	250.6	250.6	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1387.69	Element			
Vel Head (ft)	0.80	Wt. n-Val.		0.035	
W.S. Elev (ft)	1386.89	Reach Len. (ft)	250.60	250.60	250.60
Crit W.S. (ft)	1384.38	Flow Area (sq ft)		419.15	
E.G. Slope (ft/ft)	0.002930	Area (sq ft)		419.15	
Q Total (cfs)	3000.00	Flow (cfs)		3000.00	
Top Width (ft)	73.36	Top Width (ft)		73.36	
Vel Total (ft/s)	7.16	Avg. Vel. (ft/s)		7.16	
Max Chl Dpth (ft)	9.29	Hydr. Depth (ft)		5.71	
Conv. Total (cfs)	55419.7	Conv. (cfs)		55419.7	
Length Wtd. (ft)	250.60	Wetted Per. (ft)		76.26	
Min Ch El (ft)	1377.60	Shear (lb/sq ft)		1.01	
Alpha	1.00	Stream Power (lb/ft s)		7.20	
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)	0.11	23.09	0.00
C & E Loss (ft)	0.14	Cum SA (acres)	0.22	5.13	0.01

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1387.65	Element			
Vel Head (ft)	0.81	Wt. n-Val.		0.035	
W.S. Elev (ft)	1386.84	Reach Len. (ft)	250.60	250.60	250.60
Crit W.S. (ft)	1384.38	Flow Area (sq ft)		415.31	
E.G. Slope (ft/ft)	0.003004	Area (sq ft)		415.31	
Q Total (cfs)	3000.00	Flow (cfs)		3000.00	
Top Width (ft)	73.04	Top Width (ft)		73.04	
Vel Total (ft/s)	7.22	Avg. Vel. (ft/s)		7.22	
Max Chl Dpth (ft)	9.24	Hydr. Depth (ft)		5.69	
Conv. Total (cfs)	54734.9	Conv. (cfs)		54734.9	
Length Wtd. (ft)	250.60	Wetted Per. (ft)		75.93	
Min Ch El (ft)	1377.60	Shear (lb/sq ft)		1.03	
Alpha	1.00	Stream Power (lb/ft s)		7.41	
Frctn Loss (ft)	1.12	Cum Volume (acre-ft)	0.61	29.99	0.02
C & E Loss (ft)	0.10	Cum SA (acres)	0.52	5.13	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. 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1387.69	Element			
Vel Head (ft)	0.80	Wt. n-Val.		0.035	
W.S. Elev (ft)	1386.89	Reach Len. (ft)	250.60	250.60	250.60
Crit W.S. (ft)	1384.38	Flow Area (sq ft)		418.76	
E.G. Slope (ft/ft)	0.002938	Area (sq ft)		418.76	
Q Total (cfs)	3000.00	Flow (cfs)		3000.00	
Top Width (ft)	73.33	Top Width (ft)		73.33	
Vel Total (ft/s)	7.16	Avg. Vel. (ft/s)		7.16	
Max Chl Dpth (ft)	9.29	Hydr. Depth (ft)		5.71	
Conv. Total (cfs)	55351.2	Conv. (cfs)		55351.2	
Length Wtd. (ft)	250.60	Wetted Per. (ft)		76.23	
Min Ch El (ft)	1377.60	Shear (lb/sq ft)		1.01	
Alpha	1.00	Stream Power (lb/ft s)		7.22	
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)	1.35	35.62	0.04
C & E Loss (ft)	0.06	Cum SA (acres)	0.75	5.13	0.03

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9954.00	9984.67	351.37	75.95	22.50	11.71	3.56	4.63
9984.67	10015.33	2297.28	267.25	31.26	76.58	8.71	8.60
10015.33	RB 10046.00	351.35	75.95	22.50	11.71	3.56	4.63

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9954.00	9984.67	348.77	74.83	22.34	11.63	3.53	4.66
9984.67	10015.33	2302.47	265.64	31.26	76.75	8.66	8.67
10015.33	RB 10046.00	348.77	74.83	22.34	11.63	3.53	4.66

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9954.00	9984.67	351.10	75.84	22.48	11.70	3.56	4.63
9984.67	10015.33	2297.80	267.08	31.26	76.59	8.71	8.60
10015.33	RB 10046.00	351.10	75.84	22.48	11.70	3.56	4.63

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

CROSS SECTION RIVER: New River
REACH: Principle RS: 16.867

INPUT
Description: Downstream limit of the priciple reach of New River.
Contraction/Expansion coefficients set to 0.6/0.8 to account for flow exiting the principal spillway channel.

Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9954	1390	9990	1378	10000	1376.6	10010	1378	10046	1390

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9954	.035	9954	.035	10046	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9954	10046	0	0	0	.6	.8

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1386.38	Element			
Vel Head (ft)	2.21	Wt. n-Val.		0.035	
W.S. Elev (ft)	1384.17	Reach Len. (ft)	251.40	251.40	251.40
Crit W.S. (ft)	1384.17	Flow Area (sq ft)		251.34	
E.G. Slope (ft/ft)	0.011495	Area (sq ft)		251.34	
Q Total (cfs)	3000.00	Flow (cfs)		3000.00	
Top Width (ft)	56.99	Top Width (ft)		56.99	
Vel Total (ft/s)	11.94	Avg. Vel. (ft/s)		11.94	
Max Chl Dpth (ft)	7.57	Hydr. Depth (ft)		4.41	
Conv. Total (cfs)	27981.3	Conv. (cfs)		27981.3	
Length Wtd. (ft)	251.40	Wetted Per. (ft)		59.19	
Min Ch El (ft)	1376.60	Shear (lb/sq ft)		3.05	
Alpha	1.00	Stream Power (lb/ft s)		36.37	
Frctn Loss (ft)	1.81	Cum Volume (acre-ft)	0.04	7.79	0.00
C & E Loss (ft)	1.66	Cum SA (acres)			

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1386.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.81	Wt. n-Val.		0.035	
W.S. Elev (ft)	1384.62	Reach Len. (ft)	251.40	251.40	251.40
Crit W.S. (ft)	1384.17	Flow Area (sq ft)		277.82	
E.G. Slope (ft/ft)	0.008768	Area (sq ft)		277.82	
Q Total (cfs)	3000.00	Flow (cfs)		3000.00	
Top Width (ft)	59.71	Top Width (ft)		59.71	
Vel Total (ft/s)	10.80	Avg. Vel. (ft/s)		10.80	
Max Chl Dpth (ft)	8.02	Hydr. Depth (ft)		4.65	
Conv. Total (cfs)	32038.5	Conv. (cfs)		32038.5	
Length Wtd. (ft)	251.40	Wetted Per. (ft)		62.06	
Min Ch El (ft)	1376.60	Shear (lb/sq ft)		2.45	
Alpha	1.00	Stream Power (lb/ft s)		26.46	
Frctn Loss (ft)	1.49	Cum Volume (acre-ft)	0.21	10.15	0.01
C & E Loss (ft)	1.29	Cum SA (acres)			

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1386.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.44	Wt. n-Val.		0.035	
W.S. Elev (ft)	1385.18	Reach Len. (ft)	251.40	251.40	251.40
Crit W.S. (ft)	1384.17	Flow Area (sq ft)		312.05	
E.G. Slope (ft/ft)	0.006408	Area (sq ft)		312.05	
Q Total (cfs)	3000.00	Flow (cfs)		3000.00	
Top Width (ft)	63.06	Top Width (ft)		63.06	
Vel Total (ft/s)	9.61	Avg. Vel. (ft/s)		9.61	
Max Chl Dpth (ft)	8.58	Hydr. Depth (ft)		4.95	
Conv. Total (cfs)	37477.6	Conv. (cfs)		37477.6	
Length Wtd. (ft)	251.40	Wetted Per. (ft)		65.58	
Min Ch El (ft)	1376.60	Shear (lb/sq ft)		1.90	
Alpha	1.00	Stream Power (lb/ft s)		18.30	
Frctn Loss (ft)	1.21	Cum Volume (acre-ft)	0.45	12.09	0.01
C & E Loss (ft)	0.94	Cum SA (acres)			

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9954.00	9984.67	189.68	28.88	13.88	6.32	2.19	6.57
9984.67	10015.33	2620.65	193.58	31.44	87.35	6.31	13.54
10015.33	RB 10046.00	189.67	28.88	13.88	6.32	2.19	6.57

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9954.00	9984.67	215.36	35.16	15.31	7.18	2.42	6.13
9984.67	10015.33	2569.28	207.50	31.44	85.64	6.77	12.38
10015.33	RB 10046.00	215.36	35.16	15.31	7.18	2.42	6.13

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

LB 9954.00	9984.67	246.32	43.72	17.07	8.21	2.70	5.63
9984.67	10015.33	2507.36	224.60	31.44	83.58	7.32	11.16
10015.33	RB 10046.00	246.32	43.72	17.07	8.21	2.70	5.63

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

CROSS SECTION RIVER: New River
REACH: Upper Spillway RS: 0.884

INPUT
Description: This cross section is located approximately at the spillway crest and is the upstream limit of the upper spillway reach for New River.

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9947.3	1480.1	9949.29	1477.28	9962.23	1459.55	9964.51	1456.32	10000	1456.17
10035.83	1456.41	10043.74	1467.34	10053.08	1479.95				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9947.3	.035	9947.3	.035	10053.08	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9947.31	10053.08	250.7	250.7	250.7	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1468.35	Element			
Vel Head (ft)	3.82	Wt. n-Val.		0.035	
W.S. Elev (ft)	1464.53	Reach Len. (ft)	250.70	250.70	250.70
Crit W.S. (ft)	1464.53	Flow Area (sq ft)		637.31	
E.G. Slope (ft/ft)	0.010264	Area (sq ft)		637.31	
Q Total (cfs)	10000.00	Flow (cfs)		10000.00	
Top Width (ft)	83.11	Top Width (ft)		83.11	
Vel Total (ft/s)	15.69	Avg. Vel. (ft/s)		15.69	
Max Chl Dpth (ft)	8.36	Hydr. Depth (ft)		7.67	
Conv. Total (cfs)	98704.1	Conv. (cfs)		98704.1	
Length Wtd. (ft)	250.70	Wetted Per. (ft)		91.47	
Min Ch El (ft)	1456.17	Shear (lb/sq ft)		4.46	
Alpha	1.00	Stream Power (lb/ft s)		70.06	
Frctn Loss (ft)	2.55	Cum Volume (acre-ft)	0.00	18.39	6.48
C & E Loss (ft)	0.02	Cum SA (acres)	0.02	4.24	1.03

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1474.93	Element			
Vel Head (ft)	5.76	Wt. n-Val.		0.035	
W.S. Elev (ft)	1469.17	Reach Len. (ft)	250.70	250.70	250.70
Crit W.S. (ft)	1469.17	Flow Area (sq ft)		1038.40	
E.G. Slope (ft/ft)	0.009444	Area (sq ft)		1038.40	
Q Total (cfs)	20000.00	Flow (cfs)		20000.00	
Top Width (ft)	89.88	Top Width (ft)		89.88	
Vel Total (ft/s)	19.26	Avg. Vel. (ft/s)		19.26	
Max Chl Dpth (ft)	13.00	Hydr. Depth (ft)		11.55	
Conv. Total (cfs)	205799.1	Conv. (cfs)		205799.1	
Length Wtd. (ft)	250.70	Wetted Per. (ft)		102.95	
Min Ch El (ft)	1456.17	Shear (lb/sq ft)		5.95	
Alpha	1.00	Stream Power (lb/ft s)		114.54	
Frctn Loss (ft)	2.34	Cum Volume (acre-ft)	0.08	29.76	11.61
C & E Loss (ft)	0.05	Cum SA (acres)	0.11	4.52	1.77

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1480.19	Element			
Vel Head (ft)	7.26	Wt. n-Val.		0.035	
W.S. Elev (ft)	1472.94	Reach Len. (ft)	250.70	250.70	250.70
Crit W.S. (ft)	1472.94	Flow Area (sq ft)		1387.62	
E.G. Slope (ft/ft)	0.009079	Area (sq ft)		1387.62	
Q Total (cfs)	30000.00	Flow (cfs)		30000.00	
Top Width (ft)	95.42	Top Width (ft)		95.42	
Vel Total (ft/s)	21.62	Avg. Vel. (ft/s)		21.62	

Max Chl Dpth (ft)	16.77	Hydr. Depth (ft)		14.54	
Conv. Total (cfs)	314847.5	Conv. (cfs)		314847.5	
Length Wtd. (ft)	250.70	Wetted Per. (ft)		112.31	
Min Ch El (ft)	1456.17	Shear (lb/sq ft)		7.00	
Alpha	1.00	Stream Power (lb/ft s)		151.40	
Frctn Loss (ft)	2.25	Cum Volume (acre-ft)	0.20	39.28	16.42
C & E Loss (ft)	0.07	Cum SA (acres)	0.19	4.61	2.56

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9947.30	9982.56	2462.14	172.93	28.17	24.62	7.22	14.24
9982.56	10017.82	5106.40	293.07	35.26	51.06	8.31	17.42
10017.82	RB 10053.08	2431.46	171.32	28.04	24.31	7.17	14.19

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9947.30	9982.56	4944.99	291.90	33.91	24.72	10.67	16.94
9982.56	10017.82	10154.25	456.59	35.26	50.77	12.95	22.24
10017.82	RB 10053.08	4900.76	289.90	33.78	24.50	10.63	16.90

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.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9947.30	9982.56	7467.43	400.17	38.57	24.89	13.30	18.66
9982.56	10017.82	15120.70	589.49	35.26	50.40	16.72	25.65
10017.82	RB 10053.08	7411.87	397.96	38.47	24.71	13.24	18.62

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

CROSS SECTION RIVER: New River
REACH: Upper Spillway RS: 0.840

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9944.5	1470.5	9965.09	1449.82	9982.33	1450.02	10034.86	1450.46	10051.44	1470.07

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9944.5	.035	9944.5	.035	10051.44	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9944.5	10051.44	229.7	229.7	229.7	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1463.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	7.06	Wt. n-Val.		0.035	
W.S. Elev (ft)	1456.36	Reach Len. (ft)	229.70	229.70	229.70
Crit W.S. (ft)	1458.46	Flow Area (sq ft)		468.91	
E.G. Slope (ft/ft)	0.026596	Area (sq ft)		468.91	
Q Total (cfs)	10000.00	Flow (cfs)		10000.00	
Top Width (ft)	81.28	Top Width (ft)		81.28	

Vel Total (ft/s)	21.33	Avg. Vel. (ft/s)		21.33	
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)		5.77	
Conv. Total (cfs)	61318.4	Conv. (cfs)		61318.4	
Length Wtd. (ft)	229.70	Wetted Per. (ft)		86.74	
Min Ch El (ft)	1449.82	Shear (lb/sq ft)		8.98	
Alpha	1.00	Stream Power (lb/ft s)		191.42	
Frctn Loss (ft)	4.61	Cum Volume (acre-ft)	0.00	15.21	6.48
C & E Loss (ft)	0.32	Cum SA (acres)	0.02	3.77	1.03

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1470.37	Element			
Vel Head (ft)	10.42	Wt. n-Val.		0.035	
W.S. Elev (ft)	1459.95	Reach Len. (ft)	229.70	229.70	229.70
Crit W.S. (ft)	1463.05	Flow Area (sq ft)		771.90	
E.G. Slope (ft/ft)	0.023280	Area (sq ft)		771.90	
Q Total (cfs)	20000.00	Flow (cfs)		20000.00	
Top Width (ft)	87.88	Top Width (ft)		87.88	
Vel Total (ft/s)	25.91	Avg. Vel. (ft/s)		25.91	
Max Chl Dpth (ft)	10.13	Hydr. Depth (ft)		8.78	
Conv. Total (cfs)	131081.9	Conv. (cfs)		131081.9	
Length Wtd. (ft)	229.70	Wetted Per. (ft)		96.49	
Min Ch El (ft)	1449.82	Shear (lb/sq ft)		11.63	
Alpha	1.00	Stream Power (lb/ft s)		301.25	
Frctn Loss (ft)	4.10	Cum Volume (acre-ft)	0.08	24.55	11.61
C & E Loss (ft)	0.47	Cum SA (acres)	0.11	4.01	1.77

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1475.80	Element			
Vel Head (ft)	12.88	Wt. n-Val.		0.035	
W.S. Elev (ft)	1462.92	Reach Len. (ft)	229.70	229.70	229.70
Crit W.S. (ft)	1466.75	Flow Area (sq ft)		1041.61	
E.G. Slope (ft/ft)	0.021479	Area (sq ft)		1041.61	
Q Total (cfs)	30000.00	Flow (cfs)		30000.00	
Top Width (ft)	93.36	Top Width (ft)		93.36	
Vel Total (ft/s)	28.80	Avg. Vel. (ft/s)		28.80	
Max Chl Dpth (ft)	13.10	Hydr. Depth (ft)		11.16	
Conv. Total (cfs)	204699.9	Conv. (cfs)		204699.9	
Length Wtd. (ft)	229.70	Wetted Per. (ft)		104.59	
Min Ch El (ft)	1449.82	Shear (lb/sq ft)		13.35	
Alpha	1.00	Stream Power (lb/ft s)		384.63	
Frctn Loss (ft)	3.83	Cum Volume (acre-ft)	0.20	32.29	16.42
C & E Loss (ft)	0.56	Cum SA (acres)	0.19	4.07	2.56

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9944.50	9980.15	2341.32	118.55	24.29	23.41	5.50	19.75
9980.15	10015.79	5139.25	221.51	35.65	51.39	6.21	23.20
10015.79	RB 10051.44	2519.43	128.84	26.80	25.19	5.36	19.55

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9944.50	9980.15	4667.26	202.22	29.35	23.34	8.04	23.08
9980.15	10015.79	10190.45	349.21	35.65	50.95	9.80	29.18
10015.79	RB 10051.44	5142.29	220.46	31.49	25.71	8.14	23.33

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9944.50	9980.15	7070.42	281.46	33.55	23.57	10.02	25.12
9980.15	10015.79	15136.45	455.32	35.65	50.45	12.77	33.24
10015.79	RB 10051.44	7793.14	304.83	35.39	25.98	10.30	25.57

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

CROSS SECTION RIVER: New River
REACH: Upper Spillway RS: 0.796

INPUT
Description: Contraction/expansion coefficients are set to 0.3/0.5 to account for flow leaving the spillway section.
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9951.2	1458.2	9953.27	1458.04	9958.66	1451.9	9965.03	1444.35	9972.66	1444.38
10025.3	1445	10034.91	1445.09	10040.79	1450.87	10045.3	1454.14	10047.33	1454.18
10060.62	1456.1	10070.22	1457.69	10082.78	1459.97				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9951.2	.035	9953.27	.035	10045.3	.035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9953.27	10045.3	52.8	52.8	52.8	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1457.59	Element			
Vel Head (ft)	6.38	Wt. n-Val.		0.035	
W.S. Elev (ft)	1451.21	Reach Len. (ft)	52.80	52.80	52.80
Crit W.S. (ft)	1453.01	Flow Area (sq ft)		493.35	
E.G. Slope (ft/ft)	0.022776	Area (sq ft)		493.35	
Q Total (cfs)	10000.00	Flow (cfs)		10000.00	
Top Width (ft)	82.01	Top Width (ft)		82.01	
Vel Total (ft/s)	20.27	Avg. Vel. (ft/s)		20.27	
Max Chl Dpth (ft)	6.86	Hydr. Depth (ft)		6.02	
Conv. Total (cfs)	66262.0	Conv. (cfs)		66262.0	
Length Wtd. (ft)	52.80	Wetted Per. (ft)		87.67	
Min Ch El (ft)	1444.35	Shear (lb/sq ft)		8.00	
Alpha	1.00	Stream Power (lb/ft s)		162.18	
Frctn Loss (ft)	5.64	Cum Volume (acre-ft)	0.00	12.67	6.48
C & E Loss (ft)	0.21	Cum SA (acres)	0.02	3.34	1.03

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1464.95	Element			
Vel Head (ft)	10.54	Wt. n-Val.		0.035	0.035
W.S. Elev (ft)	1454.41	Reach Len. (ft)	52.80	52.80	52.80
Crit W.S. (ft)	1457.84	Flow Area (sq ft)		767.74	0.70
E.G. Slope (ft/ft)	0.023840	Area (sq ft)		767.74	0.70
Q Total (cfs)	20000.00	Flow (cfs)		19998.47	1.53
Top Width (ft)	92.49	Top Width (ft)		88.85	3.64
Vel Total (ft/s)	26.03	Avg. Vel. (ft/s)		26.05	2.18
Max Chl Dpth (ft)	10.06	Hydr. Depth (ft)		8.64	0.19
Conv. Total (cfs)	129530.6	Conv. (cfs)		129520.8	9.9
Length Wtd. (ft)	52.80	Wetted Per. (ft)		96.92	3.66
Min Ch El (ft)	1444.35	Shear (lb/sq ft)		11.79	0.28
Alpha	1.00	Stream Power (lb/ft s)		307.10	0.62
Frctn Loss (ft)	5.41	Cum Volume (acre-ft)	0.08	20.49	11.60
C & E Loss (ft)	0.01	Cum SA (acres)	0.11	3.54	1.76

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1470.63	Element			
Vel Head (ft)	13.65	Wt. n-Val.		0.035	0.035
W.S. Elev (ft)	1456.97	Reach Len. (ft)	52.80	52.80	52.80

Crit W.S. (ft)	1461.41	Flow Area (sq ft)		998.00	32.35
E.G. Slope (ft/ft)	0.022999	Area (sq ft)		998.00	32.35
Q Total (cfs)	30000.00	Flow (cfs)		29720.33	279.67
Top Width (ft)	111.68	Top Width (ft)		91.09	20.59
Vel Total (ft/s)	29.12	Avg. Vel. (ft/s)		29.78	8.64
Max Chl Dpth (ft)	12.62	Hydr. Depth (ft)		10.96	1.57
Conv. Total (cfs)	197819.1	Conv. (cfs)		195975.0	1844.1
Length Wtd. (ft)	52.80	Wetted Per. (ft)		100.33	20.80
Min Ch El (ft)	1444.35	Shear (lb/sq ft)		14.28	2.23
Alpha	1.04	Stream Power (lb/ft s)		425.34	19.31
Frctn Loss (ft)	5.11	Cum Volume (acre-ft)	0.20	26.91	16.34
C &-E Loss (ft)	0.08	Cum SA (acres)	0.19	3.58	2.51

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 cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9953.27	9983.95	2873.86	148.33	27.89	28.74	6.01	19.37
9983.95	10014.62	4430.52	199.80	30.68	44.31	6.51	22.17
10014.62	RB 10045.30	2695.61	145.21	29.11	26.96	5.45	18.56

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9953.27	9983.95	5605.22	231.97	32.14	28.03	8.44	24.16
9983.95	10014.62	8784.81	298.15	30.68	43.92	9.72	29.46
10014.62	RB 10045.30	5608.45	237.62	34.10	28.04	7.75	23.60
10045.30	10082.78	1.53	0.70	3.66	0.01	0.19	2.18

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9953.27	9983.95	8128.29	305.21	35.54	27.09	10.26	26.63
9983.95	10014.62	12731.80	376.66	30.68	42.44	12.28	33.80
10014.62	RB 10045.30	8860.24	316.13	34.10	29.53	10.31	28.03
10045.30	10082.78	279.67	32.35	20.80	0.93	1.57	8.64

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 cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Upper Spillway RS: 0.787

INPUT
Description: Contraction/expansion coefficients are set to 0.3/0.5 to account for flow leaving the spillway section.
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9892.1	1458.4	9894.86	1458.21	9906.47	1456.6	9908.59	1456.17	9923.46	1452.37
9929.89	1450	9935.61	1447.77	9946.94	1446.21	9950.51	1445.4	9964.91	1444.34
9974.52	1444.2	10020	1443.43	10035.81	1443.92	10039.46	1446.11	10044.31	1447.13
10052.45	1447.41	10070.38	1447.41	10079.57	1447.61	10088.52	1448.13	10097.3	1450.11
10099.27	1450.41	10114.09	1450.75	10155.72	1454				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9892.1	.06	9935.61	.035	10044.31	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935.61	10044.31	100.02	125.5	130.02	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1455.71	Element			
Vel Head (ft)	7.03	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1448.68	Reach Len. (ft)	100.02	125.50	130.02
Crit W.S. (ft)	1450.46	Flow Area (sq ft)	1.06	450.16	53.08
E.G. Slope (ft/ft)	0.039300	Area (sq ft)	1.06	450.16	53.08
Q Total (cfs)	10000.00	Flow (cfs)	2.92	9713.33	283.75
Top Width (ft)	157.67	Top Width (ft)	2.33	108.70	46.64
Vel Total (ft/s)	19.83	Avg. Vel. (ft/s)	2.77	21.58	5.35

Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)	0.45	4.14	1.14
Conv. Total (cfs)	50443.1	Conv. (cfs)	14.7	48997.1	1431.3
Length Wtd. (ft)	125.56	Wetted Per. (ft)	2.50	109.66	46.72
Min Ch El (ft)	1443.43	Shear (lb/sq ft)	1.04	10.07	2.79
Alpha	1.15	Stream Power (lb/ft s)	2.87	217.32	14.90
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	0.00	12.10	6.45
C & E Loss (ft)	0.20	Cum SA (acres)	0.02	3.22	1.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1462.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	12.21	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1450.44	Reach Len. (ft)	100.02	125.50	130.02
Crit W.S. (ft)	1454.34	Flow Area (sq ft)	9.13	641.26	142.08
E.G. Slope (ft/ft)	0.044216	Area (sq ft)	9.13	641.26	142.08
Q Total (cfs)	20000.00	Flow (cfs)	54.68	18581.01	1364.31
Top Width (ft)	172.08	Top Width (ft)	6.90	108.70	56.47
Vel Total (ft/s)	25.24	Avg. Vel. (ft/s)	5.99	28.98	9.60
Max Chl Dpth (ft)	7.01	Hydr. Depth (ft)	1.32	5.90	2.52
Conv. Total (cfs)	95113.1	Conv. (cfs)	260.1	88364.9	6488.2
Length Wtd. (ft)	125.62	Wetted Per. (ft)	7.40	109.66	56.74
Min Ch El (ft)	1443.43	Shear (lb/sq ft)	3.41	16.14	6.91
Alpha	1.23	Stream Power (lb/ft s)	20.40	467.71	66.38
Frctn Loss (ft)	1.80	Cum Volume (acre-ft)	0.07	19.63	11.52
C & E Loss (ft)	0.50	Cum SA (acres)	0.11	3.42	1.73

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1468.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	16.22	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1451.91	Reach Len. (ft)	100.02	125.50	130.02
Crit W.S. (ft)	1456.56	Flow Area (sq ft)	22.23	801.31	251.32
E.G. Slope (ft/ft)	0.044774	Area (sq ft)	22.23	801.31	251.32
Q Total (cfs)	30000.00	Flow (cfs)	179.19	27106.22	2714.58
Top Width (ft)	204.21	Top Width (ft)	10.90	108.70	84.62
Vel Total (ft/s)	27.91	Avg. Vel. (ft/s)	8.06	33.83	10.80
Max Chl Dpth (ft)	8.48	Hydr. Depth (ft)	2.04	7.37	2.97
Conv. Total (cfs)	141778.0	Conv. (cfs)	846.9	128102.2	12828.9
Length Wtd. (ft)	125.61	Wetted Per. (ft)	11.66	109.66	84.93
Min Ch El (ft)	1443.43	Shear (lb/sq ft)	5.33	20.42	8.27
Alpha	1.34	Stream Power (lb/ft s)	42.97	690.92	89.34
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)	0.19	25.82	16.17
C & E Loss (ft)	0.76	Cum SA (acres)	0.18	3.46	2.45

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 cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9892.10	9935.61	2.92	1.06	2.50	0.03	0.45	2.77
LB 9935.61	9971.84	2037.85	114.64	36.47	20.38	3.16	17.78
9971.84	10008.08	4013.53	171.72	36.24	40.14	4.74	23.37
10008.08	RB 10044.31	3661.95	163.81	36.96	36.62	4.52	22.36
10044.31	10155.72	283.75	53.08	46.72	2.84	1.14	5.35

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9892.10	9935.61	54.68	9.13	7.40	0.27	1.32	5.99
LB 9935.61	9971.84	4551.04	178.34	36.47	22.76	4.92	25.52
9971.84	10008.08	7260.50	235.42	36.24	36.30	6.50	30.84
10008.08	RB 10044.31	6769.46	227.51	36.96	33.85	6.28	29.75
10044.31	10155.72	1364.31	142.08	56.74	6.82	2.52	9.60

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9892.10	9935.61	179.19	22.23	11.66	0.60	2.04	8.06
LB 9935.61	9971.84	7103.69	231.69	36.47	23.68	6.39	30.66
9971.84	10008.08	10297.96	288.77	36.24	34.33	7.97	35.66
10008.08	RB 10044.31	9704.56	280.86	36.96	32.35	7.75	34.55
10044.31	10155.72	2714.59	251.32	84.93	9.05	2.97	10.80

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 cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Upper Spillway RS: 0.763

INPUT
Description: Contraction/expansion coefficients are set to 0.3/0.5 to account for flow leaving the spillway section.
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9870.34	1443.5	9889.2	1437.95	9912.34	1435.34	9944.63	1433.7	9953.25	1433.14
9963.04	1432.1	9990.48	1429.63	9993.74	1428.77	9998.63	1428.65	10000	1428.55
10006.93	1429.61	10016.43	1430.86	10019.91	1431.62	10025.89	1432.16	10037.03	1432.34
10048.68	1432.81	10121.83	1436.11	10215.97	1437	10222.38	1437.07	10258.55	1441.37

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9870.34	.06	9912.34	.035	10121.83	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9912.34	10121.83	105	118.8	120	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1444.97	Element			
Vel Head (ft)	10.38	Wt. n-Val.		0.035	
W.S. Elev (ft)	1434.59	Reach Len. (ft)	105.00	118.80	120.00
Crit W.S. (ft)	1437.21	Flow Area (sq ft)		386.84	
E.G. Slope (ft/ft)	0.116156	Area (sq ft)		386.84	
Q Total (cfs)	10000.00	Flow (cfs)		10000.00	
Top Width (ft)	161.35	Top Width (ft)		161.35	
Vel Total (ft/s)	25.85	Avg. Vel. (ft/s)		25.85	
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)		2.40	
Conv. Total (cfs)	29341.3	Conv. (cfs)		29341.3	
Length Wtd. (ft)	118.80	Wetted Per. (ft)		161.99	
Min Ch El (ft)	1428.55	Shear (lb/sq ft)		17.32	
Alpha	1.00	Stream Power (lb/ft s)		447.66	
Frctn Loss (ft)	9.75	Cum Volume (acre-ft)	0.00	10.89	6.37
C & E Loss (ft)	1.00	Cum SA (acres)	0.02	2.83	0.93

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1451.29	Element			
Vel Head (ft)	15.37	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1435.92	Reach Len. (ft)	105.00	118.80	120.00
Crit W.S. (ft)	1439.42	Flow Area (sq ft)	1.51	635.48	
E.G. Slope (ft/ft)	0.122529	Area (sq ft)	1.51	635.48	
Q Total (cfs)	20000.00	Flow (cfs)	5.75	19994.25	
Top Width (ft)	210.77	Top Width (ft)	5.18	205.59	
Vel Total (ft/s)	31.40	Avg. Vel. (ft/s)	3.80	31.46	
Max Chl Dpth (ft)	7.37	Hydr. Depth (ft)	0.29	3.09	
Conv. Total (cfs)	57136.1	Conv. (cfs)	16.4	57119.7	
Length Wtd. (ft)	118.76	Wetted Per. (ft)	5.21	206.28	
Min Ch El (ft)	1428.55	Shear (lb/sq ft)	2.22	23.57	
Alpha	1.00	Stream Power (lb/ft s)	8.44	741.44	
Frctn Loss (ft)	10.45	Cum Volume (acre-ft)	0.06	17.80	11.31
C & E Loss (ft)	0.94	Cum SA (acres)	0.10	2.97	1.64

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1456.88	Element			
Vel Head (ft)	20.04	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1436.84	Reach Len. (ft)	105.00	118.80	120.00
Crit W.S. (ft)	1441.11	Flow Area (sq ft)	9.98	827.03	28.65

E.G. Slope (ft/ft)	0.116009	Area (sq ft)	9.98	827.03	28.65
Q Total (cfs)	30000.00	Flow (cfs)	69.17	29806.28	124.55
Top Width (ft)	300.20	Top Width (ft)	13.30	209.49	77.41
Vel Total (ft/s)	34.66	Avg. Vel. (ft/s)	6.93	36.04	4.35
Max Chl Dpth (ft)	8.29	Hydr. Depth (ft)	0.75	3.95	0.37
Conv. Total (cfs)	88079.4	Conv. (cfs)	203.1	87510.7	365.7
Length Wtd. (ft)	118.71	Wetted Per. (ft)	13.38	210.19	77.42
Min Ch El (ft)	1428.55	Shear (lb/sq ft)	5.40	28.50	2.68
Alpha	1.07	Stream Power (lb/ft s)	37.43	1027.05	11.65
Frctn Loss (ft)	10.10	Cum Volume (acre-ft)	0.15	23.48	15.75
C & E Loss (ft)	1.15	Cum SA (acres)	0.16	3.00	2.20

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9912.34	9982.17	1941.82	101.40	55.28	19.42	1.84	19.15
9982.17	10052.00	7723.31	255.54	70.26	77.23	3.66	30.22
10052.00	RB 10121.83	334.87	29.90	36.45	3.35	0.82	11.20

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9870.34	9912.34	5.75	1.51	5.21	0.03	0.29	3.80
LB 9912.34	9982.17	4855.22	188.90	70.02	24.28	2.71	25.70
9982.17	10052.00	13445.87	348.54	70.26	67.23	4.99	38.58
10052.00	RB 10121.83	1693.16	98.05	66.00	8.47	1.49	17.27

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9870.34	9912.34	69.17	9.98	13.38	0.23	0.75	6.93
LB 9912.34	9982.17	7989.77	252.86	70.02	26.63	3.62	31.60
9982.17	10052.00	18020.94	412.50	70.26	60.07	5.91	43.69
10052.00	RB 10121.83	3795.58	161.67	69.90	12.65	2.32	23.48
10121.83	10258.55	124.55	28.65	77.42	0.42	0.37	4.35

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

CROSS SECTION RIVER: New River
REACH: Upper Spillway RS: 0.741

INPUT
Description: Contraction/Expansion coefficients are set to 0.3/0.5 to account for flow leaving the spillway
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9787.61	1439.8	9802.23	1434.84	9814.14	1434.12	9852.2	1430.05	9865.63	1428.71
9867.54	1428.4	9881.07	1427.36	9950.47	1423.02	9961.73	1422.46	9970.85	1421.65
9988.76	1420.3	10000	1419.82	10024.48	1421.22	10045.45	1420.84	10055.9	1420.94
10069.83	1420.31	10075.61	1420.48	10086.9	1420.43	10099.96	1420.68	10109.61	1420.79
10117.87	1421.41	10128.43	1421.94	10137.76	1422.67	10148.83	1423.66	10184.55	1424.77
10206.68	1424.71	10259.32	1424.97	10271.32	1425.81	10328.04	1426.61	10360.11	1428.03
10437.1	1429.61	10457.85	1430.17	10468.38	1430.24	10559.91	1427.78	10563.59	1427.71
10643.73	1428.71	10669.49	1428.97	10712.55	1429.99	10796.49	1432.09	10801.53	1432.06

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9787.61	.06	9950.47	.035	10148.83	.06

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

9950.4710148.83	120	137.5	145.02	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1431.26	Element			
Vel Head (ft)	7.89	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1423.37	Reach Len. (ft)	120.00	137.50	145.02
Crit W.S. (ft)	1425.62	Flow Area (sq ft)	0.96	443.40	
E.G. Slope (ft/ft)	0.094566	Area (sq ft)	0.96	443.40	
Q Total (cfs)	10000.00	Flow (cfs)	2.28	9997.72	
Top Width (ft)	200.63	Top Width (ft)	5.55	195.08	
Vel Total (ft/s)	22.50	Avg. Vel. (ft/s)	2.37	22.55	
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)	0.17	2.27	
Conv. Total (cfs)	32518.6	Conv. (cfs)	7.4	32511.2	
Length Wtd. (ft)	137.59	Wetted Per. (ft)	5.56	195.35	
Min Ch El (ft)	1419.82	Shear (lb/sq ft)	1.02	13.40	
Alpha	1.00	Stream Power (lb/ft s)	2.42	302.14	
Frctn Loss (ft)	12.46	Cum Volume (acre-ft)	0.00	9.76	6.37
C & E Loss (ft)	1.24	Cum SA (acres)	0.01	2.35	0.93

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1437.59	Element			
Vel Head (ft)	13.02	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1424.57	Reach Len. (ft)	120.00	137.50	145.02
Crit W.S. (ft)	1427.87	Flow Area (sq ft)	19.21	681.54	13.32
E.G. Slope (ft/ft)	0.090678	Area (sq ft)	19.21	681.54	13.32
Q Total (cfs)	20000.00	Flow (cfs)	120.69	19820.56	58.75
Top Width (ft)	252.43	Top Width (ft)	24.78	198.36	29.28
Vel Total (ft/s)	28.01	Avg. Vel. (ft/s)	6.28	29.08	4.41
Max Chl Dpth (ft)	4.75	Hydr. Depth (ft)	0.77	3.44	0.45
Conv. Total (cfs)	66417.1	Conv. (cfs)	400.8	65821.3	195.1
Length Wtd. (ft)	137.68	Wetted Per. (ft)	24.83	198.64	29.30
Min Ch El (ft)	1419.82	Shear (lb/sq ft)	4.38	19.42	2.57
Alpha	1.07	Stream Power (lb/ft s)	27.51	564.85	11.35
Frctn Loss (ft)	12.52	Cum Volume (acre-ft)	0.04	16.00	11.29
C & E Loss (ft)	1.17	Cum SA (acres)	0.06	2.42	1.60

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1443.29	Element			
Vel Head (ft)	17.90	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1425.39	Reach Len. (ft)	120.00	137.50	145.02
Crit W.S. (ft)	1429.71	Flow Area (sq ft)	44.78	843.51	86.55
E.G. Slope (ft/ft)	0.095845	Area (sq ft)	44.78	843.51	86.55
Q Total (cfs)	30000.00	Flow (cfs)	383.55	29072.30	544.16
Top Width (ft)	352.71	Top Width (ft)	37.84	198.36	116.51
Vel Total (ft/s)	30.77	Avg. Vel. (ft/s)	8.57	34.47	6.29
Max Chl Dpth (ft)	5.57	Hydr. Depth (ft)	1.18	4.25	0.74
Conv. Total (cfs)	96902.7	Conv. (cfs)	1238.9	93906.1	1757.7
Length Wtd. (ft)	137.79	Wetted Per. (ft)	37.92	198.64	116.54
Min Ch El (ft)	1419.82	Shear (lb/sq ft)	7.07	25.41	4.44
Alpha	1.22	Stream Power (lb/ft s)	60.53	875.72	27.94
Frctn Loss (ft)	12.52	Cum Volume (acre-ft)	0.09	21.20	15.59
C & E Loss (ft)	1.07	Cum SA (acres)	0.10	2.45	1.94

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9787.61	9950.47	2.28	0.96	5.56	0.02	0.17	2.37
LB 9950.47	10016.59	3355.21	150.01	66.26	33.55	2.27	22.37
10016.59	10082.71	4124.89	169.69	66.15	41.25	2.57	24.31
10082.71	RB 10148.83	2517.63	123.70	62.94	25.18	1.97	20.35

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9787.61	9950.47	120.69	19.21	24.83	0.60	0.77	6.28
LB 9950.47	10016.59	6692.72	229.55	66.26	33.46	3.47	29.16

10016.59	10082.71	7684.26	249.23	66.15	38.42	3.77	30.83
10082.71	RB 10148.83	5443.58	202.76	66.23	27.22	3.07	26.85
10148.83	10801.53	58.75	13.32	29.30	0.29	0.45	4.41

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9787.61	9950.47	383.54	44.78	37.92	1.28	1.18	8.57
LB 9950.47	10016.59	9797.65	283.54	66.26	32.66	4.29	34.55
10016.59	10082.71	10968.68	303.22	66.15	36.56	4.59	36.17
10082.71	RB 10148.83	8305.97	256.75	66.23	27.69	3.88	32.35
10148.83	10801.53	544.16	86.55	116.54	1.81	0.74	6.29

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Upper Spillway RS: 0.715

INPUT
Description: Contraction/expansion coefficients are set to 0.3/0.5.
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9646.48	1429.8	9687.45	1424.8	9704.27	1423.16	9786.04	1416.4	9798.54	1415.54
9851.79	1414.2	9903.42	1414.42	9948.05	1414.44	10000	1413.64	10015.55	1413.64
10061.53	1414.2	10081.13	1414.65	10093.3	1414.97	10132.22	1416.61	10145.13	1416.67
10155.85	1416.5	10207.8	1416.77	10301.02	1415.53	10309.3	1415.41	10357.74	1416.45
10422.71	1417.91	10446.38	1416.11	10462.06	1415.99	10469.45	1415.77	10491.07	1415.51
10501.47	1415.61	10505.21	1414.24	10514.91	1411.85	10516.13	1412.35	10529.56	1416.3
10537.97	1416.21	10543.28	1416.47	10556.1	1416.45	10613.84	1417.77	10669.81	1419.16
10715.33	1420.71	10792.74	1421.16	10809.35	1421.37				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9646.48	.06	9786.04	.03	10132.22	.06	10422.71	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9786.04	10132.22	135.04	177.1	184.96	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10422.71	10809.35	1417.9

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1419.69	Element			
Vel Head (ft)	3.21	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1416.48	Reach Len. (ft)	135.04	177.10	184.96
Crit W.S. (ft)	1417.50	Flow Area (sq ft)	0.04	670.70	68.77
E.G. Slope (ft/ft)	0.048015	Area (sq ft)	0.04	670.70	184.76
Q Total (cfs)	10000.00	Flow (cfs)	0.02	9754.70	245.27
Top Width (ft)	588.82	Top Width (ft)	0.92	343.01	244.88
Vel Total (ft/s)	13.52	Avg. Vel. (ft/s)	0.61	14.54	3.57
Max Chl Dpth (ft)	4.63	Hydr. Depth (ft)	0.04	1.96	0.53
Conv. Total (cfs)	45636.3	Conv. (cfs)	0.1	44516.8	1119.3
Length Wtd. (ft)	180.90	Wetted Per. (ft)	0.93	343.11	129.08
Min Ch El (ft)	1413.64	Shear (lb/sq ft)	0.11	5.86	1.60
Alpha	1.13	Stream Power (lb/ft s)	0.07	85.22	5.70
Frctn Loss (ft)	9.24	Cum Volume (acre-ft)	0.00	8.00	6.07
C & E Loss (ft)	2.35	Cum SA (acres)	0.00	1.50	0.52

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1423.54	Element			
Vel Head (ft)	6.41	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1417.13	Reach Len. (ft)	135.04	177.10	184.96
Crit W.S. (ft)	1418.63	Flow Area (sq ft)	3.25	897.88	212.60
E.G. Slope (ft/ft)	0.068105	Area (sq ft)	3.25	897.88	416.95
Q Total (cfs)	20000.00	Flow (cfs)	10.74	18775.82	1213.44
Top Width (ft)	764.38	Top Width (ft)	8.87	346.18	409.33
Vel Total (ft/s)	17.96	Avg. Vel. (ft/s)	3.30	20.91	5.71
Max Chl Dpth (ft)	5.28	Hydr. Depth (ft)	0.37	2.59	0.83
Conv. Total (cfs)	76637.3	Conv. (cfs)	41.2	71946.4	4649.7
Length Wtd. (ft)	180.58	Wetted Per. (ft)	8.90	346.28	256.17
Min Ch El (ft)	1413.64	Shear (lb/sq ft)	1.55	11.02	3.53
Alpha	1.28	Stream Power (lb/ft s)	5.13	230.54	20.14
Frctn Loss (ft)	10.77	Cum Volume (acre-ft)	0.01	13.51	10.57

C & E Loss (ft)	3.33	Cum SA (acres)	0.01	1.56	0.87

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1426.86	Element			
Vel Head (ft)	9.24	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1417.62	Reach Len. (ft)	135.04	177.10	184.96
Crit W.S. (ft)	1419.58	Flow Area (sq ft)	9.00	1066.37	342.57
E.G. Slope (ft/ft)	0.080497	Area (sq ft)	9.00	1066.37	628.21
Q Total (cfs)	30000.00	Flow (cfs)	45.39	27187.90	2766.72
Top Width (ft)	819.76	Top Width (ft)	14.76	346.18	458.83
Vel Total (ft/s)	21.16	Avg. Vel. (ft/s)	5.04	25.50	8.08
Max Chl Dpth (ft)	5.77	Hydr. Depth (ft)	0.61	3.08	1.23
Conv. Total (cfs)	105738.4	Conv. (cfs)	160.0	95826.8	9751.6
Length Wtd. (ft)	180.49	Wetted Per. (ft)	14.81	346.28	277.98
Min Ch El (ft)	1413.64	Shear (lb/sq ft)	3.05	15.48	6.19
Alpha	1.33	Stream Power (lb/ft s)	15.40	394.57	50.02
Frctn Loss (ft)	12.10	Cum Volume (acre-ft)	0.01	18.19	14.40
C & E Loss (ft)	4.33	Cum SA (acres)	0.02	1.59	0.98

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9646.48	9786.04	0.02	0.04	0.93	0.00	0.04	0.61
LB 9786.04	9901.43	2647.13	199.63	115.44	26.47	1.73	13.26
9901.43	10016.83	4371.94	269.72	115.40	43.72	2.34	16.21
10016.83	RB 10132.22	2735.64	201.35	112.27	27.36	1.79	13.59
10132.22	10809.35	245.27	68.77	129.08	2.45	0.53	3.57

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9646.48	9786.04	10.74	3.25	8.90	0.05	0.37	3.30
LB 9786.04	9901.43	5413.05	275.43	115.44	27.07	2.39	19.65
9901.43	10016.83	7900.17	345.51	115.40	39.50	2.99	22.87
10016.83	RB 10132.22	5462.60	276.94	115.44	27.31	2.40	19.72
10132.22	10809.35	1213.44	212.60	256.17	6.07	0.83	5.71

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9646.48	9786.04	45.39	9.00	14.81	0.15	0.61	5.04
LB 9786.04	9901.43	8033.15	331.59	115.44	26.78	2.87	24.23
9901.43	10016.83	11060.53	401.67	115.40	36.87	3.48	27.54
10016.83	RB 10132.22	8094.22	333.10	115.44	26.98	2.89	24.30
10132.22	10809.35	2766.72	342.57	277.98	9.22	1.23	8.08

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Upper Spillway RS: 0.681

INPUT
Description: Downstream limit of the upper spillway reach of New River. The right branch continues as the spillway reach of Rock Creek. The left branch continues as the lower spillway reach of New River.

The discharge is split as 60% in both branches to
account for the uncertaintly of the hydraulic conditions.

Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9598.51	1430	9608.7	1425.89	9642.2	1421.75	9702.54	1414.03	9727.21	1413.33
9739.93	1412.6	9780.23	1411.07	9795.08	1410.32	9796.07	1410.09	9800.48	1410.1
9827.84	1409.4	9871.89	1408.99	9938.64	1409.49	10000	1408.63	10026.48	1410.83
10045.98	1412	10048.57	1412.01	10054.48	1412.11	10100.23	1411.42	10103.75	1411.31
10152.4	1410.41	10230.43	1408.41	10250.19	1408.01	10349.33	1408.89	10358	1408.85
10377.03	1408.51	10491.76	1406.93	10508.21	1406.63	10551.03	1406.46	10570.03	1406.5
10596.34	1400.31	10599.88	1401.39	10614.47	1405.7	10620.8	1406.17	10627.14	1406.33
10630.96	1406.11	10647.47	1407.58	10691.7	1409.21	10730.61	1410.61	10757.98	1411.55
10801.97	1412.41	10858.92	1413.32	10933.91	1413.84	10954.26	1414.02	10959.81	1414.05
11046.86	1412.41	11103.32	1410.54	11125.97	1409.53	11151.12	1409.71	11164.52	1409.58
11244.88	1408.51	11259.83	1408.34	11334.61	1407.48	11350.57	1407.39	11359.2	1407.13
11360.95	1407.41	11371.43	1407.51	11394.48	1407.52	11409.42	1407.61	1424.53	1408
11465.15	1408.91	11477.29	1409.18	11559.9	1412.22	11647.62	1414.67	11666.12	1415.18
11672.92	1415.41	11757.17	1418.31	11768.21	1418.53	11788.16	1419.28	11812.5	1419.98

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9598.51	.06	9702.54	.035	10054.48	.06	10959.81	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9702.54	10054.48	0	0	0	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10959.81	11812.5	1414.05

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1410.73	Element			
Vel Head (ft)	1.02	Wt. n-Val.		0.035	0.060
W.S. Elev (ft)	1409.71	Reach Len. (ft)	282.60	282.60	282.60
Crit W.S. (ft)	1409.84	Flow Area (sq ft)		102.95	1144.49
E.G. Slope (ft/ft)	0.039503	Area (sq ft)		102.95	1616.20
Q Total (cfs)	10000.00	Flow (cfs)		562.94	9437.06
Top Width (ft)	1093.27	Top Width (ft)		197.31	895.96
Vel Total (ft/s)	8.02	Avg. Vel. (ft/s)		5.47	8.25
Max Chl Dpth (ft)	9.41	Hydr. Depth (ft)		0.52	2.18
Conv. Total (cfs)	50313.4	Conv. (cfs)		2832.4	47481.1
Length Wtd. (ft)	282.60	Wetted Per. (ft)		197.36	527.86
Min Ch El (ft)	1408.63	Shear (lb/sq ft)		1.29	5.35
Alpha	1.02	Stream Power (lb/ft s)		7.03	44.09
Frctn Loss (ft)	7.86	Cum Volume (acre-ft)		5.10	5.67
C & E Loss (ft)	1.09	Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1412.21	Element			
Vel Head (ft)	1.42	Wt. n-Val.		0.035	0.060
W.S. Elev (ft)	1410.79	Reach Len. (ft)	282.60	282.60	282.60
Crit W.S. (ft)	1410.90	Flow Area (sq ft)		341.55	1750.86
E.G. Slope (ft/ft)	0.035391	Area (sq ft)		341.55	2649.64
Q Total (cfs)	20000.00	Flow (cfs)		3448.60	16551.40
Top Width (ft)	1269.34	Top Width (ft)		240.13	1029.20
Vel Total (ft/s)	9.56	Avg. Vel. (ft/s)		10.10	9.45
Max Chl Dpth (ft)	10.49	Hydr. Depth (ft)		1.42	2.90
Conv. Total (cfs)	106312.6	Conv. (cfs)		18331.5	87981.1
Length Wtd. (ft)	282.60	Wetted Per. (ft)		240.28	605.77
Min Ch El (ft)	1408.63	Shear (lb/sq ft)		3.14	6.39
Alpha	1.00	Stream Power (lb/ft s)		31.71	60.37
Frctn Loss (ft)	8.84	Cum Volume (acre-ft)		9.17	9.69
C & E Loss (ft)	2.49	Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1413.41	Element			
Vel Head (ft)	1.90	Wt. n-Val.		0.035	0.060
W.S. Elev (ft)	1411.51	Reach Len. (ft)	282.60	282.60	282.60
Crit W.S. (ft)	1411.66	Flow Area (sq ft)		525.39	2209.39
E.G. Slope (ft/ft)	0.036641	Area (sq ft)		525.39	3430.93
Q Total (cfs)	30000.00	Flow (cfs)		6664.85	23335.15
Top Width (ft)	1398.62	Top Width (ft)		269.21	1129.41
Vel Total (ft/s)	10.97	Avg. Vel. (ft/s)		12.69	10.56
Max Chl Dpth (ft)	11.21	Hydr. Depth (ft)		1.95	3.33

Conv. Total (cfs)	156724.5	Conv. (cfs)		34818.2	121906.3
Length Wtd. (ft)	282.60	Wetted Per. (ft)		269.39	664.36
Min Ch El (ft)	1408.63	Shear (lb/sq ft)		4.46	7.61
Alpha	1.02	Stream Power (lb/ft s)		56.59	80.35
Frctn Loss (ft)	9.78	Cum Volume (acre-ft)	0.00	12.69	13.07
C & E Loss (ft)	3.67	Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9702.54	9819.85	0.26	0.22	4.15	0.00	0.05	1.17
9819.85	9937.17	277.86	55.45	117.32	2.78	0.47	5.01
9937.17	RB 10054.48	284.81	47.28	75.89	2.85	0.62	6.02
10054.48	11812.50	9437.07	1144.49	527.86	94.37	2.18	8.25

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9702.54	9819.85	147.07	23.90	34.07	0.74	0.70	6.15
9819.85	9937.17	1896.12	181.74	117.32	9.48	1.55	10.43
9937.17	RB 10054.48	1405.38	135.90	88.89	7.03	1.53	10.34
10054.48	11812.50	16551.43	1750.86	605.77	82.76	2.90	9.45

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9702.54	9819.85	445.54	54.35	51.30	1.49	1.06	8.20
9819.85	9937.17	3636.03	266.65	117.32	12.12	2.27	13.64
9937.17	RB 10054.48	2583.25	204.39	100.78	8.61	2.03	12.64
10054.48	11812.50	23335.18	2209.39	664.36	77.78	3.33	10.56

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower Spillway RS: 0.622

INPUT
Description: Upstream limit of the lower spillway reach for New River. A vertical wall is coded at the right endpoint.
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9688.16	1421.3	9730.23	1407.55	9731.39	1407.3	9749.77	1406.23	9758.07	1405.86
9763.65	1405.8	9772.03	1405.38	9841.28	1403.67	9851.59	1403.39	9866.66	1403.13
9896.5	1402.1	9944.83	1402.6	9972.69	1403.04	9984.08	1402.72	10000	1401.78
10024.13	1403.6	10053.89	1402.28	10068.95	1403.33	10075.46	1403.89	10122.55	1405.04
10162.33	1405.1	10162.36	1410						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9688.16	.06	9730.23	.035	10162.36	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9730.23	10162.36	395	424.4	385	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1406.42	Element			
Vel Head (ft)	0.98	Wt. n-Val.		0.035	
W.S. Elev (ft)	1405.44	Reach Len. (ft)	395.00	424.40	385.00
Crit W.S. (ft)	1405.44	Flow Area (sq ft)		756.91	
E.G. Slope (ft/ft)	0.014506	Area (sq ft)		756.91	
Q Total (cfs)	6000.00	Flow (cfs)		6000.00	
Top Width (ft)	391.57	Top Width (ft)		391.57	
Vel Total (ft/s)	7.93	Avg. Vel. (ft/s)		7.93	
Max Chl Dpth (ft)	3.66	Hydr. Depth (ft)		1.93	
Conv. Total (cfs)	49816.6	Conv. (cfs)		49816.6	
Length Wtd. (ft)	424.40	Wetted Per. (ft)		392.14	
Min Ch El (ft)	1401.78	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		13.86	
Frctn Loss (ft)	4.77	Cum Volume (acre-ft)	0.18	47.53	0.00
C & E Loss (ft)	0.05	Cum SA (acres)	0.30	9.86	0.01

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1408.09	Element			
Vel Head (ft)	1.46	Wt. n-Val.		0.035	
W.S. Elev (ft)	1406.62	Reach Len. (ft)	395.00	424.40	385.00
Crit W.S. (ft)	1406.62	Flow Area (sq ft)		1235.91	
E.G. Slope (ft/ft)	0.012449	Area (sq ft)		1235.91	
Q Total (cfs)	12000.00	Flow (cfs)		12000.00	
Top Width (ft)	419.30	Top Width (ft)		419.30	
Vel Total (ft/s)	9.71	Avg. Vel. (ft/s)		9.71	
Max Chl Dpth (ft)	4.84	Hydr. Depth (ft)		2.95	
Conv. Total (cfs)	107549.6	Conv. (cfs)		107549.6	
Length Wtd. (ft)	424.16	Wetted Per. (ft)		421.16	
Min Ch El (ft)	1401.78	Shear (lb/sq ft)		2.28	
Alpha	1.00	Stream Power (lb/ft s)		22.14	
Frctn Loss (ft)	4.72	Cum Volume (acre-ft)	1.34	67.30	0.03
C & E Loss (ft)	0.02	Cum SA (acres)	1.08	10.79	0.02

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1409.44	Element			
Vel Head (ft)	1.88	Wt. n-Val.	0.000	0.035	
W.S. Elev (ft)	1407.56	Reach Len. (ft)	395.00	424.40	385.00
Crit W.S. (ft)	1407.56	Flow Area (sq ft)	0.00	1637.19	
E.G. Slope (ft/ft)	0.011454	Area (sq ft)	0.00	1637.19	
Q Total (cfs)	18000.00	Flow (cfs)	0.00	18000.00	
Top Width (ft)	432.15	Top Width (ft)	0.04	432.12	
Vel Total (ft/s)	10.99	Avg. Vel. (ft/s)	0.08	10.99	
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)	0.01	3.79	
Conv. Total (cfs)	168186.5	Conv. (cfs)	0.0	168186.5	
Length Wtd. (ft)	423.77	Wetted Per. (ft)	0.04	434.96	
Min Ch El (ft)	1401.78	Shear (lb/sq ft)		2.69	
Alpha	1.00	Stream Power (lb/ft s)		29.59	
Frctn Loss (ft)	4.30	Cum Volume (acre-ft)	3.04	83.03	0.32
C & E Loss (ft)	0.02	Cum SA (acres)	1.50	11.01	0.48

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.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9730.23	9874.27	757.75	134.90	103.54	12.63	1.30	5.62
9874.27	10018.32	4080.96	422.89	144.15	68.02	2.94	9.65
10018.32	RB 10162.36	1161.30	199.12	144.45	19.35	1.38	5.83

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9730.23	9874.27	2028.86	274.50	131.30	16.91	2.09	7.39
9874.27	10018.32	6874.87	592.61	144.15	57.29	4.11	11.60
10018.32	RB 10162.36	3096.28	368.80	145.71	25.80	2.56	8.40

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9730.23	9874.27	3542.29	405.01	144.15	19.68	2.81	8.75
9874.27	10018.32	9413.26	728.00	144.15	52.30	5.05	12.93
10018.32	RB 10162.36	5044.45	504.18	146.66	28.02	3.50	10.01

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

CROSS SECTION RIVER: New River
REACH: Lower Spillway RS: 0.544

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9784.38	1400	9818.11	1397.81	9846.33	1396.8	9924.19	1395.35	9950.96	1393.43
9975.49	1392.7	10000	1388.46	10025.09	1393.16	10032.84	1393.35	10080.21	1393.88
10123.9	1394.81	10171.07	1396.18	10182.18	1396.66	10189.03	1396.95	10223.93	1396.99
10254.44	1398.11	10287.66	1400.14						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9784.38	.06	9924.19	.035	10189.03	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9924.19	10189.03	235	255.6	265	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1397.72	Element			
Vel Head (ft)	2.14	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1395.58	Reach Len. (ft)	235.00	255.60	265.00
Crit W.S. (ft)	*1396.21*	*Flow Area (sq ft)*	*1.37*	*510.56*	
E.G. Slope (ft/ft)	0.026012	Area (sq ft)	1.37	510.56	
Q Total (cfs)	6000.00	Flow (cfs)	1.28	5998.72	
Top Width (ft)	238.37	Top Width (ft)	12.14	226.23	
Vel Total (ft/s)	11.72	Avg. Vel. (ft/s)	0.93	11.75	
Max Chl Dpth (ft)	7.12	Hydr. Depth (ft)	0.11	2.26	
Conv. Total (cfs)	37201.7	Conv. (cfs)	7.9	37193.7	
Length Wtd. (ft)	255.60	Wetted Per. (ft)	12.14	227.14	
Min Ch El (ft)	1388.46	Shear (lb/sq ft)	0.18	3.65	
Alpha	1.00	Stream Power (lb/ft s)	0.17	42.89	
Frctn Loss (ft)	8.59	Cum Volume (acre-ft)	0.17	41.35	0.00
C & E Loss (ft)	0.12	Cum SA (acres)	0.24	6.85	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1399.99	Element			
Vel Head (ft)	3.15	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1396.84	Reach Len. (ft)	235.00	255.60	265.00
Crit W.S. (ft)	1397.79	Flow Area (sq ft)	59.96	822.65	
E.G. Slope (ft/ft)	0.025010	Area (sq ft)	59.96	822.65	
Q Total (cfs)	12000.00	Flow (cfs)	195.18	11804.82	
Top Width (ft)	341.46	Top Width (ft)	79.11	262.35	
Vel Total (ft/s)	13.60	Avg. Vel. (ft/s)	3.26	14.35	
Max Chl Dpth (ft)	*8.38*	*Hydr. Depth (ft)*	*0.76*	*3.14*	
Conv. Total (cfs)	75880.2	Conv. (cfs)	1234.2	74646.0	
Length Wtd. (ft)	255.43	Wetted Per. (ft)	79.12	263.28	
Min Ch El (ft)	1388.46	Shear (lb/sq ft)	1.18	4.88	
Alpha	1.10	Stream Power (lb/ft s)	3.85	70.01	

Frctn Loss (ft)	7.93	Cum Volume (acre-ft)	1.07	57.27	0.03
C & E Loss (ft)	0.17	Cum SA (acres)	0.72	7.47	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. 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1401.74	Element			
Vel Head (ft)	4.03	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1397.71	Reach Len. (ft)	235.00	255.60	265.00
Crit W.S. (ft)	1398.95	Flow Area (sq ft)	138.70	1051.25	32.86
E.G. Slope (ft/ft)	0.023919	Area (sq ft)	138.70	1051.25	32.86
Q Total (cfs)	18000.00	Flow (cfs)	646.69	17263.65	89.66
Top Width (ft)	422.73	Top Width (ft)	103.24	264.84	54.65
Vel Total (ft/s)	14.72	Avg. Vel. (ft/s)	4.66	16.42	2.73
Max Chl Dpth (ft)	9.25	Hydr. Depth (ft)	1.34	3.97	0.60
Conv. Total (cfs)	116387.1	Conv. (cfs)	4181.4	111625.9	579.8
Length Wtd. (ft)	255.25	Wetted Per. (ft)	103.27	265.77	54.66
Min Ch El (ft)	1388.46	Shear (lb/sq ft)	2.01	5.91	0.90
Alpha	1.20	Stream Power (lb/ft s)	9.35	97.00	2.45
Frctn Loss (ft)	7.49	Cum Volume (acre-ft)	2.41	69.93	0.18
C & E Loss (ft)	0.21	Cum SA (acres)	1.03	7.62	0.23

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9784.38	9924.19	1.28	1.37	12.14	0.02	0.11	0.93
LB 9924.19	10012.47	3939.37	289.98	88.94	65.66	3.28	13.59
10012.47	10100.75	1897.03	186.68	88.51	31.62	2.11	10.16
10100.75	RB 10189.03	162.32	33.90	49.69	2.71	0.68	4.79

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9784.38	9924.19	195.18	59.96	79.12	1.63	0.76	3.26
LB 9924.19	10012.47	6738.32	401.97	88.94	56.15	4.55	16.76
10012.47	10100.75	4120.74	298.68	88.51	34.34	3.38	13.80
10100.75	RB 10189.03	945.76	122.00	85.83	7.88	1.42	7.75

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9784.38	9924.19	646.69	138.70	103.27	3.59	1.34	4.66
LB 9924.19	10012.47	9085.88	478.22	88.94	50.48	5.42	19.00
10012.47	10100.75	6076.27	374.92	88.51	33.76	4.25	16.21
10100.75	RB 10189.03	2101.50	198.11	88.32	11.68	2.24	10.61
10189.03	10287.66	89.66	32.86	54.66	0.50	0.60	2.73

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

CROSS SECTION RIVER: New River
REACH: Lower Spillway RS: 0.495

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9727.32	1396.2	9732.62	1395.57	9744.91	1393.9	9755.96	1393.44	9788.08	1391.42
9858.1	1389.2	9961.69	1386.28	10000	1384.45	10008.34	1385.47	10016.62	1386.26
10019.64	1386.31	10093.88	1389.95	10116.62	1390.62	10133.64	1390.91	10143.73	1391.12
10149.62	1391.61	10216.06	1395.85						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9727.32	.06	9788.08	.03	10143.73	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9788.08	10143.73	243.9	243.9	243.9	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1391.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.87	Wt. n-Val.		0.035	
W.S. Elev (ft)	1389.60	Reach Len. (ft)	243.90	243.90	243.90
Crit W.S. (ft)	1390.08	Flow Area (sq ft)		547.04	
E.G. Slope (ft/ft)	0.022420	Area (sq ft)		547.04	
Q Total (cfs)	6000.00	Flow (cfs)		6000.00	
Top Width (ft)	241.11	Top Width (ft)		241.11	
Vel Total (ft/s)	10.97	Avg. Vel. (ft/s)		10.97	
Max Chl Dpth (ft)	5.15	Hydr. Depth (ft)		2.27	
Conv. Total (cfs)	40070.9	Conv. (cfs)		40070.9	
Length Wtd. (ft)	243.90	Wetted Per. (ft)		241.38	
Min Ch El (ft)	1384.45	Shear (lb/sq ft)		3.17	
Alpha	1.00	Stream Power (lb/ft s)		34.79	
Frctn Loss (ft)	6.17	Cum Volume (acre-ft)	0.17	38.25	0.00
C & E Loss (ft)	0.08	Cum SA (acres)	0.21	5.48	0.01

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1393.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.63	Wt. n-Val.		0.035	
W.S. Elev (ft)	1390.93	Reach Len. (ft)	243.90	243.90	243.90
Crit W.S. (ft)	1391.64	Flow Area (sq ft)		922.77	
E.G. Slope (ft/ft)	0.023959	Area (sq ft)		922.77	
Q Total (cfs)	12000.00	Flow (cfs)		12000.00	
Top Width (ft)	331.17	Top Width (ft)		331.17	
Vel Total (ft/s)	13.00	Avg. Vel. (ft/s)		13.00	
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)		2.79	
Conv. Total (cfs)	77525.5	Conv. (cfs)		77525.5	
Length Wtd. (ft)	243.90	Wetted Per. (ft)		331.48	
Min Ch El (ft)	1384.45	Shear (lb/sq ft)		4.16	
Alpha	1.00	Stream Power (lb/ft s)		54.15	
Frctn Loss (ft)	6.27	Cum Volume (acre-ft)	0.91	52.15	0.03
C & E Loss (ft)	0.15	Cum SA (acres)	0.51	5.73	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 energy loss was 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 OUTPUT Profile #full capacity

E.G. Elev (ft)	1395.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.57	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1391.69	Reach Len. (ft)	243.90	243.90	243.90
Crit W.S. (ft)	1392.67	Flow Area (sq ft)	0.56	1186.36	1.97
E.G. Slope (ft/ft)	0.025645	Area (sq ft)	0.56	1186.36	1.97
Q Total (cfs)	18000.00	Flow (cfs)	0.58	17996.13	3.29
Top Width (ft)	367.10	Top Width (ft)	4.22	355.65	7.23
Vel Total (ft/s)	15.14	Avg. Vel. (ft/s)	1.03	15.17	1.67
Max Chl Dpth (ft)	7.24	Hydr. Depth (ft)	0.13	3.34	0.27
Conv. Total (cfs)	112400.5	Conv. (cfs)	3.6	112376.4	20.5
Length Wtd. (ft)	243.90	Wetted Per. (ft)	4.23	355.97	7.25
Min Ch El (ft)	1384.45	Shear (lb/sq ft)	0.21	5.34	0.44
Alpha	1.00	Stream Power (lb/ft s)	0.22	80.94	0.73
Frctn Loss (ft)	6.34	Cum Volume (acre-ft)	2.03	63.36	0.07
C & E Loss (ft)	0.13	Cum SA (acres)	0.74	5.80	0.05

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9788.08	9906.63	287.21	54.93	61.07	4.79	0.90	5.23
9906.63	10025.18	5025.72	399.10	118.72	83.76	3.37	12.59
10025.18	RB 10143.73	687.07	93.01	61.59	11.45	1.51	7.39

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9788.08	9906.63	1289.96	164.48	103.18	10.75	1.59	7.84
9906.63	10025.18	8979.53	557.32	118.72	74.83	4.70	16.11
10025.18	RB 10143.73	1730.52	200.97	109.58	14.42	1.84	8.61

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9727.32	9788.08	0.58	0.56	4.23	0.00	0.13	1.03
LB 9788.08	9906.63	2519.25	250.12	118.60	14.00	2.11	10.07
9906.63	10025.18	12262.95	646.72	118.72	68.13	5.46	18.96
10025.18	RB 10143.73	3213.94	289.52	118.65	17.86	2.44	11.10
10143.73	10216.06	3.29	1.97	7.25	0.02	0.27	1.67

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

CROSS SECTION RIVER: New River
REACH: Lower Spillway RS: 0.454

INPUT
Description: Downstream limit of the lower spillway reach for New River.
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9708.97	1393.9	9713.7	1393.16	9723.49	1391.92	9734.6	1391.95	9745.36	1391.39
9756.15	1391.3	9760.63	1390.84	9766.25	1390.57	9776.12	1390.7	9779.55	1390.87
9788.63	1391	9800.91	1390.83	9814.02	1388.36	9818.62	1388.21	9827.74	1388.4
9828.41	1388.4	9852.5	1383.79	9898.8	1382.88	9972.88	1382.69	9992.59	1382.97
10000	1381.51	0005.55	1383.11	0027.43	1382.95	10042.13	1383.07	10052.11	1383.49
10103.53	1386	10142.71	1388.38	10214.77	1393.65	10217.61	1394.01		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9708.97	.06	9828.41	.035	10142.71	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9828.41	10142.71	0	0	0	.6	.8

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1387.22	Element			
Vel Head (ft)	1.02	Wt. n-Val.		0.035	
W.S. Elev (ft)	1386.20	Reach Len. (ft)	628.30	628.30	628.30
Crit W.S. (ft)	1385.91	Flow Area (sq ft)		740.04	
E.G. Slope (ft/ft)	0.009400	Area (sq ft)		740.04	
Q Total (cfs)	6000.00	Flow (cfs)		6000.00	
Top Width (ft)	267.01	Top Width (ft)		267.01	
Vel Total (ft/s)	8.11	Avg. Vel. (ft/s)		8.11	
Max Chl Dpth (ft)	4.70	Hydr. Depth (ft)		2.77	
Conv. Total (cfs)	61885.5	Conv. (cfs)		61885.5	
Length Wtd. (ft)	628.30	Wetted Per. (ft)		267.70	
Min Ch El (ft)	1381.50	Shear (lb/sq ft)		1.62	
Alpha	1.00	Stream Power (lb/ft s)		13.15	
Frctn Loss (ft)	3.86	Cum Volume (acre-ft)	0.09	23.00	0.00
C & E Loss (ft)	0.71	Cum SA (acres)			

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1389.34	Element			
Vel Head (ft)	1.80	Wt. n-Val.		0.035	
W.S. Elev (ft)	1387.54	Reach Len. (ft)	628.30	628.30	628.30
Crit W.S. (ft)	1387.49	Flow Area (sq ft)		1115.81	
E.G. Slope (ft/ft)	0.010978	Area (sq ft)		1115.81	
Q Total (cfs)	12000.00	Flow (cfs)		12000.00	
Top Width (ft)	295.96	Top Width (ft)		295.96	
Vel Total (ft/s)	10.75	Avg. Vel. (ft/s)		10.75	
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)		3.77	
Conv. Total (cfs)	114529.9	Conv. (cfs)		114529.9	
Length Wtd. (ft)	628.30	Wetted Per. (ft)		296.81	
Min Ch El (ft)	1381.50	Shear (lb/sq ft)		2.58	
Alpha	1.00	Stream Power (lb/ft s)		27.71	
Frctn Loss (ft)	4.40	Cum Volume (acre-ft)	0.51	31.42	0.02
C & E Loss (ft)	1.27	Cum SA (acres)			

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

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1391.02	Element			
Vel Head (ft)	2.44	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1388.58	Reach Len. (ft)	628.30	628.30	628.30
Crit W.S. (ft)	1388.72	Flow Area (sq ft)	4.08	1434.48	0.27
E.G. Slope (ft/ft)	0.011580	Area (sq ft)	4.08	1434.48	0.27
Q Total (cfs)	18000.00	Flow (cfs)	4.45	17995.40	0.15
Top Width (ft)	332.55	Top Width (ft)	15.55	314.30	2.70
Vel Total (ft/s)	12.51	Avg. Vel. (ft/s)	1.09	12.54	0.57
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)	0.26	4.56	0.10
Conv. Total (cfs)	167267.9	Conv. (cfs)	41.4	167225.1	1.4
Length Wtd. (ft)	628.30	Wetted Per. (ft)	15.57	315.26	2.71
Min Ch El (ft)	1381.50	Shear (lb/sq ft)	0.19	3.29	0.07
Alpha	1.01	Stream Power (lb/ft s)	0.21	41.27	0.04
Frctn Loss (ft)	4.00	Cum Volume (acre-ft)	1.16	38.32	0.04
C & E Loss (ft)	0.38	Cum SA (acres)			

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9828.41	9933.18	2097.80	263.86	93.53	34.96	2.83	7.95
9933.18	10037.94	3232.73	358.42	105.14	53.88	3.42	9.02
10037.94	RB 10142.71	669.46	117.76	69.03	11.16	1.71	5.69

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9828.41	9933.18	4192.38	393.06	100.63	34.94	3.92	10.67
9933.18	10037.94	6045.86	498.28	105.14	50.38	4.76	12.13
10037.94	RB 10142.71	1761.76	224.47	91.04	14.68	2.47	7.85

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9708.97	9828.41	4.45	4.08	15.57	0.02	0.26	1.09
LB 9828.41	9933.18	6253.24	499.93	105.21	34.74	4.77	12.51
9933.18	10037.94	8647.04	607.09	105.14	48.04	5.79	14.24
10037.94	RB 10142.71	3095.12	327.46	104.91	17.20	3.13	9.45
10142.71	10217.61	0.15	0.27	2.71	0.00	0.10	0.57

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Upper RS: 16.829

INPUT
Description: Upstream limit of the upper reach of New River.

Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9562.67	1384.41	9598	1384	9625.11	1383.63	9672.43	1383.38	9794.51	1382.26
9809.18	1382.01	9840.28	1382	9858.43	1381.32	9879.2	1380.14	9898.06	1379.44
9941.12	1378.5	9951.38	1377.9	9967.48	1376.18	9984.91	1375.32	10036.56	1375.61
10041.25	1375.52	10063.8	1374.91	10094.75	1381.48	10125.12	1380.76	10159.92	1381.24
10174.6	1379.86	10225.8	1379	10239.09	1379.52	10257.3	1380.57	10321.59	1381.03
10344.63	1380.86	10361.06	1378.31	10381.09	1377.11	10401.25	1378.19	10439.67	1378.62
10455.22	1377.65	10489.15	1376.31	10504.43	1380.62	10536.22	1380.37	10571.23	1380.07
10583.91	1377.89	10630.34	1378.41	10647.93	1380.59	10716.4	1380.83	10751.36	1379.55
10771.27	1380.59	10786.53	1378.21	10802.77	1381.41	10838.86	1381.69	10901.89	1381.31
10975.11	1381.03	11031.46	1381.31	1043.53	1379.64	11055.88	1381.62	11080.67	1381.33
11178.35	1380.65	11289.52	1380.31	1359.42	1379.64	11415.19	1378.57	11421.92	1378.65
11431.39	1377.36	11464.99	1377.11	1473.05	1378.49	11535.74	1378.57	11547.67	1381.94
11579.52	1390.01								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9562.67	.058	9840.28	.05	11547.67	.058

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9840.28	11547.67	400	512.2	520	.6	.8

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
10094.75	10716.4	1386	9562.67	9840.28	1384.41

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1382.66	Element			
Vel Head (ft)	0.13	Wt. n-Val.	0.058	0.055	0.058
W.S. Elev (ft)	1382.53	Reach Len. (ft)	400.00	512.20	520.00
Crit W.S. (ft)	1380.40	Flow Area (sq ft)	25.80	3088.25	0.68
E.G. Slope (ft/ft)	0.002884	Area (sq ft)	25.80	4899.31	0.68
Q Total (cfs)	9000.00	Flow (cfs)	17.47	8982.13	0.40
Top Width (ft)	1784.48	Top Width (ft)	74.78	1707.39	2.31
Vel Total (ft/s)	2.89	Avg. Vel. (ft/s)	0.68	2.91	0.59
Max Chl Dpth (ft)	7.63	Hydr. Depth (ft)	0.35	2.84	0.29
Conv. Total (cfs)	167579.6	Conv. (cfs)	325.2	167246.9	7.5
Length Wtd. (ft)	513.26	Wetted Per. (ft)	74.78	1088.16	2.39
Min Ch El (ft)	1374.90	Shear (lb/sq ft)	0.06	0.51	0.05
Alpha	1.01	Stream Power (lb/ft s)	0.04	1.49	0.03
Frctn Loss (ft)	2.08	Cum Volume (acre-ft)	0.52	102.43	32.64
C & E Loss (ft)	0.06	Cum SA (acres)	3.16	33.31	10.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1383.65	Element			
Vel Head (ft)	0.20	Wt. n-Val.	0.058	0.055	0.058
W.S. Elev (ft)	1383.45	Reach Len. (ft)	400.00	512.20	520.00
Crit W.S. (ft)	1381.40	Flow Area (sq ft)	142.08	4094.20	4.52
E.G. Slope (ft/ft)	0.003069	Area (sq ft)	142.08	6481.23	4.52
Q Total (cfs)	15000.00	Flow (cfs)	171.22	14823.57	5.21
Top Width (ft)	1894.96	Top Width (ft)	181.60	1707.39	5.97
Vel Total (ft/s)	3.54	Avg. Vel. (ft/s)	1.21	3.62	1.15
Max Chl Dpth (ft)	8.55	Hydr. Depth (ft)	0.78	3.77	0.76
Conv. Total (cfs)	270764.2	Conv. (cfs)	3090.6	267579.5	94.1
Length Wtd. (ft)	512.15	Wetted Per. (ft)	181.61	1088.16	6.16
Min Ch El (ft)	1374.90	Shear (lb/sq ft)	0.15	0.72	0.14
Alpha	1.04	Stream Power (lb/ft s)	0.18	2.61	0.16
Frctn Loss (ft)	2.18	Cum Volume (acre-ft)	4.32	134.74	55.85
C & E Loss (ft)	0.08	Cum SA (acres)	6.68	33.35	10.75

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1384.47	Element			
Vel Head (ft)	0.26	Wt. n-Val.	0.058	0.055	0.058
W.S. Elev (ft)	1384.20	Reach Len. (ft)	400.00	512.20	520.00
Crit W.S. (ft)	1381.94	Flow Area (sq ft)	312.28	4906.52	10.09
E.G. Slope (ft/ft)	0.003202	Area (sq ft)	312.28	7758.65	10.09
Q Total (cfs)	21000.00	Flow (cfs)	512.07	20472.38	15.54
Top Width (ft)	1975.89	Top Width (ft)	259.58	1707.39	8.92
Vel Total (ft/s)	4.02	Avg. Vel. (ft/s)	1.64	4.17	1.54
Max Chl Dpth (ft)	9.30	Hydr. Depth (ft)	1.20	4.52	1.13
Conv. Total (cfs)	371116.9	Conv. (cfs)	9049.5	361792.8	274.7
Length Wtd. (ft)	510.71	Wetted Per. (ft)	259.59	1088.16	9.20
Min Ch El (ft)	1374.90	Shear (lb/sq ft)	0.24	0.90	0.22
Alpha	1.06	Stream Power (lb/ft s)	0.39	3.76	0.34
Frctn Loss (ft)	2.25	Cum Volume (acre-ft)	9.56	159.69	75.98
C & E Loss (ft)	0.10	Cum SA (acres)	9.50	36.25	20.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9562.67	9840.28	17.47	25.80	74.78	0.19	0.35	0.68
LB 9840.28	10181.76	4429.55	1205.11	255.37	49.22	4.74	3.68
10181.76	10523.24						
10523.24	10864.71	562.06	281.40	148.87	6.25	1.90	2.00
10864.71	11206.19	827.39	494.83	341.76	9.19	1.45	1.67
11206.19	RB 11547.67	3163.13	1106.90	342.17	35.15	3.24	2.86
11547.67	11549.79	0.40	0.67	2.19	0.00	0.32	0.60
11549.79	11551.92	0.00	0.00	0.20	0.00	0.02	0.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9562.67	9840.28	171.22	142.08	181.61	1.14	0.78	1.21
LB 9840.28	10181.76	6431.12	1440.88	255.37	42.87	5.66	4.46
10181.76	10523.24						
10523.24	10864.71	1175.44	418.82	148.87	7.84	2.82	2.81
10864.71	11206.19	2032.83	811.21	341.76	13.55	2.38	2.51
11206.19	RB 11547.67	5184.19	1423.28	342.17	34.56	4.17	3.64
11547.67	11549.79	3.63	2.64	2.19	0.02	1.24	1.38
11549.79	11551.92	1.41	1.50	2.19	0.01	0.71	0.94
11551.92	11554.04	0.16	0.38	1.78	0.00	0.22	0.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9562.67	9840.28	512.07	312.28	259.59	2.44	1.20	1.64
LB 9840.28	10181.76	8226.28	1631.27	255.37	39.17	6.41	5.04
10181.76	10523.24						
10523.24	10864.71	1808.87	529.78	148.87	8.61	3.57	3.41
10864.71	11206.19	3337.08	1066.70	341.76	15.89	3.12	3.13
11206.19	RB 11547.67	7100.16	1678.77	342.17	33.81	4.92	4.23
11547.67	11549.79	8.06	4.23	2.19	0.04	1.99	1.91
11549.79	11551.92	4.77	3.09	2.19	0.02	1.45	1.54
11551.92	11554.04	2.21	1.94	2.19	0.01	0.92	1.13
11554.04	11556.16	0.50	0.80	2.19	0.00	0.38	0.63
11556.16	11558.29	0.00	0.02	0.44	0.00	0.05	0.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Upper RS: 16.732

INPUT
Description:
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9124.3	1387.1	9194.76	1385.91	9224.79	1385.59	9267.73	1385.04	9293.06	1384.77
9324.03	1384.4	9328.45	1384.41	9356.05	1384.23	9365.09	1382.66	9374.32	1384.31
9409.25	1384	9421.61	1383.83	9496.8	1382.9	9525.28	1382.62	9559.84	1382.31
9618.4	1381.8	9705.89	1380.94	9775.37	1380.32	9782.54	1380.36	9813.08	1380.1
9871.19	1380.1	9877.76	1379.83	9882.23	1378.19	9902.58	1373.13	9920.66	1373.54
9926.96	1373.8	9964.45	1375.77	9976.94	1376.38	9995.72	1373.49	9999.66	1372.93
10018.41	1375.41	10024.42	1374.55	10029.74	1373.99	10052.15	1378.13	10060.46	1378.4
10089.44	1379.11	10105.45	1378.62	10122.09	1378.28	10141.64	1377.31	10167.74	1378.36
10192.54	1379	10227.26	1379.27	10242.11	1379.18	10252.36	1376.61	10304.61	1377.2
10314.73	1377.21	10352.52	1376.52	10389.18	1376.23	10414.14	1375.86	10437.47	1379.39
10463.99	1378.51	10477.47	1378.39	10488.02	1378	10505.51	1377.88	10517.4	1374.81
10535.1	1374.81	10551.65	1379.22	10579.41	1378.87	10639.75	1379.24	10670.36	1379.4

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10682.54  1379.310742.25 1378.79 10758.7 1378.4910773.62 1376.8710800.62 1376.17
10818.29  1380.110843.96 1379.7910882.07 1379.4610975.25 1379.3610988.88 1377.79
10999.08  1379.411027.25 1379.36 11032.2 1379.3811047.41 1378.2411060.35  1379.8
11073.01  1379.511100.25 1379.0411200.72 1378.5911209.05 1378.5911255.55 1378.25
11327.43  1377.711376.02 1377.1111398.33 1376.7911406.11 1377.0611444.24 1378.87
11468.56  1378.911475.97 1378.8711519.59 1379.5211553.05 1385.88

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  9124.3    .058 9871.19    .05511060.35    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9871.1911060.35              525   501.6     385            .6        .8
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
10089.4410670.36    1382
```

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1380.52	Element			
Vel Head (ft)	0.23	Wt. n-Val.	0.058	0.055	0.058
W.S. Elev (ft)	1380.29	Reach Len. (ft)	525.00	501.60	385.00
Crit W.S. (ft)	1379.46	Flow Area (sq ft)	13.09	1513.13	874.60
E.G. Slope (ft/ft)	0.006800	Area (sq ft)	13.09	2909.85	874.60
Q Total (cfs)	9000.00	Flow (cfs)	8.25	6170.10	2821.65
Top Width (ft)	1732.77	Top Width (ft)	80.32	1189.16	463.29
Vel Total (ft/s)	3.75	Avg. Vel. (ft/s)	0.63	4.08	3.23
Max Chl Dpth (ft)	7.36	Hydr. Depth (ft)	0.16	2.49	1.89
Conv. Total (cfs)	109144.1	Conv. (cfs)	100.0	74825.6	34218.5
Length Wtd. (ft)	474.30	Wetted Per. (ft)	80.32	611.03	463.43
Min Ch El (ft)	1372.93	Shear (lb/sq ft)	0.07	1.05	0.80
Alpha	1.04	Stream Power (lb/ft s)	0.04	4.29	2.58
Frctn Loss (ft)	2.58	Cum Volume (acre-ft)	0.34	56.52	27.42
C & E Loss (ft)	0.02	Cum SA (acres)	2.44	16.28	7.65

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1381.40	Element			
Vel Head (ft)	0.33	Wt. n-Val.	0.058	0.055	0.058
W.S. Elev (ft)	1381.07	Reach Len. (ft)	525.00	501.60	385.00
Crit W.S. (ft)	1379.94	Flow Area (sq ft)	118.20	1986.46	1236.72
E.G. Slope (ft/ft)	0.006893	Area (sq ft)	118.20	3835.25	1236.72
Q Total (cfs)	15000.00	Flow (cfs)	191.18	9778.04	5030.78
Top Width (ft)	1834.79	Top Width (ft)	178.25	1189.16	467.38
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)	1.62	4.92	4.07
Max Chl Dpth (ft)	8.14	Hydr. Depth (ft)	0.66	3.27	2.65
Conv. Total (cfs)	180674.3	Conv. (cfs)	2302.8	117776.0	60595.5
Length Wtd. (ft)	469.40	Wetted Per. (ft)	178.26	611.03	467.60
Min Ch El (ft)	1372.93	Shear (lb/sq ft)	0.29	1.40	1.14
Alpha	1.06	Stream Power (lb/ft s)	0.46	6.89	4.63
Frctn Loss (ft)	2.69	Cum Volume (acre-ft)	3.12	74.09	48.44
C & E Loss (ft)	0.04	Cum SA (acres)	5.02	16.32	7.92

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1382.12	Element			
Vel Head (ft)	0.43	Wt. n-Val.	0.058	0.055	0.058
W.S. Elev (ft)	1381.70	Reach Len. (ft)	525.00	501.60	385.00
Crit W.S. (ft)	1380.40	Flow Area (sq ft)	250.69	2369.65	1532.22
E.G. Slope (ft/ft)	0.007012	Area (sq ft)	250.69	4584.43	1532.22
Q Total (cfs)	21000.00	Flow (cfs)	550.08	13232.85	7217.07
Top Width (ft)	1902.19	Top Width (ft)	242.33	1189.16	470.69
Vel Total (ft/s)	5.06	Avg. Vel. (ft/s)	2.19	5.58	4.71
Max Chl Dpth (ft)	8.77	Hydr. Depth (ft)	1.03	3.90	3.26
Conv. Total (cfs)	250783.0	Conv. (cfs)	6569.1	158027.3	86186.5
Length Wtd. (ft)	467.17	Wetted Per. (ft)	242.34	611.03	470.97
Min Ch El (ft)	1372.93	Shear (lb/sq ft)	0.45	1.70	1.42
Alpha	1.07	Stream Power (lb/ft s)	0.99	9.48	6.71
Frctn Loss (ft)	2.80	Cum Volume (acre-ft)	6.98	87.13	66.77
C & E Loss (ft)	0.06	Cum SA (acres)	7.19	19.22	17.27

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9124.30	9871.19	8.25	13.09	80.32	0.09	0.16	0.63
LB 9871.19	10109.02	4955.42	995.76	220.15	55.06	4.56	4.98

10109.02	10584.69						
10584.69	10822.52	820.94	292.50	152.69	9.12	1.92	2.81
10822.52	RB 11060.35	393.74	224.86	238.19	4.37	0.95	1.75
11060.35	11093.20	47.61	27.46	32.85	0.53	0.84	1.73
11093.20	11126.04	97.06	42.10	32.85	1.08	1.28	2.31
11126.04	11158.89	117.62	47.24	32.85	1.31	1.44	2.49
11158.89	11191.74	138.35	52.07	32.85	1.54	1.59	2.66
11191.74	11224.58	158.56	56.51	32.85	1.76	1.72	2.81
11224.58	11257.43	192.50	63.48	32.85	2.14	1.93	3.03
11257.43	11290.28	235.11	71.58	32.85	2.61	2.18	3.28
11290.28	11323.12	282.02	79.83	32.85	3.13	2.43	3.53
11323.12	11355.97	343.86	89.92	32.85	3.82	2.74	3.82
11355.97	11388.82	432.30	103.16	32.85	4.80	3.14	4.19
11388.82	11421.66	433.07	103.29	32.87	4.81	3.14	4.19
11421.66	11454.51	168.58	58.64	32.87	1.87	1.79	2.87
11454.51	11487.36	109.42	45.23	32.85	1.22	1.38	2.42
11487.36	11520.20	64.56	32.97	32.86	0.72	1.00	1.96
11520.20	11553.05	1.02	1.12	3.49	0.01	0.33	0.92

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9124.30	9871.19	191.18	118.20	178.26	1.27	0.66	1.62
LB 9871.19	10109.02	7030.52	1165.60	220.15	46.87	5.34	6.03
10109.02	10584.69						
10584.69	10822.52	1578.54	410.91	152.69	10.52	2.70	3.84
10822.52	RB 11060.35	1168.98	409.94	238.19	7.79	1.72	2.85
11060.35	11093.20	148.52	53.02	32.85	0.99	1.61	2.80
11093.20	11126.04	223.00	67.66	32.85	1.49	2.06	3.30
11126.04	11158.89	251.96	72.80	32.85	1.68	2.22	3.46
11158.89	11191.74	280.45	77.63	32.85	1.87	2.36	3.61
11191.74	11224.58	307.68	82.07	32.85	2.05	2.50	3.75
11224.58	11257.43	352.47	89.05	32.85	2.35	2.71	3.96
11257.43	11290.28	407.47	97.14	32.85	2.72	2.96	4.19
11290.28	11323.12	466.81	105.39	32.85	3.11	3.21	4.43
11323.12	11355.97	543.59	115.48	32.85	3.62	3.52	4.71
11355.97	11388.82	651.36	128.72	32.85	4.34	3.92	5.06
11388.82	11421.66	652.23	128.85	32.87	4.35	3.92	5.06
11421.66	11454.51	320.97	84.21	32.87	2.14	2.56	3.81
11454.51	11487.36	240.50	70.80	32.85	1.60	2.16	3.40
11487.36	11520.20	175.09	58.53	32.86	1.17	1.78	2.99
11520.20	11553.05	8.67	5.38	7.66	0.06	0.72	1.61

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9124.30	9871.19	550.08	250.69	242.34	2.62	1.03	2.19
LB 9871.19	10109.02	8842.55	1303.10	220.15	42.11	5.97	6.79
10109.02	10584.69						
10584.69	10822.52	2338.33	506.77	152.69	11.13	3.33	4.61
10822.52	RB 11060.35	2051.97	559.78	238.19	9.77	2.35	3.67
11060.35	11093.20	262.47	73.71	32.85	1.25	2.24	3.56
11093.20	11126.04	355.00	88.35	32.85	1.69	2.69	4.02
11126.04	11158.89	390.11	93.49	32.85	1.86	2.85	4.17
11158.89	11191.74	424.29	98.33	32.85	2.02	2.99	4.32
11191.74	11224.58	456.69	102.77	32.85	2.17	3.13	4.44
11224.58	11257.43	509.50	109.74	32.85	2.43	3.34	4.64
11257.43	11290.28	573.66	117.83	32.85	2.73	3.59	4.87
11290.28	11323.12	642.20	126.09	32.85	3.06	3.84	5.09
11323.12	11355.97	730.05	136.17	32.85	3.48	4.15	5.36
11355.97	11388.82	852.11	149.41	32.85	4.06	4.55	5.70
11388.82	11421.66	853.05	149.55	32.87	4.06	4.55	5.70
11421.66	11454.51	472.37	104.90	32.87	2.25	3.19	4.50
11454.51	11487.36	376.26	91.49	32.85	1.79	2.79	4.11
11487.36	11520.20	295.91	79.22	32.86	1.41	2.41	3.74
11520.20	11553.05	23.40	11.17	11.03	0.11	1.03	2.09

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Upper RS: 16.637

INPUT
Description:
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9215	1380	9287.91	1380.08	9456.47	1378.64	9539.78	1378.02	9650.7	1377.61

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 9755.49  1377.5 9796.37 1377.95 9800.03 1375.23 9803.59 1372.29 9822.14 1374.36
 9845.09  1374.1 9868.07 1373.64 9891.63 1371.87 9902.54 1371.96 9912.51 1373.76
 9933.34  1373.8 9962.46 1372.61 9997.45 1370.1710020.98 1374.9910075.83 1376.21
10091.69  1376.910192.99 1375.1810207.79 1377.23 10244.3 1376.2810259.44 1376.42
10266.52  1375.310298.74 1374.9810307.01 1373.5610319.69 1375.6910340.77 1376.55
10352.47    137710383.15 1374.2810400.42 1373.3710409.17 1372.1510430.44 1372.52
10440.96    137710453.89 1377.1510480.52 1377.7610570.83 1377.63 10665.3 1377.15
10766.74  1376.310795.63 1377.2210878.48 1376.4810948.89 1376.6510958.23  1375.3
 10966.1  1376.711029.48 1376.3111094.73  1376.311120.84 1375.7911150.55 1375.85
11158.36  1375.111173.09 1376.0311200.39 1376.0511218.52  1375.211256.63 1376.91
11270.69  1377.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9215    .058 9796.37    .0510480.52    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9796.3710480.52               600   702.2   258.7          .1          .3

CROSS SECTION OUTPUT    Profile #1/3 flow

  E.G. Elev (ft)          1377.91   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.20   Wt. n-Val.                0.058      0.050      0.058
  W.S. Elev (ft)          1377.71   Reach Len. (ft)          600.00     702.20     258.70
  Crit W.S. (ft)          1376.41   Flow Area (sq ft)         19.98    1975.79     813.54
  E.G. Slope (ft/ft)     0.004085   Area (sq ft)              19.98    1975.79     813.54
  Q Total (cfs)           9000.00   Flow (cfs)                 8.47    7594.78    1396.76
  Top Width (ft)          1590.78   Top Width (ft)           151.84     681.76     757.18
  Vel Total (ft/s)           3.20   Avg. Vel. (ft/s)           0.42       3.84       1.72
  Max Chl Dpth (ft)          7.54   Hydr. Depth (ft)           0.13       2.90       1.07
  Conv. Total (cfs)      140806.6   Conv. (cfs)               132.4   118821.6   21852.5
  Length Wtd. (ft)         656.70   Wetted Per. (ft)         151.84     686.35     757.78
  Min Ch El (ft)          1370.17   Shear (lb/sq ft)           0.03       0.73       0.27
  Alpha                      1.26   Stream Power (lb/ft s)     0.01       2.82       0.47
  Frctn Loss (ft)            3.85   Cum Volume (acre-ft)       0.14      28.39      19.96
  C & E Loss (ft)            0.07   Cum SA (acres)             1.05       5.51       2.26

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was 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 OUTPUT    Profile #2/3 flow

  E.G. Elev (ft)          1378.67   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.28   Wt. n-Val.                0.058      0.050      0.058
  W.S. Elev (ft)          1378.39   Reach Len. (ft)          600.00     702.20     258.70
  Crit W.S. (ft)          1377.29   Flow Area (sq ft)        186.62    2436.87    1345.39
  E.G. Slope (ft/ft)     0.004620   Area (sq ft)             186.62    2436.87    1345.39
  Q Total (cfs)          15000.00   Flow (cfs)               233.79   11429.09    3337.11
  Top Width (ft)          1780.17   Top Width (ft)           305.85     684.15     790.17
  Vel Total (ft/s)           3.78   Avg. Vel. (ft/s)           1.25       4.69       2.48
  Max Chl Dpth (ft)          8.22   Hydr. Depth (ft)           0.61       3.56       1.70
  Conv. Total (cfs)      220675.2   Conv. (cfs)               3439.5   168141.2   49094.5
  Length Wtd. (ft)         613.06   Wetted Per. (ft)         305.85     688.82     791.44
  Min Ch El (ft)          1370.17   Shear (lb/sq ft)           0.18       1.02       0.49
  Alpha                      1.27   Stream Power (lb/ft s)     0.22       4.79       1.22
  Frctn Loss (ft)            3.63   Cum Volume (acre-ft)       1.29      37.98      37.03
  C & E Loss (ft)            0.06   Cum SA (acres)             2.11       5.53       2.36

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT    Profile #full capacity

  E.G. Elev (ft)          1379.27   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.35   Wt. n-Val.                0.058      0.050      0.058
  W.S. Elev (ft)          1378.92   Reach Len. (ft)          600.00     702.20     258.70
  Crit W.S. (ft)          1377.71   Flow Area (sq ft)        366.53    2798.73    1763.33
  E.G. Slope (ft/ft)     0.004962   Area (sq ft)             366.53    2798.73    1763.33
  Q Total (cfs)          21000.00   Flow (cfs)               654.81   14918.95    5426.24
  Top Width (ft)          1846.47   Top Width (ft)           372.15     684.15     790.17
  Vel Total (ft/s)           4.26   Avg. Vel. (ft/s)           1.79       5.33       3.08
  Max Chl Dpth (ft)          8.75   Hydr. Depth (ft)           0.98       4.09       2.23
  Conv. Total (cfs)      298106.7   Conv. (cfs)               9295.4   211782.8   77028.5
  Length Wtd. (ft)         586.25   Wetted Per. (ft)         372.16     688.82     791.97
  Min Ch El (ft)          1370.17   Shear (lb/sq ft)           0.31       1.26       0.69
  Alpha                      1.25   Stream Power (lb/ft s)     0.55       6.71       2.12
  Frctn Loss (ft)            3.62   Cum Volume (acre-ft)       3.26      44.62      52.21
  C & E Loss (ft)            0.06   Cum SA (acres)             3.49       8.44      11.69

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
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section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9215.00	9796.37	8.47	19.98	151.84	0.09	0.13	0.42
LB 9796.37	9933.20	2619.74	577.63	138.74	29.11	4.23	4.54
9933.20	10070.03	2658.76	580.59	137.44	29.54	4.24	4.58
10070.03	10206.86	523.40	218.67	136.99	5.82	1.60	2.39
10206.86	10343.69	682.04	256.52	137.26	7.58	1.87	2.66
10343.69	RB 10480.52	1110.84	342.39	135.92	12.34	2.54	3.24
10480.52	10533.20	0.02	0.28	19.69	0.00	0.01	0.08
10533.20	10585.88	0.98	3.90	52.68	0.01	0.07	0.25
10585.88	10638.55	9.69	15.42	52.68	0.11	0.29	0.63
10638.55	10691.23	30.41	30.63	52.68	0.34	0.58	0.99
10691.23	10743.91	75.13	52.70	52.68	0.83	1.00	1.43
10743.91	10796.59	88.25	58.06	52.69	0.98	1.10	1.52
10796.59	10849.27	45.07	38.79	52.68	0.50	0.74	1.16
10849.27	10901.94	94.42	60.45	52.68	1.05	1.15	1.56
10901.94	10954.62	95.80	61.01	52.74	1.06	1.16	1.57
10954.62	11007.30	115.15	68.18	52.84	1.28	1.29	1.69
11007.30	11059.98	127.64	72.44	52.68	1.42	1.38	1.76
11059.98	11112.66	142.70	77.45	52.68	1.59	1.47	1.84
11112.66	11165.33	238.57	105.47	52.73	2.65	2.00	2.26
11165.33	11218.01	208.22	97.19	52.71	2.31	1.84	2.14
11218.01	11270.69	124.70	71.57	52.94	1.39	1.36	1.74

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9215.00	9796.37	233.79	186.62	305.85	1.56	0.61	1.25
LB 9796.37	9933.20	3656.34	669.82	139.14	24.38	4.90	5.46
9933.20	10070.03	3713.89	672.82	137.44	24.76	4.92	5.52
10070.03	10206.86	1027.99	310.90	136.99	6.85	2.27	3.31
10206.86	10343.69	1243.29	348.75	137.26	8.29	2.55	3.56
10343.69	RB 10480.52	1787.61	434.57	137.99	11.92	3.18	4.11
10480.52	10533.20	43.60	35.00	52.68	0.29	0.66	1.25
10533.20	10585.88	53.13	39.41	52.68	0.35	0.75	1.35
10585.88	10638.55	81.47	50.93	52.68	0.54	0.97	1.60
10638.55	10691.23	125.92	66.14	52.68	0.84	1.26	1.90
10691.23	10743.91	203.49	88.21	52.68	1.36	1.67	2.31
10743.91	10796.59	224.45	93.57	52.69	1.50	1.78	2.40
10796.59	10849.27	152.85	74.30	52.68	1.02	1.41	2.06
10849.27	10901.94	234.15	95.96	52.68	1.56	1.82	2.44
10901.94	10954.62	236.23	96.52	52.74	1.57	1.83	2.45
10954.62	11007.30	265.87	103.69	52.84	1.77	1.97	2.56
11007.30	11059.98	284.89	107.95	52.68	1.90	2.05	2.64
11059.98	11112.66	307.27	112.96	52.68	2.05	2.14	2.72
11112.66	11165.33	444.25	140.97	52.73	2.96	2.68	3.15
11165.33	11218.01	401.70	132.69	52.71	2.68	2.52	3.03
11218.01	11270.69	277.81	107.08	53.62	1.85	2.03	2.59

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9215.00	9796.37	654.81	366.53	372.16	3.12	0.98	1.79
LB 9796.37	9933.20	4554.08	742.20	139.14	21.69	5.42	6.14
9933.20	10070.03	4622.41	745.19	137.44	22.01	5.45	6.20
10070.03	10206.86	1529.52	383.28	136.99	7.28	2.80	3.99
10206.86	10343.69	1787.12	421.12	137.26	8.51	3.08	4.24
10343.69	RB 10480.52	2425.84	506.94	137.99	11.55	3.70	4.79
10480.52	10533.20	123.08	62.87	52.68	0.59	1.19	1.96
10533.20	10585.88	137.80	67.27	52.68	0.66	1.28	2.05
10585.88	10638.55	179.33	78.79	52.68	0.85	1.50	2.28
10638.55	10691.23	240.66	94.00	52.68	1.15	1.78	2.56
10691.23	10743.91	342.03	116.08	52.68	1.63	2.20	2.95
10743.91	10796.59	368.65	121.43	52.69	1.76	2.31	3.04
10796.59	10849.27	276.45	102.16	52.68	1.32	1.94	2.71
10849.27	10901.94	380.92	123.82	52.68	1.81	2.35	3.08
10901.94	10954.62	383.48	124.38	52.74	1.83	2.36	3.08
10954.62	11007.30	420.50	131.55	52.84	2.00	2.50	3.20
11007.30	11059.98	444.34	135.81	52.68	2.12	2.58	3.27
11059.98	11112.66	471.99	140.82	52.68	2.25	2.67	3.35
11112.66	11165.33	638.26	168.84	52.73	3.04	3.21	3.78
11165.33	11218.01	587.07	160.56	52.71	2.80	3.05	3.66

11218.01	11270.69	431.66	134.94	54.14	2.06	2.56	3.20

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Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
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CROSS SECTION RIVER: New River
REACH: Upper RS: 16.504

INPUT
Description:
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8903.97	1377.9	8930.81	1377.63	8973.26	1377.07	9004.42	1376.71	9060.91	1376.19
9151.6	1375.5	9201.65	1375.17	9267.92	1375.15	9310.79	1374.97	9365.49	1374.38
9373.69	1374.5	9443.8	1374.09	9544.29	1374.4	9561.89	1374.29	9635.24	1374.77
9644.47	1375	9658.43	1369.67	9670.81	1370.53	9691.77	1373.47	9710.6	1372.02
9728.65	1372.9	9760.26	1372.91	9787.1	1373.02	9790.65	1373.13	9812.42	1370.78
9817.04	1371	9839.77	1371.77	9852.92	1369.98	9859.99	1369.84	9874.65	1369.77
9900.78	1369.3	9951.26	1368.09	9987.77	1367.2	10000	1366.82	10013.81	1367.19
10032.08	1367.8	10046.14	1372.62	10049.52	1373.91	10076.9	1373.16	10091.09	1374.45
10103.68	1374.3	10118.05	1374.13	10132.08	1373.76	10149.1	1373.11	10180.92	1370.74
10196.9	1371.7	10224.79	1372.58	10247.87	1372.9	10252.01	1373.16	10264.36	1373.92
10280.77	1373.9	10336.54	1373.99	10401.83	1373.52	10438.01	1373.38	10524.52	1373.75
10539.5	1373.7	10609.27	1372.93	10653.78	1372.44	10664.76	1372.33	10712.92	1372.75
10742.46	137	310757.81	1372.96	10781.39	1373.26	10787.17	1372.34	10795.19	1373.29
10826.14	1373.3	10832.56	1373.4	10873.18	1373.16	10912.52	1373.19	10923	1373.14
10928.37	1373.3	10954.37	1373.54	10984.93	137	211012.23	1372.54	11034.51	1373.03
11067.44	1372.9	11100.03	1373.63	11115.9	1373.12	11139.1	1372.56	11152.12	1373.26
11166.97	1373.7	11200.55	1373.95	11218.45	1374.03	11249.26	1374.44	11256.98	1374.52

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8903.97	.058	9644.47	.038	10091.09	.05	310336.54	.053

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9644.47	10091.09	0	0	0	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1373.99	Element			
Vel Head (ft)	0.92	Wt. n-Val.		0.038	0.053
W.S. Elev (ft)	1373.07	Reach Len. (ft)	282.60	282.60	282.60
Crit W.S. (ft)	1372.66	Flow Area (sq ft)		1084.96	214.51
E.G. Slope (ft/ft)	0.010366	Area (sq ft)		1084.96	214.51
Q Total (cfs)	9000.00	Flow (cfs)		8552.03	447.97
Top Width (ft)	811.38	Top Width (ft)		387.36	424.02
Vel Total (ft/s)	6.93	Avg. Vel. (ft/s)		7.88	2.09
Max Chl Dpth (ft)	6.25	Hydr. Depth (ft)		2.80	0.51
Conv. Total (cfs)	88396.8	Conv. (cfs)		83996.9	4399.9
Length Wtd. (ft)	282.60	Wetted Per. (ft)		389.46	424.33
Min Ch El (ft)	1366.82	Shear (lb/sq ft)		1.80	0.33
Alpha	1.24	Stream Power (lb/ft s)		14.21	0.68
Frctn Loss (ft)	3.82	Cum Volume (acre-ft)		7.65	9.07
C & E Loss (ft)	0.21	Cum SA (acres)			

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1374.98	Element			
Vel Head (ft)	0.86	Wt. n-Val.	0.058	0.038	0.053
W.S. Elev (ft)	1374.12	Reach Len. (ft)	282.60	282.60	282.60
Crit W.S. (ft)	1374.12	Flow Area (sq ft)	0.29	1526.00	1061.48
E.G. Slope (ft/ft)	0.008257	Area (sq ft)	0.29	1526.00	1061.48
Q Total (cfs)	15000.00	Flow (cfs)	0.04	12362.19	2637.77
Top Width (ft)	1564.76	Top Width (ft)	16.80	440.74	1107.22
Vel Total (ft/s)	5.80	Avg. Vel. (ft/s)	0.15	8.10	2.48
Max Chl Dpth (ft)	7.30	Hydr. Depth (ft)	0.02	3.46	0.96
Conv. Total (cfs)	165073.0	Conv. (cfs)	0.5	136044.3	29028.3
Length Wtd. (ft)	282.60	Wetted Per. (ft)	16.80	443.29	1107.66
Min Ch El (ft)	1366.82	Shear (lb/sq ft)	0.01	1.77	0.49
Alpha	1.64	Stream Power (lb/ft s)	0.00	14.38	1.23
Frctn Loss (ft)	3.32	Cum Volume (acre-ft)	0.00	10.96	18.96
C & E Loss (ft)	0.17	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: Divided flow computed for this cross-section.
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section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1375.59	Element			
Vel Head (ft)	0.93	Wt. n-Val.	0.058	0.038	0.053
W.S. Elev (ft)	1374.65	Reach Len. (ft)	282.60	282.60	282.60
Crit W.S. (ft)	1374.65	Flow Area (sq ft)	87.28	1761.67	1669.46
E.G. Slope (ft/ft)	0.008192	Area (sq ft)	87.28	1761.67	1669.46
Q Total (cfs)	21000.00	Flow (cfs)	93.58	15524.41	5382.01
Top Width (ft)	1889.22	Top Width (ft)	277.62	445.72	1165.89
Vel Total (ft/s)	5.97	Avg. Vel. (ft/s)	1.07	8.81	3.22
Max Chl Dpth (ft)	7.83	Hydr. Depth (ft)	0.31	3.95	1.43
Conv. Total (cfs)	232021.6	Conv. (cfs)	1033.9	171523.7	59464.0
Length Wtd. (ft)	282.60	Wetted Per. (ft)	277.62	448.38	1166.46
Min Ch El (ft)	1366.82	Shear (lb/sq ft)	0.16	2.01	0.73
Alpha	1.69	Stream Power (lb/ft s)	0.17	17.71	2.36
Frctn Loss (ft)	3.27	Cum Volume (acre-ft)	0.56	12.88	27.42
C & E Loss (ft)	0.19	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: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9644.47	9733.79	346.42	94.06	77.15	3.85	1.23	3.68
9733.79	9823.12	125.43	53.65	87.03	1.39	0.62	2.34
9823.12	9912.44	1747.48	263.51	89.46	19.42	2.95	6.63
9912.44	10001.77	4403.29	458.57	89.35	48.93	5.13	9.60
10001.77	RB 10091.09	1929.40	215.17	46.46	21.44	4.72	8.97
10091.09	10168.82	28.76	13.73	19.25	0.32	0.72	2.10
10168.82	10246.54	240.18	85.75	77.80	2.67	1.10	2.80
10246.54	10324.27	0.30	0.47	4.06	0.00	0.12	0.63
10324.27	10557.45						
10557.45	10635.17	7.75	8.26	38.73	0.09	0.21	0.94
10635.17	10712.90	76.01	42.98	77.73	0.84	0.55	1.77
10712.90	10790.62	9.43	11.21	61.81	0.10	0.18	0.84
10790.62	10868.35	0.34	0.44	2.74	0.00	0.16	0.77
10868.35	10946.08						
10946.08	11023.80	73.28	37.95	60.17	0.81	0.63	1.93
11023.80	11101.53	3.63	5.87	51.30	0.04	0.11	0.62
11101.53	11179.25	8.30	7.85	30.73	0.09	0.26	1.06

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8903.97	9644.47	0.04	0.29	16.80	0.00	0.02	0.15
LB 9644.47	9733.79	941.23	182.60	88.16	6.27	2.10	5.15
9733.79	9823.12	653.67	147.58	89.46	4.36	1.65	4.43
9823.12	9912.44	2856.12	357.51	89.46	19.04	4.00	7.99
9912.44	10001.77	5906.02	552.57	89.35	39.37	6.19	10.69
10001.77	RB 10091.09	2005.15	285.73	86.85	13.37	3.33	7.02
10091.09	10168.82	105.15	48.70	50.61	0.70	0.96	2.16
10168.82	10246.54	618.84	167.55	77.80	4.13	2.16	3.69
10246.54	10324.27	26.16	25.10	77.76	0.17	0.32	1.04
10324.27	10401.99	27.66	25.95	77.73	0.18	0.33	1.07
10401.99	10479.72	86.95	51.59	77.73	0.58	0.66	1.69
10479.72	10557.45	48.63	36.40	77.73	0.32	0.47	1.34
10557.45	10635.17	186.94	81.67	77.73	1.25	1.05	2.29
10635.17	10712.90	378.90	124.78	77.73	2.53	1.61	3.04
10712.90	10790.62	225.75	91.50	77.83	1.50	1.18	2.47
10790.62	10868.35	128.92	65.36	77.76	0.86	0.84	1.97
10868.35	10946.08	144.45	69.96	77.73	0.96	0.90	2.06
10946.08	11023.80	325.84	114.00	77.77	2.17	1.47	2.86
11023.80	11101.53	180.25	79.90	77.74	1.20	1.03	2.26
11101.53	11179.25	147.68	70.91	77.77	0.98	0.91	2.08
11179.25	11256.98	5.64	8.12	46.25	0.04	0.18	0.69

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8903.97	9644.47	93.58	87.28	277.62	0.45	0.31	1.07
LB 9644.47	9733.79	1387.99	229.17	89.65	6.61	2.59	6.06
9733.79	9823.12	1062.05	195.00	89.46	5.06	2.18	5.45
9823.12	9912.44	3589.51	404.93	89.46	17.09	4.53	8.86
9912.44	10001.77	6918.25	599.99	89.35	32.94	6.72	11.53
10001.77	RB 10091.09	2566.60	332.57	90.45	12.22	3.72	7.72
10091.09	10168.82	214.64	85.49	77.80	1.02	1.10	2.51
10168.82	10246.54	950.70	208.81	77.80	4.53	2.69	4.55
10246.54	10324.27	140.76	66.36	77.76	0.67	0.85	2.12
10324.27	10401.99	143.82	67.21	77.73	0.68	0.86	2.14
10401.99	10479.72	246.46	92.85	77.73	1.17	1.19	2.65
10479.72	10557.45	183.01	77.67	77.73	0.87	1.00	2.36
10557.45	10635.17	393.40	122.93	77.73	1.87	1.58	3.20
10635.17	10712.90	649.27	166.04	77.73	3.09	2.14	3.91
10712.90	10790.62	446.85	132.76	77.83	2.13	1.71	3.37
10790.62	10868.35	310.23	106.62	77.76	1.48	1.37	2.91
10868.35	10946.08	332.97	111.22	77.73	1.59	1.43	2.99
10946.08	11023.80	580.37	155.27	77.77	2.76	2.00	3.74
11023.80	11101.53	384.01	121.17	77.74	1.83	1.56	3.17
11101.53	11179.25	337.60	112.17	77.77	1.61	1.44	3.01
11179.25	11256.98	67.92	42.88	77.86	0.32	0.55	1.58

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: New River
REACH: Lower RS: 16.411

INPUT
Description: Upstream limit of the lower reach of New River.
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8995	1375.9	9120.2	1375.05	9159.97	1374.58	9270.57	1373.44	9345.53	1372.46
9370.95	1371.9	9417.94	1371.12	9460.54	1370.98	9512.4	1371.07	9560.04	1371.41
9640.55	1371.7	9686.22	1372.29	9702.9	1368.45	9721.58	1367.29	9758.22	1369.72
9775.4	1369.9	9894.49	1369.5	9956.88	1366.28	9987.15	1365.08	10035.01	1364.41
10049.69	1371.3	10130.7	1370.95	10196.76	1370.52	10215.73	1367.04	10234	1369.85
10249.38	1369.5	10309.65	1370.19	10371.55	1370.22	10418.27	1369.61	10443.36	1367.02
10454.9	1369.7	10461.59	1371.19	10590.31	1370.66	10690.54	1370.05	10797.02	1369.32
10823.19	1369.6	10844.1	1370.54	10890.97	1370.23	10991.19	1370.86	11053.19	1370.01
11081.41	1369.2	11102.41	1369.71	11114.79	1368.44	11130.45	1369.83	11185.65	1369.46
11223.36	1368.9	11237.05	1370.45	11251.32	1369.29	11297.84	1370.14	11309.12	1370.22
11371.36	1369.1	11384.92	1369.57	11400.65	1370.61	11492.3	1370.31	11592.52	1370.78
11642.39	1370.9	11737.27	1370.42	11781.61	1370.72	11817.81	1370.81	11840.1	1370.66
11862.19	1369.5	11913.58	1369.93	12007.85	1369.21	12102.07	1368.52	12205.01	1368.03
12307.95	1368	12408.6	1367.47	12450.72	1367.45	12483.27	1366.75	12502.03	1366.35
12534.53	1366.3	12550.09	1365.17	12559.64	1362.43	12573.99	1365.95	12582.49	1365.01
12616.72	1365.6	12719.68	1366.03	12797.19	1366.84	12832.02	1366.63	12870.28	1367.21
12892.01	1366.2	12917.63	1367.21	12943.95	1367.33	13025.76	1368.52	13044.26	1368.56
13112.99	1369.9	13144.11	1370.42	13217.52	1371.84	13230.56	1372		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8995	.058	9686.22	.038	10049.69	.058	10461.59	.053	11817.81	.053
12534.53	.06	12719.68	.053						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9686.22	10049.69	395	481.78	417	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1369.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.038	0.056
W.S. Elev (ft)	1369.73	Reach Len. (ft)	395.00	481.78	417.00
Crit W.S. (ft)	1368.69	Flow Area (sq ft)		597.70	2853.36

E.G. Slope (ft/ft)	0.005523	Area (sq ft)		597.70	2853.36
Q Total (cfs)	13000.00	Flow (cfs)		2849.55	10150.45
Top Width (ft)	1911.49	Top Width (ft)		282.89	1628.60
Vel Total (ft/s)	3.77	Avg. Vel. (ft/s)		4.77	3.56
Max Chl Dpth (ft)	7.30	Hydr. Depth (ft)		2.11	1.75
Conv. Total (cfs)	174923.9	Conv. (cfs)		38342.6	136581.3
Length Wtd. (ft)	435.46	Wetted Per. (ft)		284.45	1630.74
Min Ch El (ft)	1364.41	Shear (lb/sq ft)		0.72	0.60
Alpha	1.05	Stream Power (lb/ft s)		3.45	2.15
Frctn Loss (ft)	1.82	Cum Volume (acre-ft)	136.30	2046.87	711.92
C & E Loss (ft)	0.03	Cum SA (acres)	91.77	475.82	508.97

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1370.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.038	0.055
W.S. Elev (ft)	1370.65	Reach Len. (ft)	395.00	481.78	417.00
Crit W.S. (ft)	1369.69	Flow Area (sq ft)		915.08	4739.51
E.G. Slope (ft/ft)	0.005535	Area (sq ft)		915.08	4739.51
Q Total (cfs)	23000.00	Flow (cfs)		4987.65	18012.35
Top Width (ft)	2955.77	Top Width (ft)		354.96	2600.81
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		5.45	3.80
Max Chl Dpth (ft)	8.22	Hydr. Depth (ft)		2.58	1.82
Conv. Total (cfs)	309150.0	Conv. (cfs)		67040.5	242109.4
Length Wtd. (ft)	434.95	Wetted Per. (ft)		356.83	2603.32
Min Ch El (ft)	1364.41	Shear (lb/sq ft)		0.89	0.63
Alpha	1.07	Stream Power (lb/ft s)		4.83	2.39
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)	460.75	2957.02	1660.04
C & E Loss (ft)	0.03	Cum SA (acres)	239.16	503.23	942.41

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1371.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.058	0.038	0.055
W.S. Elev (ft)	1371.28	Reach Len. (ft)	395.00	481.78	417.00
Crit W.S. (ft)	1370.10	Flow Area (sq ft)	26.32	1138.72	6584.89
E.G. Slope (ft/ft)	0.005403	Area (sq ft)	26.32	1138.72	6584.89
Q Total (cfs)	33000.00	Flow (cfs)	16.86	7038.57	25944.57
Top Width (ft)	3624.73	Top Width (ft)	132.67	359.01	3133.04
Vel Total (ft/s)	4.26	Avg. Vel. (ft/s)	0.64	6.18	3.94
Max Chl Dpth (ft)	8.85	Hydr. Depth (ft)	0.20	3.17	2.10
Conv. Total (cfs)	448939.2	Conv. (cfs)	229.4	95754.3	352955.5
Length Wtd. (ft)	434.11	Wetted Per. (ft)	132.68	361.09	3135.62
Min Ch El (ft)	1364.41	Shear (lb/sq ft)	0.07	1.06	0.71
Alpha	1.12	Stream Power (lb/ft s)	0.04	6.58	2.79
Frctn Loss (ft)	1.72	Cum Volume (acre-ft)	806.19	3572.83	2622.15
C & E Loss (ft)	0.03	Cum SA (acres)	353.57	513.38	1225.27

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9686.22	9807.38	222.38	83.30	62.28	1.71	1.34	2.67
9807.38	9928.53	58.63	45.80	103.10	0.45	0.44	1.28
9928.53	RB 10049.69	2568.54	468.60	119.07	19.76	3.98	5.48
10049.69	10261.75	74.65	46.48	55.18	0.57	0.85	1.61
10261.75	10473.81	91.68	52.52	55.03	0.71	0.96	1.75
10473.81	10685.86						
10685.86	10897.92	14.16	19.68	89.18	0.11	0.22	0.72
10897.92	11109.98	12.06	13.85	47.15	0.09	0.29	0.87
11109.98	11322.04	51.48	50.35	134.75	0.40	0.37	1.02
11322.04	11534.10	15.56	16.67	51.14	0.12	0.33	0.93
11534.10	11746.15						
11746.15	11958.21	2.18	5.13	51.16	0.02	0.10	0.43
11958.21	12170.27	356.35	192.72	212.06	2.74	0.91	1.85
12170.27	12382.33	1087.29	376.35	212.06	8.36	1.77	2.89
12382.33	12594.39	2987.07	698.83	212.98	22.98	3.30	4.27
12594.39	12806.44	3412.36	782.41	212.07	26.25	3.69	4.36
12806.44	13018.50	1935.28	531.96	212.11	14.89	2.51	3.64
13018.50	13230.56	110.35	66.44	85.87	0.85	0.77	1.66

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9686.22	9807.38	593.55	181.08	114.40	2.58	1.59	3.28
9807.38	9928.53	447.39	156.41	121.20	1.95	1.29	2.86
9928.53	RB 10049.69	3946.71	577.59	121.23	17.16	4.82	6.83
10049.69	10261.75	217.68	105.34	85.39	0.95	1.24	2.07
10261.75	10473.81	315.74	184.32	197.97	1.37	0.93	1.71
10473.81	10685.86	22.81	26.77	93.79	0.10	0.29	0.85
10685.86	10897.92	271.09	163.80	212.08	1.18	0.77	1.65
10897.92	11109.98	120.58	90.73	163.24	0.52	0.56	1.33
11109.98	11322.04	457.32	224.26	212.29	1.99	1.06	2.04
11322.04	11534.10	136.59	108.58	212.11	0.59	0.51	1.26
11534.10	11746.15	4.08	9.15	84.75	0.02	0.11	0.45
11746.15	11958.21	161.49	102.52	142.95	0.70	0.72	1.58
11958.21	12170.27	1137.56	387.27	212.06	4.95	1.83	2.94
12170.27	12382.33	2172.17	570.91	212.06	9.44	2.69	3.80
12382.33	12594.39	4439.68	893.39	212.98	19.30	4.21	4.97
12594.39	12806.44	4928.81	976.97	212.07	21.43	4.61	5.05
12806.44	13018.50	3245.51	726.52	212.11	14.11	3.43	4.47
13018.50	13230.56	381.23	168.99	137.48	1.66	1.23	2.26

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8995.00	9686.22	16.86	26.32	132.68	0.05	0.20	0.64
LB 9686.22	9807.38	1075.42	253.37	117.19	3.26	2.17	4.24
9807.38	9928.53	909.91	232.31	121.20	2.76	1.92	3.92
9928.53	RB 10049.69	5053.24	653.04	122.70	15.31	5.39	7.74
10049.69	10261.75	327.28	192.77	206.97	0.99	0.93	1.70
10261.75	10473.81	734.07	310.21	212.67	2.22	1.46	2.37
10473.81	10685.86	183.73	130.42	212.06	0.56	0.61	1.41
10685.86	10897.92	722.78	296.65	212.08	2.19	1.40	2.44
10897.92	11109.98	433.90	218.43	212.12	1.31	1.03	1.99
11109.98	11322.04	983.97	357.11	212.29	2.98	1.68	2.76
11322.04	11534.10	512.70	241.42	212.11	1.55	1.14	2.12
11534.10	11746.15	169.94	124.45	212.06	0.51	0.59	1.37
11746.15	11958.21	469.16	228.90	212.09	1.42	1.08	2.05
11958.21	12170.27	1842.77	520.12	212.06	5.58	2.45	3.54
12170.27	12382.33	3050.28	703.76	212.06	9.24	3.32	4.33
12382.33	12594.39	5522.79	1026.23	212.98	16.74	4.84	5.38
12594.39	12806.44	6041.19	1109.81	212.07	18.31	5.23	5.44
12806.44	13018.50	4254.57	859.37	212.11	12.89	4.05	4.95
13018.50	13230.56	695.46	265.25	169.88	2.11	1.56	2.62

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 16.348

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9141	1374	9232.51	1372.84	9453.27	1371.7	9551.83	1370.65	9579.59	1370.89
9643.66	1370.5	9658.59	1370.54	9669.77	1369	9678.81	1368.25	9684.21	1366.77
9700.54	1366.7	9728.13	1368.28	9798	1368.33	9841.03	1368.31	9911.88	1366.74
9924.93	1366.9	9944.09	1364.63	9956.73	1365.07	9965.77	1363.99	9990.28	1363.1
9996.65	1362.6	10031.1	1364.9	10113.2	1365.5	10144.93	1367.7	10175.58	1367.08
10214.84	1366.1	10241.49	1367.0	110260.35	1365.5	610273.85	1366.0	610289.61	1365.81
10355.8	1363	10392.74	1367.8	810445.21	1367.1	710458.55	1366.8	410515.81	1367.55
10622.19	1368.5	10660.66	1368.85	10678.7	1368.8	510696.37	1364.2	810727.58	1367.51
10758.85	1368.4	10767.17	1368.6	910792.23	1368.2	710803.02	1368.7	10928.66	1368.24
10981.75	1367.8	11015.89	1367.3	411068.79	1367.4	711093.89	1367.4	411117.55	1369.05
11220.08	1369.6	11281.38	1369.2	511320.83	1367.7	611333.31	1366.9	711399.25	1368.76
11405.77	1368.5	11477.61	1368.2	411494.84	1368.0	711537.34	1366.5	411549.72	1367.08
11561.15	1365.6	11573.4	1367.97	11583.7	1366.9	611610.01	1367.8	11636.46	1367.67
11657.61	1366.9	11716.29	1367.1	511736.65	1367.8	211818.46	1368.4	711917.06	1368.65
12076.28	1368.2	12155.55	1368.6	212169.76	1368.5	212221.58	1367.7	112328.63	1366.8
12435.7	1365.6	12542.73	1365.2	912649.79	1365.1	12756.83	1364.63	12793.7	1364.89
12836.57	1364.9	12931.18	1364.3	912957.11	1364.3	312964.76	1360.7	512976.22	1364.01
12989.45	1363.5	13047.83	1363.9	713153.98	1365.4	513171.35	1365.7	913266.47	1366.85
13324.47	1367.5	13349.14	1367.8	513372.12	1367.9	413394.78	1368.3	913443.34	1368.87
13472.51	1369.6	13523.04	1369.4	913572.84	1370.0	513627.91	1369.9	13633.58	1370

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9141	.058	9841.03	.03	810392.74	.058	10678.7	.05	311220.08	.053
12169.76	.05	312957.11	.06	13153.98	.053				

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

9841.0310392.74	595	497.94	253	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1368.12	Element			
Vel Head (ft)	0.14	Wt. n-Val.	0.058	0.038	0.055
W.S. Elev (ft)	1367.98	Reach Len. (ft)	595.00	497.94	253.00
Crit W.S. (ft)	1366.53	Flow Area (sq ft)	37.32	1252.56	3309.24
E.G. Slope (ft/ft)	0.002827	Area (sq ft)	37.32	1252.56	3309.24
Q Total (cfs)	13000.00	Flow (cfs)	46.05	4576.53	8377.43
Top Width (ft)	2439.99	Top Width (ft)	43.10	536.83	1860.05
Vel Total (ft/s)	2.83	Avg. Vel. (ft/s)	1.23	3.65	2.53
Max Chl Dpth (ft)	7.23	Hydr. Depth (ft)	0.87	2.33	1.78
Conv. Total (cfs)	244480.5	Conv. (cfs)	866.0	86067.0	157547.5
Length Wtd. (ft)	375.69	Wetted Per. (ft)	43.30	537.72	1862.53
Min Ch El (ft)	1362.60	Shear (lb/sq ft)	0.15	0.41	0.31
Alpha	1.11	Stream Power (lb/ft s)	0.19	1.50	0.79
Frctn Loss (ft)	1.41	Cum Volume (acre-ft)	136.13	2036.63	682.42
C & E Loss (ft)	0.01	Cum SA (acres)	91.58	471.29	492.27

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1369.11	Element			
Vel Head (ft)	0.17	Wt. n-Val.	0.058	0.038	0.055
W.S. Elev (ft)	1368.94	Reach Len. (ft)	595.00	497.94	253.00
Crit W.S. (ft)	1367.30	Flow Area (sq ft)	163.59	1777.98	5615.55
E.G. Slope (ft/ft)	0.002671	Area (sq ft)	163.59	1777.98	5615.55
Q Total (cfs)	23000.00	Flow (cfs)	206.52	7831.59	14961.88
Top Width (ft)	3606.60	Top Width (ft)	175.39	551.71	2879.51
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)	1.26	4.40	2.66
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)	0.93	3.22	1.95
Conv. Total (cfs)	444995.8	Conv. (cfs)	3995.7	151522.9	289477.2
Length Wtd. (ft)	373.82	Wetted Per. (ft)	175.74	552.61	2882.21
Min Ch El (ft)	1362.60	Shear (lb/sq ft)	0.16	0.54	0.32
Alpha	1.21	Stream Power (lb/ft s)	0.20	2.36	0.87
Frctn Loss (ft)	1.34	Cum Volume (acre-ft)	460.01	2942.12	1610.48
C & E Loss (ft)	0.02	Cum SA (acres)	238.36	498.21	916.18

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1369.83	Element			
Vel Head (ft)	0.20	Wt. n-Val.	0.058	0.038	0.055
W.S. Elev (ft)	1369.63	Reach Len. (ft)	595.00	497.94	253.00
Crit W.S. (ft)	1367.87	Flow Area (sq ft)	286.12	2160.11	7674.00
E.G. Slope (ft/ft)	0.002543	Area (sq ft)	286.12	2160.11	7674.00
Q Total (cfs)	33000.00	Flow (cfs)	505.66	10570.80	21923.54
Top Width (ft)	3872.87	Top Width (ft)	178.43	551.71	3142.73
Vel Total (ft/s)	3.26	Avg. Vel. (ft/s)	1.77	4.89	2.86
Max Chl Dpth (ft)	8.88	Hydr. Depth (ft)	1.60	3.92	2.44
Conv. Total (cfs)	654333.7	Conv. (cfs)	10026.4	209600.9	434706.4
Length Wtd. (ft)	370.43	Wetted Per. (ft)	178.86	552.61	3145.45
Min Ch El (ft)	1362.60	Shear (lb/sq ft)	0.25	0.62	0.39
Alpha	1.24	Stream Power (lb/ft s)	0.45	3.04	1.11
Frctn Loss (ft)	1.28	Cum Volume (acre-ft)	804.78	3554.59	2553.89
C & E Loss (ft)	0.03	Cum SA (acres)	352.16	508.34	1195.23

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9141.00	9841.03	46.05	37.32	43.30	0.35	0.87	1.23
LB 9841.03	10024.93	1647.31	429.92	169.34	12.67	2.54	3.83
10024.93	10208.84	1105.29	349.82	184.01	8.50	1.90	3.16
10208.84	RB 10392.74	1823.92	472.82	184.37	14.03	2.57	3.86
10392.74	10608.80	78.73	92.24	171.27	0.61	0.54	0.85
10608.80	10824.85	178.24	95.44	62.69	1.37	1.54	1.87
10824.85	11040.91	23.35	31.22	80.92	0.18	0.39	0.75
11040.91	11256.96	27.16	30.52	60.94	0.21	0.50	0.89
11256.96	11473.02	23.73	27.13	55.58	0.18	0.49	0.87
11473.02	11689.08	181.19	150.88	192.18	1.39	0.79	1.20
11689.08	11905.13	33.13	35.88	67.77	0.25	0.53	0.92
11905.13	12121.19						
12121.19	12337.24	98.94	90.57	132.97	0.76	0.68	1.09
12337.24	12553.30	1152.97	479.93	216.06	8.87	2.22	2.40
12553.30	12769.36	1884.88	644.55	216.06	14.50	2.98	2.92

12769.36	12985.41	2450.37	762.94	217.32	18.85	3.53	3.21
12985.41	13201.47	2045.00	714.69	216.08	15.73	3.31	2.86
13201.47	13417.52	199.74	153.27	172.70	1.54	0.89	1.30

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9141.00	9841.03	206.52	163.59	175.74	0.90	0.93	1.26
LB 9841.03	10024.93	2679.06	603.43	184.23	11.65	3.28	4.44
10024.93	10208.84	2131.12	525.77	184.01	9.27	2.86	4.05
10208.84	RB 10392.74	3021.41	648.78	184.37	13.14	3.53	4.66
10392.74	10608.80	444.57	290.00	216.07	1.93	1.34	1.53
10608.80	10824.85	329.22	211.53	216.84	1.43	0.98	1.56
10824.85	11040.91	234.58	187.20	216.06	1.02	0.87	1.25
11040.91	11256.96	154.74	95.53	75.03	0.67	1.27	1.62
11256.96	11473.02	177.35	148.25	183.43	0.77	0.81	1.20
11473.02	11689.08	675.06	353.25	216.50	2.94	1.63	1.91
11689.08	11905.13	216.11	178.21	216.07	0.94	0.82	1.21
11905.13	12121.19	100.93	112.86	216.06	0.44	0.52	0.89
12121.19	12337.24	407.51	260.74	216.07	1.77	1.21	1.56
12337.24	12553.30	2046.50	686.65	216.06	8.90	3.18	2.98
12553.30	12769.36	2927.99	851.27	216.06	12.73	3.94	3.44
12769.36	12985.41	3562.15	969.66	217.32	15.49	4.49	3.67
12985.41	13201.47	3036.59	921.41	216.08	13.20	4.26	3.30
13201.47	13417.52	646.35	343.89	216.07	2.81	1.59	1.88
13417.52	13633.58	2.24	5.12	28.50	0.01	0.18	0.44

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9141.00	9841.03	505.66	286.12	178.86	1.53	1.60	1.77
LB 9841.03	10024.93	3601.78	730.80	184.23	10.91	3.97	4.93
10024.93	10208.84	2989.11	653.15	184.01	9.06	3.55	4.58
10208.84	RB 10392.74	3979.90	776.15	184.37	12.06	4.22	5.13
10392.74	10608.80	872.70	439.64	216.07	2.64	2.03	1.99
10608.80	10824.85	713.15	361.18	216.84	2.16	1.67	1.97
10824.85	11040.91	612.70	336.84	216.06	1.86	1.56	1.82
11040.91	11256.96	225.14	184.75	216.11	0.68	0.86	1.22
11256.96	11473.02	469.76	287.26	216.14	1.42	1.33	1.64
11473.02	11689.08	1193.29	502.89	216.50	3.62	2.33	2.37
11689.08	11905.13	585.69	327.86	216.07	1.77	1.52	1.79
11905.13	12121.19	404.37	262.51	216.06	1.23	1.21	1.54
12121.19	12337.24	851.50	410.39	216.07	2.58	1.90	2.07
12337.24	12553.30	2789.10	836.30	216.06	8.45	3.87	3.34
12553.30	12769.36	3762.98	1000.91	216.06	11.40	4.63	3.76
12769.36	12985.41	4436.49	1119.31	217.32	13.44	5.18	3.96
12985.41	13201.47	3822.82	1071.05	216.08	11.58	4.96	3.57
13201.47	13417.52	1158.01	493.53	216.07	3.51	2.28	2.35
13417.52	13633.58	25.85	39.57	117.96	0.08	0.34	0.65

Warning: The conveyance ratio (upstream 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: New River
REACH: Lower RS: 16.248

INPUT
Description:
Station Elevation Data num= 160

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9465	1370	9474.66	1369.86	9535.36	1369.57	9559.46	1369.31	9626.12	1367.71
9653.92	1367.7	9666.85	1367.91	9671.44	1367.54	9683.27	1365.93	9697.16	1368.12
9721.61	1368	9734.77	1367.95	9743.57	1366.5	9753.59	1367.47	9760.62	1367.35
9873.67	1366.8	9943.37	1366.86	9947.6	1364.32	9953.78	1361.19	9988.35	1360.22
10023.81	1362.7	10043.92	1363.79	10067.38	1364.29	10142.72	1365.16	10160.36	1365.4
10189	1363.5	10225.06	1365.07	10243.15	1365.11	10249.87	1365.31	10270.28	1361.33
10292.69	1363.9	10311.21	1362.69	10325.37	1365.85	10340.79	1365.81	10359.41	1365.68
10380.42	1365.3	10402.36	1364.42	10413.87	1365.22	10423.55	1365.6	10431.7	1364.9
10442.35	1364.3	10462.82	1363.73	10472.3	1365.11	10480.52	1365.33	10490.42	1364.11
10501.75	1365.5	10529.54	1364.94	10541.04	1364.79	10579.72	1365.25	10591.47	1364.23
10601.19	1363.3	10617.92	1362.81	10634.85	1361.49	10660.79	1367.48	10737.15	1366.99
10787.15	1367.3	10817.25	1367.33	10827.67	1366.46	10875.72	1367.22	10897.11	1367.57
10917.68	1367.8	10954.89	1367.84	10975.54	1364.73	10988.41	1365.27	11003.42	1365.54
11022.48	1366.6	11036.22	1366.67	11048.52	1364.9	11058.58	1367.58	11066.07	1367.02
11115.17	1367.4	11170.76	1366.97	11191.7	1365.35	11209.93	1366.37	11263.56	1366.33
11282.68	1364.8	11295.32	1367.4	11299.76	1368.16	11318.03	1367.92	11324.96	1367.89

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 11418.1  1367.211429.25 1367.1811533.56 1368.1611618.27 1368.23 11645.4 1368.05
   11657    136811672.88 1367.9111694.51 1366.9511717.89 1366.0211750.59 1365.83
 11783.2  1365.711788.43 1364.6511795.16 1366.1511807.15 1365.7811826.13 1366.59
11836.21  1365.611854.02 1365.6411915.18 1365.9811995.24 1365.16 12019.4 1366.68
12033.79  1367.812037.05 1367.71   12080 1367.5812118.68 1367.09 12159.4 1366.83
12218.75  1366.412273.49 1366.4512318.84 1366.4312369.69 1366.5212418.92 1366.24
 12424.2  1366.312507.43 1367.3312518.98 1367.4512616.42 1365.3912633.09 1365.01
12680.49  1364.712740.36 1364.1812766.74 1364.04 12834.7 1364.0312954.91 1363.85
13031.21  1363.713086.78 1363.5713110.99 1363.2513184.74 1362.9713188.64 1362.88
13192.67    136113199.83 1358.6713203.28 1359.4513211.38 1360.9813220.99 1363.11
13235.47  1363.213260.85 1362.7213271.81 1362.9113328.94 1363.4913372.15 1364.12
13423.22  1364.5 13472.4 1365.2913488.52 1365.3213534.88 1365.5613541.29 1365.93
13548.06    136613571.38 1365.8813595.27 1366.2913606.01 1366.3913649.28 1366.98
13673.15  1366.7 13719.4 1367.1413731.32 1367.3913736.93 1367.2713746.36 1365.67
13754.31  1367.413772.49 1367.4113777.66 1367.5213802.88 1367.76 13820.5 1367.93
13847.53  1367.913862.56 1368.36 13875.9 1368.6313892.62 1368.8913895.59 1368.46

Manning's n Values          num=       10
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9465    .058 9943.37   .03810660.79     .1110954.89     .1111299.76     .11
11618.27     .1112033.79     .1112518.98     .1113184.74     .1113328.94     .11

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9943.3710660.79              435  436.54     253             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9465 9753.59 1368.1213731.3213895.59 1367.39
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CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1366.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1366.42	Reach Len. (ft)	435.00	436.54	253.00
Crit W.S. (ft)	1365.45	Flow Area (sq ft)		1646.18	2680.30
E.G. Slope (ft/ft)	0.005586	Area (sq ft)	1.63	1646.18	2683.23
Q Total (cfs)	13000.00	Flow (cfs)		8383.02	4616.98
Top Width (ft)	2319.60	Top Width (ft)	6.67	712.08	1600.85
Vel Total (ft/s)	3.00	Avg. Vel. (ft/s)		5.09	1.72
Max Chl Dpth (ft)	7.75	Hydr. Depth (ft)		2.31	1.68
Conv. Total (cfs)	173944.5	Conv. (cfs)		112167.7	61776.8
Length Wtd. (ft)	390.66	Wetted Per. (ft)		715.66	1595.47
Min Ch El (ft)	1360.22	Shear (lb/sq ft)		0.80	0.59
Alpha	1.97	Stream Power (lb/ft s)		4.08	1.01
Frctn Loss (ft)	2.18	Cum Volume (acre-ft)	135.86	2020.07	665.02
C & E Loss (ft)	0.01	Cum SA (acres)	91.24	464.15	482.22

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1367.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1367.34	Reach Len. (ft)	435.00	436.54	253.00
Crit W.S. (ft)	1366.23	Flow Area (sq ft)	66.41	2309.01	4583.23
E.G. Slope (ft/ft)	0.005445	Area (sq ft)	85.97	2309.01	4598.06
Q Total (cfs)	23000.00	Flow (cfs)	64.18	14480.13	8455.69
Top Width (ft)	3478.73	Top Width (ft)	214.95	716.83	2546.94
Vel Total (ft/s)	3.31	Avg. Vel. (ft/s)	0.97	6.27	1.84
Max Chl Dpth (ft)	8.67	Hydr. Depth (ft)	0.37	3.22	1.81
Conv. Total (cfs)	311694.8	Conv. (cfs)	869.7	196233.9	114591.1
Length Wtd. (ft)	386.98	Wetted Per. (ft)	181.72	720.64	2529.26
Min Ch El (ft)	1360.22	Shear (lb/sq ft)	0.12	1.09	0.62
Alpha	2.38	Stream Power (lb/ft s)	0.12	6.83	1.14
Frctn Loss (ft)	2.13	Cum Volume (acre-ft)	458.30	2918.76	1580.82
C & E Loss (ft)	0.01	Cum SA (acres)	235.70	490.96	900.42

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1368.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.49	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1368.04	Reach Len. (ft)	435.00	436.54	253.00
Crit W.S. (ft)	1366.87	Flow Area (sq ft)	197.75	2807.19	6558.74
E.G. Slope (ft/ft)	0.005333	Area (sq ft)	262.06	2807.19	6558.74
Q Total (cfs)	33000.00	Flow (cfs)	380.25	19834.67	12785.08
Top Width (ft)	4085.74	Top Width (ft)	314.05	717.42	3054.27
Vel Total (ft/s)	3.45	Avg. Vel. (ft/s)	1.92	7.07	1.95
Max Chl Dpth (ft)	9.37	Hydr. Depth (ft)	1.04	3.91	2.15
Conv. Total (cfs)	451888.5	Conv. (cfs)	5207.0	271607.9	175073.6
Length Wtd. (ft)	382.11	Wetted Per. (ft)	189.78	721.24	3057.73
Min Ch El (ft)	1360.22	Shear (lb/sq ft)	0.35	1.30	0.71
Alpha	2.65	Stream Power (lb/ft s)	0.67	9.16	1.39
Frctn Loss (ft)	2.09	Cum Volume (acre-ft)	801.03	3526.20	2512.56
C & E Loss (ft)	0.02	Cum SA (acres)	348.80	501.09	1177.23

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9943.37	10182.51	4142.82	705.53	239.92	31.87	2.96	5.87
10182.51	10421.65	2067.29	465.11	240.17	15.90	1.94	4.44
10421.65	RB 10660.79	2172.91	475.54	235.57	16.71	2.03	4.57
10660.79	10876.44						
10876.44	11092.10	55.33	62.14	71.58	0.43	0.87	0.89
11092.10	11307.75	22.80	43.81	112.94	0.18	0.39	0.52
11307.75	11523.40						
11523.40	11739.06	5.96	11.70	31.17	0.05	0.38	0.51
11739.06	11954.71	93.82	131.26	210.19	0.72	0.63	0.71
11954.71	12170.36	50.65	55.12	60.56	0.39	0.91	0.92
12170.36	12386.02	0.01	0.19	21.55	0.00	0.01	0.04
12386.02	12601.67	5.48	16.22	79.83	0.04	0.20	0.34
12601.67	12817.32	607.90	406.92	215.66	4.68	1.89	1.49
12817.32	13032.98	991.44	545.71	215.65	7.63	2.53	1.82
13032.98	13248.63	1693.61	754.22	216.91	13.03	3.50	2.25
13248.63	13464.28	1012.88	552.78	215.67	7.79	2.56	1.83
13464.28	13679.94	77.12	100.24	143.76	0.59	0.70	0.77

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9465.00	9943.37	64.18	66.41	181.72	0.28	0.37	0.97
LB 9943.37	10182.51	6499.27	927.17	240.78	28.26	3.88	7.01
10182.51	10421.65	3949.20	686.91	240.17	17.17	2.87	5.75
10421.65	RB 10660.79	4031.64	694.93	239.70	17.53	2.91	5.80
10660.79	10876.44	19.26	49.76	194.66	0.08	0.26	0.39
10876.44	11092.10	158.57	153.40	137.51	0.69	1.12	1.03
11092.10	11307.75	144.92	165.10	189.14	0.63	0.87	0.88
11307.75	11523.40	0.92	4.59	48.28	0.00	0.10	0.20
11523.40	11739.06	47.82	51.21	53.47	0.21	0.96	0.93
11739.06	11954.71	422.33	330.77	216.00	1.84	1.53	1.28
11954.71	12170.36	134.09	141.74	145.13	0.58	0.98	0.95
12170.36	12386.02	163.58	187.11	215.65	0.71	0.87	0.87
12386.02	12601.67	114.74	146.93	200.61	0.50	0.73	0.78
12601.67	12817.32	1162.68	606.94	215.66	5.06	2.81	1.92
12817.32	13032.98	1638.83	745.73	215.65	7.13	3.46	2.20
13032.98	13248.63	2462.15	954.24	216.91	10.71	4.42	2.58
13248.63	13464.28	1664.71	752.79	215.67	7.24	3.49	2.21
13464.28	13679.94	313.46	276.43	215.68	1.36	1.28	1.13
13679.94	13895.59	7.65	16.50	49.24	0.03	0.34	0.46

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9465.00	9943.37	380.25	197.75	189.78	1.15	1.04	1.92
LB 9943.37	10182.51	8494.83	1093.24	240.78	25.74	4.57	7.77
10182.51	10421.65	5626.93	852.98	240.17	17.05	3.57	6.60
10421.65	RB 10660.79	5712.90	860.97	240.30	17.31	3.60	6.64
10660.79	10876.44	177.89	198.10	215.70	0.54	0.92	0.90
10876.44	11092.10	307.82	275.66	216.43	0.93	1.28	1.12
11092.10	11307.75	378.96	307.02	207.43	1.15	1.48	1.23
11307.75	11523.40	54.12	96.30	211.79	0.16	0.45	0.56
11523.40	11739.06	92.90	95.09	91.24	0.28	1.04	0.98
11739.06	11954.71	778.28	480.54	216.00	2.36	2.23	1.62
11954.71	12170.36	304.95	273.77	215.75	0.92	1.27	1.11
12170.36	12386.02	431.01	336.87	215.65	1.31	1.56	1.28
12386.02	12601.67	347.22	295.90	215.68	1.05	1.37	1.17
12601.67	12817.32	1660.54	756.70	215.66	5.03	3.51	2.19
12817.32	13032.98	2198.66	895.49	215.65	6.66	4.15	2.46
13032.98	13248.63	3104.50	1104.00	216.91	9.41	5.12	2.81
13248.63	13464.28	2227.53	902.56	215.67	6.75	4.19	2.47
13464.28	13679.94	637.83	426.19	215.68	1.93	1.98	1.50
13679.94	13895.59	82.87	114.55	172.48	0.25	0.67	0.72

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

section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 16.167

INPUT
Description:
Station Elevation Data num= 114

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9428	1368	9629.69	1366.39	9715.53	1366.07	9792.86	1365.21	9856.46	1365.02
9897.21	1364.3	9915.84	1360.34	9955.56	1359.96	9980.69	1360.7210002.86		1358.98
10030.58	1363.510074.98		1362.3510104.37		1361.9110122.99		1361.08	10144.9	1363.4
10174.6	1363.4	10191.1	1363.810199.04		1362.810225.53		1363.110252.32		1363.06
10275.89	1362.510342.34		1361.2910382.68		1360.3710402.57		1359.6410428.98		1360.99
10453.37	1358.510472.28		1358.8110512.09		1358.3210540.84		1358.2210561.93		1363.69
10608.91	136410625.17		1362.6610651.98		1362.3710674.62		1363.9710721.87		1363.14
10741.72	1362.610754.11		1361.3110771.51		1366.2810793.58		1366.4310805.79		1366.16
10813.45	1366.610899.23		1366.5710920.34		1366.6610993.41		1365.9511035.78		1365.76
11097.37	136511122.86		1365.0511155.21		1364.39	11184	1364.2711197.91		1363.33
11206.57	1364.3	11238.7	1364.1911279.98		1365.311290.29		1365.4311311.86		1365.12
11323.66	1365.2	11374	1361.8411381.31		1363.2411395.65		1365.0811430.52		1364.97
11449.85	1364.511463.87		1361.9411480.17		1361.4911503.61		1365.6511511.18		1365.51
11545.24	1365.711628.21		1365.5911645.25		1365.4611745.24		1365.4311845.25		1365.84
11874.36	1365.811908.09		1364.3311932.26		1364.5111962.05		1365.0211968.52		1363.46
11977.75	1364.811990.46		1364.3512046.29		1364.912145.26		1363.8812228.09		1363.96
12257	136512318.25		1365.6112445.27		1365.4512555.03		1364.9812645.28		1364.95
12736.94	1364.412747.41		1364.4812837.77		1364.2612853.01		1364.0812955.69		1363.57
13004.89	1363.313029.94		1363.2613076.64		1362.813105.49		1362.713191.75		1362.62
13306.86	1361.813356.98		1361.713394.25		1361.9113400.58		1357.9413410.97		1361.98
13467.06	136213474.96		1360.9513480.77		1362.1413516.14		1362.3713530.16		1362.48
13575.4	1362.113650.58		1363.1613734.35		1364.5113834.35		1365.7113934.36		1366.67
14005.88	1367.614105.87		1368.48	14162.8	1369.2614195.35		1369.96		

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9428	.058	9897.21	.03810771.51		.1110920.34		.1111503.61		.11
11845.25	.1112318.25		.1113394.25		.1113410.97		.11		

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9856.4	10771.51	540	590.83	517	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1364.50	Element			
Vel Head (ft)	0.37	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1364.13	Reach Len. (ft)	540.00	590.83	517.00
Crit W.S. (ft)	1363.36	Flow Area (sq ft)		2110.43	1431.48
E.G. Slope (ft/ft)	0.005556	Area (sq ft)		2110.43	1431.48
Q Total (cfs)	13000.00	Flow (cfs)		11117.76	1882.24
Top Width (ft)	1958.26	Top Width (ft)		865.98	1092.28
Vel Total (ft/s)	3.67	Avg. Vel. (ft/s)		5.27	1.31
Max Chl Dpth (ft)	6.19	Hydr. Depth (ft)		2.44	1.31
Conv. Total (cfs)	174404.6	Conv. (cfs)		149153.0	25251.6
Length Wtd. (ft)	582.15	Wetted Per. (ft)		868.55	1095.31
Min Ch El (ft)	1358.22	Shear (lb/sq ft)		0.84	0.45
Alpha	1.78	Stream Power (lb/ft s)		4.44	0.60
Frctn Loss (ft)	2.92	Cum Volume (acre-ft)	135.85	2001.24	653.07
C & E Loss (ft)	0.00	Cum SA (acres)	91.20	456.24	474.40

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1365.61	Element			
Vel Head (ft)	0.55	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1365.06	Reach Len. (ft)	540.00	590.83	517.00
Crit W.S. (ft)	1364.23	Flow Area (sq ft)	0.33	2937.15	2823.01
E.G. Slope (ft/ft)	0.005540	Area (sq ft)	0.33	2937.15	2823.01
Q Total (cfs)	23000.00	Flow (cfs)	0.05	19035.96	3963.99
Top Width (ft)	2891.51	Top Width (ft)	14.80	910.79	1965.92
Vel Total (ft/s)	3.99	Avg. Vel. (ft/s)	0.15	6.48	1.40
Max Chl Dpth (ft)	7.12	Hydr. Depth (ft)	0.02	3.22	1.44
Conv. Total (cfs)	309004.9	Conv. (cfs)	0.7	255748.1	53256.2
Length Wtd. (ft)	578.24	Wetted Per. (ft)	14.80	913.52	1969.41
Min Ch El (ft)	1358.22	Shear (lb/sq ft)	0.01	1.11	0.50
Alpha	2.20	Stream Power (lb/ft s)	0.00	7.21	0.70
Frctn Loss (ft)	2.89	Cum Volume (acre-ft)	457.87	2892.48	1559.27
C & E Loss (ft)	0.00	Cum SA (acres)	234.55	482.81	887.31

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1366.42	Element			
Vel Head (ft)	0.67	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1365.75	Reach Len. (ft)	540.00	590.83	517.00
Crit W.S. (ft)	1364.89	Flow Area (sq ft)	53.50	3562.59	4404.21

E.G. Slope (ft/ft)	0.005616	Area (sq ft)	53.50	3562.59	4404.21
Q Total (cfs)	33000.00	Flow (cfs)	62.70	26153.76	6783.54
Top Width (ft)	3775.07	Top Width (ft)	112.16	913.19	2749.72
Vel Total (ft/s)	4.11	Avg. Vel. (ft/s)	1.17	7.34	1.54
Max Chl Dpth (ft)	7.81	Hydr. Depth (ft)	0.48	3.90	1.60
Conv. Total (cfs)	440349.0	Conv. (cfs)	836.7	348993.4	90519.0
Length Wtd. (ft)	574.59	Wetted Per. (ft)	112.16	916.02	2753.30
Min Ch El (ft)	1358.22	Shear (lb/sq ft)	0.17	1.36	0.56
Alpha	2.55	Stream Power (lb/ft s)	0.20	10.01	0.86
Frctn Loss (ft)	2.87	Cum Volume (acre-ft)	799.46	3494.28	2480.73
C & E Loss (ft)	0.01	Cum SA (acres)	346.67	492.92	1160.38

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9856.46	10161.48	3688.86	677.27	264.48	28.38	2.57	5.45
10161.48	10466.49	4065.03	760.31	305.29	31.27	2.49	5.35
10466.49	RB 10771.51	3363.87	672.85	298.79	25.88	2.26	5.00
10771.51	10999.77						
10999.77	11228.02	3.87	7.61	19.08	0.03	0.40	0.51
11228.02	11456.28	53.96	55.82	53.33	0.42	1.05	0.97
11456.28	11684.53	97.65	70.41	39.14	0.75	1.82	1.39
11684.53	11912.79						
11912.79	12141.05	1.29	4.58	27.68	0.01	0.17	0.28
12141.05	12369.30	6.16	18.86	91.80	0.05	0.21	0.33
12369.30	12825.81						
12825.81	13054.07	69.05	111.00	205.39	0.53	0.54	0.62
13054.07	13282.33	458.12	360.36	228.26	3.52	1.58	1.27
13282.33	13510.58	903.49	543.62	230.35	6.95	2.38	1.66
13510.58	13738.84	288.65	259.21	200.27	2.22	1.29	1.11

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9428.00	9856.46	0.05	0.33	14.80	0.00	0.02	0.15
LB 9856.46	10161.48	6187.77	940.26	306.05	26.90	3.08	6.58
10161.48	10466.49	6900.11	1044.93	305.29	30.00	3.43	6.60
10466.49	RB 10771.51	5948.08	951.96	302.18	25.86	3.17	6.25
10771.51	10999.77						
10999.77	11228.02	48.03	79.02	135.95	0.21	0.58	0.61
11228.02	11456.28	117.92	147.82	169.14	0.51	0.88	0.80
11456.28	11684.53	173.03	109.04	44.48	0.75	2.48	1.59
11684.53	11912.79	4.85	9.55	21.56	0.02	0.44	0.51
11912.79	12141.05	75.54	127.63	228.56	0.33	0.56	0.59
12141.05	12369.30	98.75	116.77	122.42	0.43	0.95	0.85
12369.30	12597.56	0.74	4.71	62.20	0.00	0.08	0.16
12597.56	12825.81	50.83	100.58	228.26	0.22	0.44	0.51
12825.81	13054.07	352.69	321.57	228.26	1.53	1.41	1.10
13054.07	13282.33	924.63	573.35	228.26	4.02	2.51	1.61
13282.33	13510.58	1459.08	756.61	230.35	6.34	3.31	1.93
13510.58	13738.84	654.29	465.92	228.28	2.84	2.04	1.40
13738.84	13967.09	3.61	10.43	41.70	0.02	0.25	0.35

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9428.00	9856.46	62.70	53.50	112.16	0.19	0.48	1.17
LB 9856.46	10161.48	8465.92	1149.44	306.05	25.65	3.77	7.37
10161.48	10466.49	9418.14	1254.10	305.29	28.54	4.11	7.51
10466.49	RB 10771.51	8269.69	1159.05	304.68	25.06	3.82	7.13
10771.51	10999.77						
10999.77	11228.02	172.10	191.25	191.53	0.52	1.00	0.90
11228.02	11456.28	313.71	294.36	228.75	0.95	1.29	1.07
11456.28	11684.53	126.79	170.94	228.76	0.38	0.75	0.74
11684.53	11912.79	27.17	61.08	176.08	0.08	0.35	0.44
11912.79	12141.05	295.98	284.17	228.56	0.90	1.24	1.04
12141.05	12369.30	211.45	232.13	228.28	0.64	1.02	0.91
12369.30	12597.56	61.77	110.93	228.26	0.19	0.49	0.56
12597.56	12825.81	250.73	257.11	228.26	0.76	1.13	0.98
12825.81	13054.07	705.04	478.10	228.26	2.14	2.09	1.47
13054.07	13282.33	1427.03	729.89	228.26	4.32	3.20	1.96
13282.33	13510.58	2060.31	913.14	230.35	6.24	4.00	2.26
13510.58	13738.84	1094.38	622.46	228.28	3.32	2.73	1.76
13738.84	13967.09	37.09	58.64	99.69	0.11	0.59	0.63

Warning: Divided flow computed for this cross-section.

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 16.066

INPUT
Description:
Station Elevation Data num= 121

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9330	1364	9395.88	1363.3	9412.63	1361.39	9425.48	1363.18	9457.05	1363.5
9518.54	1363.1	9539.8	1362.18	9577.02	1361.42	9592.47	1358.27	9598.29	1359.33
9607.2	1359.3	9627.82	1358.86	9642.76	1358.05	9658.05	1360.07	9672.67	1361.08
9680.42	1361.1	9703.18	1359.84	9729.76	1360.88	9739.23	1360.66	9753.63	1356.71
9777.73	1355.9	9784.76	1356.38	9826.64	1358.19	9844.48	1359.68	9900.29	1357.9
9908.2	1358.9	9920.79	1357.8	9933.97	1358.94	9976.2	1359.73	9993.66	1354.42
10011.06	1357.2	10026	1357.2	10051.57	1359.3	10067.61	1359.74	10107.14	1359.54
10150.01	1360.1	10169.03	1360.91	10197.5	1359.58	10211.89	1358.49	10226.7	1357.75
10257.82	1357.6	10282.25	1354.63	10358.8	1358.5	10424.28	1356.45	10448.99	1360.48
10472.8	1361.3	10514.13	1361.89	10523.21	1362.27	10569.3	1362.73	10652.65	1363.6
10685.24	1363.8	10771.86	1363.92	10883.43	1364.08	10947.76	1364.01	11042.25	1363.46
11092.69	1363.3	11136.74	1363.26	11192.87	1363.05	11212.2	1362.33	11226.8	1362.79
11233	1360.4	11244.99	1362.12	11255.67	1362.15	11299.73	1361.9	11315.04	1358.09
11328.36	1360.9	11350.28	1361.25	11422.35	1361.62	11471.88	1361.67	11479.07	1361.48
11493.65	1360.5	11517.12	1362.26	11527.51	1362.28	11537.58	1360.65	11547.33	1361.15
11559.19	1358.4	11577.25	1360.45	11592.07	1360.9	11627.25	1361.87	11642.83	1362.38
11726.21	1361.5	11823.89	1362.08	11927.88	1361.63	12034.76	1361.77	12068.11	1361.48
12094.51	1359.9	12119.57	1359.94	12132.79	1360.25	12139.17	1359.34	12144.37	1360.09
12181.52	1359.8	12217.22	1359.91	12230.16	1360.79	12292.23	1361.15	12340.8	1361.24
12502.58	1360.8	12524.23	1360.65	12624.27	1360.61	12724.33	1360.5	12824.37	1360.83
12940.58	1360.7	12948.89	1359.17	12959.02	1360.69	13024.71	1360.26	13054.88	1360.14
13103.69	1359.3	13113.67	1359.73	13160.56	1359.73	13173.21	1356.76	13189.1	1360.13
13242.22	1359.2	13253.44	1360.13	13288.73	1360.3	13310.48	1360.57	13326.68	1360.92
13363.46	1361.1	13394.99	1361.36	13431.82	1361.38	13464.55	1362.13	13644.14	1363.41
13687.42	1364								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9330	.058	9739.23	.03	10448.99	.11	10569.3	.111	11136.74	.11
11642.83	.111	3160.56	.111	3253.44	.11				

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9729.76	10448.99	610	584.23	507	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9330	9457.05	1363.5

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1361.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1361.17	Reach Len. (ft)	610.00	584.23	507.00
Crit W.S. (ft)	1360.29	Flow Area (sq ft)	213.52	2150.40	1050.12
E.G. Slope (ft/ft)	0.004449	Area (sq ft)	213.52	2150.40	1050.12
Q Total (cfs)	13000.00	Flow (cfs)	457.35	11682.42	860.23
Top Width (ft)	2261.29	Top Width (ft)	151.51	719.23	1390.55
Vel Total (ft/s)	3.81	Avg. Vel. (ft/s)	2.14	5.43	0.82
Max Chl Dpth (ft)	6.75	Hydr. Depth (ft)	1.41	2.99	0.76
Conv. Total (cfs)	194910.1	Conv. (cfs)	6857.1	175155.6	12897.5
Length Wtd. (ft)	576.45	Wetted Per. (ft)	152.15	721.94	1393.19
Min Ch El (ft)	1354.42	Shear (lb/sq ft)	0.39	0.83	0.21
Alpha	1.84	Stream Power (lb/ft s)	0.83	4.49	0.17
Frctn Loss (ft)	2.20	Cum Volume (acre-ft)	134.53	1972.35	638.34
C & E Loss (ft)	0.03	Cum SA (acres)	90.26	445.49	459.66

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1362.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1362.16	Reach Len. (ft)	610.00	584.23	507.00
Crit W.S. (ft)	1361.36	Flow Area (sq ft)	378.51	2864.54	2875.31
E.G. Slope (ft/ft)	0.004461	Area (sq ft)	383.27	2864.54	2875.31
Q Total (cfs)	23000.00	Flow (cfs)	1026.32	18799.24	3174.44
Top Width (ft)	3193.17	Top Width (ft)	201.39	719.23	2272.54
Vel Total (ft/s)	3.76	Avg. Vel. (ft/s)	2.71	6.56	1.10
Max Chl Dpth (ft)	7.74	Hydr. Depth (ft)	2.00	3.98	1.27
Conv. Total (cfs)	344369.5	Conv. (cfs)	15366.6	281473.3	47529.6
Length Wtd. (ft)	570.86	Wetted Per. (ft)	189.75	721.94	2275.71
Min Ch El (ft)	1354.42	Shear (lb/sq ft)	0.56	1.10	0.35
Alpha	2.53	Stream Power (lb/ft s)	1.51	7.25	0.39
Frctn Loss (ft)	2.17	Cum Volume (acre-ft)	455.49	2853.13	1525.45
C & E Loss (ft)	0.05	Cum SA (acres)	233.21	471.75	862.16

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1363.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1362.91	Reach Len. (ft)	610.00	584.23	507.00
Crit W.S. (ft)	1362.12	Flow Area (sq ft)	526.28	3400.89	4666.80
E.G. Slope (ft/ft)	0.004395	Area (sq ft)	544.65	3400.89	4666.80
Q Total (cfs)	33000.00	Flow (cfs)	1662.61	24804.00	6533.38
Top Width (ft)	3464.56	Top Width (ft)	230.99	719.23	2514.34
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)	3.16	7.29	1.40
Max Chl Dpth (ft)	8.49	Hydr. Depth (ft)	2.55	4.73	1.86
Conv. Total (cfs)	497766.8	Conv. (cfs)	25078.6	374139.7	98548.5
Length Wtd. (ft)	566.93	Wetted Per. (ft)	207.47	721.94	2517.67
Min Ch El (ft)	1354.42	Shear (lb/sq ft)	0.70	1.29	0.51
Alpha	2.77	Stream Power (lb/ft s)	2.20	9.43	0.71
Frctn Loss (ft)	2.20	Cum Volume (acre-ft)	795.75	3447.05	2426.89
C & E Loss (ft)	0.05	Cum SA (acres)	344.54	481.85	1129.14

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9330.00	9729.76	457.35	213.52	152.15	3.52	1.41	2.14
LB 9729.76	9969.50	3573.98	689.13	240.60	27.49	2.87	5.19
9969.50	10209.25	2163.45	515.91	240.93	16.64	2.15	4.19
10209.25	RB 10448.99	5944.99	945.36	240.41	45.73	3.94	6.29
10448.99	10664.89	2.89	6.90	20.02	0.02	0.34	0.42
10664.89	11096.68						
11096.68	11312.57	11.49	15.04	17.76	0.09	0.87	0.76
11312.57	11528.47	26.03	37.73	51.95	0.20	0.73	0.69
11528.47	11744.36	47.32	60.13	67.96	0.36	0.89	0.79
11744.36	11960.26						
11960.26	12176.15	103.44	113.54	103.01	0.80	1.10	0.91
12176.15	12392.05	42.82	78.08	151.67	0.33	0.51	0.55
12392.05	12607.94	34.27	78.67	215.90	0.26	0.36	0.44
12607.94	12823.84	70.03	120.79	215.90	0.54	0.56	0.58
12823.84	13039.73	78.76	129.68	216.15	0.61	0.60	0.61
13039.73	13255.63	409.85	349.18	216.66	3.15	1.62	1.17
13255.63	13471.52	33.33	60.40	116.23	0.26	0.52	0.55

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9330.00	9729.76	1026.32	378.51	189.75	4.46	2.00	2.71
LB 9729.76	9969.50	5886.39	927.18	240.60	25.59	3.87	6.35
9969.50	10209.25	4134.79	753.96	240.93	17.98	3.14	5.48
10209.25	RB 10448.99	8778.05	1183.40	240.41	38.17	4.94	7.42
10448.99	10664.89	38.78	54.61	71.67	0.17	0.76	0.71
10664.89	11096.68						
11096.68	11312.57	25.12	45.06	84.99	0.11	0.54	0.56
11312.57	11528.47	149.42	186.40	203.94	0.65	0.92	0.80
11528.47	11744.36	147.65	179.60	189.18	0.64	0.95	0.82
11744.36	11960.26	30.70	73.79	215.90	0.13	0.34	0.42
11960.26	12176.15	267.88	270.77	216.07	1.16	1.25	0.99
12176.15	12392.05	300.76	290.17	215.93	1.31	1.34	1.04
12392.05	12607.94	305.75	293.04	215.90	1.33	1.36	1.04
12607.94	12823.84	382.46	335.16	215.90	1.66	1.55	1.14
12823.84	13039.73	399.19	344.04	216.15	1.74	1.59	1.16
13039.73	13255.63	907.20	563.55	216.66	3.94	2.61	1.61
13255.63	13471.52	219.56	239.13	213.44	0.95	1.12	0.92

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9330.00	9729.76	1662.61	526.28	207.47	5.04	2.55	3.16
LB 9729.76	9969.50	7846.24	1105.96	240.60	23.78	4.61	7.09
9969.50	10209.25	5882.78	932.74	240.93	17.83	3.89	6.31
10209.25	RB 10448.99	11074.98	1362.19	240.41	33.56	5.68	8.13
10448.99	10664.89	108.12	130.13	137.38	0.33	0.95	0.83
10664.89	11096.68						

11096.68	11312.57	102.41	118.07	116.86	0.31	1.02	0.87
11312.57	11528.47	407.91	346.17	216.38	1.24	1.60	1.18
11528.47	11744.36	391.13	337.62	216.49	1.19	1.56	1.16
11744.36	11960.26	213.89	234.79	215.90	0.65	1.09	0.91
11960.26	12176.15	590.09	431.77	216.07	1.79	2.00	1.37
12176.15	12392.05	635.22	451.17	215.93	1.92	2.09	1.41
12392.05	12607.94	642.02	454.04	215.90	1.95	2.10	1.41
12607.94	12823.84	744.33	496.16	215.90	2.26	2.30	1.50
12823.84	13039.73	766.08	505.04	216.15	2.32	2.34	1.52
13039.73	13255.63	1395.82	724.55	216.66	4.23	3.36	1.93
13255.63	13471.52	520.01	400.11	215.91	1.58	1.85	1.30
13471.52	13687.42	16.34	37.19	102.16	0.05	0.36	0.44

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.966

INPUT
Description:
Station Elevation Data num= 106

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8884	1363.9	8899.06	1363.62	8931.55	1363.4	8982.64	1363.36	9078.4	1363.04
9108.81	1362.6	9167.73	1362.11	9213.77	1361.39	9318.74	1360.33	9396.68	1360.44
9476.26	1359.5	9601.17	1358.94	9616.36	1358.93	9619.86	1357.42	9625.72	1358.95
9663.48	1358.6	9699.11	1359.1	9716.17	1353.46	9732.42	1358.9	9751.3	1358.21
9769.62	1355.4	9801.73	1355.12	9810.49	1355.85	9834.25	1356.22	9864.01	1353.69
9935.39	1355.6	9950.33	135410001.29		1351.8410023.45		1356.110078.54		1356.7
10103.98	1355.710120.58		1356.6210155.14		1356.7210168.96		1357.7410180.45		1357.77
10277.33	135610283.48		1354.7210318.28		1354.0610333.71		1357.7510371.08		1354.4
10391.06	1360.110401.94		1360.5310555.41		1360.8910627.42		1360.95 10709.6		1361.13
10788.34	1361.510863.73		1361.2810882.38		1361.1511005.71		1360.4711058.81		1360.02
11113.19	1359.711196.82		1359.2411211.31		1359.911237.96		1353.4411287.34		1358.48
11318.58	1358.611350.14		1357.711360.73		135711381.53		1356.6211404.15		1359.49
11497.63	1358.911593.38		1357.62 11614.2		1358.1111699.04		1358.4111791.18		1357.89
11813.16	1358.711828.86		1357.7911874.51		1359.53 11917.4		1359.6911924.92		1359.85
11943.46	1358.711995.44		1358.4212037.54		1357.7212065.54		1358.1512097.73		1357.88
12121.29	1358.112132.78		1357.3412150.03		1358.7612158.76		1358.0512219.54		1357.92
12279.95	1357.9 12297.4		1359.3112397.39		1358.512498.32		1358.4112593.43		1357.53
12693.35	135812823.62		1357.5912897.07		1357.2812911.17		1356.112919.04		1357.78
12959.17	1357.313001.06		1357.1613010.86		1357.5113029.33		1357.2613043.42		1357.55
13056.49	1357.813068.28		1354.613077.33		1357.44 13134.6		1356.9513197.66		1357.85
13258.9	1358.913300.48		1359.4413341.89		1360.1913403.28		1360.8 13424.9		1361.15
13520.95	1362								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8884	.058	9699.11	.03810401.94		.1111058.81		.1111404.15		.11
11924.92	.1113056.49		.1113197.66		.11				

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9699.1	110401.94	515	429.98	253	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1359.36	Element			
Vel Head (ft)	0.32	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1359.04	Reach Len. (ft)	515.00	429.98	253.00
Crit W.S. (ft)	1357.91	Flow Area (sq ft)	27.80	2268.63	2153.52
E.G. Slope (ft/ft)	0.003199	Area (sq ft)	27.80	2268.63	2153.52
Q Total (cfs)	13000.00	Flow (cfs)	15.47	11069.66	1914.88
Top Width (ft)	2671.92	Top Width (ft)	116.35	688.06	1867.51
Vel Total (ft/s)	2.92	Avg. Vel. (ft/s)	0.56	4.88	0.89
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)	0.24	3.30	1.15
Conv. Total (cfs)	229854.1	Conv. (cfs)	273.5	195723.6	33857.1
Length Wtd. (ft)	411.44	Wetted Per. (ft)	116.87	692.25	1870.02
Min Ch El (ft)	1351.84	Shear (lb/sq ft)	0.05	0.65	0.23
Alpha	2.39	Stream Power (lb/ft s)	0.03	3.19	0.20
Frctn Loss (ft)	1.70	Cum Volume (acre-ft)	132.84	1942.71	619.70
C & E Loss (ft)	0.03	Cum SA (acres)	88.39	436.05	440.70

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1360.50	Element			
Vel Head (ft)	0.40	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1360.10	Reach Len. (ft)	515.00	429.98	253.00
Crit W.S. (ft)	1359.00	Flow Area (sq ft)	254.68	2997.47	4377.74
E.G. Slope (ft/ft)	0.003149	Area (sq ft)	254.68	2997.47	4377.74
Q Total (cfs)	23000.00	Flow (cfs)	348.76	17405.23	5246.01
Top Width (ft)	3252.48	Top Width (ft)	273.43	691.94	2287.10
Vel Total (ft/s)	3.01	Avg. Vel. (ft/s)	1.37	5.81	1.20
Max Chl Dpth (ft)	8.26	Hydr. Depth (ft)	0.93	4.33	1.91
Conv. Total (cfs)	409881.1	Conv. (cfs)	6215.2	310177.2	93488.7
Length Wtd. (ft)	398.57	Wetted Per. (ft)	273.95	696.29	2289.82
Min Ch El (ft)	1351.84	Shear (lb/sq ft)	0.18	0.85	0.38

Alpha	2.85	Stream Power (lb/ft s)	0.25	4.91	0.45
Frctn Loss (ft)	1.68	Cum Volume (acre-ft)	451.03	2813.82	1483.24
C & E Loss (ft)	0.04	Cum SA (acres)	229.88	462.29	835.62

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1361.30	Element			
Vel Head (ft)	0.48	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1360.81	Reach Len. (ft)	515.00	429.98	253.00
Crit W.S. (ft)	1359.65	Flow Area (sq ft)	511.15	3498.20	6088.92
E.G. Slope (ft/ft)	0.003371	Area (sq ft)	511.15	3498.20	6088.92
Q Total (cfs)	33000.00	Flow (cfs)	854.88	23058.37	9086.75
Top Width (ft)	3712.43	Top Width (ft)	428.23	702.83	2581.37
Vel Total (ft/s)	3.27	Avg. Vel. (ft/s)	1.67	6.59	1.49
Max Chl Dpth (ft)	8.97	Hydr. Depth (ft)	1.19	4.98	2.36
Conv. Total (cfs)	568349.3	Conv. (cfs)	14723.4	397127.4	156498.4
Length Wtd. (ft)	389.02	Wetted Per. (ft)	428.75	707.19	2584.10
Min Ch El (ft)	1351.84	Shear (lb/sq ft)	0.25	1.04	0.50
Alpha	2.91	Stream Power (lb/ft s)	0.42	6.86	0.74
Frctn Loss (ft)	1.70	Cum Volume (acre-ft)	788.36	3400.79	2364.30
C & E Loss (ft)	0.04	Cum SA (acres)	339.93	472.31	1099.48

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8884.00	9699.11	15.47	27.80	116.87	0.12	0.24	0.56
LB 9699.11	9933.39	3927.45	796.22	236.28	30.21	3.40	4.93
9933.39	10167.66	4530.89	865.49	234.90	34.85	3.69	5.24
10167.66	RB 10401.94	2611.32	606.92	221.08	20.09	2.76	4.30
10401.94	11025.74						
11025.74	11233.68	54.11	42.95	19.37	0.42	2.28	1.26
11233.68	11441.61	337.24	305.14	167.51	2.59	1.83	1.11
11441.61	11649.54	80.83	131.58	174.31	0.62	0.75	0.61
11649.54	11857.48	106.68	166.80	208.00	0.82	0.80	0.64
11857.48	12065.41	59.68	98.04	131.69	0.46	0.74	0.61
12065.41	12273.35	170.17	220.76	208.05	1.31	1.06	0.77
12273.35	12481.28	37.32	82.21	171.48	0.29	0.48	0.45
12481.28	12689.21	189.85	235.68	207.94	1.46	1.13	0.81
12689.21	12897.15	260.30	284.82	207.94	2.00	1.37	0.91
12897.15	13105.08	423.95	382.47	209.04	3.26	1.84	1.11
13105.08	13313.02	194.75	203.07	164.71	1.50	1.23	0.96

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8884.00	9699.11	348.76	254.68	273.95	1.52	0.93	1.37
LB 9699.11	9933.39	6130.06	1043.65	236.46	26.65	4.45	5.87
9933.39	10167.66	6853.40	1112.92	234.90	29.80	4.75	6.16
10167.66	RB 10401.94	4421.77	840.90	224.93	19.23	3.76	5.26
10401.94	11025.74						
11025.74	11233.68	84.35	138.43	184.67	0.37	0.75	0.61
11233.68	11441.61	687.06	511.57	208.54	2.99	2.46	1.34
11441.61	11649.54	361.53	347.62	207.95	1.57	1.67	1.04
11649.54	11857.48	431.16	386.41	208.00	1.87	1.86	1.12
11857.48	12065.41	251.12	279.37	207.99	1.09	1.34	0.90
12065.41	12273.35	536.03	440.37	208.05	2.33	2.12	1.22
12273.35	12481.28	277.95	296.92	207.99	1.21	1.43	0.94
12481.28	12689.21	566.85	455.29	207.94	2.46	2.19	1.25
12689.21	12897.15	672.43	504.43	207.94	2.92	2.43	1.33
12897.15	13105.08	899.92	602.07	209.04	3.91	2.90	1.49
13105.08	13313.02	476.26	410.14	207.96	2.07	1.97	1.16
13313.02	13520.95	1.36	5.11	23.77	0.01	0.22	0.27

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8884.00	9699.11	854.88	511.15	428.75	2.59	1.19	1.67
LB 9699.11	9933.39	8126.74	1211.35	236.46	24.63	5.17	6.71

9933.39	10167.66	8955.58	1280.62	234.90	27.14	5.47	6.99
10167.66	RB 10401.94	5976.04	1006.23	235.82	18.11	4.30	5.94
10401.94	10609.87	3.58	17.10	120.74	0.01	0.14	0.21
10609.87	10817.81						
10817.81	11025.74	5.64	19.26	82.29	0.02	0.23	0.29
11025.74	11233.68	270.13	284.85	208.60	0.82	1.37	0.95
11233.68	11441.61	1097.31	660.41	208.54	3.33	3.18	1.66
11441.61	11649.54	683.28	496.46	207.95	2.07	2.39	1.38
11649.54	11857.48	774.43	535.25	208.00	2.35	2.57	1.45
11857.48	12065.41	533.95	428.22	207.99	1.62	2.06	1.25
12065.41	12273.35	908.72	589.21	208.05	2.75	2.83	1.54
12273.35	12481.28	570.90	445.76	207.99	1.73	2.14	1.28
12481.28	12689.21	947.75	604.14	207.94	2.87	2.91	1.57
12689.21	12897.15	1079.68	653.27	207.94	3.27	3.14	1.65
12897.15	13105.08	1357.04	750.92	209.04	4.11	3.61	1.81
13105.08	13313.02	832.62	558.99	207.96	2.52	2.69	1.49
13313.02	13520.95	21.74	45.09	91.09	0.07	0.50	0.48

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.885

INPUT
Description:
Station Elevation Data num= 142

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9393	1360	9448.75	1359.81	9456.26	1359.75	9533.52	1358.69	9575.71	1358.57
9586.21	1358.5	9619.77	1358.15	9653.18	1358.05	9670.8	1356.25	9688.72	1357.52
9735.31	1357.3	9742.6	1357.26	9772.54	1356.84	9780.43	1357	9787.42	1355.34
9797.88	1357.3	9811.39	1356.96	9828.31	1356.45	9841.9	1356.29	9875.75	1355.99
9945.18	1356.3	9960.59	1356.36	9993.59	1348.4	110022.82	1350.3	510043.13	1352.32
10061.73	1352.5	10078.75	1352.8	210080.48	1352.79	10097.44	1351.11	10106.6	1352.36
10123.51	1354.8	10132.5	1354.19	10141.21	1353.52	10152.71	1355.12	10177.79	1355.04
10190.38	1355.1	10233.75	1354.89	10292.58	1354.82	10340.4	1354.89	10351.99	1354.83
10362.08	1354.6	10383.04	1354.44	10393.02	1352.09	10395.76	1351.55	10425.05	1351.46
10435	1351.3	10456.42	1356.03	10467.88	1355.72	10475.09	1356.27	10493.2	1357.24
10526.9	1358	10531.97	1358.08	10598.97	1358.21	0630.47	1358.33	10707.49	1358.22
10760.99	1357.9	10816	1358.07	10837.34	1358.11	0913.69	1358.41	0924.53	1358.46
10992.75	1358.4	11030.08	1358.43	11059.25	1358.25	11089.22	1357.99	11135.91	1357.76
11202.2	1357.7	11231.16	1357.82	11325.23	1357.81	11362.96	1357.09	11412.92	1356
11439.93	1356.9	11444.9	1356.97	11470.94	1357.03	11480.45	1355.79	11504.68	1353.6
11507.6	1354.1	11513.73	1353.29	11534.15	1357.33	11543.57	1357.07	11626.15	1357.42
11639.2	1358.1	11677.14	1356.69	11703.27	1355.94	11719.07	1355.65	11731.36	1356.41
11747.55	1357.9	11759.06	1358.2	11768.93	1356.79	11776.72	1357.67	11834.36	1357.45
11851.52	1357.6	11912.51	1357.57	11933.67	1357.45	11953.83	1356.72	11972.66	1355.96
11978.43	1356	12030.59	1356.18	12067.62	1357.89	12082.83	1357.75	12123.87	1356.91
12143.31	1356.9	12202.38	1357.07	12206.94	1356.44	12217.37	1357.14	12262.53	1356.85
12335.01	1357	12397.56	1356.48	12421.83	1355.1	12454.9	1357.34	12535.02	1357.18
12583.81	1356.9	12635.03	1356.62	12684.94	1356.93	12735.03	1356.87	12786.08	1357.25
12835.03	1357	12887.2	1356.23	12935.06	1356.63	12981.83	1356.4	13035.05	1356.6
13137.51	1356.1	13152.86	1355.87	13199.83	1355.59	13235.07	1355.68	13270.97	1355.53
13287.05	1355.6	13302.97	1355.81	13331.75	1356.36	13332.43	1356.21	13343.92	1353.74
13363.52	1355.7	13377.95	1355.75	13398.66	1355.9	13417.83	1356.27	13439.95	1356.64
13539.76	1358.7	13544.75	1358.82	13619.58	1358.82	13649.52	1359.5	13709.22	1359.77
13742.48	1360.2	13751.98	1360.62						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9393	.058	9960.59	.038	10526.9	.11	10816	.11	11759.06	.11
13363.52	.11	13417.83	.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9960.59	10531.97	525	509.42	238	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1357.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1356.98	Reach Len. (ft)	525.00	509.42	238.00
Crit W.S. (ft)	1356.34	Flow Area (sq ft)	130.00	1772.00	932.16
E.G. Slope (ft/ft)	0.005889	Area (sq ft)	130.00	1772.00	932.16
Q Total (cfs)	13000.00	Flow (cfs)	203.29	11885.19	911.52
Top Width (ft)	2103.28	Top Width (ft)	200.22	527.78	1375.28
Vel Total (ft/s)	4.59	Avg. Vel. (ft/s)	1.56	6.71	0.98
Max Chl Dpth (ft)	8.57	Hydr. Depth (ft)	0.65	3.36	0.68
Conv. Total (cfs)	169402.1	Conv. (cfs)	2649.0	154875.1	11878.0
Length Wtd. (ft)	500.18	Wetted Per. (ft)	200.64	530.28	1376.64
Min Ch El (ft)	1348.41	Shear (lb/sq ft)	0.24	1.23	0.25
Alpha	1.96	Stream Power (lb/ft s)	0.37	8.24	0.24
Frctn Loss (ft)	3.27	Cum Volume (acre-ft)	131.91	1922.77	610.74
C & E Loss (ft)	0.02	Cum SA (acres)	86.52	430.05	431.28

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1358.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.	0.058	0.038	0.110

W.S. Elev (ft)	1357.98	Reach Len. (ft)	525.00	509.42	238.00
Crit W.S. (ft)	1357.76	Flow Area (sq ft)	402.91	2316.79	2871.01
E.G. Slope (ft/ft)	0.006368	Area (sq ft)	402.91	2316.79	2871.01
Q Total (cfs)	23000.00	Flow (cfs)	986.82	18455.24	3557.94
Top Width (ft)	3311.57	Top Width (ft)	306.75	565.53	2439.30
Vel Total (ft/s)	4.11	Avg. Vel. (ft/s)	2.45	7.97	1.24
Max Chl Dpth (ft)	9.57	Hydr. Depth (ft)	1.31	4.10	1.18
Conv. Total (cfs)	288210.8	Conv. (cfs)	12365.8	231260.8	44584.2
Length Wtd. (ft)	488.07	Wetted Per. (ft)	307.28	568.04	2440.98
Min Ch El (ft)	1348.41	Shear (lb/sq ft)	0.52	1.62	0.47
Alpha	3.04	Stream Power (lb/ft s)	1.28	12.92	0.58
Frctn Loss (ft)	3.15	Cum Volume (acre-ft)	447.14	2787.59	1462.19
C & E Loss (ft)	0.01	Cum SA (acres)	226.45	456.08	821.90

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1359.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.88	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1358.67	Reach Len. (ft)	525.00	509.42	238.00
Crit W.S. (ft)	1358.43	Flow Area (sq ft)	649.39	2711.19	4797.71
E.G. Slope (ft/ft)	0.006308	Area (sq ft)	649.39	2711.19	4797.71
Q Total (cfs)	33000.00	Flow (cfs)	1762.05	23802.11	7435.84
Top Width (ft)	3999.02	Top Width (ft)	421.15	571.38	3006.49
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)	2.71	8.78	1.55
Max Chl Dpth (ft)	10.26	Hydr. Depth (ft)	1.54	4.74	1.60
Conv. Total (cfs)	415509.2	Conv. (cfs)	22186.4	299696.8	93626.1
Length Wtd. (ft)	474.83	Wetted Per. (ft)	421.68	573.90	3008.20
Min Ch El (ft)	1348.41	Shear (lb/sq ft)	0.61	1.86	0.63
Alpha	3.45	Stream Power (lb/ft s)	1.65	16.33	0.97
Frctn Loss (ft)	2.94	Cum Volume (acre-ft)	781.50	3370.14	2332.69
C & E Loss (ft)	0.00	Cum SA (acres)	334.90	466.02	1083.25

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9393.00	9960.59	203.29	130.00	200.64	1.56	0.65	1.56
LB 9960.59	10151.05	7368.09	922.13	192.05	56.68	4.84	7.99
10151.05	10341.51	1767.37	390.25	190.48	13.60	2.05	4.53
10341.51	RB 10531.97	2749.73	459.62	147.75	21.15	3.13	5.98
10531.97	11175.97						
11175.97	11390.64	2.29	5.62	22.70	0.02	0.25	0.41
11390.64	11605.31	190.46	155.61	120.86	1.47	1.29	1.22
11605.31	11819.97	42.21	51.05	71.39	0.32	0.72	0.83
11819.97	12034.64	59.40	68.14	88.05	0.46	0.77	0.87
12034.64	12249.31	2.61	10.24	83.70	0.02	0.12	0.25
12249.31	12463.98	42.32	75.48	189.06	0.33	0.40	0.56
12463.98	12678.64	7.68	21.75	108.98	0.06	0.20	0.35
12678.64	12893.31	11.06	28.89	128.34	0.09	0.23	0.38
12893.31	13107.98	73.00	110.14	214.67	0.56	0.51	0.66
13107.98	13322.65	300.11	257.23	214.68	2.31	1.20	1.17
13322.65	13537.31	180.38	148.00	134.23	1.39	1.11	1.22

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9393.00	9960.59	986.82	402.91	307.28	4.29	1.31	2.45
LB 9960.59	10151.05	10670.45	1112.80	192.05	46.39	5.84	9.59
10151.05	10341.51	3631.35	580.92	190.48	15.79	3.05	6.25
10341.51	RB 10531.97	4153.45	623.06	185.51	18.06	3.38	6.67
10531.97	10746.64						
10746.64	10961.30	0.20	1.66	40.39	0.00	0.04	0.12
10961.30	11175.97	4.47	14.65	85.19	0.02	0.17	0.30
11175.97	11390.64	42.92	82.41	214.68	0.19	0.38	0.52
11390.64	11605.31	486.24	354.06	215.36	2.11	1.65	1.37
11605.31	11819.97	168.24	181.70	199.65	0.73	0.91	0.93
11819.97	12034.64	213.04	215.53	214.70	0.93	1.00	0.99
12034.64	12249.31	165.80	185.45	214.78	0.72	0.86	0.89
12249.31	12463.98	341.58	286.15	214.79	1.49	1.33	1.19
12463.98	12678.64	210.61	214.04	214.67	0.92	1.00	0.98
12678.64	12893.31	240.69	231.89	214.68	1.05	1.08	1.04
12893.31	13107.98	422.56	325.04	214.67	1.84	1.51	1.30
13107.98	13322.65	787.23	472.14	214.68	3.42	2.20	1.67
13322.65	13537.31	474.35	306.27	182.74	2.06	1.68	1.55

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9393.00	9960.59	1762.06	649.39	421.68	5.34	1.54	2.71
LB 9960.59	10151.05	12956.14	1244.37	192.05	39.26	6.53	10.41
10151.05	10341.51	5143.32	712.49	190.48	15.59	3.74	7.22
10341.51	RB 10531.97	5702.65	754.33	191.37	17.28	3.96	7.56
10531.97	10746.64	63.01	101.56	214.67	0.19	0.47	0.62
10746.64	10961.30	65.31	103.77	214.67	0.20	0.48	0.63
10961.30	11175.97	81.65	118.65	214.67	0.25	0.55	0.69
11175.97	11390.64	247.33	230.70	214.68	0.75	1.07	1.07
11390.64	11605.31	902.85	502.35	215.36	2.74	2.34	1.80
11605.31	11819.97	445.57	328.60	214.97	1.35	1.53	1.36
11819.97	12034.64	528.42	363.82	214.70	1.60	1.69	1.45
12034.64	12249.31	457.52	333.75	214.78	1.39	1.55	1.37
12249.31	12463.98	710.01	434.44	214.79	2.15	2.02	1.63
12463.98	12678.64	524.86	362.33	214.67	1.59	1.69	1.45
12678.64	12893.31	568.66	380.18	214.68	1.72	1.77	1.50
12893.31	13107.98	819.37	473.33	214.67	2.48	2.20	1.73
13107.98	13322.65	1286.31	620.43	214.68	3.90	2.89	2.07
13322.65	13537.31	734.96	443.78	215.07	2.23	2.07	1.66
13537.31	13751.98	0.00	0.01	1.15	0.00	0.01	0.05

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.792

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9168	1357.9	9203.65	1357.39	9214.01	1357	9268.42	1357.11	9312.99	1356.51
9337.76	1356	9368.6	1356.21	9387.84	1355.53	9405.54	1355.56	9447.91	1354.36
9469.29	1351.5	9480.6	1354.1	9495.88	1355.02	9508.29	1356.34	9530.07	1355.96
9566.08	1353.8	9620.5	1350.44	9634.25	1352.07	9648.55	1352.32	9683.78	1352.19
9725.88	1352.3	9791.07	1352.05	9825.91	1352.29	9850.91	1353.17	9860.93	1351.96
9868	1352.8	9899.9	1353.08	9922.85	1353.5	9939.06	1347.81	9946.04	1347.87
10002.05	1345.2	10034.91	1350.33	10060.2	1350.22	10073.97	1352.11	10127.71	1352.69
10160.12	1352.8	10176.02	1349.46	10190.22	1349.92	10202.57	1353.04	10242.67	1350.8
10254.44	1350	10267.14	1352.51	10283.39	1352.84	10292.86	1352.42	10303.63	1349.55
10316.45	1351	10323.35	1352.57	10385.32	1352.35	10417.82	1352.09	10421.64	1352
10435.06	1349.1	10452.82	1348.34	10470.05	1351.78	10523.42	1352.41	10539.06	1351.25
10553.37	1353.9	10569.57	1353.65	10593.97	1353.8	10609.33	1352.09	10630.81	1354.72
10662.46	1354.7	10669.8	1354.17	10683.15	1354.99	10751.7	1355.81	10811.74	1355.24
10822.54	1355.3	10868.95	1356.98	10903.34	1357.97	10952.93	1357.35	11008.26	1357.44
11052.93	1357.3	11119.28	1356.44	11153.32	1355.92	11229.74	1355.41	1253.77	1355.5
11340.19	1355.3	11354.17	1355.11	11388.49	1355.51	11411.45	1352.39	11421.48	1352.27
11436	1353.5	11450.7	1355.19	11485.39	1355.44	11514.22	1351.78	11531.47	1355.82
11542.78	1355.5	11555.97	1356.01	11577.36	1355.51	11598.05	1356.29	11646.94	1355.7
11667.14	1356.1	11688.47	1355.81	11739.35	1356.66	11760.71	1354.99	11796.37	1355.99
11836.09	1356.5	11861.4	1354.82	11878.31	1354.69	11912.24	1356.55	11933.89	1356.76
11958.71	1355.3	11982.74	1356.66	11998.32	1356.37	12039.41	1355.81	12071.9	1355.3
12089.21	1354	12122.09	1355.54	12173.11	1354.59	12196.38	1355.46	12205.95	1353.66
12214.93	1354.8	12267.03	1354.59	12336.52	1354.96	12376.05	1355.32	12419.73	1354.77
12496.47	1354.7	12512.99	1356.31	12530.85	1356.03	12676.07	1355.01	12776.09	1355.42
12876.09	1356.3	12956.03	1355.57	12976.09	1355.24	13076.11	1355	13116.35	1355.06
13176.14	1354.9	13185.15	1354.58	13238.29	1354.16	13276.12	1354.67	13303.59	1354.67
13366.47	1353.9	13383.76	1354.78	13415.06	1355.03	13427.22	1353.17	13436.39	1354.82
13465.11	1354.6	13489.98	1354.7	13559.92	1356.01	13598.9	1356.31	13668.02	1356.98
13702.6	1358.4	13768.09	1359.79	13803.45	1360.27	13828.63	1359.36	13848.2	1359.97

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9168	.058	9922.85	.03	10630.81	.111	1253.77	.111	1982.74	.11
13415.06	.111	3489.98	.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9922.85	10630.81	430	472.66	280	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9168	9508.29	1356.34

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1354.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1353.76	Reach Len. (ft)	430.00	472.66	280.00
Crit W.S. (ft)	1353.26	Flow Area (sq ft)	506.04	1807.82	60.25
E.G. Slope (ft/ft)	0.007337	Area (sq ft)	536.24	1807.82	60.25
Q Total (cfs)	13000.00	Flow (cfs)	1402.62	11531.59	65.80
Top Width (ft)	1135.70	Top Width (ft)	382.85	683.42	69.43
Vel Total (ft/s)	5.48	Avg. Vel. (ft/s)	2.77	6.38	1.09
Max Chl Dpth (ft)	8.56	Hydr. Depth (ft)	1.42	2.65	0.87
Conv. Total (cfs)	151773.4	Conv. (cfs)	16375.4	134629.9	768.2
Length Wtd. (ft)	468.34	Wetted Per. (ft)	356.47	687.85	70.06
Min Ch El (ft)	1345.20	Shear (lb/sq ft)	0.65	1.20	0.39
Alpha	1.23	Stream Power (lb/ft s)	1.80	7.68	0.43
Frctn Loss (ft)	2.16	Cum Volume (acre-ft)	127.89	1901.84	608.03
C & E Loss (ft)	0.11	Cum SA (acres)	83.00	422.97	427.34

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1355.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1354.86	Reach Len. (ft)	430.00	472.66	280.00
Crit W.S. (ft)	1354.17	Flow Area (sq ft)	909.70	2585.51	332.56
E.G. Slope (ft/ft)	0.006528	Area (sq ft)	983.79	2585.51	332.56
Q Total (cfs)	23000.00	Flow (cfs)	3400.11	19289.53	310.36
Top Width (ft)	1866.11	Top Width (ft)	437.75	707.96	720.41
Vel Total (ft/s)	6.01	Avg. Vel. (ft/s)	3.74	7.46	0.93
Max Chl Dpth (ft)	9.67	Hydr. Depth (ft)	2.43	3.65	0.46
Conv. Total (cfs)	284677.7	Conv. (cfs)	42084.2	238752.2	3841.4
Length Wtd. (ft)	466.14	Wetted Per. (ft)	374.90	712.46	721.87
Min Ch El (ft)	1345.20	Shear (lb/sq ft)	0.99	1.48	0.19
Alpha	1.35	Stream Power (lb/ft s)	3.70	11.03	0.18
Frctn Loss (ft)	1.98	Cum Volume (acre-ft)	438.78	2758.93	1453.44
C & E Loss (ft)	0.13	Cum SA (acres)	221.97	448.64	813.27

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1356.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.90	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1355.70	Reach Len. (ft)	430.00	472.66	280.00
Crit W.S. (ft)	1354.82	Flow Area (sq ft)	1227.18	3174.73	1442.52
E.G. Slope (ft/ft)	0.006143	Area (sq ft)	1372.97	3174.73	1442.52
Q Total (cfs)	33000.00	Flow (cfs)	5301.95	26346.41	1351.64
Top Width (ft)	3153.98	Top Width (ft)	507.54	707.96	1938.48
Vel Total (ft/s)	5.65	Avg. Vel. (ft/s)	4.32	8.30	0.94
Max Chl Dpth (ft)	10.50	Hydr. Depth (ft)	3.16	4.48	0.74
Conv. Total (cfs)	421056.3	Conv. (cfs)	67649.1	336161.3	17245.9
Length Wtd. (ft)	461.16	Wetted Per. (ft)	388.80	712.46	1940.47
Min Ch El (ft)	1345.20	Shear (lb/sq ft)	1.21	1.71	0.29
Alpha	1.82	Stream Power (lb/ft s)	5.23	14.18	0.27
Frctn Loss (ft)	1.90	Cum Volume (acre-ft)	769.31	3335.72	2315.64
C & E Loss (ft)	0.14	Cum SA (acres)	329.31	458.54	1069.75

Warning: Divided flow computed for this cross-section.
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Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9168.00	9922.85	1402.61	506.04	356.47	10.79	1.42	2.77
LB 9922.85	10158.84	7156.31	921.95	237.55	55.05	3.91	7.76
10158.84	10394.82	2452.14	485.00	237.71	18.86	2.06	5.06
10394.82	RB 10630.81	1923.13	400.88	212.59	14.79	1.90	4.80
10630.81	11274.29						
11274.29	11488.78	37.62	34.27	37.09	0.29	0.93	1.10
11488.78	11703.27	27.10	23.81	24.40	0.21	0.99	1.14
11703.27	12132.26						
12132.26	12346.75	0.01	0.07	1.33	0.00	0.05	0.16
12346.75	13419.21						
13419.21	13633.71	1.07	2.11	7.23	0.01	0.29	0.51

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9168.00	9922.85	3400.11	909.70	374.90	14.78	2.43	3.74
LB 9922.85	10158.84	10487.72	1182.71	237.55	45.60	5.01	8.87
10158.84	10394.82	4860.53	745.76	237.71	21.13	3.16	6.52
10394.82	RB 10630.81	3941.28	657.05	237.20	17.14	2.78	6.00

10630.81	10845.30	5.03	11.99	50.35	0.02	0.24	0.42
10845.30	11274.29						
11274.29	11488.78	123.61	84.89	54.99	0.54	1.55	1.46
11488.78	11703.27	83.31	57.80	38.03	0.36	1.54	1.44
11703.27	11917.77	0.52	2.16	20.79	0.00	0.10	0.24
11917.77	12132.26	8.08	12.97	30.04	0.04	0.43	0.62
12132.26	12346.75	10.72	28.56	141.46	0.05	0.20	0.38
12346.75	12561.24	2.81	10.47	85.99	0.01	0.12	0.27
12561.24	12990.23						
12990.23	13204.72	4.01	8.24	27.60	0.02	0.30	0.49
13204.72	13419.21	57.20	88.31	192.82	0.25	0.46	0.65
13419.21	13633.71	15.07	27.17	79.82	0.07	0.34	0.55

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9168.00	9922.85	5301.95	1227.18	388.80	16.07	3.16	4.32
LB 9922.85	10158.84	13309.50	1379.11	237.55	40.33	5.84	9.65
10158.84	10394.82	7049.77	942.16	237.71	21.36	3.99	7.48
10394.82	RB 10630.81	5987.14	853.45	237.20	18.14	3.62	7.02
10630.81	10845.30	63.07	94.14	181.45	0.19	0.52	0.67
10845.30	11059.79						
11059.79	11274.29	5.87	16.97	88.23	0.02	0.19	0.35
11274.29	11488.78	183.33	191.08	214.88	0.56	0.89	0.96
11488.78	11703.27	120.60	93.74	67.89	0.37	1.39	1.29
11703.27	11917.77	28.93	43.10	82.86	0.09	0.52	0.67
11917.77	12132.26	43.12	58.94	99.55	0.13	0.59	0.73
12132.26	12346.75	186.12	192.77	214.76	0.56	0.90	0.97
12346.75	12561.24	106.23	122.40	160.01	0.32	0.77	0.87
12561.24	12775.74	47.12	81.76	197.51	0.14	0.41	0.58
12775.74	12990.23	6.86	17.92	80.00	0.02	0.22	0.38
12990.23	13204.72	126.42	152.77	214.50	0.38	0.71	0.83
13204.72	13419.21	316.56	265.03	214.57	0.96	1.24	1.19
13419.21	13633.71	117.42	111.89	124.26	0.36	0.90	1.05

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.699

INPUT
Description:
Station Elevation Data num= 138

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9256	1358.1	9266.09	1357.15	9282.59	1358.11	9326.59	1356.26	9335.31	1356.49
9340.59	1356.1	9350.9	1357.54	9406.43	1357.07	9463.66	1356.61	9563.65	1355.47
9671.99	1355.3	9710.26	1354.18	9735.1	1354.38	9757.7	1353.56	9770.34	1351.26
9788.07	1345.7	9797.17	1350.56	9804.33	1347.5	9816.6	1348.52	9831.05	1347.89
9855.63	1349	9874.71	1349.99	9903.39	1349.08	9921.35	1345.89	9982.14	1344.71
10027.02	1345.4	10044.1	1349.76	10069.22	1348.55	10099.66	1350.42	10129.06	1350.44
10139.36	1352.51	10149.46	1353.43	10156.88	1351.41	10172.37	1348.91	10204.12	1350.71
10210.28	1350.51	10264.93	1351.11	10281.24	1348.71	10309.55	1349.01	10319.29	1349.07
10345.58	1350.51	10422.21	1349.44	10491.03	1347.71	10505.89	1348.88	10544.84	1349
10566.95	1350.21	10578.72	1347.07	10599.47	1346.51	10621.48	1348.84	10656.83	1349.24
10679.76	1348.81	10706.38	1348.41	10721.41	1347.87	10813.35	1346.25	10832.99	1346.25
10850.8	1351.71	10858.87	1351.71	10884.29	1352.89	10911.3	1352.96	10981.91	1353.59
11012.23	1353.71	11112.68	1354.41	11130.18	1354.31	11236.54	1353.92	11331.39	1353.82
11387.09	1353.21	11444.73	1353.92	11487.16	1354.27	11499.25	1351.81	11510.71	1353.8
11525.54	1353.21	11546.37	1349.89	11555.39	1351.57	11562.38	1351.18	11583.67	1353.46
11682.4	1353.21	11697.13	1352.54	11714.47	1350.46	11737.66	1352.67	11760.34	1353.06
11780.25	1353.61	11818.45	1353.49	11827.56	1353.44	11841.7	1354.98	11858.96	1353.65
11877.94	1353.71	11909.76	1354.71	11934.55	1354.98	12013.54	1353.81	12039.54	1354.37
12054.92	1351.81	12081.11	1354.32	12102.33	1352.52	12121.6	1354.26	12191.97	1353.82
12229.53	1354.31	12267.05	1353.73	12286.77	1352.76	12312.66	1353.55	12362.53	1353.38
12374.44	1351.31	12394.53	1353.61	12468.22	1353.89	12486.14	1353.37	12517.94	1352.84
12618.43	1353.11	12652.97	1353.74	12725.98	1353.11	12732.84	1353.58	12804.96	1353.92
12856.29	1353.91	12875.13	1353.66	12975.36	1353.29	13074.34	1353.75	13094.34	1354.46
13117.98	1354.61	13175.41	1353.84	13275.43	1353.03	13319.4	1353.38	13357.65	1353.49
13396.07	1352.91	13453.46	1352.86	13483.43	1353.45	13493.69	1351.63	13506.25	1353.61
13547.33	1353.21	13558.58	1353.38	13571.92	1352.57	13584.28	1353.65	13633.22	1354.02
13660.58	1354.51	13670.59	1353.21	13685.38	1354.91	13727.95	1355.47	13748.53	1355.89
13784.59	1356.21	13887.77	1357.77	14009.28	1359.42				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9256	.058	9874.71	.03	10858.87	.111	11525.54	.111	11934.55	.11
13357.65	.111	13584.28	.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9874.71	10858.87	485	413.6	222	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1352.06	Element			
Vel Head (ft)	0.22	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1351.85	Reach Len. (ft)	485.00	413.60	222.00
Crit W.S. (ft)	1350.01	Flow Area (sq ft)	342.81	3188.87	48.29
E.G. Slope (ft/ft)	0.001939	Area (sq ft)	342.81	3188.87	48.29
Q Total (cfs)	13000.00	Flow (cfs)	822.79	12154.26	22.95
Top Width (ft)	1148.03	Top Width (ft)	107.59	965.01	75.43
Vel Total (ft/s)	3.63	Avg. Vel. (ft/s)	2.40	3.81	0.48
Max Chl Dpth (ft)	7.14	Hydr. Depth (ft)	3.19	3.30	0.64
Conv. Total (cfs)	295256.4	Conv. (cfs)	18687.3	276048.0	521.2
Length Wtd. (ft)	414.71	Wetted Per. (ft)	110.45	968.12	76.06
Min Ch El (ft)	1344.71	Shear (lb/sq ft)	0.38	0.40	0.08
Alpha	1.06	Stream Power (lb/ft s)	0.90	1.52	0.04
Frctn Loss (ft)	0.94	Cum Volume (acre-ft)	123.55	1874.73	607.68
C & E Loss (ft)	0.02	Cum SA (acres)	80.58	414.03	426.87

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1353.51	Element			
Vel Head (ft)	0.34	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1353.18	Reach Len. (ft)	485.00	413.60	222.00
Crit W.S. (ft)	1350.97	Flow Area (sq ft)	490.83	4481.88	327.09
E.G. Slope (ft/ft)	0.001971	Area (sq ft)	490.83	4481.88	327.09
Q Total (cfs)	23000.00	Flow (cfs)	1444.89	21380.74	174.36
Top Width (ft)	1709.23	Top Width (ft)	114.91	980.49	613.83
Vel Total (ft/s)	4.34	Avg. Vel. (ft/s)	2.94	4.77	0.53
Max Chl Dpth (ft)	8.47	Hydr. Depth (ft)	4.27	4.57	0.53
Conv. Total (cfs)	518068.8	Conv. (cfs)	32545.9	481595.5	3927.5
Length Wtd. (ft)	412.92	Wetted Per. (ft)	117.88	983.88	615.74
Min Ch El (ft)	1344.71	Shear (lb/sq ft)	0.51	0.56	0.07
Alpha	1.15	Stream Power (lb/ft s)	1.51	2.67	0.03
Frctn Loss (ft)	0.97	Cum Volume (acre-ft)	431.51	2720.58	1451.32
C & E Loss (ft)	0.03	Cum SA (acres)	219.24	439.48	808.98

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1354.56	Element			
Vel Head (ft)	0.45	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1354.11	Reach Len. (ft)	485.00	413.60	222.00
Crit W.S. (ft)	1351.70	Flow Area (sq ft)	604.06	5401.78	1767.12
E.G. Slope (ft/ft)	0.002105	Area (sq ft)	604.06	5401.78	1767.12
Q Total (cfs)	33000.00	Flow (cfs)	1925.71	30086.85	987.44
Top Width (ft)	3517.22	Top Width (ft)	132.24	984.16	2400.82
Vel Total (ft/s)	4.25	Avg. Vel. (ft/s)	3.19	5.57	0.56
Max Chl Dpth (ft)	9.40	Hydr. Depth (ft)	4.57	5.49	0.74
Conv. Total (cfs)	719212.0	Conv. (cfs)	41969.6	655721.9	21520.6
Length Wtd. (ft)	407.08	Wetted Per. (ft)	135.25	987.60	2403.52
Min Ch El (ft)	1344.71	Shear (lb/sq ft)	0.59	0.72	0.10
Alpha	1.60	Stream Power (lb/ft s)	1.87	4.00	0.05
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	759.55	3289.19	2305.32
C & E Loss (ft)	0.05	Cum SA (acres)	326.15	449.36	1055.80

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9256.00	9874.71	822.79	342.81	110.45	6.33	3.19	2.40
LB 9874.71	10202.76	4934.74	1196.03	310.29	37.96	3.87	4.13
10202.76	10530.82	2229.86	759.59	328.35	17.15	2.32	2.94
10530.82	RB 10858.87	4989.66	1233.24	329.48	38.38	3.76	4.05
10858.87	11068.90	0.02	0.23	3.14	0.00	0.07	0.10
11068.90	11488.95						
11488.95	11698.98	13.91	27.50	35.30	0.11	0.79	0.51
11698.98	11909.01	8.44	18.10	26.26	0.06	0.69	0.47
11909.01	12119.03	0.00	0.02	0.77	0.00	0.02	0.05
12119.03	12329.06						
12329.06	12539.09	0.54	2.15	7.96	0.00	0.27	0.25
12539.09	13379.20						
13379.20	13589.23	0.04	0.28	2.63	0.00	0.11	0.13

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9256.00	9874.71	1444.89	490.83	117.88	6.28	4.27	2.94
LB 9874.71	10202.76	8063.91	1616.05	326.05	35.06	4.98	4.99

10202.76	10530.82	4860.58	1196.09	328.35	21.13	3.65	4.06
10530.82	RB 10858.87	8456.24	1669.74	329.48	36.77	5.09	5.06
10858.87	11068.90	11.32	31.89	76.81	0.05	0.42	0.36
11068.90	11488.95						
11488.95	11698.98	73.88	103.19	86.83	0.32	1.20	0.72
11698.98	11909.01	49.21	72.42	69.90	0.21	1.10	0.68
11909.01	12119.03	8.67	20.47	37.82	0.04	0.54	0.42
12119.03	12329.06	1.04	4.62	22.17	0.00	0.21	0.22
12329.06	12539.09	14.50	35.38	68.73	0.06	0.52	0.41
12539.09	12749.12	2.77	14.82	93.43	0.01	0.16	0.19
12749.12	13169.17						
13169.17	13379.20	0.30	2.71	37.86	0.00	0.07	0.11
13379.20	13589.23	12.67	41.60	126.17	0.06	0.33	0.30

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9256.00	9874.71	1925.71	604.06	135.25	5.84	4.57	3.19
LB 9874.71	10202.76	11088.42	1922.38	329.77	33.60	5.86	5.77
10202.76	10530.82	7377.69	1502.88	328.35	22.36	4.58	4.91
10530.82	RB 10858.87	11620.73	1976.53	329.48	35.21	6.03	5.88
10858.87	11068.90	86.75	163.76	210.06	0.26	0.78	0.53
11068.90	11278.92	2.45	14.17	97.37	0.01	0.15	0.17
11278.92	11488.95	29.05	81.64	190.18	0.09	0.43	0.36
11488.95	11698.98	207.61	276.94	211.00	0.63	1.32	0.75
11698.98	11909.01	123.30	187.18	173.15	0.37	1.08	0.66
11909.01	12119.03	39.23	78.23	108.96	0.12	0.72	0.50
12119.03	12329.06	23.44	66.61	157.81	0.07	0.42	0.35
12329.06	12539.09	92.90	170.73	210.35	0.28	0.81	0.54
12539.09	12749.12	98.09	176.29	210.05	0.30	0.84	0.56
12749.12	12959.14	29.53	85.78	210.03	0.09	0.41	0.34
12959.14	13169.17	30.77	74.70	139.76	0.09	0.53	0.41
13169.17	13379.20	76.61	151.99	210.04	0.23	0.72	0.50
13379.20	13589.23	142.42	220.65	210.43	0.43	1.05	0.65
13589.23	13799.25	5.29	18.45	64.34	0.02	0.29	0.29

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.623

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9318	1356.6	9323.95	1356.12	9331.78	1352.99	9386.87	1351.18	9398.18	1352.92
9440.31	1352.4	9494.82	1352.07	9498.5	1351.33	9508.04	1352.1	9517.3	1349.97
9525.37	1352.6	9554.41	1352.97	9642.5	1353	9690.19	1352.56	9801.75	1352.1
9824.47	1353.1	9877.27	1352.59	9930.01	1351.94	9949.16	1351.97	9961.51	1342.06
9962.84	1340	9982.3	1341.1	10011.88	1341.1	10043.47	1343.1	10049.19	1343.83
10086.79	1344.1	10097.68	1345.1	10103.38	1344.5	10115.75	1346.8	10125.97	1346.92
10136.16	1348.7	10154.16	1345.7	10166.78	1346.8	10199.38	1347.8	10212.27	1347.44
10247.85	1347	10269.85	1345.8	10283.93	1349.1	10296.67	1349.6	10313.36	1348.99
10315.84	1349.4	10345.62	1348.8	10363.48	1347.7	10414.67	1348.5	10427.12	1347.29
10447.66	1348.9	10497.95	1349	10545.69	1349.0	10560.13	1346.23	10582.8	1345.78
10599.59	1347.9	10633.17	1346.9	10675.59	1346.8	10704.51	1348.1	10725.87	1347.87
10741.04	1346.2	10788.78	1348.78	10818.1	1348.9	10850.88	1351.0	10868.19	1349.23
10905.65	1350.4	10942.53	1350.6	10961.91	1349.7	10980.87	1349.2	11005.87	1350.19
11023.38	1348.5	11039.77	1346.3	11058.38	1346	11085.01	1346.4	11095.88	1348.63
11102.88	1351.7	11115.35	1350.9	11119.44	1351.9	11131.49	1351.76	11166.7	1352.38
11227.4	1353.3	11251.11	1353.4	11320.83	1352.84	11337.2	1352.8	11390.95	1353.08
11423.38	1353	11511.13	1352.41	11544.3	1351.33	11637.1	1352.0	11651.17	1352.24
11694.28	1352.2	11835.32	1352.7	11875.02	1352.6	11890.94	1352.8	11930.33	1352.5
11942.47	1350.9	11960.64	1351.1	11997.49	1351.4	12051.41	1351.2	12073.01	1349.74
12100.8	1347.3	12105.67	1347.1	12112.51	1349.28	12128.3	1350.92	12144.6	1351.54
12163.45	1352.7	12189.18	1352.3	12195.09	1352.85	12213.6	1353.4	12248.53	1352.19
12272.04	1351.6	12301.09	1353.6	12320.12	1350.7	12337.46	1352.92	12375.5	1352.7
12393.1	1351.9	12414.07	1353.1	12442.31	1353	12475.02	1353.1	12513.75	1353.5
12537.6	1350.5	12563.6	1352.9	12583.11	1351.0	12603.78	1352.1	12653.28	1352.08
12676.81	1350.4	12696.82	1352.3	12710.58	1352.6	12732.62	1352.1	12789.36	1352.11
12811.59	1351.8	12918.52	1351.9	12973.47	1352.56	13022.5	1352.7	13088.74	1352.47
13125.8	1352.6	13165.06	1352.2	13218.57	1352.1	13278.89	1352.0	13290.55	1351.89
13319.53	1352.6	13427.34	1352.5	13518.58	1351.8	13554.92	1352.6	13573.68	1352.58
13587.95	1351.9	13631.19	1351.6	13673.23	1352.4	13684.61	1350.7	13697.52	1353.05
13734.77	1352.2	13821.7	1352.7	13884.09	1354.0	13897.92	1353.0	13905.99	1354.34
13996.16	1355.3	14128.99	1357.6	14177.36	1358				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9318	.058	9949.16	.05	11102.88	.111	11890.94	.111	12513.75	.11
13673.23	.111	13697.52	.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9949.16	11102.88	475	505.65	512	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9318	9824.47	1353.1

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1351.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.056	0.110
W.S. Elev (ft)	1350.94	Reach Len. (ft)	475.00	505.65	512.00
Crit W.S. (ft)	1348.39	Flow Area (sq ft)		4015.58	134.22
E.G. Slope (ft/ft)	0.002771	Area (sq ft)	3.52	4015.58	134.22
Q Total (cfs)	13000.00	Flow (cfs)		12867.44	132.56
Top Width (ft)	1259.67	Top Width (ft)	7.23	1148.10	104.35
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)		3.20	0.99
Max Chl Dpth (ft)	10.94	Hydr. Depth (ft)		3.50	1.29
Conv. Total (cfs)	246956.3	Conv. (cfs)		244438.2	2518.2
Length Wtd. (ft)	505.70	Wetted Per. (ft)		1155.65	105.06
Min Ch El (ft)	1340.00	Shear (lb/sq ft)		0.60	0.22
Alpha	1.04	Stream Power (lb/ft s)		1.93	0.22
Frctn Loss (ft)	2.27	Cum Volume (acre-ft)	121.62	1840.53	607.21
C & E Loss (ft)	0.03	Cum SA (acres)	79.94	404.00	426.41

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1352.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.058	0.056	0.110
W.S. Elev (ft)	1352.27	Reach Len. (ft)	475.00	505.65	512.00
Crit W.S. (ft)	1349.57	Flow Area (sq ft)	10.45	5543.46	745.35
E.G. Slope (ft/ft)	0.002904	Area (sq ft)	66.48	5543.46	745.35
Q Total (cfs)	23000.00	Flow (cfs)	5.38	22465.12	529.50
Top Width (ft)	2612.34	Top Width (ft)	193.87	1153.72	1264.75
Vel Total (ft/s)	3.65	Avg. Vel. (ft/s)	0.51	4.05	0.71
Max Chl Dpth (ft)	12.27	Hydr. Depth (ft)	0.23	4.80	0.59
Conv. Total (cfs)	426814.8	Conv. (cfs)	99.8	416888.8	9826.1
Length Wtd. (ft)	505.78	Wetted Per. (ft)	45.93	1161.80	1266.59
Min Ch El (ft)	1340.00	Shear (lb/sq ft)	0.04	0.87	0.11
Alpha	1.20	Stream Power (lb/ft s)	0.02	3.51	0.08
Frctn Loss (ft)	2.27	Cum Volume (acre-ft)	428.40	2672.99	1448.58
C & E Loss (ft)	0.03	Cum SA (acres)	217.52	429.34	804.19

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1353.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.058	0.056	0.110
W.S. Elev (ft)	1353.23	Reach Len. (ft)	475.00	505.65	512.00
Crit W.S. (ft)	1350.31	Flow Area (sq ft)	477.54	6651.69	2730.25
E.G. Slope (ft/ft)	0.002872	Area (sq ft)	477.54	6651.69	2730.25
Q Total (cfs)	33000.00	Flow (cfs)	551.47	30268.79	2179.75
Top Width (ft)	4416.07	Top Width (ft)	617.98	1153.72	2644.37
Vel Total (ft/s)	3.35	Avg. Vel. (ft/s)	1.15	4.55	0.80
Max Chl Dpth (ft)	13.23	Hydr. Depth (ft)	0.77	5.77	1.03
Conv. Total (cfs)	615825.7	Conv. (cfs)	10291.1	564857.4	40677.2
Length Wtd. (ft)	505.76	Wetted Per. (ft)	618.99	1161.80	2646.77
Min Ch El (ft)	1340.00	Shear (lb/sq ft)	0.14	1.03	0.18
Alpha	1.70	Stream Power (lb/ft s)	0.16	4.67	0.15
Frctn Loss (ft)	2.17	Cum Volume (acre-ft)	753.53	3231.97	2293.86
C & E Loss (ft)	0.04	Cum SA (acres)	321.97	439.21	1042.94

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9949.16	10333.73	7938.35	2031.02	388.91	61.06	5.30	3.91
10333.73	10718.31	3132.64	1158.13	385.20	24.10	3.01	2.70
10718.31	RB 11102.88	1796.45	826.42	381.54	13.82	2.17	2.17
11102.88	11922.74						
11922.74	12127.71	130.88	128.08	76.19	1.01	1.69	1.02
12127.71	12332.67	0.05	0.38	4.39	0.00	0.09	0.14
12332.67	12537.64	0.21	0.80	3.60	0.00	0.22	0.27
12537.64	12742.60	1.36	4.65	18.05	0.01	0.26	0.29
12742.60	13562.46						
13562.46	13767.43	0.05	0.30	2.74	0.00	0.11	0.17

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9318.00	9949.16	5.38	10.45	45.93	0.02	0.23	0.51
LB 9949.16	10333.73	12171.40	2540.14	390.55	52.92	6.61	4.79
10333.73	10718.31	6093.35	1667.91	385.20	26.49	4.34	3.65
10718.31	RB 11102.88	4200.38	1335.41	386.05	18.26	3.47	3.15
11102.88	11307.85	12.36	27.77	57.72	0.05	0.48	0.45
11307.85	11512.81						
11512.81	11717.78	26.24	71.46	198.25	0.11	0.36	0.37
11717.78	11922.74						
11922.74	12127.71	364.98	345.37	196.28	1.59	1.77	1.06
12127.71	12332.67	26.37	51.52	86.85	0.11	0.60	0.51
12332.67	12537.64	7.21	15.17	28.54	0.03	0.53	0.48
12537.64	12742.60	43.66	88.86	159.27	0.19	0.56	0.49
12742.60	12947.57	20.69	62.78	204.97	0.09	0.31	0.33
12947.57	13152.53	0.00	0.01	1.38	0.00	0.01	0.03
13152.53	13357.50	3.56	18.92	143.25	0.02	0.13	0.19
13357.50	13562.46	4.47	16.66	74.04	0.02	0.23	0.27
13562.46	13767.43	19.96	46.84	116.04	0.09	0.40	0.43

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9318.00	9949.16	551.47	477.54	618.99	1.67	0.77	1.15
LB 9949.16	10333.73	15359.31	2909.55	390.55	46.54	7.57	5.28
10333.73	10718.31	8558.90	2037.32	385.20	25.94	5.30	4.20
10718.31	RB 11102.88	6350.57	1704.82	386.05	19.24	4.43	3.73
11102.88	11307.85	66.77	117.25	153.26	0.20	0.77	0.57
11307.85	11512.81	27.87	77.97	204.97	0.08	0.38	0.36
11512.81	11717.78	218.42	268.20	204.99	0.66	1.31	0.81
11717.78	11922.74	68.18	133.37	204.97	0.21	0.65	0.51
11922.74	12127.71	699.92	540.08	205.63	2.12	2.63	1.30
12127.71	12332.67	129.22	187.27	183.53	0.39	1.02	0.69
12332.67	12537.64	39.56	90.73	177.01	0.12	0.51	0.44
12537.64	12742.60	227.97	275.38	205.36	0.69	1.34	0.83
12742.60	12947.57	206.97	259.67	204.97	0.63	1.27	0.80
12947.57	13152.53	70.36	135.91	204.97	0.21	0.66	0.52
13152.53	13357.50	134.67	200.65	204.98	0.41	0.98	0.67
13357.50	13562.46	112.09	179.73	204.98	0.34	0.88	0.62
13562.46	13767.43	158.70	221.58	205.34	0.48	1.08	0.72
13767.43	13972.39	19.04	42.46	81.83	0.06	0.52	0.45

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.596

INPUT
Description:
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9227	1352.1	9286.29	1351.49	9339.59	1351.4	9362.26	1349.9	9391.52	1349.19
9411.74	1348.9	9424.7	1349.54	9446.73	1349.34	9470.51	1349.35	9479	1345.94
9489.28	1349.2	9518.4	1348.08	9525.76	1345.62	9542.4	1348.75	9566.9	1348
9622.54	1347.4	9642.37	1347.44	9657.79	1348.25	9689.11	1348.35	9713.32	1348.27
9734.14	1348	9776.97	1348.44	9796.93	1348.24	9840.22	1348.2	9867.96	1347.97
9893.94	1348.4	9926.47	1348.64	9936.59	1346.05	9951.29	1344.28	9958.57	1340.53
9974.55	1340	9990.68	1338.38	10040.87	1340.46	10070.78	1341.37	10085.86	1341.48
10104.64	1340.71	10125.69	1345.86	10136.01	1345.11	10161.47	1344.11	10178.16	1344.9
10193.67	1345.61	10212.94	1347.78	10274.8	1348.77	10331.79	1348.71	10354.38	1346.71
10371.49	1346.61	10470.92	1346.55	10570.91	1347.11	10670.92	1347.48	10770.92	1348.14
10789.91	1347.81	10872.72	1348.17	10895.37	1346.17	10931.84	1345.62	10953.24	1352.28
11027.5	1351.71	11072.65	1351.61	11170.94	1351.79	11225.28	1351.94	11288.01	1352.09
11374.74	1351.71	11399.67	1350.67	11457.93	1350.98	11511.65	1351.38	11560.75	1351.66
11574.74	1351.41	11646.02	1350.82	11713.5	1351.25	11783.32	1352.49	11799.8	1350.01
11826.49	1350.51	11829.45	1350.61	11865.4	1349.57	11896.99	1349.04	11913.44	1348.1

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11922.45  1348.311940.43 1345.9711965.85 1351.22 11986.9  1351.412032.68 1349.93
 12071.8  1350.712097.11 1350.5512141.81 1350.6112154.28 1349.0612182.68 1349.83
12202.67  1350.812239.41 1350.9112297.52 1350.4512352.29  1349.712370.66 1350.79
12399.11  1348.112417.67 1347.6512436.79  1349.812517.84 1351.5212586.44 1350.47
12604.17  1350.512617.44 1349.7312637.06  1350.212702.76 1350.2312774.99  1350.1
12844.88  1350.712854.82 1350.6612885.89 1351.6812931.85  1350.612996.57 1350.09
13093.34  1350.513124.34 1350.4213171.59 1350.3513198.26 1350.2713249.02 1349.71
13261.75  1347.613300.98 1352.5413314.13 1350.5813328.45 1352.2813341.78 1350.32
13355.42  1349.113369.53 1349.2213395.56 1348.8913406.82  1346.913425.65 1349.11
13457.63  1349.413496.46 1348.6913508.34 1349.6713522.17 1348.8813573.35 1349.65
13594.25  1349.813645.97 1350.2313699.82 1351.2313751.52 1351.6513804.23 1351.55
13847.97    1352

Manning's n Values          num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9227    .058 9926.47   .05610953.24     .1111783.32     .11 11986.9     .11
13369.53     .1113457.63     .11

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9926.4710953.24              460  677.66     787             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev
    9227 9926.47    1352
```

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1348.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.		0.056	0.110
W.S. Elev (ft)	1348.34	Reach Len. (ft)	460.00	677.66	787.00
Crit W.S. (ft)	1347.03	Flow Area (sq ft)		2368.25	67.02
E.G. Slope (ft/ft)	0.012124	Area (sq ft)	141.40	2368.25	67.02
Q Total (cfs)	13000.00	Flow (cfs)		12920.21	79.79
Top Width (ft)	1380.85	Top Width (ft)	354.68	925.23	100.95
Vel Total (ft/s)	5.34	Avg. Vel. (ft/s)		5.46	1.19
Max Chl Dpth (ft)	9.96	Hydr. Depth (ft)		2.56	0.66
Conv. Total (cfs)	118065.8	Conv. (cfs)		117341.1	724.7
Length Wtd. (ft)	678.08	Wetted Per. (ft)		928.12	101.72
Min Ch El (ft)	1338.38	Shear (lb/sq ft)		1.93	0.50
Alpha	1.04	Stream Power (lb/ft s)		10.54	0.59
Frctn Loss (ft)	5.01	Cum Volume (acre-ft)	120.83	1803.47	606.03
C & E Loss (ft)	0.00	Cum SA (acres)	77.97	391.96	425.21

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1350.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.056	0.110
W.S. Elev (ft)	1349.64	Reach Len. (ft)	460.00	677.66	787.00
Crit W.S. (ft)	1348.48	Flow Area (sq ft)		3654.01	356.81
E.G. Slope (ft/ft)	0.009871	Area (sq ft)	742.47	3654.01	356.81
Q Total (cfs)	23000.00	Flow (cfs)		22532.52	467.48
Top Width (ft)	1996.00	Top Width (ft)	553.42	1018.28	424.31
Vel Total (ft/s)	5.73	Avg. Vel. (ft/s)		6.17	1.31
Max Chl Dpth (ft)	11.26	Hydr. Depth (ft)		3.59	0.84
Conv. Total (cfs)	231492.5	Conv. (cfs)		226787.4	4705.2
Length Wtd. (ft)	679.35	Wetted Per. (ft)		1021.42	425.80
Min Ch El (ft)	1338.38	Shear (lb/sq ft)		2.20	0.52
Alpha	1.13	Stream Power (lb/ft s)		13.60	0.68
Frctn Loss (ft)	4.44	Cum Volume (acre-ft)	423.99	2619.60	1442.11
C & E Loss (ft)	0.02	Cum SA (acres)	213.45	416.74	794.27

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1351.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.056	0.110
W.S. Elev (ft)	1350.66	Reach Len. (ft)	460.00	677.66	787.00
Crit W.S. (ft)	1349.26	Flow Area (sq ft)		4694.47	1228.54
E.G. Slope (ft/ft)	0.008369	Area (sq ft)	1320.98	4694.47	1228.54
Q Total (cfs)	33000.00	Flow (cfs)		31429.79	1570.21
Top Width (ft)	3101.11	Top Width (ft)	575.67	1021.56	1503.88
Vel Total (ft/s)	5.57	Avg. Vel. (ft/s)		6.70	1.28
Max Chl Dpth (ft)	12.28	Hydr. Depth (ft)		4.60	0.82
Conv. Total (cfs)	360729.6	Conv. (cfs)		343565.3	17164.3
Length Wtd. (ft)	681.60	Wetted Per. (ft)		1024.86	1505.93
Min Ch El (ft)	1338.38	Shear (lb/sq ft)		2.39	0.43
Alpha	1.38	Stream Power (lb/ft s)		16.02	0.54
Frctn Loss (ft)	4.12	Cum Volume (acre-ft)	743.72	3166.12	2270.60
C & E Loss (ft)	0.04	Cum SA (acres)	315.47	426.59	1018.56

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9926.47	10268.73	11141.64	1672.96	322.86	85.70	5.22	6.66
10268.73	10610.98	1231.48	418.59	275.14	9.47	1.52	2.94
10610.98	RB 10953.24	547.09	276.70	330.12	4.21	0.84	1.98
10953.24	11725.17						
11725.17	11918.15	0.58	1.43	8.99	0.00	0.16	0.41
11918.15	12111.13	51.41	35.78	34.17	0.40	1.06	1.44
12111.13	12304.11						
12304.11	12497.10	8.56	11.16	27.37	0.07	0.41	0.77
12497.10	13076.04						
13076.04	13269.02	2.77	3.87	10.51	0.02	0.37	0.72
13269.02	13462.01	16.47	14.79	20.69	0.13	0.72	1.11

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9926.47	10268.73	16347.13	2112.28	344.60	71.07	6.17	7.74
10268.73	10610.98	3501.80	835.84	342.35	15.23	2.44	4.19
10610.98	RB 10953.24	2683.59	705.89	334.48	11.67	2.11	3.80
10953.24	11725.17						
11725.17	11918.15	32.82	35.17	55.14	0.14	0.64	0.93
11918.15	12111.13	170.31	83.54	40.57	0.74	2.09	2.04
12111.13	12304.11	4.13	7.51	26.02	0.02	0.29	0.55
12304.11	12497.10	88.93	62.81	52.70	0.39	1.20	1.42
12497.10	13076.04						
13076.04	13269.02	34.43	24.02	19.80	0.15	1.23	1.43
13269.02	13462.01	96.72	92.39	121.92	0.42	0.76	1.05
13462.01	13654.99	40.14	51.39	109.67	0.17	0.47	0.78

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9926.47	10268.73	20393.47	2461.43	344.60	61.80	7.19	8.29
10268.73	10610.98	6057.13	1184.99	342.35	18.35	3.46	5.11
10610.98	RB 10953.24	4979.18	1048.05	337.91	15.09	3.11	4.75
10953.24	11725.17						
11725.17	11918.15	156.63	121.79	122.76	0.47	0.99	1.29
11918.15	12111.13	207.71	151.00	137.59	0.63	1.10	1.38
12111.13	12304.11	46.17	58.31	121.64	0.14	0.48	0.79
12304.11	12497.10	238.79	178.59	169.79	0.72	1.05	1.34
12497.10	12690.08	35.30	48.69	115.96	0.11	0.42	0.72
12690.08	12883.06	41.24	59.24	149.94	0.12	0.40	0.70
12883.06	13076.04	33.81	52.12	146.67	0.10	0.36	0.65
13076.04	13269.02	97.75	110.04	193.22	0.30	0.57	0.89
13269.02	13462.01	399.96	226:09	141.26	1.21	1.61	1.77
13462.01	13654.99	312.26	220.83	193.06	0.95	1.14	1.41
13654.99	13847.97	0.61	1.83	14.04	0.00	0.13	0.33

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.475

INPUT
Description:

Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9157	1350	9198.07	1349.44	9209.08	1350.54	9229.38	1350.67	9245.82	1347.08
9250.9	1347.3	9259.75	1349.17	9275.83	1350.84	9307.72	1350.14	9314.5	1350.43
9332.25	1349.5	9341.89	1349.4	9365.79	1349.84	9370.52	1349.61	9401.44	1349.38
9416.67	1349.7	9455.68	1348.86	9477.73	1348.12	9503.99	1347.86	9540.74	1346.09
9560.29	1347.7	9582.52	1347.34	9599.39	1347.12	9610.67	1342.21	9626.58	1341.34
9664.1	1341.6	9705.46	1341.32	9716.87	1338.84	9728.62	1336.67	9752.31	1337.25
9781.12	1337.3	9847.02	1338.08	9959.73	1337.44	9973.89	1335.06	10020.83	1335.92
10056.25	1341.5	10097.34	1342.21	10121.69	1343.31	10151.77	1344.36	10180.94	1344.03
10260.23	134	410313.56	1345.24	10413.86	1346.51	10460.22	1346.68	10506.32	1346.71
10560.22	1346.5	10660.22	1347.12	10714.74	1346.92	10760.25	1346.55	10815.03	1346.87
10860.23	1346.7	10915.32	1346.04	10960.23	1346.04	11098.29	1346.44	11134.47	1347.09
11167.59	1347.5	11258.09	1346.65	11266.84	1346.97	11366.02	1346.59	11466.35	1346.62
11568.19	1347	11627.3	1347.22	11641.64	1345.79	11674.14	1346.83	11709.9	1345.92
11722.53	1345.8	11740.26	1341.99	11764.59	1346.29	11799.49	1346.55	11828.16	1343.84
11846.59	1341.8	11860.73	1344.76	11868.13	1346.83	11940.14	1347.49	11944.08	1347.34
11969.37	1346.4	11988.98	1346.77	12018.65	1346.68	12041.69	1347.36	12097.42	1346.92
12142.49	1345.8	12189.33	1346.85	12265.03	1347.01	12275.75	1346.74	12299.01	1344.6
12318.73	1346.3	12334.22	1343.53	12355.04	1346.38	12377.96	1345.64	12389.56	1346.77
12421.78	1346.6	12435.78	1347.41	12483.59	1346.85	12513.44	1346.12	12541.3	1346.06
12567.99	1345.7	12607.22	1345.85	12613.47	1346.09	12624.48	1343.05	12639.71	1346.89
12652.99	1346.1	12678.95	1346.51	12689.49	1341.26	12702.75	1347.13	12784.37	1346.19
12873.81	1346.3	12962.56	1345.97	13037.81	1345.76	13113.77	1345.75	13193.41	1345.92
13204.1	1345.8	13268.33	1345.69	13310.26	1345.87	13423.86	134	613528.47	1345.92
13563.32	1346.1	13572.96	1345.45	13584.95	1345.75	13594.68	1344.79	13607.35	1345.77
13664.48	1346.7	13703.15	1347.19	13749.62	1347.12	13761.54	1346.82	13764.22	1347.23
13790.61	1347.5	13804.36	1347.91						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9157	.058	9705.46	.03	10151.77	.11	11627.3	.11	11940.14	.11
12678.95	.11	12702.75	.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9599.39	10151.77	510	319.63	338	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9157	9560.29	1347.7

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1343.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1343.29	Reach Len. (ft)	510.00	319.63	338.00
Crit W.S. (ft)	1340.95	Flow Area (sq ft)		2285.15	32.92
E.G. Slope (ft/ft)	0.002684	Area (sq ft)		2285.15	32.92
Q Total (cfs)	13000.00	Flow (cfs)		12980.98	19.02
Top Width (ft)	557.56	Top Width (ft)		513.20	44.36
Vel Total (ft/s)	5.61	Avg. Vel. (ft/s)		5.68	0.58
Max Chl Dpth (ft)	8.23	Hydr. Depth (ft)		4.45	0.74
Conv. Total (cfs)	250922.7	Conv. (cfs)		250555.5	367.1
Length Wtd. (ft)	324.12	Wetted Per. (ft)		514.61	45.81
Min Ch El (ft)	1335.06	Shear (lb/sq ft)		0.74	0.12
Alpha	1.02	Stream Power (lb/ft s)		4.23	0.07
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	120.09	1767.28	605.13
C & E Loss (ft)	0.02	Cum SA (acres)	76.10	380.77	423.89

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1345.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.		0.039	0.110
W.S. Elev (ft)	1344.97	Reach Len. (ft)	510.00	319.63	338.00
Crit W.S. (ft)	1342.77	Flow Area (sq ft)		3187.36	293.57
E.G. Slope (ft/ft)	0.003200	Area (sq ft)		3187.36	293.57
Q Total (cfs)	23000.00	Flow (cfs)		22755.26	244.74
Top Width (ft)	835.17	Top Width (ft)		547.44	287.73
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)		7.14	0.83
Max Chl Dpth (ft)	9.91	Hydr. Depth (ft)		5.82	1.02
Conv. Total (cfs)	406617.4	Conv. (cfs)		402290.7	4326.7
Length Wtd. (ft)	328.02	Wetted Per. (ft)		549.21	291.25
Min Ch El (ft)	1335.06	Shear (lb/sq ft)		1.16	0.20
Alpha	1.16	Stream Power (lb/ft s)		8.28	0.17
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	420.07	2566.39	1436.23
C & E Loss (ft)	0.00	Cum SA (acres)	210.53	404.56	787.83

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1347.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.		0.039	0.110
W.S. Elev (ft)	1346.07	Reach Len. (ft)	510.00	319.63	338.00
Crit W.S. (ft)	1343.98	Flow Area (sq ft)		3787.97	863.54
E.G. Slope (ft/ft)	0.003701	Area (sq ft)		3787.97	863.54
Q Total (cfs)	33000.00	Flow (cfs)		32185.62	814.38
Top Width (ft)	1868.51	Top Width (ft)		549.96	1318.56

Vel Total (ft/s)	7.09	Avg. Vel. (ft/s)		8.50	0.94
Max Chl Dpth (ft)	11.01	Hydr. Depth (ft)		6.89	0.65
Conv. Total (cfs)	542455.9	Conv. (cfs)		529069.0	13386.9
Length Wtd. (ft)	330.12	Wetted Per. (ft)		551.96	1323.68
Min Ch El (ft)	1335.06	Shear (lb/sq ft)		1.59	0.15
Alpha	1.40	Stream Power (lb/ft s)		13.47	0.14
Frctn Loss (ft)	1.08	Cum Volume (acre-ft)	736.75	3100.13	2251.70
C & E Loss (ft)	0.00	Cum SA (acres)	312.43	414.36	993.07

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9599.39	9783.52	3095.90	608.13	176.04	23.81	3.47	5.09
9783.52	9967.64	6500.30	1029.01	184.24	50.00	5.59	6.32
9967.64	RB 10151.77	3384.78	648.02	154.32	26.04	4.21	5.22
10151.77	11612.81						
11612.81	11856.31	13.18	23.94	34.40	0.10	0.71	0.55
11856.31	12586.83						
12586.83	12830.34	5.84	8.98	11.41	0.04	0.86	0.65

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9599.39	9783.52	5727.30	906.60	180.26	24.90	5.06	6.32
9783.52	9967.64	10948.74	1339.05	184.24	47.60	7.27	8.18
9967.64	RB 10151.77	6079.21	941.72	184.71	26.43	5.11	6.46
10151.77	10395.28	77.67	118.68	150.23	0.34	0.79	0.65
10395.28	11612.81						
11612.81	11856.31	117.33	113.15	71.81	0.51	1.60	1.04
11856.31	12099.82	1.62	3.05	5.30	0.01	0.59	0.53
12099.82	12343.32	7.83	14.79	25.74	0.03	0.58	0.53
12343.32	12586.83	0.02	0.14	1.43	0.00	0.10	0.16
12586.83	12830.34	40.21	43.37	32.56	0.17	1.43	0.93
12830.34	13560.85						
13560.85	13804.36	0.06	0.38	4.18	0.00	0.09	0.15

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9599.39	9783.52	8178.82	1104.11	183.00	24.78	6.08	7.41
9783.52	9967.64	14936.51	1540.59	184.24	45.26	8.37	9.70
9967.64	RB 10151.77	9070.29	1143.27	184.71	27.49	6.21	7.93
10151.77	10395.28	351.67	321.13	227.00	1.07	1.41	1.10
10395.28	10882.29						
10882.29	11125.79	0.09	1.28	55.80	0.00	0.02	0.07
11125.79	11612.81						
11612.81	11856.31	255.23	207.63	123.41	0.77	1.70	1.23
11856.31	12099.82	10.42	10.86	9.36	0.03	1.20	0.96
12099.82	12343.32	46.39	62.50	79.17	0.14	0.79	0.74
12343.32	12586.83	7.78	20.97	75.11	0.02	0.28	0.37
12586.83	12830.34	89.74	89.55	72.32	0.27	1.29	1.00
12830.34	13073.84	8.14	27.40	136.95	0.02	0.20	0.30
13073.84	13317.35	24.60	66.94	243.51	0.07	0.27	0.37
13317.35	13560.85	5.32	26.54	239.28	0.02	0.11	0.20
13560.85	13804.36	15.01	28.76	61.78	0.05	0.47	0.52

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.416

INPUT
Description:
Station Elevation Data num= 135

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8600	1351.7	8606.92	1353.4	8629.86	1353.28	8655.62	1351.99	8679.28	1353.36
8751.29	1351.4	8818.8	1349.02	8835.78	1348.74	8846.08	1350.1	8857.51	1350.25
8879.06	1350	8896.09	1351.09	8928.81	1351.35	9027.64	1350.19	9066.08	1348.75
9089.49	1344	9103.24	1348.43	9127.16	1347.66	9181.88	1346.79	9189.25	1348.77
9226.47	1348.9	9327.63	1348.46	9355.75	1347.77	9373.75	1347.11	9384.85	1346.26

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 9406.25  1344.1 9431.16 1345.24  9465.1 1345.29 9477.56 1343.65 9491.16 1345.15
 9526.61  1345.9 9534.41 1346.26 9549.88 1339.33 9567.47 1340.33 9616.78  1340.5
 9638.26  1340.5 9722.76 1341.47 9764.78 1341.67 9780.18 1342.02 9799.96 1335.54
 9848.86  1335.2 9868.55 1335.69  9883.4 1334.99 9893.42  1336.2 9902.66 1335.57
 9917.75  1336.9 9948.99 1337.55 9974.13  1333.4 10046.8 1334.2810060.45 1334.28
10092.66  1338.510115.94 1342.3410120.14 1342.49 10172.8 1343.6310220.26 1343.81
10285.88  1344.510338.16 1345.3310443.18 1345.2410481.74 1344.7710494.13 1344.21
10532.96  1345.510573.06 1346.4410606.55 1351.5810641.82 1345.8610691.57 1345.91
10715.69  1344.910742.49 1344.8810785.92 1344.5810827.51 1344.6610885.92 1344.52
10982.89  1344.711014.79 1345.2511051.36 1346.2411089.03 1344.9711113.45 1344.99
11222.68 -1345.711298.27 1345.7911385.96 1345.5311485.97 1344.9311553.51 1344.85
11654.76  1345.111685.96 1345.1911704.23 1344.8511758.17 1344.9111799.33 1345.15
11817.36  1342.711847.51  1344.211883.79 1344.0411933.85 1342.7711951.05 1343.74
11969.83    134311983.38 1343.5612002.59 1341.5412018.71 1339.5412030.87 1341.59
12047.24  1344.712074.25 1344.0812079.85 1344.3312110.24 1343.5812151.74  1343.6
12168.93  1340.412189.98 1343.9512226.26 1344.0912266.21 1342.0612274.09 1343.16
12299.82    1343 12309.6 1342.71 12355.8 1345.1612364.02 1345.3912434.31 1345.19
12527.67  1345.312543.71  1340.712554.46 1343.9112613.46 1344.4912634.88 1344.32
 12701.5  1344.412732.94 1344.4912834.91 1343.7512853.13 1342.7712863.28 1343.52
12882.11  1343.212939.79 1344.3412968.14 1345.0313040.43  1344.413083.22 1344.18
13131.36  1343.713187.39 1343.49 13349.1 1344.0513426.27 1343.8213503.45 1343.99
13575.92  1344.513635.45 1345.0613647.85 1344.63 13655.7 1346.2513658.91 1346.57

Manning's n Values          num=        8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8600    .058 9534.41    .058 9780.18    .03810115.94     .1110606.55     .11
11799.33     .1112527.67     .1112554.46     .11

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9780.1810115.94              310  448.62     465              .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev
    8600 9534.41 1346.26
Blocked Obstructions     num=        1
   Sta L   Sta R    Elev
    8600 9226.47  1348.9
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CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1343.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1342.65	Reach Len. (ft)	310.00	448.62	465.00
Crit W.S. (ft)	1339.27	Flow Area (sq ft)	417.27	2271.55	116.27
E.G. Slope (ft/ft)	0.001517	Area (sq ft)	417.27	2271.55	116.27
Q Total (cfs)	13000.00	Flow (cfs)	604.66	12323.79	71.54
Top Width (ft)	684.30	Top Width (ft)	237.72	335.76	110.82
Vel Total (ft/s)	4.63	Avg. Vel. (ft/s)	1.45	5.43	0.62
Max Chl Dpth (ft)	9.25	Hydr. Depth (ft)	1.76	6.77	1.05
Conv. Total (cfs)	333740.9	Conv. (cfs)	15523.1	316381.1	1836.7
Length Wtd. (ft)	446.07	Wetted Per. (ft)	238.46	337.91	112.29
Min Ch El (ft)	1333.40	Shear (lb/sq ft)	0.17	0.64	0.10
Alpha	1.30	Stream Power (lb/ft s)	0.24	3.45	0.06
Frctn Loss (ft)	0.94	Cum Volume (acre-ft)	117.65	1750.56	604.55
C & E Loss (ft)	0.01	Cum SA (acres)	74.70	377.66	423.29

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1344.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1344.06	Reach Len. (ft)	310.00	448.62	465.00
Crit W.S. (ft)	1341.30	Flow Area (sq ft)	755.20	2745.72	732.88
E.G. Slope (ft/ft)	0.002257	Area (sq ft)	756.63	2745.72	732.88
Q Total (cfs)	23000.00	Flow (cfs)	1963.38	20616.29	420.33
Top Width (ft)	1744.11	Top Width (ft)	247.77	335.76	1160.58
Vel Total (ft/s)	5.43	Avg. Vel. (ft/s)	2.60	7.51	0.57
Max Chl Dpth (ft)	10.66	Hydr. Depth (ft)	3.14	8.18	0.63
Conv. Total (cfs)	484118.6	Conv. (cfs)	41326.4	433944.7	8847.4
Length Wtd. (ft)	444.26	Wetted Per. (ft)	241.92	337.91	1163.21
Min Ch El (ft)	1333.40	Shear (lb/sq ft)	0.44	1.14	0.09
Alpha	1.73	Stream Power (lb/ft s)	1.14	8.60	0.05
Frctn Loss (ft)	1.27	Cum Volume (acre-ft)	415.64	2544.62	1432.25
C & E Loss (ft)	0.01	Cum SA (acres)	209.07	401.32	782.21

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1346.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.10	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1344.98	Reach Len. (ft)	310.00	448.62	465.00
Crit W.S. (ft)	1342.91	Flow Area (sq ft)	976.75	3053.24	2310.05
E.G. Slope (ft/ft)	0.002865	Area (sq ft)	1003.80	3053.24	2310.05
Q Total (cfs)	33000.00	Flow (cfs)	3375.60	27724.85	1899.54

Top Width (ft)	3035.66	Top Width (ft)	293.04	335.76	2406.87
Vel Total (ft/s)	5.21	Avg. Vel. (ft/s)	3.46	9.08	0.82
Max Chl Dpth (ft)	11.58	Hydr. Depth (ft)	4.02	9.09	0.96
Conv. Total (cfs)	616482.2	Conv. (cfs)	63060.6	517935.7	35485.9
Length Wtd. (ft)	444.13	Wetted Per. (ft)	244.16	337.91	2409.89
Min Ch El (ft)	1333.40	Shear (lb/sq ft)	0.72	1.62	0.17
Alpha	2.60	Stream Power (lb/ft s)	2.47	14.68	0.14
Frctn Loss (ft)	1.49	Cum Volume (acre-ft)	730.87	3075.04	2239.39
C & E Loss (ft)	0.07	Cum SA (acres)	310.71	411.11	978.61

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8600.00	9780.18	604.66	417.27	238.46	4.65	1.76	1.45
LB 9780.18	9892.10	3989.02	745.27	113.04	30.68	6.66	5.35
9892.10	10004.02	4405.38	789.10	112.36	33.89	7.05	5.58
10004.02	RB 10115.94	3929.39	737.18	112.51	30.23	6.59	5.33
10115.94	10352.14	0.22	1.60	11.69	0.00	0.14	0.14
10352.14	11769.33						
11769.33	12005.52	3.99	9.68	13.59	0.03	0.72	0.41
12005.52	12241.72	59.81	87.26	57.16	0.46	1.55	0.69
12241.72	12477.92	1.08	4.70	15.95	0.01	0.30	0.23
12477.92	12714.12	6.45	13.03	13.90	0.05	0.98	0.49

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8600.00	9780.18	1963.38	755.20	241.92	8.54	3.14	2.60
LB 9780.18	9892.10	6705.02	903.32	113.04	29.15	8.07	7.42
9892.10	10004.02	7285.33	947.16	112.36	31.68	8.46	7.69
10004.02	RB 10115.94	6625.94	895.24	112.51	28.81	8.00	7.40
10115.94	10352.14	37.93	79.23	128.52	0.16	0.62	0.48
10352.14	11769.33						
11769.33	12005.52	76.37	133.25	165.04	0.33	0.81	0.57
12005.52	12241.72	157.49	214.61	183.46	0.68	1.18	0.73
12241.72	12477.92	68.81	99.75	93.96	0.30	1.07	0.69
12477.92	12714.12	26.68	39.86	39.12	0.12	1.04	0.67
12714.12	12950.32	25.11	62.96	134.31	0.11	0.47	0.40
12950.32	13186.51	10.73	32.45	91.69	0.05	0.35	0.33
13186.51	13422.71	14.70	57.22	236.20	0.06	0.24	0.26
13422.71	13658.91	2.51	13.54	91.30	0.01	0.15	0.19

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8600.00	9780.18	3375.60	976.75	244.16	10.23	4.02	3.46
LB 9780.18	9892.10	9037.54	1005.83	113.04	27.39	8.99	8.99
9892.10	10004.02	9742.67	1049.67	112.36	29.52	9.38	9.28
10004.02	RB 10115.94	8944.65	997.74	112.51	27.11	8.91	8.96
10115.94	10352.14	186.98	233.11	200.21	0.57	1.16	0.80
10352.14	10588.34	5.68	16.82	52.85	0.02	0.32	0.34
10588.34	10824.53	7.82	27.38	110.76	0.02	0.25	0.29
10824.53	11060.73	22.49	61.93	174.61	0.07	0.35	0.36
11060.73	11296.93	0.00	0.07	12.81	0.00	0.01	0.02
11296.93	11533.13	0.48	3.89	55.52	0.00	0.07	0.12
11533.13	11769.33	1.68	12.13	145.23	0.01	0.08	0.14
11769.33	12005.52	303.75	315.60	206.22	0.92	1.53	0.96
12005.52	12241.72	443.09	418.78	237.40	1.34	1.77	1.06
12241.72	12477.92	202.80	193.22	110.86	0.61	1.75	1.05
12477.92	12714.12	113.00	167.47	186.41	0.34	0.90	0.67
12714.12	12950.32	192.07	253.13	236.27	0.58	1.07	0.76
12950.32	13186.51	109.50	178.26	228.45	0.33	0.78	0.61
13186.51	13422.71	218.64	273.56	236.20	0.66	1.16	0.80
13422.71	13658.91	91.56	154.70	216.09	0.28	0.72	0.59

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.333

INPUT
Description:
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8454	1351.6	8515.5	1350.25	8530.32	1348.97	8547.94	1349.76	8559.95	1346.41
8580.72	1350.3	8589.49	1350.33	8638.21	1350.12	8746.44	1348.61	8770.68	1348.31
8791.07	1348.3	8837.5	1348.63	8856.9	1347.57	8866.24	1347.83	8878.41	1347.01
8888.66	1344.5	8896.88	1343.91	8902.6	1342.6	8919.48	1347.93	8936.63	1347.44
8994.21	1346.1	9002.35	1347.89	9018.44	1348.26	9045.47	1347.91	9057.22	1347.68
9063.83	1346.8	9112.87	1346.5	9177.48	1346.54	9246.76	1346.08	9253.32	1346.13
9324.47	1345.5	9426.02	1344.19	9460.99	1343.85	9531.13	1343.67	9556.59	1343.48
9604.15	1344.3	9621.03	1339.61	9646.9	1337.97	9665.2	1340.24	9724.67	1340.06
9750.08	1337	9775.56	1338.11	9791.07	1336.76	9847.07	1335.73	9896.96	1337.68
9939.15	1335.1	9989.51	1333.64	10026.6	1333.6	910046.52	1342.68	10227.71	1343.15
10341.69	1342.71	10417.14	1342.95	10466.38	1342.77	10541.37	1342.25	10616.62	1342.14
10666.92	1342.21	10751.49	1342.49	10816.38	1343.26	10833.2	1343.27	10915.84	1342.36
10967.77	1342.51	11041.71	1342.86	11068.03	1342.79	11143.55	1343.16	11168.66	1343.14
11241.75	1342.51	11312.44	1342.71	11341.76	1342.6	11424.2	1341.25	11439.15	1341.85
11458.64	1341.51	1532.28	1342.18	11546.94	1342.11	1569.99	1339.91	1643.61	1341.41
11678.73	1341	11699.78	1340.08	11714.3	1336.43	11731.89	1336.91	11744.53	1338.34
11758.66	1340.61	1784.71	1340.86	11805.69	1342.01	11826.43	1341.41	1842.96	1340.18
11864.51	1342	11901.21	1342.06	11926.61	1341.37	11976.83	1340.88	11987.26	1339.27
12007.63	1339.11	2029.21	1340.51	2046.55	1340.24	2058.64	1339.12	12077	1341.04
12096.44	1340.3	12107.3	1339.74	12120.32	1336.21	12140.73	1340.71	2203.58	1341.54
12225.7	1342.21	2258.92	1342.21	2286.05	1342.49	2345.63	1341.86	2430.98	1341.52
12481.04	1340.81	2495.98	1340.69	2509.21	1338.61	2523.09	1340.56	2573.86	1340.21
12609.85	1341.11	2634.29	1341.14	2654.51	1339.96	2661.67	1339.22	2675.34	1341.44
12758.59	1341.71	2791.02	1340.71	2798.06	1339.68	2809.62	1341.09	2852.59	1341.12
12954.93	1341.61	3056.47	1341.84	13158.03	1341.96	13207.7	1342.39	13259.58	1342.54
13290.53	1343	13315.23	1342.93	13334.67	1342.81	13343.09	1342.34	13350.06	1343.46
13422.19	1344								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8454	.058	9604.15	.03	810046.52	.111	1532.28	.111	1758.66	.11
12140.73	.11								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9604.15	10046.52	375	453.4	454	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8454	9018.44	1348.26

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1342.14	Element			
Vel Head (ft)	0.55	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1341.59	Reach Len. (ft)	375.00	453.40	454.00
Crit W.S. (ft)	1339.82	Flow Area (sq ft)		1943.64	1098.97
E.G. Slope (ft/ft)	0.003378	Area (sq ft)		1943.64	1098.97
Q Total (cfs)	13000.00	Flow (cfs)		12023.51	976.49
Top Width (ft)	1546.31	Top Width (ft)		430.20	1116.12
Vel Total (ft/s)	4.27	Avg. Vel. (ft/s)		6.19	0.89
Max Chl Dpth (ft)	7.95	Hydr. Depth (ft)		4.52	0.98
Conv. Total (cfs)	223687.5	Conv. (cfs)		206885.2	16802.3
Length Wtd. (ft)	453.46	Wetted Per. (ft)		432.78	1119.16
Min Ch El (ft)	1333.64	Shear (lb/sq ft)		0.95	0.21
Alpha	1.94	Stream Power (lb/ft s)		5.86	0.18
Frctn Loss (ft)	1.96	Cum Volume (acre-ft)	116.16	1728.85	598.06
C & E Loss (ft)	0.02	Cum SA (acres)	73.86	373.71	416.74

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1343.58	Element			
Vel Head (ft)	0.77	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1342.82	Reach Len. (ft)	375.00	453.40	454.00
Crit W.S. (ft)	1341.70	Flow Area (sq ft)		2476.67	3381.30
E.G. Slope (ft/ft)	0.003866	Area (sq ft)		2476.67	3381.30
Q Total (cfs)	23000.00	Flow (cfs)		19054.75	3945.25
Top Width (ft)	3143.13	Top Width (ft)		437.04	2706.09
Vel Total (ft/s)	3.93	Avg. Vel. (ft/s)		7.69	1.17
Max Chl Dpth (ft)	9.18	Hydr. Depth (ft)		5.67	1.25
Conv. Total (cfs)	369888.4	Conv. (cfs)		306440.5	63447.9
Length Wtd. (ft)	453.52	Wetted Per. (ft)		440.02	2709.30
Min Ch El (ft)	1333.64	Shear (lb/sq ft)		1.36	0.30
Alpha	3.20	Stream Power (lb/ft s)		10.45	0.35
Frctn Loss (ft)	2.18	Cum Volume (acre-ft)	412.95	2517.73	1410.29
C & E Loss (ft)	0.00	Cum SA (acres)	208.19	397.34	761.58

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1344.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1343.66	Reach Len. (ft)	375.00	453.40	454.00
Crit W.S. (ft)	1343.05	Flow Area (sq ft)	3.11	2845.79	6065.69
E.G. Slope (ft/ft)	0.004035	Area (sq ft)	3.11	2845.79	6065.69
Q Total (cfs)	33000.00	Flow (cfs)	1.02	24421.24	8577.74
Top Width (ft)	3804.89	Top Width (ft)	34.56	440.07	3330.26
Vel Total (ft/s)	3.70	Avg. Vel. (ft/s)	0.33	8.58	1.41
Max Chl Dpth (ft)	10.02	Hydr. Depth (ft)	0.09	6.47	1.82
Conv. Total (cfs)	519502.8	Conv. (cfs)	16.0	384451.7	135035.2
Length Wtd. (ft)	453.57	Wetted Per. (ft)	34.56	443.16	3333.54
Min Ch El (ft)	1333.64	Shear (lb/sq ft)	0.02	1.62	0.46
Alpha	4.01	Stream Power (lb/ft s)	0.01	13.88	0.65
Frctn Loss (ft)	2.34	Cum Volume (acre-ft)	727.29	3044.66	2194.68
C & E Loss (ft)	0.01	Cum SA (acres)	309.54	407.12	947.99

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9604.15	9751.61	1019.27	294.40	138.35	7.84	2.14	3.46
9751.61	9899.06	4250.36	711.61	147.59	32.70	4.83	5.97
9899.06	RB 10046.52	6753.88	937.63	146.84	51.95	6.46	7.20
10046.52	11396.79						
11396.79	11621.83	53.32	80.59	113.51	0.41	0.71	0.66
11621.83	11846.88	332.20	305.32	203.90	2.56	1.50	1.09
11846.88	12071.92	191.18	202.10	166.51	1.47	1.22	0.95
12071.92	12296.97	181.27	179.64	134.34	1.39	1.35	1.01
12296.97	12522.01	62.33	87.01	108.76	0.48	0.80	0.72
12522.01	12747.06	118.35	163.58	201.48	0.91	0.81	0.72
12747.06	12972.10	37.84	80.73	190.66	0.29	0.42	0.47

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9604.15	9751.61	2365.61	466.33	142.94	10.29	3.28	5.07
9751.61	9899.06	6835.87	892.82	147.59	29.72	6.05	7.66
9899.06	RB 10046.52	9853.26	1117.52	149.49	42.84	7.58	8.82
10046.52	10271.56	0.51	3.69	53.32	0.00	0.07	0.14
10271.56	10496.61	1.37	8.84	109.18	0.01	0.08	0.16
10496.61	10721.65	71.63	126.72	225.05	0.31	0.56	0.57
10721.65	10946.70	14.04	38.27	130.00	0.06	0.29	0.37
10946.70	11171.74	4.64	17.95	102.90	0.02	0.17	0.26
11171.74	11396.79	24.55	62.47	191.40	0.11	0.33	0.39
11396.79	11621.83	345.32	325.72	225.18	1.50	1.45	1.06
11621.83	11846.88	894.37	577.25	225.89	3.89	2.57	1.55
11846.88	12071.92	607.72	457.42	225.42	2.64	2.03	1.33
12071.92	12296.97	484.37	399.67	226.08	2.11	1.78	1.21
12296.97	12522.01	350.43	328.69	225.34	1.52	1.46	1.07
12522.01	12747.06	568.19	439.25	225.32	2.47	1.95	1.29
12747.06	12972.10	399.44	355.47	225.22	1.74	1.58	1.12
12972.10	13197.15	167.79	211.19	225.05	0.73	0.94	0.79
13197.15	13422.19	10.88	28.71	93.96	0.05	0.31	0.38

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8454.00	9604.15	1.02	3.11	34.56	0.00	0.09	0.33
LB 9604.15	9751.61	3533.96	587.23	146.08	10.71	4.05	6.02
9751.61	9899.06	8765.36	1016.93	147.59	26.56	6.90	8.62
9899.06	RB 10046.52	12121.92	1241.63	149.49	36.73	8.42	9.76
10046.52	10271.56	108.32	161.15	225.05	0.33	0.72	0.67
10271.56	10496.61	142.65	190.09	225.05	0.43	0.84	0.75
10496.61	10721.65	333.00	316.14	225.05	1.01	1.40	1.05
10721.65	10946.70	158.74	202.69	225.05	0.48	0.90	0.78
10946.70	11171.74	137.15	185.67	225.05	0.42	0.83	0.74
11171.74	11396.79	220.59	246.93	225.06	0.67	1.10	0.89
11396.79	11621.83	751.07	515.13	225.18	2.28	2.29	1.46
11621.83	11846.88	1454.04	766.66	225.89	4.41	3.41	1.90
11846.88	12071.92	1096.89	646.83	225.42	3.32	2.87	1.70
12071.92	12296.97	936.76	589.09	226.08	2.84	2.62	1.59
12296.97	12522.01	757.95	518.11	225.34	2.30	2.30	1.46
12522.01	12747.06	1046.32	628.66	225.32	3.17	2.79	1.66
12747.06	12972.10	824.66	544.89	225.22	2.50	2.42	1.51
12972.10	13197.15	494.13	400.60	225.05	1.50	1.78	1.23
13197.15	13422.19	115.48	153.06	179.74	0.35	0.85	0.75

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.248

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8173	1352	8194.83	1351.64	8282.31	1351.07	8348.78	1349.21	8402.52	1350.34
8459.13	1350	8494.82	1349.33	8537.9	1349.45	8595.79	1348.68	8664.69	1348.23
8712.02	1347.7	8804.27	1346.3	8830.71	1345.29	8852.24	1346	8907.46	1346.2
8929.51	1342.2	8959.3	1344.3	8971.35	1348.35	8980.41	1348.2	8993.79	1346.81
9004.85	1344.8	9046	1343.49	9057.93	1345.25	9068.29	1343.11	9080.26	1345.81
9188.09	1342.6	9214.55	1339.79	9222.57	1342.28	9230.28	1339.76	9260.33	1338.9
9312.29	1338.1	9340.46	1337.83	9416.02	1337.53	9519.2	1337.52	9561.12	1340.23
9570.3	1340.1	9661.91	1339.52	9671.05	1336.86	9707.33	1337.14	9727.74	1338.63
9757.56	1338.5	9796.97	1338.15	9883.09	1335.33	9899.49	1336.49	9929.77	1331.18
9953.39	1332.3	10001.52	1333.39	10028.97	1333.23	10059.37	1332.65	10074.95	1339.32
10100.82	1339.5	10146.88	1340.12	10170.67	1340.38	10187.23	1340.55	10212.73	1340.04
10280.35	1340.2	10296.89	1340.54	10361.08	1339.92	10419.48	1340.08	10461.22	1340.56
10496.69	1339.9	10543.39	1340.07	10639.79	1339.8	10717.31	1339.45	10839.78	1339.54
10917.31	1339.9	10939.78	1339.85	11017.31	1339.35	11117.31	1339.59	11139.79	1339.5
11217.31	1339.5	11317.31	1339.65	11339.77	1339.55	11417.3	1338.82	11517.31	1339.07
11536.39	1339	11605.17	1338.71	1675.33	1338.59	11696.79	1336.89	11718.86	1338.19
11822.33	1338.7	11915.4	1338.91	1927.93	1337.91	1941.47	1338.89	11963.66	1338.09
11996.66	1333.6	12016.34	1336.02	12031.78	1335.81	12047.13	1333.39	12064.92	1338.13
12092.8	1339.1	12163.16	1338.13	12235.93	1340.43	12276.51	1340.72	12317.84	1340.43
12399.95	1340	12431.04	1339.59	12518.84	1339.31	12539.35	1336.51	12554.04	1339.28
12573.14	1339.2	12710.14	1339.63	12795.51	1339.84	12812.27	1337.31	12825.27	1339.63
12865.47	1340.1	12931.05	1340.63	13031.05	1340.61	13205.74	1340.81	13231.06	1340.8
13331.06	1341.4	13431.06	1342.21	13454.09	1341.94	13460.64	1341.83	13469.21	1342.92
13512.57	1343.1	13522.74	1341.57	13535.1	1342.46	13601.41	1343.54	13642.99	1344

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8173	.058	9561.12	.03	10074.95	.111	1517.31	.111	1941.47	.11
12092.8	.11								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9561.12	10074.95	405	496.77	465	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
8173	9561.12	1342

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1340.16	Element			
Vel Head (ft)	0.75	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1339.41	Reach Len. (ft)	405.00	496.77	465.00
Crit W.S. (ft)	1338.59	Flow Area (sq ft)		1569.85	1046.98
E.G. Slope (ft/ft)	0.005996	Area (sq ft)	446.39	1569.85	1046.98
Q Total (cfs)	13000.00	Flow (cfs)		11539.10	1460.90
Top Width (ft)	1798.28	Top Width (ft)	306.09	412.67	1079.52
Vel Total (ft/s)	4.97	Avg. Vel. (ft/s)		7.35	1.40
Max Chl Dpth (ft)	8.23	Hydr. Depth (ft)		3.80	0.97
Conv. Total (cfs)	167883.3	Conv. (cfs)		149017.0	18866.2
Length Wtd. (ft)	492.04	Wetted Per. (ft)		415.06	1081.82
Min Ch El (ft)	1331.18	Shear (lb/sq ft)		1.42	0.36
Alpha	1.95	Stream Power (lb/ft s)		10.41	0.51
Frctn Loss (ft)	2.63	Cum Volume (acre-ft)	114.24	1710.57	586.88
C & E Loss (ft)	0.08	Cum SA (acres)	72.54	369.33	405.30

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1341.40	Element			
Vel Head (ft)	0.77	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1340.62	Reach Len. (ft)	405.00	496.77	465.00
Crit W.S. (ft)	1340.27	Flow Area (sq ft)		2148.18	3707.98
E.G. Slope (ft/ft)	0.006385	Area (sq ft)	844.88	2148.18	3707.98
Q Total (cfs)	23000.00	Flow (cfs)		17365.67	5634.33
Top Width (ft)	3762.94	Top Width (ft)	344.01	513.83	2905.10
Vel Total (ft/s)	3.93	Avg. Vel. (ft/s)		8.08	1.52
Max Chl Dpth (ft)	9.44	Hydr. Depth (ft)		4.18	1.28
Conv. Total (cfs)	287829.8	Conv. (cfs)		217319.9	70509.9
Length Wtd. (ft)	488.15	Wetted Per. (ft)		516.23	2907.52
Min Ch El (ft)	1331.18	Shear (lb/sq ft)		1.66	0.51
Alpha	3.24	Stream Power (lb/ft s)		13.41	0.77
Frctn Loss (ft)	2.71	Cum Volume (acre-ft)	409.31	2493.66	1373.35
C & E Loss (ft)	0.06	Cum SA (acres)	206.71	392.39	732.33

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1342.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.95	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1341.22	Reach Len. (ft)	405.00	496.77	465.00
Crit W.S. (ft)	1341.04	Flow Area (sq ft)		2454.14	5581.57
E.G. Slope (ft/ft)	0.007109	Area (sq ft)	1052.51	2454.14	5581.57
Q Total (cfs)	33000.00	Flow (cfs)		22876.01	10123.99
Top Width (ft)	4093.04	Top Width (ft)	353.35	513.83	3225.86
Vel Total (ft/s)	4.11	Avg. Vel. (ft/s)		9.32	1.81
Max Chl Dpth (ft)	10.04	Hydr. Depth (ft)		4.78	1.73
Conv. Total (cfs)	391395.2	Conv. (cfs)		271320.0	120075.2
Length Wtd. (ft)	483.07	Wetted Per. (ft)		516.23	3228.28
Min Ch El (ft)	1331.18	Shear (lb/sq ft)		2.11	0.77
Alpha	3.63	Stream Power (lb/ft s)		19.67	1.39
Frctn Loss (ft)	2.73	Cum Volume (acre-ft)	722.75	3017.08	2133.98
C & E Loss (ft)	0.13	Cum SA (acres)	307.88	402.16	913.83

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9561.12	9732.40	534.59	133.64	70.54	4.11	1.91	4.00
9732.40	9903.67	1584.96	365.94	171.43	12.19	2.14	4.33
9903.67	RB 10074.95	9419.54	1070.26	173.09	72.46	6.25	8.80
10074.95	10312.82	0.09	0.63	13.42	0.00	0.05	0.15
10312.82	10788.56						
10788.56	11026.43	0.11	0.79	18.94	0.00	0.04	0.14
11026.43	11264.30	0.03	0.36	17.28	0.00	0.02	0.09
11264.30	11502.17	38.33	60.05	147.88	0.29	0.41	0.64
11502.17	11740.04	220.27	207.42	237.98	1.69	0.87	1.06
11740.04	11977.91	228.57	212.11	238.09	1.76	0.89	1.08
11977.91	12215.77	898.20	473.06	227.03	6.91	2.09	1.90
12215.77	12453.64						
12453.64	12691.51	42.77	65.37	155.12	0.33	0.42	0.65
12691.51	12929.38	32.54	27.19	26.08	0.25	1.06	1.20

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9561.12	9732.40	1137.73	297.58	171.71	4.95	1.74	3.82
9732.40	9903.67	3395.79	573.14	171.43	14.76	3.35	5.92
9903.67	RB 10074.95	12832.14	1277.46	173.09	55.79	7.46	10.05
10074.95	10312.82	92.36	129.44	237.89	0.40	0.54	0.71
10312.82	10550.69	80.92	119.56	237.88	0.35	0.50	0.68
10550.69	10788.56	225.80	221.30	237.87	0.98	0.93	1.02
10788.56	11026.43	247.96	234.09	237.87	1.08	0.98	1.06
11026.43	11264.30	307.23	266.21	237.87	1.34	1.12	1.15
11264.30	11502.17	444.34	332.18	237.87	1.93	1.40	1.34
11502.17	11740.04	864.09	495.17	237.98	3.76	2.08	1.75
11740.04	11977.91	877.50	499.87	238.09	3.82	2.10	1.76
11977.91	12215.77	1753.70	758.54	239.05	7.62	3.19	2.31
12215.77	12453.64	64.09	98.98	210.50	0.28	0.47	0.65
12453.64	12691.51	478.24	347.42	238.32	2.08	1.46	1.38
12691.51	12929.38	198.09	204.71	238.27	0.86	0.86	0.97
12929.38	13167.25	0.02	0.51	78.06	0.00	0.01	0.04

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9561.12	9732.40	2034.56	399.57	171.71	6.17	2.33	5.09
9732.40	9903.67	4882.07	675.13	171.43	14.79	3.94	7.23
9903.67	RB 10074.95	15959.38	1379.44	173.09	48.36	8.05	11.57
10074.95	10312.82	327.86	271.08	237.89	0.99	1.14	1.21
10312.82	10550.69	308.20	261.20	237.88	0.93	1.10	1.18
10550.69	10788.56	533.27	362.94	237.87	1.62	1.53	1.47
10788.56	11026.43	564.94	375.73	237.87	1.71	1.58	1.50
11026.43	11264.30	647.72	407.85	237.87	1.96	1.71	1.59
11264.30	11502.17	831.59	473.82	237.87	2.52	1.99	1.76
11502.17	11740.04	1360.75	636.81	237.98	4.12	2.68	2.14

11740.04	11977.91	1377.07	641.51	238.09	4.17	2.70	2.15
11977.91	12215.77	2415.47	900.18	239.05	7.32	3.78	2.68
12215.77	12453.64	266.34	239.30	237.89	0.81	1.01	1.11
12453.64	12691.51	875.56	489.07	238.32	2.65	2.06	1.79
12691.51	12929.38	492.72	346.36	238.27	1.49	1.46	1.42
12929.38	13167.25	100.87	133.63	237.87	0.31	0.56	0.75
13167.25	13405.12	21.62	42.10	133.55	0.07	0.32	0.51

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.144

INPUT
Description:
Station Elevation Data num= 136

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8669	1346	8700.55	1345.82	8758.97	1344.21	8778.66	1344.95	8842.85	1344.82
8943.02	1344.3	9044.97	1343.62	9089.3	1342.54	9103.3	1343.17	9249.02	1342.21
9299.28	1341.7	9320.5	1339.33	9335.15	1344.36	9351.51	1339.65	9367.32	1338.62
9381.11	1340.8	9390.14	1338.67	9394.39	1336.83	9437.13	1336.48	9454.45	1336.17
9461.12	1333.4	9468.22	1334.8	9486.07	1335.38	9489.48	1333.17	9494.37	1333.59
9504.48	1335.9	9582.28	1336.42	9595.46	1335.77	9615.39	1336.84	9644.55	1336.34
9658.8	1335.8	9683.54	1337.14	9718.58	1337.99	9730.83	1337.15	9744	1338.07
9749.22	1338	9764.51	1337.91	9794.51	1330.84	9802.8	1333.44	9834.97	1333.39
9852.59	1333.6	9866.24	1331.11	9901.03	1333.02	9947.25	1334.05	9991.45	1331.77
10003.49	1329.2	10015.25	1329.5	10024.63	1331.43	10054.33	1331.56	10090.64	1335.83
10121.97	1336.2	10196.15	1334.49	10227.56	1333.79	10233.76	1333.82	10243.14	1331.89
10244.49	1331.7	10277.7	1343.91	10300.05	1337.31	10310.29	1337.01	10368.35	1336.76
10399.7	1343.9	10421.86	1337.74	10433.54	1334.83	10437.08	1335.18	10453.46	1334.83
10474.77	1341.9	10504.05	1345.17	10522.22	1346.11	10527.95	1345.53	10541.11	1346.69
10560.9	1346.8	10580.58	1346.15	10595.6	1346.23	10615.2	1337.08	10645.53	1337.27
10695.46	1336.3	10717.04	1336.36	10772.56	1336.87	10847.76	1336.65	10896.68	1336.65
10972.55	1336.5	11050.48	1336.13	11192.71	1336.07	11372.55	13371	1488.74	1337.02
11572.61	1337.1	11641.15	1336.21	11675.76	1337.31	11717.39	1337.28	11743.01	1336.55
11801.75	1336.3	11826.89	1335.98	11887.69	1336.13	11929.44	1334.88	11980.31	1335.19
12059.36	1335.9	12117.05	1335.64	12140.66	1336.55	12169.03	1334.27	12189.56	1335.13
12228.43	1334	12260	1335.92	12266.84	1336	12331.04	1335.44	12351.94	1335.12
12378.04	1333.9	12400.13	1330.12	12429.05	1335.65	12446.74	1335.05	12465.01	1333.68
12478.55	1336.3	12508.02	1336.06	12539.85	1336.17	12608.32	1336.24	12645.42	1336.54
12673.34	1336.1	12712.99	1334.99	12727.45	1333.91	12747.02	1335.15	12787.61	1334.98
12799.6	1335.8	12821.77	1335.26	12849.36	1337.02	12901.14	1337.65	12912.99	1337.96
12994.28	1337.8	13008.35	1337.69	13189.61	1337.74	13208.36	1337.68	13308.37	1338.3
13408.37	1338.5	13531.1	1338.62	13608.38	1338.63	13683.89	1339.19	13733.47	1339.44
13809.88	1340								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8669	.058	9744	.038	10277.7	.11	10560.9	.111	1743.01	.11
12266.84	.111	2429.05	.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9744	10277.7	485	493.15	396	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
8669	9744	1338.07

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8669	9381.11	1340.8

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1337.45	Element			
Vel Head (ft)	0.48	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1336.97	Reach Len. (ft)	485.00	493.15	396.00
Crit W.S. (ft)	1336.22	Flow Area (sq ft)		1718.75	2120.99
E.G. Slope (ft/ft)	0.004706	Area (sq ft)	266.15	1718.75	2120.99
Q Total (cfs)	13000.00	Flow (cfs)		10590.53	2409.47
Top Width (ft)	2768.62	Top Width (ft)	286.29	490.31	1992.02
Vel Total (ft/s)	3.39	Avg. Vel. (ft/s)		6.16	1.14
Max Chl Dpth (ft)	7.77	Hydr. Depth (ft)		3.51	1.06
Conv. Total (cfs)	189510.5	Conv. (cfs)		154385.9	35124.5
Length Wtd. (ft)	467.44	Wetted Per. (ft)		493.67	1994.32
Min Ch El (ft)	1329.20	Shear (lb/sq ft)		1.02	0.31
Alpha	2.72	Stream Power (lb/ft s)		6.30	0.35
Frctn Loss (ft)	1.70	Cum Volume (acre-ft)	110.93	1691.82	569.97
C & E Loss (ft)	0.11	Cum SA (acres)	69.79	364.18	388.91

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1338.63	Element			
Vel Head (ft)	0.57	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1338.06	Reach Len. (ft)	485.00	493.15	396.00

Crit W.S. (ft)	1337.37	Flow Area (sq ft)		2261.17	4788.46
E.G. Slope (ft/ft)	0.004713	Area (sq ft)	613.41	2261.17	4788.46
Q Total (cfs)	23000.00	Flow (cfs)		16153.75	6846.25
Top Width (ft)	3645.55	Top Width (ft)	352.34	517.21	2775.99
Vel Total (ft/s)	3.26	Avg. Vel. (ft/s)		7.14	1.43
Max Chl Dpth (ft)	8.86	Hydr. Depth (ft)		4.37	1.72
Conv. Total (cfs)	335014.8	Conv. (cfs)		235293.2	99721.6
Length Wtd. (ft)	459.89	Wetted Per. (ft)		520.88	2779.09
Min Ch El (ft)	1329.20	Shear (lb/sq ft)		1.28	0.51
Alpha	3.42	Stream Power (lb/ft s)		9.13	0.72
Frctn Loss (ft)	1.73	Cum Volume (acre-ft)	402.53	2468.52	1328.00
C & E Loss (ft)	0.12	Cum SA (acres)	203.48	386.51	702.01

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1339.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1338.78	Reach Len. (ft)	485.00	493.15	396.00
Crit W.S. (ft)	1338.08	Flow Area (sq ft)	867.60	2634.41	6892.07
E.G. Slope (ft/ft)	0.004192	Area (sq ft)	867.60	2634.41	6892.07
Q Total (cfs)	33000.00	Flow (cfs)	2603.77	19586.08	10810.15
Top Width (ft)	4020.80	Top Width (ft)	354.33	519.75	3146.71
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	3.00	7.43	1.57
Max Chl Dpth (ft)	9.58	Hydr. Depth (ft)	2.45	5.07	2.19
Conv. Total (cfs)	509661.7	Conv. (cfs)	40213.4	302493.2	166955.0
Length Wtd. (ft)	456.10	Wetted Per. (ft)	356.53	523.54	3150.37
Min Ch El (ft)	1329.20	Shear (lb/sq ft)	0.64	1.32	0.57
Alpha	3.41	Stream Power (lb/ft s)	1.91	9.79	0.90
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	713.82	2988.06	2067.41
C & E Loss (ft)	0.10	Cum SA (acres)	304.59	396.26	879.81

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9744.00	9921.90	3861.50	606.26	154.79	29.70	3.95	6.37
9921.90	10099.80	5345.29	780.43	178.69	41.12	4.39	6.85
10099.80	RB 10277.70	1383.75	332.05	160.20	10.64	2.09	4.17
10277.70	10513.18	44.82	60.28	84.79	0.34	0.72	0.74
10513.18	10748.66	22.03	39.87	87.58	0.17	0.46	0.55
10748.66	10984.14	30.29	71.70	235.48	0.23	0.30	0.42
10984.14	11219.62	154.89	190.87	235.48	1.19	0.81	0.81
11219.62	11455.09	27.23	55.67	146.73	0.21	0.38	0.49
11455.09	11690.57	15.60	31.65	82.44	0.12	0.38	0.49
11690.57	11926.05	137.12	165.44	197.73	1.05	0.84	0.83
11926.05	12161.53	392.79	333.65	235.57	3.02	1.42	1.18
12161.53	12397.01	761.75	496.74	235.90	5.86	2.11	1.53
12397.01	12632.49	443.62	359.40	236.36	3.41	1.53	1.23
12632.49	12867.96	379.31	315.73	216.24	2.92	1.46	1.20

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9744.00	9921.90	5425.29	778.38	178.82	23.59	4.39	6.97
9921.90	10099.80	7901.85	975.09	178.69	34.36	5.48	8.10
10099.80	RB 10277.70	2826.60	507.69	163.37	12.29	3.13	5.57
10277.70	10513.18	206.34	179.92	120.30	0.90	1.51	1.15
10513.18	10748.66	187.50	178.31	135.79	0.82	1.32	1.05
10748.66	10984.14	361.23	329.37	235.48	1.57	1.40	1.10
10984.14	11219.62	604.40	448.54	235.48	2.63	1.90	1.35
11219.62	11455.09	326.52	310.00	235.48	1.42	1.32	1.05
11455.09	11690.57	263.30	272.46	235.50	1.14	1.16	0.97
11690.57	11926.05	526.17	412.77	235.51	2.29	1.75	1.27
11926.05	12161.53	957.73	591.32	235.57	4.16	2.51	1.62
12161.53	12397.01	1435.93	754.41	235.90	6.24	3.20	1.90
12397.01	12632.49	1025.95	617.07	236.36	4.46	2.62	1.66
12632.49	12867.96	901.42	570.31	235.67	3.92	2.42	1.58
12867.96	13103.44	31.93	76.83	235.49	0.14	0.33	0.42
13103.44	13338.92	17.83	47.16	166.55	0.08	0.28	0.38

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8669.00	9744.00	2603.77	867.60	356.53	7.89	2.45	3.00
LB 9744.00	9921.90	6619.19	906.38	179.41	20.06	5.09	7.30
9921.90	10099.80	9207.36	1103.09	178.69	27.90	6.20	8.35
10099.80	RB 10277.70	3759.53	624.94	165.45	11.39	3.81	6.02
10277.70	10513.18	358.16	269.33	131.05	1.09	2.08	1.33
10513.18	10748.66	362.19	276.40	137.49	1.10	2.02	1.31
10748.66	10984.14	676.78	498.79	235.48	2.05	2.12	1.36
10984.14	11219.62	967.23	617.97	235.48	2.93	2.62	1.57
11219.62	11455.09	633.55	479.42	235.48	1.92	2.04	1.32
11455.09	11690.57	553.01	441.88	235.50	1.68	1.88	1.25
11690.57	11926.05	875.65	582.19	235.51	2.65	2.47	1.50
11926.05	12161.53	1367.32	760.74	235.57	4.14	3.23	1.80
12161.53	12397.01	1888.20	923.83	235.90	5.72	3.92	2.04
12397.01	12632.49	1442.10	786.50	236.36	4.37	3.34	1.83
12632.49	12867.96	1304.59	739.73	235.67	3.95	3.14	1.76
12867.96	13103.44	208.71	246.25	235.49	0.63	1.05	0.85
13103.44	13338.92	152.28	203.82	235.48	0.46	0.87	0.75
13338.92	13574.40	19.00	58.46	235.48	0.06	0.25	0.32
13574.40	13809.88	1.39	6.78	54.42	0.00	0.12	0.21

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 15.049

INPUT
Description: The gravel pit is entered as a blocked obstruction.
Right end
point of cross section is extended by 130 feet to elevation 1338
based on ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 138

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9010	1344	9132.52	1343.1	9150.32	1342.89	9235.01	1342.26	9263.26	1342.09
9276.33	1341.7	9297.33	1342.04	9316.67	1341.09	9323	1340.53	9335.59	1341.12
9379.14	1340.9	9420.45	1340.17	9443.17	1339.97	9522.36	1340.48	9543.89	1339.34
9558.92	1341	9589.13	1340.52	9626.5	1340.41	9682.39	1339.69	9700.13	1339.16
9718.38	1337.6	9732.06	1342.2	9755.78	1339.03	9796.81	1338.67	9826.61	1338.63
9830.19	1338.9	9850.15	1338.55	9869.32	1337.55	9875.91	1335.21	9895.24	1327.47
9911.59	1328	9925.44	1329.43	9937.88	1327.09	9958.15	1328.7910005.27		1329.26
10038.85	1329.410088.54		1332.310099.72		1332.5310145.22		1332.6310186.65		1332.82
10215.33	1330.110241.83		1332.1610262.77		1332.23	10304.2	1333.7710323.99		1333.59
10364.11	1334.210448.21		1333.9410469.63		1330.6910487.95		1333.7510521.85		1333.75
10550.22	1333.410604.38		1333.4910658.78		1333.310681.71		1330.9210701.99		1337.74
10723.9	1334.910745.24		1326.08	10755.5	1331.8110761.42		1335.7510784.67		1333.63
10792.91	1334	10824.4	1323.8910830.89		1321.6410860.78		1321.2910887.11		1322.78
10910.02	1325.310952.56		1342.82	10963	1346.5710968.38		1342.210970.74		1342.28
10981.93	1340.510996.42		1335.610999.16		1335.8911028.51		1335.9	11040	1335.33
11064.53	1335.311160.25		1335.4311260.25		1335.3511327.08		1335.1511360.25		1335.19
11427.85	1335.111460.26		1334.8711560.27		1335.0911660.27		1335.0911730.16		1335.6
11760.27	1335.911830.93		1336.0711860.28		1335.9911931.69		133611975.93		1335.69
11991.39	1336.112046.44		1336.21	12053.1	1336.3112072.64		1334.512160.28		1334.52
12227.89	133412261.75		1333.6612307.71		1333.6212360.22		1333.41	12460.3	1334.22
12489.48	1334.9	12560.3	1334.1112616.35		1333.9612630.47		1334.0812667.19		1333.91
12680.79	1334.212715.31		1334.1612753.19		1334.5812760.94		1333.9812790.83		1331.68
12803.15	133312849.94		1331.9412867.11		1329.47	12882.1	1332.612912.63		1330.55
12940.23	133312967.64		1332.1212985.43		1328.3812993.57		1329.9413007.02		1331.67
13012.8	1331.4	13038.8	1334.3113062.64		1332.52	13074.7	1332.8413089.85		1334.45
13103.13	1334.313107.57		1333.8713126.16		1334.2613222.38		1335.3313271.87		1335.71
13320.74	1335.913371.57		1335.7913471.57		1335.9513522.38		1336.2313620.75		1336.45
13820.74	1336.613965.36		1336.5714095.36		1338				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9010	.058	9850.15	.05610701.99		.11	12053.1	.1112753.19		.11
13038.8	.11								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850.1510701.99		585	499.69	385	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10700	10950	1329.8

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1335.64	Element		0.056	0.110
Vel Head (ft)	0.10	Wt. n-Val.		499.69	385.00
W.S. Elev (ft)	1335.53	Reach Len. (ft)	585.00	2799.38	3407.96
Crit W.S. (ft)	1332.99	Flow Area (sq ft)		2799.38	3407.96
E.G. Slope (ft/ft)	0.002583	Area (sq ft)		8530.99	4469.01
Q Total (cfs)	13000.00	Flow (cfs)		820.43	2085.30
Top Width (ft)	2905.73	Top Width (ft)		3.05	1.31
Vel Total (ft/s)	2.09	Avg. Vel. (ft/s)		3.41	1.63
Max Chl Dpth (ft)	8.44	Hydr. Depth (ft)		167856.7	87932.8
Conv. Total (cfs)	255789.5	Conv. (cfs)		824.06	2091.86
Length Wtd. (ft)	466.70	Wetted Per. (ft)		0.55	0.26
Min Ch El (ft)	1327.09	Shear (lb/sq ft)			

Alpha	1.52	Stream Power (lb/ft s)		1.67	0.34
Frctn Loss (ft)	1.85	Cum Volume (acre-ft)	109.44	1666.24	544.84
C & E Loss (ft)	0.04	Cum SA (acres)	68.19	356.76	370.37

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1336.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.056	0.110
W.S. Elev (ft)	1336.62	Reach Len. (ft)	585.00	499.69	385.00
Crit W.S. (ft)	1334.20	Flow Area (sq ft)		3695.34	6195.90
E.G. Slope (ft/ft)	0.002832	Area (sq ft)		3695.34	6195.90
Q Total (cfs)	23000.00	Flow (cfs)		14113.69	8886.31
Top Width (ft)	4030.17	Top Width (ft)		826.72	3203.45
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)		3.82	1.43
Max Chl Dpth (ft)	9.53	Hydr. Depth (ft)		4.47	1.93
Conv. Total (cfs)	432197.0	Conv. (cfs)		265212.8	166984.3
Length Wtd. (ft)	461.83	Wetted Per. (ft)		830.72	3210.61
Min Ch El (ft)	1327.09	Shear (lb/sq ft)		0.79	0.34
Alpha	1.80	Stream Power (lb/ft s)		3.00	0.49
Frctn Loss (ft)	1.95	Cum Volume (acre-ft)	399.12	2434.80	1278.07
C & E Loss (ft)	0.05	Cum SA (acres)	201.51	378.90	674.83

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1337.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.056	0.110
W.S. Elev (ft)	1337.38	Reach Len. (ft)	585.00	499.69	385.00
Crit W.S. (ft)	1334.76	Flow Area (sq ft)		4326.75	8666.19
E.G. Slope (ft/ft)	0.003012	Area (sq ft)		4326.75	8666.19
Q Total (cfs)	33000.00	Flow (cfs)		18861.08	14138.92
Top Width (ft)	4113.80	Top Width (ft)		831.13	3282.67
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)		4.36	1.63
Max Chl Dpth (ft)	10.29	Hydr. Depth (ft)		5.21	2.64
Conv. Total (cfs)	601310.9	Conv. (cfs)		343678.0	257632.9
Length Wtd. (ft)	456.51	Wetted Per. (ft)		835.39	3290.16
Min Ch El (ft)	1327.09	Shear (lb/sq ft)		0.97	0.50
Alpha	1.86	Stream Power (lb/ft s)		4.25	0.81
Frctn Loss (ft)	2.00	Cum Volume (acre-ft)	708.99	2948.66	1996.69
C & E Loss (ft)	0.05	Cum SA (acres)	302.61	388.61	850.59

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9850.15	10134.10	5481.47	1431.88	261.10	42.17	5.53	3.83
10134.10	10418.04	1707.87	735.80	284.19	13.14	2.59	2.32
10418.04	RB 10701.99	1341.63	631.71	278.76	10.32	2.28	2.12
10701.99	10928.21	1746.03	929.33	210.53	13.43	4.50	1.88
10928.21	11154.44	8.19	30.29	125.72	0.06	0.24	0.27
11154.44	11380.66	14.10	53.09	226.22	0.11	0.23	0.27
11380.66	11606.89	49.38	112.61	226.23	0.38	0.50	0.44
11606.89	11833.11	12.23	37.07	114.06	0.09	0.32	0.33
11833.11	12059.34						
12059.34	12285.56	232.10	283.93	224.12	1.79	1.27	0.82
12285.56	12511.79	351.00	365.28	226.24	2.70	1.61	0.96
12511.79	12738.01	271.00	312.77	226.23	2.08	1.38	0.87
12738.01	12964.24	1119.69	733.78	227.11	8.61	3.24	1.53
12964.24	13190.46	661.13	535.02	227.23	5.09	2.37	1.24
13190.46	13416.69	4.15	14.80	58.17	0.03	0.25	0.28

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9850.15	10134.10	7994.97	1715.41	264.36	34.76	6.54	4.66
10134.10	10418.04	3333.57	1044.70	284.19	14.49	3.68	3.19
10418.04	RB 10701.99	2785.14	935.23	282.17	12.11	3.33	2.98

10701.99	10928.21	2447.44	1161.19	221.78	10.64	5.34	2.11
10928.21	11154.44	154.82	199.84	171.28	0.67	1.17	0.77
11154.44	11380.66	252.00	299.20	226.22	1.10	1.32	0.84
11380.66	11606.89	340.97	358.72	226.23	1.48	1.59	0.95
11606.89	11833.11	178.40	243.20	226.23	0.78	1.08	0.73
11833.11	12059.34	69.47	138.11	226.26	0.30	0.61	0.50
12059.34	12285.56	653.04	529.82	226.29	2.84	2.34	1.23
12285.56	12511.79	829.17	611.39	226.24	3.61	2.70	1.36
12511.79	12738.01	713.91	558.87	226.23	3.10	2.47	1.28
12738.01	12964.24	1815.36	979.89	227.11	7.89	4.33	1.85
12964.24	13190.46	1243.72	781.13	227.23	5.41	3.45	1.59
13190.46	13416.69	146.82	216.37	226.23	0.64	0.96	0.68
13416.69	13642.91	38.81	97.38	226.23	0.17	0.43	0.40
13642.91	13869.14	2.07	16.77	226.22	0.01	0.07	0.12
13869.14	14095.36	0.33	4.03	100.83	0.00	0.04	0.08

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9850.15	10134.10	9999.84	1915.92	266.63	30.30	7.25	5.22
10134.10	10418.04	4772.56	1260.99	284.19	14.46	4.44	3.78
10418.04	RB 10701.99	4088.67	1149.84	284.57	12.39	4.06	3.56
10701.99	10928.21	3139.79	1329.17	227.71	9.51	5.95	2.36
10928.21	11154.44	368.21	331.15	175.66	1.12	1.90	1.11
11154.44	11380.66	560.60	471.52	226.22	1.70	2.08	1.19
11380.66	11606.89	683.44	531.04	226.23	2.07	2.35	1.29
11606.89	11833.11	454.08	415.52	226.23	1.38	1.84	1.09
11833.11	12059.34	279.29	310.43	226.26	0.85	1.37	0.90
12059.34	12285.56	1088.40	702.14	226.29	3.30	3.10	1.55
12285.56	12511.79	1307.37	783.71	226.24	3.96	3.46	1.67
12511.79	12738.01	1164.67	731.19	226.23	3.53	3.23	1.59
12738.01	12964.24	2478.82	1152.21	227.11	7.51	5.09	2.15
12964.24	13190.46	1807.33	953.45	227.23	5.48	4.21	1.90
13190.46	13416.69	406.28	388.69	226.23	1.23	1.72	1.05
13416.69	13642.91	220.95	269.70	226.23	0.67	1.19	0.82
13642.91	13869.14	122.26	189.09	226.22	0.37	0.84	0.65
13869.14	14095.36	57.43	107.20	170.08	0.17	0.63	0.54

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.983

INPUT
Description: The gravel pit is entered as a blocked obstruction.
Station Elevation Data num= 113

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8829	1340	8854.47	1339.24	8859.96	1339.39	8954.29	1339.65	9043.54	1338.27
9084.55	1337.8	9143.5	1338.44	9239.51	1338.02	9250.65	1337.61	9345.62	1337.05
9397.76	1336.7	9459.83	1336.41	9497.14	1334.87	9539.05	1335.08	9551.64	1334.72
9559.67	1334	9591.62	1335	9605.07	1334.29	9616.15	1335.7	9623.27	1335.3
9628.41	1334.2	9646.97	1334.84	9687.43	1334.52	9700.13	1332.95	9713.64	1336.86
9729.52	1333.2	9747.65	1334.23	9776.61	1334.98	9785.74	1334.75	9815.49	1333.92
9841.54	1329.8	9866.89	1332.42	9877.4	1332.45	9881.68	1332.72	9898.08	1329.37
9932.25	1327.9	9984.77	1324.49	10007.1	1323.9	10033.76	1331.4	10082.56	1331.51
10100.7	1331.2	10107.14	1331.47	10146.6	1332.0	110167.15	1331.6	410228.43	1332.5
10247.99	1332.7	10307.49	1333.0	410317.83	1333.2	10336.03	1331.6	110419.06	1332.5
10464.72	1332.3	10483.97	1330.9	10528.59	1332.8	210555.31	1333.4	310565.71	1334.31
10599.17	1334.6	10620.37	1335.0	510637.95	1334.61	10670.4	1332.1	710696.73	1330.41
10698.59	1330.5	10731.07	1328.5	10743.84	1330.5	110749.02	1330.7	610783.37	1335.91
10810.36	1338.1	10840.75	1339.2	610859.67	1342.6	910883.26	1333.8	810945.64	1333.48
11047.28	1333.4	11211.6	1333.2	611247.28	1333.1	311282.59	1333.2	311412.64	1333.05
11447.28	1332.9	11581.07	1333.3	111647.28	1333.6	411747.28	1333.6	111847.29	1333.77
11879.54	1334	11964.25	1334.0	311984.46	1333.3	912004.45	1332.8	112024.52	1333.44
12053.94	1332.9	12099	1333.0	612151.46	1332.5	712174.04	1333.0	812191.98	1331.49
12277.6	1331.6	12312.87	1332.89	12392.3	1332.81	12447.3	1332.8	212524.64	1331.58
12534.65	1331.5	12629.88	1331.7	512688.37	1332.9	712722.98	1329.0	612740.25	1332.37
12774.17	1332.4	12785.13	1329.4	712805.92	1326.2	712820.01	1325.3	212881.89	1334.64
12973.99	1334.2	13055.51	1333.4	613157.03	1333.5	113247.33	1334.3	413355.49	1334.39
13447.33	1334.6	13456.14	1334.6	313539.13	1334.89				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8829	.058	9785.74	.03	10620.37	.11	11964.25	.11	12688.37	.11
12881.89	.11								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9785.74	10620.37	190	216.48	222	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
8829	9776.61	1334.98

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10600	10800	1329.8

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1333.75	Element			
Vel Head (ft)	0.46	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1333.28	Reach Len. (ft)	190.00	216.48	222.00
Crit W.S. (ft)	1332.66	Flow Area (sq ft)		1624.80	1559.75
E.G. Slope (ft/ft)	0.008534	Area (sq ft)	0.73	1624.80	1559.75
Q Total (cfs)	13000.00	Flow (cfs)		9990.98	3009.02
Top Width (ft)	2107.17	Top Width (ft)	5.73	729.44	1372.00
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		6.15	1.93
Max Chl Dpth (ft)	9.33	Hydr. Depth (ft)		2.23	1.14
Conv. Total (cfs)	140725.7	Conv. (cfs)		108152.9	32572.8
Length Wtd. (ft)	217.72	Wetted Per. (ft)		731.58	1374.31
Min Ch El (ft)	1323.95	Shear (lb/sq ft)		1.18	0.60
Alpha	1.80	Stream Power (lb/ft s)		7.28	1.17
Frctn Loss (ft)	1.59	Cum Volume (acre-ft)	109.44	1640.87	522.89
C & E Loss (ft)	0.01	Cum SA (acres)	68.16	347.87	355.10

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1334.77	Element			
Vel Head (ft)	0.63	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1334.14	Reach Len. (ft)	190.00	216.48	222.00
Crit W.S. (ft)	1333.63	Flow Area (sq ft)		2258.97	3250.51
E.G. Slope (ft/ft)	0.008341	Area (sq ft)	18.26	2258.97	3250.51
Q Total (cfs)	23000.00	Flow (cfs)		16702.68	6297.32
Top Width (ft)	3164.53	Top Width (ft)	40.33	756.05	2368.14
Vel Total (ft/s)	4.17	Avg. Vel. (ft/s)		7.39	1.94
Max Chl Dpth (ft)	10.19	Hydr. Depth (ft)		2.99	1.37
Conv. Total (cfs)	251837.4	Conv. (cfs)		182885.3	68952.2
Length Wtd. (ft)	217.99	Wetted Per. (ft)		758.28	2370.68
Min Ch El (ft)	1323.95	Shear (lb/sq ft)		1.55	0.71
Alpha	2.34	Stream Power (lb/ft s)		11.47	1.38
Frctn Loss (ft)	1.46	Cum Volume (acre-ft)	399.00	2400.65	1236.32
C & E Loss (ft)	0.05	Cum SA (acres)	201.24	369.82	650.21

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1335.52	Element			
Vel Head (ft)	0.68	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1334.83	Reach Len. (ft)	190.00	216.48	222.00
Crit W.S. (ft)	1334.35	Flow Area (sq ft)	0.14	2808.43	5050.92
E.G. Slope (ft/ft)	0.008067	Area (sq ft)	85.56	2808.43	5050.92
Q Total (cfs)	33000.00	Flow (cfs)	0.04	22290.00	10709.96
Top Width (ft)	3797.94	Top Width (ft)	185.55	824.48	2787.91
Vel Total (ft/s)	4.20	Avg. Vel. (ft/s)	0.28	7.94	2.12
Max Chl Dpth (ft)	10.88	Hydr. Depth (ft)	0.04	3.41	1.81
Conv. Total (cfs)	367409.2	Conv. (cfs)	0.4	248168.3	119240.5
Length Wtd. (ft)	218.22	Wetted Per. (ft)	3.35	826.72	2790.69
Min Ch El (ft)	1323.95	Shear (lb/sq ft)	0.02	1.71	0.91
Alpha	2.50	Stream Power (lb/ft s)	0.01	13.58	1.93
Frctn Loss (ft)	1.39	Cum Volume (acre-ft)	708.41	2907.73	1936.07
C & E Loss (ft)	0.05	Cum SA (acres)	301.37	379.12	823.76

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9785.74	10063.95	8299.00	1079.56	246.38	63.84	4.42	7.69
10063.95	10342.16	966.96	312.06	278.30	7.44	1.12	3.10
10342.16	RB 10620.37	725.03	233.18	206.89	5.58	1.13	3.11
10620.37	10814.95	523.59	253.14	110.66	4.03	2.30	2.07
10814.95	11009.54						
11009.54	11204.12	0.01	0.20	21.60	0.00	0.01	0.05
11204.12	11398.71	6.48	22.76	194.58	0.05	0.12	0.28
11398.71	11593.29	16.42	38.02	174.12	0.13	0.22	0.43
11593.29	11982.46						
11982.46	12177.04	36.19	61.28	175.60	0.28	0.35	0.59
12177.04	12371.63	300.71	227.49	194.67	2.31	1.17	1.32
12371.63	12566.21	226.37	191.83	194.59	1.74	0.99	1.18
12566.21	12760.79	472.61	298.68	195.13	3.64	1.53	1.58

12760.79	12955.38	1426.63	466.37	113.36	10.97	4.16	3.06

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9785.74	10063.95	11947.12	1291.42	258.31	51.94	5.04	9.25
10063.95	10342.16	2738.48	549.76	278.30	11.91	1.98	4.98
10342.16	RB 10620.37	2017.09	417.80	221.66	8.77	1.89	4.83
10620.37	10814.95	835.78	354.65	127.82	3.63	2.78	2.36
10814.95	11009.54	59.48	72.46	127.02	0.26	0.57	0.82
11009.54	11204.12	156.83	153.75	194.58	0.68	0.79	1.02
11204.12	11398.71	221.24	189.00	194.58	0.96	0.97	1.17
11398.71	11593.29	250.20	203.48	194.59	1.09	1.05	1.23
11593.29	11787.87	84.11	105.79	194.58	0.37	0.54	0.80
11787.87	11982.46	24.69	50.71	194.59	0.11	0.26	0.49
11982.46	12177.04	298.04	226.02	194.63	1.30	1.16	1.32
12177.04	12371.63	751.58	393.74	194.67	3.27	2.02	1.91
12371.63	12566.21	641.73	358.07	194.59	2.79	1.84	1.79
12566.21	12760.79	989.85	464.92	195.13	4.30	2.39	2.13
12760.79	12955.38	1901.47	564.57	119.09	8.27	4.79	3.37
12955.38	13149.96	67.09	87.37	169.28	0.29	0.52	0.77
13149.96	13344.55	15.24	25.99	75.52	0.07	0.34	0.59

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8829.00	9785.74	0.04	0.14	3.35	0.00	0.04	0.28
LB 9785.74	10063.95	14471.27	1478.18	280.21	43.85	5.31	9.79
10063.95	10342.16	4621.48	743.20	278.30	14.00	2.67	6.22
10342.16	RB 10620.37	3197.27	587.06	268.20	9.69	2.19	5.45
10620.37	10814.95	1174.66	448.69	147.76	3.56	3.05	2.62
10814.95	11009.54	233.93	161.39	129.01	0.71	1.25	1.45
11009.54	11204.12	469.78	289.04	194.58	1.42	1.49	1.63
11204.12	11398.71	569.12	324.30	194.58	1.72	1.67	1.75
11398.71	11593.29	612.09	338.78	194.59	1.85	1.74	1.81
11593.29	11787.87	347.20	241.09	194.58	1.05	1.24	1.44
11787.87	11982.46	225.33	186.00	194.59	0.68	0.96	1.21
11982.46	12177.04	681.37	361.32	194.63	2.06	1.86	1.89
12177.04	12371.63	1286.20	529.04	194.67	3.90	2.72	2.43
12371.63	12566.21	1145.23	493.37	194.59	3.47	2.54	2.32
12566.21	12760.79	1584.86	600.22	195.13	4.80	3.08	2.64
12760.79	12955.38	1922.70	675.12	195.94	5.83	3.47	2.85
12955.38	13149.96	299.20	220.50	194.59	0.91	1.13	1.36
13149.96	13344.55	135.99	137.38	194.59	0.41	0.71	0.99
13344.55	13539.13	22.29	44.67	176.86	0.07	0.25	0.50

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.945

INPUT
Description: The gravel pit is entered as a blocked obstruction.
Right end
point of cross section is extended by 350 feet to elevation 1336
based on ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8607.1	1340	8642.82	1339.4	8695.66	1339.09	8726.69	1338.66	8779.56	1339.15
8834.35	1338.8	8981.64	1337.63	9008.04	1337.31	9095.79	1336.56	9133.8	1336.46
9209.74	1335.9	9279.25	1335.56	9312.58	1335.58	9366.01	1335.04	9409.76	1334.93
9471.19	1334.1	9505.43	1333.93	9587.29	1333.98	9623.18	1333.31	9651.65	1332.42
9673.72	1331.5	13 9725.79	1332.08	9794.09	1330.74	9807.98	1330.21	9883.08	1328.77
9903.94	1328.4	9918.25	1328.64	9946.82	1325.51	9956.81	1325.07	10007.99	1323.89
10031.74	1330.4	10043.5	1334.24	10065.7	1333.91	10072.41	1334.66	10084.07	1331
10096.09	1331.1	10164.76	1330.34	10202.65	1330.23	10231.37	1329.53	10249.16	1328.7
10281.6	1330.4	10315.96	1330.1	10347.38	1328.77	10381.91	1327.07	10429.75	1329.42
10445.67	1332.1	10483.63	1331.21	10485.67	1330.73	10520.01	1319.81	10531.51	1318.11
10544.52	1318.3	10581.44	1315.81	10660.99	1315.29	10686.69	1315.52	10706.93	1316.24
10724.84	1315.9	10741.81	1317.97	10760.61	1323.73	10765.41	1324.37	10783.42	1330.05
10800.57	1334.6	10818.56	1332.01	10831.83	1328.18	10841.34	1331.81	10917.03	1332.55
10925.17	1332.8	10970.34	1332.36	11046.6	1331.38	11130.22	1331.18	11203.18	1330.9
11325.77	1330.8	11331.87	1331.41	11345.81	1331.61	11386.71	1331.33	11426.5	1331.39
11486.72	1331.2	11527.35	1331.25	11586.72	1331.65	11616.72	1331.91	11691.66	1331.85

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11722.72  1331.511768.91 1331.89 11828.9 1332.4711872.66 1332.6411939.95 1331.78
11985.06  1331.812007.44 1331.9212043.63 1331.1312057.89 1329.4512097.42 1329.87
12143.43    133012216.02 1330.6412278.83 1331.4312407.11 1330.8612475.38 1330.63
12505.51  1330.412563.37 1330.7512586.76 1331.4212686.77 1330.4812712.24 1331.16
12716.97  1330.812749.28 1325.7612760.58  1323.712796.26  1330.112833.86 1330.55
12853.91  1332.812886.76 1332.9512934.44 1332.5612986.77 1332.3513086.77  1332.2
13132.79  1332.213231.96 1333.0213286.77  1333.113331.14 1333.0513430.32 1333.22
13544.23    133313619.19 1333.2213691.32 1333.1514041.32    1336

Manning's n Values         num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  8607.1    .058 9725.79    .03810445.67     .1111872.66     .1112712.24     .11
12796.26     .11

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9725.7910445.67              585  529.39     665              .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
10445.67   10800    1330
```

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1332.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1331.72	Reach Len. (ft)	585.00	529.39	665.00
Crit W.S. (ft)	1331.09	Flow Area (sq ft)	2.55	1737.88	1980.62
E.G. Slope (ft/ft)	0.006094	Area (sq ft)	2.55	1737.88	1980.62
Q Total (cfs)	13000.00	Flow (cfs)	1.13	10164.76	2834.11
Top Width (ft)	2476.70	Top Width (ft)	24.35	653.44	1798.91
Vel Total (ft/s)	3.49	Avg. Vel. (ft/s)	0.44	5.85	1.43
Max Chl Dpth (ft)	8.02	Hydr. Depth (ft)	0.10	2.66	1.10
Conv. Total (cfs)	166524.4	Conv. (cfs)	14.5	130206.1	36303.7
Length Wtd. (ft)	553.97	Wetted Per. (ft)	24.35	655.27	1801.88
Min Ch El (ft)	1323.89	Shear (lb/sq ft)	0.04	1.01	0.42
Alpha	2.23	Stream Power (lb/ft s)	0.02	5.90	0.60
Frctn Loss (ft)	3.15	Cum Volume (acre-ft)	109.43	1632.51	513.86
C & E Loss (ft)	0.01	Cum SA (acres)	68.09	344.43	347.02

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1333.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1332.79	Reach Len. (ft)	585.00	529.39	665.00
Crit W.S. (ft)	1332.05	Flow Area (sq ft)	71.90	2455.58	4414.49
E.G. Slope (ft/ft)	0.005073	Area (sq ft)	71.90	2455.58	4414.49
Q Total (cfs)	23000.00	Flow (cfs)	116.50	16053.87	6829.63
Top Width (ft)	3450.77	Top Width (ft)	85.90	680.56	2684.31
Vel Total (ft/s)	3.31	Avg. Vel. (ft/s)	1.62	6.54	1.55
Max Chl Dpth (ft)	9.09	Hydr. Depth (ft)	0.84	3.61	1.64
Conv. Total (cfs)	322928.3	Conv. (cfs)	1635.7	225402.1	95890.5
Length Wtd. (ft)	562.75	Wetted Per. (ft)	85.93	682.75	2687.62
Min Ch El (ft)	1323.89	Shear (lb/sq ft)	0.26	1.14	0.52
Alpha	2.78	Stream Power (lb/ft s)	0.43	7.45	0.80
Frctn Loss (ft)	3.01	Cum Volume (acre-ft)	398.80	2388.93	1216.79
C & E Loss (ft)	0.02	Cum SA (acres)	200.97	366.25	637.34

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1334.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1333.57	Reach Len. (ft)	585.00	529.39	665.00
Crit W.S. (ft)	1332.67	Flow Area (sq ft)	149.06	2986.58	6777.21
E.G. Slope (ft/ft)	0.004640	Area (sq ft)	149.06	2986.58	6777.21
Q Total (cfs)	33000.00	Flow (cfs)	306.88	21171.08	11522.04
Top Width (ft)	4087.24	Top Width (ft)	116.28	685.42	3285.55
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)	2.06	7.09	1.70
Max Chl Dpth (ft)	9.87	Hydr. Depth (ft)	1.28	4.36	2.06
Conv. Total (cfs)	484478.1	Conv. (cfs)	4505.4	310815.9	169156.8
Length Wtd. (ft)	569.31	Wetted Per. (ft)	116.32	687.85	3289.02
Min Ch El (ft)	1323.89	Shear (lb/sq ft)	0.37	1.26	0.60
Alpha	3.00	Stream Power (lb/ft s)	0.76	8.91	1.01
Frctn Loss (ft)	2.95	Cum Volume (acre-ft)	707.90	2893.33	1905.93
C & E Loss (ft)	0.03	Cum SA (acres)	300.71	375.37	808.29

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8607.10	9725.79	1.13	2.55	24.35	0.01	0.10	0.44
LB 9725.79	9965.75	3337.44	578.31	221.96	25.67	2.61	5.77

9965.75	10205.71	3431.66	558.59	195.20	26.40	2.88	6.14
10205.71	RB 10445.67	3395.66	600.99	238.11	26.12	2.53	5.65
10445.67	10685.38	545.04	350.31	223.79	4.19	1.57	1.56
10685.38	10925.09	344.66	212.32	127.28	2.65	1.69	1.62
10925.09	11164.80	41.32	62.62	144.86	0.32	0.43	0.66
11164.80	11404.51	140.44	159.61	239.74	1.08	0.67	0.88
11404.51	11644.22	41.52	70.14	190.91	0.32	0.37	0.59
11644.22	11883.93	1.37	5.13	46.11	0.01	0.11	0.27
11883.93	12123.64	235.09	157.60	107.26	1.81	1.47	1.49
12123.64	12363.35	240.19	220.23	239.72	1.85	0.92	1.09
12363.35	12603.06	247.26	224.10	239.72	1.90	0.93	1.10
12603.06	12842.77	997.19	518.43	240.94	7.67	2.16	1.92
12842.77	13082.48	0.03	0.13	1.55	0.00	0.09	0.22

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8607.10	9725.79	116.50	71.90	85.93	0.51	0.84	1.62
LB 9725.79	9965.75	5286.12	830.65	240.19	22.98	3.46	6.36
9965.75	10205.71	5211.35	768.76	202.18	22.66	3.83	6.78
10205.71	RB 10445.67	5556.39	856.17	240.38	24.16	3.57	6.49
10445.67	10685.38	1101.69	602.61	239.89	4.79	2.51	1.83
10685.38	10925.09	583.57	398.73	221.61	2.54	1.81	1.46
10925.09	11164.80	278.41	263.34	238.37	1.21	1.10	1.06
11164.80	11404.51	591.79	414.94	239.74	2.57	1.73	1.43
11404.51	11644.22	381.73	318.95	239.71	1.66	1.33	1.20
11644.22	11883.93	144.25	177.89	239.72	0.63	0.74	0.81
11883.93	12123.64	516.91	382.65	239.82	2.25	1.60	1.35
12123.64	12363.35	742.83	475.56	239.72	3.23	1.98	1.56
12363.35	12603.06	752.92	479.43	239.72	3.27	2.00	1.57
12603.06	12842.77	1666.30	773.77	240.94	7.24	3.23	2.15
12842.77	13082.48	41.41	76.17	186.98	0.18	0.41	0.54
13082.48	13322.19	27.79	50.45	121.39	0.12	0.42	0.55

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8607.10	9725.79	306.88	149.06	116.32	0.93	1.28	2.06
LB 9725.79	9965.75	7090.24	1017.21	240.19	21.49	4.24	6.97
9965.75	10205.71	6695.85	926.63	207.28	20.29	4.51	7.23
10205.71	RB 10445.67	7384.99	1042.73	240.38	22.38	4.35	7.08
10445.67	10685.38	1607.95	788.97	239.89	4.87	3.29	2.04
10685.38	10925.09	969.90	573.24	230.42	2.94	2.51	1.69
10925.09	11164.80	630.33	449.69	239.72	1.91	1.88	1.40
11164.80	11404.51	1022.93	601.31	239.74	3.10	2.51	1.70
11404.51	11644.22	765.58	505.32	239.71	2.32	2.11	1.52
11644.22	11883.93	443.66	364.25	239.72	1.34	1.52	1.22
11883.93	12123.64	932.80	569.02	239.82	2.83	2.37	1.64
12123.64	12363.35	1200.60	661.93	239.72	3.64	2.76	1.81
12363.35	12603.06	1212.30	665.80	239.72	3.67	2.78	1.82
12603.06	12842.77	2223.94	960.13	240.94	6.74	4.01	2.32
12842.77	13082.48	249.75	258.06	239.78	0.76	1.08	0.97
13082.48	13322.19	174.76	208.27	239.71	0.53	0.87	0.84
13322.19	13561.90	59.04	108.61	239.71	0.18	0.45	0.54
13561.90	13801.61	28.49	62.60	180.41	0.09	0.35	0.46

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.850

INPUT
Description: The gravel pit is entered as a blocked obstruction.
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8512	1334	8594.73	1333.16	8672.1	1332.86	8722.52	1332.88	8793.44	1332.41
8832.84	1331.9	8893.33	1330.9	8906.63	1329.77	8923.67	1331.44	8948.28	1331.58
9006.96	1331.5	9103.41	1330.83	9112.55	1330.87	9225.91	1330.06	9266.94	1329.76
9316.16	1330.1	9401.46	1329.39	9464.08	1329.02	9529.33	1329.49	9568.17	1329.29
9589.89	1328.1	9606.71	1325.44	9618.71	1327.3	9630.19	1325.58	9637.53	1325.67
9686.98	1325.3	9731.72	1326.62	9755.2	1325.75	9799.87	1324.33	9829.96	1326
9872.76	1325.4	9897.23	1322.51	9902.26	1323.7	9912.64	1324.81	9930.02	1325.52
10004.15	1323.4	10021.33	1324.16	10040.27	1323.06	10053.96	1325.59	10077.19	1324
10093.99	1325.5	10135.5	1326.31	10165.55	1328.24	10218.9	1328.67	10237.08	1326.5
10259.9	1328.9	10279.26	1329.27	10285.6	1330.57	10295.94	1332.85	10302.83	1331.43
10350.9	1330.3	10547.89	1328.27	10553.67	1328.45	10620.16	1328.8	10623.03	1328.7
10643.24	1333.4	10656.8	1335.69	10669.54	1332.09	10678.61	1330.18	10721.07	1329.94
10761.65	1330.6	10848.52	1329.86	10948.54	1329.63	11048.53	1329.53	11244.87	1329.03
11348.49	1329	11450.18	1328.67	11554.65	1329.27	11582.61	1329.44	11621.12	1331.05
11634.13	1330.9	11650.12	1330.01	11680.47	1327.75	11761.48	1327.02	11777.81	1326.95

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 11815.3  1328.611825.88 1328.7711832.09 1327.87 11852.9 1327.56 11890.7 1327.63
11965.62  1327.412042.47 1328.7612071.33 1329.04 12144.2 1328.9412166.34 1329.12
12203.68  1328.412206.77 1328.08 12237.7  1325.512247.85 1325.2712272.21 1326.39
12282.52  1326.412341.49 1327.3712373.25 1327.2812410.06 1327.6612481.52 1326.35
12498.08  1325.912526.62 1320.9812578.75 1328.2512605.71 1327.8812665.92 1327.06
 12686.7  1328.2

Manning's n Values          num=        7
     Sta   n Val      Sta    n Val      Sta   n Val      Sta   n Val      Sta   n Val
    8512    .058 9568.17     .038 10218.9      .1111650.12     .1112166.34     .11
12410.06     .1112578.75      .11

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
       9568.17 10218.9                545  536.65     486            .1        .3
Ineffective Flow      num=        1
   Sta L   Sta R    Elev
    8512 8948.28 1331.58
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
 10350.910669.54    1330
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CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1328.99	Element			
Vel Head (ft)	0.47	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1328.52	Reach Len. (ft)	545.00	536.65	486.00
Crit W.S. (ft)	1327.58	Flow Area (sq ft)		1873.71	1287.10
E.G. Slope (ft/ft)	0.005269	Area (sq ft)		1873.71	1287.10
Q Total (cfs)	13000.00	Flow (cfs)		11122.28	1877.72
Top Width (ft)	1488.17	Top Width (ft)		618.10	870.07
Vel Total (ft/s)	4.11	Avg. Vel. (ft/s)		5.94	1.46
Max Chl Dpth (ft)	7.54	Hydr. Depth (ft)		3.03	1.48
Conv. Total (cfs)	179086.4	Conv. (cfs)		153219.2	25867.3
Length Wtd. (ft)	528.55	Wetted Per. (ft)		619.59	871.89
Min Ch El (ft)	1322.51	Shear (lb/sq ft)		0.99	0.49
Alpha	1.80	Stream Power (lb/ft s)		5.91	0.71
Frctn Loss (ft)	2.30	Cum Volume (acre-ft)	109.42	1610.56	488.92
C & E Loss (ft)	0.05	Cum SA (acres)	67.93	336.71	326.64

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1330.23	Element			
Vel Head (ft)	0.67	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1329.56	Reach Len. (ft)	545.00	536.65	486.00
Crit W.S. (ft)	1328.69	Flow Area (sq ft)	50.82	2544.73	2589.41
E.G. Slope (ft/ft)	0.005650	Area (sq ft)	50.82	2544.73	2589.41
Q Total (cfs)	23000.00	Flow (cfs)	41.01	18537.35	4421.63
Top Width (ft)	2499.30	Top Width (ft)	187.36	650.73	1661.21
Vel Total (ft/s)	4.44	Avg. Vel. (ft/s)	0.81	7.28	1.71
Max Chl Dpth (ft)	8.58	Hydr. Depth (ft)	0.27	3.91	1.56
Conv. Total (cfs)	305977.2	Conv. (cfs)	545.6	246609.0	58822.6
Length Wtd. (ft)	526.15	Wetted Per. (ft)	187.36	652.24	1664.21
Min Ch El (ft)	1322.51	Shear (lb/sq ft)	0.10	1.38	0.55
Alpha	2.20	Stream Power (lb/ft s)	0.08	10.03	0.94
Frctn Loss (ft)	2.48	Cum Volume (acre-ft)	397.98	2358.55	1163.33
C & E Loss (ft)	0.08	Cum SA (acres)	199.13	358.16	604.17

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1331.11	Element			
Vel Head (ft)	0.82	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1330.29	Reach Len. (ft)	545.00	536.65	486.00
Crit W.S. (ft)	1329.58	Flow Area (sq ft)	255.77	3021.74	4023.99
E.G. Slope (ft/ft)	0.005784	Area (sq ft)	258.80	3021.74	4023.99
Q Total (cfs)	33000.00	Flow (cfs)	386.04	24973.14	7640.81
Top Width (ft)	3293.37	Top Width (ft)	386.67	650.73	2255.98
Vel Total (ft/s)	4.52	Avg. Vel. (ft/s)	1.51	8.26	1.90
Max Chl Dpth (ft)	9.31	Hydr. Depth (ft)	0.68	4.64	1.78
Conv. Total (cfs)	433918.3	Conv. (cfs)	5076.1	328372.8	100469.4
Length Wtd. (ft)	524.15	Wetted Per. (ft)	375.14	652.24	2259.88
Min Ch El (ft)	1322.51	Shear (lb/sq ft)	0.25	1.67	0.64
Alpha	2.57	Stream Power (lb/ft s)	0.37	13.83	1.22
Frctn Loss (ft)	2.56	Cum Volume (acre-ft)	705.16	2856.82	1823.48
C & E Loss (ft)	0.11	Cum SA (acres)	297.33	367.25	765.99

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9568.17	9785.08	2700.56	518.42	203.41	20.77	2.56	5.21
9785.08	10001.99	5454.20	811.70	217.38	41.96	3.74	6.72
10001.99	RB 10218.90	2967.52	543.59	198.80	22.83	2.74	5.46
10218.90	10383.42	35.28	36.50	36.36	0.27	1.01	0.97
10383.42	11535.06						
11535.06	11699.58	15.32	20.35	29.48	0.12	0.69	0.75
11699.58	11864.10	156.60	157.54	150.49	1.20	1.05	0.99
11864.10	12028.62	114.23	135.10	164.53	0.88	0.82	0.85
12028.62	12193.14						
12193.14	12357.66	413.65	289.43	160.38	3.18	1.81	1.43
12357.66	12522.18	477.06	318.81	164.90	3.67	1.94	1.50
12522.18	12686.70	665.58	329.37	165.45	5.12	2.00	2.02

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8512.00	9568.17	41.01	50.82	187.36	0.18	0.27	0.81
LB 9568.17	9785.08	4842.18	738.96	217.48	21.05	3.41	6.55
9785.08	10001.99	8528.64	1037.63	217.38	37.08	4.78	8.22
10001.99	RB 10218.90	5166.53	768.14	217.38	22.46	3.54	6.73
10218.90	10383.42	108.57	87.87	62.07	0.47	1.42	1.24
10383.42	10876.98						
10876.98	11041.50	0.02	0.31	24.83	0.00	0.01	0.05
11041.50	11206.02	13.29	36.80	164.52	0.06	0.22	0.36
11206.02	11370.54	57.46	88.59	164.52	0.25	0.54	0.65
11370.54	11535.06	89.74	115.75	164.52	0.39	0.70	0.78
11535.06	11699.58	57.85	71.10	93.98	0.25	0.76	0.81
11699.58	11864.10	506.10	326.88	164.63	2.20	1.99	1.55
11864.10	12028.62	454.73	306.47	164.53	1.98	1.86	1.48
12028.62	12193.14	75.22	104.12	164.53	0.33	0.63	0.72
12193.14	12357.66	896.19	460.62	164.68	3.90	2.80	1.95
12357.66	12522.18	993.22	490.18	164.90	4.32	2.98	2.03
12522.18	12686.70	1169.24	500.73	166.49	5.08	3.04	2.34

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8512.00	9568.17	386.04	255.77	375.14	1.17	0.68	1.51
LB 9568.17	9785.08	6805.97	897.96	217.48	20.62	4.14	7.58
9785.08	10001.99	10986.56	1196.64	217.38	33.29	5.52	9.18
10001.99	RB 10218.90	7180.61	927.14	217.38	21.76	4.27	7.74
10218.90	10383.42	178.79	139.69	97.74	0.54	1.43	1.28
10383.42	10547.94	21.69	48.52	164.52	0.07	0.29	0.45
10547.94	10712.46	13.04	31.14	116.39	0.04	0.27	0.42
10712.46	10876.98	13.54	31.13	109.96	0.04	0.28	0.43
10876.98	11041.50	82.07	107.82	164.52	0.25	0.66	0.76
11041.50	11206.02	154.17	157.40	164.52	0.47	0.96	0.98
11206.02	11370.54	247.67	209.19	164.52	0.75	1.27	1.18
11370.54	11535.06	303.56	236.35	164.52	0.92	1.44	1.28
11535.06	11699.58	173.31	150.15	122.69	0.53	1.22	1.15
11699.58	11864.10	879.20	447.48	164.63	2.66	2.72	1.96
11864.10	12028.62	813.71	427.07	164.53	2.47	2.60	1.91
12028.62	12193.14	279.07	224.72	164.53	0.85	1.37	1.24
12193.14	12357.66	1359.15	581.22	164.68	4.12	3.53	2.34
12357.66	12522.18	1475.03	610.78	164.90	4.47	3.71	2.41
12522.18	12686.70	1646.82	621.33	167.22	4.99	3.78	2.65

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.752

INPUT

Description:

Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8593	1330	8629.02	1329.42	8725.36	1329.26	8852.44	1328.52	8885.67	1328.2
8952.52	1327.8	9083.06	1326.77	9186.25	1325.92	9216.66	1326.66	9255.08	1326.35
9273.58	1325.3	9278.76	1324.03	9287.25	1325.52	9304.16	1325.56	9352.83	1325.14
9459.42	1324.7	9511.18	1325.66	9552.93	1326.04	9634.07	1325.69	9638.42	1324.65
9649.11	1320.3	9701.1	1320.5	9734.32	1323.31	9767.06	1323.71	9825.51	1323.58
9878.81	1324.1	9905.85	1323.18	9916.44	1321.52	9937.72	1320.26	9949.57	1320.3
9973.25	1321.6	9999.77	1319.77	10013.34	1323.44	10056.24	1321.69	10086.46	1322.94
10106.03	1325.21	10111.72	1324.81	10128.53	1323.86	10136.65	1325.11	10182.64	1324.43
10198.87	1327.41	10246.24	1327.69	10302.94	1327.13	10374.41	1326.98	10513.13	1325.98
10602.93	1326.61	10702.93	1326.37	10770.52	1326.15	10869.57	1326.15	10968.62	1325.59
11102.86	1325	11138.88	1324.91	11202.96	1324.98	11239.92	1324.93	11302.93	1324.63
11351.07	1324.71	11393.28	1325.61	11445	1325.15	11502.98	1324.31	11562.84	1324.82
11661.89	1325.21	11757.54	1325.56	11819.84	1325.87	11851.27	1327.98	11924.53	1326.99
12005.69	1327.21	12036.12	1326.81	12045.15	1326.86	12065.62	1322.68	12082.95	1321.74
12091.54	1320.71	12109.68	1320.86	12147.53	1323.31	12176.87	1322.19	12206.72	1324.49
12216.79	1325.21	12229.43	1324.81	12264.48	1325.11	12318.97	1325.38	12326.03	1325.67
12376.21	1325.61	12443.51	1325.51	12465.25	1325.19	12507.2	1325.18	12559.16	1325.81
12614.69	1326.81	12715.39	1327.47	12790.27	1328.24				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8593	.058	9552.93	.038	10246.24	.11	11851.27	.11	12045.15	.11
12216.79	.11								

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9552.93	10246.24	530	547.53	565	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1326.64	Element			
Vel Head (ft)	0.30	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1326.34	Reach Len. (ft)	530.00	547.53	565.00
Crit W.S. (ft)	1325.15	Flow Area (sq ft)	339.33	2036.26	2125.05
E.G. Slope (ft/ft)	0.003466	Area (sq ft)	339.33	2036.26	2125.05
Q Total (cfs)	13000.00	Flow (cfs)	527.04	10114.24	2358.72
Top Width (ft)	2763.90	Top Width (ft)	365.89	640.15	1757.87
Vel Total (ft/s)	2.89	Avg. Vel. (ft/s)	1.55	4.97	1.11
Max Chl Dpth (ft)	6.57	Hydr. Depth (ft)	0.93	3.18	1.21
Conv. Total (cfs)	220811.3	Conv. (cfs)	8952.0	171795.4	40064.0
Length Wtd. (ft)	550.22	Wetted Per. (ft)	366.22	642.52	1758.61
Min Ch El (ft)	1319.77	Shear (lb/sq ft)	0.20	0.69	0.26
Alpha	2.34	Stream Power (lb/ft s)	0.31	3.41	0.29
Frctn Loss (ft)	2.45	Cum Volume (acre-ft)	107.29	1586.48	469.89
C & E Loss (ft)	0.00	Cum SA (acres)	65.64	328.96	311.98

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1327.68	Element			
Vel Head (ft)	0.42	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1327.26	Reach Len. (ft)	530.00	547.53	565.00
Crit W.S. (ft)	1326.29	Flow Area (sq ft)	769.49	2630.38	4006.38
E.G. Slope (ft/ft)	0.003769	Area (sq ft)	769.49	2630.38	4006.38
Q Total (cfs)	23000.00	Flow (cfs)	1546.28	16074.31	5379.42
Top Width (ft)	3509.21	Top Width (ft)	532.51	645.20	2331.50
Vel Total (ft/s)	3.11	Avg. Vel. (ft/s)	2.01	6.11	1.34
Max Chl Dpth (ft)	7.49	Hydr. Depth (ft)	1.45	4.08	1.72
Conv. Total (cfs)	374634.9	Conv. (cfs)	25186.5	261826.0	87622.5
Length Wtd. (ft)	551.05	Wetted Per. (ft)	532.85	647.65	2332.35
Min Ch El (ft)	1319.77	Shear (lb/sq ft)	0.34	0.96	0.40
Alpha	2.78	Stream Power (lb/ft s)	0.68	5.84	0.54
Frctn Loss (ft)	2.57	Cum Volume (acre-ft)	392.84	2326.67	1126.53
C & E Loss (ft)	0.00	Cum SA (acres)	194.63	350.18	581.89

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1328.44	Element			
Vel Head (ft)	0.46	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1327.98	Reach Len. (ft)	530.00	547.53	565.00
Crit W.S. (ft)	1326.97	Flow Area (sq ft)	1183.03	3112.47	5748.30
E.G. Slope (ft/ft)	0.003999	Area (sq ft)	1183.03	3112.47	5748.30
Q Total (cfs)	33000.00	Flow (cfs)	2915.23	20895.18	9189.58
Top Width (ft)	3842.16	Top Width (ft)	630.30	693.31	2518.54
Vel Total (ft/s)	3.29	Avg. Vel. (ft/s)	2.46	6.71	1.60
Max Chl Dpth (ft)	8.21	Hydr. Depth (ft)	1.88	4.49	2.28
Conv. Total (cfs)	521843.0	Conv. (cfs)	46099.8	330424.4	145318.8
Length Wtd. (ft)	551.36	Wetted Per. (ft)	630.65	695.78	2519.41
Min Ch El (ft)	1319.77	Shear (lb/sq ft)	0.47	1.12	0.57
Alpha	2.76	Stream Power (lb/ft s)	1.15	7.50	0.91
Frctn Loss (ft)	2.67	Cum Volume (acre-ft)	696.14	2819.04	1768.97
C & E Loss (ft)	0.01	Cum SA (acres)	290.97	358.97	739.35

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8593.00	9552.93	527.04	339.33	366.22	4.05	0.93	1.55
LB 9552.93	9784.03	3143.78	678.67	232.20	24.18	2.94	4.63
9784.03	10015.14	4999.23	895.96	231.88	38.46	3.88	5.58
10015.14	RB 10246.24	1971.23	461.62	178.44	15.16	2.59	4.27
10246.24	10415.84						
10415.84	10585.44	4.52	18.36	102.04	0.03	0.18	0.25
10585.44	10755.05	0.39	2.99	42.85	0.00	0.07	0.13
10755.05	10924.65	11.97	40.38	169.60	0.09	0.24	0.30
10924.65	11094.25	114.36	156.40	169.60	0.88	0.92	0.73
11094.25	11263.85	229.31	237.42	169.60	1.76	1.40	0.97
11263.85	11433.45	217.99	230.32	169.61	1.68	1.36	0.95
11433.45	11603.06	286.45	271.33	169.61	2.20	1.60	1.06
11603.06	11772.66	140.20	176.73	169.60	1.08	1.04	0.79
11772.66	11942.26	15.05	29.35	54.20	0.12	0.54	0.51
11942.26	12111.86	510.86	261.00	64.63	3.93	4.07	1.96
12111.86	12281.46	653.19	445.15	169.82	5.02	2.62	1.47
12281.46	12451.07	95.67	140.52	169.61	0.74	0.83	0.68
12451.07	12620.67	78.77	115.09	137.82	0.61	0.84	0.68

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8593.00	9552.93	1546.28	769.49	532.85	6.72	1.45	2.01
LB 9552.93	9784.03	5199.75	892.32	232.20	22.61	3.86	5.83
9784.03	10015.14	7484.02	1109.60	231.88	32.54	4.80	6.74
10015.14	RB 10246.24	3390.53	628.45	183.58	14.74	3.43	5.40
10246.24	10415.84	11.64	33.84	126.50	0.05	0.27	0.34
10415.84	10585.44	135.09	165.65	169.61	0.59	0.98	0.82
10585.44	10755.05	104.04	141.63	169.60	0.45	0.84	0.73
10755.05	10924.65	180.58	197.17	169.60	0.79	1.16	0.92
10924.65	11094.25	390.49	313.18	169.60	1.70	1.85	1.25
11094.25	11263.85	573.01	394.21	169.60	2.49	2.32	1.45
11263.85	11433.45	555.89	387.11	169.61	2.42	2.28	1.44
11433.45	11603.06	657.48	428.12	169.61	2.86	2.52	1.54
11603.06	11772.66	433.67	333.52	169.60	1.89	1.97	1.30
11772.66	11942.26	70.65	93.04	106.03	0.31	0.88	0.76
11942.26	12111.86	453.61	343.06	170.12	1.97	2.02	1.32
12111.86	12281.46	1159.24	601.94	169.82	5.04	3.55	1.93
12281.46	12451.07	358.05	297.30	169.61	1.56	1.75	1.20
12451.07	12620.67	291.99	263.07	169.62	1.27	1.55	1.11
12620.67	12790.27	3.99	13.54	63.81	0.02	0.21	0.29

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8593.00	9552.93	2915.23	1183.03	630.65	8.83	1.88	2.46
LB 9552.93	9784.03	7035.31	1057.46	232.20	21.32	4.58	6.65
9784.03	10015.14	9615.10	1274.75	231.88	29.14	5.52	7.54
10015.14	RB 10246.24	4244.76	780.25	231.70	12.86	3.38	5.44
10246.24	10415.84	111.07	145.86	169.61	0.34	0.86	0.76
10415.84	10585.44	342.85	286.85	169.61	1.04	1.69	1.20
10585.44	10755.05	296.34	262.82	169.60	0.90	1.55	1.13
10755.05	10924.65	407.90	318.36	169.60	1.24	1.88	1.28
10924.65	11094.25	684.64	434.38	169.60	2.07	2.56	1.58
11094.25	11263.85	910.47	515.41	169.60	2.76	3.04	1.77
11263.85	11433.45	889.63	508.31	169.61	2.70	3.00	1.75
11433.45	11603.06	1012.46	549.32	169.61	3.07	3.24	1.84
11603.06	11772.66	738.90	454.72	169.60	2.24	2.68	1.62
11772.66	11942.26	174.81	191.47	169.58	0.53	1.13	0.91
11942.26	12111.86	763.36	464.26	170.12	2.31	2.74	1.64
12111.86	12281.46	1599.63	723.14	169.82	4.85	4.26	2.21
12281.46	12451.07	643.43	418.50	169.61	1.95	2.47	1.54
12451.07	12620.67	558.10	384.26	169.62	1.69	2.27	1.45
12620.67	12790.27	56.00	90.64	144.21	0.17	0.63	0.62

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.653

INPUT
Description: Right end point of cross section is extended by 380 feet to

elevation 1325.5 based on ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 103

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8405	1328	8484.47	1327.43	8555.82	1327.06	8562.57	1325.66	8569.74	1326.9
8635.91	1326.6	8689.15	1326.31	8708.73	1326	8748.88	1325.85	8767.27	1325.52
8797.99	1325.4	8836.84	1325.05	8955.25	1324.44	8996.03	1324.39	9088.14	1323.68
9112.97	1323.5	9196.03	1324.47	9264.89	1324.04	9284.94	1320.22	9306.41	1321.97
9352.02	1322.2	9396.53	1322.62	9411.27	1322.42	9439.14	1322.53	9463.09	1322.34
9474.71	1322.5	9514.93	1323.44	9561.79	1323.28	9612.22	1322.57	9621.4	1319.41
9629.48	1320.5	9681.44	1320.83	9700.04	1321.85	9730.5	1321.39	9761.33	1321.45
9807.22	1322.7	9818.79	1322.71	9838.39	1322.76	9897.91	1320.42	9953.86	1319.16
10001.73	1317.910030.22		1320.5410059.01		1319.2210070.65		1321.7710091.47		1322.81
10138	1323.910148.59		1324.0310177.83		1321.5310208.13		1324.0210236.25		1323.6
10305.81	1323.710416.54		1322.93 10439.3		1323.3910536.59		1323.17 10652.5		1323.45
10719.38	1323.210805.83		1323.1310902.38		1323.03 10919.5		1321.9511001.15		1321.23
11083.34	1321.511113.08		1322.9811124.74		1322.8511205.84		1322.8611256.36		1322.24
11305.83	1321.711405.82		1321.9611456.38		1322.4111555.29		1322.9611611.12		1323.38
11641.85	1323.511704.27		1323.3511725.19		1323.0411731.33		1322.71 11764		1323.86
11798.19	1323.311808.11		1323.73 11910.7		1323.911939.65		1323.7411959.79		1318.13
11990.88	1317.312012.22		1323.45 12047.5		1322.5412065.78		1323.6312119.86		1323.94
12149.75	1323.512208.42		1322.7212229.81		1321.8512249.86		1322.4512278.62		1322.27
12308.27	1322.412331.56		1323.7112397.36		1324.3212414.28		1321.3412428.47		1321.67
12447.81	1325.512484.45		1323.6912499.43		1323.41 12515.2		1324.39 12528.3		1323.42
12614.1	1323.812665.64		1323.9913045.64		1325.5				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8405	.058	9514.93	.03810148.59		.11	10652.5	.1111124.74		.11
11939.65	.1112012.22		.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9514.93	10148.59	465	536.63	480	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1324.19	Wt. n-Val.	0.058	0.038	0.110
Vel Head (ft)	0.35	Reach Len. (ft)	465.00	536.63	480.00
W.S. Elev (ft)	1323.84	Flow Area (sq ft)	391.80	1548.56	2345.24
Crit W.S. (ft)	1323.37	Area (sq ft)	391.80	1548.56	2345.24
E.G. Slope (ft/ft)	0.006221	Flow (cfs)	1020.72	8776.64	3202.64
Q Total (cfs)	13000.00	Top Width (ft)	323.22	620.42	2270.56
Top Width (ft)	3214.20	Avg. Vel. (ft/s)	2.61	5.67	1.37
Vel Total (ft/s)	3.03	Hydr. Depth (ft)	1.21	2.50	1.03
Max Chl Dpth (ft)	6.54	Conv. (cfs)	12941.5	111277.9	40605.9
Conv. Total (cfs)	164825.3	Wetted Per. (ft)	323.65	621.62	2273.13
Length Wtd. (ft)	521.63	Shear (lb/sq ft)	0.47	0.97	0.40
Min Ch El (ft)	1317.90	Stream Power (lb/ft s)	1.22	5.48	0.55
Alpha	2.46	Cum Volume (acre-ft)	102.85	1563.95	440.90
Frctn Loss (ft)	2.75	Cum SA (acres)	61.45	321.03	285.86
C & E Loss (ft)	0.01				

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

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1325.11	Wt. n-Val.	0.058	0.038	0.110
Vel Head (ft)	0.45	Reach Len. (ft)	465.00	536.63	480.00
W.S. Elev (ft)	1324.66	Flow Area (sq ft)	767.61	2068.32	4420.89
Crit W.S. (ft)	1324.06	Area (sq ft)	767.61	2068.32	4420.89
E.G. Slope (ft/ft)	0.006153	Flow (cfs)	1812.12	13942.72	7245.16
Q Total (cfs)	23000.00	Top Width (ft)	602.47	633.66	2664.53
Top Width (ft)	3900.65	Avg. Vel. (ft/s)	2.36	6.74	1.64
Vel Total (ft/s)	3.17	Hydr. Depth (ft)	1.27	3.26	1.66
Max Chl Dpth (ft)	7.36	Conv. (cfs)	23100.9	177741.6	92361.2
Conv. Total (cfs)	293203.7	Wetted Per. (ft)	602.93	634.86	2667.30
Length Wtd. (ft)	516.85	Shear (lb/sq ft)	0.49	1.25	0.64
Min Ch El (ft)	1317.90	Stream Power (lb/ft s)	1.15	8.44	1.04
Alpha	2.87	Cum Volume (acre-ft)	383.49	2297.14	1071.88
Frctn Loss (ft)	2.75	Cum SA (acres)	187.72	342.14	549.49
C & E Loss (ft)	0.01				

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

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1325.77	Wt. n-Val.	0.058	0.038	0.110
Vel Head (ft)	0.52	Reach Len. (ft)	465.00	536.63	480.00
W.S. Elev (ft)	1325.25	Flow Area (sq ft)	1153.28	2440.46	6033.48
Crit W.S. (ft)	1324.66	Area (sq ft)	1153.28	2440.46	6033.48
E.G. Slope (ft/ft)	0.006134	Flow (cfs)	3226.51	18340.99	11432.50
Q Total (cfs)	33000.00	Top Width (ft)	700.03	633.66	2827.17
Top Width (ft)	4160.86	Avg. Vel. (ft/s)	2.80	7.52	1.89
Vel Total (ft/s)	3.43	Hydr. Depth (ft)	1.65	3.85	2.13
Max Chl Dpth (ft)	7.95	Conv. (cfs)	41196.0	234177.1	145969.7
Conv. Total (cfs)	421342.8	Wetted Per. (ft)	700.49	634.86	2830.02
Length Wtd. (ft)	513.41	Shear (lb/sq ft)	0.63	1.47	0.82
Min Ch El (ft)	1317.90	Stream Power (lb/ft s)	1.76	11.06	1.55
Alpha	2.84	Cum Volume (acre-ft)	681.93	2784.14	1692.56
Frctn Loss (ft)	2.72				

C & E Loss (ft) 0.01 Cum SA (acres) 282.88 350.63 704.68

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8405.00	9514.93	1020.72	391.80	323.65	7.85	1.21	2.61
LB 9514.93	9726.15	1778.82	394.33	211.86	13.68	1.87	4.51
9726.15	9937.37	2532.22	486.87	211.29	19.48	2.31	5.20
9937.37	RB 10148.59	4465.61	667.36	198.46	34.35	3.37	6.69
10148.59	10341.73	60.32	87.96	176.68	0.46	0.50	0.69
10341.73	10534.86	91.46	117.01	193.14	0.70	0.61	0.78
10534.86	10728.00	72.96	102.17	193.14	0.56	0.53	0.71
10728.00	10921.14	141.42	151.99	193.17	1.09	0.79	0.93
10921.14	11114.27	807.25	432.24	193.18	6.21	2.24	1.87
11114.27	11307.41	324.78	250.29	193.14	2.50	1.30	1.30
11307.41	11500.55	537.46	338.61	193.14	4.13	1.75	1.59
11500.55	11693.68	104.36	126.65	193.14	0.80	0.66	0.82
11693.68	11886.82	30.04	58.01	177.60	0.23	0.33	0.52
11886.82	12079.96	705.50	369.46	159.71	5.43	2.34	1.91
12079.96	12273.09	149.86	148.98	168.43	1.15	0.88	1.01
12273.09	12466.23	166.72	134.93	112.06	1.28	1.21	1.24
12466.23	12659.37	10.50	26.93	126.61	0.08	0.21	0.39

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8405.00	9514.93	1812.12	767.61	602.93	7.88	1.27	2.36
LB 9514.93	9726.15	3313.99	568.06	211.86	14.41	2.69	5.83
9726.15	9937.37	4269.44	660.60	211.29	18.56	3.13	6.46
9937.37	RB 10148.59	6359.31	839.66	211.71	27.65	3.98	7.57
10148.59	10341.73	305.51	245.29	193.35	1.33	1.27	1.25
10341.73	10534.86	371.86	275.87	193.14	1.62	1.43	1.35
10534.86	10728.00	339.13	261.03	193.14	1.47	1.35	1.30
10728.00	10921.14	453.69	310.85	193.17	1.97	1.61	1.46
10921.14	11114.27	1324.11	591.10	193.18	5.76	3.06	2.24
11114.27	11307.41	717.25	409.15	193.14	3.12	2.12	1.75
11307.41	11500.55	993.46	497.46	193.14	4.32	2.58	2.00
11500.55	11693.68	393.77	285.51	193.14	1.71	1.48	1.38
11693.68	11886.82	248.63	216.69	193.18	1.08	1.12	1.15
11886.82	12079.96	1087.21	526.95	194.83	4.73	2.73	2.06
12079.96	12273.09	443.32	306.57	193.17	1.93	1.59	1.45
12273.09	12466.23	363.95	260.30	172.50	1.58	1.51	1.40
12466.23	12659.37	171.28	173.29	193.23	0.74	0.90	0.99
12659.37	12852.50	31.96	60.83	174.99	0.14	0.35	0.53

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8405.00	9514.93	3226.51	1153.28	700.49	9.78	1.65	2.80
LB 9514.93	9726.15	4617.61	692.10	211.86	13.99	3.28	6.67
9726.15	9937.37	5702.06	784.65	211.29	17.28	3.71	7.27
9937.37	RB 10148.59	8021.35	963.71	211.71	24.31	4.56	8.32
10148.59	10341.73	572.24	358.72	193.35	1.73	1.86	1.60
10341.73	10534.86	656.31	389.30	193.14	1.99	2.02	1.69
10534.86	10728.00	615.15	374.45	193.14	1.86	1.94	1.64
10728.00	10921.14	757.44	424.28	193.17	2.30	2.20	1.79
10921.14	11114.27	1763.66	704.52	193.18	5.34	3.65	2.50
11114.27	11307.41	1072.05	522.57	193.14	3.25	2.71	2.05
11307.41	11500.55	1390.75	610.89	193.14	4.21	3.16	2.28
11500.55	11693.68	683.61	398.93	193.14	2.07	2.07	1.71
11693.68	11886.82	498.53	330.12	193.18	1.51	1.71	1.51
11886.82	12079.96	1495.73	640.38	194.83	4.53	3.32	2.34
12079.96	12273.09	744.74	420.00	193.17	2.26	2.17	1.77
12273.09	12466.23	603.07	365.61	187.43	1.83	1.96	1.65
12466.23	12659.37	394.09	286.72	193.23	1.19	1.48	1.37
12659.37	12852.50	170.83	173.60	193.14	0.52	0.90	0.98
12852.50	13045.64	14.28	33.39	129.64	0.04	0.26	0.43

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.599

INPUT

Description: Right end point of cross section is extended by 200 feet to elevation 1323.3 based on ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 121

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8240	1326.1	8266.56	1325.44	8305.08	1325.44	8336.99	1324.61	8357.98	1325.16
8399.45	1324.9	8443.76	1324.19	8456.01	1324.22	8467.96	1323.43	8480.18	1324.12
8512.75	1323.9	8615.79	1322.95	8668.5	1322.75	8696.94	1321.96	8710.55	1321.86
8752.41	1321.1	8820.39	1320.54	8846.94	1320.27	8876.58	1321.13	8910.12	1320.74
8947.48	1320.5	8962.12	1319.4	8985.25	1320.73	9001.45	1320.45	9012.69	1319.36
9024.39	1320.7	9068.4	1320.6	9164.35	1321.02	9200.52	1321.63	9210.66	1316.4
9227.66	1316.6	9232.47	1316.92	9266.38	1316.4	9316.21	1319.4	9366.86	1320.19
9399.92	1320	9415.95	1316.66	9427.99	1316.68	9465.49	1317.23	9496.1	1316.68
9518.58	1318.8	9523.59	1319.68	9598.97	1320.64	9669.05	1321.19	9734.52	1320.92
9766.83	1316.1	9782.48	1319.35	9865.92	1316.6	9887.73	1317.83	9914.67	1317.89
9964.94	1317	9975.51	1317.1	9982.84	1315.45	10016.21	1315.07	10023.39	1320.94
10037.57	1320.61	10045.79	1319.03	10061.46	1319.71	10083.56	1320.69	10113.37	1320.59
10140.65	1320.31	10164.24	1321	10175.79	1320.77	10189.07	1319.57	10201.9	1320.83
10244.93	1320.31	10259.14	1321.02	10368.39	1320.61	10474.16	1320.13	10573.87	1319.95
10672.23	1319.51	10767.81	1320.28	10837.93	1320.45	10885.93	1318.88	10947.7	1318.8
10969.92	1318.61	10982.97	1319.06	11078.55	1319.04	11168.42	1319.21	11257.15	1319.86
11287.9	1320.71	11355.83	1320.45	11402.99	1320.91	11440.44	1321.73	11473.84	1321.24
11508.95	1320.21	11571.37	1321.08	11603.06	1321.05	11614.93	1321.96	11679.61	1321.09
11720.64	1321	11758.88	1322.09	11783.24	1316.54	11794.63	1316.93	11822.57	1319.61
11845.19	1320.11	11857.05	1321.43	11878.39	1321.81	11943.12	1321.24	11959.64	1320.37
11973.85	1318.61	11993.06	1321.53	12005.38	1320.91	12054.23	1320.26	12140.11	1319.9
12184.13	1321.41	12193.43	1321.32	12250.28	1321.47	12287.89	1321.27	12305.68	1321.89
12328.98	1321.11	12398.42	1320.71	12470.47	1320.63	12500.16	1321.05	12568.59	1321.48
12627.86	1321.91	12670.85	1321.88	12695.53	1321.31	12736.62	1321.68	12756.46	1322
12956.46	1323.3								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8240	.058	9200.52	.03	10023.39	.11	10837.93	.111	11440.44	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9200.52	10023.39	400	542.23	607	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1321.43	Element			
Vel Head (ft)	0.32	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1321.11	Reach Len. (ft)	400.00	542.23	607.00
Crit W.S. (ft)	1320.20	Flow Area (sq ft)	199.81	2139.18	2072.55
E.G. Slope (ft/ft)	0.004362	Area (sq ft)	199.81	2139.18	2072.55
Q Total (cfs)	13000.00	Flow (cfs)	208.61	10668.71	2122.68
Top Width (ft)	3259.71	Top Width (ft)	415.41	792.28	2052.02
Vel Total (ft/s)	2.95	Avg. Vel. (ft/s)	1.04	4.99	1.02
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)	0.48	2.70	1.01
Conv. Total (cfs)	196835.1	Conv. (cfs)	3158.5	161536.7	32139.9
Length Wtd. (ft)	560.65	Wetted Per. (ft)	415.65	797.13	2053.51
Min Ch El (ft)	1315.07	Shear (lb/sq ft)	0.13	0.73	0.27
Alpha	2.37	Stream Power (lb/ft s)	0.14	3.64	0.28
Frctn Loss (ft)	2.47	Cum Volume (acre-ft)	99.69	1541.23	416.56
C & E Loss (ft)	0.04	Cum SA (acres)	57.50	312.33	262.04

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1322.34	Element			
Vel Head (ft)	0.41	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1321.93	Reach Len. (ft)	400.00	542.23	607.00
Crit W.S. (ft)	1321.23	Flow Area (sq ft)	578.85	2813.25	4036.97
E.G. Slope (ft/ft)	0.004554	Area (sq ft)	578.85	2813.25	4036.97
Q Total (cfs)	23000.00	Flow (cfs)	1103.56	16779.64	5116.80
Top Width (ft)	4042.46	Top Width (ft)	499.62	822.87	2719.97
Vel Total (ft/s)	3.10	Avg. Vel. (ft/s)	1.91	5.96	1.27
Max Chl Dpth (ft)	6.86	Hydr. Depth (ft)	1.16	3.42	1.48
Conv. Total (cfs)	340828.3	Conv. (cfs)	16353.2	248651.2	75824.0
Length Wtd. (ft)	561.17	Wetted Per. (ft)	499.87	827.85	2721.73
Min Ch El (ft)	1315.07	Shear (lb/sq ft)	0.33	0.97	0.42
Alpha	2.76	Stream Power (lb/ft s)	0.63	5.76	0.53
Frctn Loss (ft)	2.47	Cum Volume (acre-ft)	376.31	2267.07	1025.28
C & E Loss (ft)	0.05	Cum SA (acres)	181.84	333.17	519.83

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1323.03	Element			
Vel Head (ft)	0.47	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1322.56	Reach Len. (ft)	400.00	542.23	607.00
Crit W.S. (ft)	1321.79	Flow Area (sq ft)	900.24	3328.04	5769.95
E.G. Slope (ft/ft)	0.004485	Area (sq ft)	900.24	3328.04	5769.95
Q Total (cfs)	33000.00	Flow (cfs)	2212.03	22035.76	8752.21
Top Width (ft)	4166.61	Top Width (ft)	525.05	822.87	2818.69
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)	2.46	6.62	1.52
Max Chl Dpth (ft)	7.49	Hydr. Depth (ft)	1.71	4.04	2.05
Conv. Total (cfs)	492732.8	Conv. (cfs)	33028.5	329022.5	130681.8

Length Wtd. (ft)	561.32	Wetted Per. (ft)	525.31	827.85	2820.47
Min Ch El (ft)	1315.07	Shear (lb/sq ft)	0.48	1.13	0.57
Alpha	2.78	Stream Power (lb/ft s)	1.18	7.45	0.87
Frctn Loss (ft)	2.48	Cum Volume (acre-ft)	670.97	2748.60	1627.52
C & E Loss (ft)	0.05	Cum SA (acres)	276.34	341.66	673.58

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8240.00	9200.52	208.61	199.81	415.65	1.60	0.48	1.04
LB 9200.52	9474.81	4047.20	822.58	274.89	31.13	3.01	4.92
9474.81	9749.10	742.63	284.05	245.05	5.71	1.16	2.61
9749.10	RB 10023.39	5878.87	1032.55	277.19	45.22	3.76	5.69
10023.39	10218.93	96.09	139.16	195.86	0.74	0.71	0.69
10218.93	10414.47	41.70	84.28	195.56	0.32	0.43	0.49
10414.47	10610.00	179.28	202.18	195.54	1.38	1.03	0.89
10610.00	10805.54	234.51	237.52	195.54	1.80	1.21	0.99
10805.54	11001.08	453.16	352.69	195.57	3.49	1.80	1.28
11001.08	11196.62	533.13	388.79	195.54	4.10	1.99	1.37
11196.62	11392.16	132.50	168.64	195.55	1.02	0.86	0.79
11392.16	11587.69	21.27	47.76	129.79	0.16	0.37	0.45
11587.69	11783.23	30.42	49.52	83.09	0.23	0.60	0.61
11783.23	11978.77	269.44	200.95	104.53	2.07	1.93	1.34
11978.77	12174.31	108.41	146.10	184.60	0.83	0.79	0.74
12174.31	12369.85	1.13	5.25	42.47	0.01	0.12	0.22
12369.85	12565.38	21.65	49.73	139.86	0.17	0.36	0.44

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8240.00	9200.52	1103.56	578.85	499.87	4.80	1.16	1.91
LB 9200.52	9474.81	6324.79	1047.49	276.02	27.50	3.82	6.04
9474.81	9749.10	1899.95	508.04	274.64	8.26	1.85	3.74
9749.10	RB 10023.39	8554.90	1257.72	277.19	37.20	4.59	6.80
10023.39	10218.93	345.23	299.68	195.86	1.50	1.53	1.15
10218.93	10414.47	246.69	244.80	195.56	1.07	1.25	1.01
10414.47	10610.00	475.04	362.70	195.54	2.07	1.85	1.31
10610.00	10805.54	554.67	398.04	195.54	2.41	2.04	1.39
10805.54	11001.08	847.09	513.21	195.57	3.68	2.62	1.65
11001.08	11196.62	948.82	549.31	195.54	4.13	2.81	1.73
11196.62	11392.16	404.09	329.16	195.55	1.76	1.68	1.23
11392.16	11587.69	157.18	186.80	195.57	0.68	0.96	0.84
11587.69	11783.23	125.01	160.06	187.38	0.54	0.86	0.78
11783.23	11978.77	392.12	323.53	195.95	1.70	1.65	1.21
11978.77	12174.31	354.27	304.29	195.74	1.54	1.56	1.16
12174.31	12369.85	74.03	118.90	195.57	0.32	0.61	0.62
12369.85	12565.38	176.89	200.51	195.54	0.77	1.03	0.88
12565.38	12760.92	15.68	45.99	186.80	0.07	0.25	0.34

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8240.00	9200.52	2212.03	900.24	525.31	6.70	1.71	2.46
LB 9200.52	9474.81	8225.76	1219.09	276.02	24.93	4.44	6.75
9474.81	9749.10	3116.72	679.64	274.64	9.44	2.48	4.59
9749.10	RB 10023.39	10693.29	1429.32	277.19	32.40	5.21	7.48
10023.39	10218.93	615.03	422.01	195.86	1.86	2.16	1.46
10218.93	10414.47	488.10	367.13	195.56	1.48	1.88	1.33
10414.47	10610.00	776.45	485.03	195.54	2.35	2.48	1.60
10610.00	10805.54	873.02	520.37	195.54	2.65	2.66	1.68
10805.54	11001.08	1218.11	635.54	195.57	3.69	3.25	1.92
11001.08	11196.62	1335.75	671.64	195.54	4.05	3.43	1.99
11196.62	11392.16	689.01	451.49	195.55	2.09	2.31	1.53
11392.16	11587.69	366.46	309.13	195.57	1.11	1.58	1.19
11587.69	11783.23	313.47	281.85	196.22	0.95	1.44	1.11
11783.23	11978.77	673.86	445.86	195.95	2.04	2.28	1.51
11978.77	12174.31	626.52	426.62	195.74	1.90	2.18	1.47
12174.31	12369.85	242.39	241.23	195.57	0.73	1.23	1.00
12369.85	12565.38	393.98	322.84	195.54	1.19	1.65	1.22
12565.38	12760.92	132.38	167.80	195.55	0.40	0.86	0.79
12760.92	12956.46	7.69	21.40	81.16	0.02	0.26	0.36

Warning: The energy loss was 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: New River
REACH: Lower RS: 14.495

INPUT

Description: Right end point of cross section is extended by 500 feet to elevation 1320.1 based on ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 111

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8746	1322.1	8814.24	1321.22	8914.44	1320.81	9014.65	1320.56	9122.94	1319.83
9226.2	1319	9262.39	1319.46	9271.03	1315.24	9287.09	1317.51	9295.53	1314.75
9328.02	1313.9	9371.5	1315.46	9402.37	1317.44	9476.4	1316.78	9507.27	1317.94
9554.76	1318	9581.47	1317.02	9595.83	1317.85	9658.33	1317.85	9668.11	1316.62
9678.15	1317.7	9686.69	1316.24	9703.2	1317.89	9750.29	1318.48	9812.03	1317.61
9837.15	1319.5	9848.98	1318.9	9876.26	1317.61	9931.87	1317.58	9950.73	1312.16
9997.38	1313.6	10023.7	1313.21	10074.78	1316.68	10099.45	1316.67	10112.66	1316.28
10145.77	1315.91	10170.62	1314.81	10196.86	1316.89	10222.87	1317.71	10268.69	1317.39
10339.16	1316.71	10380.09	1316.16	10407.71	1317.11	10434.51	1316.75	10455.08	1315.88
10463.36	1314.61	10482.94	1317.21	10531.26	1317.19	10550.55	1317.37	10568.94	1315.96
10593.29	1316.71	10605.75	1313.21	10627.44	1317.15	10658.39	1315.42	10670.52	1314.5
10686.02	1315.41	10694.44	1315.37	10703.41	1317.71	10868.79	1316.62	10966.28	1316.91
11032.99	1315.71	11067.02	1316.54	11121.45	1317.37	11140.74	1317.62	11148.87	1316.49
11234.7	1316.11	1255.52	1315.81	11278.54	1316.22	11409.22	1316.65	11478.48	1316.53
11488.62	1316.71	11529.01	1318.38	11550.53	1318.16	11568.78	1318.45	11668.8	1318.08
11691.23	1318.11	11767.64	1317.67	11814.94	1317.75	11827.38	1318.31	11868.81	1317.78
11912.51	1317.71	11920.52	1318.91	11975.89	1318.27	11982.22	1318.35	12033.38	1318.56
12041.59	1318.31	2054.76	1316.86	12067.31	1317.79	12083.65	1317.53	12098.46	1317.81
12115.37	1314.21	2143.51	1318.13	12175.57	1317.89	12184.76	1318.51	12196.09	1316.47
12204.72	1318.51	2229.69	1318.07	12238.41	1318.88	12265.88	1317.05	12283.65	1318.24
12302.77	1317.51	2335.25	1314.31	12351.47	1318.79	12398.91	1318.35	12489.11	1318.08
12514.87	1316.31	2535.52	1317.54	12580.91	1317.62	12599.87	1317.78	12690.75	1317.55
13190.75	1320.1								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8746	.058	9262.39	.03	10074.78	.11	10703.41	.11	11568.78	.11
12033.38	.11	12143.51	.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9262.39	10074.78	605	561.68	523	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1318.92	Wt. n-Val.		0.038	0.110
Vel Head (ft)	0.17	Reach Len. (ft)	605.00	561.68	523.00
W.S. Elev (ft)	1318.75	Flow Area (sq ft)		1685.67	4330.48
Crit W.S. (ft)	1318.00	Area (sq ft)		1685.67	4330.48
E.G. Slope (ft/ft)	0.004419	Flow (cfs)		7269.50	5730.50
Q Total (cfs)	13000.00	Top Width (ft)		785.89	2827.71
Top Width (ft)	3613.61	Avg. Vel. (ft/s)		4.31	1.32
Vel Total (ft/s)	2.16	Hydr. Depth (ft)		2.14	1.53
Max Chl Dpth (ft)	6.59	Conv. (cfs)		109358.8	86206.8
Conv. Total (cfs)	195565.6	Wetted Per. (ft)		788.80	2831.95
Length Wtd. (ft)	547.06	Shear (lb/sq ft)		0.59	0.42
Min Ch El (ft)	1312.16	Stream Power (lb/ft s)		2.54	0.56
Alpha	2.39	Cum Volume (acre-ft)	98.77	1517.43	371.94
Frctn Loss (ft)	2.90	Cum SA (acres)	55.60	302.51	228.04
C & E Loss (ft)	0.04				

Warning: Divided flow computed for this cross-section.

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

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1319.82	Wt. n-Val.	0.058	0.038	0.110
Vel Head (ft)	0.24	Reach Len. (ft)	605.00	561.68	523.00
W.S. Elev (ft)	1319.58	Flow Area (sq ft)	33.73	2352.73	6772.50
Crit W.S. (ft)	1318.48	Area (sq ft)	33.73	2352.73	6772.50
E.G. Slope (ft/ft)	0.004253	Flow (cfs)	25.86	12158.72	10815.41
Q Total (cfs)	23000.00	Top Width (ft)	108.51	812.39	3014.27
Top Width (ft)	3935.17	Avg. Vel. (ft/s)	0.77	5.17	1.60
Vel Total (ft/s)	2.51	Hydr. Depth (ft)	0.31	2.90	2.25
Max Chl Dpth (ft)	7.42	Conv. (cfs)	396.6	186442.7	165844.2
Conv. Total (cfs)	352683.5	Wetted Per. (ft)	108.52	815.51	3018.54
Length Wtd. (ft)	542.91	Shear (lb/sq ft)	0.08	0.77	0.60
Min Ch El (ft)	1312.16	Stream Power (lb/ft s)	0.06	3.96	0.95
Alpha	2.43	Cum Volume (acre-ft)	373.49	2234.92	949.97
Frctn Loss (ft)	2.84	Cum SA (acres)	179.05	323.00	479.87
C & E Loss (ft)	0.01				

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

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1320.50	Wt. n-Val.	0.058	0.038	0.110
Vel Head (ft)	0.31	Reach Len. (ft)	605.00	561.68	523.00
W.S. Elev (ft)	1320.19	Flow Area (sq ft)	125.22	2850.75	8656.33
Crit W.S. (ft)	1318.91	Area (sq ft)	125.22	2850.75	8656.33
E.G. Slope (ft/ft)	0.004352	Flow (cfs)	158.35	16938.87	15902.79
Q Total (cfs)	33000.00	Top Width (ft)	193.50	812.39	3115.97
Top Width (ft)	4121.86	Avg. Vel. (ft/s)	1.26	5.94	1.84
Vel Total (ft/s)	2.84	Hydr. Depth (ft)	0.65	3.51	2.78
Max Chl Dpth (ft)	8.03	Conv. (cfs)	2400.2	256758.7	241053.9
Conv. Total (cfs)	500212.8				

Length Wtd. (ft)	542.41	Wetted Per. (ft)	193.50	815.51	3120.34
Min Ch El (ft)	1312.16	Shear (lb/sq ft)	0.18	0.95	0.75
Alpha	2.45	Stream Power (lb/ft s)	0.22	5.64	1.38
Frctn Loss (ft)	2.85	Cum Volume (acre-ft)	666.26	2710.15	1527.01
C & E Loss (ft)	0.01	Cum SA (acres)	273.04	331.48	632.23

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9262.39	9533.19	2738.74	648.96	270.88	21.07	2.41	4.22
9533.19	9803.98	593.63	259.42	271.19	4.57	0.96	2.29
9803.98	RB 10074.78	3937.12	777.29	246.74	30.29	3.16	5.07
10074.78	10282.51	653.10	441.80	207.86	5.02	2.13	1.48
10282.51	10490.24	668.74	448.28	208.05	5.14	2.16	1.49
10490.24	10697.97	891.67	533.58	208.86	6.86	2.57	1.67
10697.97	10905.71	440.16	348.70	207.91	3.39	1.68	1.26
10905.71	11113.44	686.83	455.26	207.76	5.28	2.19	1.51
11113.44	11321.17	765.32	485.86	207.82	5.89	2.34	1.58
11321.17	11528.90	594.13	417.34	207.77	4.57	2.01	1.42
11528.90	11736.63	71.07	116.72	207.74	0.55	0.56	0.61
11736.63	11944.36	134.91	166.40	192.74	1.04	0.86	0.81
11944.36	12152.09	205.97	221.34	208.51	1.58	1.07	0.93
12152.09	12359.83	256.40	248.75	201.00	1.97	1.25	1.03
12359.83	12567.56	135.89	172.24	207.83	1.05	0.83	0.79
12567.56	12775.29	199.11	216.57	207.73	1.53	1.04	0.92
12775.29	12983.02	27.21	57.66	150.37	0.21	0.38	0.47

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8746.00	9262.39	25.86	33.73	108.52	0.11	0.31	0.77
LB 9262.39	9533.19	4647.68	874.09	272.50	20.21	3.23	5.32
9533.19	9803.98	1747.29	485.06	271.19	7.60	1.79	3.60
9803.98	RB 10074.78	5763.73	993.58	271.82	25.06	3.67	5.80
10074.78	10282.51	1099.82	614.89	207.86	4.78	2.96	1.79
10282.51	10490.24	1118.54	621.37	208.05	4.86	2.99	1.80
10490.24	10697.97	1382.36	706.67	208.86	6.01	3.40	1.96
10697.97	10905.71	836.39	521.79	207.91	3.64	2.51	1.60
10905.71	11113.44	1140.63	628.36	207.76	4.96	3.02	1.82
11113.44	11321.17	1234.44	658.95	207.82	5.37	3.17	1.87
11321.17	11528.90	1028.18	590.43	207.77	4.47	2.84	1.74
11528.90	11736.63	314.06	289.81	207.74	1.37	1.40	1.08
11736.63	11944.36	406.24	338.27	207.84	1.77	1.63	1.20
11944.36	12152.09	523.65	394.43	208.51	2.28	1.90	1.33
12152.09	12359.83	583.86	421.52	209.09	2.54	2.03	1.39
12359.83	12567.56	420.48	345.33	207.83	1.83	1.66	1.22
12567.56	12775.29	514.41	389.66	207.73	2.24	1.88	1.32
12775.29	12983.02	201.96	222.36	207.73	0.88	1.07	0.91
12983.02	13190.75	10.40	28.67	106.03	0.05	0.27	0.36

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8746.00	9262.39	158.35	125.22	193.50	0.48	0.65	1.26
LB 9262.39	9533.19	6367.40	1040.10	272.50	19.30	3.84	6.12
9533.19	9803.98	2926.04	651.07	271.19	8.87	2.40	4.49
9803.98	RB 10074.78	7645.41	1159.59	271.82	23.17	4.28	6.59
10074.78	10282.51	1520.27	742.24	207.86	4.61	3.57	2.05
10282.51	10490.24	1541.54	748.72	208.05	4.67	3.60	2.06
10490.24	10697.97	1840.40	834.02	208.86	5.58	4.01	2.21
10697.97	10905.71	1215.72	649.14	207.91	3.68	3.12	1.87
10905.71	11113.44	1567.03	755.70	207.76	4.75	3.64	2.07
11113.44	11321.17	1673.85	786.30	207.82	5.07	3.79	2.13
11321.17	11528.90	1438.12	717.78	207.77	4.36	3.46	2.00
11528.90	11736.63	582.13	417.16	207.74	1.76	2.01	1.40
11736.63	11944.36	698.91	465.61	207.84	2.12	2.24	1.50
11944.36	12152.09	843.18	521.78	208.51	2.56	2.51	1.62
12152.09	12359.83	915.69	548.87	209.09	2.77	2.64	1.67
12359.83	12567.56	716.68	472.67	207.83	2.17	2.28	1.52
12567.56	12775.29	832.44	517.01	207.73	2.52	2.49	1.61
12775.29	12983.02	433.88	349.71	207.73	1.31	1.68	1.24
12983.02	13190.75	82.98	129.64	207.83	0.25	0.62	0.64

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.379

INPUT
Description: Right end point of cross section is extended by 600 feet to elevation 1317.3 based on ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8862	1317.9	8877.86	1317.02	8889.61	1318.32	8913.38	1318.08	8962.56	1318.04
9056.52	1317.6	9062.14	1316.78	9072.18	1317.66	9107.4	1317.45	9155.18	1317.54
9245.43	1317.3	9284.44	1316.99	9407.47	1316.46	9507.48	1316.35	9565.28	1316.5
9578.59	1311.7	9595.64	1312.54	9614.48	1313.79	9669.2	1313.33	9682.72	1310.93
9690.38	1308.7	9710.37	1307.97	9718.8	1313.21	9729.29	1316.83	9807.52	1316.29
9842.38	1316.2	9907.34	1316.27	9970.44	1316.58	9985.59	1309.18	10107.59	1312.77
10175.5	1313.3	10202.48	1313.28	10214.19	1313.78	10242.77	1313.61	10266.63	1313
10293.86	1314	10321.28	1314.49	10375.86	1313.34	10404.88	1312.38	10442.62	1312.27
10496.85	1315	10508.25	1315.24	10567.01	1315.69	10605.13	1316.11	10616.59	1313.89
10642.59	1315	10658.44	1313.64	10708.14	1313.74	10748.7	1314.33	10788.08	1312.72
10820.11	1312.11	10840.28	1312.72	10853.23	1314.97	10890.66	1313.21	10918.74	1312.46
10930.89	1310.91	10963.11	1310.66	10981.31	1315.13	11004.24	1315.05	11010.56	1314.82
11107.74	1314.21	1226.69	1313.95	11307.79	1313.99	11385.61	1314.13	11407.83	1314.43
11426.71	1315.21	1483.58	1315.85	11495.37	1314.61	11501.57	1314.41	1525.15	1315.43
11607.86	1316.11	1707.91	1316.04	11757.98	1315.61	11780.57	1315.58	11799.09	1316.57
11822.07	1316.21	1834.83	1315.32	11881.07	1314.65	11897.49	1316.59	11959.58	1315.91
12037.74	1315.51	2056.34	1310.71	2072.41	1310.29	12086.41	1314.63	12105.29	1313.94
12118.51	1314.61	2142.65	1313.75	12194.24	1314.05	12226.81	1314.08	12236.84	1313.1
12275.67	1313.71	2284.38	1315.33	12339.38	1315.37	12391.27	1314.77	12454.47	1315.08
12554.51	1315.31	2640.65	1314.91	2697.45	1315.32	12742.32	1315.55	12795.71	1314.27
12829.68	1314.31	2869.91	1314.65	12954.75	1314.79	13554.75	1317.3		

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8862	.058	9565.28	.038	10175.5	.11	10605.13	.11	10981.31	.11
11483.58	.11	12037.74	.11	12086.41	.11				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9565.28 10175.5 515 505.75 502 .1 .3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8862	9072.18	1317.66

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1315.99	Element			
Vel Head (ft)	0.55	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1315.44	Reach Len. (ft)	515.00	505.75	502.00
Crit W.S. (ft)	1314.96	Flow Area (sq ft)		1247.70	2847.63
E.G. Slope (ft/ft)	0.006446	Area (sq ft)		1247.70	2847.63
Q Total (cfs)	13000.00	Flow (cfs)		8898.61	4101.39
Top Width (ft)	2697.09	Top Width (ft)		359.76	2337.33
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)		7.13	1.44
Max Chl Dpth (ft)	7.47	Hydr. Depth (ft)		3.47	1.22
Conv. Total (cfs)	161919.6	Conv. (cfs)		110835.4	51084.2
Length Wtd. (ft)	504.58	Wetted Per. (ft)		364.40	2340.33
Min Ch El (ft)	1307.97	Shear (lb/sq ft)		1.38	0.49
Alpha	3.52	Stream Power (lb/ft s)		9.83	0.71
Frctn Loss (ft)	2.52	Cum Volume (acre-ft)	98.77	1498.52	328.85
C & E Loss (ft)	0.08	Cum SA (acres)	55.60	295.12	197.04

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1316.97	Element			
Vel Head (ft)	0.36	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1316.60	Reach Len. (ft)	515.00	505.75	502.00
Crit W.S. (ft)	1316.29	Flow Area (sq ft)	32.38	1725.92	6162.66
E.G. Slope (ft/ft)	0.006710	Area (sq ft)	32.38	1725.92	6162.66
Q Total (cfs)	23000.00	Flow (cfs)	20.82	11412.78	11566.39
Top Width (ft)	3980.03	Top Width (ft)	190.91	576.61	3212.52
Vel Total (ft/s)	2.90	Avg. Vel. (ft/s)	0.64	6.61	1.88
Max Chl Dpth (ft)	8.63	Hydr. Depth (ft)	0.17	2.99	1.92
Conv. Total (cfs)	280772.5	Conv. (cfs)	254.2	139321.6	141196.8
Length Wtd. (ft)	504.32	Wetted Per. (ft)	190.91	581.89	3215.75
Min Ch El (ft)	1307.97	Shear (lb/sq ft)	0.07	1.24	0.80
Alpha	2.78	Stream Power (lb/ft s)	0.05	8.22	1.51
Frctn Loss (ft)	2.64	Cum Volume (acre-ft)	373.03	2208.62	872.31
C & E Loss (ft)	0.01	Cum SA (acres)	176.97	314.04	442.49

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1317.65	Element			
Vel Head (ft)	0.41	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1317.24	Reach Len. (ft)	515.00	505.75	502.00
Crit W.S. (ft)	1316.58	Flow Area (sq ft)	196.39	2108.10	8242.62
E.G. Slope (ft/ft)	0.006597	Area (sq ft)	196.39	2108.10	8242.62
Q Total (cfs)	33000.00	Flow (cfs)	300.36	15212.87	17486.77

Top Width (ft)	4285.63	Top Width (ft)	311.68	610.22	3363.73
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)	1.53	7.22	2.12
Max Chl Dpth (ft)	9.27	Hydr. Depth (ft)	0.63	3.45	2.45
Conv. Total (cfs)	406284.7	Conv. (cfs)	3697.9	187295.7	215291.2
Length Wtd. (ft)	504.40	Wetted Per. (ft)	311.68	615.54	3366.96
Min Ch El (ft)	1307.97	Shear (lb/sq ft)	0.26	1.41	1.01
Alpha	2.70	Stream Power (lb/ft s)	0.40	10.18	2.14
Frctn Loss (ft)	2.61	Cum Volume (acre-ft)	664.03	2678.18	1425.56
C & E Loss (ft)	0.01	Cum SA (acres)	269.53	322.31	593.33

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9565.28	9768.69	3337.16	499.63	160.17	25.67	3.18	6.68
9768.69	9972.09						
9972.09	RB 10175.50	5561.46	748.07	204.23	42.78	3.69	7.43
10175.50	10400.78	680.46	412.53	225.35	5.23	1.83	1.65
10400.78	10626.07	392.66	252.90	151.27	3.02	1.67	1.55
10626.07	10851.35	722.37	427.76	225.58	5.56	1.90	1.69
10851.35	11076.63	737.25	433.36	226.01	5.67	1.92	1.70
11076.63	11301.92	419.23	308.46	225.28	3.22	1.37	1.36
11301.92	11527.20	190.34	177.39	184.69	1.46	0.96	1.07
11527.20	11752.48						
11752.48	11977.77	15.02	23.76	54.71	0.12	0.43	0.63
11977.77	12203.05	557.24	324.12	166.38	4.29	1.96	1.72
12203.05	12428.33	176.97	183.92	225.49	1.36	0.82	0.96
12428.33	12653.62	36.81	71.66	225.29	0.28	0.32	0.51
12653.62	12878.90	104.15	127.32	199.15	0.80	0.64	0.82
12878.90	13104.18	68.88	104.37	225.28	0.53	0.46	0.66
13104.18	13329.47	0.00	0.07	5.83	0.00	0.01	0.06

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8862.00	9565.28	20.82	32.38	190.91	0.09	0.17	0.64
LB 9565.28	9768.69	4314.49	686.22	173.31	18.76	4.04	6.29
9768.69	9972.09	58.05	55.18	203.60	0.25	0.27	1.05
9972.09	RB 10175.50	7040.25	984.51	204.99	30.61	4.84	7.15
10175.50	10400.78	1536.51	674.53	225.35	6.68	2.99	2.28
10400.78	10626.07	908.46	492.31	225.58	3.95	2.19	1.85
10626.07	10851.35	1593.71	689.76	225.58	6.93	3.06	2.31
10851.35	11076.63	1613.25	695.36	226.01	7.01	3.09	2.32
11076.63	11301.92	1162.31	570.46	225.28	5.05	2.53	2.04
11301.92	11527.20	728.84	431.21	225.40	3.17	1.91	1.69
11527.20	11752.48	130.74	153.77	225.29	0.57	0.68	0.85
11752.48	11977.77	169.72	179.89	225.47	0.74	0.80	0.94
11977.77	12203.05	1166.59	573.05	226.60	5.07	2.54	2.04
12203.05	12428.33	770.51	445.92	225.49	3.35	1.98	1.73
12428.33	12653.62	475.47	333.66	225.29	2.07	1.48	1.43
12653.62	12878.90	611.06	387.88	225.30	2.66	1.72	1.58
12878.90	13104.18	555.66	366.36	225.28	2.42	1.63	1.52
13104.18	13329.47	141.63	161.33	225.29	0.62	0.72	0.88
13329.47	13554.75	1.94	7.17	58.55	0.01	0.12	0.27

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8862.00	9565.28	300.36	196.39	311.68	0.91	0.63	1.53
LB 9565.28	9768.69	5450.51	811.07	206.96	16.52	3.99	6.72
9768.69	9972.09	464.35	183.85	203.60	1.41	0.90	2.53
9972.09	RB 10175.50	9298.01	1113.18	204.99	28.18	5.47	8.35
10175.50	10400.78	2076.62	817.04	225.35	6.29	3.63	2.54
10400.78	10626.07	1362.73	634.82	225.58	4.13	2.82	2.15
10626.07	10851.35	2140.12	832.27	225.58	6.49	3.69	2.57
10851.35	11076.63	2161.39	837.87	226.01	6.55	3.72	2.58
11076.63	11301.92	1655.08	712.96	225.28	5.02	3.16	2.32
11301.92	11527.20	1151.86	573.72	225.40	3.49	2.55	2.01
11527.20	11752.48	383.00	296.28	225.29	1.16	1.32	1.29
11752.48	11977.77	440.68	322.40	225.47	1.34	1.43	1.37
11977.77	12203.05	1658.67	715.56	226.60	5.03	3.18	2.32
12203.05	12428.33	1201.13	588.42	225.49	3.64	2.61	2.04
12428.33	12653.62	844.58	476.17	225.29	2.56	2.11	1.77
12653.62	12878.90	1010.81	530.38	225.30	3.06	2.35	1.91
12878.90	13104.18	943.45	508.87	225.28	2.86	2.26	1.85
13104.18	13329.47	399.43	303.84	225.29	1.21	1.35	1.31
13329.47	13554.75	57.22	92.03	209.76	0.17	0.44	0.62

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.284

INPUT
Description: Right end point of cross section is extended by 485 feet to elevation 1314.9 based on ACDC ADMS topography FCD 90-19.
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8572	1316	8690.39	1314.69	8702.61	1313.76	8714.39	1314.96	8737.63	1314.56
8836.33	1313.7	8924.48	1313.52	8931.58	1312.85	8940.77	1313.46	9036.33	1313.1
9152.12	1312.9	9236.2	1312.76	9312.2	1312.63	9324.11	1312.12	9343.29	1312.72
9450.45	1312.7	9546.21	1312.3	9556.68	1312.37	9580.41	1312.53	9608.38	1308.45
9637.64	1307.5	9659.03	1308.89	9677.62	1309.2	9689.94	1307.9	9703.98	1309.5
9714.36	1310.8	9786.7	1311.87	9832.37	1312.13	9847.97	1309.36	9877.34	1308.37
9907.28	1306.6	9923.81	1312.79	9945.19	1312.97	9960.84	1312.92	9975.83	1308.6
10005.31	1307	10016.02	1305.79	10030.96	1305.41	10046.66	1309.96	10052.65	1311.3
10078.67	1311.31	10106.77	1311.37	10125.87	1310.98	10168.7	1308.99	10190.02	1309.04
10230.88	1311.51	10246.59	1310.77	10272.31	1310.88	10303.3	1312.91	10352.16	1313.07
10375.49	1311.91	10390.23	1310.92	10412.97	1310.53	10422.51	1311.08	10472.27	1309.94
10480.46	1309.5	10502.3	1309.69	10526.77	1312.58	10626.65	1311.13	10681.51	1311.07
10742.33	1309	10764.17	1309.13	10784.83	1311.81	10802.1	1311.69	10827.12	1310.94
10882.64	1310	10916.41	1310.35	10925.93	1309.21	10941.61	1308.8	10957.6	1312.59
11052.02	1312.3	11066.3	1311.92	11073.88	1310.24	11087.96	1311.65	11094.07	1311.38
11163.22	1311.91	1215.66	1312.62	1288.36	1312.19	1326.87	1312.33	1392.32	1312.23
11409.15	1312.41	1415.07	1311.36	1428.94	1311.89	1478.12	1312.35	1526.88	1312.41
11567.28	1311.61	1626.98	1311.72	1699.25	1312.13	1727.01	1312.16	1780.41	1311.62
11806.07	1312	11823.61	1311.92	11886.21	1311.77	11921.1	1311.44	11938.89	1308.2
11956.08	1307.9	11973.1	1310.82	12004.73	1310.92	12023.67	1311.59	12046.79	1312.56
12132.16	1312.4	12233.8	1312.15	12275.65	1312.55	12303.3	1312.33	12378.9	1312.51
12432.74	1312.5	12493.86	1312.17	12604.86	1312.54	12679.46	1313.26	12688.95	1312.28
12692.32	1313.2	12730.6	1312.74	12748.47	1313.45	12833.51	1313.76	12911.33	1313.29
13396.33	1314.9								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8572	.058	9580.41	.03	10052.65	.11	10352.16	.11	10526.77	.11
10957.6	.11	11921.1	.11	11973.1	.11				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9580.41 10052.65 495 498.98 496 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
8572	8714.39	1314.96

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1313.39	Element			
Vel Head (ft)	0.28	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1313.11	Reach Len. (ft)	495.00	498.98	496.00
Crit W.S. (ft)	1312.13	Flow Area (sq ft)	214.66	1601.22	3821.75
E.G. Slope (ft/ft)	0.003548	Area (sq ft)	214.66	1601.22	3821.75
Q Total (cfs)	13000.00	Flow (cfs)	174.90	8374.81	4450.29
Top Width (ft)	3687.09	Top Width (ft)	552.84	472.24	2662.01
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)	0.81	5.23	1.16
Max Chl Dpth (ft)	7.71	Hydr. Depth (ft)	0.39	3.39	1.44
Conv. Total (cfs)	218261.4	Conv. (cfs)	2936.4	140607.5	74717.5
Length Wtd. (ft)	498.04	Wetted Per. (ft)	552.88	475.81	2664.39
Min Ch El (ft)	1305.40	Shear (lb/sq ft)	0.09	0.75	0.32
Alpha	3.40	Stream Power (lb/ft s)	0.07	3.90	0.37
Frctn Loss (ft)	2.44	Cum Volume (acre-ft)	97.50	1481.98	290.42
C & E Loss (ft)	0.03	Cum SA (acres)	52.33	290.29	168.23

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1314.33	Element			
Vel Head (ft)	0.34	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1313.98	Reach Len. (ft)	495.00	498.98	496.00
Crit W.S. (ft)	1313.15	Flow Area (sq ft)	807.99	2014.54	6318.33
E.G. Slope (ft/ft)	0.003691	Area (sq ft)	807.99	2014.54	6318.33
Q Total (cfs)	23000.00	Flow (cfs)	1291.17	12525.03	9183.80
Top Width (ft)	4316.35	Top Width (ft)	776.59	472.24	3067.51
Vel Total (ft/s)	2.52	Avg. Vel. (ft/s)	1.60	6.22	1.45
Max Chl Dpth (ft)	8.58	Hydr. Depth (ft)	1.04	4.27	2.06
Conv. Total (cfs)	378589.0	Conv. (cfs)	21253.2	206166.8	151169.0
Length Wtd. (ft)	497.70	Wetted Per. (ft)	776.67	475.81	3069.93
Min Ch El (ft)	1305.40	Shear (lb/sq ft)	0.24	0.98	0.47
Alpha	3.48	Stream Power (lb/ft s)	0.38	6.07	0.69
Frctn Loss (ft)	2.18	Cum Volume (acre-ft)	368.07	2186.91	800.40
C & E Loss (ft)	0.02	Cum SA (acres)	171.25	307.95	406.31

Warning: The energy loss was 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 OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1315.03	Wt. n-Val.	0.058	0.038	0.110
Vel Head (ft)	0.39	Reach Len. (ft)	495.00	498.98	496.00
W.S. Elev (ft)	1314.65	Flow Area (sq ft)	1347.23	2327.28	8415.78
Crit W.S. (ft)	1313.66	Area (sq ft)	1347.23	2327.28	8415.78
E.G. Slope (ft/ft)	0.003755	Flow (cfs)	2880.05	16068.28	14051.67
Q Total (cfs)	33000.00	Top Width (ft)	847.75	472.24	3267.01
Top Width (ft)	4586.99	Avg. Vel. (ft/s)	2.14	6.90	1.67
Vel Total (ft/s)	2.73	Hydr. Depth (ft)	1.59	4.93	2.58
Max Chl Dpth (ft)	9.25	Conv. (cfs)	47000.4	262223.0	229313.4
Conv. Total (cfs)	538536.8	Wetted Per. (ft)	847.83	475.81	3269.42
Length Wtd. (ft)	497.48	Shear (lb/sq ft)	0.37	1.15	0.60
Min Ch El (ft)	1305.40	Stream Power (lb/ft s)	0.80	7.92	1.01
Alpha	3.33	Cum Volume (acre-ft)	654.90	2652.43	1329.57
Frctn Loss (ft)	2.08	Cum SA (acres)	262.68	316.02	555.12
C & E Loss (ft)	0.01				

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8572.00	9580.41	174.90	214.66	552.88	1.35	0.39	0.81
LB 9580.41	9737.82	3356.93	602.87	158.02	25.82	3.83	5.57
9737.82	9895.24	1588.58	384.53	157.71	12.22	2.44	4.13
9895.24	RB 10052.65	3429.31	613.82	160.08	26.38	3.90	5.59
10052.65	10275.56	846.70	567.39	223.06	6.51	2.55	1.49
10275.56	10498.47	421.18	373.20	223.08	3.24	1.67	1.13
10498.47	10721.39	482.77	405.07	223.12	3.71	1.82	1.19
10721.39	10944.30	1039.51	641.95	223.27	8.00	2.88	1.62
10944.30	11167.21	239.95	266.50	223.55	1.85	1.20	0.90
11167.21	11390.12	120.17	175.80	222.92	0.92	0.79	0.68
11390.12	11613.03	199.96	238.66	223.02	1.54	1.07	0.84
11613.03	11835.95	238.32	265.11	222.92	1.83	1.19	0.90
11835.95	12058.86	601.31	462.42	223.49	4.63	2.07	1.30
12058.86	12281.77	110.11	166.81	222.91	0.85	0.75	0.66
12281.77	12504.68	99.10	156.59	222.91	0.76	0.70	0.63
12504.68	12727.59	50.39	99.50	197.86	0.39	0.50	0.51
12727.59	12950.51	0.82	2.76	12.28	0.01	0.22	0.30

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8572.00	9580.41	1291.17	807.99	776.67	5.61	1.04	1.60
LB 9580.41	9737.82	4863.43	740.65	158.02	21.15	4.71	6.57
9737.82	9895.24	2720.75	522.31	157.71	11.83	3.32	5.21
9895.24	RB 10052.65	4940.85	751.59	160.08	21.48	4.77	6.57
10052.65	10275.56	1390.02	762.49	223.06	6.04	3.42	1.82
10275.56	10498.47	851.60	568.30	223.08	3.70	2.55	1.50
10498.47	10721.39	932.57	600.17	223.12	4.05	2.69	1.55
10721.39	10944.30	1622.86	837.05	223.27	7.06	3.76	1.94
10944.30	11167.21	601.33	461.60	223.55	2.61	2.07	1.30
11167.21	11390.12	418.39	370.90	222.92	1.82	1.66	1.13
11390.12	11613.03	542.96	433.76	223.02	2.36	1.95	1.25
11613.03	11835.95	599.44	460.21	222.92	2.61	2.06	1.30
11835.95	12058.86	1084.57	657.52	223.49	4.72	2.95	1.65
12058.86	12281.77	401.64	361.92	222.91	1.75	1.62	1.11
12281.77	12504.68	382.91	351.69	222.91	1.66	1.58	1.09
12504.68	12727.59	282.17	292.92	223.09	1.23	1.31	0.96
12727.59	12950.51	56.86	112.00	222.93	0.25	0.50	0.51
12950.51	13173.42	16.49	47.78	169.66	0.07	0.28	0.35

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8572.00	9580.41	2880.05	1347.23	847.83	8.73	1.59	2.14
LB 9580.41	9737.82	6130.07	844.89	158.02	18.58	5.37	7.26
9737.82	9895.24	3729.19	626.55	157.71	11.30	3.98	5.95
9895.24	RB 10052.65	6209.02	855.83	160.08	18.82	5.44	7.25
10052.65	10275.56	1877.92	910.11	223.06	5.69	4.08	2.06
10275.56	10498.47	1258.75	715.92	223.08	3.81	3.21	1.76
10498.47	10721.39	1353.37	747.79	223.12	4.10	3.35	1.81
10721.39	10944.30	2139.95	984.67	223.27	6.48	4.42	2.17
10944.30	11167.21	960.54	609.22	223.55	2.91	2.73	1.58
11167.21	11390.12	735.62	518.52	222.92	2.23	2.33	1.42
11390.12	11613.03	889.90	581.38	223.02	2.70	2.61	1.53
11613.03	11835.95	958.69	607.83	222.92	2.91	2.73	1.58
11835.95	12058.86	1529.04	805.14	223.49	4.63	3.61	1.90
12058.86	12281.77	714.50	509.54	222.91	2.17	2.29	1.40

12281.77	12504.68	690.77	499.31	222.91	2.09	2.24	1.38
12504.68	12727.59	560.35	440.54	223.09	1.70	1.98	1.27
12727.59	12950.51	232.23	259.62	222.93	0.70	1.16	0.89
12950.51	13173.42	138.87	190.69	222.91	0.42	0.86	0.73
13173.42	13396.33	11.16	35.50	146.24	0.03	0.24	0.31

Warning: The energy loss was 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: New River
REACH: Lower RS: 14.197

INPUT
Description: Right end point of cross section is extended by 375 feet to elevation 1312 based on ACDC ADMS topography FCD 90-19.
Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8909	1313.6	8915.32	1314.34	9038.55	1313.27	9122.52	1312.59	9147.1	1312.09
9151.88	1312.6	9246.33	1311.98	9345.34	1311.85	9445.16	1311.29	9543.27	1311.53
9638.59	1311.2	9745.61	1311.04	9791.44	1311.25	9805.82	1307.75	9820.01	1309.41
9844.53	1309.3	9877.37	1308.78	9884.83	1310.09	9924.15	1309.84	9935.15	1309.62
10001.01	1301.91	10028.16	1305.91	10041.7	1306.24	10147.14	1307.57	10192.02	1307.88
10233.34	1306.71	10242.45	1306.61	10264.33	1310.81	10340.43	1310.54	10441.83	1310.58
10477.47	1311.31	10490.71	1307.35	10524.03	1307.95	10553.36	1306.79	10570.57	1310.79
10638.66	1310.41	10700.76	131	10711.62	1307.71	10731.07	1309.41	10748.02	1308.86
10769.66	1308.71	10825.53	1308.79	10834.98	1309.04	10852.16	1307.85	10866.22	1308.97
10880.46	1308.21	10886.69	1308.37	10901.93	1306.28	10942.54	1306.71	10958.63	1307.57
10972.37	1306.51	10984.49	1306.28	10999.92	1310.33	11011.88	1308.97	11032.16	1310.26
11044.97	1310.41	11056.74	1309.97	11070.34	1307.38	11084.16	1310.82	11146.24	1310.54
11243.47	1309.31	1283.64	1309.56	11294.27	1308.63	11331.37	1309.91	11363.1	1310.51
11444.99	1310.91	1515.48	1310.21	11518.03	1312.53	11526.17	1309.96	11561.43	1310.39
11644.97	1308.91	1719.67	1308.61	1740.58	1308.75	11811.92	1309.55	11857.31	1309.05
11884.53	1309.91	1915.49	1309.56	11938.41	1309.49	12038.37	1309.91	2070.52	1309.6
12110.85	1310.11	2124.16	1309.05	12165.15	1310.23	12169.83	1310.41	12182.91	1308.27
12216.55	1306	12233.03	1305.34	12253.6	1308.21	2298.48	1309.28	12355.27	1309.9
12441.76	1310.51	2457.91	1310.52	12571.84	1310.09	12666.95	1310.13	12732.21	1310.47
12766.2	1310.9	12784.3	1311.41	12835.92	1310.87	12852.48	1310.61	2875.56	1311.3
12934.01	1311.31	3033.33	1310.99	13102.94	1311.34	13477.94	1312		

Manning's n Values num= 10

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8909	.058	9791.44	.038	10264.33	.111	0477.47	.111	0570.57	.11
10700.76	.111	1032.16	.111	1561.43	.111	2169.83	.111	2298.48	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9791.44	10264.33	465	479.63	528	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8909	9151.88	1312.6

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1310.92	Element			
Vel Head (ft)	0.56	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1310.36	Reach Len. (ft)	465.00	479.63	528.00
Crit W.S. (ft)	1310.00	Flow Area (sq ft)		1353.32	2125.02
E.G. Slope (ft/ft)	0.007741	Area (sq ft)		1353.32	2125.02
Q Total (cfs)	13000.00	Flow (cfs)		9442.16	3557.84
Top Width (ft)	2242.85	Top Width (ft)		466.95	1775.90
Vel Total (ft/s)	3.74	Avg. Vel. (ft/s)		6.98	1.67
Max Chl Dpth (ft)	8.46	Hydr. Depth (ft)		2.90	1.20
Conv. Total (cfs)	147753.4	Conv. (cfs)		107316.2	40437.2
Length Wtd. (ft)	489.06	Wetted Per. (ft)		468.62	1779.62
Min Ch El (ft)	1301.90	Shear (lb/sq ft)		1.40	0.58
Alpha	2.59	Stream Power (lb/ft s)		9.74	0.97
Frctn Loss (ft)	3.12	Cum Volume (acre-ft)	96.28	1465.06	256.56
C & E Loss (ft)	0.03	Cum SA (acres)	49.19	284.91	142.96

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1312.13	Element			
Vel Head (ft)	0.53	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1311.60	Reach Len. (ft)	465.00	479.63	528.00
Crit W.S. (ft)	1310.94	Flow Area (sq ft)	121.81	1937.11	5201.54
E.G. Slope (ft/ft)	0.005371	Area (sq ft)	121.81	1937.11	5201.54
Q Total (cfs)	23000.00	Flow (cfs)	103.27	14176.23	8720.51
Top Width (ft)	3856.79	Top Width (ft)	401.53	472.89	2982.37
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	0.85	7.32	1.68
Max Chl Dpth (ft)	9.70	Hydr. Depth (ft)	0.30	4.10	1.74
Conv. Total (cfs)	313823.7	Conv. (cfs)	1409.0	193427.7	118987.1
Length Wtd. (ft)	493.86	Wetted Per. (ft)	401.54	474.70	2987.14
Min Ch El (ft)	1301.90	Shear (lb/sq ft)	0.10	1.37	0.58
Alpha	3.40	Stream Power (lb/ft s)	0.09	10.01	0.98
Frctn Loss (ft)	2.61	Cum Volume (acre-ft)	362.78	2164.28	734.81
C & E Loss (ft)	0.05	Cum SA (acres)	164.56	302.54	371.86

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1312.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1312.40	Reach Len. (ft)	465.00	479.63	528.00
Crit W.S. (ft)	1311.63	Flow Area (sq ft)	537.06	2317.34	7738.26
E.G. Slope (ft/ft)	0.004731	Area (sq ft)	537.06	2317.34	7738.26
Q Total (cfs)	33000.00	Flow (cfs)	869.61	17935.53	14194.86
Top Width (ft)	4295.68	Top Width (ft)	609.71	472.89	3213.07
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	1.62	7.74	1.83
Max Chl Dpth (ft)	10.50	Hydr. Depth (ft)	0.88	4.90	2.41
Conv. Total (cfs)	479785.8	Conv. (cfs)	12643.2	260764.1	206378.5
Length Wtd. (ft)	497.32	Wetted Per. (ft)	609.72	474.70	3218.69
Min Ch El (ft)	1301.90	Shear (lb/sq ft)	0.26	1.44	0.71
Alpha	3.51	Stream Power (lb/ft s)	0.42	11.16	1.30
Frctn Loss (ft)	2.51	Cum Volume (acre-ft)	644.20	2625.83	1237.60
C & E Loss (ft)	0.06	Cum SA (acres)	254.40	310.61	518.23

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9791.44	9949.07	477.95	158.41	154.60	3.68	1.03	3.02
9949.07	10106.70	6363.18	755.88	158.29	48.95	4.80	8.42
10106.70	RB 10264.33	2601.04	439.03	155.72	20.01	2.83	5.92
10264.33	10478.57						
10478.57	10692.81	505.29	220.68	88.98	3.89	2.50	2.29
10692.81	10907.05	689.26	371.17	204.91	5.30	1.82	1.86
10907.05	11121.29	808.74	380.86	171.95	6.22	2.23	2.12
11121.29	11335.53	145.54	137.17	175.32	1.12	0.78	1.06
11335.53	11549.77	4.53	11.16	60.27	0.03	0.19	0.41
11549.77	11764.01	352.12	250.62	210.25	2.71	1.19	1.40
11764.01	11978.26	227.15	194.13	214.26	1.75	0.91	1.17
11978.26	12192.50	151.91	152.11	212.92	1.17	0.72	1.00
12192.50	12406.74	657.87	367.62	214.52	5.06	1.72	1.79
12406.74	12620.98	9.00	23.31	135.91	0.07	0.17	0.39
12620.98	12835.22	6.43	16.18	90.31	0.05	0.18	0.40

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8909.00	9791.44	103.27	121.81	401.54	0.45	0.30	0.85
LB 9791.44	9949.07	1591.17	352.09	158.36	6.92	2.23	4.52
9949.07	10106.70	8340.63	951.18	158.29	36.26	6.03	8.77
10106.70	RB 10264.33	4244.44	633.83	158.05	18.45	4.02	6.70
10264.33	10478.57	193.49	200.25	214.30	0.84	0.93	0.97
10478.57	10692.81	751.71	452.89	215.26	3.27	2.11	1.66
10692.81	10907.05	1307.88	631.17	215.07	5.69	2.95	2.07
10907.05	11121.29	1307.99	631.86	215.63	5.69	2.95	2.07
11121.29	11335.53	601.48	395.49	214.31	2.62	1.85	1.52
11335.53	11549.77	237.02	224.82	211.07	1.03	1.07	1.05
11549.77	11764.01	937.23	516.01	214.26	4.07	2.41	1.82
11764.01	11978.26	772.68	459.57	214.26	3.36	2.15	1.68
11978.26	12192.50	657.98	417.52	214.50	2.86	1.95	1.58
12192.50	12406.74	1316.63	633.06	214.52	5.72	2.95	2.08
12406.74	12620.98	341.60	281.61	214.24	1.49	1.31	1.21
12620.98	12835.22	218.27	215.25	214.25	0.95	1.00	1.01
12835.22	13049.46	62.60	101.74	214.25	0.27	0.47	0.62
13049.46	13263.70	13.95	40.30	201.21	0.06	0.20	0.35

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8909.00	9791.44	869.61	537.06	609.72	2.64	0.88	1.62
LB 9791.44	9949.07	2550.17	478.84	158.36	7.73	3.04	5.33
9949.07	10106.70	9863.74	1077.93	158.29	29.89	6.84	9.15
10106.70	RB 10264.33	5521.65	760.58	158.05	16.73	4.83	7.26
10264.33	10478.57	502.70	372.52	214.30	1.52	1.74	1.35
10478.57	10692.81	1187.80	625.16	215.26	3.60	2.92	1.90

10692.81	10907.05	1805.55	803.44	215.07	5.47	3.75	2.25
10907.05	11121.29	1805.00	804.13	215.63	5.47	3.75	2.24
11121.29	11335.53	1014.62	567.75	214.31	3.07	2.65	1.79
11335.53	11549.77	553.80	395.27	214.94	1.68	1.85	1.40
11549.77	11764.01	1398.69	688.28	214.26	4.24	3.21	2.03
11764.01	11978.26	1212.79	631.84	214.26	3.68	2.95	1.92
11978.26	12192.50	1080.45	589.79	214.50	3.27	2.75	1.83
12192.50	12406.74	1815.70	805.33	214.52	5.50	3.76	2.25
12406.74	12620.98	698.82	453.88	214.24	2.12	2.12	1.54
12620.98	12835.22	536.95	387.52	214.25	1.63	1.81	1.39
12835.22	13049.46	301.33	274.00	214.25	0.91	1.28	1.10
13049.46	13263.70	197.15	212.42	214.24	0.60	0.99	0.93
13263.70	13477.94	83.50	126.96	214.64	0.25	0.59	0.66

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.103

INPUT
Description: Right end point of cross section is extended by 210 feet to elevation 1308.2 based on ACDC ADMS topography FCD 90-19.
Station Elevation Data num= 124

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8482	1314	8510.08	1313.81	8523.94	1314.17	8549.49	1313.52	8586.27	1313.03
8599.67	1311.6	8629.88	1311.8	8656.28	1312.89	8725.18	1312.92	8770.35	1313.32
8789.81	1310.9	8837.87	1311	8883.79	1310.88	8939.35	1310.6	8952.61	1310.39
9032.01	1310.7	9087.45	1310.5	9125.8	1310.14	9187.24	1310.44	9236.68	1310.15
9315.24	1310.1	9333.67	1308.89	9390.43	1308.7	9400.08	1310.12	9429.81	1309.73
9489.07	1310	9532.52	1309.88	9581.48	1309.3	9622.09	1309.14	9668.19	1308.87
9707.83	1309.1	9720.37	1309.53	9755.08	1309.48	9764.43	1308.94	9770.45	1306.87
9786.95	1306.7	9806.67	1302.91	9818.91	1302.87	9902.96	1303.56	9930.06	1299.87
9960.73	1301	9997.55	1299.72	10026.47	1300.68	10067.94	1301.42	10088.39	1307.38
10149.94	1307.91	10209.06	1308.32	10298.29	1308.07	10310.73	1307.13	10326.25	1308.53
10400.57	1307.71	10410.45	1307.39	10445.28	1307.92	10457.93	1307.96	10471.61	1307.38
10507.04	1307.5	10530.2	1303.25	10592.95	1303.16	10627.85	1305.63	10636.01	1305.27
10653.59	1306.2	10661.82	1305.71	10680.36	1308.5	10688.06	1308.22	10753.83	1307.47
10780.11	1307.31	10795.67	1304.97	10823.65	1306.43	10846.31	1305.44	10861.54	1306.9
10877.59	1304.31	10905.63	1305.62	10932.9	1307.16	10964.23	1306.58	10977.08	1308.56
10985.98	1308.31	11049.41	1307.44	11083.9	1306.89	11097.61	1307.92	11113.27	1308.08
11144.6	1306.91	11160.37	1308.12	11239.53	1307.99	11316.25	1306.87	11364.09	1307.3
11375.23	1305.71	11392.81	1307.84	11512.16	1308.12	11643.85	1307.33	11718.54	1307.27
11747.82	1307	11771.98	1307.34	11874.58	1307.86	11914.5	1308.13	11968.52	1308.05
12037.18	1308.11	12068.54	1307.67	12080.93	1304.81	12096.75	1301.64	12114.23	1303.7
12140.78	1302.91	12159.86	1306.06	12170.5	1307.27	12211.84	1307.13	12240.96	1307.17
12257.05	1307.91	12269.14	1307.57	12316.98	1307.54	12350.18	1306.74	12363.52	1307.11
12385.53	1307.11	12429.52	1307.26	12478.22	1306.73	12502.41	1306.71	12560.45	1306.88
12636.6	1306.81	12680.56	1306.94	12701.58	1308.24	12762.34	1308.05	12786.76	1307.54
12806.62	1308	12848.7	1307.56	12881.84	1307.67	13091.84	1308.2		

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8482	.11	9764.43	.03	8108	8.39	.11	10507.04	.11	10680.36	.11
10977.08	.11	12037.18	.11	12170.5	.11				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9764.43 10088.39 540 520.68 338 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev
8482	9400.08	1310.12

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1307.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1306.95	Reach Len. (ft)	540.00	520.68	338.00
Crit W.S. (ft)	1305.63	Flow Area (sq ft)		1486.12	924.54
E.G. Slope (ft/ft)	0.005003	Area (sq ft)		1486.12	924.54
Q Total (cfs)	13000.00	Flow (cfs)		11485.05	1514.95
Top Width (ft)	1022.30	Top Width (ft)		316.71	705.59
Vel Total (ft/s)	5.39	Avg. Vel. (ft/s)		7.73	1.64
Max Chl Dpth (ft)	7.23	Hydr. Depth (ft)		4.69	1.31
Conv. Total (cfs)	183786.9	Conv. (cfs)		162369.3	21417.5
Length Wtd. (ft)	495.54	Wetted Per. (ft)		318.20	707.92
Min Ch El (ft)	1299.72	Shear (lb/sq ft)		1.46	0.41
Alpha	1.83	Stream Power (lb/ft s)		11.27	0.67
Frctn Loss (ft)	2.33	Cum Volume (acre-ft)	96.28	1449.42	238.08
C & E Loss (ft)	0.01	Cum SA (acres)	49.19	280.60	127.92

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1309.47	Element	Left OB	Channel	Right OB

Vel Head (ft)	1.07	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1308.40	Reach Len. (ft)	540.00	520.68	338.00
Crit W.S. (ft)	1307.67	Flow Area (sq ft)		1947.85	3484.86
E.G. Slope (ft/ft)	0.005204	Area (sq ft)		1947.85	3484.86
Q Total (cfs)	23000.00	Flow (cfs)		18159.85	4840.15
Top Width (ft)	3301.96	Top Width (ft)		322.38	2979.58
Vel Total (ft/s)	4.23	Avg. Vel. (ft/s)		9.32	1.39
Max Chl Dpth (ft)	8.68	Hydr. Depth (ft)		6.04	1.17
Conv. Total (cfs)	318843.8	Conv. (cfs)		251745.9	67097.9
Length Wtd. (ft)	467.19	Wetted Per. (ft)		324.16	2982.94
Min Ch El (ft)	1299.72	Shear (lb/sq ft)		1.95	0.38
Alpha	3.85	Stream Power (lb/ft^s)		18.20	0.53
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)	362.13	2142.89	682.17
C & E Loss (ft)	0.18	Cum SA (acres)	162.41	298.16	335.73

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1310.36	Wt. n-Val.	0.110	0.038	0.110
Vel Head (ft)	1.15	Reach Len. (ft)	540.00	520.68	338.00
W.S. Elev (ft)	1309.21	Flow Area (sq ft)	19.89	2211.66	5933.04
Crit W.S. (ft)	1309.07	Area (sq ft)	45.16	2211.66	5933.04
E.G. Slope (ft/ft)	0.005400	Flow (cfs)	6.26	22782.65	10211.09
Q Total (cfs)	33000.00	Top Width (ft)	176.75	323.96	3003.45
Top Width (ft)	3504.16	Avg. Vel. (ft/s)	0.31	10.30	1.72
Vel Total (ft/s)	4.04	Hydr. Depth (ft)	0.18	6.83	1.98
Max Chl Dpth (ft)	9.49	Conv. (cfs)	85.2	310033.7	138955.8
Conv. Total (cfs)	449074.7	Wetted Per. (ft)	111.64	325.84	3007.66
Length Wtd. (ft)	454.56	Shear (lb/sq ft)	0.06	2.29	0.67
Min Ch El (ft)	1299.72	Stream Power (lb/ft s)	0.02	23.57	1.14
Alpha	4.54	Cum Volume (acre-ft)	641.09	2600.89	1154.75
Frctn Loss (ft)	2.00	Cum SA (acres)	250.20	306.22	480.55
C & E Loss (ft)	0.14				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9764.43	9872.42	1648.86	301.53	102.58	12.68	2.95	5.47
9872.42	9980.40	4638.72	573.11	108.27	35.68	5.31	8.09
9980.40	RB 10088.39	5197.46	611.47	107.34	39.98	5.74	8.50
10088.39	10488.85						
10488.85	10689.08	729.47	408.77	160.62	5.61	2.55	1.78
10689.08	10889.31	146.31	132.70	107.38	1.13	1.24	1.10
10889.31	11089.54	36.79	48.08	67.30	0.28	0.72	0.77
11089.54	11289.77	0.00	0.05	2.08	0.00	0.03	0.08
11289.77	11490.00	6.15	12.52	34.01	0.05	0.37	0.49
11490.00	11890.46						
11890.46	12090.69	62.89	40.40	19.48	0.48	2.12	1.56
12090.69	12290.92	525.74	251.03	77.58	4.04	3.26	2.09
12290.92	12491.15	1.80	6.97	49.87	0.01	0.14	0.26
12491.15	12691.38	5.80	24.02	189.61	0.04	0.13	0.24

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9764.43	9872.42	3250.50	452.01	107.02	14.13	4.25	7.19
9872.42	9980.40	7152.45	728.90	108.27	31.10	6.75	9.81
9980.40	RB 10088.39	7756.89	766.94	108.87	33.73	7.10	10.11
10088.39	10288.62	41.91	78.19	200.23	0.18	0.39	0.54
10288.62	10488.85	77.87	110.27	186.77	0.34	0.59	0.71
10488.85	10689.08	1509.16	667.52	197.38	6.56	3.39	2.26
10689.08	10889.31	514.51	352.38	200.76	2.24	1.76	1.46
10889.31	11089.54	293.18	247.90	193.75	1.27	1.28	1.18
11089.54	11289.77	86.15	120.49	200.33	0.37	0.60	0.71
11289.77	11490.00	184.76	190.50	200.48	0.80	0.95	0.97
11490.00	11690.23	117.59	145.19	200.23	0.51	0.73	0.81
11690.23	11890.46	179.69	187.26	200.24	0.78	0.94	0.96

I1890.46	12090.69	102.73	134.02	200.75	0.45	0.67	0.77
12090.69	12290.92	895.13	491.33	200.83	3.89	2.45	1.82
12290.92	12491.15	300.60	254.99	200.25	1.31	1.27	1.18
12491.15	12691.38	414.91	309.39	200.25	1.80	1.55	1.34
12691.38	12891.61	69.34	105.77	200.26	0.30	0.53	0.66
12891.61	13091.84	52.63	89.67	200.43	0.23	0.45	0.59

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8482.00	9764.43	6.26	19.89	111.64	0.02	0.18	0.31
LB 9764.43	9872.42	4421.93	539.66	108.70	13.40	5.00	8.19
9872.42	9980.40	8849.15	816.98	108.27	26.82	7.57	10.83
9980.40	RB 10088.39	9511.56	855.03	108.87	28.82	7.92	11.12
10088.39	10288.62	275.50	241.51	200.23	0.83	1.21	1.14
10288.62	10488.85	337.12	272.67	200.35	1.02	1.36	1.24
10488.85	10689.08	2153.80	830.65	200.97	6.53	4.15	2.59
10689.08	10889.31	973.79	515.70	200.76	2.95	2.58	1.89
10889.31	11089.54	666.85	410.67	200.48	2.02	2.05	1.62
11089.54	11289.77	360.42	283.81	200.33	1.09	1.42	1.27
11289.77	11490.00	520.22	353.83	200.48	1.58	1.77	1.47
11490.00	11690.23	414.34	308.52	200.23	1.26	1.54	1.34
11690.23	11890.46	512.71	350.58	200.24	1.55	1.75	1.46
11890.46	12090.69	388.97	297.34	200.75	1.18	1.49	1.31
12090.69	12290.92	1448.92	654.65	200.83	4.39	3.27	2.21
12290.92	12491.15	688.19	418.31	200.25	2.09	2.09	1.65
12491.15	12691.38	843.72	472.71	200.25	2.56	2.36	1.78
12691.38	12891.61	329.87	269.09	200.26	1.00	1.34	1.23
12891.61	13091.84	296.67	252.99	201.24	0.90	1.26	1.17

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 14.013

INPUT
Description: Right end point of cross section is extended by 65 feet to elevation 1307 based on ACDC ADMS topography FCD 90-19.
Station Elevation Data num= 121

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8525	1310.9	8541.7	1309.19	8570.76	1309.09	8582.5	1309.75	8606.66	1310.6
8621.35	1310.4	8648.37	1310.5	8692.44	1310.5	8720.08	1310.87	8733.42	1309.49
8777.54	1309.7	8820.32	1309.37	8863.07	1308.08	8902.86	1307.94	8937.44	1307.48
8965.25	1307.5	9009.34	1307.69	9098.15	1307.63	9141.73	1307.8	9238.48	1307.54
9289.98	1307.4	9347.91	1307.46	9364.47	1306.04	9382.02	1306.56	9411.06	1306.22
9433.96	1307.1	9480.97	1307.01	9500.9	1306.8	9579.11	1306.83	9597.26	1306.63
9651.6	1306.5	9743.54	1306.05	9780.56	1305.6	9784.17	1302.93	9802.62	1302.82
9828.14	1300.1	9889.76	1299.23	9921.27	1299	9930.76	1296.71	9947.01	1298.47
9975.11	1298.1	9987	1295.8310006.96		1295.7510041.42		1303.6610064.01		1301.65
10074.42	1302.610106.66		1303.9410134.52		1302.2910177.15		1303.7110254.67		1304.23
10273.37	1304.610286.06		1301.5410331.62		1301.5110385.94		1303.3810447.36		1303.41
10463.96	1301.810479.72		1301.4410492.14		1300.5910510.26		1302.410520.18		1301.77
10541.35	1301	10553.4	1305.3110624.76		1305.2710635.71		130410649.37		1305.46
10663.07	1302.610681.11		1305.6410732.78		1305.37	10752.1	1301.4310776.74		1303.93
10804.42	1304.510864.83		1304.4910921.65		1304.6710959.24		1302.7810994.93		1305.71
11069.44	130611173.31		1306.0611219.95		1306.3111234.51		1306.3911285.04		1304.66
11367.98	1305.311396.44		1304.4211471.75		1305.3	11534.1	1305.5511577.93		1305.55
11622.94	1304.911670.11		1306.0711694.09		1305.0711769.21		1305.7311805.04		1305.7
11840.23	1304.8	11900.1	1305.3411952.64		1305.2212004.17		1306	12016.3	1305.84
12031.53	1306.6	12054	1300.9112070.72		1298.1312098.46		1303.1712122.85		1305.73
12127.42	1306.212150.81		1302.5612183.32		1302.6512209.11		1302.89	12238.3	1305.09
12286.44	1305.312303.61		1305.0112339.28		1305.212406.51		1305.0412411.64		1305.19
12492.23	1305.812529.78		1305.8612592.64		1305.4712620.48		1305.6412695.05		1305.56
12723.56	1306.812773.04		1306.4912827.23		1306.3312862.44		1306.4212878.71		1306.72
12943.71	1307								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8525	.11	9743.54	.03810041.42		.1110273.37		.11	10553.4	.11
11234.51	.1112031.53		.11	12238.3	.11				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9743.5410041.42 620 514.07 723 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev
8525	9433.96	1307.1

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1305.45	Wt. n-Val.		0.038	0.110
Vel Head (ft)	0.81	Reach Len. (ft)	620.00	514.07	723.00
W.S. Elev (ft)	1304.64	Flow Area (sq ft)		1391.37	1500.28
Crit W.S. (ft)	1303.61	Area (sq ft)		1391.37	1500.28
E.G. Slope (ft/ft)	0.004353	Flow (cfs)		10933.36	2066.64
Q Total (cfs)	13000.00	Top Width (ft)		259.56	971.99
Top Width (ft)	1231.55	Avg. Vel. (ft/s)		7.86	1.38
Vel Total (ft/s)	4.50	Hydr. Depth (ft)		5.36	1.54
Max Chl Dpth (ft)	8.89	Conv. (cfs)		165711.3	31323.0
Conv. Total (cfs)	197034.3	Wetted Per. (ft)		261.76	975.98
Length Wtd. (ft)	555.79	Shear (lb/sq ft)		1.44	0.42
Min Ch El (ft)	1295.75	Stream Power (lb/ft s)		11.35	0.58
Alpha	2.58	Cum Volume (acre-ft)	96.28	1432.23	228.67
Frctn Loss (ft)	4.05	Cum SA (acres)	49.19	277.16	121.41
C & E Loss (ft)	0.16				

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1307.51	Wt. n-Val.	0.110	0.038	0.110
Vel Head (ft)	0.48	Reach Len. (ft)	620.00	514.07	723.00
W.S. Elev (ft)	1307.03	Flow Area (sq ft)	118.88	2058.56	6581.91
Crit W.S. (ft)	1305.37	Area (sq ft)	164.34	2058.56	6581.91
E.G. Slope (ft/ft)	0.002439	Flow (cfs)	45.70	14343.03	8611.27
Q Total (cfs)	23000.00	Top Width (ft)	350.88	297.88	2902.29
Top Width (ft)	3551.05	Avg. Vel. (ft/s)	0.38	6.97	1.31
Vel Total (ft/s)	2.63	Hydr. Depth (ft)	0.44	6.91	2.27
Max Chl Dpth (ft)	11.28	Conv. (cfs)	925.4	290417.8	174361.0
Conv. Total (cfs)	465704.2	Wetted Per. (ft)	271.76	300.40	2907.43
Length Wtd. (ft)	573.39	Shear (lb/sq ft)	0.07	1.04	0.34
Min Ch El (ft)	1295.75	Stream Power (lb/ft s)	0.03	7.27	0.45
Alpha	4.48	Cum Volume (acre-ft)	361.12	2118.94	643.11
Frctn Loss (ft)	2.55	Cum SA (acres)	160.24	294.45	312.91
C & E Loss (ft)	0.36				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1308.22	Wt. n-Val.	0.110	0.038	0.110
Vel Head (ft)	0.69	Reach Len. (ft)	620.00	514.07	723.00
W.S. Elev (ft)	1307.54	Flow Area (sq ft)	374.98	2210.52	8062.46
Crit W.S. (ft)	1306.62	Area (sq ft)	374.98	2210.52	8062.46
E.G. Slope (ft/ft)	0.003401	Flow (cfs)	240.85	19070.63	13688.53
Q Total (cfs)	33000.00	Top Width (ft)	545.11	297.88	2902.29
Top Width (ft)	3745.28	Avg. Vel. (ft/s)	0.64	8.63	1.70
Vel Total (ft/s)	3.10	Hydr. Depth (ft)	0.69	7.42	2.78
Max Chl Dpth (ft)	11.79	Conv. (cfs)	4130.1	327019.8	234728.5
Conv. Total (cfs)	565878.3	Wetted Per. (ft)	545.20	300.40	2907.94
Length Wtd. (ft)	589.68	Shear (lb/sq ft)	0.15	1.56	0.59
Min Ch El (ft)	1295.75	Stream Power (lb/ft s)	0.09	13.48	1.00
Alpha	4.60	Cum Volume (acre-ft)	638.49	2574.46	1100.45
Frctn Loss (ft)	2.71	Cum SA (acres)	245.72	302.51	457.64
C & E Loss (ft)	0.11				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9743.54	9842.83	947.12	183.82	61.68	7.29	3.01	5.15

9842.83	9942.13	4401.62	559.78	99.64	33.86	5.64	7.86
9942.13	RB 10041.42	5584.61	647.78	100.44	42.96	6.52	8.62
10041.42	10234.91	305.01	269.77	193.72	2.35	1.39	1.13
10234.91	10428.39	464.64	347.39	193.89	3.57	1.80	1.34
10428.39	10621.88	544.04	319.36	124.00	4.18	2.59	1.70
10621.88	10815.36	101.79	112.66	113.24	0.78	1.00	0.90
10815.36	11008.85	33.69	65.96	155.94	0.26	0.42	0.51
11008.85	11202.34						
11202.34	11395.82	0.12	0.64	6.44	0.00	0.10	0.19
11395.82	11589.31	0.46	2.17	19.29	0.00	0.11	0.21
11589.31	11976.28						
11976.28	12169.77	501.85	286.69	106.87	3.86	2.72	1.75
12169.77	12363.25	115.05	95.66	62.61	0.89	1.53	1.20

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8525.00	9743.54	45.70	118.88	271.76	0.20	0.44	0.38
LB 9743.54	9842.83	1656.50	376.51	100.32	7.20	3.79	4.40
9842.83	9942.13	5807.78	797.03	99.64	25.25	8.03	7.29
9942.13	RB 10041.42	6878.74	885.03	100.44	29.91	8.91	7.77
10041.42	10234.91	1195.91	732.08	193.72	5.20	3.78	1.63
10234.91	10428.39	1413.82	809.71	193.89	6.15	4.18	1.75
10428.39	10621.88	1204.44	736.35	194.47	5.24	3.81	1.64
10621.88	10815.36	668.69	517.57	194.72	2.91	2.67	1.29
10815.36	11008.85	645.91	505.81	193.65	2.81	2.61	1.28
11008.85	11202.34	136.35	198.85	193.49	0.59	1.03	0.69
11202.34	11395.82	315.79	329.17	193.53	1.37	1.70	0.96
11395.82	11589.31	345.31	347.27	193.49	1.50	1.79	0.99
11589.31	11782.79	287.41	311.08	193.53	1.25	1.61	0.92
11782.79	11976.28	332.36	339.40	193.50	1.45	1.75	0.98
11976.28	12169.77	975.68	650.09	195.34	4.24	3.36	1.50
12169.77	12363.25	615.93	491.51	193.57	2.68	2.54	1.25
12363.25	12556.74	264.26	295.77	193.49	1.15	1.53	0.89
12556.74	12750.22	176.07	231.83	193.51	0.77	1.20	0.76
12750.22	12943.71	33.34	85.42	193.52	0.14	0.44	0.39

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8525.00	9743.54	240.85	374.98	545.20	0.73	0.69	0.64
LB 9743.54	9842.83	2432.50	427.16	100.32	7.37	4.30	5.69
9842.83	9942.13	7657.83	847.68	99.64	23.21	8.54	9.03
9942.13	RB 10041.42	8980.30	935.68	100.44	27.21	9.42	9.60
10041.42	10234.91	1739.85	830.79	193.72	5.27	4.29	2.09
10234.91	10428.39	2017.99	908.41	193.89	6.12	4.69	2.22
10428.39	10621.88	1750.26	835.05	194.47	5.30	4.32	2.10
10621.88	10815.36	1053.98	616.28	194.72	3.19	3.19	1.71
10815.36	11008.85	1024.40	604.51	193.65	3.10	3.12	1.69
11008.85	11202.34	314.52	297.55	193.49	0.95	1.54	1.06
11202.34	11395.82	576.10	427.87	193.53	1.75	2.21	1.35
11395.82	11589.31	617.37	445.97	193.49	1.87	2.30	1.38
11589.31	11782.79	536.09	409.78	193.53	1.62	2.12	1.31
11782.79	11976.28	599.31	438.11	193.50	1.82	2.26	1.37
11976.28	12169.77	1455.09	748.80	195.34	4.41	3.87	1.94
12169.77	12363.25	984.60	590.21	193.57	2.98	3.05	1.67
12363.25	12556.74	503.20	394.48	193.49	1.52	2.04	1.28
12556.74	12750.22	374.71	330.53	193.51	1.14	1.71	1.13
12750.22	12943.71	141.07	184.12	194.03	0.43	0.95	0.77

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.918

INPUT
Description:
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8683.46	1305.6	8749.84	1305.41	8816.56	1305.02	8879.14	1304.84	8941.71	1303.86
8993.41	1303.7	9014.23	1303.54	9037.5	1303.86	9061.74	1303.87	9090.03	1303.42
9109.57	1303.5	9120.74	1303.77	9154.34	1303.13	9208.09	1303.67	9280.94	1303.46
9312.08	1303.3	9339.91	1302.59	9405.03	1302.64	9486.8	1302.2	9526.39	1302.18
9603.9	1302.5	9639.14	1301.79	9648.15	1301.87	9655.73	1303.56	9664.4	1301.78
9683.77	1301.9	9733.64	1301.65	9831.88	1301.58	9842.81	1301.34	9903.56	1300.9
9947.16	1300.7	9954.03	1300.59	9964.62	1293.23	9980.05	1290.6	10000	1289.83
10015.2	1296.2	10046.59	1297.69	10067.54	1297.81	10086.38	1295.96	10106	1293.03
10110.96	1293.3	10140.96	1298.55	10161.6	1300.33	10171.29	1302.28	10184.47	1301.61
10197.02	1300.6	10218.8	1301.14	10268.36	1300.97	10286.03	1301.17	10331.61	1302.65
10350.13	1301.9	10368.93	1299.88	10378.46	1299.96	10411.09	1299.34	10422.74	1300.18
10454.95	1300.2	10497.44	1299.06	10527.52	1298.56	10534.9	1297.97	10544.18	1295.74
10554.88	1294.1	10583.28	1292.27	10601.01	1293.15	10617.12	1292.91	10637.16	1293.4
10647.94	1295.9	10667.67	1302.29	10674.49	1302.17	10732.2	1302.08	10778.6	1302.26
10875.62	1302.9	10973.99	1302.24	11079.03	1302.41	11245.54	1302.37	11299.35	1302.78
11384.66	1302.3	11477	1302.51	11522.72	1302.71	11551.62	1303.58		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8683.46	.11	9655.73	.058	9954.03	.038	10161.6	.111	10331.61	.11
10667.67	.111	11299.35	.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9954.03	10161.6	535	642.34	485	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
8683.46	9733.64	1305

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1301.23	Element			
Vel Head (ft)	2.43	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1298.80	Reach Len. (ft)	535.00	642.34	485.00
Crit W.S. (ft)	1298.56	Flow Area (sq ft)		702.71	596.20
E.G. Slope (ft/ft)	0.022801	Area (sq ft)		702.71	596.20
Q Total (cfs)	13000.00	Flow (cfs)		9877.81	3122.19
Top Width (ft)	330.91	Top Width (ft)		187.23	143.68
Vel Total (ft/s)	10.01	Avg. Vel. (ft/s)		14.06	5.24
Max Chl Dpth (ft)	8.97	Hydr. Depth (ft)		3.75	4.15
Conv. Total (cfs)	86093.2	Conv. (cfs)		65416.3	20676.9
Length Wtd. (ft)	621.46	Wetted Per. (ft)		191.31	144.93
Min Ch El (ft)	1289.83	Shear (lb/sq ft)		5.23	5.86
Alpha	1.56	Stream Power (lb/ft s)		73.50	30.67
Frctn Loss (ft)	7.51	Cum Volume (acre-ft)	96.28	1419.87	211.28
C & E Loss (ft)	0.66	Cum SA (acres)	49.19	274.52	112.16

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1304.59	Element			
Vel Head (ft)	4.13	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1300.46	Reach Len. (ft)	535.00	642.34	485.00
Crit W.S. (ft)	1300.19	Flow Area (sq ft)		1031.88	948.84
E.G. Slope (ft/ft)	0.025697	Area (sq ft)		1031.88	948.84
Q Total (cfs)	23000.00	Flow (cfs)		18574.13	4425.88
Top Width (ft)	506.52	Top Width (ft)		207.38	299.14
Vel Total (ft/s)	11.61	Avg. Vel. (ft/s)		18.00	4.66
Max Chl Dpth (ft)	10.63	Hydr. Depth (ft)		4.98	3.17
Conv. Total (cfs)	143479.5	Conv. (cfs)		115869.8	27609.7
Length Wtd. (ft)	624.71	Wetted Per. (ft)		212.05	300.75
Min Ch El (ft)	1289.83	Shear (lb/sq ft)		7.81	5.06
Alpha	1.97	Stream Power (lb/ft s)		140.52	23.61
Frctn Loss (ft)	8.41	Cum Volume (acre-ft)	359.95	2100.71	580.61
C & E Loss (ft)	1.12	Cum SA (acres)	157.74	291.47	286.34

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1305.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.82	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1303.58	Reach Len. (ft)	535.00	642.34	485.00
Crit W.S. (ft)	1303.58	Flow Area (sq ft)	507.51	1679.84	3324.17
E.G. Slope (ft/ft)	0.007104	Area (sq ft)	1067.38	1679.84	3324.17
Q Total (cfs)	33000.00	Flow (cfs)	1910.91	21984.96	9104.13
Top Width (ft)	2423.47	Top Width (ft)	825.88	207.57	1390.02
Vel Total (ft/s)	5.99	Avg. Vel. (ft/s)	3.77	13.09	2.74
Max Chl Dpth (ft)	13.75	Hydr. Depth (ft)	2.30	8.09	2.39
Conv. Total (cfs)	391541.4	Conv. (cfs)	22672.7	260849.2	108019.5
Length Wtd. (ft)	614.49	Wetted Per. (ft)	220.40	212.28	1392.30
Min Ch El (ft)	1289.83	Shear (lb/sq ft)	1.02	3.51	1.06
Alpha	3.26	Stream Power (lb/ft s)	3.85	45.93	2.90
Frctn Loss (ft)	2.63	Cum Volume (acre-ft)	628.22	2551.51	1005.95
C & E Loss (ft)	0.39	Cum SA (acres)	235.97	299.52	422.02

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: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9954.03	10023.22	6882.89	406.95	69.88	52.95	6.11	16.91
10023.22	10092.41	862.30	116.68	69.37	6.63	1.69	7.39
10092.41	RB 10161.60	2132.62	179.08	52.05	16.40	3.48	11.91
10161.60	10439.60						
10439.60	10532.27	2.35	3.74	19.08	0.02	0.20	0.63
10532.27	10624.94	2547.14	466.99	93.15	19.59	5.04	5.45
10624.94	10717.61	572.70	125.47	32.70	4.41	3.93	4.56

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9954.03	10023.22	11350.53	519.68	72.80	49.35	7.53	21.84
10023.22	10092.41	3050.02	231.71	69.37	13.26	3.35	13.16
10092.41	RB 10161.60	4173.58	280.50	69.88	18.15	4.05	14.88
10161.60	10254.27	0.01	0.04	0.66	0.00	0.07	0.25
10254.27	10346.94						
10346.94	10439.60	50.87	45.97	76.14	0.22	0.60	1.11
10439.60	10532.27	160.08	98.93	92.70	0.70	1.07	1.62
10532.27	10624.94	3408.68	621.05	93.15	14.82	6.70	5.49
10624.94	10717.61	806.23	182.85	38.09	3.51	4.93	4.41

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8683.46	9954.03	1910.91	507.51	220.40	5.79	2.30	3.77
LB 9954.03	10023.22	11064.66	735.66	73.02	33.53	10.63	15.04
10023.22	10092.41	5003.82	447.70	69.37	15.16	6.47	11.18
10092.41	RB 10161.60	5916.49	496.49	69.88	17.93	7.18	11.92
10161.60	10254.27	424.34	222.58	92.93	1.29	2.40	1.91
10254.27	10346.94	287.70	176.12	92.71	0.87	1.90	1.63
10346.94	10439.60	780.98	320.80	92.82	2.37	3.46	2.43
10439.60	10532.27	1074.13	388.21	92.70	3.25	4.19	2.77

10532.27	10624.94	4431.39	910.33	93.15	13.43	9.82	4.87
10624.94	10717.61	1039.10	382.64	93.97	3.15	4.13	2.72
10717.61	10810.28	164.36	125.85	92.67	0.50	1.36	1.31
10810.28	10902.94	76.92	79.80	92.67	0.23	0.86	0.96
10902.94	10995.61	125.54	107.06	92.67	0.38	1.16	1.17
10995.61	11088.28	139.92	114.26	92.67	0.42	1.23	1.22
11088.28	11180.95	131.05	109.86	92.67	0.40	1.19	1.19
11180.95	11273.62	129.00	108.82	92.67	0.39	1.17	1.19
11273.62	11366.28	93.05	89.46	92.67	0.28	0.97	1.04
11366.28	11458.95	134.50	111.58	92.67	0.41	1.20	1.21
11458.95	11551.62	72.16	76.80	92.68	0.22	0.83	0.94

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.818

INPUT
Description: The bottom area is blocked out to account for ponded water within this area.

Station Elevation Data num= 80

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9462	1298	9477.76	1298.87	9504.05	1298.9	9584.3	1299.46	9588.83	1299.62
9617.74	1296.7	9659.36	1297.12	9672.91	1293.55	9696.39	1295.18	9703.75	1295.29
9721.63	1294.1	9755.56	1292.98	9770.96	1293.68	9787.1	1293.89	9788.3	1293.17
9805.83	1291.3	9814.79	1290.67	9825.73	1290.76	9839.58	1286.42	9912	1286.42
10335.4	1286.4	10469.1	1286.42	10482.82	1292.32	10492.06	1289.21	10536.03	1288.71
10549.75	1288.81	10559.35	1289.91	10586.82	1294.94	10611.56	1299.17	10640.25	1299.63
10655.18	1289.11	10702.75	1287.81	10868.03	1287.78	10913.91	1288.22	10937.39	1288.02
10947.65	1288.21	11003.07	1288.11	11038.22	1288.49	11066.97	1289.44	11089.19	1289.29
11109.9	1289.61	11192.24	1289	11228.34	1290.12	11272.67	1288.42	11378.54	1289.97
11402.76	1290.41	11423.75	1291.81	11434.18	1291.96	11448.66	1290.64	11458.94	1292.34
11464.39	1290.61	11487.76	1290.71	11520.45	1290.54	11569.55	1290.47	11616.61	1290.23
11645.04	1290.41	11670.09	1300.21	11676.56	1301.07	11689.63	1296.82	11700.15	1297.87
11706.11	1298.41	11712.53	1296.11	11722.98	1289.88	11747.42	1290.55	11801.18	1289.86
11817.69	1300.41	11848.75	1286.91	11915.57	1287.21	11946.27	1286.97	11983.1	1285.83
12002.23	1286.41	12078.57	1286.91	12129.51	1286.18	12189.27	1286.11	12247.67	1286.61
12281.97	1299.11	12312.95	1299.21	12326.03	1298.93	12411.99	1299.36	12562.08	1299.98

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9462	.11	9584.3	.058	9787.1	.03	10482.82	.11	10640.25	.11
11676.56	.11	11817.69	.11						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9787.11	10482.82	395	406.3	435	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10640.25	12562.08	1299.63

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9787.11	10640.25	1288

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1293.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.038	0.110
W.S. Elev (ft)	1292.83	Reach Len. (ft)	395.00	406.30	435.00
Crit W.S. (ft)	1290.33	Flow Area (sq ft)		3189.83	302.13
E.G. Slope (ft/ft)	0.001347	Area (sq ft)		3189.83	6757.24
Q Total (cfs)	13000.00	Flow (cfs)		12672.19	327.81
Top Width (ft)	2302.62	Top Width (ft)		691.32	1611.29
Vel Total (ft/s)	3.72	Avg. Vel. (ft/s)		3.97	1.09
Max Chl Dpth (ft)	7.00	Hydr. Depth (ft)		4.61	3.27
Conv. Total (cfs)	354161.8	Conv. (cfs)		345231.1	8930.7
Length Wtd. (ft)	406.66	Wetted Per. (ft)		692.74	93.34
Min Ch El (ft)	1288.00	Shear (lb/sq ft)		0.39	0.27
Alpha	1.11	Stream Power (lb/ft s)		1.54	0.30
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	96.28	1391.17	170.34
C & E Loss (ft)	0.02	Cum SA (acres)	49.19	268.04	102.39

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1295.04	Element			
Vel Head (ft)	0.37	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1294.67	Reach Len. (ft)	395.00	406.30	435.00
Crit W.S. (ft)	1291.39	Flow Area (sq ft)	86.88	4467.52	481.39
E.G. Slope (ft/ft)	0.001364	Area (sq ft)	86.88	4467.52	9749.55
Q Total (cfs)	23000.00	Flow (cfs)	79.63	22251.41	668.96
Top Width (ft)	2433.92	Top Width (ft)	94.33	695.72	1643.87
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)	0.92	4.98	1.39
Max Chl Dpth (ft)	8.84	Hydr. Depth (ft)	0.92	6.42	4.70
Conv. Total (cfs)	622860.4	Conv. (cfs)	2156.4	602587.9	18116.1
Length Wtd. (ft)	406.70	Wetted Per. (ft)	94.57	697.35	103.53
Min Ch El (ft)	1288.00	Shear (lb/sq ft)	0.08	0.55	0.40
Alpha	1.15	Stream Power (lb/ft s)	0.07	2.72	0.55
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	359.41	2060.16	521.06
C & E Loss (ft)	0.01	Cum SA (acres)	157.16	284.81	275.52

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1296.55	Element			
Vel Head (ft)	0.51	Wt. n-Val.	0.058	0.038	0.110
W.S. Elev (ft)	1296.04	Reach Len. (ft)	395.00	406.30	435.00
Crit W.S. (ft)	1292.27	Flow Area (sq ft)	244.09	5422.78	627.53
E.G. Slope (ft/ft)	0.001442	Area (sq ft)	244.09	5422.78	12023.60
Q Total (cfs)	33000.00	Flow (cfs)	372.81	31608.99	1018.20
Top Width (ft)	2488.00	Top Width (ft)	123.64	695.72	1668.63
Vel Total (ft/s)	5.24	Avg. Vel. (ft/s)	1.53	5.83	1.62
Max Chl Dpth (ft)	10.21	Hydr. Depth (ft)	1.97	7.79	5.68
Conv. Total (cfs)	868925.5	Conv. (cfs)	9816.6	832298.6	26810.3
Length Wtd. (ft)	406.67	Wetted Per. (ft)	124.10	697.35	111.57
Min Ch El (ft)	1288.00	Shear (lb/sq ft)	0.18	0.70	0.51
Alpha	1.19	Stream Power (lb/ft s)	0.27	4.08	0.82
Frctn Loss (ft)	0.72	Cum Volume (acre-ft)	620.17	2499.14	920.51
C & E Loss (ft)	0.02	Cum SA (acres)	230.14	292.86	404.99

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9787.10	10019.01	3660.56	971.78	228.04	28.16	4.27	3.77
10019.01	10250.91	4585.02	1119.87	231.91	35.27	4.83	4.09
10250.91	RB 10482.82	4426.61	1098.18	232.80	34.05	4.74	4.03
10482.82	10621.44	327.81	302.13	93.34	2.52	3.27	1.09

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9462.00	9787.10	79.63	86.88	94.57	0.35	0.92	0.92
LB 9787.10	10019.01	6654.57	1396.75	232.65	28.93	6.02	4.76
10019.01	10250.91	7900.20	1546.23	231.91	34.35	6.67	5.11
10250.91	RB 10482.82	7696.64	1524.54	232.80	33.46	6.57	5.05
10482.82	10621.44	668.96	481.39	103.53	2.91	4.70	1.39

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9462.00	9787.10	372.81	244.09	124.10	1.13	1.97	1.53
LB 9787.10	10019.01	9640.88	1715.17	232.65	29.21	7.40	5.62
10019.01	10250.91	11105.19	1864.65	231.91	33.65	8.04	5.96
10250.91	RB 10482.82	10862.92	1842.96	232.80	32.92	7.95	5.89
10482.82	10621.44	1018.20	627.53	111.57	3.09	5.68	1.62

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.742

INPUT

Description: The bottom area is blocked out to account for ponded water within
this area.

Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9354	1296.8	9370.67	1296.55	9384.46	1297.62	9483.28	1297.63	9497.01	1299.44
9531	1293.9	9554.38	1294.1	9577.58	1289.54	9634.5	1288.87	9648.28	1287.86
9680.8	1287.9	9700.02	1286.4	10197.76	1286.4	10241.99	1289.3	10254.48	1290.54
10268.29	1290.3	10308.28	1292.9	10321.65	1294.4	110343.75	1297.5	10379.63	1299.51
10399.95	1299.9	10408.16	1300.3	110436.03	1300.1	810442.12	1299.1	10459.79	1296.83
10475.06	1295.5	10506.06	1290.6	910532.73	1288.5	410558.39	1288.7	110598.63	1289.53
10669.55	1290.7	10723.24	1290.8	810748.29	1306.2	210770.75	1319.96	10788.5	1309.31
10816.13	1294.4	10826.64	1290.1	710886.49	1290.0	410894.56	1292.3	310909.82	1298.41
10922.28	1300.8	10930.63	1301.5	110944.77	1298.4	410962.63	1289.25	11011.3	1288.78
11043.43	1288.6	11069.82	1288.1	711101.46	1289.4	411132.43	1289.48	11152.3	1295.63
11197.31	1296	11240.82	1296.0	511285.44	1296.5	811324.28	1296.7	311365.59	1297.11
11409.29	1296.8	11469.34	1297.4	911529.55	1296.9	911566.62	1296.9	711581.98	1296.83
11645.17	1297.2	11669.97	1297.5	211698.77	1296.9	11764.32	1297.0	411812.47	1296.71
11878.03	1292.7	11914.78	1292.1	11924.59	1291.65	11975	1287.9	311988.35	1286.47
12038.04	1285.6	12070.37	1288.3	612076.59	1289.6	612098.39	1288.4	612119.06	1288.72
12153.65	12	8912164.88	1295.1	412205.17	1296.6	812283.01	1297.0	812327.32	1297.01
12339.26	1297.1	12407.76	1296.67	12420.6	1296.7	12438.39	1298.01		

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9354	.058	9554.38	.03	10408.16	.11	10770.75	.11	10930.63	.11
11152.3	.11	11812.47	.11	12164.88	.11				

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9554.38	10408.16	430	353.72	400	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10408.16	12438.39	1300.31

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9554.38	10408.16	1288

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1292.29	Element			
Vel Head (ft)	0.39	Wt. n-Val.		0.038	
W.S. Elev (ft)	1291.90	Reach Len. (ft)	430.00	353.72	400.00
Crit W.S. (ft)	1290.43	Flow Area (sq ft)		2577.86	
E.G. Slope (ft/ft)	0.003077	Area (sq ft)		2577.86	1969.97
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	1446.40	Top Width (ft)		726.68	719.73
Vel Total (ft/s)	5.04	Avg. Vel. (ft/s)		5.04	
Max Chl Dpth (ft)	6.30	Hydr. Depth (ft)		3.55	
Conv. Total (cfs)	234376.8	Conv. (cfs)		234376.8	
Length Wtd. (ft)	353.75	Wetted Per. (ft)		727.10	
Min Ch El (ft)	1288.00	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		3.43	
Frctn Loss (ft)	1.03	Cum Volume (acre-ft)	96.28	1364.27	126.76
C & E Loss (ft)	0.00	Cum SA (acres)	49.19	261.43	90.75

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1294.32	Element			
Vel Head (ft)	0.51	Wt. n-Val.		0.038	
W.S. Elev (ft)	1293.81	Reach Len. (ft)	430.00	353.72	400.00
Crit W.S. (ft)	1291.49	Flow Area (sq ft)		4006.49	
E.G. Slope (ft/ft)	0.002353	Area (sq ft)		4006.49	3458.23
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	1578.39	Top Width (ft)		760.31	818.09
Vel Total (ft/s)	5.74	Avg. Vel. (ft/s)		5.74	
Max Chl Dpth (ft)	8.21	Hydr. Depth (ft)		5.27	
Conv. Total (cfs)	474129.2	Conv. (cfs)		474129.2	
Length Wtd. (ft)	353.91	Wetted Per. (ft)		761.00	
Min Ch El (ft)	1288.00	Shear (lb/sq ft)		0.77	
Alpha	1.00	Stream Power (lb/ft s)		4.44	
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	359.02	2020.64	455.11
C & E Loss (ft)	0.00	Cum SA (acres)	156.74	278.02	263.23

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1295.81	Element			
Vel Head (ft)	0.67	Wt. n-Val.	0.058	0.038	
W.S. Elev (ft)	1295.14	Reach Len. (ft)	430.00	353.72	400.00
Crit W.S. (ft)	1292.37	Flow Area (sq ft)	31.40	5025.21	
E.G. Slope (ft/ft)	0.002320	Area (sq ft)	31.40	5025.21	4576.28
Q Total (cfs)	33000.00	Flow (cfs)	39.00	32961.00	
Top Width (ft)	1669.49	Top Width (ft)	30.99	772.50	866.00
Vel Total (ft/s)	6.53	Avg. Vel. (ft/s)	1.24	6.56	

Max Chl Dpth (ft)	9.54	Hydr. Depth (ft)	1.01	6.51	
Conv. Total (cfs)	685095.3	Conv. (cfs)	809.6	684285.7	
Length Wtd. (ft)	354.53	Wetted Per. (ft)	31.09	773.30	
Min Ch El (ft)	1288.00	Shear (lb/sq ft)	0.15	0.94	
Alpha	1.01	Stream Power (lb/ft s)	0.18	6.17	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	618.92	2450.41	837.63
C & E Loss (ft)	0.02	Cum SA (acres)	229.43	286.02	392.33

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9554.38	9838.97	4771.63	958.56	273.64	36.70	3.51	4.98
9838.97	10123.57	5923.04	1108.56	284.59	45.56	3.90	5.34
10123.57	RB 10408.16	2305.33	510.74	168.86	17.73	3.03	4.51

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9554.38	9838.97	8515.94	1492.24	283.59	37.03	5.27	5.71
9838.97	10123.57	10089.70	1654.40	284.59	43.87	5.81	6.10
10123.57	RB 10408.16	4394.36	859.85	192.82	19.11	4.46	5.11

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9354.00	9554.38	39.00	31.40	31.09	0.12	1.01	1.24
LB 9554.38	9838.97	12274.83	1869.87	285.07	37.20	6.57	6.56
9838.97	10123.57	14118.12	2032.24	284.59	42.78	7.14	6.95
10123.57	RB 10408.16	6568.05	1123.10	203.63	19.90	5.52	5.85

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.680

INPUT
Description:
Station Elevation Data num= 80

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9322	1296.8	9356.46	1297.07	9385.6	1295.43	9417.8	1296.98	9479.95	1297.29
9485.63	1297.5	9495.23	1296.86	9528.8	1293.73	9551.69	1293.03	9568.06	1289.41
9582.07	1292.5	9591.03	1292.88	9613.38	1290.8	9648.83	1289.19	9671.63	1288.62
9722.36	1288.2	9796.47	1287.28	9826.79	1287.06	9883.94	1286.91	9919.92	1286.4
9939.41	1285.8	9984.53	1285.5	10023.54	1285.5	10077.15	1286.1	10123.24	1286.29
10152.41	1286.1	10190.29	1286.4	10222.53	1287.2	10265.88	1289.8	10283.02	1291.25
10317.81	1292.8	10368.57	1293.2	10398.99	1292.5	10434.15	1292.6	10477.35	1292.29
10529.74	1292.5	10615.42	1292.9	10647.52	1292.9	10711.24	1293.0	10820.69	1293.39
10865.19	1293.3	10884.17	1293.4	10938.51	1292.9	10974.42	1293.3	10989.05	1293.72
11017.31	1293.8	11050.34	1294.1	11107.98	1294.2	11135.27	1294.37	11160.1	1294.07
11248.44	1293.8	11275.04	1293.9	11314.65	1294.7	11340.48	1294.8	11345.46	1294.56
11413.21	1294.5	11447	1294.7	11476.07	1294.2	11499.87	1294.8	11540.28	1294.85
11627.9	1295	11680.45	1294.7	11724.22	1295.1	11772.94	1295.0	11815.45	1295.23
11852.94	1294.8	11880.39	1295.1	11903.62	1295.0	11973.31	1293.9	12041.77	1293.92
12088.13	1294.6	12090.19	1294.2	12119.52	1294.6	12147.76	1294.3	12185.46	1294.19
12223.78	1294.3	12270.24	1294.0	12373.64	1294.2	12409.48	1294.4	12454.94	1294.76

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9322	.06	9591.03	.035	10317.81	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9591.03	10317.81	320	331.09	315	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11340.48	12454.94	1294.8

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10880	12454.94	1293.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft) 1291.26 Element Left OB Channel Right OB

Vel Head (ft)	0.43	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1290.83	Reach Len. (ft)	320.00	331.09	315.00
Crit W.S. (ft)	1289.28	Flow Area (sq ft)	9.09	2456.33	
E.G. Slope (ft/ft)	0.002717	Area (sq ft)	9.09	2456.33	
Q Total (cfs)	13000.00	Flow (cfs)	9.18	12990.82	
Top Width (ft)	677.47	Top Width (ft)	12.83	664.64	
Vel Total (ft/s)	5.27	Avg. Vel. (ft/s)	1.01	5.29	
Max Chl Dpth (ft)	5.33	Hydr. Depth (ft)	0.71	3.70	
Conv. Total (cfs)	249402.1	Conv. (cfs)	176.2	249226.0	
Length Wtd. (ft)	331.09	Wetted Per. (ft)	13.14	664.84	
Min Ch El (ft)	1285.50	Shear (lb/sq ft)	0.12	0.63	
Alpha	1.01	Stream Power (lb/ft s)	0.12	3.31	
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	96.24	1343.83	117.72
C & E Loss (ft)	0.05	Cum SA (acres)	49.12	255.78	87.44

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1293.58	Element			
Vel Head (ft)	0.50	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1293.08	Reach Len. (ft)	320.00	331.09	315.00
Crit W.S. (ft)	1290.43	Flow Area (sq ft)	63.94	4031.56	137.13
E.G. Slope (ft/ft)	0.001819	Area (sq ft)	63.94	4031.56	137.13
Q Total (cfs)	23000.00	Flow (cfs)	89.58	22869.20	41.23
Top Width (ft)	1144.01	Top Width (ft)	41.12	726.78	376.11
Vel Total (ft/s)	5.43	Avg. Vel. (ft/s)	1.40	5.67	0.30
Max Chl Dpth (ft)	7.58	Hydr. Depth (ft)	1.55	5.55	0.36
Conv. Total (cfs)	539245.1	Conv. (cfs)	2100.2	536178.4	966.6
Length Wtd. (ft)	331.05	Wetted Per. (ft)	41.87	727.13	376.12
Min Ch El (ft)	1285.50	Shear (lb/sq ft)	0.17	0.63	0.04
Alpha	1.08	Stream Power (lb/ft s)	0.24	3.57	0.01
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	358.70	1988.00	438.60
C & E Loss (ft)	0.03	Cum SA (acres)	156.53	271.98	257.75

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1295.08	Element			
Vel Head (ft)	0.61	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1294.47	Reach Len. (ft)	320.00	331.09	315.00
Crit W.S. (ft)	1291.41	Flow Area (sq ft)	146.01	5035.59	1136.02
E.G. Slope (ft/ft)	0.001704	Area (sq ft)	146.01	5035.59	1260.49
Q Total (cfs)	33000.00	Flow (cfs)	241.57	32061.33	697.10
Top Width (ft)	2238.87	Top Width (ft)	70.13	726.78	1441.96
Vel Total (ft/s)	5.22	Avg. Vel. (ft/s)	1.65	6.37	0.61
Max Chl Dpth (ft)	8.97	Hydr. Depth (ft)	2.08	6.93	1.15
Conv. Total (cfs)	799470.9	Conv. (cfs)	5852.3	776730.4	16888.2
Length Wtd. (ft)	330.76	Wetted Per. (ft)	70.91	727.13	983.99
Min Ch El (ft)	1285.50	Shear (lb/sq ft)	0.22	0.74	0.12
Alpha	1.44	Stream Power (lb/ft s)	0.36	4.69	0.08
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	618.04	2409.57	810.83
C & E Loss (ft)	0.02	Cum SA (acres)	228.94	279.93	381.74

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9322.00	9591.03	9.18	9.09	13.14	0.07	0.71	1.01
LB 9591.03	9833.29	2235.71	560.17	220.25	17.20	2.54	3.99
9833.29	10075.55	6835.74	1137.88	242.28	52.58	4.70	6.01
10075.55	RB 10317.81	3919.36	758.29	202.31	30.15	3.75	5.17

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9322.00	9591.03	89.58	63.94	41.87	0.39	1.55	1.40
LB 9591.03	9833.29	5229.75	1084.41	242.41	22.74	4.48	4.82
9833.29	10075.55	10902.93	1684.77	242.28	47.40	6.95	6.47
10075.55	RB 10317.81	6736.52	1262.38	242.44	29.29	5.21	5.34
10317.81	11030.19	41.23	137.13	376.12	0.18	0.36	0.30

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9322.00	9591.03	241.57	146.01	70.91	0.73	2.08	1.65
LB 9591.03	9833.29	7978.29	1419.09	242.41	24.18	5.86	5.62
9833.29	10075.55	14369.25	2019.44	242.28	43.54	8.34	7.12
10075.55	RB 10317.81	9713.80	1597.06	242.44	29.44	6.59	6.08
10317.81	11030.19	668.76	1030.83	712.40	2.03	1.45	0.65
11030.19	11742.56	28.34	105.19	271.59	0.09	0.39	0.27

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.619

INPUT
Description: Right end point of cross section is extended by 385 feet to elevation 1295.3 based on ACDC ADMS topography FCD 90-19.
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9562	1292	9629.3	1292.36	9639.88	1294.25	9661.38	1292.78	9674.83	1292.79
9693.47	1295.2	9739.41	1294.77	9788.42	1285.43	9799.13	1283.79	9865.32	1284.12
9935.28	1283.5	9954.22	1284.45	9967.18	1284.14	9976.42	1283.47	9995.82	1283.51
10006.46	1285.3	10048.7	1285.13	10076.7	1284.7	10134.23	1284.4	10190.74	1285.02
10219.99	1285.2	10294.96	1284.8	10312.09	1291.19	10317.4	1290.2	10324.25	1291.11
10336.1	1289.7	10361.89	1289.46	10391	1293.88	10437.69	1294.38	10478.35	1294.7
10487.8	1298.4	10495.02	1301.8	10511.79	1294.49	10532.76	1302.4	10551.6	1303.98
10578.7	1305	10600.79	1298.27	10623.06	1299.33	10639.96	1293.68	10652.46	1293.71
10655.91	1295.2	10672.33	1296.02	10682.32	1297.61	10687.16	1296.63	10693.85	1293.79
10719.15	1293.7	10730.61	1300.02	10738.98	1295.94	10747.76	1299.93	10755.1	1296.25
10762.57	1299.7	10768.85	1295.97	10777.37	1298.87	10783.38	1296.19	10790.11	1298.73
10798.42	1294.5	10859.97	1295.37	10889.08	1294.78	10942.12	1293.58	11003.19	1293.07
11057.05	1292.3	11123.97	1293.2	11169.9	1293.04	11234.76	1293.1	11240.22	1292.94
11273.64	1292.9	11336.71	1293.53	11354.86	1293.84	11403.54	1293.64	11443.98	1292.96
11504.21	1294.1	11528.18	1293.58	11539.04	1290.6	11544.35	1289.65	11565.78	1290.52
11594.34	1290.2	11621.42	1293.62	11641.4	1293.51	11665.37	1293.91	11687.55	1293.05
11730.32	1293	11738.32	1292.86	11807.73	1294.22	11833.85	1293.43	11878.84	1293.33
11929.21	1293.3	12009.04	1293.65	12045.43	1293.48	12123.83	1292.81	12135.85	1292.94
12212.03	1292.5	12253.55	1293.26	12338.41	1293.02	12364.23	1293.05	12394.05	1292.3
12413.2	1292.7	12798.2	1295.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9562	.06	9739.41	.035	10391	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9739.41	10391	565	505.64	495	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9562	9693.47	1295.2	11000	12798.2	1293

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1290.58	Element			
Vel Head (ft)	0.28	Wt. n-Val.		0.035	
W.S. Elev (ft)	1290.31	Reach Len. (ft)	565.00	505.64	495.00
Crit W.S. (ft)	1287.22	Flow Area (sq ft)		3075.91	
E.G. Slope (ft/ft)	0.001087	Area (sq ft)		3075.91	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	584.16	Top Width (ft)		584.16	
Vel Total (ft/s)	4.23	Avg. Vel. (ft/s)		4.23	
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		5.27	
Conv. Total (cfs)	394383.6	Conv. (cfs)		394383.6	
Length Wtd. (ft)	505.64	Wetted Per. (ft)		586.06	
Min Ch El (ft)	1283.47	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.50	
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)	96.20	1322.81	117.72
C & E Loss (ft)	0.07	Cum SA (acres)	49.08	251.03	87.44

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1293.08	Element			
Vel Head (ft)	0.40	Wt. n-Val.		0.035	
W.S. Elev (ft)	1292.68	Reach Len. (ft)	565.00	505.64	495.00
Crit W.S. (ft)	1288.48	Flow Area (sq ft)		4535.11	
E.G. Slope (ft/ft)	0.001038	Area (sq ft)		4535.11	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	632.72	Top Width (ft)		632.72	
Vel Total (ft/s)	5.07	Avg. Vel. (ft/s)		5.07	
Max Chl Dpth (ft)	9.21	Hydr. Depth (ft)		7.17	

Conv. Total (cfs)	713773.2	Conv. (cfs)		713773.2	
Length Wtd. (ft)	505.62	Wetted Per. (ft)		635.36	
Min Ch El (ft)	1283.47	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		2.35	
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	358.47	1955.45	438.10
C & E Loss (ft)	0.13	Cum SA (acres)	156.38	266.82	256.39

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1294.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1294.03	Reach Len. (ft)	565.00	505.64	495.00
Crit W.S. (ft)	1289.59	Flow Area (sq ft)		5397.60	1272.40
E.G. Slope (ft/ft)	0.001198	Area (sq ft)		5397.60	1272.40
Q Total (cfs)	33000.00	Flow (cfs)		32508.19	491.81
Top Width (ft)	2365.66	Top Width (ft)		647.69	1717.98
Vel Total (ft/s)	4.95	Avg. Vel. (ft/s)		6.02	0.39
Max Chl Dpth (ft)	10.56	Hydr. Depth (ft)		8.33	0.74
Conv. Total (cfs)	953376.0	Conv. (cfs)		939167.4	14208.6
Length Wtd. (ft)	505.00	Wetted Per. (ft)		650.55	1718.43
Min Ch El (ft)	1283.47	Shear (lb/sq ft)		0.62	0.06
Alpha	1.46	Stream Power (lb/ft s)		3.74	0.02
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	617.51	2369.92	801.67
C & E Loss (ft)	0.11	Cum SA (acres)	228.68	274.71	370.31

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9739.41	9956.61	4956.51	1132.48	194.39	38.13	5.84	4.38
9956.61	10173.80	5344.73	1239.07	217.38	41.11	5.70	4.31
10173.80	RB 10391.00	2698.77	704.36	174.29	20.76	4.07	3.83

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9739.41	9956.61	8500.23	1606.95	207.07	36.96	7.79	5.29
9956.61	10173.80	9525.09	1754.33	217.38	41.41	8.08	5.43
10173.80	RB 10391.00	4974.68	1173.82	210.91	21.63	5.61	4.24

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9739.41	9956.61	11717.77	1889.36	214.26	35.51	8.86	6.20
9956.61	10173.80	13260.88	2046.75	217.38	40.18	9.42	6.48
10173.80	RB 10391.00	7529.53	1461.49	218.91	22.82	6.73	5.15
10391.00	10631.72	0.08	1.00	13.66	0.00	0.07	0.08
10631.72	10872.44	2.31	11.71	40.97	0.01	0.29	0.20
10872.44	11113.16	64.55	159.80	190.77	0.20	0.84	0.40
11113.16	11353.88	86.98	209.76	240.73	0.26	0.87	0.41
11353.88	11594.60	48.29	145.58	233.52	0.15	0.62	0.33
11594.60	11835.32	50.33	146.91	224.51	0.15	0.65	0.34
11835.32	12076.04	47.30	145.53	240.72	0.14	0.60	0.32
12076.04	12316.76	102.60	231.61	240.72	0.31	0.96	0.44
12316.76	12557.48	88.06	211.32	240.72	0.27	0.88	0.42
12557.48	12798.20	1.31	9.17	52.11	0.00	0.18	0.14

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.524

INPUT
Description: Right end point of cross section is extended by 280 feet to elevation 1291.5. Right end point extension and Left overbank geometry points 1 - 7 are taken from ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8286	1294	8741	1292	9201	1290	9301	1290	9321	1289.5
9341	1290	9398	1291.7	9448	1291.3	9454.37	1290.03	9508.29	1289.55
9523.62	1291.53	9555.54	1290.64	9575.63	1292	9598.72	1291.36	9609.69	1291.56
9650.51	1291.28	9693.45	1291.26	9734.83	1292.1	9791.94	1291.9	9825	1291.2
9851.09	1291.61	9858.03	1292.81	9877.26	1283.4	9891.18	1282.6	9957.87	1282.6
9972.6	1283.2	110018.98	1283.7	110028.68	1282.6	10047.89	1282.6	710059.95	1283.8
10081.31	1283.8	210117.75	1281.9	910137.15	1281.9	10162.05	1286.9	710165.76	1288.15
10221.34	1291.7	110236.72	1288.5	310264.54	1288.8	10273.99	1290.6	710287.01	1290.66
10291.26	1291.1	610351.78	1290.2	510376.49	1291.6	10419.81	1290.4	510446.96	1291.72
10472.14	1296.5	610478.74	1290.8	310494.98	1289.7	10514.86	1289.9	510526.43	1290.94
10557.78	1290.8	210573.55	1290.3	110581.04	1289.6	10634.38	1290.8	110651.91	1301.13
10662.52	1300.6	110667.92	1298.3	410675.41	1296.2	10685.96	1290.8	710716.77	1290.59
10758.66	1290.4	110840.28	1290.7	610886.63	1290.4	10904.99	1290.8	610921.81	1291.63
10957.21	1291.3	211016.88	1290.0	111102.37	1289.7	11116.92	1289.8	411216.95	1290.17
11261.54	1290.4	911316.98	1290.4	11325.2	1290.1	11408.44	1290.07	11445.3	1289.46
11517.06	1290.7	311566.71	1291.4	211600.63	1286.9	11620.62	1286.1	211642.39	1292.72
11652.84	1291.3	411697.54	1290	11737.67	1290.5	11759	1290.1	311827.51	1290.3
11892.97	1290.0	411918.09	1289.0	211977.44	1290	12013.71	1289.6	412086.33	1289.81
12106.77	1289.5	612129.98	1289.9	512144.25	1290.4	12182.87	1290.2	612243.57	1290.13
12264.75	1290.2	212285.59	1289.0	712301.57	1289.6	12317.61	1289.5	112380.13	1289.98
12409.58	1290.0	212689.58	1291.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8286	.06	9858.03	.035	10221.34	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9858.03	10221.34	605	522.56	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
8286	9858.03	1292.81

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10800	12689.58	1290.35

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1289.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1288.66	Reach Len. (ft)	605.00	522.56	500.00
Crit W.S. (ft)	1287.07	Flow Area (sq ft)		1625.35	0.93
E.G. Slope (ft/ft)	0.003886	Area (sq ft)		1625.35	0.93
Q Total (cfs)	13000.00	Flow (cfs)		12999.87	0.13
Top Width (ft)	321.40	Top Width (ft)		307.24	14.17
Vel Total (ft/s)	7.99	Avg. Vel. (ft/s)		8.00	0.14
Max Chl Dpth (ft)	6.76	Hydr. Depth (ft)		5.29	0.07
Conv. Total (cfs)	208539.2	Conv. (cfs)		208537.1	2.0
Length Wtd. (ft)	521.30	Wetted Per. (ft)		309.37	14.18
Min Ch El (ft)	1281.90	Shear (lb/sq ft)		1.27	0.02
Alpha	1.00	Stream Power (lb/ft s)		10.19	0.00
Frctn Loss (ft)	2.00	Cum Volume (acre-ft)	96.20	1295.52	117.71
C & E Loss (ft)	0.00	Cum SA (acres)	49.08	245.86	87.36

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1292.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.73	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1290.33	Reach Len. (ft)	605.00	522.56	500.00
Crit W.S. (ft)	1289.02	Flow Area (sq ft)		2163.68	89.04
E.G. Slope (ft/ft)	0.005262	Area (sq ft)	103.18	2163.68	89.04
Q Total (cfs)	23000.00	Flow (cfs)		22913.08	86.92
Top Width (ft)	751.42	Top Width (ft)	289.33	336.75	125.34
Vel Total (ft/s)	10.21	Avg. Vel. (ft/s)		10.59	0.98
Max Chl Dpth (ft)	8.43	Hydr. Depth (ft)		6.43	0.71
Conv. Total (cfs)	317062.3	Conv. (cfs)		315864.0	1198.3
Length Wtd. (ft)	518.52	Wetted Per. (ft)		339.33	125.76
Min Ch El (ft)	1281.90	Shear (lb/sq ft)		2.09	0.23
Alpha	1.07	Stream Power (lb/ft s)		22.18	0.23
Frctn Loss (ft)	1.86	Cum Volume (acre-ft)	357.80	1916.57	437.60
C & E Loss (ft)	0.34	Cum SA (acres)	154.51	261.19	255.68

Warning: Divided flow computed for this cross-section.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1293.50	Wt. n-Val.		0.035	0.110
Vel Head (ft)	1.68	Reach Len. (ft)	605.00	522.56	500.00
W.S. Elev (ft)	1291.82	Flow Area (sq ft)		2683.62	3127.30
Crit W.S. (ft)	1291.82	Area (sq ft)	962.25	2683.62	3127.30
E.G. Slope (ft/ft)	0.004686	Flow (cfs)		29531.02	3468.98
Q Total (cfs)	33000.00	Top Width (ft)	985.91	361.29	2380.34
Top Width (ft)	3727.54	Avg. Vel. (ft/s)		11.00	1.11
Vel Total (ft/s)	5.68	Hydr. Depth (ft)		7.43	1.31
Max Chl Dpth (ft)	9.92	Conv. (cfs)		431381.0	50673.9
Conv. Total (cfs)	482054.8	Wetted Per. (ft)		364.25	2382.70
Length Wtd. (ft)		Shear (lb/sq ft)		2.16	0.38
Min Ch El (ft)	1281.90	Stream Power (lb/ft s)		23.72	0.43
Alpha	3.36	Cum Volume (acre-ft)	611.27	2323.01	776.67
Frctn Loss (ft)		Cum SA (acres)	222.28	268.85	347.03
C & E Loss (ft)					

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9858.03	9979.13	5225.30	631.48	113.88	40.19	5.61	8.27
9979.13	10100.24	5165.49	643.07	121.25	39.73	5.31	8.03
10100.24	RB 10221.34	2609.08	350.80	74.24	20.07	4.77	7.44
10221.34	10468.16	0.13	0.93	14.18	0.00	0.07	0.14

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9858.03	9979.13	9151.27	822.63	117.68	39.79	7.09	11.12
9979.13	10100.24	9390.94	845.54	121.25	40.83	6.98	11.11
10100.24	RB 10221.34	4370.87	495.52	100.40	19.00	4.97	8.82
10221.34	10468.16	70.94	60.51	51.69	0.31	1.18	1.17
10468.16	10714.99	15.99	28.54	74.07	0.07	0.39	0.56

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9858.03	9979.13	11592.30	997.36	121.06	35.13	8.38	11.62
9979.13	10100.24	12130.58	1025.53	121.25	36.76	8.47	11.83
10100.24	RB 10221.34	5808.14	660.72	121.93	17.60	5.46	8.79
10221.34	10468.16	324.61	296.45	226.78	0.98	1.31	1.09
10468.16	10714.99	300.35	263.85	190.41	0.91	1.39	1.14
10714.99	10961.81	249.53	261.91	246.85	0.76	1.06	0.95
10961.81	11208.64	396.03	345.54	246.83	1.20	1.40	1.15
11208.64	11455.46	416.35	356.06	246.83	1.26	1.44	1.17
11455.46	11702.28	285.61	279.60	237.38	0.87	1.18	1.02
11702.28	11949.11	426.37	361.18	246.83	1.29	1.46	1.18
11949.11	12195.93	428.67	362.35	246.82	1.30	1.47	1.18
12195.93	12442.76	429.43	362.73	246.82	1.30	1.47	1.18
12442.76	12689.58	212.01	237.63	247.15	0.64	0.96	0.89

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.420

INPUT
Description: Right end point of cross section is extended by 180 feet to elevation 1289. Right end point extension and Left overbank geometry points 1 - 3 are taken from ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7960	1294	8030	1292	8420	1290	8845	1288	9395	1288
9423.96	1288.07	9477.21	1287.97	9513.9	1287.26	9532.21	1286.57	9556.16	1286.6
9582.05	1286.46	9613.21	1287.25	9631.08	1287.96	9655.5	1287.45	9699.72	1288.3
9722.92	1288.27	9791.3	1288.92	9813.82	1288.27	9827.24	1290.55	9840.39	1288.5
9845.86	1288.33	9862.12	1283.51	9880.73	1282.43	9894.26	1281.07	9906.8	1280.6
9959.33	1280.99	9983.5	1278.03	10001.06	1277.43	10024.47	1277.81	10036.23	1280.3
10063.88	1281.57	10081.84	1289.98	10089.78	1286.41	10113.31	1288.73	10121.36	1287.3
10128.19	1287.71	10141.72	1289.33	10168.52	1293.39	10186.33	1288.58	10237.05	1288.4
10252.26	1289.23	10276.97	1288.32	10308.19	1287.05	10345.14	1287.28	10388.39	1287.3
10429.9	1286.94	10457	1286.93	10480.94	1286.64	10512.07	1285.68	10543.2	1286.1
10563.93	1285.79	10631.63	1285.75	10651.86	1286.53	10673.18	1285.91	10715.52	1284.5
10726.52	1285.11	10745.47	1286.74	10797.71	1287.01	10827.96	1286.96	10843.39	1287.8
10915.91	1288.11	10945.44	1286.27	10983.68	1286.38	10995.12	1285.95	11031.99	1286.2
11056.81	1286.06	11096.76	1286.71	11131.85	1287.34	11193.12	1287.33	11212.33	1287.8
11276.48	1286.85	11336.18	1286.92	11397.94	1285.83	11420.53	1286.33	11476.18	1284.4
11503.97	1284.06	11554.68	1284.18	11563.74	1283.65	11582.11	1281.69	11594.34	1282.4
11609.37	1284.66	11631.71	1286.97	11647.43	1287.12	11676.33	1286.55	11684.88	1285.9
11698.97	1286.43	11770.93	1286.44	11801.36	1284.91	11846.69	1283.03	11928.45	1287.1
11948.35	1287.18	12019.57	1287.78	12043.31	1287.68	12067.16	1286.82	12087.53	1287.2
12136.62	1287	12201.47	1287.55	12271.53	1287.61	12295.07	1287.99	12353.62	1285.5
12397.71	1284.32	12461.22	1284.07	12488.9	1286	12668.9	1289		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7960	.06	9845.86	.035	10081.84	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9845.86	10081.84	515	514.13	495	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
7960	9827.24	1289.4

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1287.65	Wt. n-Val.		0.035	0.110
Vel Head (ft)	1.02	Reach Len. (ft)	515.00	514.13	495.00
W.S. Elev (ft)	1286.62	Flow Area (sq ft)		1341.85	1396.68
Crit W.S. (ft)	1285.46	Area (sq ft)	3.96	1341.85	1396.68
E.G. Slope (ft/ft)	0.003804	Flow (cfs)		11546.24	1453.76
Q Total (cfs)	13000.00	Top Width (ft)	57.77	223.06	1138.15
Top Width (ft)	1418.97	Avg. Vel. (ft/s)		8.60	1.04
Vel Total (ft/s)	4.75	Hydr. Depth (ft)		6.02	1.23
Max Chl Dpth (ft)	9.19	Conv. (cfs)		187217.4	23572.1
Conv. Total (cfs)	210789.5	Wetted Per. (ft)		225.23	1139.15
Length Wtd. (ft)	512.75	Shear (lb/sq ft)		1.41	0.29
Min Ch El (ft)	1277.43	Stream Power (lb/ft s)		12.17	0.30
Alpha	2.92	Cum Volume (acre-ft)	96.18	1277.72	109.69
Frctn Loss (ft)	2.20	Cum SA (acres)	48.67	242.68	80.75
C & E Loss (ft)	0.03				

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1289.86	Wt. n-Val.	0.060	0.035	0.110
Vel Head (ft)	0.59	Reach Len. (ft)	515.00	514.13	495.00
W.S. Elev (ft)	1289.27	Flow Area (sq ft)	6.60	1950.29	6980.92
Crit W.S. (ft)	1288.08	Area (sq ft)	1512.71	1950.29	6980.92
E.G. Slope (ft/ft)	0.001937	Flow (cfs)	5.29	14834.79	8159.92
Q Total (cfs)	23000.00	Top Width (ft)	1255.49	234.47	2542.96
Top Width (ft)	4032.92	Avg. Vel. (ft/s)	0.80	7.61	1.17
Vel Total (ft/s)	2.57	Hydr. Depth (ft)	0.63	8.32	2.75
Max Chl Dpth (ft)	11.84	Conv. (cfs)	120.1	337036.7	185388.1
Conv. Total (cfs)	522544.9	Wetted Per. (ft)	10.49	237.48	2545.52
Length Wtd. (ft)	510.32	Shear (lb/sq ft)	0.08	0.99	0.33
Min Ch El (ft)	1277.43	Stream Power (lb/ft s)	0.06	7.56	0.39
Alpha	5.71	Cum Volume (acre-ft)	346.58	1891.89	397.02
Frctn Loss (ft)	1.44	Cum SA (acres)	143.78	257.76	240.36
C & E Loss (ft)	0.14				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1290.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1289.69	Reach Len. (ft)	515.00	514.13	495.00
Crit W.S. (ft)	1288.96	Flow Area (sq ft)	2063.20	2049.54	8056.44
E.G. Slope (ft/ft)	0.002441	Area (sq ft)	2063.20	2049.54	8056.44
Q Total (cfs)	33000.00	Flow (cfs)	3351.94	18038.56	11609.50
Top Width (ft)	4134.19	Top Width (ft)	1350.46	235.37	2548.35
Vel Total (ft/s)	2.71	Avg. Vel. (ft/s)	1.62	8.80	1.44
Max Chl Dpth (ft)	12.26	Hydr. Depth (ft)	1.53	8.71	3.16
Conv. Total (cfs)	667891.3	Conv. (cfs)	67840.3	365084.8	234966.1
Length Wtd. (ft)	509.38	Wetted Per. (ft)	1350.75	238.47	2551.51
Min Ch El (ft)	1277.43	Shear (lb/sq ft)	0.23	1.31	0.48
Alpha	5.89	Stream Power (lb/ft s)	0.38	11.53	0.69
Frctn Loss (ft)	1.47	Cum Volume (acre-ft)	590.26	2294.62	712.49
C & E Loss (ft)	0.06	Cum SA (acres)	206.06	265.27	318.74

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9845.86	9924.52	2293.62	328.51	73.47	17.64	4.51	6.98
9924.52	10003.18	5137.23	548.22	78.85	39.52	6.97	9.37
10003.18	RB 10081.84	4115.39	465.12	72.91	31.66	6.51	8.85
10081.84	10340.55	0.06	0.31	2.82	0.00	0.11	0.19
10340.55	10599.25	51.55	81.24	117.82	0.40	0.69	0.63
10599.25	10857.96	110.99	139.86	145.00	0.85	0.97	0.79
10857.96	11116.66	26.29	60.03	151.77	0.20	0.40	0.44
11116.66	11375.37	1.23	4.44	22.44	0.01	0.20	0.28
11375.37	11634.08	655.87	507.72	253.45	5.05	2.01	1.29
11634.08	11892.78	276.06	285.66	220.39	2.12	1.30	0.97
11892.78	12151.49	10.34	16.97	26.15	0.08	0.65	0.61
12151.49	12410.19	123.86	119.53	83.05	0.95	1.44	1.04
12410.19	12668.90	197.51	180.91	116.24	1.52	1.56	1.09

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7960.00	9845.86	5.29	6.60	10.49	0.02	0.63	0.80
LB 9845.86	9924.52	3489.05	531.88	79.47	15.17	6.76	6.56
9924.52	10003.18	6308.93	756.50	78.85	27.43	9.62	8.34
10003.18	RB 10081.84	5036.80	661.91	79.16	21.90	8.58	7.61
10081.84	10340.55	166.36	259.70	215.73	0.72	1.21	0.64
10340.55	10599.25	772.46	701.68	258.73	3.36	2.71	1.10
10599.25	10857.96	904.57	771.55	258.86	3.93	2.98	1.17
10857.96	11116.66	667.61	642.92	258.78	2.90	2.49	1.04
11116.66	11375.37	524.25	556.07	258.73	2.28	2.15	0.94
11375.37	11634.08	1864.31	1191.30	259.18	8.11	4.60	1.56
11634.08	11892.78	1298.97	958.68	258.88	5.65	3.71	1.35
11892.78	12151.49	514.09	549.62	258.77	2.24	2.12	0.94
12151.49	12410.19	684.77	652.78	258.78	2.98	2.52	1.05
12410.19	12668.90	762.53	696.61	259.07	3.32	2.69	1.09

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7960.00	9845.86	3351.94	2063.20	1350.75	10.16	1.53	1.62
LB 9845.86	9924.52	4337.71	565.11	79.47	13.14	7.18	7.68
9924.52	10003.18	7616.56	789.73	78.85	23.08	10.04	9.64
10003.18	RB 10081.84	6084.29	694.70	80.15	18.44	8.90	8.76
10081.84	10340.55	307.66	351.52	221.30	0.93	1.60	0.88
10340.55	10599.25	1116.64	810.98	258.73	3.38	3.13	1.38
10599.25	10857.96	1281.12	880.85	258.86	3.88	3.40	1.45
10857.96	11116.66	984.97	752.22	258.78	2.98	2.91	1.31
11116.66	11375.37	802.93	665.37	258.73	2.43	2.57	1.21
11375.37	11634.08	2450.79	1300.60	259.18	7.43	5.03	1.88
11634.08	11892.78	1766.04	1067.98	258.88	5.35	4.13	1.65
11892.78	12151.49	789.90	658.92	258.77	2.39	2.55	1.20
12151.49	12410.19	1006.58	762.08	258.78	3.05	2.95	1.32
12410.19	12668.90	1102.88	805.91	259.49	3.34	3.12	1.37

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.325

INPUT
Description: Right end point of cross section is extended by 610 feet to elevation 1286.8. Right end point extension and Left overbank geometry points 1 - 3 are taken from ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8102	1290	8472	1288	8802	1286	9272	1286	9320.3	1285.55
9372.63	1285.13	9408.38	1285.11	9416.58	1285.22	9457.31	1284.2	9486.84	1283.81
9527.3	1283.97	9544.73	1283.64	9560.67	1282.07	9579.99	1284.2	9604.04	1284.5
9618.16	1292.51	9633.92	1301.03	9655.29	1301.23	9722.72	1302.5	9757.72	1302.27
9807.64	1301.33	9838.03	1300.59	9853.17	1299.87	9867.77	1291	9882.41	1282.2
9896.14	1280.59	9926.63	1277.86	9955.5	1280.4	9977.65	1277.4	10016.57	1277.4
10045.01	1278.21	10064.07	1276.71	10082.82	1277.98	10111.69	1278.31	10134.99	1288.1
10142.65	1287	10150.48	1289.33	10164.78	1289.91	10170.47	1290.11	10183.27	1287.2
10195.74	1287.12	10219.94	1286.24	10474.24	1285.67	10562.34	1285.71	10736.53	1286
10829.36	1286.08	10942.15	1285.71	11229.36	1285.63	11329.35	1285.41	11424.41	1285.3
11473.91	1285.88	11492.57	1278.02	11506.86	1277.89	11520.53	1283.81	11525.37	1286.4
11541.38	1285.11	11629.34	1285.32	11739.52	1285.44	11826.82	1285.51	11912.41	1286
12522.41	1286.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8102	.06	9867.77	.035	10134.99	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9867.77	10134.99	555	571.01	545	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
8102	9874.42	1287

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1285.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.29	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1284.12	Reach Len. (ft)	555.00	571.01	545.00
Crit W.S. (ft)	1282.88	Flow Area (sq ft)		1358.68	177.32
E.G. Slope (ft/ft)	0.004946	Area (sq ft)	58.15	1358.68	177.32
Q Total (cfs)	13000.00	Flow (cfs)		12583.43	416.57
Top Width (ft)	405.65	Top Width (ft)	116.26	246.33	43.06
Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		9.26	2.35
Max Chl Dpth (ft)	7.42	Hydr. Depth (ft)		5.52	4.12
Conv. Total (cfs)	184856.0	Conv. (cfs)		178932.5	5923.5
Length Wtd. (ft)	570.18	Wetted Per. (ft)		248.68	45.59
Min Ch El (ft)	1276.70	Shear (lb/sq ft)		1.69	1.20
Alpha	1.16	Stream Power (lb/ft s)		15.62	2.82
Frctn Loss (ft)	2.58	Cum Volume (acre-ft)	95.81	1261.79	100.75
C & E Loss (ft)	0.07	Cum SA (acres)	47.65	239.91	74.04

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1288.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.98	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1286.31	Reach Len. (ft)	555.00	571.01	545.00

Crit W.S. (ft)	1284.93	Flow Area (sq ft)		1905.54	1328.02
E.G. Slope (ft/ft)	0.005151	Area (sq ft)	719.39	1905.54	1328.02
Q Total (cfs)	23000.00	Flow (cfs)		21990.42	1009.58
Top Width (ft)	3036.44	Top Width (ft)	855.60	255.14	1925.70
Vel Total (ft/s)	7.11	Avg. Vel. (ft/s)		11.54	0.76
Max Chl Dpth (ft)	9.61	Hydr. Depth (ft)		7.47	0.69
Conv. Total (cfs)	320451.8	Conv. (cfs)		306385.6	14066.2
Length Wtd. (ft)	569.97	Wetted Per. (ft)		258.54	1929.20
Min Ch El (ft)	1276.70	Shear (lb/sq ft)		2.37	0.22
Alpha	2.52	Stream Power (lb/ft s)		27.35	0.17
Frctn Loss (ft)	2.98	Cum Volume (acre-ft)	333.38	1869.14	349.81
C & E Loss (ft) -	0.03	Cum SA (acres)	131.30	254.88	214.97

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1288.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1287.61	Reach Len. (ft)	555.00	571.01	545.00
Crit W.S. (ft)	1287.61	Flow Area (sq ft)	1978.52	2242.08	4271.00
E.G. Slope (ft/ft)	0.003531	Area (sq ft)	1978.52	2242.08	4271.00
Q Total (cfs)	33000.00	Flow (cfs)	4374.22	23516.81	5108.97
Top Width (ft)	3680.99	Top Width (ft)	1073.31	260.42	2347.26
Vel Total (ft/s)	3.89	Avg. Vel. (ft/s)	2.21	10.49	1.20
Max Chl Dpth (ft)	10.91	Hydr. Depth (ft)	1.84	8.61	1.82
Conv. Total (cfs)	555383.3	Conv. (cfs)	73617.2	395783.1	85983.0
Length Wtd. (ft)	564.85	Wetted Per. (ft)	1074.36	264.44	2351.79
Min Ch El (ft)	1276.70	Shear (lb/sq ft)	0.41	1.87	0.40
Alpha	5.25	Stream Power (lb/ft s)	0.90	19.60	0.48
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	566.36	2269.30	642.44
C & E Loss (ft)	0.06	Cum SA (acres)	191.73	262.35	290.92

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9867.77	9956.84	2654.58	339.24	78.51	20.42	4.37	7.83
9956.84	10045.92	5574.77	557.42	89.28	42.88	6.26	10.00
10045.92	RB 10134.99	4354.08	462.02	80.90	33.49	5.80	9.42
10134.99	11328.70						
11328.70	11567.44	416.57	177.32	45.59	3.20	4.12	2.35

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9867.77	9956.84	5223.26	512.52	82.74	22.71	6.31	10.19
9956.84	10045.92	9400.27	751.69	89.28	40.87	8.44	12.51
10045.92	RB 10134.99	7366.88	641.33	86.52	32.03	7.56	11.49
10134.99	10373.73	10.72	36.61	155.59	0.05	0.24	0.29
10373.73	10612.47	71.25	135.36	238.74	0.31	0.57	0.53
10612.47	10851.22	30.58	81.49	238.74	0.13	0.34	0.38
10851.22	11089.96	69.40	133.25	238.74	0.30	0.56	0.52
11089.96	11328.70	104.36	170.21	238.74	0.45	0.71	0.61
11328.70	11567.44	519.37	447.39	240.89	2.26	1.88	1.16
11567.44	11806.18	164.82	223.90	238.74	0.72	0.94	0.74
11806.18	12044.93	38.27	93.23	238.74	0.17	0.39	0.41
12044.93	12283.67	0.82	6.59	100.26	0.00	0.07	0.13

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8102.00	9867.77	4374.22	1978.52	1074.36	13.26	1.84	2.21

LB 9867.77	9956.84	5825.42	620.03	85.28	17.65	7.43	9.40
9956.84	10045.92	9897.86	867.98	89.28	29.99	9.74	11.40
10045.92	RB 10134.99	7793.53	754.07	89.89	23.62	8.58	10.34
10134.99	10373.73	248.98	267.78	198.78	0.75	1.35	0.93
10373.73	10612.47	517.71	447.05	238.74	1.57	1.87	1.16
10612.47	10851.22	417.97	393.18	238.74	1.27	1.65	1.06
10851.22	11089.96	513.64	444.94	238.74	1.56	1.86	1.15
11089.96	11328.70	586.69	481.89	238.74	1.78	2.02	1.22
11328.70	11567.44	1238.80	759.01	242.26	3.75	3.18	1.63
11567.44	11806.18	699.63	535.58	238.74	2.12	2.24	1.31
11806.18	12044.93	438.97	404.92	238.74	1.33	1.70	1.08
12044.93	12283.67	274.78	305.70	238.74	0.83	1.28	0.90
12283.67	12522.41	171.80	230.95	239.55	0.52	0.97	0.74

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
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: New River
REACH: Lower RS: 13.227

INPUT
Description: Right end point of cross section is extended by 390 feet to elevation 1284.3. Right end point extension and Left overbank geometry points 1 - 3 are taken from ACDC ADMS topography FCD 90-19.

Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7974	1288	8299	1286	8729	1284	9299	1284	9303.82	1283.71
9325.43	1284	9360.31	1283.88	9393.86	1283.54	9408.68	1282.9	9430.29	1283.57
9451.58	1282.78	9494.7	1282.97	9670.83	1282.15	9692.69	1283.3	9751.23	1283.56
9777.54	1283.85	9884.39	1282.76	9936.51	1281.61	9945.65	1282.5	9957.55	1277.72
9961.08	1275.8	9985.19	1274.89	10022.24	1274.89	10047.48	1275.6	10060.47	1276.31
10111	1275.84	10135.64	1275.43	10150.07	1275.41	10208.83	1278.71	10223.75	1283
10244.21	1288.9	10260.7	1284.61	10273.12	1284.39	10382.1	1283.31	10418.01	1283.3
10577.44	1283.16	10651.09	1283.27	10746.83	1283.16	10891.21	1283.41	10019.74	1283.3
11184.8	1283.17	11250.25	1282.99	11388.15	1282.92	11487.05	1282.91	11521.31	1283.4
11544.11	1283.92	11566.13	1274.82	11576.35	1274.89	11597.94	1283	11611.67	1282.7
11668.93	1282.53	11688.14	1282.35	11759.44	1282.39	11873.09	1282.41	11895.89	1282.6
12032.49	1283.41	12237.81	1283.85	12299.29	1284.03	12689.29	1284.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7974	.06	9945.65	.03	10223.75	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9945.65	10223.75	335	315.32	350	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
7974	9777.54	1283.85

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1282.77	Element			
Vel Head (ft)	1.07	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1281.70	Reach Len. (ft)	335.00	315.32	350.00
Crit W.S. (ft)	1280.16	Flow Area (sq ft)	0.24	1494.40	189.11
E.G. Slope (ft/ft)	0.004091	Area (sq ft)	0.24	1494.40	189.11
Q Total (cfs)	13000.00	Flow (cfs)	0.05	12590.20	409.75
Top Width (ft)	321.83	Top Width (ft)	5.20	271.62	45.02
Vel Total (ft/s)	7.72	Avg. Vel. (ft/s)	0.21	8.42	2.17
Max Chl Dpth (ft)	6.88	Hydr. Depth (ft)	0.05	5.50	4.20
Conv. Total (cfs)	203251.6	Conv. (cfs)	0.8	196844.4	6406.4
Length Wtd. (ft)	315.87	Wetted Per. (ft)	5.20	273.45	47.62
Min Ch El (ft)	1274.89	Shear (lb/sq ft)	0.01	1.40	1.01
Alpha	1.16	Stream Power (lb/ft s)	0.00	11.76	2.20
Frctn Loss (ft)	1.48	Cum Volume (acre-ft)	95.44	1243.09	98.46
C & E Loss (ft)	0.03	Cum SA (acres)	46.87	236.51	73.49

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1285.29	Element			
Vel Head (ft)	1.90	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1283.39	Reach Len. (ft)	335.00	315.32	350.00
Crit W.S. (ft)	1282.14	Flow Area (sq ft)	94.18	1959.07	838.80
E.G. Slope (ft/ft)	0.005280	Area (sq ft)	288.98	1959.07	838.80
Q Total (cfs)	23000.00	Flow (cfs)	141.95	22093.71	764.33
Top Width (ft)	2313.67	Top Width (ft)	427.04	278.10	1608.53
Vel Total (ft/s)	7.95	Avg. Vel. (ft/s)	1.51	11.28	0.91
Max Chl Dpth (ft)	8.57	Hydr. Depth (ft)	0.77	7.04	0.52
Conv. Total (cfs)	316536.7	Conv. (cfs)	1953.6	304063.9	10519.1

Length Wtd. (ft)	315.96	Wetted Per. (ft)	122.85	280.26	1611.77
Min Ch El (ft)	1274.89	Shear (lb/sq ft)	0.25	2.30	0.17
Alpha	1.93	Stream Power (lb/ft s)	0.38	25.98	0.16
Frctn Loss (ft)	1.99	Cum Volume (acre-ft)	326.96	1843.81	336.26
C & E Loss (ft)	0.07	Cum SA (acres)	123.13	251.38	192.86

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1286.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1285.21	Reach Len. (ft)	335.00	315.32	350.00
Crit W.S. (ft)	1285.05	Flow Area (sq ft)	2244.96	2465.16	4809.62
E.G. Slope (ft/ft)	0.002819	Area (sq ft)	2244.96	2465.16	4809.62
Q Total (cfs)	33000.00	Flow (cfs)	3903.12	23676.53	5420.35
Top Width (ft)	4192.91	Top Width (ft)	1476.27	278.10	2438.54
Vel Total (ft/s)	3.47	Avg. Vel. (ft/s)	1.74	9.60	1.13
Max Chl Dpth (ft)	10.39	Hydr. Depth (ft)	1.52	8.86	1.97
Conv. Total (cfs)	621565.3	Conv. (cfs)	73516.5	445954.9	102093.9
Length Wtd. (ft)	319.45	Wetted Per. (ft)	1476.42	280.26	2443.14
Min Ch El (ft)	1274.89	Shear (lb/sq ft)	0.27	1.55	0.35
Alpha	5.55	Stream Power (lb/ft s)	0.47	14.87	0.39
Frctn Loss (ft)	1.36	Cum Volume (acre-ft)	539.46	2238.44	585.64
C & E Loss (ft)	0.12	Cum SA (acres)	175.49	258.82	260.98

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7974.00	9945.65	0.05	0.24	5.20	0.00	0.05	0.21
LB 9945.65	10038.35	4872.44	549.06	92.00	37.48	6.05	8.87
10038.35	10131.05	4668.98	536.88	92.73	35.92	5.79	8.70
10131.05	RB 10223.75	3048.78	408.45	88.72	23.45	4.63	7.46
10223.75	11456.52						
11456.52	11703.07	409.75	189.11	47.62	3.15	4.20	2.17

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7974.00	9945.65	141.95	94.18	122.85	0.62	0.77	1.51
LB 9945.65	10038.35	8267.83	704.40	94.14	35.95	7.60	11.74
10038.35	10131.05	8127.41	693.00	92.73	35.34	7.48	11.73
10131.05	RB 10223.75	5698.48	561.66	93.40	24.78	6.06	10.15
10223.75	10470.30	1.83	9.58	98.37	0.01	0.10	0.19
10470.30	10716.86	11.78	42.29	246.55	0.05	0.17	0.28
10716.86	10963.41	4.61	23.13	223.29	0.02	0.10	0.20
10963.41	11209.97	8.70	35.25	246.55	0.04	0.14	0.25
11209.97	11456.52	54.42	105.90	246.55	0.24	0.43	0.51
11456.52	11703.07	487.03	380.14	224.80	2.12	1.72	1.28
11703.07	11949.63	189.59	223.95	246.56	0.82	0.91	0.85
11949.63	12196.18	6.37	18.55	79.10	0.03	0.23	0.34

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7974.00	9945.65	3903.12	2244.96	1476.42	11.83	1.52	1.74
LB 9945.65	10038.35	8657.57	873.10	94.14	26.24	9.42	9.92
10038.35	10131.05	8555.61	861.70	92.73	25.93	9.30	9.93
10131.05	RB 10223.75	6463.38	730.36	93.40	19.59	7.88	8.85
10223.75	10470.30	301.41	335.85	219.95	0.91	1.53	0.90
10470.30	10716.86	525.97	490.98	246.55	1.59	1.99	1.07
10716.86	10963.41	491.96	471.67	246.55	1.49	1.91	1.04
10963.41	11209.97	513.45	483.93	246.55	1.56	1.96	1.06

11209.97	11456.52	644.37	554.58	246.55	1.95	2.25	1.16
11456.52	11703.07	1231.33	822.27	249.85	3.73	3.34	1.50
11703.07	11949.63	888.83	672.63	246.56	2.69	2.73	1.32
11949.63	12196.18	429.59	434.83	246.56	1.30	1.76	0.99
12196.18	12442.74	228.95	298.08	246.56	0.69	1.21	0.77
12442.74	12689.29	164.47	244.78	247.46	0.50	0.99	0.67

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.185

INPUT
Description: Left overbank geometry points 1 - 2 are taken from ACDC ADMS topography FCD 90-19.
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8351	1286	8791	1284	9531	1282	9580.66	1281.61	9631.21	1281.67
9661.38	1281.38	9719.6	1281.83	9742.2	1281.8	9773.4	1281.08	9812.09	1279.67
9817.12	1279.3	9857.31	1277.52	9890.49	1276.2	9931.33	1275.33	9959.09	1274.89
10034.43	1274.89	10078.37	1274.98	10124.98	1275.61	10167.33	1277.27	10192.55	1278.3
10227.07	1281.28	10245.97	1281.93	10259.87	1282.31	10293.43	1282		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8351	.06	9742.2	.035	10245.97	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9742.2	10245.97	35	33.56	32	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
8351	9719.6	1281.83

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1281.26	Element			
Vel Head (ft)	0.96	Wt. n-Val.		0.035	
W.S. Elev (ft)	1280.30	Reach Len. (ft)	35.00	33.56	32.00
Crit W.S. (ft)	1279.35	Flow Area (sq ft)		1655.04	
E.G. Slope (ft/ft)	0.005518	Area (sq ft)		1655.04	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	420.82	Top Width (ft)		420.82	
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)		7.85	
Max Chl Dpth (ft)	5.41	Hydr. Depth (ft)		3.93	
Conv. Total (cfs)	175001.0	Conv. (cfs)		175001.0	
Length Wtd. (ft)	33.56	Wetted Per. (ft)		421.07	
Min Ch El (ft)	1274.89	Shear (lb/sq ft)		1.35	
Alpha	1.00	Stream Power (lb/ft s)		10.64	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	95.44	1231.69	97.70
C & E Loss (ft)	0.07	Cum SA (acres)	46.85	234.01	73.30

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1283.23	Element			
Vel Head (ft)	1.66	Wt. n-Val.		0.035	
W.S. Elev (ft)	1281.57	Reach Len. (ft)	35.00	33.56	32.00
Crit W.S. (ft)	1280.98	Flow Area (sq ft)		2223.81	
E.G. Slope (ft/ft)	0.007759	Area (sq ft)	4.13	2223.81	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	527.10	Top Width (ft)	43.91	483.20	
Vel Total (ft/s)	10.34	Avg. Vel. (ft/s)		10.34	
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)		4.60	
Conv. Total (cfs)	261107.8	Conv. (cfs)		261107.8	
Length Wtd. (ft)	33.55	Wetted Per. (ft)		483.51	
Min Ch El (ft)	1274.89	Shear (lb/sq ft)		2.23	
Alpha	1.00	Stream Power (lb/ft s)		23.04	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	325.83	1828.67	332.89
C & E Loss (ft)	0.01	Cum SA (acres)	121.32	248.63	186.40

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1284.76	Element			
Vel Head (ft)	2.25	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1282.51	Reach Len. (ft)	35.00	33.56	32.00

Crit W.S. (ft)	1282.51	Flow Area (sq ft)	224.64	2694.50	17.50
E.G. Slope (ft/ft)	0.008708	Area (sq ft)	224.64	2694.50	17.50
Q Total (cfs)	33000.00	Flow (cfs)	353.76	32634.98	11.26
Top Width (ft)	950.59	Top Width (ft)	399.36	503.77	47.46
Vel Total (ft/s)	11.24	Avg. Vel. (ft/s)	1.57	12.11	0.64
Max Chl Dpth (ft)	7.62	Hydr. Depth (ft)	0.56	5.35	0.37
Conv. Total (cfs)	353629.6	Conv. (cfs)	3790.9	349718.0	120.7
Length Wtd. (ft)	33.55	Wetted Per. (ft)	399.37	504.09	47.97
Min Ch El (ft)	1274.99	Shear (lb/sq ft)	0.31	2.91	0.20
Alpha	1.15	Stream Power (lb/ft s)	0.48	35.20	0.13
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	529.96	2219.77	566.24
C & E Loss (ft)	0.25	Cum SA (acres)	168.28	255.99	251.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9742.20	9910.12	1556.09	283.97	115.35	11.97	2.46	5.48
9910.12	10078.05	8068.70	885.89	167.93	62.07	5.28	9.11
10078.05	RB 10245.97	3375.21	485.18	137.79	25.96	3.52	6.96

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9742.20	9910.12	3240.07	454.44	157.99	14.09	2.88	7.13
9910.12	10078.05	13559.40	1099.24	167.93	58.95	6.55	12.34
10078.05	RB 10245.97	6200.53	670.14	157.59	26.96	4.26	9.25

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8351.00	9742.20	353.76	224.64	399.37	1.07	0.56	1.57
LB 9742.20	9910.12	5457.26	611.19	168.04	16.54	3.64	8.93
9910.12	10078.05	18162.62	1257.16	167.93	55.04	7.49	14.45
10078.05	RB 10245.97	9015.11	826.15	168.12	27.32	4.92	10.91
10245.97	10293.43	11.26	17.50	47.97	0.03	0.37	0.64

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: 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: New River
REACH: Lower RS: 13.161

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8898	1284.7	8969.41	1284.22	9114.29	1283.76	9144.54	1283.93	9161.51	1283.52
9249.24	1283.3	9290.04	1283.19	9327.39	1283.17	9373.82	1282.51	9393.66	1283.04
9413.16	1283.1	9573.2	1281.11	9644.14	1280.87	9737.87	1280.81	9782.29	1279.9
9873.96	1276.4	9907.29	1275.44	9933.89	1275.2	9965.75	1274.65	10043.5	1274.78
10080.57	1275.2	10124.23	1276.08	10151.97	1277.03	10209.33	1280.25	10244.12	1281.51
10266.74	1281.7	10323.36	1281.61	10368.03	1281.38	10475	1281.38	10532.18	1281.46
10620.05	1281.4	10703.46	1281.45	10751.25	1281.53	10780.07	1281.31	10829.33	1281.27
10885.47	1281.4	10918.04	1281.47	10988.58	1281.19	11093.76	1280.97	11246.85	1281.01
11387.32	1281.8	11437.47	1281.65	11505.24	1280.51	11555.61	1280	11596.67	1280.49
11663.43	1280.3	11722.35	1280.31	11839.85	1280.64	11930.31	1280.96	12128.02	1281.38

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8898	.06	9737.87	.03	10244.12	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9737.87	10244.12	55	51.06	70	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1280.94	Element			
Vel Head (ft)	1.61	Wt. n-Val.		0.035	
W.S. Elev (ft)	1279.33	Reach Len. (ft)	55.00	51.06	70.00
Crit W.S. (ft)	1279.33	Flow Area (sq ft)		1276.48	
E.G. Slope (ft/ft)	0.012074	Area (sq ft)		1276.48	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	395.55	Top Width (ft)		395.55	
Vel Total (ft/s)	10.18	Avg. Vel. (ft/s)		10.18	
Max Chl Dpth (ft)	4.68	Hydr. Depth (ft)		3.23	
Conv. Total (cfs)	118310.5	Conv. (cfs)		118310.5	
Length Wtd. (ft)	51.06	Wetted Per. (ft)		395.72	
Min Ch El (ft)	1274.65	Shear (lb/sq ft)		2.43	
Alpha	1.00	Stream Power (lb/ft s)		24.76	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	95.44	1230.56	97.70
C & E Loss (ft)	0.30	Cum SA (acres)	46.85	233.69	73.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1282.94	Element			
Vel Head (ft)	1.61	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1281.33	Reach Len. (ft)	55.00	51.06	70.00
Crit W.S. (ft)	1281.33	Flow Area (sq ft)	72.27	2180.46	516.48
E.G. Slope (ft/ft)	0.008307	Area (sq ft)	72.27	2180.46	516.48
Q Total (cfs)	23000.00	Flow (cfs)	87.98	22474.76	437.26
Top Width (ft)	1762.37	Top Width (ft)	182.49	501.32	1078.56
Vel Total (ft/s)	8.31	Avg. Vel. (ft/s)	1.22	10.31	0.85
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)	0.40	4.35	0.48
Conv. Total (cfs)	252344.9	Conv. (cfs)	965.3	246582.2	4797.4
Length Wtd. (ft)	51.25	Wetted Per. (ft)	182.49	501.56	1078.57
Min Ch El (ft)	1274.65	Shear (lb/sq ft)	0.21	2.25	0.25
Alpha	1.51	Stream Power (lb/ft s)	0.25	23.24	0.21
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	325.80	1826.97	332.70
C & E Loss (ft)	0.29	Cum SA (acres)	121.23	248.25	186.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1284.34	Element			
Vel Head (ft)	2.69	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1281.65	Reach Len. (ft)	55.00	51.06	70.00
Crit W.S. (ft)	1282.55	Flow Area (sq ft)	133.51	2338.90	997.13
E.G. Slope (ft/ft)	0.013100	Area (sq ft)	133.51	2338.90	997.13
Q Total (cfs)	33000.00	Flow (cfs)	281.82	31516.14	1202.03
Top Width (ft)	2482.55	Top Width (ft)	207.73	506.25	1768.58
Vel Total (ft/s)	9.51	Avg. Vel. (ft/s)	2.11	13.47	1.21
Max Chl Dpth (ft)	7.00	Hydr. Depth (ft)	0.64	4.62	0.56
Conv. Total (cfs)	288325.9	Conv. (cfs)	2462.3	275361.2	10502.3
Length Wtd. (ft)	51.42	Wetted Per. (ft)	207.73	506.49	1768.86
Min Ch El (ft)	1274.65	Shear (lb/sq ft)	0.53	3.78	0.46
Alpha	1.92	Stream Power (lb/ft s)	1.11	50.89	0.56
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	529.82	2217.83	565.87
C & E Loss (ft)	0.05	Cum SA (acres)	168.03	255.60	250.33

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: Program found supercritical flow starting at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9737.87	9906.62	1579.35	223.06	109.37	12.15	2.04	7.08

9906.62	10075.37	8866.66	747.04	168.76	68.21	4.43	11.87
10075.37	RB 10244.12	2553.99	306.38	117.59	19.65	2.61	8.34

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8898.00	9737.87	87.98	72.27	182.49	0.38	0.40	1.22
LB 9737.87	9906.62	3890.75	511.45	168.84	16.92	3.03	7.61
9906.62	10075.37	13640.84	1085.44	168.76	59.31	6.43	12.57
10075.37	RB 10244.12	4943.17	583.57	163.96	21.49	3.56	8.47
10244.12	10620.90						
10620.90	10997.68	1.13	6.79	123.41	0.00	0.06	0.17
10997.68	11374.46	42.83	86.57	306.34	0.19	0.28	0.49
11374.46	11751.24	292.95	270.24	294.85	1.27	0.92	1.08
11751.24	12128.02	100.35	152.88	353.97	0.44	0.43	0.66

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8898.00	9737.87	281.82	133.51	207.73	0.85	0.64	2.11
LB 9737.87	9906.62	5792.24	564.41	168.84	17.55	3.34	10.26
9906.62	10075.37	18655.90	1138.40	168.76	56.53	6.75	16.39
10075.37	RB 10244.12	7068.00	636.09	168.89	21.42	3.77	11.11
10244.12	10620.90	35.31	69.03	339.38	0.11	0.20	0.51
10620.90	10997.68	61.45	100.36	376.78	0.19	0.27	0.61
10997.68	11374.46	185.16	191.47	362.14	0.56	0.53	0.97
11374.46	11751.24	599.35	365.70	313.51	1.82	1.17	1.64
11751.24	12128.02	320.77	270.58	377.05	0.97	0.72	1.19

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.151

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9058	1283.4	9159.76	1283.94	9240.17	1283.98	9289.92	1283.04	9302.23	1282.2
9337.98	1282.7	9380.65	1282.65	9394.79	1282.96	9403.86	1284.5	9412.45	1285.29
9421.65	1282.2	9458.29	1281.96	9499.64	1282.57	9569.32	1282	9594.33	1281.32
9619.08	1280.4	9652.65	1279.96	9676.17	1279.66	9696.02	1280	9723.06	1278.5
9740.99	1278.6	9746	1279.07	9760.92	1273.37	9773.47	1270.15	9799.83	1267.9
9808.73	1265.9	9829.94	1264.66	9848.13	1263.33	9857.53	1262.93	9866.92	1263.88
9882.66	1262.2	9958.44	1262.2	9979.64	1264.32	9988.47	1262.7	10021.52	1263.34
10032.89	1265.2	10069.78	1266.8	10083.97	1267.62	10111.44	1267.96	10148.84	1270.32
10175.73	1272.8	10187.38	1277.21	10192.79	1280.97	10199.57	1278.92	10224.7	1279.64
10305.26	1280.3	10361.06	1280.29	10366.73	1283.51	10374.07	1280.58	10391.58	1280.72
10396.83	1282.9	10403.87	1280.48	10487.48	1280.9	10531.61	1280.77	10625.65	1280.33
10692.47	1280.7	10717.98	1281.44	10752.22	1280.34	10801.2	1279.9	10871.6	1279.73
10895.53	1279.9	10996.09	1280.6	11071.71	1279.66	11075.74	1279.73	11128.71	1279.05
11136.57	1279.1	11232.6	1278.89	11257.18	1278.92	11285.51	1278.87	11300.32	1280.74
11316.52	1280.5	11324.52	1279.21	11354.5	1279.74	11383.93	1279.72	11416.27	1279.94
11490.94	1279.7	11530.92	1279.69	11539.5	1277.47	11550.9	1273.61	11574.03	1279.32
11587.7	1279.8	11609.34	1279.97	11638.72	1279.31	11664.46	1279.77	11685.96	1281.3
11720.15	1281	11762.38	1280.83	11826.04	1281.08	11880.75	1280.91	11960.2	1281.17
12105.17	1281.2	12158.86	1281.07						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9058	.06	9746	.035	10187.38	.11

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

974610187.38	520	393.13	370	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1272.50	Element			
Vel Head (ft)	0.36	Wt. n-Val.		0.035	
W.S. Elev (ft)	1272.14	Reach Len. (ft)	520.00	393.13	370.00
Crit W.S. (ft)	1267.98	Flow Area (sq ft)		2693.43	
E.G. Slope (ft/ft)	0.001031	Area (sq ft)		2693.43	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	402.81	Top Width (ft)		402.81	
Vel Total (ft/s)	4.83	Avg. Vel. (ft/s)		4.83	
Max Chl Dpth (ft)	9.94	Hydr. Depth (ft)		6.69	
Conv. Total (cfs)	404898.5	Conv. (cfs)		404898.5	
Length Wtd. (ft)	393.12	Wetted Per. (ft)		404.24	
Min Ch El (ft)	1262.20	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.07	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	95.44	1228.23	97.70
C & E Loss (ft)	0.03	Cum SA (acres)	46.85	233.23	73.30

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1274.85	Element			
Vel Head (ft)	0.65	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1274.20	Reach Len. (ft)	520.00	393.13	370.00
Crit W.S. (ft)	1269.86	Flow Area (sq ft)		3547.01	1.21
E.G. Slope (ft/ft)	0.001368	Area (sq ft)		3547.01	1.21
Q Total (cfs)	23000.00	Flow (cfs)		22999.74	0.26
Top Width (ft)	424.80	Top Width (ft)		420.68	4.13
Vel Total (ft/s)	6.48	Avg. Vel. (ft/s)		6.48	0.22
Max Chl Dpth (ft)	12.00	Hydr. Depth (ft)		8.43	0.29
Conv. Total (cfs)	621844.8	Conv. (cfs)		621837.8	7.1
Length Wtd. (ft)	393.10	Wetted Per. (ft)		422.70	4.29
Min Ch El (ft)	1262.20	Shear (lb/sq ft)		0.72	0.02
Alpha	1.00	Stream Power (lb/ft s)		4.65	0.01
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	325.76	1823.61	332.28
C & E Loss (ft)	0.04	Cum SA (acres)	121.11	247.71	185.13

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1280.90	Element			
Vel Head (ft)	13.05	Wt. n-Val.		0.035	
W.S. Elev (ft)	1267.85	Reach Len. (ft)	520.00	393.13	370.00
Crit W.S. (ft)	1271.33	Flow Area (sq ft)		1138.16	
E.G. Slope (ft/ft)	0.079990	Area (sq ft)		1138.16	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	302.41	Top Width (ft)		302.41	
Vel Total (ft/s)	28.99	Avg. Vel. (ft/s)		28.99	
Max Chl Dpth (ft)	5.65	Hydr. Depth (ft)		3.76	
Conv. Total (cfs)	116679.8	Conv. (cfs)		116679.8	
Length Wtd. (ft)	393.08	Wetted Per. (ft)		303.32	
Min Ch El (ft)	1262.20	Shear (lb/sq ft)		18.74	
Alpha	1.00	Stream Power (lb/ft s)		543.30	
Frctn Loss (ft)	2.39	Cum Volume (acre-ft)	529.73	2215.79	565.07
C & E Loss (ft)	1.04	Cum SA (acres)	167.90	255.12	248.91

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9746.00	9893.13	3807.02	843.68	128.20	29.28	6.62	4.51
9893.13	10040.25	7625.98	1354.00	147.54	58.66	9.20	5.63
10040.25	RB 10187.38	1567.00	495.76	128.50	12.05	3.86	3.16

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9746.00	9893.13	6831.81	1114.26	135.48	29.70	8.29	6.13
9893.13	10040.25	12509.96	1657.41	147.54	54.39	11.27	7.55
10040.25	RB 10187.38	3657.97	775.34	139.67	15.90	5.57	4.72
10187.38	12158.86	0.26	1.21	4.29	0.00	0.29	0.22

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9746.00	9893.13	9435.10	353.94	93.52	28.59	3.80	26.66
9893.13	10040.25	22903.38	723.16	147.54	69.40	4.92	31.67

10040.25	RB 10187.38	661.52	61.06	62.26	2.00	0.98	10.83

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 13.076

INPUT
Description:
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9262	1280	9284.29	1279.43	9305.95	1279.76	9353.03	1279.75	9383.3	1280.46
9395.75	1278	9421.73	1279.96	9461.38	1280.29	9493.93	1280.27	9557.24	1280.58
9607.76	1280.4	9671.6	1279.35	9691.22	1271.27	9704.51	1265.52	9732.62	1263.66
9760.43	1264.6	9804.98	1264.26	9828.51	1262.51	9834.95	1262.56	9853.67	1264.46
9869.4	1264.3	9887.26	1264.56	9907.57	1263.8	9922.62	1263.96	9937.25	1262.75
9949.84	1263.1	9971.55	1264.01	9983.97	1263.42	9999.25	1262.37	10016.02	1262.37
10030.84	1264.1	10041.79	1266.15	10062.05	1263.23	10073.48	1263.91	10088.42	1269.18
10097.3	1271.8	10130.78	1272.78	10153.97	1278.53	10196.43	1278.65	10263.57	1279.48
10302.23	1279.9	10351.2	1289.03	10357.34	1289.66	10363.55	1288.77	10418.15	1279.06
10482.31	1278.8	10511.62	1278.8	10548.87	1280.01	10574.5	1279.08	10655.7	1279.17
10727.03	1278.1	10780.1	1277.92	10801.44	1279.02	10890.52	1278.31	10978.72	1277.98
10989.61	1277.8	11090.55	1278.83	11192.51	1279.09	11294.05	1278.12	11330.55	1277.4
11338.3	1279.2	11343.15	1278.86	11348.03	1277.51	11368.97	1278.11	1452.28	1277.89
11521.72	127	711595.07	1277.39	11610.08	1277.57	11623.16	1277.79	11643.76	1269.5
11651.89	1270.1	11676.25	1277.77	11699.15	1277.45	11721.59	1278.68	11735.23	1279.13
11741.88	1278.6	11808.21	1278.51	11914.17	1278.66	12002.75	1278.69	12076.22	1279.72
12103.32	1279.9	12165.57	1280.03	12257.85	1279.92	12276.59	1279.82	12332.23	1279.98
12353.9	1279.6	12381.78	1280.12	12391.07	1279.17	12469.46	1280.14	12473.91	1280.09
12489.28	1277.9	12517.38	1278.75	12536.39	1278.43	12543.98	1280		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9262	.06	9671.6	.035	10153.97	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9671.6	10153.97	520	454.21	455	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1272.14	Element			
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1271.86	Reach Len. (ft)	520.00	454.21	455.00
Crit W.S. (ft)	1267.24	Flow Area (sq ft)		3088.01	28.65
E.G. Slope (ft/ft)	0.000672	Area (sq ft)		3088.01	28.65
Q Total (cfs)	13000.00	Flow (cfs)		12987.41	12.59
Top Width (ft)	429.27	Top Width (ft)		409.67	19.60
Vel Total (ft/s)	4.17	Avg. Vel. (ft/s)		4.21	0.44
Max Chl Dpth (ft)	9.49	Hydr. Depth (ft)		7.54	1.46
Conv. Total (cfs)	501646.1	Conv. (cfs)		501160.1	486.0
Length Wtd. (ft)	454.21	Wetted Per. (ft)		413.16	20.35
Min Ch El (ft)	1262.37	Shear (lb/sq ft)		0.31	0.06
Alpha	1.02	Stream Power (lb/ft s)		1.32	0.03
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	95.44	1202.14	97.58
C & E Loss (ft)	0.03	Cum SA (acres)	46.85	229.56	73.22

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1274.34	Element			
Vel Head (ft)	0.52	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1273.81	Reach Len. (ft)	520.00	454.21	455.00
Crit W.S. (ft)	1268.75	Flow Area (sq ft)		3940.02	77.61
E.G. Slope (ft/ft)	0.001054	Area (sq ft)		3940.02	77.61
Q Total (cfs)	23000.00	Flow (cfs)		22938.64	61.36
Top Width (ft)	480.53	Top Width (ft)		449.90	30.64
Vel Total (ft/s)	5.72	Avg. Vel. (ft/s)		5.82	0.79
Max Chl Dpth (ft)	11.44	Hydr. Depth (ft)		8.76	2.53
Conv. Total (cfs)	708383.7	Conv. (cfs)		706493.8	1889.9
Length Wtd. (ft)	454.21	Wetted Per. (ft)		453.91	32.06
Min Ch El (ft)	1262.37	Shear (lb/sq ft)		0.57	0.16
Alpha	1.03	Stream Power (lb/ft s)		3.33	0.13
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	325.76	1789.83	331.95
C & E Loss (ft)	0.06	Cum SA (acres)	121.11	243.78	184.99

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1276.06	Element			
Vel Head (ft)	0.79	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1275.28	Reach Len. (ft)	520.00	454.21	455.00
Crit W.S. (ft)	1270.12	Flow Area (sq ft)		4606.14	128.57
E.G. Slope (ft/ft)	0.001323	Area (sq ft)		4606.14	128.57
Q Total (cfs)	33000.00	Flow (cfs)		32864.35	135.65
Top Width (ft)	498.29	Top Width (ft)		459.36	38.93

Vel Total (ft/s)	6.97	Avg. Vel. (ft/s)		7.13	1.06
Max Chl Dpth (ft)	12.91	Hydr. Depth (ft)		10.03	3.30
Conv. Total (cfs)	907180.4	Conv. (cfs)		903451.4	3729.0
Length Wtd. (ft)	454.21	Wetted Per. (ft)		463.85	40.87
Min Ch El (ft)	1262.37	Shear (lb/sq ft)		0.82	0.26
Alpha	1.04	Stream Power (lb/ft s)		5.85	0.27
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	529.73	2189.87	564.52
C & E Loss (ft)	0.08	Cum SA (acres)	167.90	251.69	248.74

Warning: Divided flow computed for this cross-section.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9671.60	9832.39	4214.05	1032.88	144.06	32.42	7.24	4.08
9832.39	9993.18	5785.91	1306.10	161.01	44.51	8.12	4.43
9993.18	RB 10153.97	2987.45	749.03	108.09	22.98	7.05	3.99
10153.97	12543.98	12.59	28.65	20.35	0.10	1.46	0.44

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9671.60	9832.39	7649.77	1315.47	149.18	33.26	8.93	5.82
9832.39	9993.18	10281.48	1619.52	161.01	44.70	10.07	6.35
9993.18	RB 10153.97	5007.39	1005.03	143.72	21.77	7.09	4.98
10153.97	12543.98	61.36	77.61	32.06	0.27	2.53	0.79

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9671.60	9832.39	10894.21	1533.96	153.03	33.01	10.17	7.10
9832.39	9993.18	14456.36	1855.11	161.01	43.81	11.54	7.79
9993.18	RB 10153.97	7513.78	1217.07	149.81	22.77	8.24	6.17
10153.97	12543.98	135.65	128.57	40.87	0.41	3.30	1.06

Warning: Divided flow computed for this cross-section.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.991

INPUT
Description:
Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9109	1277.8	9125.68	1277.4	9230.38	1277.29	9285.05	1276.96	9292.43	1276.25
9314.01	1277.2	9346.4	1277.48	9363.64	1277.27	9433.7	1277.06	9508.5	1277.21
9532.83	1277.5	9600.49	1277.61	9620.61	1278.19	9631.17	1278	9650.22	1273.76
9675.18	1277.6	9718.08	1277.73	9734.08	1277.59	9760.85	1264.19	9804.76	1263.68
9866.56	1265.1	9922.72	1265.75	9928.62	1266.02	9943.89	1265.67	9957.87	1262.37
10166.57	1262.4	10192.9	1263.32	10211.52	1266.33	10235.94	1270.75	10250.37	1264.83
10257.02	1268.61	10268.84	1274.41	10314.62	1274.73	10322.13	1275.21	10372.12	1274.65
10423.27	1275	10458.4	1275.86	10469.64	1277.34	10475.62	1277.67	10485.97	1276.26
10528.43	1276	10590.9	1275.91	10622.82	1276.32	10665.92	1275.94	10739.76	1276.29
10783.7	1276.51	10803.83	1275.81	10858.51	1276.91	11022.81	1277.5	11081	1278.19
11118.65	1276.71	11166.51	1276.53	11173.79	1277.52	11179.58	1275.99	11199.94	1276.13
11227.08	1276.11	11303.67	1276.53	11322.82	1276.49	11369.44	1276.73	11404.86	1276.22
11424.6	1276.21	11439.49	1276.51	11515.64	1276.39	11527.22	1276.13	11559.36	1275.37
11593.09	1266.91	11597.27	1266.93	11620.09	1277.03	11633.86	1277.23	11683.68	1276.91
11749.85	1277.51	11771.21	1277.49	11892.81	1278.41	11915.63	1279.26	11995.72	1279.24
12027.37	1279.31	12063.73	1279.29	12145.14	1278.94	12161.49	1279.01	12214.68	1278.69
12228.89	1278.41	12239.87	1278.67	12251.44	1277.41	12282.64	1277.94	12331.27	1277.94
12348.4	1276	12375.66	1276.49	12416.43	1276.37	12478.51	1276.45	12569.18	1277.15
12640.45	1278								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9109	.06	9734.08	.035	10268.84	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9734.08	10268.84	595	527.02	535	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9109	9734.08	1277.59

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1271.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1271.69	Reach Len. (ft)	595.00	527.02	535.00
Crit W.S. (ft)	1266.49	Flow Area (sq ft)		3908.09	91.20
E.G. Slope (ft/ft)	0.000417	Area (sq ft)		3908.09	91.20
Q Total (cfs)	13000.00	Flow (cfs)		12952.88	47.12

Top Width (ft)	551.44	Top Width (ft)		517.43	34.00
Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)		3.31	0.52
Max Chl Dpth (ft)	9.32	Hydr. Depth (ft)		7.55	2.68
Conv. Total (cfs)	636340.9	Conv. (cfs)		634034.4	2306.5
Length Wtd. (ft)	527.12	Wetted Per. (ft)		523.16	35.60
Min Ch El (ft)	1262.37	Shear (lb/sq ft)		0.19	0.07
Alpha	1.04	Stream Power (lb/ft s)		0.65	0.03
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	95.44	1165.67	96.95
C & E Loss (ft)	0.02	Cum SA (acres)	46.85	224.73	72.94

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1273.90	Element			
Vel Head (ft)	0.34	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1273.56	Reach Len. (ft)	595.00	527.02	535.00
Crit W.S. (ft)	1267.82	Flow Area (sq ft)		4883.06	165.72
E.G. Slope (ft/ft)	0.000633	Area (sq ft)		4883.06	165.72
Q Total (cfs)	23000.00	Flow (cfs)		22871.20	128.80
Top Width (ft)	570.66	Top Width (ft)		524.98	45.68
Vel Total (ft/s)	4.56	Avg. Vel. (ft/s)		4.68	0.78
Max Chl Dpth (ft)	11.19	Hydr. Depth (ft)		9.30	3.63
Conv. Total (cfs)	914411.4	Conv. (cfs)		909290.6	5120.8
Length Wtd. (ft)	527.17	Wetted Per. (ft)		531.58	47.90
Min Ch El (ft)	1262.37	Shear (lb/sq ft)		0.36	0.14
Alpha	1.05	Stream Power (lb/ft s)		1.70	0.11
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	325.76	1743.83	330.68
C & E Loss (ft)	0.03	Cum SA (acres)	121.11	238.69	184.59

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1275.50	Element			
Vel Head (ft)	0.52	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1274.98	Reach Len. (ft)	595.00	527.02	535.00
Crit W.S. (ft)	1269.03	Flow Area (sq ft)		5631.00	268.55
E.G. Slope (ft/ft)	0.000817	Area (sq ft)		5631.00	268.55
Q Total (cfs)	33000.00	Flow (cfs)		32758.99	241.01
Top Width (ft)	711.32	Top Width (ft)		529.54	181.78
Vel Total (ft/s)	5.59	Avg. Vel. (ft/s)		5.82	0.90
Max Chl Dpth (ft)	12.61	Hydr. Depth (ft)		10.63	1.48
Conv. Total (cfs)	1154195.1	Conv. (cfs)		1145765.6	8429.5
Length Wtd. (ft)	527.21	Wetted Per. (ft)		536.67	184.49
Min Ch El (ft)	1262.37	Shear (lb/sq ft)		0.54	0.07
Alpha	1.07	Stream Power (lb/ft s)		3.12	0.07
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	529.73	2136.50	562.45
C & E Loss (ft)	0.05	Cum SA (acres)	167.90	246.53	247.59

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9734.08	9912.33	3504.01	1137.18	168.26	26.95	6.83	3.08
9912.33	10090.59	5511.63	1528.50	178.65	42.40	8.57	3.61
10090.59	RB 10268.84	3937.24	1242.41	176.25	30.29	7.19	3.17
10268.84	12640.45	47.12	91.20	35.60	0.36	2.68	0.52

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9734.08	9912.33	6385.17	1452.06	172.44	27.76	8.53	4.40
9912.33	10090.59	9438.36	1861.95	178.65	41.04	10.45	5.07
10090.59	RB 10268.84	7047.67	1569.06	180.49	30.64	8.89	4.49
10268.84	12640.45	128.80	165.72	47.90	0.56	3.63	0.78

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9734.08	9912.33	9287.58	1695.35	175.60	28.14	9.80	5.48
9912.33	10090.59	13270.56	2114.64	178.65	40.21	11.86	6.28

10090.59	RB 10268.84	10200.85	1821.01	182.42	30.91	10.22	5.60
10268.84	12640.45	241.01	268.55	184.49	0.73	1.48	0.90

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.896

INPUT
Description: Extend x-sec by 700' to El. 1275.5
Station Elevation Data num= 87

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8717	1274	8749.83	1274.49	8793.27	1273.96	8802.24	1275.3	8836.46	1275.29
8904.06	1275	8974.91	1274.68	9098.69	1275.01	9207.26	1275.18	9315.82	1274.81
9424.38	1275.1	9576.84	1274.72	9659.07	1274.89	9701.03	1274.71	9716.95	1274.17
9743.96	1276.1	9773.87	1276.58	9803.97	1276.83	9814.81	1277.11	9833.84	1278.41
9869.72	1269.6	9888.88	1269.25	9898.12	1267.44	9911.88	1263.73	9944.67	1262.67
10044.9	1262.51	10086.23	1269.15	10098.15	1264.41	10157.92	1265.88	10183.04	1265.26
10194.89	1266.51	10222.69	1265.26	10272.81	1264.82	10303.8	1269.56	10320.61	1273.04
10382.3	1273.51	10468.09	1272.85	10496.52	1270.91	10518.49	1270.12	10536.31	1273.41
10549.69	1275.21	10608.72	1274.93	10654.62	1274.92	10686.1	1274.88	10715.69	1273.87
10765.77	1274	10787.05	1275.22	10834.25	1274.33	10840.95	1276.17	10845.95	1274.01
10865.73	1274.81	10878.01	1274.53	10925.58	1274.37	10942.62	1274.44	10963.76	1273.6
10991.33	1274	11093.87	1274.13	11154.56	1274.27	11205.78	1274.62	11225.48	1269.64
11254.61	1271.81	11276.61	1268.42	11290.98	1270.68	11313.73	1264.52	11321.39	1264.42
11341.82	1269.21	11369.54	1275.31	11385.26	1275.01	11406.58	1276.41	11420.81	1273.09
11491.04	1274.81	11509.31	1276.82	11523.8	1276.75	11596.48	1275.39	11719.14	1275.47
11796.68	1275.71	11870.25	1276.41	11884.03	1274.78	11963.7	1274.97	11983.85	1273.32
11998.17	1272.91	12017.52	1273.17	12029.09	1272.97	12075.31	1273.47	12209.08	1273.64
12274.4	1274	12974.4	1275.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8717	.06	9833.84	.035	10320.61	.11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9833.84 10320.61 540 508.24 495 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
8717	9833.84	1278.41

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1271.52	Wt. n-Val.		0.035	0.110
Vel Head (ft)	0.34	Reach Len. (ft)	540.00	508.24	495.00
W.S. Elev (ft)	1271.18	Flow Area (sq ft)		2687.34	317.93
Crit W.S. (ft)	1267.78	Area (sq ft)		2687.34	317.93
E.G. Slope (ft/ft)	0.001152	Flow (cfs)		12722.30	277.70
Q Total (cfs)	13000.00	Top Width (ft)		448.32	150.72
Top Width (ft)	599.04	Avg. Vel. (ft/s)		4.73	0.87
Vel Total (ft/s)	4.33	Hydr. Depth (ft)		5.99	2.11
Max Chl Dpth (ft)	8.68	Conv. (cfs)		374827.9	8181.6
Conv. Total (cfs)	383009.6	Wetted Per. (ft)		451.29	153.07
Length Wtd. (ft)	507.70	Shear (lb/sq ft)		0.43	0.15
Min Ch El (ft)	1262.50	Stream Power (lb/ft s)		2.03	0.13
Alpha	1.17	Cum Volume (acre-ft)	95.44	1125.77	94.44
Frctn Loss (ft)	0.71	Cum SA (acres)	46.85	218.88	71.81
C & E Loss (ft)	0.01				

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1273.38	Wt. n-Val.		0.035	0.110
Vel Head (ft)	0.65	Reach Len. (ft)	540.00	508.24	495.00
W.S. Elev (ft)	1272.73	Flow Area (sq ft)		3395.33	602.27
Crit W.S. (ft)	1269.36	Area (sq ft)		3395.33	602.27
E.G. Slope (ft/ft)	0.001690	Flow (cfs)		22285.49	714.51
Q Total (cfs)	23000.00	Top Width (ft)		462.17	207.48
Top Width (ft)	669.64	Avg. Vel. (ft/s)		6.56	1.19
Vel Total (ft/s)	5.75	Hydr. Depth (ft)		7.35	2.90
Max Chl Dpth (ft)	10.23	Conv. (cfs)		542164.1	17382.8
Conv. Total (cfs)	559546.8	Wetted Per. (ft)		465.48	210.45
Length Wtd. (ft)	507.65	Shear (lb/sq ft)		0.77	0.30
Min Ch El (ft)	1262.50	Stream Power (lb/ft s)		5.05	0.36
Alpha	1.26	Cum Volume (acre-ft)	325.76	1693.75	325.96
Frctn Loss (ft)	0.96	Cum SA (acres)	121.11	232.72	183.03
C & E Loss (ft)	0.04				

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1274.83	Wt. n-Val.		0.035	0.110
Vel Head (ft)	0.97	Reach Len. (ft)	540.00	508.24	495.00
W.S. Elev (ft)	1273.86	Flow Area (sq ft)		3919.11	1069.51
Crit W.S. (ft)	1270.65	Area (sq ft)		3919.11	1069.51
E.G. Slope (ft/ft)	0.002149	Flow (cfs)		31643.93	1356.07
Q Total (cfs)	33000.00	Top Width (ft)		468.23	703.60
Top Width (ft)	1171.83				

Vel Total (ft/s)	6.62	Avg. Vel. (ft/s)		8.07	1.27
Max Chl Dpth (ft)	11.36	Hydr. Depth (ft)		8.37	1.52
Conv. Total (cfs)	711782.8	Conv. (cfs)		682533.5	29249.3
Length Wtd. (ft)	507.55	Wetted Per. (ft)		471.71	707.07
Min Ch El (ft)	1262.50	Shear (lb/sq ft)		1.11	0.20
Alpha	1.43	Stream Power (lb/ft s)		9.00	0.26
Frctn Loss (ft)	1.22	Cum Volume (acre-ft)	529.73	2078.73	554.23
C & E Loss (ft)	0.06	Cum SA (acres)	167.90	240.49	242.15

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9833.84	9996.10	4123.19	843.16	133.68	31.72	6.35	4.89
9996.10	10158.35	5258.59	1058.03	163.71	40.45	6.52	4.97
10158.35	RB 10320.61	3340.53	786.16	153.89	25.70	5.13	4.25
10320.61	12974.40	277.70	317.93	153.07	2.14	2.11	0.87

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9833.84	9996.10	7029.64	1054.61	140.20	30.56	7.58	6.67
9996.10	10158.35	9103.56	1310.36	163.71	39.58	8.08	6.95
10158.35	RB 10320.61	6152.29	1030.35	161.56	26.75	6.41	5.97
10320.61	12974.40	714.51	602.27	210.45	3.11	2.90	1.19

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9833.84	9996.10	9812.68	1213.67	144.92	29.74	8.44	8.09
9996.10	10158.35	12774.35	1492.84	163.71	38.71	9.20	8.56
10158.35	RB 10320.61	9056.91	1212.61	163.08	27.45	7.47	7.47
10320.61	12974.40	1356.07	1069.51	707.07	4.11	1.52	1.27

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.801

INPUT
Description: Extend x-sec by 670' to El. 1273.4
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8567	1270.9	8583.83	1272.13	8614.59	1272.02	8749.74	1272.02	8884.25	1272.26
8942.46	1272.3	9094.94	1272.53	9196.57	1272.62	9284.07	1272.47	9430.16	1272.72
9499.01	1272.6	9573.63	1272.24	9591.81	1269.64	9618.77	1271.67	9670.91	1269.88
9706.7	1269	9758.35	1269.1	9795.76	1269.69	9814.71	1274.94	9884.48	1275.01
9902.5	1266	9934.52	1265.26	9956.1	1261.09	10017.58	1260.23	10059.56	1268.4
10104.27	1267.11	10131.07	1268.17	10174.1	1265.39	10193.94	1265.92	10248.52	1267.75
10317.64	1268.5	10351.8	1268.12	10405.16	1265.51	10445.3	1268.46	10453.44	1268.72
10495.79	1268.3	10544.02	1266.81	10571	1272.07	10602.96	1272.57	10647.74	1272.6
10710.39	1272	10766.01	1271.8	10784.75	1271.57	10820.84	1272.14	10864.11	1272.59
10928.04	1272.4	10937.12	1272.41	10952.31	1275.58	10963.24	1270.94	10977.39	1268.3
11019.29	1269.2	11032.48	1272.23	11073.1	1272.37	11094.16	1272.78	11110.08	1271.18
11125.36	1268	11140.13	1263.72	11151.97	1263.09	11177.43	1263.05	11202.48	1272.74
11254.68	1273.1	11286.14	1273.07	11298.47	1272.83	11315.03	1271.55	11373.02	1271.34
11424.11	1271.4	11461.44	1271.17	11487.97	1271.37	11544.6	1271.41	11573.06	1271.05
11628.44	1271.5	11637.25	1273.32	11679.97	1273.12	11762.7	1273.22	11887.91	1271.94
11975.26	1271.9	12022.13	1273.21	12094.51	1273.91	12764.51	1273.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8567	.06	9884.48	.035	10602.96	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9884.48	10602.96	565	524.61	535	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8567	9884.48	1275.01

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1270.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1270.50	Reach Len. (ft)	565.00	524.61	535.00
Crit W.S. (ft)	1268.41	Flow Area (sq ft)		2707.57	518.28
E.G. Slope (ft/ft)	0.001765	Area (sq ft)		2707.57	518.28
Q Total (cfs)	13000.00	Flow (cfs)		12221.79	778.21
Top Width (ft)	812.11	Top Width (ft)		669.44	142.67

Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)		4.51	1.50
Max Chl Dpth (ft)	10.27	Hydr. Depth (ft)		4.04	3.63
Conv. Total (cfs)	309458.8	Conv. (cfs)		290934.0	18524.8
Length Wtd. (ft)	525.62	Wetted Per. (ft)		672.43	145.31
Min Ch El (ft)	1260.23	Shear (lb/sq ft)		0.44	0.39
Alpha	1.19	Stream Power (lb/ft s)		2.00	0.59
Frctn Loss (ft)	1.29	Cum Volume (acre-ft)	95.44	1094.30	89.69
C & E Loss (ft)	0.02	Cum SA (acres)	46.85	212.36	70.14

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

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1272.39	Wt. n-Val.		0.035	0.110
Vel Head (ft)	0.52	Reach Len. (ft)	565.00	524.61	535.00
W.S. Elev (ft)	1271.86	Flow Area (sq ft)		3628.57	901.33
Crit W.S. (ft)	1269.50	Area (sq ft)		3628.57	901.33
E.G. Slope (ft/ft)	0.002130	Flow (cfs)		21653.08	1346.92
Q Total (cfs)	23000.00	Top Width (ft)		679.18	541.43
Top Width (ft)	1220.60	Avg. Vel. (ft/s)		5.97	1.49
Vel Total (ft/s)	5.08	Hydr. Depth (ft)		5.34	1.66
Max Chl Dpth (ft)	11.63	Conv. (cfs)		469207.5	29186.6
Conv. Total (cfs)	498394.3	Wetted Per. (ft)		682.63	544.86
Length Wtd. (ft)	526.18	Shear (lb/sq ft)		0.71	0.22
Min Ch El (ft)	1260.23	Stream Power (lb/ft s)		4.22	0.33
Alpha	1.31	Cum Volume (acre-ft)	325.76	1652.77	317.42
Frctn Loss (ft)	1.46	Cum SA (acres)	121.11	226.06	178.78
C & E Loss (ft)	0.00				

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

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1273.55	Wt. n-Val.		0.035	0.110
Vel Head (ft)	0.76	Reach Len. (ft)	565.00	524.61	535.00
W.S. Elev (ft)	1272.79	Flow Area (sq ft)		4272.62	1692.79
Crit W.S. (ft)	1270.41	Area (sq ft)		4272.62	1692.79
E.G. Slope (ft/ft)	0.002695	Flow (cfs)		30933.37	2066.63
Q Total (cfs)	33000.00	Top Width (ft)		714.04	1124.40
Top Width (ft)	1838.44	Avg. Vel. (ft/s)		7.24	1.22
Vel Total (ft/s)	5.53	Hydr. Depth (ft)		5.98	1.51
Max Chl Dpth (ft)	12.56	Conv. (cfs)		595815.4	39805.8
Conv. Total (cfs)	635621.3	Wetted Per. (ft)		717.73	1128.48
Length Wtd. (ft)	526.44	Shear (lb/sq ft)		1.00	0.25
Min Ch El (ft)	1260.23	Stream Power (lb/ft s)		7.25	0.31
Alpha	1.61	Cum Volume (acre-ft)	529.73	2030.94	538.54
Frctn Loss (ft)	1.65	Cum SA (acres)	167.90	233.60	231.77
C & E Loss (ft)	0.05				

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9884.48	10123.97	7578.82	1380.82	232.77	58.30	5.99	5.49
10123.97	10363.47	2649.42	743.57	239.65	20.38	3.10	3.56
10363.47	RB 10602.96	1993.55	583.19	200.02	15.33	2.92	3.42
10602.96	11035.27	67.04	89.91	59.70	0.52	1.52	0.75
11035.27	11467.58	711.17	428.37	85.61	5.47	5.14	1.66

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9884.48	10123.97	11961.13	1697.47	235.82	52.00	7.28	7.05
10123.97	10363.47	5489.70	1070.68	239.65	23.87	4.47	5.13
10363.47	RB 10602.96	4202.25	860.42	207.16	18.27	4.17	4.88
10602.96	11035.27	224.97	185.44	125.98	0.98	1.48	1.21
11035.27	11467.58	1065.52	626.31	256.22	4.63	2.47	1.70
11467.58	11899.89	56.43	89.58	162.67	0.25	0.55	0.63

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9884.48	10123.97	16347.67	1913.73	237.89	49.54	8.14	8.54
10123.97	10363.47	8450.96	1291.90	239.65	25.61	5.39	6.54
10363.47	RB 10602.96	6134.74	1066.99	240.19	18.59	4.46	5.75
10602.96	11035.27	366.85	431.37	413.38	1.11	1.05	0.85
11035.27	11467.58	1393.24	894.36	345.71	4.22	2.61	1.56
11467.58	11899.89	252.37	287.28	262.22	0.76	1.10	0.88
11899.89	12332.20	54.17	79.78	107.17	0.16	0.74	0.68

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.701

INPUT
Description: Extend x-sec by 260' to El. 1270.5
Station Elevation Data num= 83

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8680	1270.6	8721.65	1270.78	8761.54	1270.39	8834.19	1269.91	8937.79	1270.27
9012.95	1270.4	9085.93	1270.3	9213.32	1270.35	9339.72	1269.98	9353.89	1268.84
9385.93	1268.8	9401.33	1270.11	9469.8	1269.69	9567	1268.52	9597.47	1268.6
9611.88	1270.6	9662.32	1271.47	9720.7	1271.92	9748.51	1271.92	9752	1270
9764.27	1266.7	9795.73	1265.6	9811.75	1265.27	9881.58	1264.93	9898.15	1266.19
9928.36	1266.6	9962.31	1260.11	0022.85	1260.61	0057.09	1262.09	10088.04	1267.52
10120.25	1267.61	0154.93	1268.11	0320.98	1269.79	10401.53	1269.49	10441.01	1270.4
10464.67	1268.11	0495.45	1268	10531.98	1268.74	10587.16	1269.91	0635.89	1270.31
10648.51	1269.71	0668.19	1270	10704.23	1270.59	10760.22	1270.38	10796.48	1269.97
10831.26	1268.91	0837.21	1268.6	10865.6	1268.99	10900.67	1269.75	10939.27	1268.83
10954.64	1270.21	0961.95	1270.11	0970.14	1268.26	11007.32	1261.37	11042.66	1270.15
11062.8	1269.71	1118.03	1269.61	1156.57	1269.62	11186.33	1269.85	11211.37	1268.13
11240.08	1268.41	1255.17	1269	11353.4	1268.36	11380.25	1268.35	11465.73	1268.12
11520.29	1268.2	11611.9	1267.41	1616.72	1267.11	1655.52	1267.06	11695.16	1267.77
11751.92	1268.21	1802.89	1268	11831.52	1268.31	1854.32	1267.66	11863.24	1268.28
11949.36	1267	2049.56	1267	12081.11	1267.08	12149.73	1267.47	12210.25	1267.44
12247.63	1267.6	12274.4	1268	12534.4	1270.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8680	.06	9748.51	.03	10441.01	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9748.51	10441.01	495	505.6	525	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8680	9752	1271.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1269.49	Element			
Vel Head (ft)	0.55	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1268.94	Reach Len. (ft)	495.00	505.60	525.00
Crit W.S. (ft)	1267.73	Flow Area (sq ft)		1769.33	1596.25
E.G. Slope (ft/ft)	0.003979	Area (sq ft)		1769.33	1596.25
Q Total (cfs)	13000.00	Flow (cfs)		11258.69	1741.31
Top Width (ft)	1837.72	Top Width (ft)		481.58	1356.15
Vel Total (ft/s)	3.86	Avg. Vel. (ft/s)		6.36	1.09
Max Chl Dpth (ft)	8.84	Hydr. Depth (ft)		3.67	1.18
Conv. Total (cfs)	206086.8	Conv. (cfs)		178482.0	27604.7
Length Wtd. (ft)	508.32	Wetted Per. (ft)		483.08	1357.96
Min Ch El (ft)	1260.10	Shear (lb/sq ft)		0.91	0.29
Alpha	2.36	Stream Power (lb/ft s)		5.79	0.32
Frctn Loss (ft)	2.12	Cum Volume (acre-ft)	95.44	1067.34	76.70
C & E Loss (ft)	0.02	Cum SA (acres)	46.85	205.43	60.94

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1270.92	Element			
Vel Head (ft)	0.51	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1270.41	Reach Len. (ft)	495.00	505.60	525.00
Crit W.S. (ft)	1269.61	Flow Area (sq ft)		2649.12	4068.64
E.G. Slope (ft/ft)	0.003982	Area (sq ft)		2649.12	4068.64
Q Total (cfs)	23000.00	Flow (cfs)		17383.75	5616.25
Top Width (ft)	2714.60	Top Width (ft)		689.01	2025.59
Vel Total (ft/s)	3.42	Avg. Vel. (ft/s)		6.56	1.38
Max Chl Dpth (ft)	10.31	Hydr. Depth (ft)		3.84	2.01
Conv. Total (cfs)	364471.0	Conv. (cfs)		275472.8	88998.2
Length Wtd. (ft)	509.45	Wetted Per. (ft)		691.08	2027.92
Min Ch El (ft)	1260.10	Shear (lb/sq ft)		0.95	0.50
Alpha	2.82	Stream Power (lb/ft s)		6.25	0.69
Frctn Loss (ft)	2.25	Cum Volume (acre-ft)	325.76	1614.97	286.90
C & E Loss (ft)	0.02	Cum SA (acres)	121.11	217.83	163.01

Warning: Divided flow computed for this cross-section.

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

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1271.85	Wt. n-Val.		0.035	0.110
Vel Head (ft)	0.59	Reach Len. (ft)	495.00	505.60	525.00
W.S. Elev (ft)	1271.26	Flow Area (sq ft)		3230.64	5829.81
Crit W.S. (ft)	1270.10	Area (sq ft)		3230.64	5829.81
E.G. Slope (ft/ft)	0.003750	Flow (cfs)		23463.51	9536.49
Q Total (cfs)	33000.00	Top Width (ft)		- 689.01	2093.39
Top Width (ft)	2782.40	Avg. Vel. (ft/s)		7.26	1.64
Vel Total (ft/s)	3.64	Hydr. Depth (ft)		4.69	2.78
Max Chl Dpth (ft)	11.16	Conv. (cfs)		383151.2	155727.6
Conv. Total (cfs)	538878.8	Wetted Per. (ft)		691.92	2096.48
Length Wtd. (ft)	509.98	Shear (lb/sq ft)		1.09	0.65
Min Ch El (ft)	1260.10	Stream Power (lb/ft s)		7.94	1.06
Alpha	2.89	Cum Volume (acre-ft)	529.73	1985.75	492.34
Frctn Loss (ft)	2.19	Cum SA (acres)	167.90	225.15	212.01
C & E Loss (ft)	0.03				

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9748.51	9979.34	5800.08	893.57	224.39	44.62	4.00	6.49
9979.34	10210.18	5455.98	871.96	231.35	41.97	3.78	6.26
10210.18	RB 10441.01	2.64	3.80	27.34	0.02	0.14	0.69
10441.01	10859.69	34.14	58.19	115.30	0.26	0.50	0.59
10859.69	11278.37	439.83	298.62	148.73	3.38	2.03	1.47
11278.37	11697.04	345.88	391.11	418.70	2.66	0.93	0.88
11697.04	12115.72	658.35	575.48	418.72	5.06	1.37	1.14
12115.72	12534.40	263.11	272.84	256.50	2.02	1.06	0.96

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9748.51	9979.34	8576.77	1225.84	228.88	37.29	5.39	7.00
9979.34	10210.18	8349.75	1211.45	231.35	36.30	5.25	6.89
10210.18	RB 10441.01	457.25	211.85	230.85	1.99	0.92	2.16
10441.01	10859.69	298.08	360.98	360.29	1.30	1.00	0.83
10859.69	11278.37	903.31	747.02	420.75	3.93	1.78	1.21
11278.37	11697.04	1490.44	1006.86	418.70	6.48	2.40	1.48
11697.04	12115.72	1972.47	1191.23	418.72	8.58	2.85	1.66
12115.72	12534.40	951.91	762.54	409.46	4.14	1.86	1.25

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9748.51	9979.34	11139.57	1417.71	229.73	33.76	6.24	7.86
9979.34	10210.18	10938.68	1406.27	231.35	33.15	6.09	7.78
10210.18	RB 10441.01	1385.29	406.67	230.85	4.20	1.76	3.41
10441.01	10859.69	806.62	709.10	418.86	2.44	1.69	1.14
10859.69	11278.37	1672.72	1100.38	420.75	5.07	2.63	1.52
11278.37	11697.04	2389.36	1360.22	418.70	7.24	3.25	1.76
11697.04	12115.72	2953.06	1544.60	418.72	8.95	3.69	1.91
12115.72	12534.40	1714.71	1115.50	419.45	5.20	2.66	1.54

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.606

INPUT
Description: Extend x-sec by 500' to El. 1268.3
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8672	1271.3	8718.88	1271.16	8847.88	1271.27	8952.99	1270.93	8973.43	1271.04
8993.98	1273.2	9003.15	1271.05	9028.62	1269.6	9035.21	1270.71	9039.08	1269.48
9102.66	1269.7	9154.4	1269.56	9201.43	1269.28	9275.63	1267.51	9296.46	1266.42
9340.88	1267.2	9427.5	1266.98	9462.39	1268.01	9495.37	1267.42	9517.89	1267.18
9533.36	1267.3	9543.58	1271.37	9556.36	1266.42	9620.55	1266.78	9680.55	1266.81
9725.43	1267.2	9830.21	1267.14	9892.62	1266.35	9947.62	1264.34	9982.32	1258.9
10018.64	1258.9	10049.91	1261.67	10071.58	1262.01	10087.37	1262.71	10107.56	1261.82
10129.45	1261.71	10144.64	1261.98	10168.55	1262.96	10184.12	1264.03	10204.94	1264.48

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10279.52    126410302.48 1263.6510329.34 1265.82 10354.5 1265.9310391.91 1266.91
10408.71    126610425.58 1265.8110454.31 1267.9110484.03 1267.8510546.29 1267.09
10585.93    1266 10606.5 1265.2810660.51 1265.4910676.56 1265.5710695.53 1264.85
10715.39  1263.5 10728.8 1260.4310748.11 1260.1810764.66 1262.9110771.78 1264.74
10790.79  1265.110824.07 1266.8510845.22 1266.7610861.31 1265.75 10881.6 1265.36
10886.82  1267.910951.49 1268.1711032.15 1267.8611194.39 1267.5111343.08 1267.38
11434.76  1267.311497.82 1267.4311600.22 1266.0311624.87 1268.0311703.86 1267.32
11721.38  1264.711755.43    126411870.61 1263.78 12034.7 1266.81 12173.4 1268.16
12249.99  1268.312351.98 1268.1812359.19 1267.8612859.19  1268.3

Manning's n Values        num=       3
     Sta   n Val    Sta   n Val     Sta   n Val
    8672     .06 9830.21    .03510454.31     .11

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9830.2110454.31              555   582.3     545              .1      .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
    8672    9544  1269.3
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CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1267.35	Element			
Vel Head (ft)	0.49	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1266.86	Reach Len. (ft)	555.00	582.30	545.00
Crit W.S. (ft)	1265.70	Flow Area (sq ft)	20.98	1836.34	1361.49
E.G. Slope (ft/ft)	0.004397	Area (sq ft)	20.98	1836.34	1361.49
Q Total (cfs)	13000.00	Flow (cfs)	10.15	11075.54	1914.31
Top Width (ft)	1449.71	Top Width (ft)	131.07	584.78	733.86
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)	0.48	6.03	1.41
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)	0.16	3.14	1.86
Conv. Total (cfs)	196038.6	Conv. (cfs)	153.1	167017.9	28867.6
Length Wtd. (ft)	577.14	Wetted Per. (ft)	131.16	585.63	735.41
Min Ch El (ft)	1258.90	Shear (lb/sq ft)	0.04	0.86	0.51
Alpha	1.92	Stream Power (lb/ft s)	0.02	5.19	0.71
Frctn Loss (ft)	2.70	Cum Volume (acre-ft)	95.32	1046.41	58.88
C & E Loss (ft)	0.06	Cum SA (acres)	46.11	199.24	48.34

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1268.65	Element			
Vel Head (ft)	0.72	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1267.93	Reach Len. (ft)	555.00	582.30	545.00
Crit W.S. (ft)	1267.06	Flow Area (sq ft)	277.61	2493.53	2513.36
E.G. Slope (ft/ft)	0.004953	Area (sq ft)	277.61	2493.53	2513.36
Q Total (cfs)	23000.00	Flow (cfs)	483.38	18742.27	3774.35
Top Width (ft)	2546.47	Top Width (ft)	277.75	624.10	1644.62
Vel Total (ft/s)	4.35	Avg. Vel. (ft/s)	1.74	7.52	1.50
Max Chl Dpth (ft)	9.03	Hydr. Depth (ft)	1.00	4.00	1.53
Conv. Total (cfs)	326792.5	Conv. (cfs)	6868.0	266297.1	53627.4
Length Wtd. (ft)	573.27	Wetted Per. (ft)	278.03	625.00	1646.51
Min Ch El (ft)	1258.90	Shear (lb/sq ft)	0.31	1.23	0.47
Alpha	2.45	Stream Power (lb/ft s)	0.54	9.27	0.71
Frctn Loss (ft)	2.69	Cum Volume (acre-ft)	324.18	1585.13	247.23
C & E Loss (ft)	0.03	Cum SA (acres)	119.53	210.20	140.90

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1269.63	Element			
Vel Head (ft)	0.89	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1268.73	Reach Len. (ft)	555.00	582.30	545.00
Crit W.S. (ft)	1267.85	Flow Area (sq ft)	501.91	2995.66	4297.54
E.G. Slope (ft/ft)	0.005030	Area (sq ft)	501.91	2995.66	4297.54
Q Total (cfs)	33000.00	Flow (cfs)	1300.02	25641.02	6058.96
Top Width (ft)	3308.81	Top Width (ft)	279.83	624.10	2404.88
Vel Total (ft/s)	4.23	Avg. Vel. (ft/s)	2.59	8.56	1.41
Max Chl Dpth (ft)	9.83	Hydr. Depth (ft)	1.79	4.80	1.79
Conv. Total (cfs)	465309.0	Conv. (cfs)	18330.7	361545.3	85433.0
Length Wtd. (ft)	571.12	Wetted Per. (ft)	280.26	625.00	2407.22
Min Ch El (ft)	1258.90	Shear (lb/sq ft)	0.56	1.51	0.56
Alpha	3.21	Stream Power (lb/ft s)	1.46	12.88	0.79
Frctn Loss (ft)	2.82	Cum Volume (acre-ft)	526.88	1949.62	431.31
C & E Loss (ft)	0.03	Cum SA (acres)	166.31	217.53	184.90

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

8672.00	9830.21	10.15	20.98	131.16	0.08	0.16	0.48
LB 9830.21	10038.24	4465.92	703.55	186.45	34.35	3.78	6.35
10038.24	10246.28	5606.03	842.74	208.18	43.12	4.05	6.65
10246.28	RB 10454.31	1003.58	290.05	191.00	7.72	1.52	3.46
10454.31	10935.29	893.40	631.99	331.35	6.87	1.91	1.41
10935.29	11416.26						
11416.26	11897.24	825.08	548.05	261.45	6.35	2.10	1.51
11897.24	12378.21	195.83	181.45	142.62	1.51	1.27	1.08

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8672.00	9830.21	483.38	277.61	278.03	2.10	1.00	1.74
LB 9830.21	10038.24	7104.99	923.09	208.58	30.89	4.44	7.70
10038.24	10246.28	9033.87	1065.37	208.18	39.28	5.12	8.48
10246.28	RB 10454.31	2603.40	505.07	208.24	11.32	2.43	5.15
10454.31	10935.29	1751.76	1024.60	441.30	7.62	2.33	1.71
10935.29	11416.26	80.15	155.16	402.37	0.35	0.39	0.52
11416.26	11897.24	1451.64	937.86	468.93	6.31	2.00	1.55
11897.24	12378.21	490.67	394.12	273.18	2.13	1.44	1.24
12378.21	12859.19	0.14	1.62	60.73	0.00	0.03	0.09

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8672.00	9830.21	1300.02	501.91	280.26	3.94	1.79	2.59
LB 9830.21	10038.24	9583.34	1090.46	208.58	29.04	5.24	8.79
10038.24	10246.28	11771.60	1232.75	208.18	35.67	5.93	9.55
10246.28	RB 10454.31	4286.06	672.44	208.24	12.99	3.23	6.37
10454.31	10935.29	2411.38	1408.03	482.54	7.31	2.93	1.71
10935.29	11416.26	476.18	531.31	480.98	1.44	1.10	0.90
11416.26	11897.24	2180.76	1324.22	481.28	6.61	2.75	1.65
11897.24	12378.21	795.86	723.11	481.01	2.41	1.50	1.10
12378.21	12859.19	194.80	310.89	481.41	0.59	0.65	0.63

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.511

INPUT
Description: Extend x-sec by 350' to El. 1265
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8690	1265.3	8722.98	1265.72	8800.78	1265.05	8877.93	1266.47	8890.38	1266.49
8981.86	1266	9039.65	1265.46	9069.52	1265.57	9085.08	1266.11	9115.14	1268.85
9130.07	1264.3	9156.7	1266.04	9213.05	1265.36	9233.07	1265.1	9269.19	1265
9306.39	1265.1	9384.01	1264.21	9435.15	1264.06	9495.38	1263.6	9500.47	1263.4
9523.53	1265.1	9531.83	1264	9577.67	1263.64	9644.25	1263.7	9672.29	1263.4
9730.13	1262.5	9797.63	1263.21	9871.16	1262.26	9883.9	1261	9894.61	1259.3
9930.98	1258.8	9939.14	1257.37	9949.45	1257.32	10006.29	1256.11	10014.97	1258.7
10030.43	1258.41	10040.23	1258.05	10046.6	1255.26	10065.4	1254.81	10081.47	1259.6
10098.86	1262.21	10111.39	1265.39	10128.79	1262.95	10163.12	1262.41	10179.88	1268.3
10197.8	1258.71	10223.09	1258.52	10235.25	1261.21	10263.05	1264.31	10285.63	1264.1
10296.97	1264.61	10330.85	1264.03	10343.82	1263.48	10356.41	1260.21	10377.48	1262.9
10380.84	1262	10389.62	1259.42	10422.92	1258.91	10445.29	1263.9	10496.8	1264
10540.37	1263.81	10566.77	1264.32	10579.76	1263.61	10630.51	1262.91	10681.68	1263
10712.46	1262.81	10743.72	1261.79	10774.49	1261.65	10794.84	1263.11	10853.81	1262.9
10983.83	1262.7	11088.3	1262.98	11205.62	1262.95	11282.68	1263.41	1394.61	1263
11437.19	1263.61	11454.35	1262.94	11473.97	1263.19	11515.22	1263.81	11550.92	1263.2
11567.64	1262.61	11601.02	1263.13	11632.58	1262.22	11658.99	1262.61	11682.22	1261.9
11690.38	1261.31	11719.06	1261.87	11747.07	1261.66	11777.83	1262	11801.49	1263
11979.14	1263.41	12063.88	1263.75	12080.25	1263.46	12124.63	1263.91	12138.43	1264.9
12163.3	1263.91	12308.79	1264.11	12658.79	1265				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8690	.06	9871.16	.035	10111.39	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9871.16	10111.39	455	467.59	435	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8690	9156.7	1266.04

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft) 1264.58 Element Left OB Channel Right OB

Vel Head (ft)	1.11	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1263.47	Reach Len. (ft)	455.00	467.59	435.00
Crit W.S. (ft)	1262.72	Flow Area (sq ft)	125.85	1241.82	1354.75
E.G. Slope (ft/ft)	0.004976	Area (sq ft)	125.85	1241.82	1354.75
Q Total (cfs)	13000.00	Flow (cfs)	158.43	11280.87	1560.69
Top Width (ft)	2001.02	Top Width (ft)	208.07	232.69	1560.26
Vel Total (ft/s)	4.78	Avg. Vel. (ft/s)	1.26	9.08	1.15
Max Chl Dpth (ft)	8.67	Hydr. Depth (ft)	0.60	5.34	0.87
Conv. Total (cfs)	184292.1	Conv. (cfs)	2246.0	159921.2	22124.9
Length Wtd. (ft)	462.15	Wetted Per. (ft)	208.10	235.06	1563.88
Min Ch El (ft)	1254.80	Shear (lb/sq ft)	0.19	1.64	0.27
Alpha	3.15	Stream Power (lb/ft s)	0.24	14.91	0.31
Frctn Loss (ft)	2.44	Cum Volume (acre-ft)	94.38	1025.84	41.88
C & E Loss (ft)	0.08	Cum SA (acres)	43.95	193.78	33.99

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1265.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1264.88	Reach Len. (ft)	455.00	467.59	435.00
Crit W.S. (ft)	1264.88	Flow Area (sq ft)	720.26	1574.83	4271.71
E.G. Slope (ft/ft)	0.004444	Area (sq ft)	720.26	1574.83	4271.71
Q Total (cfs)	23000.00	Flow (cfs)	1531.20	15587.35	5881.45
Top Width (ft)	3261.48	Top Width (ft)	541.35	238.24	2481.89
Vel Total (ft/s)	3.50	Avg. Vel. (ft/s)	2.13	9.90	1.38
Max Chl Dpth (ft)	10.08	Hydr. Depth (ft)	1.33	6.61	1.72
Conv. Total (cfs)	345023.4	Conv. (cfs)	22969.6	233826.1	88227.7
Length Wtd. (ft)	458.05	Wetted Per. (ft)	541.50	240.79	2486.42
Min Ch El (ft)	1254.80	Shear (lb/sq ft)	0.37	1.81	0.48
Alpha	5.48	Stream Power (lb/ft s)	0.78	17.96	0.66
Frctn Loss (ft)	1.94	Cum Volume (acre-ft)	317.82	1557.93	204.79
C & E Loss (ft)	0.09	Cum SA (acres)	114.31	204.44	115.08

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1266.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.14	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1265.64	Reach Len. (ft)	455.00	467.59	435.00
Crit W.S. (ft)	1265.64	Flow Area (sq ft)	1201.62	1756.73	6191.49
E.G. Slope (ft/ft)	0.004850	Area (sq ft)	1201.62	1756.73	6191.49
Q Total (cfs)	33000.00	Flow (cfs)	3023.92	19427.36	10548.73
Top Width (ft)	3456.69	Top Width (ft)	681.57	240.23	2534.89
Vel Total (ft/s)	3.61	Avg. Vel. (ft/s)	2.52	11.06	1.70
Max Chl Dpth (ft)	10.84	Hydr. Depth (ft)	1.76	7.31	2.44
Conv. Total (cfs)	473864.8	Conv. (cfs)	43422.1	278967.9	151474.8
Length Wtd. (ft)	455.77	Wetted Per. (ft)	681.74	242.84	2540.42
Min Ch El (ft)	1254.80	Shear (lb/sq ft)	0.53	2.19	0.74
Alpha	5.65	Stream Power (lb/ft s)	1.34	24.22	1.26
Frctn Loss (ft)	1.97	Cum Volume (acre-ft)	516.03	1917.86	365.70
C & E Loss (ft)	0.12	Cum SA (acres)	160.19	211.75	154.00

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9477.44	9871.16	158.43	125.85	208.10	1.22	0.60	1.26
LB 9871.16	9951.24	2595.36	337.82	80.40	19.96	4.22	7.68
9951.24	10031.31	5093.07	506.42	80.47	39.18	6.32	10.06
10031.31	RB 10111.39	3592.44	397.57	74.18	27.63	5.48	9.04
10111.39	10620.87	909.15	526.28	241.77	6.99	2.21	1.73
10620.87	11130.35	297.91	363.07	509.55	2.29	0.71	0.82
11130.35	11639.83	98.77	178.90	454.86	0.76	0.39	0.55
11639.83	12149.31	254.86	286.50	357.69	1.96	0.80	0.89

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

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9083.72	9477.44	125.01	99.76	152.20	0.54	0.66	1.25
9477.44	9871.16	1406.19	620.50	389.29	6.11	1.59	2.27
LB 9871.16	9951.24	3991.63	451.07	80.40	17.35	5.63	8.85
9951.24	10031.31	6772.52	619.68	80.47	29.45	7.74	10.93
10031.31	RB 10111.39	4823.21	504.09	79.91	20.97	6.46	9.57
10111.39	10620.87	1631.88	1078.57	494.06	7.10	2.20	1.51
10620.87	11130.35	1611.18	1083.63	509.55	7.01	2.13	1.49
11130.35	11639.83	1164.22	891.69	509.54	5.06	1.75	1.31
11639.83	12149.31	1317.51	959.95	508.97	5.73	1.89	1.37
12149.31	12658.79	156.65	257.87	464.30	0.68	0.56	0.61

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9083.72	9477.44	445.45	282.67	287.86	1.35	0.98	1.58
9477.44	9871.16	2578.42	918.95	393.88	7.81	2.33	2.81
LB 9871.16	9951.24	5155.88	511.87	80.40	15.62	6.39	10.07
9951.24	10031.31	8281.79	680.48	80.47	25.10	8.50	12.17
10031.31	RB 10111.39	5989.70	564.38	81.97	18.15	7.05	10.61
10111.39	10620.87	2682.56	1453.64	501.60	8.13	2.92	1.85
10620.87	11130.35	2706.02	1470.47	509.55	8.20	2.89	1.84
11130.35	11639.83	2143.35	1278.53	509.54	6.49	2.51	1.68
11639.83	12149.31	2337.26	1346.78	509.59	7.08	2.64	1.74
12149.31	12658.79	679.54	642.08	510.14	2.06	1.26	1.06

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.420

INPUT
Description: Extend x-sec by 50' to El. 1263
Station Elevation Data num= 83

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8970	1262.8	8995.74	1262.84	9031.93	1263.05	9063.82	1262.68	9138.82	1262.62
9186.8	1262.3	9249.06	1261.52	9327.82	1262.21	9372.12	1262.01	9408.46	1261.12
9418.1	1259.2	9432.27	1261.28	9461.13	1261.31	9471.85	1259.29	9503.62	1261.27
9537.4	1260.7	9588.38	1261.31	9629.55	1261.24	9686.71	1260.94	9741.61	1261.8
9768.6	1262.3	9787.66	1260.52	9809.52	1259.54	9833.82	1259.44	9864.46	1259.91
9879.23	1259.6	9892.06	1256.26	9936.5	1255.77	9965.68	1255.38	9986.22	1254.66
10057.78	1254.5	10079.26	1263.54	10090.34	1258.79	10116.23	1258.25	10131.13	1263.92
10148.99	1255.8	10176.35	1256.04	10195.53	1256.15	10247.56	1255.31	10261.05	1258.02
10270	1258.8	10294.39	1264.04	10315.54	1262.28	10330.07	1261.76	10388.05	1261.42
10468.87	1261.4	10507.52	1259.96	10560.42	1260.05	10630.82	1260.39	10752.6	1260.37
10875.12	1260.5	10965.9	1260.76	11105.43	1260.75	11179.53	1261.21	11240.84	1261.65
11255.41	1261.7	11276.88	1262.72	11329.43	1262.73	11367.68	1262.53	11396.98	1260.97
11429.38	1261	11459.64	1262.37	11532.97	1262.73	11582.61	1262.55	11603	1262.33
11613.43	1259.9	11633.66	1259.11	11682.8	1259.14	11714.44	1260.06	11750.89	1261.73
11804.41	1261.9	11853.81	1262.36	11888.68	1262.12	11910.74	1262.79	11996.14	1262.2
12195.66	1262.3	12281.63	1262.44	12335.41	1262.43	12388.49	1262.58	12455.76	1262.57
12481.27	1262.6	12489.77	1263.49	12539.77	1263				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8970	.06	9768.6	.035	10079.26	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9768.6	10079.26	600	578.07	665	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1262.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.84	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1261.23	Reach Len. (ft)	600.00	578.07	665.00
Crit W.S. (ft)	1260.37	Flow Area (sq ft)	95.91	1237.48	1469.39
E.G. Slope (ft/ft)	0.005576	Area (sq ft)	95.91	1237.48	1469.39
Q Total (cfs)	13000.00	Flow (cfs)	135.17	10190.53	2674.30

Top Width (ft)	1580.97	Top Width (ft)	219.64	293.74	1067.60
Vel Total (ft/s)	4.64	Avg. Vel. (ft/s)	1.41	8.23	1.82
Max Chl Dpth (ft)	6.73	Hydr. Depth (ft)	0.44	4.21	1.38
Conv. Total (cfs)	174087.2	Conv. (cfs)	1810.1	136464.7	35812.4
Length Wtd. (ft)	589.39	Wetted Per. (ft)	220.23	295.60	1070.65
Min Ch El (ft)	1254.50	Shear (lb/sq ft)	0.15	1.46	0.48
Alpha	2.50	Stream Power (lb/ft s)	0.21	12.00	0.87
Frctn Loss (ft)	3.10	Cum Volume (acre-ft)	93.22	1012.53	27.78
C & E Loss (ft)	0.02	Cum SA (acres)	41.71	190.95	20.87

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1263.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1262.93	Reach Len. (ft)	600.00	578.07	665.00
Crit W.S. (ft)	1262.27	Flow Area (sq ft)	955.56	1753.70	4235.18
E.G. Slope (ft/ft)	0.004007	Area (sq ft)	955.56	1753.70	4235.18
Q Total (cfs)	23000.00	Flow (cfs)	1786.98	14915.33	6297.68
Top Width (ft)	3457.83	Top Width (ft)	768.09	309.22	2380.52
Vel Total (ft/s)	3.31	Avg. Vel. (ft/s)	1.87	8.51	1.49
Max Chl Dpth (ft)	8.43	Hydr. Depth (ft)	1.24	5.67	1.78
Conv. Total (cfs)	363355.7	Conv. (cfs)	28230.9	235633.6	99491.3
Length Wtd. (ft)	596.22	Wetted Per. (ft)	768.86	311.48	2385.08
Min Ch El (ft)	1254.50	Shear (lb/sq ft)	0.31	1.41	0.44
Alpha	4.36	Stream Power (lb/ft s)	0.58	11.98	0.66
Frctn Loss (ft)	2.65	Cum Volume (acre-ft)	309.07	1540.07	162.31
C & E Loss (ft)	0.05	Cum SA (acres)	107.47	201.50	90.80

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1264.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1263.78	Reach Len. (ft)	600.00	578.07	665.00
Crit W.S. (ft)	1263.29	Flow Area (sq ft)	1632.45	2017.28	6296.70
E.G. Slope (ft/ft)	0.003816	Area (sq ft)	1632.45	2017.28	6296.70
Q Total (cfs)	33000.00	Flow (cfs)	4017.00	18320.25	10662.75
Top Width (ft)	3564.80	Top Width (ft)	798.60	310.66	2455.54
Vel Total (ft/s)	3.32	Avg. Vel. (ft/s)	2.46	9.08	1.69
Max Chl Dpth (ft)	9.28	Hydr. Depth (ft)	2.04	6.49	2.56
Conv. Total (cfs)	534215.8	Conv. (cfs)	65028.6	296574.7	172612.5
Length Wtd. (ft)	603.96	Wetted Per. (ft)	800.22	313.04	2461.50
Min Ch El (ft)	1254.50	Shear (lb/sq ft)	0.49	1.54	0.61
Alpha	4.31	Stream Power (lb/ft s)	1.20	13.94	1.03
Frctn Loss (ft)	2.38	Cum Volume (acre-ft)	501.23	1897.60	303.34
C & E Loss (ft)	0.04	Cum SA (acres)	152.46	208.79	129.08

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9236.20	9502.40	115.09	64.88	69.47	0.89	0.94	1.77
9502.40	9768.60	20.08	31.03	150.76	0.15	0.21	0.65
LB 9768.60	9872.15	460.20	129.79	92.17	3.54	1.41	3.55
9872.15	9975.71	4164.48	510.70	103.99	32.03	4.93	8.15
9975.71	RB 10079.26	5565.86	596.99	99.43	42.81	6.09	9.32
10079.26	10571.36	1998.73	851.57	284.50	15.37	3.02	2.35
10571.36	11063.46	331.66	360.89	492.10	2.55	0.73	0.92
11063.46	11555.57	24.21	48.06	161.54	0.19	0.30	0.50
11555.57	12047.67	319.69	208.87	132.51	2.46	1.58	1.53

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8970.00	9236.20	77.14	96.65	235.83	0.34	0.41	0.80
9236.20	9502.40	789.03	409.76	266.80	3.43	1.54	1.93
9502.40	9768.60	920.81	449.15	266.22	4.00	1.69	2.05
LB 9768.60	9872.15	1528.62	299.75	103.66	6.65	2.89	5.10
9872.15	9975.71	6073.91	686.78	103.99	26.41	6.63	8.84
9975.71	RB 10079.26	7312.82	767.17	103.82	31.79	7.51	9.53
10079.26	10571.36	3037.34	1571.49	471.52	13.21	3.36	1.93
10571.36	11063.46	1877.01	1197.62	492.10	8.16	2.43	1.57
11063.46	11555.57	518.40	553.44	492.20	2.25	1.12	0.94

11555.57	12047.67	734.89	682.49	492.47	3.20	1.39	1.08
12047.67	12539.77	130.04	230.13	436.79	0.57	0.53	0.57

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8970.00	9236.20	529.34	321.08	267.19	1.60	1.21	1.65
9236.20	9502.40	1655.30	635.99	266.80	5.02	2.39	2.60
9502.40	9768.60	1832.36	675.38	266.22	5.55	2.54	2.71
LB 9768.60	9872.15	2332.05	387.76	103.66	7.07	3.74	6.01
9872.15	9975.71	7376.49	774.78	103.99	22.35	7.48	9.52
9975.71	RB 10079.26	8611.72	854.74	105.39	26.10	8.25	10.08
10079.26	10571.36	4189.53	1977.29	491.80	12.70	4.06	2.12
10571.36	11063.46	2991.33	1615.83	492.10	9.06	3.28	1.85
11063.46	11555.57	1281.35	971.66	492.20	3.88	1.97	1.32
11555.57	12047.67	1576.80	1100.71	492.47	4.78	2.24	1.43
12047.67	12539.77	623.73	631.20	492.93	1.89	1.28	0.99

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.313

INPUT
Description: Extend x-sec by 40' to El. 1261.2
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8911	1262.2	8923.98	1262.73	9012.36	1261.52	9114.22	1261.02	9215.07	1260.76
9317.71	1260.1	9418.58	1259.46	9521.44	1258.59	9656.01	1258.43	9698.04	1258.52
9773.36	1258.2	9818.33	1258.6	9843.21	1262.47	9863.96	1262.03	9877.14	1260.51
9914.61	1257.6	9926.12	1256.72	9959.4	1255.59	9979.52	1250.88	10015.02	1250.47
10027.71	1252.71	10085.83	1253.88	10136.24	1254.58	10145.32	1254.35	10172.03	1250.91
10209.29	1250.71	10237.98	1258.61	10260.61	1259.84	10325.64	1259.46	10358.25	1259.12
10383.8	1258.41	10407.94	1258.24	10424.35	1259.28	10555.79	1258.95	10695.97	1258.64
10714.29	1258.71	10732.29	1257.33	10762.67	1257.23	10789.42	1259.27	10866.17	1259.09
10886.46	1259.21	10920.68	1253.03	10949.1	1255.91	10979.09	1256.41	11040.79	1256.15
11045.95	1256.3	11097.1	1256.49	11164.64	1258.17	11221	1258.23	11277.52	1258.5
11305.7	1258.61	11348.84	1259.41	1422.49	1259.13	11500.27	1259.99	11510.39	1257.87
11529.67	1257.31	11550.15	1257.31	11582.66	1257.31	11627.75	1257.76	11639.64	1258.09
11753.95	1258.31	11771.62	1259.51	11786.29	1258.49	11816.42	1258.41	11918.18	1259.06
11973.14	1259.31	12019.77	1259.32	12086.75	1259.58	12121.34	1259.64	12222.93	1259.52
12313.37	12601	2346.84	1259.69	12353.96	1259.5	12361.9	1260.79	12380.3	1260.49
12392.93	1261.31	2403.57	1261.03	12443.57	1261.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8911	.06	9877.14	.035	10260.61	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9877.14	10260.61	750	685.08	585	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8911	9877.14	1261.4

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1258.95	Element			
Vel Head (ft)	1.00	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1257.95	Reach Len. (ft)	750.00	685.08	585.00
Crit W.S. (ft)	1257.02	Flow Area (sq ft)		1497.12	542.07
E.G. Slope (ft/ft)	0.004956	Area (sq ft)		1497.12	542.07
Q Total (cfs)	13000.00	Flow (cfs)		12324.25	675.75
Top Width (ft)	760.42	Top Width (ft)		325.48	434.94
Vel Total (ft/s)	6.38	Avg. Vel. (ft/s)		8.23	1.25
Max Chl Dpth (ft)	7.48	Hydr. Depth (ft)		4.60	1.25
Conv. Total (cfs)	184666.8	Conv. (cfs)		175067.7	9599.1
Length Wtd. (ft)	682.48	Wetted Per. (ft)		327.51	435.62
Min Ch El (ft)	1250.47	Shear (lb/sq ft)		1.41	0.38
Alpha	1.58	Stream Power (lb/ft s)		11.64	0.48
Frctn Loss (ft)	4.81	Cum Volume (acre-ft)	92.56	994.39	12.43
C & E Loss (ft)	0.06	Cum SA (acres)	40.20	186.85	9.40

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1260.97	Element			

Vel Head (ft)	1.24	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1259.74	Reach Len. (ft)	750.00	685.08	585.00
Crit W.S. (ft)	1259.10	Flow Area (sq ft)		2115.21	2499.31
E.G. Slope (ft/ft)	0.004992	Area (sq ft)		2115.21	2499.31
Q Total (cfs)	23000.00	Flow (cfs)		20143.49	2856.51
Top Width (ft)	2347.84	Top Width (ft)		371.68	1976.16
Vel Total (ft/s)	4.98	Avg. Vel. (ft/s)		9.52	1.14
Max Chl Dpth (ft)	9.27	Hydr. Depth (ft)		5.69	1.26
Conv. Total (cfs)	325542.0	Conv. (cfs)		285111.0	40431.0
Length Wtd. (ft)	678.86	Wetted Per. (ft)		373.90	1977.38
Min Ch El (ft)	1250.47	Shear (lb/sq ft)		1.76	0.39
Alpha	3.20	Stream Power (lb/ft s)		16.79	0.45
Frctn Loss (ft)	4.64	Cum Volume (acre-ft)	302.49	1514.40	110.91
C & E Loss (ft)	0.10	Cum SA (acres)	102.18	196.98	57.55

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1262.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.10	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1261.00	Reach Len. (ft)	750.00	685.08	585.00
Crit W.S. (ft)	1260.50	Flow Area (sq ft)		2596.61	5150.12
E.G. Slope (ft/ft)	0.004058	Area (sq ft)		2596.61	5150.12
Q Total (cfs)	33000.00	Flow (cfs)		25014.36	7985.64
Top Width (ft)	2511.18	Top Width (ft)		383.47	2127.71
Vel Total (ft/s)	4.26	Avg. Vel. (ft/s)		9.63	1.55
Max Chl Dpth (ft)	10.53	Hydr. Depth (ft)		6.77	2.42
Conv. Total (cfs)	518055.6	Conv. (cfs)		392691.8	125363.8
Length Wtd. (ft)	672.97	Wetted Per. (ft)		386.22	2129.07
Min Ch El (ft)	1250.47	Shear (lb/sq ft)		1.70	0.61
Alpha	3.91	Stream Power (lb/ft s)		16.41	0.95
Frctn Loss (ft)	3.89	Cum Volume (acre-ft)	489.99	1866.99	215.97
C & E Loss (ft)	0.17	Cum SA (acres)	146.96	204.19	94.10

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9877.14	10004.96	2437.88	348.09	95.47	18.75	3.67	7.00
10004.96	10132.79	4995.68	602.04	128.04	38.43	4.71	8.30
10132.79	RB 10260.61	4890.69	546.99	104.00	37.62	5.32	8.94
10260.61	10697.20						
10697.20	11133.79	637.31	474.99	289.02	4.90	1.65	1.34
11133.79	11570.39	23.33	39.52	82.39	0.18	0.48	0.59
11570.39	12006.98	15.10	27.55	64.21	0.12	0.43	0.55

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9877.14	10004.96	4378.53	538.39	118.57	19.04	4.57	8.13
10004.96	10132.79	8570.87	830.71	128.04	37.26	6.50	10.32
10132.79	RB 10260.61	7194.08	746.11	127.29	31.28	5.92	9.64
10260.61	10697.20	209.55	312.25	419.32	0.91	0.74	0.67
10697.20	11133.79	1675.71	1105.57	437.44	7.29	2.53	1.52
11133.79	11570.39	449.86	490.77	412.90	1.96	1.19	0.92
11570.39	12006.98	507.54	539.57	436.68	2.21	1.24	0.94
12006.98	12443.57	13.86	51.16	271.05	0.06	0.19	0.27

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9877.14	10004.96	5725.09	696.33	129.03	17.35	5.45	8.22
10004.96	10132.79	10388.00	992.49	128.04	31.48	7.76	10.47
10132.79	RB 10260.61	8901.27	907.79	129.15	26.97	7.10	9.81
10260.61	10697.20	1103.85	863.93	436.64	3.35	1.98	1.28
10697.20	11133.79	3268.00	1658.13	437.44	9.90	3.80	1.97
11133.79	11570.39	1504.05	1040.33	436.84	4.56	2.38	1.45
11570.39	12006.98	1631.34	1092.13	436.68	4.94	2.50	1.49
12006.98	12443.57	478.39	495.61	381.47	1.45	1.30	0.97

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.194

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8672	1259.5	8712.33	1259.01	8737.02	1258.82	8837.03	1258.43	8898.06	1258.37
8937.03	1258.1	9037	1258.12	9137.01	1257.93	9273.14	1257.33	9374.95	1257.03
9433.06	1256.6	9462.14	1256.69	9471.89	1257.87	9522.08	1257.34	9564.57	1257.53
9579.29	1258.5	9627.53	1258.45	9755.43	1259.53	9831.37	1259.62	9850.32	1253.17
9877.34	1252.2	9889.54	1249.04	9930.45	1250.11	9934.41	1250.58	9961.21	1250.13
9968.74	124810040.44		1248.3910059.15		1249.9210108.03		1249.6510126.99		1248.45
10268	1249.810282.89		1257.610357.49		1258	10377	1257.9	10468.2	1256.4
10548.46	1256.410625.97		1256.6610706.62		1256.310779.02		1256.310950.21		1255.9
10957.31	125610996.42		1256.02 11051.1		1255.911135.52		1256.311207.14		1256.5
11266.14	1256.411320.63		1256.6911348.71		1256.611367.39		1257.311383.45		1256.1
11435.96	1256.311493.32		1257.2811521.15		1257.211557.11		1256.711620.37		1257.3
11654.5	1258.311691.53		1257.9911705.13		1257.711780.58		1257.911867.52		1258.4
12078.16	1259.112191.99		1259.612211.69		1258.9	12219	1260.712238.25		1260.1
12248.25	1260.812259.89		1261.0112283.23		1255.512320.96		1255 12350.3		1261.4
12385.23	1259.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8672	.06	9831.37	.03510282.89		.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9831.3710282.89		370	337.73	330	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1254.08	Wt. n-Val.		0.035	
Vel Head (ft)	1.58	Reach Len. (ft)	370.00	337.73	330.00
W.S. Elev (ft)	1252.50	Flow Area (sq ft)		1287.48	
Crit W.S. (ft)	1252.50	Area (sq ft)		1287.48	
E.G. Slope (ft/ft)	0.012128	Flow (cfs)		13000.00	
Q Total (cfs)	13000.00	Top Width (ft)		404.13	
Top Width (ft)	404.13	Avg. Vel. (ft/s)		10.10	
Vel Total (ft/s)	10.10	Hydr. Depth (ft)		3.19	
Max Chl Dpth (ft)	4.50	Conv. (cfs)		118047.7	
Conv. Total (cfs)	118047.7	Wetted Per. (ft)		405.66	
Length Wtd. (ft)	337.73	Shear (lb/sq ft)		2.40	
Min Ch El (ft)	1248.00	Stream Power (lb/ft s)		24.26	
Alpha	1.00	Cum Volume (acre-ft)	92.56	972.49	8.79
Frctn Loss (ft)	2.64	Cum SA (acres)	40.20	181.11	6.48
C & E Loss (ft)	0.29				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1256.23	Wt. n-Val.		0.035	
Vel Head (ft)	2.23	Reach Len. (ft)	370.00	337.73	330.00
W.S. Elev (ft)	1254.00	Flow Area (sq ft)		1917.67	
Crit W.S. (ft)	1254.00	Area (sq ft)		1917.67	
E.G. Slope (ft/ft)	0.010877	Flow (cfs)		23000.00	
Q Total (cfs)	23000.00	Top Width (ft)		428.12	
Top Width (ft)	428.12	Avg. Vel. (ft/s)		11.99	
Vel Total (ft/s)	11.99	Hydr. Depth (ft)		4.48	
Max Chl Dpth (ft)	6.00	Conv. (cfs)		220528.8	
Conv. Total (cfs)	220528.8	Wetted Per. (ft)		430.16	
Length Wtd. (ft)	337.73	Shear (lb/sq ft)		3.03	
Min Ch El (ft)	1248.00	Stream Power (lb/ft s)		36.31	
Alpha	1.00				

Frctn Loss (ft)	2.40	Cum Volume (acre-ft)	302.49	1482.68	94.12
C & E Loss (ft)	0.40	Cum SA (acres)	102.18	190.70	44.28

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1258.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.80	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1255.24	Reach Len. (ft)	370.00	337.73	330.00
Crit W.S. (ft)	1255.24	Flow Area (sq ft)		2455.65	2.39
E.G. Slope (ft/ft)	0.010020	Area (sq ft)		2455.65	2.39
Q Total (cfs)	33000.00	Flow (cfs)		32999.21	0.80
Top Width (ft)	453.73	Top Width (ft)		434.17	19.56
Vel Total (ft/s)	13.43	Avg. Vel. (ft/s)		13.44	0.33
Max Chl Dpth (ft)	7.24	Hydr. Depth (ft)		5.66	0.12
Conv. Total (cfs)	329671.0	Conv. (cfs)		329663.1	7.9
Length Wtd. (ft)	337.73	Wetted Per. (ft)		436.72	19.59
Min Ch El (ft)	1248.00	Shear (lb/sq ft)		3.52	0.08
Alpha	1.00	Stream Power (lb/ft s)		47.27	0.03
Frctn Loss (ft)	2.21	Cum Volume (acre-ft)	489.99	1827.26	181.37
C & E Loss (ft)	0.52	Cum SA (acres)	146.96	197.76	79.68

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9831.37	9981.88	2573.55	294.25	113.61	19.80	2.61	8.75
9981.88	10132.38	5726.78	532.25	150.61	44.05	3.54	10.76
10132.38	RB 10282.89	4699.67	460.99	141.44	36.15	3.27	10.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9831.37	9981.88	5007.42	486.02	134.88	21.77	3.63	10.30
9981.88	10132.38	9751.36	757.67	150.61	42.40	5.03	12.87
10132.38	RB 10282.89	8241.22	673.98	144.67	35.83	4.69	12.23

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9831.37	9981.88	7785.68	655.50	138.76	23.59	4.76	11.88

9981.88	10132.38	13573.72	945.47	150.61	41.13	6.28	14.36
10132.38	RB 10282.89	11639.82	854.68	147.36	35.27	5.85	13.62
10282.89	12385.23	0.80	2.39	19.59	0.00	0.12	0.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.125

INPUT
Description:
Station Elevation Data num= 81

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9049	1252	9068.23	1255	9096.82	1254.82	9127.01	1245.2	9143.84	1245.27
9178.29	1255	9201.81	1255.39	9247.47	1255.24	9370	1255.67	9401.46	1256.01
9511.87	1256	9575.08	1256.65	9587.02	1258.35	9608.23	1256.14	9625.14	1255.76
9653.92	1255.5	9685.34	1255.96	9743.99	1254.31	9748.1	1253.38	9767.48	1250.29
9807.09	1249.9	9822.2	1249.75	9862.49	1247.19	9874	1246.14	9893.23	1245.84
9905	1245.2	9963.33	1244.96	10011.22	1245.05	10087.24	1244.65	10126.05	1245.48
10188.42	1245.61	10217.08	1245.07	10300	1246.61	10337.64	1254.41	10437.79	1256.2
10453.41	1255.71	10497.61	1255.31	10528.77	1255.31	10540.16	1257.21	10657.73	1256.9
10731.98	1256.81	10829.79	1257.11	10913.73	1256.9	10983.6	1257	11046.81	1257
11134.07	1256.71	11191.23	1256.51	11236.54	1256.61	11305.08	1255.81	11320.86	1255.9
11377.53	1255.21	11405.52	1254.11	11455.47	1254	11505.7	1254.61	11586.69	1253.7
11602.34	1253.41	11623.01	1257	11651.29	1257.9	11676.1	1258.31	1687.04	1255
11701.25	1253.61	11718.54	1253.11	11732.36	1260.61	11739.55	1261.51	11763.57	1257.3
11774.93	1258.41	11788.09	1262.91	11812.51	1259.81	11828.47	1253.91	11884.73	1254.5
11923.03	1255.91	11970.87	1256.31	12015.67	1256.7	12040.3	1257.31	12071.27	1252.8
12117.23	1253	12147.77	1257.51	12178.36	1256.91	12188.58	1259	12252.96	1258.7
12350.2	1259								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9049	.06	9743.99	.035	10337.64	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9743.99	10337.64	535	461.89	365	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9049	9685.34	1255.96

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1250.45	Element			
Vel Head (ft)	0.63	Wt. n-Val.		0.035	
W.S. Elev (ft)	1249.82	Reach Len. (ft)	535.00	461.89	365.00
Crit W.S. (ft)	1248.39	Flow Area (sq ft)		2036.67	
E.G. Slope (ft/ft)	0.003485	Area (sq ft)		2036.67	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	500.62	Top Width (ft)		500.62	
Vel Total (ft/s)	6.38	Avg. Vel. (ft/s)		6.38	
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)		4.07	
Conv. Total (cfs)	220206.3	Conv. (cfs)		220206.3	
Length Wtd. (ft)	461.89	Wetted Per. (ft)		501.12	
Min Ch El (ft)	1244.65	Shear (lb/sq ft)		0.88	
Alpha	1.00	Stream Power (lb/ft s)		5.64	
Frctn Loss (ft)	2.04	Cum Volume (acre-ft)	92.56	959.60	8.79
C & E Loss (ft)	0.04	Cum SA (acres)	40.20	177.60	6.48

Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1252.54	Element			
Vel Head (ft)	0.89	Wt. n-Val.		0.035	
W.S. Elev (ft)	1251.66	Reach Len. (ft)	535.00	461.89	365.00
Crit W.S. (ft)	1249.78	Flow Area (sq ft)		3044.25	
E.G. Slope (ft/ft)	0.003363	Area (sq ft)		3044.25	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	565.48	Top Width (ft)		565.48	
Vel Total (ft/s)	7.56	Avg. Vel. (ft/s)		7.56	
Max Chl Dpth (ft)	7.01	Hydr. Depth (ft)		5.38	
Conv. Total (cfs)	396617.0	Conv. (cfs)		396617.0	
Length Wtd. (ft)	461.89	Wetted Per. (ft)		566.29	
Min Ch El (ft)	1244.65	Shear (lb/sq ft)		1.13	
Alpha	1.00	Stream Power (lb/ft s)		8.53	
Frctn Loss (ft)	1.87	Cum Volume (acre-ft)	302.49	1463.45	94.12
C & E Loss (ft)	0.05	Cum SA (acres)	102.18	186.84	44.28

Warning: The energy loss was 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1254.31	Element			
Vel Head (ft)	1.09	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1253.22	Reach Len. (ft)	535.00	461.89	365.00
Crit W.S. (ft)	1250.99	Flow Area (sq ft)		3943.28	15.81
E.G. Slope (ft/ft)	0.003043	Area (sq ft)		3943.28	15.81
Q Total (cfs)	33000.00	Flow (cfs)		32994.69	5.31
Top Width (ft)	637.63	Top Width (ft)		582.86	54.78
Vel Total (ft/s)	8.34	Avg. Vel. (ft/s)		8.37	0.34
Max Chl Dpth (ft)	8.57	Hydr. Depth (ft)		6.77	0.29
Conv. Total (cfs)	598197.1	Conv. (cfs)		598100.8	96.3
Length Wtd. (ft)	461.67	Wetted Per. (ft)		583.95	54.86
Min Ch El (ft)	1244.65	Shear (lb/sq ft)		1.28	0.05
Alpha	1.01	Stream Power (lb/ft s)		10.74	0.02
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	489.99	1802.45	181.30
C & E Loss (ft)	0.04	Cum SA (acres)	146.96	193.82	79.40

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9743.99	9941.87	2018.33	388.64	127.09	15.53	3.06	5.19
9941.87	10139.76	6734.48	956.01	197.89	51.80	4.83	7.04
10139.76	RB 10337.64	4247.18	692.01	176.14	32.67	3.94	6.14

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9743.99	9941.87	4134.23	703.08	183.22	17.97	3.84	5.88
9941.87	10139.76	11203.84	1318.79	197.89	48.71	6.66	8.50
10139.76	RB 10337.64	7661.93	1022.39	185.18	33.31	5.54	7.49

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9743.99	9941.87	6844.53	997.24	193.16	20.74	5.17	6.86
9941.87	10139.76	15253.68	1628.63	197.89	46.22	8.23	9.37
10139.76	RB 10337.64	10896.47	1317.41	192.89	33.02	6.85	8.27
10337.64	12350.20	5.31	15.81	54.86	0.02	0.29	0.34

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 12.034

INPUT
Description:
Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9213	1254	9220	1253.38	9235.21	1254.54	9286.76	1253.68	9376.99	1252.8
9501.88	1252.4	9557.44	1253.86	9568.41	1253.64	9608.98	1253.36	9631.85	1252.99
9683.23	1251.9	9719.47	1250.55	9732.1	1248.73	9744.74	1247.48	9778.46	1246.55
9814	1245.1	9844.5	1242.62	9952.09	1241.73	9997.91	1241.47	10060.49	1242.27
10072.37	1242.61	10086.14	1246.28	10172.6	1244.51	10186.14	1250.91	10210.39	1250.96
10222.61	1252.21	10240.53	1252.66	10269.53	1255.52	10297.52	1255.71	10345.02	1255.55
10414.46	1255.7	10507.8	1256.41	10543.63	1254.81	10625.84	1255.11	10669.22	1255.07
10717.05	1255.41	10828.77	1254.99	10929.62	1254.69	10939.84	1253.81	10970.08	1253.38
10999.45	1255.11	11091.42	1255.18	11104.05	1254.69	11111.71	1253.31	11126.93	1252.52
11153.59	1252.31	11222.48	1253.52	11237.43	1249.43	11285.65	125	11292.32	1250.29
11359.58	1250.41	11396.92	1250.61	11497.53	1250.61	11531.69	125	11572.18	1256.33
11589.75	125	11658.39	1254.34	11710.68	1254.31	11761.3	1254.81	11791.91	1254.29
11802.96	1256.71	11870.86	1256.42	11919.14	1256.47	11970.78	1256.81	12042.08	1256.74
12129.06	1256.91	12181.35	1256.79	12296.42	1257.28	12330.15	1257.2	12357.2	1256.99
12385.72	1257.91	12389.41	1257.82						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9213	.06	9719.47	.035	10210.39	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9719.47	10210.39	485	539.66	615	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1248.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.035	
W.S. Elev (ft)	1247.38	Reach Len. (ft)	485.00	539.66	615.00
Crit W.S. (ft)	1246.56	Flow Area (sq ft)		1626.68	
E.G. Slope (ft/ft)	0.006045	Area (sq ft)		1626.68	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	430.49	Top Width (ft)		430.49	
Vel Total (ft/s)	7.99	Avg. Vel. (ft/s)		7.99	
Max Chl Dpth (ft)	5.91	Hydr. Depth (ft)		3.78	
Conv. Total (cfs)	167202.9	Conv. (cfs)		167202.9	
Length Wtd. (ft)	538.73	Wetted Per. (ft)		431.79	
Min Ch El (ft)	1241.47	Shear (lb/sq ft)		1.42	
Alpha	1.00	Stream Power (lb/ft s)		11.36	
Frctn Loss (ft)	2.37	Cum Volume (acre-ft)	92.56	940.18	8.79
C & E Loss (ft)	0.13	Cum SA (acres)	40.20	172.66	6.48

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1250.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.34	Wt. n-Val.		0.035	
W.S. Elev (ft)	1249.29	Reach Len. (ft)	485.00	539.66	615.00
Crit W.S. (ft)	1248.09	Flow Area (sq ft)		2471.78	
E.G. Slope (ft/ft)	0.005050	Area (sq ft)		2471.78	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	454.49	Top Width (ft)		454.49	
Vel Total (ft/s)	9.31	Avg. Vel. (ft/s)		9.31	
Max Chl Dpth (ft)	7.82	Hydr. Depth (ft)		5.44	
Conv. Total (cfs)	323665.9	Conv. (cfs)		323665.9	
Length Wtd. (ft)	538.53	Wetted Per. (ft)		456.32	
Min Ch El (ft)	1241.47	Shear (lb/sq ft)		1.71	
Alpha	1.00	Stream Power (lb/ft s)		15.89	
Frctn Loss (ft)	1.84	Cum Volume (acre-ft)	302.49	1434.20	94.12
C & E Loss (ft)	0.21	Cum SA (acres)	102.18	181.44	44.28

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1252.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.51	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1251.11	Reach Len. (ft)	485.00	539.66	615.00
Crit W.S. (ft)	1249.34	Flow Area (sq ft)	4.19	3318.34	213.45
E.G. Slope (ft/ft)	0.004280	Area (sq ft)	4.19	3318.34	213.45
Q Total (cfs)	33000.00	Flow (cfs)	2.90	32847.36	149.74
Top Width (ft)	808.61	Top Width (ft)	15.00	490.92	302.69
Vel Total (ft/s)	9.33	Avg. Vel. (ft/s)	0.69	9.90	0.70
Max Chl Dpth (ft)	9.64	Hydr. Depth (ft)	0.28	6.76	0.71
Conv. Total (cfs)	504415.3	Conv. (cfs)	44.3	502082.2	2288.8
Length Wtd. (ft)	535.81	Wetted Per. (ft)	15.01	493.21	302.95
Min Ch El (ft)	1241.47	Shear (lb/sq ft)	0.07	1.80	0.19
Alpha	1.12	Stream Power (lb/ft s)	0.05	17.80	0.13
Frctn Loss (ft)	1.43	Cum Volume (acre-ft)	489.96	1763.95	180.34
C & E Loss (ft)	0.30	Cum SA (acres)	146.86	188.12	77.90

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9719.47	9883.11	2180.57	365.64	135.04	16.77	2.71	5.96
9883.11	10046.75	8752.51	909.00	163.65	67.33	5.55	9.63
10046.75	RB 10210.39	2066.92	352.04	133.11	15.90	2.67	5.87

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9719.47	9883.11	4817.36	644.67	155.12	20.95	4.16	7.47
9883.11	10046.75	13463.78	1220.26	163.65	58.54	7.46	11.03

10046.75	RB 10210.39	4718.86	606.85	137.56	20.52	4.46	7.78

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9213.00	9719.47	2.90	4.19	15.01	0.01	0.28	0.69
LB 9719.47	9883.11	8007.16	937.36	163.98	24.26	5.73	8.54
9883.11	10046.75	17915.75	1518.50	163.65	54.29	9.28	11.80
10046.75	RB 10210.39	6924.45	862.48	165.58	20.98	5.27	8.03
10210.39	12389.41	149.74	213.45	302.95	0.45	0.71	0.70

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.949

INPUT
Description:
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9320	1252	9340.38	1252.72	9354.07	1252.27	9379.51	1251.06	9388.34	1251.34
9426.34	1250	9443.29	1249.5	9458.1	1244.15	9542.24	1243.17	9563.9	1243.06
9584.85	1244.3	9650.51	1247.72	9673.75	1248.7	9705.69	1247.84	9738.43	1247.26
9753.82	1245.3	9765.51	1246.42	9772.96	1245.82	9787.33	1241.28	9805.15	1242.45
9836.25	1242	9878.93	1244.24	9893.21	1245.13	9915.65	1239.71	9974.92	1239
10050.62	1239.11	10079.84	1239.17	10105.39	1238.91	10120.23	1241.77	10136.92	1241.04
10188.32	1239.51	10231.21	1242.65	10256.85	1243.21	10323.37	1244.39	10325.2	1244.81
10341.45	1244.71	10362.64	1242	10383.08	1241.81	10403.18	1247.16	10412.63	1248.88
10428	1248.81	10442.64	1247.94	10479.36	1247.93	10497.97	1248.75	10553.94	1248.81
10629.27	1247.91	10677.54	1249.14	10711.85	1250.23	10759.77	1249.78	10859.51	1249.64
10896.76	1249.51	10958.52	1249.65	11017.72	1249.59	11090.31	1249.86	11248.77	1249.84
11341.52	1250	11373.85	1249.91	11462.35	1250.17	11480.12	1250.16	11487.38	1249.37
11500.6	1252.31	11507.16	1252.55	11515.49	1251.71	11611.62	1251.91	11753.21	1251.73
11833.41	1252	11947.81	1252.12	11997.03	1252.13	12004.41	1252.91	12006.99	1251.76
12010.55	1253.41	12024.24	1252.41	12041.68	1252.87	12070.93	1253.11	12110.93	1252.12
12115.68	1252.11	12129.85	1254.23	12148.74	1251.78	12170.55	1251.95		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9320	.06	9893.21	.035	10325.2	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9893.21	10325.2	565	452.25	380	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9320	9673.75	1248.7

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1245.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.56	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1245.31	Reach Len. (ft)	565.00	452.25	380.00
Crit W.S. (ft)	1243.62	Flow Area (sq ft)	286.01	1977.45	143.50
E.G. Slope (ft/ft)	0.002775	Area (sq ft)	518.90	1977.45	143.50
Q Total (cfs)	13000.00	Flow (cfs)	667.91	12169.89	162.20
Top Width (ft)	771.42	Top Width (ft)	268.38	431.99	71.05
Vel Total (ft/s)	5.40	Avg. Vel. (ft/s)	2.34	6.15	1.13
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)	2.40	4.58	2.02
Conv. Total (cfs)	246800.5	Conv. (cfs)	12680.1	231041.1	3079.3
Length Wtd. (ft)	454.31	Wetted Per. (ft)	119.67	433.13	71.68
Min Ch El (ft)	1238.90	Shear (lb/sq ft)	0.41	0.79	0.35
Alpha	1.23	Stream Power (lb/ft s)	0.97	4.87	0.39
Frctn Loss (ft)	1.80	Cum Volume (acre-ft)	89.67	917.86	7.78
C & E Loss (ft)	0.12	Cum SA (acres)	38.71	167.32	5.98

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1248.58	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.64	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1247.94	Reach Len. (ft)	565.00	452.25	380.00
Crit W.S. (ft)	1245.08	Flow Area (sq ft)	676.71	3109.37	343.20
E.G. Slope (ft/ft)	0.001801	Area (sq ft)	1376.73	3109.37	343.20
Q Total (cfs)	23000.00	Flow (cfs)	1646.65	20847.52	505.84
Top Width (ft)	936.23	Top Width (ft)	399.04	431.99	105.20
Vel Total (ft/s)	5.57	Avg. Vel. (ft/s)	2.43	6.70	1.47
Max Chl Dpth (ft)	9.04	Hydr. Depth (ft)	3.54	7.20	3.26
Conv. Total (cfs)	541967.3	Conv. (cfs)	38801.2	491246.6	11919.5
Length Wtd. (ft)	454.99	Wetted Per. (ft)	192.09	433.13	106.15
Min Ch El (ft)	1238.90	Shear (lb/sq ft)	0.40	0.81	0.36
Alpha	1.33	Stream Power (lb/ft s)	0.96	5.41	0.54
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	294.82	1399.63	91.70
C & E Loss (ft)	0.24	Cum SA (acres)	99.96	175.94	43.54

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1250.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1250.38	Reach Len. (ft)	565.00	452.25	380.00
Crit W.S. (ft)	1246.15	Flow Area (sq ft)	2469.11	4166.30	1531.23
E.G. Slope (ft/ft)	0.001074	Area (sq ft)	2469.11	4166.30	1531.23
Q Total (cfs)	33000.00	Flow (cfs)	5972.32	26215.77	811.91
Top Width (ft)	2076.43	Top Width (ft)	477.70	431.99	1166.74
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)	2.42	6.29	0.53
Max Chl Dpth (ft)	11.48	Hydr. Depth (ft)	5.17	9.64	1.31
Conv. Total (cfs)	1007042.5	Conv. (cfs)	182254.0	800011.9	24776.5
Length Wtd. (ft)	460.94	Wetted Per. (ft)	479.85	433.13	1168.01
Min Ch El (ft)	1238.90	Shear (lb/sq ft)	0.34	0.64	0.09
Alpha	1.99	Stream Power (lb/ft s)	0.83	4.06	0.05
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	476.19	1717.59	168.02
C & E Loss (ft)	0.37	Cum SA (acres)	144.12	182.41	67.52

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9320.00	9893.21	667.91	286.01	119.67	5.14	2.40	2.34
LB 9893.21	10037.21	5434.47	808.97	144.65	41.80	5.62	6.72
10037.21	10181.20	5147.58	782.33	144.31	39.60	5.43	6.58
10181.20	RB 10325.20	1587.84	386.15	144.18	12.21	2.68	4.11
10325.20	10940.32	162.20	143.50	71.68	1.25	2.02	1.13

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9320.00	9893.21	1646.65	676.71	192.09	7.16	3.54	2.43
LB 9893.21	10037.21	8526.14	1186.27	144.65	37.07	8.24	7.19
10037.21	10181.20	8222.27	1159.64	144.31	35.75	8.05	7.09
10181.20	RB 10325.20	4099.11	763.46	144.18	17.82	5.30	5.37
10325.20	10940.32	505.84	343.20	106.15	2.20	3.26	1.47

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9320.00	9893.21	5972.32	2469.11	479.85	18.10	5.17	2.42
LB 9893.21	10037.21	10242.74	1538.59	144.65	31.04	10.68	6.66
10037.21	10181.20	9964.41	1511.95	144.31	30.20	10.50	6.59
10181.20	RB 10325.20	6008.61	1115.77	144.18	18.21	7.75	5.39
10325.20	10940.32	742.00	1242.99	616.23	2.25	2.02	0.60
10940.32	11555.43	69.91	288.24	551.78	0.21	0.52	0.24

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.864

INPUT
Description:
Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9368.57	1247.72	9388.69	1248.19	9417.91	1249.7	9445.9	1242.2	9513.08	1241.63
9602.35	1241.74	9617.01	1239.18	9623.31	1239.1	9660.06	1239.73	9692.74	1241.11
9749.87	1241.15	9791.41	1241.34	9832.97	1241.2	9856.6	1240.57	9887.29	1240.43
9896.12	1235.84	9921.44	1235.57	9925.06	1236.3	9951.56	1237.05	9960.02	1236.65
10035.33	1237.05	10064.5	1236.9	10092.91	1236.3	10106.9		124	10118.56
10130.48	1237.5	110155.04	1248.09	10162.06	1250.4	10181.62	1250.81	10186.5	1250.63
10208.62	1251.79	10218.7	1253.3	10241.04		124	310267.89	1247.08	10306.91
10315.52	1246.91	10361.53	1246.2	10381.98	1246.2	10411.29	1246.89	10492.53	1247.53
10507.94	1247.45	10526.95	1247.4	10540.69	1248.3	10646.53	1248.03	10746.82	1248.14
10807.84	1247.87	10845.75	1247.8	10951.51	1248.1	10972.51	1248.24	11053.19	1248.38
11108.97	1248.17	11132.09	1248.26	11266.94	1248.3	11275.43	1247.8	11292.83	1251.01
11308.4	1250.3	11399.39	1250.17	11448.86	1250.2	11553.79	1250.59	11642.08	1250.35
11679.66	1250.36	11783.75	1250.76	11791.44	1250.9	11795.97	1251.52	11809.3	1249.79
11825.54	1251.19	11859.76	1251.7	11891.49	1251	11905.1	1249.92	11917.77	1250.65
11923.48	1247.54	11941.26	1247.15						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9368.57	.085	9887.29	.035	10118.56	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9887.29	10118.56	605	615.28	665	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9368.57	9887.29	1250

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1243.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.73	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1242.22	Reach Len. (ft)	605.00	615.28	665.00
Crit W.S. (ft)	1241.59	Flow Area (sq ft)		1211.35	64.37
E.G. Slope (ft/ft)	0.006943	Area (sq ft)	501.84	1211.35	64.37
Q Total (cfs)	13000.00	Flow (cfs)		12860.85	139.15
Top Width (ft)	695.59	Top Width (ft)	441.46	231.27	22.85
Vel Total (ft/s)	10.19	Avg. Vel. (ft/s)		10.62	2.16
Max Chl Dpth (ft)	6.65	Hydr. Depth (ft)		5.24	2.82
Conv. Total (cfs)	156014.3	Conv. (cfs)		154344.4	1670.0
Length Wtd. (ft)	614.58	Wetted Per. (ft)		232.98	24.18
Min Ch El (ft)	1235.57	Shear (lb/sq ft)		2.25	1.15
Alpha	1.07	Stream Power (lb/ft s)		23.93	2.49
Frctn Loss (ft)	4.05	Cum Volume (acre-ft)	83.05	901.30	6.87
C & E Loss (ft)	0.19	Cum SA (acres)	34.10	163.88	5.57

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1246.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.07	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1243.91	Reach Len. (ft)	605.00	615.28	665.00
Crit W.S. (ft)	1243.69	Flow Area (sq ft)		1602.07	109.91
E.G. Slope (ft/ft)	0.008503	Area (sq ft)	1252.99	1602.07	109.91
Q Total (cfs)	23000.00	Flow (cfs)		22678.65	321.35
Top Width (ft)	713.77	Top Width (ft)	447.77	231.27	34.73
Vel Total (ft/s)	13.43	Avg. Vel. (ft/s)		14.16	2.92
Max Chl Dpth (ft)	8.34	Hydr. Depth (ft)		6.93	3.16
Conv. Total (cfs)	249433.3	Conv. (cfs)		245948.2	3485.0
Length Wtd. (ft)	614.47	Wetted Per. (ft)		232.98	36.68
Min Ch El (ft)	1235.57	Shear (lb/sq ft)		3.65	1.59

Alpha	1.10	Stream Power (lb/ft s)		51.67	4.65
Frctn Loss (ft)	4.52	Cum Volume (acre-ft)	277.77	1375.17	89.72
C & E Loss (ft)	0.48	Cum SA (acres)	94.47	172.50	42.93

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1249.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.18	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1245.46	Reach Len. (ft)	605.00	615.28	665.00
Crit W.S. (ft)	1245.46	Flow Area (sq ft)		1961.08	177.16
E.G. Slope (ft/ft)	0.008860	Area (sq ft)	1952.59	1961.08	177.16
Q Total (cfs)	33000.00	Flow (cfs)		32428.23	571.77
Top Width (ft)	736.75	Top Width (ft)	453.56	231.27	51.92
Vel Total (ft/s)	15.43	Avg. Vel. (ft/s)		16.54	3.23
Max Chl Dpth (ft)	9.89	Hydr. Depth (ft)		8.48	3.41
Conv. Total (cfs)	350584.7	Conv. (cfs)		344510.4	6074.3
Length Wtd. (ft)		Wetted Per. (ft)		232.98	54.64
Min Ch El (ft)	1235.57	Shear (lb/sq ft)		4.66	1.79
Alpha	1.13	Stream Power (lb/ft s)		76.99	5.79
Frctn Loss (ft)		Cum Volume (acre-ft)	447.52	1685.78	160.57
C & E Loss (ft)		Cum SA (acres)	138.08	178.96	62.21

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9887.29	9964.38	4908.57	440.37	78.31	37.76	5.71	11.15
9964.38	10041.47	4438.13	411.95	77.09	34.14	5.34	10.77
10041.47	RB 10118.56	3514.15	359.03	77.59	27.03	4.66	9.79
10118.56	11941.26	139.15	64.37	24.18	1.07	2.82	2.16

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9887.29	9964.38	8378.75	570.61	78.31	36.43	7.40	14.68
9964.38	10041.47	7775.56	542.19	77.09	33.81	7.03	14.34
10041.47	RB 10118.56	6524.34	489.27	77.59	28.37	6.35	13.33
10118.56	11941.26	321.35	109.91	36.68	1.40	3.16	2.92

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9887.29	9964.38	11755.56	690.28	78.31	35.62	8.95	17.03
9964.38	10041.47	11074.98	661.86	77.09	33.56	8.59	16.73
10041.47	RB 10118.56	9597.69	608.94	77.59	29.08	7.90	15.76
10118.56	11941.26	571.77	177.16	54.64	1.73	3.41	3.23

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.759

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9380	1246	9411.85	1247.47	9448.72	1237.12	9505.51	1235.12	9552.05	1234.93
9596.1	1235	9635.78	1234.63	9656.13	1234.75	9677.71	1235.2	9698.81	1244.58
9710.55	1242.9	9727.37	1242.88	9748.99	1236.32	9771.52	1244.09	9791.44	1244.46
9807.81	1244.4	9819.26	1240.79	9823.36	1242.57	9829.85	1239.21	9839.37	1242.12
9849.88	1238.8	9858.37	1241.08	9869.84	1234.17	9928.41	1234.21	9943.92	1234.19
9960.27	1234.7	9990.31	1235.17	9997.43	1232.02	10042.04	1232.25	10059.13	1234.27
10095.05	1234.2	10100.53	1233.97	10130.39	1246.55	10142.3	1246.85	10225.77	1247.06
10304.48	1246.3	10383.19	1245.66	10475.98	1245.66	10562.8	1245.39	10575.61	1245.41
10625.75	1244.8	10657.35	1243.57	10662.34	1243.55	10768.32	1243.91	10868.46	1244.38
10915.38	1244.6	10938.13	1247.81	11050.27	1248.02	11085.38	1248.14	11275.36	1248.07
11369.5	1248	11404.6	1248.45	11412.55	1249.21	11417.07	1249.52	11430.62	1247.86
11447.94	1248.6	11479.92	1248.74	11515.93	1247.94	11526.98	1247.12	11541.06	1247.48
11546.12	1245	11556.7	1244.56	11576.66	1244.78	11597.61	1244.54	11620.05	1246.56

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9380	.085	9791.44	.035	10130.39	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9791.44	10130.39	485	501.24	470	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1239.71	Element			
Vel Head (ft)	1.10	Wt. n-Val.	0.085	0.035	
W.S. Elev (ft)	1238.61	Reach Len. (ft)	485.00	501.24	470.00
Crit W.S. (ft)	1237.86	Flow Area (sq ft)	811.11	1145.83	
E.G. Slope (ft/ft)	0.006251	Area (sq ft)	811.11	1145.83	
Q Total (cfs)	13000.00	Flow (cfs)	2445.02	10554.98	
Top Width (ft)	505.24	Top Width (ft)	256.17	249.08	
Vel Total (ft/s)	6.64	Avg. Vel. (ft/s)	3.01	9.21	
Max Chl Dpth (ft)	6.59	Hydr. Depth (ft)	3.17	4.60	
Conv. Total (cfs)	164420.8	Conv. (cfs)	30924.0	133496.8	
Length Wtd. (ft)	499.71	Wetted Per. (ft)	257.86	252.05	
Min Ch El (ft)	1232.02	Shear (lb/sq ft)	1.23	1.77	
Alpha	1.60	Stream Power (lb/ft s)	3.70	16.34	
Frctn Loss (ft)	2.69	Cum Volume (acre-ft)	73.94	884.65	6.38
C & E Loss (ft)	0.04	Cum SA (acres)	29.26	160.49	5.39

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1241.98	Element			
Vel Head (ft)	1.47	Wt. n-Val.	0.085	0.035	
W.S. Elev (ft)	1240.51	Reach Len. (ft)	485.00	501.24	470.00
Crit W.S. (ft)	1239.53	Flow Area (sq ft)	1317.87	1639.24	
E.G. Slope (ft/ft)	0.006213	Area (sq ft)	1317.87	1639.24	
Q Total (cfs)	23000.00	Flow (cfs)	5184.37	17815.63	
Top Width (ft)	554.11	Top Width (ft)	278.91	275.20	
Vel Total (ft/s)	7.78	Avg. Vel. (ft/s)	3.93	10.87	
Max Chl Dpth (ft)	8.48	Hydr. Depth (ft)	4.73	5.96	
Conv. Total (cfs)	291788.4	Conv. (cfs)	65771.2	226017.2	
Length Wtd. (ft)	499.17	Wetted Per. (ft)	281.87	280.08	
Min Ch El (ft)	1232.02	Shear (lb/sq ft)	1.81	2.27	
Alpha	1.57	Stream Power (lb/ft s)	7.13	24.67	
Frctn Loss (ft)	2.46	Cum Volume (acre-ft)	259.92	1352.28	88.88
C & E Loss (ft)	0.07	Cum SA (acres)	89.43	168.92	42.66

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1243.80	Element			
Vel Head (ft)	1.77	Wt. n-Val.	0.085	0.035	
W.S. Elev (ft)	1242.03	Reach Len. (ft)	485.00	501.24	470.00
Crit W.S. (ft)	1240.87	Flow Area (sq ft)	1757.94	2080.23	
E.G. Slope (ft/ft)	0.006251	Area (sq ft)	1757.94	2080.23	
Q Total (cfs)	33000.00	Flow (cfs)	8062.94	24937.06	
Top Width (ft)	598.76	Top Width (ft)	297.25	301.51	
Vel Total (ft/s)	8.60	Avg. Vel. (ft/s)	4.59	11.99	
Max Chl Dpth (ft)	10.01	Hydr. Depth (ft)	5.91	6.90	
Conv. Total (cfs)	417390.9	Conv. (cfs)	101981.8	315409.1	
Length Wtd. (ft)	498.91	Wetted Per. (ft)	301.22	308.22	
Min Ch El (ft)	1232.02	Shear (lb/sq ft)	2.28	2.63	
Alpha	1.54	Stream Power (lb/ft s)	10.45	31.57	
Frctn Loss (ft)	2.88	Cum Volume (acre-ft)	421.75	1657.24	159.22
C & E Loss (ft)	0.02	Cum SA (acres)	132.87	175.20	61.81

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9380.00	9791.44	2445.02	811.11	257.86	18.81	3.17	3.01
LB 9791.44	9904.42	1412.68	169.54	43.19	10.87	4.04	8.33
9904.42	10017.41	4783.90	519.05	113.66	36.80	4.59	9.22
10017.41	RB 10130.39	4358.40	457.24	95.20	33.53	4.86	9.53

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9380.00	9791.44	5184.37	1317.87	281.87	22.54	4.73	3.93
LB 9791.44	9904.42	2213.09	266.37	66.34	9.62	4.19	8.31
9904.42	10017.41	8353.83	733.06	113.66	36.32	6.49	11.40
10017.41	RB 10130.39	7248.71	639.82	100.08	31.52	6.49	11.33

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9380.00	9791.44	8062.94	1757.94	301.22	24.43	5.91	4.59
LB 9791.44	9904.42	3228.62	381.32	90.54	9.78	4.42	8.47
9904.42	10017.41	11729.88	905.65	113.66	35.55	8.02	12.95
10017.41	RB 10130.39	9978.55	793.26	104.01	30.24	7.76	12.58

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.664

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9320	1242.1	9340.74	1243.88	9371.82	1245.57	9388.89	1242.97	9409.19	1239.19
9488.2	1236.8	9510.42	1243.4	9516.13	1241.47	9531.47	1237.15	9573.54	1235.87
9662.56	1236.2	9717.06	1232.61	9730.43	1232.3	9787.16	1231.61	9815.35	1231.67
9824.67	1232	9884.86	1230.4	9920.74	1230.85	9952.19	1231.01	9964.99	1228.99
10014	1228.8	10052.37	1244.86	10098.66	1245.52	10205.55	1245.38	10278.51	1244.63
10364.72	1244.7	10404.73	1245	10464.97	1243.98	10536.07	1244.36	10559.65	1244.47
10585.61	1245.8	10594.36	1245.26	10650.67	1245.23	10723.36	1246.12	10751.6	1246.24
10826.22	1246.1	10911.07	1246.81	10942.04	1246.85	11022.66	1246.27	11133.1	1246.4
11161.18	1246.6	11173.53	1246.99	11183.38	1245.08	11206.23	1246.27	11270.25	1246.02
11284.98	1244.6	11298.78	1246.44	11315.55	1246.56	11344.37	1246.01		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9320	.06	9662.56	.03	10052.37	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9662.56	10052.37	535	513.83	515	.1	.3

CROSS SECTION OUTPUT *Profile #1/3 flow*

			Left OB	Channel	Right OB
E.G. Elev (ft)	1236.97	Element			
Vel Head (ft)	0.95	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1236.02	Reach Len. (ft)	535.00	513.83	515.00
Crit W.S. (ft)	1234.77	Flow Area (sq ft)	3.29	1660.42	
E.G. Slope (ft/ft)	0.004555	Area (sq ft)	3.29	1660.42	
Q Total (cfs)	13000.00	Flow (cfs)	0.97	12999.03	
Top Width (ft)	410.54	Top Width (ft)	44.63	365.91	
Vel Total (ft/s)	7.81	Avg. Vel. (ft/s)	0.29	7.83	
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)	0.07	4.54	
Conv. Total (cfs)	192611.3	Conv. (cfs)	14.3	192596.9	
Length Wtd. (ft)	513.86	Wetted Per. (ft)	44.63	367.67	
Min Ch El (ft)	1228.80	Shear (lb/sq ft)	0.02	1.28	
Alpha	1.00	Stream Power (lb/ft s)	0.01	10.05	
Frctn Loss (ft)	1.53	Cum Volume (acre-ft)	69.40	868.51	6.38
C & E Loss (ft)	0.18	Cum SA (acres)	27.58	156.95	5.39

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

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1239.44	Element			
Vel Head (ft)	1.23	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1238.22	Reach Len. (ft)	535.00	513.83	515.00
Crit W.S. (ft)	1236.59	Flow Area (sq ft)	304.72	2477.03	
E.G. Slope (ft/ft)	0.003650	Area (sq ft)	304.72	2477.03	
Q Total (cfs)	23000.00	Flow (cfs)	677.18	22322.82	
Top Width (ft)	560.45	Top Width (ft)	186.51	373.94	
Vel Total (ft/s)	8.27	Avg. Vel. (ft/s)	2.22	9.01	
Max Chl Dpth (ft)	9.42	Hydr. Depth (ft)	1.63	6.62	
Conv. Total (cfs)	380675.4	Conv. (cfs)	11208.0	369467.4	
Length Wtd. (ft)	514.48	Wetted Per. (ft)	186.90	376.15	
Min Ch El (ft)	1228.80	Shear (lb/sq ft)	0.37	1.50	
Alpha	1.16	Stream Power (lb/ft s)	0.83	13.52	
Frctn Loss (ft)	1.22	Cum Volume (acre-ft)	250.88	1328.60	88.88
C & E Loss (ft)	0.23	Cum SA (acres)	86.83	165.19	42.66

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1240.90	Element			
Vel Head (ft)	1.99	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1238.91	Reach Len. (ft)	535.00	513.83	515.00
Crit W.S. (ft)	1238.00	Flow Area (sq ft)	444.04	2737.57	
E.G. Slope (ft/ft)	0.005276	Area (sq ft)	444.04	2737.57	
Q Total (cfs)	33000.00	Flow (cfs)	1396.45	31603.55	
Top Width (ft)	589.90	Top Width (ft)	214.30	375.60	
Vel Total (ft/s)	10.37	Avg. Vel. (ft/s)	3.14	11.54	
Max Chl Dpth (ft)	10.11	Hydr. Depth (ft)	2.07	7.29	
Conv. Total (cfs)	454318.8	Conv. (cfs)	19225.3	435093.5	
Length Wtd. (ft)	514.66	Wetted Per. (ft)	214.90	377.95	
Min Ch El (ft)	1228.80	Shear (lb/sq ft)	0.68	2.39	
Alpha	1.19	Stream Power (lb/ft s)	2.14	27.54	
Frctn Loss (ft)	1.86	Cum Volume (acre-ft)	409.49	1629.52	159.22
C & E Loss (ft)	0.34	Cum SA (acres)	130.02	171.30	61.81

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9320.00	9662.56	0.97	3.29	44.63	0.01	0.07	0.29
LB 9662.56	9792.50	2275.40	389.72	127.29	17.50	3.06	5.84
9792.50	9922.43	5010.90	631.08	129.97	38.55	4.86	7.94
9922.43	RB 10052.37	5712.74	639.62	110.42	43.94	5.88	8.93

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9320.00	9662.56	677.18	304.72	186.90	2.94	1.63	2.22
LB 9662.56	9792.50	5122.67	675.32	130.06	22.27	5.20	7.59
9792.50	9922.43	8532.85	916.94	129.97	37.10	7.06	9.31
9922.43	RB 10052.37	8667.30	884.78	116.12	37.68	7.76	9.80

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9320.00	9662.56	1396.45	444.04	214.90	4.23	2.07	3.14
LB 9662.56	9792.50	7616.60	765.65	130.06	23.08	5.89	9.95
9792.50	9922.43	12036.46	1007.27	129.97	36.47	7.75	11.95
9922.43	RB 10052.37	11950.49	964.66	117.92	36.21	8.34	12.39

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.566

INPUT
Description:
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9217	1240	9243.61	1241.94	9263.08	1243.12	9307.74	1235.34	9328.39	1235.06
9341.54	1235.4	9355.88	1233.44	9368.38	1240.89	9379.99	1241.33	9408.25	1233.84
9428.19	1233.6	9441.21	1236	9455.53	1235.92	9467.11	1235.04	9495.42	1234.83
9509.06	1234.3	9523.18	1234.96	9543.01	1234.44	9556.13	1232.21	9565.05	1231.97
9590.35	1229.3	9612.35	1229.37	9673.74	1228.55	9727.08	1229.76	9769.86	1228.48
9787.53	1228.6	9842.83	1229.71	9858.42	1229.49	9883.62	1230	9913	1229.58
9932.09	1229	9962.18	1229.69	9987.62	1228.59	10023.35	1228.32	10037.42	1234.13
10058.35	1243.31	10068.09	1243.56	10096.08	1243.57	10156.89	1243.75	10195.96	1243.26
10215.88	1242.71	10254.08	1242.04	10265.37	1243.29	10281.07	1242.98	10286.74	1242.85
10380.23	1242.9	10480.6	1243.85	10567.95	1244.38	10701.36	1244.25	10785.01	1244.43
10879.83	1244.51	10910.88	1244.41	10926.94	1245.21	10935.49	1243.14	10944.13	1243.04
10964.63	1243.91	11006.16	1243.45	11021.48	1243.45	11034.46	1242.43	11055.81	1244.55
11100.69	1244.11	11144.02	1243.81	11171.29	1241.95	11174.93	1241.91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9217	.06	9523.18	.035	10058.35	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9523.18	10058.35	565	468.92	545	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1235.26	Element			
Vel Head (ft)	0.36	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1234.90	Reach Len. (ft)	565.00	468.92	545.00
Crit W.S. (ft)	1232.16	Flow Area (sq ft)	48.44	2693.79	
E.G. Slope (ft/ft)	0.001416	Area (sq ft)	48.44	2693.79	
Q Total (cfs)	13000.00	Flow (cfs)	37.70	12962.30	
Top Width (ft)	593.39	Top Width (ft)	79.75	513.64	
Vel Total (ft/s)	4.74	Avg. Vel. (ft/s)	0.78	4.81	
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	0.61	5.24	
Conv. Total (cfs)	345435.6	Conv. (cfs)	1001.7	344434.0	
Length Wtd. (ft)	469.06	Wetted Per. (ft)	80.53	515.40	
Min Ch El (ft)	1228.32	Shear (lb/sq ft)	0.05	0.46	
Alpha	1.03	Stream Power (lb/ft s)	0.04	2.22	
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	69.08	842.83	6.38
C & E Loss (ft)	0.07	Cum SA (acres)	26.82	151.76	5.39

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1237.99	Element			
Vel Head (ft)	0.45	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1237.54	Reach Len. (ft)	565.00	468.92	545.00
Crit W.S. (ft)	1233.51	Flow Area (sq ft)	491.25	4065.43	
E.G. Slope (ft/ft)	0.001084	Area (sq ft)	491.25	4065.43	
Q Total (cfs)	23000.00	Flow (cfs)	735.09	22264.91	
Top Width (ft)	718.58	Top Width (ft)	196.55	522.03	
Vel Total (ft/s)	5.05	Avg. Vel. (ft/s)	1.50	5.48	
Max Chl Dpth (ft)	9.22	Hydr. Depth (ft)	2.50	7.79	
Conv. Total (cfs)	698457.9	Conv. (cfs)	22323.0	676134.9	
Length Wtd. (ft)	470.46	Wetted Per. (ft)	198.77	524.33	
Min Ch El (ft)	1228.32	Shear (lb/sq ft)	0.17	0.52	
Alpha	1.14	Stream Power (lb/ft s)	0.25	2.87	
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	245.99	1290.01	88.88
C & E Loss (ft)	0.11	Cum SA (acres)	84.48	159.91	42.66

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1238.70	Element			
Vel Head (ft)	0.85	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1237.85	Reach Len. (ft)	565.00	468.92	545.00
Crit W.S. (ft)	1234.71	Flow Area (sq ft)	552.53	4226.89	
E.G. Slope (ft/ft)	0.001948	Area (sq ft)	552.53	4226.89	
Q Total (cfs)	33000.00	Flow (cfs)	1184.62	31815.38	
Top Width (ft)	722.74	Top Width (ft)	200.01	522.73	
Vel Total (ft/s)	6.90	Avg. Vel. (ft/s)	2.14	7.53	
Max Chl Dpth (ft)	9.53	Hydr. Depth (ft)	2.76	8.09	
Conv. Total (cfs)	747611.2	Conv. (cfs)	26837.5	720773.8	
Length Wtd. (ft)	489.86	Wetted Per. (ft)	202.39	525.10	
Min Ch El (ft)	1228.32	Shear (lb/sq ft)	0.33	0.98	
Alpha	1.15	Stream Power (lb/ft s)	0.71	7.37	
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)	403.37	1588.44	159.22
C & E Loss (ft)	0.11	Cum SA (acres)	127.48	166.01	61.81

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9217.00	9523.18	37.70	48.44	80.53	0.29	0.61	0.78
LB 9523.18	9701.57	3577.71	812.39	176.39	27.52	4.61	4.40
9701.57	9879.96	5103.61	1010.02	178.43	39.26	5.66	5.05
9879.96	RB 10058.35	4280.99	871.38	160.57	32.93	5.47	4.91

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9217.00	9523.18	735.09	491.25	198.77	3.20	2.50	1.50
LB 9523.18	9701.57	6668.03	1283.79	178.74	28.99	7.20	5.19
9701.57	9879.96	8475.63	1481.50	178.43	36.85	8.30	5.72
9879.96	RB 10058.35	7121.25	1300.14	167.16	30.96	7.87	5.48

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9217.00	9523.18	1184.62	552.53	202.39	3.59	2.76	2.14
LB 9523.18	9701.57	9588.49	1338.93	178.74	29.06	7.51	7.16
9701.57	9879.96	12076.36	1536.63	178.43	36.60	8.61	7.86
9879.96	RB 10058.35	10150.53	1351.33	167.93	30.76	8.14	7.51

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.481

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9213	1240	9259.07	1231.3	9289.22	1230.96	9294.24	1230.07	9312.12	1228.64
9351.41	1228.4	9380.55	1229.22	9396.73	1234.43	9405.88	1229.72	9441.1	1230.75
9450.35	1233.7	9459.92	1229.09	9484.46	1229.38	9512.58	1228.69	9527.94	1232.91
9533.33	1233.9	9537.96	1233.72	9551.67	1228.96	9565.36	1229.99	9626.91	1230.13
9699.79	1231.1	9769.56	1231.84	9826.52	1232.16	9842.07	1236.77	9849.46	1234.57
9874.37	1225.7	9910.11	1224.81	9942.3	1227.89	9982.82	1226.04	10006.7	1225.45
10013.65	1226.5	10060.55	1227.8	110103.46	1228.6	610123.39	1234.1	10146.77	1233.97
10175.5	1234	10194.78	1237.2	310210.27	1240.1	910240.77	1240.7	810257.84	1240.7
10321.22	1241.5	10371.31	1242	10427.88	1242.0	410499.82	1242.1	110600.96	1242.36
10713.02	1241.8	10765.73	1241.98	10778.9	1241.2	810811.84	1241.64		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9213	.06	9842.07	.035	10210.27	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9842.07	10210.27	510	523.22	555	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9213	9842.07	1236.77

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1234.26	Element			

Vel Head (ft)	1.01	Wt. n-Val.		0.035	
W.S. Elev (ft)	1233.25	Reach Len. (ft)	510.00	523.22	555.00
Crit W.S. (ft)	1231.27	Flow Area (sq ft)		1612.11	
E.G. Slope (ft/ft)	0.003320	Area (sq ft)	1563.10	1612.11	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	830.75	Top Width (ft)	563.64	267.11	
Vel Total (ft/s)	8.06	Avg. Vel. (ft/s)		8.06	
Max Chl Dpth (ft)	8.44	Hydr. Depth (ft)		6.04	
Conv. Total (cfs)	225620.8	Conv. (cfs)		225620.8	
Length Wtd. (ft)	521.11	Wetted Per. (ft)		269.34	
Min Ch El (ft)	1224.81	Shear (lb/sq ft)		1.24	
Alpha	1.00	Stream Power (lb/ft s)		10.00	
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)	58.63	819.65	6.38
C & E Loss (ft)	0.21	Cum SA (acres)	22.65	147.56	5.39

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1237.08	Element			
Vel Head (ft)	1.51	Wt. n-Val.		0.035	
W.S. Elev (ft)	1235.57	Reach Len. (ft)	510.00	523.22	555.00
Crit W.S. (ft)	1233.35	Flow Area (sq ft)		2334.79	
E.G. Slope (ft/ft)	0.004151	Area (sq ft)	2928.08	2334.79	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	940.37	Top Width (ft)	601.58	338.79	
Vel Total (ft/s)	9.85	Avg. Vel. (ft/s)		9.85	
Max Chl Dpth (ft)	10.76	Hydr. Depth (ft)		6.89	
Conv. Total (cfs)	356967.9	Conv. (cfs)		356967.9	
Length Wtd. (ft)	520.40	Wetted Per. (ft)		341.64	
Min Ch El (ft)	1224.81	Shear (lb/sq ft)		1.77	
Alpha	1.00	Stream Power (lb/ft s)		17.45	
Frctn Loss (ft)	1.34	Cum Volume (acre-ft)	223.82	1255.56	88.88
C & E Loss (ft)	0.35	Cum SA (acres)	79.31	155.27	42.66

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1237.74	Element			
Vel Head (ft)	0.50	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1237.24	Reach Len. (ft)	510.00	523.22	555.00
Crit W.S. (ft)	1235.33	Flow Area (sq ft)	3941.61	2911.58	
E.G. Slope (ft/ft)	0.001556	Area (sq ft)	3941.61	2911.58	
Q Total (cfs)	33000.00	Flow (cfs)	13203.03	19796.97	
Top Width (ft)	967.19	Top Width (ft)	614.44	352.75	
Vel Total (ft/s)	4.82	Avg. Vel. (ft/s)	3.35	6.80	
Max Chl Dpth (ft)	12.43	Hydr. Depth (ft)	6.41	8.25	
Conv. Total (cfs)	836554.3	Conv. (cfs)	334698.6	501855.8	
Length Wtd. (ft)	517.52	Wetted Per. (ft)	620.83	355.91	
Min Ch El (ft)	1224.81	Shear (lb/sq ft)	0.62	0.79	
Alpha	1.39	Stream Power (lb/ft s)	2.07	5.40	
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	374.22	1550.02	159.22
C & E Loss (ft)	0.02	Cum SA (acres)	122.19	161.29	61.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9842.07	9964.80	5960.76	720.13	113.12	45.85	6.45	8.28
9964.80	10087.54	6414.06	777.77	122.86	49.34	6.34	8.25
10087.54	RB 10210.27	625.18	114.21	33.36	4.81	3.49	5.47

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9842.07	9964.80	10171.16	987.12	120.57	44.22	8.32	10.30
9964.80	10087.54	11357.99	1062.67	122.86	49.38	8.66	10.69
10087.54	RB 10210.27	1470.85	285.01	98.21	6.40	2.93	5.16

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9213.00	9842.07	13203.03	3941.61	620.83	40.01	6.41	3.35
LB 9842.07	9964.80	8441.84	1189.10	124.77	25.58	9.69	7.10
9964.80	10087.54	9481.19	1267.07	122.86	28.73	10.32	7.48
10087.54	RB 10210.27	1873.95	455.41	108.28	5.68	4.24	4.11

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.386

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9104	1238	9123.73	1238	9191.6	1226.67	9220.12	1225.61	9256.82	1225.95
9280.43	1231	9287.19	1228.94	9308.14	1229.46	9394.57	1229.76	9401.11	1229.82
9481.84	1228.9	9515.86	1229.01	9536.77	1230.04	9593.6	1230.05	9609.85	1229.96
9689.93	1230.2	9711.91	1230.22	9789.39	1230.37	9849.51	1229.5	9863.67	1233.46
9882.21	1226.3	9891.31	1223.19	9931.36	1226.78	9967.31	1223.57	9973.51	1223.55
10044.54	1223.1	10065.65	1229.38	10089.95	1228.89	10109.7	1230.94	10133.31	1238.4
10237.54	1238.1	10272.91	1238.23	10303.28	1242.54	10313.95	1241.68	10332.85	1238.11
10363.13	1238	10432.47	1239.24	10467.83	1239.15	10532.44	1239.39	10609.1	1239.58
10629.07	1234.8	10669.31	1238.14	10700.17	1238.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9104	.06	9863.67	.035	10133.31	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9863.67	10133.31	445	436.6	415	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10133.31	10700.17	1238.4

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10620	10700.17	1235.06

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1232.86	Element			
Vel Head (ft)	0.31	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1232.55	Reach Len. (ft)	445.00	436.60	415.00
Crit W.S. (ft)	1229.82	Flow Area (sq ft)	2214.42	1672.68	
E.G. Slope (ft/ft)	0.001246	Area (sq ft)	2214.42	1672.68	
Q Total (cfs)	13000.00	Flow (cfs)	4148.12	8851.88	
Top Width (ft)	952.79	Top Width (ft)	704.03	248.76	
Vel Total (ft/s)	3.34	Avg. Vel. (ft/s)	1.87	5.29	
Max Chl Dpth (ft)	9.45	Hydr. Depth (ft)	3.15	6.72	
Conv. Total (cfs)	368326.2	Conv. (cfs)	117527.7	250798.5	
Length Wtd. (ft)	438.07	Wetted Per. (ft)	705.84	252.02	
Min Ch El (ft)	1223.10	Shear (lb/sq ft)	0.24	0.52	
Alpha	1.81	Stream Power (lb/ft s)	0.46	2.73	
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	36.52	799.92	6.38
C & E Loss (ft)	0.08	Cum SA (acres)	15.23	144.46	5.39

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1235.39	Element			
Vel Head (ft)	0.33	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1235.06	Reach Len. (ft)	445.00	436.60	415.00

Crit W.S. (ft)	1231.76	Flow Area (sq ft)	4004.71	2311.04	
E.G. Slope (ft/ft)	0.000998	Area (sq ft)	4004.71	2311.04	
Q Total (cfs)	23000.00	Flow (cfs)	9796.07	13203.93	
Top Width (ft)	981.35	Top Width (ft)	722.30	259.05	
Vel Total (ft/s)	3.64	Avg. Vel. (ft/s)	2.45	5.71	
Max Chl Dpth (ft)	11.96	Hydr. Depth (ft)	5.54	8.92	
Conv. Total (cfs)	728006.1	Conv. (cfs)	310069.5	417936.6	
Length Wtd. (ft)	439.23	Wetted Per. (ft)	724.45	262.87	
Min Ch El (ft)	1223.10	Shear (lb/sq ft)	0.34	0.55	
Alpha	1.61	Stream Power (lb/ft s)	0.84	3.13	
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	183.23	1227.66	88.88
C & E Loss (ft)	0.07	Cum SA (acres)	71.56	151.68	42.66

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1237.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1236.61	Reach Len. (ft)	445.00	436.60	415.00
Crit W.S. (ft)	1232.68	Flow Area (sq ft)	5137.58	2718.58	
E.G. Slope (ft/ft)	0.001075	Area (sq ft)	5137.58	2718.58	26.14
Q Total (cfs)	33000.00	Flow (cfs)	15267.27	17732.72	
Top Width (ft)	1025.05	Top Width (ft)	731.63	263.99	29.43
Vel Total (ft/s)	4.20	Avg. Vel. (ft/s)	2.97	6.52	
Max Chl Dpth (ft)	13.51	Hydr. Depth (ft)	7.02	10.30	
Conv. Total (cfs)	1006388.8	Conv. (cfs)	465600.4	540788.3	
Length Wtd. (ft)	439.74	Wetted Per. (ft)	733.91	268.04	
Min Ch El (ft)	1223.10	Shear (lb/sq ft)	0.47	0.68	
Alpha	1.53	Stream Power (lb/ft s)	1.40	4.44	
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	321.07	1516.21	159.05
C & E Loss (ft)	0.07	Cum SA (acres)	114.31	157.59	61.63

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9104.00	9293.92	1611.59	672.01	138.88	12.40	4.89	2.40
9293.92	9483.83	1032.68	583.15	189.93	7.94	3.07	1.77
9483.83	9673.75	856.11	521.11	189.94	6.59	2.74	1.64
9673.75	9863.67	647.74	438.15	187.08	4.98	2.35	1.48
LB 9863.67	9953.55	2819.99	574.47	89.45	21.69	6.56	4.91
9953.55	10043.43	5037.97	815.49	89.94	38.75	9.07	6.18
10043.43	RB 10133.31	993.92	282.72	72.63	7.65	3.96	3.52

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9104.00	9293.92	2861.36	1035.59	154.11	12.44	6.79	2.76
9293.92	9483.83	2584.61	1059.22	189.93	11.24	5.58	2.44
9483.83	9673.75	2337.14	997.18	189.94	10.16	5.25	2.34
9673.75	9863.67	2012.96	912.73	190.47	8.75	4.81	2.21
LB 9863.67	9953.55	4356.98	798.70	91.98	18.94	8.89	5.46
9953.55	10043.43	6875.80	1040.79	89.94	29.89	11.58	6.61
10043.43	RB 10133.31	1971.15	471.55	80.96	8.57	5.95	4.18

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9104.00	9293.92	4087.29	1280.58	163.57	12.39	7.91	3.19
9293.92	9483.83	4065.93	1355.17	189.93	12.32	7.14	3.00

9483.83	9673.75	3760.26	1293.14	189.94	11.39	6.81	2.91
9673.75	9863.67	3353.80	1208.69	190.47	10.16	6.36	2.77
LB 9863.67	9953.55	5946.70	938.77	91.98	18.02	10.44	6.33
9953.55	10043.43	8648.05	1180.85	89.94	26.81	13.14	7.49
10043.43	RB 10133.31	2937.96	598.96	86.13	8.90	7.11	4.91

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.301

INPUT
Description: The area in the left overbank is blocked out because this is the
treatment plant ponds.
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9070.93	1235.11	9091.44	1234.97	9137.56	1233.7	9187.01	1232.26	9300.96	1231.8
9306.67	1231.82	9320.68	1233.33	9329.32	1231.94	9347.02	1232.14	9379.69	1232.2
9454.18	1231.22	9483.89	1230.68	9510.19	1223.69	9828.8	1223.69	9857.44	1231
9872.47	1231.34	9883.56	1232.87	9921.65	1221.78	9928.94	1222.87	9951.1	1221.9
9961.37	1222.05	10013.49	1221.27	10037.02	1223.83	10064.26	1223.68	10099.96	1232.5
10107.77	1234.82	10200.7	1235.33	10255.01	1235.47	10334	1235.91	10389.16	1236.4
10402.35	1236.27	10462.61	1236.72	10521.61	1237.09	10537.78	1233.53	10566.27	1236
10579.08	1236.33	10611.66	1236.51	10643.13	1236.17	10658.31	1235.99	10672.93	1238
10709.94	1237.72	10812.37	1238.31	10841.78	1238.31	10853.55	1238.02		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9070.93	.06	9883.56	.035	10107.77	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9883.56	10107.77	300	289.9	275	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10521.61	10853.55	1237.09

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9070.93	9883.56	1230	10300	10853.55	1233.7

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1232.01	Element			
Vel Head (ft)	1.11	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1230.90	Reach Len. (ft)	300.00	289.90	275.00
Crit W.S. (ft)	1228.40	Flow Area (sq ft)	333.88	1463.45	
E.G. Slope (ft/ft)	0.002998	Area (sq ft)	333.88	1463.45	
Q Total (cfs)	13000.00	Flow (cfs)	411.46	12588.54	
Top Width (ft)	588.28	Top Width (ft)	385.13	203.14	
Vel Total (ft/s)	7.23	Avg. Vel. (ft/s)	1.23	8.60	
Max Chl Dpth (ft)	9.63	Hydr. Depth (ft)	0.87	7.20	
Conv. Total (cfs)	237439.3	Conv. (cfs)	7515.1	229924.2	
Length Wtd. (ft)	290.06	Wetted Per. (ft)	385.34	205.57	
Min Ch El (ft)	1221.27	Shear (lb/sq ft)	0.16	1.33	
Alpha	1.37	Stream Power (lb/ft s)	0.20	11.46	
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)	23.50	784.21	6.38
C & E Loss (ft)	0.01	Cum SA (acres)	9.66	142.20	5.39

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1234.71	Element			
Vel Head (ft)	1.01	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1233.70	Reach Len. (ft)	300.00	289.90	275.00
Crit W.S. (ft)	1231.88	Flow Area (sq ft)	2005.40	2060.21	
E.G. Slope (ft/ft)	0.002291	Area (sq ft)	2005.40	2060.21	
Q Total (cfs)	23000.00	Flow (cfs)	4594.07	18405.93	
Top Width (ft)	966.41	Top Width (ft)	745.97	220.44	
Vel Total (ft/s)	5.66	Avg. Vel. (ft/s)	2.29	8.93	
Max Chl Dpth (ft)	12.43	Hydr. Depth (ft)	2.69	9.35	
Conv. Total (cfs)	480484.7	Conv. (cfs)	95973.1	384511.6	
Length Wtd. (ft)	291.54	Wetted Per. (ft)	746.52	223.52	
Min Ch El (ft)	1221.27	Shear (lb/sq ft)	0.38	1.32	
Alpha	2.03	Stream Power (lb/ft s)	0.88	11.78	
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	152.54	1205.76	88.88
C & E Loss (ft)	0.03	Cum SA (acres)	64.06	149.28	42.66

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1236.31	Element			

Vel Head (ft)	1.12	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1235.19	Reach Len. (ft)	300.00	289.90	275.00
Crit W.S. (ft)	1233.33	Flow Area (sq ft)	3160.48	2392.47	12.51
E.G. Slope (ft/ft)	0.002347	Area (sq ft)	3160.48	2392.47	34.45
Q Total (cfs)	33000.00	Flow (cfs)	9373.11	23624.22	2.66
Top Width (ft)	1131.07	Top Width (ft)	812.63	224.21	94.23
Vel Total (ft/s)	5.93	Avg. Vel. (ft/s)	2.97	9.87	0.21
Max Chl Dpth (ft)	13.92	Hydr. Depth (ft)	3.89	10.67	0.19
Conv. Total (cfs)	681140.6	Conv. (cfs)	193466.9	487618.7	54.9
Length Wtd. (ft)	292.58	Wetted Per. (ft)	813.28	227.45	67.53
Min Ch El (ft)	1221.27	Shear (lb/sq ft)	0.57	1.54	0.03
Alpha	2.06	Stream Power (lb/ft s)	1.69	15.22	0.01
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	278.69	1490.59	158.76
C & E Loss (ft)	0.01	Cum SA (acres)	106.43	155.14	61.04

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9274.09	9477.24	0.05	0.26	5.34	0.00	0.05	0.18
9477.24	9680.40	216.28	176.61	203.25	1.66	0.87	1.22
9680.40	9883.56	195.13	157.01	176.75	1.50	0.89	1.24
LB 9883.56	9958.30	3657.12	458.28	69.37	28.13	6.74	7.98
9958.30	10033.03	6646.15	676.12	74.86	51.12	9.05	9.83
10033.03	RB 10107.77	2285.27	329.05	61.34	17.58	5.44	6.95

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9070.93	9274.09	229.81	176.19	136.52	1.00	1.29	1.30
9274.09	9477.24	620.06	374.84	203.36	2.70	1.85	1.65
9477.24	9680.40	1952.10	745.74	203.25	8.49	3.67	2.62
9680.40	9883.56	1792.09	708.64	203.39	7.79	3.49	2.53
LB 9883.56	9958.30	5522.47	660.96	76.42	24.01	8.84	8.36
9958.30	10033.03	9115.75	885.49	74.86	39.63	11.85	10.29
10033.03	RB 10107.77	3767.72	513.76	72.24	16.38	7.24	7.33

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9070.93	9274.09	778.55	422.35	203.28	2.36	2.08	1.84
9274.09	9477.24	1712.26	677.81	203.36	5.19	3.34	2.53
9477.24	9680.40	3545.22	1048.71	203.25	10.74	5.16	3.38
9680.40	9883.56	3337.08	1011.61	203.39	10.11	4.98	3.30
LB 9883.56	9958.30	7264.92	772.42	76.42	22.01	10.34	9.41
9958.30	10033.03	11269.65	996.95	74.86	34.15	13.34	11.30
10033.03	RB 10107.77	5089.66	623.10	76.17	15.42	8.34	8.17
10107.77	10853.55	2.66	12.51	67.53	0.01	0.19	0.21

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.243

INPUT
Description: The area in the left overbank is blocked out because this is the
treatment plant ponds.
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9054.46	1233.38	9149.54	1231.28	9247.85	1231.14	9286.87	1231.21	9356.7	1231.1
9443.04	1231.67	9460.96	1231.72	9487.11	1231.08	9529.07	1218.35	9677.97	1218.4
9816.78	1218.42	9861.96	1231.14	9873.99	1231.21	9882.8	1232.84	9887.62	1233.7
9917.39	1224.76	9925.15	1222.23	9966.73	1221.1	9985.42	1219.1	10011.89	1219.2
10043.76	1223.2	10075.46	1222.8	10109.22	1234.3	10121.84	1233.46	10165.28	1233.1
10276.72	1233.5	10371.05	1234.48	10492.94	1235.87	10502.21	1234.1	10509.53	1232.6
10539.77	1234.99	10547.78	1234.83	10581.98	1235.56	10612.73	1234.98	10625.25	1233.9
10643.35	1236.74	10667.7	1236.46	10713.47	1236.29	10734.03	1236.03	10744.01	1235.5
10761.9	1233.91	10780.34	1234.31	10822.13	1235.02	10909.68	1234.82	10940.42	1234.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9054.46	.06	9887.62	.035	10109.22	.11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9887.6210109.22 295 314.34 335 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev
10492.9410940.42 1235.87
Blocked Obstructions num= 1
Sta L Sta R Elev
9054.46 9887.62 1230

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1231.14	Element			
Vel Head (ft)	1.20	Wt. n-Val.		0.035	
W.S. Elev (ft)	1229.93	Reach Len. (ft)	295.00	314.34	335.00
Crit W.S. (ft)	1227.29	Flow Area (sq ft)		1476.90	
E.G. Slope (ft/ft)	0.002967	Area (sq ft)		1476.90	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	196.17	Top Width (ft)		196.17	
Vel Total (ft/s)	8.80	Avg. Vel. (ft/s)		8.80	
Max Chl Dpth (ft)	10.80	Hydr. Depth (ft)		7.53	
Conv. Total (cfs)	238668.9	Conv. (cfs)		238668.9	
Length Wtd. (ft)	314.34	Wetted Per. (ft)		198.87	
Min Ch El (ft)	1219.13	Shear (lb/sq ft)		1.38	
Alpha	1.00	Stream Power (lb/ft s)		12.11	
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	22.35	774.42	6.38
C & E Loss (ft)	0.12	Cum SA (acres)	8.34	140.87	5.39

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1233.94	Element			
Vel Head (ft)	1.35	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1232.58	Reach Len. (ft)	295.00	314.34	335.00
Crit W.S. (ft)	1230.94	Flow Area (sq ft)	1463.53	2018.51	
E.G. Slope (ft/ft)	0.002803	Area (sq ft)	1463.53	2018.51	
Q Total (cfs)	23000.00	Flow (cfs)	2891.45	20108.55	
Top Width (ft)	1003.62	Top Width (ft)	790.81	212.81	
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)	1.98	9.96	
Max Chl Dpth (ft)	13.45	Hydr. Depth (ft)	1.85	9.49	
Conv. Total (cfs)	434416.1	Conv. (cfs)	54612.7	379803.4	
Length Wtd. (ft)	312.78	Wetted Per. (ft)	791.28	216.34	
Min Ch El (ft)	1219.13	Shear (lb/sq ft)	0.32	1.63	
Alpha	2.00	Stream Power (lb/ft s)	0.64	16.27	
Frctn Loss (ft)	0.82	Cum Volume (acre-ft)	140.59	1192.18	88.88
C & E Loss (ft)	0.02	Cum SA (acres)	58.76	147.84	42.66

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1235.60	Element			
Vel Head (ft)	1.24	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1234.36	Reach Len. (ft)	295.00	314.34	335.00
Crit W.S. (ft)	1233.12	Flow Area (sq ft)	2925.41	2405.66	205.18
E.G. Slope (ft/ft)	0.002467	Area (sq ft)	2925.41	2405.66	239.94
Q Total (cfs)	33000.00	Flow (cfs)	8302.38	24576.95	120.67
Top Width (ft)	1370.18	Top Width (ft)	833.16	221.60	315.42
Vel Total (ft/s)	5.96	Avg. Vel. (ft/s)	2.84	10.22	0.59
Max Chl Dpth (ft)	15.23	Hydr. Depth (ft)	3.51	10.86	0.82
Conv. Total (cfs)	664416.9	Conv. (cfs)	167158.8	494828.5	2429.6
Length Wtd. (ft)	310.97	Wetted Per. (ft)	834.71	225.58	250.01
Min Ch El (ft)	1219.13	Shear (lb/sq ft)	0.54	1.64	0.13
Alpha	2.24	Stream Power (lb/ft s)	1.53	16.78	0.07
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	257.73	1474.63	157.90
C & E Loss (ft)	0.03	Cum SA (acres)	100.76	153.66	59.74

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9887.62	9961.49	2981.21	392.38	62.50	22.93	6.40	7.60
9961.49	10035.35	7511.70	731.52	74.16	57.78	9.90	10.27
10035.35	RB 10109.22	2507.09	353.00	62.22	19.29	5.79	7.10

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9054.46	9262.75	260.01	194.53	172.17	1.13	1.13	1.34

9262.75	9471.04	377.18	262.42	208.30	1.64	1.26	1.44
9471.04	9679.33	1160.98	515.35	208.46	5.05	2.47	2.25
9679.33	9887.62	1093.29	491.24	202.36	4.75	2.43	2.23
LB 9887.62	9961.49	4888.24	566.48	71.71	21.25	8.08	8.63
9961.49	10035.35	10865.39	927.16	74.16	47.24	12.55	11.72
10035.35	RB 10109.22	4354.92	524.86	70.47	18.93	7.63	8.30

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9054.46	9262.75	1261.21	550.05	209.29	3.82	2.64	2.29
9262.75	9471.04	1596.30	632.37	208.30	4.84	3.04	2.52
9471.04	9679.33	2795.25	885.30	208.46	8.47	4.25	3.16
9679.33	9887.62	2649.63	857.69	208.67	8.03	4.12	3.09
LB 9887.62	9961.49	6247.33	695.59	75.59	18.93	9.42	8.98
9961.49	10035.35	12736.43	1058.36	74.16	38.60	14.33	12.03
10035.35	RB 10109.22	5593.19	651.70	75.82	16.95	8.82	8.58
10109.22	10386.29	120.67	205.18	250.01	0.37	0.82	0.59

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.188

INPUT
Description: The area in the left overbank is blocked out because this is the
treatment plant pond.

Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9041	1232	9115.33	1231.15	9134.84	1231.27	9320.71	1231.29	9420.86	1231.02
9479.22	1231.5	9498.73	1232.21	9504.38	1233.89	9517.47	1235.75	9529.42	1235.25
9541.87	1233.1	9560.31	1235.22	9577.03	1235.15	9590.29	1232.45	9626.37	1231.59
9648.41	1224.9	9667.19	1218.92	9727.11	1218.53	9750.16	1218.51	9800.35	1218.78
9838.94	1231.4	9859.24	1231.31	9865.77	1232.77	9904.11	1221.37	9925.94	1221.68
9953.13	1221.6	9973.81	1219.14	10020.06	1219.24	10046.79	1221.04	10061.75	1221.96
10083.91	1221.7	10118.07	1230.75	10124.74	1232.93	10137.65	1231.84	10222.24	1231.65
10287.91	1231.9	10322.53	1232.21	10381.16	1233.08	10422.81	1233.47	10444.15	1233.8
10457.76	1230.8	10494.01	1233.51	10530.59	1233.88	10560.22	1233	10572.71	1231.82
10588.37	1234.9	10672.97	1233.35	10681.83	1234.21	10688.27	1232.85	10698.88	1232.72
10716.12	1232.1	10726.76	1232.45	10748.02	1231.71	10770.25	1233.46	10813.49	1234

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9041	.06	9865.77	.035	10124.74	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865.77	10124.74	305	309.44	300	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10444.15	10813.49	1233.8

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9041	9865.77	1230	10450	10813.49	1231.8

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1230.25	Element			
Vel Head (ft)	0.81	Wt. n-Val.		0.035	
W.S. Elev (ft)	1229.44	Reach Len. (ft)	305.00	309.44	300.00
Crit W.S. (ft)	1226.02	Flow Area (sq ft)		1805.39	
E.G. Slope (ft/ft)	0.001936	Area (sq ft)		1805.39	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	236.17	Top Width (ft)		236.17	
Vel Total (ft/s)	7.20	Avg. Vel. (ft/s)		7.20	
Max Chl Dpth (ft)	10.30	Hydr. Depth (ft)		7.64	
Conv. Total (cfs)	295424.1	Conv. (cfs)		295424.1	
Length Wtd. (ft)	309.44	Wetted Per. (ft)		238.59	
Min Ch El (ft)	1219.14	Shear (lb/sq ft)		0.91	
Alpha	1.00	Stream Power (lb/ft s)		6.59	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	22.35	762.58	6.38
C & E Loss (ft)	0.08	Cum SA (acres)	8.34	139.31	5.39

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1233.10	Element			
Vel Head (ft)	1.30	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1231.80	Reach Len. (ft)	305.00	309.44	300.00
Crit W.S. (ft)	1228.37	Flow Area (sq ft)	609.15	2381.60	7.84
E.G. Slope (ft/ft)	0.002451	Area (sq ft)	609.15	2381.60	7.84
Q Total (cfs)	23000.00	Flow (cfs)	818.50	22180.58	0.93

Top Width (ft)	1030.26	Top Width (ft)	672.66	252.24	105.36
Vel Total (ft/s)	7.67	Avg. Vel. (ft/s)	1.34	9.31	0.12
Max Chl Dpth (ft)	12.66	Hydr. Depth (ft)	0.91	9.44	0.07
Conv. Total (cfs)	464564.2	Conv. (cfs)	16532.4	448013.1	18.7
Length Wtd. (ft)	309.22	Wetted Per. (ft)	673.18	255.34	105.36
Min Ch El (ft)	1219.14	Shear (lb/sq ft)	0.14	1.43	0.01
Alpha	1.42	Stream Power (lb/ft s)	0.19	13.29	0.00
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	133.57	1176.31	88.85
C & E Loss (ft)	0.15	Cum SA (acres)	53.81	146.16	42.26

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1234.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.58	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1233.17	Reach Len. (ft)	305.00	309.44	300.00
Crit W.S. (ft)	1230.90	Flow Area (sq ft)	1598.86	2731.96	291.35
E.G. Slope (ft/ft)	0.002791	Area (sq ft)	1598.86	2731.96	410.31
Q Total (cfs)	33000.00	Flow (cfs)	3561.62	29217.23	221.15
Top Width (ft)	1412.42	Top Width (ft)	740.88	258.97	412.57
Vel Total (ft/s)	7.14	Avg. Vel. (ft/s)	2.23	10.69	0.76
Max Chl Dpth (ft)	14.03	Hydr. Depth (ft)	2.16	10.55	1.10
Conv. Total (cfs)	624630.8	Conv. (cfs)	67415.1	553029.7	4186.0
Length Wtd. (ft)	308.80	Wetted Per. (ft)	742.92	262.39	265.60
Min Ch El (ft)	1219.14	Shear (lb/sq ft)	0.38	1.81	0.19
Alpha	2.00	Stream Power (lb/ft s)	0.84	19.40	0.15
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	242.41	1456.09	155.40
C & E Loss (ft)	0.18	Cum SA (acres)	95.43	151.93	56.94

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9865.77	9952.09	3042.33	486.34	76.30	23.40	6.47	6.26
9952.09	10038.42	7036.71	845.77	86.51	54.13	9.80	8.32
10038.42	RB 10124.74	2920.96	473.28	75.77	22.47	6.33	6.17

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9041.00	9247.19	66.45	88.63	188.60	0.29	0.47	0.75
9247.19	9453.38	108.34	123.15	206.19	0.47	0.60	0.88
9453.38	9659.58	78.48	68.18	76.26	0.34	0.90	1.15
9659.58	9865.77	565.23	329.19	202.13	2.46	1.63	1.72
LB 9865.77	9952.09	5496.14	672.81	84.58	23.90	8.10	8.17
9952.09	10038.42	11354.66	1049.28	86.51	49.37	12.16	10.82
10038.42	RB 10124.74	5329.77	659.51	84.26	23.17	7.96	8.08
10124.74	10354.32	0.93	7.84	105.36	0.00	0.07	0.12

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9041.00	9247.19	702.31	368.64	207.36	2.13	1.79	1.91
9247.19	9453.38	824.40	404.93	206.19	2.50	1.96	2.04
9453.38	9659.58	410.02	216.44	122.79	1.24	1.77	1.89
9659.58	9865.77	1624.90	608.86	206.58	4.92	2.95	2.67
LB 9865.77	9952.09	7465.40	789.19	87.98	22.62	9.14	9.46
9952.09	10038.42	14495.87	1167.25	86.51	43.93	13.52	12.42
10038.42	RB 10124.74	7255.95	775.52	87.90	21.99	8.98	9.36
10124.74	10354.32	219.14	283.26	229.63	0.66	1.23	0.77
10354.32	10583.91	2.01	8.09	35.97	0.01	0.22	0.25

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.129

INPUT
Description: The area in the left overbank is blocked out because
this is the
treatment plant pond.

Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9022.25	1231.31	9041.69	1230.94	9093.69	1230.21	9205.62	1230.27	9282.22	1229.9
9387.83	1229.84	9469.37	1230.22	9551.22	1230.51	9578.78	1230.74	9596.83	1231.1
9621.45	1226.87	9636.84	1226.11	9641.03	1225.42	9695.55	1225.18	9740.49	1224.4
9765.65	1225.4	9782.42	1228.16	9796.24	1231.57	9826.13	1231.15	9828.29	1231.3
9861.4	1220.98	9891.1	1220.68	9928.19	1221.52	9946.92	1219.44	10018.8	1219.4
10039.39	1219.39	10068.63	1221.52	10094.84	1221.69	10120.15	1231.76	10152.71	1230.7
10185.08	1230.03	10286.28	1230.46	10345.31	1231.22	10387.47	1231.87	10408.12	1232.3
10421.68	1229.78	10458.63	1232.18	10491.38	1232.67	10524.76	1231.71	10538.53	1230.9
10554.59	1233.94								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9022.25	.06	9828.29	.03	10120.15	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9828.29	10120.15	565	516.79	495	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10408.12	10554.59	1232.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9596.83	9826.13	1230

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1229.68	Element			
Vel Head (ft)	0.52	Wt. n-Val.		0.035	
W.S. Elev (ft)	1229.16	Reach Len. (ft)	565.00	516.79	495.00
Crit W.S. (ft)	1224.89	Flow Area (sq ft)		2239.23	
E.G. Slope (ft/ft)	0.001177	Area (sq ft)		2239.23	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	278.44	Top Width (ft)		278.44	
Vel Total (ft/s)	5.81	Avg. Vel. (ft/s)		5.81	
Max Chl Dpth (ft)	9.77	Hydr. Depth (ft)		8.04	
Conv. Total (cfs)	378986.9	Conv. (cfs)		378986.9	
Length Wtd. (ft)	516.91	Wetted Per. (ft)		281.32	
Min Ch El (ft)	1219.39	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		3.39	
Frctn Loss (ft)	0.94	Cum Volume (acre-ft)	22.35	748.21	6.38
C & E Loss (ft)	0.08	Cum SA (acres)	8.34	137.48	5.39

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1232.35	Element			
Vel Head (ft)	0.81	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1231.54	Reach Len. (ft)	565.00	516.79	495.00
Crit W.S. (ft)	1226.95	Flow Area (sq ft)	1053.07	2919.36	224.90
E.G. Slope (ft/ft)	0.001441	Area (sq ft)	1053.07	2919.36	261.71
Q Total (cfs)	23000.00	Flow (cfs)	1205.17	21684.20	110.63
Top Width (ft)	1385.38	Top Width (ft)	803.89	291.31	290.18
Vel Total (ft/s)	5.48	Avg. Vel. (ft/s)	1.14	7.43	0.49
Max Chl Dpth (ft)	12.15	Hydr. Depth (ft)	1.31	10.02	0.94
Conv. Total (cfs)	605993.4	Conv. (cfs)	31753.4	571325.3	2914.8
Length Wtd. (ft)	522.84	Wetted Per. (ft)	804.43	294.97	239.32
Min Ch El (ft)	1219.39	Shear (lb/sq ft)	0.12	0.89	0.08
Alpha	1.73	Stream Power (lb/ft s)	0.13	6.61	0.04
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	127.75	1157.48	87.93
C & E Loss (ft)	0.01	Cum SA (acres)	48.64	144.23	40.89

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1233.88	Element			
Vel Head (ft)	0.97	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1232.91	Reach Len. (ft)	565.00	516.79	495.00
Crit W.S. (ft)	1228.68	Flow Area (sq ft)	2156.92	3319.00	773.30
E.G. Slope (ft/ft)	0.001601	Area (sq ft)	2156.92	3319.00	773.30
Q Total (cfs)	33000.00	Flow (cfs)	4112.61	28268.96	618.43
Top Width (ft)	1526.90	Top Width (ft)	806.04	291.86	429.00
Vel Total (ft/s)	5.28	Avg. Vel. (ft/s)	1.91	8.52	0.80
Max Chl Dpth (ft)	13.52	Hydr. Depth (ft)	2.68	11.37	1.80
Conv. Total (cfs)	824848.9	Conv. (cfs)	102796.3	706594.6	15457.9
Length Wtd. (ft)	526.31	Wetted Per. (ft)	807.95	295.57	429.58

Min Ch El (ft)	1219.39	Shear (lb/sq ft)	0.27	1.12	0.18
Alpha	2.25	Stream Power (lb/ft s)	0.51	9.56	0.14
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	229.26	1434.60	151.32
C & E Loss (ft)	0.04	Cum SA (acres)	90.01	149.97	54.05

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9828.29	9925.58	3310.13	633.36	91.67	25.46	7.01	5.23
9925.58	10022.86	5944.86	922.08	97.40	45.73	9.48	6.45
10022.86	RB 10120.15	3745.01	683.79	92.25	28.81	7.54	5.48

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9022.25	9223.76	233.72	227.87	201.75	1.02	1.13	1.03
9223.76	9425.27	421.94	324.65	201.51	1.83	1.61	1.30
9425.27	9626.78	251.78	238.21	201.61	1.09	1.18	1.06
9626.78	9828.29	297.74	262.34	199.56	1.29	1.32	1.13
LB 9828.29	9925.58	5775.71	857.97	98.87	25.11	8.82	6.73
9925.58	10022.86	9561.51	1154.07	97.40	41.57	11.86	8.29
10022.86	RB 10120.15	6346.97	907.32	98.70	27.60	9.38	7.00
10120.15	10264.96	84.21	156.13	138.12	0.37	1.13	0.54
10264.96	10409.78	26.42	68.77	101.20	0.11	0.68	0.38

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9022.25	9223.76	912.16	503.84	203.12	2.76	2.50	1.81
9223.76	9425.27	1229.00	600.62	201.51	3.72	2.98	2.05
9425.27	9626.78	948.28	514.18	201.61	2.87	2.55	1.84
9626.78	9828.29	1023.18	538.28	201.71	3.10	2.67	1.90
LB 9828.29	9925.58	7760.77	991.21	98.87	23.52	10.19	7.83
9925.58	10022.86	12117.77	1287.30	97.40	36.72	13.23	9.41
10022.86	RB 10120.15	8390.41	1040.49	99.29	25.43	10.70	8.06
10120.15	10264.96	332.06	353.72	144.84	1.01	2.44	0.94
10264.96	10409.78	187.90	251.36	144.86	0.57	1.74	0.75
10409.78	10554.59	98.47	168.22	139.89	0.30	1.21	0.59

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 11.030

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Union
Hills Dr. bridge.
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8960	1234	8980.68	1233.58	9011.25	1230.12	9085.72	1228.86	9109.21	1228.64
9184.36	1228.7	9234.32	1228.44	9309.21	1227.9	9393.14	1228.17	9417.45	1229.16
9441.08	1228.3	9478.71	1229.45	9491.57	1227.99	9680.85	1227.25	9708.72	1227.22
9781.31	1226.7	9809.22	1226.64	9838.37	1226.85	9885.45	1228.08	9909.05	1229.05
9929.79	1223.5	9943.87	1219.37	10037.48	1219.41	10088.04	1220.02	10134.6	1227.65
10139.94	1228.91	10166.44	1229.13	10249.08	1229.84	10323.92	1229.95	10333.76	1230.2
10347.89	1227.81	10375.57	1229.15	10449.73	1229.08	10479.19	1229.94	10547.18	1230.2
10575.45	1230.31	10628.86	1230.89						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8960	.06	9909.05	.035	10139.94	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9909.05	10139.94	200	167.81	140	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1228.67	Element			
Vel Head (ft)	1.30	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1227.37	Reach Len. (ft)	200.00	167.81	140.00
Crit W.S. (ft)	1225.47	Flow Area (sq ft)	77.51	1410.31	
E.G. Slope (ft/ft)	0.003902	Area (sq ft)	77.51	1410.31	
Q Total (cfs)	13000.00	Flow (cfs)	62.30	12937.70	
Top Width (ft)	424.53	Top Width (ft)	207.01	217.53	
Vel Total (ft/s)	8.74	Avg. Vel. (ft/s)	0.80	9.17	
Max Chl Dpth (ft)	8.00	Hydr. Depth (ft)	0.37	6.48	
Conv. Total (cfs)	208100.6	Conv. (cfs)	997.3	207103.4	
Length Wtd. (ft)	167.89	Wetted Per. (ft)	207.02	219.23	
Min Ch El (ft)	1219.37	Shear (lb/sq ft)	0.09	1.57	
Alpha	1.10	Stream Power (lb/ft s)	0.07	14.38	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	21.85	726.57	6.38
C & E Loss (ft)	0.17	Cum SA (acres)	6.99	134.54	5.39

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1231.47	Element			
Vel Head (ft)	0.86	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1230.60	Reach Len. (ft)	200.00	167.81	140.00
Crit W.S. (ft)	1229.11	Flow Area (sq ft)	2295.31	2147.69	468.00
E.G. Slope (ft/ft)	0.002009	Area (sq ft)	2295.31	2147.69	468.00
Q Total (cfs)	23000.00	Flow (cfs)	4747.77	17966.99	285.24
Top Width (ft)	1596.08	Top Width (ft)	902.08	230.89	463.10
Vel Total (ft/s)	4.68	Avg. Vel. (ft/s)	2.07	8.37	0.61
Max Chl Dpth (ft)	11.23	Hydr. Depth (ft)	2.54	9.30	1.01
Conv. Total (cfs)	513156.5	Conv. (cfs)	105928.2	400864.2	6364.1
Length Wtd. (ft)	172.53	Wetted Per. (ft)	902.30	232.98	463.36
Min Ch El (ft)	1219.37	Shear (lb/sq ft)	0.32	1.16	0.13
Alpha	2.53	Stream Power (lb/ft s)	0.66	9.67	0.08
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	106.04	1127.42	83.78
C & E Loss (ft)	0.01	Cum SA (acres)	37.58	141.13	36.61

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1232.94	Element			
Vel Head (ft)	0.84	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1232.11	Reach Len. (ft)	200.00	167.81	140.00
Crit W.S. (ft)	1230.56	Flow Area (sq ft)	3660.83	2494.65	1199.01
E.G. Slope (ft/ft)	0.001826	Area (sq ft)	3660.83	2494.65	1199.01
Q Total (cfs)	33000.00	Flow (cfs)	9758.69	21985.23	1256.08
Top Width (ft)	1635.17	Top Width (ft)	915.36	230.89	488.92
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)	2.67	8.81	1.05
Max Chl Dpth (ft)	12.74	Hydr. Depth (ft)	4.00	10.80	2.45
Conv. Total (cfs)	772281.7	Conv. (cfs)	228377.5	514508.9	29395.3
Length Wtd. (ft)	174.31	Wetted Per. (ft)	915.66	232.98	490.40
Min Ch El (ft)	1219.37	Shear (lb/sq ft)	0.46	1.22	0.28
Alpha	2.68	Stream Power (lb/ft s)	1.21	10.76	0.29
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	191.53	1400.11	140.12
C & E Loss (ft)	0.05	Cum SA (acres)	78.85	146.87	48.83

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9434.53	9671.79	0.14	0.83	20.66	0.00	0.04	0.17
9671.79	9909.05	62.16	76.68	186.35	0.48	0.41	0.81
LB 9909.05	9986.01	3953.45	448.15	71.77	30.41	6.34	8.82
9986.01	10062.98	6300.80	609.54	76.96	48.47	7.92	10.34
10062.98	RB 10139.94	2683.44	352.63	70.49	20.64	5.05	7.61

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8960.00	9197.26	430.72	298.05	190.34	1.87	1.57	1.45
9197.26	9434.53	1037.99	551.82	237.30	4.51	2.33	1.88
9434.53	9671.79	1323.10	638.39	237.37	5.75	2.69	2.07
9671.79	9909.05	1955.96	807.05	237.30	8.50	3.40	2.42
LB 9909.05	9986.01	5555.51	692.11	78.29	24.15	8.99	8.03
9986.01	10062.98	8051.00	858.80	76.96	35.00	11.16	9.37
10062.98	RB 10139.94	4360.47	596.79	77.73	18.96	7.75	7.31
10139.94	10302.91	101.07	173.72	162.98	0.44	1.07	0.58
10302.91	10465.89	163.80	232.24	163.22	0.71	1.43	0.71
10465.89	10628.86	20.38	62.03	137.17	0.09	0.45	0.33

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8960.00	9197.26	1261.32	593.98	203.70	3.82	2.92	2.12
9197.26	9434.53	2312.53	908.35	237.30	7.01	3.83	2.55

9434.53	9671.79	2690.88	994.92	237.37	8.15	4.19	2.70
9671.79	9909.05	3493.98	1163.58	237.30	10.59	4.90	3.00
LB 9909.05	9986.01	6875.27	807.76	78.29	20.83	10.50	8.51
9986.01	10062.98	9506.38	974.45	76.96	28.81	12.66	9.76
10062.98	RB 10139.94	5603.57	712.44	77.73	16.98	9.26	7.87
10139.94	10302.91	444.81	418.62	162.98	1.35	2.57	1.06
10302.91	10465.89	552.65	477.14	163.22	1.67	2.93	1.16
10465.89	10628.86	258.61	303.25	164.20	0.78	1.86	0.85

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.996

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Union Hills Dr. bridge.

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8929	1236.2	8960.26	1235.8	8986.64	1234.2	9020.24	1232.98	9058.54	1231.82
9146.85	1230.2	9203.88	1229.61	9235.52	1229.12	9311.85	1228.93	9380.46	1228.65
9409.74	1227.8	9556.72	1227.61	9592.3	1227.24	9662.76	1227.13	9786.01	1227.6
9831.36	1227.8	9850.57	1228.24	9873.61	1228.19	9901.51	1222.31	9916.21	1219.4
10057.67	1218.81	10088.04	1218.61	10105.1	1222.44	10127.6	1228.55	10176.84	1229.36
10254.12	1229	10258.07	1227.94	10272.53	1226.56	10293.62	1228.84	10310.22	1228.56
10392.84	1228	10435.68	1229.07	10471.63	1228.86	10501.42	1228.17	10521.96	1228.41
10532.52	1229.81	10548.27	1229.41	10566.57	1229.35				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8929	.06	9873.61	.035	10127.6	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9873.61	10127.6	128	129.13	127	.3	.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10254	10566.57	1226.99

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1227.94	Element			
Vel Head (ft)	0.95	Wt. n-Val.		0.035	
W.S. Elev (ft)	1226.99	Reach Len. (ft)	29.00	29.00	29.00
Crit W.S. (ft)	1224.37	Flow Area (sq ft)		1657.95	
E.G. Slope (ft/ft)	0.002655	Area (sq ft)		1657.95	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	242.54	Top Width (ft)		242.54	
Vel Total (ft/s)	7.84	Avg. Vel. (ft/s)		7.84	
Max Chl Dpth (ft)	8.38	Hydr. Depth (ft)		6.84	
Conv. Total (cfs)	252277.4	Conv. (cfs)		252277.4	
Length Wtd. (ft)	29.00	Wetted Per. (ft)		244.35	
Min Ch El (ft)	1218.61	Shear (lb/sq ft)		1.12	
Alpha	1.00	Stream Power (lb/ft s)		8.82	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	21.67	720.65	6.38
C & E Loss (ft)	0.09	Cum SA (acres)	6.52	133.65	5.39

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1231.14	Element			
Vel Head (ft)	0.85	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1230.29	Reach Len. (ft)	29.00	29.00	29.00
Crit W.S. (ft)	1226.67	Flow Area (sq ft)	1583.76	2489.36	706.06
E.G. Slope (ft/ft)	0.001687	Area (sq ft)	1583.76	2489.36	706.06
Q Total (cfs)	23000.00	Flow (cfs)	2695.07	19768.29	536.65
Top Width (ft)	1424.80	Top Width (ft)	731.84	253.99	438.97
Vel Total (ft/s)	4.81	Avg. Vel. (ft/s)	1.70	7.94	0.76
Max Chl Dpth (ft)	11.68	Hydr. Depth (ft)	2.16	9.80	1.61
Conv. Total (cfs)	560008.3	Conv. (cfs)	65620.0	481321.9	13066.4
Length Wtd. (ft)	29.00	Wetted Per. (ft)	731.87	256.13	440.33
Min Ch El (ft)	1218.61	Shear (lb/sq ft)	0.23	1.02	0.17
Alpha	2.36	Stream Power (lb/ft s)	0.39	8.13	0.13
Frctn Loss (ft)		Cum Volume (acre-ft)	97.13	1118.49	81.89
C & E Loss (ft)		Cum SA (acres)	33.82	140.20	35.16

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1232.57	Element			
Vel Head (ft)	1.01	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1231.55	Reach Len. (ft)	29.00	29.00	29.00
Crit W.S. (ft)	1229.74	Flow Area (sq ft)	2548.19	2809.08	1258.63
E.G. Slope (ft/ft)	0.001888	Area (sq ft)	2548.19	2809.08	1258.63
Q Total (cfs)	33000.00	Flow (cfs)	5933.91	25580.92	1485.17
Top Width (ft)	1493.42	Top Width (ft)	800.46	253.99	438.97
Vel Total (ft/s)	4.99	Avg. Vel. (ft/s)	2.33	9.11	1.18

Max Chl Dpth (ft)	12.94	Hydr. Depth (ft)	3.18	11.06	2.87
Conv. Total (cfs)	759440.4	Conv. (cfs)	136559.1	588702.6	34178.8
Length Wtd. (ft)	29.00	Wetted Per. (ft)	800.50	256.13	441.59
Min Ch El (ft)	1218.61	Shear (lb/sq ft)	0.38	1.29	0.34
Alpha	2.63	Stream Power (lb/ft s)	0.87	11.77	0.40
Frctn Loss (ft)		Cum Volume (acre-ft)	177.28	1389.90	136.17
C & E Loss (ft)		Cum SA (acres)	74.91	145.93	47.34

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.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9873.61	9958.27	3265.56	465.05	79.74	25.12	5.89	7.02
9958.27	10042.94	5806.07	672.78	84.66	44.66	7.95	8.63
10042.94	RB 10127.60	3928.37	520.12	79.95	30.22	6.59	7.55

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8929.00	9165.15	1.01	3.68	23.39	0.00	0.16	0.27
9165.15	9401.30	311.17	288.56	236.17	1.35	1.22	1.08
9401.30	9637.46	1179.66	641.93	236.16	5.13	2.72	1.84
9637.46	9873.61	1203.22	649.59	236.16	5.23	2.75	1.85
LB 9873.61	9958.27	5415.25	741.40	85.56	23.54	8.76	7.30
9958.27	10042.94	8280.65	952.55	84.66	36.00	11.25	8.69
10042.94	RB 10127.60	6072.39	795.41	85.90	26.40	9.40	7.63
10127.60	10273.92	141.73	206.76	146.52	0.62	1.41	0.69
10273.92	10420.25	257.07	295.48	146.44	1.12	2.02	0.87
10420.25	10566.57	137.85	203.82	147.38	0.60	1.39	0.68

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8929.00	9165.15	67.87	76.30	92.02	0.21	0.83	0.89
9165.15	9401.30	1081.86	585.83	236.17	3.28	2.48	1.85
9401.30	9637.46	2375.89	939.20	236.16	7.20	3.98	2.53
9637.46	9873.61	2408.28	946.86	236.16	7.30	4.01	2.54
LB 9873.61	9958.27	7177.10	847.97	85.56	21.75	10.02	8.46
9958.27	10042.94	10469.92	1059.13	84.66	31.73	12.51	9.89
10042.94	RB 10127.60	7933.90	901.98	85.90	24.04	10.65	8.80
10127.60	10273.92	438.78	390.95	146.52	1.33	2.67	1.12
10273.92	10420.25	617.23	479.67	146.44	1.87	3.28	1.29
10420.25	10566.57	429.16	388.01	148.64	1.30	2.65	1.11

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.

BRIDGE RIVER: New River
REACH: Lower RS: 10.988

INPUT
Description:
Distance from Upstream XS = 29
Deck/Roadway Width = 89
Weir Coefficient = 2.8
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 33

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
8929	1236.2	0	9090	1235.1	0	9209	1232.3	0
9227.18	1232.1	0	9284.39	1231.3	0	9363.47	1230.13	0
9391.57	1229.66	0	9491.57	1228.59	0	9591.57	1228.47	0
9691.57	1230.33	0	9800.44	1230.73	0	9820.12	1233.04	0
9839.42	1233.24	0	9855.82	1233.39	0	9872	1233.52	1227.82
9880.42	1233.59	1227.88	9905.02	1233.75	1228	9937.82	1233.9	1228.19
9970.62	1233.99	1228.28	10003.43	1234	1228.21	0036.23	1233.94	1228.23
10069.03	1233.82	1228.11	10101.83	1233.63	1227.91	0115.13	1233.53	1227.82
10126.65	1233.44	1227.81	0134.65	1233.37		010142.29	1233.3	0
10167.44	1233.03		010200.24	1232.64		010233.05	1232.24	0
10263.48	1231.84	0	10263.5	1229.76		010429.91	1229.05	0

Upstream Bridge Cross Section Data
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8929	1236.2	8960.26	1235.8	8986.64	1234.2	9020.24	1232.98	9058.54	1231.82
9146.85	1230.2	9203.88	1229.61	9235.52	1229.12	9311.85	1228.93	9380.46	1228.65
9409.74	1227.8	9556.72	1227.61	9592.3	1227.24	9662.76	1227.13	9786.01	1227.6
9831.36	1227.8	9850.57	1228.24	9873.61	1228.19	9901.51	1222.31	9916.21	1219.4

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10057.67  1218.810088.04 1218.61 10105.1 1222.44 10127.6 1228.5510176.84 1229.36
10254.12   122910258.07 1227.9410272.53 1226.5610293.62 1228.8410310.22 1228.56
10392.84   122810435.68 1229.0710471.63 1228.8610501.42 1228.1710521.96 1228.41
10532.52  1229.810548.27 1229.4110566.57 1229.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8929     .06 9873.61    .035 10127.6     .11

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9873.61 10127.6             .3        .5
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   1025410566.57 1226.99

Downstream  Deck/Roadway Coordinates
    num=      33
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    8929  1236.2       0    9090  1235.1       0    9209  1232.3       0
 9227.18  1232.1       0 9284.39  1231.3       0 9363.47 1230.13       0
 9391.57 1229.66       0 9491.57 1228.59       0 9591.57 1228.47       0
 9691.57 1230.33       0 9800.44 1230.73       0 9820.12 1233.04       0
 9839.42 1233.24       0 9855.82 1233.39       0    9872 1233.52 1227.82
 9880.42 1233.59 1227.88 9905.02 1233.75    1228 9937.82  1233.9 1228.19
 9970.62 1233.99 1228.2810003.43    1234  1228.210036.23 1233.94 1228.23
10069.03 1233.82 1228.1110101.83 1233.63  1227.910115.13 1233.53 1227.82
10126.65 1233.44  1227.810134.65 1233.37       010142.29  1233.3       0
10167.44 1233.03       010200.24 1232.64       010233.05 1232.24       0
10263.48 1231.84       0 10263.5 1229.76       010429.91 1229.05       0

Downstream Bridge Cross Section Data
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8902  1236.2 9009.48 1235.03 9081.57 1233.52 9197.15 1230.68 9238.17 1230.24
 9329.77  1228.2 9376.07  1228.2 9408.17 1228.17 9436.53 1227.95 9492.53  1228.3
 9514.74  1228.3 9576.16 1227.77 9654.38 1227.28 9703.17 1227.65 9725.18 1227.39
 9735.57  1227.5 9780.11 1227.16 9835.41 1227.79 9869.32 1227.57 9897.23 1219.27
 9920.15  1219.5 9980.77 1219.0810028.89  1218.610081.72 1218.62 10098.8  1223.7
10114.18  1227.910118.92 1228.67 10154.4 1229.2810188.69 1229.31 10211.1 1228.99
10266.51  1228.110365.25 1227.8110374.35 1228.1710413.39 1228.1110441.35 1228.32
 10502.2  1228.610524.42 1228.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8902     .06 9869.32    .03510118.92     .11

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9869.3210118.92             .3        .5

Upstream Embankment side slope              =       2 horiz. to 1.0 vertical
Downstream Embankment side slope            =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         = 1228.47
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  4

Pier Data
Pier Station     Upstream=    9918    Downstream=    9918
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5
Downstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5

Pier Data
Pier Station     Upstream=  9966.5    Downstream=  9966.5
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5
Downstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5

Pier Data
Pier Station     Upstream=   10015    Downstream=   10015
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5
Downstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5

Pier Data
Pier Station     Upstream= 10063.5    Downstream= 10063.5
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5
Downstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5
```

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Momentum Cd = 1.2
Yarnell KVal = 1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Pressure and Weir flow
Submerged Inlet Cd =
Submerged Inlet + Outlet Cd = .8
Max Low Cord = 1228.28

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #1/3 flow
Opening : Bridge #1

			Inside BR US	Inside BR DS
E.G. US. (ft)	1227.94	Element		
W.S. US. (ft)	1226.99	E.G. Elev (ft)	1227.76	1227.01
Q Total (cfs)	13000.00	W.S. Elev (ft)	1226.52	1225.20
Q Bridge (cfs)	13000.00	Crit W.S. (ft)	1224.58	1224.41
Q Weir (cfs)		Max Chl Dpth (ft)	7.91	6.60
Weir Sta Lft (ft)		Vel Total (ft/s)	8.93	10.81
Weir Sta Rgt (ft)		Flow Area (sq ft)	1455.61	1203.12
Weir Submerg		Froude # Chl	0.62	0.80
Weir Max Depth (ft)		Specif Force (cu ft)	8753.55	7972.60
Min Top Rd (ft)	1228.47	Hydr Depth (ft)	6.42	5.60
Min El Prs (ft)	1228.28	W.P. Total (ft)	287.77	266.36
Delta EG (ft)	1.12	Conv. Total (cfs)	182096.8	139571.8
Delta WS (ft)	1.76	Top Width (ft)	226.58	214.99
BR Open Area (sq ft)	1823.97	Frctn Loss (ft)	0.57	0.08
BR Open Vel (ft/s)	10.81	C & E Loss (ft)	0.17	0.11
Coef of Q		Shear Total (lb/sq ft)	1.61	2.45
Br Sel Method	Energy only	Power Total (lb/ft s)	14.37	26.43

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

BRIDGE OUTPUT Profile #2/3 flow
Opening : Bridge #1

			Inside BR US	Inside BR DS
E.G. US. (ft)	1231.14	Element		
W.S. US. (ft)	1230.29	E.G. Elev (ft)	1231.14	1231.14
Q Total (cfs)	23000.00	W.S. Elev (ft)	1230.29	1230.29
Q Bridge (cfs)	17665.93	Crit W.S. (ft)	1226.96	1226.79
Q Weir (cfs)	5334.07	Max Chl Dpth (ft)	11.68	11.69
Weir Sta Lft (ft)	9295.19	Vel Total (ft/s)	9.00	8.94
Weir Sta Rgt (ft)	10566.57	Flow Area (sq ft)	2555.81	2573.25
Weir Submerg	0.00	Froude # Chl	0.50	0.49
Weir Max Depth (ft)	2.97	Specif Force (cu ft)	19971.09	20260.42
Min Top Rd (ft)	1228.47	Hydr Depth (ft)	3.99	4.30
Min El Prs (ft)	1228.28	W.P. Total (ft)	1191.87	1138.03
Delta EG (ft)	1.22	Conv. Total (cfs)		
Delta WS (ft)	2.99	Top Width (ft)	640.23	598.08
BR Open Area (sq ft)	1823.97	Frctn Loss (ft)		
BR Open Vel (ft/s)	9.69	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Method	Press/Weir	Power Total (lb/ft s)		

Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

BRIDGE OUTPUT Profile #full capacity
Opening : Bridge #1

			Inside BR US	Inside BR DS
E.G. US. (ft)	1232.57	Element		
W.S. US. (ft)	1231.55	E.G. Elev (ft)	1232.57	1232.57
Q Total (cfs)	33000.00	W.S. Elev (ft)	1231.55	1231.55
Q Bridge (cfs)	20060.57	Crit W.S. (ft)	1228.00	1227.98
Q Weir (cfs)	12939.43	Max Chl Dpth (ft)	12.94	12.95
Weir Sta Lft (ft)	9197.68	Vel Total (ft/s)	9.34	9.44
Weir Sta Rgt (ft)	10566.57	Flow Area (sq ft)	3532.00	3496.39

Weir Submerg	0.13	Froude # Chl	0.49	0.49
Weir Max Depth (ft)	4.40	Specif Force (cu ft)	27982.99	28425.69
Min Top Rd (ft)	1228.47	Hydr Depth (ft)	4.18	4.36
Min El Prs (ft)	1228.28	W.P. Total (ft)	1398.35	1344.51
Delta EG (ft)	0.63	Conv. Total (cfs)		
Delta WS (ft)	1.92	Top Width (ft)	844.16	802.01
BR Open Area (sq ft)	1823.97	Frctn Loss (ft)		
BR Open Vel (ft/s)	11.00	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Method	Press/Weir	Power Total (lb/ft s)		

Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is above the minimum elevation for pressure flow. The orifice equations were used for pressure flow.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.980

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Union Hills Dr. bridge
downstream.

Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8902	1236.2	9009.48	1235.03	9081.57	1233.52	9197.15	1230.68	9238.17	1230.24
9329.77	1228.2	9376.07	1228.2	9408.17	1228.17	9436.53	1227.95	9492.53	1228.3
9514.74	1228.3	9576.16	1227.77	9654.38	1227.28	9703.17	1227.65	9725.18	1227.39
9735.57	1227.5	9780.11	1227.16	9835.41	1227.79	9869.32	1227.57	9897.23	1219.27
9920.15	1219.5	9980.77	1219.08	10028.89	1218.61	10081.72	1218.62	10098.8	1223.7
10114.18	1227.91	10118.92	1228.67	10154.4	1229.28	10188.69	1229.31	10211.1	1228.99
10266.51	1228.11	10365.25	1227.81	10374.35	1228.17	10413.39	1228.11	10441.35	1228.32
10502.2	1228.61	10524.42	1228.33						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8902	.06	9869.32	.035	10118.92	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9869.32	10118.92	445	357.93	300	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1226.82	Element			
Vel Head (ft)	1.59	Wt. n-Val.		0.035	
W.S. Elev (ft)	1225.23	Reach Len. (ft)	445.00	357.93	300.00
Crit W.S. (ft)	1224.17	Flow Area (sq ft)		1284.60	
E.G. Slope (ft/ft)	0.005701	Area (sq ft)		1284.60	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	227.21	Top Width (ft)		227.21	
Vel Total (ft/s)	10.12	Avg. Vel. (ft/s)		10.12	
Max Chl Dpth (ft)	6.63	Hydr. Depth (ft)		5.65	
Conv. Total (cfs)	172167.8	Conv. (cfs)		172167.8	
Length Wtd. (ft)	357.92	Wetted Per. (ft)		229.02	
Min Ch El (ft)	1218.60	Shear (lb/sq ft)		2.00	
Alpha	1.00	Stream Power (lb/ft s)		20.20	
Frctn Loss (ft)	1.52	Cum Volume (acre-ft)	21.67	716.58	6.38
C & E Loss (ft)	0.45	Cum SA (acres)	6.52	132.99	5.39

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1229.92	Element			
Vel Head (ft)	2.62	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1227.31	Reach Len. (ft)	445.00	357.93	300.00
Crit W.S. (ft)	1226.48	Flow Area (sq ft)	2.49	1772.02	
E.G. Slope (ft/ft)	0.006653	Area (sq ft)	2.49	1772.02	
Q Total (cfs)	23000.00	Flow (cfs)	0.86	22999.14	
Top Width (ft)	282.14	Top Width (ft)	40.33	241.81	
Vel Total (ft/s)	12.96	Avg. Vel. (ft/s)	0.34	12.98	
Max Chl Dpth (ft)	8.71	Hydr. Depth (ft)	0.06	7.33	

Conv. Total (cfs)	281981.3	Conv. (cfs)	10.5	281970.7	
Length Wtd. (ft)	359.71	Wetted Per. (ft)	40.33	244.21	
Min Ch El (ft)	1218.60	Shear (lb/sq ft)	0.03	3.01	
Alpha	1.00	Stream Power (lb/ft s)	0.01	39.12	
Frctn Loss (ft)	1.55	Cum Volume (acre-ft)	95.62	1112.83	80.83
C & E Loss (ft)	0.94	Cum SA (acres)	32.73	140.08	34.31

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1231.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.31	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1229.63	Reach Len. (ft)	445.00	357.93	300.00
Crit W.S. (ft)	1229.63	Flow Area (sq ft)	1044.41	2347.30	482.37
E.G. Slope (ft/ft)	0.004620	Area (sq ft)	1044.41	2347.30	482.37
Q Total (cfs)	33000.00	Flow (cfs)	2532.69	29971.19	496.12
Top Width (ft)	1259.04	Top Width (ft)	603.94	249.60	405.50
Vel Total (ft/s)	8.52	Avg. Vel. (ft/s)	2.43	12.77	1.03
Max Chl Dpth (ft)	11.03	Hydr. Depth (ft)	1.73	9.40	1.19
Conv. Total (cfs)	485528.4	Conv. (cfs)	37263.5	440965.6	7299.4
Length Wtd. (ft)	366.65	Wetted Per. (ft)	603.97	252.18	406.83
Min Ch El (ft)	1218.60	Shear (lb/sq ft)	0.50	2.68	0.34
Alpha	2.05	Stream Power (lb/ft s)	1.21	34.28	0.35
Frctn Loss (ft)	1.16	Cum Volume (acre-ft)	173.82	1384.06	133.96
C & E Loss (ft)	0.79	Cum SA (acres)	73.21	145.82	46.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9869.32	9952.52	3579.95	382.74	76.20	27.54	5.08	9.35
9952.52	10035.72	5692.88	523.66	83.20	43.79	6.29	10.87
10035.72	RB 10118.92	3727.17	378.20	69.62	28.67	5.51	9.85

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9627.49	9869.32	0.86	2.49	40.33	0.00	0.06	0.34
LB 9869.32	9952.52	6578.28	546.57	83.49	28.60	6.64	12.04
9952.52	10035.72	9877.84	696.59	83.20	42.95	8.37	14.18
10035.72	RB 10118.92	6543.02	528.86	77.51	28.45	6.93	12.37

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9143.83	9385.66	212.84	126.37	120.30	0.64	1.05	1.68
9385.66	9627.49	887.82	393.63	241.84	2.69	1.63	2.26
9627.49	9869.32	1432.02	524.41	241.84	4.34	2.17	2.73
LB 9869.32	9952.52	9023.32	740.01	84.41	27.34	8.89	12.19
9952.52	10035.72	12394.87	890.14	83.20	37.56	10.70	13.92
10035.72	RB 10118.92	8553.00	717.15	84.56	25.92	8.62	11.93
10118.92	10254.09	57.37	88.38	135.18	0.17	0.65	0.65
10254.09	10389.25	263.41	220.55	135.18	0.80	1.63	1.19
10389.25	10524.42	175.35	173.43	136.47	0.53	1.28	1.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.917

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8805	1225.9	8972.29	1225.85	9066.58	1226.22	9263.12	1226.57	9375.59	1226.02
9461.75	1225.4	9571.45	1224.76	9661.22	1224.2	9750.8	1223.54	9767.16	1223.78
9781.35	1226.6	9800.8	1225.99	9808.72	1223.78	9818.09	1221.71	9847.62	1220.39
9875.5	1219	9910.7	1218.1	9945.8	1216.74	10009.7	1216.73	10046.04	1216.95
10099.87	1217.71	10106.64	1217.95	10122.36	1222.78	10144.6	1222.53	10164.12	1223.11
10200.72	1224.51	10214.25	1224.19	10220.1	1224.42	10299.07	1224.63	10368.52	1222.75
10384.1	1223								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8805	.06	9808.72	.035	10200.72	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9808.72	10200.72	265	292.21	300	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1224.84	Element			
Vel Head (ft)	0.68	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1224.16	Reach Len. (ft)	265.00	292.21	300.00
Crit W.S. (ft)	1221.88	Flow Area (sq ft)	34.99	1949.10	56.81
E.G. Slope (ft/ft)	0.002806	Area (sq ft)	34.99	1949.10	56.81
Q Total (cfs)	13000.00	Flow (cfs)	22.24	12942.01	35.75
Top Width (ft)	554.71	Top Width (ft)	103.94	383.07	67.70
Vel Total (ft/s)	6.37	Avg. Vel. (ft/s)	0.64	6.64	0.63
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)	0.34	5.09	0.84
Conv. Total (cfs)	245421.6	Conv. (cfs)	419.9	244326.9	674.9
Length Wtd. (ft)	292.21	Wetted Per. (ft)	104.03	384.17	68.89
Min Ch El (ft)	1216.73	Shear (lb/sq ft)	0.06	0.89	0.14
Alpha	1.08	Stream Power (lb/ft s)	0.04	5.90	0.09
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	21.49	703.30	6.18
C & E Loss (ft)	0.07	Cum SA (acres)	5.99	130.48	5.16

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1227.44	Element			
Vel Head (ft)	0.74	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1226.70	Reach Len. (ft)	265.00	292.21	300.00
Crit W.S. (ft)	1223.94	Flow Area (sq ft)	1112.34	2941.66	485.70
E.G. Slope (ft/ft)	0.001959	Area (sq ft)	1112.34	2941.66	485.70
Q Total (cfs)	23000.00	Flow (cfs)	1304.46	21147.07	548.47
Top Width (ft)	1579.10	Top Width (ft)	1003.72	392.00	183.38
Vel Total (ft/s)	5.07	Avg. Vel. (ft/s)	1.17	7.19	1.13
Max Chl Dpth (ft)	9.97	Hydr. Depth (ft)	1.11	7.50	2.65
Conv. Total (cfs)	519664.6	Conv. (cfs)	29473.1	477799.3	12392.2
Length Wtd. (ft)	291.48	Wetted Per. (ft)	1005.12	393.10	187.11
Min Ch El (ft)	1216.73	Shear (lb/sq ft)	0.14	0.92	0.32
Alpha	1.86	Stream Power (lb/ft s)	0.16	6.58	0.36
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	89.92	1093.47	79.16
C & E Loss (ft)	0.18	Cum SA (acres)	27.40	137.48	33.68

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1228.95	Element			
Vel Head (ft)	0.73	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1228.22	Reach Len. (ft)	265.00	292.21	300.00
Crit W.S. (ft)	1225.63	Flow Area (sq ft)	2640.71	3538.56	764.93
E.G. Slope (ft/ft)	0.001698	Area (sq ft)	2640.71	3538.56	764.93

Q Total (cfs)	33000.00	Flow (cfs)	5126.37	26790.76	1082.87
Top Width (ft)	1579.10	Top Width (ft)	1003.72	392.00	183.38
Vel Total (ft/s)	4.75	Avg. Vel. (ft/s)	1.94	7.57	1.42
Max Chl Dpth (ft)	11.49	Hydr. Depth (ft)	2.63	9.03	4.17
Conv. Total (cfs)	800751.9	Conv. (cfs)	124392.5	650083.3	26276.1
Length Wtd. (ft)	288.89	Wetted Per. (ft)	1006.64	393.10	188.64
Min Ch El (ft)	1216.73	Shear (lb/sq ft)	0.28	0.95	0.43
Alpha	2.09	Stream Power (lb/ft s)	0.54	7.23	0.61
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	155.00	1359.88	129.67
C & E Loss (ft)	0.11	Cum SA (acres)	65.00	143.18	44.40

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9557.79	9808.72	22.24	34.99	104.03	0.17	0.34	0.64
LB 9808.72	9939.39	3658.67	616.97	130.99	28.14	4.72	5.93
9939.39	10070.05	7610.20	956.51	130.67	58.54	7.32	7.96
10070.05	RB 10200.72	1673.14	375.63	122.50	12.87	3.09	4.45
10200.72	10384.10	35.75	56.81	68.89	0.27	0.84	0.63

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8805.00	9055.93	145.38	194.60	251.73	0.63	0.78	0.75
9055.93	9306.86	29.65	74.88	250.93	0.13	0.30	0.40
9306.86	9557.79	253.71	271.46	250.94	1.10	1.08	0.93
9557.79	9808.72	875.72	571.39	251.53	3.81	2.28	1.53
LB 9808.72	9939.39	6452.29	948.33	130.99	28.05	7.26	6.80
9939.39	10070.05	10762.95	1287.86	130.67	46.80	9.86	8.36
10070.05	RB 10200.72	3931.84	705.47	131.44	17.09	5.40	5.57
10200.72	10384.10	548.47	485.70	187.11	2.38	2.65	1.13

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8805.00	9055.93	977.49	576.70	253.25	2.96	2.30	1.69
9055.93	9306.86	667.33	456.97	250.93	2.02	1.82	1.46
9306.86	9557.79	1211.51	653.55	250.94	3.67	2.60	1.85
9557.79	9808.72	2270.04	953.49	251.53	6.88	3.80	2.38
LB 9808.72	9939.39	8335.33	1147.29	130.99	25.26	8.78	7.27
9939.39	10070.05	12860.72	1486.83	130.67	38.97	11.38	8.65
10070.05	RB 10200.72	5594.71	904.44	131.44	16.95	6.92	6.19
10200.72	10384.10	1082.87	764.93	188.64	3.28	4.17	1.42

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.862

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8693	1224	8699.3	1225.12	8711.18	1224.75	8812.47	1224.71	8877.06	1224.61
8973.17	1225.1	9052.06	1225.28	9109.55	1225.46	9197.22	1225.36	9272.18	1225.52
9337.49	1225.6	9371.66	1225.46	9479.31	1224.37	9565.38	1224.09	9621.6	1223.33
9635.85	1226.3	9685.37	1224.89	9696.76	1225.68	9713.74	1224.75	9738.95	1224.05
9781.15	1222.7	9823.51	1222.82	9836.85	1222.96	9840.35	1224.34	9850.56	1228.35
9875.49	1216.6	9892.85	1216.54	9912.5	1217.66	9934.73	1215.89	9968.6	1215.97

9999.37 1215.610003.08 1215.43 10020 1216.4910082.87 1215.6610097.01 1220.97
10118.76 1223.210157.02 1223.2610185.23 1223.3710237.67 1221.2110253.88 1221.66
10268.53 1221

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8693	.06	9850.56	.03	10118.76	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850.56	10118.76	265	313.15	360	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1223.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.38	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1222.33	Reach Len. (ft)	265.00	313.15	360.00
Crit W.S. (ft)	1221.07	Flow Area (sq ft)		1371.21	44.36
E.G. Slope (ft/ft)	0.005111	Area (sq ft)		1371.21	44.36
Q Total (cfs)	13000.00	Flow (cfs)		12964.75	35.25
Top Width (ft)	304.97	Top Width (ft)		246.94	58.04
Vel Total (ft/s)	9.18	Avg. Vel. (ft/s)		9.45	0.79
Max Chl Dpth (ft)	6.90	Hydr. Depth (ft)		5.55	0.76
Conv. Total (cfs)	181838.1	Conv. (cfs)		181345.0	493.1
Length Wtd. (ft)	313.08	Wetted Per. (ft)		249.40	59.41
Min Ch El (ft)	1215.43	Shear (lb/sq ft)		1.75	0.24
Alpha	1.06	Stream Power (lb/ft s)		16.59	0.19
Frctn Loss (ft)	1.60	Cum Volume (acre-ft)	21.39	692.16	5.83
C & E Loss (ft)	0.15	Cum SA (acres)	5.67	128.37	4.73

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1226.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.51	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1223.85	Reach Len. (ft)	265.00	313.15	360.00
Crit W.S. (ft)	1223.62	Flow Area (sq ft)	91.42	1758.57	196.81
E.G. Slope (ft/ft)	0.007200	Area (sq ft)	91.42	1758.57	196.81
Q Total (cfs)	23000.00	Flow (cfs)	162.31	22570.50	267.19
Top Width (ft)	543.39	Top Width (ft)	134.96	258.65	149.77
Vel Total (ft/s)	11.24	Avg. Vel. (ft/s)	1.78	12.83	1.36
Max Chl Dpth (ft)	8.42	Hydr. Depth (ft)	0.68	6.80	1.31
Conv. Total (cfs)	271058.0	Conv. (cfs)	1912.8	265996.3	3148.8
Length Wtd. (ft)	313.32	Wetted Per. (ft)	135.21	261.50	152.69
Min Ch El (ft)	1215.43	Shear (lb/sq ft)	0.30	3.02	0.58
Alpha	1.28	Stream Power (lb/ft s)	0.54	38.80	0.79
Frctn Loss (ft)	1.70	Cum Volume (acre-ft)	86.26	1077.70	76.81
C & E Loss (ft)	0.44	Cum SA (acres)	23.94	135.30	32.53

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1228.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.87	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1226.27	Reach Len. (ft)	265.00	313.15	360.00
Crit W.S. (ft)	1226.27	Flow Area (sq ft)	1692.00	2389.93	558.81
E.G. Slope (ft/ft)	0.004183	Area (sq ft)	1692.00	2389.93	558.81
Q Total (cfs)	33000.00	Flow (cfs)	3574.90	28277.77	1147.34
Top Width (ft)	1564.52	Top Width (ft)	1150.97	263.78	149.77
Vel Total (ft/s)	7.11	Avg. Vel. (ft/s)	2.11	11.83	2.05
Max Chl Dpth (ft)	10.84	Hydr. Depth (ft)	1.47	9.06	3.73
Conv. Total (cfs)	510244.5	Conv. (cfs)	55274.9	437229.5	17740.0
Length Wtd. (ft)	311.29	Wetted Per. (ft)	1154.39	267.17	155.10
Min Ch El (ft)	1215.43	Shear (lb/sq ft)	0.38	2.34	0.94
Alpha	2.38	Stream Power (lb/ft s)	0.81	27.64	1.93
Frctn Loss (ft)	1.24	Cum Volume (acre-ft)	141.82	1339.99	125.11
C & E Loss (ft)	0.15	Cum SA (acres)	58.45	140.98	43.26

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
LB 9850.56	9939.96	3501.02	394.69	78.01	26.93	5.15	8.87
9939.96	10029.36	5944.95	572.76	89.44	45.73	6.41	10.38
10029.36	RB 10118.76	3518.78	403.76	81.95	27.07	4.99	8.71
10118.76	10268.53	35.25	44.36	59.41	0.27	0.76	0.79

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9561.17	9850.56	162.31	91.42	135.21	0.71	0.68	1.78
LB 9850.56	9939.96	6251.98	513.72	81.58	27.18	6.43	12.17
9939.96	10029.36	10054.35	708.77	89.44	43.71	7.93	14.19
10029.36	RB 10118.76	6264.16	536.08	90.48	27.24	6.00	11.69
10118.76	10268.53	267.19	196.81	152.69	1.16	1.31	1.36

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8693.00	8982.39	876.14	432.67	291.76	2.65	1.50	2.02
8982.39	9271.78	384.09	262.94	289.39	1.16	0.91	1.46
9271.78	9561.17	720.88	383.63	289.40	2.18	1.33	1.88
9561.17	9850.56	1593.80	612.76	283.84	4.83	2.17	2.60
LB 9850.56	9939.96	7887.96	712.92	87.25	23.90	8.39	11.06
9939.96	10029.36	11971.94	924.85	89.44	36.28	10.35	12.94
10029.36	RB 10118.76	8417.85	752.16	90.48	25.51	8.41	11.19
10118.76	10268.53	1147.34	558.81	155.10	3.48	3.73	2.05

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
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: New River
REACH: Lower RS: 10.803

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8729	1224.1	8733.57	1225	8741.5	1223.73	8812.35	1223.93	8890.69	1224.06
8989.13	1224.4	9095.68	1224.56	9205.03	1224.47	9295.79	1224.54	9386.74	1224.34
9510.25	1223.6	9607.53	1222.79	9621.28	1227.1	9658.11	1227.58	9670.69	1228.24
9701.4	1228.5	9748.86	1219.93	9772.23	1218.42	9795.08	1220.9	9824.49	1220.69
9852.63	1219.8	9871.17	1220.07	9913.5	1217.91	9925.08	1217.36	9938.72	1214.56
9987.09	1214.7	9997.56	1214.11	10008.12	1216.05	10049.49	1217.05	10074.31	1215.5
10126.54	1215	10179.25	1215.76	10190.94	1219.99	10215.45	1220.34	10290.82	1220.21
10364.4	1220								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8729	.06	9795.08	.035	10215.45	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9795.08	10215.45	555	567.3	555	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1221.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1221.09	Reach Len. (ft)	555.00	567.30	555.00
Crit W.S. (ft)	1219.85	Flow Area (sq ft)	81.23	1672.96	134.12
E.G. Slope (ft/ft)	0.005083	Area (sq ft)	81.23	1672.96	134.12
Q Total (cfs)	13000.00	Flow (cfs)	190.80	12689.34	119.86
Top Width (ft)	621.97	Top Width (ft)	52.65	420.37	148.95
Vel Total (ft/s)	6.88	Avg. Vel. (ft/s)	2.35	7.58	0.89
Max Chl Dpth (ft)	6.99	Hydr. Depth (ft)	1.54	3.98	0.90
Conv. Total (cfs)	182335.5	Conv. (cfs)	2676.1	177978.2	1681.2
Length Wtd. (ft)	567.15	Wetted Per. (ft)	52.94	421.75	150.04
Min Ch El (ft)	1214.10	Shear (lb/sq ft)	0.49	1.26	0.28
Alpha	1.19	Stream Power (lb/ft s)	1.14	9.55	0.25
Frctn Loss (ft)	3.18	Cum Volume (acre-ft)	21.14	681.22	5.10

C & E Loss (ft)	0.06	Cum SA (acres)	5.51	125.97	3.87

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1224.23	Element			
Vel Head (ft)	1.05	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1223.18	Reach Len. (ft)	555.00	567.30	555.00
Crit W.S. (ft)	1221.67	Flow Area (sq ft)	212.22	2549.31	444.64
E.G. Slope (ft/ft)	0.003620	Area (sq ft)	212.22	2549.31	444.64
Q Total (cfs)	23000.00	Flow (cfs)	653.17	21608.08	738.75
Top Width (ft)	681.12	Top Width (ft)	111.80	420.37	148.95
Vel Total (ft/s)	7.17	Avg. Vel. (ft/s)	3.08	8.48	1.66
Max Chl Dpth (ft)	9.08	Hydr. Depth (ft)	1.90	6.06	2.99
Conv. Total (cfs)	382273.9	Conv. (cfs)	10856.1	359139.3	12278.5
Length Wtd. (ft)	566.89	Wetted Per. (ft)	112.34	421.75	152.13
Min Ch El (ft)	1214.10	Shear (lb/sq ft)	0.43	1.37	0.66
Alpha	1.32	Stream Power (lb/ft s)	1.31	11.58	1.10
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)	85.34	1062.22	74.16
C & E Loss (ft)	0.12	Cum SA (acres)	23.18	132.85	31.29

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1225.81	Element			
Vel Head (ft)	1.38	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1224.43	Reach Len. (ft)	555.00	567.30	555.00
Crit W.S. (ft)	1222.79	Flow Area (sq ft)	568.25	3075.65	631.14
E.G. Slope (ft/ft)	0.003795	Area (sq ft)	568.25	3075.65	631.14
Q Total (cfs)	33000.00	Flow (cfs)	1400.63	30250.68	1348.69
Top Width (ft)	1179.02	Top Width (ft)	609.70	420.37	148.95
Vel Total (ft/s)	7.72	Avg. Vel. (ft/s)	2.46	9.84	2.14
Max Chl Dpth (ft)	10.33	Hydr. Depth (ft)	0.93	7.32	4.24
Conv. Total (cfs)	535670.6	Conv. (cfs)	22735.6	491042.4	21892.6
Length Wtd. (ft)	566.26	Wetted Per. (ft)	610.96	421.75	153.38
Min Ch El (ft)	1214.10	Shear (lb/sq ft)	0.22	1.73	0.97
Alpha	1.50	Stream Power (lb/ft s)	0.54	16.99	2.08
Frctn Loss (ft)	2.37	Cum Volume (acre-ft)	134.94	1320.34	120.19
C & E Loss (ft)	0.07	Cum SA (acres)	53.09	138.52	42.02

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9528.56	9795.08	190.80	81.23	52.94	1.47	1.54	2.35
LB 9795.08	9935.20	884.79	231.25	140.42	6.81	1.65	3.83
9935.20	10075.33	6724.71	780.95	140.45	51.73	5.57	8.61
10075.33	RB 10215.45	5079.83	660.76	140.88	39.08	4.72	7.69
10215.45	10364.40	119.86	134.12	150.04	0.92	0.90	0.89

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9528.56	9795.08	653.17	212.22	112.34	2.84	1.90	3.08
LB 9795.08	9935.20	3079.24	523.37	140.42	13.39	3.74	5.88
9935.20	10075.33	10187.64	1073.06	140.45	44.29	7.66	9.49
10075.33	RB 10215.45	8341.19	952.88	140.88	36.27	6.80	8.75
10215.45	10364.40	738.75	444.64	152.13	3.21	2.99	1.66

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8729.00	8995.52	86.17	97.77	260.46	0.26	0.38	0.88
8995.52	9262.04	0.01	0.11	12.38	0.00	0.01	0.07
9262.04	9528.56	70.25	74.93	181.94	0.21	0.41	0.94
9528.56	9795.08	1244.20	395.43	156.17	3.77	2.55	3.15
LB 9795.08	9935.20	5173.17	698.81	140.42	15.68	4.99	7.40
9935.20	10075.33	13606.29	1248.51	140.45	41.23	8.91	10.90
10075.33	RB 10215.45	11471.22	1128.33	140.88	34.76	8.05	10.17
10215.45	10364.40	1348.69	631.14	153.38	4.09	4.24	2.14

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.699

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8934.06	1221.5	8945.19	1220.97	9012.4	1220.81	9058.23	1220.6	9149.1	1220.4
9281.44	1220.12	9395.19	1220.09	9494.65	1219.95	9554.71	1220	9617.05	1219.97
9667.31	1219.52	9713.93	1219.26	9781.25	1219.49	9790.75	1220.1	9831.4	1220.67
9856.59	1221.76	9874.77	1219.62	9908.51	1223.65	9924.34	1223.8	9940.54	1223.54
9958.52	1222.81	9985.14	1209.46	10026.34	1209.49	10059.24	1211.3	10102.3	1212.67
10147.7	1214.69	10179.34	1213.51	10238.84	1213.36	10251.21	1218.21	10283.08	1218.83
10358.76	1218.31	10386.54	1216.71	10402.2	1216.85				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8934.06	.06	9958.52	.035	10251.21	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9958.52	10251.21	460	462.24	460	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1218.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.43	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1217.30	Reach Len. (ft)	460.00	462.24	460.00
Crit W.S. (ft)	1216.49	Flow Area (sq ft)		1355.50	11.22
E.G. Slope (ft/ft)	0.006288	Area (sq ft)		1355.50	11.22
Q Total (cfs)	13000.00	Flow (cfs)		12993.21	6.78
Top Width (ft)	305.40	Top Width (ft)		279.41	25.99
Vel Total (ft/s)	9.51	Avg. Vel. (ft/s)		9.59	0.60
Max Chl Dpth (ft)	7.84	Hydr. Depth (ft)		4.85	0.43
Conv. Total (cfs)	163934.3	Conv. (cfs)		163848.8	85.6
Length Wtd. (ft)	462.24	Wetted Per. (ft)		282.15	26.46
Min Ch El (ft)	1209.46	Shear (lb/sq ft)		1.89	0.17
Alpha	1.02	Stream Power (lb/ft s)		18.08	0.10
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	20.62	661.50	4.17
C & E Loss (ft)	0.19	Cum SA (acres)	5.18	121.41	2.76

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1221.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.30	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1219.13	Reach Len. (ft)	460.00	462.24	460.00
Crit W.S. (ft)	1218.43	Flow Area (sq ft)		1872.45	144.05
E.G. Slope (ft/ft)	0.006828	Area (sq ft)		1872.45	144.05
Q Total (cfs)	23000.00	Flow (cfs)		22845.76	154.24
Top Width (ft)	436.34	Top Width (ft)		285.35	150.99
Vel Total (ft/s)	11.41	Avg. Vel. (ft/s)		12.20	1.07
Max Chl Dpth (ft)	9.67	Hydr. Depth (ft)		6.56	0.95
Conv. Total (cfs)	278342.0	Conv. (cfs)		276475.4	1866.6
Length Wtd. (ft)	462.21	Wetted Per. (ft)		288.69	153.32
Min Ch El (ft)	1209.46	Shear (lb/sq ft)		2.76	0.40
Alpha	1.14	Stream Power (lb/ft s)		33.73	0.43
Frctn Loss (ft)	2.42	Cum Volume (acre-ft)	83.99	1033.42	70.41
C & E Loss (ft)	0.28	Cum SA (acres)	22.47	128.26	29.38

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1223.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.08	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1221.28	Reach Len. (ft)	460.00	462.24	460.00
Crit W.S. (ft)	1221.28	Flow Area (sq ft)	1050.92	2491.63	469.23
E.G. Slope (ft/ft)	0.004695	Area (sq ft)	1050.92	2491.63	469.23
Q Total (cfs)	33000.00	Flow (cfs)	1929.96	30163.02	907.02
Top Width (ft)	1375.57	Top Width (ft)	934.94	289.64	150.99
Vel Total (ft/s)	8.23	Avg. Vel. (ft/s)	1.84	12.11	1.93
Max Chl Dpth (ft)	11.82	Hydr. Depth (ft)	1.12	8.60	3.11
Conv. Total (cfs)	481620.6	Conv. (cfs)	28166.9	440216.2	13237.6
Length Wtd. (ft)	462.09	Wetted Per. (ft)	935.18	293.49	155.48
Min Ch El (ft)	1209.46	Shear (lb/sq ft)	0.33	2.49	0.88
Alpha	1.98	Stream Power (lb/ft s)	0.60	30.12	1.71
Frctn Loss (ft)	2.00	Cum Volume (acre-ft)	124.63	1284.09	113.18
C & E Loss (ft)	0.08	Cum SA (acres)	43.25	133.90	40.11

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9958.52	10056.08	6787.92	591.75	88.48	52.21	6.83	11.47
10056.08	10153.65	3715.16	428.74	97.64	28.58	4.39	8.67
10153.65	RB 10251.21	2490.14	335.01	96.03	19.15	3.52	7.43
10251.21	10402.20	6.78	11.22	26.46	0.05	0.43	0.60

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9958.52	10056.08	10490.14	753.25	92.56	45.61	8.35	13.93
10056.08	10153.65	7063.56	606.98	97.64	30.71	6.22	11.64
10153.65	RB 10251.21	5292.06	512.21	98.49	23.01	5.25	10.33
10251.21	10402.20	154.24	144.05	153.32	0.67	0.95	1.07

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8934.06	9190.17	198.66	162.88	251.55	0.60	0.65	1.22
9190.17	9446.29	524.86	293.87	256.11	1.59	1.15	1.79
9446.29	9702.40	752.02	364.64	256.12	2.28	1.42	2.06
9702.40	9958.52	454.40	229.52	171.41	1.38	1.34	1.98
LB 9958.52	10056.08	12570.13	952.19	97.36	38.09	10.07	13.20
10056.08	10153.65	9722.24	817.10	97.64	29.46	8.38	11.90
10153.65	RB 10251.21	7870.66	722.34	98.49	23.85	7.40	10.90
10251.21	10402.20	907.02	469.23	155.48	2.75	3.11	1.93

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.612

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9048	1219.9	9056.24	1218.43	9108.47	1218.8	9207.24	1218.55	9317.08	1218.42
9406.44	1218.2	9494.41	1218.32	9630.26	1217.53	9709.1	1218.12	9798.17	1217.22
9829.94	1216.4	9836.78	1216.39	9860.25	1221.5	9900.45	1221.45	9908.43	1220.88
9924.93	1214.6	9941.99	1208.81	9995.58	1208.77	10031.37	1209.65	10094.63	1210.88
10117.43	1210.31	10138.78	1210.09	10181.06	1210.14	10192.84	1210	10234.38	1209.98
10249.66	1215.61	10352.46	1215.84	10384.84	1213.68	10400.09	1213.84		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9048	.06	9908.43	.035	10249.66	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9908.43	10249.66	490	504.93	435	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1216.40	Wt. n-Val.		0.035	0.110
Vel Head (ft)	0.80	Reach Len. (ft)	490.00	504.93	435.00
W.S. Elev (ft)	1215.60	Flow Area (sq ft)		1799.94	55.47
Crit W.S. (ft)	1213.69	Area (sq ft)		1799.94	55.47
E.G. Slope (ft/ft)	0.002987	Flow (cfs)		12953.45	46.55
Q Total (cfs)	13000.00	Top Width (ft)		327.33	43.96
Top Width (ft)	371.29	Avg. Vel. (ft/s)		7.20	0.84
Vel Total (ft/s)	7.01	Hydr. Depth (ft)		5.50	1.26
Max Chl Dpth (ft)	6.83	Conv. (cfs)		237020.5	851.8
Conv. Total (cfs)	237872.3	Wetted Per. (ft)		329.50	45.78
Length Wtd. (ft)	503.10	Shear (lb/sq ft)		1.02	0.23
Min Ch El (ft)	1208.77	Stream Power (lb/ft s)		7.33	0.19
Alpha	1.05	Cum Volume (acre-ft)	20.62	644.76	3.82
Frctn Loss (ft)	2.02	Cum SA (acres)	5.18	118.19	2.39
C & E Loss (ft)	0.03				

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

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1218.72	Wt. n-Val.	0.060	0.035	0.110
Vel Head (ft)	1.37	Reach Len. (ft)	490.00	504.93	435.00
W.S. Elev (ft)	1217.35	Flow Area (sq ft)	26.67	2378.64	306.27
Crit W.S. (ft)	1215.48	Area (sq ft)	26.67	2378.64	306.27
E.G. Slope (ft/ft)	0.003655	Flow (cfs)	24.34	22580.11	395.55
Q Total (cfs)	23000.00	Top Width (ft)	55.95	331.96	150.43
Top Width (ft)	538.33	Avg. Vel. (ft/s)	0.91	9.49	1.29
Vel Total (ft/s)	8.48	Hydr. Depth (ft)	0.48	7.17	2.04
Max Chl Dpth (ft)	8.58	Conv. (cfs)	402.6	373468.2	6542.3
Conv. Total (cfs)	380413.0	Wetted Per. (ft)	56.06	334.45	154.01
Length Wtd. (ft)	501.50	Shear (lb/sq ft)	0.11	1.62	0.45
Min Ch El (ft)	1208.77	Stream Power (lb/ft s)	0.10	15.41	0.59
Alpha	1.23	Cum Volume (acre-ft)	83.84	1010.87	68.03
Frctn Loss (ft)	2.27	Cum SA (acres)	22.18	124.98	27.79
C & E Loss (ft)	0.01				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was 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 OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1220.55	Wt. n-Val.	0.060	0.035	0.110
Vel Head (ft)	1.81	Reach Len. (ft)	490.00	504.93	435.00
W.S. Elev (ft)	1218.74	Flow Area (sq ft)	488.34	2841.21	514.74
Crit W.S. (ft)	1217.11	Area (sq ft)	488.34	2841.21	514.74
E.G. Slope (ft/ft)	0.003981	Flow (cfs)	581.46	31443.64	974.90
Q Total (cfs)	33000.00	Top Width (ft)	758.93	335.60	150.43
Top Width (ft)	1244.96	Avg. Vel. (ft/s)	1.19	11.07	1.89
Vel Total (ft/s)	8.58	Hydr. Depth (ft)	0.64	8.47	3.42
Max Chl Dpth (ft)	9.97	Conv. (cfs)	9215.3	498338.7	15450.8
Conv. Total (cfs)	523004.8	Wetted Per. (ft)	759.23	338.35	155.40
Length Wtd. (ft)	500.34	Shear (lb/sq ft)	0.16	2.09	0.82
Min Ch El (ft)	1208.77	Stream Power (lb/ft s)	0.19	23.10	1.56
Alpha	1.59	Cum Volume (acre-ft)	116.50	1255.80	107.99
Frctn Loss (ft)	2.33	Cum SA (acres)	34.31	130.58	38.52
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.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9908.43	10022.17	4620.52	605.15	101.00	35.54	6.06	7.64
10022.17	10135.92	4284.98	606.58	113.77	32.96	5.33	7.06
10135.92	RB 10249.66	4047.94	588.20	114.73	31.14	5.17	6.88
10249.66	10400.09	46.55	55.47	45.78	0.36	1.26	0.84

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9693.32	9908.43	24.34	26.67	56.06	0.11	0.48	0.91
LB 9908.43	10022.17	7646.37	784.50	105.94	33.25	7.51	9.75
10022.17	10135.92	7631.66	806.26	113.77	33.18	7.09	9.47
10135.92	RB 10249.66	7302.08	787.88	114.74	31.75	6.93	9.27
10249.66	10400.09	395.55	306.27	154.01	1.72	2.04	1.29

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9048.00	9263.11	9.61	26.01	174.51	0.03	0.15	0.37
9263.11	9478.21	64.29	88.46	215.11	0.19	0.41	0.73
9478.21	9693.32	206.91	178.36	215.11	0.63	0.83	1.16
9693.32	9908.43	300.64	195.51	154.50	0.91	1.27	1.54
LB 9908.43	10022.17	10381.79	931.81	109.84	31.46	8.62	11.14
10022.17	10135.92	10729.94	963.90	113.77	32.51	8.47	11.13
10135.92	RB 10249.66	10331.91	945.51	114.74	31.31	8.31	10.93
10249.66	10400.09	974.90	514.74	155.40	2.95	3.42	1.89

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.517

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9005	1216.7	9170.01	1216.66	9274.41	1216.37	9375.16	1215.89	9464.87	1215.95
9519.11	1216.1	9534.66	1213.87	9572.86	1212.93	9615.29	1219.44	9648.11	1220.64
9669.21	1218.3	9688.22	1211.5	9749.23	1209.61	9771.2	1218.09	9801.49	1208.22
9818.46	1209.6	9871.9	1210.44	9927.54	1209.63	9969.81	1208.21	10018.11	1207.43
10036.17	1208.61	10046.63	1208.26	10095.36	1207.56	10108.57	1212.41	10133.19	1211.06
10236.89	1211.81	10315.07	1212						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9005	.06	9771.2	.03	10108.57	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9771.21	10108.57	425	519.3	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9005	9648.11	1220.64

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1214.35	Element			
Vel Head (ft)	1.07	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1213.28	Reach Len. (ft)	425.00	519.30	480.00
Crit W.S. (ft)	1212.73	Flow Area (sq ft)	187.95	1366.48	337.26
E.G. Slope (ft/ft)	0.006127	Area (sq ft)	190.80	1366.48	337.26
Q Total (cfs)	13000.00	Flow (cfs)	663.38	11844.12	492.50
Top Width (ft)	620.97	Top Width (ft)	91.87	322.60	206.50
Vel Total (ft/s)	6.87	Avg. Vel. (ft/s)	3.53	8.67	1.46
Max Chl Dpth (ft)	5.85	Hydr. Depth (ft)	2.49	4.24	1.63
Conv. Total (cfs)	166075.4	Conv. (cfs)	8474.7	151309.0	6291.7
Length Wtd. (ft)	516.15	Wetted Per. (ft)	76.50	324.41	207.82
Min Ch El (ft)	1207.43	Shear (lb/sq ft)	0.94	1.61	0.62
Alpha	1.46	Stream Power (lb/ft s)	3.32	13.97	0.91
Frctn Loss (ft)	3.28	Cum Volume (acre-ft)	19.55	626.41	1.86
C & E Loss (ft)	0.00	Cum SA (acres)	4.66	114.42	1.14

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1216.44	Element			
Vel Head (ft)	1.52	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1214.93	Reach Len. (ft)	425.00	519.30	480.00
Crit W.S. (ft)	1214.17	Flow Area (sq ft)	319.87	1903.12	678.10
E.G. Slope (ft/ft)	0.005916	Area (sq ft)	395.16	1903.12	678.10
Q Total (cfs)	23000.00	Flow (cfs)	1462.81	19995.42	1541.77
Top Width (ft)	677.14	Top Width (ft)	142.97	327.67	206.50
Vel Total (ft/s)	7.93	Avg. Vel. (ft/s)	4.57	10.51	2.27
Max Chl Dpth (ft)	7.50	Hydr. Depth (ft)	3.79	5.81	3.28
Conv. Total (cfs)	299031.8	Conv. (cfs)	19018.5	259968.2	20045.1
Length Wtd. (ft)	514.80	Wetted Per. (ft)	85.99	329.74	209.47
Min Ch El (ft)	1207.43	Shear (lb/sq ft)	1.37	2.13	1.20
Alpha	1.55	Stream Power (lb/ft s)	6.28	22.40	2.72
Frctn Loss (ft)	3.15	Cum Volume (acre-ft)	81.47	986.05	63.11
C & E Loss (ft)	0.02	Cum SA (acres)	21.06	121.16	26.01

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1218.22	Element			
Vel Head (ft)	1.85	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1216.37	Reach Len. (ft)	425.00	519.30	480.00
Crit W.S. (ft)	1215.37	Flow Area (sq ft)	447.22	2379.09	976.05
E.G. Slope (ft/ft)	0.005587	Area (sq ft)	704.35	2379.09	976.05
Q Total (cfs)	33000.00	Flow (cfs)	2337.08	27926.20	2736.72
Top Width (ft)	951.97	Top Width (ft)	413.37	332.09	206.50
Vel Total (ft/s)	8.68	Avg. Vel. (ft/s)	5.23	11.74	2.80
Max Chl Dpth (ft)	8.94	Hydr. Depth (ft)	4.85	7.16	4.73
Conv. Total (cfs)	441507.4	Conv. (cfs)	31267.8	373625.0	36614.7
Length Wtd. (ft)	513.80	Wetted Per. (ft)	94.28	334.40	210.91
Min Ch El (ft)	1207.43	Shear (lb/sq ft)	1.65	2.48	1.61
Alpha	1.58	Stream Power (lb/ft s)	8.65	29.13	4.53
Frctn Loss (ft)	3.14	Cum Volume (acre-ft)	109.79	1225.54	100.54
C & E Loss (ft)	0.03	Cum SA (acres)	27.71	126.71	36.74

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9005.00	9771.20	663.38	187.95	76.50	5.10	2.49	3.53
LB 9771.20	9883.66	2315.18	321.83	98.56	17.81	3.29	7.19
9883.66	9996.11	3972.71	469.13	112.49	30.56	4.17	8.47
9996.11	RB 10108.57	5556.23	575.52	113.37	42.74	5.12	9.65
10108.57	10315.07	492.50	337.26	207.82	3.79	1.63	1.46

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9005.00	9771.20	1462.81	319.87	85.99	6.36	3.79	4.57
LB 9771.20	9883.66	4408.29	487.24	103.88	19.17	4.74	9.05
9883.66	9996.11	6840.70	654.74	112.49	29.74	5.82	10.45
9996.11	RB 10108.57	8746.43	761.14	113.37	38.03	6.77	11.49
10108.57	10315.07	1541.77	678.10	209.47	6.70	3.28	2.27

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9005.00	9771.20	2337.08	447.22	94.28	7.08	4.85	5.23
LB 9771.20	9883.66	6543.93	638.70	108.54	19.83	5.96	10.25
9883.66	9996.11	9631.75	817.00	112.49	29.19	7.27	11.79
9996.11	RB 10108.57	11750.51	923.40	113.37	35.61	8.21	12.73
10108.57	10315.07	2736.73	976.05	210.91	8.29	4.73	2.80

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.443

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9284	1214	9288.09	1213.4	9310.91	1213.28	9389.51	1212.49	9395.02	1213.1
9414.45	1212	9500.08	1211.73	9525	1211.5	9547.59	1210.71	9563.81	1210.43
9612.23	1224.2	9628.1	1227.16	9661.63	1228.5	9689.34	1229.34	9709.16	1227.87
9720.12	1224.9	9745.53	1219.55	9757.93	1216.73	9767.19	1217.48	9795.24	1217.98
9838.58	1210.5	9875.81	1210.53	9893.41	1207.9	9896.92	1207.09	9954.48	1206.62
9976.71	1204.61	10020.13	1205.81	10104.56	1206.35	10145.97	1206.29	10203.45	1205.28
10264.41	1205.31	10282.67	1211.67	10314.96	1213.65	10410.42	1212.83	10418.45	1212.69
10484.54	1212.4	10513.7	1211.09	10541.4	1211.26				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9284	.06	9875.81	.035	10314.96	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9875.81	10314.96	475	494.83	420	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9284	9689.34	1229.34

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1211.06	Element			
Vel Head (ft)	1.12	Wt. n-Val.		0.035	
W.S. Elev (ft)	1209.95	Reach Len. (ft)	475.00	494.83	420.00
Crit W.S. (ft)	1209.29	Flow Area (sq ft)		1534.01	
E.G. Slope (ft/ft)	0.006620	Area (sq ft)		1534.01	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	398.03	Top Width (ft)		398.03	
Vel Total (ft/s)	8.47	Avg. Vel. (ft/s)		8.47	
Max Chl Dpth (ft)	5.35	Hydr. Depth (ft)		3.85	
Conv. Total (cfs)	159782.3	Conv. (cfs)		159782.3	
Length Wtd. (ft)	494.83	Wetted Per. (ft)		399.18	
Min Ch El (ft)	1204.60	Shear (lb/sq ft)		1.59	
Alpha	1.00	Stream Power (lb/ft s)		13.46	
Frctn Loss (ft)	2.69	Cum Volume (acre-ft)	18.62	609.12	
C & E Loss (ft)	0.08	Cum SA (acres)	4.21	110.13	

Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1213.28	Element			
Vel Head (ft)	1.68	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1211.60	Reach Len. (ft)	475.00	494.83	420.00
Crit W.S. (ft)	1210.85	Flow Area (sq ft)	43.89	2200.71	14.66
E.G. Slope (ft/ft)	0.006356	Area (sq ft)	74.71	2200.71	14.66
Q Total (cfs)	23000.00	Flow (cfs)	86.91	22904.93	8.17
Top Width (ft)	543.04	Top Width (ft)	97.33	406.66	39.05
Vel Total (ft/s)	10.18	Avg. Vel. (ft/s)	1.98	10.41	0.56
Max Chl Dpth (ft)	7.00	Hydr. Depth (ft)	1.01	5.41	0.38
Conv. Total (cfs)	288487.9	Conv. (cfs)	1090.1	287295.5	102.4
Length Wtd. (ft)	493.82	Wetted Per. (ft)	43.70	408.14	39.40
Min Ch El (ft)	1204.60	Shear (lb/sq ft)	0.40	2.14	0.15
Alpha	1.04	Stream Power (lb/ft s)	0.79	22.27	0.08
Frctn Loss (ft)	2.36	Cum Volume (acre-ft)	79.18	961.59	59.30
C & E Loss (ft)	0.19	Cum SA (acres)	19.89	116.78	24.66

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1215.05	Element			
Vel Head (ft)	2.19	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1212.86	Reach Len. (ft)	475.00	494.83	420.00
Crit W.S. (ft)	1212.18	Flow Area (sq ft)	103.28	2723.64	100.44
E.G. Slope (ft/ft)	0.006724	Area (sq ft)	319.96	2723.64	100.44
Q Total (cfs)	33000.00	Flow (cfs)	335.31	32573.68	91.01
Top Width (ft)	824.04	Top Width (ft)	263.72	426.21	134.11
Vel Total (ft/s)	11.27	Avg. Vel. (ft/s)	3.25	11.96	0.91
Max Chl Dpth (ft)	8.26	Hydr. Depth (ft)	2.03	6.39	0.75
Conv. Total (cfs)	402443.8	Conv. (cfs)	4089.2	397244.6	1109.9
Length Wtd. (ft)	492.43	Wetted Per. (ft)	51.09	427.74	135.74
Min Ch El (ft)	1204.60	Shear (lb/sq ft)	0.85	2.67	0.31
Alpha	1.11	Stream Power (lb/ft s)	2.76	31.97	0.28
Frctn Loss (ft)	2.50	Cum Volume (acre-ft)	104.80	1195.13	94.61

C & E Loss (ft)	0.25	Cum SA (acres)	24.41	122.19	34.86

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9875.81	10022.19	4125.26	511.56	142.84	31.73	3.59	8.06
10022.19	10168.58	4655.16	555.45	146.39	35.81	3.79	8.38
10168.58	RB 10314.96	4219.59	467.00	109.95	32.46	4.28	9.04

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9284.00	9875.81	86.91	43.89	43.70	0.38	1.01	1.98
LB 9875.81	10022.19	7561.37	752.23	146.78	32.88	5.14	10.05
10022.19	10168.58	8345.54	797.25	146.39	36.28	5.45	10.47
10168.58	RB 10314.96	6998.02	651.23	114.97	30.43	5.72	10.75
10314.96	10541.40	8.17	14.66	39.40	0.04	0.38	0.56

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9284.00	9875.81	335.31	103.28	51.09	1.02	2.03	3.25
LB 9875.81	10022.19	11197.16	936.25	146.78	33.93	6.40	11.96
10022.19	10168.58	12130.58	981.27	146.39	36.76	6.70	12.36
10168.58	RB 10314.96	9245.94	806.13	134.57	28.02	6.04	11.47
10314.96	10541.40	91.01	100.44	135.74	0.28	0.75	0.91

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.348

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9565	1226	9618.55	1212.07	9631.61	1211.15	9706.38	1210.07	9729.72	1209.95
9835.72	1209.8	9854.32	1209.73	9874.56	1215.57	9912.21	1213.46	9923.35	1212.49
9957.23	1212.7	9976.86	1202.31	10001.99	1202.15	10047.79	1205.11	10062.98	1204.47
10081.57	1205.21	10097.56	1204.48	10129.49	1202.41	10146.71	1202.97	10176.03	1201.21
10193.48	1201.41	10208.49	1204.29	10232.55	1202.45	10249.81	1202.54	10351.23	1202.58
10361.56	1202.71	10382.66	1208.91	10417.97	1208.48	10467.24	1208.05	10511.03	1208.18
10517.01	1207.71	10530.55	1208.11	10547.77	1207.8	10660.3	1208.43	10793.2	1208.7
10844.58	1209.61	10878.78	1207.96	10904.64	1208.32				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9565	.06	9957.23	.035	10382.66	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9957.23	10382.66	510	523	385	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9565	9874.56	1215.57

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1208.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.		0.035	
W.S. Elev (ft)	1207.46	Reach Len. (ft)	510.00	523.00	385.00
Crit W.S. (ft)	1206.26	Flow Area (sq ft)		1775.44	
E.G. Slope (ft/ft)	0.004258	Area (sq ft)		1775.44	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	410.62	Top Width (ft)		410.62	
Vel Total (ft/s)	7.32	Avg. Vel. (ft/s)		7.32	
Max Chl Dpth (ft)	6.25	Hydr. Depth (ft)		4.32	

Conv. Total (cfs)	199220.1	Conv. (cfs)		199220.1
Length Wtd. (ft)	523.00	Wetted Per. (ft)		413.20
Min Ch El (ft)	1201.21	Shear (lb/sq ft)		1.14
Alpha	1.00	Stream Power (lb/ft s)		8.36
Frctn Loss (ft)	2.10	Cum Volume (acre-ft)	18.62	590.32
C & E Loss (ft)	0.02	Cum SA (acres)	4.21	105.54

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1210.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1209.68	Reach Len. (ft)	510.00	523.00	385.00
Crit W.S. (ft)	1207.74	Flow Area (sq ft)		2699.06	657.27
E.G. Slope (ft/ft)	0.003233	Area (sq ft)		2699.06	657.27
Q Total (cfs)	23000.00	Flow (cfs)		22412.40	587.60
Top Width (ft)	941.70	Top Width (ft)		419.72	521.98
Vel Total (ft/s)	6.85	Avg. Vel. (ft/s)		8.30	0.89
Max Chl Dpth (ft)	8.47	Hydr. Depth (ft)		6.43	1.26
Conv. Total (cfs)	404499.8	Conv. (cfs)		394165.6	10334.1
Length Wtd. (ft)	517.84	Wetted Per. (ft)		423.06	523.42
Min Ch El (ft)	1201.21	Shear (lb/sq ft)		1.29	0.25
Alpha	1.43	Stream Power (lb/ft s)		10.69	0.23
Frctn Loss (ft)	1.30	Cum Volume (acre-ft)	78.77	933.76	56.06
C & E Loss (ft)	0.10	Cum SA (acres)	19.36	112.09	21.95

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1212.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1210.95	Reach Len. (ft)	510.00	523.00	385.00
Crit W.S. (ft)	1209.29	Flow Area (sq ft)		3235.08	1321.98
E.G. Slope (ft/ft)	0.003425	Area (sq ft)	187.15	3235.08	1321.98
Q Total (cfs)	33000.00	Flow (cfs)		31064.92	1935.08
Top Width (ft)	1157.14	Top Width (ft)	213.03	422.13	521.98
Vel Total (ft/s)	7.24	Avg. Vel. (ft/s)		9.60	1.46
Max Chl Dpth (ft)	9.74	Hydr. Depth (ft)		7.66	2.53
Conv. Total (cfs)	563881.1	Conv. (cfs)		530815.8	33065.3
Length Wtd. (ft)	513.61	Wetted Per. (ft)		425.78	524.69
Min Ch El (ft)	1201.21	Shear (lb/sq ft)		1.62	0.54
Alpha	1.66	Stream Power (lb/ft s)		15.60	0.79
Frctn Loss (ft)	1.45	Cum Volume (acre-ft)	102.03	1161.28	87.76
C & E Loss (ft)	0.10	Cum SA (acres)	21.81	117.37	31.70

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9957.23	10099.04	2959.00	467.26	133.34	22.76	3.54	6.33
10099.04	10240.85	5285.12	679.18	142.28	40.65	4.79	7.78
10240.85	RB 10382.66	4755.88	629.00	137.58	36.58	4.59	7.56

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9957.23	10099.04	5750.04	764.77	138.08	25.00	5.62	7.52
10099.04	10240.85	8724.86	994.02	142.28	37.93	7.01	8.78
10240.85	RB 10382.66	7937.49	940.28	142.70	34.51	6.63	8.44
10382.66	10513.16	160.62	176.02	130.51	0.70	1.35	0.91
10513.16	10643.65	223.72	214.74	130.52	0.97	1.65	1.04
10643.65	10774.14	123.28	150.18	130.49	0.54	1.15	0.82
10774.14	10904.64	79.98	116.33	131.90	0.35	0.89	0.69

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9957.23	10099.04	8239.25	939.61	140.80	24.97	6.78	8.77
10099.04	10240.85	11869.12	1174.60	142.28	35.97	8.28	10.10
10240.85	RB 10382.66	10956.54	1120.87	142.70	33.20	7.90	9.78
10382.66	10513.16	510.61	342.20	130.51	1.55	2.62	1.49
10513.16	10643.65	610.46	380.92	130.52	1.85	2.92	1.60
10643.65	10774.14	448.00	316.35	130.49	1.36	2.42	1.42
10774.14	10904.64	366.01	282.51	133.17	1.11	2.16	1.30

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.271

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9491	1216.1	9536.53	1205.79	9586.12	1205.96	9692.04	1205.36	9782.47	1205.92
9804.37	1210.9	9818.13	1211.6	9836.6	1212.14	9854.54	1211.43	9880.46	1202.76
9920.7	1202	9933.62	1202.76	9949.76	1201.68	9971.38	1198.26	10022.21	1198.4
10032.36	1199.6	10053.82	1200.82	10079.66	1201.25	10127.98	1201.45	10141.27	1201.33
10153.03	1202.1	10182.74	1202.09	10200.52	1200.36	10215.05	1199.9	10259.7	1199.52
10280.99	1206.6	10310.32	1206.06	10388.32	1206.03	10406.86	1205.83	10415.69	1205.11
10468.77	1205.7	10517.17	1205.91	10670.08	1207.15	10750.84	1207.51	10782.79	1207.62
10818.5	1206.6	10843.7	1207.07						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9491	.06	9854.54	.035	10280.99	.11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9854.54 10280.99 460 491.26 455 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9491	9836.6	1212.14

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9491	9800	1205.5	10400	10843.7	1205.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1206.17	Element			
Vel Head (ft)	0.78	Wt. n-Val.		0.035	
W.S. Elev (ft)	1205.39	Reach Len. (ft)	460.00	491.26	455.00
Crit W.S. (ft)	1204.02	Flow Area (sq ft)		1831.90	
E.G. Slope (ft/ft)	0.003756	Area (sq ft)		1831.90	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	404.76	Top Width (ft)		404.76	
Vel Total (ft/s)	7.10	Avg. Vel. (ft/s)		7.10	
Max Chl Dpth (ft)	7.13	Hydr. Depth (ft)		4.53	
Conv. Total (cfs)	212119.4	Conv. (cfs)		212119.4	
Length Wtd. (ft)	491.24	Wetted Per. (ft)		406.70	
Min Ch El (ft)	1198.26	Shear (lb/sq ft)		1.06	
Alpha	1.00	Stream Power (lb/ft s)		7.50	
Frctn Loss (ft)	2.20	Cum Volume (acre-ft)	18.62	568.66	
C & E Loss (ft)	0.02	Cum SA (acres)	4.21	100.64	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1209.31	Element			
Vel Head (ft)	0.71	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1208.60	Reach Len. (ft)	460.00	491.26	455.00
Crit W.S. (ft)	1205.52	Flow Area (sq ft)		3157.52	1194.04
E.G. Slope (ft/ft)	0.001811	Area (sq ft)	745.34	3157.52	1194.04
Q Total (cfs)	23000.00	Flow (cfs)		21868.71	1131.29
Top Width (ft)	1250.89	Top Width (ft)	270.17	418.00	562.71
Vel Total (ft/s)	5.29	Avg. Vel. (ft/s)		6.93	0.95
Max Chl Dpth (ft)	10.34	Hydr. Depth (ft)		7.55	2.12
Conv. Total (cfs)	540487.3	Conv. (cfs)		513902.7	26584.6
Length Wtd. (ft)	489.50	Wetted Per. (ft)		420.66	564.29
Min Ch El (ft)	1198.26	Shear (lb/sq ft)		0.85	0.24
Alpha	1.63	Stream Power (lb/ft s)		5.88	0.23
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	74.41	898.60	47.88
C & E Loss (ft)	0.06	Cum SA (acres)	17.77	107.06	17.16

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1210.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1209.74	Reach Len. (ft)	460.00	491.26	455.00
Crit W.S. (ft)	1207.02	Flow Area (sq ft)		3633.21	1831.83
E.G. Slope (ft/ft)	0.002223	Area (sq ft)	1057.22	3633.21	1831.83
Q Total (cfs)	33000.00-	Flow (cfs)		30445.30	2554.70
Top Width (ft)	1264.27	Top Width (ft)	280.16	421.39	562.71
Vel Total (ft/s)	6.04	Avg. Vel. (ft/s)		8.38	1.39
Max Chl Dpth (ft)	11.48	Hydr. Depth (ft)		8.62	3.26
Conv. Total (cfs)	699842.8	Conv. (cfs)		645664.4	54178.5
Length Wtd. (ft)	488.62	Wetted Per. (ft)		424.24	565.42
Min Ch El (ft)	1198.26	Shear (lb/sq ft)		1.19	0.45
Alpha	1.78	Stream Power (lb/ft s)		9.96	0.63
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	94.75	1120.05	73.82
C & E Loss (ft)	0.06	Cum SA (acres)	18.92	112.31	26.90

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9854.54	9996.69	3472.84	518.40	124.86	26.71	4.18	6.70
9996.69	10138.84	5333.37	706.51	142.26	41.03	4.97	7.55
10138.84	RB 10280.99	4193.80	606.99	139.58	32.26	4.38	6.91

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9854.54	9996.69	6095.66	932.62	134.99	26.50	6.98	6.54
9996.69	10138.84	8507.82	1163.31	142.26	36.99	8.18	7.31
10138.84	RB 10280.99	7265.23	1061.59	143.41	31.59	7.47	6.84
10280.99	10421.67	372.89	361.24	140.70	1.62	2.57	1.03
10421.67	10562.35	430.99	394.00	140.68	1.87	2.80	1.09
10562.35	10703.02	201.53	249.70	140.68	0.88	1.78	0.81
10703.02	10843.70	125.88	189.10	142.23	0.55	1.34	0.67

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9854.54	9996.69	8555.93	1086.08	138.56	25.93	7.92	7.88
9996.69	10138.84	11701.77	1324.42	142.26	35.46	9.32	8.84
10138.84	RB 10280.99	10187.59	1222.71	143.41	30.87	8.60	8.33
10280.99	10421.67	778.35	520.68	140.70	2.36	3.70	1.49
10421.67	10562.35	861.75	553.45	140.68	2.61	3.93	1.56
10562.35	10703.02	520.86	409.15	140.68	1.58	2.91	1.27
10703.02	10843.70	393.75	348.55	143.37	1.19	2.48	1.13

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.176

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9320	1218	9342.15	1215.79	9367.97	1209.77	9382.78	1205.27	9445.62	1204.52
9501.34	1204.1	9521.03	1207.57	9540.11	1208.61	9564.44	1209.57	9587.25	1207.2
9634.9	1205	9667.17	1203.4	9706.95	1202.83	9713.81	1200.98	9720.47	1203.68
9737.82	1200.4	9765.52	1200.25	9779.43	1199.95	9872.33	1198.7	9955.39	1198.38
9960.2	1198.5	9979.28	1195.87	10010.54	1195.57	10027.61	1198.88	10058.83	1199.59
10063.89	1199.71	10070.72	1198.79	10118.38	1200.22	10129.28	1205.57	10153.39	1204.93
10165.28	1205.31	10227.18	1206.12	10301.4	1206.86	10426.08	1207.18	10440.36	1207.13
10508.37	1207.51	10569.25	1206.97						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9320	.06	9720.47	.03	10129.28	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9720.47	10129.28	510	553.29	550	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
9320	9564.44	1209.57

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1203.95	Element			
Vel Head (ft)	1.00	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1202.95	Reach Len. (ft)	510.00	553.29	550.00
Crit W.S. (ft)	1202.09	Flow Area (sq ft)	12.51	1618.84	
E.G. Slope (ft/ft)	0.005554	Area (sq ft)	12.51	1618.84	
Q Total (cfs)	13000.00	Flow (cfs)	16.39	12983.61	
Top Width (ft)	419.91	Top Width (ft)	20.28	399.63	
Vel Total (ft/s)	7.97	Avg. Vel. (ft/s)	1.31	8.02	
Max Chl Dpth (ft)	7.38	Hydr. Depth (ft)	0.62	4.05	
Conv. Total (cfs)	174438.0	Conv. (cfs)	219.9	174218.1	
Length Wtd. (ft)	553.00	Wetted Per. (ft)	20.91	401.11	
Min Ch El (ft)	1195.57	Shear (lb/sq ft)	0.21	1.40	
Alpha	1.01	Stream Power (lb/ft s)	0.27	11.22	
Frctn Loss (ft)	2.38	Cum Volume (acre-ft)	18.55	549.21	
C & E Loss (ft)	0.09	Cum SA (acres)	4.10	96.11	

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1208.56	Element			
Vel Head (ft)	0.51	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1208.05	Reach Len. (ft)	510.00	553.29	550.00
Crit W.S. (ft)	1203.64	Flow Area (sq ft)	496.63	3692.74	602.09
E.G. Slope (ft/ft)	0.001032	Area (sq ft)	961.11	3692.74	602.09
Q Total (cfs)	23000.00	Flow (cfs)	909.28	21769.19	321.54
Top Width (ft)	1146.26	Top Width (ft)	297.48	408.81	439.97
Vel Total (ft/s)	4.80	Avg. Vel. (ft/s)	1.83	5.90	0.53
Max Chl Dpth (ft)	12.48	Hydr. Depth (ft)	3.51	9.03	1.37
Conv. Total (cfs)	715908.2	Conv. (cfs)	28302.5	677597.4	10008.3
Length Wtd. (ft)	550.68	Wetted Per. (ft)	142.27	410.96	441.07
Min Ch El (ft)	1195.57	Shear (lb/sq ft)	0.22	0.58	0.09
Alpha	1.43	Stream Power (lb/ft s)	0.41	3.41	0.05
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	65.40	859.97	38.50
C & E Loss (ft)	0.08	Cum SA (acres)	14.78	102.40	11.92

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1209.79	Element			
Vel Head (ft)	0.81	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1208.97	Reach Len. (ft)	510.00	553.29	550.00
Crit W.S. (ft)	1204.94	Flow Area (sq ft)	631.79	4071.66	1009.88
E.G. Slope (ft/ft)	0.001467	Area (sq ft)	1250.73	4071.66	1009.88
Q Total (cfs)	33000.00	Flow (cfs)	1554.32	30539.34	906.34
Top Width (ft)	1177.78	Top Width (ft)	329.00	408.81	439.97
Vel Total (ft/s)	5.78	Avg. Vel. (ft/s)	2.46	7.50	0.90
Max Chl Dpth (ft)	13.40	Hydr. Depth (ft)	4.20	9.96	2.30
Conv. Total (cfs)	861649.1	Conv. (cfs)	40584.2	797399.8	23665.0
Length Wtd. (ft)	550.21	Wetted Per. (ft)	151.24	410.96	442.00
Min Ch El (ft)	1195.57	Shear (lb/sq ft)	0.38	0.91	0.21
Alpha	1.57	Stream Power (lb/ft s)	0.94	6.80	0.19
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	82.56	1076.60	58.98
C & E Loss (ft)	0.12	Cum SA (acres)	15.71	107.63	21.67

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9320.00	9720.47	16.39	12.51	20.91	0.13	0.62	1.31
LB 9720.47	9856.74	2612.65	402.03	132.67	20.10	3.04	6.50
9856.74	9993.01	5873.67	661.06	136.45	45.18	4.85	8.89
9993.01	RB 10129.28	4497.29	555.75	131.98	34.59	4.24	8.09

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9320.00	9720.47	909.27	496.63	142.27	3.95	3.51	1.83
LB 9720.47	9856.74	5954.93	1094.73	136.59	25.89	8.03	5.44
9856.74	9993.01	8504.15	1355.15	136.45	36.97	9.94	6.28
9993.01	RB 10129.28	7310.12	1242.86	137.92	31.78	9.12	5.88
10129.28	10239.27	188.67	269.42	110.01	0.82	2.45	0.70
10239.27	10349.27	68.55	146.75	110.00	0.30	1.33	0.47
10349.27	10459.26	38.09	103.15	109.99	0.17	0.94	0.37
10459.26	10569.25	26.21	82.75	111.07	0.11	0.75	0.32

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9320.00	9720.47	1554.32	631.79	151.24	4.71	4.20	2.46
LB 9720.47	9856.74	8522.12	1221.03	136.59	25.82	8.96	6.98
9856.74	9993.01	11769.77	1481.46	136.45	35.67	10.87	7.94
9993.01	RB 10129.28	10247.46	1369.17	137.92	31.05	10.05	7.48
10129.28	10239.27	413.29	371.37	110.01	1.25	3.38	1.11
10239.27	10349.27	211.88	248.70	110.00	0.64	2.26	0.85
10349.27	10459.26	153.67	205.10	109.99	0.47	1.86	0.75
10459.26	10569.25	127.50	184.70	112.00	0.39	1.68	0.69

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 10.096

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9294	1217.8	9335.91	1210.57	9371.68	1208.38	9398.45	1205.88	9406.41	1205.34
9459.94	1205	9538.72	1205.07	9563.14	1204.73	9615.7	1202.94	9648.79	1202.75
9677.65	1199.1	9704.94	1198.08	9718.95	1202.39	9764.7	1194.25	9773.46	1194.44
9808.57	1195.9	9819.17	1195.57	9827.41	1194.76	9850.49	1196.68	9882.89	1196.23
9962.59	1196.1	9980.59	1193.96	10013	1193.84	10023.31	1195.17	10061.23	1195.35
10078.07	1196.6	10109.46	1197.65	10121.7	1203.53	10149.13	1204.41	10194.54	1204.68
10267.79	1206	10281.64	1206.09	10387.24	1205.16	10451	1204.95	10501.24	1205.11
10517.76	1205	10526.38	1204.51	10541.18	1204.65				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9294	.06	9718.95	.035	10149.13	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9718.95	10149.13	535	543.99	555	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1201.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1200.79	Reach Len. (ft)	535.00	543.99	555.00
Crit W.S. (ft)	1199.10	Flow Area (sq ft)	83.25	1907.69	
E.G. Slope (ft/ft)	0.003025	Area (sq ft)	83.25	1907.69	
Q Total (cfs)	13000.00	Flow (cfs)	159.30	12840.70	
Top Width (ft)	437.51	Top Width (ft)	49.46	388.05	
Vel Total (ft/s)	6.53	Avg. Vel. (ft/s)	1.91	6.73	
Max Chl Dpth (ft)	6.95	Hydr. Depth (ft)	1.68	4.92	
Conv. Total (cfs)	236364.4	Conv. (cfs)	2896.4	233468.0	
Length Wtd. (ft)	543.94	Wetted Per. (ft)	49.99	389.78	
Min Ch El (ft)	1193.84	Shear (lb/sq ft)	0.31	0.92	
Alpha	1.05	Stream Power (lb/ft s)	0.60	6.22	
Frctn Loss (ft)	1.89	Cum Volume (acre-ft)	17.99	526.81	
C & E Loss (ft)	0.04	Cum SA (acres)	3.70	91.10	

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1208.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1207.83	Reach Len. (ft)	535.00	543.99	555.00
Crit W.S. (ft)	1200.67	Flow Area (sq ft)	1404.47	4833.50	1026.64
E.G. Slope (ft/ft)	0.000406	Area (sq ft)	1404.47	4833.50	1026.64
Q Total (cfs)	23000.00	Flow (cfs)	1796.93	20674.74	528.33
Top Width (ft)	1163.60	Top Width (ft)	341.37	430.18	392.05
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	1.28	4.28	0.51
Max Chl Dpth (ft)	13.99	Hydr. Depth (ft)	4.11	11.24	2.62
Conv. Total (cfs)	1140775.8	Conv. (cfs) -	89125.9	1025445.2	26204.7
Length Wtd. (ft)	543.81	Wetted Per. (ft)	342.41	432.69	395.26
Min Ch El (ft)	1193.84	Shear (lb/sq ft)	0.10	0.28	0.07
Alpha	1.65	Stream Power (lb/ft s)	0.13	1.21	0.03
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	51.55	805.82	28.21
C & E Loss (ft)	0.00	Cum SA (acres)	11.04	97.07	6.67

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1209.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1208.67	Reach Len. (ft)	535.00	543.99	555.00
Crit W.S. (ft)	1201.96	Flow Area (sq ft)	1694.19	5193.57	1354.80
E.G. Slope (ft/ft)	0.000628	Area (sq ft)	1694.19	5193.57	1354.80
Q Total (cfs)	33000.00	Flow (cfs)	2991.62	28967.22	1041.15
Top Width (ft)	1174.17	Top Width (ft)	351.94	430.18	392.05
Vel Total (ft/s)	4.00	Avg. Vel. (ft/s)	1.77	5.58	0.77
Max Chl Dpth (ft)	14.83	Hydr. Depth (ft)	4.81	12.07	3.46
Conv. Total (cfs)	1316823.6	Conv. (cfs)	119377.0	1155900.8	41545.9
Length Wtd. (ft)	543.76	Wetted Per. (ft)	353.01	432.69	396.10
Min Ch El (ft)	1193.84	Shear (lb/sq ft)	0.19	0.47	0.13
Alpha	1.72	Stream Power (lb/ft s)	0.33	2.62	0.10
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	65.32	1017.76	44.05
C & E Loss (ft)	0.00	Cum SA (acres)	11.72	102.30	16.41

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9577.30	9718.95	159.30	83.25	49.99	1.23	1.68	1.91
LB 9718.95	9862.34	4217.47	640.56	135.13	32.44	4.77	6.58
9862.34	10005.74	5105.81	735.91	143.52	39.28	5.13	6.94
10005.74	RB 10149.13	3517.42	531.22	111.12	27.06	4.82	6.62

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9294.00	9435.65	79.86	113.47	58.18	0.35	1.95	0.70
9435.65	9577.30	368.86	405.72	141.66	1.60	2.86	0.91
9577.30	9718.95	1348.21	885.28	142.57	5.86	6.25	1.52
LB 9718.95	9862.34	7090.69	1642.71	144.27	30.83	11.46	4.32
9862.34	10005.74	7870.93	1745.26	143.52	34.22	12.17	4.51
10005.74	RB 10149.13	5713.12	1445.52	144.90	24.84	10.08	3.95
10149.13	10279.81	185.62	352.91	130.70	0.81	2.70	0.53
10279.81	10410.50	140.69	298.84	130.69	0.61	2.29	0.47
10410.50	10541.18	202.02	374.89	133.88	0.88	2.87	0.54

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9294.00	9435.65	170.59	166.06	68.78	0.52	2.42	1.03
9435.65	9577.30	716.05	524.29	141.66	2.17	3.70	1.37
9577.30	9718.95	2104.98	1003.84	142.57	6.38	7.09	2.10
LB 9718.95	9862.34	9917.30	1762.74	144.27	30.05	12.29	5.63
9862.34	10005.74	10935.26	1865.29	143.52	33.14	13.01	5.86
10005.74	RB 10149.13	8114.66	1565.55	144.90	24.59	10.92	5.18
10149.13	10279.81	362.56	462.30	130.70	1.10	3.54	0.78
10279.81	10410.50	294.69	408.23	130.69	0.89	3.12	0.72
10410.50	10541.18	383.91	484.28	134.71	1.16	3.71	0.79

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.997

INPUT
Description: The expansion/contraction coefficients are increased

because
cross section is located near the Bell Rd. bridge.

Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9340	1214.2	9352.35	1207	9371.82	1204.45	9407.13	1204.48	9446.64	1205.45
9482.27	1204.8	9519.13	1204.52	9525.68	1204.1	9576.77	1203.58	9668.5	1203.88
9684.88	1203.9	9714.68	1205.05	9777.46	1203.31	9815.94	1201.1	9834.4	1199.69
9851.88	1200.6	9879.59	1200.73	9888.55	1197.27	9904.24	1191.71	10023.36	1192.29
10055.84	1192.11	10096.68	1192.39	10102.64	1192.61	10130.11	1192.73	10144.96	1198.06
10154.62	1198.4	10166.1	1200.72	10192.7	1201	10346.9	1201.65	10426.32	1201.81
10522.07	1202.31	0547.88	1202.25	10577.25	1203.25	10592.47	1202.82	10614.94	1203.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9340	.06	9879.59	.035	10166.1	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9879.59	10166.1	51	74.24	104	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1199.56	Element			
Vel Head (ft)	1.13	Wt. n-Val.		0.035	
W.S. Elev (ft)	1198.43	Reach Len. (ft)	51.00	74.24	104.00
Crit W.S. (ft)	1196.77	Flow Area (sq ft)		1524.61	
E.G. Slope (ft/ft)	0.004038	Area (sq ft)		1524.61	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	269.21	Top Width (ft)		269.21	
Vel Total (ft/s)	8.53	Avg. Vel. (ft/s)		8.53	
Max Chl Dpth (ft)	6.72	Hydr. Depth (ft)		5.66	
Conv. Total (cfs)	204582.4	Conv. (cfs)		204582.4	
Length Wtd. (ft)	74.24	Wetted Per. (ft)		271.32	
Min Ch El (ft)	1191.71	Shear (lb/sq ft)		1.42	
Alpha	1.00	Stream Power (lb/ft s)		12.08	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	17.48	505.38	
C & E Loss (ft)	0.17	Cum SA (acres)	3.39	87.00	

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1207.89	Element			
Vel Head (ft)	0.26	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1207.63	Reach Len. (ft)	51.00	74.24	104.00
Crit W.S. (ft)	1198.90	Flow Area (sq ft)	2063.00	4140.52	2608.83
E.G. Slope (ft/ft)	0.000325	Area (sq ft)	2063.00	4140.52	2608.83
Q Total (cfs)	23000.00	Flow (cfs)	2281.95	18678.11	2039.95
Top Width (ft)	1263.67	Top Width (ft)	528.32	286.51	448.84
Vel Total (ft/s)	2.61	Avg. Vel. (ft/s)	1.11	4.51	0.78
Max Chl Dpth (ft)	15.92	Hydr. Depth (ft)	3.90	14.45	5.81
Conv. Total (cfs)	1276039.6	Conv. (cfs)	126602.3	1036261.0	113176.4
Length Wtd. (ft)	73.86	Wetted Per. (ft)	528.88	289.28	453.30
Min Ch El (ft)	1191.71	Shear (lb/sq ft)	0.08	0.29	0.12
Alpha	2.45	Stream Power (lb/ft s)	0.09	1.31	0.09
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	30.26	749.79	5.05
C & E Loss (ft)	0.01	Cum SA (acres)	5.70	92.60	1.31

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1208.78	Element			
Vel Head (ft)	0.44	Wt. n-Val.	0.060	0.035	0.110
W.S. Elev (ft)	1208.33	Reach Len. (ft)	51.00	74.24	104.00
Crit W.S. (ft)	1200.60	Flow Area (sq ft)	2436.19	4342.67	2925.52
E.G. Slope (ft/ft)	0.000536	Area (sq ft)	2436.19	4342.67	2925.52
Q Total (cfs)	33000.00	Flow (cfs)	3859.81	25972.29	3167.90
Top Width (ft)	1264.88	Top Width (ft)	529.53	286.51	448.84
Vel Total (ft/s)	3.40	Avg. Vel. (ft/s)	1.58	5.98	1.08
Max Chl Dpth (ft)	16.62	Hydr. Depth (ft)	4.60	15.16	6.52
Conv. Total (cfs)	1425530.0	Conv. (cfs)	166735.7	1121947.9	136846.4
Length Wtd. (ft)	73.63	Wetted Per. (ft)	530.28	289.28	454.00
Min Ch El (ft)	1191.71	Shear (lb/sq ft)	0.15	0.50	0.22
Alpha	2.47	Stream Power (lb/ft s)	0.24	3.00	0.23
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	39.96	958.21	16.78
C & E Loss (ft)	0.02	Cum SA (acres)	6.31	97.83	11.06

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9879.59	9975.09	4564.95	527.28	90.71	35.12	5.89	8.66
9975.09	10070.60	5424.89	596.98	95.51	41.73	6.25	9.09
10070.60	RB 10166.10	3010.15	400.35	85.10	23.16	4.76	7.52

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9340.00	9519.86	379.51	455.08	168.95	1.65	2.70	0.83
9519.86	9699.73	715.63	682.75	179.89	3.11	3.80	1.05

9699.73	9879.59	1186.80	925.17	180.04	5.16	5.14	1.28
LB 9879.59	9975.09	6322.76	1399.01	97.10	27.49	14.65	4.52
9975.09	10070.60	6986.88	1475.57	95.51	30.38	15.45	4.74
10070.60	RB 10166.10	5368.47	1265.94	96.67	23.34	13.26	4.24
10166.10	10315.71	806.84	963.38	149.62	3.51	6.44	0.84
10315.71	10465.33	693.67	879.87	149.62	3.02	5.88	0.79
10465.33	10614.94	539.45	765.58	154.07	2.35	5.12	0.70

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9340.00	9519.86	721.36	574.46	170.35	2.19	3.38	1.26
9519.86	9699.73	1232.49	809.66	179.89	3.73	4.50	1.52
9699.73	9879.59	1905.96	1052.08	180.04	5.78	5.85	1.81
LB 9879.59	9975.09	8784.62	1466.39	97.10	26.62	15.35	5.99
9975.09	10070.60	9668.78	1542.96	95.51	29.30	16.16	6.27
10070.60	RB 10166.10	7518.91	1333.32	96.67	22.78	13.96	5.64
10166.10	10315.71	1233.43	1068.95	149.62	3.74	7.14	1.15
10315.71	10465.33	1077.04	985.43	149.62	3.26	6.59	1.09
10465.33	10614.94	857.42	871.14	154.77	2.60	5.82	0.98

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.984

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Bell Rd. bridge.

Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9334	1204.9	9419.99	1204.82	9434.19	1205.11	9579.64	1204.38	9673.54	1204.19
9723.58	1204.3	9755.46	1203.67	9826	1203.59	9864.55	1203.16	9878.79	1199.3
9896.5	1191.3	9960.11	1191.26	9998.46	1191.15	10081.52	1191.28	10115.82	1191.33
10128.83	1191	10139.49	1194.14	10147.33	1194.07	10151.89	1195.57	10172.35	1204
10199.25	1204.31	10218.46	1203.86	10258.03	1204.21	10309.8	1204.44	10359.68	1204.15
10409.02	1204								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9334	.06	9864.55	.03	10172.35	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9864.55	10172.35	130	133.96	129	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1199.15	Wt. n-Val.		0.035	
Vel Head (ft)	0.78	Reach Len. (ft)	7.00	7.00	7.00
W.S. Elev (ft)	1198.37	Flow Area (sq ft)		1831.23	
Crit W.S. (ft)	1195.73	Area (sq ft)		1831.23	
E.G. Slope (ft/ft)	0.002293	Flow (cfs)		13000.00	
Q Total (cfs)	13000.00	Top Width (ft)		277.82	
Top Width (ft)	277.82	Avg. Vel. (ft/s)		7.10	
Vel Total (ft/s)	7.10	Hydr. Depth (ft)		6.59	
Max Chl Dpth (ft)	7.37	Conv. (cfs)		271510.0	
Conv. Total (cfs)	271510.0	Wetted Per. (ft)		280.59	
Length Wtd. (ft)	7.00	Shear (lb/sq ft)		0.93	
Min Ch El (ft)	1191.00	Stream Power (lb/ft s)		6.63	
Alpha	1.00	Cum Volume (acre-ft)	17.48	502.52	
Frctn Loss (ft)		Cum SA (acres)	3.39	86.53	
C & E Loss (ft)					

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1207.85	Wt. n-Val.	0.060	0.035	0.110
Vel Head (ft)	0.30	Reach Len. (ft)	7.00	7.00	7.00
W.S. Elev (ft)	1207.56	Flow Area (sq ft)	1702.03	4579.58	799.30
Crit W.S. (ft)	1197.73	Area (sq ft)	1702.03	4579.58	799.30
E.G. Slope (ft/ft)	0.000323	Flow (cfs)	1642.00	20925.61	432.39
Q Total (cfs)	23000.00	Top Width (ft)	530.55	307.80	236.67
Top Width (ft)	1075.02	Avg. Vel. (ft/s)	0.96	4.57	0.54
Vel Total (ft/s)	3.25	Hydr. Depth (ft)	3.21	14.88	3.38
Max Chl Dpth (ft)	16.56	Conv. (cfs)	91380.6	1164553.4	24063.4
Conv. Total (cfs)	1279997.4	Wetted Per. (ft)	533.22	312.40	240.24
Length Wtd. (ft)	7.00	Shear (lb/sq ft)	0.06	0.30	0.07
Min Ch El (ft)	1191.00	Stream Power (lb/ft s)	0.06	1.35	0.04
Alpha	1.81	Cum Volume (acre-ft)	28.05	742.36	0.99
Frctn Loss (ft)		Cum SA (acres)	5.08	92.09	0.49
C & E Loss (ft)					

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1208.71	Wt. n-Val.	0.060	0.035	0.110
Vel Head (ft)	0.53	Reach Len. (ft)	7.00	7.00	7.00
W.S. Elev (ft)	1208.19	Flow Area (sq ft)	2036.67	4773.72	948.57
Crit W.S. (ft)	1199.42				

E.G. Slope (ft/ft)	0.000553	Area (sq ft)	2036.67	4773.72	948.57
Q Total (cfs)	33000.00	Flow (cfs)	2896.41	29352.04	751.56
Top Width (ft)	1075.02	Top Width (ft)	530.55	307.80	236.67
Vel Total (ft/s)	4.25	Avg. Vel. (ft/s)	1.42	6.15	0.79
Max Chl Dpth (ft)	17.19	Hydr. Depth (ft)	3.84	15.51	4.01
Conv. Total (cfs)	1403096.1	Conv. (cfs)	123149.5	1247991.8	31954.8
Length Wtd. (ft)	7.00	Wetted Per. (ft)	533.85	312.40	240.87
Min Ch El (ft)	1191.00	Shear (lb/sq ft)	0.13	0.53	0.14
Alpha	1.87	Stream Power (lb/ft s)	0.19	3.24	0.11
Frctn Loss (ft)		Cum Volume (acre-ft)	37.34	950.44	12.16
C & E Loss (ft)		Cum SA (acres)	5.69	97.32	10.24

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9864.55	9967.15	3856.32	556.07	87.81	29.66	6.44	6.93
9967.15	10069.75	5533.40	734.95	102.60	42.56	7.16	7.53
10069.75	RB 10172.35	3610.28	540.21	90.18	27.77	6.07	6.68

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9334.00	9510.85	393.56	470.80	179.51	1.71	2.66	0.84
9510.85	9687.70	532.55	561.12	176.85	2.32	3.17	0.95
9687.70	9864.55	715.89	670.12	176.86	3.11	3.79	1.07
LB 9864.55	9967.15	6403.20	1457.19	104.84	27.84	14.20	4.39
9967.15	10069.75	8216.62	1677.83	102.60	35.72	16.35	4.90
10069.75	RB 10172.35	6305.79	1444.56	104.97	27.42	14.08	4.37
10172.35	10251.24	153.13	274.76	78.90	0.67	3.48	0.56
10251.24	10330.13	134.97	254.71	78.89	0.59	3.23	0.53
10330.13	10409.02	144.28	269.82	82.45	0.63	3.42	0.53

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9334.00	9510.85	734.98	582.35	180.14	2.23	3.29	1.26
9510.85	9687.70	946.18	672.66	176.85	2.87	3.80	1.41
9687.70	9864.55	1215.25	781.66	176.86	3.68	4.42	1.55
LB 9864.55	9967.15	9012.90	1521.90	104.84	27.31	14.83	5.92
9967.15	10069.75	11457.83	1742.55	102.60	34.72	16.98	6.58
10069.75	RB 10172.35	8881.30	1509.27	104.97	26.91	14.71	5.88
10172.35	10251.24	264.54	324.52	78.90	0.80	4.11	0.82
10251.24	10330.13	237.88	304.47	78.89	0.72	3.86	0.78
10330.13	10409.02	249.14	319.58	83.08	0.75	4.05	0.78

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE RIVER: New River
REACH: Lower RS: 9.971

INPUT
Description:
Distance from Upstream XS = 7
Deck/Roadway Width = 115
Weir Coefficient = 2.68
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 9

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
9334	1204.9	0	9589	1206.8	0	9600	1206.75	0
9738.64	1206.5	0	9864	1206.67	1206.67	9864.01	1206.67	1200.24
10177.99	1206.67	1200.24	10178	1206.67	1206.67	10409.02	1204.01	0

Upstream Bridge Cross Section Data
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9334	1204.9	9419.99	1204.82	9434.19	1205.11	9579.64	1204.38	9673.54	1204.19
9723.58	1204.3	9755.46	1203.67	9826	1203.59	9864.55	1203.16	9878.79	1199.3
9896.5	1191.3	9960.11	1191.26	9998.46	1191.15	10081.52	1191.28	10115.82	1191.33
10128.83	1191	10139.49	1194.14	10147.33	1194.07	10151.89	1195.57	10172.35	1204
10199.25	1204.31	10218.46	1203.86	10258.03	1204.21	10309.8	1204.44	10359.68	1204.15
10409.02	1204								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9334	.06	9864.55	.03	10172.35	.11

Bank Sta: Left Right Coeff Contr. Expan.

```
      9864.5510172.35              .3       .5

Downstream  Deck/Roadway Coordinates
    num=        9
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    9334  1204.9       0    9589  1206.8       0    9600 1206.75       0
 9738.64  1206.5       0    9864 1206.67 1206.67 9864.01 1206.67 1200.24
10177.99 1206.67 1200.24   10178 1206.67 1206.6710409.02 1204.01       0

Downstream Bridge Cross Section Data
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9380  1205.9 9385.73 1205.03 9416.73 1205.06 9444.33 1204.76 9494.19  1204.4
 9505.79  1204.6 9595.82 1204.02  9663.5 1203.88 9691.98 1204.37 9803.99 1204.43
 9841.32  1204.2 9865.41 1203.19 9895.12 1191.1810063.77  1190.710088.68 1190.47
10125.43  1190.510135.81 1194.07 10143.3 1194.05 10168.4 1203.0310186.27 1204.13
10197.69  1204.210206.53 1203.7510221.59  1203.610267.47 1204.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9380     .06 9865.41    .035 10168.4     .11

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9865.41 10168.4             .3       .5

Upstream Embankment side slope              =       2 horiz. to 1.0 vertical
Downstream Embankment side slope            =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         = 1204.01
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  4

Pier Data
Pier Station     Upstream=    9911    Downstream=    9911
Upstream     num=       2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202
Downstream     num=       2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202

Pier Data
Pier Station     Upstream=    9971    Downstream=    9971
Upstream     num=       2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202
Downstream     num=       2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202

Pier Data
Pier Station     Upstream=   10031    Downstream=   10031
Upstream     num=       2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202
Downstream     num=       2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202

Pier Data
Pier Station     Upstream=   10091    Downstream=   10091
Upstream     num=       2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202
Downstream     num=       2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum                Cd   =    1.33
       Yarnell                 KVal =     .95
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                = 1200.24

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT    Profile #1/3 flow
Opening : Bridge #1
```

E.G. US. (ft)	1199.15	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1198.37	E.G. Elev (ft)	1199.11	1198.32
Q Total (cfs)	13000.00	W.S. Elev (ft)	1198.28	1197.30
Q Bridge (cfs)	13000.00	Crit W.S. (ft)	1195.81	1195.44
Q Weir (cfs)		Max Chl Dpth (ft)	7.28	6.83
Weir Sta Lft (ft)		Vel Total (ft/s)	7.33	8.14
Weir Sta Rgt (ft)		Flow Area (sq ft)	1774.68	1596.36
Weir Submerg		Froude # Chl	0.51	0.59
Weir Max Depth (ft)		Specif Force (cu ft)	9005.03	8296.21
Min Top Rd (ft)	1205.27	Hydr Depth (ft)	6.51	5.96
Min El Prs (ft)	1200.24	W.P. Total (ft)	331.71	321.70
Delta EG (ft)	0.87	Conv. Total (cfs)	230476.6	197171.0
Delta WS (ft)	1.08	Top Width (ft)	272.76	267.72
BR Open Area (sq ft)	2320.14	Frctn Loss (ft)		
BR Open Vel (ft/s)	8.14	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	1.06	1.35
Br Sel Method	Momentum	Power Total (lb/ft s)	7.78	10.97

BRIDGE OUTPUT Profile #2/3 flow
Opening : Bridge #1

E.G. US. (ft)	1207.85	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1207.56	E.G. Elev (ft)	1207.85	1207.85
Q Total (cfs)	23000.00	W.S. Elev (ft)	1207.56	1207.56
Q Bridge (cfs)	16542.47	Crit W.S. (ft)	1197.81	1197.45
Q Weir (cfs)	6457.53	Max Chl Dpth (ft)	16.56	17.09
Weir Sta Lft (ft)	9334.00	Vel Total (ft/s)	6.05	6.80
Weir Sta Rgt (ft)	10409.02	Flow Area (sq ft)	3798.69	3381.17
Weir Submerg	0.00	Froude # Chl	0.27	0.30
Weir Max Depth (ft)	3.84	Specif Force (cu ft)	33344.59	34505.84
Min Top Rd (ft)	1205.27	Hydr Depth (ft)	3.53	3.81
Min El Prs (ft)	1200.24	W.P. Total (ft)	1730.03	1539.09
Delta EG (ft)	6.53	Conv. Total (cfs)		
Delta WS (ft)	7.74	Top Width (ft)	1075.02	887.47
BR Open Area (sq ft)	2320.14	Frctn Loss (ft)		
BR Open Vel (ft/s)	7.13	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Method	Press/Weir	Power Total (lb/ft s)		

Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

BRIDGE OUTPUT Profile #full capacity
Opening : Bridge #1

E.G. US. (ft)	1208.71	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1208.19	E.G. Elev (ft)	1208.71	1208.71
Q Total (cfs)	33000.00	W.S. Elev (ft)	1208.19	1208.19
Q Bridge (cfs)	21282.75	Crit W.S. (ft)	1199.52	1199.20
Q Weir (cfs)	11717.25	Max Chl Dpth (ft)	17.19	17.72
Weir Sta Lft (ft)	9334.00	Vel Total (ft/s)	7.38	8.39
Weir Sta Rgt (ft)	10409.02	Flow Area (sq ft)	4472.83	3933.99
Weir Submerg	0.00	Froude # Chl	0.32	0.36
Weir Max Depth (ft)	4.70	Specif Force (cu ft)	39628.88	40965.85
Min Top Rd (ft)	1205.27	Hydr Depth (ft)	4.16	4.43
Min El Prs (ft)	1200.24	W.P. Total (ft)	1731.29	1540.35
Delta EG (ft)	4.95	Conv. Total (cfs)		
Delta WS (ft)	6.45	Top Width (ft)	1075.02	887.47
BR Open Area (sq ft)	2320.14	Frctn Loss (ft)		
BR Open Vel (ft/s)	9.17	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Method	Press/Weir	Power Total (lb/ft s)		

Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.
Warning: The energy loss was 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: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.958

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Bell Rd. bridge.

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9380	1205.9	9385.73	1205.03	9416.73	1205.06	9444.33	1204.76	9494.19	1204.4
9505.79	1204.6	9595.82	1204.02	9663.5	1203.88	9691.98	1204.37	9803.99	1204.43
9841.32	1204.2	9865.41	1203.19	9895.12	1191.18	10063.77	1190.71	10088.68	1190.47
10125.43	1190.51	10135.81	1194.07	10143.3	1194.05	10168.4	1203.03	10186.27	1204.13
10197.69	1204.21	10206.53	1203.75	10221.59	1203.61	10267.47	1204.01		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9380	.06	9865.41	.035	10168.4	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865.41	10168.4	22	27.43	28	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1198.28	Element			
Vel Head (ft)	0.99	Wt. n-Val.		0.035	
W.S. Elev (ft)	1197.29	Reach Len. (ft)	22.00	27.43	28.00
Crit W.S. (ft)	1195.38	Flow Area (sq ft)		1624.30	
E.G. Slope (ft/ft)	0.003323	Area (sq ft)		1624.30	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	272.34	Top Width (ft)		272.34	
Vel Total (ft/s)	8.00	Avg. Vel. (ft/s)		8.00	
Max Chl Dpth (ft)	6.82	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	225501.1	Conv. (cfs)		225501.1	
Length Wtd. (ft)	27.43	Wetted Per. (ft)		274.68	
Min Ch El (ft)	1190.47	Shear (lb/sq ft)		1.23	
Alpha	1.00	Stream Power (lb/ft s)		9.82	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	17.48	497.34	
C & E Loss (ft)	0.02	Cum SA (acres)	3.39	85.70	

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1201.33	Element			
Vel Head (ft)	1.52	Wt. n-Val.		0.035	
W.S. Elev (ft)	1199.81	Reach Len. (ft)	22.00	27.43	28.00
Crit W.S. (ft)	1197.37	Flow Area (sq ft)		2328.23	
E.G. Slope (ft/ft)	0.003351	Area (sq ft)		2328.23	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	285.63	Top Width (ft)		285.63	
Vel Total (ft/s)	9.88	Avg. Vel. (ft/s)		9.88	
Max Chl Dpth (ft)	9.34	Hydr. Depth (ft)		8.15	
Conv. Total (cfs)	397312.1	Conv. (cfs)		397312.1	
Length Wtd. (ft)	27.43	Wetted Per. (ft)		288.91	
Min Ch El (ft)	1190.47	Shear (lb/sq ft)		1.69	
Alpha	1.00	Stream Power (lb/ft s)		16.66	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	26.10	734.14	
C & E Loss (ft)	0.04	Cum SA (acres)	3.58	91.15	

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1203.76	Element			
Vel Head (ft)	2.03	Wt. n-Val.		0.035	
W.S. Elev (ft)	1201.74	Reach Len. (ft)	22.00	27.43	28.00
Crit W.S. (ft)	1199.09	Flow Area (sq ft)		2888.68	
E.G. Slope (ft/ft)	0.003531	Area (sq ft)		2888.68	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	295.79	Top Width (ft)		295.79	
Vel Total (ft/s)	11.42	Avg. Vel. (ft/s)		11.42	
Max Chl Dpth (ft)	11.27	Hydr. Depth (ft)		9.77	
Conv. Total (cfs)	555344.7	Conv. (cfs)		555344.7	
Length Wtd. (ft)	27.41	Wetted Per. (ft)		299.77	
Min Ch El (ft)	1190.47	Shear (lb/sq ft)		2.12	
Alpha	1.00	Stream Power (lb/ft s)		24.27	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	34.44	941.59	10.86
C & E Loss (ft)	0.03	Cum SA (acres)	4.19	96.38	9.74

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9865.41	9966.41	3753.19	488.74	87.58	28.87	5.66	7.68
9966.41	10067.40	5515.88	651.87	101.00	42.43	6.45	8.46
10067.40	RB 10168.40	3730.93	483.69	86.10	28.70	5.69	7.71

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9865.41	9966.41	6748.99	714.60	94.32	29.34	7.71	9.44
9966.41	10067.40	9588.54	906.70	101.00	41.69	8.98	10.58
10067.40	RB 10168.40	6662.47	706.92	93.60	28.97	7.68	9.42

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9865.41	9966.41	9771.59	897.79	99.46	29.61	9.22	10.88
9966.41	10067.40	13598.09	1101.41	101.00	41.21	10.91	12.35
10067.40	RB 10168.40	9630.32	889.48	99.32	29.18	9.13	10.83

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.953

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Bell Rd. bridge.

Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9382	1215.3	9397.65	1207.02	9412.27	1204.35	9447.84	1204.42	9479.05	1204.18
9526.25	1203.5	9571.23	1203.71	9593.86	1203.13	9654.23	1202.72	9661.22	1201.61
9674.85	1201.2	9695.83	1201.17	9724.31	1200.73	9747.69	1199.8	9760.52	1199.65
9812.79	1200.4	9835.22	1201	9870.35	1202.16	9895.64	1191.04	10003.13	1190.66
10023.61	1190.8	10078.92	1190.54	10093.86	1189.68	10116.85	1189.38	10130.16	1194.58
10140.25	1195	10156.58	1201.11	10174.21	1202.77	10185.91	1203.14	10197.07	1202.69
10221.77	1203	10285.8	1202.91	10375.06	1202.53	10418.14	1202.91	10456.1	1202.96
10525.75	1202.4	10591.74	1202.85						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9382	.06	9870.35	.035	10185.91	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9870.35	10185.91	175	189.16	215	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1198.17	Element			
Vel Head (ft)	1.05	Wt. n-Val.		0.035	
W.S. Elev (ft)	1197.12	Reach Len. (ft)	175.00	189.16	215.00
Crit W.S. (ft)	1195.29	Flow Area (sq ft)		1581.19	
E.G. Slope (ft/ft)	0.003497	Area (sq ft)		1581.19	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	264.12	Top Width (ft)		264.12	
Vel Total (ft/s)	8.22	Avg. Vel. (ft/s)		8.22	
Max Chl Dpth (ft)	7.74	Hydr. Depth (ft)		5.99	
Conv. Total (cfs)	219841.6	Conv. (cfs)		219841.6	
Length Wtd. (ft)	189.16	Wetted Per. (ft)		266.80	
Min Ch El (ft)	1189.38	Shear (lb/sq ft)		1.29	
Alpha	1.00	Stream Power (lb/ft s)		10.64	
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	17.48	496.33	
C & E Loss (ft)	0.36	Cum SA (acres)	3.39	85.53	

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1201.19	Element			
Vel Head (ft)	1.64	Wt. n-Val.		0.035	
W.S. Elev (ft)	1199.55	Reach Len. (ft)	175.00	189.16	215.00
Crit W.S. (ft)	1197.30	Flow Area (sq ft)		2237.30	
E.G. Slope (ft/ft)	0.003667	Area (sq ft)		2237.30	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	276.15	Top Width (ft)		276.15	
Vel Total (ft/s)	10.28	Avg. Vel. (ft/s)		10.28	
Max Chl Dpth (ft)	10.17	Hydr. Depth (ft)		8.10	
Conv. Total (cfs)	379835.3	Conv. (cfs)		379835.3	
Length Wtd. (ft)	189.09	Wetted Per. (ft)		279.77	
Min Ch El (ft)	1189.38	Shear (lb/sq ft)		1.83	
Alpha	1.00	Stream Power (lb/ft s)		18.82	
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	26.10	732.70	
C & E Loss (ft)	0.40	Cum SA (acres)	3.58	90.98	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1203.63	Element			
Vel Head (ft)	2.12	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1201.51	Reach Len. (ft)	175.00	189.16	215.00
Crit W.S. (ft)	1199.07	Flow Area (sq ft)	176.28	2788.89	
E.G. Slope (ft/ft)	0.003798	Area (sq ft)	176.28	2788.89	
Q Total (cfs)	33000.00	Flow (cfs)	259.38	32740.62	
Top Width (ft)	475.28	Top Width (ft)	186.18	289.09	

Vel Total (ft/s)	11.13	Avg. Vel. (ft/s)	1.47	11.74	
Max Chl Dpth (ft)	12.13	Hydr. Depth (ft)	0.95	9.65	
Conv. Total (cfs)	535469.4	Conv. (cfs)	4208.8	531260.6	
Length Wtd. (ft)	188.93	Wetted Per. (ft)	186.23	293.43	
Min Ch El (ft)	1189.38	Shear (lb/sq ft)	0.22	2.25	
Alpha	1.10	Stream Power (lb/ft s)	0.33	26.46	
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)	34.39	939.80	10.86
C & E Loss (ft)	0.45	Cum SA (acres)	4.15	96.20	9.74

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9870.35	9975.54	4295.81	539.24	95.01	33.04	5.75	7.97
9975.54	10080.72	5859.62	676.65	105.19	45.07	6.43	8.66
10080.72	RB 10185.91	2844.56	365.30	66.60	21.88	5.60	7.79

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9870.35	9975.54	7693.46	773.59	101.04	33.45	7.79	9.95
9975.54	10080.72	10218.96	932.13	105.19	44.43	8.86	10.96
10080.72	RB 10185.91	5087.58	531.57	73.54	22.12	7.41	9.57

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9382.00	9870.35	259.38	176.28	186.23	0.79	0.95	1.47
LB 9870.35	9975.54	11082.77	972.55	105.91	33.58	9.38	11.40
9975.54	10080.72	14473.21	1138.36	105.19	43.86	10.82	12.71
10080.72	RB 10185.91	7184.64	677.97	82.33	21.77	8.45	10.60

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.908

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Bell Rd. bridge.

Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9419	1214	9458.13	1204.81	9469.16	1202.8	9509.07	1202.99	9533.71	1202.36
9535.44	1202.3	9613.28	1202.95	9638.57	1198.85	9645.54	1198.71	9693.66	1199.7
9699.65	1199.4	9717.94	1199.36	9721.18	1198.77	9737.04	1198.72	9749.36	1199.79
9789.16	1198.3	9824.32	1196.85	9831.87	1196.22	9839.16	1194.27	9850.44	1194.07
9869.71	1196.3	9882.4	1196.38	9900.2	1193.67	9907.13	1194.67	9915.24	1193.34
9927.43	1190	9932.44	1189.82	10003.11	1189.13	10079.45	1189.47	10121.4	1189.05
10138.47	1198.81	10162.78	1199.94	10172.91	1200.01	10215.44	1200.38	10241.56	1200.7
10299.09	1201.11	10327.48	1201.13	10402.04	1201.13	10422.35	1201.35	10506.02	1201.06
10527.75	1201.61	10553.27	1200.89	10573.77	1201.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9419	.06	9882.4	.035	10138.47	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9882.41	10138.47	120	103.32	65	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1196.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.25	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1194.56	Reach Len. (ft)	120.00	103.32	65.00
Crit W.S. (ft)	1194.56	Flow Area (sq ft)	5.63	1078.70	
E.G. Slope (ft/ft)	0.010699	Area (sq ft)	5.63	1078.70	
Q Total (cfs)	13000.00	Flow (cfs)	6.98	12993.02	
Top Width (ft)	251.92	Top Width (ft)	16.62	235.30	
Vel Total (ft/s)	11.99	Avg. Vel. (ft/s)	1.24	12.05	
Max Chl Dpth (ft)	5.51	Hydr. Depth (ft)	0.34	4.58	
Conv. Total (cfs)	125683.5	Conv. (cfs)	67.5	125616.0	
Length Wtd. (ft)	103.32	Wetted Per. (ft)	16.69	237.45	
Min Ch El (ft)	1189.05	Shear (lb/sq ft)	0.23	3.03	
Alpha	1.01	Stream Power (lb/ft s)	0.28	36.55	
Frctn Loss (ft)	1.05	Cum Volume (acre-ft)	17.47	490.55	
C & E Loss (ft)	0.06	Cum SA (acres)	3.36	84.45	

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1199.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.98	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1196.83	Reach Len. (ft)	120.00	103.32	65.00
Crit W.S. (ft)	1196.83	Flow Area (sq ft)	81.55	1635.52	
E.G. Slope (ft/ft)	0.009041	Area (sq ft)	81.55	1635.52	
Q Total (cfs)	23000.00	Flow (cfs)	240.39	22759.61	
Top Width (ft)	310.42	Top Width (ft)	57.81	252.62	
Vel Total (ft/s)	13.39	Avg. Vel. (ft/s)	2.95	13.92	
Max Chl Dpth (ft)	7.78	Hydr. Depth (ft)	1.41	6.47	
Conv. Total (cfs)	241896.3	Conv. (cfs)	2528.3	239368.0	
Length Wtd. (ft)	103.41	Wetted Per. (ft)	58.22	255.52	
Min Ch El (ft)	1189.05	Shear (lb/sq ft)	0.79	3.61	
Alpha	1.07	Stream Power (lb/ft s)	2.33	50.27	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	25.93	724.30	
C & E Loss (ft)	0.21	Cum SA (acres)	3.47	89.83	

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1202.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.62	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1198.58	Reach Len. (ft)	120.00	103.32	65.00
Crit W.S. (ft)	1198.58	Flow Area (sq ft)	220.08	2081.87	
E.G. Slope (ft/ft)	0.008230	Area (sq ft)	220.08	2081.87	
Q Total (cfs)	33000.00	Flow (cfs)	829.65	32170.35	
Top Width (ft)	356.50	Top Width (ft)	100.81	255.69	
Vel Total (ft/s)	14.34	Avg. Vel. (ft/s)	3.77	15.45	
Max Chl Dpth (ft)	9.53	Hydr. Depth (ft)	2.18	8.14	
Conv. Total (cfs)	363748.9	Conv. (cfs)	9145.0	354603.9	
Length Wtd. (ft)	103.53	Wetted Per. (ft)	101.26	259.07	
Min Ch El (ft)	1189.05	Shear (lb/sq ft)	1.12	4.13	
Alpha	1.13	Stream Power (lb/ft s)	4.21	63.81	
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	33.60	929.22	10.86
C & E Loss (ft)	0.20	Cum SA (acres)	3.57	95.01	9.74

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9419.00	9882.40	6.98	5.63	16.69	0.05	0.34	1.24
LB 9882.40	9967.76	2326.54	242.05	72.69	17.90	3.36	9.61
9967.76	10053.11	5919.05	451.99	85.36	45.53	5.30	13.10
10053.11	RB 10138.47	4747.43	384.67	79.40	36.52	4.94	12.34

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9419.00	9882.40	240.39	81.55	58.22	1.05	1.41	2.95
LB 9882.40	9967.76	4878.03	424.47	86.20	21.21	4.97	11.49
9967.76	10053.11	9869.82	645.34	85.36	42.91	7.56	15.29
10053.11	RB 10138.47	8011.76	565.71	83.97	34.83	6.91	14.16

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9419.00	9882.40	829.65	220.08	101.26	2.51	2.18	3.77
LB 9882.40	9967.76	7755.51	574.38	86.20	23.50	6.73	13.50
9967.76	10053.11	13426.04	795.25	85.36	40.68	9.32	16.88
10053.11	RB 10138.47	10988.80	712.25	87.51	33.30	8.38	15.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.889

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Bell Rd. bridge.
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9460	1228	9468.24	1226.05	9553.91	1200.17	9589.84	1199.68	9605.6	1198.55
9651.04	1197.9	9732.86	1197.75	9751.05	1197.6	9819.32	1198.03	9850.18	1196.72
9864.97	1201.4	9886.03	1197.96	9901.7	1196.38	9917.39	1195.14	9939.41	1186.28
9959.08	1188.6	9975.57	1187.11	9997.59	1185.42	10008.22	1186.09	10086.77	1186.45
10108.71	1186.11	10114.59	1189.86	10129.9	1198	10140.46	1198.51	10166.27	1197.67
10184.67	1198.11	10210.58	1198.41	10270.57	1199.51	10309.73	1200.09	10399.57	1199.79
10438.49	1199.31	10496.31	1198.66	10529.6	1200.17	10543.25	1199.82	10566.39	1200.45

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9460	.06	9864.97	.035	10129.9	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9864.97	10129.9	485	501.31	495	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1194.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.68	Wt. n-Val.		0.035	
W.S. Elev (ft)	1191.22	Reach Len. (ft)	485.00	501.31	495.00
Crit W.S. (ft)	1192.07	Flow Area (sq ft)		844.59	
E.G. Slope (ft/ft)	0.018323	Area (sq ft)		844.59	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	190.00	Top Width (ft)		190.00	
Vel Total (ft/s)	15.39	Avg. Vel. (ft/s)		15.39	
Max Chl Dpth (ft)	5.80	Hydr. Depth (ft)		4.45	
Conv. Total (cfs)	96038.8	Conv. (cfs)		96038.8	
Length Wtd. (ft)	501.31	Wetted Per. (ft)		192.68	
Min Ch El (ft)	1185.42	Shear (lb/sq ft)		5.01	
Alpha	1.00	Stream Power (lb/ft s)		77.18	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	17.46	488.27	
C & E Loss (ft)	0.43	Cum SA (acres)	3.34	83.94	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1198.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.38	Wt. n-Val.		0.035	
W.S. Elev (ft)	1193.90	Reach Len. (ft)	485.00	501.31	495.00
Crit W.S. (ft)	1194.51	Flow Area (sq ft)		1370.14	
E.G. Slope (ft/ft)	0.012466	Area (sq ft)		1370.14	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	201.71	Top Width (ft)		201.71	
Vel Total (ft/s)	16.79	Avg. Vel. (ft/s)		16.79	
Max Chl Dpth (ft)	8.48	Hydr. Depth (ft)		6.79	
Conv. Total (cfs)	206001.2	Conv. (cfs)		206001.2	
Length Wtd. (ft)	501.31	Wetted Per. (ft)		205.59	
Min Ch El (ft)	1185.42	Shear (lb/sq ft)		5.19	
Alpha	1.00	Stream Power (lb/ft s)		87.06	
Frctn Loss (ft)	1.11	Cum Volume (acre-ft)	25.82	720.73	
C & E Loss (ft)	0.42	Cum SA (acres)	3.39	89.29	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1201.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.37	Wt. n-Val.		0.035	
W.S. Elev (ft)	1196.71	Reach Len. (ft)	485.00	501.31	495.00
Crit W.S. (ft)	1196.79	Flow Area (sq ft)		1966.42	
E.G. Slope (ft/ft)	0.009141	Area (sq ft)		1966.42	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	229.02	Top Width (ft)		229.02	
Vel Total (ft/s)	16.78	Avg. Vel. (ft/s)		16.78	
Max Chl Dpth (ft)	11.29	Hydr. Depth (ft)		8.59	
Conv. Total (cfs)	345164.8	Conv. (cfs)		345164.8	
Length Wtd. (ft)	501.31	Wetted Per. (ft)		233.91	
Min Ch El (ft)	1185.42	Shear (lb/sq ft)		4.80	
Alpha	1.00	Stream Power (lb/ft s)		80.51	
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	33.30	924.42	10.86
C & E Loss (ft)	0.23	Cum SA (acres)	3.43	94.44	9.74

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9864.97	9953.28	1086.26	87.38	27.19	8.36	3.34	12.43
9953.28	10041.59	6453.77	408.09	88.50	49.64	4.62	15.81
10041.59	RB 10129.90	5459.97	349.12	76.99	42.00	4.62	15.64

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9864.97	9953.28	2237.51	166.46	34.38	9.73	5.07	13.44
9953.28	10041.59	11388.34	645.06	88.50	49.51	7.30	17.65
10041.59	RB 10129.90	9374.15	558.62	82.71	40.76	6.93	16.78

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9864.97	9953.28	3204.76	280.78	56.71	9.71	5.12	11.41
9953.28	10041.59	16388.06	893.16	88.50	49.66	10.11	18.35
10041.59	RB 10129.90	13407.18	792.47	88.69	40.63	9.23	16.92

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River

REACH: Lower RS: 9.794

INPUT
Description:
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9672	1218	9695.42	1211.53	9722.62	1203.4	9736.39	1204	9758.28	1203.81
9764.97	1202.9	9802.49	1198.69	9810.78	1198.51	9889.42	1197.77	9922.42	1196.86
9941.48	1194	9974.59	1180.98	9988.74	1180.4	9995.18	1181.05	10015.96	1180.23
10035.05	1181.21	10105.79	1184.45	10149.12	1184.21	10184.62	1184.75	10191.73	1184.03
10213.3	1183.61	10232.02	1192.72	10247.71	1192.96	10262.3	1195.79	10267.56	1195.24
10290.99	1194.81	10382.07	1194.89	10488.22	1195.23	10588.25	1195.11	10642.77	1193.64
10676.74	1194.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9672	.06	9922.42	.035	10262.3	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9922.42	10262.3	550	557.04	555	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1189.45	Element			
Vel Head (ft)	2.00	Wt. n-Val.		0.035	
W.S. Elev (ft)	1187.44	Reach Len. (ft)	550.00	557.04	555.00
Crit W.S. (ft)	1187.34	Flow Area (sq ft)		1144.39	
E.G. Slope (ft/ft)	0.010199	Area (sq ft)		1144.39	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	263.04	Top Width (ft)		263.04	
Vel Total (ft/s)	11.36	Avg. Vel. (ft/s)		11.36	
Max Chl Dpth (ft)	7.21	Hydr. Depth (ft)		4.35	
Conv. Total (cfs)	128724.3	Conv. (cfs)		128724.3	
Length Wtd. (ft)	557.04	Wetted Per. (ft)		265.36	
Min Ch El (ft)	1180.23	Shear (lb/sq ft)		2.75	
Alpha	1.00	Stream Power (lb/ft s)		31.19	
Frctn Loss (ft)	3.40	Cum Volume (acre-ft)	17.46	476.82	
C & E Loss (ft)	0.43	Cum SA (acres)	3.34	81.34	

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1192.35	Element			
Vel Head (ft)	3.02	Wt. n-Val.		0.035	
W.S. Elev (ft)	1189.33	Reach Len. (ft)	550.00	557.04	555.00
Crit W.S. (ft)	1189.33	Flow Area (sq ft)		1649.48	
E.G. Slope (ft/ft)	0.009890	Area (sq ft)		1649.48	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	271.72	Top Width (ft)		271.72	
Vel Total (ft/s)	13.94	Avg. Vel. (ft/s)		13.94	
Max Chl Dpth (ft)	9.10	Hydr. Depth (ft)		6.07	
Conv. Total (cfs)	231273.9	Conv. (cfs)		231273.9	
Length Wtd. (ft)	557.04	Wetted Per. (ft)		274.83	
Min Ch El (ft)	1180.23	Shear (lb/sq ft)		3.71	
Alpha	1.00	Stream Power (lb/ft s)		51.67	
Frctn Loss (ft)	3.37	Cum Volume (acre-ft)	25.82	703.36	
C & E Loss (ft)	0.62	Cum SA (acres)	3.39	86.56	

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1195.02	Element			
Vel Head (ft)	4.98	Wt. n-Val.		0.035	
W.S. Elev (ft)	1190.04	Reach Len. (ft)	550.00	557.04	555.00
Crit W.S. (ft)	1191.04	Flow Area (sq ft)		1842.14	
E.G. Slope (ft/ft)	0.014330	Area (sq ft)		1842.14	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	274.96	Top Width (ft)		274.96	
Vel Total (ft/s)	17.91	Avg. Vel. (ft/s)		17.91	
Max Chl Dpth (ft)	9.81	Hydr. Depth (ft)		6.70	
Conv. Total (cfs)	275666.8	Conv. (cfs)		275666.8	
Length Wtd. (ft)	557.04	Wetted Per. (ft)		278.37	
Min Ch El (ft)	1180.23	Shear (lb/sq ft)		5.92	
Alpha	1.00	Stream Power (lb/ft s)		106.06	

Frctn Loss (ft)	5.88	Cum Volume (acre-ft)	33.30	902.51	10.86
C & E Loss (ft)	0.18	Cum SA (acres)	3.43	91.54	9.74

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9922.42	10035.71	6296.44	465.98	78.87	48.43	6.01	13.51
10035.71	10149.01	4793.96	457.45	113.37	36.88	4.04	10.48
10149.01	RB 10262.30	1909.60	220.96	73.12	14.69	3.06	8.64

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9922.42	10035.71	9683.49	617.03	84.03	42.10	7.49	15.69
10035.71	10149.01	9131.55	671.47	113.37	39.70	5.93	13.60
10149.01	RB 10262.30	4184.96	360.98	77.43	18.20	4.75	11.59

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9922.42	10035.71	13404.90	675.72	85.96	40.62	8.03	19.84
10035.71	10149.01	13301.75	751.32	113.37	40.31	6.63	17.70
10149.01	RB 10262.30	6293.35	415.10	79.04	19.07	5.36	15.16

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.692

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9862	1204	9875.53	1201.34	9916.36	1193.92	9921.93	1191.19	9948.66	1178.95
9982.36	1179.4	10000.4	1177.74	10017.83	1178.51	10044.65	1179.35	10062.48	1178.07
10119.06	1177.21	10143.65	1177.91	10162.39	1177.64	10170.53	1178.01	10175.96	1177.61
10224.11	1181.6	10273.1	1181.61	10296.81	1180.55	10315.6	1190.03		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9862	.06	9916.36	.035	10315.6	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9916.36	10315.6	525	565.23	520	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1185.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.		0.035	
W.S. Elev (ft)	1185.05	Reach Len. (ft)	525.00	565.23	520.00
Crit W.S. (ft)	1182.60	Flow Area (sq ft)		2136.72	
E.G. Slope (ft/ft)	0.002005	Area (sq ft)		2136.72	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	370.38	Top Width (ft)		370.38	
Vel Total (ft/s)	6.08	Avg. Vel. (ft/s)		6.08	
Max Chl Dpth (ft)	7.85	Hydr. Depth (ft)		5.77	
Conv. Total (cfs)	290339.3	Conv. (cfs)		290339.3	
Length Wtd. (ft)	565.23	Wetted Per. (ft)		373.17	
Min Ch El (ft)	1177.20	Shear (lb/sq ft)		0.72	

Alpha	1.00	Stream Power (lb/ft s)		4.36
Frctn Loss (ft)	1.80	Cum Volume (acre-ft)	17.46	455.85
C & E Loss (ft)	0.08	Cum SA (acres)	3.34	77.29

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1188.18	Element			
Vel Head (ft)	0.94	Wt. n-Val.		0.035	
W.S. Elev (ft)	1187.24	Reach Len. (ft)	525.00	565.23	520.00
Crit W.S. (ft)	1184.20	Flow Area (sq ft)		2958.76	
E.G. Slope (ft/ft)	0.002198	Area (sq ft)		2958.76	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	379.52	Top Width (ft)		379.52	
Vel Total (ft/s)	7.77	Avg. Vel. (ft/s)		7.77	
Max Chl Dpth (ft)	10.04	Hydr. Depth (ft)		7.80	
Conv. Total (cfs)	490624.8	Conv. (cfs)		490624.8	
Length Wtd. (ft)	565.23	Wetted Per. (ft)		383.30	
Min Ch El (ft)	1177.20	Shear (lb/sq ft)		1.06	
Alpha	1.00	Stream Power (lb/ft s)		8.23	
Frctn Loss (ft)	1.92	Cum Volume (acre-ft)	25.82	673.89	
C & E Loss (ft)	0.11	Cum SA (acres)	3.39	82.40	

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1190.30	Element			
Vel Head (ft)	1.27	Wt. n-Val.		0.035	
W.S. Elev (ft)	1189.03	Reach Len. (ft)	525.00	565.23	520.00
Crit W.S. (ft)	1185.58	Flow Area (sq ft)		3645.01	
E.G. Slope (ft/ft)	0.002322	Area (sq ft)		3645.01	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	386.98	Top Width (ft)		386.98	
Vel Total (ft/s)	9.05	Avg. Vel. (ft/s)		9.05	
Max Chl Dpth (ft)	11.83	Hydr. Depth (ft)		9.42	
Conv. Total (cfs)	684774.4	Conv. (cfs)		684774.4	
Length Wtd. (ft)	565.23	Wetted Per. (ft)		391.58	
Min Ch El (ft)	1177.20	Shear (lb/sq ft)		1.35	
Alpha	1.00	Stream Power (lb/ft s)		12.22	
Frctn Loss (ft)	1.94	Cum Volume (acre-ft)	33.30	867.42	10.86
C & E Loss (ft)	0.12	Cum SA (acres)	3.43	87.31	9.74

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9916.36	10049.44	3967.27	668.27	115.55	30.52	5.86	5.94
10049.44	10182.52	6717.88	970.20	133.18	51.68	7.29	6.92
10182.52	RB 10315.60	2314.85	498.25	124.44	17.81	4.04	4.65

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9916.36	10049.44	6997.38	923.67	120.82	30.42	7.77	7.58
10049.44	10182.52	11031.04	1261.96	133.18	47.96	9.48	8.74
10182.52	RB 10315.60	4971.59	773.13	129.31	21.62	6.06	6.43

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

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9916.36	10049.44	10022.79	1140.05	125.12	30.37	9.28	8.79
10049.44	10182.52	15193.20	1500.26	133.18	46.04	11.27	10.13
10182.52	RB 10315.60	7784.01	1004.71	133.28	23.59	7.66	7.75

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.592

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9895	1196.3	9930.13	1191.42	9949.3	1190.23	9980.97	1176.49	9984.1	1175.72
10014.25	1175.71	10022.18	1177.78	10048.25	1177.71	10070.28	1178.01	10099.28	1178.06
10155.62	1178.51	10199.49	1179.17	10304.78	1179.47	10311.21	1179.78	10341.98	1189.15
10408.29	1189.61	10425.13	1190.76	10465.51	1189.38	10489.8	1184.41	10561.95	1184.06
10588.75	1187.31	10656.59	1187.71	10662.08	1187.92	10704.93	1188.33	11002.34	1189.04
11102.56	1189.41	11233.47	1189.48	11325.77	1189.82	11465.83	1190.26	11563	1190.32

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9895	.06	9949.3	.03	10341.98	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9949.3	10341.98	535	606.9	580	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10400	11563	1185.9

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1183.74	Element			
Vel Head (ft)	1.35	Wt. n-Val.		0.035	
W.S. Elev (ft)	1182.39	Reach Len. (ft)	535.00	606.90	580.00
Crit W.S. (ft)	1181.91	Flow Area (sq ft)		1392.98	
E.G. Slope (ft/ft)	0.007790	Area (sq ft)		1392.98	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	352.41	Top Width (ft)		352.41	
Vel Total (ft/s)	9.33	Avg. Vel. (ft/s)		9.33	
Max Chl Dpth (ft)	6.69	Hydr. Depth (ft)		3.95	
Conv. Total (cfs)	147289.3	Conv. (cfs)		147289.3	
Length Wtd. (ft)	606.90	Wetted Per. (ft)		354.40	
Min Ch El (ft)	1175.70	Shear (lb/sq ft)		1.91	
Alpha	1.00	Stream Power (lb/ft s)		17.84	
Frctn Loss (ft)	3.33	Cum Volume (acre-ft)	17.46	432.95	
C & E Loss (ft)	0.22	Cum SA (acres)	3.34	72.60	

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1186.16	Element			
Vel Head (ft)	2.02	Wt. n-Val.		0.035	
W.S. Elev (ft)	1184.14	Reach Len. (ft)	535.00	606.90	580.00
Crit W.S. (ft)	1183.57	Flow Area (sq ft)		2017.76	
E.G. Slope (ft/ft)	0.007369	Area (sq ft)		2017.76	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	362.18	Top Width (ft)		362.18	
Vel Total (ft/s)	11.40	Avg. Vel. (ft/s)		11.40	
Max Chl Dpth (ft)	8.44	Hydr. Depth (ft)		5.57	
Conv. Total (cfs)	267923.0	Conv. (cfs)		267923.0	
Length Wtd. (ft)	606.90	Wetted Per. (ft)		364.80	
Min Ch El (ft)	1175.70	Shear (lb/sq ft)		2.54	
Alpha	1.00	Stream Power (lb/ft s)		29.01	
Frctn Loss (ft)	2.89	Cum Volume (acre-ft)	25.82	641.60	
C & E Loss (ft)	0.38	Cum SA (acres)	3.39	77.59	

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

section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1188.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.45	Wt. n-Val.		0.035	
W.S. Elev (ft)	1185.80	Reach Len. (ft)	535.00	606.90	580.00
Crit W.S. (ft)	1184.95	Flow Area (sq ft)		2628.60	
E.G. Slope (ft/ft)	0.006511	Area (sq ft)		2628.60	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	371.49	Top Width (ft)		371.49	
Vel Total (ft/s)	12.55	Avg. Vel. (ft/s)		12.55	
Max Chl Dpth (ft)	10.10	Hydr. Depth (ft)		7.08	
Conv. Total (cfs)	408960.5	Conv. (cfs)		408960.5	
Length Wtd. (ft)	606.90	Wetted Per. (ft)		374.70	
Min Ch El (ft)	1175.70	Shear (lb/sq ft)		2.85	
Alpha	1.00	Stream Power (lb/ft s)		35.80	
Frctn Loss (ft)	2.50	Cum Volume (acre-ft)	33.30	826.72	10.86
C & E Loss (ft)	0.47	Cum SA (acres)	3.43	82.39	9.74

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9949.30	10080.19	6085.57	570.41	114.41	46.81	5.06	10.67
10080.19	10211.09	4579.41	507.56	130.90	35.23	3.88	9.02
10211.09	RB 10341.98	2335.02	315.00	109.09	17.96	2.90	7.41

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9949.30	10080.19	9660.48	771.23	118.80	42.00	6.60	12.53
10080.19	10211.09	8385.45	736.45	130.90	36.46	5.63	11.39
10211.09	RB 10341.98	4954.07	510.09	115.09	21.54	4.46	9.71

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9949.30	10080.19	13037.30	969.00	122.99	39.51	8.03	13.45
10080.19	10211.09	12194.16	954.41	130.90	36.95	7.29	12.78
10211.09	RB 10341.98	7768.54	705.19	120.81	23.54	5.88	11.02

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. 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: New River
REACH: Lower RS: 9.492

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9766	1192	9789.59	1189.11	9804.96	1188.11	9834.73	1174.71	9878.82	1175.05
9951.83	1174.6	9961.82	1174.6	10004.75	1173.94	10057.09	1174.33	10090.43	1174.65
10147.37	1174.91	10171.02	1176.03	10246.12	1176.23	10294.29	1178.38	10312.71	1184.43
10340.8	1187.61	10373.45	1184.53	10451.75	1185.06	10497.41	1185.08	10520.61	1184.96
10572.4	1185.21	10700.14	1185.39	10920.51	1185.96	11149.45	1186.65	11245.21	1186.79
11474.04	1187.91	11492.54	1187.88						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9766	.06	9804.96	.035	10312.71	.11

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

9804.9610312.71	430	463.47	425	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1180.19	Element			
Vel Head (ft)	0.63	Wt. n-Val.		0.035	
W.S. Elev (ft)	1179.57	Reach Len. (ft)	430.00	463.47	425.00
Crit W.S. (ft)	1178.06	Flow Area (sq ft)		2048.52	
E.G. Slope (ft/ft)	0.003186	Area (sq ft)		2048.52	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	473.97	Top Width (ft)		473.97	
Vel Total (ft/s)	6.35	Avg. Vel. (ft/s)		6.35	
Max Chl Dpth (ft)	5.63	Hydr. Depth (ft)		4.32	
Conv. Total (cfs)	230330.9	Conv. (cfs)		230330.9	
Length Wtd. (ft)	463.47	Wetted Per. (ft)		475.29	
Min Ch El (ft)	1173.94	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		5.44	
Frctn Loss (ft)	1.03	Cum Volume (acre-ft)	17.46	408.97	
C & E Loss (ft)	0.08	Cum SA (acres)	3.34	66.84	

Warning: The conveyance ratio (upstream 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1182.89	Element			
Vel Head (ft)	0.77	Wt. n-Val.		0.035	
W.S. Elev (ft)	1182.12	Reach Len. (ft)	430.00	463.47	425.00
Crit W.S. (ft)	1179.43	Flow Area (sq ft)		3276.14	
E.G. Slope (ft/ft)	0.002169	Area (sq ft)		3276.14	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	487.42	Top Width (ft)		487.42	
Vel Total (ft/s)	7.02	Avg. Vel. (ft/s)		7.02	
Max Chl Dpth (ft)	8.18	Hydr. Depth (ft)		6.72	
Conv. Total (cfs)	493830.6	Conv. (cfs)		493830.6	
Length Wtd. (ft)	463.47	Wetted Per. (ft)		489.70	
Min Ch El (ft)	1173.94	Shear (lb/sq ft)		0.91	
Alpha	1.00	Stream Power (lb/ft s)		6.36	
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	25.82	604.72	
C & E Loss (ft)	0.08	Cum SA (acres)	3.39	71.67	

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1185.28	Element			
Vel Head (ft)	0.87	Wt. n-Val.		0.035	
W.S. Elev (ft)	1184.41	Reach Len. (ft)	430.00	463.47	425.00
Crit W.S. (ft)	1180.58	Flow Area (sq ft)		4402.81	
E.G. Slope (ft/ft)	0.001726	Area (sq ft)		4402.81	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	499.45	Top Width (ft)		499.45	
Vel Total (ft/s)	7.50	Avg. Vel. (ft/s)		7.50	
Max Chl Dpth (ft)	10.47	Hydr. Depth (ft)		8.82	
Conv. Total (cfs)	794341.4	Conv. (cfs)		794341.4	
Length Wtd. (ft)	463.47	Wetted Per. (ft)		502.58	
Min Ch El (ft)	1173.94	Shear (lb/sq ft)		0.94	
Alpha	1.00	Stream Power (lb/ft s)		7.07	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	33.30	777.74	10.86
C & E Loss (ft)	0.07	Cum SA (acres)	3.43	76.32	9.74

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9804.96	9974.21	4459.64	691.04	151.32	34.30	4.60	6.45
9974.21	10143.46	6106.56	872.69	169.26	46.97	5.16	7.00
10143.46	RB 10312.71	2433.80	484.78	154.71	18.72	3.14	5.02

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9804.96	9974.21	7647.41	1082.06	157.54	33.25	6.94	7.07
9974.21	10143.46	9961.11	1304.93	169.26	43.31	7.71	7.63
10143.46	RB 10312.71	5391.48	889.15	162.90	23.44	5.48	6.06

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9804.96	9974.21	10812.22	1443.93	163.11	32.76	8.97	7.49
9974.21	10143.46	13730.54	1691.38	169.26	41.61	9.99	8.12
10143.46	RB 10312.71	8457.24	1267.50	170.22	25.63	7.49	6.67

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.367

INPUT
Description:
Station Elevation Data num= 46

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9612	1190	9641.28	1190.86	9665.48	1191.27	9703.09	1186.83	9718.3	1186.28
9751.14	1172.3	9793.9	1172.29	9851.94	1171.72	9901.31	1172.2	9950.67	1173.01
9967.49	1171.91	10004.69	1171.33	10070.88	1173.18	10145.08	1174.08	10199.32	1177.93
10212.32	1183.41	10241.56	1184.23	10251.13	1182.71	10269.29	1181.83	10280.07	1180.4
10291.49	1180.31	10301.94	1182.17	10314.1	1182.21	10321.59	1181.53	10339.56	1181.98
10351.69	1181.71	10370.27	1184.85	10391.68	118	510429.12	1184.72	10516.63	1184.37
10709.59	1184.71	10857.67	1184.68	10991.59	1185.26	11007.8	1186.18	11015.7	1184.24
11041.56	1184.31	11056.78	118	411087.36	1185.43	11150.97	1185.67	11192.9	1185.8
11200.6	1185.51	11211.42	1184.22	11244.19	1184.64	11276.25	1184.35	11293.46	1187.02
11362.92	1187.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9612	.06	9718.3	.03	10241.56	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9718.3	10241.56	540	489.74	465	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10241.56	11362.92	1184.23

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10270	11362.92	1181.55

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1179.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.035	
W.S. Elev (ft)	1178.71	Reach Len. (ft)	540.00	489.74	465.00
Crit W.S. (ft)	1175.68	Flow Area (sq ft)		2668.55	
E.G. Slope (ft/ft)	0.001288	Area (sq ft)		2668.55	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	465.11	Top Width (ft)		465.11	
Vel Total (ft/s)	4.87	Avg. Vel. (ft/s)		4.87	
Max Chl Dpth (ft)	7.38	Hydr. Depth (ft)		5.74	
Conv. Total (cfs)	362217.8	Conv. (cfs)		362217.8	
Length Wtd. (ft)	489.74	Wetted Per. (ft)		466.79	
Min Ch El (ft)	1171.33	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		2.24	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	17.46	383.88	
C & E Loss (ft)	0.02	Cum SA (acres)	3.34	61.84	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1182.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.		0.035	
W.S. Elev (ft)	1181.55	Reach Len. (ft)	540.00	489.74	465.00
Crit W.S. (ft)	1177.14	Flow Area (sq ft)		4004.93	
E.G. Slope (ft/ft)	0.001085	Area (sq ft)		4004.93	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	478.49	Top Width (ft)		478.49	
Vel Total (ft/s)	5.74	Avg. Vel. (ft/s)		5.74	
Max Chl Dpth (ft)	10.22	Hydr. Depth (ft)		8.37	
Conv. Total (cfs)	698165.0	Conv. (cfs)		698165.0	
Length Wtd. (ft)	489.74	Wetted Per. (ft)		481.33	
Min Ch El (ft)	1171.33	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		3.24	
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	25.82	565.99	
C & E Loss (ft)	0.03	Cum SA (acres)	3.39	66.53	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1184.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.		0.035	
W.S. Elev (ft)	1183.93	Reach Len. (ft)	540.00	489.74	465.00
Crit W.S. (ft)	1178.35	Flow Area (sq ft)		5165.26	
E.G. Slope (ft/ft)	0.001036	Area (sq ft)		5165.26	227.18
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	628.70	Top Width (ft)		507.27	121.43
Vel Total (ft/s)	6.39	Avg. Vel. (ft/s)		6.39	
Max Chl Dpth (ft)	12.60	Hydr. Depth (ft)		10.18	
Conv. Total (cfs)	1025207.4	Conv. (cfs)		1025207.4	
Length Wtd. (ft)	489.74	Wetted Per. (ft)		510.98	
Min Ch El (ft)	1171.33	Shear (lb/sq ft)		0.65	
Alpha	1.00	Stream Power (lb/ft s)		4.18	
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	33.30	726.83	9.75
C & E Loss (ft)	0.04	Cum SA (acres)	3.43	70.96	9.15

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9718.30	9892.72	5023.37	989.18	157.96	38.64	6.31	5.08
9892.72	10067.14	5900.23	1133.69	174.49	45.39	6.50	5.20
10067.14	RB 10241.56	2076.41	545.68	134.34	15.97	4.07	3.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9718.30	9892.72	8464.15	1442.30	165.19	36.80	8.83	5.87
9892.72	10067.14	9983.13	1627.74	174.49	43.40	9.33	6.13
10067.14	RB 10241.56	4552.73	934.89	141.65	19.79	6.64	4.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9718.30	9892.72	12043.56	1838.81	171.28	36.50	10.89	6.55
9892.72	10067.14	14190.25	2044.09	174.49	43.00	11.72	6.94
10067.14	RB 10241.56	6766.18	1282.36	165.20	20.50	7.82	5.28

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.318

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9562	1188	9590.68	1184.89	9596.5	1184.94	9689.19	1184.35	9746.34	1183.97
9773.17	1185.1	9783.01	1180.91	9803.1	1173.59	9842.04	1173.15	9874.03	1172.96
9924.8	1170.6	9946.02	1170.96	9964.81	1170.29	9998	1168.35	10007.24	1168.6
10021.97	117	010065.22	1170.45	10090.47	1170.87	10117.6	1172.44	10137.29	1173.8
10149.89	1180.6	10171.54	1181.87	10193.98	1181.03	10218.1	1176.49	10226.54	1176.55
10249.06	1179.9	10260.6	1179.48	10291.96	1179.98	10308.64	1181.97	10341.42	1181.74
10442.77	1181.9	10552.04	1182.41	10599.04	1182.82	10670.86	1182.91	10679.86	1182.79
10723.08	1183.2	10735.63	1187.24	10763.87	1186.21	10774.62	1182.97	10806.59	1181.84
10837.58	1182.3	10864.09	1181.92	10882.89	1184.14	10957.44	1184.36	11015.6	1184.38
11068.72	118	311128.61	1182.56	11166.27	1183.59	11248.1	1183.96		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9562	.06	9773.17	.035	10171.54	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9773.17	10171.54	185	155.57	155	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10171.54	11248.1	1185

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10180	11248.1	1180.7

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1178.36	Element			
Vel Head (ft)	0.53	Wt. n-Val.		0.035	
W.S. Elev (ft)	1177.82	Reach Len. (ft)	185.00	155.57	155.00
Crit W.S. (ft)	1174.92	Flow Area (sq ft)		2220.96	
E.G. Slope (ft/ft)	0.001651	Area (sq ft)		2220.96	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	353.27	Top Width (ft)		353.27	
Vel Total (ft/s)	5.85	Avg. Vel. (ft/s)		5.85	
Max Chl Dpth (ft)	9.47	Hydr. Depth (ft)		6.29	
Conv. Total (cfs)	319946.1	Conv. (cfs)		319946.1	
Length Wtd. (ft)	155.57	Wetted Per. (ft)		355.33	
Min Ch El (ft)	1168.35	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		3.77	
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	17.46	356.39	
C & E Loss (ft)	0.17	Cum SA (acres)	3.34	57.24	

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1181.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.035	
W.S. Elev (ft)	1180.61	Reach Len. (ft)	185.00	155.57	155.00
Crit W.S. (ft)	1176.60	Flow Area (sq ft)		3222.97	
E.G. Slope (ft/ft)	0.001574	Area (sq ft)		3222.97	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	366.23	Top Width (ft)		366.23	
Vel Total (ft/s)	7.14	Avg. Vel. (ft/s)		7.14	
Max Chl Dpth (ft)	12.26	Hydr. Depth (ft)		8.80	
Conv. Total (cfs)	579818.1	Conv. (cfs)		579818.1	
Length Wtd. (ft)	155.57	Wetted Per. (ft)		369.48	
Min Ch El (ft)	1168.35	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		6.12	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	25.82	525.36	
C & E Loss (ft)	0.23	Cum SA (acres)	3.39	61.78	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1183.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.00	Wt. n-Val.		0.035	
W.S. Elev (ft)	1182.91	Reach Len. (ft)	185.00	155.57	155.00
Crit W.S. (ft)	1178.02	Flow Area (sq ft)		4109.47	
E.G. Slope (ft/ft)	0.001586	Area (sq ft)		4109.47	607.58
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	1072.27	Top Width (ft)		393.24	679.03
Vel Total (ft/s)	8.03	Avg. Vel. (ft/s)		8.03	
Max Chl Dpth (ft)	14.56	Hydr. Depth (ft)		10.45	
Conv. Total (cfs)	828672.2	Conv. (cfs)		828672.2	
Length Wtd. (ft)	155.57	Wetted Per. (ft)		396.99	
Min Ch El (ft)	1168.35	Shear (lb/sq ft)		1.02	
Alpha	1.00	Stream Power (lb/ft s)		8.23	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	33.30	674.70	5.29
C & E Loss (ft)	0.27	Cum SA (acres)	3.43	65.90	4.88

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9773.17	9905.96	2462.14	529.62	115.27	18.94	4.63	4.65
9905.96	10038.75	6856.11	1036.62	132.95	52.74	7.81	6.61
10038.75	RB 10171.54	3681.76	654.73	107.11	28.32	6.18	5.62

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9773.17	9905.96	5189.05	859.20	123.40	-22.56	7.04	6.04
9905.96	10038.75	11227.48	1406.56	132.95	48.82	10.59	7.98
10038.75	RB 10171.54	6583.47	957.21	113.13	28.62	8.60	6.88

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9773.17	9905.96	8171.51	1147.16	129.40	24.76	8.99	7.12
9905.96	10038.75	15649.82	1712.60	132.95	47.42	12.90	9.14
10038.75	RB 10171.54	9178.67	1249.72	134.64	27.81	9.41	7.34

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.289

INPUT
Description: The expansion/contraction coefficients are increased because of a
contraction in the main channel.

Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9545	1188	9571.72	1184.99	9601.48	1184.89	9634.6	1184.51	9668.37	1183.91
9696.69	1183.9	9750.8	1183.42	9780.74	1183.7	9806.45	1183.51	9822.78	1183.7
9848.61	1183.1	9871.29	1180.25	9882.7	1177.85	9902.64	1175.25	9921.4	1172.8
9951.27	1170	9980.74	1168.92	9998.22	1167.91	10012.66	1168.81	10021.42	1170.18
10119.4	1172.41	10136.14	1172.57	10152.77	1179.181	10183.39	1182.83	10205.1	1185
10256.9	1179.11	10266.01	1178.79	10277.66	1179.59	10298.3	1179.77	10307.28	1181
10352.43	1180.7	10427.4	1181	10497	1181.111	10601.19	1181.471	0641.11	1181.87
10675.62	1182.41	0715.74	1182.71	0734.04	1181.441	0770.02	1181.721	0791.79	1181.51
10811.81	1183.1	10838.8	1183.04	10897.24	1183.441	0928.92	1183.411	1036.72	1184.11
11060.22	1184.21	1126.69	1184.15	11157.27	1184.22				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9545	.06	9848.61	.035	10205.1	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9848.61	10205.1	470	506.29	455	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1177.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.22	Wt. n-Val.		0.035	
W.S. Elev (ft)	1175.52	Reach Len. (ft)	470.00	506.29	455.00
Crit W.S. (ft)	1175.52	Flow Area (sq ft)		1087.63	
E.G. Slope (ft/ft)	0.010811	Area (sq ft)		1087.63	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	243.03	Top Width (ft)		243.03	
Vel Total (ft/s)	11.95	Avg. Vel. (ft/s)		11.95	
Max Chl Dpth (ft)	7.62	Hydr. Depth (ft)		4.48	
Conv. Total (cfs)	125026.5	Conv. (cfs)		125026.5	
Length Wtd. (ft)	506.29	Wetted Per. (ft)		244.11	
Min Ch El (ft)	1167.90	Shear (lb/sq ft)		3.01	
Alpha	1.00	Stream Power (lb/ft s)		35.94	
Frctn Loss (ft)	3.10	Cum Volume (acre-ft)	17.46	350.48	
C & E Loss (ft)	0.92	Cum SA (acres)	3.34	56.18	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1180.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.07	Wt. n-Val.		0.035	
W.S. Elev (ft)	1177.68	Reach Len. (ft)	470.00	506.29	455.00
Crit W.S. (ft)	1177.68	Flow Area (sq ft)		1635.78	
E.G. Slope (ft/ft)	0.009767	Area (sq ft)		1635.78	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	265.00	Top Width (ft)		265.00	
Vel Total (ft/s)	14.06	Avg. Vel. (ft/s)		14.06	
Max Chl Dpth (ft)	9.78	Hydr. Depth (ft)		6.17	
Conv. Total (cfs)	232727.9	Conv. (cfs)		232727.9	
Length Wtd. (ft)	506.29	Wetted Per. (ft)		266.64	
Min Ch El (ft)	1167.90	Shear (lb/sq ft)		3.74	
Alpha	1.00	Stream Power (lb/ft s)		52.60	
Frctn Loss (ft)	2.73	Cum Volume (acre-ft)	25.82	516.68	
C & E Loss (ft)	1.29	Cum SA (acres)	3.39	60.66	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1183.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.75	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1179.47	Reach Len. (ft)	470.00	506.29	455.00
Crit W.S. (ft)	1179.47	Flow Area (sq ft)		2123.40	8.82
E.G. Slope (ft/ft)	0.009092	Area (sq ft)		2123.40	8.82
Q Total (cfs)	33000.00	Flow (cfs)		32993.89	6.11
Top Width (ft)	302.58	Top Width (ft)		280.25	22.33
Vel Total (ft/s)	15.48	Avg. Vel. (ft/s)		15.54	0.69
Max Chl Dpth (ft)	11.57	Hydr. Depth (ft)		7.58	0.39
Conv. Total (cfs)	346085.5	Conv. (cfs)		346021.5	64.0
Length Wtd. (ft)	506.28	Wetted Per. (ft)		282.37	22.38
Min Ch El (ft)	1167.90	Shear (lb/sq ft)		4.27	0.22
Alpha	1.01	Stream Power (lb/ft s)		66.32	0.15
Frctn Loss (ft)	2.52	Cum Volume (acre-ft)	33.30	663.57	4.20
C & E Loss (ft)	1.59	Cum SA (acres)	3.43	64.70	3.63

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9848.61	9967.44	2485.89	245.66	67.22	19.12	3.67	10.12
9967.44	10086.27	8912.49	664.22	119.02	68.56	5.59	13.42
10086.27	RB 10205.10	1601.62	177.74	57.87	12.32	3.10	9.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9848.61	9967.44	4766.18	407.88	83.91	20.72	4.89	11.69
9967.44	10086.27	14662.78	920.65	119.02	63.75	7.75	15.93
10086.27	RB 10205.10	3571.04	307.25	63.72	15.53	4.90	11.62

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9848.61	9967.44	7417.70	565.88	93.10	22.48	6.12	13.11
9967.44	10086.27	20045.65	1133.57	119.02	60.74	9.54	17.68
10086.27	RB 10205.10	5530.55	423.95	70.25	16.76	6.15	13.05
10205.10	11157.27	6.11	8.82	22.38	0.02	0.39	0.69

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.193

INPUT
Description: The expansion/contraction coefficients are increased because of a
contraction in the main channel.

Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9718	1185.9	9748.25	1182.17	9780.36	1181.04	9804.33	1182.05	9877.67	1164.92
9930.03	1165.9	9969.01	1165.85	9989.97	1164.5410026.06		1166.1210045.86		1166.12
10080.36	1165.910132.33		1165.9110255.75		1168.2210313.83		1168.2310329.05		1176.06
10362.99	1178.910405.01		1183.2	10453.1	1177.2910455.89		1177.0610473.29		1177.78
10485.97	1177.310498.31		1179.4610545.04		1179.6710593.55		1180.1310612.05		1180.53
10658.42	118110737.84		1181.3910846.55		1181.8710858.48		1179.510889.38		1179.84
10930.81	1181.510972.81		1181.6311052.85		1181.5911088.51		1181.2411199.38		1181.77

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9718	.06	9804.33	.03	10329.05	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9804.3	10329.05	400	391.34	390	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1172.49	Element			
Vel Head (ft)	0.39	Wt. n-Val.		0.035	
W.S. Elev (ft)	1172.10	Reach Len. (ft)	400.00	391.34	390.00
Crit W.S. (ft)	1169.40	Flow Area (sq ft)		2603.66	
E.G. Slope (ft/ft)	0.001436	Area (sq ft)		2603.66	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	474.42	Top Width (ft)		474.42	
Vel Total (ft/s)	4.99	Avg. Vel. (ft/s)		4.99	
Max Chl Dpth (ft)	7.56	Hydr. Depth (ft)		5.49	
Conv. Total (cfs)	343020.6	Conv. (cfs)		343020.6	
Length Wtd. (ft)	391.34	Wetted Per. (ft)		476.29	
Min Ch El (ft)	1164.54	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		2.45	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	17.46	329.03	
C & E Loss (ft)	0.04	Cum SA (acres)	3.34	52.01	

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1175.73	Element			
Vel Head (ft)	0.48	Wt. n-Val.		0.035	
W.S. Elev (ft)	1175.25	Reach Len. (ft)	400.00	391.34	390.00
Crit W.S. (ft)	1170.77	Flow Area (sq ft)		4128.32	
E.G. Slope (ft/ft)	0.001024	Area (sq ft)		4128.32	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	494.02	Top Width (ft)		494.02	
Vel Total (ft/s)	5.57	Avg. Vel. (ft/s)		5.57	
Max Chl Dpth (ft)	10.71	Hydr. Depth (ft)		8.36	
Conv. Total (cfs)	718845.4	Conv. (cfs)		718845.4	
Length Wtd. (ft)	391.34	Wetted Per. (ft)		497.02	
Min Ch El (ft)	1164.54	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.96	
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	25.82	483.18	
C & E Loss (ft)	0.02	Cum SA (acres)	3.39	56.24	

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1178.50	Element			
Vel Head (ft)	0.56	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1177.94	Reach Len. (ft)	400.00	391.34	390.00
Crit W.S. (ft)	1171.92	Flow Area (sq ft)		5477.85	40.34
E.G. Slope (ft/ft)	0.000850	Area (sq ft)		5477.85	40.34
Q Total (cfs)	33000.00	Flow (cfs)		32987.54	12.47
Top Width (ft)	571.44	Top Width (ft)		507.13	64.31
Vel Total (ft/s)	5.98	Avg. Vel. (ft/s)		6.02	0.31
Max Chl Dpth (ft)	13.40	Hydr. Depth (ft)		10.80	0.63
Conv. Total (cfs)	1131625.4	Conv. (cfs)		1131197.9	427.5
Length Wtd. (ft)	391.34	Wetted Per. (ft)		510.63	64.52
Min Ch El (ft)	1164.54	Shear (lb/sq ft)		0.57	0.03
Alpha	1.01	Stream Power (lb/ft s)		3.43	0.01
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	33.30	619.39	3.94
C & E Loss (ft)	0.02	Cum SA (acres)	3.43	60.12	3.18

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

LB 9804.33	9979.24	3940.95	770.42	133.16	30.31	5.82	5.12
9979.24	10154.14	5972.90	1102.84	174.97	45.95	6.31	5.42
10154.14	RB 10329.05	3086.16	730.40	168.16	23.74	4.37	4.23

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9804.33	9979.24	6637.91	1208.24	147.00	28.86	8.29	5.49
-9979.24	10154.14	9970.83	1653.57	174.97	43.35	9.45	6.03
10154.14	RB 10329.05	6391.27	1266.52	175.05	27.79	7.31	5.05

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9804.33	9979.24	9349.17	1616.36	158.85	28.33	10.27	5.78
9979.24	10154.14	13825.47	2124.59	174.97	41.90	12.15	6.51
10154.14	RB 10329.05	9812.90	1736.90	176.82	29.74	9.93	5.65
10329.05	11199.38	12.47	40.34	64.52	0.04	0.63	0.31

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.129

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9720	1184	9749.29	1179.46	9775.36	1178.16	9816.28	1179.45	9830.86	1180.07
9905.36	1164	9923.52	1163.67	10002.15	1163.161	0050.49	1163.91	0151.43	1164.66
10174.82	1164.61	0251.77	1167.28	10299.53	1167.471	0315.64	1175.41	0344.71	1177.56
10351.1	1176.91	0365.01	1176.39	10383.1	1172.271	0428.34	1172.011	0445.95	1174.85
10453.31	1176.51	0463.41	1175.81	10480.45	1176.141	0493.92	1175.851	0506.97	1178.61
10519.63	1177.91	0568.67	1177.82	10638.34	1178.121	0659.28	1178.061	0731.58	1178.68
10749.8	1178.91	0825.29	1179.56	10845.14	1180.37				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9720	.06	9830.86	.035	10344.71	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9830.86	10344.71	370	394.4	430	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10344.71	10845.14	1176

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1171.99	Element			
Vel Head (ft)	0.31	Wt. n-Val.		0.035	
W.S. Elev (ft)	1171.68	Reach Len. (ft)	370.00	394.40	430.00
Crit W.S. (ft)	1167.90	Flow Area (sq ft)		2899.94	
E.G. Slope (ft/ft)	0.000903	Area (sq ft)		2899.94	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	438.32	Top Width (ft)		438.32	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		4.48	
Max Chl Dpth (ft)	8.52	Hydr. Depth (ft)		6.62	
Conv. Total (cfs)	432667.1	Conv. (cfs)		432667.1	
Length Wtd. (ft)	394.40	Wetted Per. (ft)		440.18	
Min Ch El (ft)	1163.16	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.66	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	17.46	304.31	
C & E Loss (ft)	0.01	Cum SA (acres)	3.34	47.91	

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1175.35	Element			
Vel Head (ft)	0.43	Wt. n-Val.		0.035	
W.S. Elev (ft)	1174.92	Reach Len. (ft)	370.00	394.40	430.00
Crit W.S. (ft)	1169.36	Flow Area (sq ft)		4355.38	
E.G. Slope (ft/ft)	0.000779	Area (sq ft)		4355.38	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	459.93	Top Width (ft)		459.93	
Vel Total (ft/s)	5.28	Avg. Vel. (ft/s)		5.28	
Max Chl Dpth (ft)	11.76	Hydr. Depth (ft)		9.47	
Conv. Total (cfs)	824110.4	Conv. (cfs)		824110.4	
Length Wtd. (ft)	394.40	Wetted Per. (ft)		462.89	
Min Ch El (ft)	1163.16	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		2.42	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	25.82	445.08	
C & E Loss (ft)	0.01	Cum SA (acres)	3.39	51.96	

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1178.17	Element			
Vel Head (ft)	0.52	Wt. n-Val.		0.035	0.110

W.S. Elev (ft)	1177.65	Reach Len. (ft)	370.00	394.40	430.00
Crit W.S. (ft)	1170.64	Flow Area (sq ft)		5664.32	233.18
E.G. Slope (ft/ft)	0.000747	Area (sq ft)		5664.32	233.18
Q Total (cfs)	33000.00	Flow (cfs)		32888.43	111.57
Top Width (ft)	660.35	Top Width (ft)		502.63	157.72
Vel Total (ft/s)	5.60	Avg. Vel. (ft/s)		5.81	0.48
Max Chl Dpth (ft)	14.49	Hydr. Depth (ft)		11.27	1.48
Conv. Total (cfs)	1207363.0	Conv. (cfs)		1203281.0	4082.0
Length Wtd. (ft)	394.51	Wetted Per. (ft)		506.07	158.05
Min Ch El (ft)	1163.16	Shear (lb/sq ft)		0.52	0.07
Alpha	1.07	Stream Power (lb/ft s)		3.03	0.03
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	33.30	569.34	2.72
C & E Loss (ft)	0.01	Cum SA (acres)	3.43	55.59	2.19

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9830.86	10002.14	4257.78	928.93	133.21	32.75	7.02	4.58
10002.14	10173.43	6271.51	1295.92	171.29	48.24	7.57	4.84
10173.43	RB 10344.71	2470.71	675.09	135.68	19.01	5.01	3.66

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9830.86	10002.14	7177.96	1382.28	148.58	31.21	9.38	5.19
10002.14	10173.43	10620.76	1850.98	171.29	46.18	10.81	5.74
10173.43	RB 10344.71	5201.29	1122.12	143.02	22.61	7.94	4.64

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9830.86	10002.14	10272.92	1801.86	161.52	31.13	11.26	5.70
10002.14	10173.43	15036.68	2318.46	171.29	45.57	13.54	6.49
10173.43	RB 10344.71	7578.83	1544.01	173.26	22.97	9.01	4.91
10344.71	10845.14	111.57	233.18	158.05	0.34	1.48	0.48

CROSS SECTION RIVER: New River
REACH: Lower RS: 9.047

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9721	1182	9750.27	1177.81	9764.81	1177.31	9808.93	1177.64	9859.63	1177.83
9869.58	1177.7	9940.46	1162.68	9951.34	1162.95	9973.51	1162.78	10004.34	1161.64
10023.06	1163.6	10049.01	1163.96	10079.2	1162.36	10105.32	1162.19	10135.97	1163.12
10143.76	1163.6	10214.97	1165.76	10265.63	1166.42	10280.5	1173.62	10339.39	1180.42
10377.03	1175.8	10388.87	1172.99	10455.66	1173.06	10516.59	1172.71	10523.55	1173.8
10550.09	1178.9	10587.62	1179.11	10662.01	1179.31	10694.15	1177.59	10712.99	1178.05
10741.37	1177.8	10771.31	1179.13	10856.69	1179.21	10864.44	1179.27	10881.41	1175.63
10895.82	1175.6	10900.87	1176.05	11034.5	1176.11	11099.88	1176.31	11109.01	1175.31
11119.53	1176.7	11190.99	1176.22	11245.59	1176.19	11340.23	1176.31	11368.29	1176.07

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9721	.06	9869.58	.035	10339.39	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9869.58	10339.39	355	330.86	270	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
10339.39	10550.09	1176.1	10864.44	11368.29	1179.27

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1171.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.035	
W.S. Elev (ft)	1171.23	Reach Len. (ft)	355.00	330.86	270.00
Crit W.S. (ft)	1167.34	Flow Area (sq ft)		2634.55	
E.G. Slope (ft/ft)	0.001014	Area (sq ft)		2634.55	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	375.45	Top Width (ft)		375.45	
Vel Total (ft/s)	4.93	Avg. Vel. (ft/s)		4.93	
Max Chl Dpth (ft)	9.59	Hydr. Depth (ft)		7.02	
Conv. Total (cfs)	408331.6	Conv. (cfs)		408331.6	
Length Wtd. (ft)	330.86	Wetted Per. (ft)		377.69	
Min Ch El (ft)	1161.64	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		2.18	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	17.46	279.25	
C & E Loss (ft)	0.09	Cum SA (acres)	3.34	44.23	

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 OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1175.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.035	
W.S. Elev (ft)	1174.46	Reach Len. (ft)	355.00	330.86	270.00
Crit W.S. (ft)	1168.98	Flow Area (sq ft)		3884.28	
E.G. Slope (ft/ft)	0.000958	Area (sq ft)		3884.28	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	402.88	Top Width (ft)		402.88	
Vel Total (ft/s)	5.92	Avg. Vel. (ft/s)		5.92	
Max Chl Dpth (ft)	12.82	Hydr. Depth (ft)		9.64	
Conv. Total (cfs)	743111.2	Conv. (cfs)		743111.2	
Length Wtd. (ft)	330.86	Wetted Per. (ft)		406.06	
Min Ch El (ft)	1161.64	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		3.39	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	25.82	407.77	
C & E Loss (ft)	0.15	Cum SA (acres)	3.39	48.05	

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. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1177.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.035	0.110
W.S. Elev (ft)	1177.16	Reach Len. (ft)	355.00	330.86	270.00
Crit W.S. (ft)	1170.40	Flow Area (sq ft)		5023.29	194.83
E.G. Slope (ft/ft)	0.000934	Area (sq ft)		5023.29	194.83
Q Total (cfs)	33000.00	Flow (cfs)		32913.70	86.30
Top Width (ft)	614.22	Top Width (ft)		439.08	175.14
Vel Total (ft/s)	6.32	Avg. Vel. (ft/s)		6.55	0.44
Max Chl Dpth (ft)	15.52	Hydr. Depth (ft)		11.44	1.11
Conv. Total (cfs)	1079712.1	Conv. (cfs)		1076888.6	2823.5
Length Wtd. (ft)	330.78	Wetted Per. (ft)		442.69	175.32
Min Ch El (ft)	1161.64	Shear (lb/sq ft)		0.66	0.06
Alpha	1.07	Stream Power (lb/ft s)		4.34	0.03
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	33.30	520.96	0.60
C & E Loss (ft)	0.18	Cum SA (acres)	3.43	51.32	0.54

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9869.58	10026.18	4521.56	912.55	127.10	34.78	7.24	4.95
10026.18	10182.79	6608.05	1245.94	156.69	50.83	7.96	5.30
10182.79	RB 10339.39	1870.39	476.06	93.90	14.39	5.13	3.93

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9869.58	10026.18	7771.68	1344.14	142.67	33.79	9.51	5.78
10026.18	10182.79	11349.42	1751.50	156.69	49.35	11.18	6.48
10182.79	RB 10339.39	3878.89	788.65	106.69	16.86	7.51	4.92

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9869.58	10026.18	11098.49	1743.73	155.72	33.63	11.32	6.36
10026.18	10182.79	15976.78	2175.19	156.69	48.41	13.89	7.34
10182.79	RB 10339.39	5830.44	1104.37	130.28	17.69	8.60	5.29
10339.39	11368.29	86.30	194.83	175.32	0.26	1.11	0.44

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.994

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9562	1182	9589.37	1177.14	9619.14	1176.06	9696.02	1175.8	9761.44	1176.77
9772.73	1176.4	9819.77	1176.11	9881.52	1175.52	9890.28	1175.69	9930.75	1164.93
9975.49	1162.210000.06		1161.6510036.81		1162.2410081.18		1162.5710111.15		1162.48
10121.44	1162.610132.61		1173.1210167.33		1173.8310200.81		1178.7310247.03		1178.77
10279.21	1179.110322.84		1179.4110357.58		1179.1210382.84		1178.7110414.68		1178.78
10444.28	117910472.76		1178.8910526.98		1178.2810597.94		1178.3810618.06		1178.16
10690.64	1178.310747.87		1178.0110782.45		1177.6410812.52		1177.7810815.38		1177.48
10847.36	1177.710906.26		1177.3910930.91		1177.5910985.95		1177.2511025.58		1177.14
11080.59	1177.311123.17		1177.6511175.96		1177.4311204.18		1176.9411224.37		1174.97
11254.77	1174.711275.48		1176.1411277.96		1176.5711321.66		1176.0611343.06		1176

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9562	.06	9890.28	.03510200.81		.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9890.28	10200.81	90	91.57	85	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1170.99	Element			
Vel Head (ft)	1.27	Wt. n-Val.		0.035	
W.S. Elev (ft)	1169.72	Reach Len. (ft)	90.00	91.57	85.00
Crit W.S. (ft)	1167.81	Flow Area (sq ft)		1436.96	
E.G. Slope (ft/ft)	0.003715	Area (sq ft)		1436.96	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	216.27	Top Width (ft)		216.27	
Vel Total (ft/s)	9.05	Avg. Vel. (ft/s)		9.05	
Max Chl Dpth (ft)	8.07	Hydr. Depth (ft)		6.64	
Conv. Total (cfs)	213284.4	Conv. (cfs)		213284.4	
Length Wtd. (ft)	91.57	Wetted Per. (ft)		219.82	
Min Ch El (ft)	1161.65	Shear (lb/sq ft)		1.52	
Alpha	1.00	Stream Power (lb/ft s)		13.72	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	17.46	263.79	
C & E Loss (ft)	0.02	Cum SA (acres)	3.34	41.98	

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1174.34	Element			
Vel Head (ft)	2.02	Wt. n-Val.		0.035	
W.S. Elev (ft)	1172.32	Reach Len. (ft)	90.00	91.57	85.00
Crit W.S. (ft)	1170.17	Flow Area (sq ft)		2014.97	
E.G. Slope (ft/ft)	0.004089	Area (sq ft)		2014.97	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	228.80	Top Width (ft)		228.80	
Vel Total (ft/s)	11.41	Avg. Vel. (ft/s)		11.41	
Max Chl Dpth (ft)	10.67	Hydr. Depth (ft)		8.81	
Conv. Total (cfs)	359680.6	Conv. (cfs)		359680.6	
Length Wtd. (ft)	91.57	Wetted Per. (ft)		233.71	
Min Ch El (ft)	1161.65	Shear (lb/sq ft)		2.20	
Alpha	1.00	Stream Power (lb/ft s)		25.12	
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	25.82	385.37	
C & E Loss (ft)	0.06	Cum SA (acres)	3.39	45.65	

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1177.13	Element			
Vel Head (ft)	2.51	Wt. n-Val.		0.035	
W.S. Elev (ft)	1174.61	Reach Len. (ft)	90.00	91.57	85.00
Crit W.S. (ft)	1172.13	Flow Area (sq ft)		2593.61	
E.G. Slope (ft/ft)	0.004705	Area (sq ft)		2593.61	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	278.37	Top Width (ft)		278.37	
Vel Total (ft/s)	12.72	Avg. Vel. (ft/s)		12.72	
Max Chl Dpth (ft)	12.96	Hydr. Depth (ft)		9.32	
Conv. Total (cfs)	481122.3	Conv. (cfs)		481122.3	
Length Wtd. (ft)	91.57	Wetted Per. (ft)		283.97	
Min Ch El (ft)	1161.65	Shear (lb/sq ft)		2.68	
Alpha	1.00	Stream Power (lb/ft s)		34.13	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	33.30	492.03	
C & E Loss (ft)	0.07	Cum SA (acres)	3.43	48.60	

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9890.28	9993.79	3724.44	459.95	81.77	28.65	5.67	8.10
9993.79	10097.30	7612.84	776.19	103.52	58.56	7.50	9.81
10097.30	RB 10200.81	1662.72	200.81	34.53	12.79	6.33	8.28

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9890.28	9993.79	6975.81	683.18	91.88	30.33	7.52	10.21
9993.79	10097.30	13083.82	1045.05	103.52	56.89	10.10	12.52
10097.30	RB 10200.81	2940.37	286.74	38.32	12.78	8.32	10.25

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9890.28	9993.79	10708.51	901.69	100.82	32.45	9.07	11.88
9993.79	10097.30	18933.37	1282.76	103.52	57.37	12.39	14.76
10097.30	RB 10200.81	3358.12	409.16	79.63	10.18	5.43	8.21

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.977

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9532	1182	9557.81	1177.22	9581.17	1178.28	9600.54	1175.6	9650.37	1175.58
9680.22	1175.1	9702.75	1175.44	9780	1175.95	9839.92	1175.8	9866.17	1175.88
9886.92	1164.3	9913.86	1163.7	9954.13	1162.66	9969.9	1162.59	9978.91	1161.61
10001.25	1161.3	10055.85	1162.2	10089.06	1162.38	10096.25	1168.22	10112.2	1167.63
10119.24	1172.6	10143.82	1173.57	10181.52	1177.97	10228.23	1178.26	10266.31	1178.85
10308.85	1177.3	10359.51	1177.26	10415.34	1177.01	10486.99	1176.84	10594.64	1176.11
10696.98	1175.8	10795.43	1175.33	10893.98	1174.74	10927.22	1174.86	10986.43	1175.44
11069.72	1175.5	11095.45	1175.77	11175.75	1175.6	11208.07	1174.59	11232.44	1174.34
11261.82	1176.5	11300.09	1176.22	11343	1176.33	11386.37	1175.94		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9532	.06	9866.17	.035	10181.52	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9866.17	10181.52	220	211.76	215	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11095.45	11386.37	1175.77

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1170.63	Element			
Vel Head (ft)	1.19	Wt. n-Val.		0.035	
W.S. Elev (ft)	1169.43	Reach Len. (ft)	220.00	211.76	215.00
Crit W.S. (ft)	1167.52	Flow Area (sq ft)		1483.52	
E.G. Slope (ft/ft)	0.003779	Area (sq ft)		1483.52	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	237.03	Top Width (ft)		237.03	
Vel Total (ft/s)	8.76	Avg. Vel. (ft/s)		8.76	
Max Chl Dpth (ft)	8.13	Hydr. Depth (ft)		6.26	
Conv. Total (cfs)	211484.3	Conv. (cfs)		211484.3	
Length Wtd. (ft)	211.76	Wetted Per. (ft)		241.11	
Min Ch El (ft)	1161.30	Shear (lb/sq ft)		1.45	
Alpha	1.00	Stream Power (lb/ft s)		12.72	
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	17.46	260.72	
C & E Loss (ft)	0.07	Cum SA (acres)	3.34	41.50	

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1173.92	Element			
Vel Head (ft)	1.81	Wt. n-Val.		0.035	
W.S. Elev (ft)	1172.11	Reach Len. (ft)	220.00	211.76	215.00
Crit W.S. (ft)	1169.83	Flow Area (sq ft)		2128.83	
E.G. Slope (ft/ft)	0.003749	Area (sq ft)		2128.83	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	245.61	Top Width (ft)		245.61	
Vel Total (ft/s)	10.80	Avg. Vel. (ft/s)		10.80	
Max Chl Dpth (ft)	10.81	Hydr. Depth (ft)		8.67	
Conv. Total (cfs)	375648.0	Conv. (cfs)		375648.0	
Length Wtd. (ft)	211.76	Wetted Per. (ft)		251.23	
Min Ch El (ft)	1161.30	Shear (lb/sq ft)		1.98	
Alpha	1.00	Stream Power (lb/ft s)		21.43	
Frctn Loss (ft)	0.72	Cum Volume (acre-ft)	25.82	381.02	
C & E Loss (ft)	0.14	Cum SA (acres)	3.39	45.16	

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1176.65	Element			
Vel Head (ft)	2.27	Wt. n-Val.		0.035	
W.S. Elev (ft)	1174.38	Reach Len. (ft)	220.00	211.76	215.00
Crit W.S. (ft)	1171.69	Flow Area (sq ft)		2728.94	
E.G. Slope (ft/ft)	0.004053	Area (sq ft)		2728.94	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	281.94	Top Width (ft)		281.94	
Vel Total (ft/s)	12.09	Avg. Vel. (ft/s)		12.09	
Max Chl Dpth (ft)	13.08	Hydr. Depth (ft)		9.68	
Conv. Total (cfs)	518333.7	Conv. (cfs)		518333.7	
Length Wtd. (ft)	211.76	Wetted Per. (ft)		288.38	
Min Ch El (ft)	1161.30	Shear (lb/sq ft)		2.39	
Alpha	1.00	Stream Power (lb/ft s)		28.96	
Frctn Loss (ft)	0.72	Cum Volume (acre-ft)	33.30	486.44	
C & E Loss (ft)	0.21	Cum SA (acres)	3.43	48.01	

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9866.17	9971.29	4333.25	538.71	94.93	33.33	5.76	8.04
9971.29	10076.40	7809.83	799.20	105.17	60.08	7.60	9.77
10076.40	RB 10181.52	856.92	145.62	41.01	6.59	3.80	5.88

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9866.17	9971.29	8023.72	795.31	100.41	34.89	8.09	10.09
9971.29	10076.40	12961.18	1080.29	105.17	56.35	10.28	12.00
10076.40	RB 10181.52	2015.10	253.23	45.64	8.76	6.01	7.96

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9866.17	9971.29	11936.56	1023.92	105.09	36.17	10.00	11.66
9971.29	10076.40	18209.57	1319.65	105.17	55.18	12.55	13.80
10076.40	RB 10181.52	2853.87	385.37	78.12	8.65	5.18	7.41

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.936

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9511	1182	9530.47	1178.24	9547.23	1175.36	9570.55	1174.35	9605.1	1174.29
9621.93	1174.6	9671.66	1174.92	9710.26	1174.94	9812.1	1174.56	9827.82	1174.58
9853.92	1165.3	9940.49	1163.65	9978.94	1162.78	9986.26	1159.99	10010.76	1159.94
10032.37	1161.31	10080.82	1161.81	10107.84	1162.21	10127.03	1170.86	10157.51	1172.1
10181.89	1177.21	10216.63	1177.63	10231.99	1177.63	10271.58	1177.98	10300.91	1176.66
10315.19	1176.9	10330.2	1176.41	10343.1	1178.12	10380.73	1177.93	10398.49	1178
10500.52	1177.41	10589.84	1177.19	10635.09	1176.92	10680.16	1176.86	10686.65	1176.56
10709.66	1176.91	10769.13	1176.76	10783.65	1175.37	10817.77	1175.16	10855.97	1175.07
10874.42	1174.61	10898.18	1172.88	10958.71	1172.77	10976.21	1172.46	11002.97	1175.26
11063.39	1175.51	11113.29	1174.63	11185.43	1174.81	11210.28	1173.34	11232.69	1173.39
11239.9	1173.11	11266.18	1174.39						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9511	.06	9827.82	.035	10181.89	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9827.82	10181.89	285	289.58	290	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10800	11266.18	1174.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1169.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.		0.035	
W.S. Elev (ft)	1168.85	Reach Len. (ft)	285.00	289.58	290.00
Crit W.S. (ft)	1166.91	Flow Area (sq ft)		1649.81	
E.G. Slope (ft/ft)	0.003256	Area (sq ft)		1649.81	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	278.62	Top Width (ft)		278.62	
Vel Total (ft/s)	7.88	Avg. Vel. (ft/s)		7.88	
Max Chl Dpth (ft)	8.91	Hydr. Depth (ft)		5.92	
Conv. Total (cfs)	227819.7	Conv. (cfs)		227819.7	
Length Wtd. (ft)	289.58	Wetted Per. (ft)		281.25	
Min Ch El (ft)	1159.94	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		9.40	
Frctn Loss (ft)	1.30	Cum Volume (acre-ft)	17.46	253.11	
C & E Loss (ft)	0.09	Cum SA (acres)	3.34	40.25	

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1173.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.34	Wt. n-Val.		0.035	
W.S. Elev (ft)	1171.72	Reach Len. (ft)	285.00	289.58	290.00
Crit W.S. (ft)	1168.89	Flow Area (sq ft)		2479.13	
E.G. Slope (ft/ft)	0.003062	Area (sq ft)		2479.13	

Q Total (cfs)	23000.00	Flow (cfs)		23000.00
Top Width (ft)	312.30	Top Width (ft)		312.30
Vel Total (ft/s)	9.28	Avg. Vel. (ft/s)		9.28
Max Chl Dpth (ft)	11.78	Hydr. Depth (ft)		7.94
Conv. Total (cfs)	415669.5	Conv. (cfs)		415669.5
Length Wtd. (ft)	289.58	Wetted Per. (ft)		315.88
Min Ch El (ft)	1159.94	Shear (lb/sq ft)		1.50
Alpha	1.00	Stream Power (lb/ft s)		13.92
Frctn Loss (ft)	1.32	Cum Volume (acre-ft)	25.82	369.81
C & E Loss (ft)	0.19	Cum SA (acres)	3.39	43.80

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1175.72	Element			
Vel Head (ft)	1.58	Wt. n-Val.		0.035	
W.S. Elev (ft)	1174.15	Reach Len. (ft)	285.00	289.58	290.00
Crit W.S. (ft)	1170.57	Flow Area (sq ft)		3276.08	
E.G. Slope (ft/ft)	0.002772	Area (sq ft)		3276.08	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	338.25	Top Width (ft)		338.25	
Vel Total (ft/s)	10.07	Avg. Vel. (ft/s)		10.07	
Max Chl Dpth (ft)	14.21	Hydr. Depth (ft)		9.69	
Conv. Total (cfs)	626773.8	Conv. (cfs)		626773.8	
Length Wtd. (ft)	289.58	Wetted Per. (ft)		342.46	
Min Ch El (ft)	1159.94	Shear (lb/sq ft)		1.66	
Alpha	1.00	Stream Power (lb/ft s)		16.68	
Frctn Loss (ft)	1.23	Cum Volume (acre-ft)	33.30	471.84	
C & E Loss (ft)	0.26	Cum SA (acres)	3.43	46.50	

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9827.82	9945.84	2566.52	424.39	102.53	19.74	4.16	6.05
9945.84	10063.87	7720.08	870.97	118.59	59.39	7.38	8.86
10063.87	RB 10181.89	2713.40	354.45	60.13	20.87	6.04	7.66

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9827.82	9945.84	5823.85	728.68	111.10	25.32	6.63	7.99
9945.84	10063.87	12983.60	1209.97	118.59	56.45	10.25	10.73
10063.87	RB 10181.89	4192.55	540.48	86.18	18.23	6.41	7.76

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9827.82	9945.84	9052.76	1003.82	118.35	27.43	8.59	9.02
9945.84	10063.87	17585.28	1496.34	118.59	53.29	12.68	11.75
10063.87	RB 10181.89	6361.96	775.93	105.53	19.28	7.50	8.20

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream 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: New River
REACH: Lower RS: 8.883

INPUT
Description:
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9481	1180	9514.66	1174.18	9540.03	1174.02	9561.4	1175.03	9582.16	1176.73
9631.25	1176.8	9666.16	1176.58	9708.77	1175.86	9800.01	1176.62	9816.25	1176.56
9858.42	1176.8	9862.65	1174.81	9891.37	1163.02	9916.17	1161.63	9958.77	1161.27
9977.64	1162	9985.89	1159.44	10006.43	1159.72	10020.66	1160.42	10082.09	1160.96
10096.55	1161.21	10109.58	1166.61	10117.93	1170.46	10159.12	1171.41	10177.57	1175.8
10208.49	1176.11	10260.47	1175.88	10288.75	1174.83	10304.81	1175.03	10318.05	1174.81
10340.17	1176.71	10355.85	1176.78	10400.38	1176.47	10425.11	1176.72	10506	1175.7
10550.7	1175	10617.09	1174.22	10683.59	1173.92	10732.97	1173.31	10786.03	1173.14
10818.11	1172.41	10836.81	1172.26	10880.96	1170.35	10901.07	1170.82	10936.8	1170.15
10959.7	1170.41	10999.43	1170.07	11031.75	1170.72	11048.37	1170.53	11069.52	1169.57
11089.04	1170	11104.2	1169.36	11122.29	1171.83	11172.68	1171.74	11243.31	1172.03
11270.51	1172.41	1294.15	1172.33	11317.02	1171.24				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9481	.06	9858.42	.03	10177.57	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9858.42	10177.57	410	401.1	400	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10700	11317.02	1170.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1168.43	Element			
Vel Head (ft)	1.83	Wt. n-Val.		0.035	
W.S. Elev (ft)	1166.60	Reach Len. (ft)	410.00	401.10	400.00
Crit W.S. (ft)	1165.97	Flow Area (sq ft)		1197.96	
E.G. Slope (ft/ft)	0.007202	Area (sq ft)		1197.96	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	226.92	Top Width (ft)		226.92	
Vel Total (ft/s)	10.85	Avg. Vel. (ft/s)		10.85	
Max Chl Dpth (ft)	7.16	Hydr. Depth (ft)		5.28	
Conv. Total (cfs)	153190.5	Conv. (cfs)		153190.5	
Length Wtd. (ft)	401.10	Wetted Per. (ft)		229.17	
Min Ch El (ft)	1159.44	Shear (lb/sq ft)		2.35	
Alpha	1.00	Stream Power (lb/ft s)		25.50	
Frctn Loss (ft)	3.53	Cum Volume (acre-ft)	17.46	243.64	
C & E Loss (ft)	0.02	Cum SA (acres)	3.34	38.57	

Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1171.55	Element			
Vel Head (ft)	3.19	Wt. n-Val.		0.035	
W.S. Elev (ft)	1168.35	Reach Len. (ft)	410.00	401.10	400.00
Crit W.S. (ft)	1168.20	Flow Area (sq ft)		1603.67	
E.G. Slope (ft/ft)	0.008966	Area (sq ft)		1603.67	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	235.00	Top Width (ft)		235.00	
Vel Total (ft/s)	14.34	Avg. Vel. (ft/s)		14.34	
Max Chl Dpth (ft)	8.91	Hydr. Depth (ft)		6.82	
Conv. Total (cfs)	242898.1	Conv. (cfs)		242898.1	
Length Wtd. (ft)	401.10	Wetted Per. (ft)		237.98	
Min Ch El (ft)	1159.44	Shear (lb/sq ft)		3.77	
Alpha	1.00	Stream Power (lb/ft s)		54.10	
Frctn Loss (ft)	3.79	Cum Volume (acre-ft)	25.82	356.24	
C & E Loss (ft)	0.09	Cum SA (acres)	3.39	41.98	

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1174.24	Element			
Vel Head (ft)	4.13	Wt. n-Val.		0.035	
W.S. Elev (ft)	1170.11	Reach Len. (ft)	410.00	401.10	400.00
Crit W.S. (ft)	1170.11	Flow Area (sq ft)		2022.44	
E.G. Slope (ft/ft)	0.008939	Area (sq ft)		2022.44	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	243.06	Top Width (ft)		243.06	
Vel Total (ft/s)	16.32	Avg. Vel. (ft/s)		16.32	
Max Chl Dpth (ft)	10.67	Hydr. Depth (ft)		8.32	
Conv. Total (cfs)	349027.6	Conv. (cfs)		349027.6	
Length Wtd. (ft)	401.10	Wetted Per. (ft)		246.77	
Min Ch El (ft)	1159.44	Shear (lb/sq ft)		4.57	
Alpha	1.00	Stream Power (lb/ft s)		74.63	
Frctn Loss (ft)	3.66	Cum Volume (acre-ft)	33.30	454.23	
C & E Loss (ft)	0.15	Cum SA (acres)	3.43	44.57	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9858.42	9964.80	3605.69	372.32	82.90	27.74	4.53	9.68
9964.80	10071.19	7682.61	648.69	106.80	59.10	6.10	11.84
10071.19	RB 10177.57	1711.71	176.95	39.47	13.17	4.61	9.67

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9858.42	9964.80	6785.47	520.38	87.53	29.50	6.02	13.04
9964.80	10071.19	13083.20	835.56	106.80	56.88	7.85	15.66
10071.19	RB 10177.57	3131.33	247.72	43.65	13.61	5.87	12.64

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9858.42	9964.80	10110.73	675.54	92.14	30.64	7.45	14.97
9964.80	10071.19	18266.37	1021.94	106.80	55.35	9.61	17.87
10071.19	RB 10177.57	4622.90	324.95	47.83	14.01	7.07	14.23

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.807

INPUT
Description:
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9422	1178	9452.87	1172.82	9484.81	1172.51	9505.05	1175.79	9527.2	1175.95
9545.44	1175.8	9565.41	1173.82	9572.28	1173.11	9612.21	1172.76	9639.55	1173.19
9682.19	1173	9720.48	1171.58	9733.78	1172.76	9793	1173.1	9811.8	1166.57
9831.6	1158.5	9853.68	1158.04	9890.96	1158.32	9931.82	1159.43	9958.05	1158.96
9967.94	1158.51	10004.04	1158.11	10063.94	1159.09	10094.33	1159.38	10113.46	1169.68
10141.81	1170	10151.5	1170.36	10160.88	1172.75	10182.52	1172.96	10200.99	1173.57
10214.56	1173.61	10222.29	1172.75	10250.46	1173.13	10299.98	1172.75	10353.42	1172.34
10384.63	1171.81	10434.39	1171.99	10501.15	1169.93	10511.28	1169.41	10544.56	1169.01
10564.32	1169.41	10583.58	1168.99	10611.19	1169.88	10664.99	1170.25	10705.82	1170.62
10714.5	1170.61	10733.13	1168.51	10775.91	1167.55	10819.7	1166.99	10835.44	1169.32
10941.38	1169.21	10976.18	1168.29	10997.22	1168.63	11020.47	1167.83	11044.88	1168.45
11062.57	1167.81	11135.17	1168.53	11155.8	1167.31	11186.21	1166.88	11206.55	1167.96
11275.5	1168								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9422	.06	9793	.03	10160.88	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9793	10160.88	425	404.72	395	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10160.8	11275.5	1172.75

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1164.88	Element			
Vel Head (ft)	2.03	Wt. n-Val.		0.035	
W.S. Elev (ft)	1162.85	Reach Len. (ft)	425.00	404.72	395.00
Crit W.S. (ft)	1162.85	Flow Area (sq ft)		1137.06	
E.G. Slope (ft/ft)	0.011280	Area (sq ft)		1137.06	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	279.85	Top Width (ft)		279.85	
Vel Total (ft/s)	11.43	Avg. Vel. (ft/s)		11.43	
Max Chl Dpth (ft)	4.81	Hydr. Depth (ft)		4.06	
Conv. Total (cfs)	122402.1	Conv. (cfs)		122402.1	
Length Wtd. (ft)	408.13	Wetted Per. (ft)		281.62	
Min Ch El (ft)	1158.04	Shear (lb/sq ft)		2.84	
Alpha	1.00	Stream Power (lb/ft s)		32.51	
Frctn Loss (ft)	2.56	Cum Volume (acre-ft)	17.46	232.89	
C & E Loss (ft)	0.54	Cum SA (acres)	3.34	36.24	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1167.67	Element			
Vel Head (ft)	2.90	Wt. n-Val.		0.035	
W.S. Elev (ft)	1164.77	Reach Len. (ft)	425.00	404.72	395.00
Crit W.S. (ft)	1164.77	Flow Area (sq ft)		1682.43	
E.G. Slope (ft/ft)	0.009981	Area (sq ft)		1682.43	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	288.13	Top Width (ft)		288.13	
Vel Total (ft/s)	13.67	Avg. Vel. (ft/s)		13.67	
Max Chl Dpth (ft)	6.73	Hydr. Depth (ft)		5.84	
Conv. Total (cfs)	230214.1	Conv. (cfs)		230214.1	
Length Wtd. (ft)	407.96	Wetted Per. (ft)		290.76	
Min Ch El (ft)	1158.04	Shear (lb/sq ft)		3.61	
Alpha	1.00	Stream Power (lb/ft s)		49.29	
Frctn Loss (ft)	2.24	Cum Volume (acre-ft)	25.82	341.11	
C & E Loss (ft)	0.78	Cum SA (acres)	3.39	39.57	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1170.09	Element			
Vel Head (ft)	4.21	Wt. n-Val.		0.035	
W.S. Elev (ft)	1165.88	Reach Len. (ft)	425.00	404.72	395.00
Crit W.S. (ft)	1166.39	Flow Area (sq ft)		2004.15	
E.G. Slope (ft/ft)	0.011745	Area (sq ft)		2004.15	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	292.90	Top Width (ft)		292.90	
Vel Total (ft/s)	16.47	Avg. Vel. (ft/s)		16.47	
Max Chl Dpth (ft)	7.84	Hydr. Depth (ft)		6.84	
Conv. Total (cfs)	304499.2	Conv. (cfs)		304499.2	
Length Wtd. (ft)	407.89	Wetted Per. (ft)		296.03	
Min Ch El (ft)	1158.04	Shear (lb/sq ft)		4.96	
Alpha	1.00	Stream Power (lb/ft s)		81.74	
Frctn Loss (ft)	4.15	Cum Volume (acre-ft)	33.30	435.69	
C & E Loss (ft)	0.01	Cum SA (acres)	3.43	42.10	

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9793.00	9915.63	4708.25	401.88	95.57	36.22	4.24	11.72
9915.63	10038.25	5972.50	512.18	122.65	45.94	4.18	11.66
10038.25	RB 10160.88	2319.25	223.00	63.40	17.84	3.57	10.40

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9793.00	9915.63	8076.89	588.27	100.65	35.12	5.92	13.73
9915.63	10038.25	10557.91	747.67	122.65	45.90	6.10	14.12
10038.25	RB 10160.88	4365.20	346.49	67.45	18.98	5.24	12.60

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9793.00	9915.63	11479.00	699.86	103.59	34.78	6.85	16.40
9915.63	10038.25	15122.69	883.47	122.65	45.83	7.20	17.12
10038.25	RB 10160.88	6398.31	420.82	69.79	19.39	6.18	15.20

Warning: The energy loss was 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: New River
REACH: Lower RS: 8.731

INPUT
Description: This cross section is located at the confluence of
New River and
Skunk Creek.
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9258	1184	9272.84	1183.82	9280.87	1182.05	9318.95	1175.72	9353.98	1157.57
9362.39	1157.2	9368.39	1154.97	9380.05	1155.24	9421.09	1154.77	9447.34	1154.03
9489.72	1153.6	9509.75	1154.23	9595.22	1155.22	9629.27	1155.58	9663.09	1156.95
9706.29	1155.6	9734.27	1155.51	9787.7	1154.92	9815.78	1154.63	9900.67	1155.91
9994.17	1155.5	10071.25	1155.88	10104.43	1156.22	10126.93	1169.55	10150.62	1170.06
10163.08	1169.9	10175.87	1171.74	10205.91	1171.36	10263.45	1170.95	10327.81	1169.81
10373.84	1169.2	10406.75	1169.05	10441.92	1169.06	10449.19	1168.49	10479.66	1168.37
10491.05	1168.8	10507.51	1169.84	10531.04	1169.35	10587.59	1169.12	10590.13	1169.35
10606.64	1167.6	10631.25	1166.97	10673.26	1166.24	10686.54	1168.29	10767.61	1167.9
10792.48	1167.1	10800.7	1167.94	10817.41	1167.13	10833.84	1168.07	10853.03	1168.07
10912.88	1167.3	10950.96	1165.88						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9258	.06	9663.09	.03	10126.93	.11

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9663.09 10126.93 500 401.71 395 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
10126.91	10950.96	1169.55

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1160.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1160.21	Reach Len. (ft)	500.00	401.71	395.00
Crit W.S. (ft)	1157.40	Flow Area (sq ft)	1644.68	2061.14	
E.G. Slope (ft/ft)	0.001275	Area (sq ft)	1644.68	2061.14	
Q Total (cfs)	13000.00	Flow (cfs)	4373.54	8626.46	
Top Width (ft)	762.29	Top Width (ft)	314.21	448.08	
Vel Total (ft/s)	3.51	Avg. Vel. (ft/s)	2.66	4.19	
Max Chl Dpth (ft)	6.61	Hydr. Depth (ft)	5.23	4.60	
Conv. Total (cfs)	364124.5	Conv. (cfs)	122500.9	241623.6	
Length Wtd. (ft)	418.24	Wetted Per. (ft)	315.33	449.21	
Min Ch El (ft)	1154.63	Shear (lb/sq ft)	0.42	0.37	
Alpha	1.14	Stream Power (lb/ft s)	1.10	1.53	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	9.44	218.03	
C & E Loss (ft)	0.01	Cum SA (acres)	1.80	32.85	

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

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1163.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1162.70	Reach Len. (ft)	500.00	401.71	395.00
Crit W.S. (ft)	1158.45	Flow Area (sq ft)	2431.91	3180.48	
E.G. Slope (ft/ft)	0.001002	Area (sq ft)	2431.91	3180.48	
Q Total (cfs)	23000.00	Flow (cfs)	7356.55	15643.45	
Top Width (ft)	771.28	Top Width (ft)	319.01	452.28	
Vel Total (ft/s)	4.10	Avg. Vel. (ft/s)	3.03	4.92	
Max Chl Dpth (ft)	9.10	Hydr. Depth (ft)	7.62	7.03	
Conv. Total (cfs)	726746.5	Conv. (cfs)	232449.9	494296.6	
Length Wtd. (ft)	417.43	Wetted Per. (ft)	320.73	454.09	
Min Ch El (ft)	1154.63	Shear (lb/sq ft)	0.47	0.44	
Alpha	1.15	Stream Power (lb/ft s)	1.43	2.15	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	13.96	318.52	
C & E Loss (ft)	0.02	Cum SA (acres)	1.83	36.13	

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

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1165.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.060	0.035	
W.S. Elev (ft)	1164.89	Reach Len. (ft)	500.00	401.71	395.00
Crit W.S. (ft)	1159.34	Flow Area (sq ft)	3135.90	4176.04	
E.G. Slope (ft/ft)	0.000860	Area (sq ft)	3135.90	4176.04	
Q Total (cfs)	33000.00	Flow (cfs)	10314.58	22685.42	
Top Width (ft)	779.21	Top Width (ft)	323.24	455.98	
Vel Total (ft/s)	4.51	Avg. Vel. (ft/s)	3.29	5.43	
Max Chl Dpth (ft)	11.29	Hydr. Depth (ft)	9.70	9.16	
Conv. Total (cfs)	1124982.0	Conv. (cfs)	351627.7	773354.3	
Length Wtd. (ft)	417.07	Wetted Per. (ft)	325.50	458.39	
Min Ch El (ft)	1154.63	Shear (lb/sq ft)	0.52	0.49	
Alpha	1.16	Stream Power (lb/ft s)	1.70	2.66	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	18.00	406.98	
C & E Loss (ft)	0.03	Cum SA (acres)	1.86	38.62	

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9258.00	9663.09	4373.54	1644.68	315.33	33.64	5.23	2.66
LB 9663.09	9817.70	3116.15	730.77	154.64	23.97	4.73	4.26
9817.70	9972.32	3098.92	728.32	154.62	23.84	4.71	4.25
9972.32	RB 10126.93	2411.39	602.05	139.95	18.55	4.34	4.01

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9258.00	9663.09	7356.56	2431.91	320.73	31.99	7.62	3.03
LB 9663.09	9817.70	5587.69	1115.21	154.64	24.29	7.21	5.01
9817.70	9972.32	5567.57	1112.75	154.62	24.21	7.20	5.00
9972.32	RB 10126.93	4488.18	952.51	144.83	19.51	6.66	4.71

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9258.00	9663.09	10314.58	3135.90	325.50	31.26	9.70	3.29
LB 9663.09	9817.70	8058.92	1454.16	154.64	24.42	9.41	5.54
9817.70	9972.32	8036.79	1451.71	154.62	24.35	9.39	5.54
9972.32	RB 10126.93	6589.70	1270.17	149.13	19.97	8.66	5.19

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.655

INPUT
Description: The expansion/contraction coefficients are increased
to account
for the channel contraction downstream
of the confluence.
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9156	1178	9193.02	1171.38	9274.12	1170.55	9411.41	1169.63	9515.14	1169.87
9541.69	1162.4	9563.58	1155.64	9622.61	1154.34	9653.38	1154.18	9699.82	1153.29
9730.6	1152.5	9750.39	1153.4	9773.35	1153.56	9846.2	1154.59	9893.51	1154.35
9920.14	1153.8	9928.3	1154.54	9961.67	1154.49	9985.13	1154.22	10014.9	1154.56
10063.21	1154.71	10088.67	1168.79	10110.86	1169.89	10129.2	1169.64	10138.14	1171.1
10180.45	1171.41	10207.95	1171.19	10298.21	1169.31	10317.5	1169.31	10334.85	1168.75
10399.74	1167.71	10417.47	1167.24	10452.79	1168.43	10540.39	1168.36	10569.97	1166.14
10589.76	1166.21	10623.68	1165.62	10637.85	1166.94	10646.38	1167.02	10717.01	1166.55
10727.13	1166.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9156	.06	9515.14	.03	10088.67	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9515.14	10088.67	675	461.08	340	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10088.61	10727.13	1168.79

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1159.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.035	
W.S. Elev (ft)	1159.49	Reach Len. (ft)	675.00	461.08	340.00
Crit W.S. (ft)	1156.94	Flow Area (sq ft)		2702.21	

E.G. Slope (ft/ft)	0.001436	Area (sq ft)	2702.21
Q Total (cfs)	13000.00	Flow (cfs)	13000.00
Top Width (ft)	520.76	Top Width (ft)	520.76
Vel Total (ft/s)	4.81	Avg. Vel. (ft/s)	4.81
Max Chl Dpth (ft)	6.99	Hydr. Depth (ft)	5.19
Conv. Total (cfs)	343006.1	Conv. (cfs)	343006.1
Length Wtd. (ft)	461.08	Wetted Per. (ft)	522.68
Min Ch El (ft)	1152.50	Shear (lb/sq ft)	0.46
Alpha	1.00	Stream Power (lb/ft s)	2.23
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)	196.07
C & E Loss (ft)	0.16	Cum SA (acres)	28.39

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1162.52	Element			
Vel Head (ft)	0.51	Wt. n-Val.		0.035	
W.S. Elev (ft)	1162.01	Reach Len. (ft)	675.00	461.08	340.00
Crit W.S. (ft)	1158.21	Flow Area (sq ft)		4031.85	
E.G. Slope (ft/ft)	0.001226	Area (sq ft)		4031.85	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	533.48	Top Width (ft)		533.48	
Vel Total (ft/s)	5.70	Avg. Vel. (ft/s)		5.70	
Max Chl Dpth (ft)	9.51	Hydr. Depth (ft)		7.56	
Conv. Total (cfs)	656782.4	Conv. (cfs)		656782.4	
Length Wtd. (ft)	461.08	Wetted Per. (ft)		536.44	
Min Ch El (ft)	1152.50	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		3.28	
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)		285.27	
C & E Loss (ft)	0.24	Cum SA (acres)		31.59	

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1164.83	Element			
Vel Head (ft)	0.62	Wt. n-Val.		0.035	
W.S. Elev (ft)	1164.21	Reach Len. (ft)	675.00	461.08	340.00
Crit W.S. (ft)	1159.31	Flow Area (sq ft)		5215.09	
E.G. Slope (ft/ft)	0.001104	Area (sq ft)		5215.09	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	545.13	Top Width (ft)		545.13	
Vel Total (ft/s)	6.33	Avg. Vel. (ft/s)		6.33	
Max Chl Dpth (ft)	11.71	Hydr. Depth (ft)		9.57	
Conv. Total (cfs)	993129.3	Conv. (cfs)		993129.3	
Length Wtd. (ft)	461.08	Wetted Per. (ft)		548.96	
Min Ch El (ft)	1152.50	Shear (lb/sq ft)		0.65	
Alpha	1.00	Stream Power (lb/ft s)		4.14	
Frctn Loss (ft)	0.91	Cum Volume (acre-ft)		363.68	
C & E Loss (ft)	0.30	Cum SA (acres)		34.01	

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9515.14	9706.32	3497.88	758.81	155.81	26.91	4.89	4.61
9706.32	9897.49	5516.05	1082.41	191.21	42.43	5.66	5.10
9897.49	RB 10088.67	3986.07	860.99	175.65	30.66	4.94	4.63

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9515.14	9706.32	6335.50	1160.61	164.36	27.55	7.10	5.46
9706.32	9897.49	9422.88	1564.65	191.21	40.97	8.18	6.02
9897.49	RB 10088.67	7241.62	1306.59	180.86	31.49	7.30	5.54

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9515.14	9706.32	9203.46	1527.40	172.35	27.89	8.93	6.03
9706.32	9897.49	13281.11	1984.13	191.21	40.25	10.38	6.69
9897.49	RB 10088.67	10515.44	1703.56	185.39	31.86	9.31	6.17

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.548

INPUT
Description: Cross section located just upstream of drop structure.
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9702	1168	9729.4	1168.14	9753.58	1167.88	9843.2	1167.19	9858.92	1152.6
9870.39	1152.2	9988.56	1152.61	10000.91	1149.77	10006.5	1152.74	10046.28	1152.86
10123.07	1152.51	10136.24	1152.21	10155.64	1166.85	10213.59	1168.63	10238.52	1169.11
10256.77	1169.11	10274.28	1168.31	10349.53	1168.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9702	.06	9843.2	.035	10155.64	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9843.21	10155.64	48	48	48	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1158.51	Element			
Vel Head (ft)	1.99	Wt. n-Val.		0.035	
W.S. Elev (ft)	1156.52	Reach Len. (ft)	48.00	48.00	48.00
Crit W.S. (ft)	1156.52	Flow Area (sq ft)		1149.23	
E.G. Slope (ft/ft)	0.011391	Area (sq ft)		1149.23	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	287.28	Top Width (ft)		287.28	
Vel Total (ft/s)	11.31	Avg. Vel. (ft/s)		11.31	
Max Chl Dpth (ft)	6.75	Hydr. Depth (ft)		4.00	
Conv. Total (cfs)	121806.8	Conv. (cfs)		121806.8	
Length Wtd. (ft)	48.00	Wetted Per. (ft)		291.34	
Min Ch El (ft)	1149.77	Shear (lb/sq ft)		2.81	
Alpha	1.00	Stream Power (lb/ft s)		31.73	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		175.68	
C & E Loss (ft)	0.50	Cum SA (acres)		24.11	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1161.27	Element			
Vel Head (ft)	2.90	Wt. n-Val.		0.035	
W.S. Elev (ft)	1158.37	Reach Len. (ft)	48.00	48.00	48.00
Crit W.S. (ft)	1158.37	Flow Area (sq ft)		1684.15	
E.G. Slope (ft/ft)	0.010239	Area (sq ft)		1684.15	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	291.71	Top Width (ft)		291.71	
Vel Total (ft/s)	13.66	Avg. Vel. (ft/s)		13.66	
Max Chl Dpth (ft)	8.60	Hydr. Depth (ft)		5.77	
Conv. Total (cfs)	227303.0	Conv. (cfs)		227303.0	
Length Wtd. (ft)	48.00	Wetted Per. (ft)		297.12	
Min Ch El (ft)	1149.77	Shear (lb/sq ft)		3.62	
Alpha	1.00	Stream Power (lb/ft s)		49.48	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		255.02	
C & E Loss (ft)	0.70	Cum SA (acres)		27.22	

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

program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1163.62	Element			
Vel Head (ft)	3.63	Wt. n-Val.		0.035	
W.S. Elev (ft)	1159.99	Reach Len. (ft)	48.00	48.00	48.00
Crit W.S. (ft)	1159.99	Flow Area (sq ft)		2158.54	
E.G. Slope (ft/ft)	0.009426	Area (sq ft)		2158.54	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	295.59	Top Width (ft)		295.59	
Vel Total (ft/s)	15.29	Avg. Vel. (ft/s)		15.29	
Max Chl Dpth (ft)	10.22	Hydr. Depth (ft)		7.30	
Conv. Total (cfs)	339902.3	Conv. (cfs)		339902.3	
Length Wtd. (ft)	48.00	Wetted Per. (ft)		302.18	
Min Ch El (ft)	1149.77	Shear (lb/sq ft)		4.20	
Alpha	1.00	Stream Power (lb/ft s)		64.26	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		324.65	
C & E Loss (ft)	0.85	Cum SA (acres)		29.56	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9843.20	9947.35	4329.57	378.41	94.20	33.30	4.08	11.44
9947.35	10051.49	4926.45	427.38	105.21	37.90	4.10	11.53
10051.49	RB 10155.64	3743.98	343.44	91.93	28.80	3.80	10.90

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need ft additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9843.20	9947.35	7544.91	551.46	96.92	32.80	5.83	13.68
9947.35	10051.49	8679.25	619.82	105.21	37.74	5.95	14.00
10051.49	RB 10155.64	6775.84	512.87	94.99	29.46	5.52	13.21

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9843.20	9947.35	10744.68	705.76	99.29	32.56	7.32	15.22
9947.35	10051.49	12424.61	788.06	105.21	37.65	7.57	15.77
10051.49	RB 10155.64	9830.71	664.71	97.67	29.79	6.99	14.79

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

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.538

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9687.9	1168.1	9769.68	1168.82	9844.6	1167.86	9873.03	1142.33	10000.15	1142.24
10123.29	1142.51	10150.55	1167.09	10178.52	1168.15	10236.13	1169.21	10254.9	1168.37
10288.71	1167.91	10335.75	1168.32	10377.85	1166.83	10405.15	1167.27	10425.22	1166.84
10449.83	1168.01								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9687.9	.06	9844.6	.035	10150.55	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9844.61	10150.55	110	110	105	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1153.50	Element			
Vel Head (ft)	0.32	Wt. n-Val.		0.035	
W.S. Elev (ft)	1153.18	Reach Len. (ft)	110.00	110.00	105.00
Crit W.S. (ft)	1146.67	Flow Area (sq ft)		2843.39	
E.G. Slope (ft/ft)	0.000533	Area (sq ft)		2843.39	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	274.17	Top Width (ft)		274.17	
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)		4.57	
Max Chl Dpth (ft)	10.94	Hydr. Depth (ft)		10.37	
Conv. Total (cfs)	562843.6	Conv. (cfs)		562843.6	
Length Wtd. (ft)	110.00	Wetted Per. (ft)		282.42	
Min Ch El (ft)	1142.24	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.53	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		173.48	
C & E Loss (ft)	0.01	Cum SA (acres)		23.80	

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1157.25	Element			
Vel Head (ft)	0.56	Wt. n-Val.		0.035	
W.S. Elev (ft)	1156.69	Reach Len. (ft)	110.00	110.00	105.00
Crit W.S. (ft)	1148.69	Flow Area (sq ft)		3820.49	
E.G. Slope (ft/ft)	0.000655	Area (sq ft)		3820.49	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	281.98	Top Width (ft)		281.98	
Vel Total (ft/s)	6.02	Avg. Vel. (ft/s)		6.02	
Max Chl Dpth (ft)	14.45	Hydr. Depth (ft)		13.55	
Conv. Total (cfs)	898703.6	Conv. (cfs)		898703.6	
Length Wtd. (ft)	110.00	Wetted Per. (ft)		292.93	
Min Ch El (ft)	1142.24	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		3.21	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		251.98	
C & E Loss (ft)	0.01	Cum SA (acres)		26.90	

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1160.19	Element			
Vel Head (ft)	0.80	Wt. n-Val.		0.035	
W.S. Elev (ft)	1159.39	Reach Len. (ft)	110.00	110.00	105.00
Crit W.S. (ft)	1150.39	Flow Area (sq ft)		4588.48	
E.G. Slope (ft/ft)	0.000759	Area (sq ft)		4588.48	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	287.97	Top Width (ft)		287.97	
Vel Total (ft/s)	7.19	Avg. Vel. (ft/s)		7.19	
Max Chl Dpth (ft)	17.15	Hydr. Depth (ft)		15.93	
Conv. Total (cfs)	1197682.5	Conv. (cfs)		1197682.5	
Length Wtd. (ft)	110.00	Wetted Per. (ft)		300.99	
Min Ch El (ft)	1142.24	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		5.20	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		320.94	
C & E Loss (ft)	0.01	Cum SA (acres)		29.24	

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
LB 9844.60	9946.58	3834.04	865.27	89.79	29.49	10.10	4.43
9946.58	10048.57	5348.76	1111.82	101.98	41.14	10.90	4.81
10048.57	RB 10150.55	3817.20	866.30	90.65	29.36	10.01	4.41

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9844.60	9946.58	6784.44	1173.04	95.05	29.50	13.10	5.78
9946.58	10048.57	9430.69	1470.17	101.98	41.00	14.42	6.41
10048.57	RB 10150.55	6784.87	1177.28	95.90	29.50	13.02	5.76

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9844.60	9946.58	9740.96	1418.40	99.08	29.52	15.33	6.87
9946.58	10048.57	13497.01	1745.01	101.98	40.90	17.11	7.73
10048.57	RB 10150.55	9762.02	1425.07	99.92	29.58	15.25	6.85

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.516

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9756	1168	9821.59	1168.52	9847.43	1168.6	9856.48	1159.08	9867.16	1149.31
9873.77	1144	9877.4	1141.97	9926.46	1141.87	9990.48	1141.93	10000.75	1141.55
10005.5	1142	10108.38	1141.81	10123.56	1141.71	10134.03	1148.62	10146.98	1160.73
10155.21	1167.5	10179.14	1168	10219.02	1169.03	10232.17	1168.75	10280.12	1167.28
10287.22	1167.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9756	.06	9847.43	.035	10155.21	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9847.43	10155.21	280	287.9	305	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1153.44	Element			
Vel Head (ft)	0.30	Wt. n-Val.		0.035	
W.S. Elev (ft)	1153.14	Reach Len. (ft)	280.00	287.90	305.00
Crit W.S. (ft)	1146.28	Flow Area (sq ft)		2951.46	
E.G. Slope (ft/ft)	0.000474	Area (sq ft)		2951.46	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	275.89	Top Width (ft)		275.89	
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)		4.40	
Max Chl Dpth (ft)	11.59	Hydr. Depth (ft)		10.70	
Conv. Total (cfs)	597202.2	Conv. (cfs)		597202.2	
Length Wtd. (ft)	287.90	Wetted Per. (ft)		283.66	
Min Ch El (ft)	1141.55	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.36	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		166.17	
C & E Loss (ft)	0.04	Cum SA (acres)		23.11	

Warning: The conveyance ratio (upstream 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1157.18	Element			
Vel Head (ft)	0.53	Wt. n-Val.		0.035	
W.S. Elev (ft)	1156.64	Reach Len. (ft)	280.00	287.90	305.00
Crit W.S. (ft)	1148.24	Flow Area (sq ft)		3932.04	
E.G. Slope (ft/ft)	0.000598	Area (sq ft)		3932.04	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	283.47	Top Width (ft)		283.47	
Vel Total (ft/s)	5.85	Avg. Vel. (ft/s)		5.85	
Max Chl Dpth (ft)	15.09	Hydr. Depth (ft)		13.87	
Conv. Total (cfs)	940592.6	Conv. (cfs)		940592.6	
Length Wtd. (ft)	287.90	Wetted Per. (ft)		293.99	
Min Ch El (ft)	1141.55	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		2.92	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		242.19	
C & E Loss (ft)	0.05	Cum SA (acres)		26.19	

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 OUTPUT Profile #full capacity

E.G. Elev (ft)	1160.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.035	
W.S. Elev (ft)	1159.33	Reach Len. (ft)	280.00	287.90	305.00
Crit W.S. (ft)	1149.98	Flow Area (sq ft)		4701.91	
E.G. Slope (ft/ft)	0.000703	Area (sq ft)		4701.91	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	289.25	Top Width (ft)		289.25	
Vel Total (ft/s)	7.02	Avg. Vel. (ft/s)		7.02	
Max Chl Dpth (ft)	17.78	Hydr. Depth (ft)		16.26	
Conv. Total (cfs)	1244966.1	Conv. (cfs)		1244966.1	
Length Wtd. (ft)	287.90	Wetted Per. (ft)		301.88	
Min Ch El (ft)	1141.55	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		4.79	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		309.21	
C & E Loss (ft)	0.06	Cum SA (acres)		28.51	

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. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9847.43	9950.02	3850.33	903.33	90.93	29.62	10.38	4.26
9950.02	10052.62	5327.71	1152.07	102.62	40.98	11.23	4.62
10052.62	RB 10155.21	3821.96	896.06	90.11	29.40	10.39	4.27

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9847.43	9950.02	6825.64	1215.25	96.13	29.68	13.37	5.62
9950.02	10052.62	9402.62	1511.77	102.62	40.88	14.74	6.22
10052.62	RB 10155.21	6771.73	1205.02	95.24	29.44	13.39	5.62

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9847.43	9950.02	9809.33	1463.51	100.08	29.73	15.61	6.70
9950.02	10052.62	13463.94	1787.58	102.62	40.80	17.42	7.53
10052.62	RB 10155.21	9726.73	1450.83	99.18	29.47	15.62	6.70

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: New River
REACH: Lower RS: 8.457

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9671	1167.7	9683.56	1168.03	9692.73	1168.79	9781.82	1168.66	9788.33	1168.74
9805.47	1164.9	9818.92	1164.2	9863.11	1155.76	9935.63	1141.79	9966.53	1141.57
9997.45	1141.11	10030.06	1141.49	10060.82	1142.73	10091.35	1147.58	10193.92	1168.4
10250.52	1166.3	10262.83	1165.62	10335.04	1164.4	10341.2	1163.84	10367.82	1166.1
10371.1	1166.5	10407.65	1161.57	10475.04	1161.57	10493.68	1164.6	10503.74	1164.74
10527.6	1166.2	10556.27	1166.42	10564.7	1166.15	10598.14	1166.17	10619.41	1166.08
10699.88	1164.8	10770.72	1165.03	10863.67	1164.81	10911.53	1165.26	10978.23	1164.44
11020.28	1164.8	11034.69	1165.31	11083.15	1164.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9671	.06	9788.33	.035	10193.92	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9788.33	10193.92	365	361.88	355	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1153.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.		0.035	
W.S. Elev (ft)	1152.50	Reach Len. (ft)	365.00	361.88	355.00
Crit W.S. (ft)	1148.07	Flow Area (sq ft)		1946.14	
E.G. Slope (ft/ft)	0.001498	Area (sq ft)		1946.14	

Q Total (cfs)	13000.00	Flow (cfs)	13000.00
Top Width (ft)	235.55	Top Width (ft)	235.55
Vel Total (ft/s)	6.68	Avg. Vel. (ft/s)	6.68
Max Chl Dpth (ft)	11.40	Hydr. Depth (ft)	8.26
Conv. Total (cfs)	335835.8	Conv. (cfs)	335835.8
Length Wtd. (ft)	361.88	Wetted Per. (ft)	237.49
Min Ch El (ft)	1141.10	Shear (lb/sq ft)	0.77
Alpha	1.00	Stream Power (lb/ft s)	5.12
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	149.98
C & E Loss (ft)	0.01	Cum SA (acres)	21.42

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1156.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.06	Wt. n-Val.		0.035	
W.S. Elev (ft)	1155.80	Reach Len. (ft)	365.00	361.88	355.00
Crit W.S. (ft)	1150.65	Flow Area (sq ft)		2779.66	
E.G. Slope (ft/ft)	0.001709	Area (sq ft)		2779.66	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	268.99	Top Width (ft)		268.99	
Vel Total (ft/s)	8.27	Avg. Vel. (ft/s)		8.27	
Max Chl Dpth (ft)	14.70	Hydr. Depth (ft)		10.33	
Conv. Total (cfs)	556328.1	Conv. (cfs)		556328.1	
Length Wtd. (ft)	361.88	Wetted Per. (ft)		271.56	
Min Ch El (ft)	1141.10	Shear (lb/sq ft)		1.09	
Alpha	1.00	Stream Power (lb/ft s)		9.04	
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)		220.01	
C & E Loss (ft)	0.01	Cum SA (acres)		24.36	

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1159.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.38	Wt. n-Val.		0.035	
W.S. Elev (ft)	1158.36	Reach Len. (ft)	365.00	361.88	355.00
Crit W.S. (ft)	1152.76	Flow Area (sq ft)		3501.47	
E.G. Slope (ft/ft)	0.001845	Area (sq ft)		3501.47	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	295.00	Top Width (ft)		295.00	
Vel Total (ft/s)	9.42	Avg. Vel. (ft/s)		9.42	
Max Chl Dpth (ft)	17.26	Hydr. Depth (ft)		11.87	
Conv. Total (cfs)	768174.1	Conv. (cfs)		768174.1	
Length Wtd. (ft)	361.88	Wetted Per. (ft)		298.08	
Min Ch El (ft)	1141.10	Shear (lb/sq ft)		1.35	
Alpha	1.00	Stream Power (lb/ft s)		12.76	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		282.10	
C & E Loss (ft)	0.01	Cum SA (acres)		26.58	

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9788.33	9923.53	714.56	182.20	44.29	5.50	4.19	3.92
9923.53	10058.72	10876.66	1459.50	135.45	83.67	10.80	7.45
10058.72	RB 10193.92	1408.78	304.44	57.74	10.84	5.35	4.63

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9788.33	9923.53	1845.86	354.24	61.76	8.03	5.84	5.21
9923.53	10058.72	18069.36	1906.20	135.45	78.56	14.10	9.48
10058.72	RB 10193.92	3084.78	519.21	74.35	13.41	7.10	5.94

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9788.33	9923.53	3247.03	526.63	75.41	9.84	7.11	6.17
9923.53	10058.72	24760.62	2252.27	135.45	75.03	16.66	10.99
10058.72	RB 10193.92	4992.35	722.58	87.22	15.13	8.43	6.91

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.390

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9792	1168	9802.8	1165.6	9814.94	1165.05	9828.78	1161.22	9850.73	1156.7
9900.76	1147.2	9926.76	1142.1	9950.4	1142.01	9968.87	1141.32	9998.25	1140.92
10028.95	1141.6	10035.16	1141.4	10058.42	1142.45	10114.24	1152.07	10190.49	1167.41
10211.61	1166.6	10240.54	1166.65	10279.51	1166.45	10290.31	1166.87	10298.53	1165.32
10401.7	1163.6	10431.35	1163.46	10515.87	1164.03	10577.34	1164.6	10632.74	1164.51
10712.67	1164.5	10774.86	1164.41	10829.78	1164.4	10932.22	1164.6	10946.6	1164

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9792	.06	9814.94	.035	10190.49	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9814.94	10190.49	310	308.23	305	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1152.60	Wt. n-Val.		0.035	
Vel Head (ft)	0.77	Reach Len. (ft)	310.00	308.23	305.00
W.S. Elev (ft)	1151.83	Flow Area (sq ft)		1851.29	
Crit W.S. (ft)	1147.88	Area (sq ft)		1851.29	
E.G. Slope (ft/ft)	0.001778	Flow (cfs)		13000.00	
Q Total (cfs)	13000.00	Top Width (ft)		236.49	
Top Width (ft)	236.49	Avg. Vel. (ft/s)		7.02	
Vel Total (ft/s)	7.02	Hydr. Depth (ft)		7.83	
Max Chl Dpth (ft)	10.91	Conv. (cfs)		308321.9	
Conv. Total (cfs)	308321.9	Wetted Per. (ft)		238.27	
Length Wtd. (ft)	308.23	Shear (lb/sq ft)		0.86	
Min Ch El (ft)	1140.92	Stream Power (lb/ft s)		6.06	
Alpha	1.00	Cum Volume (acre-ft)		134.21	
Frctn Loss (ft)	0.61	Cum SA (acres)		19.46	
C & E Loss (ft)	0.01				

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1156.19	Wt. n-Val.		0.035	
Vel Head (ft)	1.16	Reach Len. (ft)	310.00	308.23	305.00
W.S. Elev (ft)	1155.04	Flow Area (sq ft)		2662.22	
Crit W.S. (ft)	1150.47	Area (sq ft)		2662.22	
E.G. Slope (ft/ft)	0.001977	Flow (cfs)		23000.00	
Q Total (cfs)	23000.00	Top Width (ft)		269.49	
Top Width (ft)	269.49	Avg. Vel. (ft/s)		8.64	
Vel Total (ft/s)	8.64	Hydr. Depth (ft)		9.88	
Max Chl Dpth (ft)	14.12	Conv. (cfs)		517294.3	
Conv. Total (cfs)	517294.3	Wetted Per. (ft)		271.89	
Length Wtd. (ft)	308.23	Shear (lb/sq ft)		1.21	
Min Ch El (ft)	1140.92	Stream Power (lb/ft s)		10.44	
Alpha	1.00	Cum Volume (acre-ft)		197.41	
Frctn Loss (ft)	0.65	Cum SA (acres)		22.13	
C & E Loss (ft)	0.01				

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1159.02	Wt. n-Val.		0.035	
Vel Head (ft)	1.49	Reach Len. (ft)	310.00	308.23	305.00
W.S. Elev (ft)	1157.53	Flow Area (sq ft)		3365.98	
Crit W.S. (ft)	1152.56	Area (sq ft)		3365.98	
E.G. Slope (ft/ft)	0.002100	Flow (cfs)		33000.00	
Q Total (cfs)	33000.00	Top Width (ft)		294.68	
Top Width (ft)	294.68	Avg. Vel. (ft/s)		9.80	
Vel Total (ft/s)	9.80	Hydr. Depth (ft)		11.42	
Max Chl Dpth (ft)	16.61	Conv. (cfs)		720093.3	
Conv. Total (cfs)	720093.3	Wetted Per. (ft)		297.57	
Length Wtd. (ft)	308.23	Shear (lb/sq ft)		1.48	
Min Ch El (ft)	1140.92	Stream Power (lb/ft s)		14.54	
Alpha	1.00	Cum Volume (acre-ft)		253.57	
Frctn Loss (ft)	0.67	Cum SA (acres)		24.13	
C & E Loss (ft)	0.00				

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9814.94	9940.12	2018.83	373.60	64.69	15.53	5.86	5.40
9940.12	10065.31	10151.85	1282.86	125.33	78.09	10.25	7.91
10065.31	RB 10190.49	829.32	194.83	48.25	6.38	4.10	4.26

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9814.94	9940.12	4056.18	604.92	81.86	17.64	7.50	6.71
9940.12	10065.31	16821.03	1683.97	125.33	73.13	13.45	9.99
10065.31	RB 10190.49	2122.80	373.32	64.69	9.23	5.86	5.69

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9814.94	9940.12	6315.76	822.24	94.90	19.14	8.80	7.68
9940.12	10065.31	23007.92	1996.16	125.33	69.72	15.95	11.53
10065.31	RB 10190.49	3676.32	547.58	77.34	11.14	7.20	6.71

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.330

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9780	1166.4	9787.92	1164.42	9800.42	1164	9829.07	1156.43	9874.97	1147.97

9898.66 1144.1 9954.3 1142.9410025.59 1140.5910060.91 1142.5310088.64 1148.05
10176.69 1166.410193.23 1165.8810260.92 1165.4210341.08 1165.4310388.98 1164.73
10416.78 1164.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9780	.06	9800.42	.03510176.69		.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9800.42	10176.69	555	565.26	545	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1151.98	Element			
Vel Head (ft)	0.84	Wt. n-Val.		0.035	
W.S. Elev (ft)	1151.14	Reach Len. (ft)	555.00	565.26	545.00
Crit W.S. (ft)	1147.98	Flow Area (sq ft)		1764.23	
E.G. Slope (ft/ft)	0.002193	Area (sq ft)		1764.23	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	245.70	Top Width (ft)		245.70	
Vel Total (ft/s)	7.37	Avg. Vel. (ft/s)		7.37	
Max Chl Dpth (ft)	10.55	Hydr. Depth (ft)		7.18	
Conv. Total (cfs)	277587.1	Conv. (cfs)		277587.1	
Length Wtd. (ft)	565.26	Wetted Per. (ft)		247.27	
Min Ch El (ft)	1140.59	Shear (lb/sq ft)		0.98	
Alpha	1.00	Stream Power (lb/ft s)		7.20	
Frctn Loss (ft)	1.25	Cum Volume (acre-ft)		121.42	
C & E Loss (ft)	0.00	Cum SA (acres)		17.75	

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1155.94	Element			
Vel Head (ft)	1.22	Wt. n-Val.		0.035	
W.S. Elev (ft)	1154.33	Reach Len. (ft)	555.00	565.26	545.00
Crit W.S. (ft)	1150.36	Flow Area (sq ft)		2599.32	
E.G. Slope (ft/ft)	0.002232	Area (sq ft)		2599.32	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	278.29	Top Width (ft)		278.29	
Vel Total (ft/s)	8.85	Avg. Vel. (ft/s)		8.85	
Max Chl Dpth (ft)	13.74	Hydr. Depth (ft)		9.34	
Conv. Total (cfs)	486881.2	Conv. (cfs)		486881.2	
Length Wtd. (ft)	565.26	Wetted Per. (ft)		280.48	
Min Ch El (ft)	1140.59	Shear (lb/sq ft)		1.29	
Alpha	1.00	Stream Power (lb/ft s)		11.42	
Frctn Loss (ft)	1.26	Cum Volume (acre-ft)		178.80	
C & E Loss (ft)	0.01	Cum SA (acres)		20.19	

Warning: The energy loss was 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1158.35	Element			
Vel Head (ft)	1.53	Wt. n-Val.		0.035	
W.S. Elev (ft)	1156.81	Reach Len. (ft)	555.00	565.26	545.00
Crit W.S. (ft)	1152.32	Flow Area (sq ft)		3322.24	
E.G. Slope (ft/ft)	0.002275	Area (sq ft)		3322.24	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	303.07	Top Width (ft)		303.07	
Vel Total (ft/s)	9.93	Avg. Vel. (ft/s)		9.93	
Max Chl Dpth (ft)	16.22	Hydr. Depth (ft)		10.96	
Conv. Total (cfs)	691931.9	Conv. (cfs)		691931.9	
Length Wtd. (ft)	565.26	Wetted Per. (ft)		305.75	
Min Ch El (ft)	1140.59	Shear (lb/sq ft)		1.54	
Alpha	1.00	Stream Power (lb/ft s)		15.33	
Frctn Loss (ft)	1.28	Cum Volume (acre-ft)		229.91	
C & E Loss (ft)	0.02	Cum SA (acres)		22.01	

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9800.42	9925.84	1946.83	347.34	68.69	14.98	5.10	5.61
9925.84	10051.27	9526.81	1146.14	125.51	73.28	9.14	8.31
10051.27	RB 10176.69	1526.36	270.75	53.08	11.74	5.19	5.64

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9800.42	9925.84	4087.42	591.88	86.27	17.77	6.93	6.91
9925.84	10051.27	15769.90	1545.91	125.51	68.56	12.33	10.20

10051.27	RB 10176.69	3142.68	461.52	68.70	13.66	6.84	6.81

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9800.42	9925.84	6463.51	820.64	99.37	19.59	8.35	7.88
9925.84	10051.27	21585.73	1857.55	125.51	65.41	14.81	11.62
10051.27	RB 10176.69	4950.76	644.05	80.88	15.00	8.11	7.69

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.220

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9844	1163.2	9853.02	1161.4	9863.78	1160.58	9903.79	1152.1	9912.99	1150.3
9942.26	1145.8	9957.57	1144.16	9978.73	1140.67	9982.77	1138.78	9997.52	1138.87
10022.85	1140.41	10030.36	1140.41	10059.2	1141.62	10073.77	1140.73	10098.68	1141.12
10111.36	1142.61	10121.98	1142.7	10195.8	1154.46	10241.56	1164.55	10257.47	1164.03
10293.89	1164.31	10325.89	1164.02	10356.69	1165.33	10382.29	1165.41	10492.32	1164.23

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9844	.06	9863.78	.03	10241.56	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9863.78	10241.56	485	512.82	565	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1150.73	Element			
Vel Head (ft)	0.84	Wt. n-Val.		0.035	
W.S. Elev (ft)	1149.89	Reach Len. (ft)	485.00	512.82	565.00
Crit W.S. (ft)	1146.72	Flow Area (sq ft)		1771.18	
E.G. Slope (ft/ft)	0.002236	Area (sq ft)		1771.18	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	251.50	Top Width (ft)		251.50	
Vel Total (ft/s)	7.34	Avg. Vel. (ft/s)		7.34	
Max Chl Dpth (ft)	11.11	Hydr. Depth (ft)		7.04	
Conv. Total (cfs)	274913.8	Conv. (cfs)		274913.8	
Length Wtd. (ft)	512.82	Wetted Per. (ft)		253.37	
Min Ch El (ft)	1138.78	Shear (lb/sq ft)		0.98	
Alpha	1.00	Stream Power (lb/ft s)		7.16	
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)		98.48	
C & E Loss (ft)	0.00	Cum SA (acres)		14.52	

Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1154.27	Element			
Vel Head (ft)	1.18	Wt. n-Val.		0.035	
W.S. Elev (ft)	1153.09	Reach Len. (ft)	485.00	512.82	565.00
Crit W.S. (ft)	1149.15	Flow Area (sq ft)		2634.00	
E.G. Slope (ft/ft)	0.002237	Area (sq ft)		2634.00	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	288.05	Top Width (ft)		288.05	
Vel Total (ft/s)	8.73	Avg. Vel. (ft/s)		8.73	
Max Chl Dpth (ft)	14.31	Hydr. Depth (ft)		9.14	
Conv. Total (cfs)	486267.8	Conv. (cfs)		486267.8	
Length Wtd. (ft)	512.82	Wetted Per. (ft)		290.48	
Min Ch El (ft)	1138.78	Shear (lb/sq ft)		1.27	
Alpha	1.00	Stream Power (lb/ft s)		11.06	
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)		144.84	
C & E Loss (ft)	0.01	Cum SA (acres)		16.51	

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1157.05	Element			
Vel Head (ft)	1.48	Wt. n-Val.		0.035	
W.S. Elev (ft)	1155.58	Reach Len. (ft)	485.00	512.82	565.00
Crit W.S. (ft)	1151.06	Flow Area (sq ft)		3383.71	
E.G. Slope (ft/ft)	0.002240	Area (sq ft)		3383.71	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	313.47	Top Width (ft)		313.47	
Vel Total (ft/s)	9.75	Avg. Vel. (ft/s)		9.75	
Max Chl Dpth (ft)	16.80	Hydr. Depth (ft)		10.79	
Conv. Total (cfs)	697328.6	Conv. (cfs)		697328.6	
Length Wtd. (ft)	512.82	Wetted Per. (ft)		316.39	

Min Ch El (ft)	1138.78	Shear (lb/sq ft)	1.50
Alpha	1.00	Stream Power (lb/ft s)	14.58
Frctn Loss (ft)	1.20	Cum Volume (acre-ft)	186.40
C & E Loss (ft)	0.01	Cum SA (acres)	18.01

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9863.78	9989.71	2373.82	406.01	75.18	18.26	5.48	5.85
9989.71	10115.63	9629.35	1156.89	126.11	74.07	9.19	8.32
10115.63	RB 10241.56	996.82	208.28	52.07	7.67	4.04	4.79

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9863.78	9989.71	4775.50	670.16	91.99	20.76	7.40	7.13
9989.71	10115.63	15806.03	1559.06	126.11	68.72	12.38	10.14
10115.63	RB 10241.56	2418.47	404.78	72.37	10.52	5.66	5.97

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9863.78	9989.71	7343.73	910.14	103.99	22.25	8.90	8.07
9989.71	10115.63	21489.52	1872.40	126.11	65.12	14.87	11.48
10115.63	RB 10241.56	4166.75	601.17	86.28	12.63	7.05	6.93

Warning: The energy loss was 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: New River
REACH: Lower RS: 8.120

INPUT
Description:
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9841	1162.2	9858.45	1162.6	9870.72	1159.87	9882.49	1159.32	9893.84	1157.08
9934.41	1149.6	9990.41	1140.42	9998.97	113	810012.37	1138.25	10036.29	1137.97
10050.72	114	110069.18	1139.87	10081.41	1141.37	10100.66	1141.36	10109.14	1138.47
10131.16	1138.91	0138.76	1141.91	0172.82	1146.68	10195.97	1150.55	10260.19	1163.5
10278.49	1162.91	0317.31	1162.95	10354.77	1162.26	10372.33	1162.02		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9841	.06	9882.49	.035	10260.19	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9882.49	10260.19	365	370.41	370	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1149.54	Element			
Vel Head (ft)	0.89	Wt. n-Val.		0.035	
W.S. Elev (ft)	1148.65	Reach Len. (ft)	365.00	370.41	370.00
Crit W.S. (ft)	1145.59	Flow Area (sq ft)		1720.22	
E.G. Slope (ft/ft)	0.002388	Area (sq ft)		1720.22	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	244.45	Top Width (ft)		244.45	
Vel Total (ft/s)	7.56	Avg. Vel. (ft/s)		7.56	
Max Chl Dpth (ft)	10.68	Hydr. Depth (ft)		7.04	
Conv. Total (cfs)	266016.4	Conv. (cfs)		266016.4	
Length Wtd. (ft)	370.41	Wetted Per. (ft)		247.45	
Min Ch El (ft)	1137.97	Shear (lb/sq ft)		1.04	
Alpha	1.00	Stream Power (lb/ft s)		7.83	
Frctn Loss (ft)	0.80	Cum Volume (acre-ft)		77.93	
C & E Loss (ft)	0.03	Cum SA (acres)		11.60	

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1153.07	Element			
Vel Head (ft)	1.26	Wt. n-Val.		0.035	
W.S. Elev (ft)	1151.81	Reach Len. (ft)	365.00	370.41	370.00
Crit W.S. (ft)	1148.05	Flow Area (sq ft)		2549.14	
E.G. Slope (ft/ft)	0.002414	Area (sq ft)		2549.14	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	279.79	Top Width (ft)		279.79	
Vel Total (ft/s)	9.02	Avg. Vel. (ft/s)		9.02	
Max Chl Dpth (ft)	13.84	Hydr. Depth (ft)		9.11	

Conv. Total (cfs)	468130.8	Conv. (cfs)	468130.8
Length Wtd. (ft)	370.41	Wetted Per. (ft)	283.35
Min Ch El (ft)	1137.97	Shear (lb/sq ft)	1.36
Alpha	1.00	Stream Power (lb/ft s)	12.23
Frctn Loss (ft)	0.84	Cum Volume (acre-ft)	114.33
C & E Loss (ft)	0.03	Cum SA (acres)	13.17

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1155.84	Wt. n-Val.		0.035	
Vel Head (ft)	1.59	Reach Len. (ft)	365.00	370.41	370.00
W.S. Elev (ft)	1154.26	Flow Area (sq ft)		3265.24	
Crit W.S. (ft)	1150.04	Area (sq ft)		3265.24	
E.G. Slope (ft/ft)	0.002446	Flow (cfs)		33000.00	
Q Total (cfs)	33000.00	Top Width (ft)		305.21	
Top Width (ft)	305.21	Avg. Vel. (ft/s)		10.11	
Vel Total (ft/s)	10.11	Hydr. Depth (ft)		10.70	
Max Chl Dpth (ft)	16.29	Conv. (cfs)		667200.4	
Conv. Total (cfs)	667200.4	Wetted Per. (ft)		309.24	
Length Wtd. (ft)	370.41	Shear (lb/sq ft)		1.61	
Min Ch El (ft)	1137.97	Stream Power (lb/ft s)		16.30	
Alpha	1.00	Cum Volume (acre-ft)		147.26	
Frctn Loss (ft)	0.87	Cum SA (acres)		14.37	
C & E Loss (ft)	0.03				

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9882.49	10008.39	2401.05	387.18	69.22	18.47	5.68	6.20
10008.39	10134.29	9667.24	1138.61	127.06	74.36	9.04	8.49
10134.29	RB 10260.19	931.71	194.43	51.17	7.17	3.86	4.79

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9882.49	10008.39	4661.85	631.10	87.25	20.27	7.34	7.39
10008.39	10134.29	15975.78	1535.82	127.06	69.46	12.20	10.40
10134.29	RB 10260.19	2362.37	382.22	69.04	10.27	5.63	6.18

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9882.49	10008.39	7112.84	857.82	100.75	21.55	8.64	8.29
10008.39	10134.29	21819.22	1844.05	127.06	66.12	14.65	11.83
10134.29	RB 10260.19	4067.94	563.37	81.43	12.33	7.04	7.22

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.052

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9812	1158.5	9848.5	1160.52	9858.22	1158.04	9871.97	1157.59	9879.48	1156.11
9941.09	1145.9	9975.4	1140.15	9990.32	1136.42	10013.47	1137.44	10041.37	1139.2
10061.51	1138.3	10069.5	1140.17	10082.68	1139.86	10092.14	1137.02	10113.77	1138.06
10148.19	1143.3	10177.35	1148.16	10230.27	1157.36	10251.73	1161.72	10264.08	1161.26
10301.26	1162.3	10320.82	1161.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9812	.06	9848.5	.035	10251.73	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9848.5	10251.73	225	236.58	255	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1148.70	Wt. n-Val.		0.035	
Vel Head (ft)	0.78	Reach Len. (ft)	225.00	236.58	255.00
W.S. Elev (ft)	1147.92	Flow Area (sq ft)		1832.82	
Crit W.S. (ft)	1144.33	Area (sq ft)		1832.82	
E.G. Slope (ft/ft)	0.001957	Flow (cfs)		13000.00	
Q Total (cfs)	13000.00	Top Width (ft)		247.05	
Top Width (ft)	247.05	Avg. Vel. (ft/s)		7.09	
Vel Total (ft/s)	7.09	Hydr. Depth (ft)		7.42	
Max Chl Dpth (ft)	11.50	Conv. (cfs)		293892.0	
Conv. Total (cfs)	293892.0	Wetted Per. (ft)		249.69	
Length Wtd. (ft)	236.58	Shear (lb/sq ft)		0.90	
Min Ch El (ft)	1136.42	Stream Power (lb/ft s)		6.36	
Alpha	1.00	Cum Volume (acre-ft)		62.82	
Frctn Loss (ft)	0.49	Cum SA (acres)		9.51	
C & E Loss (ft)	0.01				

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1152.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.		0.035	
W.S. Elev (ft)	1151.04	Reach Len. (ft)	225.00	236.58	255.00
Crit W.S. (ft)	1146.83	Flow Area (sq ft)		2660.15	
E.G. Slope (ft/ft)	0.002130	Area (sq ft)		2660.15	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	283.84	Top Width (ft)		283.84	
Vel Total (ft/s)	8.65	Avg. Vel. (ft/s)		8.65	
Max Chl Dpth (ft)	14.62	Hydr. Depth (ft)		9.37	
Conv. Total (cfs)	498320.3	Conv. (cfs)		498320.3	
Length Wtd. (ft)	236.58	Wetted Per. (ft)		287.01	
Min Ch El (ft)	1136.42	Shear (lb/sq ft)		1.23	
Alpha	1.00	Stream Power (lb/ft s)		10.66	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)		92.18	
C & E Loss (ft)	0.01	Cum SA (acres)		10.78	

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1154.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.48	Wt. n-Val.		0.035	
W.S. Elev (ft)	1153.47	Reach Len. (ft)	225.00	236.58	255.00
Crit W.S. (ft)	1148.84	Flow Area (sq ft)		3383.67	
E.G. Slope (ft/ft)	0.002236	Area (sq ft)		3383.67	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	312.44	Top Width (ft)		312.44	
Vel Total (ft/s)	9.75	Avg. Vel. (ft/s)		9.75	
Max Chl Dpth (ft)	17.05	Hydr. Depth (ft)		10.83	
Conv. Total (cfs)	697854.4	Conv. (cfs)		697854.4	
Length Wtd. (ft)	236.58	Wetted Per. (ft)		316.02	
Min Ch El (ft)	1136.42	Shear (lb/sq ft)		1.49	
Alpha	1.00	Stream Power (lb/ft s)		14.58	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)		118.99	
C & E Loss (ft)	0.01	Cum SA (acres)		11.74	

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9848.50	9982.91	1176.27	245.85	54.91	9.05	4.55	4.78
9982.91	10117.32	10441.60	1307.58	135.44	80.32	9.73	7.99
10117.32	RB 10251.73	1382.13	279.39	59.35	10.63	4.77	4.95

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9848.50	9982.91	2680.75	443.53	73.97	11.66	6.09	6.04
9982.91	10117.32	17252.23	1726.47	135.44	75.01	12.84	9.99
10117.32	RB 10251.73	3067.01	490.15	77.60	13.33	6.40	6.26

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9848.50	9982.91	4450.92	638.06	88.81	13.49	7.29	6.98
9982.91	10117.32	23551.95	2052.65	135.44	71.37	15.27	11.47
10117.32	RB 10251.73	4997.14	692.97	91.77	15.14	7.65	7.21

CROSS SECTION RIVER: New River
REACH: Lower RS: 8.006

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9813	1158	9822.82	1158.06	9836.05	1159.57	9848.52	1159.66	9864.41	1157
9872.33	1156.8	9899.09	1151.07	9978.9	1140.44	9995.88	1136.11	10014.86	1136.65
10043.49	1138.11	10056.74	1137.68	10072.31	1139.34	10086.47	1139.08	10091.99	1137.1
10110.36	1137.8	10145	1142.23	10236.11	1158.45	10252.11	1161.51	10268.56	1160.37
10301.55	1161.3	10324.12	1160.84						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9813	.06	9848.52	.035	10252.11	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9848.52	10252.11	445	463.28	505	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1148.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.84	Wt. n-Val.		0.035	
W.S. Elev (ft)	1147.38	Reach Len. (ft)	445.00	463.28	505.00
Crit W.S. (ft)	1144.06	Flow Area (sq ft)		1772.36	
E.G. Slope (ft/ft)	0.002184	Area (sq ft)		1772.36	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	247.08	Top Width (ft)		247.08	
Vel Total (ft/s)	7.33	Avg. Vel. (ft/s)		7.33	
Max Chl Dpth (ft)	11.27	Hydr. Depth (ft)		7.17	
Conv. Total (cfs)	278196.0	Conv. (cfs)		278196.0	

Length Wtd. (ft)	463.28	Wetted Per. (ft)	249.31
Min Ch El (ft)	1136.11	Shear (lb/sq ft)	0.97
Alpha	1.00	Stream Power (lb/ft s)	7.11
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	53.03
C & E Loss (ft)	0.01	Cum SA (acres)	8.17

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1151.67	Element			
Vel Head (ft)	1.22	Wt. n-Val.		0.035	
W.S. Elev (ft)	1150.44	Reach Len. (ft)	445.00	463.28	505.00
Crit W.S. (ft)	1146.50	Flow Area (sq ft)		2592.02	
E.G. Slope (ft/ft)	0.002356	Area (sq ft)		2592.02	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	287.34	Top Width (ft)		287.34	
Vel Total (ft/s)	8.87	Avg. Vel. (ft/s)		8.87	
Max Chl Dpth (ft)	14.33	Hydr. Depth (ft)		9.02	
Conv. Total (cfs)	473888.1	Conv. (cfs)		473888.1	
Length Wtd. (ft)	463.28	Wetted Per. (ft)		290.05	
Min Ch El (ft)	1136.11	Shear (lb/sq ft)		1.31	
Alpha	1.00	Stream Power (lb/ft s)		11.66	
Frctn Loss (ft)	1.15	Cum Volume (acre-ft)		77.92	
C & E Loss (ft)	0.01	Cum SA (acres)		9.22	

Warning: The energy loss was 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1154.39	Element			
Vel Head (ft)	1.53	Wt. n-Val.		0.035	
W.S. Elev (ft)	1152.86	Reach Len. (ft)	445.00	463.28	505.00
Crit W.S. (ft)	1148.55	Flow Area (sq ft)		3319.65	
E.G. Slope (ft/ft)	0.002394	Area (sq ft)		3319.65	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	313.96	Top Width (ft)		313.96	
Vel Total (ft/s)	9.94	Avg. Vel. (ft/s)		9.94	
Max Chl Dpth (ft)	16.75	Hydr. Depth (ft)		10.57	
Conv. Total (cfs)	674428.1	Conv. (cfs)		674428.1	
Length Wtd. (ft)	463.28	Wetted Per. (ft)		317.12	
Min Ch El (ft)	1136.11	Shear (lb/sq ft)		1.56	
Alpha	1.00	Stream Power (lb/ft s)		15.55	
Frctn Loss (ft)	1.16	Cum Volume (acre-ft)		100.79	
C & E Loss (ft)	0.01	Cum SA (acres)		10.04	

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9848.52	9983.05	931.99	211.55	56.81	7.17	3.76	4.41
9983.05	10117.58	10726.84	1297.29	135.50	82.51	9.64	8.27
10117.58	RB 10252.11	1341.17	263.53	57.00	10.32	4.68	5.09

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9848.52	9983.05	2404.80	419.33	80.05	10.46	5.29	5.73
9983.05	10117.58	17622.58	1709.96	135.50	76.62	12.71	10.31
10117.58	RB 10252.11	2972.62	462.72	74.50	12.92	6.29	6.42

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9848.52	9983.05	4313.37	628.08	93.34	13.07	6.80	6.87
9983.05	10117.58	23864.61	2034.84	135.50	72.32	15.13	11.73
10117.58	RB 10252.11	4822.02	656.73	88.28	14.61	7.54	7.34

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

CROSS SECTION RIVER: New River
REACH: Lower RS: 7.920

INPUT
Description:

Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9836	1160.4	9855.37	1160.45	9868.9	1156.67	9880.63	1155.58	9919.94	1148.19
9962.13	1141.6	9980.61	1139.05	9991.3	1135.74	10011.4	1136.14	10036.41	1137.04
10060.91	1136.71	10072.06	1139.35	10080.58	1138.66	10088.54	1136.53	10104.58	1136.63
10137.77	1140.41	10148.13	1141.41	10206.92	1150.48	10253.04	1158.75	10258.56	1160.29
10273.87	1159.61	10308.49	1160.43	10319.77	1160.02				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9836	.06	9855.37	.035	10258.56	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9855.37	10258.56	615	631.37	655	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1147.14	Element			
Vel Head (ft)	0.89	Wt. n-Val.		0.035	
W.S. Elev (ft)	1146.25	Reach Len. (ft)	615.00	631.37	655.00
Crit W.S. (ft)	1143.25	Flow Area (sq ft)		1718.34	
E.G. Slope (ft/ft)	0.002424	Area (sq ft)		1718.34	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	247.20	Top Width (ft)		247.20	
Vel Total (ft/s)	7.57	Avg. Vel. (ft/s)		7.57	
Max Chl Dpth (ft)	10.51	Hydr. Depth (ft)		6.95	
Conv. Total (cfs)	264065.5	Conv. (cfs)		264065.5	
Length Wtd. (ft)	631.37	Wetted Per. (ft)		249.52	
Min Ch El (ft)	1135.74	Shear (lb/sq ft)		1.04	
Alpha	1.00	Stream Power (lb/ft s)		7.88	
Frctn Loss (ft)	2.00	Cum Volume (acre-ft)		34.47	
C & E Loss (ft)	0.05	Cum SA (acres)		5.54	

Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1150.51	Element			
Vel Head (ft)	1.31	Wt. n-Val.		0.035	
W.S. Elev (ft)	1149.20	Reach Len. (ft)	615.00	631.37	655.00
Crit W.S. (ft)	1145.69	Flow Area (sq ft)		2501.01	
E.G. Slope (ft/ft)	0.002614	Area (sq ft)		2501.01	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	284.01	Top Width (ft)		284.01	
Vel Total (ft/s)	9.20	Avg. Vel. (ft/s)		9.20	
Max Chl Dpth (ft)	13.46	Hydr. Depth (ft)		8.81	
Conv. Total (cfs)	449858.2	Conv. (cfs)		449858.2	
Length Wtd. (ft)	631.37	Wetted Per. (ft)		286.79	
Min Ch El (ft)	1135.74	Shear (lb/sq ft)		1.42	
Alpha	1.00	Stream Power (lb/ft s)		13.09	
Frctn Loss (ft)	2.05	Cum Volume (acre-ft)		50.84	
C & E Loss (ft)	0.05	Cum SA (acres)		6.19	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1153.22	Element			
Vel Head (ft)	1.64	Wt. n-Val.		0.035	
W.S. Elev (ft)	1151.58	Reach Len. (ft)	615.00	631.37	655.00
Crit W.S. (ft)	1147.68	Flow Area (sq ft)		3210.08	
E.G. Slope (ft/ft)	0.002646	Area (sq ft)		3210.08	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	311.10	Top Width (ft)		311.10	
Vel Total (ft/s)	10.28	Avg. Vel. (ft/s)		10.28	
Max Chl Dpth (ft)	15.84	Hydr. Depth (ft)		10.32	
Conv. Total (cfs)	641535.3	Conv. (cfs)		641535.3	
Length Wtd. (ft)	631.37	Wetted Per. (ft)		314.30	
Min Ch El (ft)	1135.74	Shear (lb/sq ft)		1.69	
Alpha	1.00	Stream Power (lb/ft s)		17.34	
Frctn Loss (ft)	1.99	Cum Volume (acre-ft)		66.06	
C & E Loss (ft)	0.05	Cum SA (acres)		6.72	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9855.37	9989.77	1351.35	257.76	58.39	10.40	4.49	5.24
9989.77	10124.16	10565.36	1238.76	135.24	81.27	9.22	8.53
10124.16	RB 10258.56	1083.29	221.82	55.89	8.33	4.01	4.88

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9855.37	9989.77	3009.68	453.91	76.38	13.09	6.04	6.63
9989.77	10124.16	17393.10	1634.26	135.24	75.62	12.16	10.64
10124.16	RB 10258.56	2597.21	412.84	75.17	11.29	5.55	6.29

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9855.37	9989.77	4948.70	647.96	89.27	15.00	7.38	7.64
9989.77	10124.16	23619.74	1954.24	135.24	71.57	14.54	12.09
10124.16	RB 10258.56	4431.56	607.88	89.80	13.43	6.84	7.29

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: New River
REACH: Lower RS: 7.800

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Thunderbird Rd. bridge.
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9736	1153.5	9764.38	1153.41	9780.03	1157.33	9795.93	1156.96	9805.92	1155.45
9832.22	1158.1	9857.12	1158.52	9893.02	1150.65	9908.87	1147.75	9931.81	1142.94
9943.11	1142.1	9965.96	1138.01	9974.38	1135.77	9977.75	1135.65	10030.71	1136.12
10090.5	1136.9	10128.41	1137.57	10160.65	1142.89	10243.64	1157.07	10269.64	1156.78
10311.28	1157.2	10330.96	1157.09						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9736	.06	9857.12	.035	10243.64	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9857.12	10243.64	230	259.16	355	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1145.10	Element			
Vel Head (ft)	1.34	Wt. n-Val.		0.035	
W.S. Elev (ft)	1143.76	Reach Len. (ft)	230.00	259.16	355.00
Crit W.S. (ft)	1142.20	Flow Area (sq ft)		1398.89	
E.G. Slope (ft/ft)	0.004546	Area (sq ft)		1398.89	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	237.83	Top Width (ft)		237.83	
Vel Total (ft/s)	9.29	Avg. Vel. (ft/s)		9.29	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)		5.88	
Conv. Total (cfs)	192816.2	Conv. (cfs)		192816.2	
Length Wtd. (ft)	259.16	Wetted Per. (ft)		239.13	
Min Ch El (ft)	1135.65	Shear (lb/sq ft)		1.66	
Alpha	1.00	Stream Power (lb/ft s)		15.43	
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)		11.88	
C & E Loss (ft)	0.01	Cum SA (acres)		2.03	

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1148.41	Element			
Vel Head (ft)	1.85	Wt. n-Val.		0.035	
W.S. Elev (ft)	1146.55	Reach Len. (ft)	230.00	259.16	355.00
Crit W.S. (ft)	1144.58	Flow Area (sq ft)		2104.47	
E.G. Slope (ft/ft)	0.004274	Area (sq ft)		2104.47	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	267.49	Top Width (ft)		267.49	
Vel Total (ft/s)	10.93	Avg. Vel. (ft/s)		10.93	
Max Chl Dpth (ft)	10.90	Hydr. Depth (ft)		7.87	
Conv. Total (cfs)	351821.7	Conv. (cfs)		351821.7	
Length Wtd. (ft)	259.16	Wetted Per. (ft)		269.32	
Min Ch El (ft)	1135.65	Shear (lb/sq ft)		2.08	
Alpha	1.00	Stream Power (lb/ft s)		22.79	
Frctn Loss (ft)	1.12	Cum Volume (acre-ft)		17.46	
C & E Loss (ft)	0.05	Cum SA (acres)		2.19	

Warning: The energy loss was 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 OUTPUT Profile #full capacity

E.G. Elev (ft)	1151.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.16	Wt. n-Val.		0.035	
W.S. Elev (ft)	1149.02	Reach Len. (ft)	230.00	259.16	355.00
Crit W.S. (ft)	1146.48	Flow Area (sq ft)		2796.26	
E.G. Slope (ft/ft)	0.003884	Area (sq ft)		2796.26	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	294.54	Top Width (ft)		294.54	
Vel Total (ft/s)	11.80	Avg. Vel. (ft/s)		11.80	
Max Chl Dpth (ft)	13.36	Hydr. Depth (ft)		9.49	
Conv. Total (cfs)	529543.7	Conv. (cfs)		529543.7	
Length Wtd. (ft)	259.16	Wetted Per. (ft)		296.81	
Min Ch El (ft)	1135.65	Shear (lb/sq ft)		2.28	
Alpha	1.00	Stream Power (lb/ft s)		26.96	
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)		22.54	
C & E Loss (ft)	0.13	Cum SA (acres)		2.33	

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9857.12	9985.96	1818.26	251.46	58.83	13.99	4.33	7.23
9985.96	10114.80	9803.27	945.57	128.85	75.41	7.34	10.37
10114.80	RB 10243.64	1378.47	201.85	51.45	10.60	3.96	6.83

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9857.12	9985.96	3775.02	432.19	72.44	16.41	6.06	8.73
9985.96	10114.80	16228.65	1305.37	128.85	70.56	10.13	12.43
10114.80	RB 10243.64	2996.33	366.91	68.03	13.03	5.45	8.17

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9857.12	9985.96	5918.17	623.05	85.31	17.93	7.42	9.50
9985.96	10114.80	22165.75	1622.79	128.85	67.17	12.60	13.66
10114.80	RB 10243.64	4916.08	550.42	82.65	14.90	6.74	8.93

Warning: The energy loss was 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: New River
REACH: Lower RS: 7.751

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Thunderbird Rd. bridge.

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9892.86	1161.1	9895	1160	9915.55	1159.53	9919.35	1157.94	9944.75	1155.49
9965.55	1140.7	9978.33	1135.3	10034.63	1135.8	10077.55	1136.03	10176.7	1136.99
10220.4	1151.4	10225	1154.98	10239.55	1158.91	10278.43	1159.51	10320.22	1160
10372.86	1159.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9892.86	.06	9919.35	.035	10239.55	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9919.35	10239.55	115	121.7	110	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1143.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.38	Wt. n-Val.		0.035	
W.S. Elev (ft)	1142.53	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	1141.12	Flow Area (sq ft)		1381.38	
E.G. Slope (ft/ft)	0.004582	Area (sq ft)		1381.38	
Q Total (cfs)	13000.00	Flow (cfs)		13000.00	
Top Width (ft)	230.54	Top Width (ft)		230.54	
Vel Total (ft/s)	9.41	Avg. Vel. (ft/s)		9.41	
Max Chl Dpth (ft)	7.23	Hydr. Depth (ft)		5.99	
Conv. Total (cfs)	192043.3	Conv. (cfs)		192043.3	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		233.12	

Min Ch El (ft)	1135.30	Shear (lb/sq ft)	1.70
Alpha	1.00	Stream Power (lb/ft s)	15.95
Frctn Loss (ft)		Cum Volume (acre-ft)	3.61
C & E Loss (ft)		Cum SA (acres)	0.64

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1147.23	Element			
Vel Head (ft)	2.03	Wt. n-Val.		0.035	
W.S. Elev (ft)	1145.20	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	1143.35	Flow Area (sq ft)		2011.58	
E.G. Slope (ft/ft)	0.004408	Area (sq ft)		2011.58	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	242.37	Top Width (ft)		242.37	
Vel Total (ft/s)	11.43	Avg. Vel. (ft/s)		11.43	
Max Chl Dpth (ft)	9.90	Hydr. Depth (ft)		8.30	
Conv. Total (cfs)	346415.0	Conv. (cfs)		346415.0	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		246.23	
Min Ch El (ft)	1135.30	Shear (lb/sq ft)		2.25	
Alpha	1.00	Stream Power (lb/ft s)		25.71	
Frctn Loss (ft)		Cum Volume (acre-ft)		5.21	
C & E Loss (ft)		Cum SA (acres)		0.67	

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1149.99	Element			
Vel Head (ft)	2.59	Wt. n-Val.		0.035	
W.S. Elev (ft)	1147.40	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	1145.23	Flow Area (sq ft)		2556.88	
E.G. Slope (ft/ft)	0.004321	Area (sq ft)		2556.88	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	252.16	Top Width (ft)		252.16	
Vel Total (ft/s)	12.91	Avg. Vel. (ft/s)		12.91	
Max Chl Dpth (ft)	12.10	Hydr. Depth (ft)		10.14	
Conv. Total (cfs)	502037.8	Conv. (cfs)		502037.8	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		257.08	
Min Ch El (ft)	1135.30	Shear (lb/sq ft)		2.68	
Alpha	1.00	Stream Power (lb/ft s)		34.63	
Frctn Loss (ft)		Cum Volume (acre-ft)		6.61	
C & E Loss (ft)		Cum SA (acres)		0.70	

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9919.35	10026.08	3772.08	395.60	64.79	29.02	6.27	9.54
10026.08	10132.82	6778.29	686.59	106.74	52.14	6.43	9.87
10132.82	RB 10239.55	2449.63	299.19	61.59	18.84	4.93	8.19

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9919.35	10026.08	6465.72	568.80	69.39	28.11	8.51	11.37
10026.08	10132.82	11832.71	971.05	106.74	51.45	9.10	12.19
10132.82	RB 10239.55	4701.57	471.73	70.10	20.44	6.86	9.97

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9919.35	10026.08	9129.08	719.67	73.20	27.66	10.29	12.69
10026.08	10132.82	16794.47	1206.43	106.74	50.89	11.30	13.92
10132.82	RB 10239.55	7076.45	630.78	77.14	21.44	8.36	11.22

BRIDGE RIVER: New River
REACH: Lower RS: 7.7395

INPUT
Description:
Distance from Upstream XS = 10
Deck/Roadway Width = 89
Weir Coefficient = 2.68
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 15

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
9892.86	1161.15	0	9912.86	1163.35	0	9925	1163.42	1155.391
9944.75	1163.52	1155.49	9981.55	1163.65	1155.6	10021.55	1163.73	1155.7
10061.55	1163.74	1155.71	10101.55	1163.67	1155.64	10141.55	1163.53	1155.5
10181.55	1163.32	1155.29	10221.55	1163.041	1155.01	10225	1163.01	1154.98
10241.55	1162.87	0	10242.86	1162.86	0	10372.86	1159.2	0

Upstream Bridge Cross Section Data
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9892.86	1161.1	9895	1160	9915.55	1159.53	9919.35	1157.94	9944.75	1155.49
9965.55	1140.7	9978.33	1135.3	10034.63	1135.8	10077.55	1136.03	10176.7	1136.99
10220.4	1151.4	10225	1154.98	10239.55	1158.9	10278.43	1159.5	10320.22	1160

```
10372.86  1159.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 9892.86     .06 9919.35    .03510239.55     .11

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9919.3510239.55              .3       .5

Downstream  Deck/Roadway Coordinates
    num=      15
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 9892.86 1161.15       0 9912.86 1163.35       0    9925 1163.421155.391
 9944.75 1163.52 1155.49 9981.55 1163.65 1155.6210021.55 1163.73  1155.7
10061.55 1163.74 1155.7110101.55 1163.67 1155.6410141.55 1163.53  1155.5
10181.55 1163.32 1155.2910221.551163.041 1155.01   10225 1163.01 1154.98
10241.55 1162.87       010242.86 1162.86       010372.86  1159.2       0

Downstream Bridge Cross Section Data
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9887    1160 9895.29 1159.68 9899.88 1157.98    9900    1154 9931.12    1146
 9958.45  1136.5 9962.95  1135.410073.21 1135.9110130.56 1136.4910159.07  1136.5
10176.73  1140.510189.17  1144.2   10222    115410228.35 1158.1410276.12 1159.02
10320.83  1158.310337.19  1157.510406.88  1155.910412.97 1156.6310448.47 1155.99

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9887     .06    9900    .035   10222     .11

Bank Sta: Left   Right    Coeff Contr.   Expan.
          9900   10222              .3       .5

Upstream Embankment side slope              =       2 horiz. to 1.0 vertical
Downstream Embankment side slope            =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         = 1159.26
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  3

Pier Data
Pier Station     Upstream=   10000    Downstream=    9980
Upstream     num=       2
    Width   Elev    Width   Elev
        3    1130       3    1156
Downstream     num=       2
    Width   Elev    Width   Elev
        3    1130       3    1156

Pier Data
Pier Station     Upstream=   10075    Downstream=   10055
Upstream     num=       2
    Width   Elev    Width   Elev
        3    1130       3    1156
Downstream     num=       2
    Width   Elev    Width   Elev
        3    1130       3    1156

Pier Data
Pier Station     Upstream=   10150    Downstream=   10130
Upstream     num=       2
    Width   Elev    Width   Elev
        3    1130       3    1156
Downstream     num=       2
    Width   Elev    Width   Elev
        3    1130       3    1156

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Yarnell                 KVal =    1.05
Selected Low Flow Methods = Yarnell

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd = .790569
           Max Low Cord                =  1155.7

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT    Profile #1/3 flow
Opening : Bridge #1

  E.G. US. (ft)                1143.91   Element                 Inside BR US  Inside BR DS
  W.S. US. (ft)                1142.53   E.G. Elev (ft)               1143.87       1143.70
  Q Total (cfs)               13000.00   W.S. Elev (ft)               1142.17       1142.17
```

Q Bridge (cfs)	13000.00	Crit W.S. (ft)	1141.26	1141.07
Q Weir (cfs)		Max Chl Dpth (ft)	6.87	6.77
Weir Sta Lft (ft)		Vel Total (ft/s)	10.46	9.93
Weir Sta Rgt (ft)		Flow Area (sq ft)	1242.71	1309.72
Weir Submerg		Froude # Chl	0.78	0.73
Weir Max Depth (ft)		Specif Force (cu ft)	7916.98	7960.27
Min Top Rd (ft)	1159.26	Hydr Depth (ft)	5.65	5.66
Min El Prs (ft)	1155.70	W.P. Total (ft)	258.85	270.42
Delta EG (ft)	0.33	Conv. Total (cfs)	150144.0	159171.1
Delta WS (ft)	0.37	Top Width (ft)	219.92	231.20
BR Open Area (sq ft)	4559.77	Frctn Loss (ft)		
BR Open Vel (ft/s)	10.46	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	2.25	2.02
Br Sel Method	Yarnell	Power Total (lb/ft s)	23.50	20.02

BRIDGE OUTPUT Profile #2/3 flow
Opening : Bridge #1

		Element	Inside BR US	Inside BR DS
E.G. US. (ft)	1147.23	E.G. Elev (ft)	1147.17	1146.91
W.S. US. (ft)	1145.20	W.S. Elev (ft)	1144.62	1144.62
Q Total (cfs)	23000.00	Crit W.S. (ft)	1143.55	1143.31
Q Bridge (cfs)	23000.00	Max Chl Dpth (ft)	9.32	9.22
Q Weir (cfs)		Vel Total (ft/s)	12.81	12.14
Weir Sta Lft (ft)		Flow Area (sq ft)	1795.11	1895.17
Weir Sta Rgt (ft)		Froude # Chl	0.81	0.77
Weir Submerg		Specif Force (cu ft)	16563.11	16541.85
Weir Max Depth (ft)		Hydr Depth (ft)	7.78	7.69
Min Top Rd (ft)	1159.26	W.P. Total (ft)	285.62	301.19
Min El Prs (ft)	1155.70	Conv. Total (cfs)	259550.2	274229.8
Delta EG (ft)	0.50	Top Width (ft)	230.80	246.49
Delta WS (ft)	0.58	Frctn Loss (ft)		
BR Open Area (sq ft)	4559.77	C & E Loss (ft)		
BR Open Vel (ft/s)	12.81	Shear Total (lb/sq ft)	3.08	2.76
Coef of Q		Power Total (lb/ft s)	39.48	33.54
Br Sel Method	Yarnell			

BRIDGE OUTPUT Profile #full capacity
Opening : Bridge #1

		Element	Inside BR US	Inside BR DS
E.G. US. (ft)	1149.99	E.G. Elev (ft)	1149.92	1149.56
W.S. US. (ft)	1147.40	W.S. Elev (ft)	1146.64	1146.64
Q Total (cfs)	33000.00	Crit W.S. (ft)	1145.48	1145.17
Q Bridge (cfs)	33000.00	Max Chl Dpth (ft)	11.34	11.24
Q Weir (cfs)		Vel Total (ft/s)	14.53	13.71
Weir Sta Lft (ft)		Flow Area (sq ft)	2270.56	2406.17
Weir Sta Rgt (ft)		Froude # Chl	0.83	0.79
Weir Submerg		Specif Force (cu ft)	26410.99	26270.18
Weir Max Depth (ft)		Hydr Depth (ft)	9.47	9.26
Min Top Rd (ft)	1159.26	W.P. Total (ft)	307.68	327.15
Min El Prs (ft)	1155.70	Conv. Total (cfs)	365383.2	386340.7
Delta EG (ft)	0.65	Top Width (ft)	239.77	259.72
Delta WS (ft)	0.76	Frctn Loss (ft)		
BR Open Area (sq ft)	4559.77	C & E Loss (ft)		
BR Open Vel (ft/s)	14.53	Shear Total (lb/sq ft)	3.76	3.35
Coef of Q		Power Total (lb/ft s)	54.62	45.95
Br Sel Method	Yarnell			

CROSS SECTION RIVER: New River
REACH: Lower RS: 7.728

INPUT
Description: The expansion/contraction coefficients are increased because
cross section is located near the Thunderbird Rd. bridge
downstream.

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9887	1160	9895.29	1159.68	9899.88	1157.98	9900	1154	9931.12	1146
9958.45	1136.5	9962.95	1135.41	10073.21	1135.91	10130.56	1136.49	10159.07	1136.5
10176.73	1140.51	10189.17	1144.2	10222	1154	10228.35	1158.14	10276.12	1159.02
10320.83	1158.31	10337.19	1157.51	10406.88	1155.91	10412.97	1156.63	10448.47	1155.99

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9887	.06	9900	.035	10222	.11

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9900	10222	0	0	0	.3	.5

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1143.58	Wt. n-Val.		0.035	
Vel Head (ft)	1.41	Reach Len. (ft)			
W.S. Elev (ft)	1142.17	Flow Area (sq ft)		1365.88	
Crit W.S. (ft)	1140.92	Area (sq ft)		1365.88	
E.G. Slope (ft/ft)	0.005001	Flow (cfs)		13000.00	
Q Total (cfs)	13000.00	Top Width (ft)		240.20	
Top Width (ft)	240.20	Avg. Vel. (ft/s)		9.52	
Vel Total (ft/s)	9.52	Hydr. Depth (ft)		5.69	
Max Chl Dpth (ft)	6.77	Conv. (cfs)		183834.3	
Conv. Total (cfs)	183834.3				

Length Wtd. (ft)		Wetted Per. (ft)	241.98
Min Ch El (ft)	1135.40	Shear (lb/sq ft)	1.76
Alpha	1.00	Stream Power (lb/ft s)	16.77
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1146.73	Element			
Vel Head (ft)	2.11	Wt. n-Val.		0.035	
W.S. Elev (ft)	1144.62	Reach Len. (ft)			
Crit W.S. (ft)	1143.11	Flow Area (sq ft)		1973.39	
E.G. Slope (ft/ft)	0.005002	Area (sq ft)		1973.39	
Q Total (cfs)	23000.00	Flow (cfs)		23000.00	
Top Width (ft)	255.49	Top Width (ft)		255.49	
Vel Total (ft/s)	11.66	Avg. Vel. (ft/s)		11.66	
Max Chl Dpth (ft)	9.22	Hydr. Depth (ft)		7.72	
Conv. Total (cfs)	325203.8	Conv. (cfs)		325203.8	
Length Wtd. (ft)		Wetted Per. (ft)		258.04	
Min Ch El (ft)	1135.40	Shear (lb/sq ft)		2.39	
Alpha	1.00	Stream Power (lb/ft s)		27.83	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1149.34	Element			
Vel Head (ft)	2.70	Wt. n-Val.		0.035	
W.S. Elev (ft)	1146.64	Reach Len. (ft)			
Crit W.S. (ft)	1144.95	Flow Area (sq ft)		2502.58	
E.G. Slope (ft/ft)	0.005001	Area (sq ft)		2502.58	
Q Total (cfs)	33000.00	Flow (cfs)		33000.00	
Top Width (ft)	268.72	Top Width (ft)		268.72	
Vel Total (ft/s)	13.19	Avg. Vel. (ft/s)		13.19	
Max Chl Dpth (ft)	11.24	Hydr. Depth (ft)		9.31	
Conv. Total (cfs)	466645.3	Conv. (cfs)		466645.3	
Length Wtd. (ft)		Wetted Per. (ft)		271.88	
Min Ch El (ft)	1135.40	Shear (lb/sq ft)		2.87	
Alpha	1.00	Stream Power (lb/ft s)		37.90	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9900.00	10007.33	3471.04	370.05	66.28	26.70	5.68	9.38
10007.33	10114.67	6821.92	673.09	107.34	52.48	6.27	10.14
10114.67	RB 10222.00	2707.04	322.74	68.36	20.82	4.77	8.39

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9900.00	10007.33	6032.71	538.48	73.75	26.23	7.45	11.20
10007.33	10114.67	11807.35	936.18	107.34	51.34	8.72	12.61
10114.67	RB 10222.00	5159.95	498.72	76.96	22.43	6.57	10.35

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9900.00	10007.33	8595.02	690.55	80.52	26.05	8.77	12.45
10007.33	10114.67	16677.63	1153.08	107.34	50.54	10.74	14.46
10114.67	RB 10222.00	7727.35	658.95	84.02	23.42	7.97	11.73

CROSS SECTION RIVER: Rock Creek
REACH: Spillway RS: 4.647

INPUT
Description: Upstream limit of the spillway reach of Rock Creek. A vertical wall is coded at the left end point.

Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9472.4	1410	9472.57	1405.1	9518.62	1404.74	9581.54	1404.81	9760.85	1402.35
9783.97	1402.08	9800.82	1401.5	9885.18	1399.41	9908.52	1398.98	9986.39	1397.67
10000.83	1397.49	10087.6	1396.31	10123.03	1395.29	10179.87	1394.02	10190.32	1393.7
10198.13	1393.58	10211.15	1393.91	10215.61	1393.15	10223	1391.22	10234.9	1394.11
10237.98	1395.28	10246.41	1397.51	10256.38	1397.87	10290.05	1399.46	10360.86	1401.47
10391.26	1402.28	10480.85	1403.51	10492.48	1403.64	10500.96	1403.65	10589.16	1404.22
10593.83	1404.21	10693.63	1402.11	10789.57	1400.76	10797.71	1400.62	10893.67	1399.23
10910.56	1398.81	10923.37	1398.31	10957.22	1397.09	10967.96	1397.48	10976.07	1398.14
10990.47	1396.72	10996.02	1396.31	11004.53	1397.32	11017.95	1399.08	11021.34	1399.42
11029.96	1398.48	11033.22	1398.81	1040.21	1398.83	11053.65	1399.72	11061.65	1399.47
11077.83	1400.09	11081.22	1400	11090	1400.78	11093.76	1401.31	11107.52	1401.99
11112.29	1402.32	11121.27	1402.21	11127.05	1402.31	11174.49	1404.71	11195.14	1405.69
11305.47	1407.63	11393.62	1410.11	11493.75	1411.99	11497.62	1412.02		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9472.4	.06	9472.4	.03510589.16		.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9472.410589.16		551.3	551.3	565	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10589.1611497.62		1404.22

CROSS SECTION OUTPUT Profile #1/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1400.45	Wt. n-Val.		0.035	
Vel Head (ft)	2.59	Reach Len. (ft)	551.30	551.30	565.00
W.S. Elev (ft)	1397.86	Flow Area (sq ft)		619.18	
Crit W.S. (ft)	1398.68	Area (sq ft)		619.18	39.40
E.G. Slope (ft/ft)	0.032471	Flow (cfs)		8000.00	
Q Total (cfs)	8000.00	Top Width (ft)		280.90	66.61
Top Width (ft)	347.50	Avg. Vel. (ft/s)		12.92	
Vel Total (ft/s)	12.92	Hydr. Depth (ft)		2.20	
Max Chl Dpth (ft)	6.64	Conv. (cfs)		44395.8	
Conv. Total (cfs)	44395.8	Wetted Per. (ft)		282.11	
Length Wtd. (ft)	551.30	Shear (lb/sq ft)		4.45	
Min Ch El (ft)	1391.22	Stream Power (lb/ft s)		57.49	
Alpha	1.00	Cum Volume (acre-ft)	1.11	118.36	13.12
Frctn Loss (ft)	10.12	Cum SA (acres)	1.24	48.92	2.84
C & E Loss (ft)	0.16				

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1402.61	Wt. n-Val.		0.035	
Vel Head (ft)	3.37	Reach Len. (ft)	551.30	551.30	565.00
W.S. Elev (ft)	1399.25	Flow Area (sq ft)		1086.42	
Crit W.S. (ft)	1400.33	Area (sq ft)		1086.42	183.13
E.G. Slope (ft/ft)	0.030985	Flow (cfs)		16000.00	
Q Total (cfs)	16000.00	Top Width (ft)		391.44	150.61
Top Width (ft)	542.05	Avg. Vel. (ft/s)		14.73	
Vel Total (ft/s)	14.73	Hydr. Depth (ft)		2.78	
Max Chl Dpth (ft)	8.03	Conv. (cfs)		90895.9	
Conv. Total (cfs)	90895.9	Wetted Per. (ft)		392.70	
Length Wtd. (ft)	551.30	Shear (lb/sq ft)		5.35	
Min Ch El (ft)	1391.22	Stream Power (lb/ft s)		78.81	
Alpha	1.00	Cum Volume (acre-ft)	5.47	180.39	27.73
Frctn Loss (ft)	9.38	Cum SA (acres)	3.88	52.25	11.37
C & E Loss (ft)	0.20				

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1404.10	Wt. n-Val.		0.035	
Vel Head (ft)	3.82	Reach Len. (ft)	551.30	551.30	565.00
W.S. Elev (ft)	1400.28	Flow Area (sq ft)		1529.73	
Crit W.S. (ft)	1401.49	Area (sq ft)		1529.73	398.74
E.G. Slope (ft/ft)	0.028310	Flow (cfs)		24000.00	
Q Total (cfs)	24000.00	Top Width (ft)		468.68	262.99
Top Width (ft)	731.67	Avg. Vel. (ft/s)		15.69	
Vel Total (ft/s)	15.69	Hydr. Depth (ft)		3.26	
Max Chl Dpth (ft)	9.06	Conv. (cfs)		142639.0	
Conv. Total (cfs)	142639.0	Wetted Per. (ft)		469.97	
Length Wtd. (ft)	551.34	Shear (lb/sq ft)		5.75	
Min Ch El (ft)	1391.22	Stream Power (lb/ft s)		90.26	
Alpha	1.00	Cum Volume (acre-ft)	10.89	226.00	48.99
Frctn Loss (ft)	9.11	Cum SA (acres)	6.27	53.83	30.20
C & E Loss (ft)	0.19				

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9844.65	10216.91	6087.95	497.92	241.88	76.10	2.06	12.23

10216.91	RB 10589.16	1912.05	121.26	40.23	23.90	3.10	15.77

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9844.65	10216.91	13080.13	890.34	323.00	81.75	2.76	14.69
10216.91	RB 10589.16	2919.87	196.08	69.71	18.25	2.86	14.89

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9844.65	10216.91	20055.53	1246.93	366.92	83.56	3.40	16.08
10216.91	RB 10589.16	3944.47	282.80	103.05	16.44	2.77	13.95

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Rock Creek
REACH: Spillway RS: 4.543

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9480.52	1392.1	9549.71	1389.88	9573.13	1389.21	9633.71	1388.06	9674.67	1387.01
9719.89	1386.4	9776.28	1385.08	9806.08	1384.64	9877.88	1383.67	9888.6	1383.34
9969.65	1383.1	9979.21	1382.91	10000	1382.38	10020.35	1382.39	10073.19	1383.18
10079.46	1383.3	10179.5	1385.93	10279.47	1387.07	10380.84	1387.16	10483.4	1387.67
10585.48	1387.51	10619.43	1387.51	10662.89	1387.64	10668.7	1387.18	10693.3	1386.18
10697.27	1386.2	10722.9	1387.05	10744.17	1387.17	10756.85	1387.11	10774.16	1384.44
10791.02	1385.41	10802.92	1385.37	10813.68	1385.66	10820.3	1385.98	10828.96	1386.57
10855.26	1387.81	10859.07	1388.05	10899.96	1388.98	10921.38	1389.37	10998.27	1389.99
11008.22	1389.91	1088.97	1389.96	11111.1	1389.82	11156.68	1389.71	1162.19	1390

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9480.52	.06	9674.67	.035	10279.47	.06	10662.89	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9674.67	10279.47	440	502.14	502.14	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10483.41	1162.19	1390

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1387.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.		0.035	
W.S. Elev (ft)	1385.92	Reach Len. (ft)	440.00	502.14	502.14
Crit W.S. (ft)	1386.06	Flow Area (sq ft)		898.49	
E.G. Slope (ft/ft)	0.016911	Area (sq ft)		898.49	35.35
Q Total (cfs)	8000.00	Flow (cfs)		8000.00	
Top Width (ft)	493.13	Top Width (ft)		438.63	54.50
Vel Total (ft/s)	8.90	Avg. Vel. (ft/s)		8.90	
Max Chl Dpth (ft)	3.54	Hydr. Depth (ft)		2.05	
Conv. Total (cfs)	61518.1	Conv. (cfs)		61518.1	
Length Wtd. (ft)	502.14	Wetted Per. (ft)		438.70	
Min Ch El (ft)	1382.38	Shear (lb/sq ft)		2.16	
Alpha	1.00	Stream Power (lb/ft s)		19.25	
Frctn Loss (ft)	12.89	Cum Volume (acre-ft)	1.11	108.75	12.63
C & E Loss (ft)	0.41	Cum SA (acres)	1.24	44.36	2.05

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1388.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.75	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1387.09	Reach Len. (ft)	440.00	502.14	502.14
Crit W.S. (ft)	1387.44	Flow Area (sq ft)	0.12	1507.61	0.20
E.G. Slope (ft/ft)	0.018492	Area (sq ft)	0.12	1507.61	140.91
Q Total (cfs)	16000.00	Flow (cfs)	0.05	15999.92	0.03
Top Width (ft)	771.31	Top Width (ft)	3.08	604.80	163.43
Vel Total (ft/s)	10.61	Avg. Vel. (ft/s)	0.39	10.61	0.15
Max Chl Dpth (ft)	4.71	Hydr. Depth (ft)	0.04	2.49	0.01
Conv. Total (cfs)	117658.8	Conv. (cfs)	0.3	117658.3	0.2
Length Wtd. (ft)	502.09	Wetted Per. (ft)	3.08	604.89	21.43
Min Ch El (ft)	1382.38	Shear (lb/sq ft)	0.05	2.88	0.01
Alpha	1.00	Stream Power (lb/ft s)	0.02	30.54	0.00
Frctn Loss (ft)	13.28	Cum Volume (acre-ft)	5.47	163.98	25.63
C & E Loss (ft)	0.48	Cum SA (acres)	3.86	45.94	9.33

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #full capacity

E.G. Elev (ft)	1390.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.59	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1387.64	Reach Len. (ft)	440.00	502.14	502.14
Crit W.S. (ft)	1388.34	Flow Area (sq ft)	7.71	1840.05	76.12
E.G. Slope (ft/ft)	0.021133	Area (sq ft)	7.71	1840.05	327.38
Q Total (cfs)	24000.00	Flow (cfs)	12.83	23842.09	145.08
Top Width (ft)	1176.05	Top Width (ft)	24.52	604.80	546.73
Vel Total (ft/s)	12.47	Avg. Vel. (ft/s)	1.66	12.96	1.91
Max Chl Dpth (ft)	5.26	Hydr. Depth (ft)	0.31	3.04	0.39
Conv. Total (cfs)	165092.4	Conv. (cfs)	88.2	164006.2	998.0
Length Wtd. (ft)	501.92	Wetted Per. (ft)	24.53	604.89	197.62
Min Ch El (ft)	1382.38	Shear (lb/sq ft)	0.41	4.01	0.51
Alpha	1.07	Stream Power (lb/ft s)	0.69	52.00	0.97
Frctn Loss (ft)	13.50	Cum Volume (acre-ft)	10.84	204.68	44.28
C & E Loss (ft)	0.37	Cum SA (acres)	6.11	47.04	24.94

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9674.67	9876.27	995.21	169.62	135.84	12.44	1.25	5.87
9876.27	10077.87	6181.11	594.25	201.62	77.26	2.95	10.40
10077.87	RB 10279.47	823.69	134.62	101.24	10.30	1.33	6.12

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9480.52	9674.67	0.05	0.12	3.08	0.00	0.04	0.39
LB 9674.67	9876.27	2804.74	365.03	201.63	17.53	1.81	7.68
9876.27	10077.87	11031.30	830.16	201.62	68.95	4.12	13.29
10077.87	RB 10279.47	2163.88	312.42	201.64	13.52	1.55	6.93
10279.47	11162.19	0.03	0.20	21.43	0.00	0.01	0.15

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
9480.52	9674.67	12.83	7.71	24.53	0.05	0.31	1.66
LB 9674.67	9876.27	4828.18	475.84	201.63	20.12	2.36	10.15
9876.27	10077.87	15042.32	940.97	201.62	62.68	4.67	15.99
10077.87	RB 10279.47	3971.60	423.24	201.64	16.55	2.10	9.38
10279.47	11162.19	145.08	76.12	197.62	0.60	0.39	1.91

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Rock Creek
REACH: Spillway RS: 4.448

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9428.1	1382.2	9478.1	1380.58	9486.96	1380.38	9556.45	1378.52	9574.01	1378.19
9584.3	1377.8	9614.56	1377.24	9650.99	1376.43	9675.16	1376.43	9721.81	1376.37
9776.59	1376.3	9853.77	1376.15	9899.02	1375.83	9979.69	1376.22	10000	1376.16
10081.13	137610153.66	1376.47	10175.2	1377.410186.68		1377.6610206.07		1378.23	
10218.59	1378.310233.91	1377.94	10245.7	1377.7510280.58		1378.8310322.54		1379.15	
10379.17	1379.810445.01	1379.5310478.83		1380.110522.85		1379.4510542.04		1380.19	
10548.77	1380.410576.41	1380.210585.32		1380.1710597.85		138010611.31		1377.95	
10621.62	1379.310667.36	1379.210682.37		1379.1210767.66		1379.810784.16		1379.73	
10815.93	1379.210870.83	1379.8310881.97		1379.93					

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9428.1	.06	9556.45	.03510218.59		.0610548.77		.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9556.4510218.59 380 501.6 600 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev
10548.7710881.97		1380.4

CROSS SECTION OUTPUT Profile #1/3 flow

E.G. Elev (ft)	1379.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.		0.035	0.060
W.S. Elev (ft)	1378.44	Reach Len. (ft)	380.00	501.60	600.00
Crit W.S. (ft)	1378.14	Flow Area (sq ft)		1281.80	19.74
E.G. Slope (ft/ft)	0.008829	Area (sq ft)		1281.80	21.47
Q Total (cfs)	8000.00	Flow (cfs)		7975.11	24.89
Top Width (ft)	714.51	Top Width (ft)		658.03	56.48
Vel Total (ft/s)	6.15	Avg. Vel. (ft/s)		6.22	1.26
Max Chl Dpth (ft)	2.61	Hydr. Depth (ft)		1.95	0.40
Conv. Total (cfs)	85137.8	Conv. (cfs)		84872.9	264.9
Length Wtd. (ft)	501.75	Wetted Per. (ft)		658.09	49.50
Min Ch El (ft)	1375.83	Shear (lb/sq ft)		1.07	0.22
Alpha	1.02	Stream Power (lb/ft s)		6.68	0.28
Frctn Loss (ft)	3.15	Cum Volume (acre-ft)	1.11	96.19	12.31
C & E Loss (ft)	0.12	Cum SA (acres)	1.24	38.04	1.41

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #2/3 flow

E.G. Elev (ft)	1380.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1379.42	Reach Len. (ft)	380.00	501.60	600.00
Crit W.S. (ft)	1379.16	Flow Area (sq ft)	15.23	1930.60	99.48
E.G. Slope (ft/ft)	0.008902	Area (sq ft)	15.23	1930.60	136.09
Q Total (cfs)	16000.00	Flow (cfs)	20.93	15782.30	196.76
Top Width (ft)	975.09	Top Width (ft)	33.73	662.14	279.22
Vel Total (ft/s)	7.82	Avg. Vel. (ft/s)	1.37	8.17	1.98
Max Chl Dpth (ft)	3.59	Hydr. Depth (ft)	0.45	2.92	0.78
Conv. Total (cfs)	169578.9	Conv. (cfs)	221.8	167271.6	2085.4
Length Wtd. (ft)	502.25	Wetted Per. (ft)	33.74	662.20	127.74
Min Ch El (ft)	1375.83	Shear (lb/sq ft)	0.25	1.62	0.43
Alpha	1.08	Stream Power (lb/ft s)	0.34	13.25	0.86
Frctn Loss (ft)	3.17	Cum Volume (acre-ft)	5.39	144.16	24.03
C & E Loss (ft)	0.21	Cum SA (acres)	3.67	38.64	6.78

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

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1381.56	Element			
Vel Head (ft)	1.38	Wt. n-Val.	0.060	0.035	0.060
W.S. Elev (ft)	1380.18	Reach Len. (ft)	380.00	501.60	600.00
Crit W.S. (ft)	1380.05	Flow Area (sq ft)	51.74	2434.72	287.22
E.G. Slope (ft/ft)	0.008932	Area (sq ft)	51.74	2434.72	510.61
Q Total (cfs)	24000.00	Flow (cfs)	107.10	23271.72	621.19
Top Width (ft)	1348.48	Top Width (ft)	62.17	662.14	624.17
Vel Total (ft/s)	8.65	Avg. Vel. (ft/s)	2.07	9.56	2.16
Max Chl Dpth (ft)	4.35	Hydr. Depth (ft)	0.83	3.68	0.89
Conv. Total (cfs)	253941.3	Conv. (cfs)	1133.2	246235.4	6572.7
Length Wtd. (ft)	503.01	Wetted Per. (ft)	62.20	662.20	323.35
Min Ch El (ft)	1375.83	Shear (lb/sq ft)	0.46	2.05	0.50
Alpha	1.19	Stream Power (lb/ft s)	0.96	19.60	1.07
Frctn Loss (ft)	3.20	Cum Volume (acre-ft)	10.54	180.04	39.45
C & E Loss (ft)	0.28	Cum SA (acres)	5.67	39.74	18.20

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9556.45	9777.16	1929.44	353.43	216.63	24.12	1.63	5.46
9777.16	9997.88	3590.55	516.88	220.72	44.88	2.34	6.95
9997.88	RB 10218.59	2455.11	411.49	220.75	30.69	1.86	5.97
10218.59	10881.97	24.89	19.74	49.50	0.31	0.40	1.26

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9428.10	9556.45	20.93	15.23	33.74	0.13	0.45	1.37
LB 9556.45	9777.16	4266.19	569.59	220.74	26.66	2.58	7.49
9777.16	9997.88	6498.81	733.20	220.72	40.62	3.32	8.86
9997.88	RB 10218.59	5017.30	627.81	220.75	31.36	2.84	7.99
10218.59	10881.97	196.76	99.48	127.74	1.23	0.78	1.98

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9428.10	9556.45	107.10	51.74	62.20	0.45	0.83	2.07
LB 9556.45	9777.16	6589.91	737.63	220.74	27.46	3.34	8.93
9777.16	9997.88	9202.61	901.24	220.72	38.34	4.08	10.21
9997.88	RB 10218.59	7479.20	795.85	220.75	31.16	3.61	9.40
10218.59	10881.97	621.19	287.22	323.35	2.59	0.89	2.16

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Rock Creek
REACH: Spillway RS: 4.353

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9268.12	1380	9307.69	1378.42	9341.55	1376.84	9352.02	1375.31	9370.48	1374.93
9408.78	1374.5	9494.52	1373.31	9511.51	1373.12	9535.85	1372.9	9583.36	1372.52
9616.41	1372.5	9728.55	1372.71	9745.9	1372.92	9758.57	1372.8	9766.55	1372.84
9780.86	1371.7	9791.97	1372.94	9843.17	1372.68	9866.46	1372.6	9874.59	1372.51
9928.3	1372.4	9946.21	1372.26	9970.48	1372.68	9992.09	1372.86	10000	1369.42
10009.18	137310071.37		1372.7410090.16		1372.9210094.94		1372.8810112.01		1373.06
10134.83	1373.510150.48		1373.4910213.12		1374.08 10298.5		1375.0510371.15		1375.65
10441.54	1376.510497.53		1377.56	10529	1378.0510582.78		1378.3810632.66		1378.57
10683.56	1378.810752.97		1379.89						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9268.12	.06	9352.02	.04510371.15		.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9352.02	10371.15	400	487.61	487.61	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1375.77	Element			
Vel Head (ft)	0.19	Wt. n-Val.	0.060	0.045	
W.S. Elev (ft)	1375.58	Reach Len. (ft)	400.00	487.61	487.61
Crit W.S. (ft)	1374.36	Flow Area (sq ft)	0.25	2297.71	
E.G. Slope (ft/ft)	0.003726	Area (sq ft)	0.25	2297.71	
Q Total (cfs)	8000.00	Flow (cfs)	0.10	7999.90	
Top Width (ft)	1012.38	Top Width (ft)	1.84	1010.54	
Vel Total (ft/s)	3.48	Avg. Vel. (ft/s)	0.39	3.48	
Max Chl Dpth (ft)	6.16	Hydr. Depth (ft)	0.13	2.27	
Conv. Total (cfs)	131058.8	Conv. (cfs)	1.6	131057.2	
Length Wtd. (ft)	487.61	Wetted Per. (ft)	1.86	1012.09	
Min Ch El (ft)	1369.42	Shear (lb/sq ft)	0.03	0.53	
Alpha	1.00	Stream Power (lb/ft s)	0.01	1.84	
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	1.11	75.58	12.16
C & E Loss (ft)	0.00	Cum SA (acres)	1.23	28.44	1.02

Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1377.06	Element			
Vel Head (ft)	0.32	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1376.74	Reach Len. (ft)	400.00	487.61	487.61
Crit W.S. (ft)	1375.26	Flow Area (sq ft)	7.00	3480.62	48.34
E.G. Slope (ft/ft)	0.003748	Area (sq ft)	7.00	3480.62	48.34
Q Total (cfs)	16000.00	Flow (cfs)	8.42	15940.50	51.08
Top Width (ft)	1111.99	Top Width (ft)	9.79	1019.13	83.07
Vel Total (ft/s)	4.52	Avg. Vel. (ft/s)	1.20	4.58	1.06
Max Chl Dpth (ft)	7.32	Hydr. Depth (ft)	0.72	3.42	0.58
Conv. Total (cfs)	261358.5	Conv. (cfs)	137.6	260386.6	834.3
Length Wtd. (ft)	487.58	Wetted Per. (ft)	9.89	1020.68	83.08
Min Ch El (ft)	1369.42	Shear (lb/sq ft)	0.17	0.80	0.14
Alpha	1.02	Stream Power (lb/ft s)	0.20	3.65	0.14
Frctn Loss (ft)	1.82	Cum Volume (acre-ft)	5.30	113.01	22.76
C & E Loss (ft)	0.01	Cum SA (acres)	3.48	28.96	4.29

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1378.08	Element			
Vel Head (ft)	0.45	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1377.63	Reach Len. (ft)	400.00	487.61	487.61
Crit W.S. (ft)	1375.92	Flow Area (sq ft)	23.02	4389.41	143.45
E.G. Slope (ft/ft)	0.003835	Area (sq ft)	23.02	4389.41	143.45
Q Total (cfs)	24000.00	Flow (cfs)	31.30	23735.01	233.69
Top Width (ft)	1177.56	Top Width (ft)	27.44	1019.13	130.99
Vel Total (ft/s)	5.27	Avg. Vel. (ft/s)	1.36	5.41	1.63
Max Chl Dpth (ft)	8.21	Hydr. Depth (ft)	0.84	4.31	1.10
Conv. Total (cfs)	387574.3	Conv. (cfs)	505.5	383294.9	3773.9
Length Wtd. (ft)	487.51	Wetted Per. (ft)	27.57	1020.68	131.01
Min Ch El (ft)	1369.42	Shear (lb/sq ft)	0.20	1.03	0.26
Alpha	1.04	Stream Power (lb/ft s)	0.27	5.57	0.43
Frctn Loss (ft)	1.86	Cum Volume (acre-ft)	10.21	140.75	34.95
C & E Loss (ft)	0.01	Cum SA (acres)	5.28	30.06	12.99

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9268.12	9352.02	0.10	0.25	1.86	0.00	0.13	0.39
LB 9352.02	9691.73	2483.28	752.15	339.73	31.04	2.21	3.30
9691.73	10031.44	4151.09	1025.53	341.22	51.89	3.02	4.05
10031.44	RB 10371.15	1365.54	520.02	331.14	17.07	1.57	2.63

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9268.12	9352.02	8.42	7.00	9.89	0.05	0.72	1.20
LB 9352.02	9691.73	5126.31	1146.56	339.73	32.04	3.38	4.47
9691.73	10031.44	7300.02	1419.94	341.22	45.63	4.18	5.14
10031.44	RB 10371.15	3514.17	914.13	339.73	21.96	2.69	3.84
10371.15	10752.97	51.08	48.34	83.08	0.32	0.58	1.06

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9268.12	9352.02	31.30	23.02	27.57	0.13	0.84	1.36
LB 9352.02	9691.73	7713.38	1449.48	339.73	32.14	4.27	5.32
9691.73	10031.44	10257.42	1722.87	341.22	42.74	5.07	5.95
10031.44	RB 10371.15	5764.20	1217.05	339.73	24.02	3.58	4.74
10371.15	10752.97	233.69	143.45	131.01	0.97	1.10	1.63

Warning: The energy loss was 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: Rock Creek
REACH: Spillway RS: 4.261

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9325.36	1380.8	9350.47	1379.82	9360.4	1379.46	9387	1376.74	9414.51	1374.03
9426.66	1373.7	9448.93	1373.18	9532.02	1372.09	9575.32	1371.77	9642.63	1371.01
9648.77	1371.2	9652.16	1371.01	9656.29	1371.32	9673.38	1371.51	9697.82	1371.53
9706.85	1371.4	9768.16	1371.1	9839.89	1371.02	9960.65	1369.53	9964.15	1369.48
9974.22	1370.1	9990.07	1371.1	10000	1367.47	10008.85	1371.37	10013.43	1371.08
10025.36	1370.71	10035.68	1370.13	10075.26	1370.43	10122.16	1370.92	10264.22	1372.04
10291.3	1372.31	10337.11	1372.66	10371.48	1372.91	10455.38	1373.65	10479.56	1373.91
10498.51	1374	10550.8	1374.38	10617.55	1374.84	10654.54	1375.27	10752.58	1376.47
10779.68	1376.71	10879.58	1377.85	10941.52	1378.52	10983.16	1378.75		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9325.36	.06	9414.51	.04	10498.51	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9414.51	10498.51	750	596.6	500	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1373.98	Element			
Vel Head (ft)	0.18	Wt. n-Val.		0.045	
W.S. Elev (ft)	1373.80	Reach Len. (ft)	750.00	596.60	500.00
Crit W.S. (ft)	1372.57	Flow Area (sq ft)		2347.97	
E.G. Slope (ft/ft)	0.003629	Area (sq ft)		2347.97	
Q Total (cfs)	8000.00	Flow (cfs)		8000.00	
Top Width (ft)	1045.82	Top Width (ft)		1045.82	
Vel Total (ft/s)	3.41	Avg. Vel. (ft/s)		3.41	
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)		2.25	
Conv. Total (cfs)	132796.5	Conv. (cfs)		132796.5	
Length Wtd. (ft)	596.69	Wetted Per. (ft)		1047.43	
Min Ch El (ft)	1367.47	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		1.73	
Frctn Loss (ft)	2.15	Cum Volume (acre-ft)	1.11	49.58	12.16
C & E Loss (ft)	0.00	Cum SA (acres)	1.23	16.93	1.02

Warning: The energy loss was 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 OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1375.24	Element			
Vel Head (ft)	0.31	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1374.93	Reach Len. (ft)	750.00	596.60	500.00
Crit W.S. (ft)	1373.45	Flow Area (sq ft)	4.14	3575.94	60.78
E.G. Slope (ft/ft)	0.003718	Area (sq ft)	4.14	3575.94	60.78

Q Total (cfs)	16000.00	Flow (cfs)	3.67	15940.18	56.15
Top Width (ft)	1220.21	Top Width (ft)	9.17	1084.00	127.04
Vel Total (ft/s)	4.39	Avg. Vel. (ft/s)	0.89	4.46	0.92
Max Chl Dpth (ft)	7.46	Hydr. Depth (ft)	0.45	3.30	0.48
Conv. Total (cfs)	262386.8	Conv. (cfs)	60.1	261405.8	920.8
Length Wtd. (ft)	597.33	Wetted Per. (ft)	9.21	1085.62	127.04
Min Ch El (ft)	1367.47	Shear (lb/sq ft)	0.10	0.76	0.11
Alpha	1.03	Stream Power (lb/ft s)	0.09	3.41	0.10
Frctn Loss (ft)	2.15	Cum Volume (acre-ft)	5.25	73.51	22.15
C & E Loss (ft)	0.00	Cum SA (acres)	3.40	17.19	3.11

Warning: The energy loss was 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 OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1376.21	Element			
Vel Head (ft)	0.42	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1375.79	Reach Len. (ft)	750.00	596.60	500.00
Crit W.S. (ft)	1374.10	Flow Area (sq ft)	15.75	4506.44	200.94
E.G. Slope (ft/ft)	0.003792	Area (sq ft)	15.75	4506.44	200.94
Q Total (cfs)	24000.00	Flow (cfs)	21.99	23669.19	308.82
Top Width (ft)	1300.51	Top Width (ft)	17.88	1084.00	198.63
Vel Total (ft/s)	5.08	Avg. Vel. (ft/s)	1.40	5.25	1.54
Max Chl Dpth (ft)	8.32	Hydr. Depth (ft)	0.88	4.16	1.01
Conv. Total (cfs)	389717.0	Conv. (cfs)	357.1	384345.2	5014.7
Length Wtd. (ft)	597.25	Wetted Per. (ft)	17.97	1085.62	198.64
Min Ch El (ft)	1367.47	Shear (lb/sq ft)	0.21	0.98	0.24
Alpha	1.05	Stream Power (lb/ft s)	0.29	5.16	0.37
Frctn Loss (ft)	2.19	Cum Volume (acre-ft)	10.03	90.96	33.02
C & E Loss (ft)	0.01	Cum SA (acres)	5.07	18.29	11.15

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9414.51	9775.84	1948.39	677.99	352.76	24.35	1.92	2.87
9775.84	10137.18	4947.15	1199.37	362.89	61.84	3.32	4.12
10137.18	RB 10498.51	1104.46	470.61	331.78	13.81	1.42	2.35

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9325.36	9414.51	3.67	4.14	9.21	0.02	0.45	0.89
LB 9414.51	9775.84	4407.45	1087.85	361.38	27.55	3.01	4.05
9775.84	10137.18	8449.77	1610.24	362.89	52.81	4.46	5.25
10137.18	RB 10498.51	3082.96	877.85	361.35	19.27	2.43	3.51
10498.51	10983.16	56.15	60.78	127.04	0.35	0.48	0.92

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9325.36	9414.51	21.99	15.75	17.97	0.09	0.88	1.40
LB 9414.51	9775.84	6850.33	1398.02	361.38	28.54	3.87	4.90
9775.84	10137.18	11595.82	1920.41	362.89	48.32	5.31	6.04
10137.18	RB 10498.51	5223.04	1188.02	361.35	21.76	3.29	4.40
10498.51	10983.16	308.82	200.94	198.64	1.29	1.01	1.54

Warning: The energy loss was 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: Rock Creek
REACH: Spillway RS: 4.148

INPUT
Description: Geometry points 63 and 64 are taken from the ACDC ADMS mapping FCD 90-19
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8690.86	1377.26	8707.38	1376.74	8740.37	1376.4	8806.39	1375.95	8853.91	1375.72
8922.48	1375.07	8934.55	1375.08	9038.56	1375	9073.01	1374.45	9131.48	1373.97
9154.63	1373.83	9187.83	1373.48	9270.68	1372.7	9328.46	1372.19	9365.14	1372.02
9386.74	1371.86	9438.17	1371.59	9502.81	1371	9525.47	1370.88	9578.72	1370.7
9580.89	1370.65	9618.88	1370.45	9657.27	1370.3	9752.97	1369.47	9851.03	1368.64
9879.05	1367.95	9882.32	1367.94	9891.15	1367.2	9901.33	1367.79	9916.39	1368.19
9922.47	1368	9927.82	1366.83	9935.06	1367.5	9944.44	1367.64	9975.04	1367.58
9990.22	1367.73	10000	1364.22	10007.87	1368.31	10019.76	1368.13	10075.53	1367.93
10085.58	1367.81	10168.51	1368.51	10199.25	1368.91	10241.56	1369.26	10315.32	1370.11
10387.62	1370.51	10431.39	1370.76	10510.29	1371.41	10545.91	1371.37	10562.15	1371.13

10566.02 1371.1910585.42 1371.1910609.84 1371.110652.89 1371.9510667.66 1372.44
10707.18 1372.7910767.39 1372.6310785.03 1372.510807.24 1372.810813.18 1372.8
10886.98 1374.1210892.34 1374.2 10942 1376 11062 1378

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8690.86	.06	9525.47	.04	10510.29	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9525.47	10510.29	340	266.42	200	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1371.83	Element			
Vel Head (ft)	0.18	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1371.64	Reach Len. (ft)	340.00	266.42	200.00
Crit W.S. (ft)	1370.35	Flow Area (sq ft)	38.81	2294.24	46.01
E.G. Slope (ft/ft)	0.003561	Area (sq ft)	38.81	2294.24	46.01
Q Total (cfs)	8000.00	Flow (cfs)	31.01	7934.46	34.53
Top Width (ft)	1209.56	Top Width (ft)	97.62	984.82	127.11
Vel Total (ft/s)	3.36	Avg. Vel. (ft/s)	0.80	3.46	0.75
Max Chl Dpth (ft)	7.42	Hydr. Depth (ft)	0.40	2.33	0.36
Conv. Total (cfs)	134061.3	Conv. (cfs)	519.6	132963.1	578.7
Length Wtd. (ft)	266.72	Wetted Per. (ft)	97.63	986.68	127.12
Min Ch El (ft)	1364.22	Shear (lb/sq ft)	0.09	0.52	0.08
Alpha	1.05	Stream Power (lb/ft s)	0.07	1.79	0.06
Frctn Loss (ft)	0.82	Cum Volume (acre-ft)	0.77	17.79	11.89
C & E Loss (ft)	0.00	Cum SA (acres)	0.38	3.02	0.29

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1373.09	Element			
Vel Head (ft)	0.30	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1372.79	Reach Len. (ft)	340.00	266.42	200.00
Crit W.S. (ft)	1371.36	Flow Area (sq ft)	257.62	3424.28	235.12
E.G. Slope (ft/ft)	0.003500	Area (sq ft)	257.62	3424.28	235.12
Q Total (cfs)	16000.00	Flow (cfs)	370.84	15333.93	295.23
Top Width (ft)	1545.67	Top Width (ft)	264.53	984.82	296.33
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)	1.44	4.48	1.26
Max Chl Dpth (ft)	8.57	Hydr. Depth (ft)	0.97	3.48	0.79
Conv. Total (cfs)	270446.9	Conv. (cfs)	6268.3	259188.4	4990.3
Length Wtd. (ft)	267.89	Wetted Per. (ft)	264.53	986.68	296.35
Min Ch El (ft)	1364.22	Shear (lb/sq ft)	0.21	0.76	0.17
Alpha	1.16	Stream Power (lb/ft s)	0.31	3.40	0.22
Frctn Loss (ft)	0.91	Cum Volume (acre-ft)	2.99	25.57	20.45
C & E Loss (ft)	0.00	Cum SA (acres)	1.04	3.02	0.68

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1374.01	Element			
Vel Head (ft)	0.39	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1373.62	Reach Len. (ft)	340.00	266.42	200.00
Crit W.S. (ft)	1372.02	Flow Area (sq ft)	514.27	4243.45	505.96
E.G. Slope (ft/ft)	0.003546	Area (sq ft)	514.27	4243.45	505.96
Q Total (cfs)	24000.00	Flow (cfs)	977.87	22066.28	955.85
Top Width (ft)	1684.99	Top Width (ft)	351.25	984.82	348.93
Vel Total (ft/s)	4.56	Avg. Vel. (ft/s)	1.90	5.20	1.89
Max Chl Dpth (ft)	9.40	Hydr. Depth (ft)	1.46	4.31	1.45
Conv. Total (cfs)	403037.7	Conv. (cfs)	16421.7	370564.3	16051.8
Length Wtd. (ft)	268.55	Wetted Per. (ft)	351.26	986.68	348.96
Min Ch El (ft)	1364.22	Shear (lb/sq ft)	0.32	0.95	0.32
Alpha	1.21	Stream Power (lb/ft s)	0.62	4.95	0.61
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	5.47	31.04	28.96
C & E Loss (ft)	0.01	Cum SA (acres)	1.90	4.12	8.01

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8690.86	9525.47	31.01	38.81	97.63	0.39	0.40	0.80
LB 9525.47	9853.74	1463.12	568.37	328.28	18.29	1.73	2.57
9853.74	10182.02	5338.99	1238.51	330.11	66.74	3.77	4.31
10182.02	RB 10510.29	1132.35	487.36	328.29	14.15	1.48	2.32
10510.29	11062.00	34.53	46.01	127.12	0.43	0.36	0.75

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8690.86	9525.47	370.84	257.62	264.53	2.32	0.97	1.44
LB 9525.47	9853.74	3569.85	945.05	328.28	22.31	2.88	3.78
9853.74	10182.02	8689.51	1615.19	330.11	54.31	4.92	5.38
10182.02	RB 10510.29	3074.57	864.04	328.29	19.22	2.63	3.56
10510.29	11062.00	295.23	235.12	296.35	1.85	0.79	1.26

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8690.86	9525.47	977.87	514.27	351.26	4.07	1.46	1.90
LB 9525.47	9853.74	5571.89	1218.10	328.28	23.22	3.71	4.57
9853.74	10182.02	11526.28	1888.25	330.11	48.03	5.75	6.10
10182.02	RB 10510.29	4968.10	1137.10	328.29	20.70	3.46	4.37
10510.29	11062.00	955.85	505.96	348.96	3.98	1.45	1.89

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

CROSS SECTION RIVER: Rock Creek
REACH: Spillway RS: 4.101

INPUT
Description: Geometry points 57 and 58 are taken from the ACDC ADMS mapping FCD 90-19
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8894.4	1374.52	8912.13	1372.9	8923.46	1373.78	8930.12	1374.1	8944.01	1373.82
8964.28	1374.19	8979.17	1373.9	9043.77	1373.4	9047.26	1373.54	9107.81	1372.93
9145.99	1372.84	9178.71	1372.2	9187.72	1371.97	9236.79	1371.86	9257.58	1371.89
9273.2	1371.57	9298.73	1371.5	9333.14	1371.68	9344.42	1371.59	9404.63	1370.98
9436.25	1370.89	9485.01	1370.6	9546.03	1370.4	9560.57	1370.42	9659.2	1369.76
9690.97	1369.94	9740.88	1370	9787.25	1369.19	9835.06	1368.63	9875.39	1368.13
9929.51	1367.62	9982.77	1367	9991	1367.02	10000	1363.2	10006.04	1366.91
10013.76	1366.85	10079.06	1366.7	10094.94	1366.69	10165.03	1367.14	10204.71	1367.33
10314.49	1368.32	10319.73	1368.4	10427.34	1368.31	10439.53	1368.7	10446.04	1368.8
10457.21	1368.74	10477.9	1369.11	10494.93	1369.19	10539.74	1369.84	10587.61	1369.75
10606.98	1369.78	10624.36	1370.2	10632.3	1370.31	10651.43	1370.88	10676.66	1371.11
10726.56	1371.75	10796	1374	11076	1376				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8894.4	.06	9740.88	.045	10539.74	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9740.88	10539.74	0	0	0	.1	.3

CROSS SECTION OUTPUT Profile #1/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1371.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1370.84	Reach Len. (ft)	300.00	300.00	300.00
Crit W.S. (ft)	1369.35	Flow Area (sq ft)	179.95	2298.29	94.71
E.G. Slope (ft/ft)	0.002545	Area (sq ft)	179.95	2298.29	94.71
Q Total (cfs)	8000.00	Flow (cfs)	161.40	7731.70	106.89
Top Width (ft)	1204.93	Top Width (ft)	295.81	798.86	110.26
Vel Total (ft/s)	3.11	Avg. Vel. (ft/s)	0.90	3.36	1.13
Max Chl Dpth (ft)	7.64	Hydr. Depth (ft)	0.61	2.88	0.86
Conv. Total (cfs)	158592.7	Conv. (cfs)	3199.7	153274.0	2119.1
Length Wtd. (ft)	300.00	Wetted Per. (ft)	295.81	800.73	110.28
Min Ch El (ft)	1363.20	Shear (lb/sq ft)	0.10	0.46	0.14
Alpha	1.13	Stream Power (lb/ft s)	0.09	1.53	0.15
Frctn Loss (ft)	1.04	Cum Volume (acre-ft)	0.62	8.94	5.24
C & E Loss (ft)	0.01	Cum SA (acres)			

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

CROSS SECTION OUTPUT Profile #2/3 flow

			Left OB	Channel	Right OB
E.G. Elev (ft)	1372.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1371.86	Reach Len. (ft)	300.00	300.00	300.00
Crit W.S. (ft)	1370.36	Flow Area (sq ft)	577.30	3115.19	252.36
E.G. Slope (ft/ft)	0.003310	Area (sq ft)	577.30	3115.19	252.36
Q Total (cfs)	16000.00	Flow (cfs)	927.80	14638.12	434.08
Top Width (ft)	1471.06	Top Width (ft)	481.98	798.86	190.22
Vel Total (ft/s)	4.06	Avg. Vel. (ft/s)	1.61	4.70	1.72
Max Chl Dpth (ft)	8.66	Hydr. Depth (ft)	1.20	3.90	1.33
Conv. Total (cfs)	278122.4	Conv. (cfs)	16127.7	254449.3	7545.5
Length Wtd. (ft)	300.00	Wetted Per. (ft)	481.99	800.73	190.24
Min Ch El (ft)	1363.20	Shear (lb/sq ft)	0.25	0.80	0.27
Alpha	1.24	Stream Power (lb/ft s)	0.40	3.78	0.47
Frctn Loss (ft)	1.24	Cum Volume (acre-ft)	1.99	12.30	9.03
C & E Loss (ft)	0.01	Cum SA (acres)			

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

CROSS SECTION OUTPUT Profile #full capacity

			Left OB	Channel	Right OB
E.G. Elev (ft)	1373.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.	0.060	0.045	0.060
W.S. Elev (ft)	1372.55	Reach Len. (ft)	300.00	300.00	300.00
Crit W.S. (ft)	1371.09	Flow Area (sq ft)	962.40	3665.19	390.64
E.G. Slope (ft/ft)	0.003955	Area (sq ft)	962.40	3665.19	390.64
Q Total (cfs)	24000.00	Flow (cfs)	2100.86	20983.24	915.90
Top Width (ft)	1590.32	Top Width (ft)	579.99	798.86	211.47
Vel Total (ft/s)	4.78	Avg. Vel. (ft/s)	2.18	5.73	2.34

Max Chl Dpth (ft)	9.35	Hydr. Depth (ft)	1.66	4.59	1.85
Conv. Total (cfs)	381615.2	Conv. (cfs)	33405.0	333646.8	14563.4
Length Wtd. (ft)	300.00	Wetted Per. (ft)	580.01	800.73	211.50
Min Ch El (ft)	1363.20	Shear (lb/sq ft)	0.41	1.13	0.46
Alpha	1.28	Stream Power (lb/ft s)	0.89	6.47	1.07
Frctn Loss (ft)	1.37	Cum Volume (acre-ft)	3.36	14.58	12.68
C & E Loss (ft)	0.04	Cum SA (acres)			

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

FLOW DISTRIBUTION OUTPUT Profile #1/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8894.40	9740.88	161.40	179.95	295.81	2.02	0.61	0.90
LB 9740.88	10007.17	2251.89	719.50	268.13	28.15	2.70	3.13
10007.17	10273.45	3882.51	994.89	266.29	48.53	3.74	3.90
10273.45	RB 10539.74	1597.30	583.91	266.30	19.97	2.19	2.74
10539.74	11076.00	106.89	94.71	110.28	1.34	0.86	1.13

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

FLOW DISTRIBUTION OUTPUT Profile #2/3 flow

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8894.40	9740.88	927.80	577.30	481.99	5.80	1.20	1.61
LB 9740.88	10007.17	4439.04	991.80	268.13	27.74	3.72	4.48
10007.17	10273.45	6708.78	1267.19	266.29	41.93	4.76	5.29
10273.45	RB 10539.74	3490.30	856.21	266.30	21.81	3.22	4.08
10539.74	11076.00	434.08	252.36	190.24	2.71	1.33	1.72

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

FLOW DISTRIBUTION OUTPUT Profile #full capacity

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8894.40	9740.88	2100.86	962.40	580.01	8.75	1.66	2.18
LB 9740.88	10007.17	6464.74	1175.13	268.13	26.94	4.41	5.50
10007.17	10273.45	9224.42	1450.52	266.29	38.44	5.45	6.36
10273.45	RB 10539.74	5294.08	1039.54	266.30	22.06	3.90	5.09
10539.74	11076.00	915.90	390.64	211.50	3.82	1.85	2.34

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

SUMMARY OF MANNING'S N VALUES

River:New River

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10
Principle	16.943	.035	.035	.035							
Principle	16.905	.035	.035	.035							
Principle	16.867	.035	.035	.035							
Upper Spillway	0.884	.035	.035	.035							
Upper Spillway	0.840	.035	.035	.035							
Upper Spillway	0.796	.035	.035	.035							
Upper Spillway	0.787	.06	.035	.06							
Upper Spillway	0.763	.06	.035	.06							
Upper Spillway	0.741	.06	.035	.06							
Upper Spillway	0.715	.06	.035	.06	.06						
Upper Spillway	0.681	.06	.035	.06	.06						
Lower Spillway	0.622	.06	.035	.06							
Lower Spillway	0.544	.06	.035	.06							
Lower Spillway	0.495	.06	.035	.06							
Lower Spillway	0.454	.06	.035	.06							
Upper	16.829	.058	.055	.058							
Upper	16.732	.058	.055	.058							
Upper	16.637	.058	.05	.058							
Upper	16.504	.058	.038	.053	.053						
Lower	16.411	.058	.038	.058	.053	.053	.06	.053			
Lower	16.348	.058	.038	.058	.053	.053	.053	.06	.053		
Lower	16.248	.058	.038	.11	.11	.11	.11	.11	.11	.11	.11
Lower	16.167	.058	.038	.11	.11	.11	.11	.11	.11	.11	
Lower	16.066	.058	.038	.11	.11	.11	.11	.11	.11		
Lower	15.966	.058	.038	.11	.11	.11	.11	.11	.11		
Lower	15.885	.058	.038	.11	.11	.11	.11	.11			
Lower	15.792	.058	.038	.11	.11	.11	.11	.11			
Lower	15.699	.058	.038	.11	.11	.11	.11	.11			
Lower	15.623	.058	.056	.11	.11	.11	.11	.11			
Lower	15.596	.058	.056	.11	.11	.11	.11	.11			
Lower	15.475	.058	.038	.11	.11	.11	.11	.11	.11		
Lower	15.416	.058	.058	.038	.11	.11	.11	.11			

Lower	15.333	.058	.038	.11	.11	.11	.11				
Lower	15.248	.058	.038	.11	.11	.11	.11				
Lower	15.144	.058	.038	.11	.11	.11	.11	.11			
Lower	15.049	.058	.056	.11	.11	.11	.11				
Lower	14.983	.058	.038	.11	.11	.11	.11				
Lower	14.945	.058	.038	.11	.11	.11	.11				
Lower	14.850	.058	.038	.11	.11	.11	.11	.11			
Lower	14.752	.058	.038	.11	.11	.11	.11				
Lower	14.653	.058	.038	.11	.11	.11	.11	.11			
Lower	14.599	.058	.038	.11	.11	.11					
Lower	14.495	.058	.038	.11	.11	.11	.11	.11			
Lower	14.379	.058	.038	.11	.11	.11	.11	.11	.11		
Lower	14.284	.058	.038	.11	.11	.11	.11	.11	.11		
Lower	14.197	.058	.038	.11	.11	.11	.11	.11	.11	.11	.11
Lower	14.103	.11	.038	.11	.11	.11	.11	.11	.11		
Lower	14.013	.11	.038	.11	.11	.11	.11	.11	.11		
Lower	13.918	.11	.058	.038	.11	.11	.11	.11			
Lower	13.818	.11	.058	.038	.11	.11	.11	.11			
Lower	13.742	.058	.038	.11	.11	.11	.11	.11	.11		
Lower	13.680	.06	.035	.11							
Lower	13.619	.06	.035	.11							
Lower	13.524	.06	.035	.11							
Lower	13.420	.06	.035	.11							
Lower	13.325	.06	.035	.11							
Lower	13.227	.06	.035	.11							
Lower	13.185	.06	.035	.11							
Lower	13.161	.06	.035	.11							
Lower	13.151	.06	.035	.11							
Lower	13.076	.06	.035	.11							
Lower	12.991	.06	.035	.11							
Lower	12.896	.06	.035	.11							
Lower	12.801	.06	.035	.11							
Lower	12.701	.06	.035	.11							
Lower	12.606	.06	.035	.11							
Lower	12.511	.06	.035	.11							
Lower	12.420	.06	.035	.11							
Lower	12.313	.06	.035	.11							
Lower	12.194	.06	.035	.11							
Lower	12.125	.06	.035	.11							
Lower	12.034	.06	.035	.11							
Lower	11.949	.06	.035	.11							
Lower	11.864	.085	.035	.11							
Lower	11.759	.085	.035	.11							
Lower	11.664	.06	.035	.11							
Lower	11.566	.06	.035	.11							
Lower	11.481	.06	.035	.11							
Lower	11.386	.06	.035	.11							
Lower	11.301	.06	.035	.11							
Lower	11.243	.06	.035	.11							
Lower	11.188	.06	.035	.11							
Lower	11.129	.06	.035	.11							
Lower	11.030	.06	.035	.11							
Lower	10.996	.06	.035	.11							
Lower	10.988	Bridge									
Lower	10.980	.06	.035	.11							
Lower	10.917	.06	.035	.11							
Lower	10.862	.06	.035	.11							
Lower	10.803	.06	.035	.11							
Lower	10.699	.06	.035	.11							
Lower	10.612	.06	.035	.11							
Lower	10.517	.06	.035	.11							
Lower	10.443	.06	.035	.11							
Lower	10.348	.06	.035	.11							
Lower	10.271	.06	.035	.11							
Lower	10.176	.06	.035	.11							
Lower	10.096	.06	.035	.11							
Lower	9.997	.06	.035	.11							
Lower	9.984	.06	.035	.11							
Lower	9.971	Bridge									
Lower	9.958	.06	.035	.11							
Lower	9.953	.06	.035	.11							
Lower	9.908	.06	.035	.11							
Lower	9.889	.06	.035	.11							
Lower	9.794	.06	.035	.11							
Lower	9.692	.06	.035	.11							
Lower	9.592	.06	.035	.11							
Lower	9.492	.06	.035	.11							
Lower	9.367	.06	.035	.11							
Lower	9.318	.06	.035	.11							
Lower	9.289	.06	.035	.11							
Lower	9.193	.06	.035	.11							
Lower	9.129	.06	.035	.11							
Lower	9.047	.06	.035	.11							
Lower	8.994	.06	.035	.11							
Lower	8.977	.06	.035	.11							
Lower	8.936	.06	.035	.11							
Lower	8.883	.06	.035	.11							
Lower	8.807	.06	.035	.11							
Lower	8.731	.06	.035	.11							
Lower	8.655	.06	.035	.11							
Lower	8.548	.06	.035	.11							
Lower	8.538	.06	.035	.11							
Lower	8.516	.06	.035	.11							
Lower	8.457	.06	.035	.11							
Lower	8.390	.06	.035	.11							

Lower	8.330		.06	.035	.11
Lower	8.220		.06	.035	.11
Lower	8.120		.06	.035	.11
Lower	8.052		.06	.035	.11
Lower	8.006		.06	.035	.11
Lower	7.920		.06	.035	.11
Lower	7.800		.06	.035	.11
Lower	7.751		.06	.035	.11
Lower	7.7395	Bridge			
Lower	7.728		.06	.035	.11

River:Rock Creek

Reach	River Sta.	n1	n2	n3	n4
Spillway	4.647	.06	.035	.06	
Spillway	4.543	.06	.035	.06	.06
Spillway	4.448	.06	.035	.06	.06
Spillway	4.353	.06	.045	.06	
Spillway	4.261	.06	.045	.06	
Spillway	4.148	.06	.045	.06	
Spillway	4.101	.06	.045	.06	

SUMMARY OF REACH LENGTHS

River: New River

Reach	River Sta.	Left	Channel	Right
Principle	16.943	250.5	250.5	250.5
Principle	16.905	250.6	250.6	250.6
Principle	16.867	0	0	0
Upper Spillway	0.884	250.7	250.7	250.7
Upper Spillway	0.840	229.7	229.7	229.7
Upper Spillway	0.796	52.8	52.8	52.8
Upper Spillway	0.787	100.02	125.5	130.02
Upper Spillway	0.763	105	118.8	120
Upper Spillway	0.741	120	137.5	145.02
Upper Spillway	0.715	135.04	177.1	184.96
Upper Spillway	0.681	0	0	0
Lower Spillway	0.622	395	424.4	385
Lower Spillway	0.544	235	255.6	265
Lower Spillway	0.495	243.9	243.9	243.9
Lower Spillway	0.454	0	0	0
Upper	16.829	400	512.2	520
Upper	16.732	525	501.6	385
Upper	16.637	600	702.2	258.7
Upper	16.504	0	0	0
Lower	16.411	395	481.78	417
Lower	16.348	595	497.94	253
Lower	16.248	435	436.54	253
Lower	16.167	540	590.83	517
Lower	16.066	610	584.23	507
Lower	15.966	515	429.98	253
Lower	15.885	525	509.42	238
Lower	15.792	430	472.66	280
Lower	15.699	485	413.6	222
Lower	15.623	475	505.65	512
Lower	15.596	460	677.66	787
Lower	15.475	510	319.63	338
Lower	15.416	310	448.62	465
Lower	15.333	375	453.4	454
Lower	15.248	405	496.77	465
Lower	15.144	485	493.15	396
Lower	15.049	585	499.69	385
Lower	14.983	190	216.48	222
Lower	14.945	585	529.39	665
Lower	14.850	545	536.65	486
Lower	14.752	530	547.53	565
Lower	14.653	465	536.63	480
Lower	14.599	400	542.23	607
Lower	14.495	605	561.68	523
Lower	14.379	515	505.75	502
Lower	14.284	495	498.98	496
Lower	14.197	465	479.63	528
Lower	14.103	540	520.68	338
Lower	14.013	620	514.07	723
Lower	13.918	535	642.34	485
Lower	13.818	395	406.3	435
Lower	13.742	430	353.72	400
Lower	13.680	320	331.09	315
Lower	13.619	565	505.64	495
Lower	13.524	605	522.56	500
Lower	13.420	515	514.13	495
Lower	13.325	555	571.01	545
Lower	13.227	335	315.32	350
Lower	13.185	35	33.56	32
Lower	13.161	55	51.06	70
Lower	13.151	520	393.13	370
Lower	13.076	520	454.21	455
Lower	12.991	595	527.02	535

Lower	12.896	540	508.24	495
Lower	12.801	565	524.61	535
Lower	12.701	495	505.6	525
Lower	12.606	555	582.3	545
Lower	12.511	455	467.59	435
Lower	12.420	600	578.07	665
Lower	12.313	750	685.08	585
Lower	12.194	370	337.73	330
Lower	12.125	535	461.89	365
Lower	12.034	485	539.66	615
Lower	11.949	565	452.25	380
Lower	11.864	605	615.28	665
Lower	11.759	485	501.24	470
Lower	11.664	535	513.83	515
Lower	11.566	565	468.92	545
Lower	11.481	510	523.22	555
Lower	11.386	445	436.6	415
Lower	11.301	300	289.9	275
Lower	11.243	295	314.34	335
Lower	11.188	305	309.44	300
Lower	11.129	565	516.79	495
Lower	11.030	200	167.81	140
Lower	10.996	128	129.13	127
Lower	10.988	Bridge		
Lower	10.980	445	357.93	300
Lower	10.917	265	292.21	300
Lower	10.862	265	313.15	360
Lower	10.803	555	567.3	555
Lower	10.699	460	462.24	460
Lower	10.612	490	504.93	435
Lower	10.517	425	519.3	480
Lower	10.443	475	494.83	420
Lower	10.348	510	523	385
Lower	10.271	460	491.26	455
Lower	10.176	510	553.29	550
Lower	10.096	535	543.99	555
Lower	9.997	51	74.24	104
Lower	9.984	130	133.96	129
Lower	9.971	Bridge		
Lower	9.958	22	27.43	28
Lower	9.953	175	189.16	215
Lower	9.908	120	103.32	65
Lower	9.889	485	501.31	495
Lower	9.794	550	557.04	555
Lower	9.692	525	565.23	520
Lower	9.592	535	606.9	580
Lower	9.492	430	463.47	425
Lower	9.367	540	489.74	465
Lower	9.318	185	155.57	155
Lower	9.289	470	506.29	455
Lower	9.193	400	391.34	390
Lower	9.129	370	394.4	430
Lower	9.047	355	330.86	270
Lower	8.994	90	91.57	85
Lower	8.977	220	211.76	215
Lower	8.936	285	289.58	290
Lower	8.883	410	401.1	400
Lower	8.807	425	404.72	395
Lower	8.731	500	401.71	395
Lower	8.655	675	461.08	340
Lower	8.548	48	48	48
Lower	8.538	110	110	105
Lower	8.516	280	287.9	305
Lower	8.457	365	361.88	355
Lower	8.390	310	308.23	305
Lower	8.330	555	565.26	545
Lower	8.220	485	512.82	565
Lower	8.120	365	370.41	370
Lower	8.052	225	236.58	255
Lower	8.006	445	463.28	505
Lower	7.920	615	631.37	655
Lower	7.800	230	259.16	355
Lower	7.751	115	121.7	110
Lower	7.7395	Bridge		
Lower	7.728	0	0	0

River: Rock Creek

Reach	River Sta.	Left	Channel	Right
Spillway	4.647	551.3	551.3	565
Spillway	4.543	440	502.14	502.14
Spillway	4.448	380	501.6	600
Spillway	4.353	400	487.61	487.61
Spillway	4.261	750	596.6	500
Spillway	4.148	340	266.42	200
Spillway	4.101	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: New River

Reach	River Sta.	Contr.	Expan.
Principle	16.943	.1	.3
Principle	16.905	.1	.3
Principle	16.867	.6	.8
Upper Spillway	0.884	.1	.3
Upper Spillway	0.840	.1	.3
Upper Spillway	0.796	.3	.5
Upper Spillway	0.787	.3	.5
Upper Spillway	0.763	.3	.5
Upper Spillway	0.741	.3	.5
Upper Spillway	0.715	.3	.5
Upper Spillway	0.681	.1	.3
Lower Spillway	0.622	.1	.3
Lower Spillway	0.544	.1	.3
Lower Spillway	0.495	.1	.3
Lower Spillway	0.454	.6	.8
Upper	16.829	.6	.8
Upper	16.732	.6	.8
Upper	16.637	.1	.3
Upper	16.504	.1	.3
Lower	16.411	.1	.3
Lower	16.348	.1	.3
Lower	16.248	.1	.3
Lower	16.167	.1	.3
Lower	16.066	.1	.3
Lower	15.966	.1	.3
Lower	15.885	.1	.3
Lower	15.792	.1	.3
Lower	15.699	.1	.3
Lower	15.623	.1	.3
Lower	15.596	.1	.3
Lower	15.475	.1	.3
Lower	15.416	.1	.3
Lower	15.333	.1	.3
Lower	15.248	.1	.3
Lower	15.144	.1	.3
Lower	15.049	.1	.3
Lower	14.983	.1	.3
Lower	14.945	.1	.3
Lower	14.850	.1	.3
Lower	14.752	.1	.3
Lower	14.653	.1	.3
Lower	14.599	.1	.3
Lower	14.495	.1	.3
Lower	14.379	.1	.3
Lower	14.284	.1	.3
Lower	14.197	.1	.3
Lower	14.103	.1	.3
Lower	14.013	.1	.3
Lower	13.918	.1	.3
Lower	13.818	.1	.3
Lower	13.742	.1	.3
Lower	13.680	.1	.3
Lower	13.619	.1	.3
Lower	13.524	.1	.3
Lower	13.420	.1	.3
Lower	13.325	.1	.3
Lower	13.227	.1	.3
Lower	13.185	.1	.3
Lower	13.161	.1	.3
Lower	13.151	.1	.3
Lower	13.076	.1	.3
Lower	12.991	.1	.3
Lower	12.896	.1	.3
Lower	12.801	.1	.3
Lower	12.701	.1	.3
Lower	12.606	.1	.3
Lower	12.511	.1	.3
Lower	12.420	.1	.3
Lower	12.313	.1	.3
Lower	12.194	.1	.3
Lower	12.125	.1	.3
Lower	12.034	.1	.3
Lower	11.949	.1	.3
Lower	11.864	.1	.3
Lower	11.759	.1	.3
Lower	11.664	.1	.3
Lower	11.566	.1	.3
Lower	11.481	.1	.3
Lower	11.386	.1	.3
Lower	11.301	.1	.3
Lower	11.243	.1	.3
Lower	11.188	.1	.3
Lower	11.129	.1	.3
Lower	11.030	.3	.5
Lower	10.996	.3	.5
Lower	10.988	Bridge	
Lower	10.980	.3	.5
Lower	10.917	.1	.3
Lower	10.862	.1	.3
Lower	10.803	.1	.3
Lower	10.699	.1	.3
Lower	10.612	.1	.3

Lower	10.517		.1	.3
Lower	10.443		.1	.3
Lower	10.348		.1	.3
Lower	10.271		.1	.3
Lower	10.176		.1	.3
Lower	10.096		.1	.3
Lower	9.997		.3	.5
Lower	9.984		.3	.5
Lower	9.971	Bridge		
Lower	9.958		.3	.5
Lower	9.953		.3	.5
Lower	9.908		.3	.5
Lower	9.889		.3	.5
Lower	9.794		.1	.3
Lower	9.692		.1	.3
Lower	9.592		.1	.3
Lower	9.492		.1	.3
Lower	9.367		.1	.3
Lower	9.318		.1	.3
Lower	9.289		.3	.5
Lower	9.193		.3	.5
Lower	9.129		.1	.3
Lower	9.047		.1	.3
Lower	8.994		.1	.3
Lower	8.977		.1	.3
Lower	8.936		.1	.3
Lower	8.883		.1	.3
Lower	8.807		.1	.3
Lower	8.731		.1	.3
Lower	8.655		.1	.3
Lower	8.548		.1	.3
Lower	8.538		.1	.3
Lower	8.516		.1	.3
Lower	8.457		.1	.3
Lower	8.390		.1	.3
Lower	8.330		.1	.3
Lower	8.220		.1	.3
Lower	8.120		.1	.3
Lower	8.052		.1	.3
Lower	8.006		.1	.3
Lower	7.920		.1	.3
Lower	7.800		.3	.5
Lower	7.751		.3	.5
Lower	7.7395	Bridge		
Lower	7.728		.3	.5

River: Rock Creek

Reach	River Sta.	Contr.	Expan.
Spillway	4.647	.1	.3
Spillway	4.543	.1	.3
Spillway	4.448	.1	.3
Spillway	4.353	.1	.3
Spillway	4.261	.1	.3
Spillway	4.148	.1	.3
Spillway	4.101	.1	.3

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

River: New River Reach: Principle RS: 16.943 Profile: 1/3 flow
Warning:The energy loss was 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: New River Reach: Principle RS: 16.943 Profile: 2/3 flow
Warning:The energy loss was 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: New River Reach: Principle RS: 16.943 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Principle RS: 16.905 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Principle RS: 16.905 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Principle RS: 16.905 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Principle RS: 16.867 Profile: 1/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Principle RS: 16.867 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Principle RS: 16.867 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.884 Profile: 1/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Upper Spillway RS: 0.884 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Upper Spillway RS: 0.884 Profile: full capacity
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 had to be extended vertically during the critical depth calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Upper Spillway RS: 0.840 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.840 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.840 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The cross section had to be extended vertically during the critical depth calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.796 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.796 Profile: 2/3 flow
Warning:The cross section had to be extended vertically during the critical depth calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.796 Profile: full capacity
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 cross section had to be extended vertically during the critical depth calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.787 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.787 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.787 Profile: full capacity
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 cross section had to be extended vertically during the critical depth calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.763 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.763 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.763 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The cross section had to be extended vertically during the critical depth calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.741 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.741 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.741 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.715 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Upper Spillway RS: 0.715 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.715 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper Spillway RS: 0.681 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Upper Spillway RS: 0.681 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Upper Spillway RS: 0.681 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower Spillway RS: 0.622 Profile: 1/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Lower Spillway RS: 0.622 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Lower Spillway RS: 0.622 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Lower Spillway RS: 0.544 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower Spillway RS: 0.544 Profile: 2/3 flow

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

River: New River Reach: Lower Spillway RS: 0.544 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The cross section had to be extended vertically during the critical depth calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower Spillway RS: 0.495 Profile: 1/3 flow
Warning:The energy loss was 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: New River Reach: Lower Spillway RS: 0.495 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower Spillway RS: 0.495 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Lower Spillway RS: 0.454 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

River: New River Reach: Lower Spillway RS: 0.454 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

River: New River Reach: Lower Spillway RS: 0.454 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Upper RS: 16.829 Profile: 1/3 flow
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Upper RS: 16.829 Profile: 2/3 flow
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Upper RS: 16.829 Profile: full capacity
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Upper RS: 16.732 Profile: 1/3 flow
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Upper RS: 16.732 Profile: 2/3 flow
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Upper RS: 16.732 Profile: full capacity
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Upper RS: 16.637 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Upper RS: 16.637 Profile: 2/3 flow
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Upper RS: 16.637 Profile: full capacity
Warning:The cross-section end points had to be extended vertically for the computed water surface.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper RS: 16.504 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Upper RS: 16.504 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Upper RS: 16.504 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Lower RS: 16.411 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 16.411 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 16.411 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 16.348 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 16.348 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 16.348 Profile: full capacity
Warning:The conveyance ratio (upstream 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: New River Reach: Lower RS: 16.248 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 16.248 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 16.248 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 16.167 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 16.167 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 16.167 Profile: full capacity

Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 16.066 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 16.066 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 16.066 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 15.966 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 15.966 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 15.966 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 15.885 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 15.885 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 15.885 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Lower RS: 15.792 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 15.792 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 15.792 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 15.699 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
River: New River Reach: Lower RS: 15.699 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
River: New River Reach: Lower RS: 15.699 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 15.623 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 15.623 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 15.623 Profile: full capacity

Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.596 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.596 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.596 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.475 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.475 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.475 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.416 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.416 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.416 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.333 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 15.333 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 15.333 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 15.248 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.248 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.248 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 15.144 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 15.144 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 15.144 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 15.049 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 15.049 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 15.049 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.983 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 14.983 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 14.983 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 14.945 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.945 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.945 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.850 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 14.850 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 14.850 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 14.752 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.752 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.752 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 14.653 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.653 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.653 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.599 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.599 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.599 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Lower RS: 14.495 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.495 Profile: 2/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 14.495 Profile: full capacity
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.379 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.379 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.379 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Lower RS: 14.284 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.284 Profile: 2/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 14.284 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Lower RS: 14.197 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.197 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.197 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 14.103 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 14.103 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 14.103 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 14.013 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 14.013 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 14.013 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.918 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.918 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.918 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.818 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.818 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.818 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.742 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.742 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.742 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.680 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: New River Reach: Lower RS: 13.680 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.680 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.619 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 13.619 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 13.619 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 13.524 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.524 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.524 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.420 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.420 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.420 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.325 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.325 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 13.325 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was 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: New River Reach: Lower RS: 13.227 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.227 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.227 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 13.185 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.185 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 13.185 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: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: New River Reach: Lower RS: 13.161 Profile: 1/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 13.161 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 13.161 Profile: full capacity
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: Program found supercritical flow starting at this cross section.

River: New River Reach: Lower RS: 13.151 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.

River: New River Reach: Lower RS: 13.151 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 13.076 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.

River: New River Reach: Lower RS: 13.076 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.

River: New River Reach: Lower RS: 13.076 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

River: New River Reach: Lower RS: 12.991 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 12.991 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 12.991 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

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River: New River  Reach: Lower     RS: 12.896     Profile: 1/3 flow
     Warning:Divided flow computed for this cross-section.
River: New River  Reach: Lower     RS: 12.896     Profile: 2/3 flow
     Warning:Divided flow computed for this cross-section.
River: New River  Reach: Lower     RS: 12.896     Profile: full capacity
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.801     Profile: 1/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.801     Profile: 2/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.801     Profile: full capacity
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.701     Profile: 1/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.701     Profile: 2/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.701     Profile: full capacity
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.606     Profile: 1/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.606     Profile: 2/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.606     Profile: full capacity
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.511     Profile: 1/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.511     Profile: 2/3 flow
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program selected the water
             surface that had the least amount of error between computed and assumed values.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: New River  Reach: Lower     RS: 12.511     Profile: full capacity
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program selected the water
             surface that had the least amount of error between computed and assumed values.
     Warning:Divided flow computed for this cross-section.
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The energy loss was 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: New River  Reach: Lower     RS: 12.420     Profile: 1/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.420     Profile: 2/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.420     Profile: full capacity
     Warning:Divided flow computed for this cross-section.
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.313     Profile: 1/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: New River  Reach: Lower     RS: 12.313     Profile: 2/3 flow
     Warning:Divided flow computed for this cross-section.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
```

This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 12.313 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 12.194 Profile: 1/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 12.194 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 12.194 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 12.125 Profile: 1/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 12.125 Profile: 2/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 12.125 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 12.034 Profile: 1/3 flow
Warning:The conveyance ratio (upstream 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: New River Reach: Lower RS: 12.034 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 12.034 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 11.949 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.949 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.949 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 11.864 Profile: 1/3 flow

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

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 11.864 Profile: 2/3 flow

Warning: Divided flow computed for this cross-section.

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

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 11.864 Profile: full capacity

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

Warning: Divided flow computed for this cross-section.

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

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 11.759 Profile: 1/3 flow

Warning: Divided flow computed for this cross-section.

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

River: New River Reach: Lower RS: 11.759 Profile: 2/3 flow

Warning: Divided flow computed for this cross-section.

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

River: New River Reach: Lower RS: 11.759 Profile: full capacity

Warning: Divided flow computed for this cross-section.

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

River: New River Reach: Lower RS: 11.664 Profile: 1/3 flow

Warning: Divided flow computed for this cross-section.

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

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

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

River: New River Reach: Lower RS: 11.664 Profile: 2/3 flow

Warning: Divided flow computed for this cross-section.

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

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

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

River: New River Reach: Lower RS: 11.664 Profile: full capacity

Warning: Divided flow computed for this cross-section.

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

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

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

River: New River Reach: Lower RS: 11.566 Profile: 1/3 flow

Warning: Divided flow computed for this cross-section.

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

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

River: New River Reach: Lower RS: 11.566 Profile: 2/3 flow

Warning: Divided flow computed for this cross-section.

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

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

River: New River Reach: Lower RS: 11.566 Profile: full capacity

Warning: Divided flow computed for this cross-section.

River: New River Reach: Lower RS: 11.481 Profile: 1/3 flow

Warning: Divided flow computed for this cross-section.

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

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

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 11.481 Profile: 2/3 flow

Warning: Divided flow computed for this cross-section.

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

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

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 11.481 Profile: full capacity

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 11.386 Profile: 1/3 flow

Warning: Divided flow computed for this cross-section.

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

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.386 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.386 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.301 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.301 Profile: 2/3 flow
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.301 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.243 Profile: 1/3 flow
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.243 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.243 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.188 Profile: 1/3 flow
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.188 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.188 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.129 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.129 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.129 Profile: full capacity
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 11.030 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
River: New River Reach: Lower RS: 11.030 Profile: full capacity
Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: New River Reach: Lower RS: 10.996 Profile: 2/3 flow
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 10.996 Profile: full capacity
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: New River Reach: Lower RS: 10.988 Profile: 1/3 flow Upstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 10.988 Profile: 2/3 flow
Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.
River: New River Reach: Lower RS: 10.988 Profile: 2/3 flow Upstream
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
River: New River Reach: Lower RS: 10.988 Profile: 2/3 flow Downstream

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

River: New River Reach: Lower RS: 10.988 Profile: full capacity
Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is above the minimum elevation for pressure flow. The orifice equations were used for pressure flow.

River: New River Reach: Lower RS: 10.988 Profile: full capacity Upstream
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: New River Reach: Lower RS: 10.988 Profile: full capacity Downstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: New River Reach: Lower RS: 10.980 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 10.980 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 10.980 Profile: full capacity
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 velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

River: New River Reach: Lower RS: 10.917 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 10.917 Profile: 2/3 flow
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 10.917 Profile: full capacity
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The cross section had to be extended vertically during the critical depth calculations.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

River: New River Reach: Lower RS: 10.862 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 10.862 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 10.862 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was 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: New River Reach: Lower RS: 10.803 Profile: 1/3 flow
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 10.803 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.

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    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: New River  Reach: Lower     RS: 10.803     Profile: full capacity
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
    Note:   Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River  Reach: Lower     RS: 10.699     Profile: 1/3 flow
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was 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: New River  Reach: Lower     RS: 10.699     Profile: 2/3 flow
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: New River  Reach: Lower     RS: 10.699     Profile: full capacity
    Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was 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: New River  Reach: Lower     RS: 10.612     Profile: 1/3 flow
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: New River  Reach: Lower     RS: 10.612     Profile: 2/3 flow
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: New River  Reach: Lower     RS: 10.612     Profile: full capacity
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
    Note:   Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River  Reach: Lower     RS: 10.517     Profile: 1/3 flow
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: New River  Reach: Lower     RS: 10.517     Profile: 2/3 flow
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: New River  Reach: Lower     RS: 10.517     Profile: full capacity
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: New River  Reach: Lower     RS: 10.443     Profile: 1/3 flow
    Warning:The energy loss was 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: New River  Reach: Lower     RS: 10.443     Profile: 2/3 flow
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: New River  Reach: Lower     RS: 10.443     Profile: full capacity
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: New River  Reach: Lower     RS: 10.348     Profile: 1/3 flow
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
    Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
            used.
River: New River  Reach: Lower     RS: 10.348     Profile: 2/3 flow
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
    Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
            used.
River: New River  Reach: Lower     RS: 10.348     Profile: full capacity
    Warning:Divided flow computed for this cross-section.
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Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 10.271 Profile: 1/3 flow
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 10.271 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 10.271 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 10.176 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 10.176 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 10.176 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: New River Reach: Lower RS: 10.096 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 10.096 Profile: 2/3 flow
Warning:The cross-section end points had to be extended vertically for the computed water surface.

River: New River Reach: Lower RS: 10.096 Profile: full capacity
Warning:The cross-section end points had to be extended vertically for the computed water surface.

River: New River Reach: Lower RS: 9.997 Profile: 2/3 flow
Warning:The cross-section end points had to be extended vertically for the computed water surface.

River: New River Reach: Lower RS: 9.997 Profile: full capacity
Warning:The cross-section end points had to be extended vertically for the computed water surface.

River: New River Reach: Lower RS: 9.984 Profile: full capacity
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 9.971 Profile: 2/3 flow
Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.

River: New River Reach: Lower RS: 9.971 Profile: 2/3 flow Upstream
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

River: New River Reach: Lower RS: 9.971 Profile: 2/3 flow Downstream
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

River: New River Reach: Lower RS: 9.971 Profile: full capacity
Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.

River: New River Reach: Lower RS: 9.971 Profile: full capacity Upstream
Warning:The energy loss was 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: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

River: New River Reach: Lower RS: 9.971 Profile: full capacity Downstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

River: New River Reach: Lower RS: 9.953 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: New River Reach: Lower RS: 9.953 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.953 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.908 Profile: 1/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Lower RS: 9.908 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Lower RS: 9.908 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Lower RS: 9.889 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.889 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.889 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.794 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 9.794 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: New River Reach: Lower RS: 9.794 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.692 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.692 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 9.692 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 9.592 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.592 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.592 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.492 Profile: 1/3 flow
Warning:The conveyance ratio (upstream 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: New River Reach: Lower RS: 9.367 Profile: 1/3 flow
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 9.367 Profile: 2/3 flow
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 9.367 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 9.318 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 9.318 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 9.318 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: New River Reach: Lower RS: 9.289 Profile: 1/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 9.289 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 9.289 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 9.193 Profile: 1/3 flow
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 9.193 Profile: full capacity
Warning:Divided flow computed for this cross-section.
River: New River Reach: Lower RS: 9.047 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.047 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 9.047 Profile: full capacity

Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 8.977 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 8.936 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: New River Reach: Lower RS: 8.936 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: New River Reach: Lower RS: 8.936 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: New River Reach: Lower RS: 8.883 Profile: 1/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 8.883 Profile: 2/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 8.863 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: New River Reach: Lower RS: 8.807 Profile: 1/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 8.807 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 8.807 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Lower RS: 8.731 Profile: 1/3 flow
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 8.731 Profile: 2/3 flow
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 8.731 Profile: full capacity
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 8.655 Profile: 1/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: New River Reach: Lower RS: 8.655 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: New River Reach: Lower RS: 8.655 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: New River Reach: Lower RS: 8.548 Profile: 1/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 8.548 Profile: 2/3 flow
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 8.548 Profile: full capacity
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was 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: New River Reach: Lower RS: 8.538 Profile: 1/3 flow
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 8.538 Profile: 2/3 flow
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 8.538 Profile: full capacity
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: New River Reach: Lower RS: 8.516 Profile: 1/3 flow
Warning:The conveyance ratio (upstream 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: New River Reach: Lower RS: 8.516 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 8.516 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 8.330 Profile: 1/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 8.330 Profile: 2/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 8.330 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Lower RS: 8.220 Profile: 1/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 8.220 Profile: 2/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 8.220 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Lower RS: 8.006 Profile: 1/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 8.006 Profile: 2/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 8.006 Profile: full capacity
Warning:The energy loss was 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: New River Reach: Lower RS: 7.920 Profile: 1/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 7.920 Profile: 2/3 flow
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 7.920 Profile: full capacity
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: New River Reach: Lower RS: 7.800 Profile: 1/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 7.800 Profile: 2/3 flow
Warning:The energy loss was 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: New River Reach: Lower RS: 7.800 Profile: full capacity
Warning:The energy loss was 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: Rock Creek Reach: Spillway RS: 4.647 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: Rock Creek Reach: Spillway RS: 4.647 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Rock Creek Reach: Spillway RS: 4.647 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Rock Creek Reach: Spillway RS: 4.543 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Rock Creek Reach: Spillway RS: 4.543 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Rock Creek Reach: Spillway RS: 4.543 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Rock Creek Reach: Spillway RS: 4.448 Profile: 1/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Rock Creek Reach: Spillway RS: 4.448 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Rock Creek Reach: Spillway RS: 4.448 Profile: full capacity
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Rock Creek Reach: Spillway RS: 4.353 Profile: 1/3 flow
Warning:The energy loss was 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: Rock Creek Reach: Spillway RS: 4.353 Profile: 2/3 flow
Warning:The energy loss was 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: Rock Creek Reach: Spillway RS: 4.353 Profile: full capacity
Warning:The energy loss was 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: Rock Creek Reach: Spillway RS: 4.261 Profile: 1/3 flow
Warning:The energy loss was 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: Rock Creek Reach: Spillway RS: 4.261 Profile: 2/3 flow
Warning:The energy loss was 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: Rock Creek Reach: Spillway RS: 4.261 Profile: full capacity
Warning:The energy loss was 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: Rock Creek Reach: Spillway RS: 4.148 Profile: full capacity
Warning:The energy loss was 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: Rock Creek Reach: Spillway RS: 4.101 Profile: 1/3 flow
Warning:The energy loss was 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: Rock Creek Reach: Spillway RS: 4.101 Profile: 2/3 flow
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Rock Creek Reach: Spillway RS: 4.101 Profile: full capacity

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

HEC-RAS Plan: Future

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Rock Creek	Spillway	4.647	8000.00	1391.22	1397.9	1398.7	1400	0	13	619	348	2
Rock Creek	Spillway	4.647	16000.00	1391.22	1399.2	1400.3	1403	0	15	1086	542	2
Rock Creek	Spillway	4.647	24000.00	1391.22	1400.3	1401.5	1404	0	16	1530	732	2
Rock Creek	Spillway	4.543	8000.00	1382.38	1385.9	1386.1	1387	0	9	898	493	1
Rock Creek	Spillway	4.543	16000.00	1382.38	1387.1	1387.4	1389	0	11	1508	771	1
Rock Creek	Spillway	4.543	24000.00	1382.38	1387.6	1388.3	1390	0	13	1924	1176	1
Rock Creek	Spillway	4.448	8000.00	1375.83	1378.4	1378.1	1379	0	6	1302	715	1
Rock Creek	Spillway	4.448	16000.00	1375.83	1379.4	1379.2	1380	0	8	2045	975	1
Rock Creek	Spillway	4.448	24000.00	1375.83	1380.2	1380.1	1382	0	10	2774	1348	1
Rock Creek	Spillway	4.353	8000.00	1369.42	1375.6	1374.4	1376	0	3	2298	1012	0
Rock Creek	Spillway	4.353	16000.00	1369.42	1376.7	1375.3	1377	0	5	3536	1112	0
Rock Creek	Spillway	4.353	24000.00	1369.42	1377.6	1375.9	1378	0	5	4556	1178	0
Rock Creek	Spillway	4.261	8000.00	1367.47	1373.8	1372.6	1374	0	3	2348	1046	0
Rock Creek	Spillway	4.261	16000.00	1367.47	1374.9	1373.5	1375	0	4	3641	1220	0
Rock Creek	Spillway	4.261	24000.00	1367.47	1375.8	1374.1	1376	0	5	4723	1301	0
Rock Creek	Spillway	4.148	8000.00	1364.22	1371.6	1370.4	1372	0	3	2379	1210	0
Rock Creek	Spillway	4.148	16000.00	1364.22	1372.8	1371.4	1373	0	4	3917	1546	0
Rock Creek	Spillway	4.148	24000.00	1364.22	1373.6	1372.0	1374	0	5	5264	1685	0
Rock Creek	Spillway	4.101	8000.00	1363.20	1370.8	1369.4	1371	0	3	2573	1205	0
Rock Creek	Spillway	4.101	16000.00	1363.20	1371.9	1370.4	1372	0	5	3945	1471	0
Rock Creek	Spillway	4.101	24000.00	1363.20	1372.5	1371.1	1373	0	6	5018	1590	0
New River	Principle	16.943	3000.00	1378.60	1387.6	1386.2	1389	0	9	340	66	1
New River	Principle	16.943	3000.00	1378.60	1387.6	1386.2	1389	0	9	338	65	1
New River	Principle	16.943	3000.00	1378.60	1387.6	1386.2	1389	0	9	340	66	1
New River	Principle	16.905	3000.00	1377.60	1386.9	1384.4	1388	0	7	419	73	1
New River	Principle	16.905	3000.00	1377.60	1386.8	1384.4	1388	0	7	415	73	1
New River	Principle	16.905	3000.00	1377.60	1386.9	1384.4	1388	0	7	419	73	1
New River	Principle	16.867	3000.00	1376.60	1384.2	1384.2	1386	0	12	251	57	1
New River	Principle	16.867	3000.00	1376.60	1384.6	1384.2	1386	0	11	278	60	1
New River	Principle	16.867	3000.00	1376.60	1385.2	1384.2	1387	0	10	312	63	1

HEC-RAS Plan: Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Lower Spillway	0.544	18000.00	1388.46	1397.7	1398.9	1402	0	16	1223	423	1
New River	Lower Spillway	0.495	6000.00	1384.45	1389.6	1390.1	1391	0	11	547	241	1
New River	Lower Spillway	0.495	12000.00	1384.45	1390.9	1391.6	1394	0	13	923	331	1
New River	Lower Spillway	0.495	18000.00	1384.45	1391.7	1392.7	1395	0	15	1189	367	1
New River	Lower Spillway	0.454	6000.00	1381.50	1386.2	1385.9	1387	0	8	740	267	1
New River	Lower Spillway	0.454	12000.00	1381.50	1387.5	1387.5	1389	0	11	1116	296	1
New River	Lower Spillway	0.454	18000.00	1381.50	1388.6	1388.7	1391	0	13	1439	333	1
New River	Upper	16.829	9000.00	1374.90	1382.5	1380.4	1383	0	3	3115	1784	0
New River	Upper	16.829	15000.00	1374.90	1383.5	1381.4	1384	0	4	4241	1895	0
New River	Upper	16.829	21000.00	1374.90	1384.2	1381.9	1384	0	4	5229	1976	0
New River	Upper	16.732	9000.00	1372.93	1380.3	1379.5	1381	0	4	2401	1733	0
New River	Upper	16.732	15000.00	1372.93	1381.1	1379.9	1381	0	5	3341	1835	0
New River	Upper	16.732	21000.00	1372.93	1381.7	1380.4	1382	0	6	4153	1902	0
New River	Upper	16.637	9000.00	1370.17	1377.7	1376.4	1378	0	4	2809	1591	0
New River	Upper	16.637	15000.00	1370.17	1378.4	1377.3	1379	0	5	3969	1780	0
New River	Upper	16.637	21000.00	1370.17	1378.9	1377.7	1379	0	5	4929	1846	0
New River	Upper	16.504	9000.00	1366.82	1373.1	1372.7	1374	0	8	1299	811	1
New River	Upper	16.504	15000.00	1366.82	1374.1	1374.1	1375	0	8	2588	1565	1
New River	Upper	16.504	21000.00	1366.82	1374.7	1374.7	1376	0	9	3518	1889	1
New River	Lower	16.411	13000.00	1364.41	1369.7	1368.7	1370	0	5	3451	1911	1
New River	Lower	16.411	23000.00	1364.41	1370.6	1369.7	1371	0	5	5655	2956	1
New River	Lower	16.411	33000.00	1364.41	1371.3	1370.1	1372	0	6	7750	3625	1
New River	Lower	16.348	13000.00	1362.60	1368.0	1366.5	1368	0	4	4599	2440	0
New River	Lower	16.348	23000.00	1362.60	1368.9	1367.3	1369	0	4	7557	3607	0
New River	Lower	16.348	33000.00	1362.60	1369.6	1367.9	1370	0	5	10120	3873	0
New River	Lower	16.248	13000.00	1360.22	1366.4	1365.4	1367	0	5	4326	2320	1
New River	Lower	16.248	23000.00	1360.22	1367.3	1366.2	1368	0	6	6959	3479	1
New River	Lower	16.248	33000.00	1360.22	1368.0	1366.9	1369	0	7	9564	4086	1
New River	Lower	16.167	13000.00	1358.22	1364.1	1363.4	1365	0	5	3542	1958	1

HEC-RAS Plan: Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Lower	15.333	13000.00	1333.64	1341.6	1339.8	1342	0	6	3043	1546	1
New River	Lower	15.333	23000.00	1333.64	1342.8	1341.7	1344	0	8	5858	3143	1
New River	Lower	15.333	33000.00	1333.64	1343.7	1343.1	1345	0	9	8915	3805	1
New River	Lower	15.248	13000.00	1331.18	1339.4	1338.6	1340	0	7	2617	1798	1
New River	Lower	15.248	23000.00	1331.18	1340.6	1340.3	1341	0	8	5856	3763	1
New River	Lower	15.248	33000.00	1331.18	1341.2	1341.0	1342	0	9	8036	4093	1
New River	Lower	15.144	13000.00	1329.20	1337.0	1336.2	1337	0	6	3840	2769	1
New River	Lower	15.144	23000.00	1329.20	1338.1	1337.4	1339	0	7	7050	3646	1
New River	Lower	15.144	33000.00	1329.20	1338.8	1338.1	1339	0	7	10394	4021	1
New River	Lower	15.049	13000.00	1327.09	1335.5	1333.0	1336	0	3	6207	2906	0
New River	Lower	15.049	23000.00	1327.09	1336.6	1334.2	1337	0	4	9891	4030	0
New River	Lower	15.049	33000.00	1327.09	1337.4	1334.8	1338	0	4	12993	4114	0
New River	Lower	14.983	13000.00	1323.95	1333.3	1332.7	1334	0	6	3185	2107	1
New River	Lower	14.983	23000.00	1323.95	1334.1	1333.6	1335	0	7	5509	3165	1
New River	Lower	14.983	33000.00	1323.95	1334.8	1334.3	1336	0	8	7859	3798	1
New River	Lower	14.945	13000.00	1323.89	1331.7	1331.1	1332	0	6	3721	2477	1
New River	Lower	14.945	23000.00	1323.89	1332.8	1332.0	1333	0	7	6942	3451	1
New River	Lower	14.945	33000.00	1323.89	1333.6	1332.7	1334	0	7	9913	4087	1
New River	Lower	14.850	13000.00	1322.51	1328.5	1327.6	1329	0	6	3161	1488	1
New River	Lower	14.850	23000.00	1322.51	1329.6	1328.7	1330	0	7	5185	2499	1
New River	Lower	14.850	33000.00	1322.51	1330.3	1329.6	1331	0	8	7301	3293	1
New River	Lower	14.752	13000.00	1319.77	1326.3	1325.1	1327	0	5	4501	2764	0
New River	Lower	14.752	23000.00	1319.77	1327.3	1326.3	1328	0	6	7406	3509	1
New River	Lower	14.752	33000.00	1319.77	1328.0	1327.0	1328	0	7	10044	3842	1
New River	Lower	14.653	13000.00	1317.90	1323.8	1323.4	1324	0	6	4286	3214	1
New River	Lower	14.653	23000.00	1317.90	1324.7	1324.1	1325	0	7	7257	3901	1
New River	Lower	14.653	33000.00	1317.90	1325.2	1324.7	1326	0	8	9627	4161	1
New River	Lower	14.599	13000.00	1315.07	1321.1	1320.2	1321	0	5	4412	3260	1
New River	Lower	14.599	23000.00	1315.07	1321.9	1321.2	1322	0	6	7429	4042	1
New River	Lower	14.599	33000.00	1315.07	1322.6	1321.8	1323	0	7	9998	4167	1

HEC-RAS Plan: Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Lower	13.680	33000.00	1285.50	1294.5	1291.4	1295	0	6	6318	2239	0
New River	Lower	13.619	13000.00	1283.47	1290.3	1287.2	1291	0	4	3076	584	0
New River	Lower	13.619	23000.00	1283.47	1292.7	1288.5	1293	0	5	4535	633	0
New River	Lower	13.619	33000.00	1283.47	1294.0	1289.6	1295	0	6	6670	2366	0
New River	Lower	13.524	13000.00	1281.90	1288.7	1287.1	1290	0	8	1626	321	1
New River	Lower	13.524	23000.00	1281.90	1290.3	1289.0	1292	0	11	2253	751	1
New River	Lower	13.524	33000.00	1281.90	1291.8	1291.8	1294	0	11	5811	3728	1
New River	Lower	13.420	13000.00	1277.43	1286.6	1285.5	1288	0	9	2739	1419	1
New River	Lower	13.420	23000.00	1277.43	1289.3	1288.1	1290	0	8	8938	4033	0
New River	Lower	13.420	33000.00	1277.43	1289.7	1289.0	1290	0	9	12169	4134	1
New River	Lower	13.325	13000.00	1276.70	1284.1	1282.9	1285	0	9	1536	406	1
New River	Lower	13.325	23000.00	1276.70	1286.3	1284.9	1288	0	12	3234	3036	1
New River	Lower	13.325	33000.00	1276.70	1287.6	1287.6	1289	0	10	8492	3681	1
New River	Lower	13.227	13000.00	1274.89	1281.7	1280.2	1283	0	8	1684	322	1
New River	Lower	13.227	23000.00	1274.89	1283.4	1282.1	1285	0	11	2892	2314	1
New River	Lower	13.227	33000.00	1274.89	1285.2	1285.0	1286	0	10	9520	4193	1
New River	Lower	13.185	13000.00	1274.89	1280.3	1279.3	1281	0	8	1655	421	1
New River	Lower	13.185	23000.00	1274.89	1281.6	1281.0	1283	0	10	2224	527	1
New River	Lower	13.185	33000.00	1274.89	1282.5	1282.5	1285	0	12	2937	951	1
New River	Lower	13.161	13000.00	1274.65	1279.3	1279.3	1281	0	10	1276	396	1
New River	Lower	13.161	23000.00	1274.65	1281.3	1281.3	1283	0	10	2769	1762	1
New River	Lower	13.161	33000.00	1274.65	1281.6	1282.5	1284	0	13	3470	2483	1
New River	Lower	13.151	13000.00	1262.20	1272.1	1268.0	1272	0	5	2693	403	0
New River	Lower	13.151	23000.00	1262.20	1274.2	1269.9	1275	0	6	3548	425	0
New River	Lower	13.151	33000.00	1262.20	1267.8	1271.3	1281	0	29	1138	302	3
New River	Lower	13.076	13000.00	1262.37	1271.9	1267.2	1272	0	4	3117	429	0
New River	Lower	13.076	23000.00	1262.37	1273.8	1268.8	1274	0	6	4018	481	0
New River	Lower	13.076	33000.00	1262.37	1275.3	1270.1	1276	0	7	4735	498	0
New River	Lower	12.991	13000.00	1262.37	1271.7	1266.5	1272	0	3	3999	551	0

HEC-RAS Plan: Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Lower	12.034	13000.00	1241.47	1247.4	1246.6	1248	0	8	1627	430	1
New River	Lower	12.034	23000.00	1241.47	1249.3	1248.1	1251	0	9	2472	454	1
New River	Lower	12.034	33000.00	1241.47	1251.1	1249.3	1253	0	10	3536	809	1
New River	Lower	11.949	13000.00	1238.90	1245.3	1243.6	1246	0	6	2407	771	1
New River	Lower	11.949	23000.00	1238.90	1247.9	1245.1	1249	0	7	4129	936	0
New River	Lower	11.949	33000.00	1238.90	1250.4	1246.1	1251	0	6	8167	2076	0
New River	Lower	11.864	13000.00	1235.57	1242.2	1241.6	1244	0	11	1276	696	1
New River	Lower	11.864	23000.00	1235.57	1243.9	1243.7	1247	0	14	1712	714	1
New River	Lower	11.864	33000.00	1235.57	1245.5	1245.5	1250	0	17	2138	737	1
New River	Lower	11.759	13000.00	1232.02	1238.6	1237.9	1240	0	9	1957	505	1
New River	Lower	11.759	23000.00	1232.02	1240.5	1239.5	1242	0	11	2957	554	1
New River	Lower	11.759	33000.00	1232.02	1242.0	1240.9	1244	0	12	3838	599	1
New River	Lower	11.664	13000.00	1228.80	1236.0	1234.8	1237	0	8	1664	411	1
New River	Lower	11.664	23000.00	1228.80	1238.2	1236.6	1239	0	9	2782	560	1
New River	Lower	11.664	33000.00	1228.80	1238.9	1238.0	1241	0	12	3182	590	1
New River	Lower	11.566	13000.00	1228.32	1234.9	1232.2	1235	0	5	2742	593	0
New River	Lower	11.566	23000.00	1228.32	1237.5	1233.5	1238	0	5	4557	719	0
New River	Lower	11.566	33000.00	1228.32	1237.9	1234.7	1239	0	8	4779	723	0
New River	Lower	11.481	13000.00	1224.81	1233.3	1231.3	1234	0	8	1612	831	1
New River	Lower	11.481	23000.00	1224.81	1235.6	1233.3	1237	0	10	2335	940	1
New River	Lower	11.481	33000.00	1224.81	1237.2	1235.3	1238	0	7	6853	967	0
New River	Lower	11.386	13000.00	1223.10	1232.5	1229.8	1233	0	5	3887	953	0
New River	Lower	11.386	23000.00	1223.10	1235.1	1231.8	1235	0	6	6316	981	0
New River	Lower	11.386	33000.00	1223.10	1236.6	1232.7	1237	0	7	7856	1025	0
New River	Lower	11.301	13000.00	1221.27	1230.9	1228.4	1232	0	9	1797	588	1
New River	Lower	11.301	23000.00	1221.27	1233.7	1231.9	1235	0	9	4066	966	1
New River	Lower	11.301	33000.00	1221.27	1235.2	1233.3	1236	0	10	5565	1131	1
New River	Lower	11.243	13000.00	1219.13	1229.9	1227.3	1231	0	9	1477	196	1
New River	Lower	11.243	23000.00	1219.13	1232.6	1230.9	1234	0	10	3482	1004	1
New River	Lower	11.243	33000.00	1219.13	1234.4	1233.1	1236	0	10	5536	1370	1

HEC-RAS Plan: Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Lower	10.612	13000.00	1208.77	1215.6	1213.7	1216	0	7	1855	371	1
New River	Lower	10.612	23000.00	1208.77	1217.4	1215.5	1219	0	9	2712	538	1
New River	Lower	10.612	33000.00	1208.77	1218.7	1217.1	1221	0	11	3844	1245	1
New River	Lower	10.517	13000.00	1207.43	1213.3	1212.7	1214	0	9	1892	621	1
New River	Lower	10.517	23000.00	1207.43	1214.9	1214.2	1216	0	11	2901	677	1
New River	Lower	10.517	33000.00	1207.43	1216.4	1215.4	1218	0	12	3802	952	1
New River	Lower	10.443	13000.00	1204.60	1209.9	1209.3	1211	0	8	1534	398	1
New River	Lower	10.443	23000.00	1204.60	1211.6	1210.8	1213	0	10	2259	543	1
New River	Lower	10.443	33000.00	1204.60	1212.9	1212.2	1215	0	12	2927	824	1
New River	Lower	10.348	13000.00	1201.21	1207.5	1206.3	1208	0	7	1775	411	1
New River	Lower	10.348	23000.00	1201.21	1209.7	1207.7	1211	0	8	3356	942	1
New River	Lower	10.348	33000.00	1201.21	1210.9	1209.3	1212	0	10	4557	1157	1
New River	Lower	10.271	13000.00	1198.26	1205.4	1204.0	1206	0	7	1832	405	1
New River	Lower	10.271	23000.00	1198.26	1208.6	1205.5	1209	0	7	4352	1251	0
New River	Lower	10.271	33000.00	1198.26	1209.7	1207.0	1211	0	8	5465	1264	1
New River	Lower	10.176	13000.00	1195.57	1203.0	1202.1	1204	0	8	1631	420	1
New River	Lower	10.176	23000.00	1195.57	1208.0	1203.6	1209	0	6	4791	1146	0
New River	Lower	10.176	33000.00	1195.57	1209.0	1204.9	1210	0	8	5713	1178	0
New River	Lower	10.096	13000.00	1193.84	1200.8	1199.1	1201	0	7	1991	438	1
New River	Lower	10.096	23000.00	1193.84	1207.8	1200.7	1208	0	4	7265	1164	0
New River	Lower	10.096	33000.00	1193.84	1208.7	1202.0	1209	0	6	8243	1174	0
New River	Lower	9.997	13000.00	1191.71	1198.4	1196.8	1200	0	9	1525	269	1
New River	Lower	9.997	23000.00	1191.71	1207.6	1198.9	1208	0	5	8812	1264	0
New River	Lower	9.997	33000.00	1191.71	1208.3	1200.6	1209	0	6	9704	1265	0
New River	Lower	9.984	13000.00	1191.00	1198.4	1195.7	1199	0	7	1831	278	0
New River	Lower	9.984	23000.00	1191.00	1207.6	1197.7	1208	0	5	7081	1075	0
New River	Lower	9.984	33000.00	1191.00	1208.2	1199.4	1209	0	6	7759	1075	0
New River	Lower	9.971	Bridge									
New River	Lower	9.958	13000.00	1190.47	1197.3	1195.4	1198	0	8	1624	272	1

HEC-RAS Plan: Future (Continued)

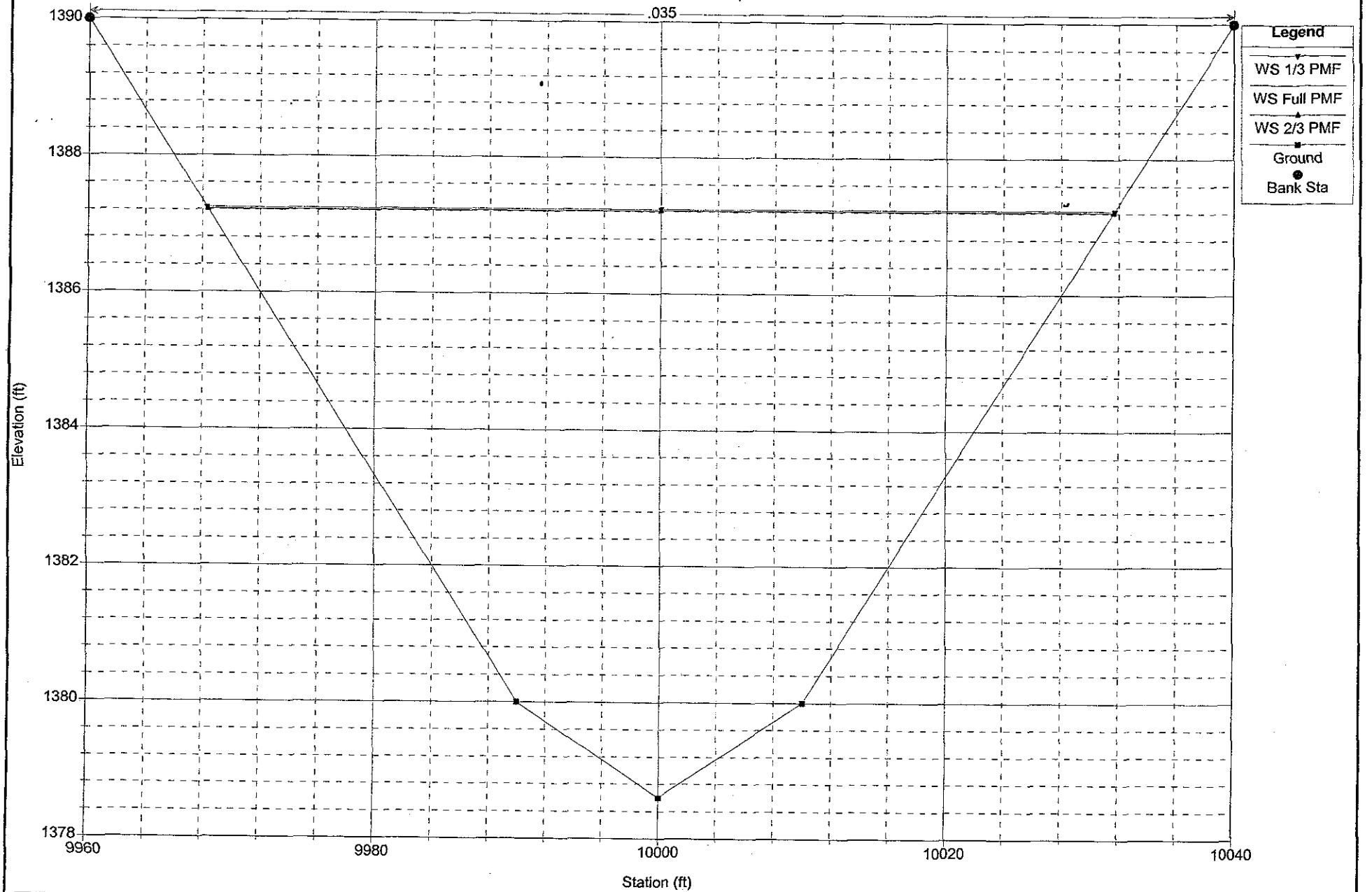
River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Lower	9.289	13000.00	1167.90	1175.5	1175.5	1178	0	12	1088	243	1
New River	Lower	9.289	23000.00	1167.90	1177.7	1177.7	1181	0	14	1636	265	1
New River	Lower	9.289	33000.00	1167.90	1179.5	1179.5	1183	0	16	2132	303	1
New River	Lower	9.193	13000.00	1164.54	1172.1	1169.4	1172	0	5	2604	474	0
New River	Lower	9.193	23000.00	1164.54	1175.2	1170.8	1176	0	6	4128	494	0
New River	Lower	9.193	33000.00	1164.54	1177.9	1171.9	1179	0	6	5518	571	0
New River	Lower	9.129	13000.00	1163.16	1171.7	1167.9	1172	0	4	2900	438	0
New River	Lower	9.129	23000.00	1163.16	1174.9	1169.4	1175	0	5	4355	460	0
New River	Lower	9.129	33000.00	1163.16	1177.6	1170.6	1178	0	6	5898	660	0
New River	Lower	9.047	13000.00	1161.64	1171.2	1167.3	1172	0	5	2635	375	0
New River	Lower	9.047	23000.00	1161.64	1174.5	1169.0	1175	0	6	3884	403	0
New River	Lower	9.047	33000.00	1161.64	1177.2	1170.4	1178	0	7	5218	614	0
New River	Lower	8.994	13000.00	1161.65	1169.7	1167.8	1171	0	9	1437	216	1
New River	Lower	8.994	23000.00	1161.65	1172.3	1170.2	1174	0	11	2015	229	1
New River	Lower	8.994	33000.00	1161.65	1174.6	1172.1	1177	0	13	2594	278	1
New River	Lower	8.977	13000.00	1161.30	1169.4	1167.5	1171	0	9	1484	237	1
New River	Lower	8.977	23000.00	1161.30	1172.1	1169.8	1174	0	11	2129	246	1
New River	Lower	8.977	33000.00	1161.30	1174.4	1171.7	1177	0	12	2729	282	1
New River	Lower	8.936	13000.00	1159.94	1168.8	1166.9	1170	0	8	1650	279	1
New River	Lower	8.936	23000.00	1159.94	1171.7	1168.9	1173	0	9	2479	312	1
New River	Lower	8.936	33000.00	1159.94	1174.1	1170.6	1176	0	10	3276	338	1
New River	Lower	8.883	13000.00	1159.44	1166.6	1166.0	1168	0	11	1198	227	1
New River	Lower	8.883	23000.00	1159.44	1168.4	1168.2	1172	0	14	1604	235	1
New River	Lower	8.883	33000.00	1159.44	1170.1	1170.1	1174	0	16	2022	243	1
New River	Lower	8.807	13000.00	1158.04	1162.8	1162.8	1165	0	11	1137	280	1
New River	Lower	8.807	23000.00	1158.04	1164.8	1164.8	1168	0	14	1682	288	1
New River	Lower	8.807	33000.00	1158.04	1165.9	1166.4	1170	0	16	2004	293	1
New River	Lower	8.731	13000.00	1154.63	1160.2	1157.4	1160	0	4	3706	762	0
New River	Lower	8.731	23000.00	1154.63	1162.7	1158.5	1163	0	5	5612	771	0
New River	Lower	8.731	33000.00	1154.63	1164.9	1159.3	1165	0	5	7312	779	0

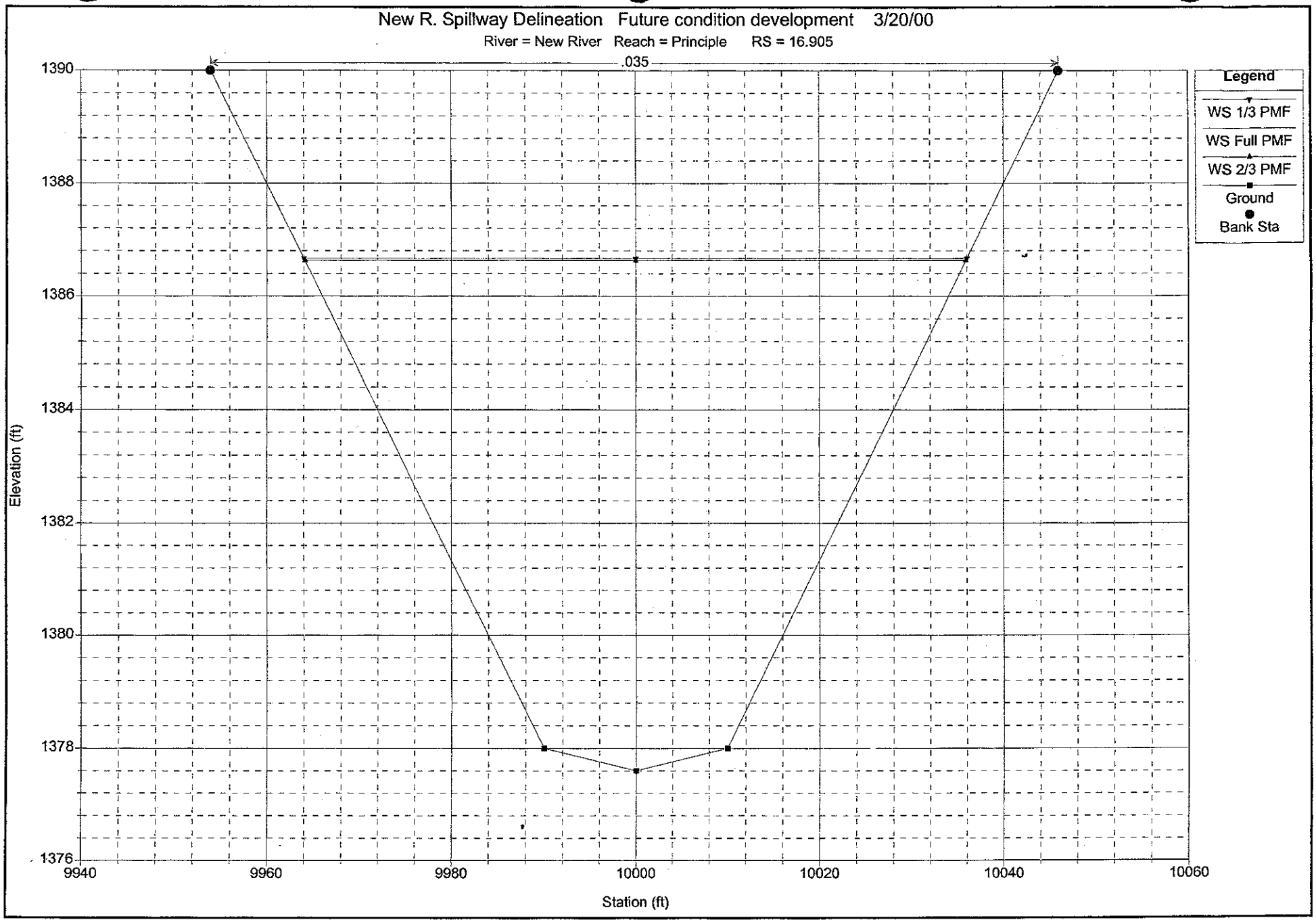
HEC-RAS Plan: Future (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
New River	Lower	8.052	33000.00	1136.42	1153.5	1148.8	1155	0	10	3384	312	1
New River	Lower	8.006	13000.00	1136.11	1147.4	1144.1	1148	0	7	1772	247	0
New River	Lower	8.006	23000.00	1136.11	1150.4	1146.5	1152	0	9	2592	287	1
New River	Lower	8.006	33000.00	1136.11	1152.9	1148.6	1154	0	10	3320	314	1
New River	Lower	7.920	13000.00	1135.74	1146.3	1143.2	1147	0	8	1718	247	1
New River	Lower	7.920	23000.00	1135.74	1149.2	1145.7	1151	0	9	2501	284	1
New River	Lower	7.920	33000.00	1135.74	1151.6	1147.7	1153	0	10	3210	311	1
New River	Lower	7.800	13000.00	1135.65	1143.8	1142.2	1145	0	9	1399	238	1
New River	Lower	7.800	23000.00	1135.65	1146.6	1144.6	1148	0	11	2104	267	1
New River	Lower	7.800	33000.00	1135.65	1149.0	1146.5	1151	0	12	2796	295	1
New River	Lower	7.751	13000.00	1135.30	1142.5	1141.1	1144	0	9	1381	231	1
New River	Lower	7.751	23000.00	1135.30	1145.2	1143.3	1147	0	11	2012	242	1
New River	Lower	7.751	33000.00	1135.30	1147.4	1145.2	1150	0	13	2557	252	1
New River	Lower	7.7395	Bridge									
New River	Lower	7.728	13000.00	1135.40	1142.2	1140.9	1144	0	10	1366	240	1
New River	Lower	7.728	23000.00	1135.40	1144.6	1143.1	1147	0	12	1973	255	1
New River	Lower	7.728	33000.00	1135.40	1146.6	1145.0	1149	0	13	2503	269	1

New R. Spillway Delineation Future condition development 3/20/00

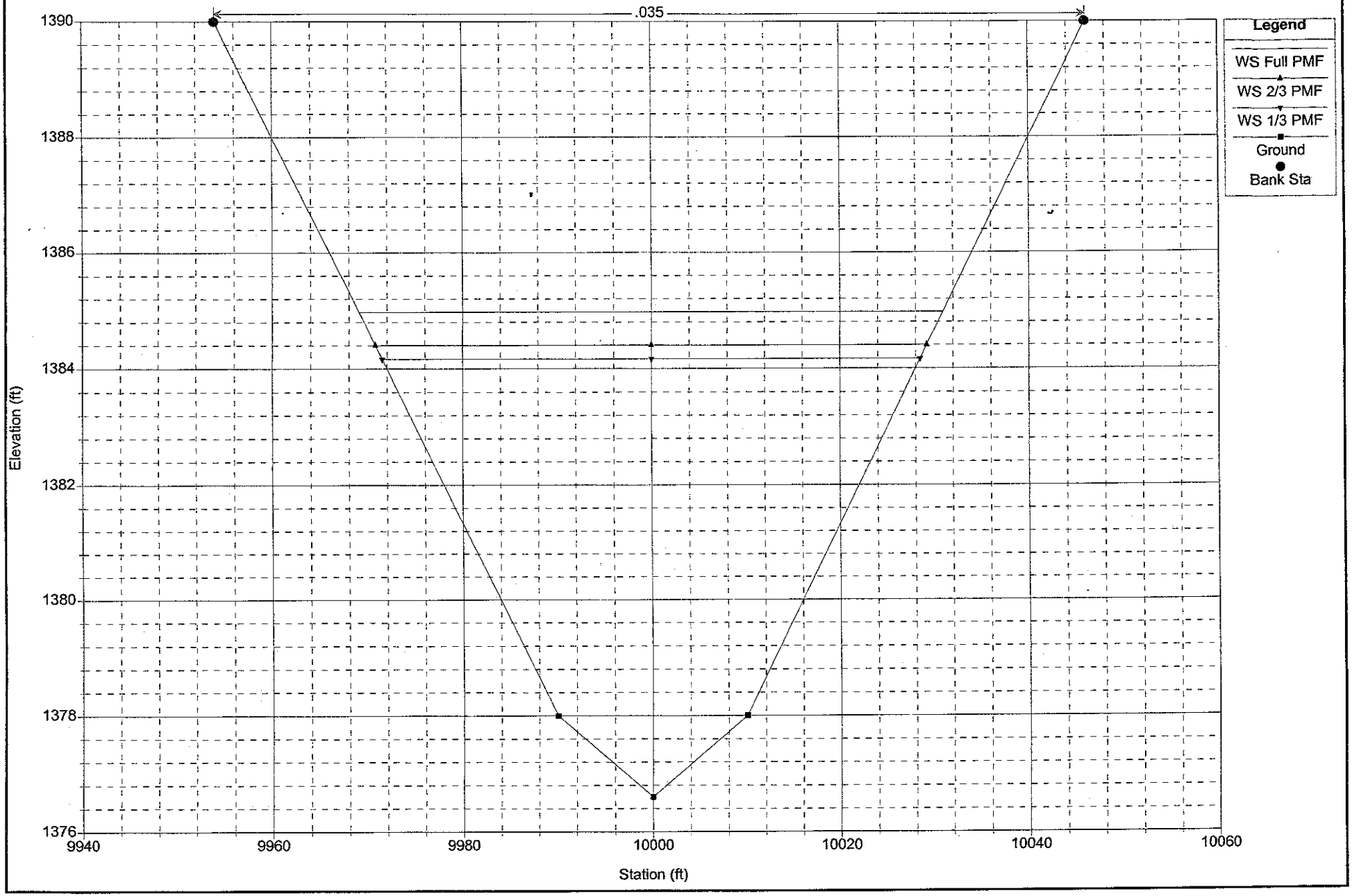
River = New River Reach = Principle RS = 16.943

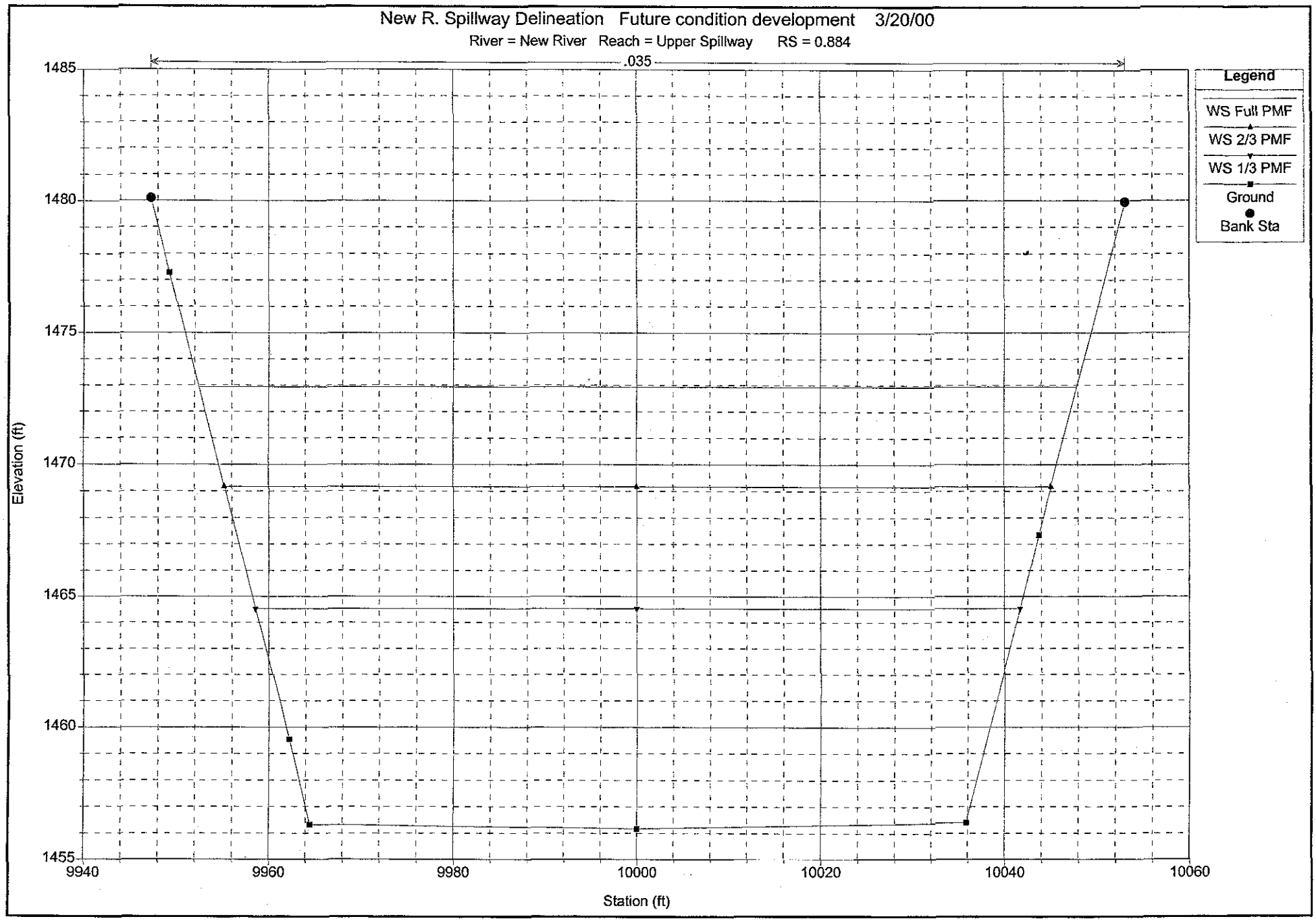


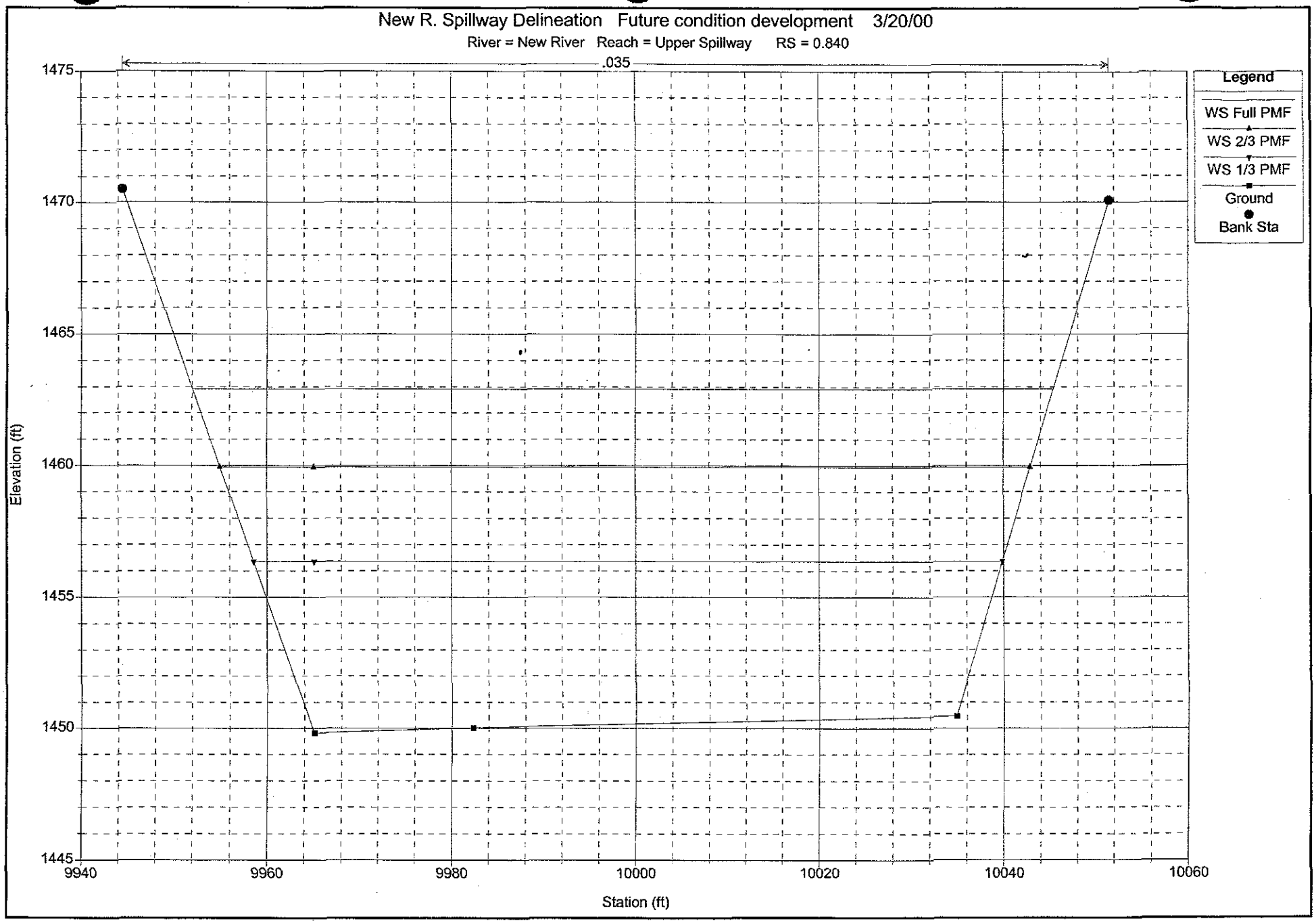

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Principle RS = 16.905
.035
Legend
WS 1/3 PMF
WS Full PMF
WS 2/3 PMF
Ground
Bank Sta
Elevation (ft)
1390
1388
1386
1384
1382
1380
1378
1376
9940
9960
9980
10000
10020
10040
10060
Station (ft)

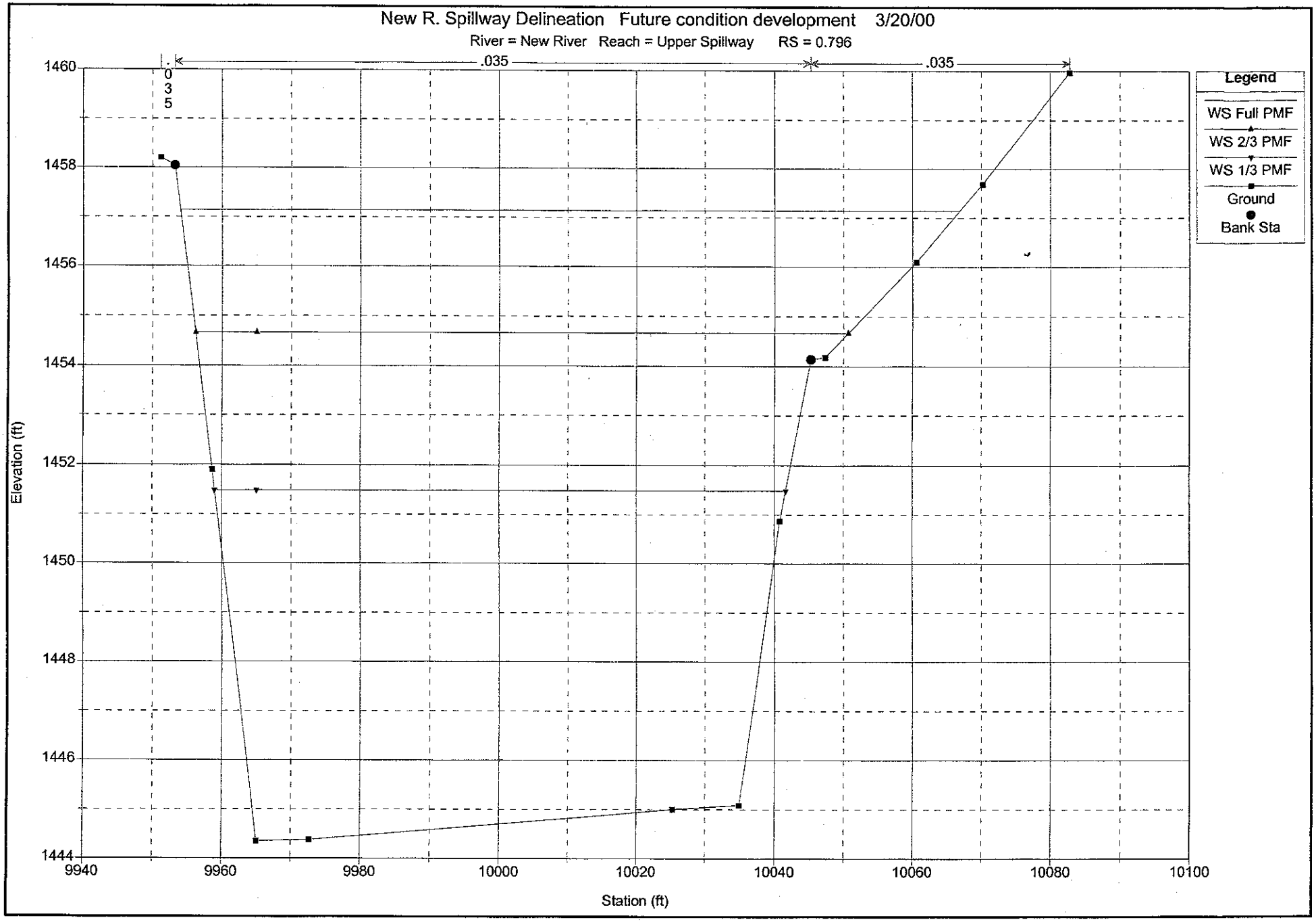
New R. Spillway Delineation Future condition development 3/20/00

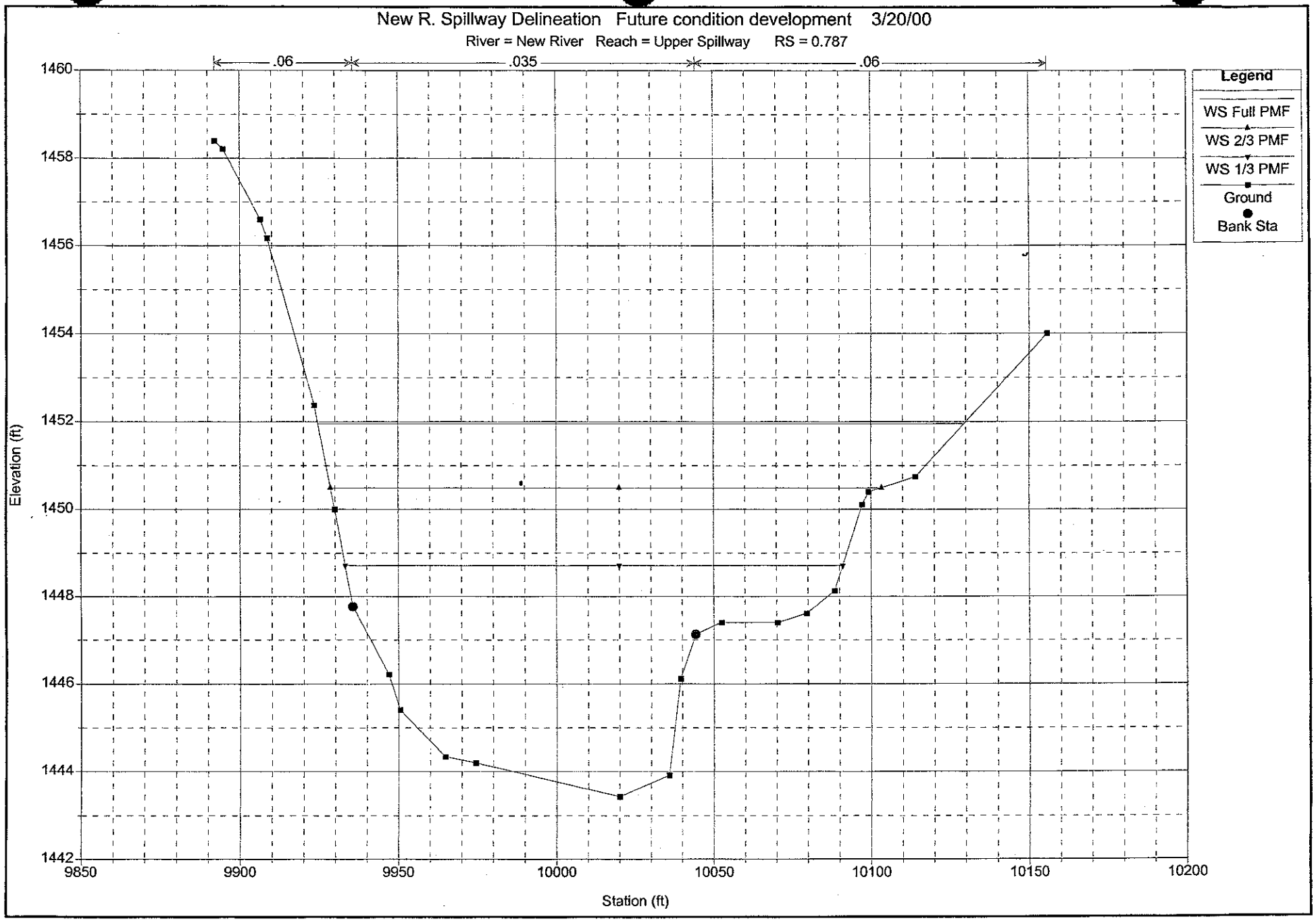
River = New River Reach = Principle RS = 16.867

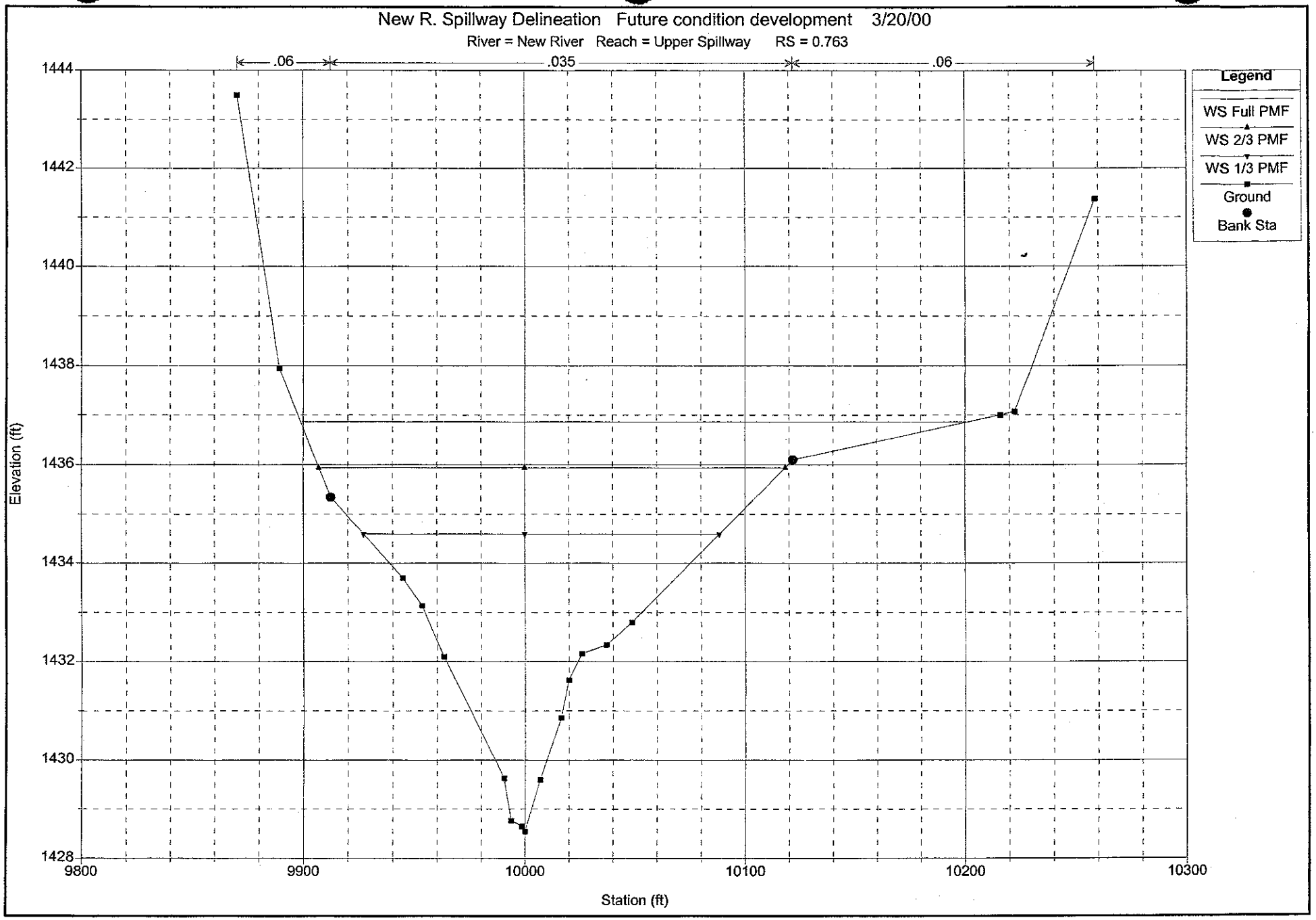


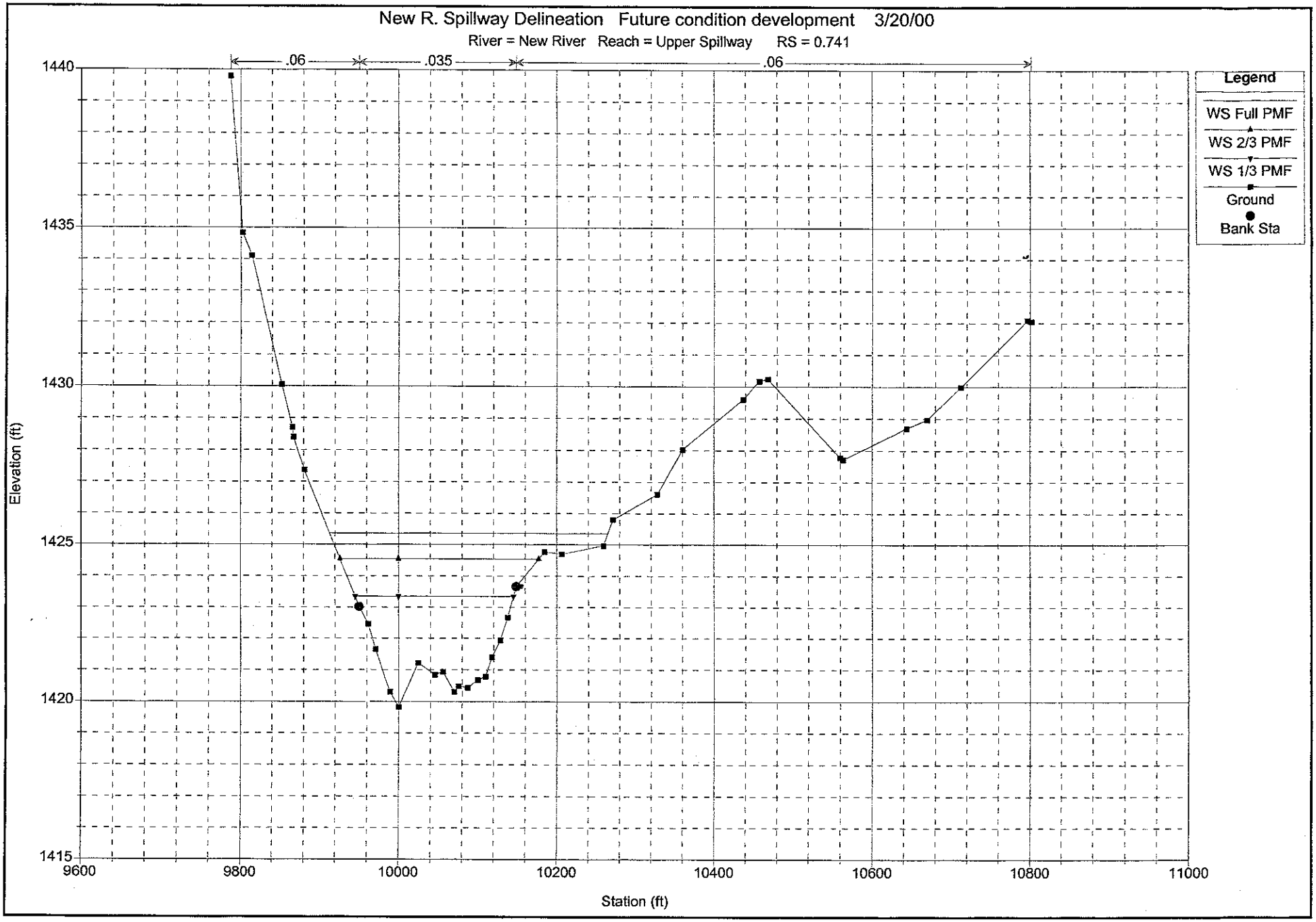

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper Spillway RS = 0.884
.035
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1485
1480
1475
1470
1465
1460
1455
9940
9960
9980
10000
10020
10040
10060
Station (ft)

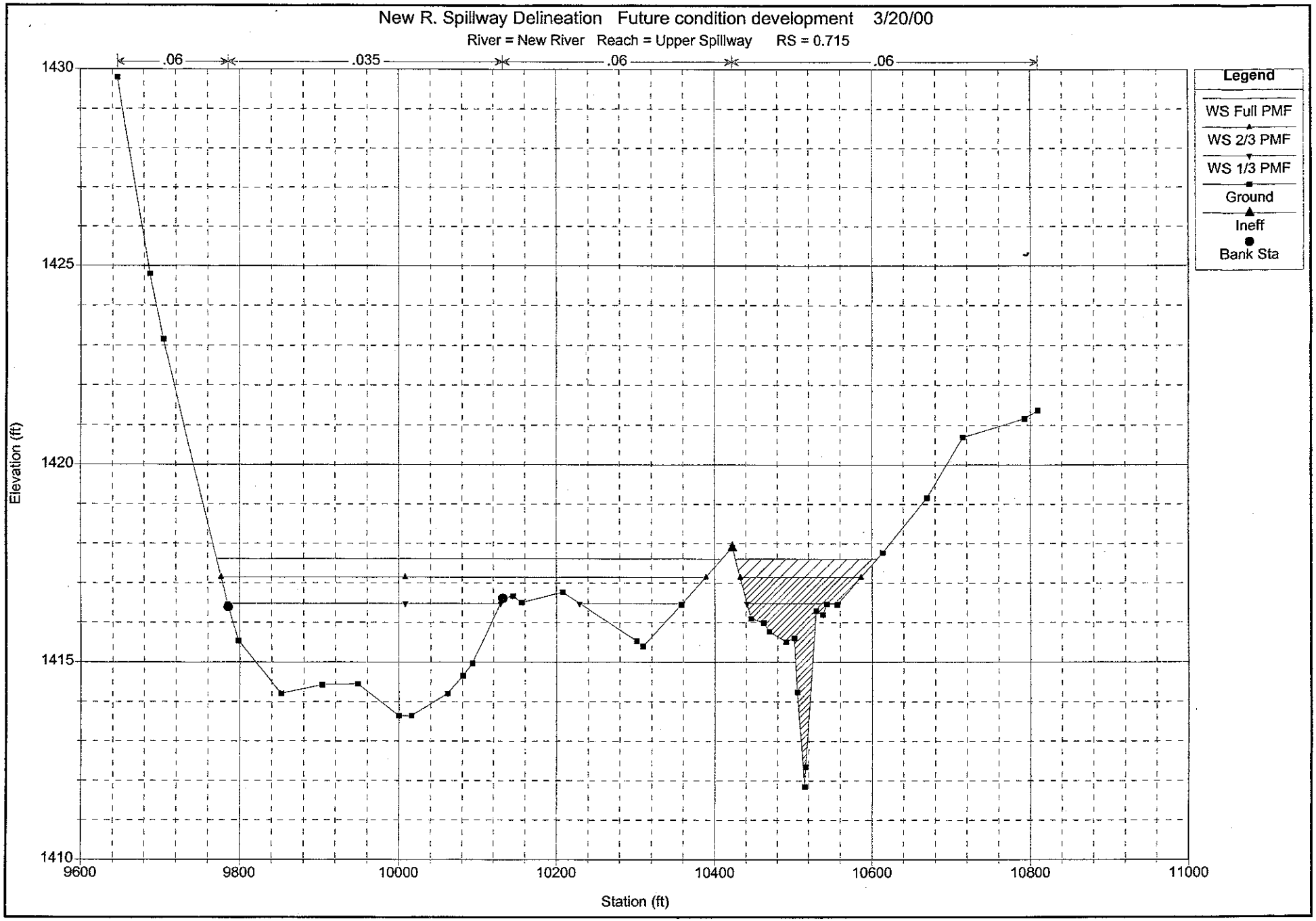

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper Spillway RS = 0.840
.035
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1475
1470
1465
1460
1455
1450
1445
9940
9960
9980
10000
10020
10040
10060
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper Spillway RS = 0.796
.035
.035
.035
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1460
1458
1456
1454
1452
1450
1448
1446
1444
9940
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper Spillway RS = 0.787
.06
.035
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1460
1458
1456
1454
1452
1450
1448
1446
1444
1442
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

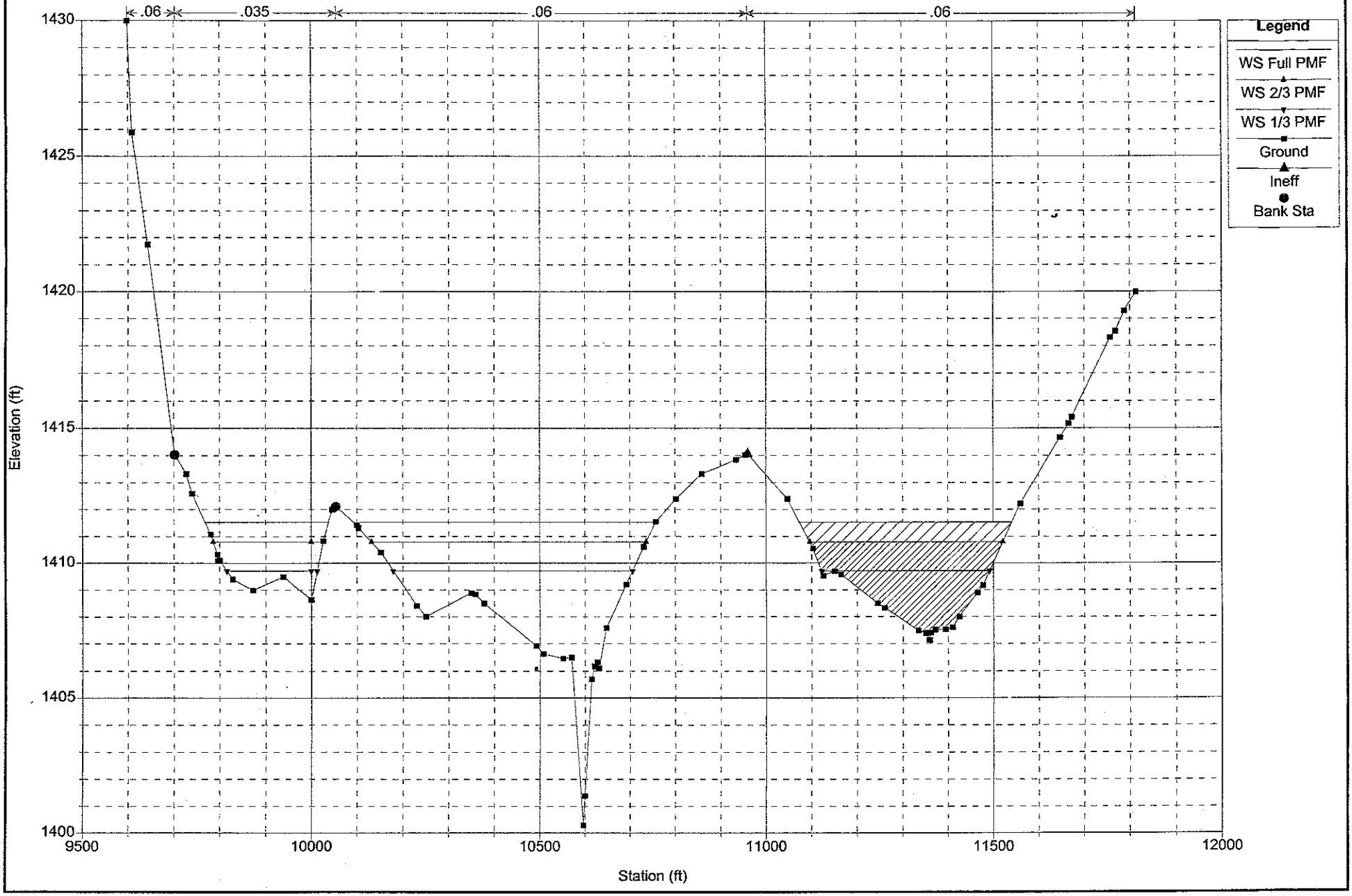

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper Spillway RS = 0.763
.06
.035
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1444
1442
1440
1438
1436
1434
1432
1430
1428
9800
9900
10000
10100
10200
10300
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper Spillway RS = 0.741
.06
.035
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1440
1435
1430
1425
1420
1415
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper Spillway RS = 0.715
.06
.035
.06
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1430
1425
1420
1415
1410
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)

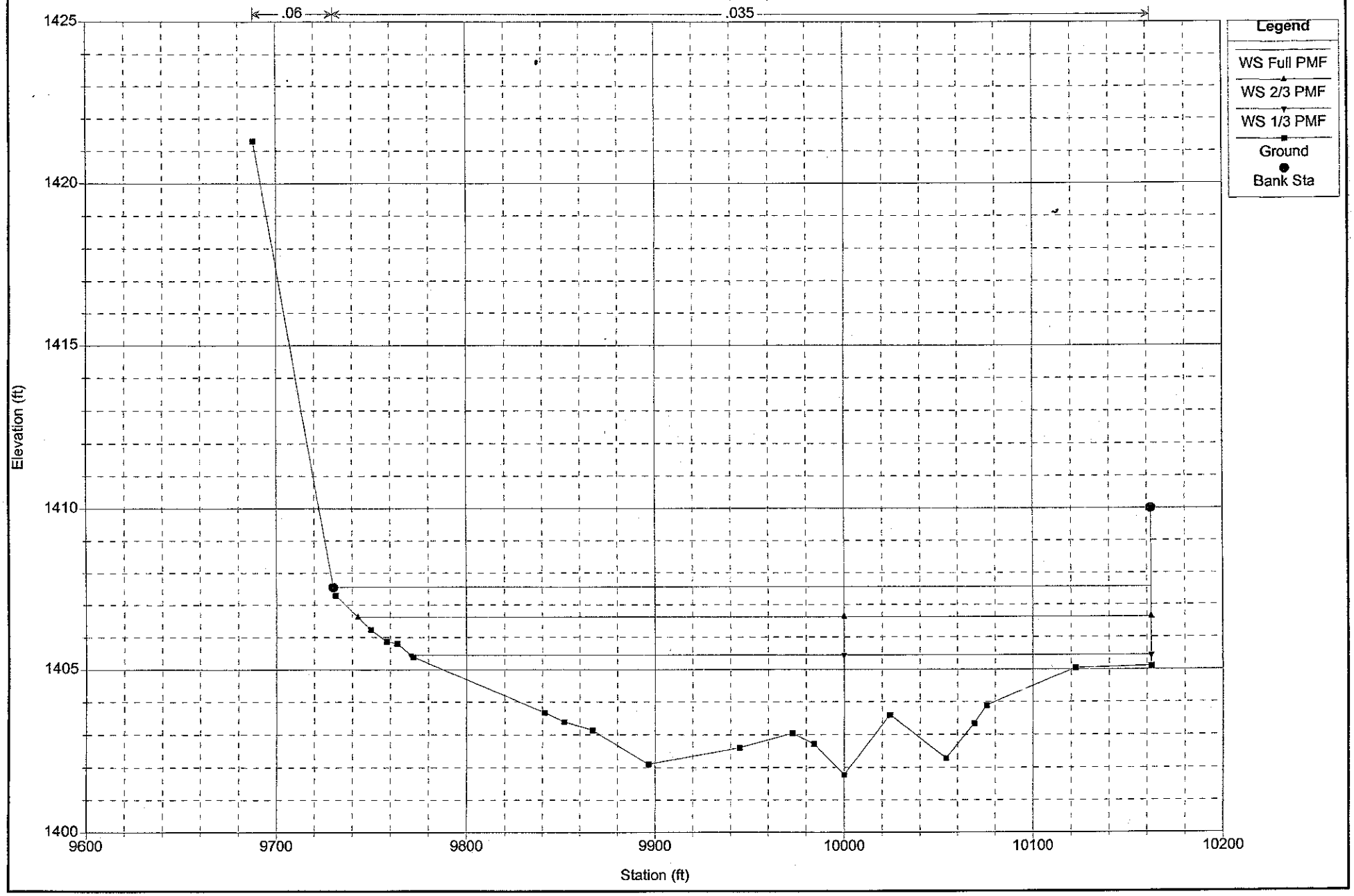
New R. Spillway Delineation Future condition development 3/20/00

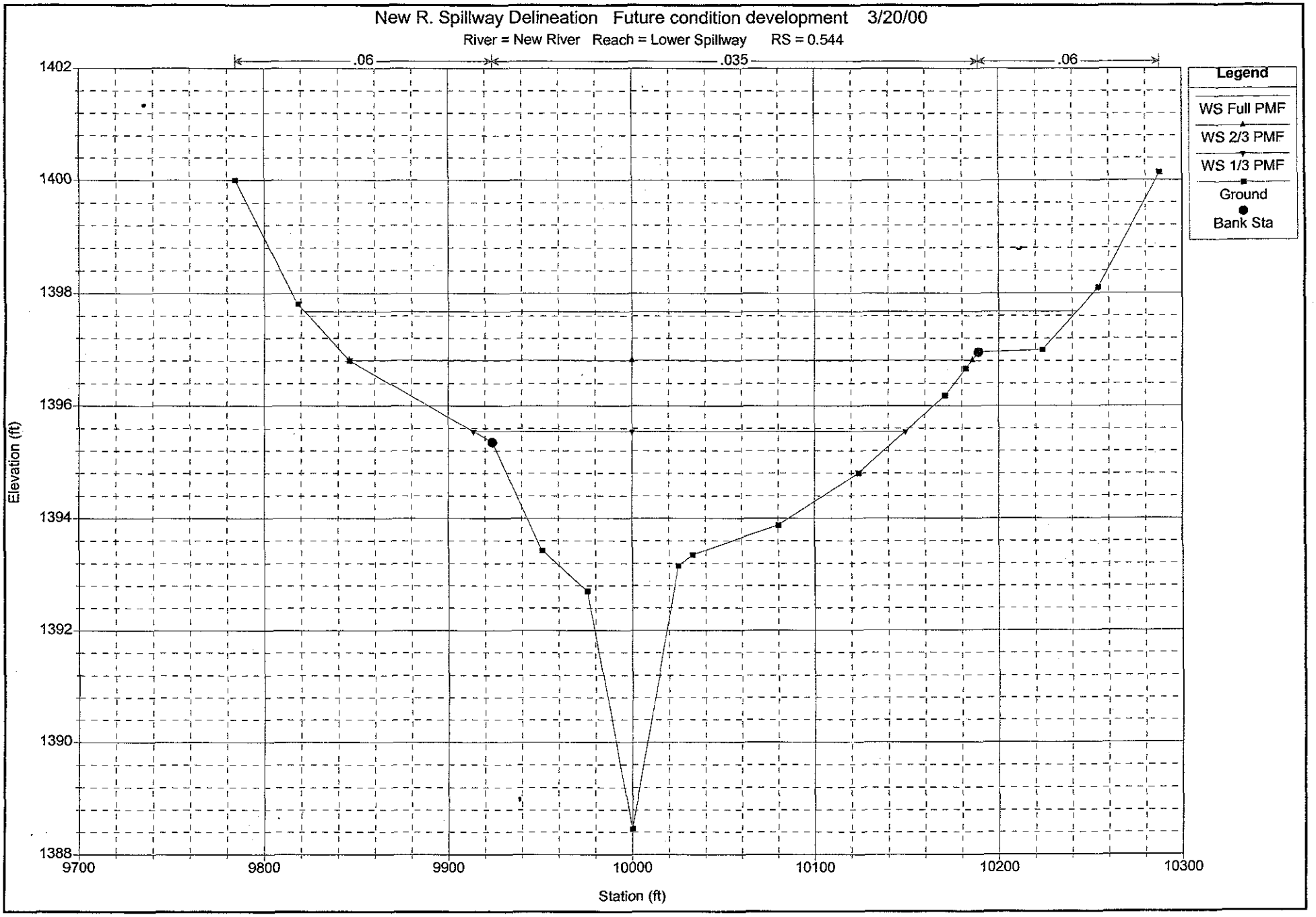
River = New River Reach = Upper Spillway RS = 0.681

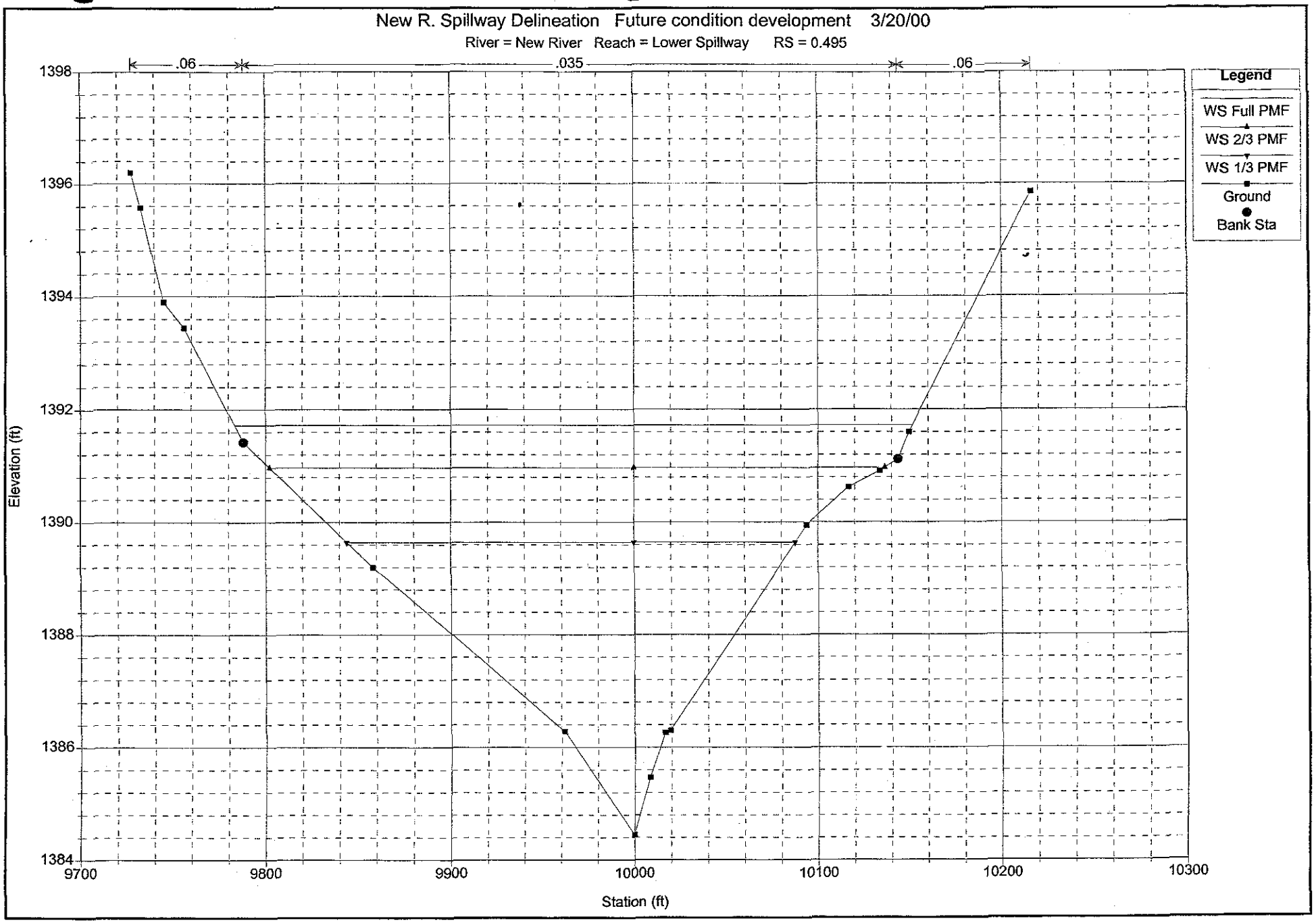


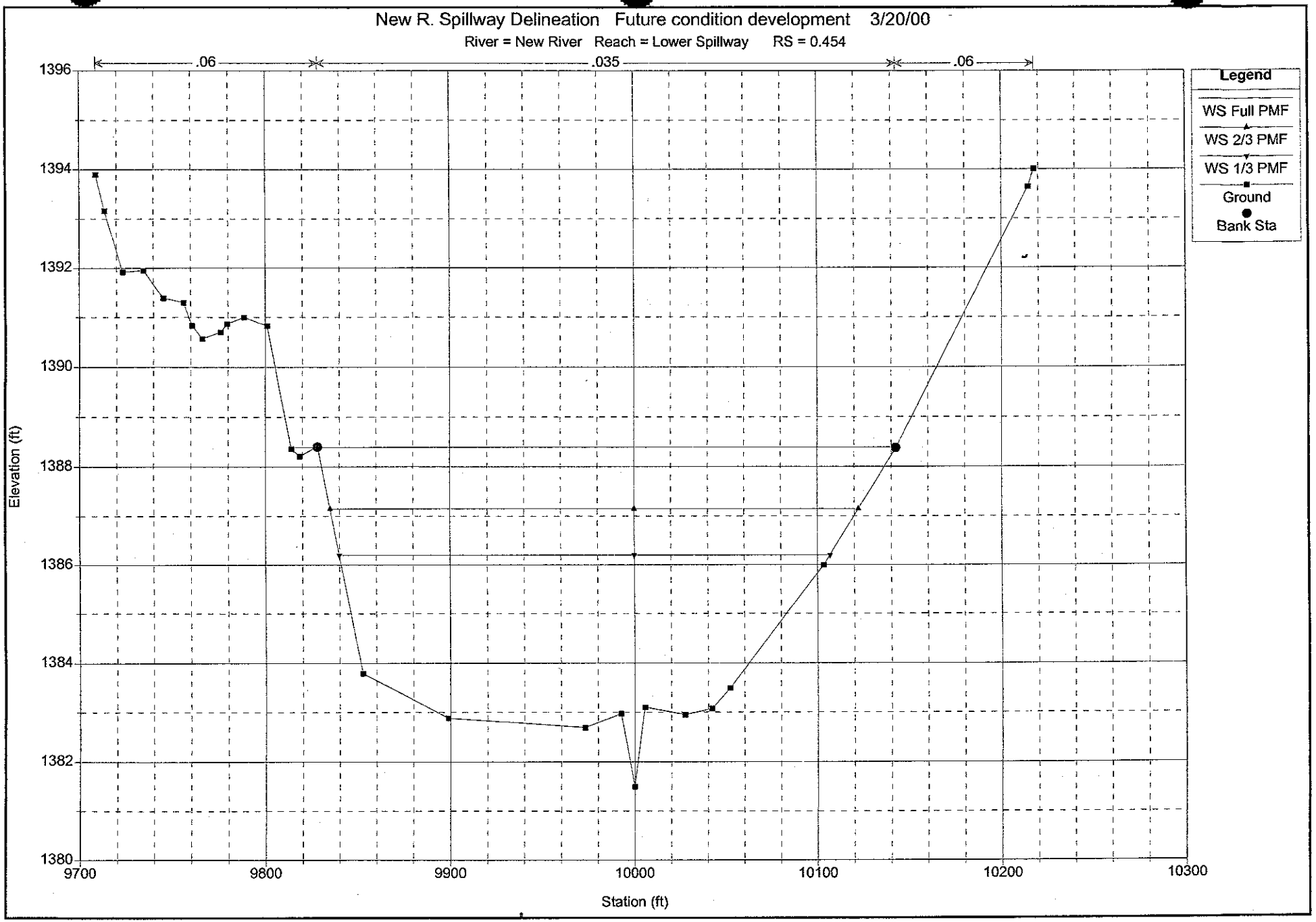
New R. Spillway Delineation Future condition development 3/20/00

River = New River Reach = Lower Spillway RS = 0.622



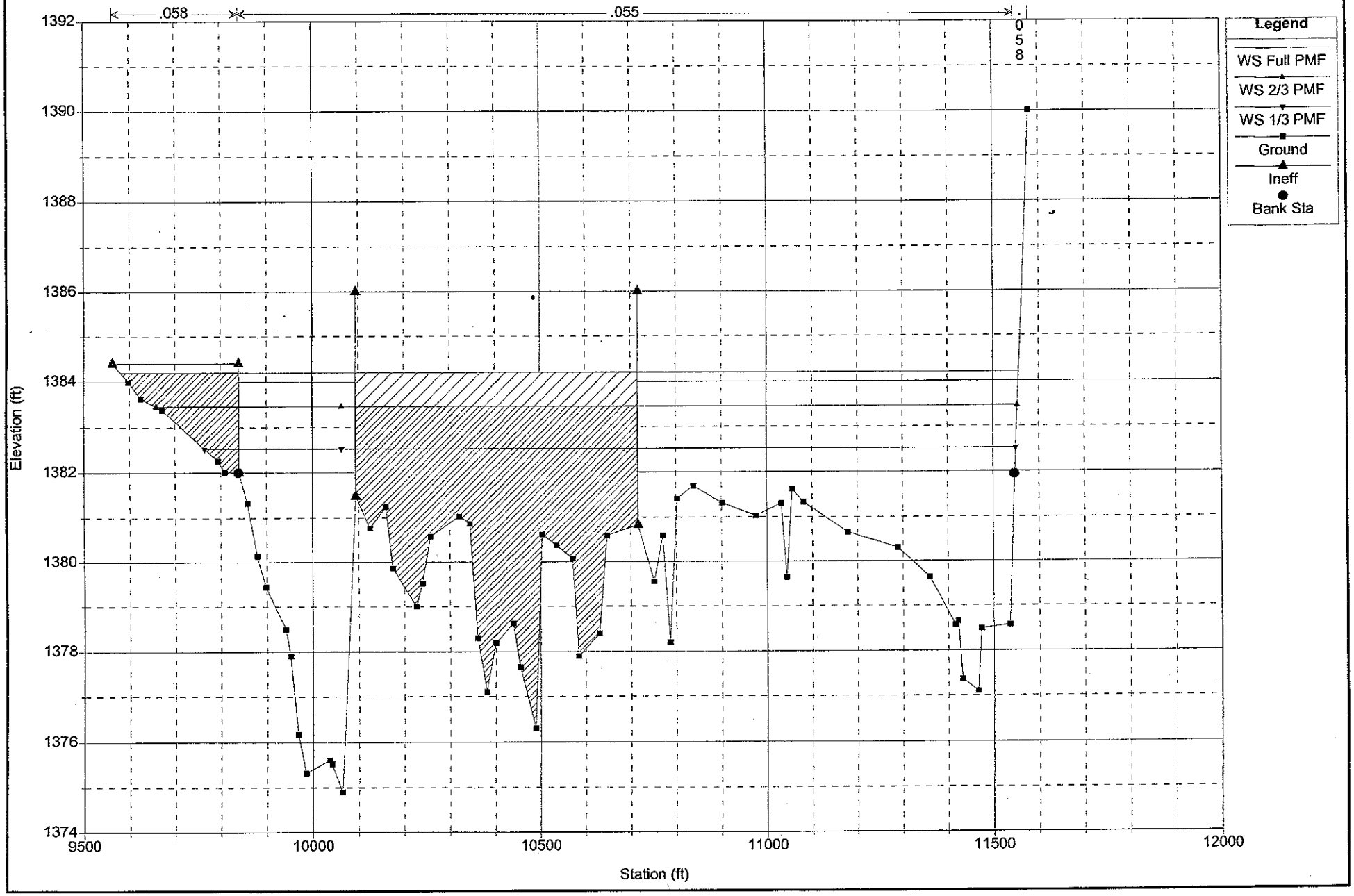

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower Spillway RS = 0.544
.06
.035
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1402
1400
1398
1396
1394
1392
1390
1388
9700
9800
9900
10000
10100
10200
10300
Station (ft)

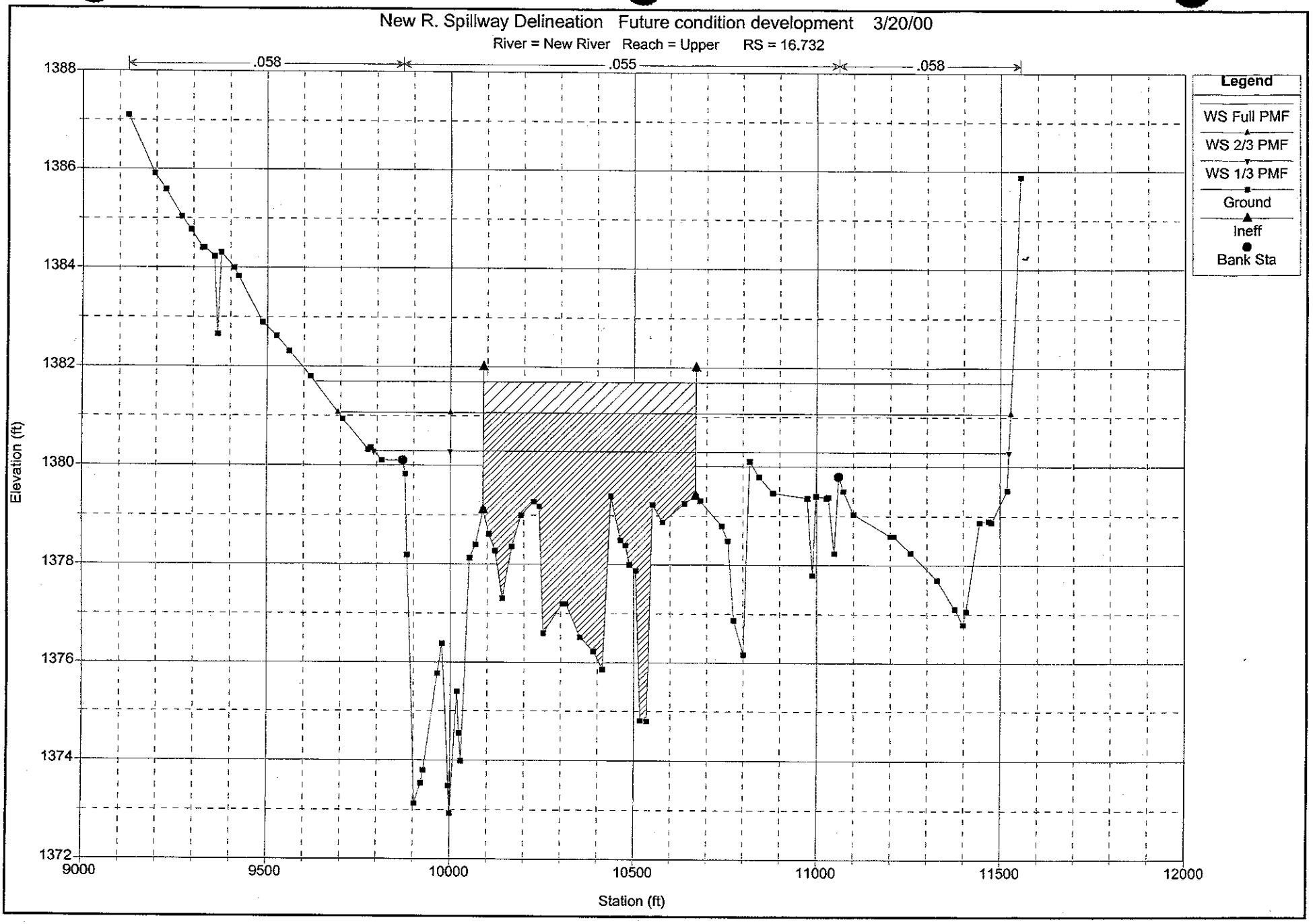

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower Spillway RS = 0.495
.06
.035
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1398
1396
1394
1392
1390
1388
1386
1384
9700
9800
9900
10000
10100
10200
10300
Station (ft)

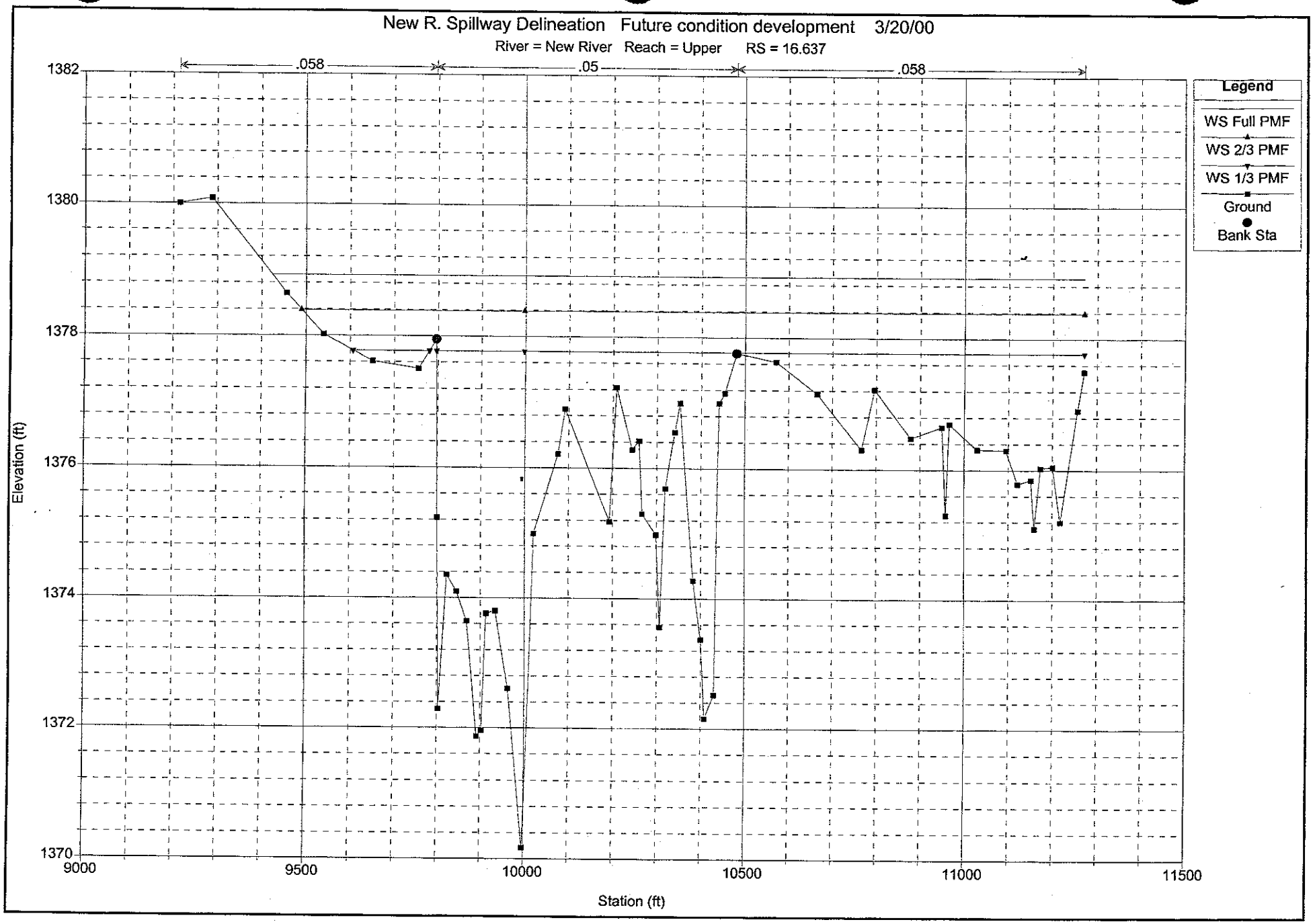

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower Spillway RS = 0.454
.06
.035
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1396
1394
1392
1390
1388
1386
1384
1382
1380
9700
9800
9900
10000
10100
10200
10300
Station (ft)

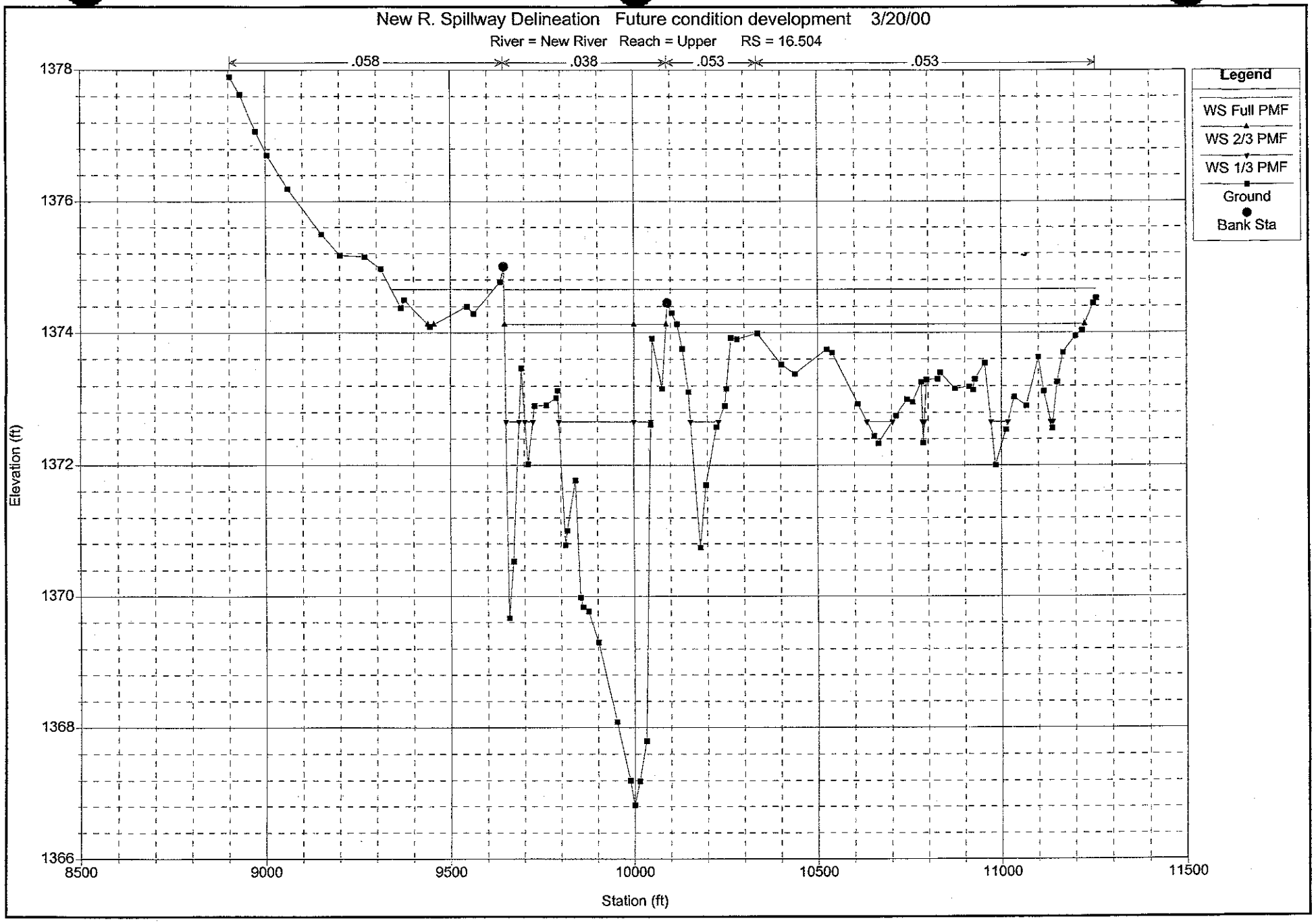
New R. Spillway Delineation Future condition development 3/20/00

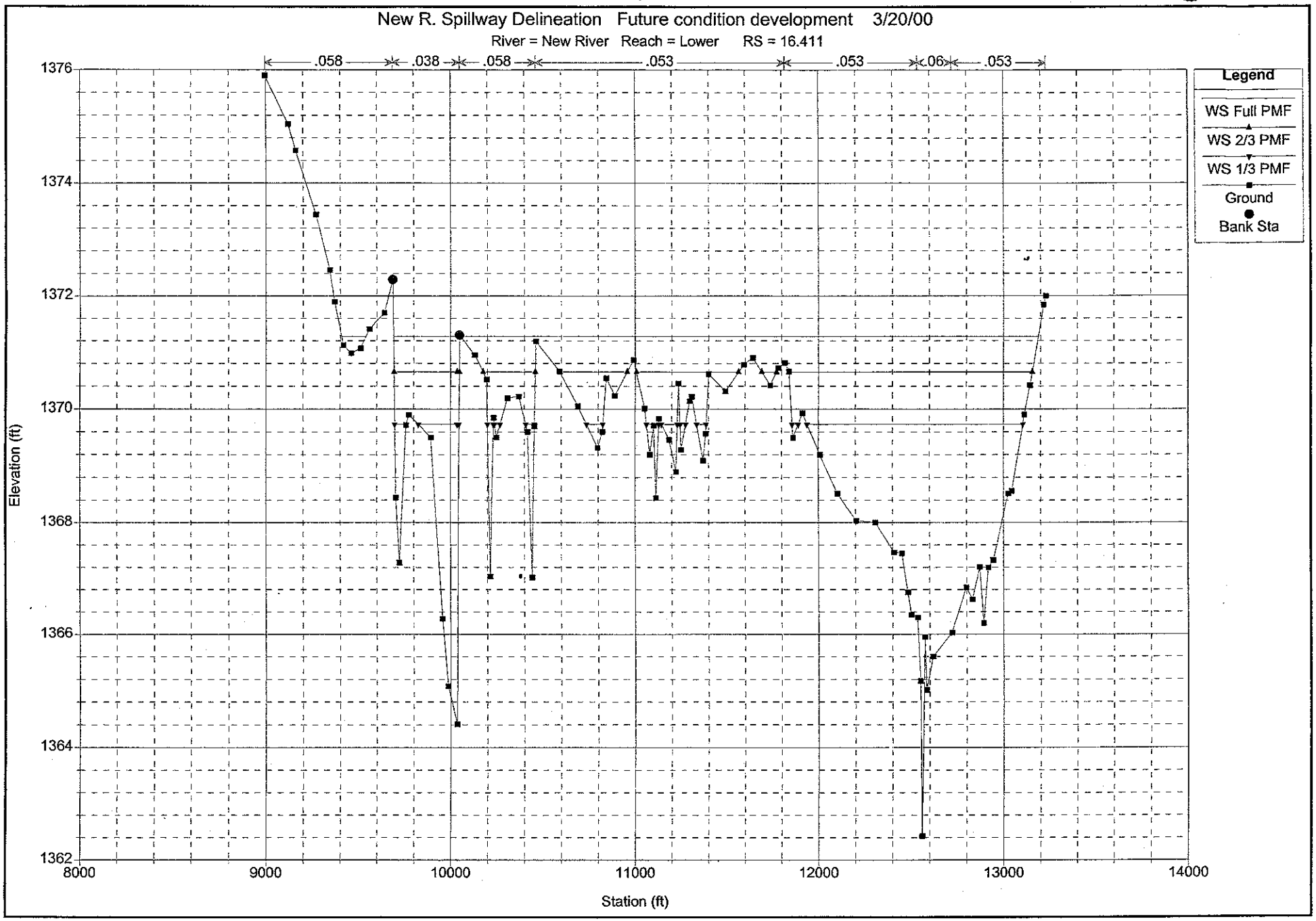
River = New River Reach = Upper RS = 16.829

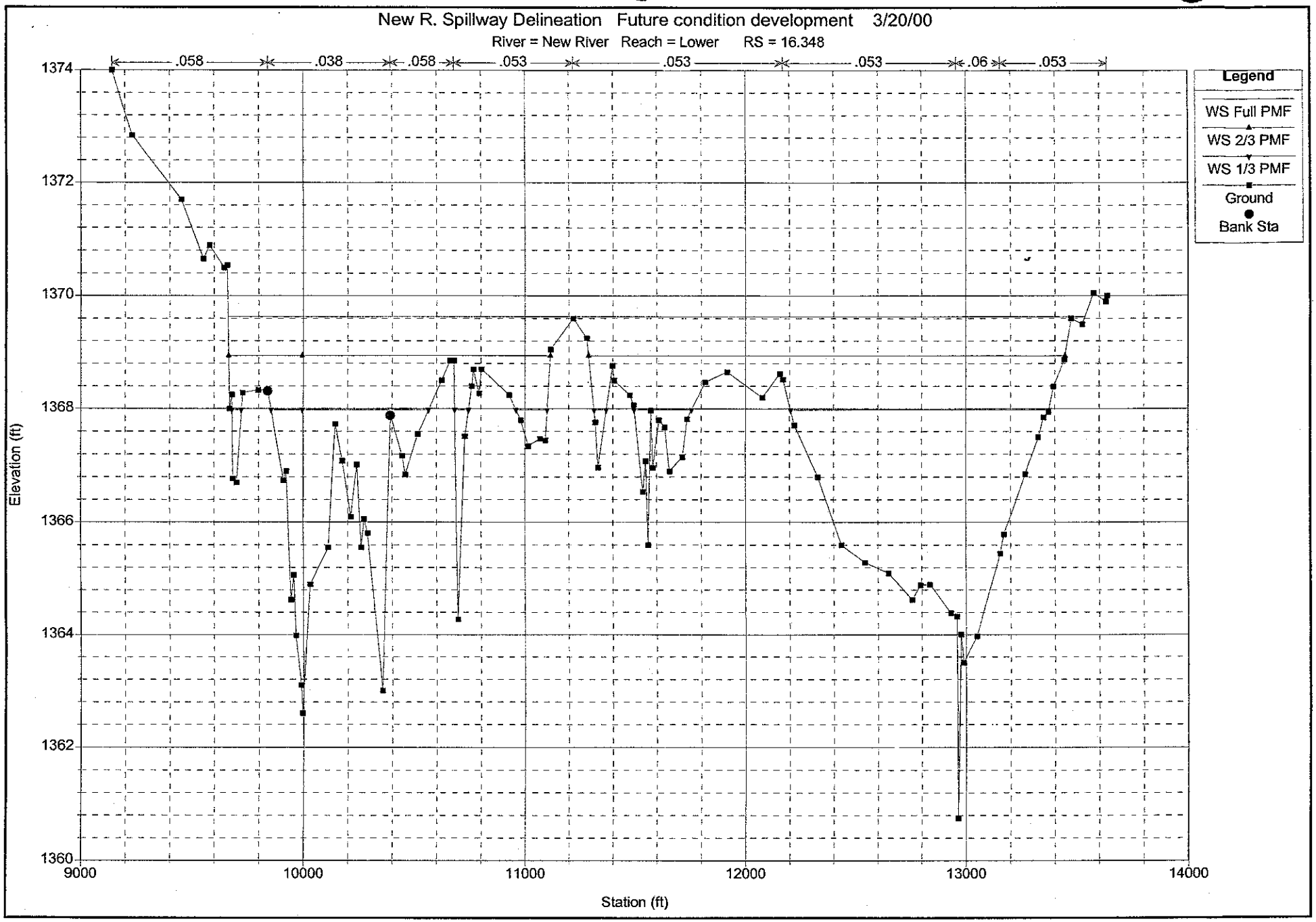


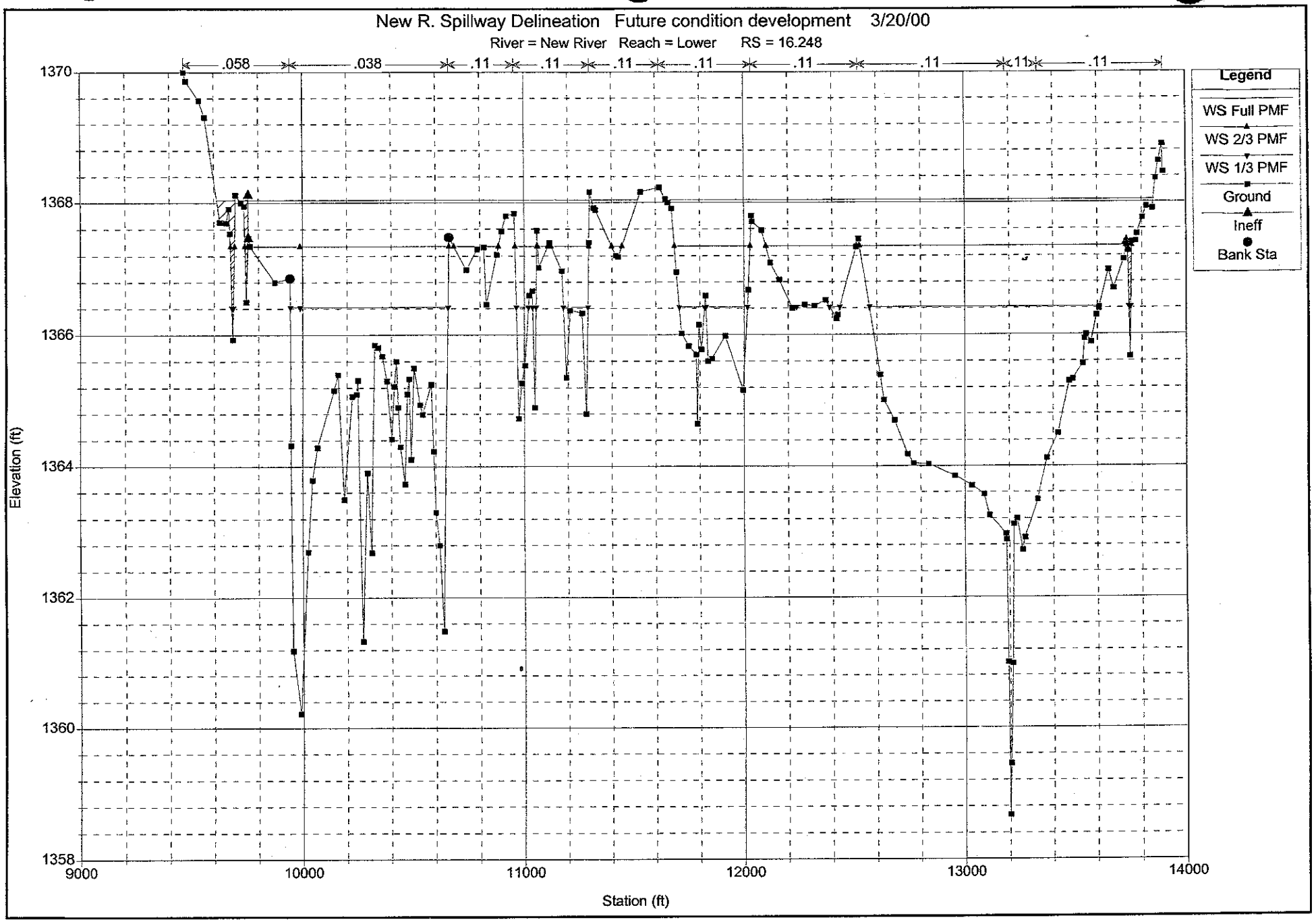

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper RS = 16.732
.058
.055
.058
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1388
1386
1384
1382
1380
1378
1376
1374
1372
9000
9500
10000
10500
11000
11500
12000
Station (ft)

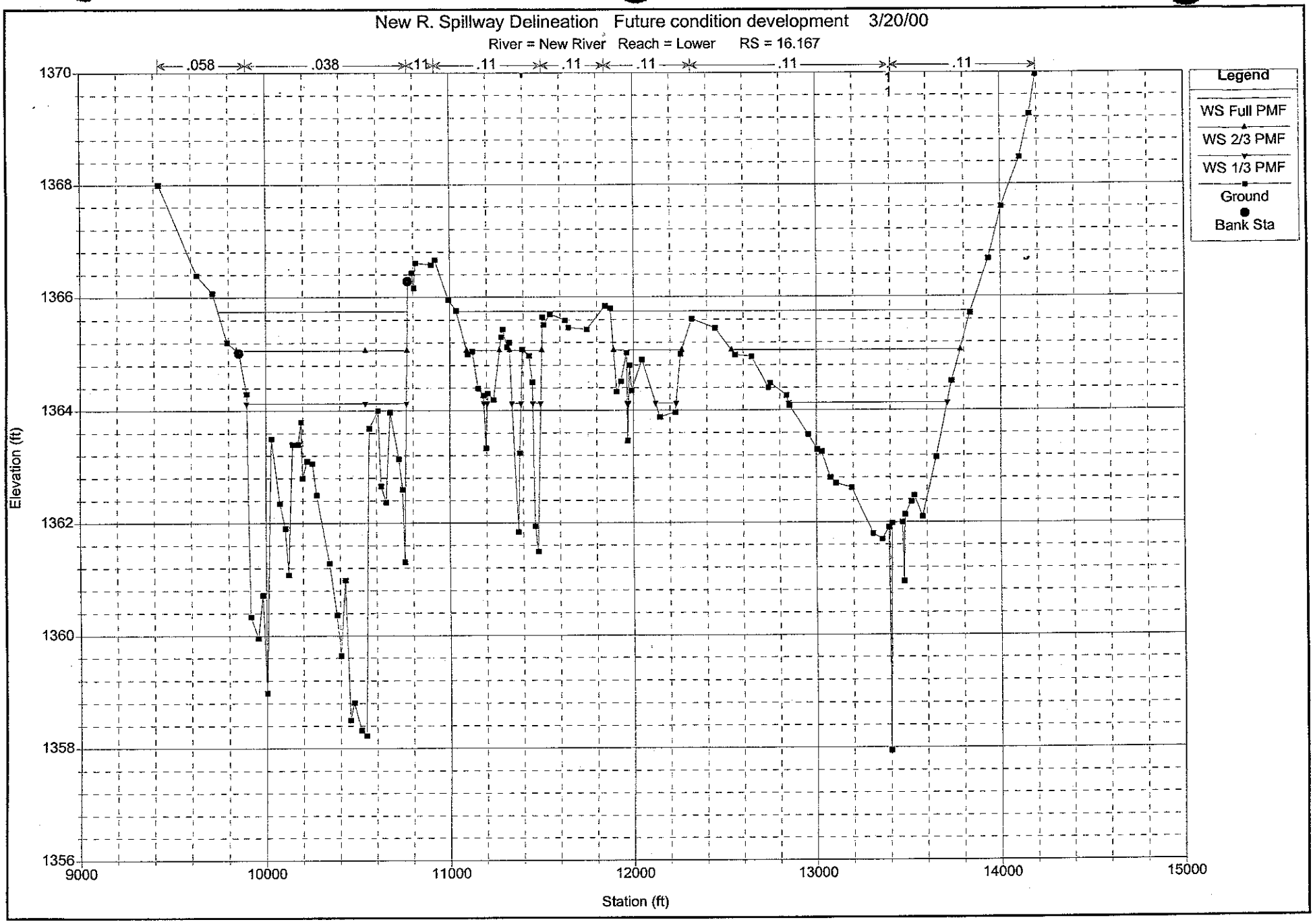

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper RS = 16.637
.058
.05
.058
1382
1380
1378
1376
1374
1372
1370
Elevation (ft)
9000
9500
10000
10500
11000
11500
Station (ft)
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta

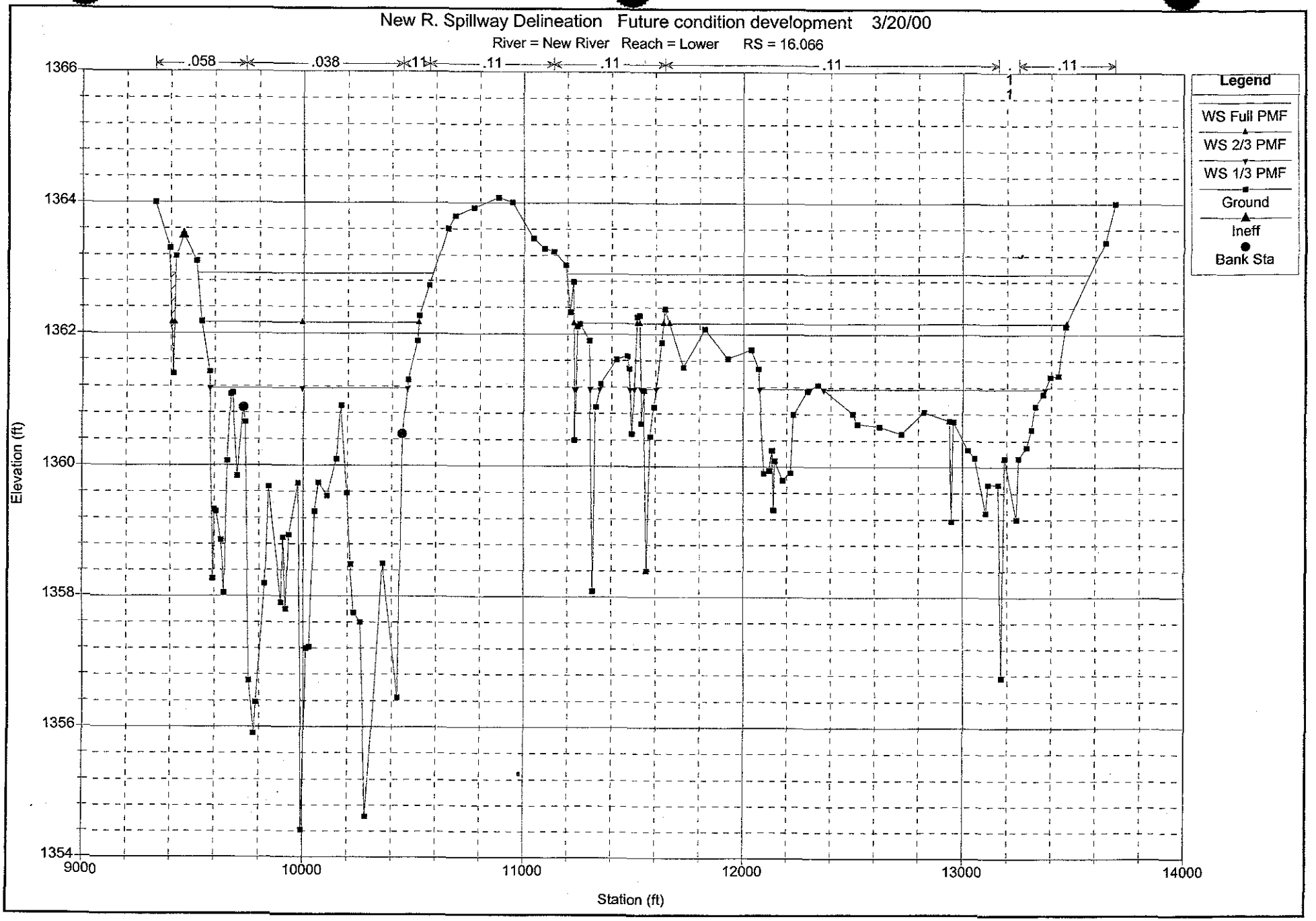

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Upper RS = 16.504
.058
.038
.053
.053
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1378
1376
1374
1372
1370
1368
1366
8500
9000
9500
10000
10500
11000
11500
Station (ft)

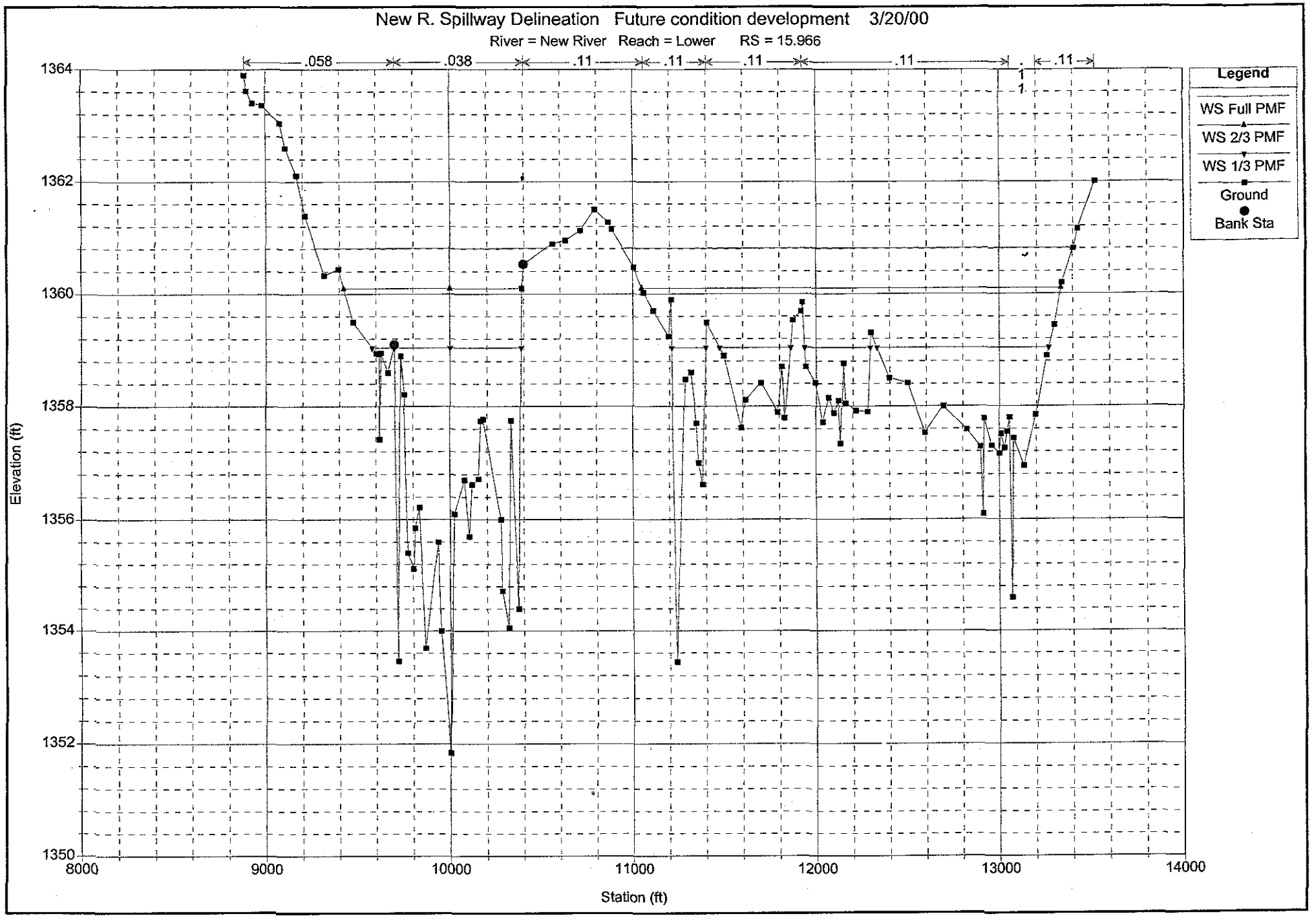

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 16.411
.058
.038
.058
.053
.053
.06
.053
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
1364
1362
8000
9000
10000
11000
12000
13000
14000
Station (ft)

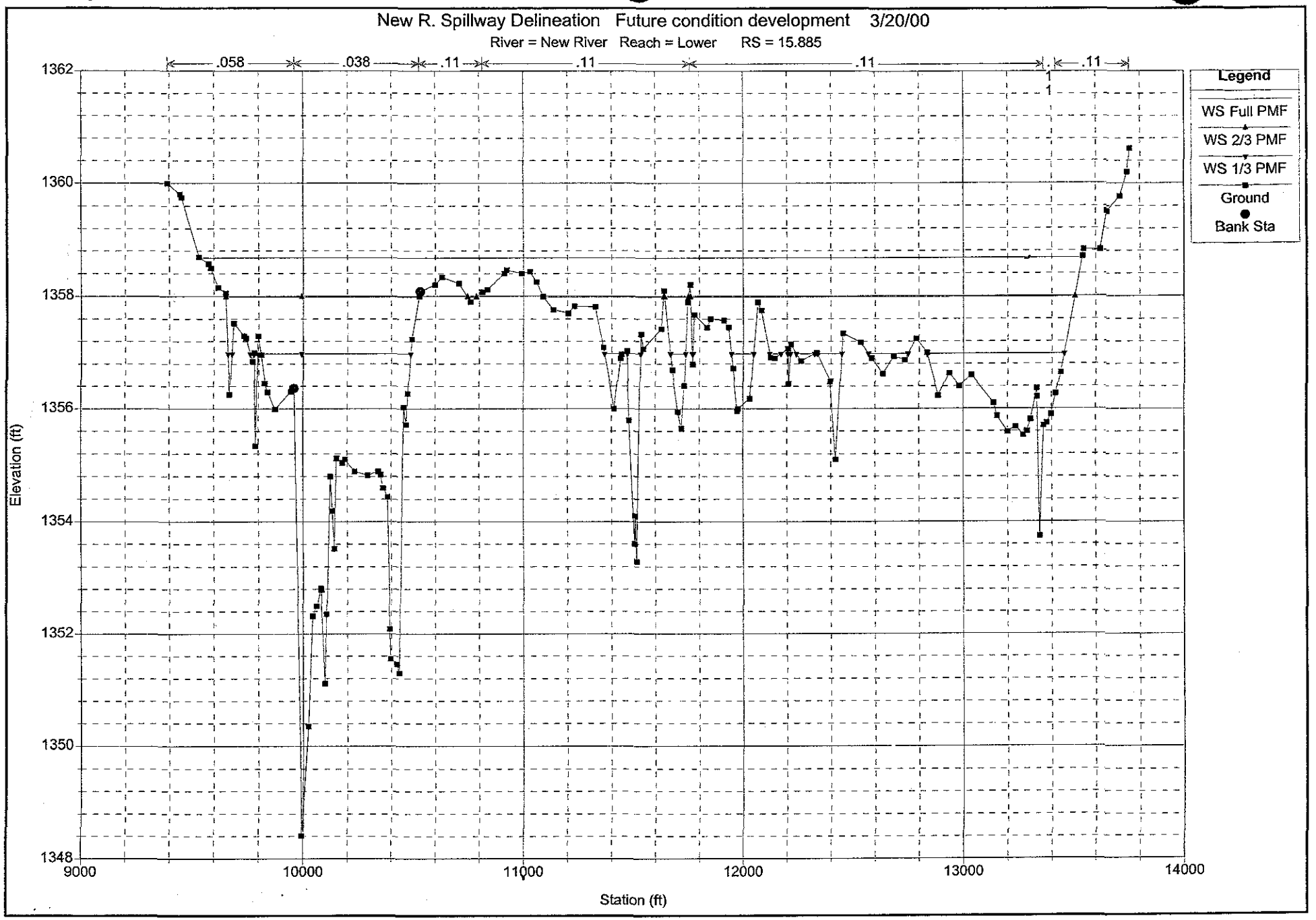

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 16.348
.058
.038
.058
.053
.053
.053
.06
.053
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1374
1372
1370
1368
1366
1364
1362
1360
9000
10000
11000
12000
13000
14000
Station (ft)

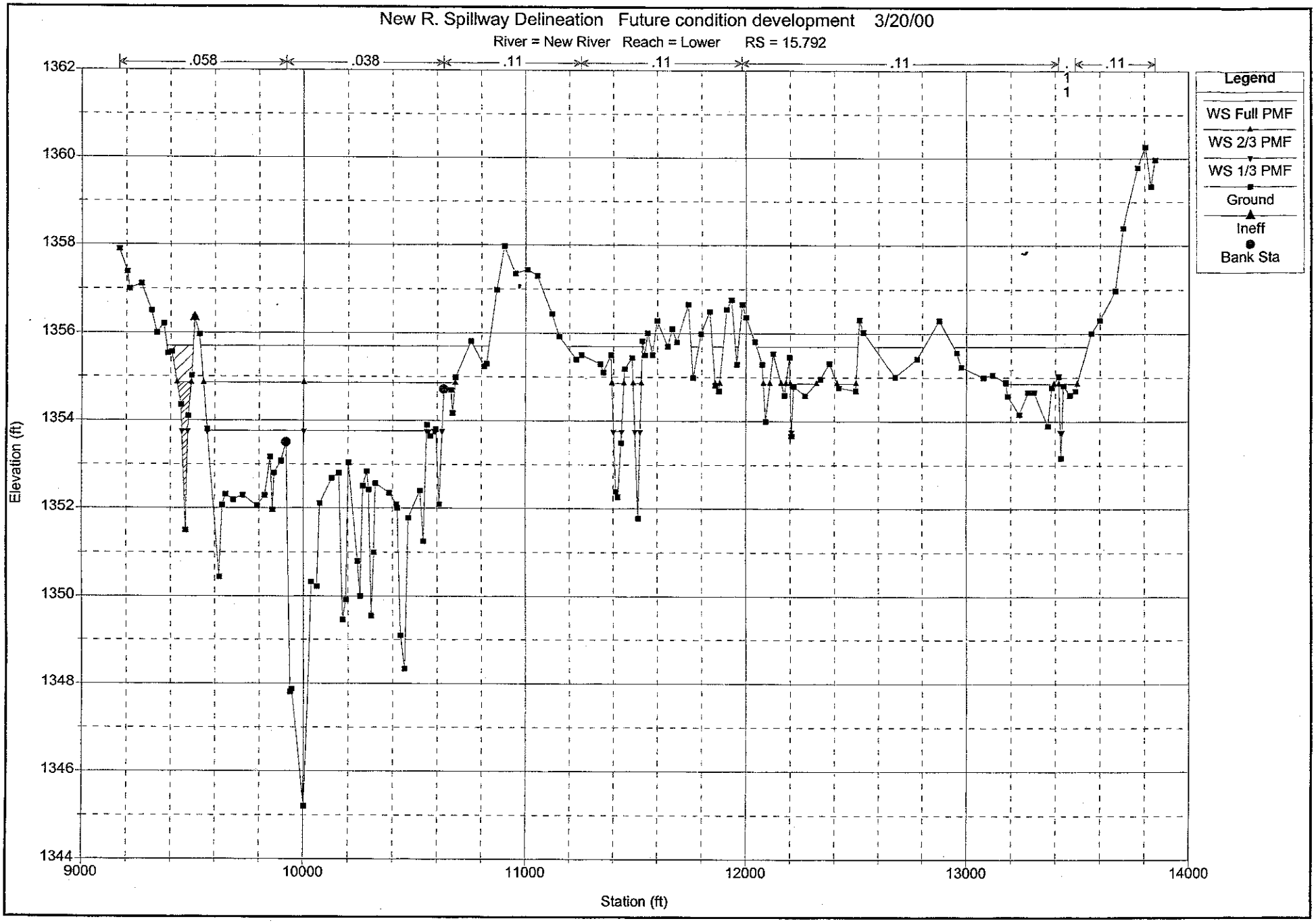

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 16.248
.058
.038
.11
.11
.11
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1370
1368
1366
1364
1362
1360
1358
9000
10000
11000
12000
13000
14000
Station (ft)

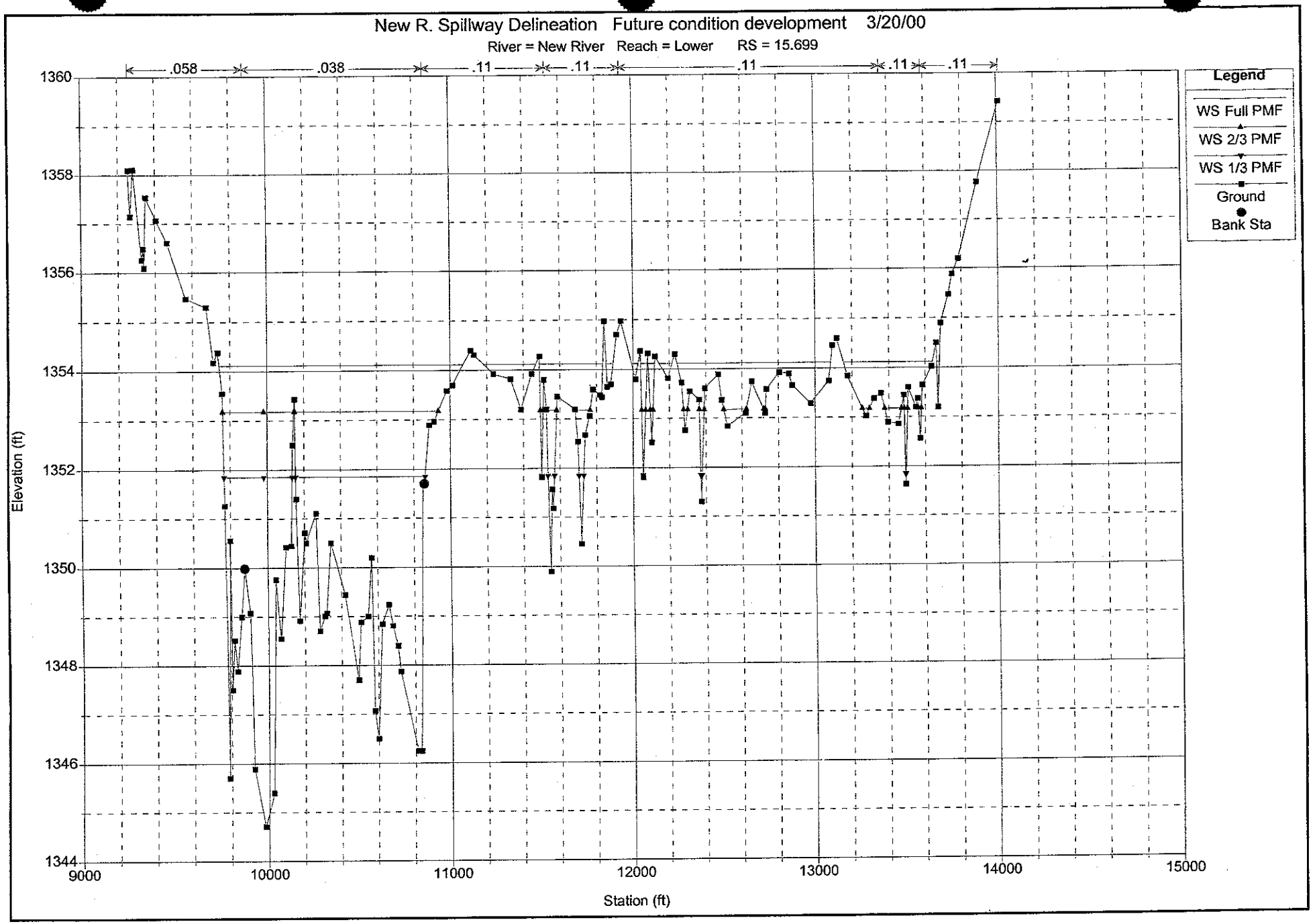

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 16.167
.058
.038
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1370
1368
1366
1364
1362
1360
1358
1356
9000
10000
11000
12000
13000
14000
15000
Station (ft)

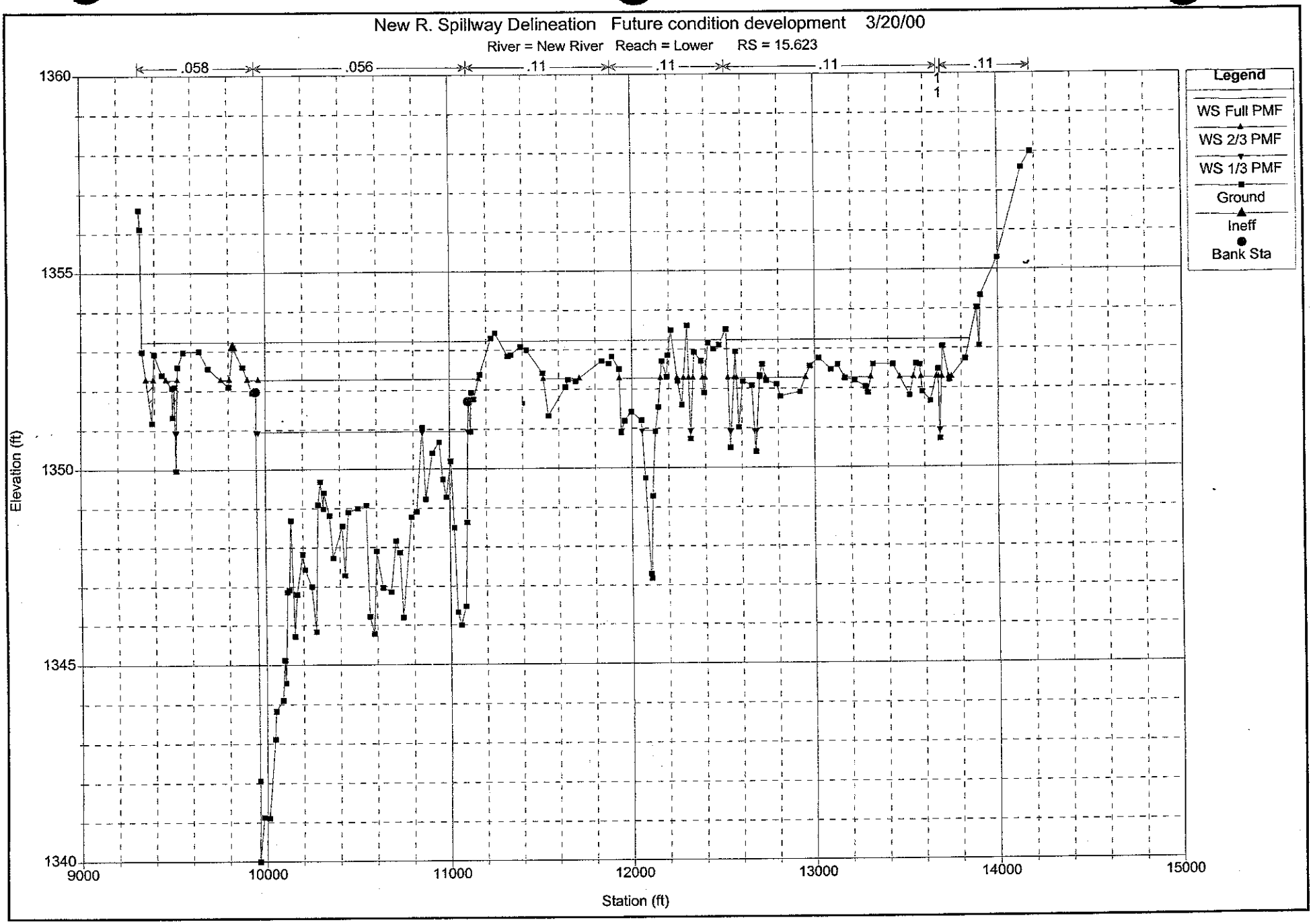

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 16.066
.058
.038
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1366
1364
1362
1360
1358
1356
1354
9000
10000
11000
12000
13000
14000
Station (ft)

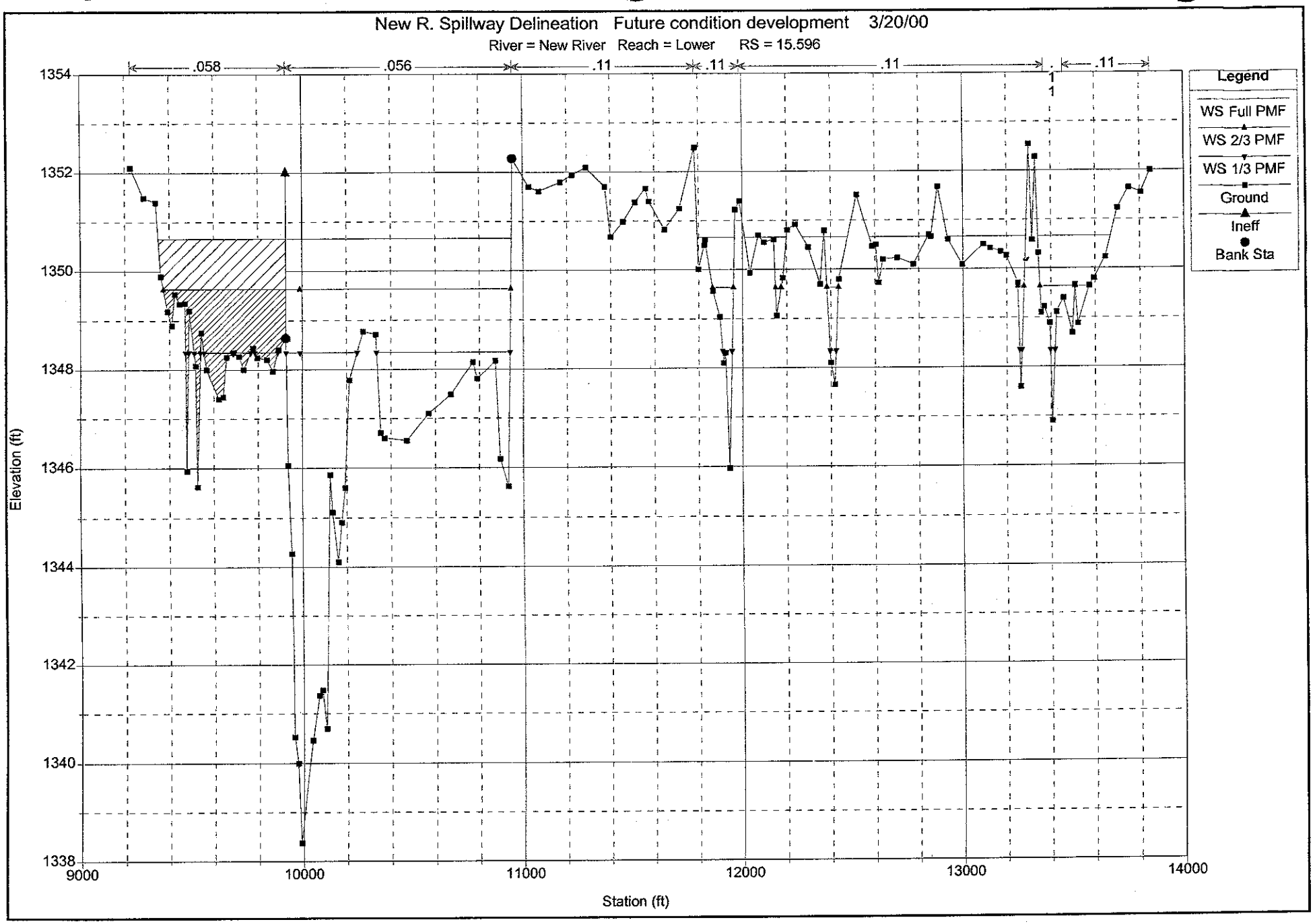

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.966
.058
.038
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1364
1362
1360
1358
1356
1354
1352
1350
8000
9000
10000
11000
12000
13000
14000
Station (ft)

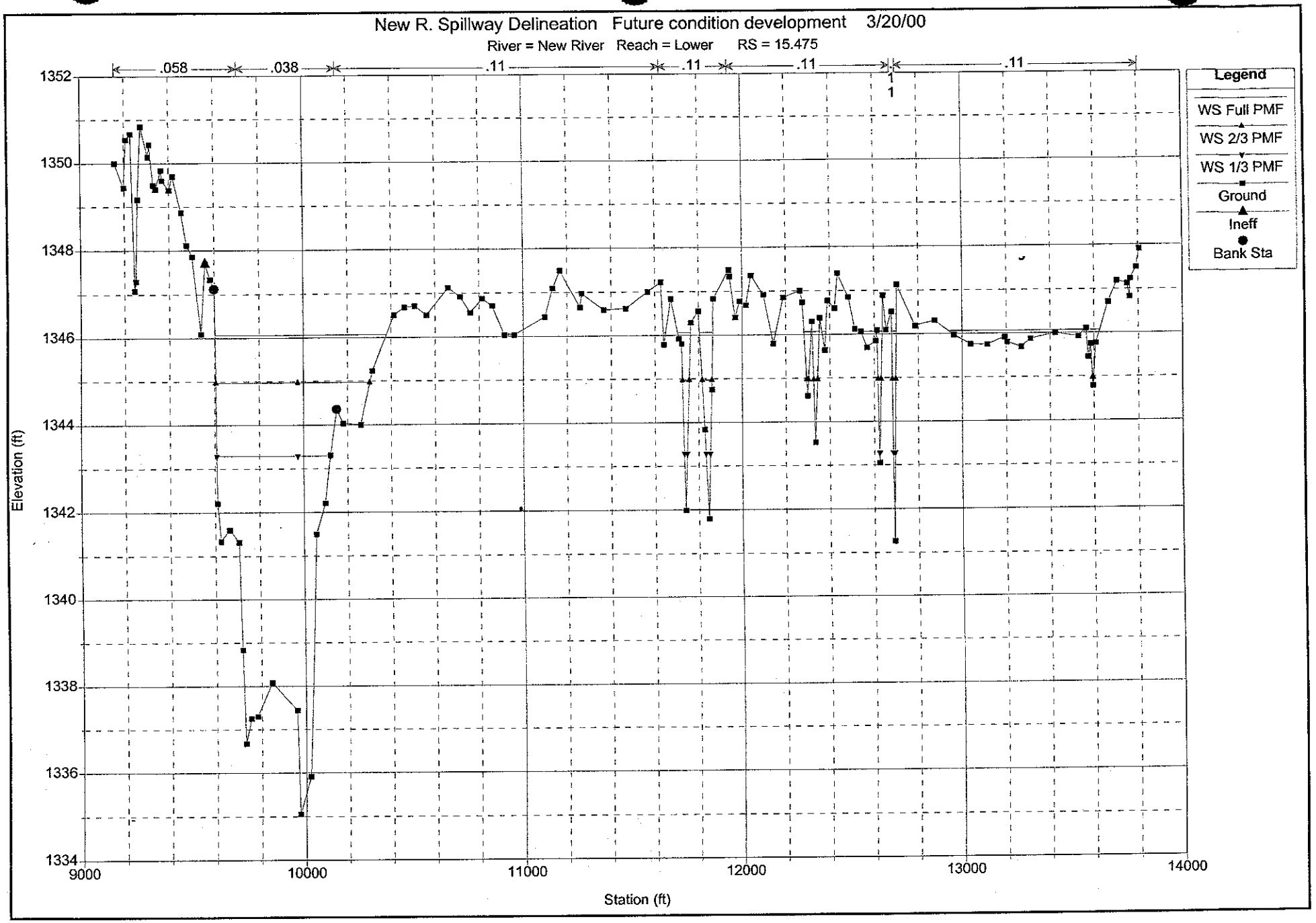

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.885
.058
.038
.11
.11
.11
.11
1
1
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
1350
1348
9000
10000
11000
12000
13000
14000
Station (ft)

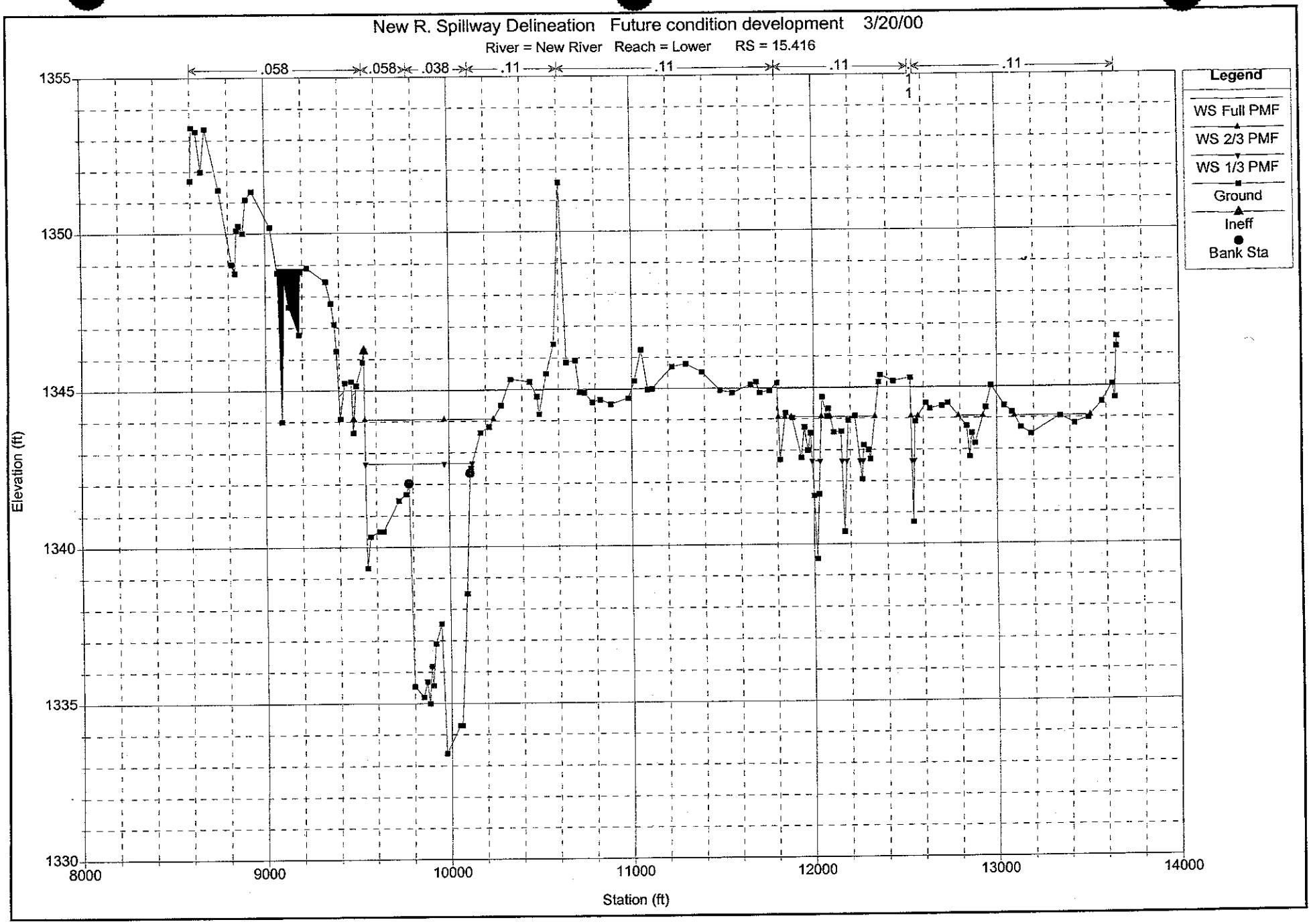

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.792
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1362
1360
1358
1356
1354
1352
1350
1348
1346
1344
9000
10000
11000
12000
13000
14000
Station (ft)

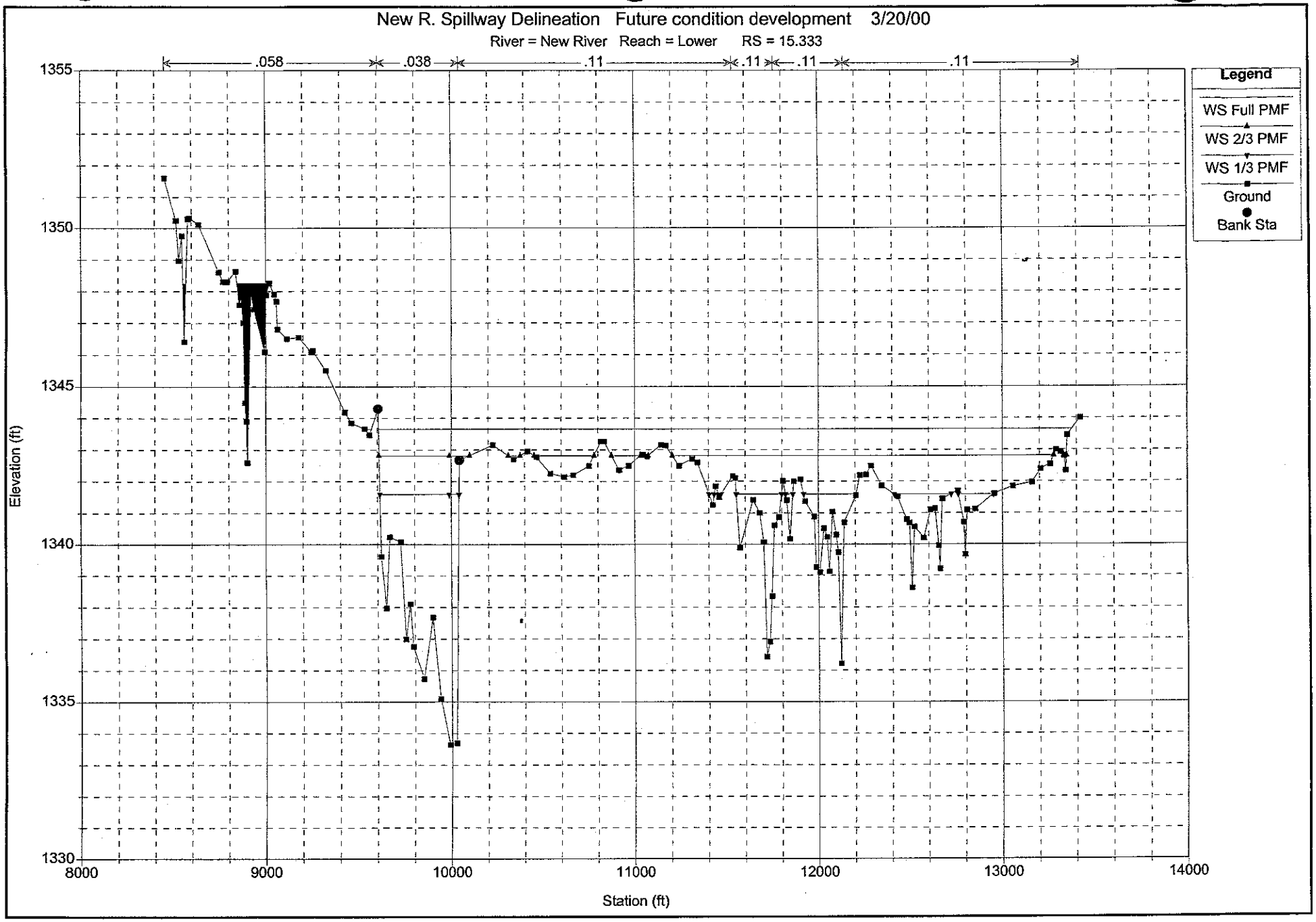

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.699
.058
.038
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1360
1358
1356
1354
1352
1350
1348
1346
1344
9000
10000
11000
12000
13000
14000
15000
Station (ft)

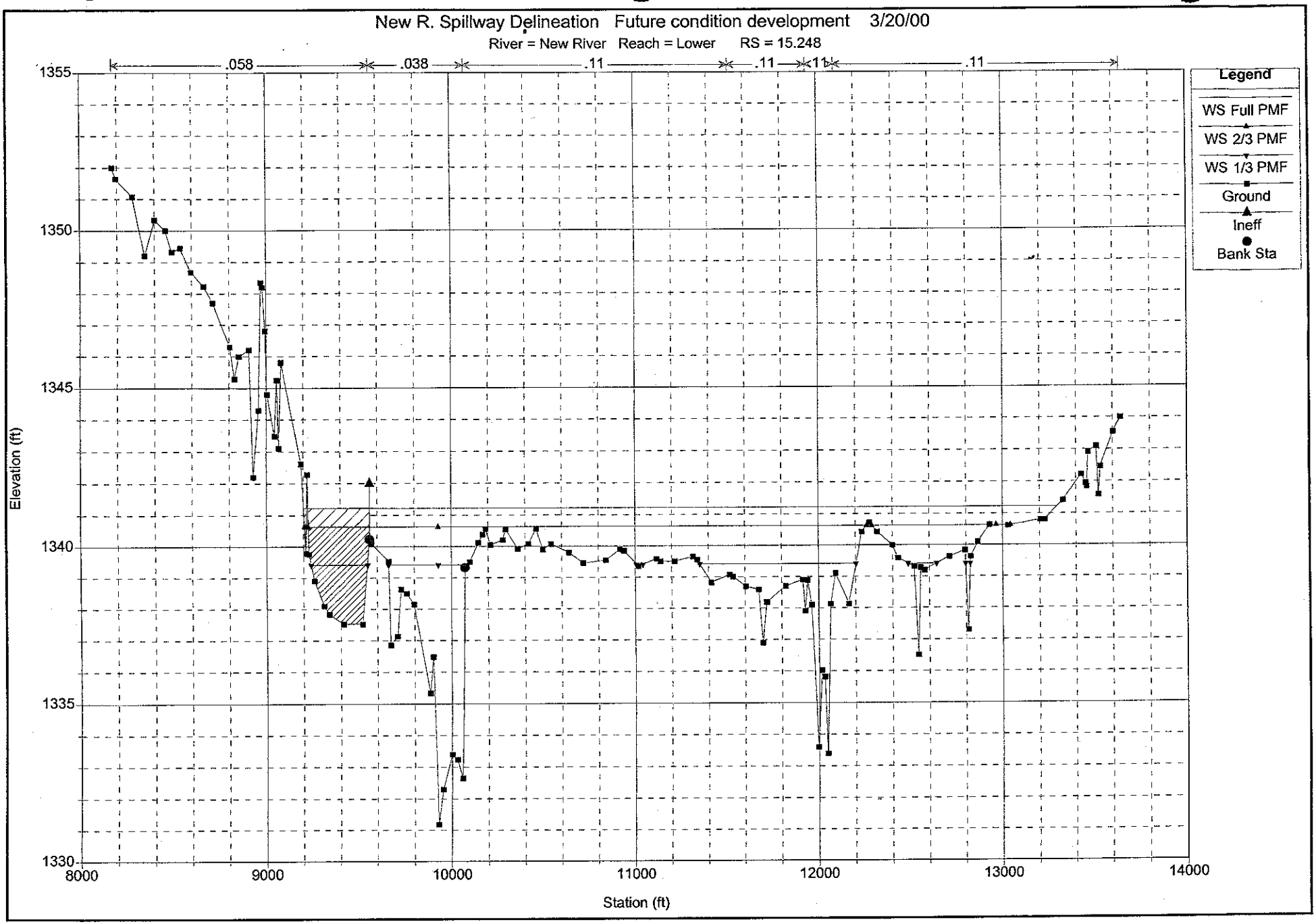

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.623
.058
.056
.11
.11
.11
.11
1
1
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1360
1355
1350
1345
1340
9000
10000
11000
12000
13000
14000
15000
Station (ft)

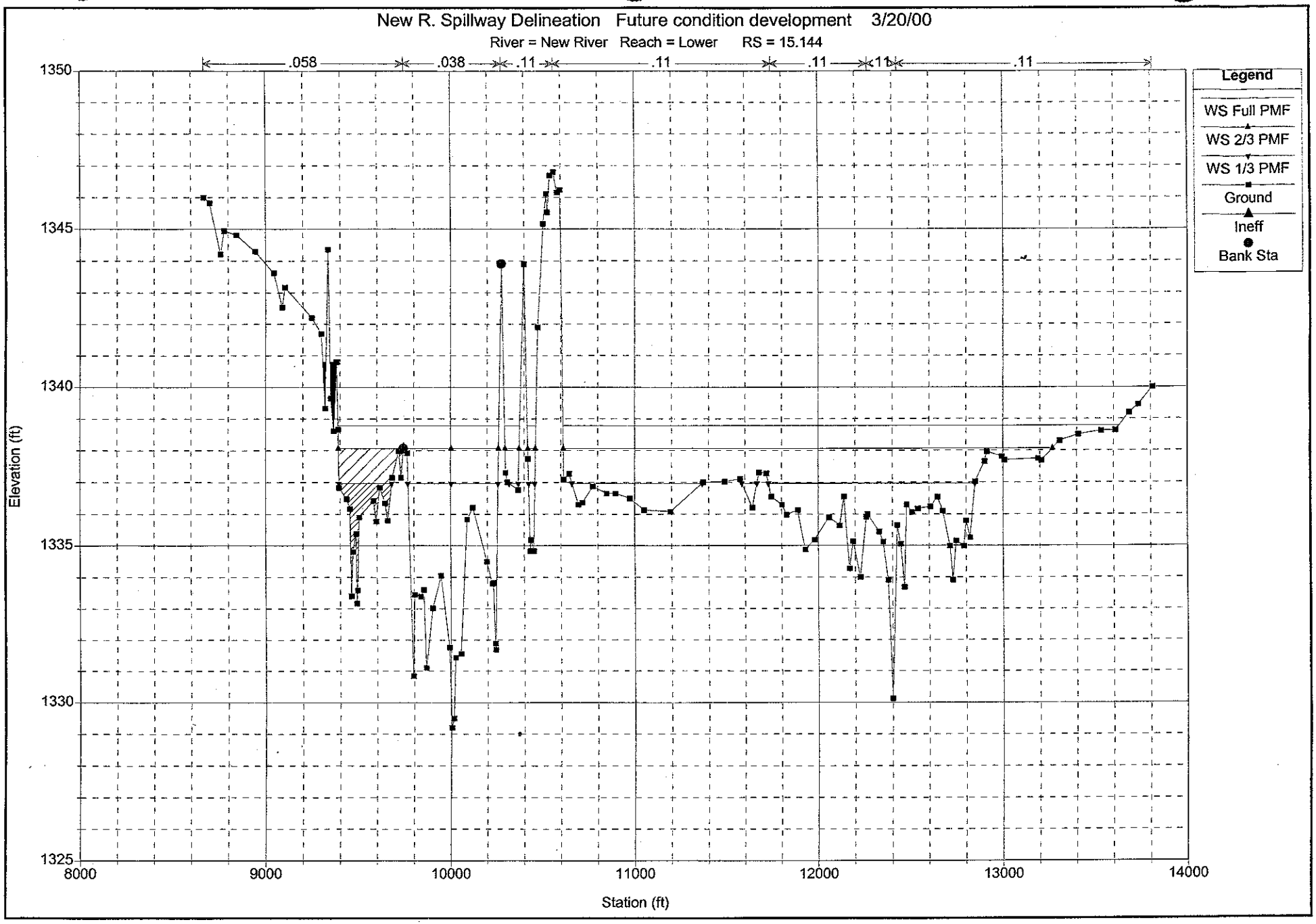

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.596
.058
.056
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1354
1352
1350
1348
1346
1344
1342
1340
1338
9000
10000
11000
12000
13000
14000
Station (ft)

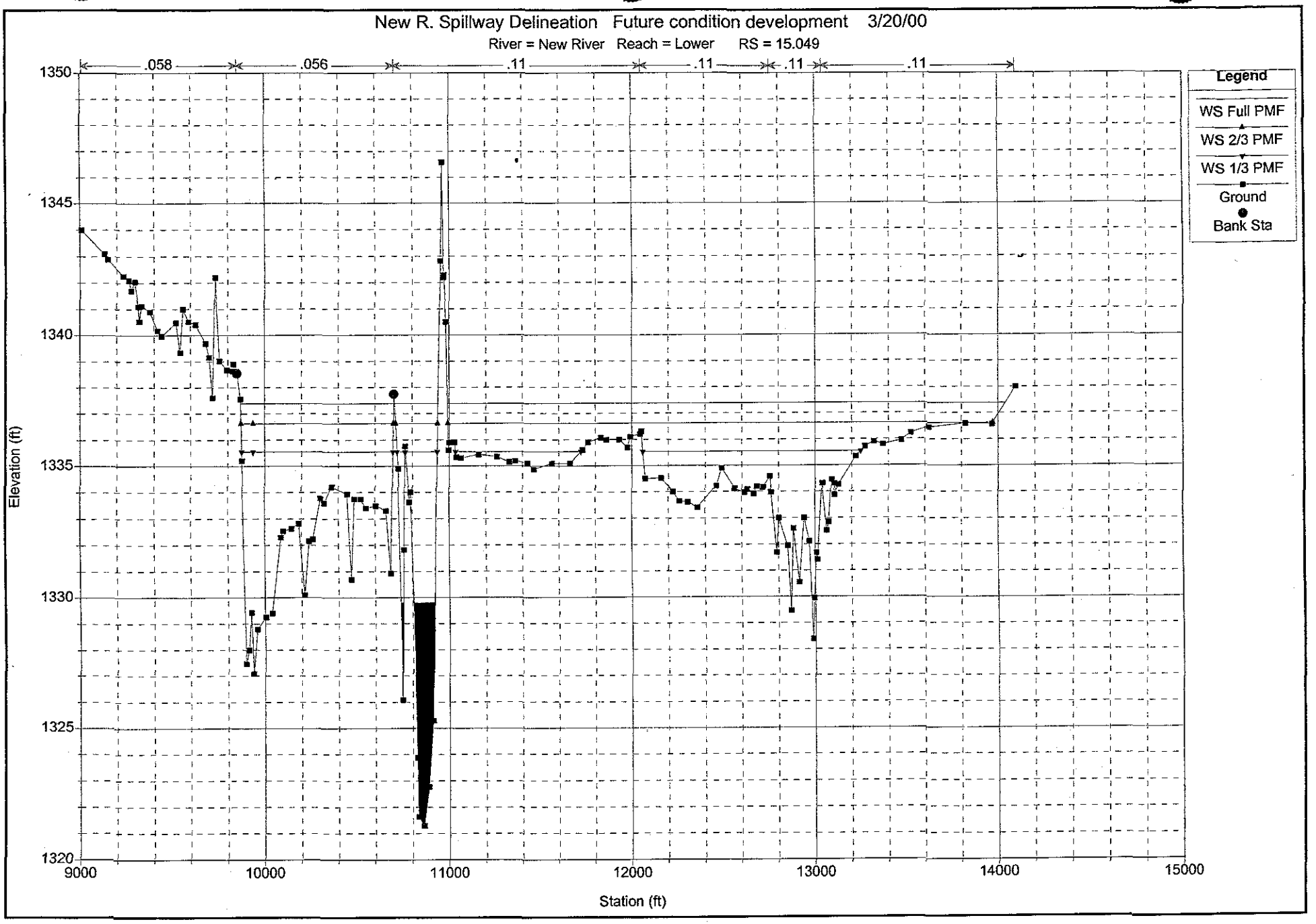

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.475
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1352
1350
1348
1346
1344
1342
1340
1338
1336
1334
9000
10000
11000
12000
13000
14000
Station (ft)

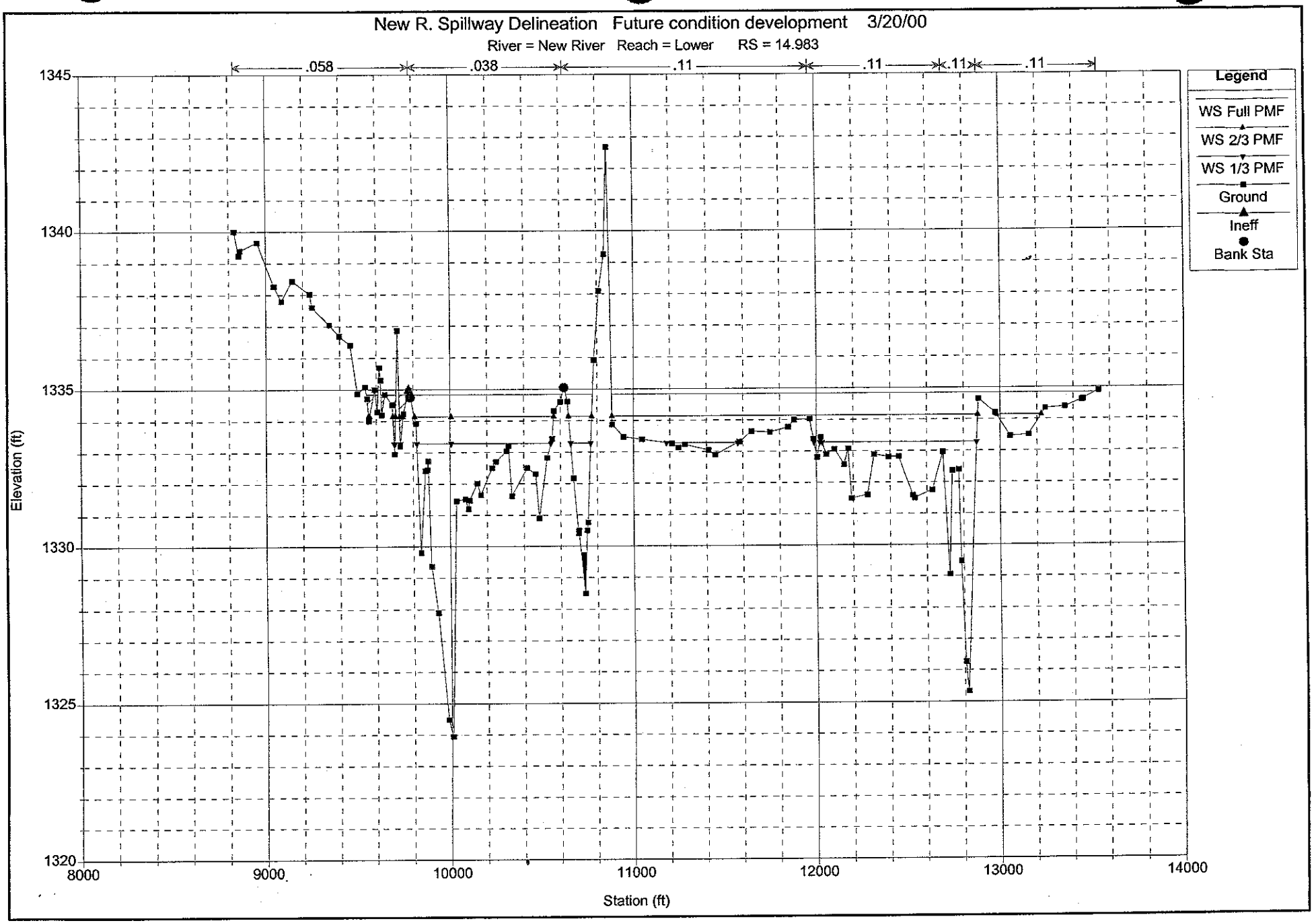

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.416
.058
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1355
1350
1345
1340
1335
1330
8000
9000
10000
11000
12000
13000
14000
Station (ft)

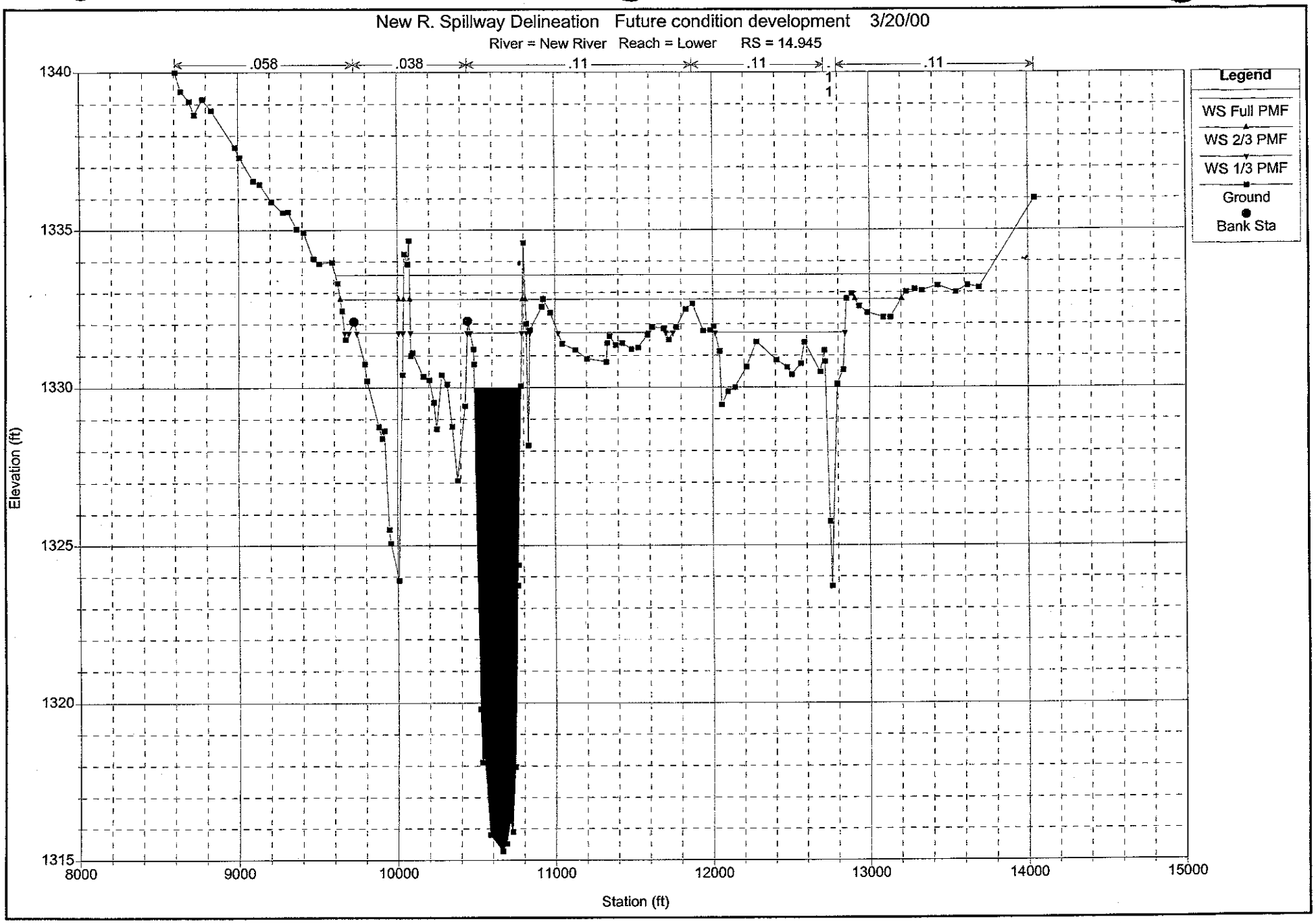

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.333
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1355
1350
1345
1340
1335
1330
8000
9000
10000
11000
12000
13000
14000
Station (ft)

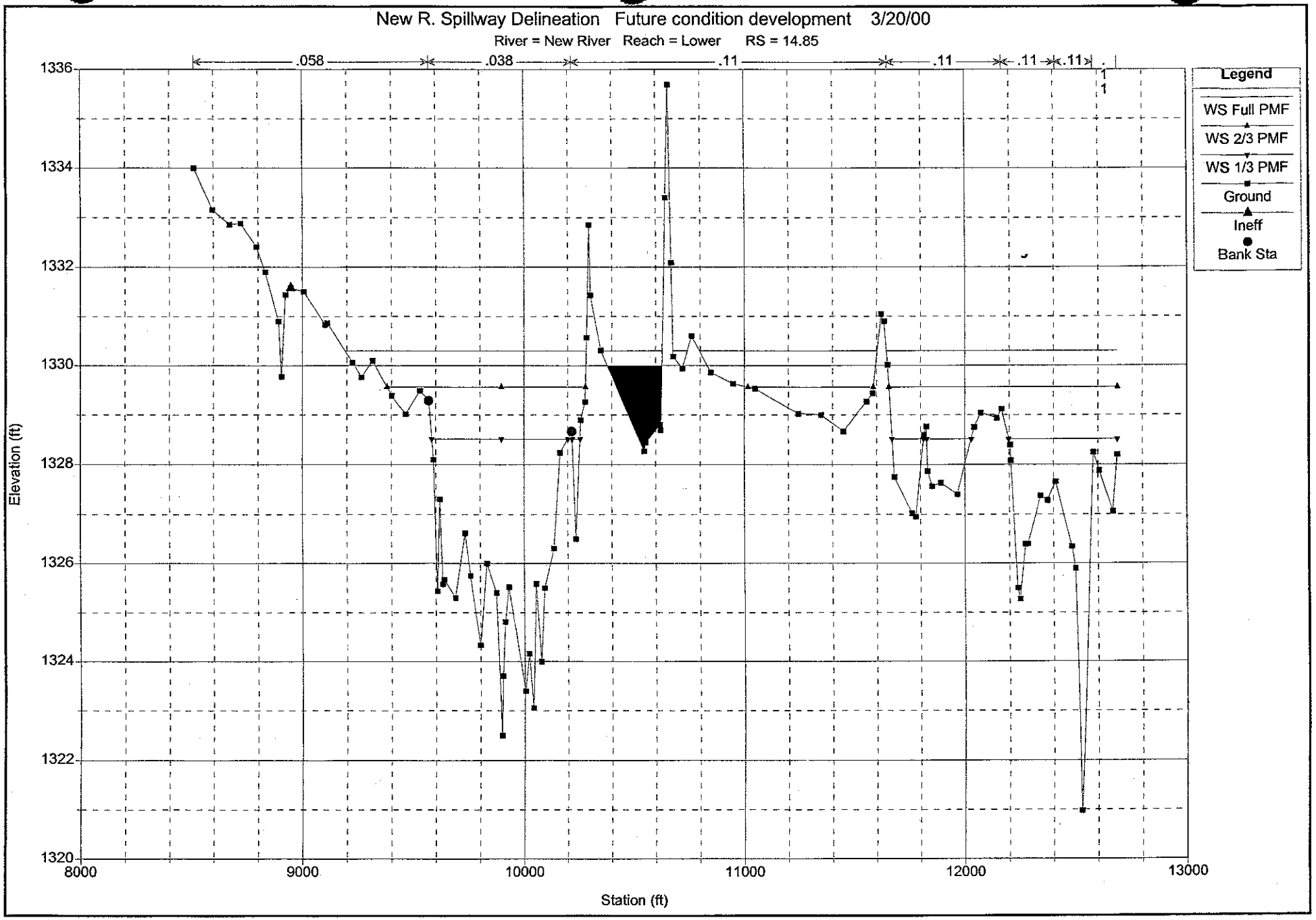

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.248
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1355
1350
1345
1340
1335
1330
8000
9000
10000
11000
12000
13000
14000
Station (ft)

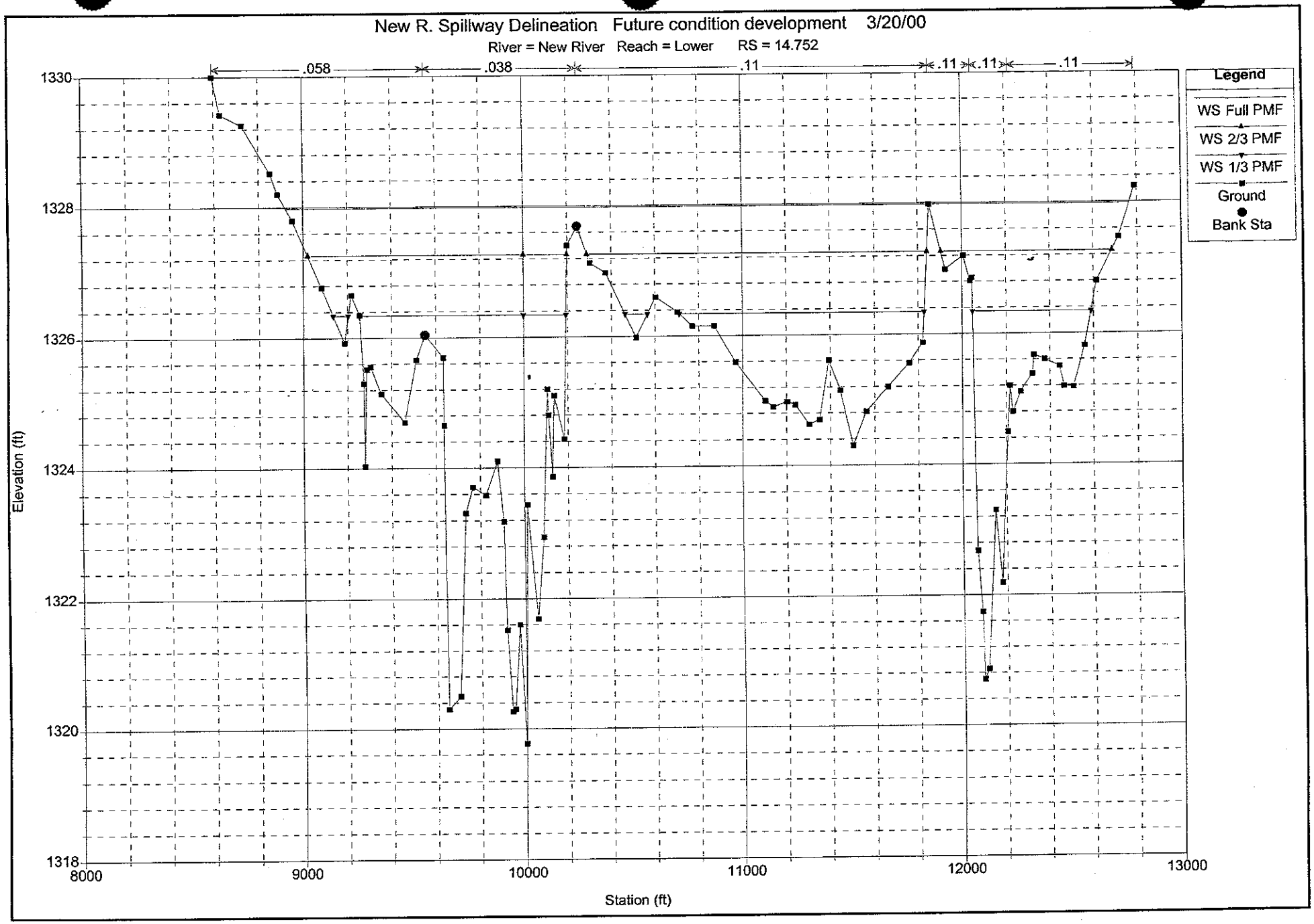

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.144
.058
.038
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1350
1345
1340
1335
1330
1325
8000
9000
10000
11000
12000
13000
14000
Station (ft)

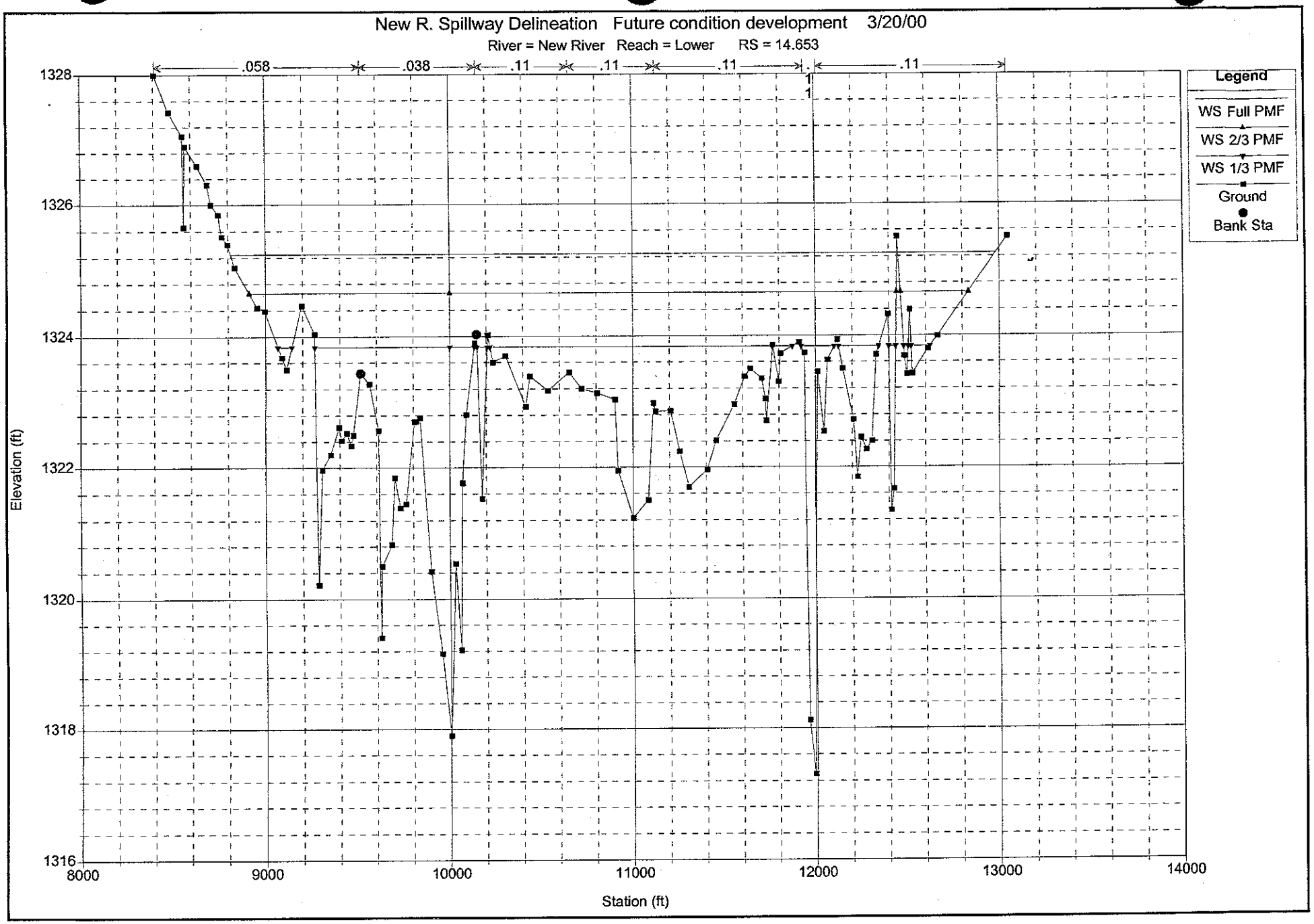

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 15.049
.058
.056
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1350
1345
1340
1335
1330
1325
1320
9000
10000
11000
12000
13000
14000
15000
Station (ft)

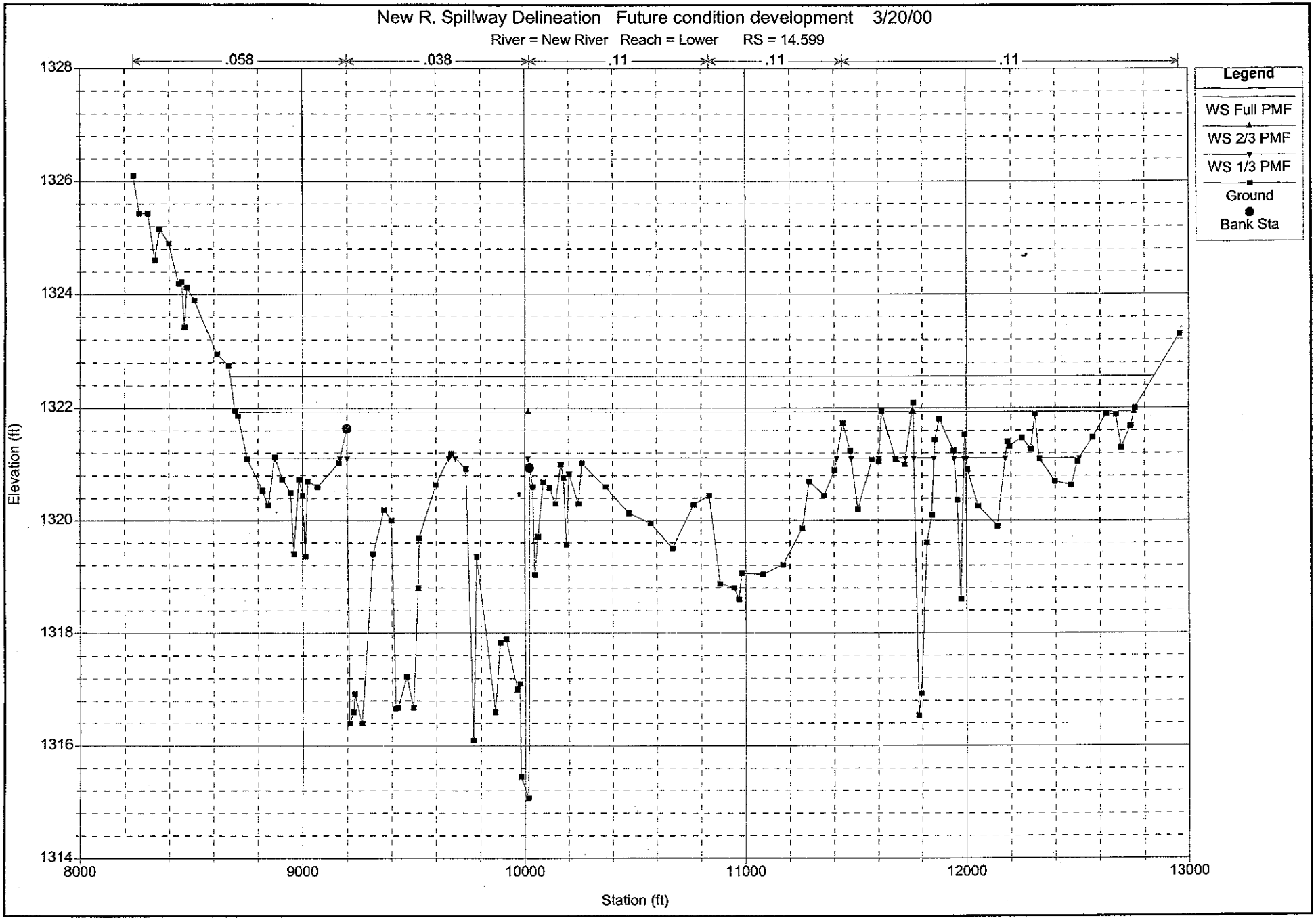

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.983
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1345
1340
1335
1330
1325
1320
8000
9000
10000
11000
12000
13000
14000
Station (ft)

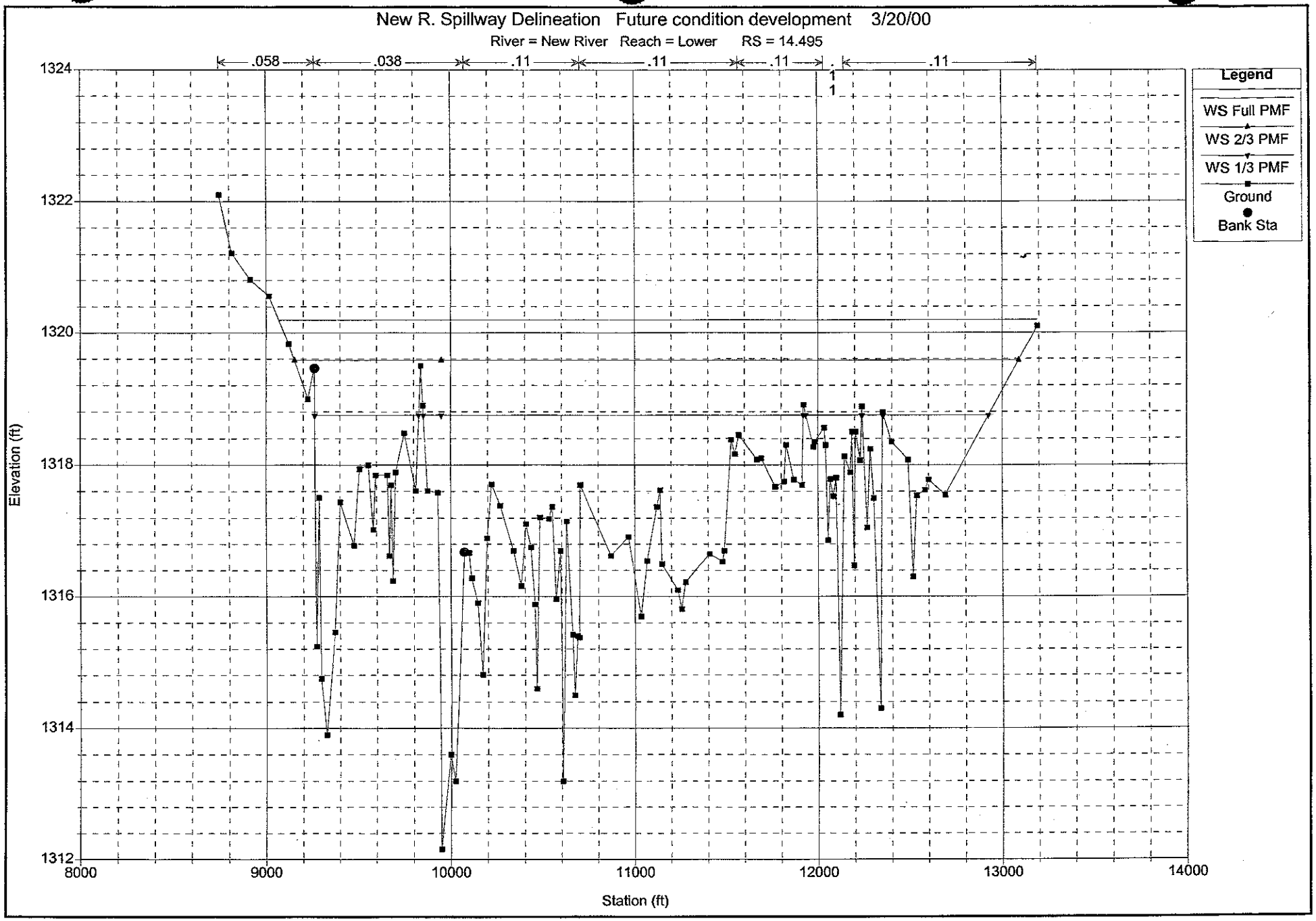

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.945
.058
.038
.11
.11
.11
1
1
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

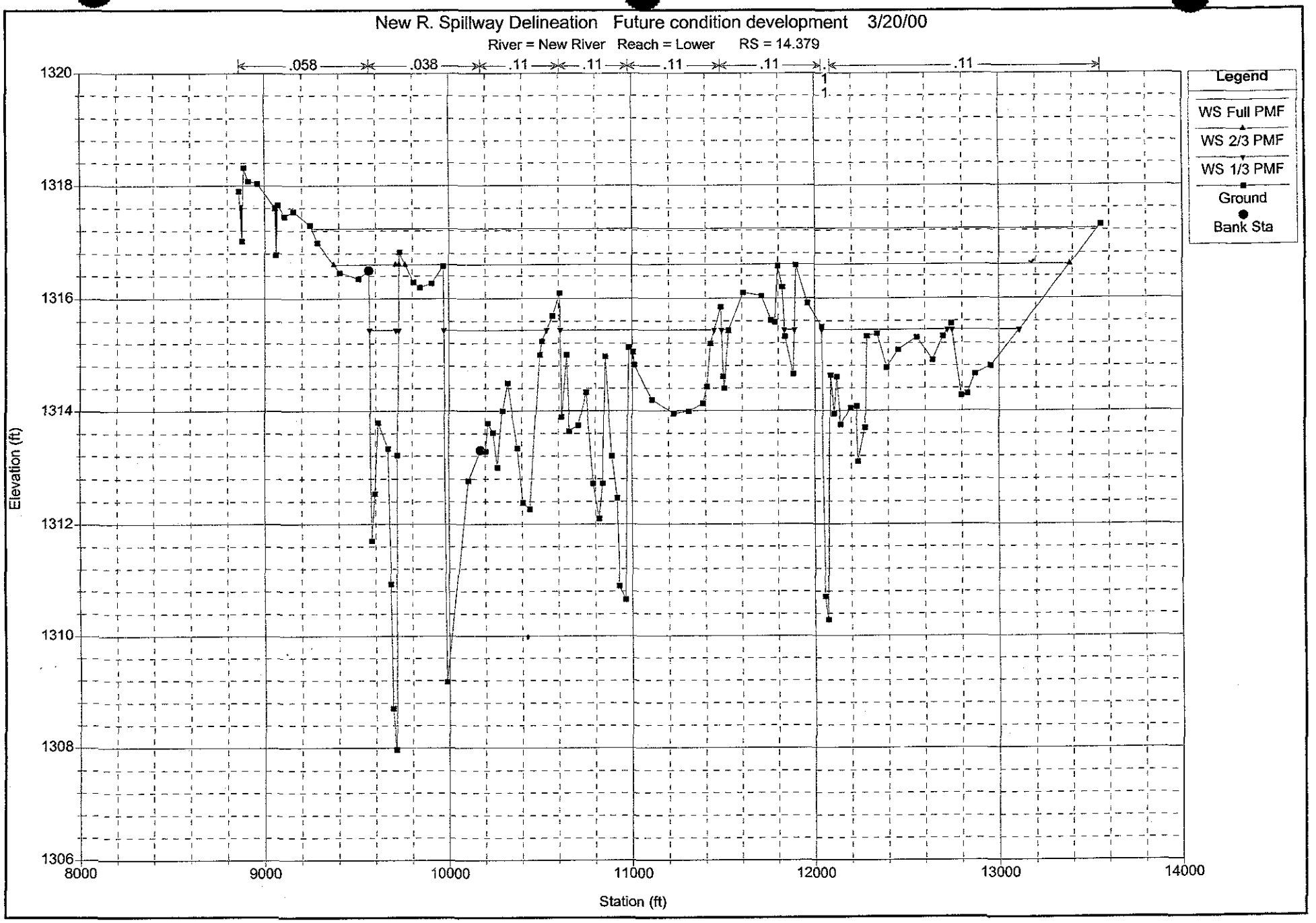

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.85
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
1322
1320
8000
9000
10000
11000
12000
13000
Station (ft)

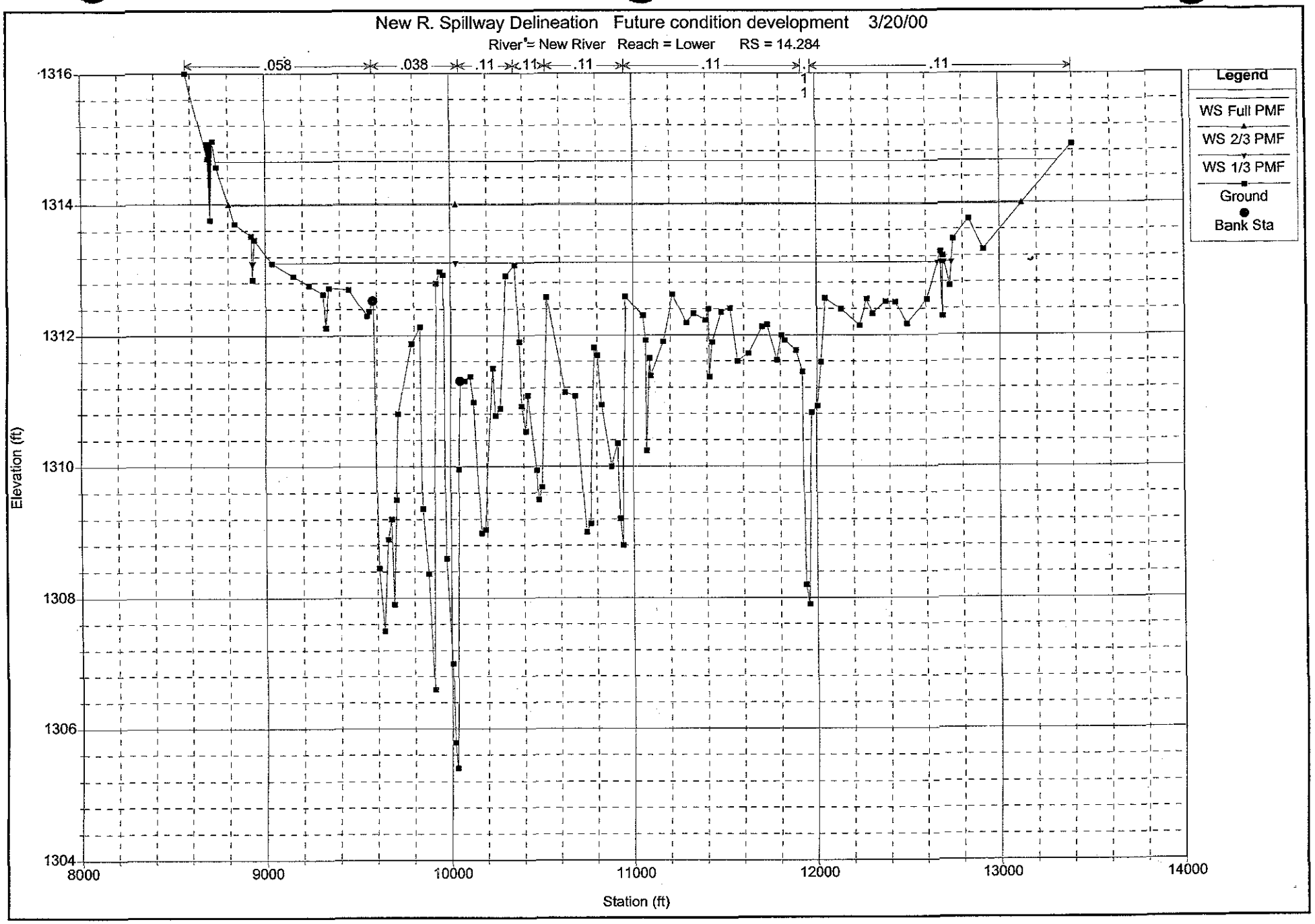

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.752
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1330
1328
1326
1324
1322
1320
1318
8000
9000
10000
11000
12000
13000
Station (ft)

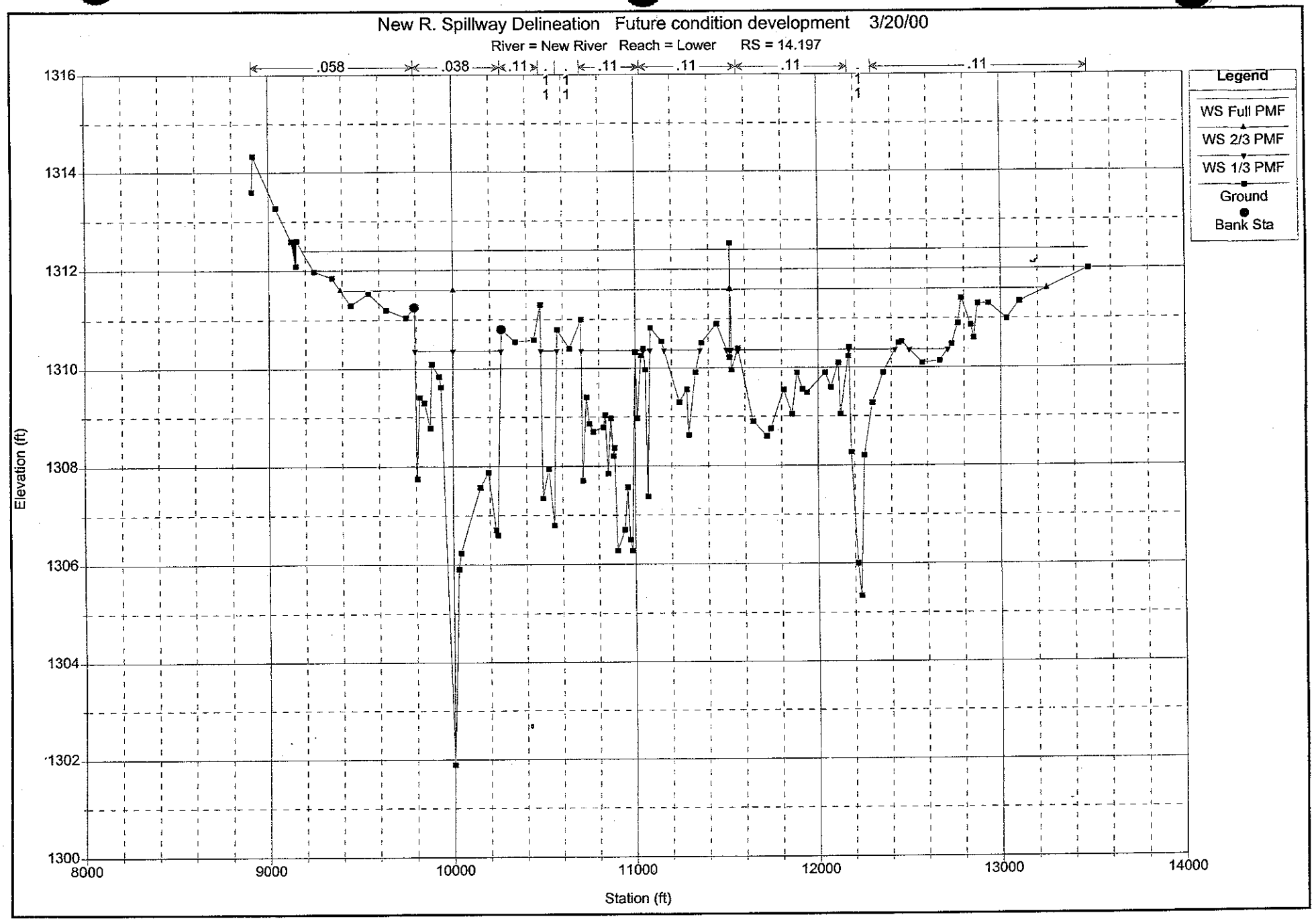

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.653
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
1316
8000
9000
10000
11000
12000
13000
14000
Station (ft)

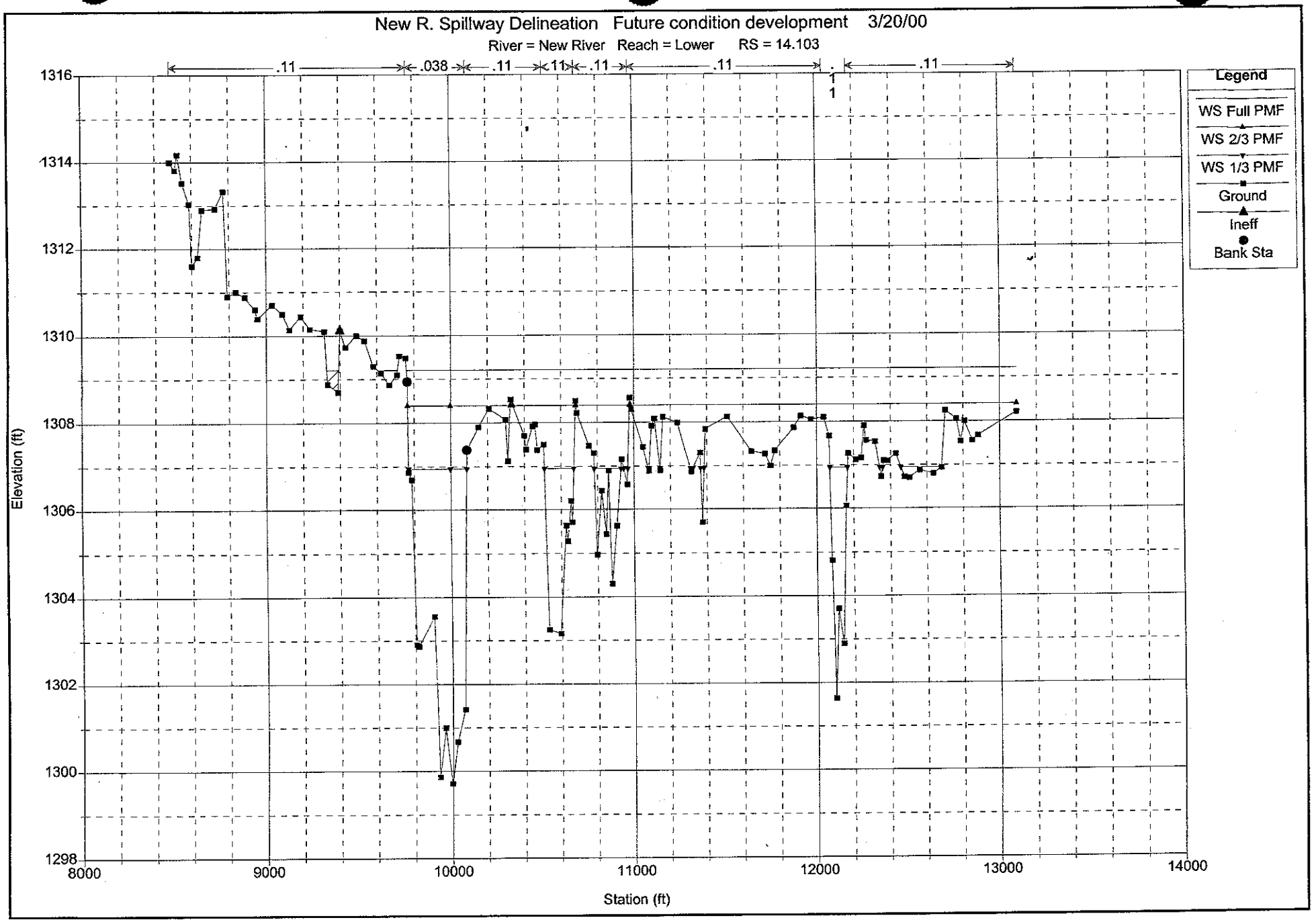

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.599
.058
.038
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
1316
1314
8000
9000
10000
11000
12000
13000
Station (ft)

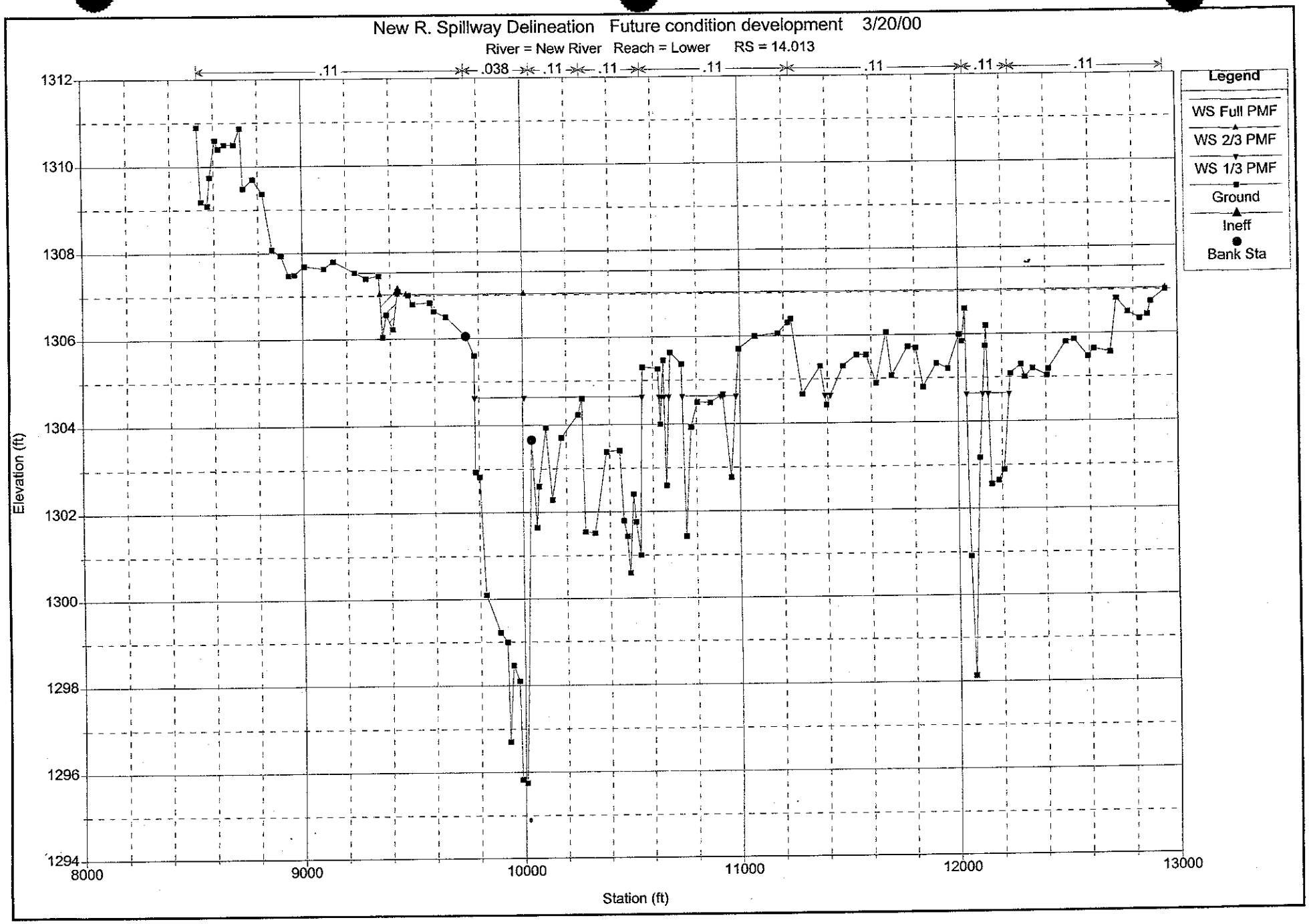

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.495
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1324
1322
1320
1318
1316
1314
1312
8000
9000
10000
11000
12000
13000
14000
Station (ft)

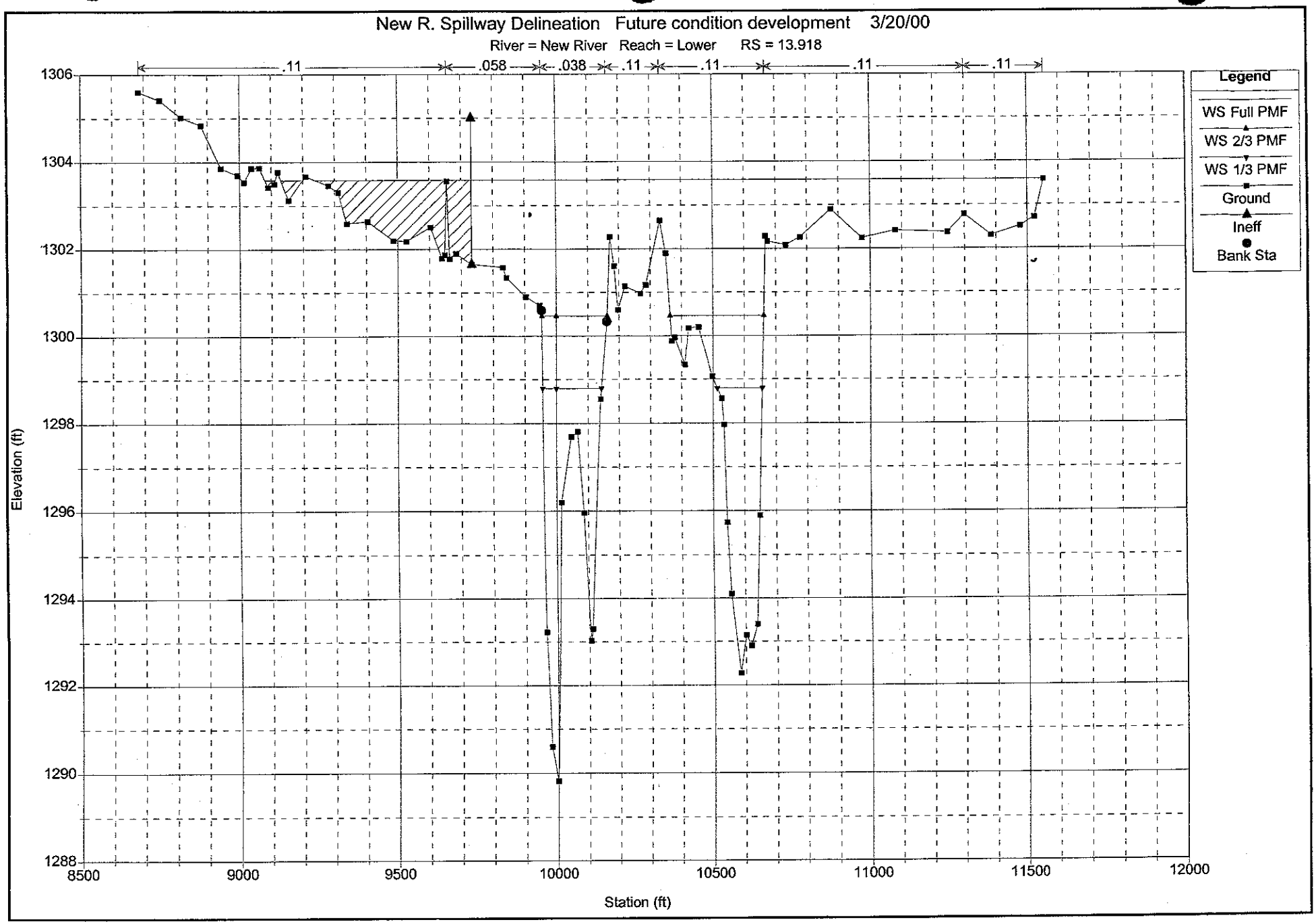

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.379
.058
.038
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1320
1318
1316
1314
1312
1310
1308
1306
8000
9000
10000
11000
12000
13000
14000
Station (ft)

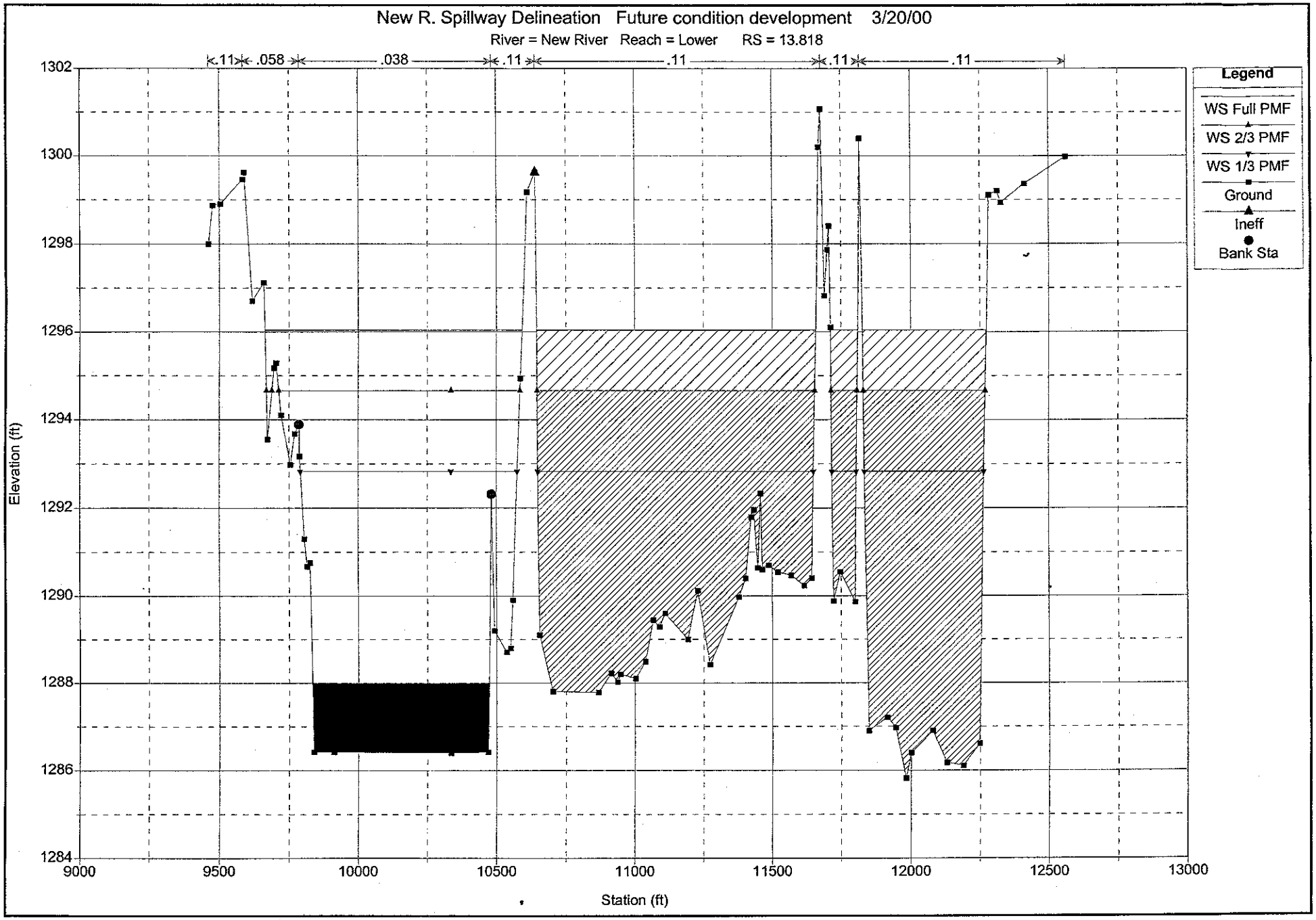

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.284
.058
.038
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
8000
9000
10000
11000
12000
13000
14000
Station (ft)

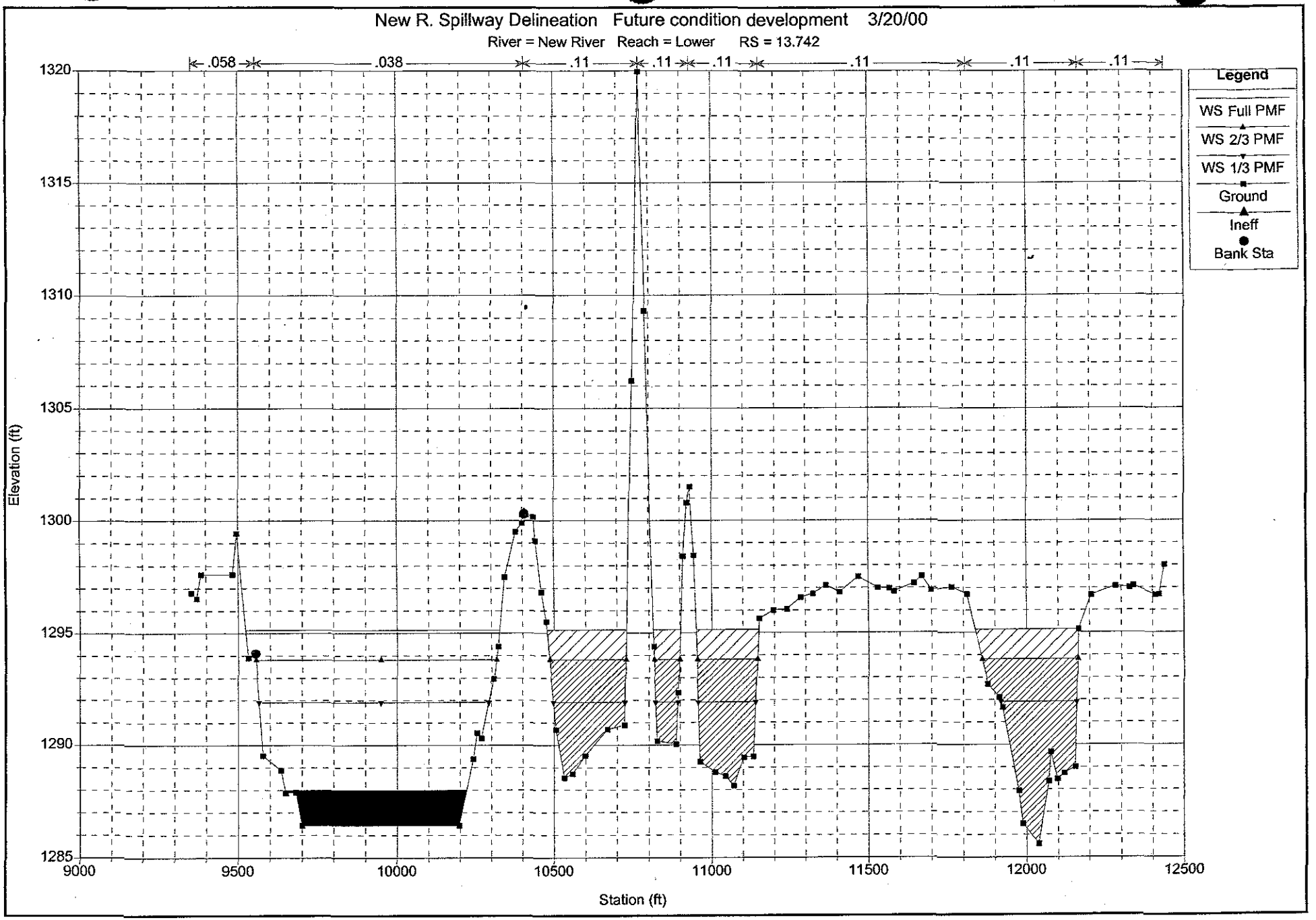

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.197
.058
.038
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
8000
9000
10000
11000
12000
13000
14000
Station (ft)

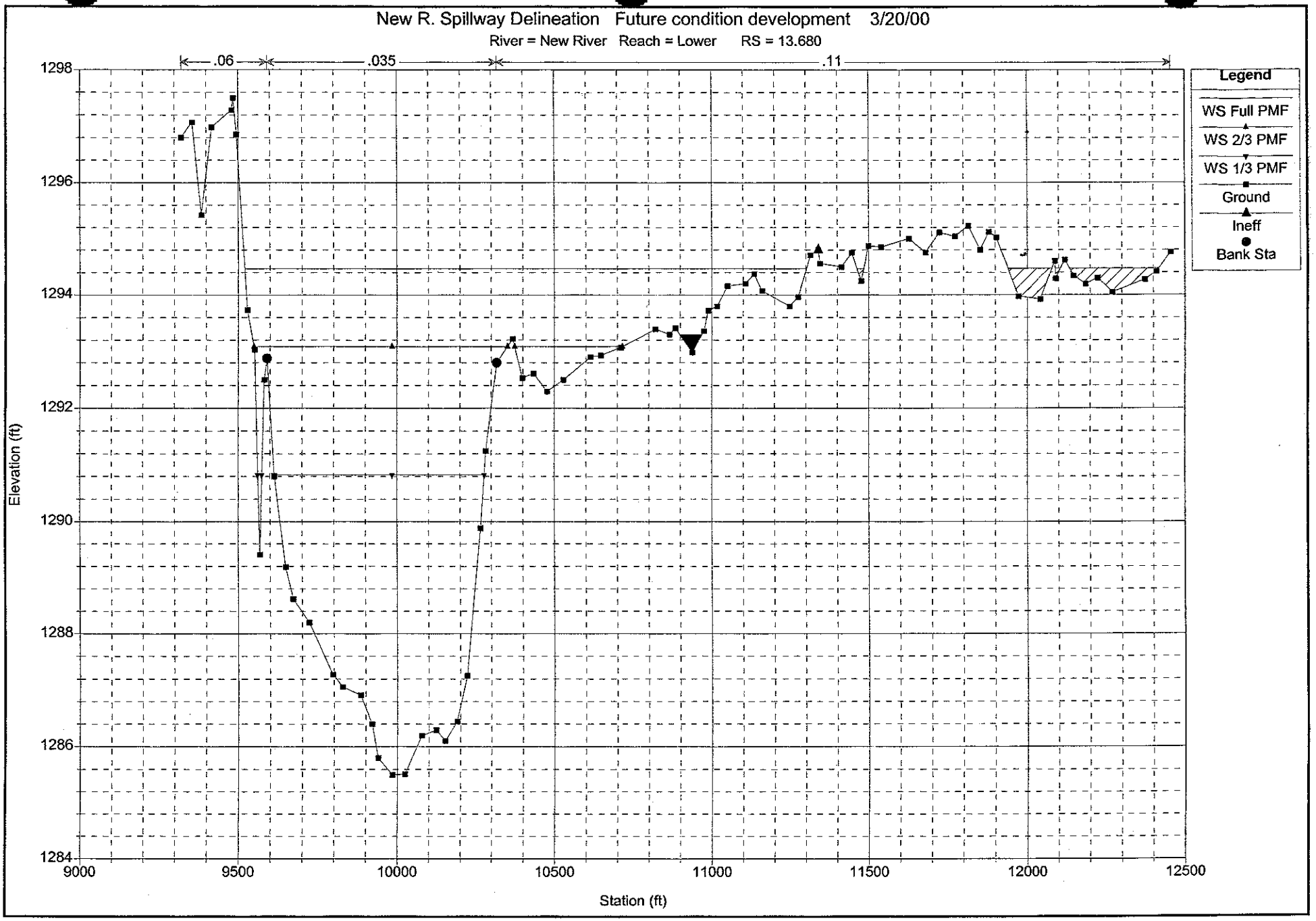

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.103
.11
.038
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
8000
9000
10000
11000
12000
13000
14000
Station (ft)

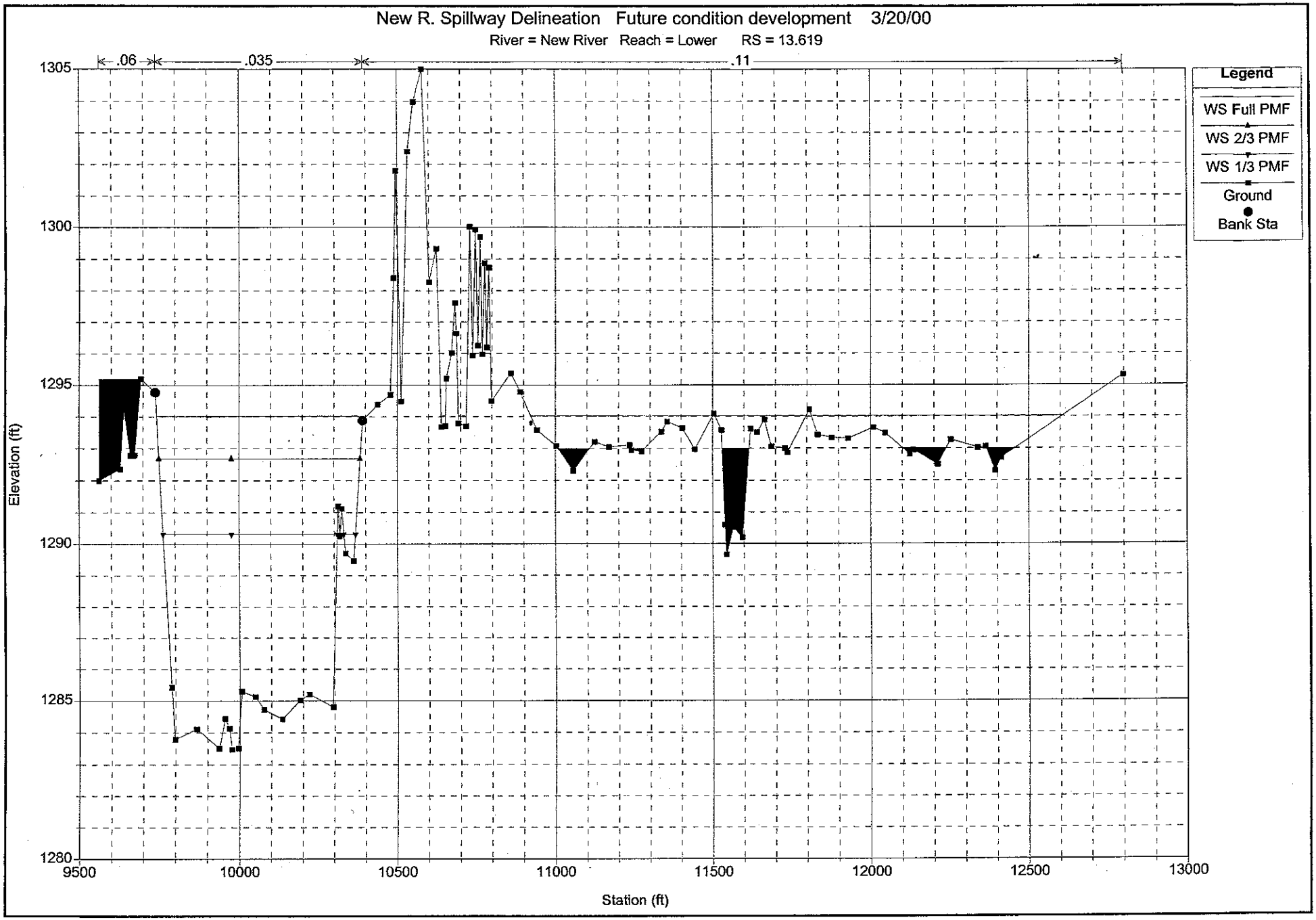

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 14.013
.11
.038
.11
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
1294
8000
9000
10000
11000
12000
13000
Station (ft)

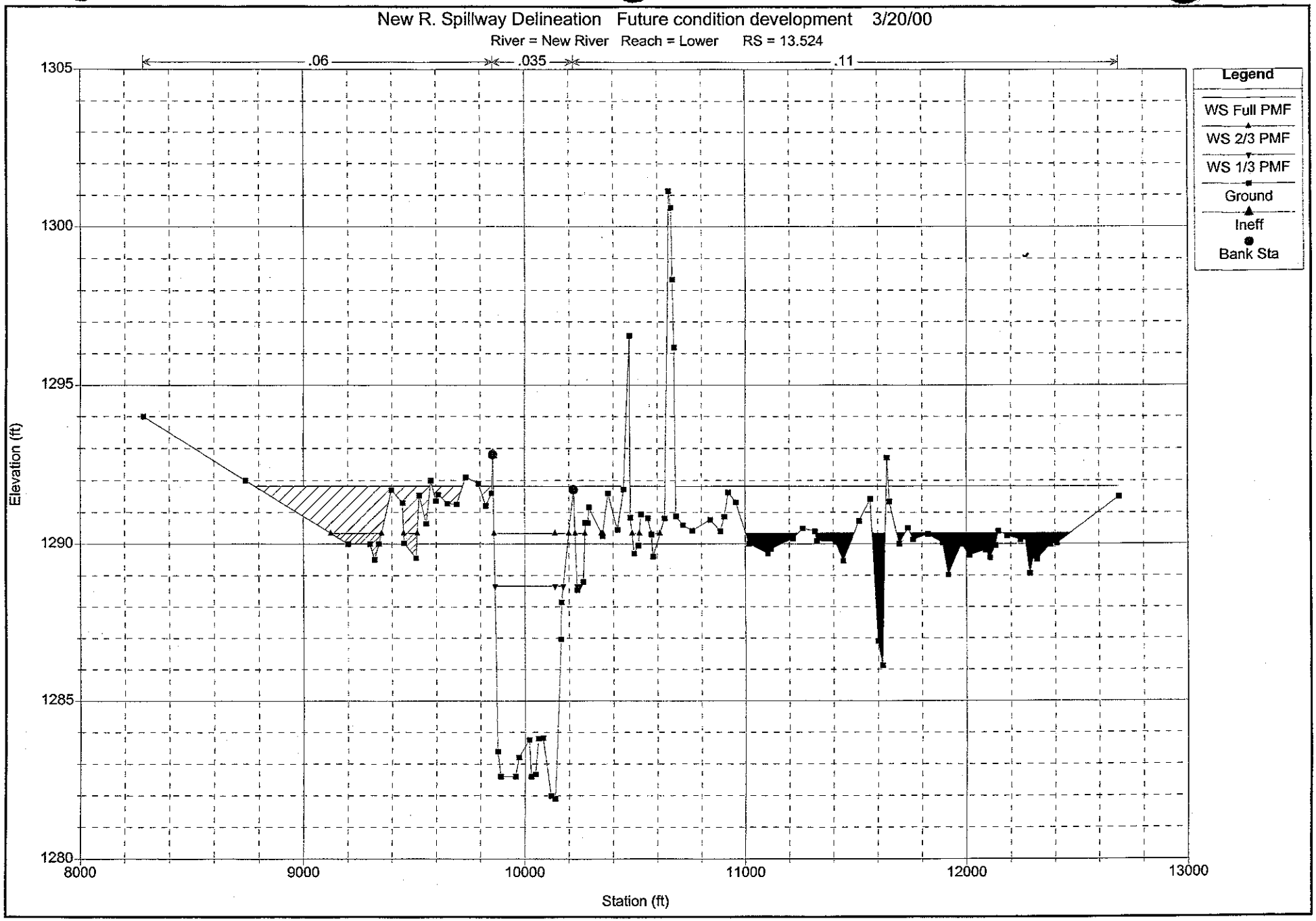

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.918
.11
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
8500
9000
9500
10000
10500
11000
11500
12000
Station (ft)

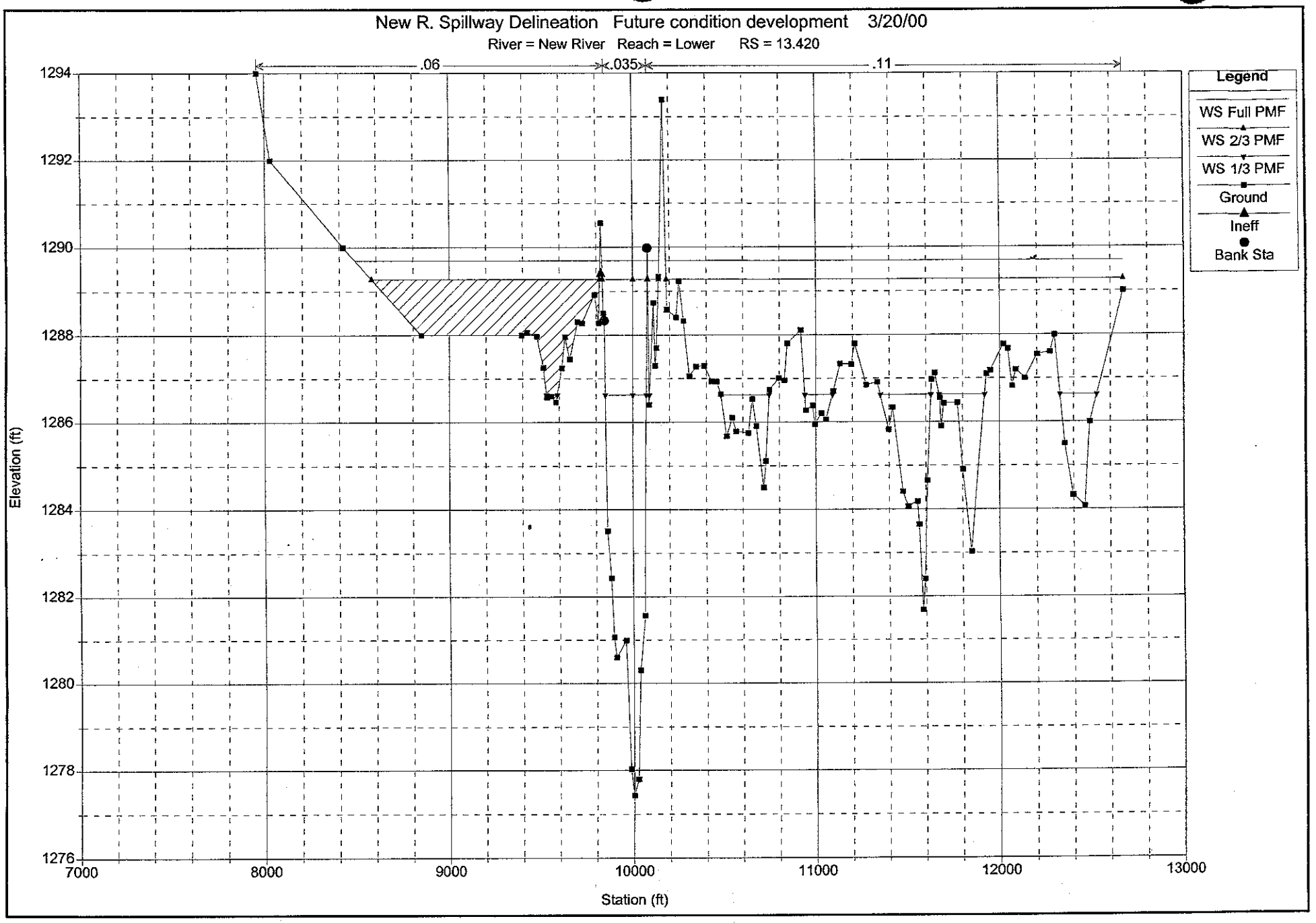

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.818
.11
.058
.038
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1302
1300
1298
1296
1294
1292
1290
1288
1286
1284
9000
9500
10000
10500
11000
11500
12000
12500
13000
Station (ft)

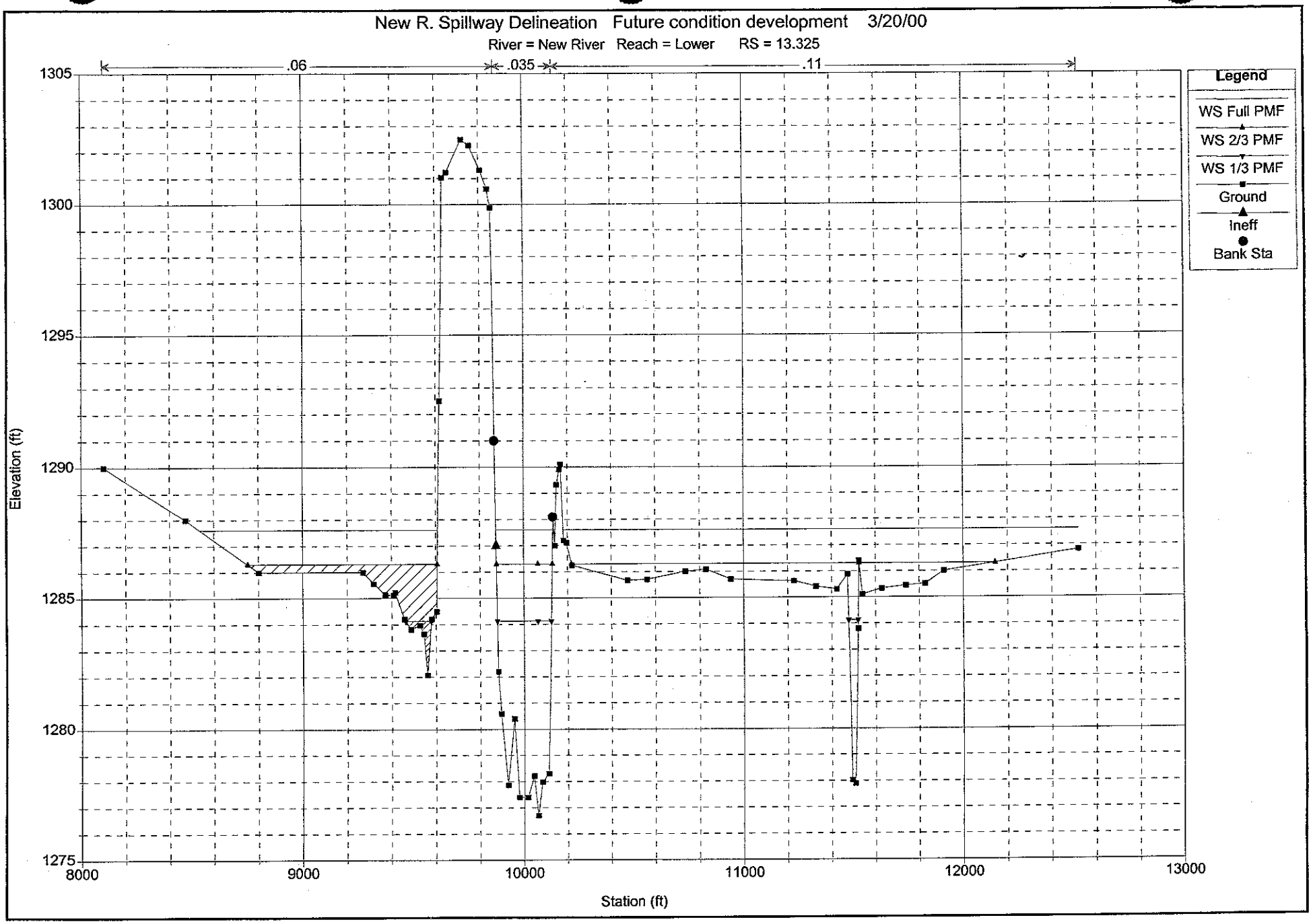

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.742
.058
.038
.11
.11
.11
.11
.11
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
1290
1285
9000
9500
10000
10500
11000
11500
12000
12500
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.680
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1298
1296
1294
1292
1290
1288
1286
1284
9000
9500
10000
10500
11000
11500
12000
12500
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.619
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1305
1300
1295
1290
1285
1280
9500
10000
10500
11000
11500
12000
12500
13000
Station (ft)

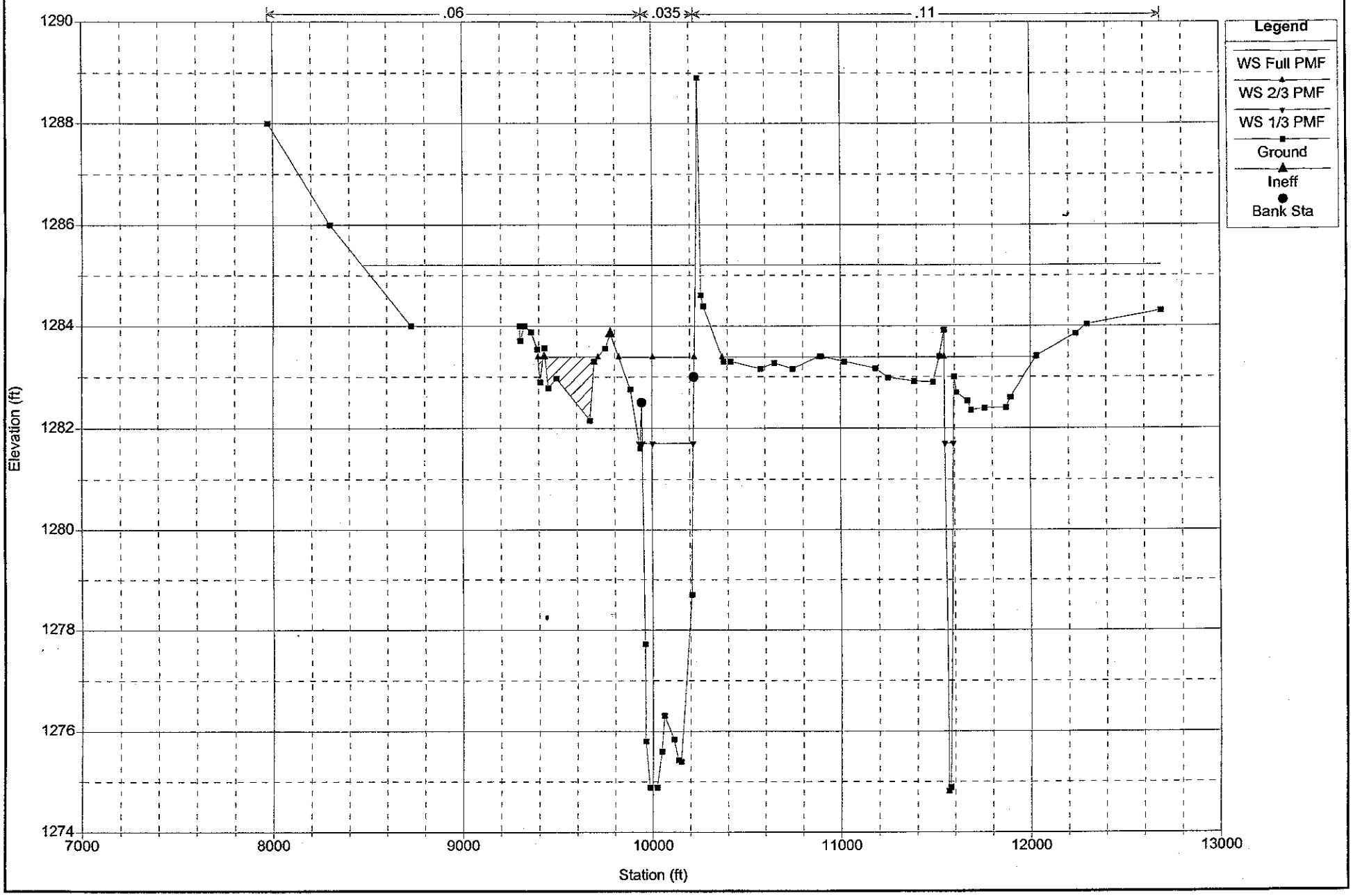

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.524
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1305
1300
1295
1290
1285
1280
8000
9000
10000
11000
12000
13000
Station (ft)

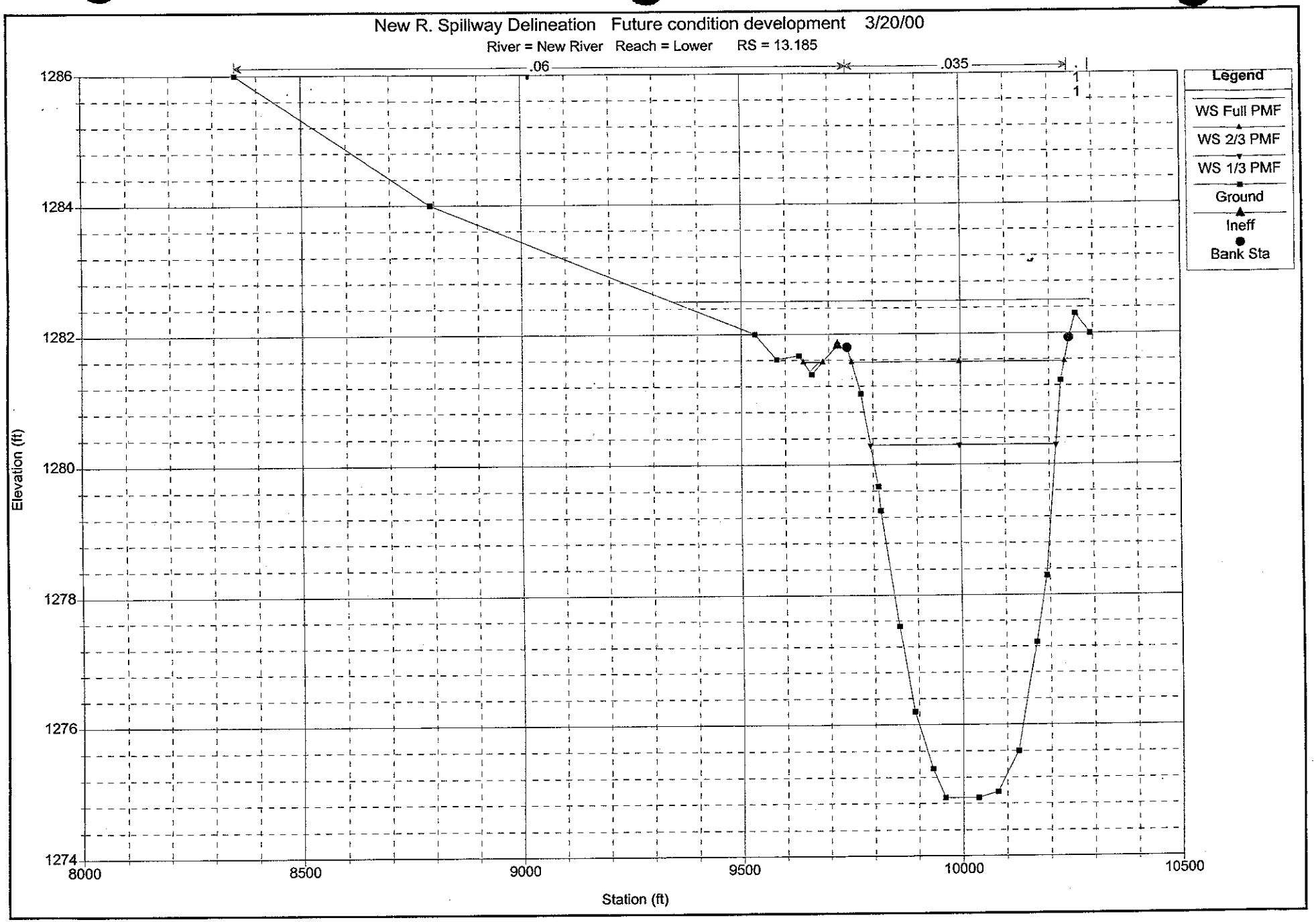

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.420
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1294
1292
1290
1288
1286
1284
1282
1280
1278
1276
7000
8000
9000
10000
11000
12000
13000
Station (ft)

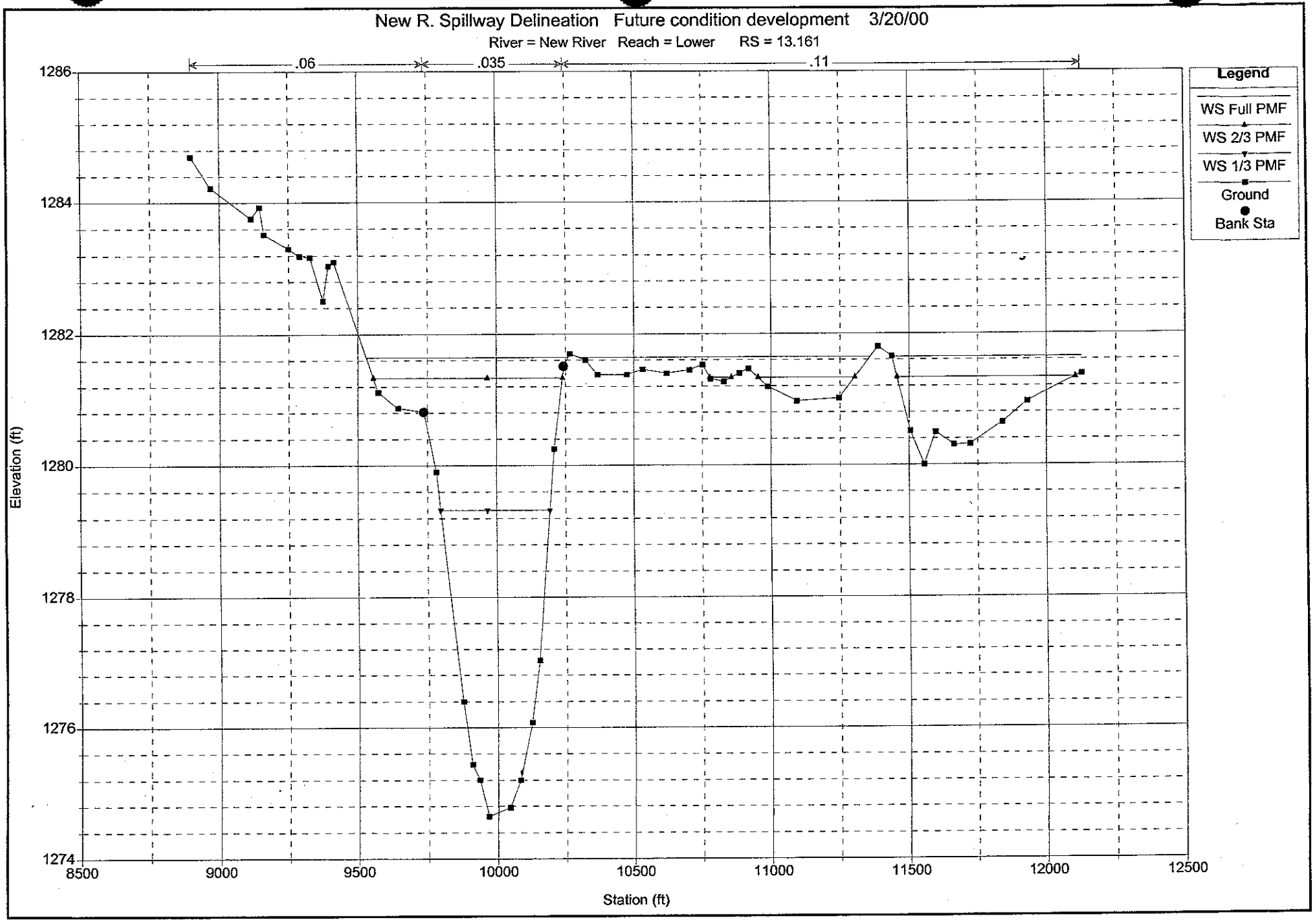

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.325
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1305
1300
1295
1290
1285
1280
1275
8000
9000
10000
11000
12000
13000
Station (ft)

New R. Spillway Delineation Future condition development 3/20/00

River = New River Reach = Lower RS = 13.227

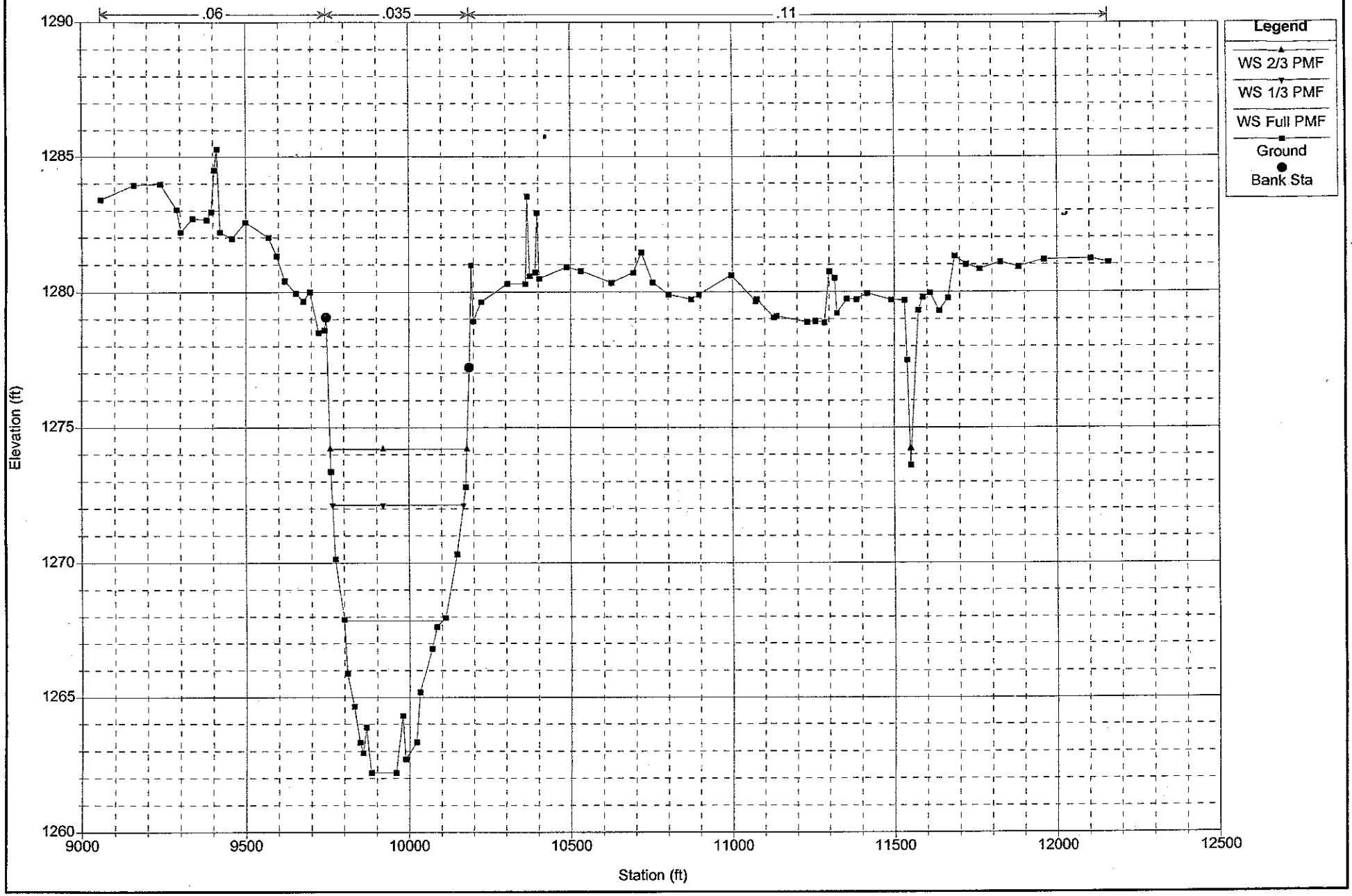


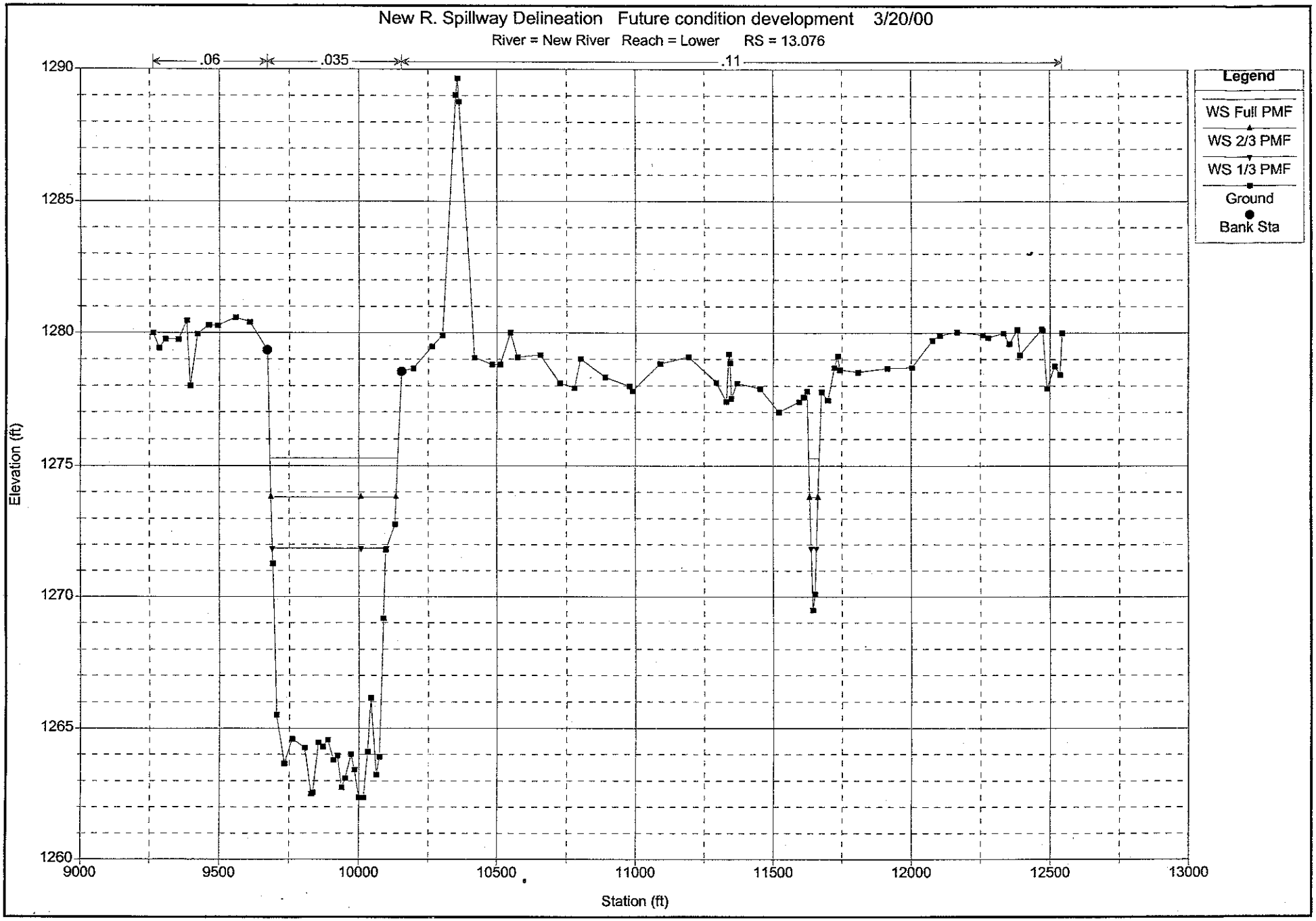

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.185
.06
.035
1
1
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1286
1284
1282
1280
1278
1276
1274
8000
8500
9000
9500
10000
10500
Station (ft)

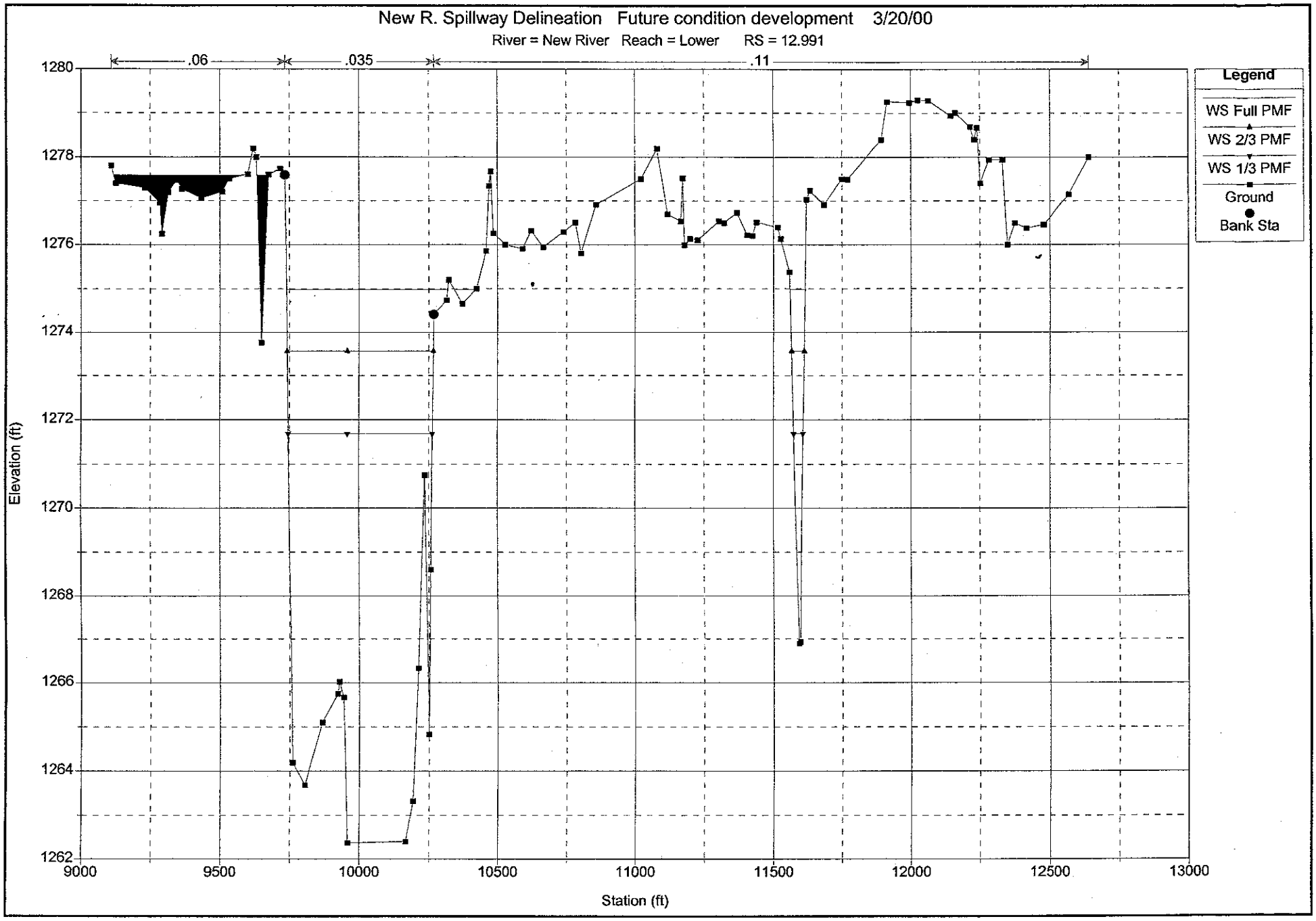

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.161
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1286
1284
1282
1280
1278
1276
1274
8500
9000
9500
10000
10500
11000
11500
12000
12500
Station (ft)

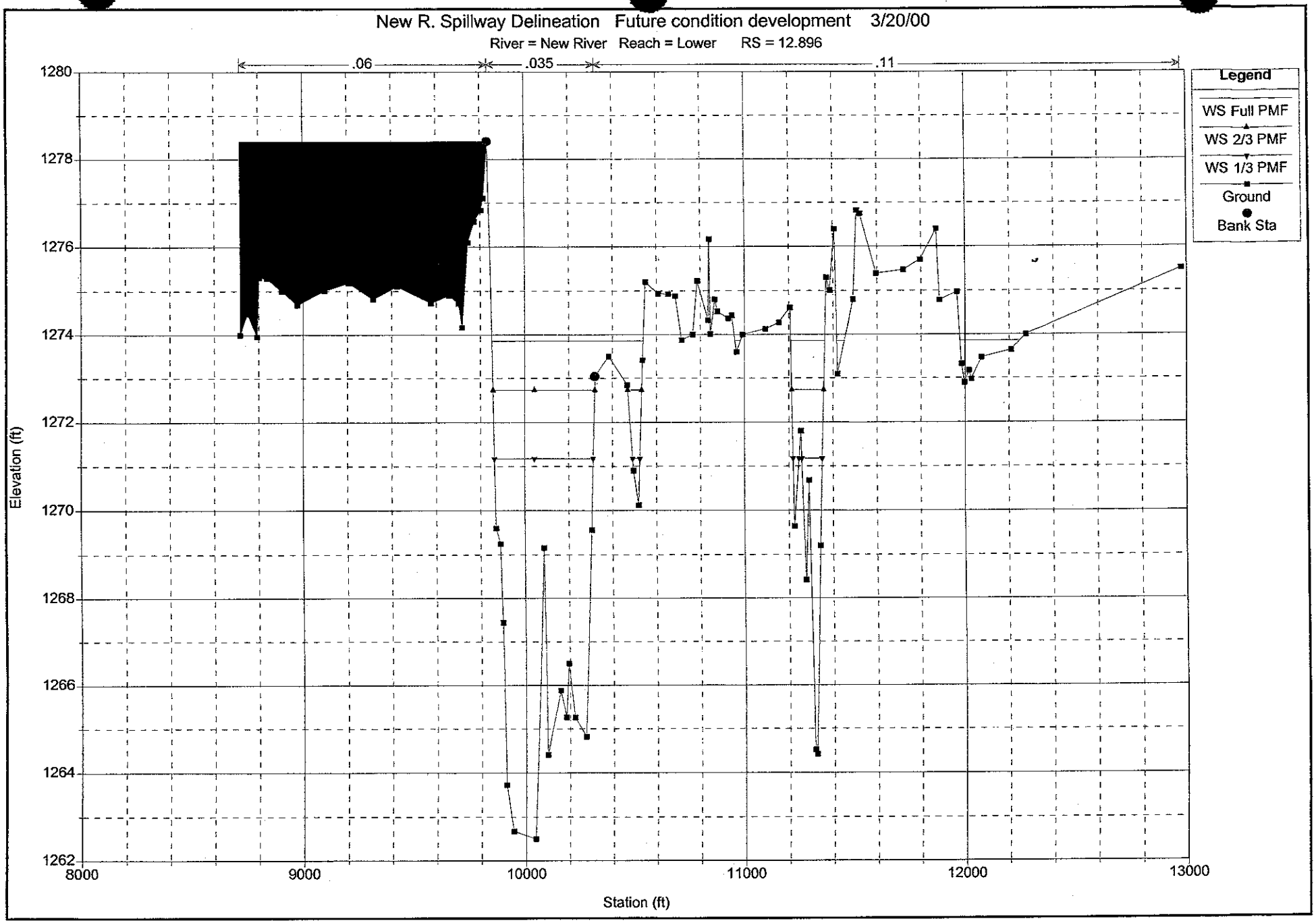
New R. Spillway Delineation Future condition development 3/20/00

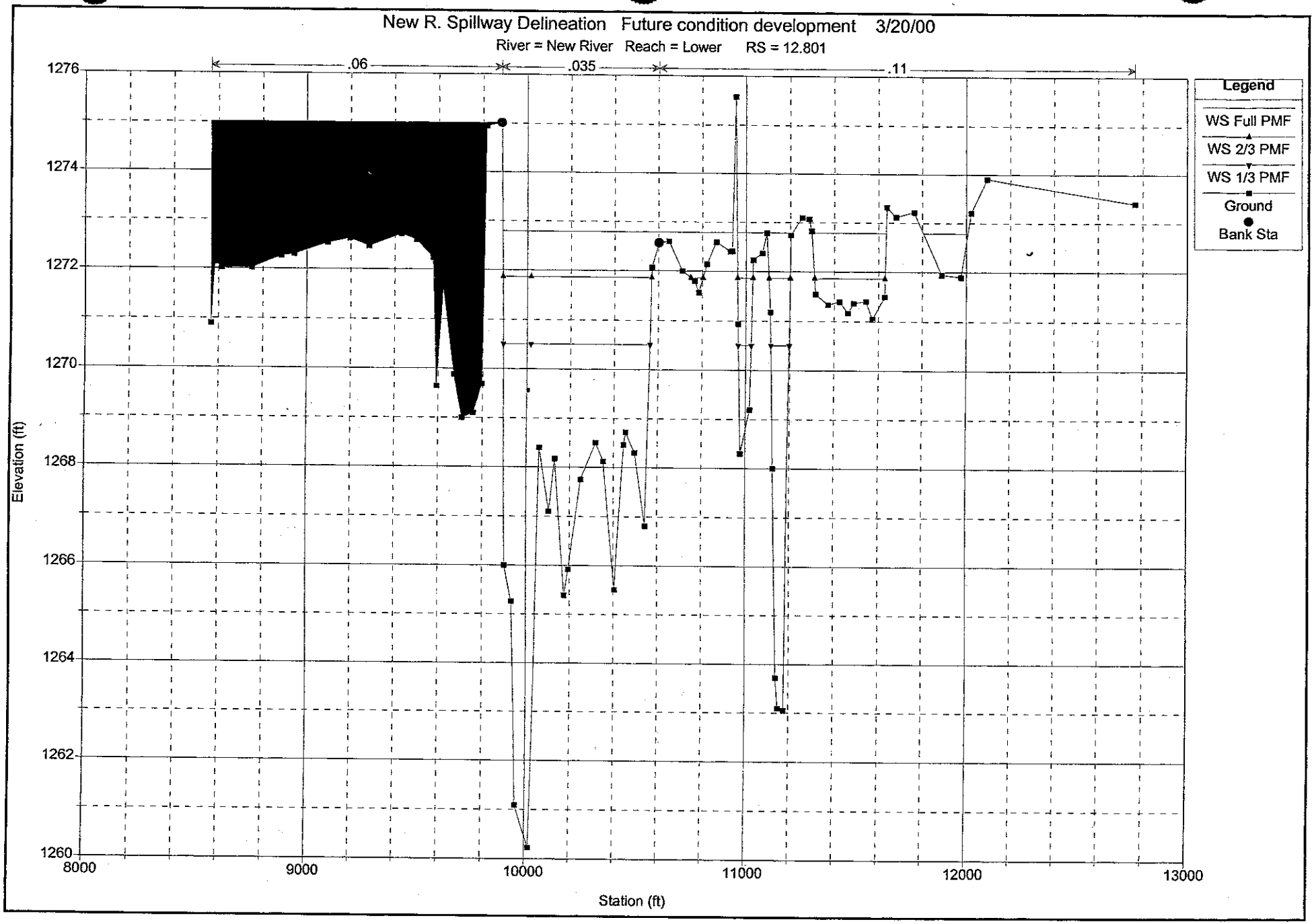
River = New River Reach = Lower RS = 13.151

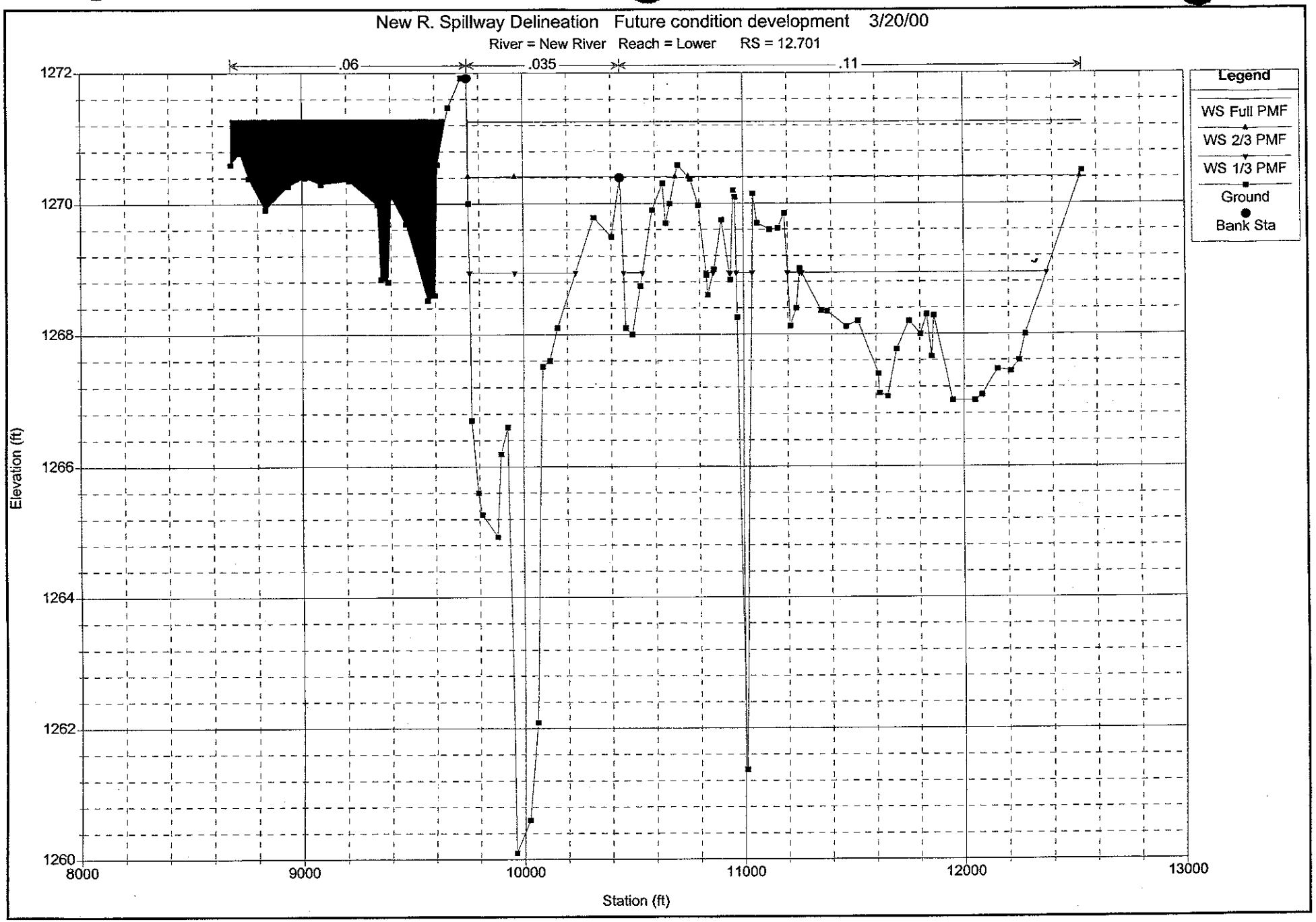


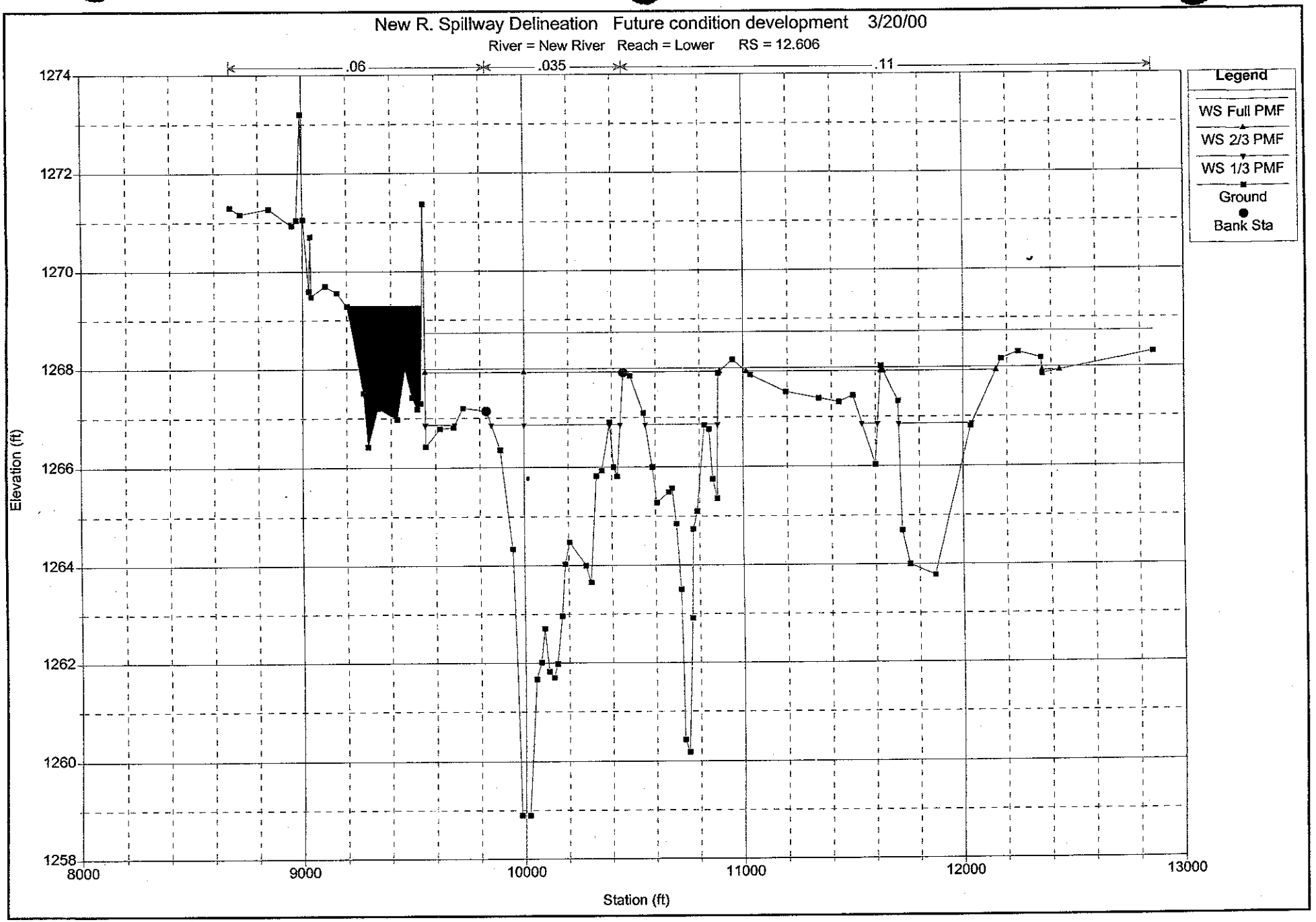

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 13.076
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1290
1285
1280
1275
1270
1265
1260
9000
9500
10000
10500
11000
11500
12000
12500
13000
Station (ft)

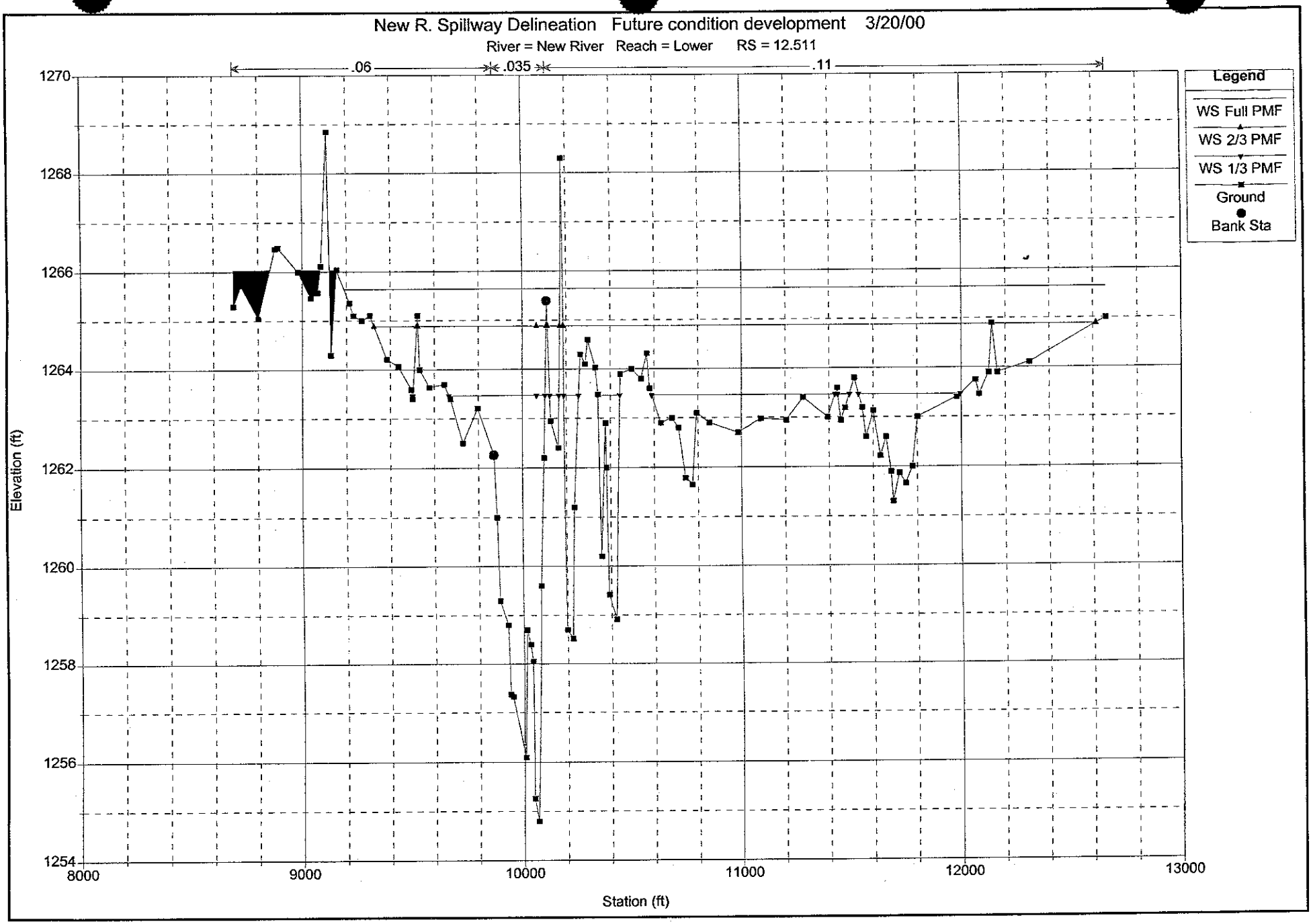

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.991
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1280
1278
1276
1274
1272
1270
1268
1266
1264
1262
9000
9500
10000
10500
11000
11500
12000
12500
13000
Station (ft)

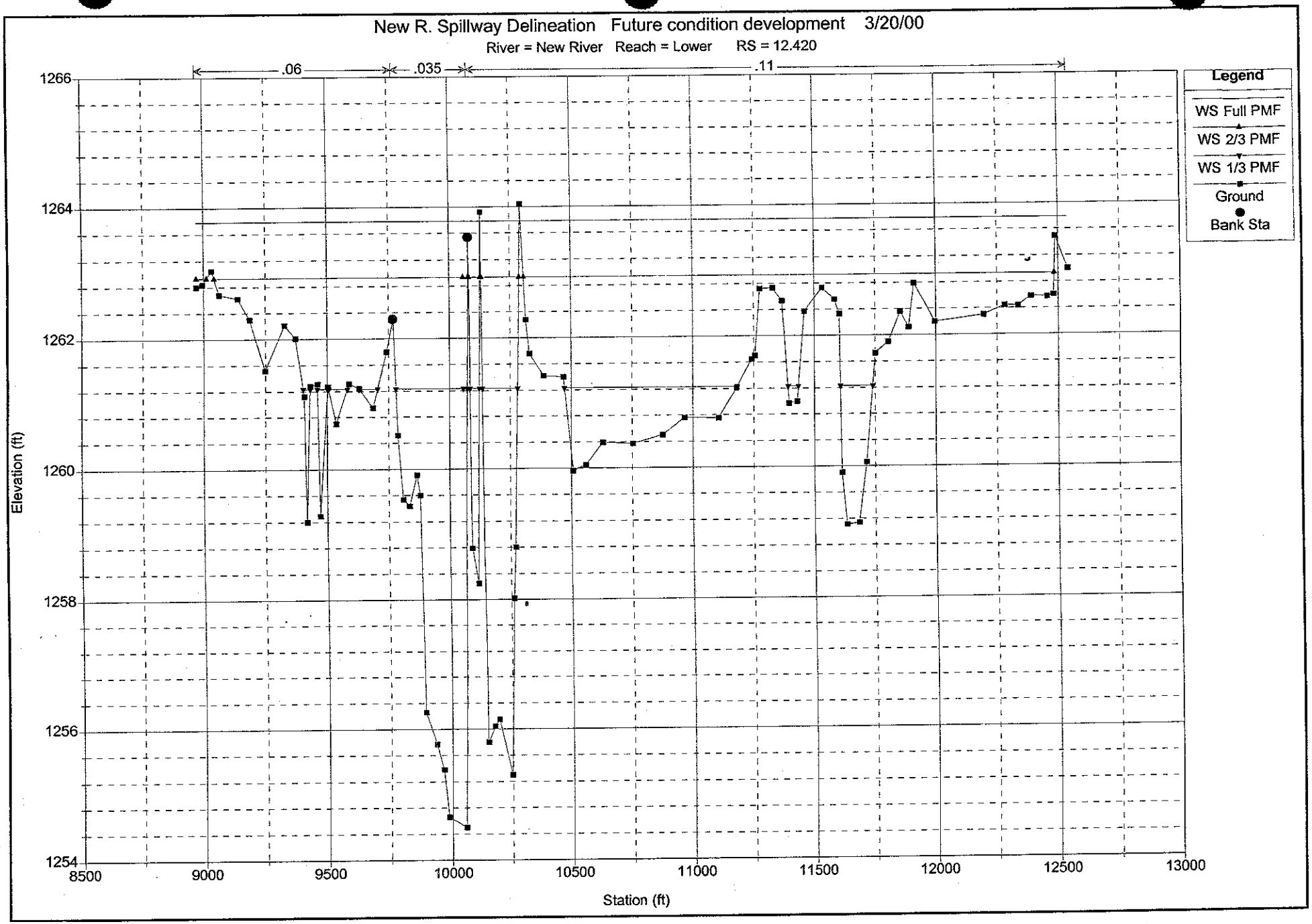

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.896
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1280
1278
1276
1274
1272
1270
1268
1266
1264
1262
8000
9000
10000
11000
12000
13000
Station (ft)

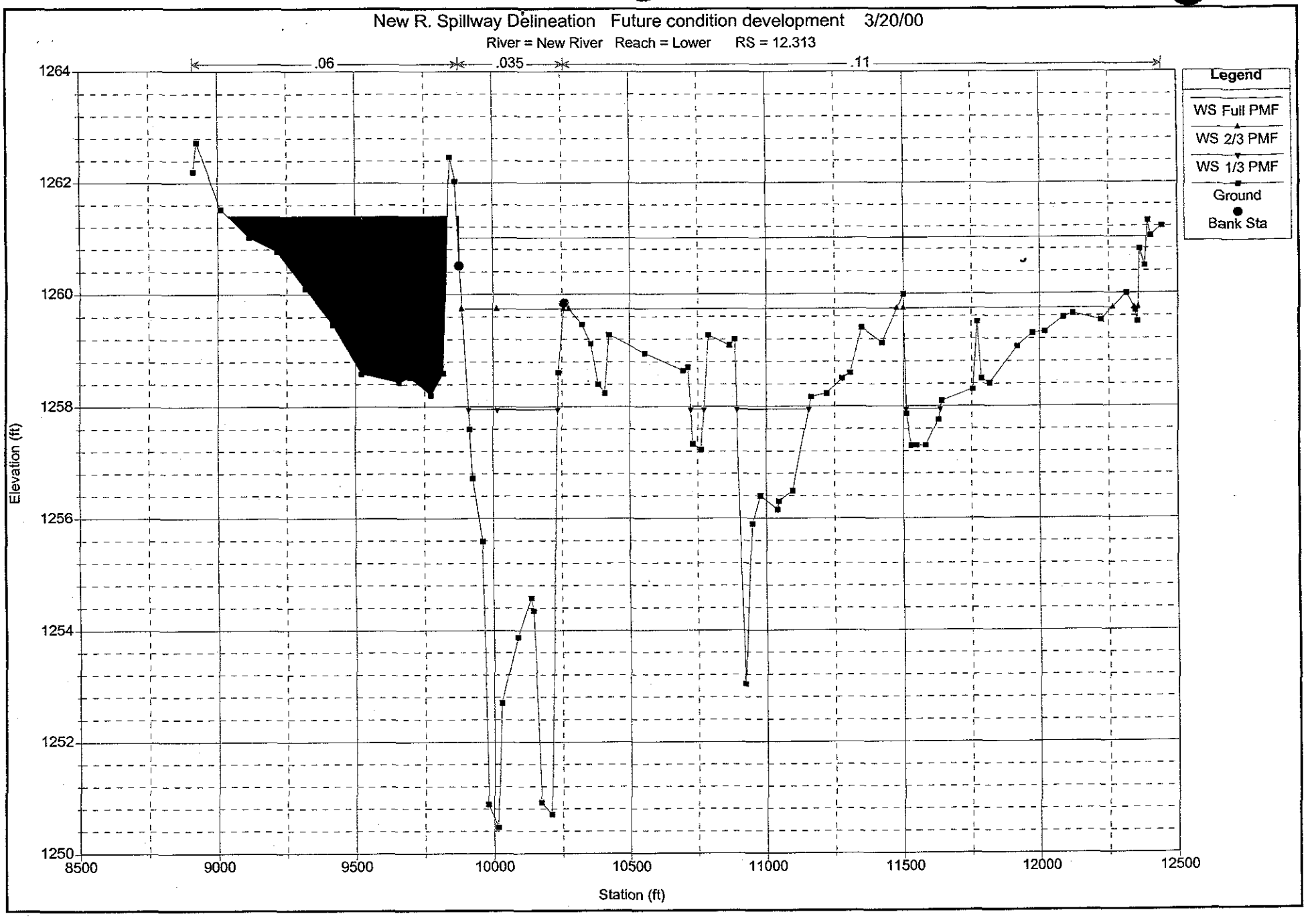

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.801
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1276
1274
1272
1270
1268
1266
1264
1262
1260
8000
9000
10000
11000
12000
13000
Station (ft)

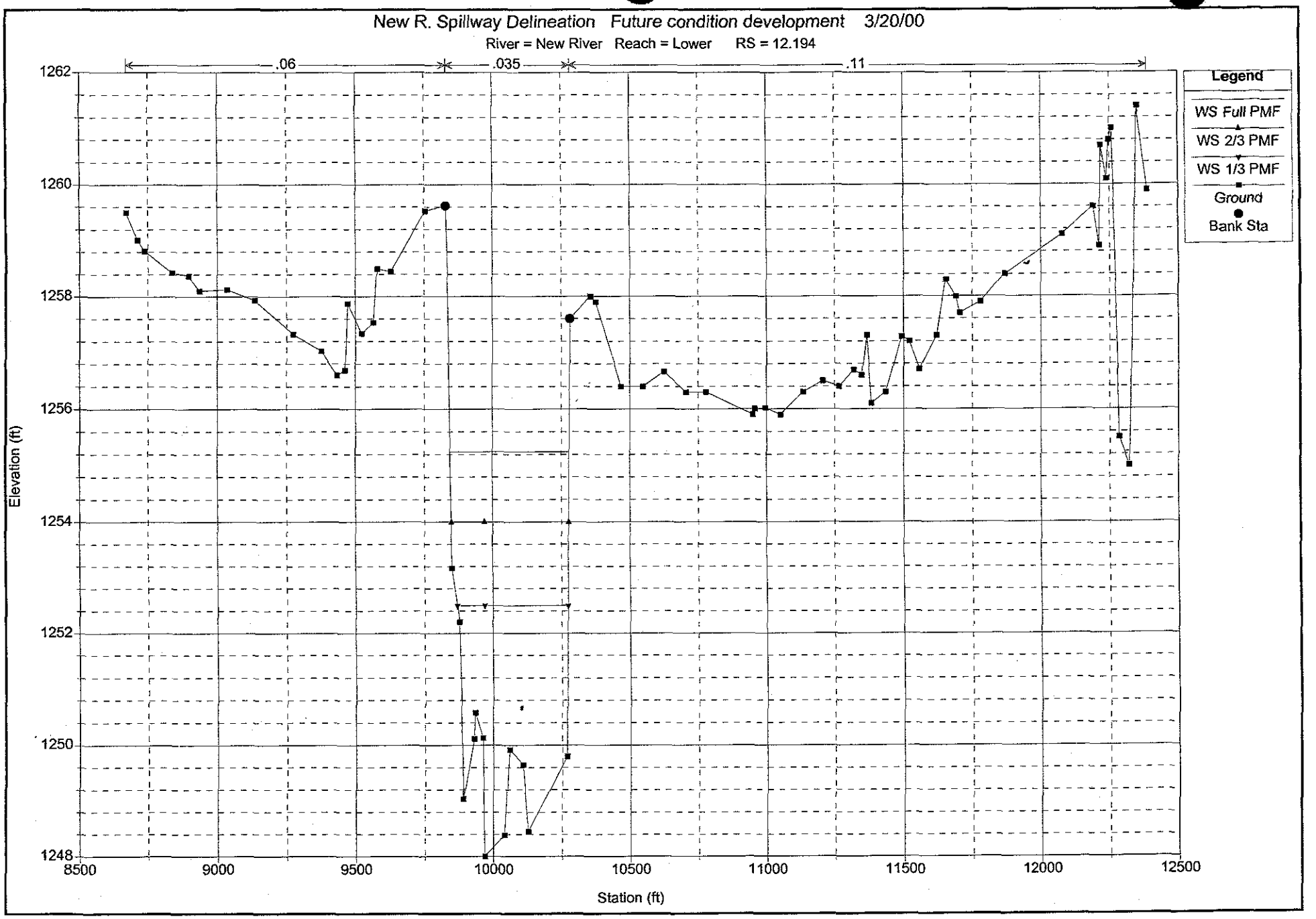

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.701
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1272
1270
1268
1266
1264
1262
1260
8000
9000
10000
11000
12000
13000
Station (ft)

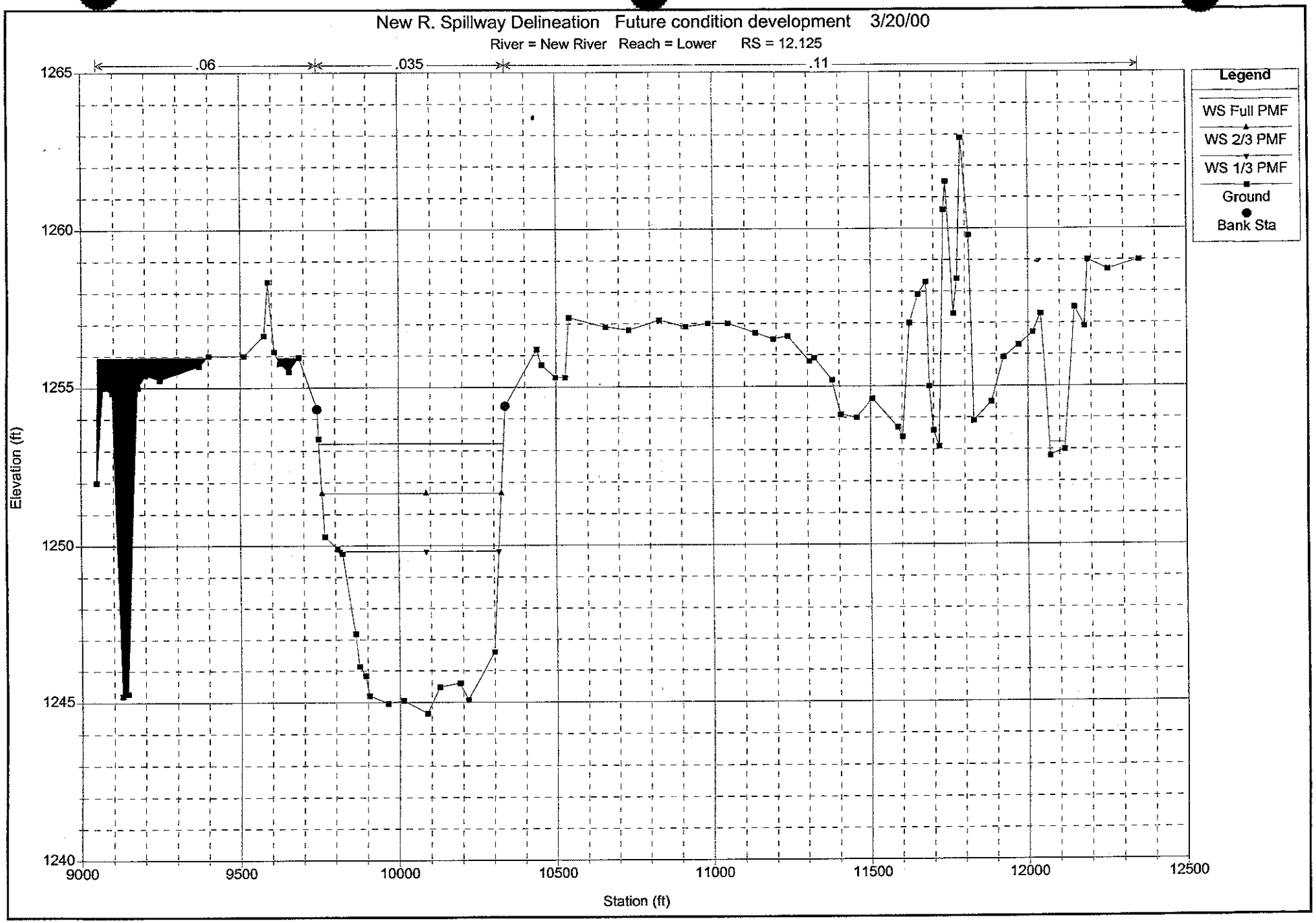

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.606
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1274
1272
1270
1268
1266
1264
1262
1260
1258
8000
9000
10000
11000
12000
13000
Station (ft)

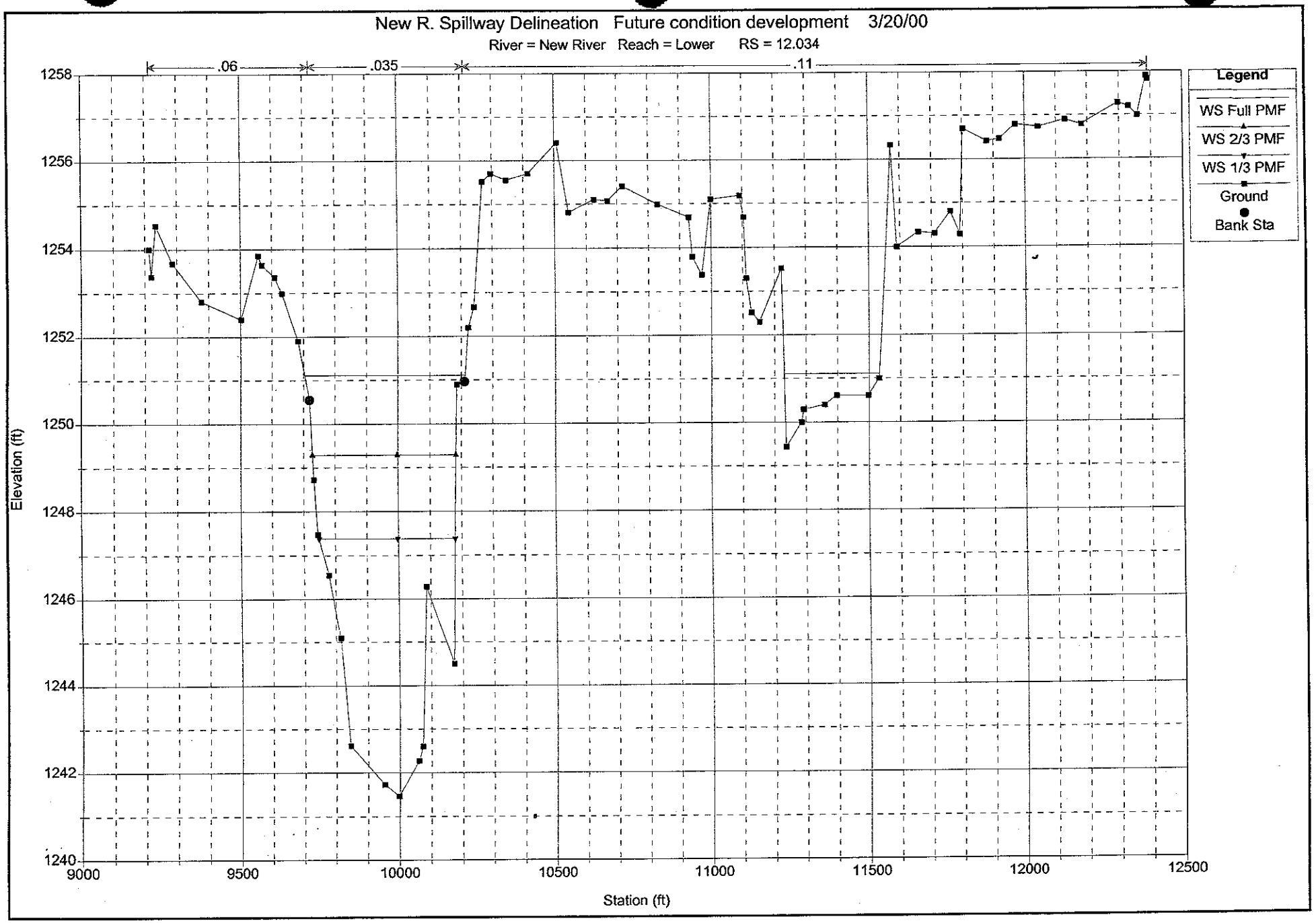

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.511
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1270
1268
1266
1264
1262
1260
1258
1256
1254
8000
9000
10000
11000
12000
13000
Station (ft)

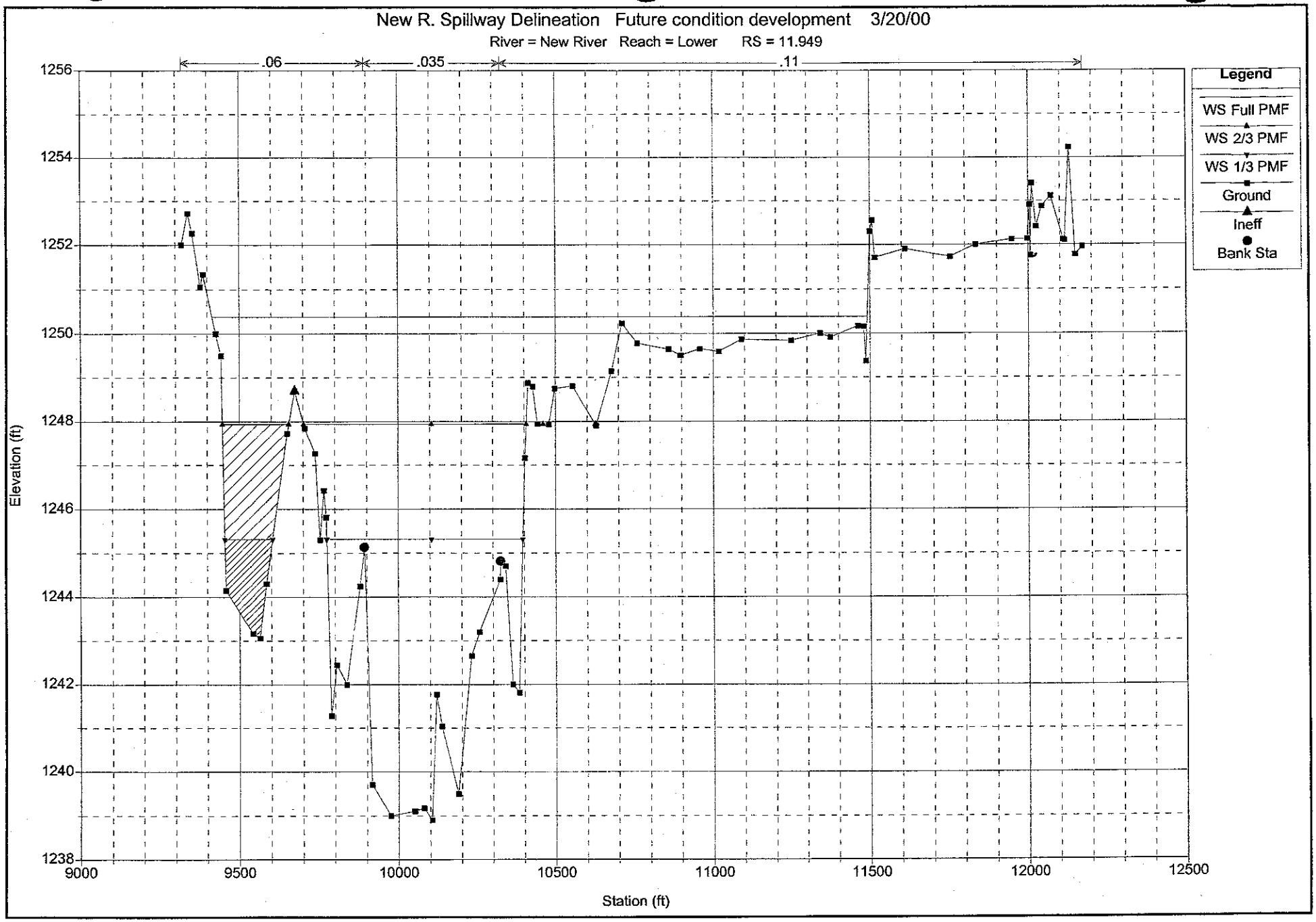

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.420
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1266
1264
1262
1260
1258
1256
1254
8500
9000
9500
10000
10500
11000
11500
12000
12500
13000
Station (ft)

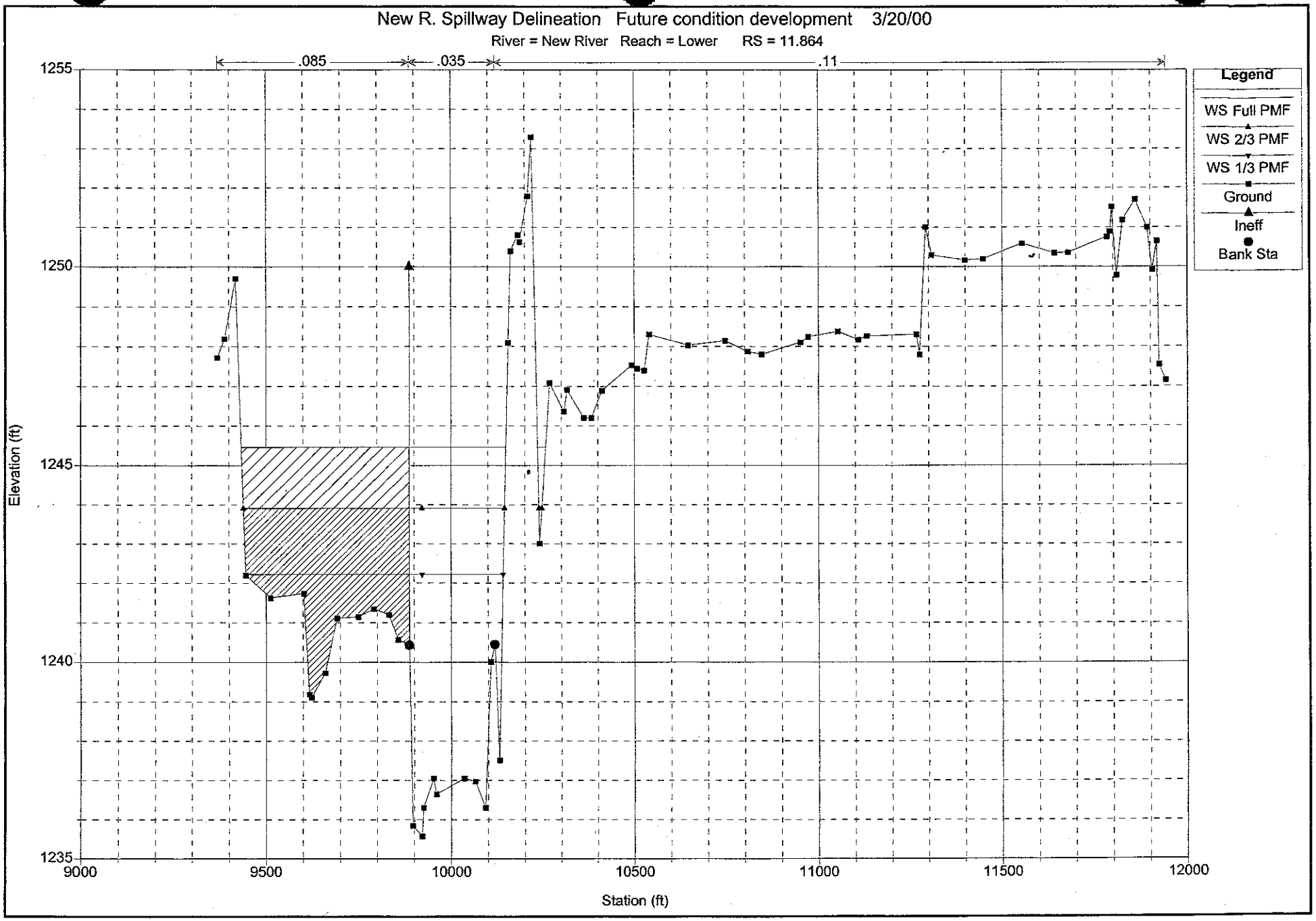

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.313
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1264
1262
1260
1258
1256
1254
1252
1250
8500
9000
9500
10000
10500
11000
11500
12000
12500
Station (ft)

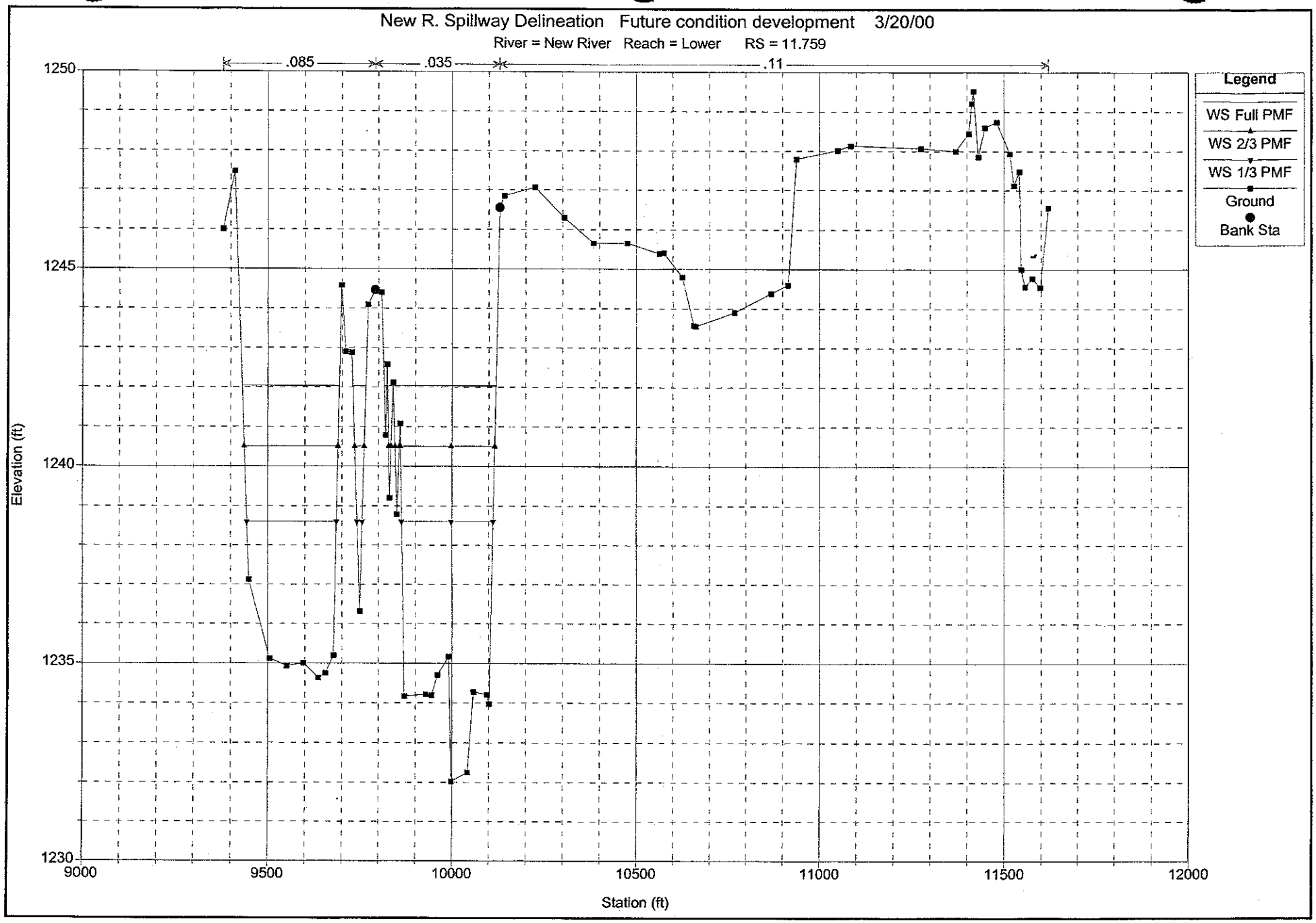

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.194
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1262
1260
1258
1256
1254
1252
1250
1248
8500
9000
9500
10000
10500
11000
11500
12000
12500
Station (ft)

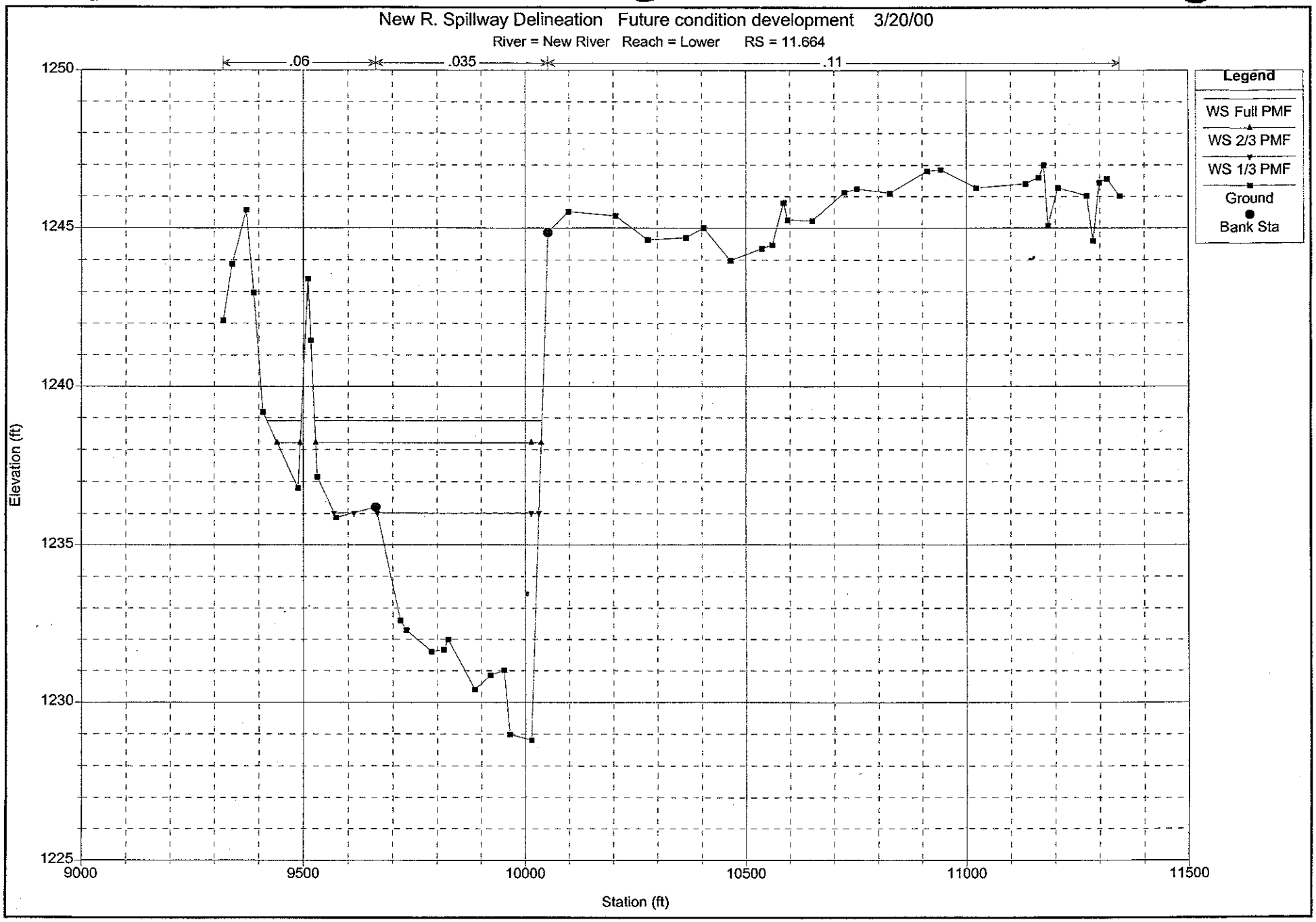

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.125
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1265
1260
1255
1250
1245
1240
9000
9500
10000
10500
11000
11500
12000
12500
Station (ft)

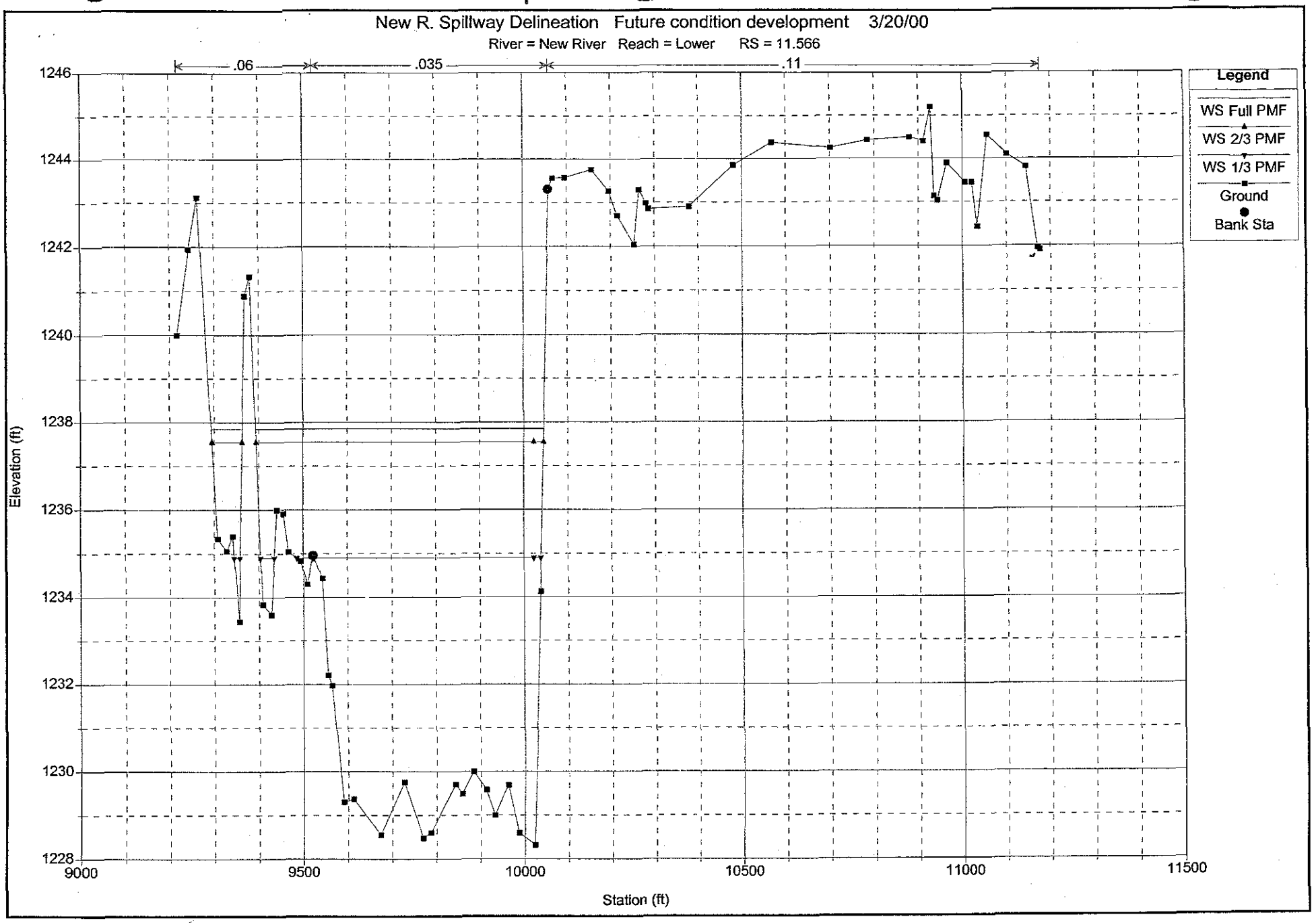

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 12.034
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1258
1256
1254
1252
1250
1248
1246
1244
1242
1240
9000
9500
10000
10500
11000
11500
12000
12500
Station (ft)

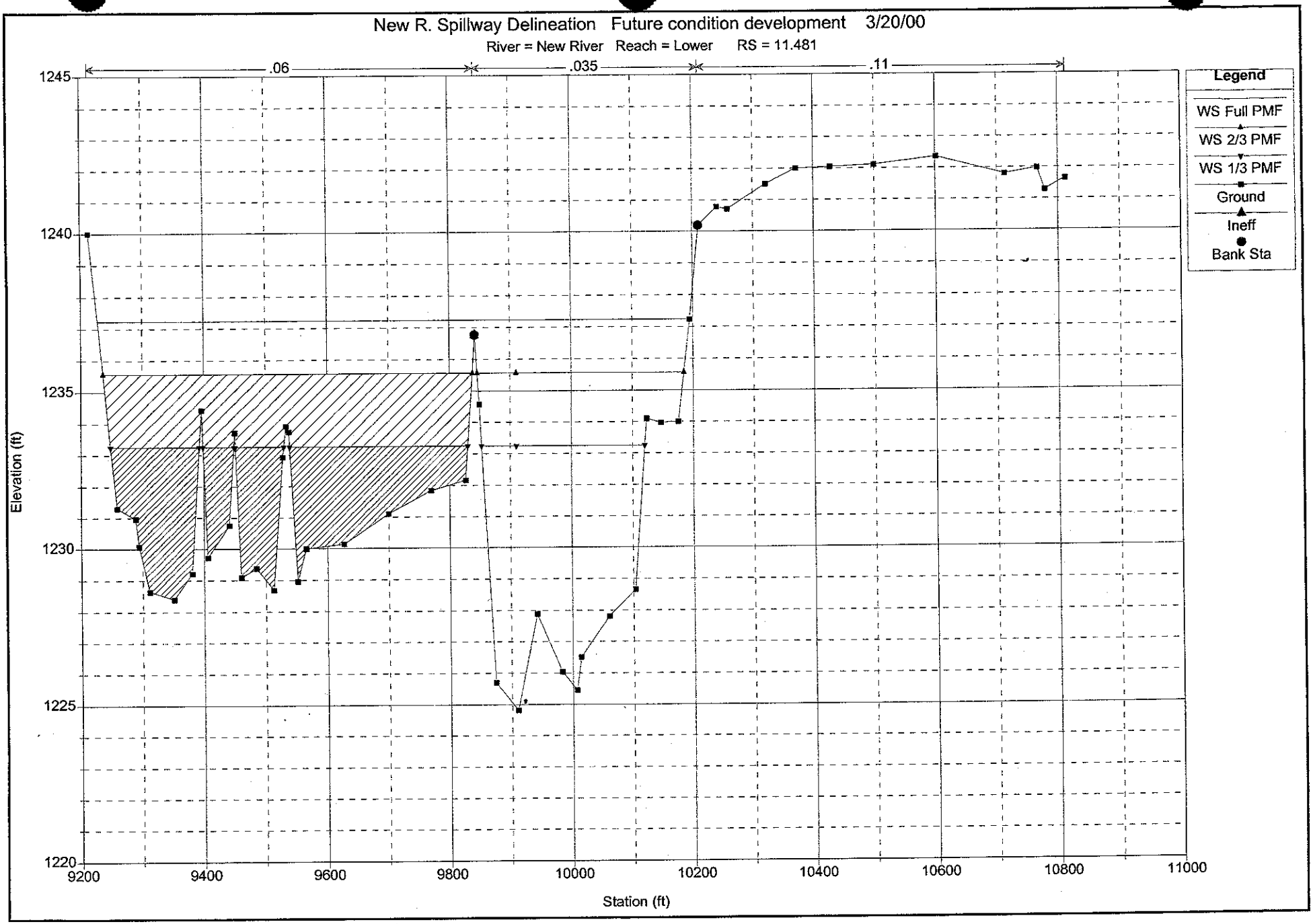

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.949
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1256
1254
1252
1250
1248
1246
1244
1242
1240
1238
9000
9500
10000
10500
11000
11500
12000
12500
Station (ft)

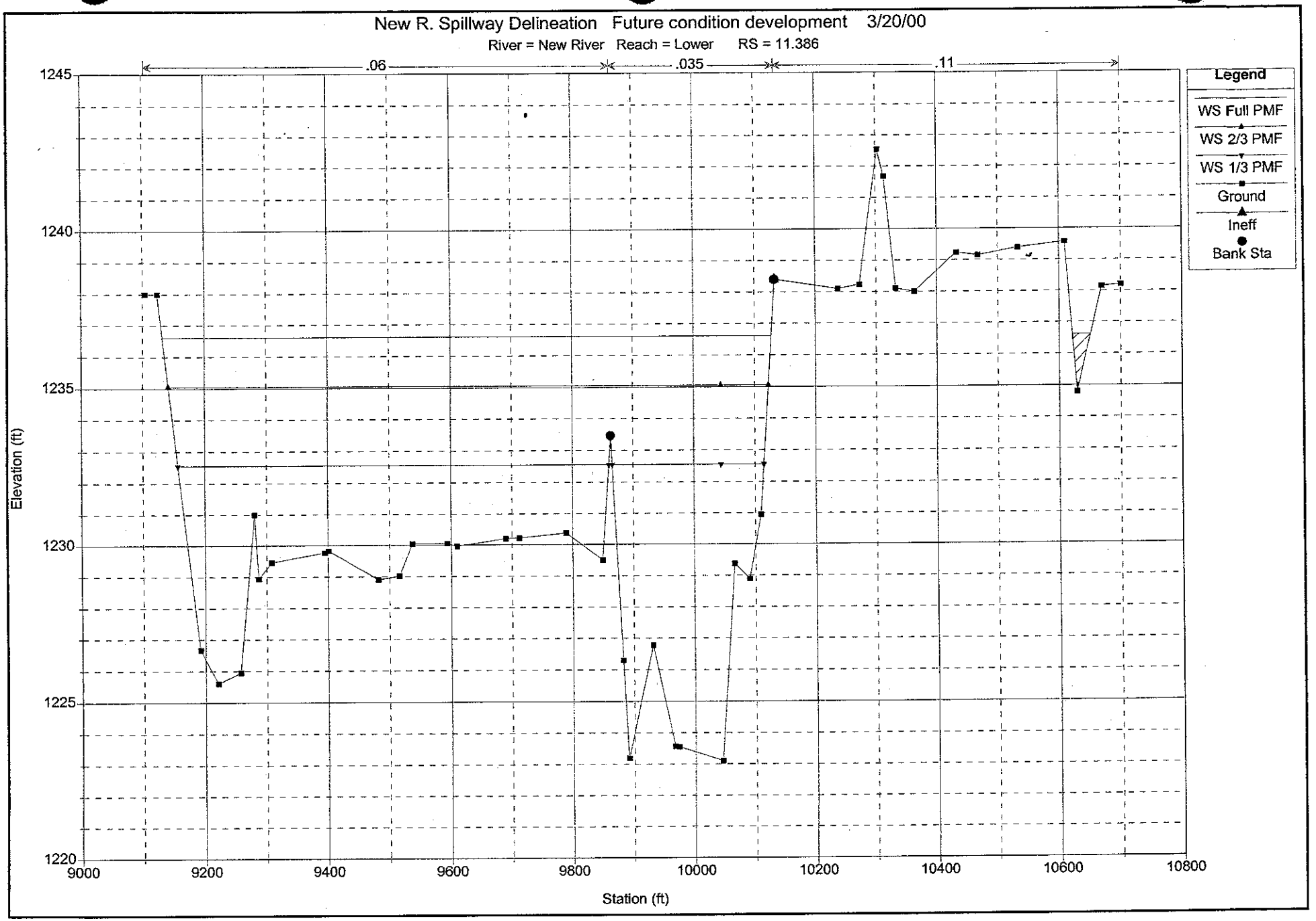

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.864
.085
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1255
1250
1245
1240
1235
9000
9500
10000
10500
11000
11500
12000
Station (ft)

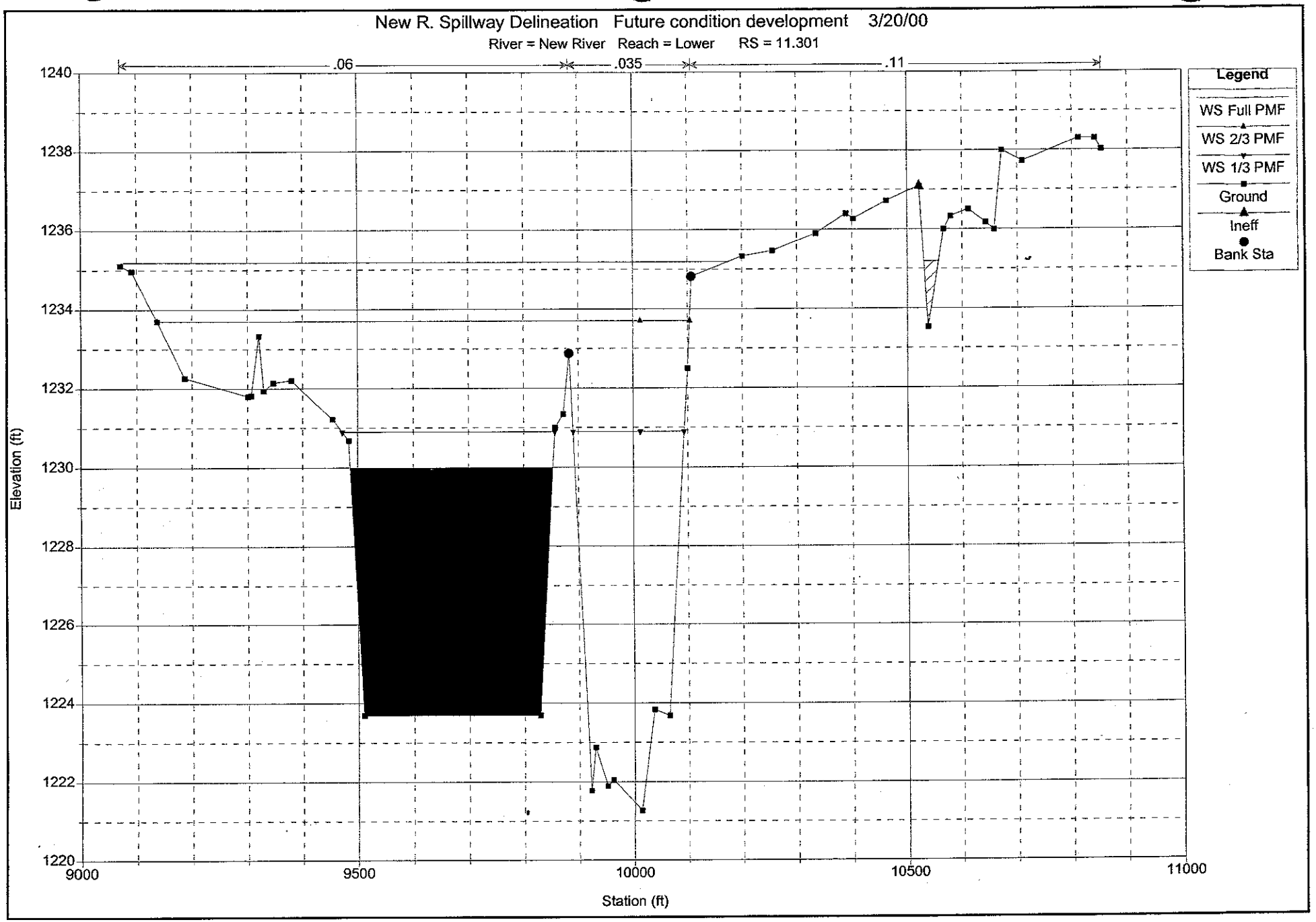

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.759
.085
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1250
1245
1240
1235
1230
9000
9500
10000
10500
11000
11500
12000
Station (ft)

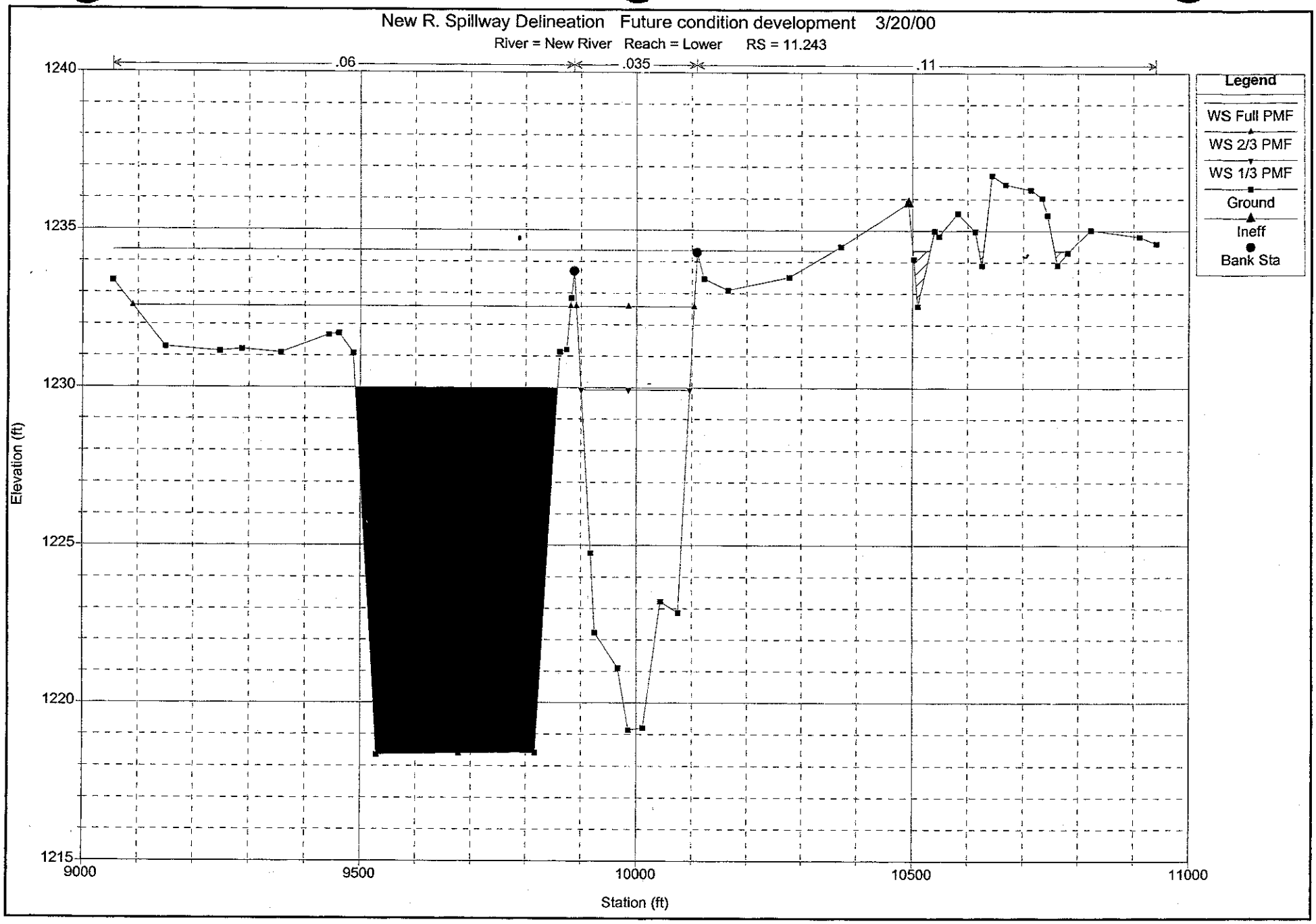

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.664
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1250
1245
1240
1235
1230
1225
9000
9500
10000
10500
11000
11500
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.566
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1246
1244
1242
1240
1238
1236
1234
1232
1230
1228
9000
9500
10000
10500
11000
11500
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.481
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1245
1240
1235
1230
1225
1220
9200
9400
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)

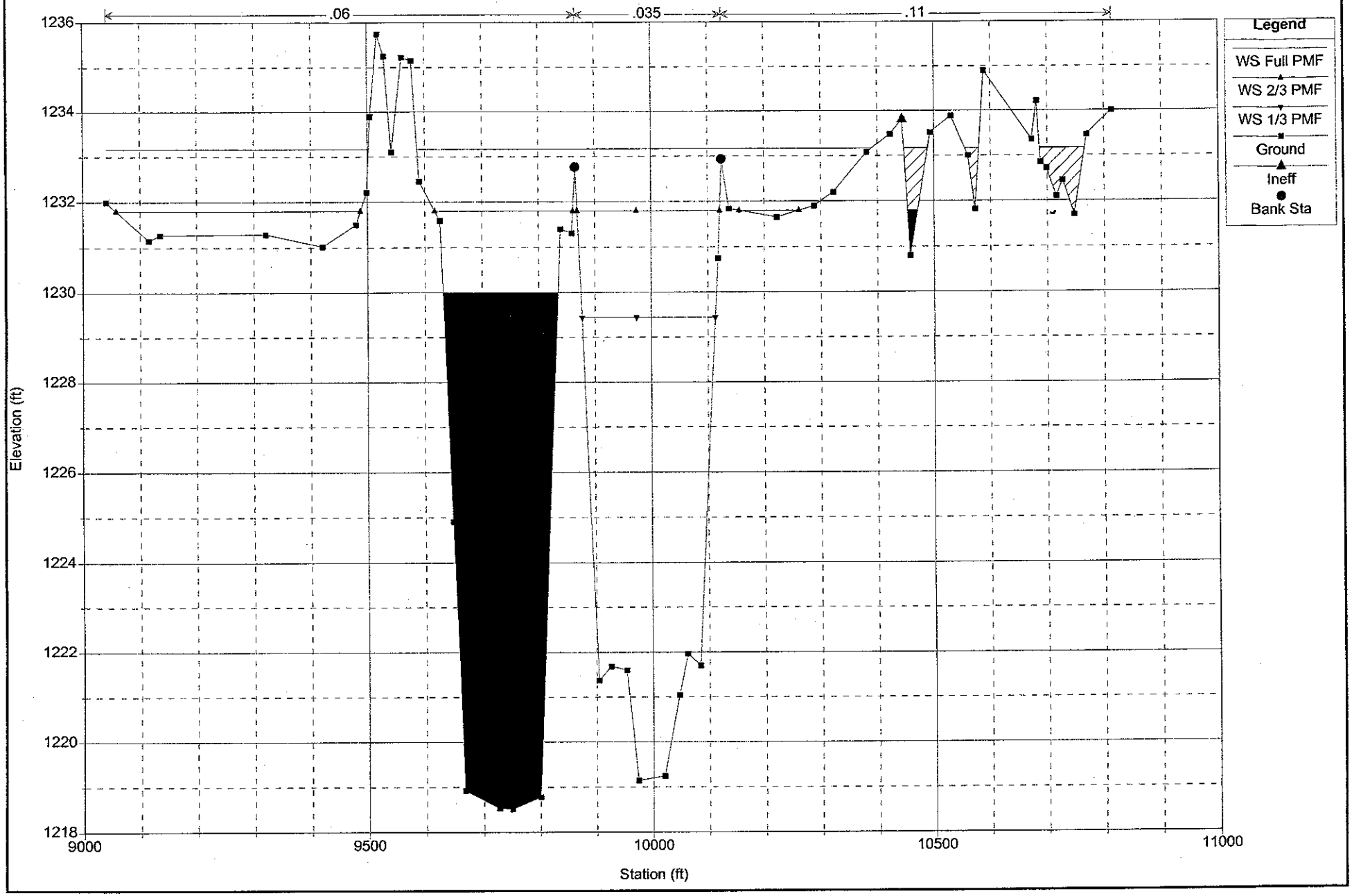

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.386
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1245
1240
1235
1230
1225
1220
9000
9200
9400
9600
9800
10000
10200
10400
10600
10800
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.301
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
1230
1228
1226
1224
1222
1220
9000
9500
10000
10500
11000
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.243
.06
.035
.11
1240
1235
1230
1225
1220
1215
Elevation (ft)
9000
9500
10000
10500
11000
Station (ft)
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta

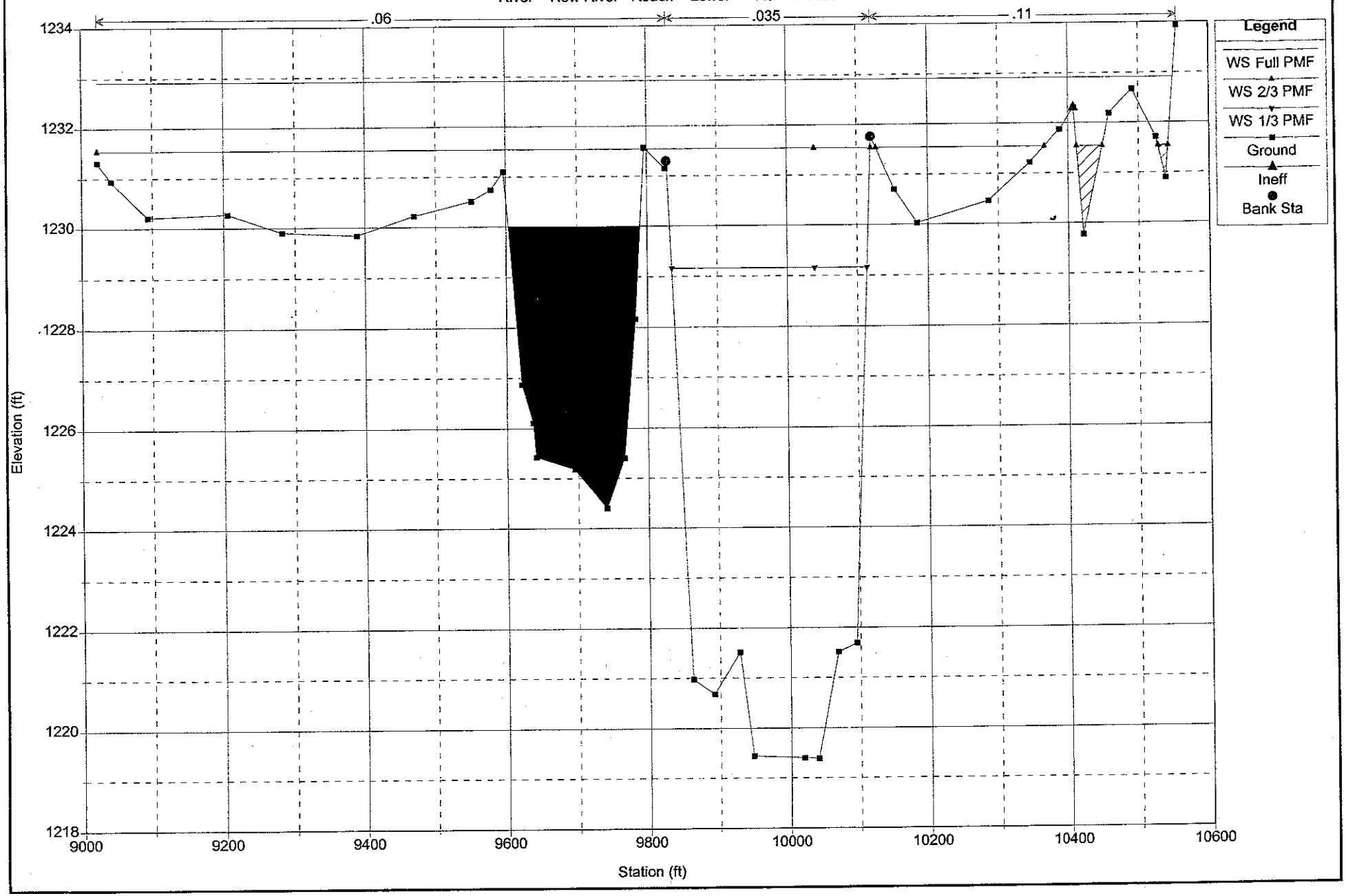
New R. Spillway Delineation Future condition development 3/20/00

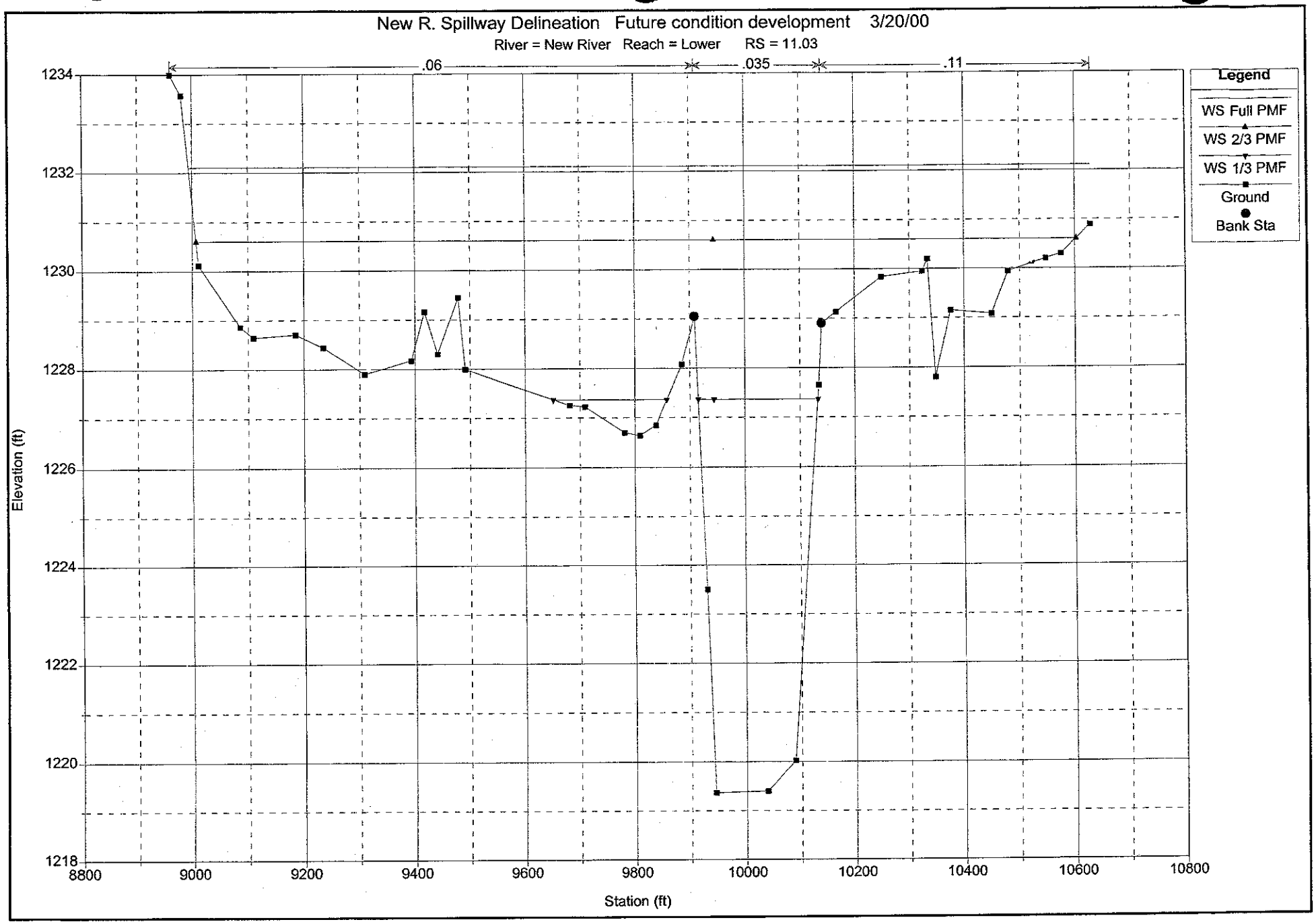
River = New River Reach = Lower RS = 11.188

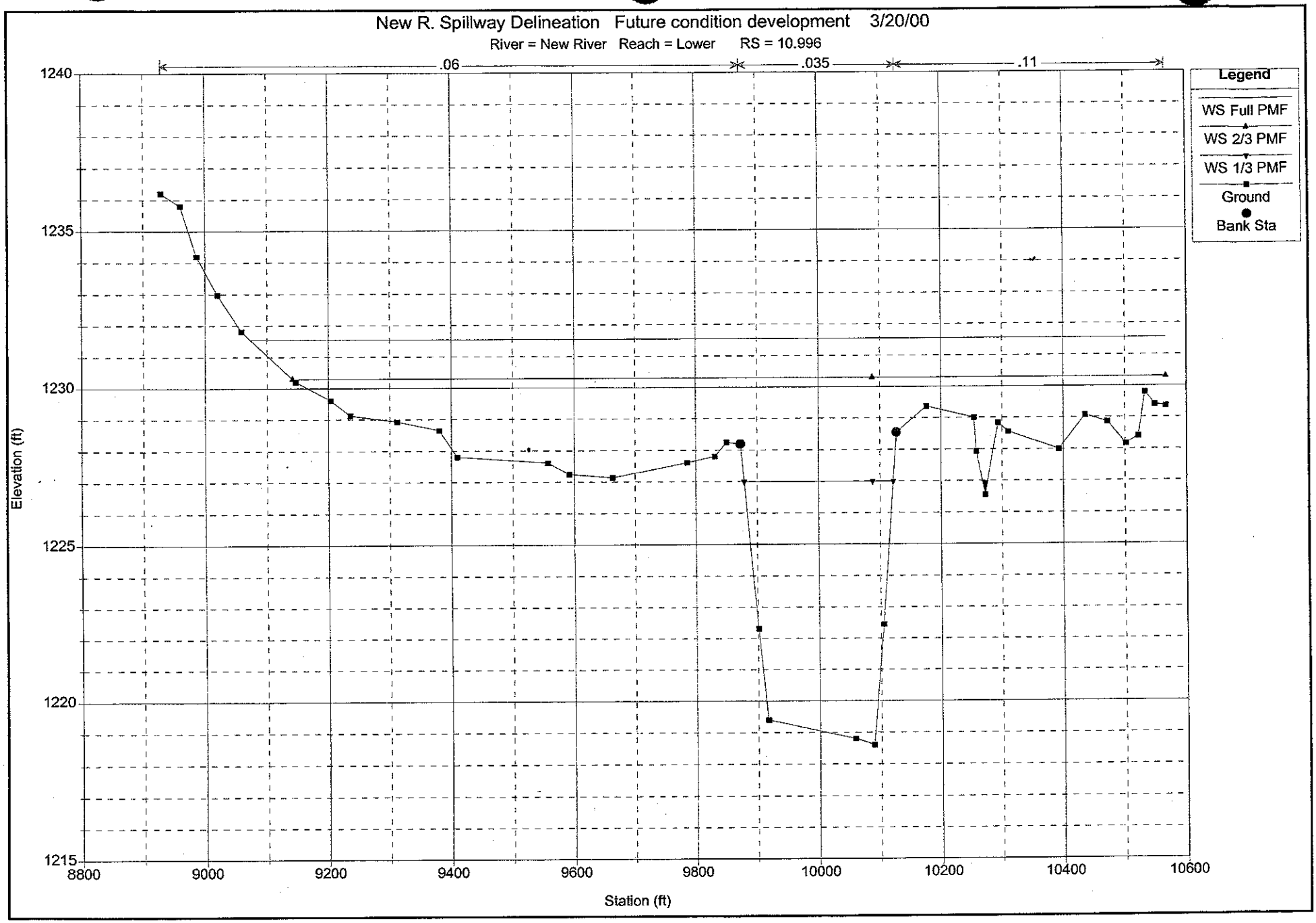


New R. Spillway Delineation Future condition development 3/20/00

River = New River Reach = Lower RS = 11.129

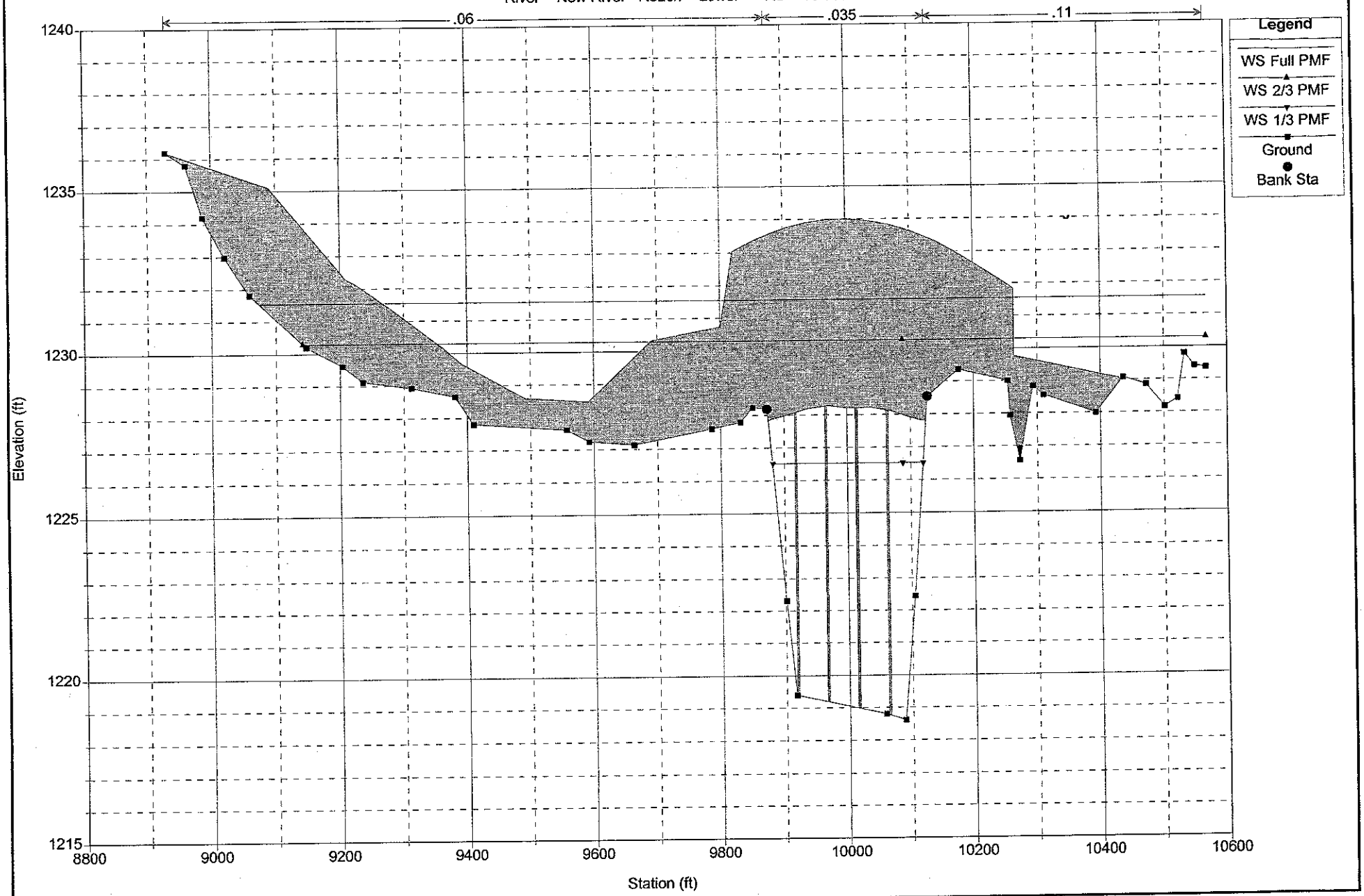


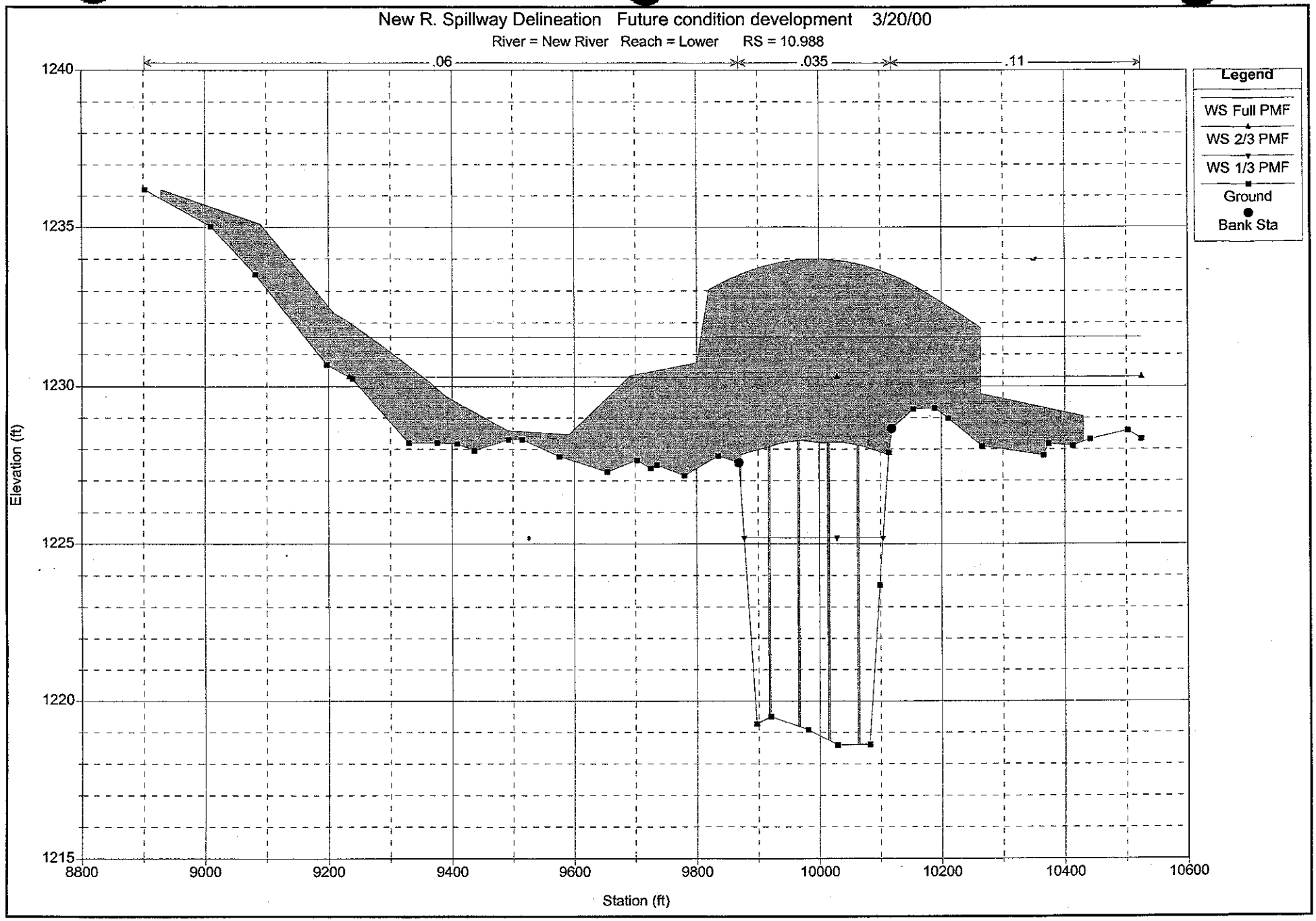

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 11.03
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1234
1232
1230
1228
1226
1224
1222
1220
1218
8800
9000
9200
9400
9600
9800
10000
10200
10400
10600
10800
Station (ft)

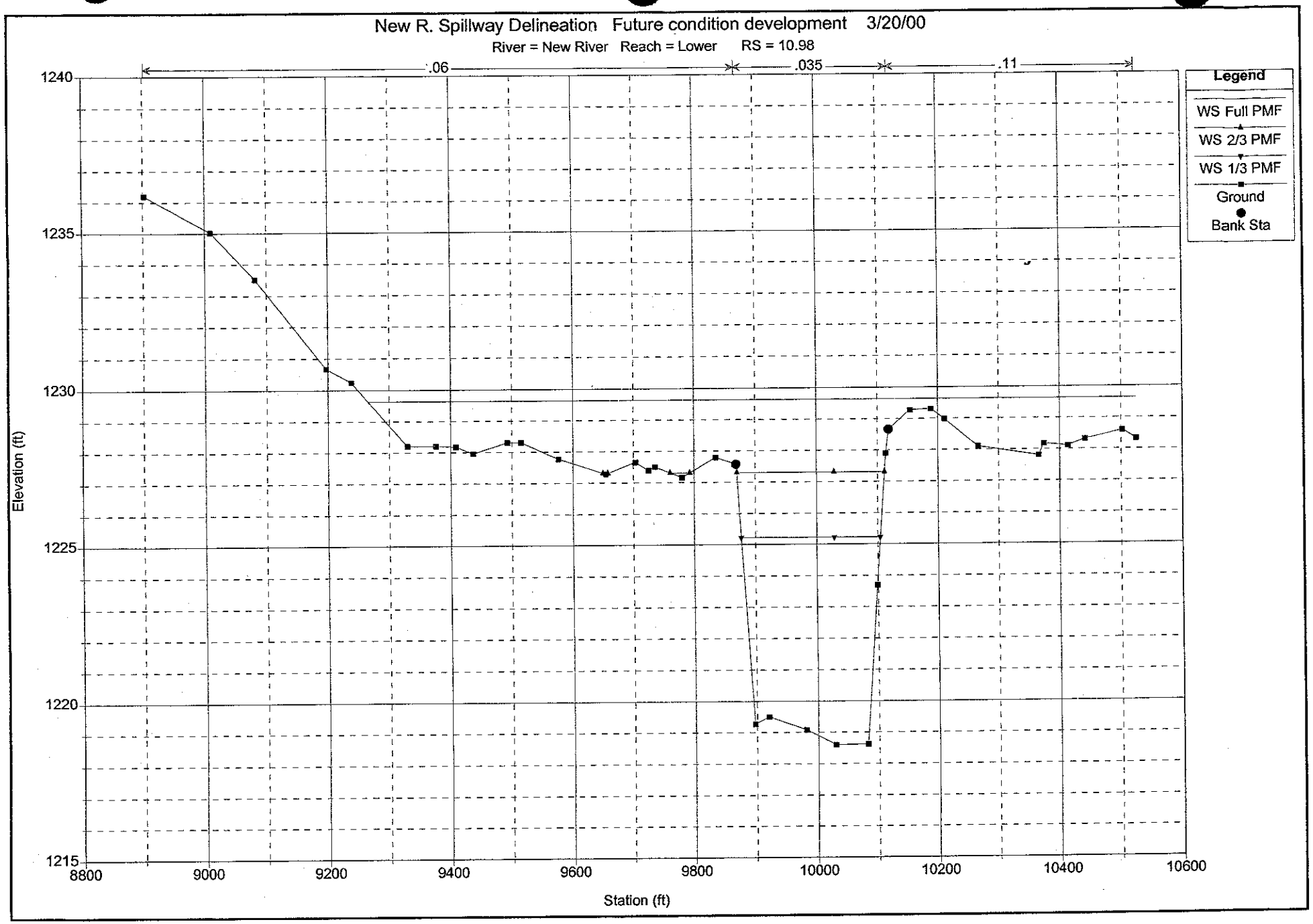

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.996
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1240
1235
1230
1225
1220
1215
8800
9000
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)

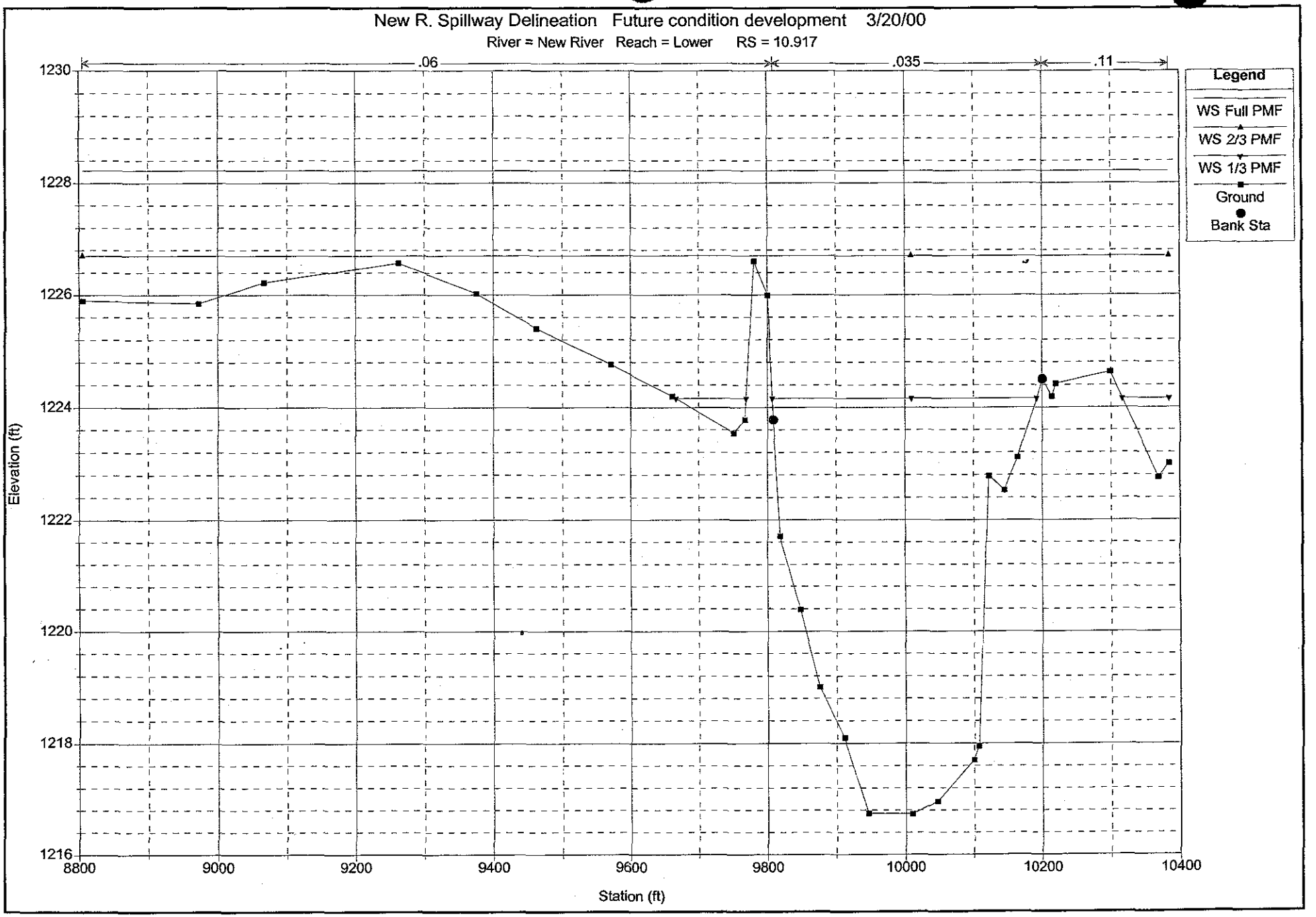
New R. Spillway Delineation Future condition development 3/20/00

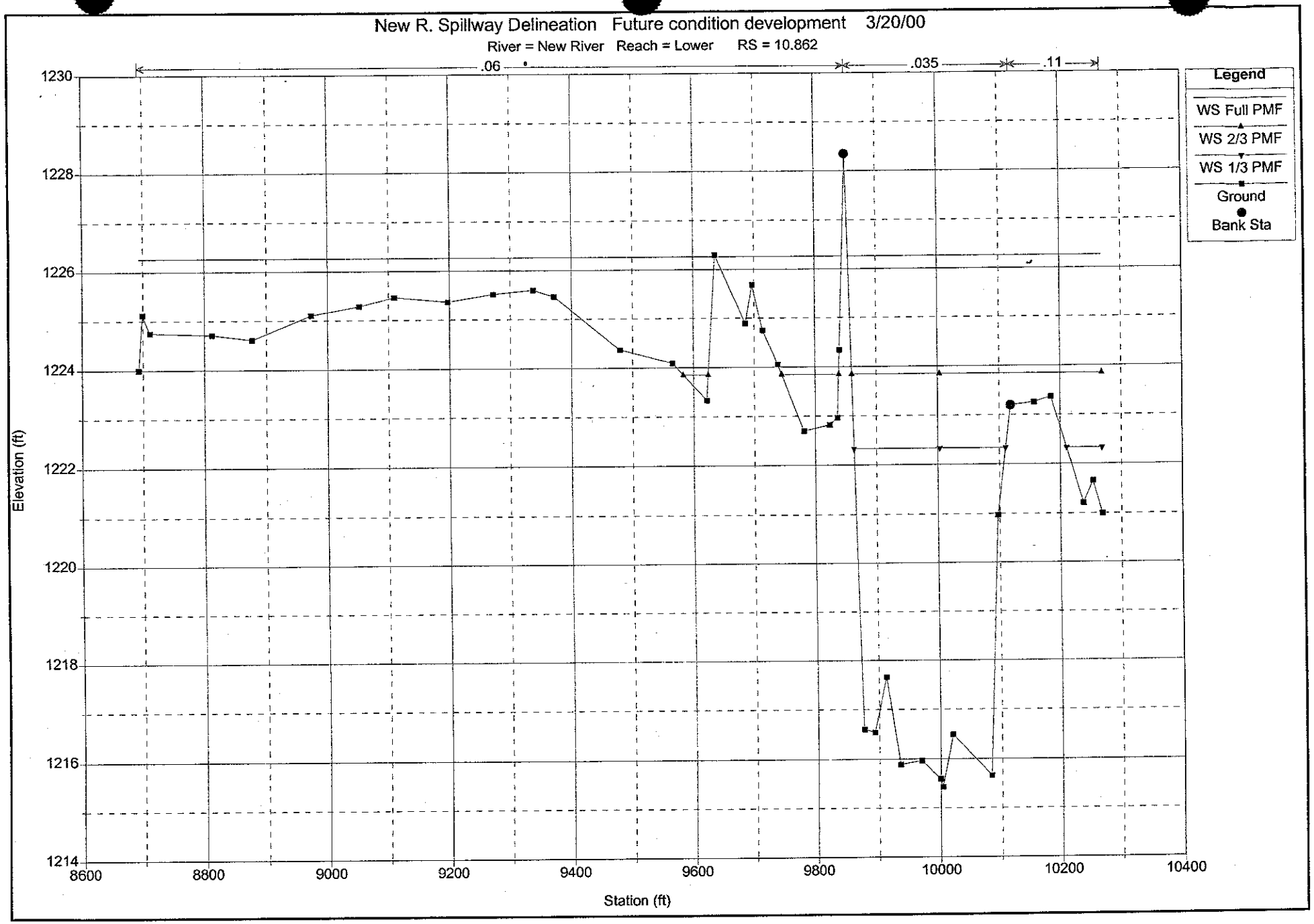
River = New River Reach = Lower RS = 10.988

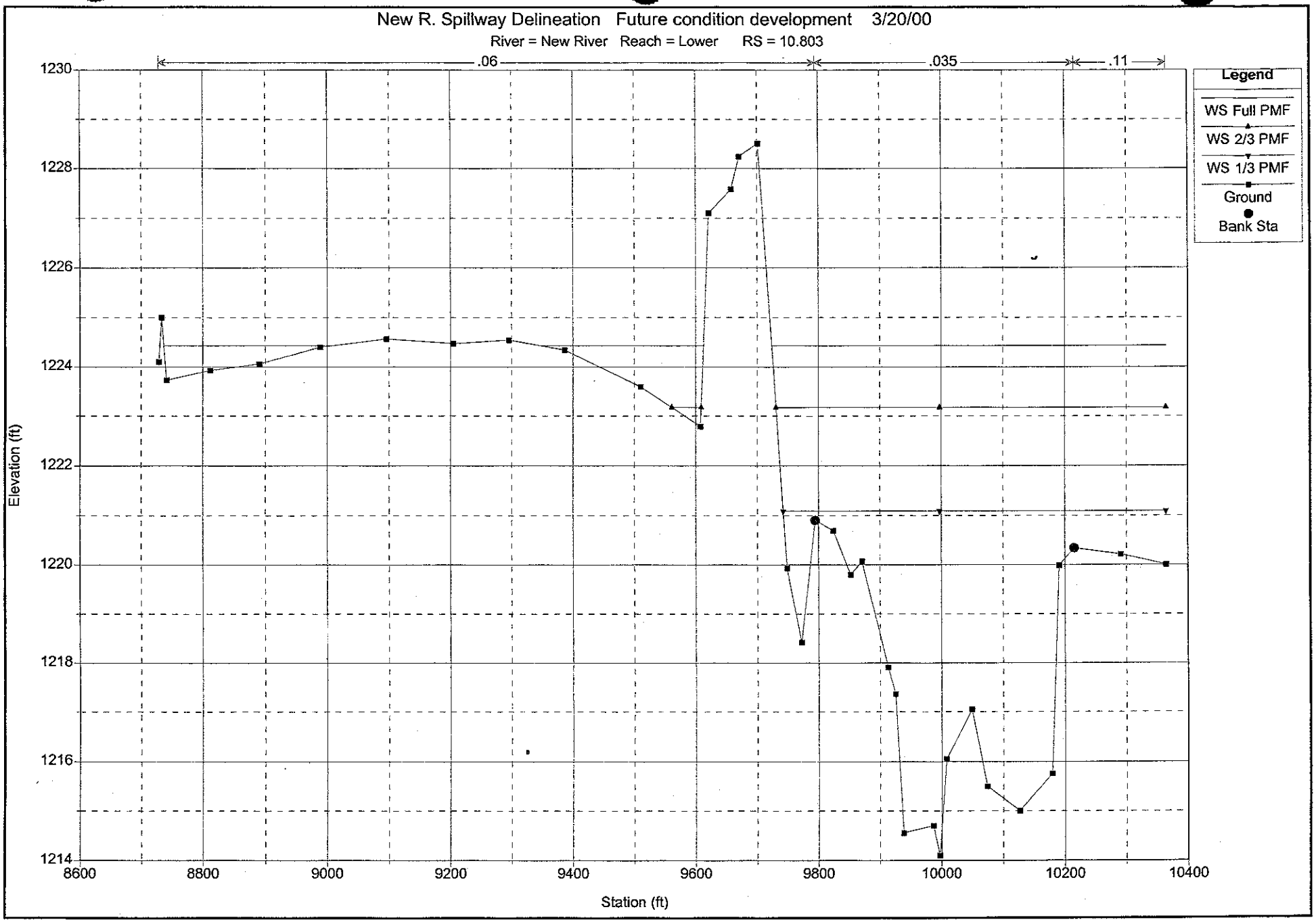


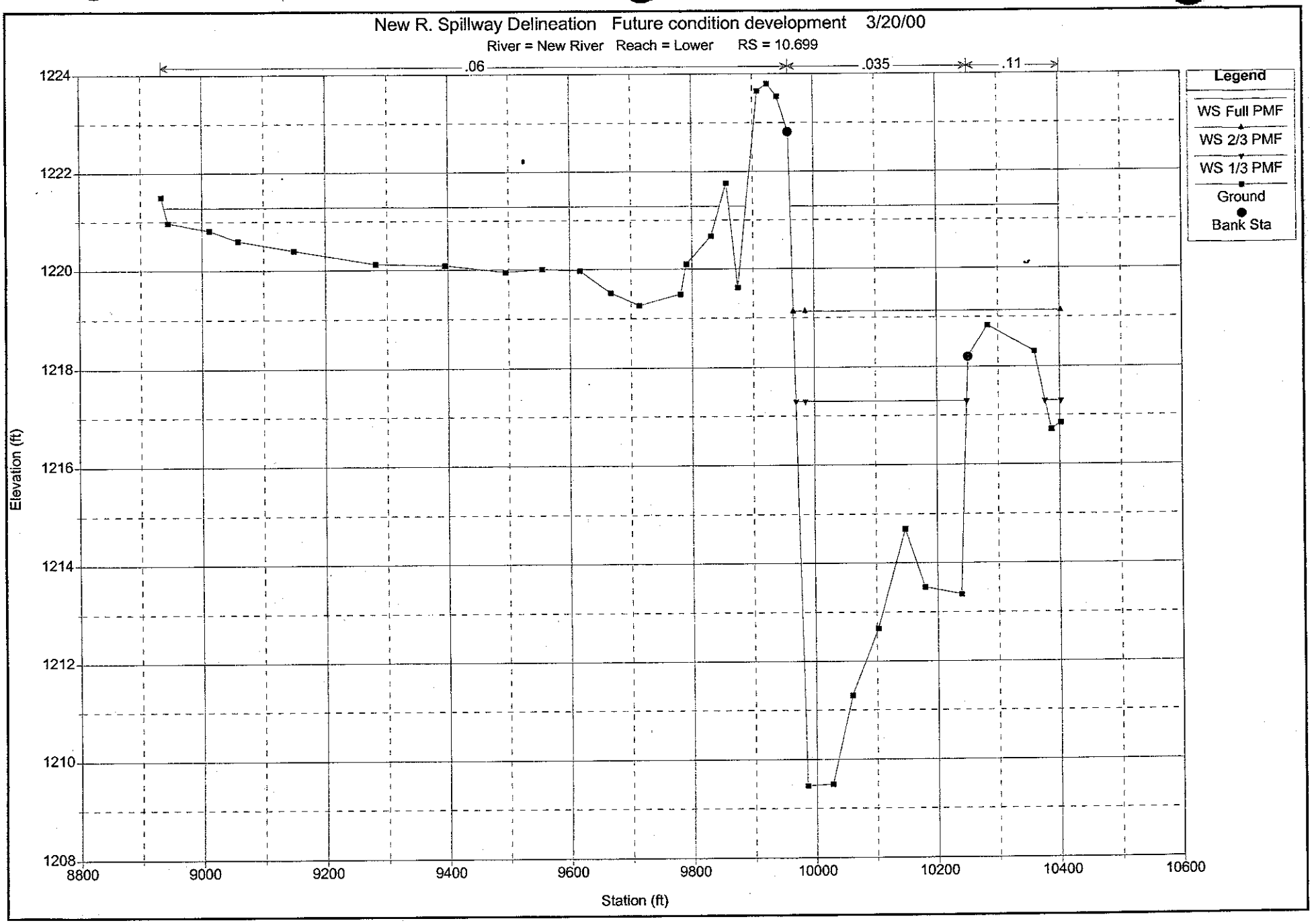

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.988
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1240
1235
1230
1225
1220
1215
8800
9000
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)

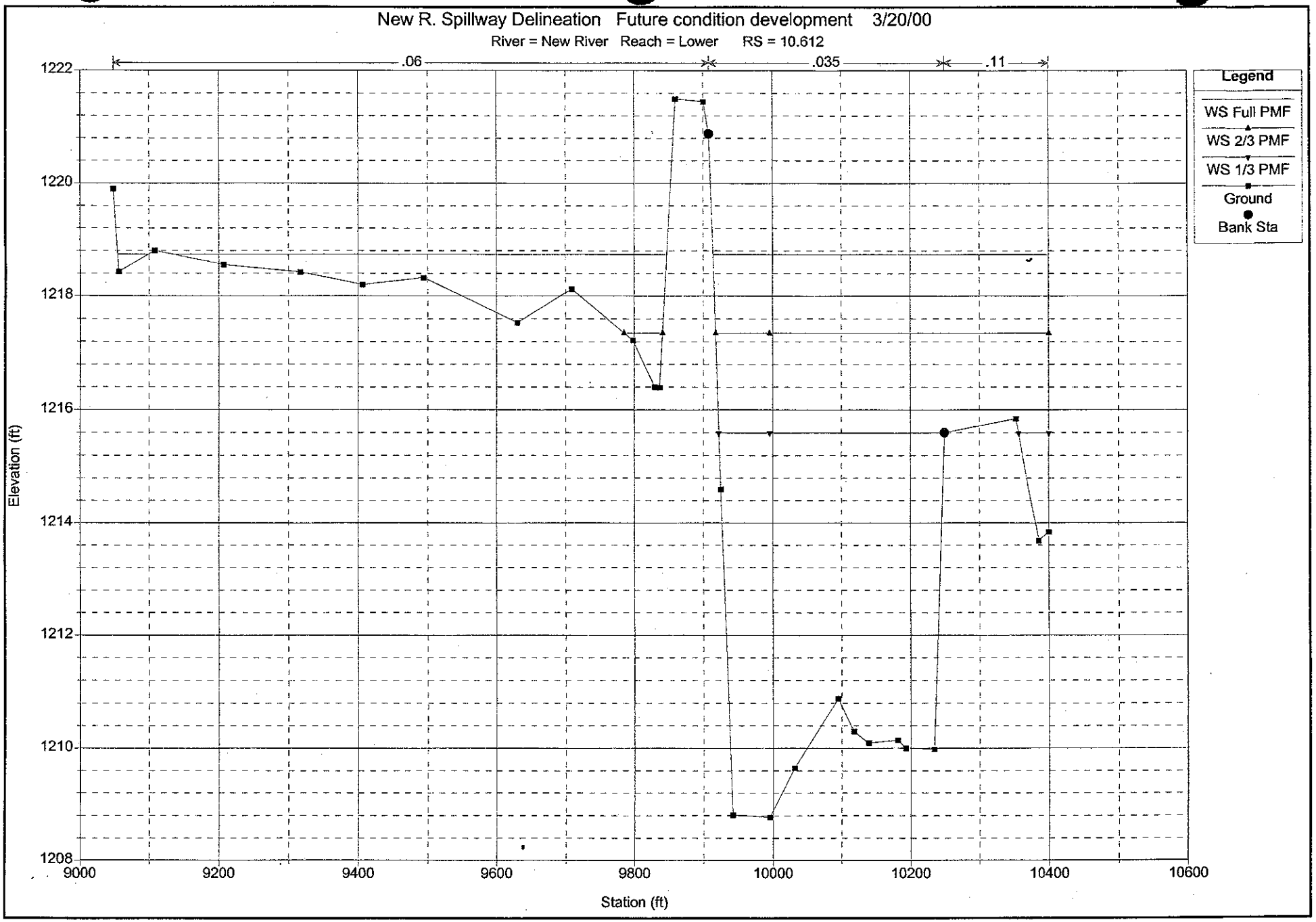

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.98
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1240
1235
1230
1225
1220
1215
8800
9000
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.917
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1230
1228
1226
1224
1222
1220
1218
1216
8800
9000
9200
9400
9600
9800
10000
10200
10400
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.862
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1230
1228
1226
1224
1222
1220
1218
1216
1214
8600
8800
9000
9200
9400
9600
9800
10000
10200
10400
Station (ft)

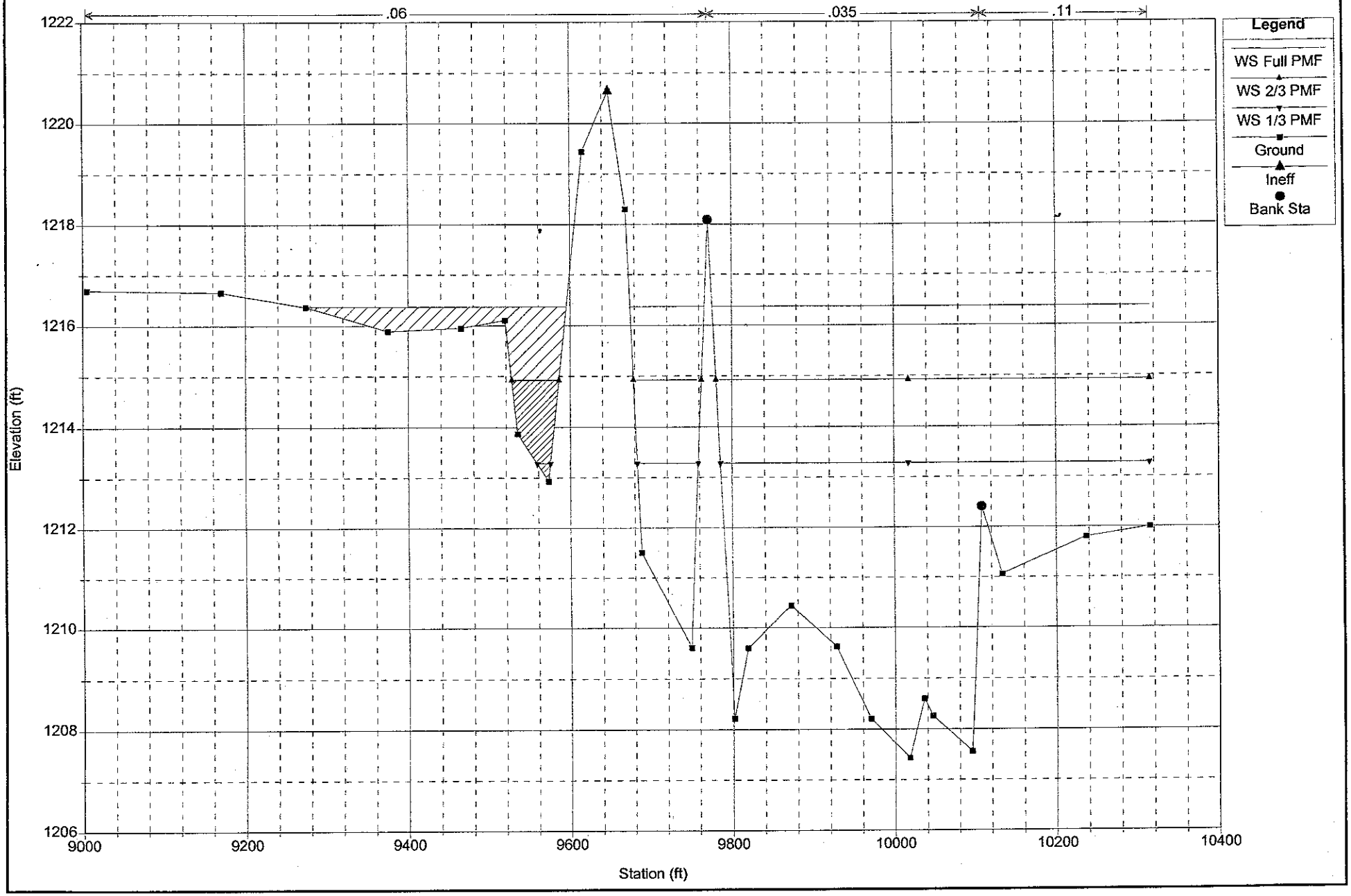

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.803
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1230
1228
1226
1224
1222
1220
1218
1216
1214
8600
8800
9000
9200
9400
9600
9800
10000
10200
10400
Station (ft)

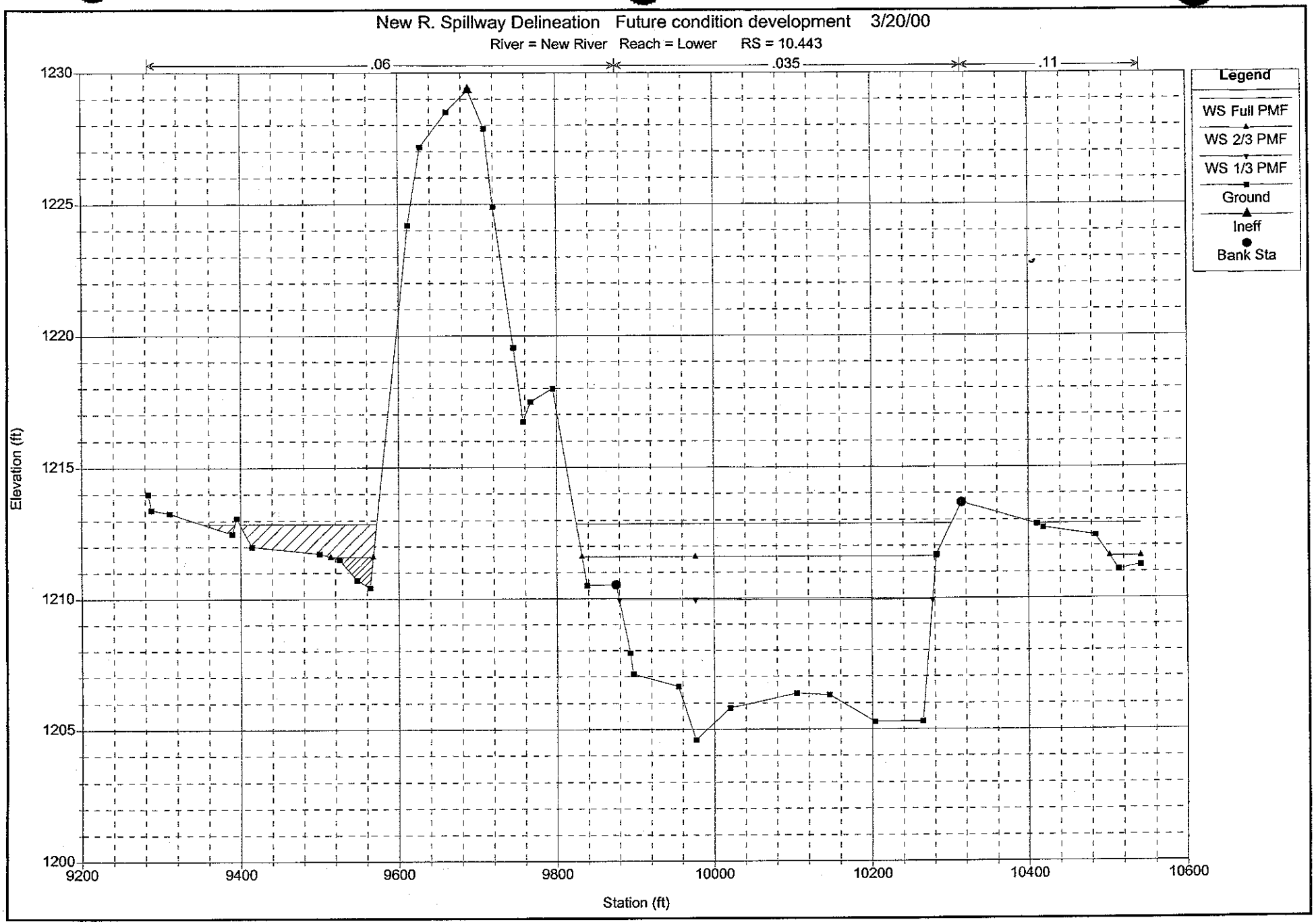

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.699
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1224
1222
1220
1218
1216
1214
1212
1210
1208
8800
9000
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)

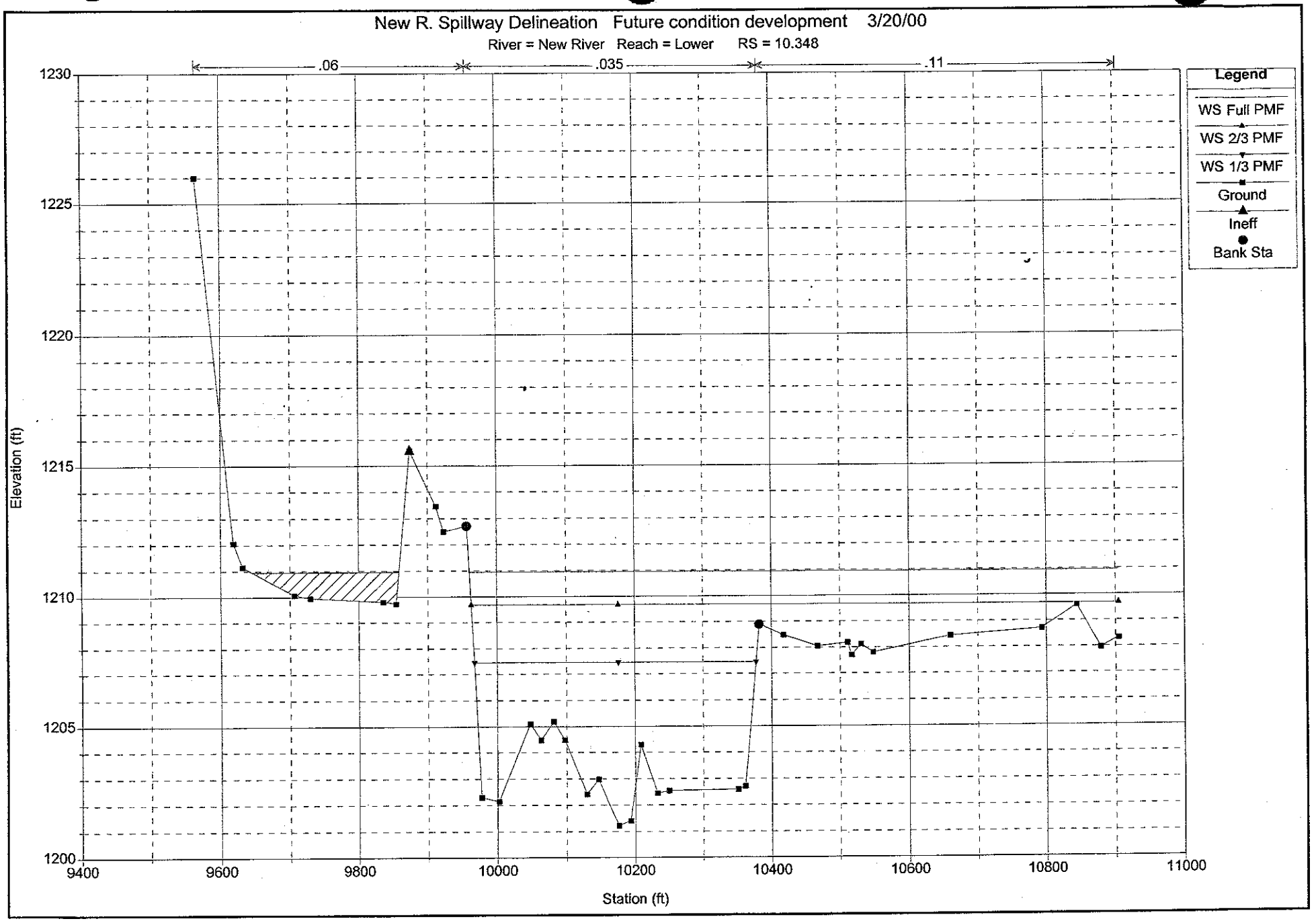

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.612
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1222
1220
1218
1216
1214
1212
1210
1208
9000
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)

New R. Spillway Delineation Future condition development 3/20/00

River = New River Reach = Lower RS = 10.517

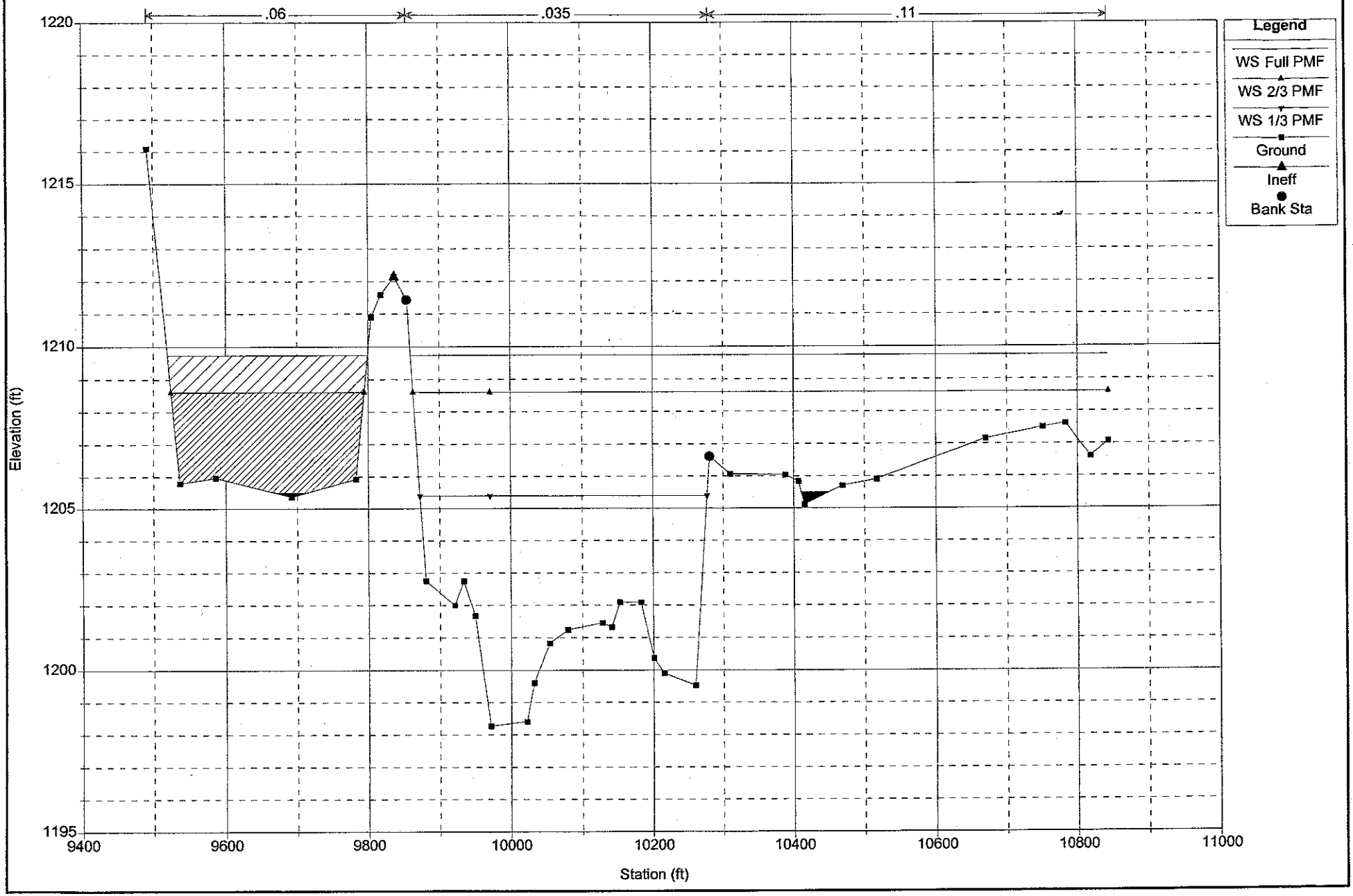


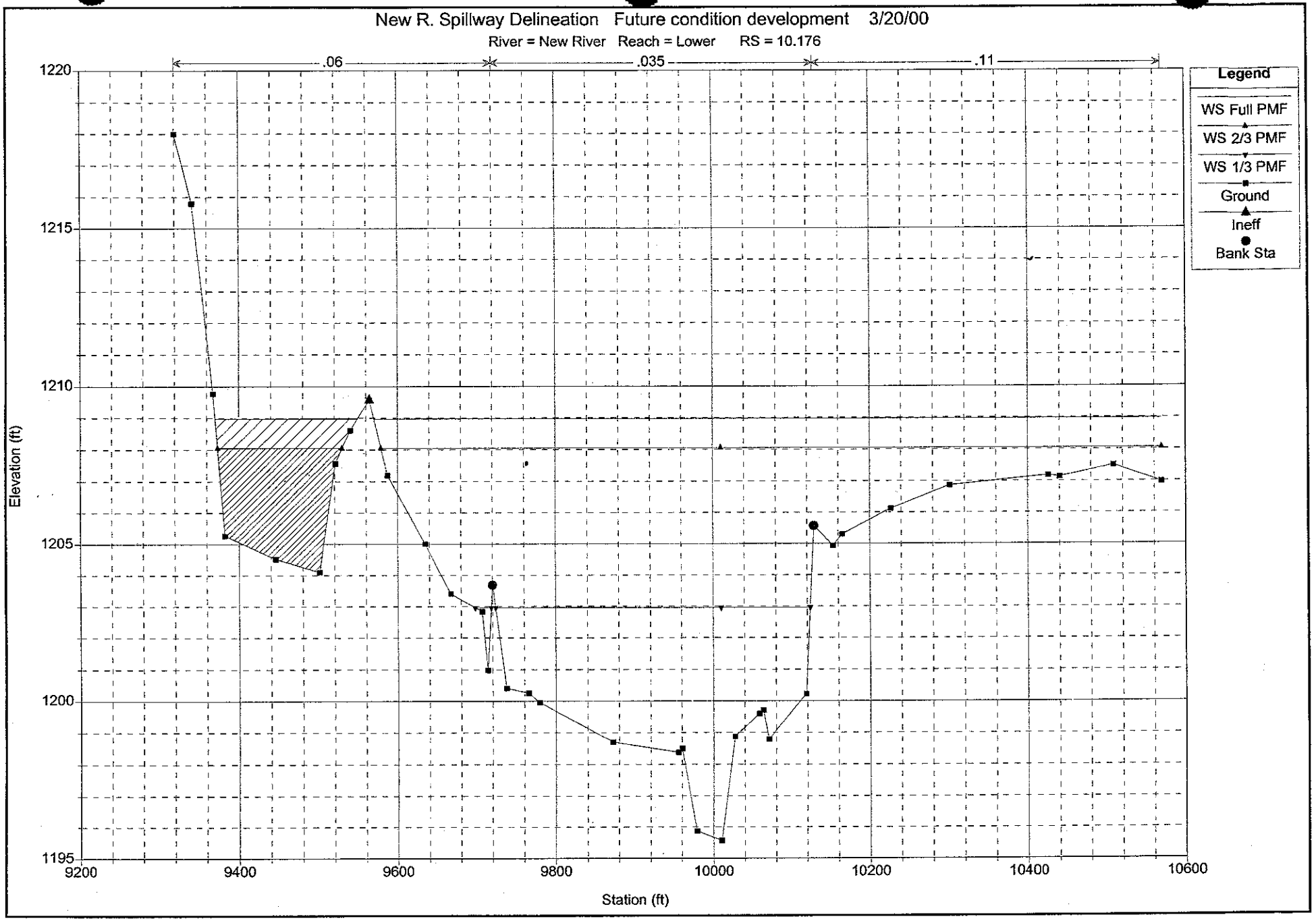

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.443
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1230
1225
1220
1215
1210
1205
1200
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)

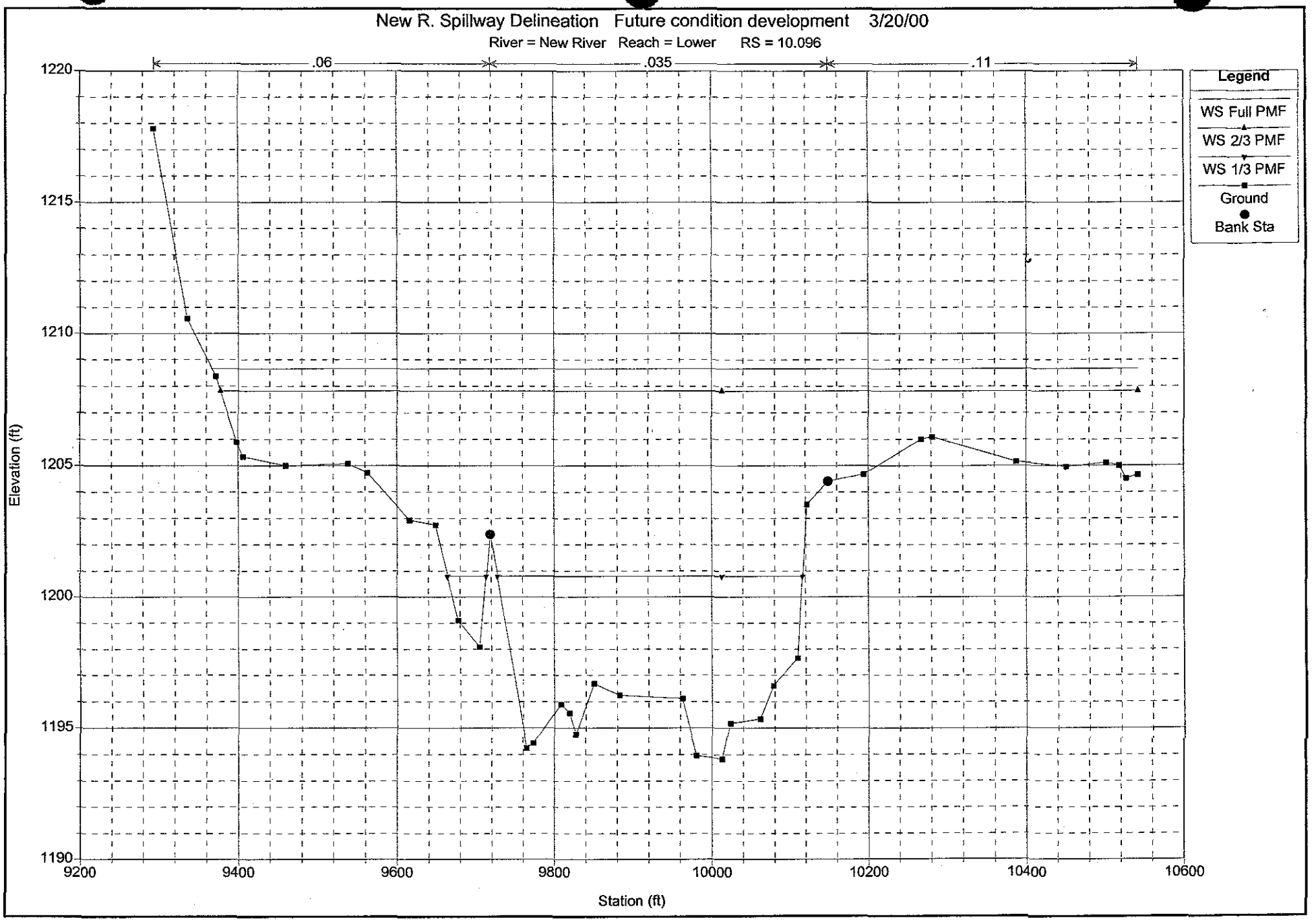

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.348
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1230
1225
1220
1215
1210
1205
1200
9400
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)

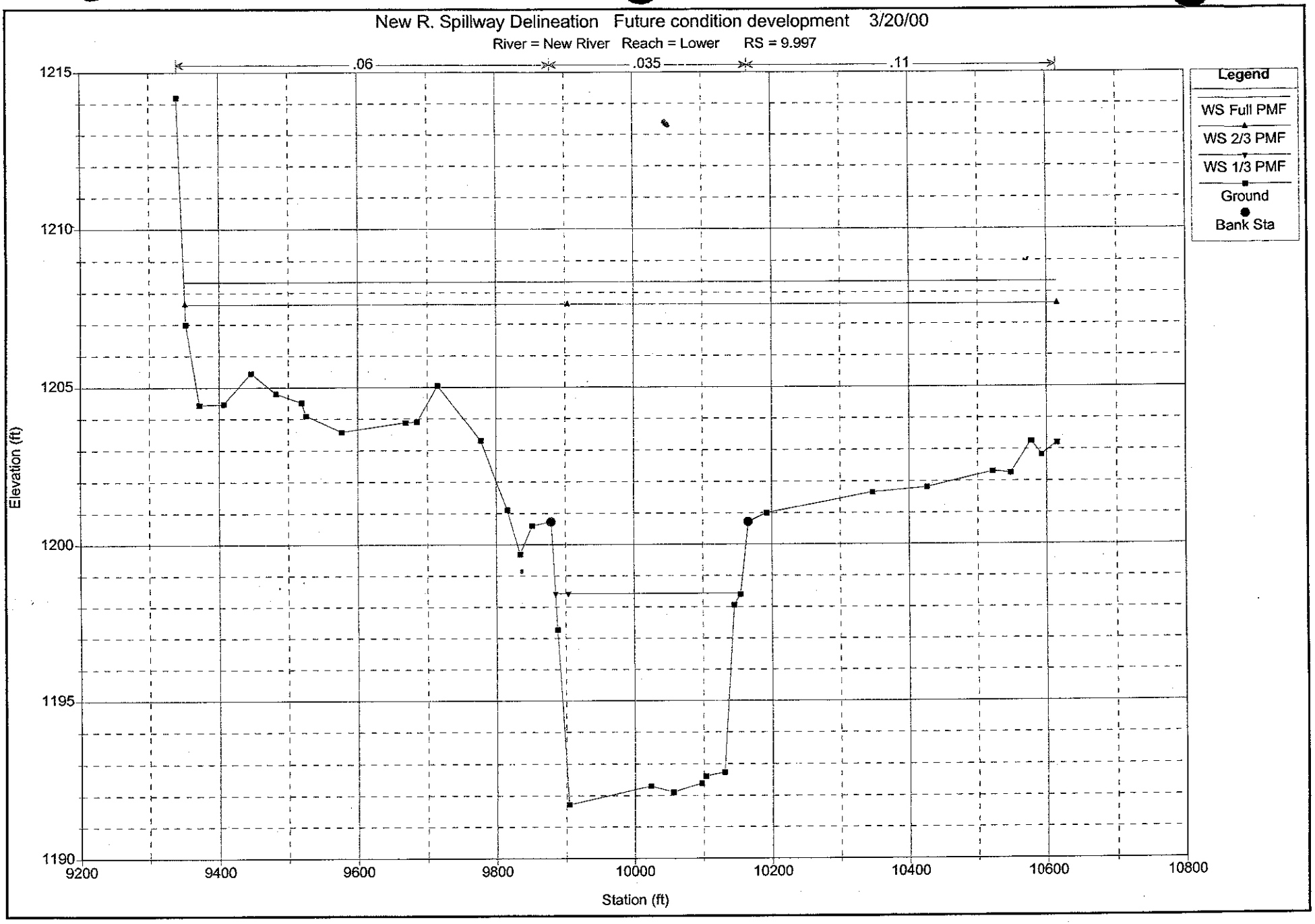
New R. Spillway Delineation Future condition development 3/20/00

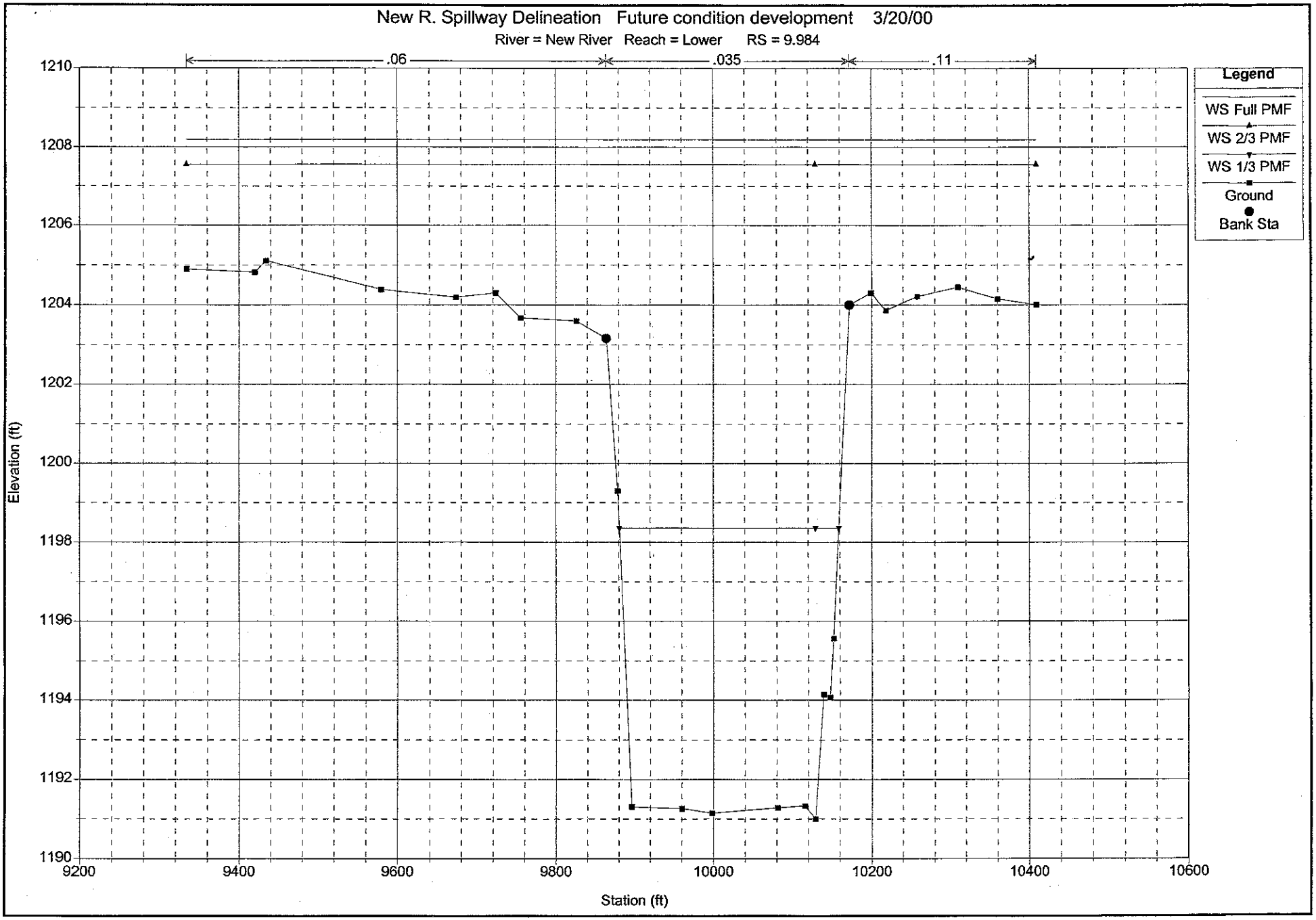
River = New River Reach = Lower RS = 10.271




New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.176
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1220
1215
1210
1205
1200
1195
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)

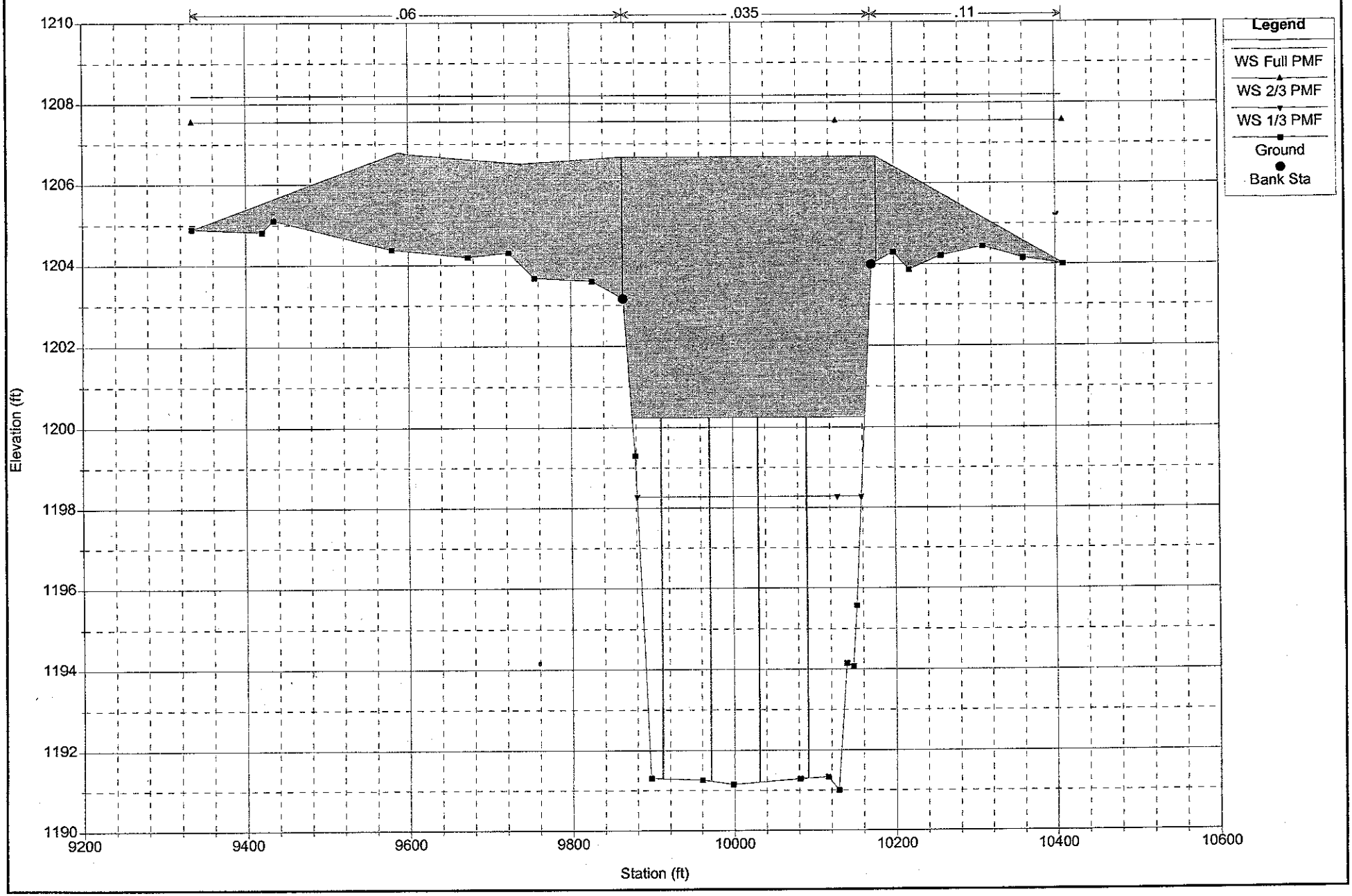

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 10.096
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1220
1215
1210
1205
1200
1195
1190
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.997
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1215
1210
1205
1200
1195
1190
9200
9400
9600
9800
10000
10200
10400
10600
10800
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.984
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1210
1208
1206
1204
1202
1200
1198
1196
1194
1192
1190
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)

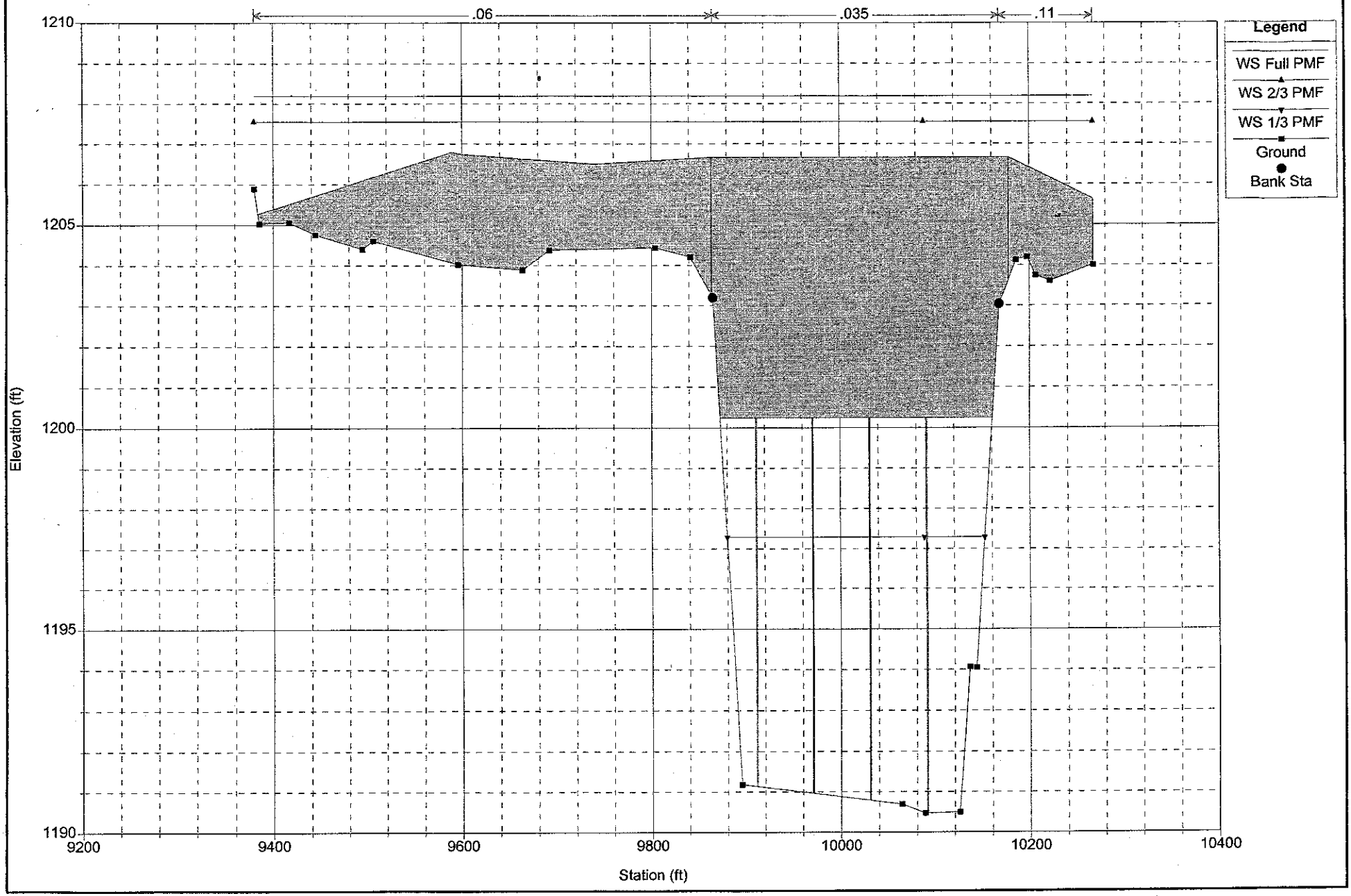
New R. Spillway Delineation Future condition development 3/20/00

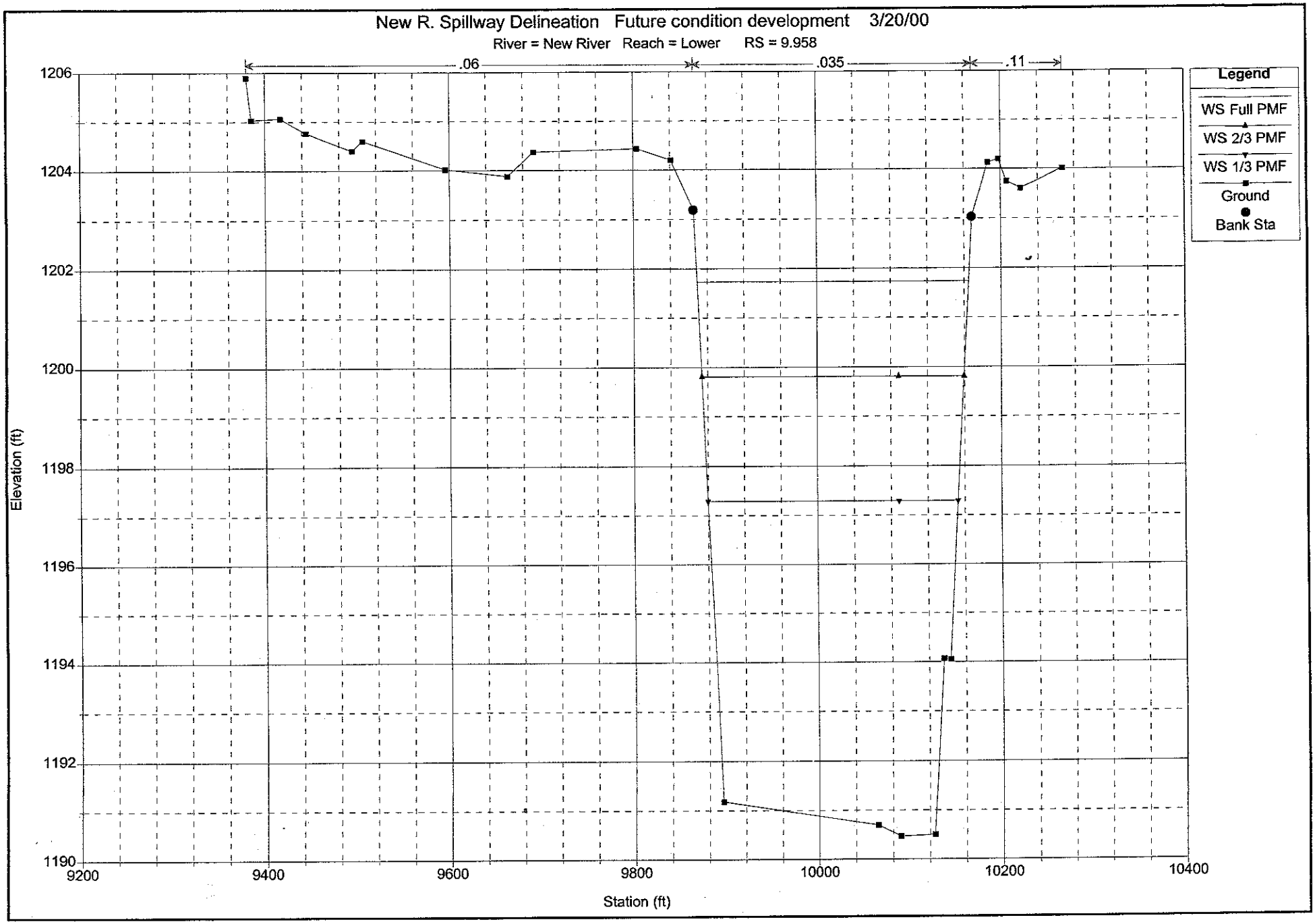
River = New River Reach = Lower RS = 9.971

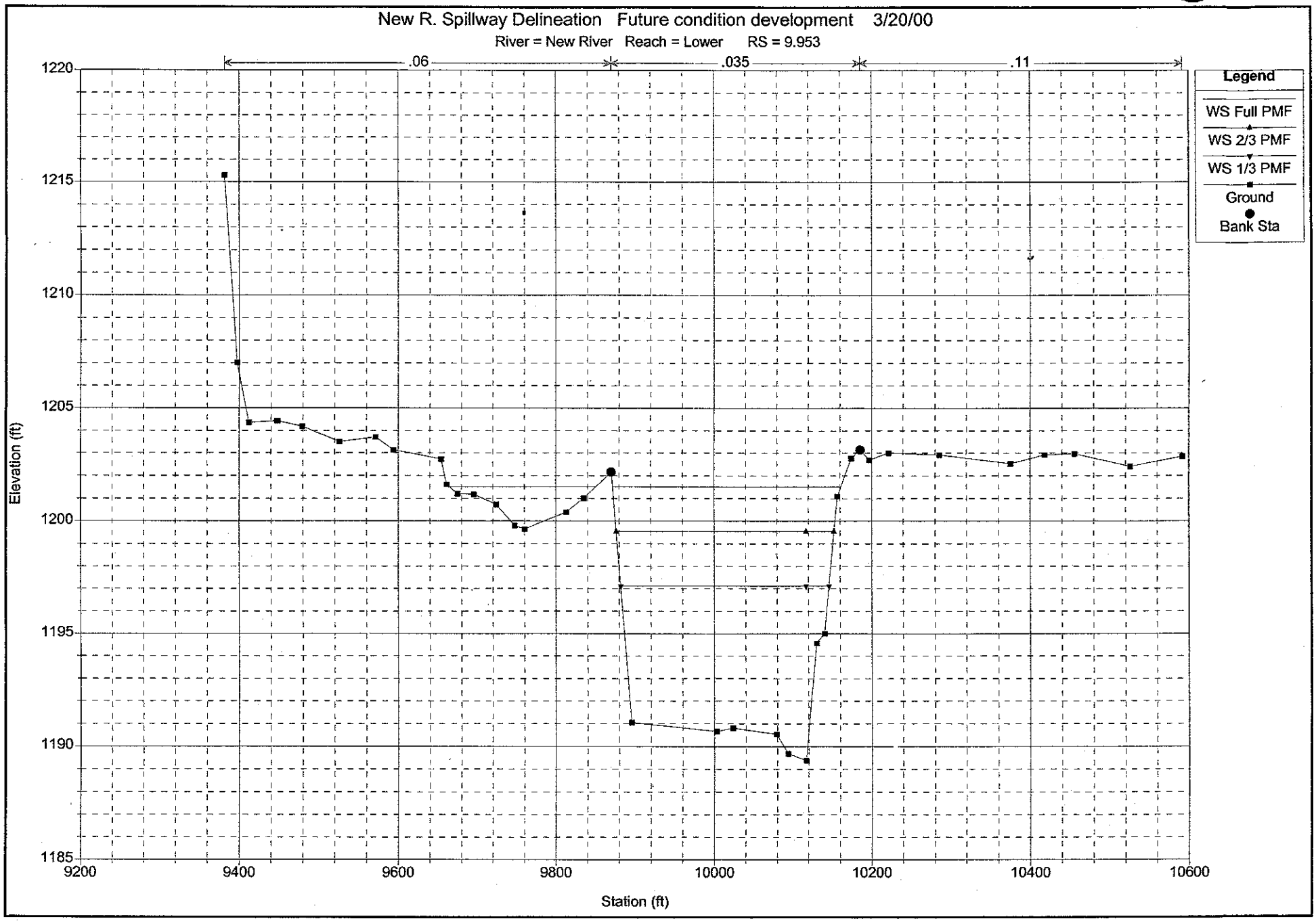


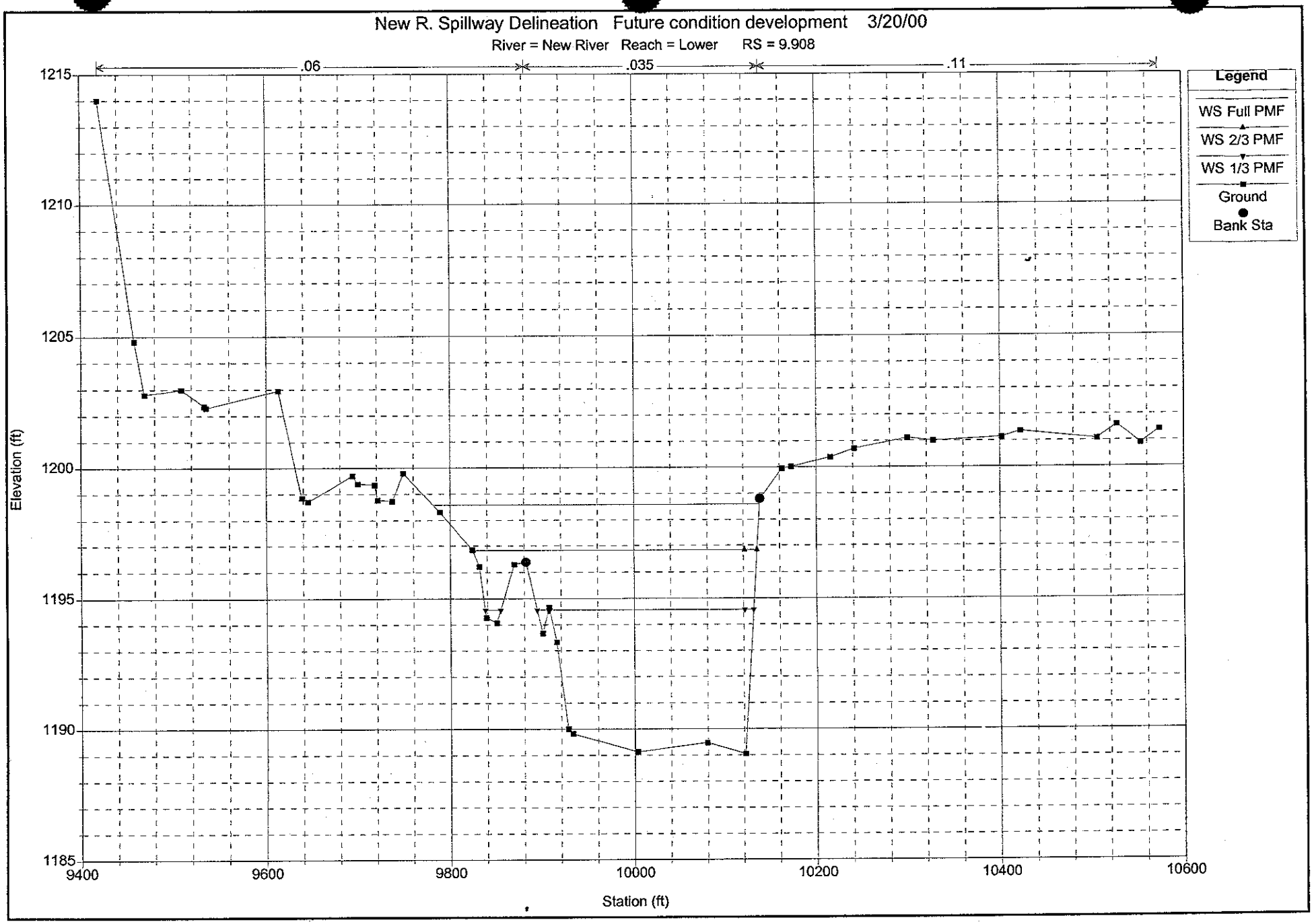
New R. Spillway Delineation Future condition development 3/20/00

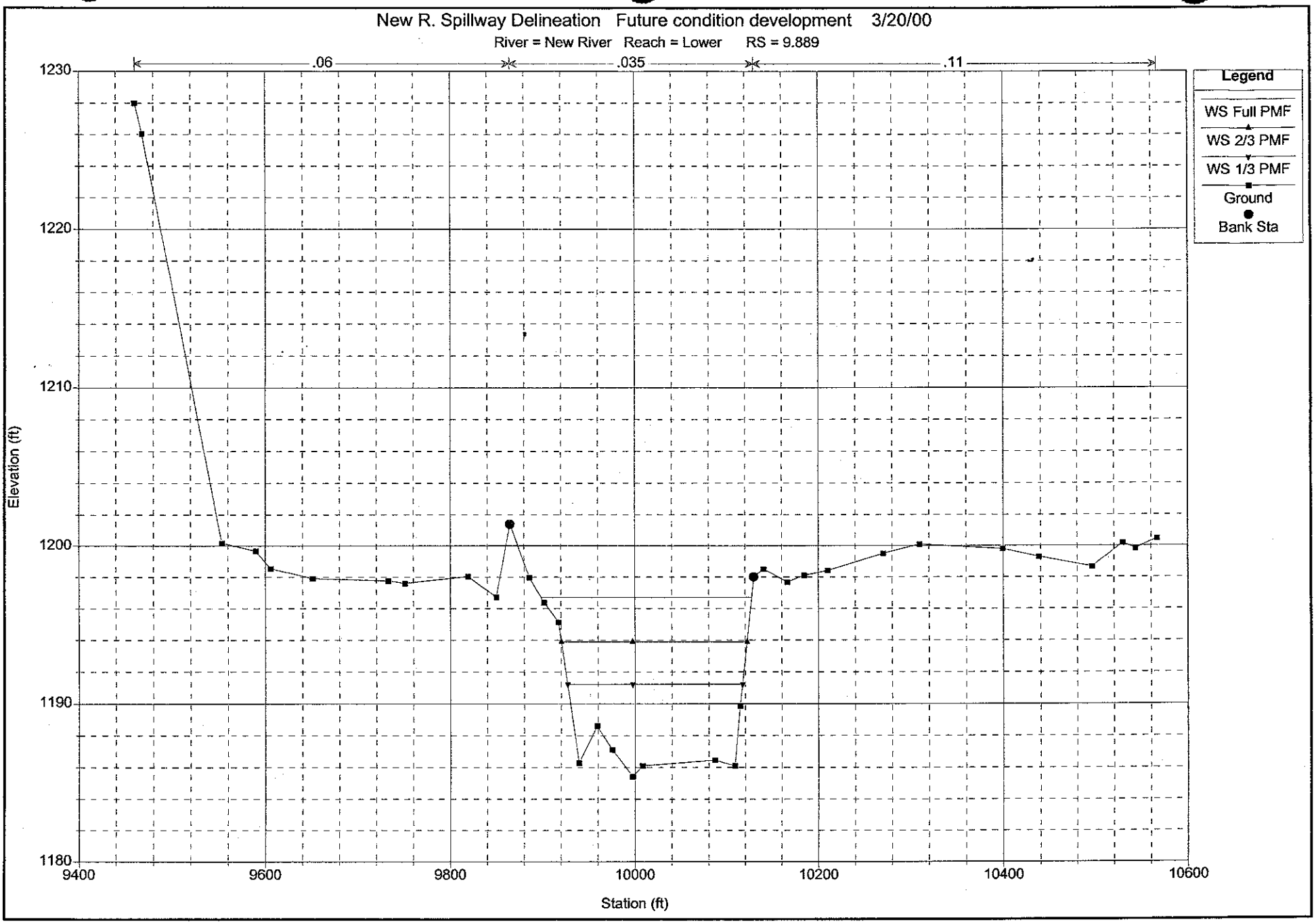
River = New River Reach = Lower RS = 9.971

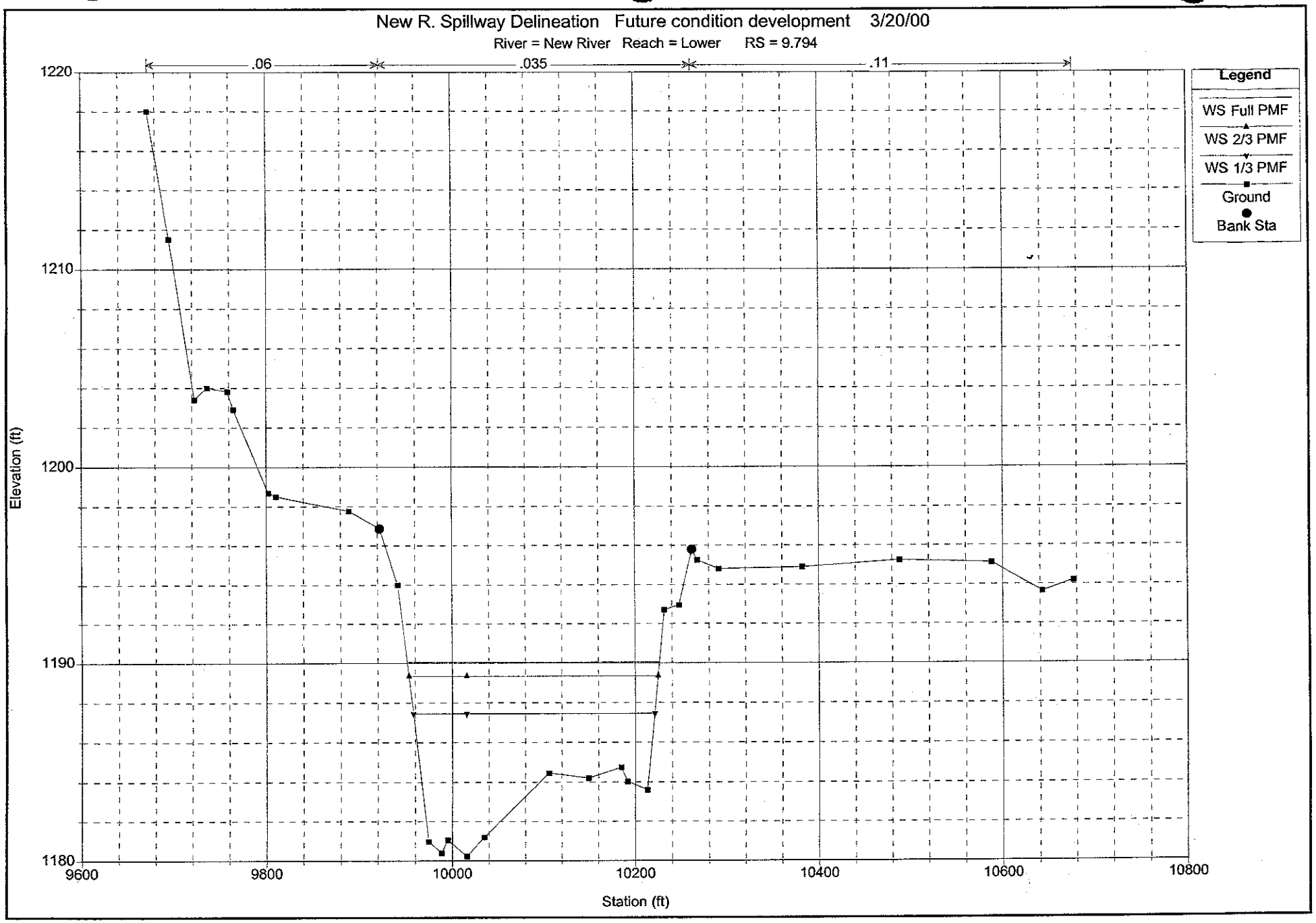


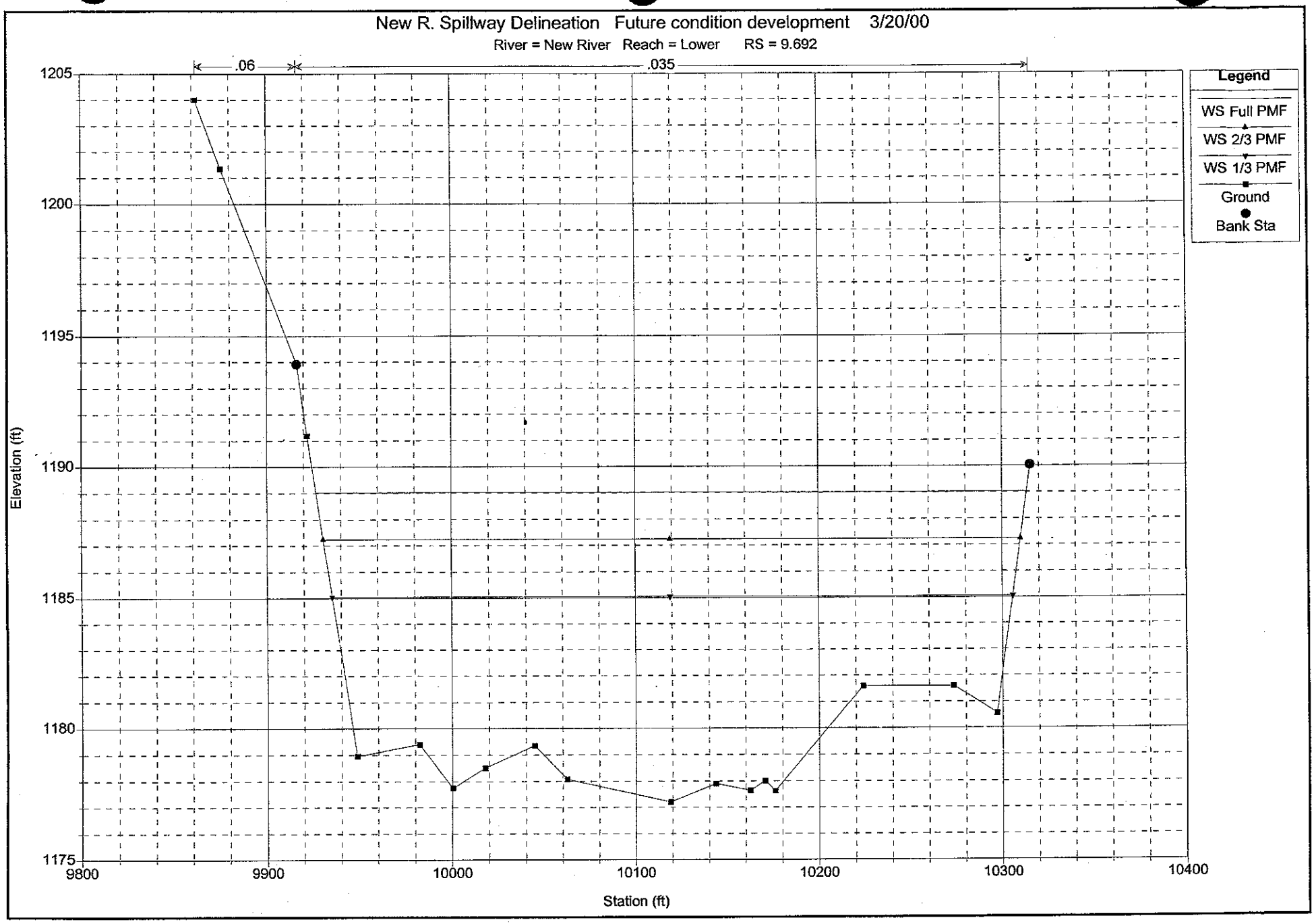

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.958
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1206
1204
1202
1200
1198
1196
1194
1192
1190
9200
9400
9600
9800
10000
10200
10400
Station (ft)

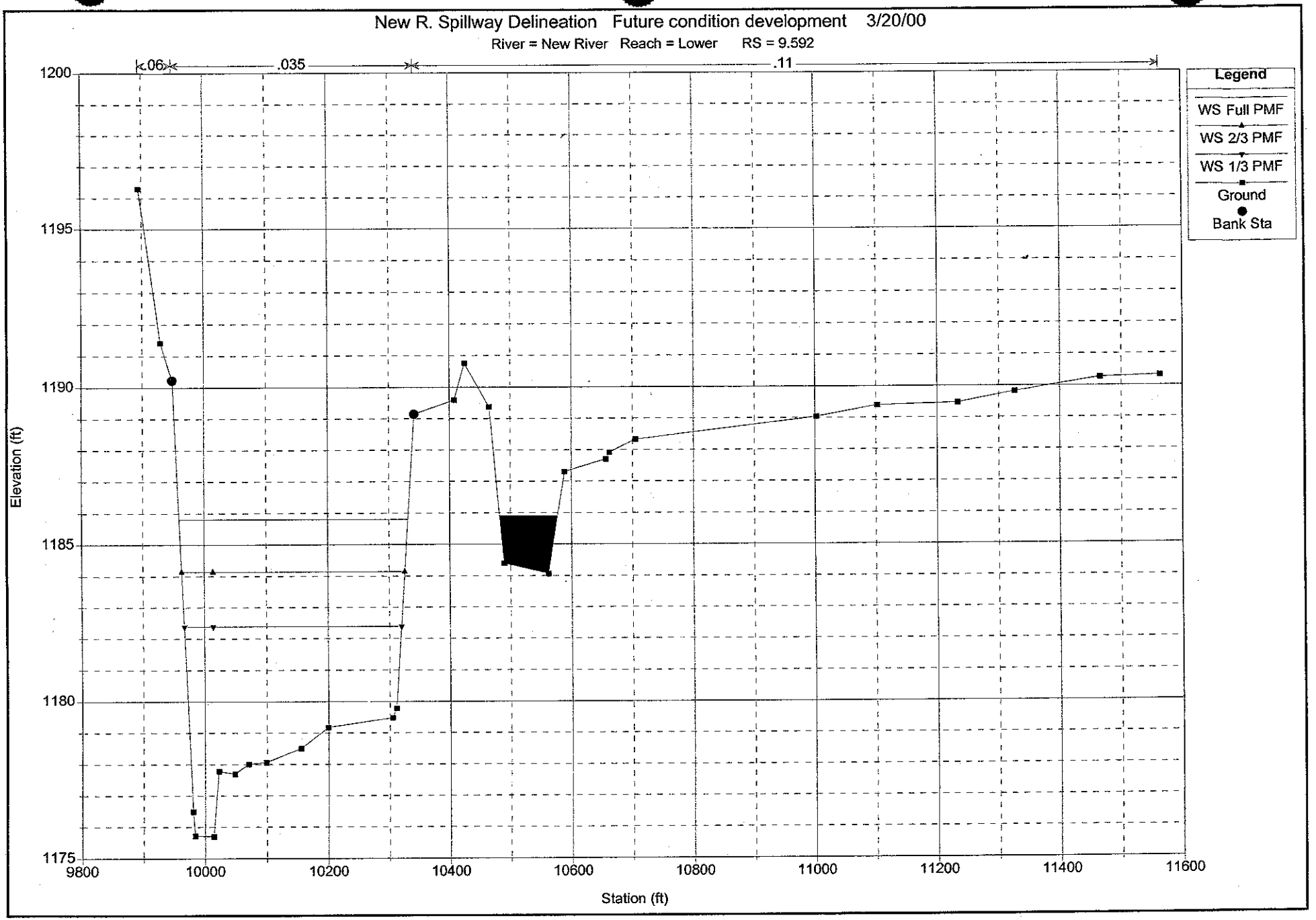

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.953
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1220
1215
1210
1205
1200
1195
1190
1185
9200
9400
9600
9800
10000
10200
10400
10600
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.908
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1215
1210
1205
1200
1195
1190
1185
9400
9600
9800
10000
10200
10400
10600
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.889
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1230
1220
1210
1200
1190
1180
9400
9600
9800
10000
10200
10400
10600
Station (ft)

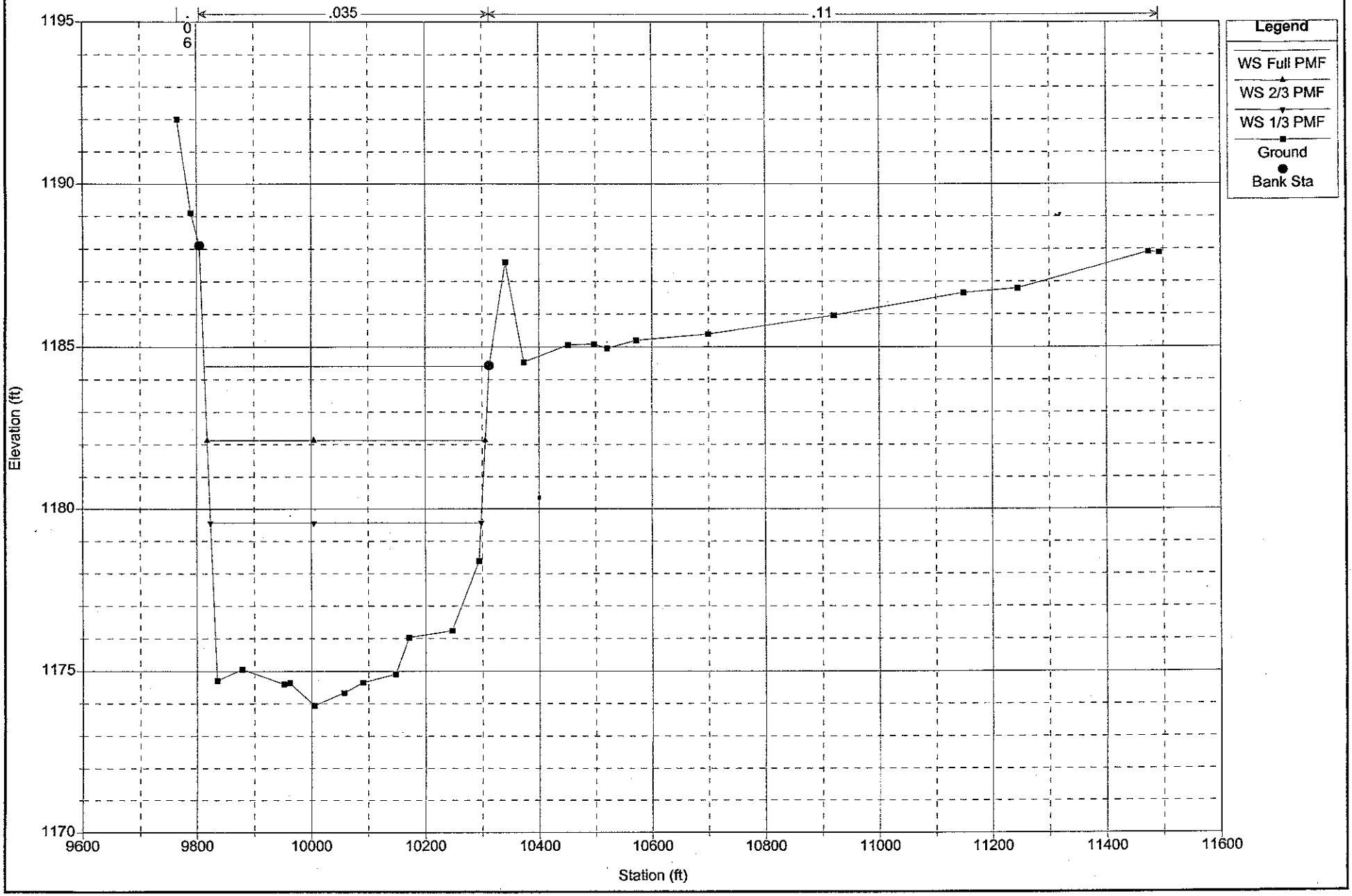

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.794
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1220
1210
1200
1190
1180
9600
9800
10000
10200
10400
10600
10800
Station (ft)

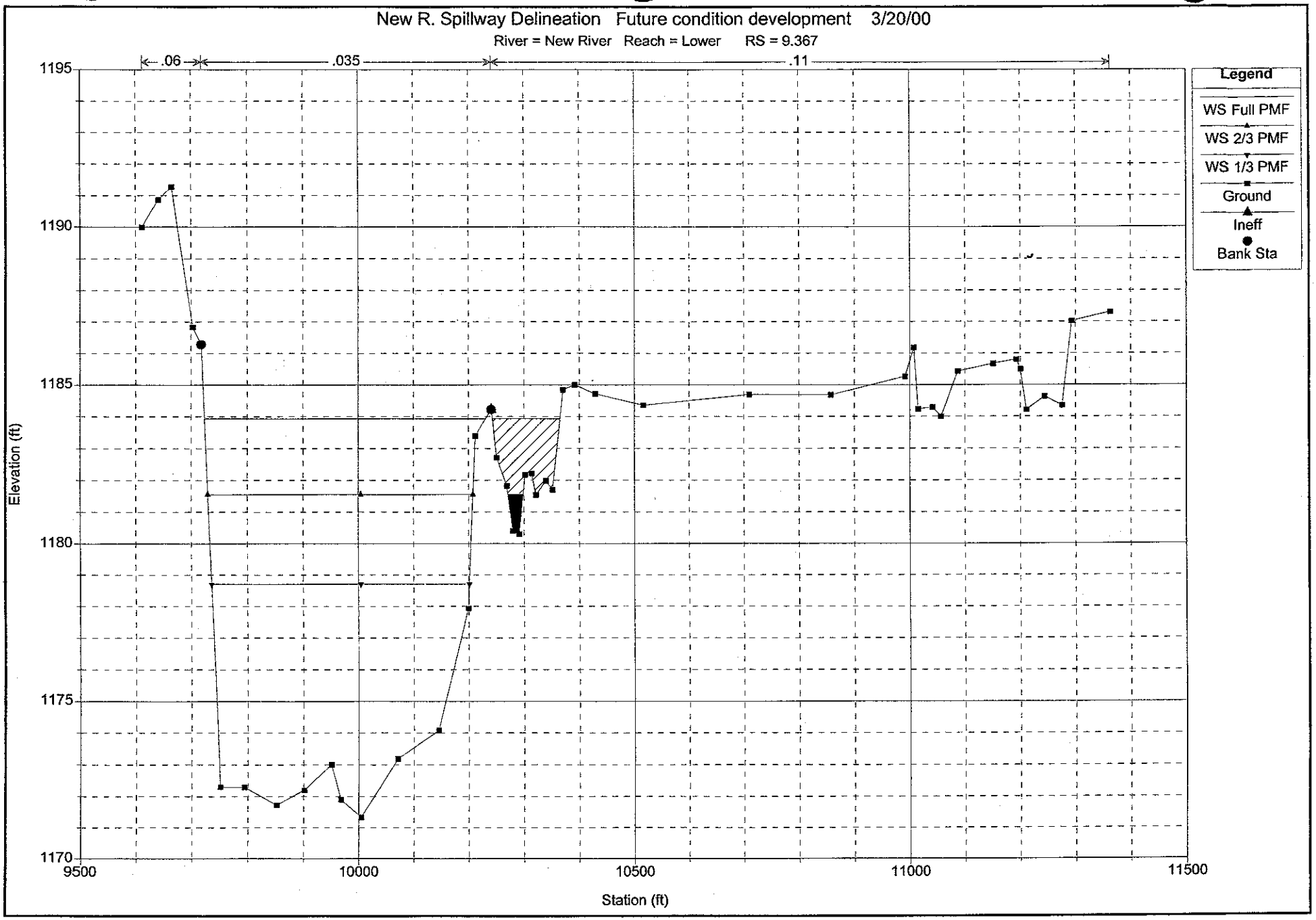

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.692
.06
.035
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1205
1200
1195
1190
1185
1180
1175
9800
9900
10000
10100
10200
10300
10400
Station (ft)

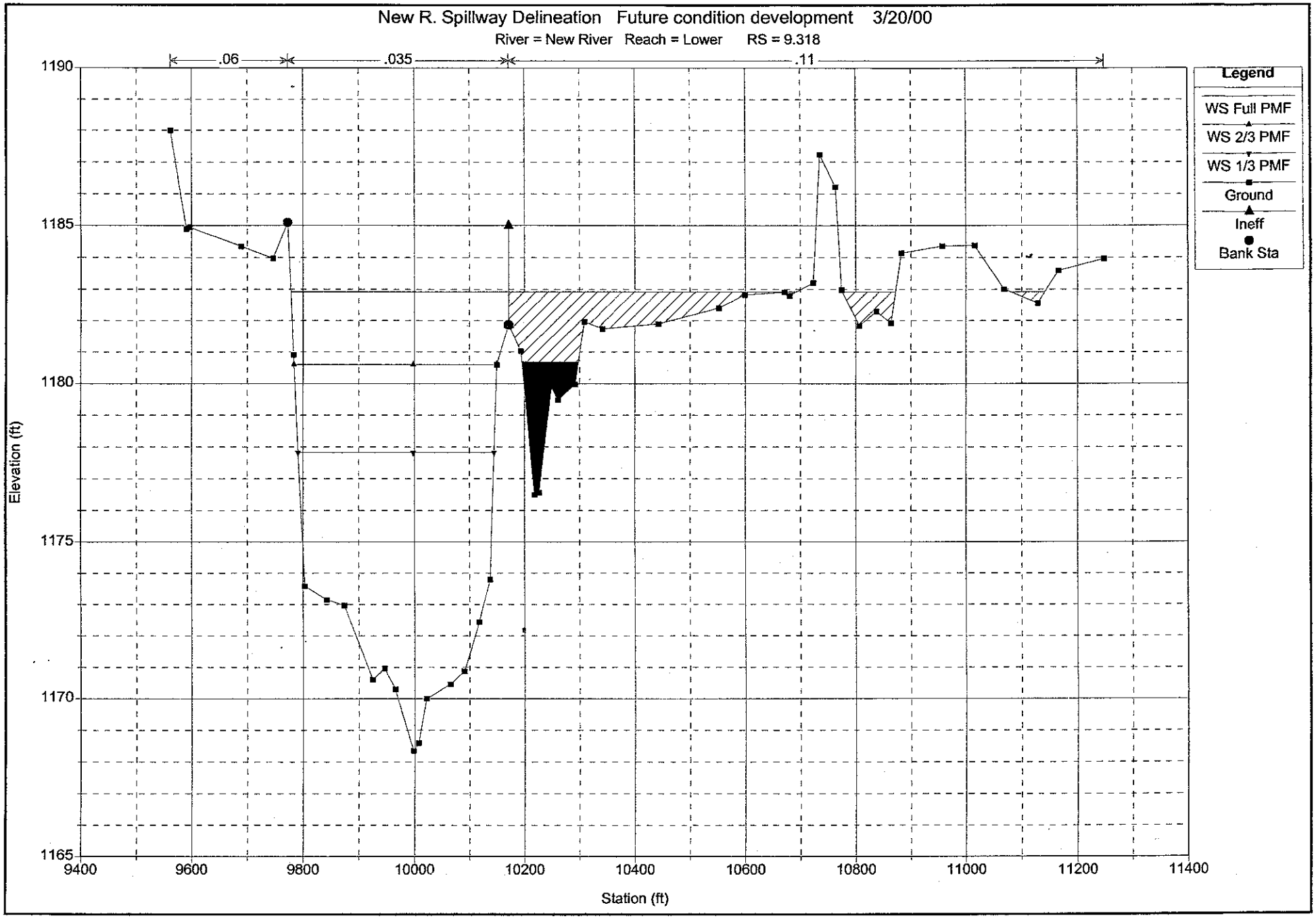

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.592
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1200
1195
1190
1185
1180
1175
9800
10000
10200
10400
10600
10800
11000
11200
11400
11600
Station (ft)

New R. Spillway Delineation Future condition development 3/20/00

River = New River Reach = Lower RS = 9.492

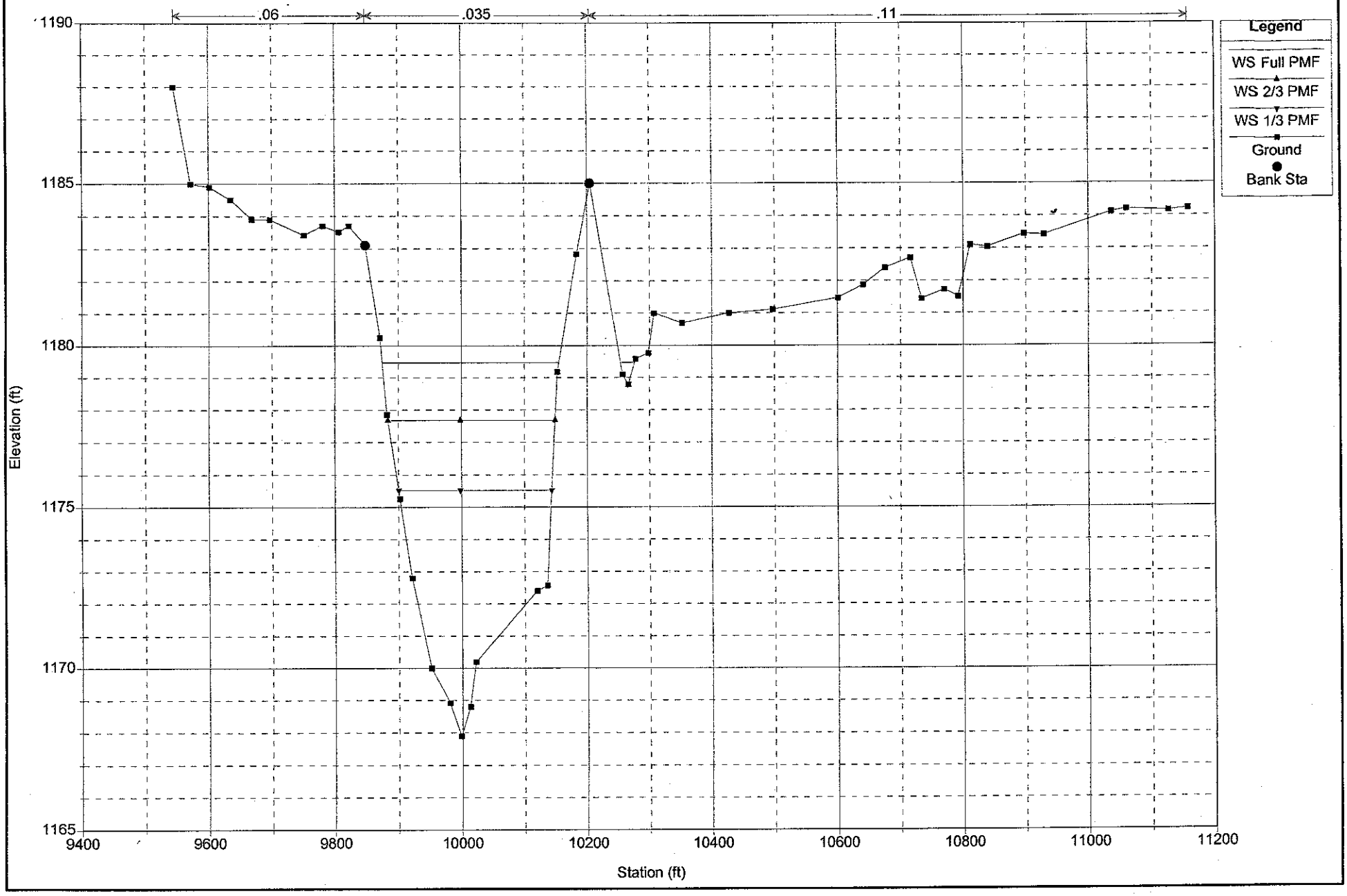


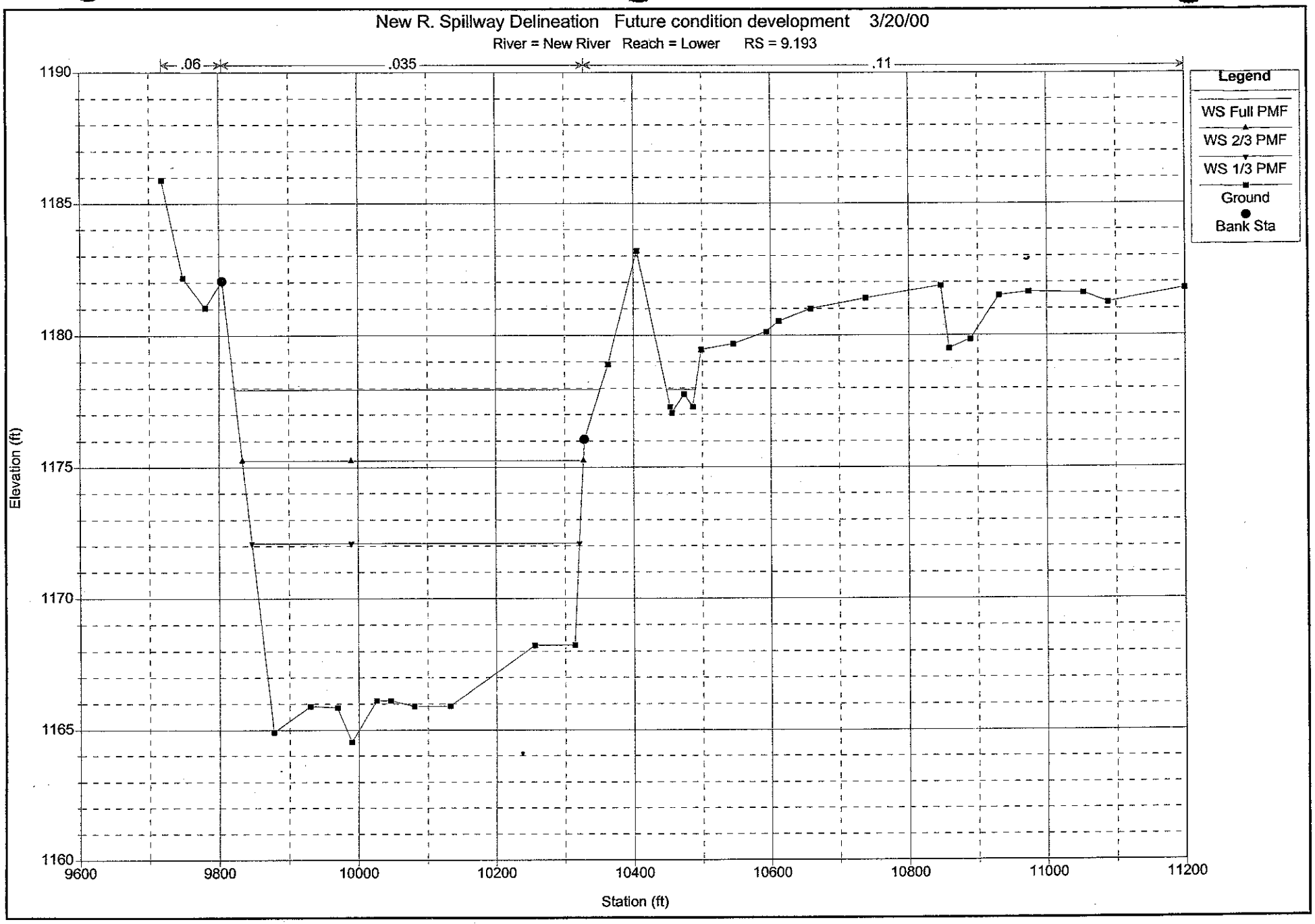

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.367
.06
.035
.11
1195
1190
1185
1180
1175
1170
Elevation (ft)
9500
10000
10500
11000
11500
Station (ft)
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta

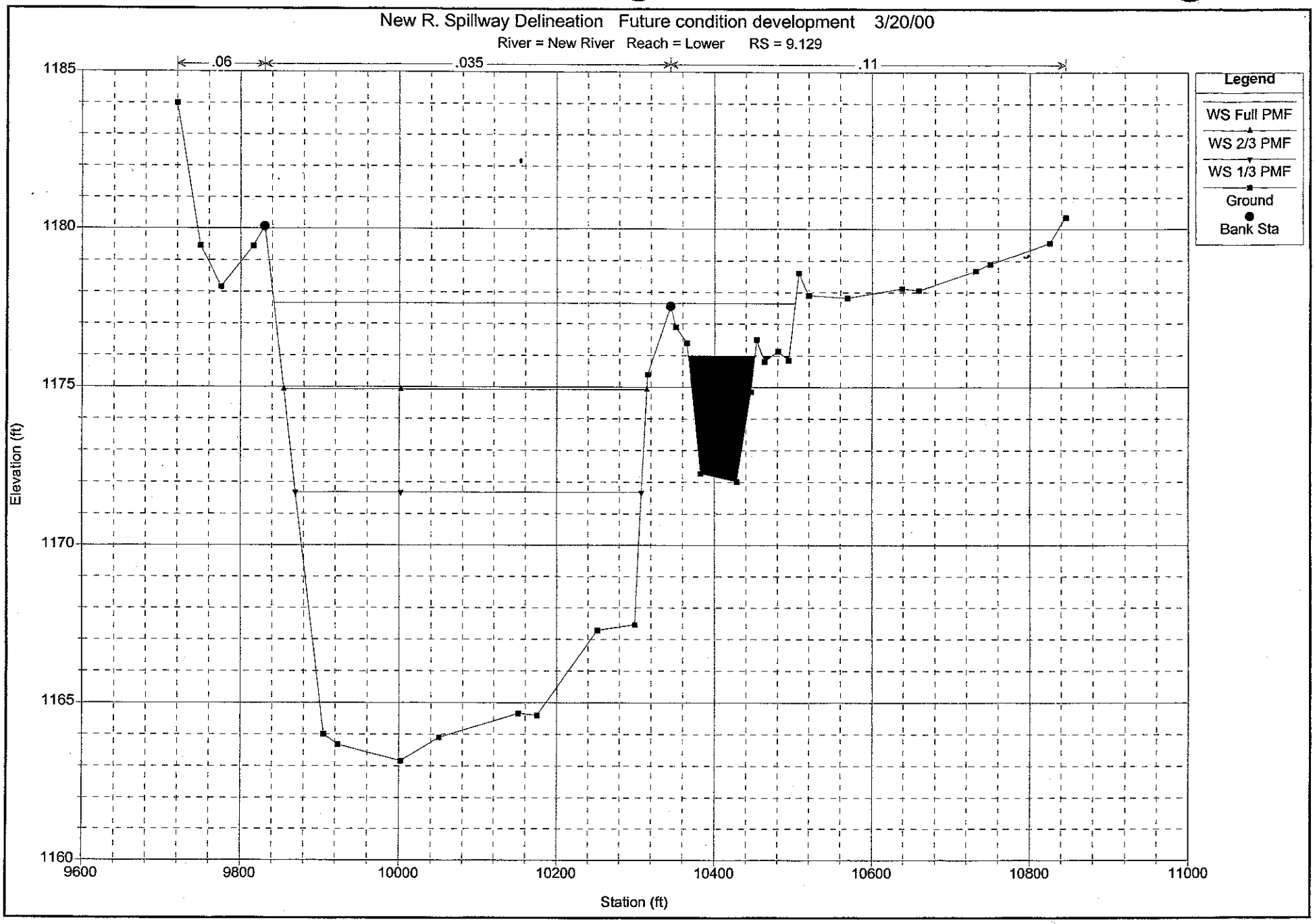

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.318
.06
.035
.11
1190
1185
1180
1175
1170
1165
Elevation (ft)
9400
9600
9800
10000
10200
10400
10600
10800
11000
11200
11400
Station (ft)
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta

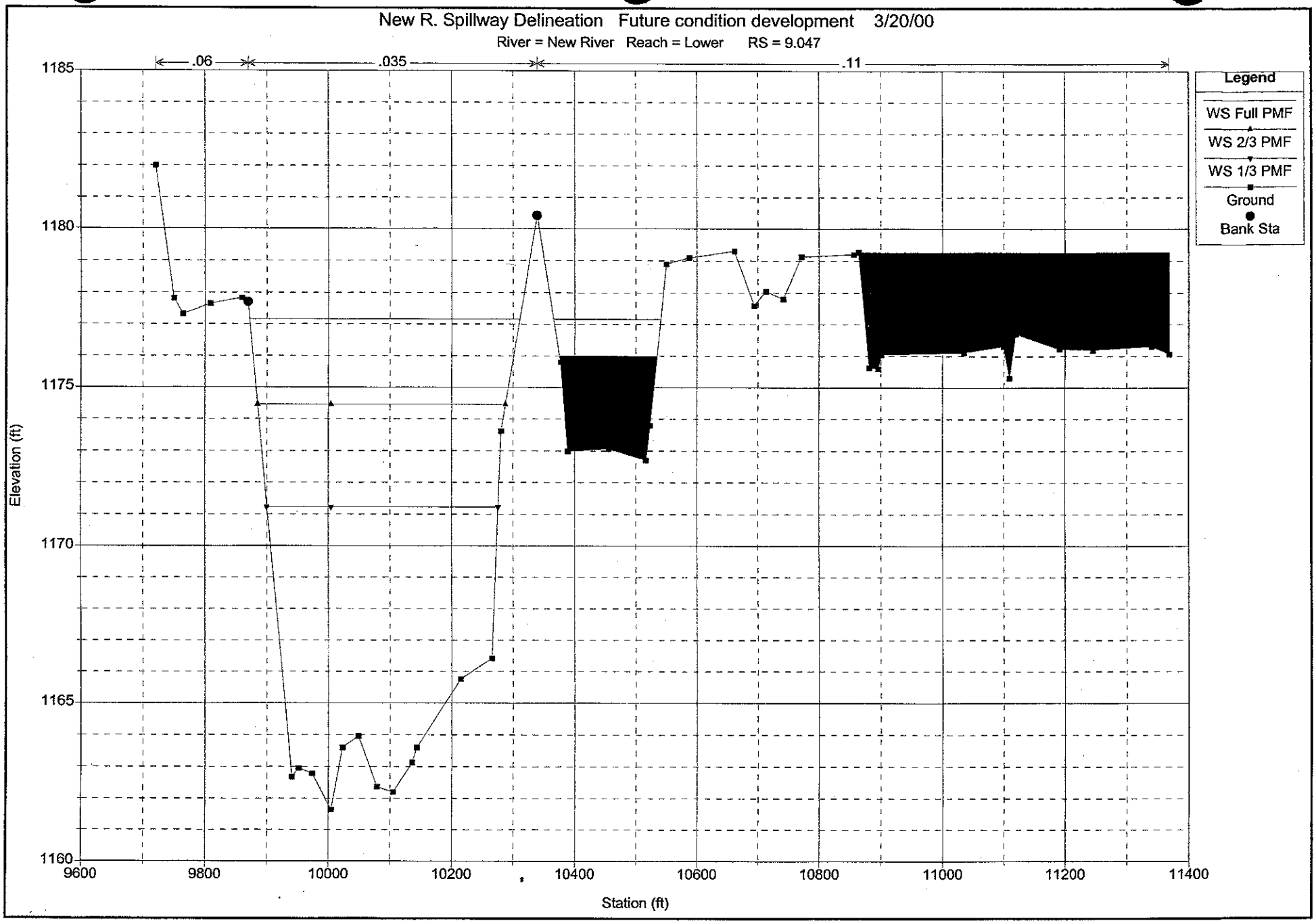
New R. Spillway Delineation Future condition development 3/20/00

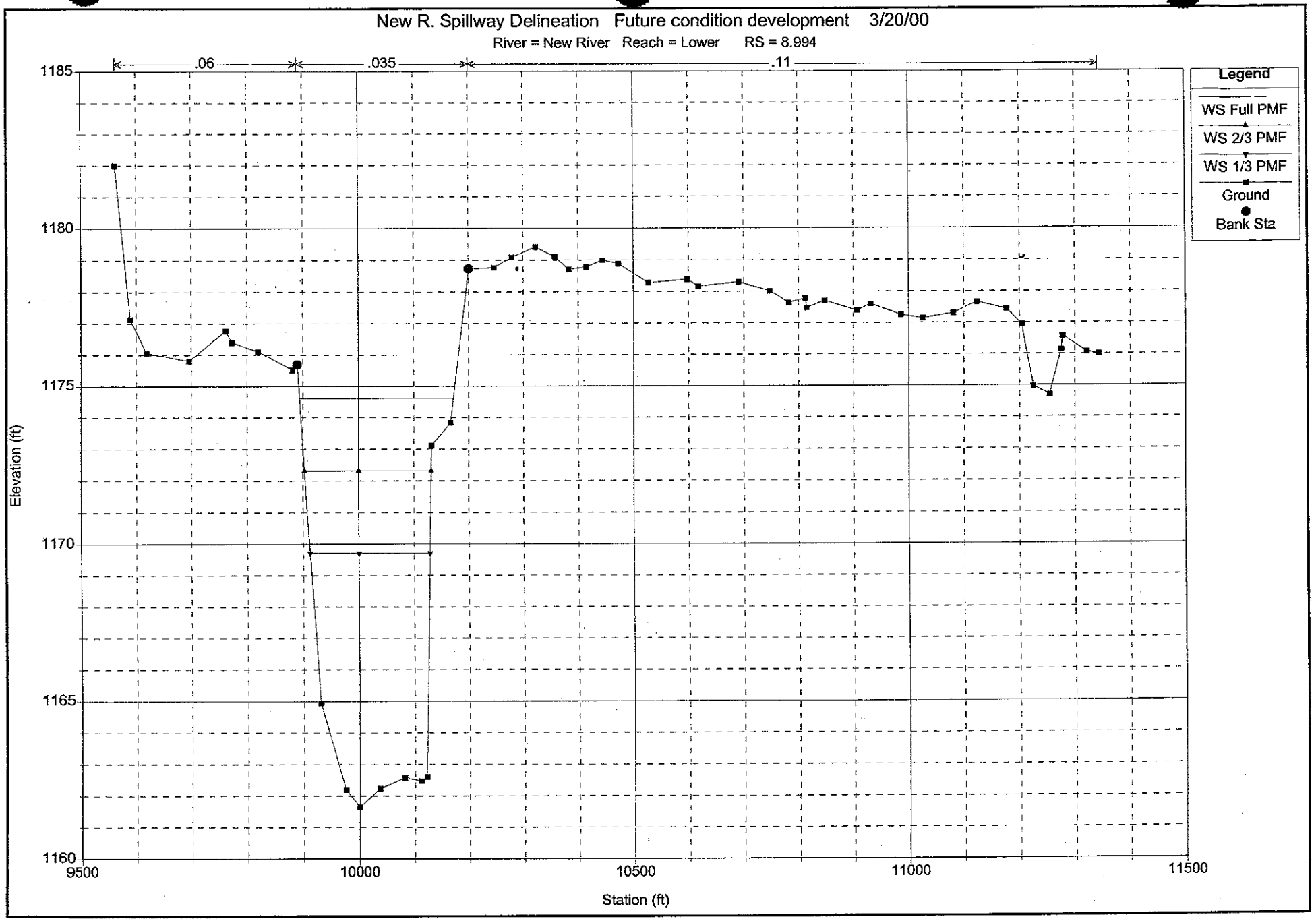
River = New River Reach = Lower RS = 9.289

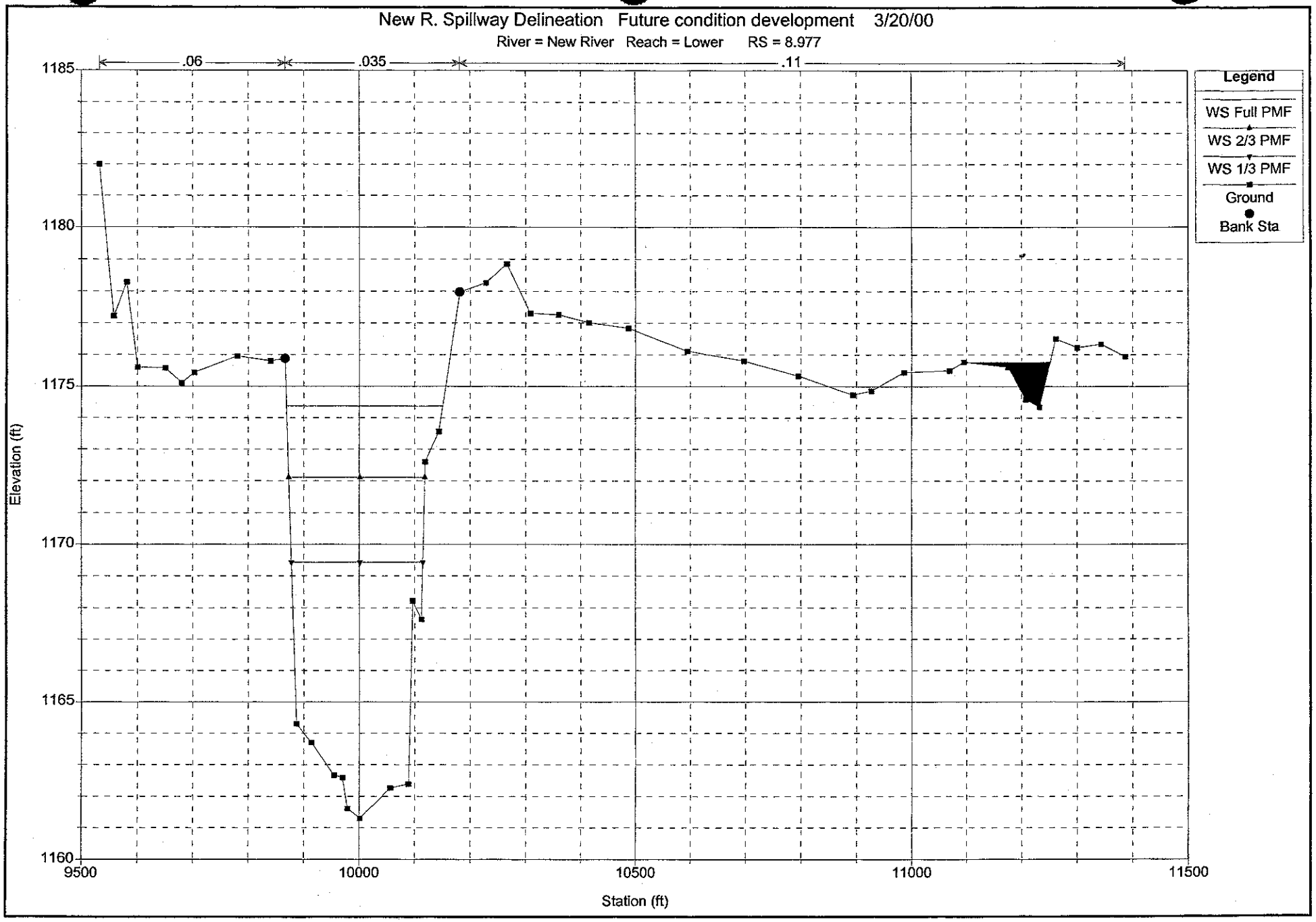


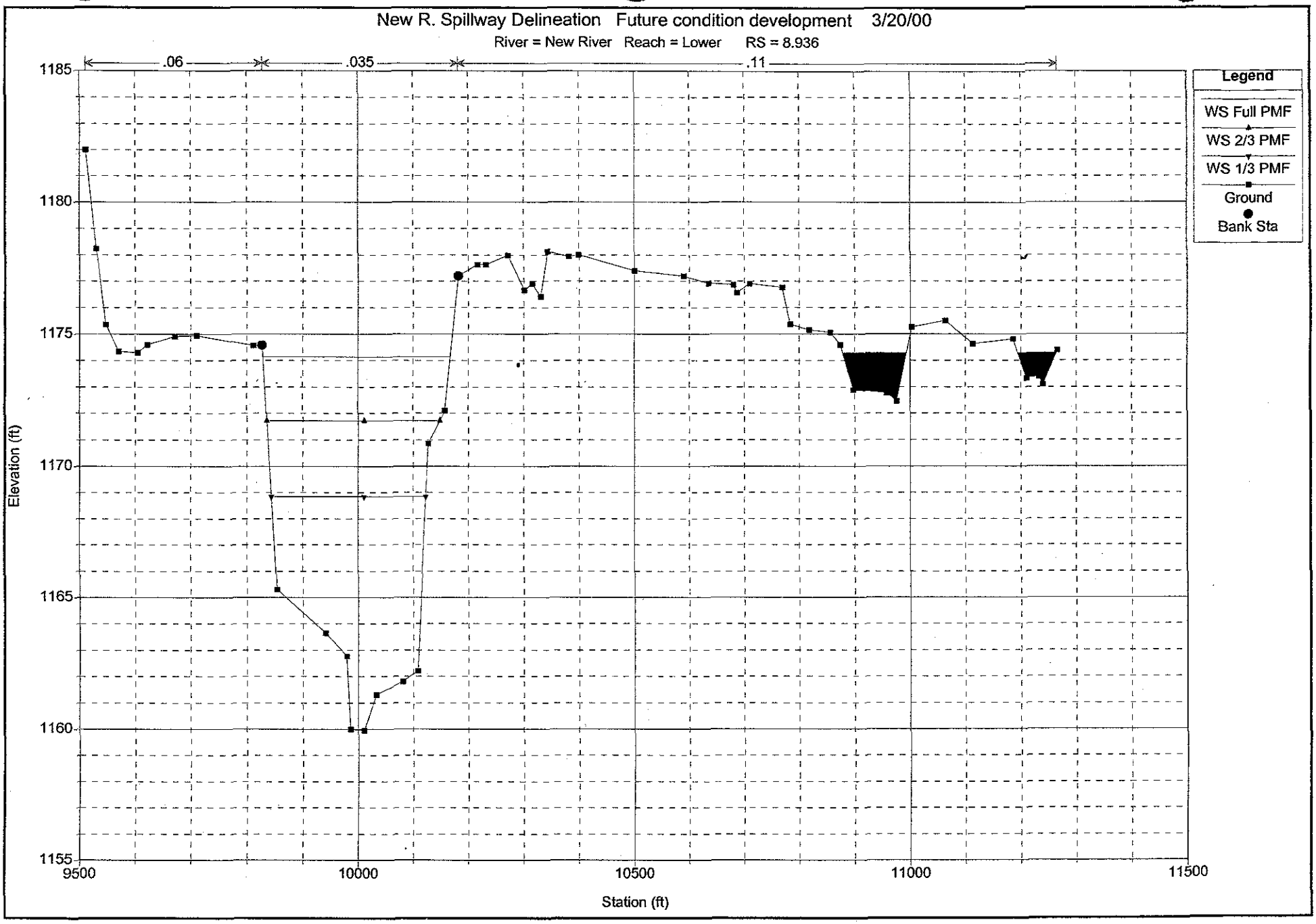

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.193
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1190
1185
1180
1175
1170
1165
1160
9600
9800
10000
10200
10400
10600
10800
11000
11200
Station (ft)

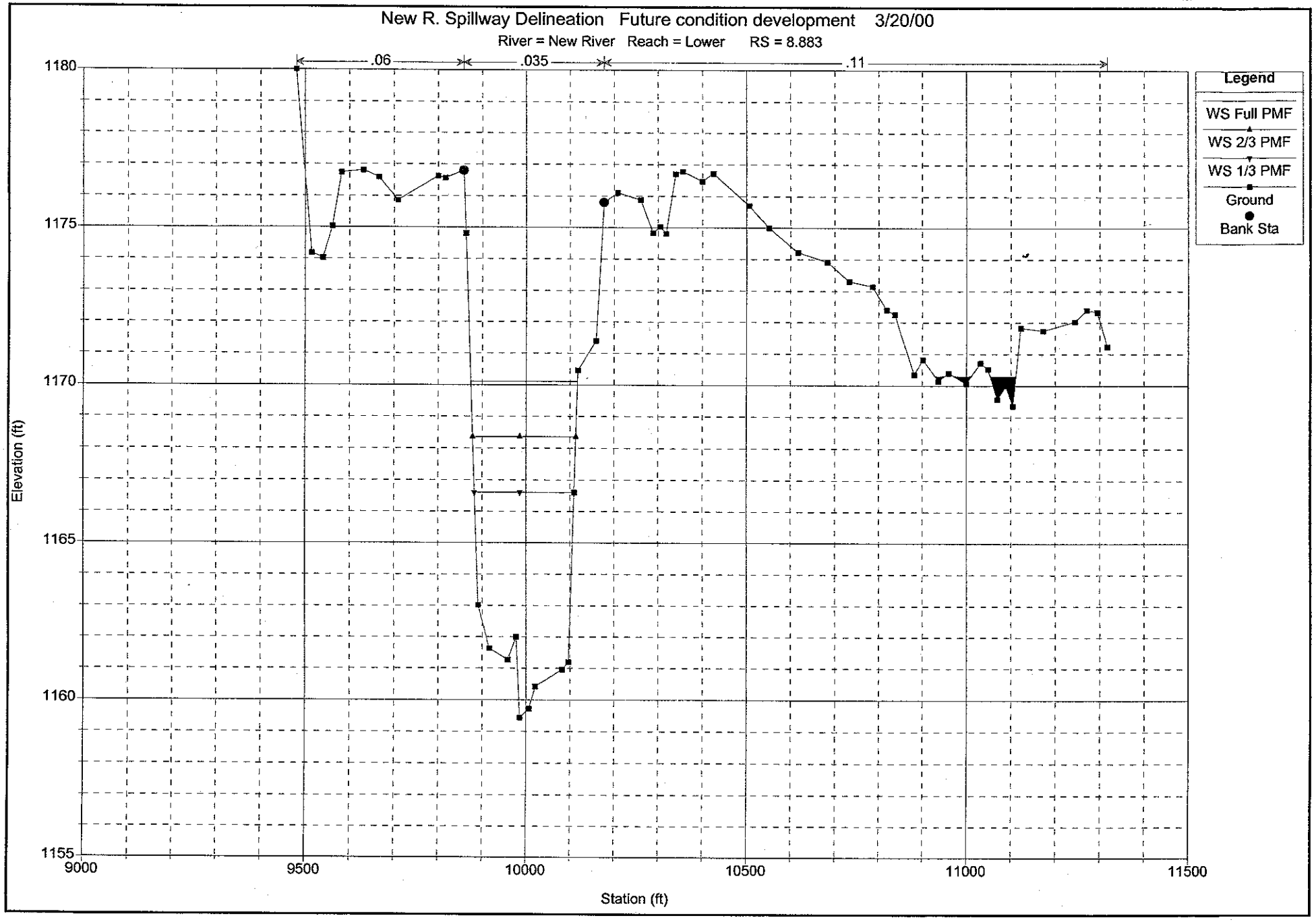

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.129
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
1160
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)

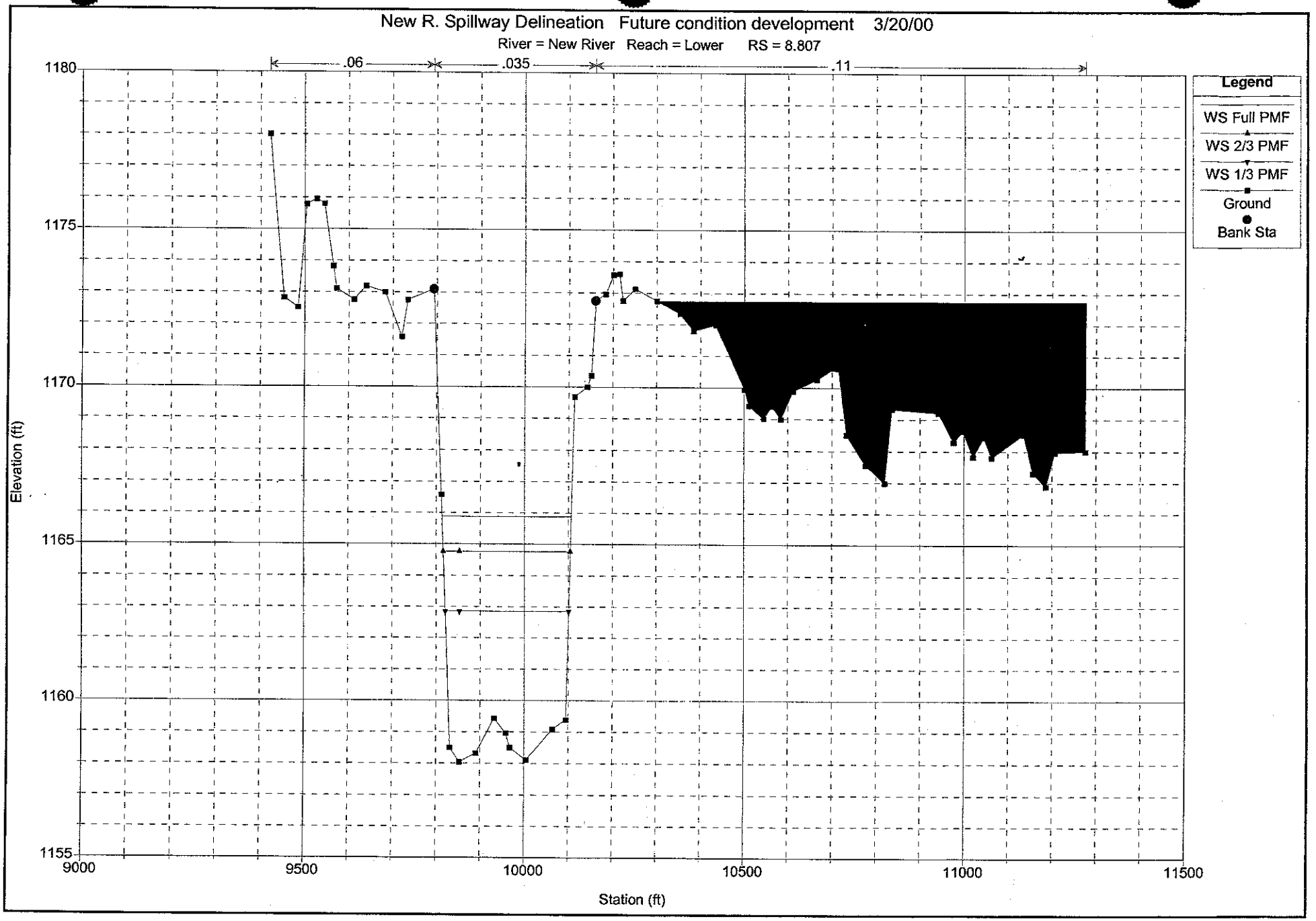

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 9.047
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
1160
9600
9800
10000
10200
10400
10600
10800
11000
11200
11400
Station (ft)

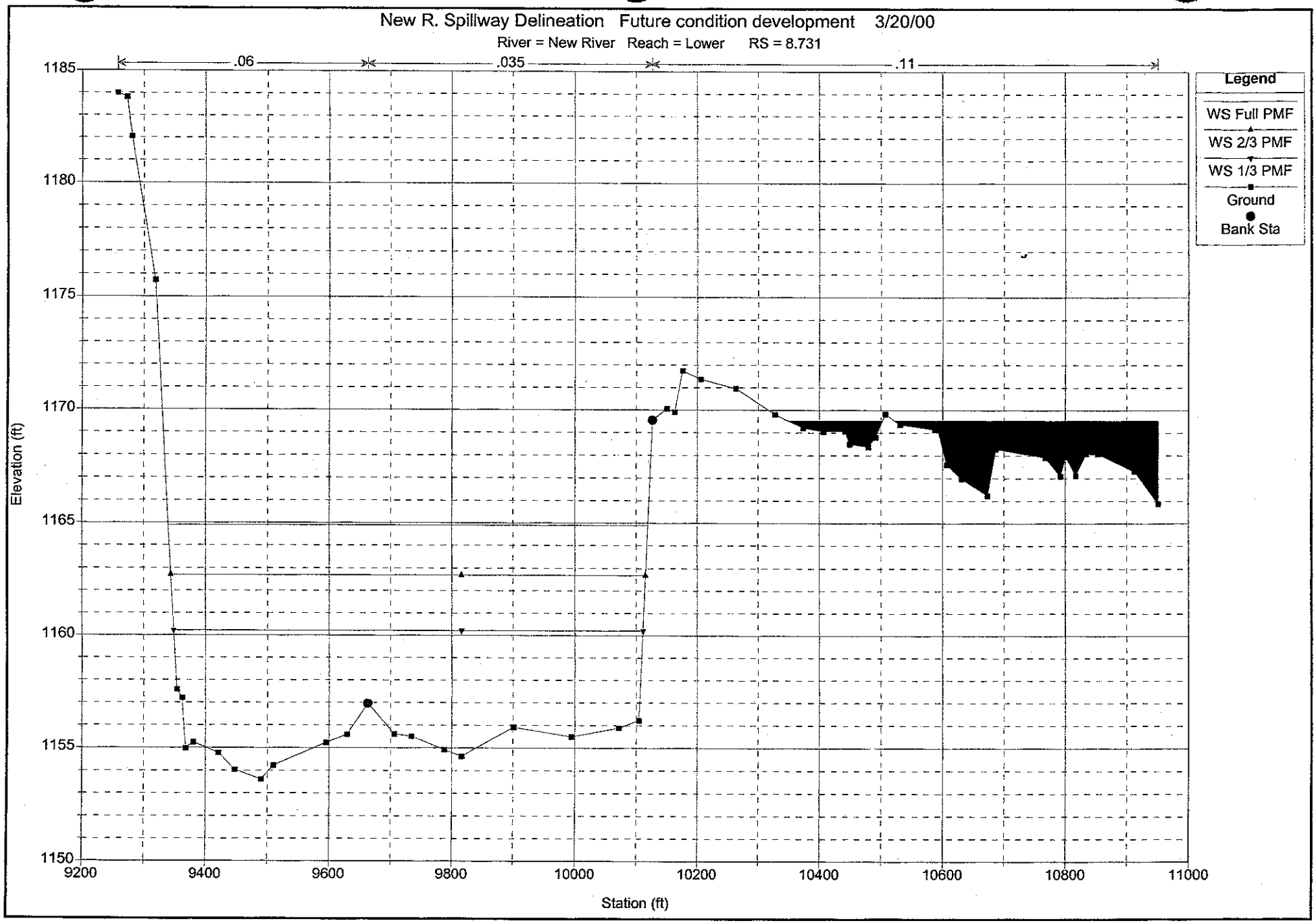

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.994
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
1160
9500
10000
10500
11000
11500
Station (ft)

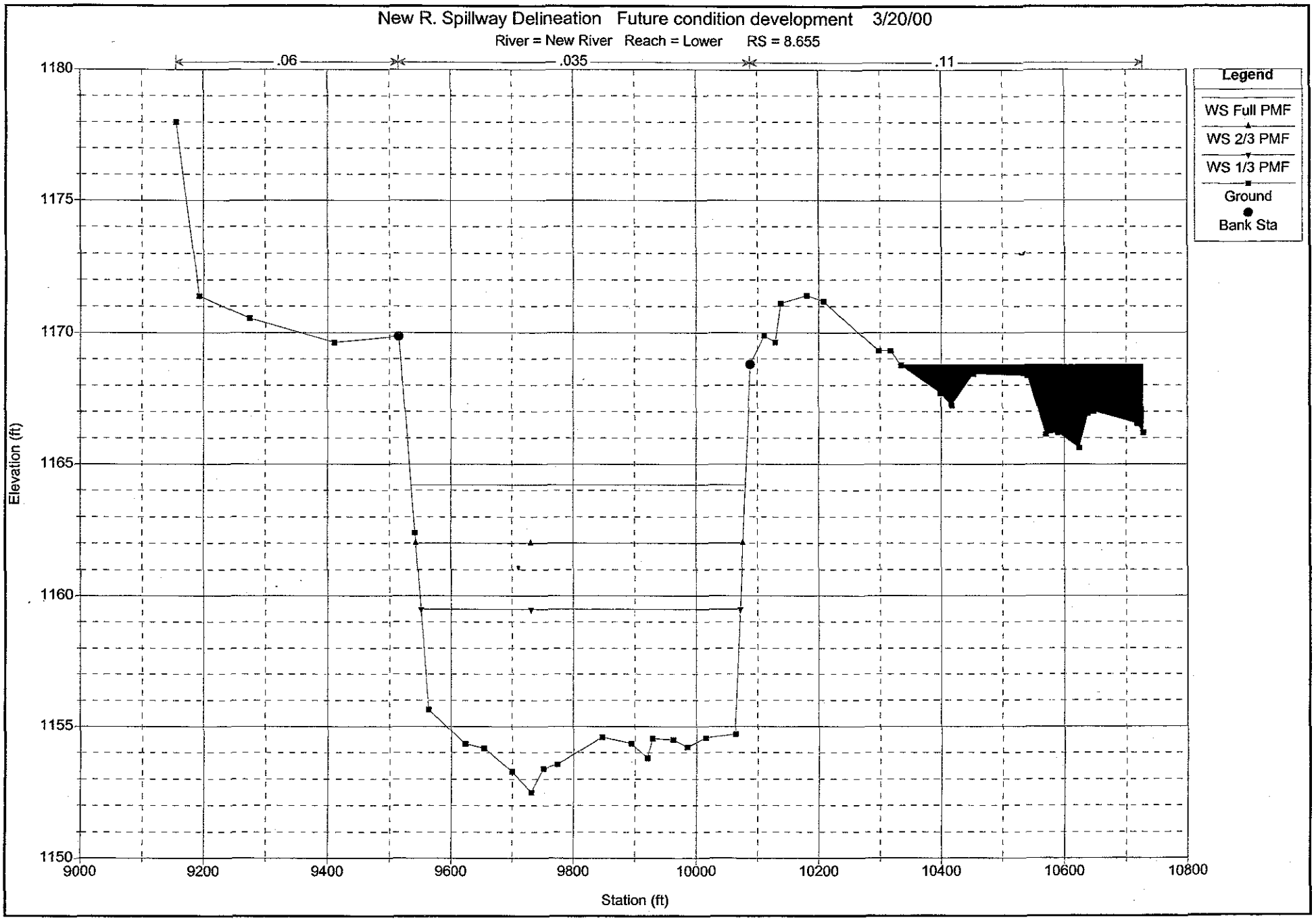

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.977
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
1160
9500
10000
10500
11000
11500
Station (ft)

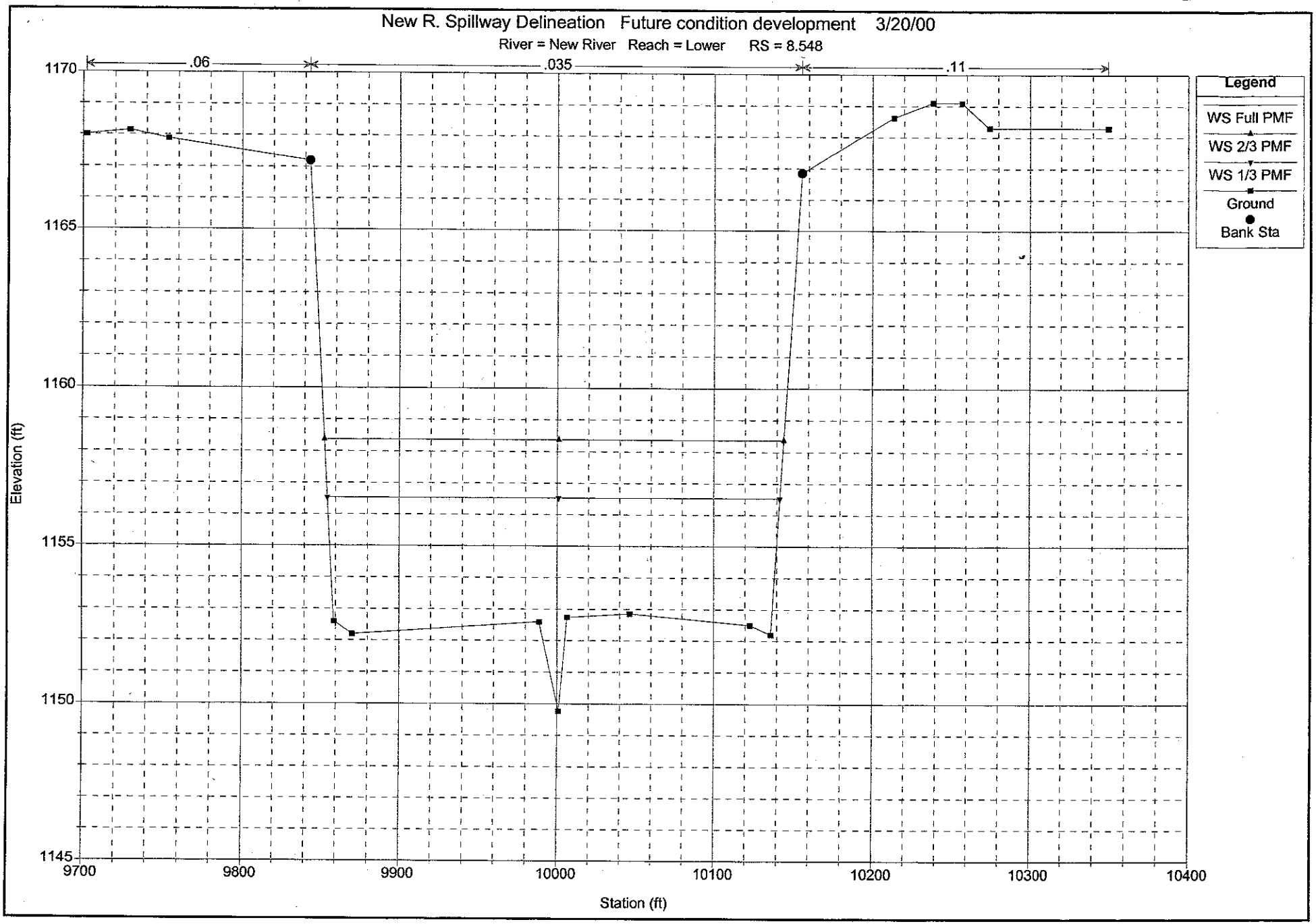

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.936
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
1160
1155
9500
10000
10500
11000
11500
Station (ft)

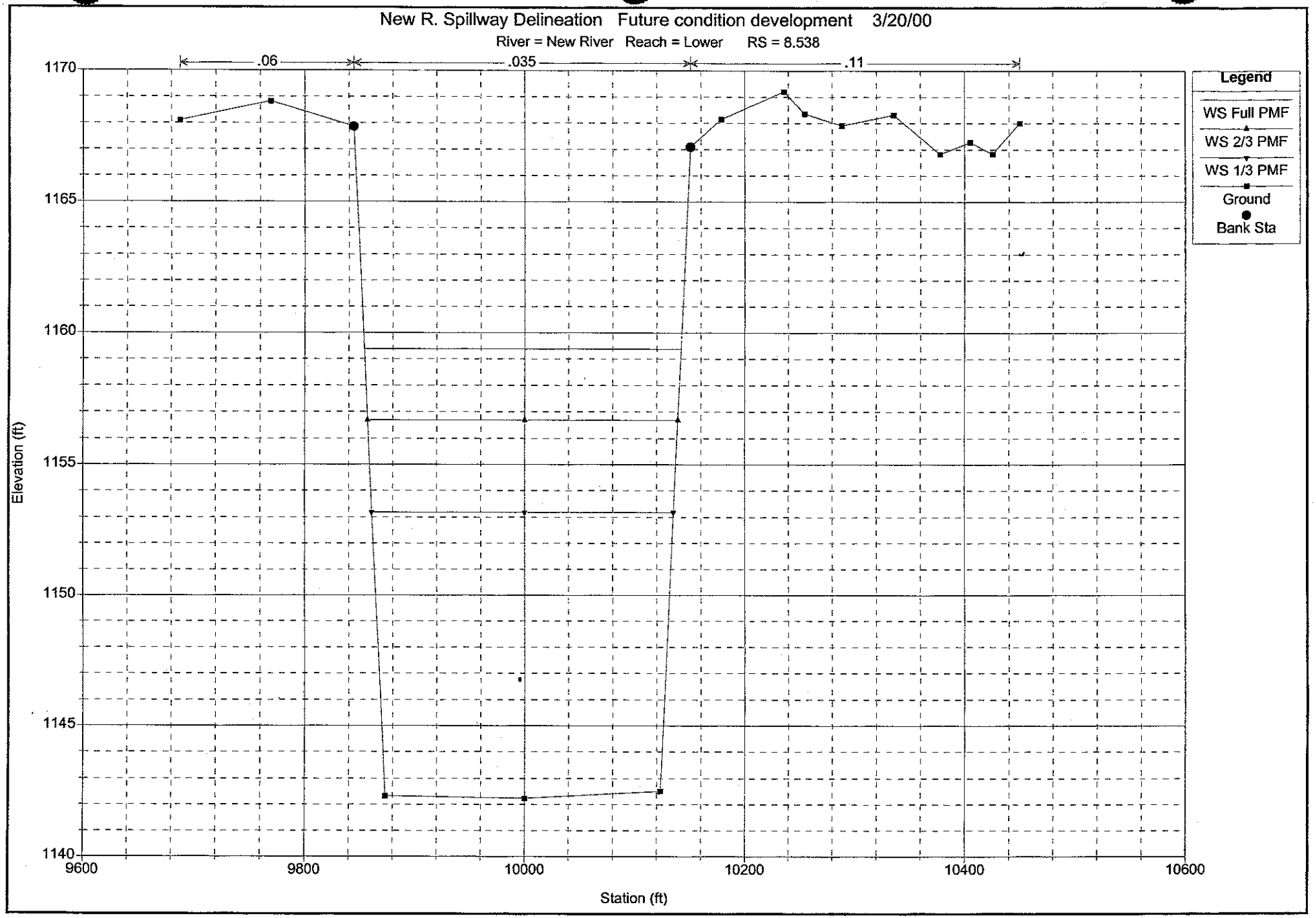

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.883
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1180
1175
1170
1165
1160
1155
9000
9500
10000
10500
11000
11500
Station (ft)

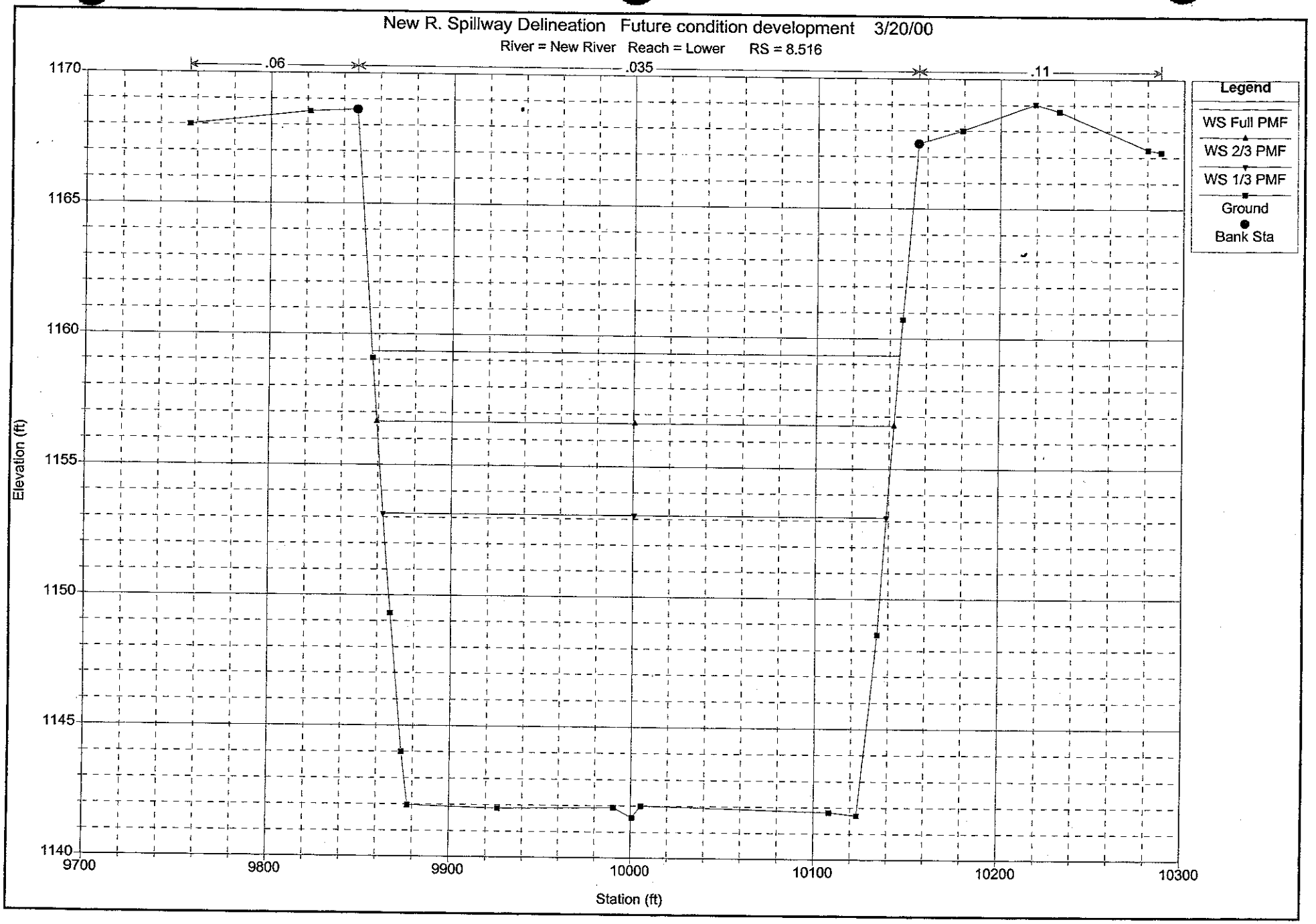

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.807
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1180
1175
1170
1165
1160
1155
9000
9500
10000
10500
11000
11500
Station (ft)

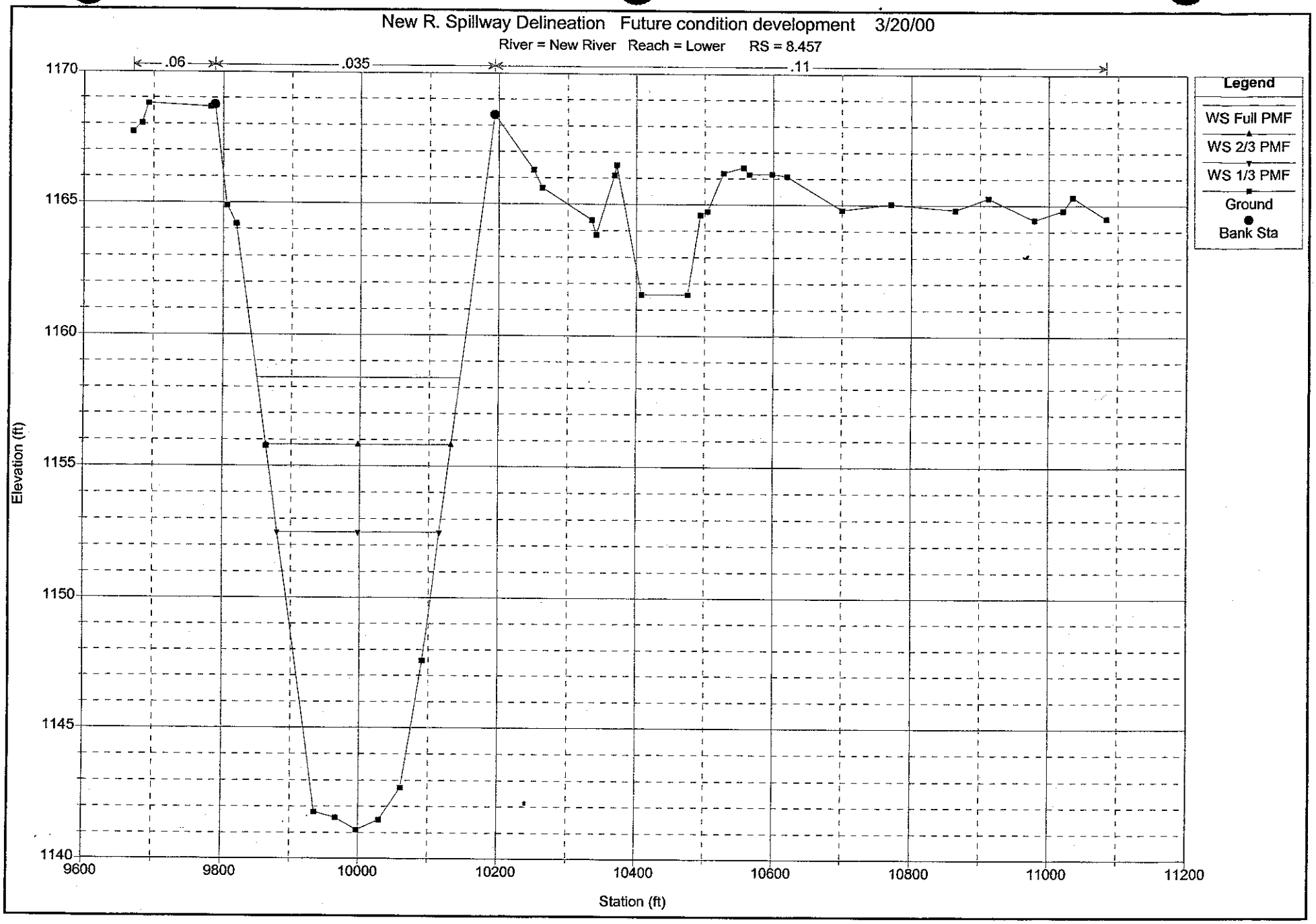

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.731
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1185
1180
1175
1170
1165
1160
1155
1150
9200
9400
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)

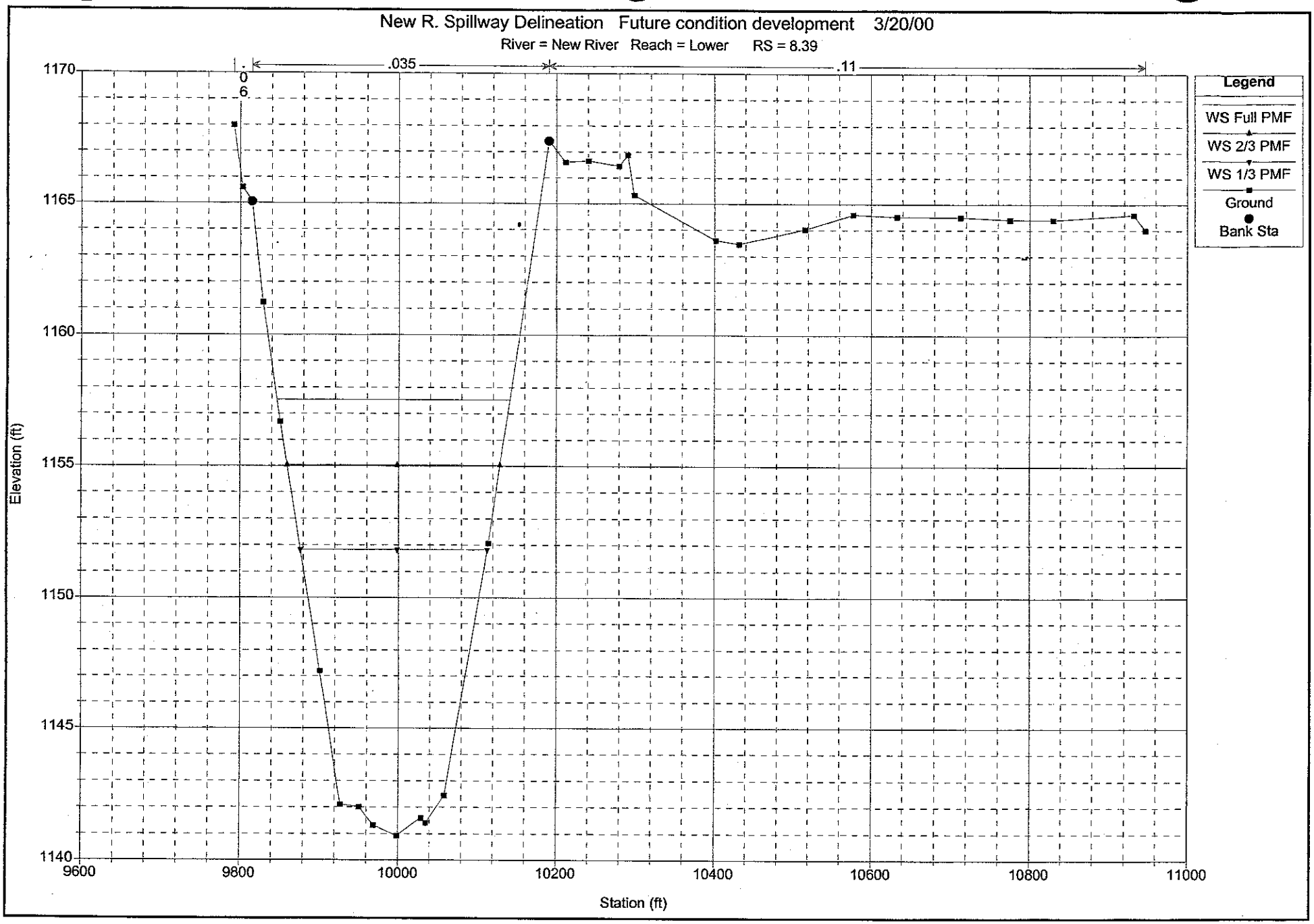

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.655
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1180
1175
1170
1165
1160
1155
1150
9000
9200
9400
9600
9800
10000
10200
10400
10600
10800
Station (ft)

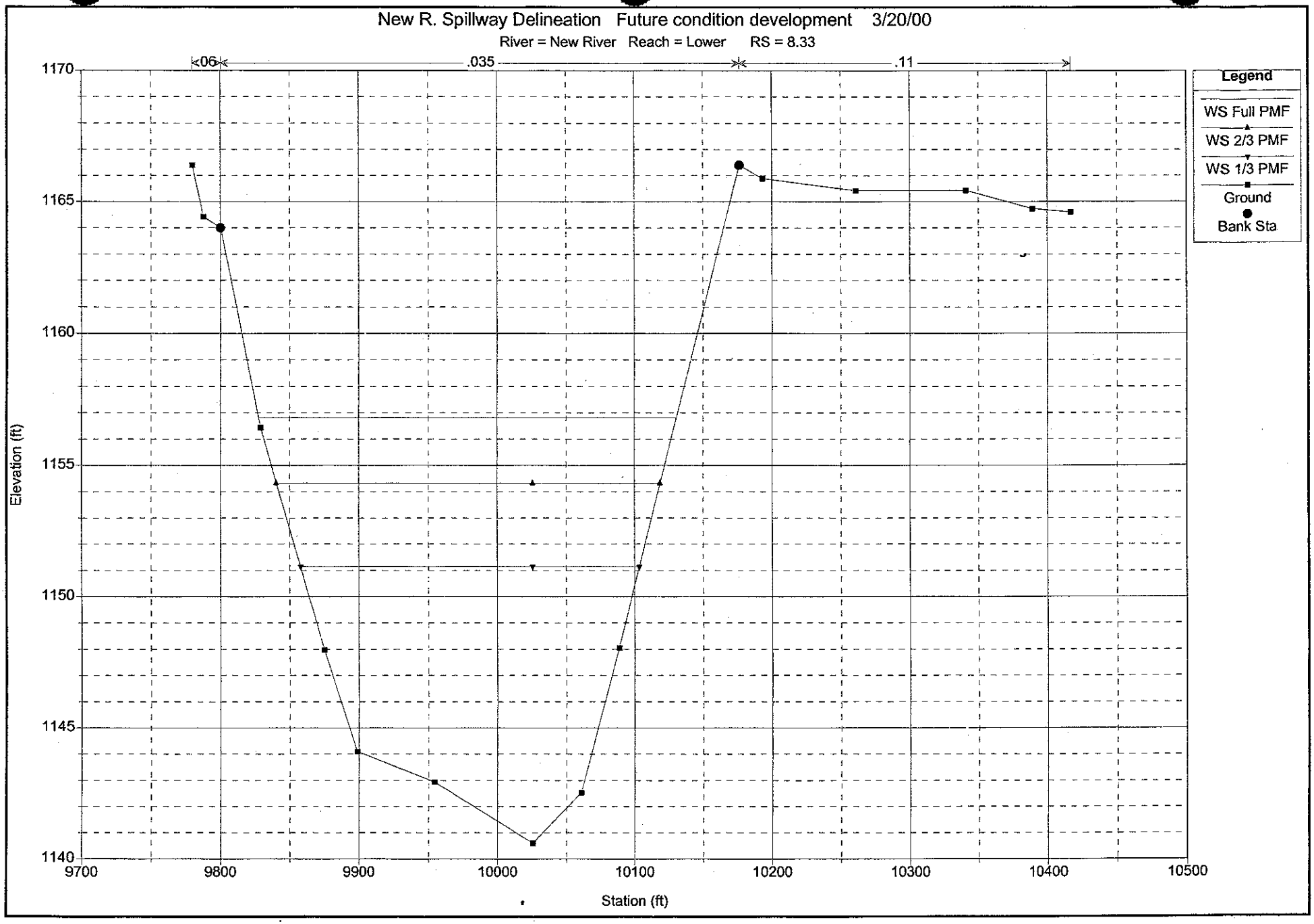

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.548
.06
.035
.11
1170
1165
1160
1155
1150
1145
Elevation (ft)
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta

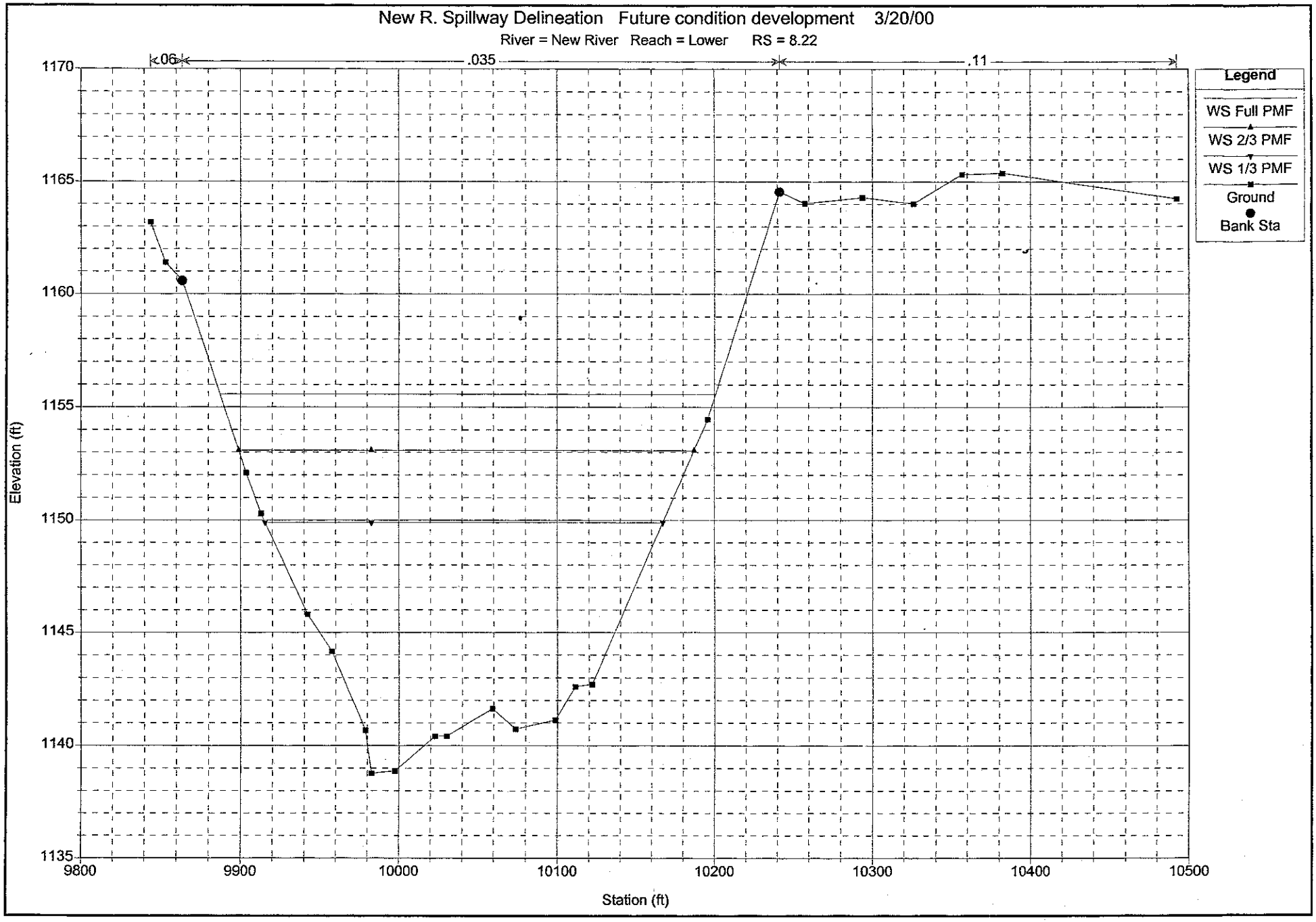

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.538
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1170
1165
1160
1155
1150
1145
1140
9600
9800
10000
10200
10400
10600
Station (ft)

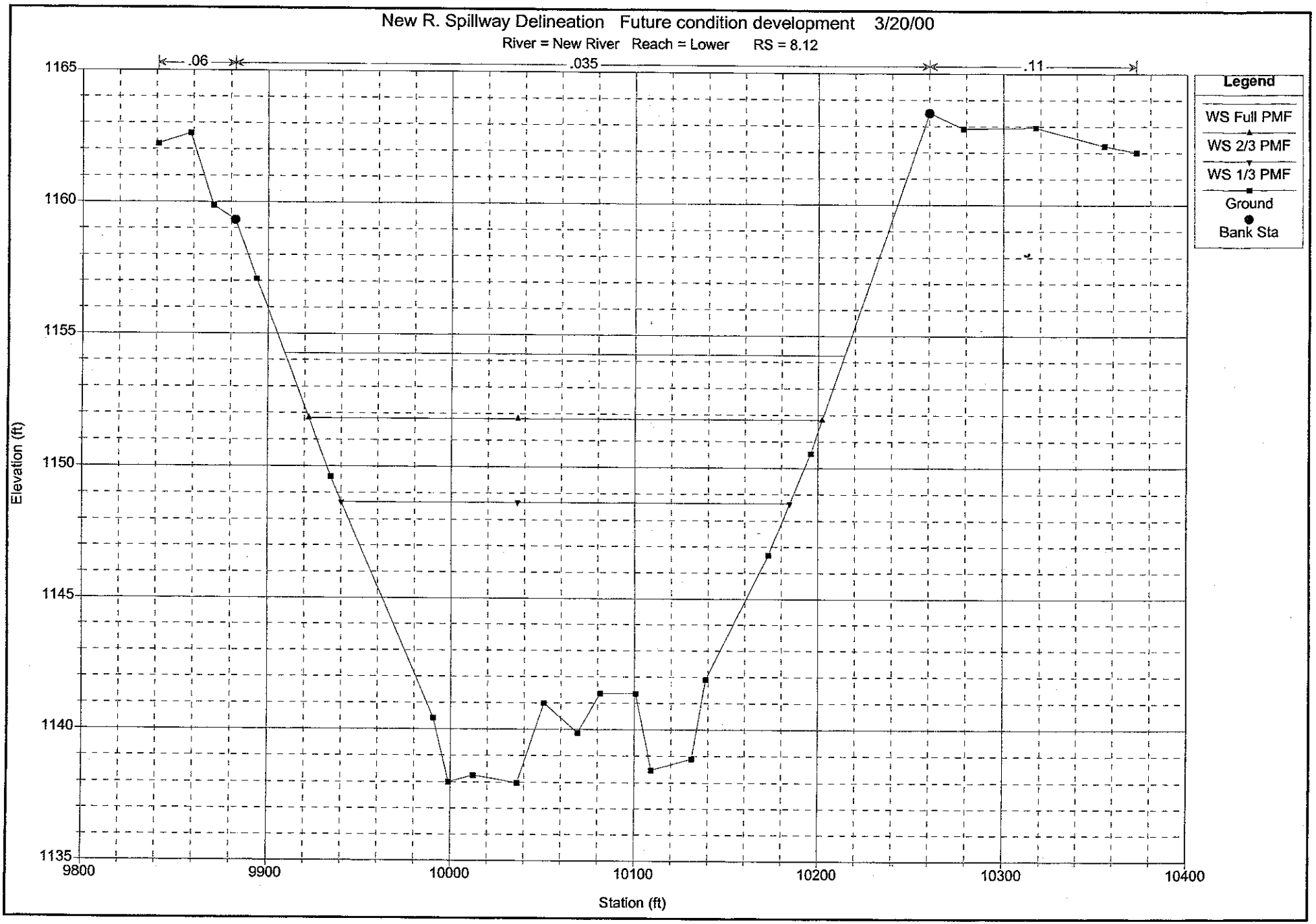

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.516
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1170
1165
1160
1155
1150
1145
1140
9700
9800
9900
10000
10100
10200
10300
Station (ft)

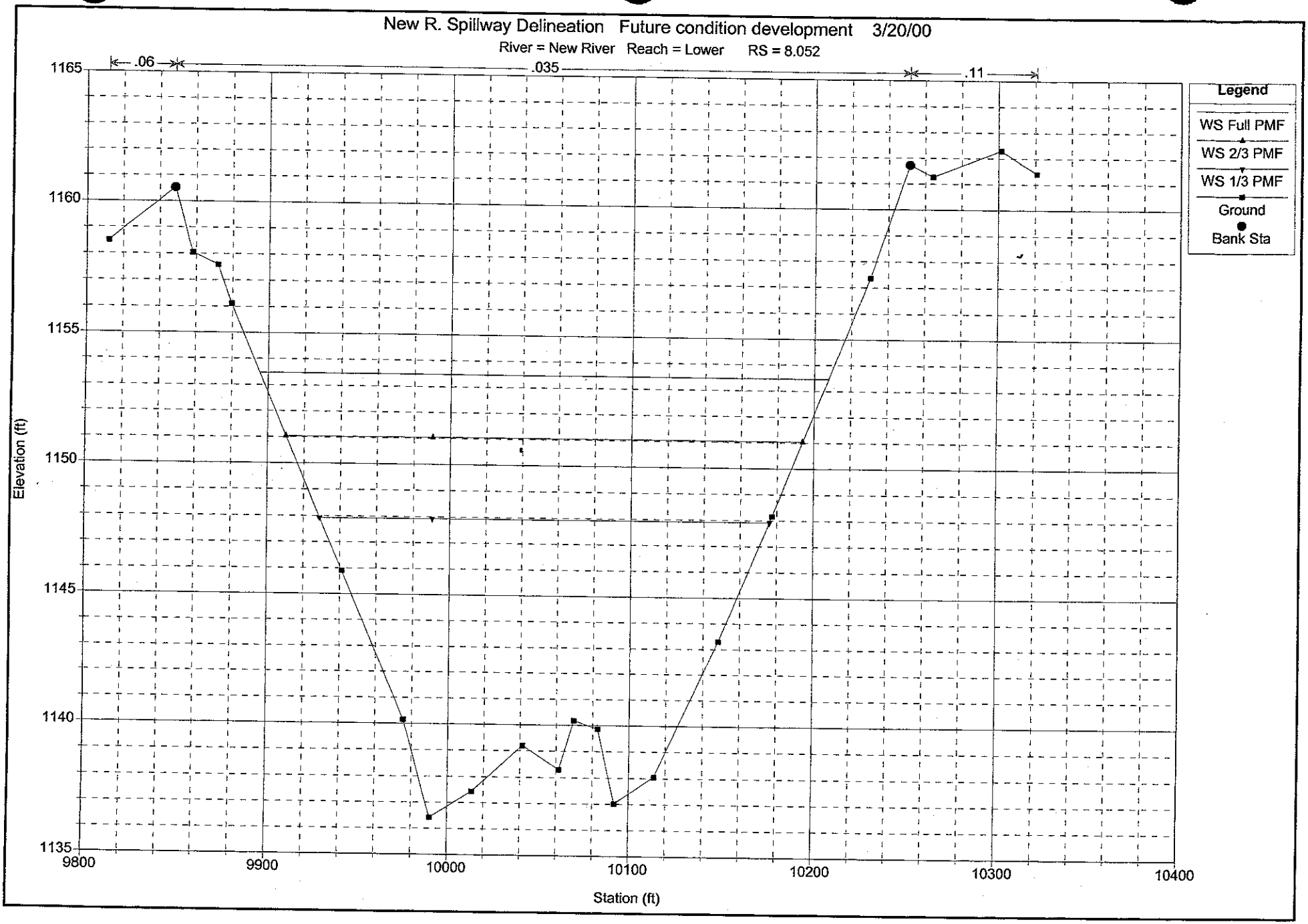

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.457
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1170
1165
1160
1155
1150
1145
1140
9600
9800
10000
10200
10400
10600
10800
11000
11200
Station (ft)

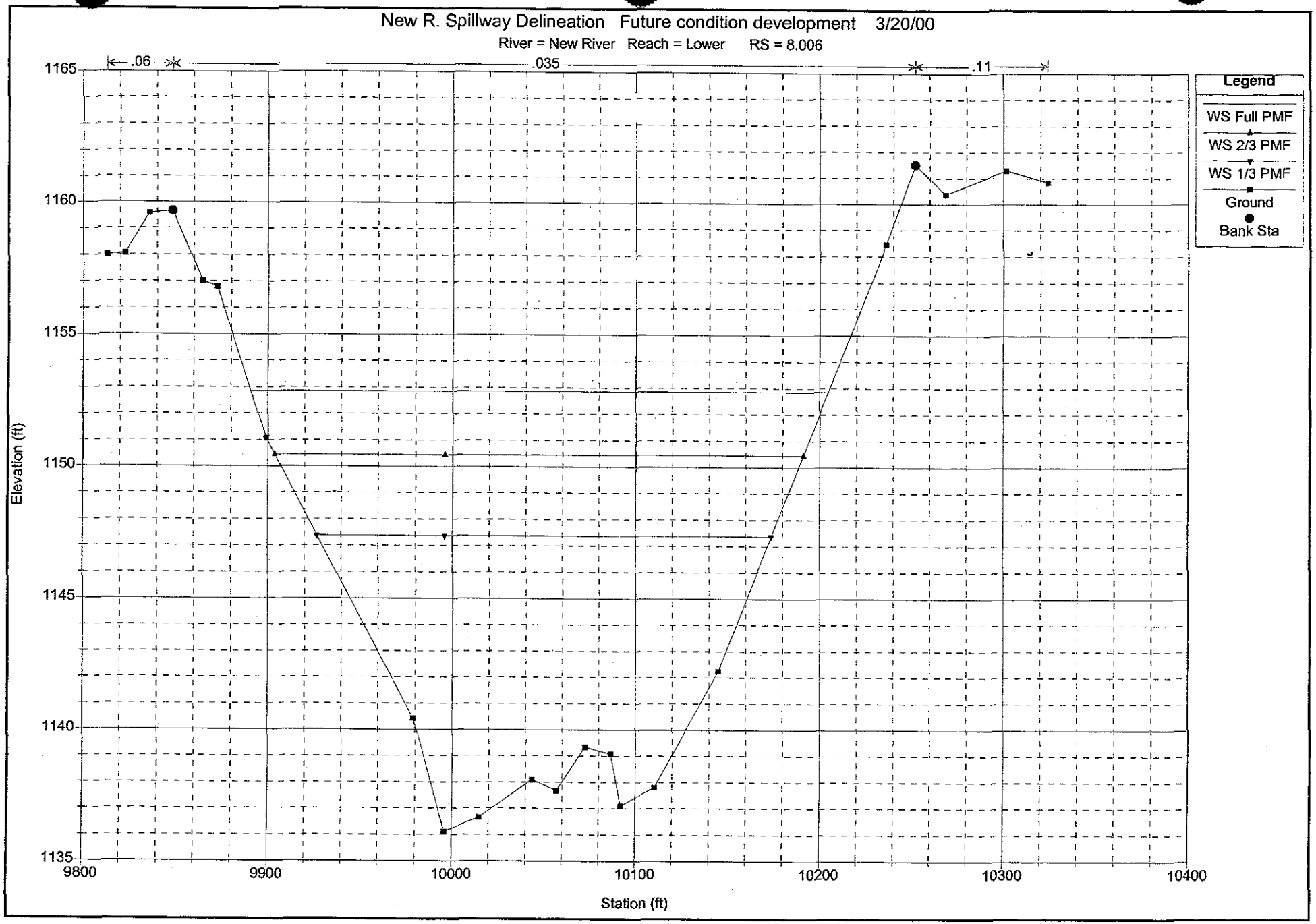

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.39
.035
.11
0
6
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1170
1165
1160
1155
1150
1145
1140
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)

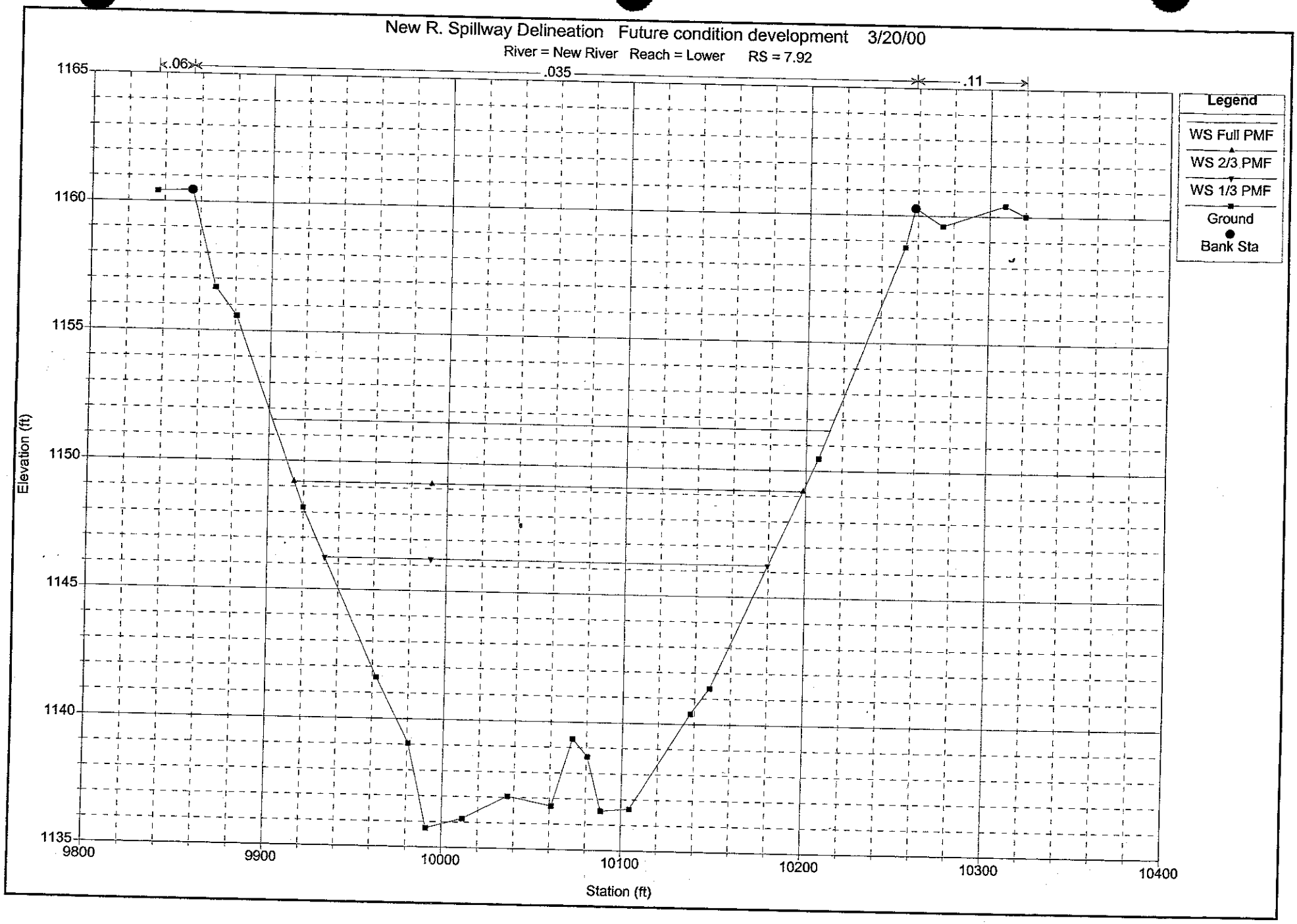

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.33
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1170
1165
1160
1155
1150
1145
1140
9700
9800
9900
10000
10100
10200
10300
10400
10500
Station (ft)

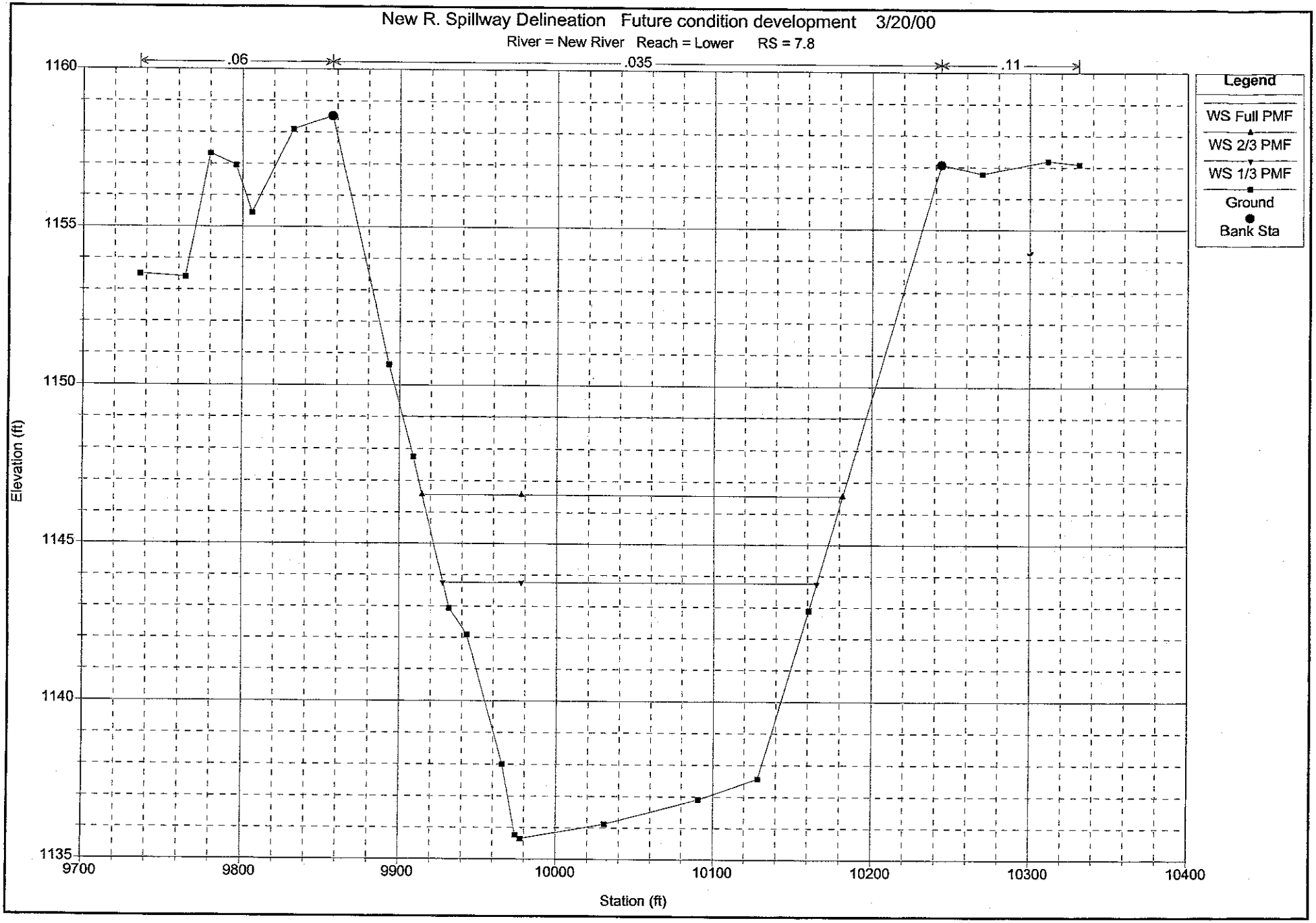

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.22
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1170
1165
1160
1155
1150
1145
1140
1135
9800
9900
10000
10100
10200
10300
10400
10500
Station (ft)

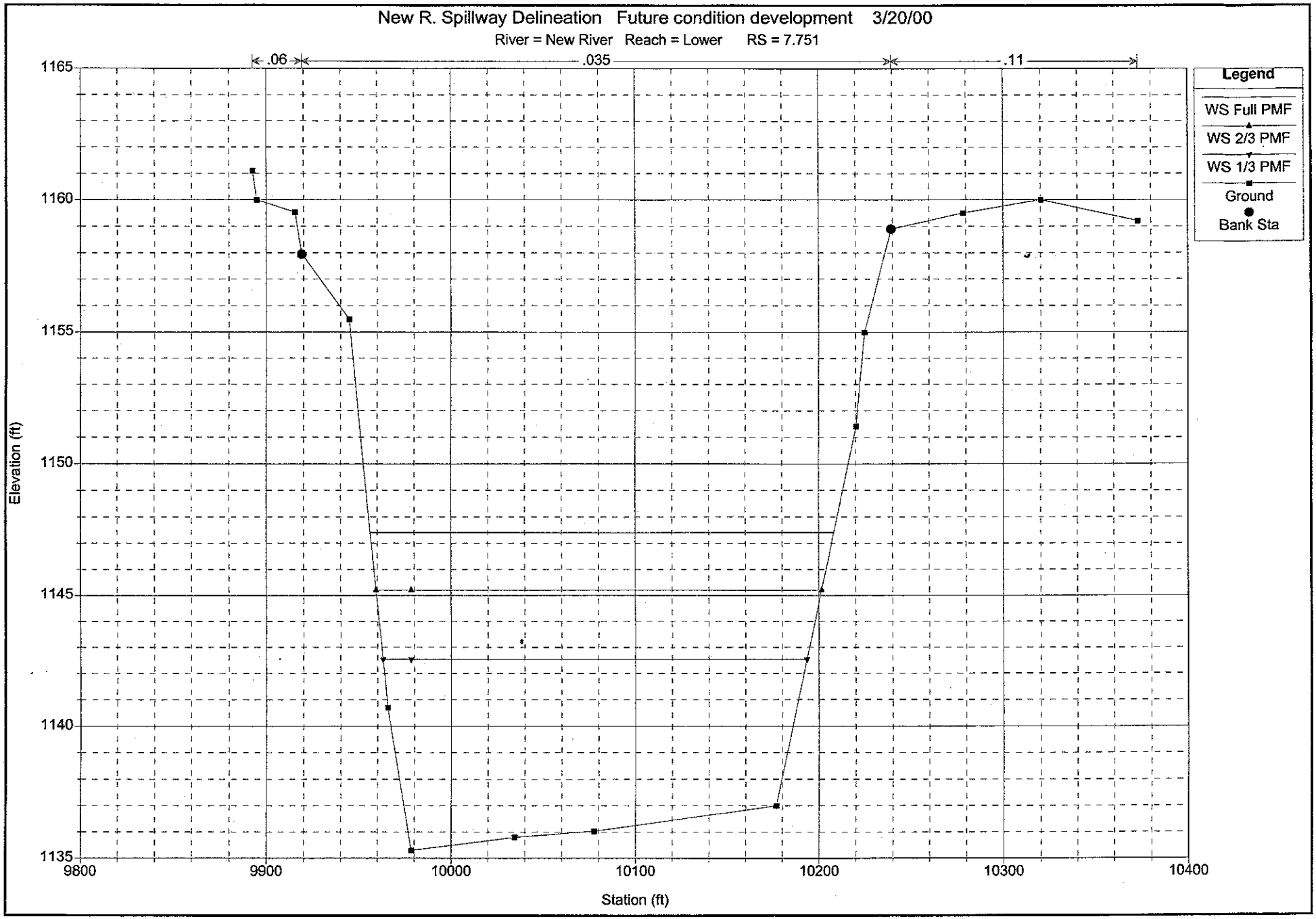

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.12
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1165
1160
1155
1150
1145
1140
1135
9800
9900
10000
10100
10200
10300
10400
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.052
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1165
1160
1155
1150
1145
1140
1135
9800
9900
10000
10100
10200
10300
10400
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 8.006
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1165
1160
1155
1150
1145
1140
1135
9800
9900
10000
10100
10200
10300
10400
Station (ft)

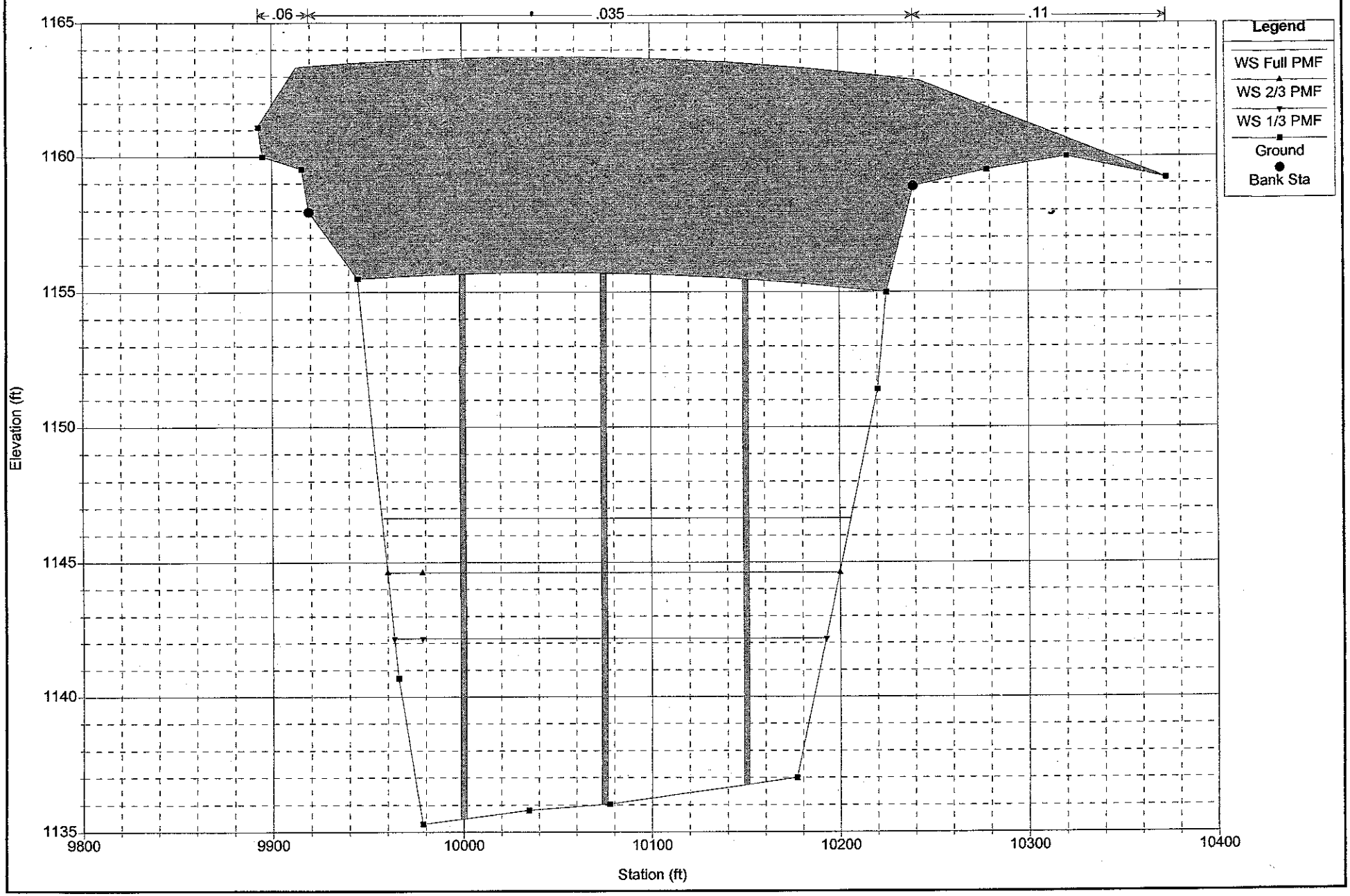

New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 7.92
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1165
1160
1155
1150
1145
1140
1135
9800
9900
10000
10100
10200
10300
10400
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 7.8
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1160
1155
1150
1145
1140
1135
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = New River Reach = Lower RS = 7.751
.06
.035
.11
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1165
1160
1155
1150
1145
1140
1135
9800
9900
10000
10100
10200
10300
10400
Station (ft)

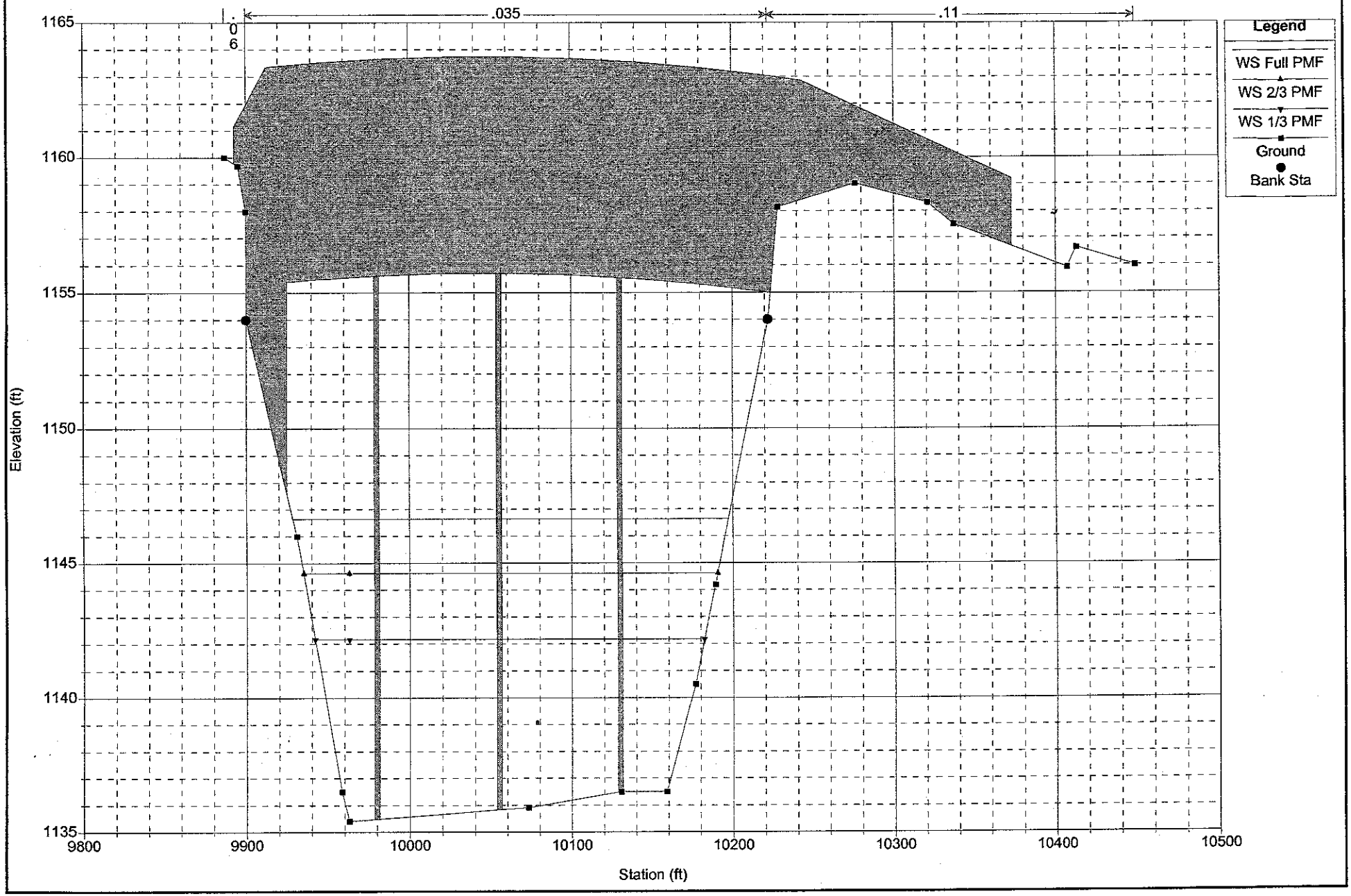
New R. Spillway Delineation Future condition development 3/20/00

River = New River Reach = Lower RS = 7.7395



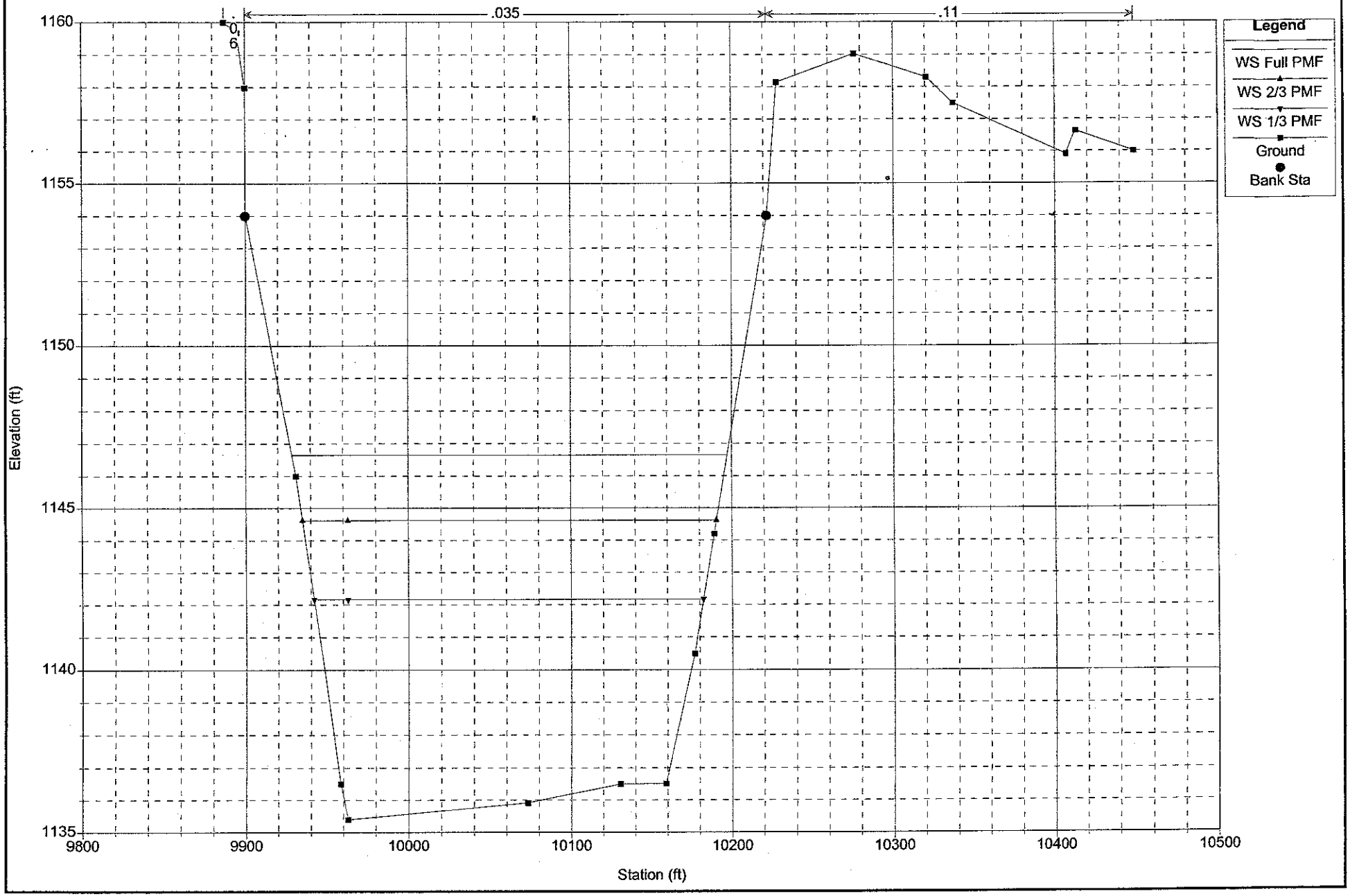
New R. Spillway Delineation Future condition development 3/20/00

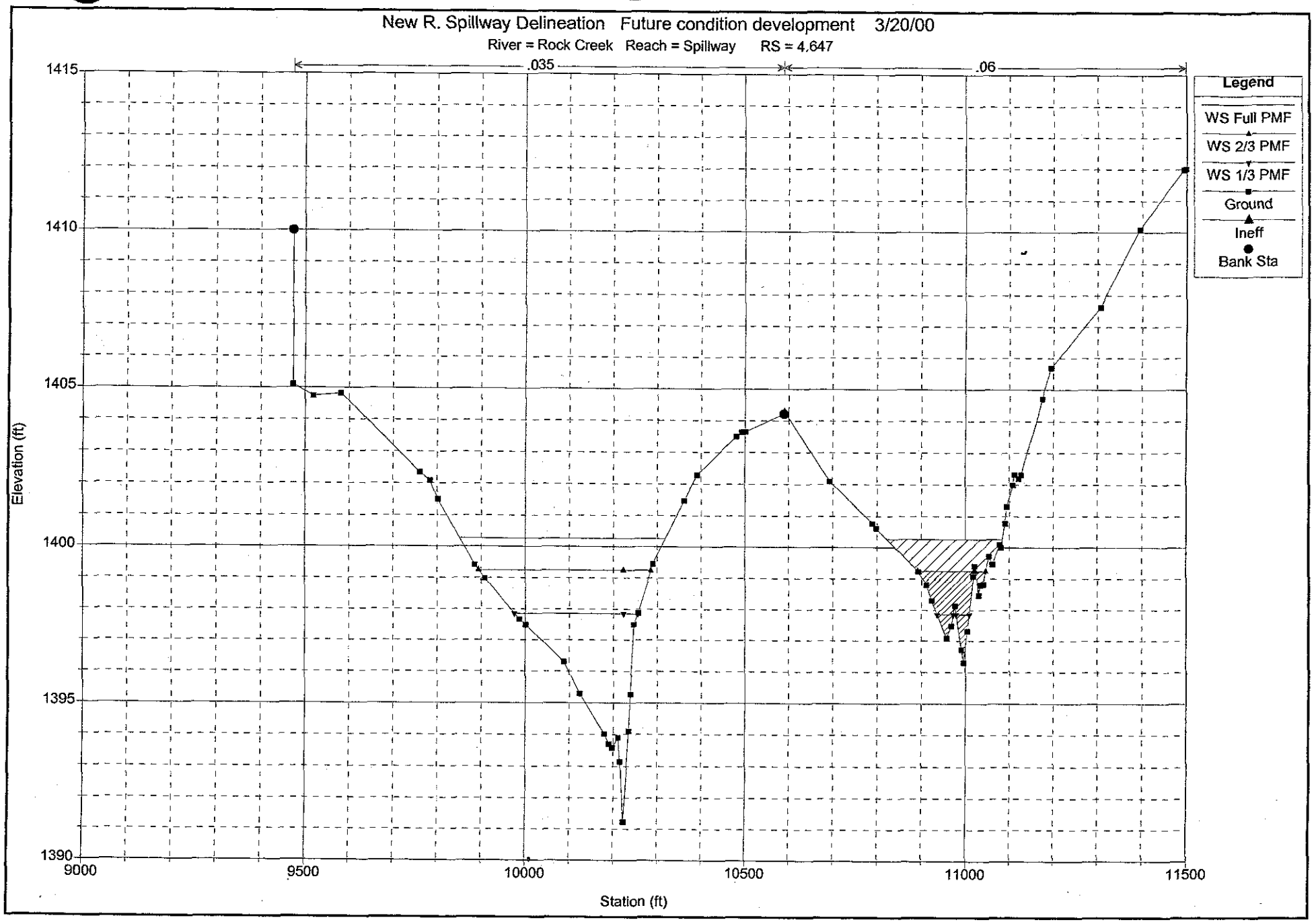
River = New River Reach = Lower RS = 7.7395

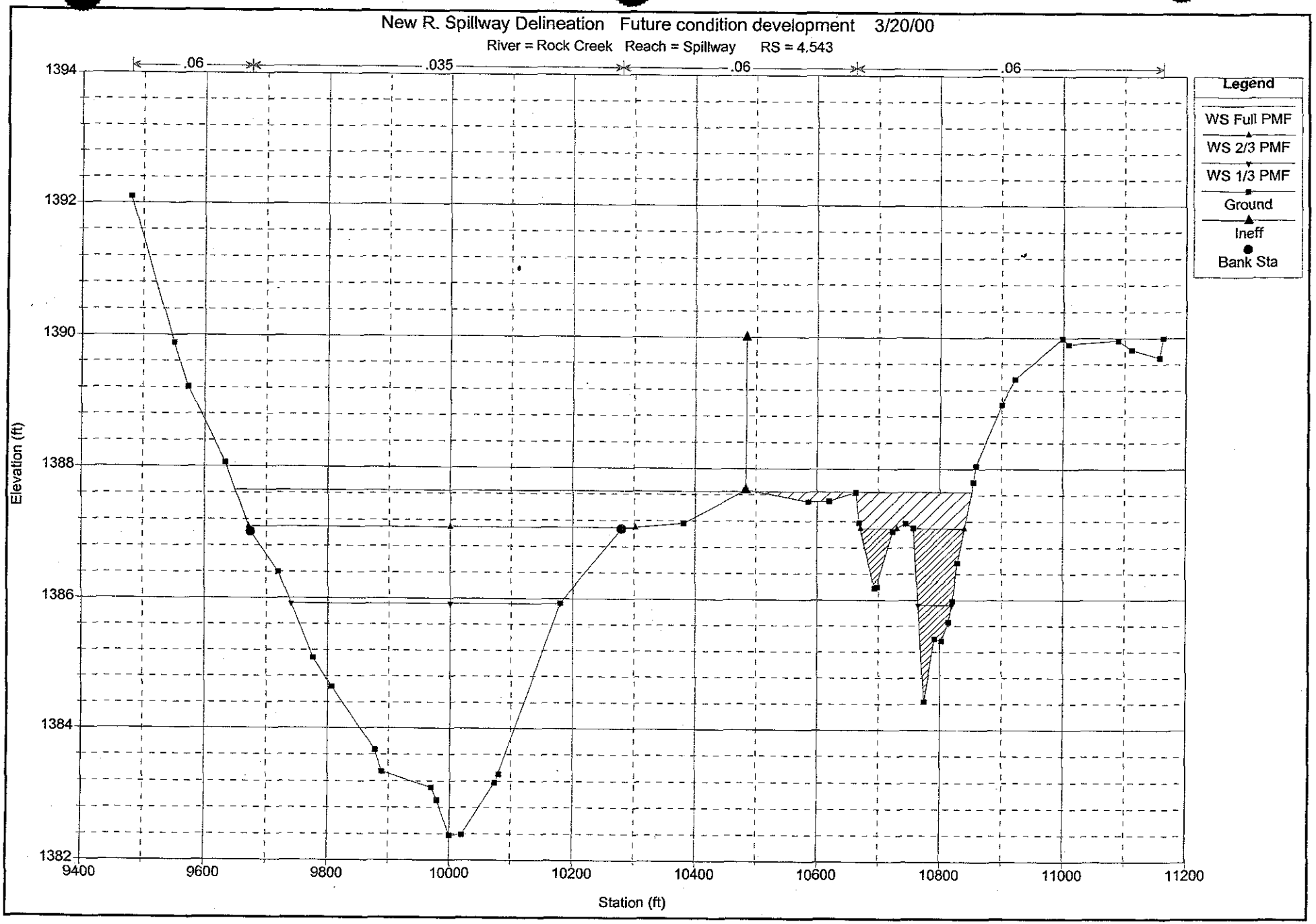


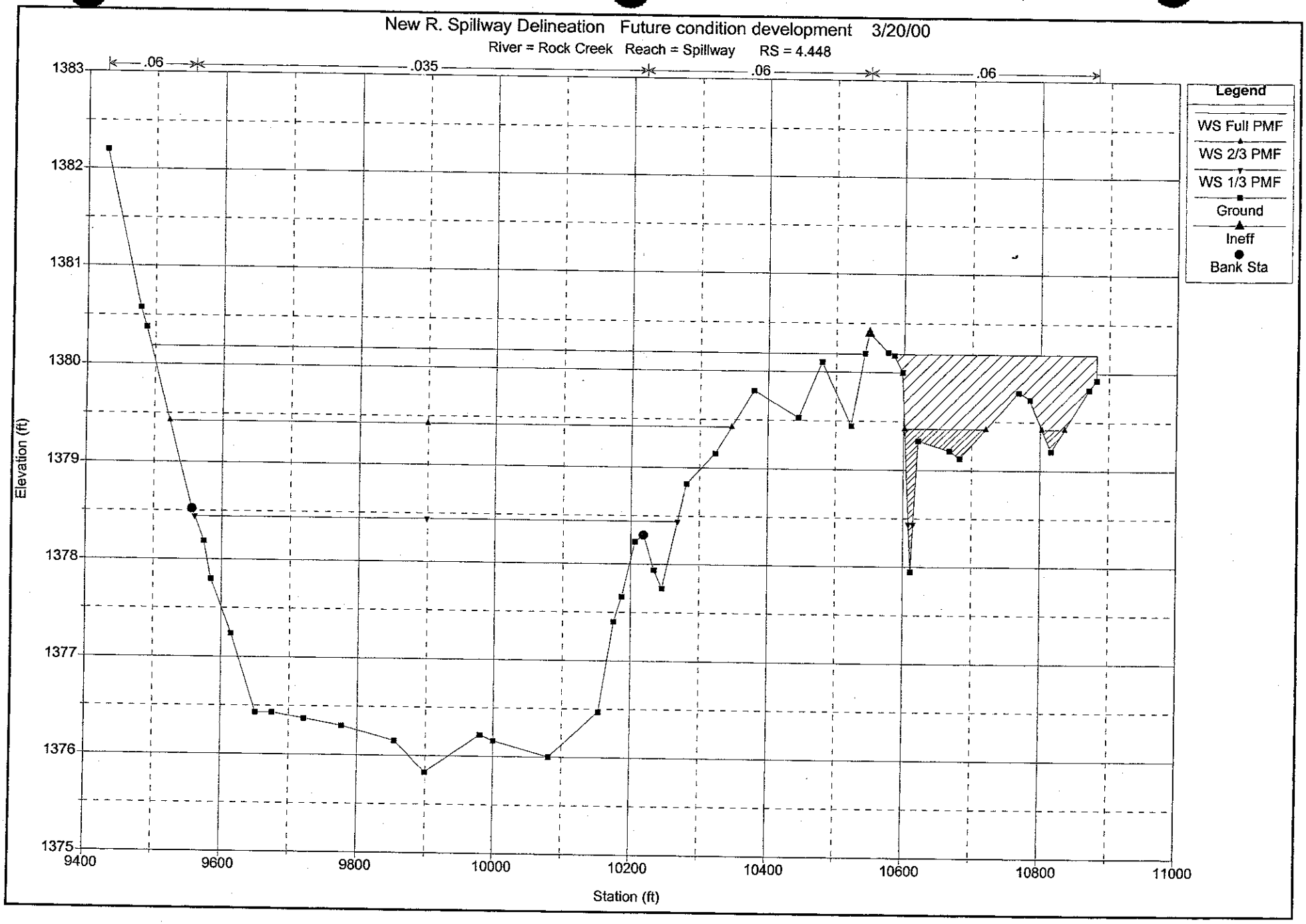
New R. Spillway Delineation Future condition development 3/20/00

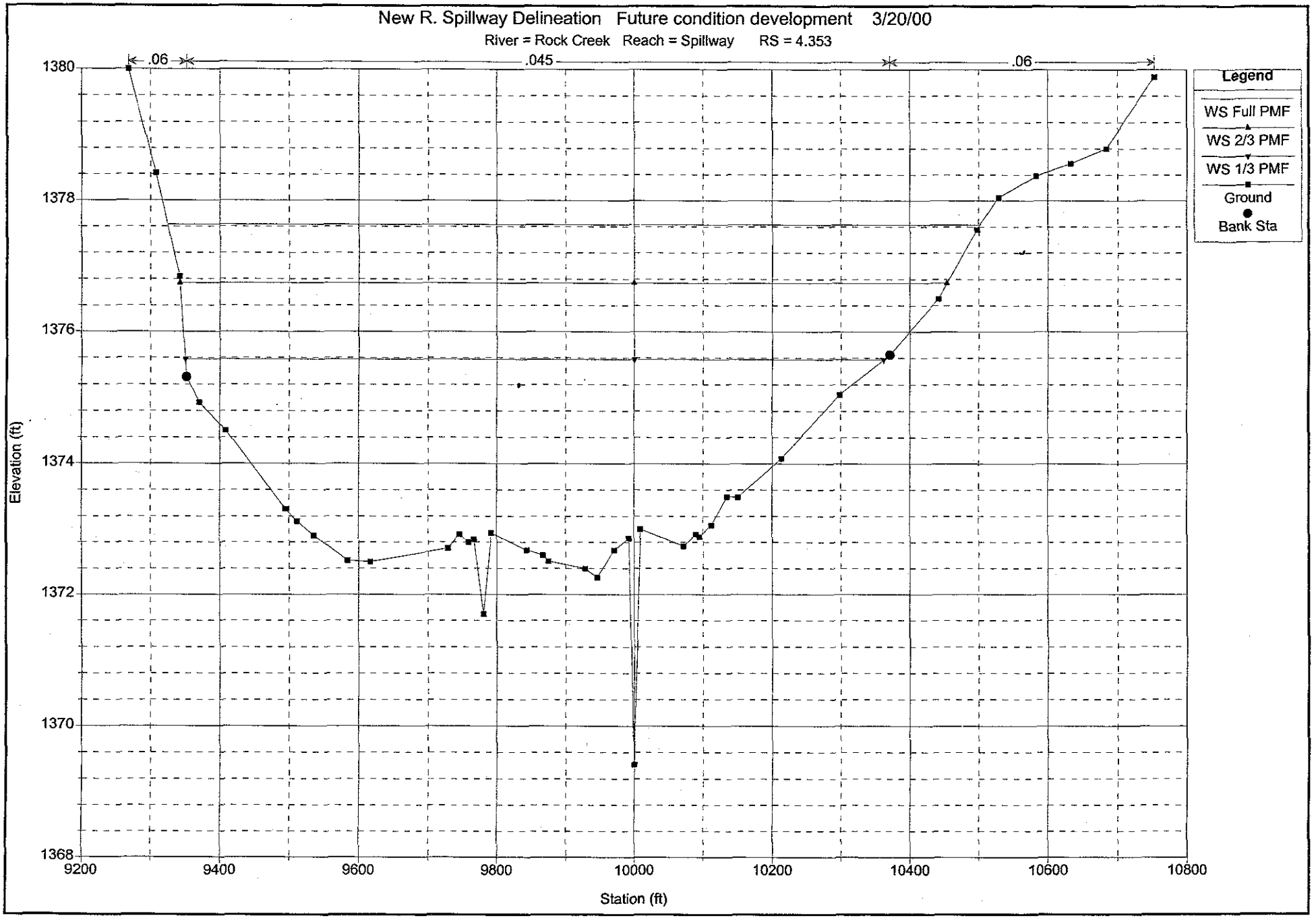
River = New River Reach = Lower RS = 7.728

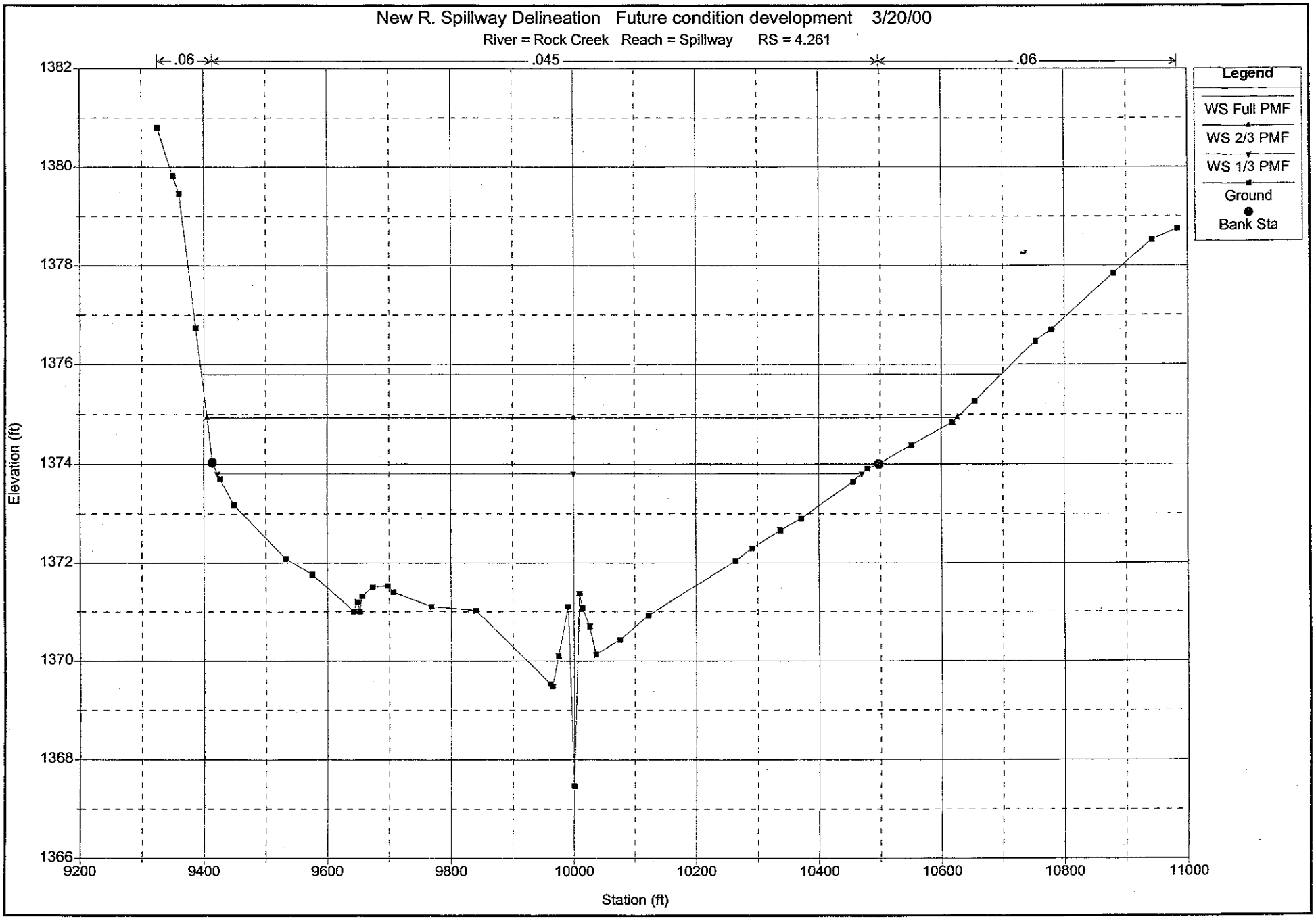


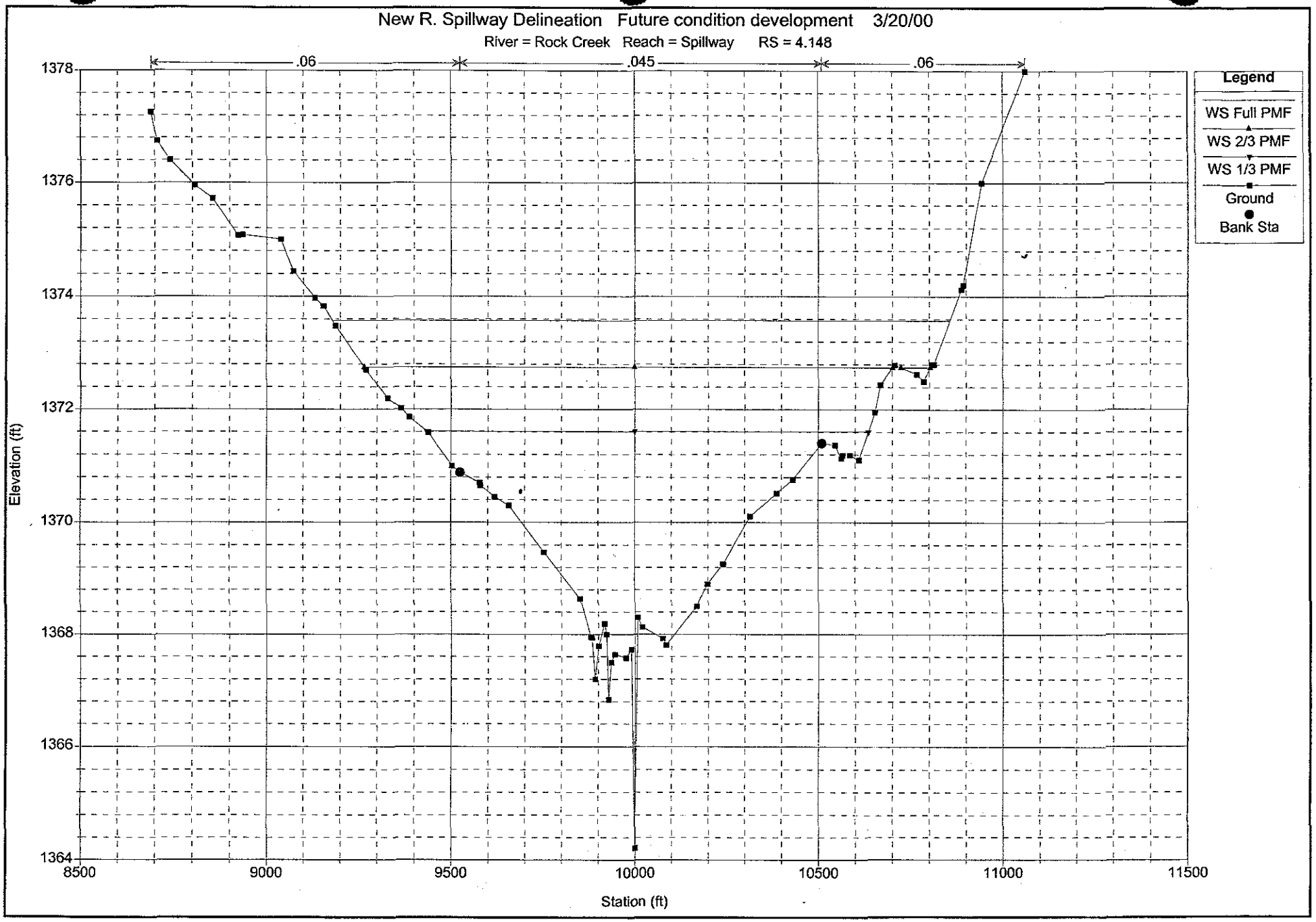

New R. Spillway Delineation Future condition development 3/20/00
River = Rock Creek Reach = Spillway RS = 4,647
.035
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1415
1410
1405
1400
1395
1390
9000
9500
10000
10500
11000
11500
Station (ft)

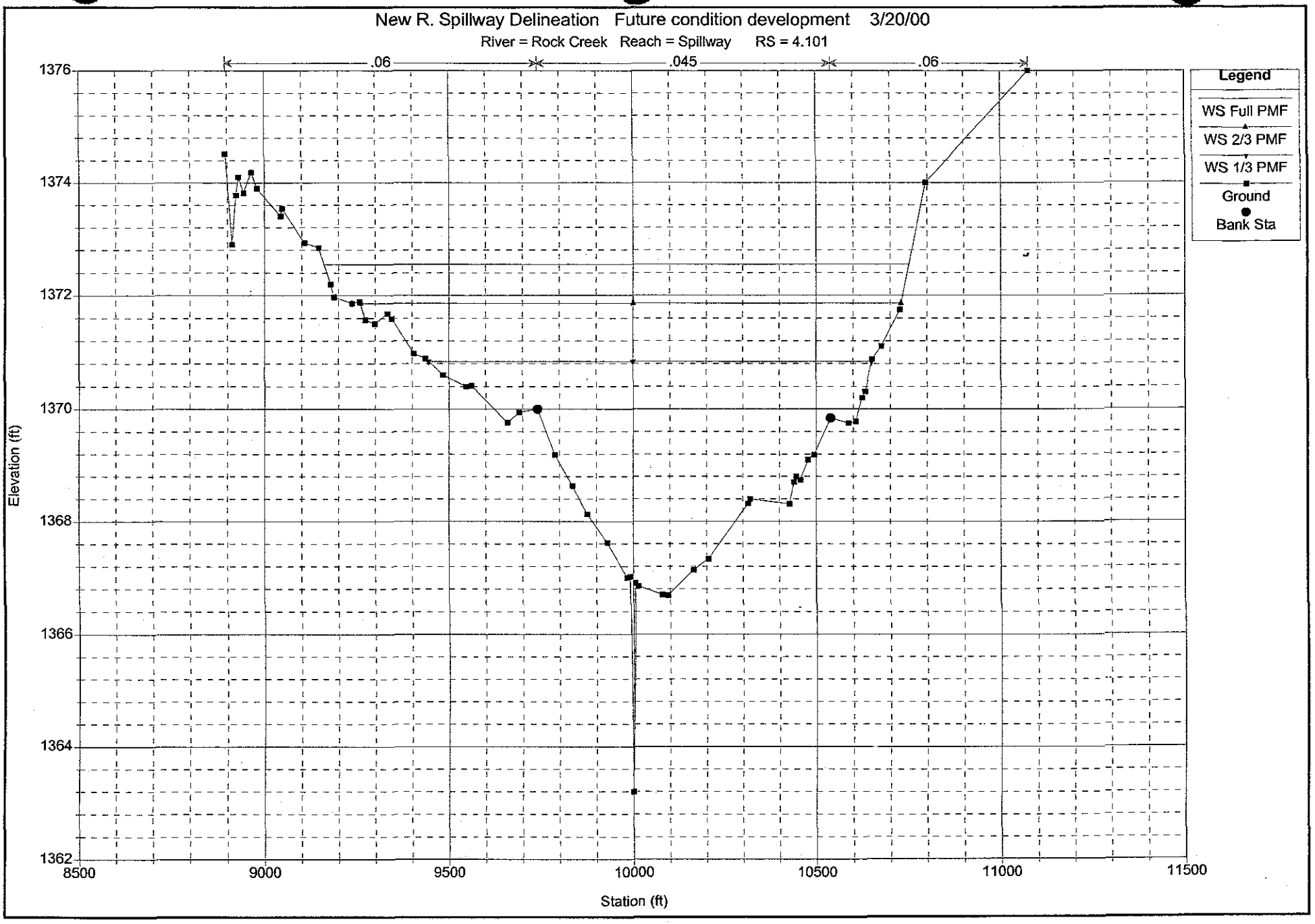

New R. Spillway Delineation Future condition development 3/20/00
River = Rock Creek Reach = Spillway RS = 4.543
.06
.035
.06
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1394
1392
1390
1388
1386
1384
1382
9400
9600
9800
10000
10200
10400
10600
10800
11000
11200
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = Rock Creek Reach = Spillway RS = 4.448
.06
.035
.06
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Ineff
Bank Sta
Elevation (ft)
1383
1382
1381
1380
1379
1378
1377
1376
1375
9400
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = Rock Creek Reach = Spillway RS = 4.353
.06
.045
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1380
1378
1376
1374
1372
1370
1368
9200
9400
9600
9800
10000
10200
10400
10600
10800
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = Rock Creek Reach = Spillway RS = 4.261
.06
.045
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1382
1380
1378
1376
1374
1372
1370
1368
1366
9200
9400
9600
9800
10000
10200
10400
10600
10800
11000
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = Rock Creek Reach = Spillway RS = 4.148
.06
.045
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1378
1376
1374
1372
1370
1368
1366
1364
8500
9000
9500
10000
10500
11000
11500
Station (ft)


New R. Spillway Delineation Future condition development 3/20/00
River = Rock Creek Reach = Spillway RS = 4.101
.06
.045
.06
Legend
WS Full PMF
WS 2/3 PMF
WS 1/3 PMF
Ground
Bank Sta
Elevation (ft)
1376
1374
1372
1370
1368
1366
1364
1362
8500
9000
9500
10000
10500
11000
11500
Station (ft)

Community: Glendale, Arizona
Peoria, Arizona
County: Maricopa
State: Arizona

Study Contractor: Stantec Consulting, Inc.
Patrick Ellison, P.E.
7776 Pointe Parkway West, Suite 290
Phoenix, AZ 85044
602-438-2200

****

New River Dam
Spillway Inundation Study
FCD: 97-04

Flood Control District of Maricopa County

****

Future and existing condition HEC-RAS models are developed for New River from the confluence with Skunk Creek to the New River Dam. Inundation limits are based on the future condition model. The existing condition model is for reference purposes only.

Future Condition HEC-RAS model file information

File Name	File Type	File Date
Pmf.prj	Project	20 March, 2000
Pmf.p02	Plan	20 March, 2000
Pmf.g01	Geometry	20 March, 2000
Pmf.f01	Steady flow	20 March, 2000
Pmf.r02	Input	20 March, 2000
Pmf.o02*	ASCII output	20 March, 2000
Pmf.rep*	Formatted output	20 March, 2000

Existing Condition HEC-RAS model file information

File Name	File Type	File Date
Expmf.prj	Project	1 October 1999
Expmf.p01	Plan	1 October 1999
Expmf.g05	Geometry	1 October 1999
Expmf.f04	Steady flow	1 October 1999
Expmf.p03	Plan	1 October 1999
Expmf.g01	Geometry	1 October 1999
expmf.f01	Steady flow	1 October 1999

Notes
*: Files are compressed using Winzip

For a complete description of the HEC-RAS model refer to section 4.1.2 of the Technical Data Notebook.

APPENDIX F

HEC-RAS MODELS ON DISKETTE

Community: Glendale, Arizona
Peoria, Arizona
County: Maricopa
State: Arizona

Study Contractor: Stantec Consulting, Inc.
Patrick Ellison, P.E.
8211 S. 48th Street
Phoenix, AZ 85044
602-438-2200

****

New River Dam
Spillway Inundation Study
FCD: 97-04

Flood Control District of Maricopa County

****

Future and existing condition HEC-RAS models are developed for New River from the confluence with Skunk Creek to the New River Dam. Inundation limits are based on the future condition model. The existing condition model is for reference purposes only.

Future Condition HEC-RAS model file information

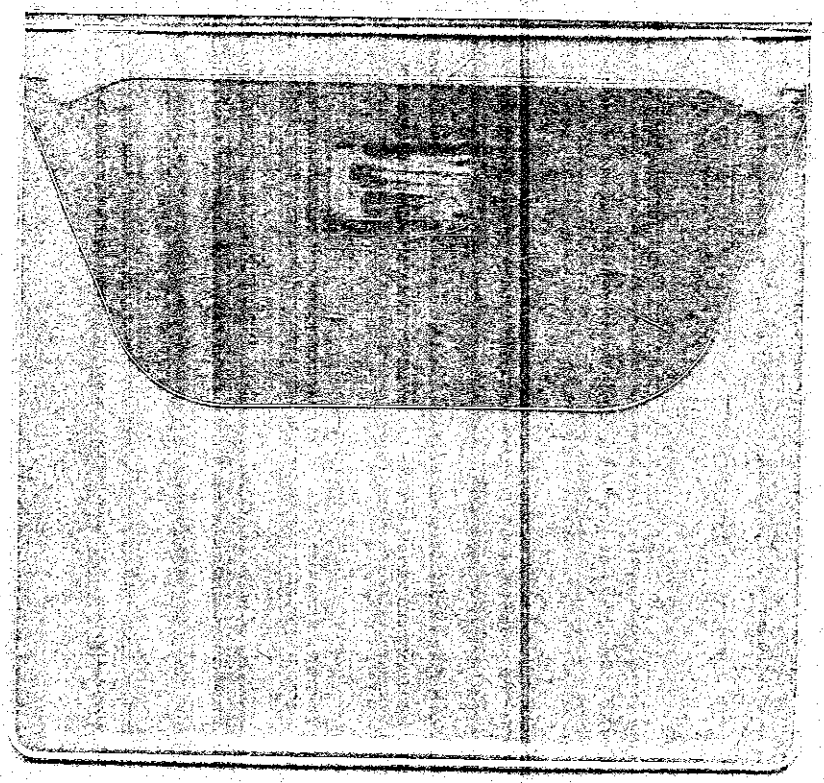
File Name	File Type	File Date
Pmf.prj	Project	29 June, 2000
Pmf.p02	Plan	29 June, 2000
Pmf.g01	Geometry	29 June, 2000
Pmf.f01	Steady flow	29 June, 2000
Pmf.r02	Input	29 June, 2000
Pmf.o02*	ASCII output	29 June, 2000
Pmf.rep*	Formatted output	29 June, 2000

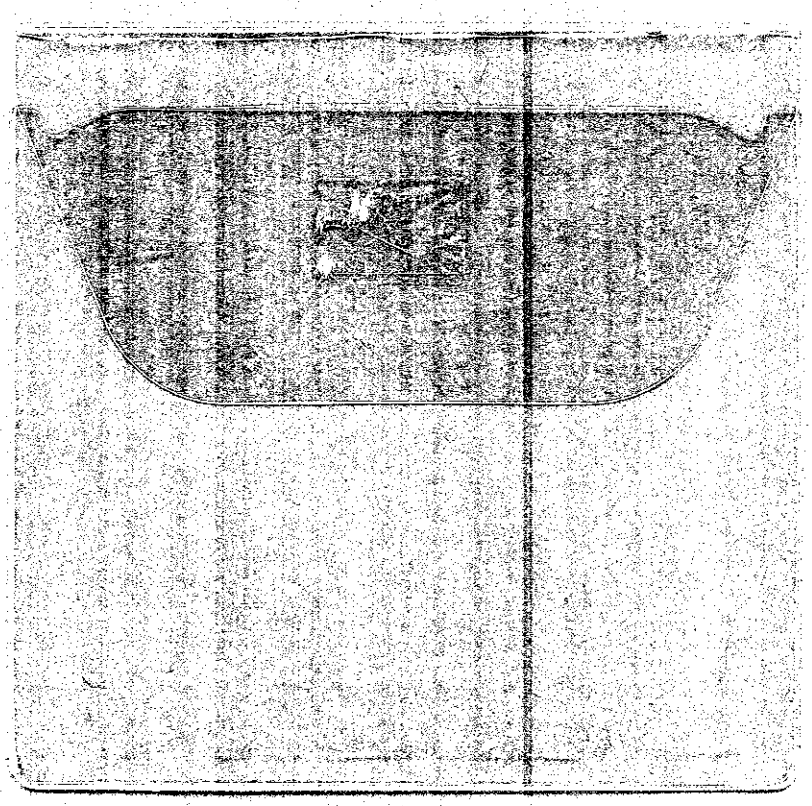
Existing Condition HEC-RAS model file information

File Name	File Type	File Date
Expmf.prj	Project	1 October 1999
Expmf.p01	Plan	1 October 1999
Expmf.g05	Geometry	1 October 1999
Expmf.f04	Steady flow	1 October 1999
Expmf.p03	Plan	1 October 1999
Expmf.g01	Geometry	1 October 1999
expmf.f01	Steady flow	1 October 1999

Notes
*: Files are compressed using Winzip

For a complete description of the HEC-RAS model refer to section 4.1.2 of the Technical Data Notebook.





APPENDIX F

HEC-RAS MODELS ON DISKETTE